

Service
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Service



SHARON PLATFORM 4

Service Manual



TABLE OF CONTENTS

Technical specification	1-1	Blockdiagram	3-1
Connections and controls	1-2	Pinning of ICs	3-2...3-4
Feature overview	1-3	Circuit diagrams	
Accessories	1-3	Supply/Servodriver part.....	4-1
 		Signal processing part.....	4-2
Safety warnings	1-4	Control part	4-3
 		Audio part.....	4-4
Service hints		Printed circuit board	
Repair positions	2-1	Copperside view.....	4-5
Service tools.....	2-1	Componentside view.....	4-6
Training material	2-1	 	
ESD protection equipment	2-1	Exploded view	5-1
Handling chip components.....	2-2	Mechanical partslist	5-1
 		Electrical partslist	6-1...6-3
Service test program	2-3...2-4		
Start-up procedure.....	2-5		
Fault finding guide	2-5...2-9		



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TECHNICAL SPECIFICATION

General

Dimensions (WxHxD)	: 134x30.5x154mm
Weight without batteries	: 250g

Power supply modes

DC-in socket	: 4.5-5.5V
Battery 2xLR6	: 1.8-3.6V
Accu-pack AY3360 (NiMH)	: 1.8-3.6V
Accu-pack AY3361 (NiCd)	: 1.8-3.6V

Battery lifetime

BATTERY TYPE	ESA OFF	ESA ON
Alkaline battery (2xLR6)	>3.75hrs 5.5hrs typ.	>2.75hrs 4.5hrs typ.
Accu-pack AY3360 (NiMH, 1200mAh)	>3.0hrs 4.0hrs typ.	>2.5hrs 3.5hrs typ.
Accu-pack AY3361 (NiCd, 700mAh)	>1.8hrs 2.25hrs typ.	>1.5hrs 2.0hrs typ.

Battery empty detection

Battery weak level	: 2.1V nom. \pm 150mV
Battery empty level	: 1.9V nom. \pm 100mV

Charge circuit

Charge current	: 300mA \pm 10%
Charge time for 80%	: 4hrs nom.
Max. charge time (μ P controlled)	: 6hrs nom.
Temperature protection	: 50°C \pm 5°C

Current consumption (DC-in=4.5V, excl. illumination)

OPERATION	ESA OFF	ESA ON
Play-mode	<270mA 210mA typ.	<285mA 220mA typ.
Jump-mode	<680mA 485mA typ.	<680mA 525mA typ.
Stand-by (excl. recharge)	<120mA 100mA typ.	

Current consumption (Batt. supply=2.25V, excl. illumin.)

OPERATION	ESA OFF	ESA ON
Play-mode	<350mA 270mA typ.	<410mA 315mA typ.
Jump-mode	<680mA 460mA typ.	<680mA 570mA typ.
Stand-by (excl. recharge)	<50 μ A 10 μ A typ.	

Shock resistance (ESA off)

+X/-X direction	: >2.5G
+Y/-Y direction	: >2.5G
+Z/-Z direction	: >2.0G

Shock resistance by use of car base (ESA off)

+X/-X direction	: >6G
+Y/-Y direction	: >6G
+Z/-Z direction	: >6G

Headphone out (measured with 16 Ω load)

Max. output power (THD=10%)	: 2x7mW (+1/-3dB)
Frequency response (1mW)	: 20Hz-20kHz within 6dB
S/N ratio (unw.)	: >80dB (83dB typ.)
S/N ratio (A-wght)	: >85dB (88dB typ.)
THD+N (1kHz, 1mW)	: <1% (0.2% typ.)
Channel crosstalk (1kHz, no load)	: <-50dB
Channel unbalance (-40dB)	: <1dB
Volume attenuation (1kHz)	: >80dB

Headphone out under CD-out conditions

(volume at maximum, load impedance 47k Ω)

Output level (1kHz, 0dB)	: 680Vrms \pm 2dB
Frequency response	: 20Hz-20kHz within 4dB
S/N ratio (unw.)	: >85dB (90dB typ.)
S/N ratio (A-wght)	: >90dB (95dB typ.)
THD+N (1kHz, 0dB)	: <0.2% (0.05% typ.)
THD+N (1kHz, -20dB)	: <0.3% (0.1% typ.)
Channel crosstalk (1kHz)	: <-60dB (-70dB typ.)
Channel crosstalk (10kHz)	: <-40dB (-50dB typ.)
Channel unbalance (1kHz, 0dB)	: <0.5dB (0.2dB typ.)

Optical output (not on all versions)

Connection	: 3.5mm optical fiber jack
Specification according to IEC958.	

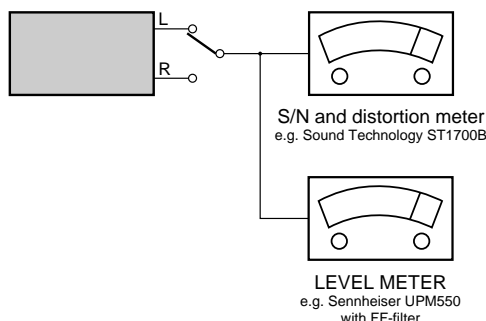
Laser

Output power	: <5mW (3mW typ.)
Wavelength	: 780nm

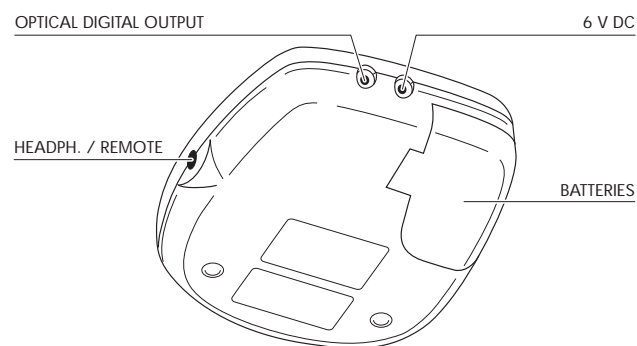
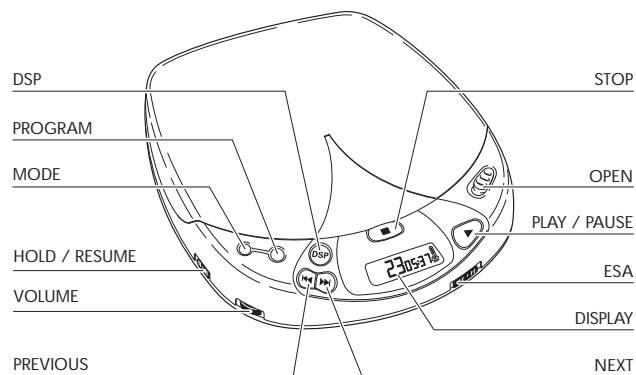
Measurement setup

Use Audio Signal disc SBC429

4822 397 30184



CONNECTIONS AND CONTROLS



- DISPLAY** Window for showing the different playing modes, tracks and times
- ▷▷ Button for selecting the next music track or, if held down, for searching forward for a particular passage on the CD
- ◀◀ Button for selecting the previous music track or, if held down, for searching backward for a particular passage on the CD
- VOLUME** Control for adjusting the volume at the headphone output
- HOLD / RESUME** Switch for activating the HOLD function (blocking all buttons) and/or RESUME function (resuming CD play)
- MODE** ○ Button for selecting the different playing modes:
SHUFFLE→SHUFFLE REPEAT ALL→REPEAT 1→REPEAT ALL→SCAN→off
- PROG** Button for storing tracks in a program and for reviewing the program
- DSP** **Digital Sound Processing**: Button for selecting the different sound settings at the headphone output:
ROCK→POP→CAR→INCREDIBLE SOUND→off
- STOP** □ Button for stopping CD play, deleting various settings, switching off the CD player and activating charging
- OPEN** Slide control for opening the lid of the CD player
- ▷|| Button for starting and pausing CD play
- ESA** **Electronic Shock Absorption**: Switch for activating the electronic buffer memory for an undisturbed sound
- REMOTE** 🎧 Headphone and remote control socket (3.5mm)
- Digital out (optical)** For connecting the CD player to a Digital in (optical) socket in an amplifier or a digital recorder by means of an optical cable
- 4,5 V DC** Socket for external power supply
- Battery compartment** for inserting batteries

Note: In case of power supply via the DC jack (mains adapter or cigarette lighter in the car) the display and the play button are backlighted. In battery mode, the illumination is activated for 10 seconds after key operations.

FEATURES SHARON PLATFORM 4	AZ7562	AZ7565	AZ7566
ELECTRONIC SHOCK ABSORPTION (ESA)	20sec.	20sec.	20sec.
RESUME FUNCTION	X	X	X
DIGITAL SOUND PROCESSING	X	X	X
RECHARGE FUNCTION NiCd and NiMH BATTERY PACK	X	X	X
LCD ILLUMINATION	X	X	X
PLAY-KEY ILLUMINATION	-	-	X
CORD REMOTE CONTROL PREPARED	X	X	X
DIGITAL OUTPUT (optical)	-	X	-

ACCESSORIES SHARON PLATFORM 4		AZ7562		AZ7565		AZ7566	
		/00	/05	/00	/05	/17	/17T
AY3160/00A AC/DC ADAPTOR	4822 219 10257	X		X			
AY3160/05A AC/DC ADAPTOR	4822 219 10267		X		X		
AY3160/17A AC/DC ADAPTOR	4822 219 10268					X	X
AY3260/00 POUCH	4822 600 10398	O	O	X	X		
AY3360/00 BATTERY PACK NiMH	4822 138 10617	O	O	X	X		
AY3361/00 BATTERY PACK NiCd	4822 138 10615	X	X	O	O		
AY3501/00 CAR ADAPTOR CASSETTE	4822 397 10059	O	O	O	O		
AY3501/17 CAR ADAPTOR CASSETTE	4822 397 10058					X	X
AY3545/00 CAR DC/DC CONVERTER	4822 219 10033	O	O	O	O		
AY3545/17 CAR DC/DC CONVERTER	4822 219 10031					X	X
AY3563/00 CAR ADAPTOR PLATE	4822 263 21096	O	O	O	O		
AY3563/17 CAR ADAPTOR PLATE	4822 263 21101					O	O
AY3672/00 EARPHONE	4822 242 10343	X	X				
AY3672/00S EARPHONE	4822 242 10341			X	X		
AY3681/37 HEADPHONE	4822 242 10702					X	X
AY3763/00 IN-CORD LCD REMOTE CONTROL	4822 218 10712	O	O	X	X		
AY3860/00 ACTIVE SPEAKER BOX	4822 445 10513	O	O	O	O		
AY3860/17 ACTIVE SPEAKER BOX	4822 445 10514					O	O
AY3464 HIFI CORD (3.5mm → cinch, L-plug)	4822 320 11881	O	O	O	O	O	O
SBC1059 HIFI CORD (3.5mm → cinch)	4822 321 21602	O	O	X	X	O	O
SBC1270 OPTICAL FIBER (3.5mm → TosLink)	4822 321 62732			O	O		

X....supplied with the set, O....optional available

SAFETY WARNINGS

ⓐ WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wristband with resistance. Keep components and tools at this potential.

ⓑ ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez le braceleterti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

Ⓓ WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

Sorgen Sie dafür, daß sie im Reparaturfall über ein Puls-armband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.



Ⓝ WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

Ⓘ AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa del'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

ⓐ AVAILABLE ESD PROTECTION EQUIPMENT :

anti-static table mat large 1200x650x1.25mm
small 600x650x1.25mm

anti-static wristband

connection box (3 press stud connections, 1M Ω)

extendible cable (2m, 2M Ω , to connect wristband to connection box)

connecting cable (3m, 2M Ω , to connect table mat to connection box)

earth cable (1M Ω , to connect any product to mat or to connection box)

KIT ESD3 (combining all 6 prior products - small table mat)

wristband tester

4822 466 10953

4822 466 10958

4822 395 10223

4822 320 11307

4822 320 11305

4822 320 11306

4822 320 11308

4822 310 10671

4822 344 13999

ⓐ

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Safety components are marked by the symbol

ⓑ

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

Les composants de sécurité sont marqués

Ⓓ

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

Sicherheitsbauteile sind durch das Symbol

SAFETY



Ⓝ

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast. De Veiligheidsonderdelen zijn aangeduid met het symbool

Ⓘ

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati. Componenti di sicurezza sono marcati con

ⓐ **DANGER:** Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.



Ⓢ Varning !

Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

Ⓓ Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

Ⓣ Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

ⓐ

After servicing and before returning the set to customer perform a leakage current measurement test from all exposed metal parts to earth ground, to assure no shock hazard exists.

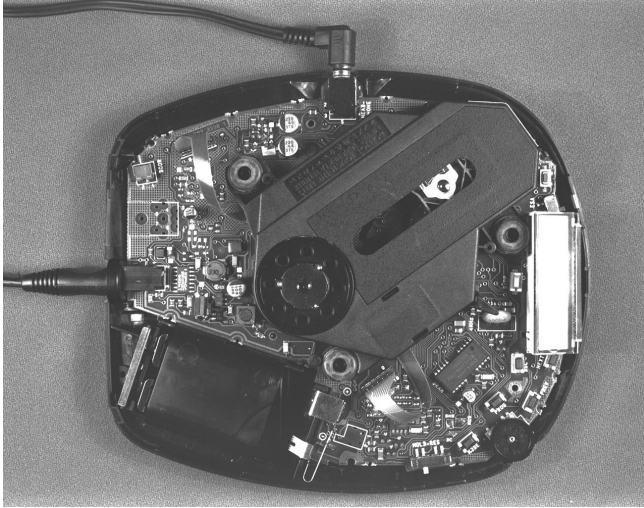
The leakage current must not exceed 0.5mA.

ⓑ

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

SERVICE HINTS

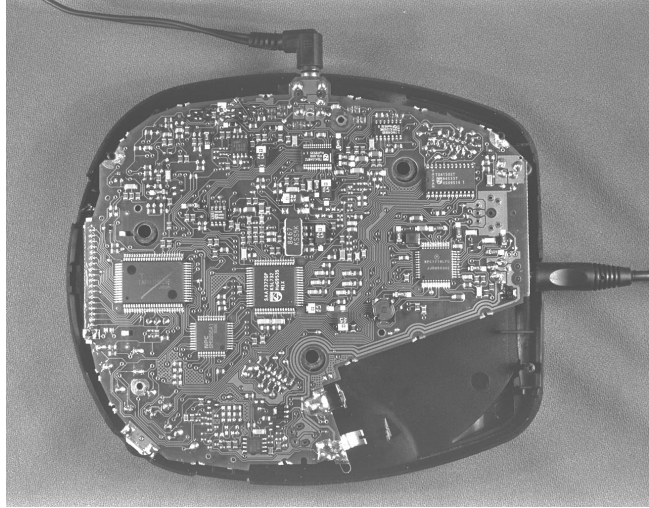
REPAIR POSITION COMPONENTSIDE



To get access to the componentside of the printed circuit board proceed as follows:

1. Disconnect DC-cable and headphone
2. Remove bottom screws
(remember hidden screw in battery compartment)
3. Open the CD-door
4. Lift the top-cabinet
5. Close the door-switch (e.g. paper-clip)
6. Supply the unit via external DC-socket

REPAIR POSITION COPPERSIDE



To get access to the copperside of the printed circuit board proceed as follows:

1. Disconnect DC-cable and headphone
2. Remove bottom screws
(remember hidden screw in battery compartment)
3. Open the CD-door
4. Lift the top-cabinet
5. Take the printed circuit board/drive unit out of the bottom
(take care of battery springs)
6. Position printed circuit board/drive unit into top-cabinet
7. Supply the unit via external DC-socket

The unit is now in a proper working position and can be turned in all directions necessary to get access for measurements.

SERVICE TOOLS

Audio signal disc SBC429	4822 397 30184
Playability test disc SBC444	4822 397 30245
Test disc 5 (disc without errors) + Test disc 5A (disc with dropout errors, black spots and fingerprints) SBC426/SBC426A	4822 397 30096

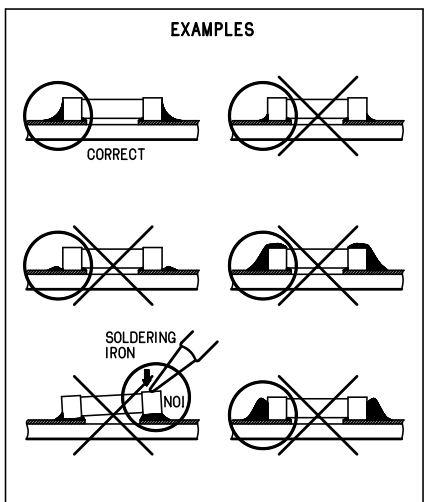
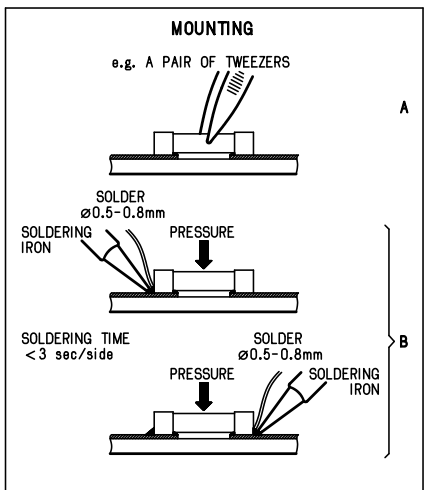
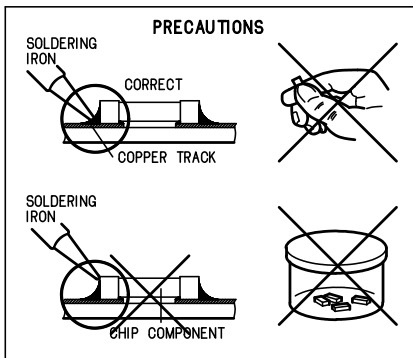
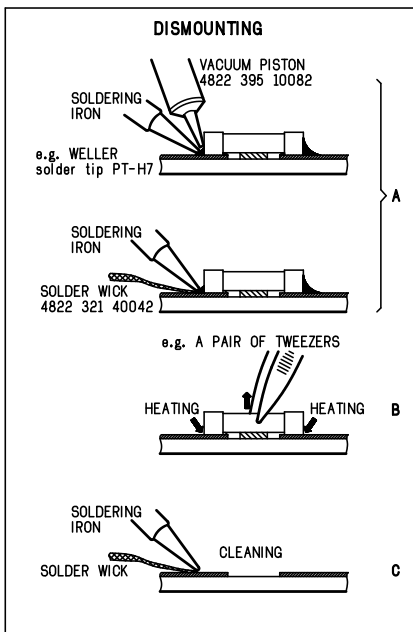
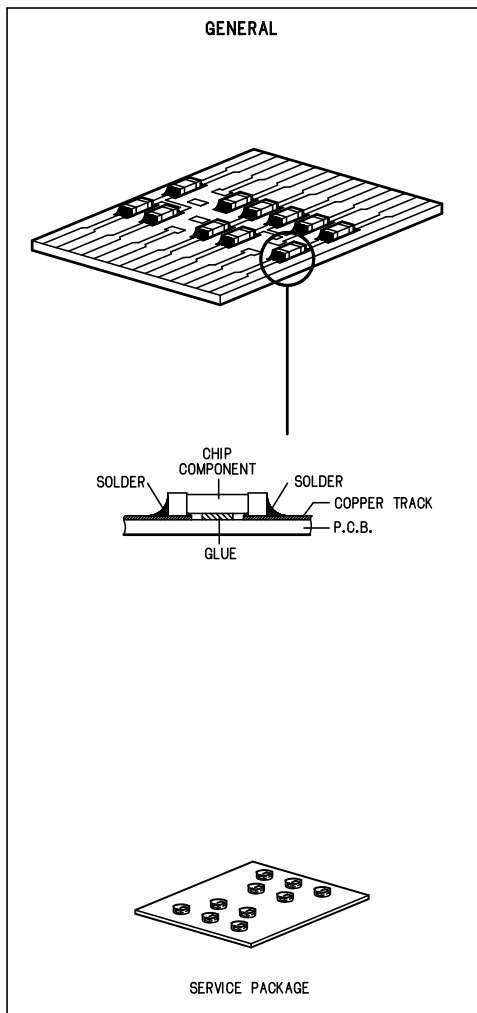
TRAINING MATERIAL

Portable CD 1994 – Principles of Electronic Shock Absorption System ESA, Key components 1994, Remote control system	4822 725 24941
Portable CD 1996 – Key components 1996, Battery charging, DC/DC-converter	4822 725 24986

ESD PROTECTION EQUIPMENT

Anti-static table mat large 1200x650x1.25mm	4822 466 10953
small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connection box (3 press stud connections, 1M Ω)	4822 320 11307
Extendible cable (2m, 2M Ω , to connect wristband to connection box)	4822 320 11305
Connecting cable (3m, 2M Ω , to connect table mat to connection box)	4822 320 11306
Earth cable (1M Ω , to connect any product to mat or to connection box)	4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)	4822 310 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



SERVICE TEST PROGRAM

1. PRELIMINARY SETUP

- To enter the service test program hold the keys "PROGRAM" and "STOP" depressed while turning POWER ON.
- The display shows the software-version of the built-in microprocessor (e.g. "575").
- The program is now in the main menu – various tests can be entered by pressing the corresponding buttons (see flow chart or detailed description of test programs below).

2. DISPLAY TEST

Purpose: Check the internal display driver of the μ P and the display segments.

- To enter the display test start service test program and press the "NEXT" button.
- The display shows test pattern 1. Three more test patterns are available.
- To jump to the next pattern press the "PLAY" button.
- To exit the display test and return to the main menu press the "STOP" button.

3. KEY & REMOTE CONTROL TEST

Purpose: Check operation of keys and remote control.

- To enter the key & remote control test start service test program and press the "MODE" button.
- The display shows "--".
- Press keys on the set resp. the remote control and check the corresponding key codes on the display of the CD-player resp. the test patterns on the display of the remote control. Codes and patterns can be found in table 1 (see flow chart).
- To exit the key & remote control test and return to the main menu press the "STOP" button.

4. PLAYBACK TEST WITH ERROR ANALYSIS

Purpose: Analyse errors that occur during playback.

- To enter the playback test start service test program and press the "DSP" button. Note that the playback test can only be entered if the CD-door is closed.
- The set now reads the TOC and switches to stand-by.
- Press the "PLAY" button to start the error analysis.

As long as the playback is free of errors the display shows track and time information as in normal play-mode. In case of an error a corresponding error code will be displayed. The meaning of this error code can be found in table 2 (see flow chart).

Note: Errors can either be "fatal" or "non fatal". Fatal errors always stop the playback, non fatal errors only cause a short interruption of the music. Fatal errors are displayed as long as the set is connected to the power source, non fatal errors are displayed till a new error occurs or a button is pressed.

- To stop the playback test disconnect the set from the power source.

5. IC-CHECK

Purpose: Check communication between μ P \leftrightarrow CD7 and μ P \leftrightarrow NPC (DRAM controller).

- To enter the IC-check start service test program and press the "PLAY" button.
- The display shows " $\bar{L} X \bar{n} y$ ". " $\bar{L} X$ " indicates result of CD7-check; " $\bar{n} y$ " indicates result of NPC-check. $x, y = "$ " means that the test has been passed successfully; $x, y = "$ " specifies an error during communication.
- To enter the servo test press the "PLAY" button, to exit the IC-check and return to the main menu press the "STOP" button.

6. SERVO TEST

Purpose: Check door- and inner-switch, movement of slide and acceleration of discmotor.

- To enter the servo test start service test program and press the "PLAY" button.
- The display shows " $\bar{L} xy$ ". " x " indicates state of door-switch; " y " indicates state of inner-switch. $x, y = "$ " means switch is open.
- To move slide outside hold the "NEXT" button depressed.
- To move slide inside hold the "PREV" button depressed.
- To accelerate the discmotor clockwise hold the "MODE" button depressed.
- To accelerate the discmotor counter-clockwise hold the "DSP" button depressed.
- To enter the focus test press the "PLAY" button, to exit the servo test and return to the main menu press the "STOP" button.

7. FOCUS TEST

Purpose: Check movement of lens and operation of focus servo.

- The focus servo loop is switched on and the set starts searching the focus. If the focus is OK the display shows " F ", else " \bar{F} ".
- When the disc is turned manually "focus noise" is audible.
- To move slide outside hold the "NEXT" button depressed.
- To move slide inside hold the "PREV" button depressed.
- To accelerate the discmotor clockwise hold the "MODE" button depressed.
- To accelerate the discmotor counter-clockwise hold the "DSP" button depressed.
- In case the focus is OK the discmotor test can be entered by pressing the "PLAY" button, to exit the focus test and return to the main menu press the "STOP" button.

8. DISCMOTOR TEST

Purpose: Check speed regulation of discmotor.

- The speed regulation is switched on and the discmotor starts rotating. If the speed reaches 75% of the nom. speed the display shows " d ", else " \bar{d} ".

Note: During this test the μ P displays the speed-flag of the CD7. As this IC can only monitor a small range of speed deviation the displayed information is not very reliable. In case of doubt check disc motor control circuit.

- In case the disc speed is OK the radial test can be entered by pressing the "PLAY" button, to exit the discmotor test and return to the main menu press the "STOP" button.

9. RADIAL TEST

Purpose: Check if radial loop locks and an audio signal is output.

- The display shows " $\bar{r} d$ ".
- The radial servo loop is switched on, mute is released and an audio signal is audible.
- To jump 10 tracks outside press the "NEXT" button.
- To jump 10 tracks inside press the "PREV" button.
- To enter the error correction analysis press the "PLAY" button, to exit the radial test and return to the main menu press the "STOP" button.

10. ERROR CORRECTION ANALYSIS

Purpose: Check the error status of the CD7 in double speed mode (measurement of block error rate, number of interpolations, a.s.o).

- The display shows " H ".
- The disc turns at double speed, mute is released and music is audible with twice the normal speed.

Note: This test program is used for statistical analysis of the error correction of the CD7. As the test requires additional hard- and software it can't be carried out at "normal" repair shops.

- To exit the error correction analysis and return to the main menu press the "STOP" button.

FLOW CHART

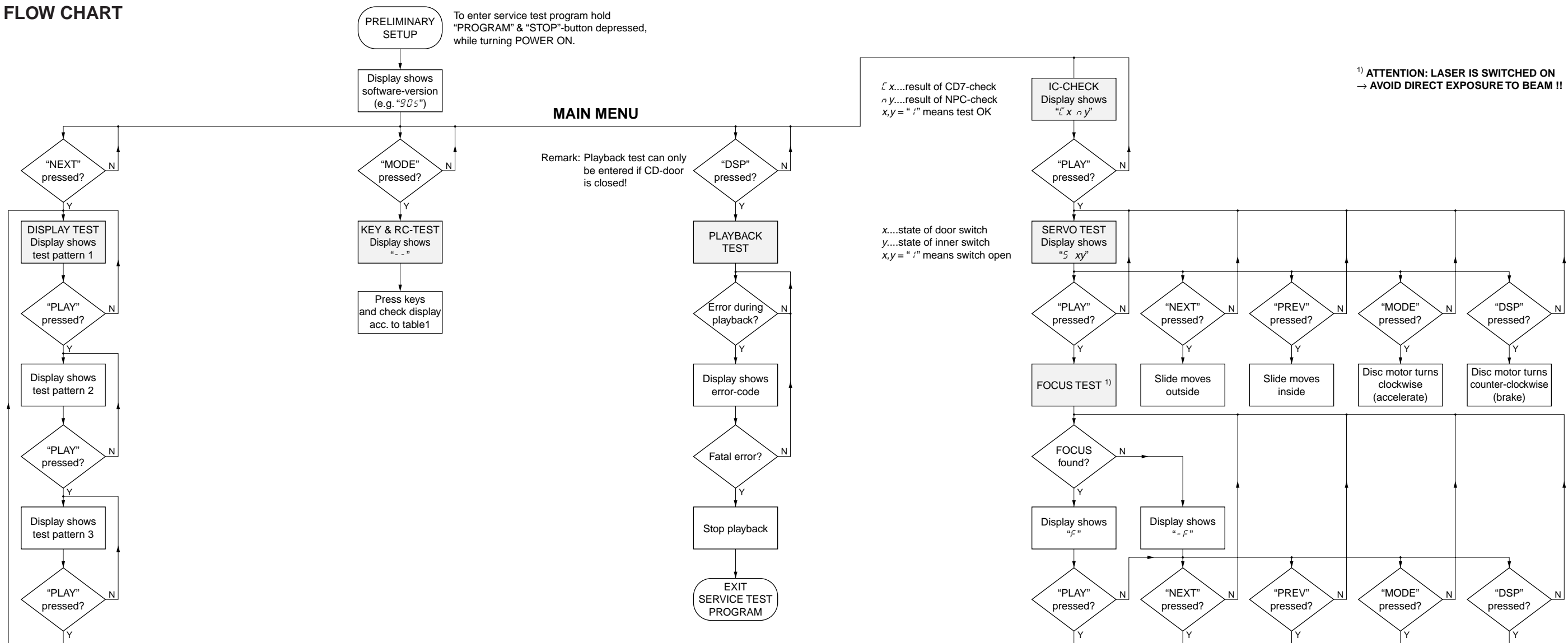


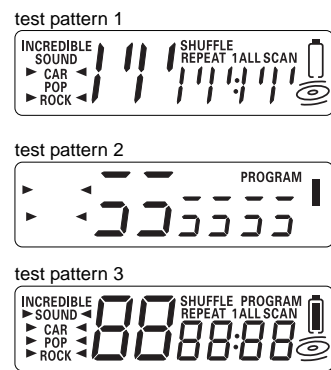
table1 – key & RC-test

	DISPLAY SET	DISPLAY CORD RC
KEYS OF SET		
PLAY	01	no change
MODE	02	
NEXT	03	
DSP	04	
PREVIOUS	05	
PROGRAM	07	
KEYS OF CORD-REMOTE CONTROL (not on all versions)		
PLAY	r-c 01	1111
NEXT	r-c 03	≡≡≡≡
PREVIOUS	r-c 05	88
STOP	r-c 06	no change

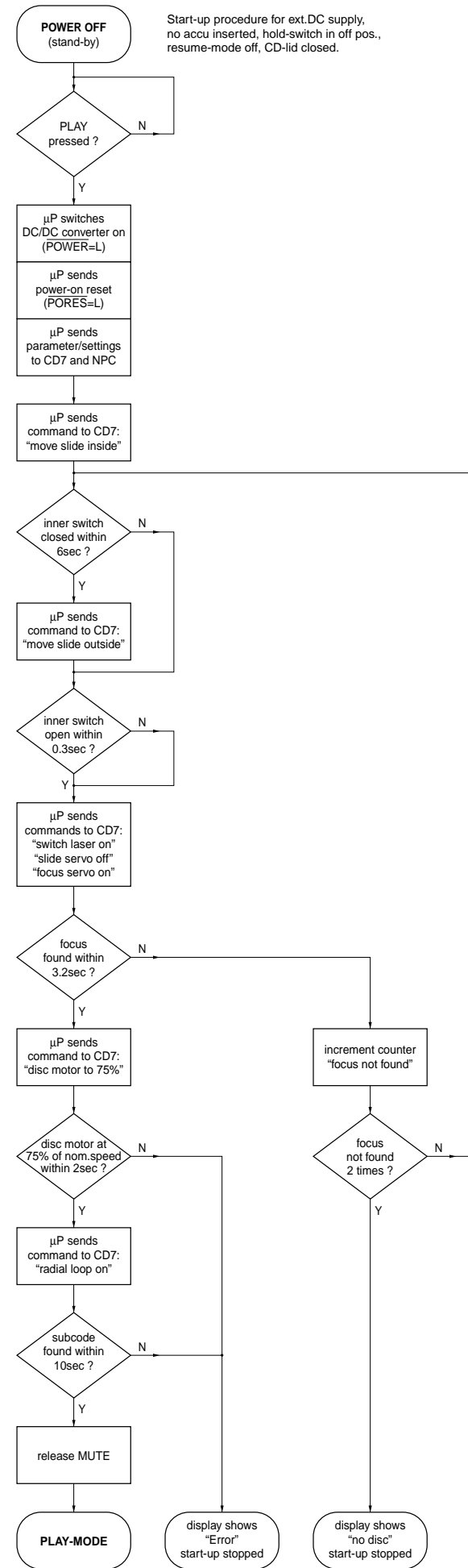
Press "STOP" on the CD-player to exit the key & RC-test.

table2 – playback error analysis

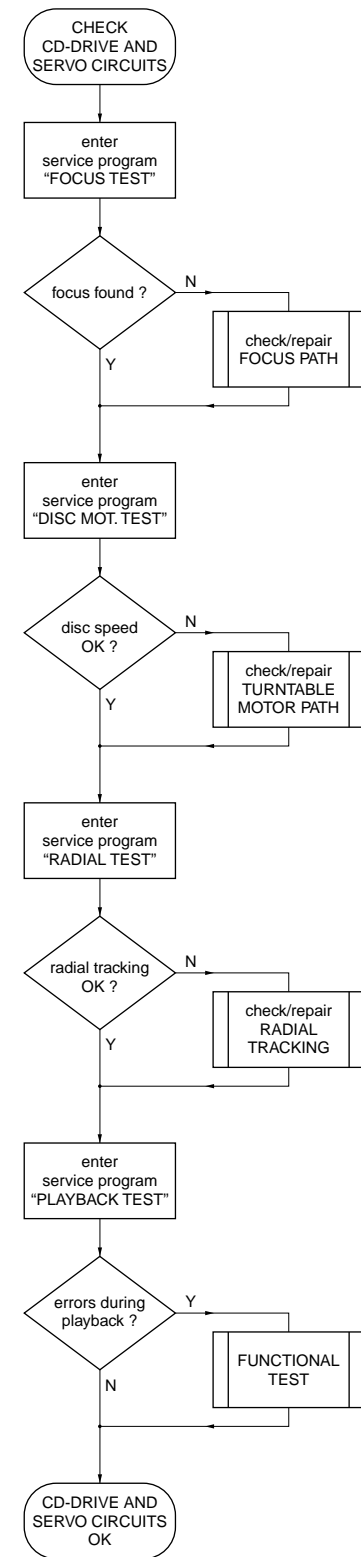
CODE	ERROR	TYPE	CAUSE
E 1001	sledge out error	non fatal	The sledge did not come out of it's inner position (inner switch of CDM12 doesn't open) before 240ms have passed by.
E 1002	focus error	non fatal	Focus point lost.
E 1003	radial error	non fatal	The offtrack values of CD7 don't decrease properly when jumping tracks, or CD7 indicates offtrack while radial tracking is switched on.
E 1004	subcode error	non fatal	No valid subcode information for 250ms.
E 1005	DRAM filling error	non fatal	The DRAM controller was not able to connect two consecutive audio frames.
E 1011	sledge in error	fatal	The sledge did not reach it's inner pos. (inner switch of CDM12 doesn't close) before 6 seconds have passed by.
E 1012	focus search error	fatal	The focus point could not be found inbetween 4 seconds.
E 1013	fatal radial error	fatal	Radial error occurred 15 times.
E 1014	fatal subcode error	fatal	No valid subcode information for 3.5 seconds.
E 1018	motor N1 error	fatal	The disc didn't reach 75% of the nom. single speed inbetween 4.5 sec.
E 1019	motor N2 error	fatal	The disc didn't reach 75% of the nom. double speed inbetween 4.5 sec.



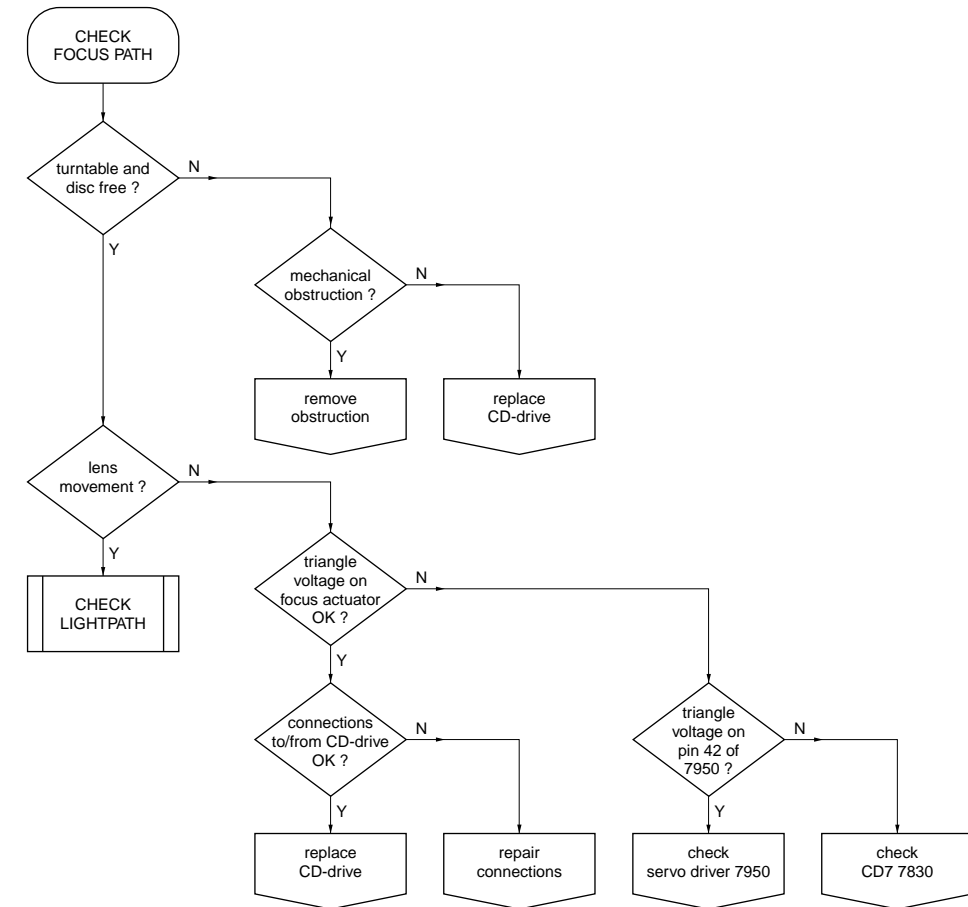
START-UP PROCEDURE



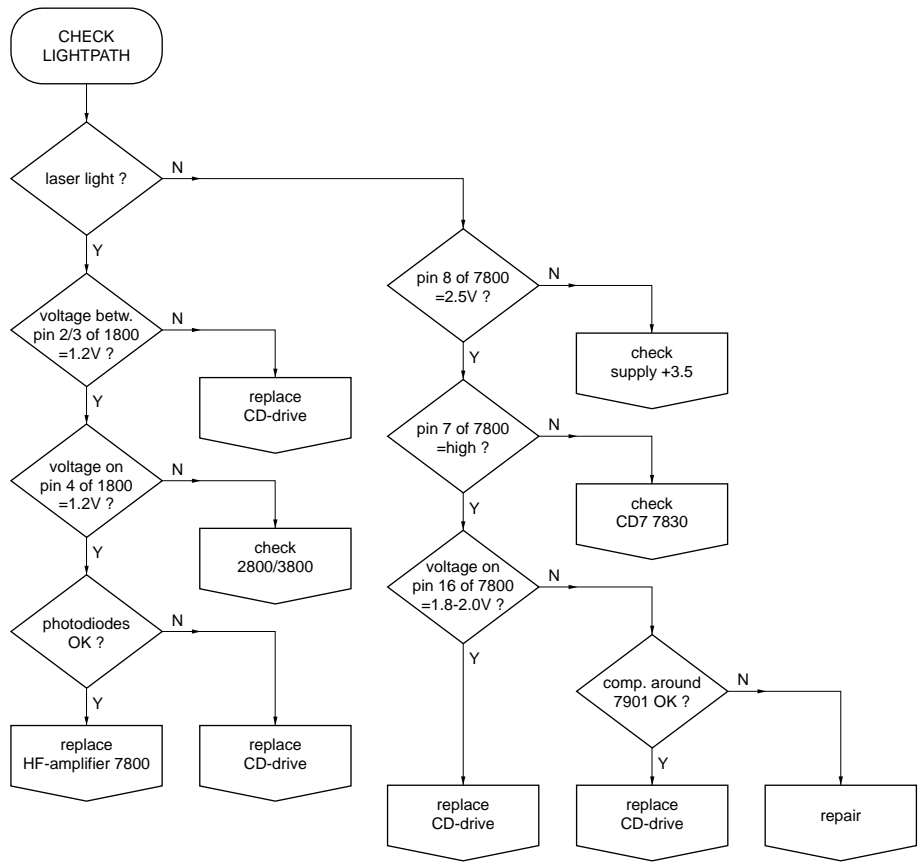
MAIN FAULT FINDING GUIDE



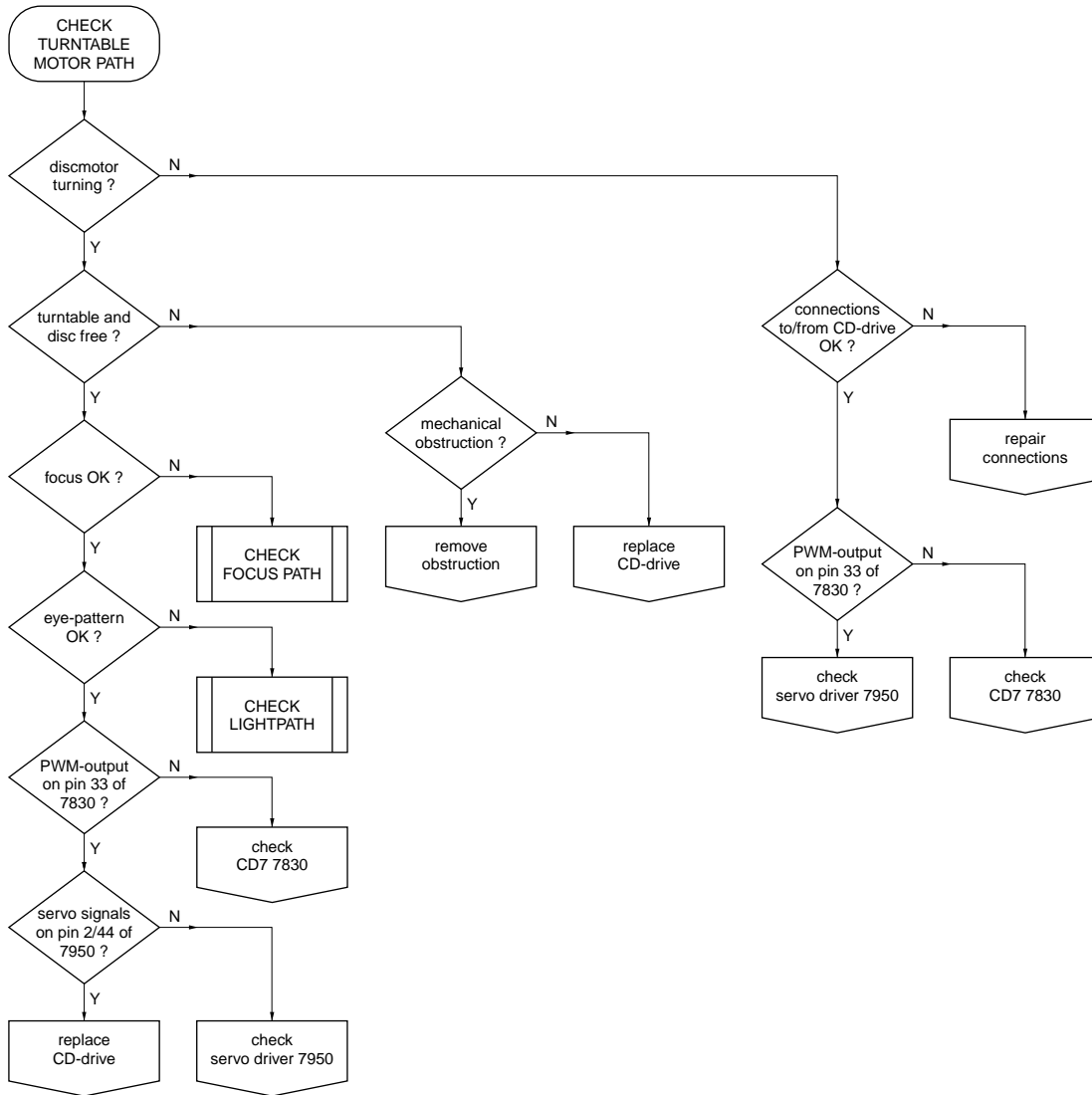
FAULT FINDING GUIDE FOCUS PATH



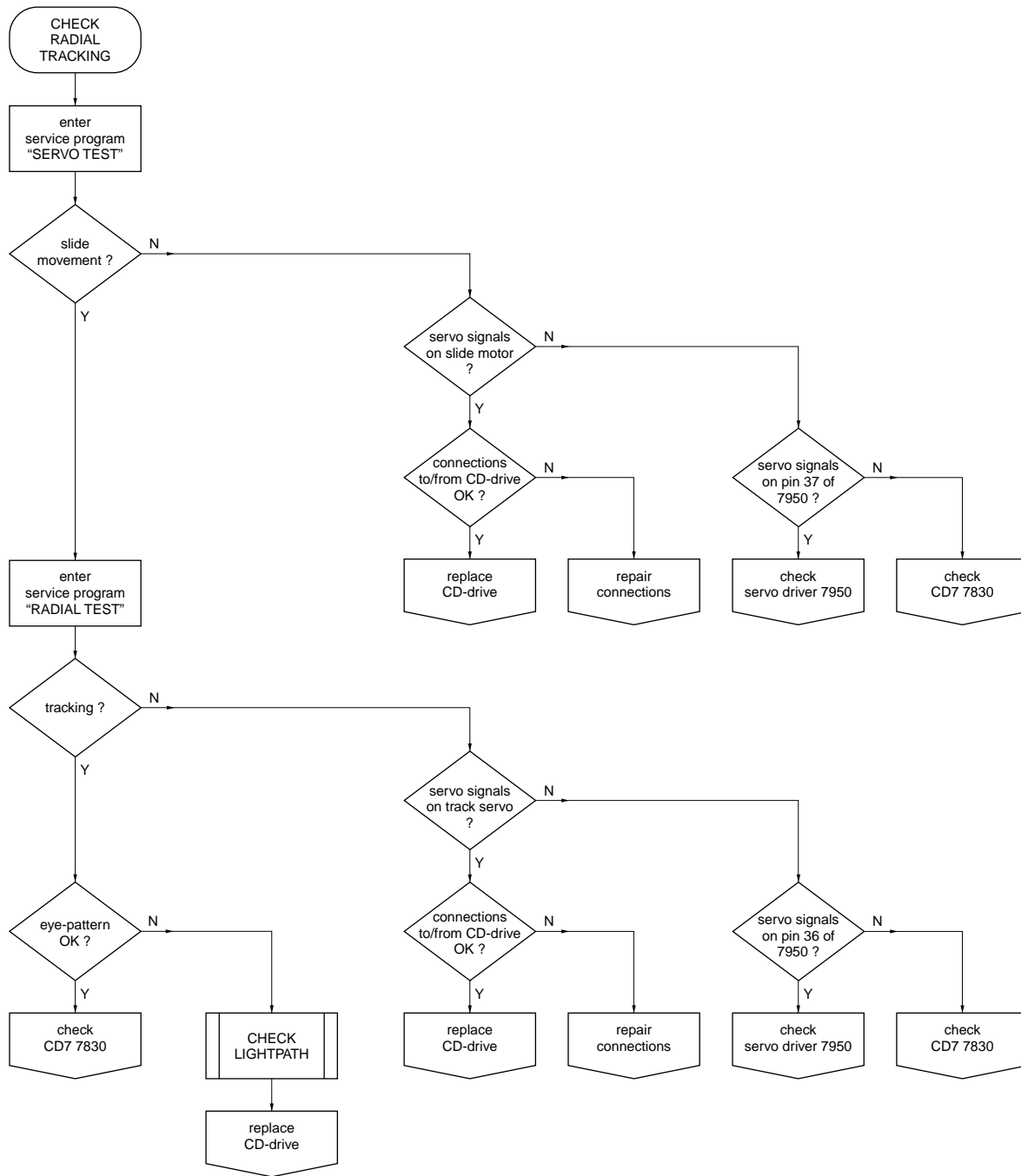
FAULT FINDING GUIDE LIGHTPATH



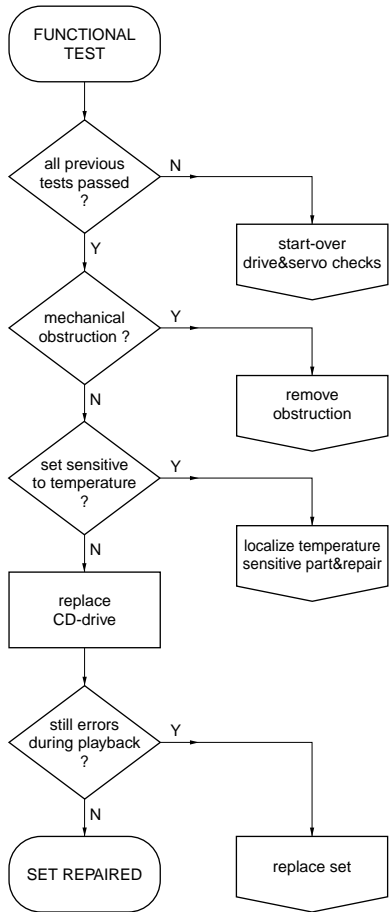
FAULT FINDING GUIDE TURNTABLE MOTOR PATH



FAULT FINDING GUIDE RADIAL TRACKING



FAULT FINDING GUIDE FUNCTIONAL TEST



PINNING OF INTEGRATED CIRCUITS

TDA1302T – HF-PREAMPLIFIER AND LASER SUPPLY CIRCUIT

Pin	Name	Direction	Description
1	O4	HF-preamp → CD7	output of current amplifier 4
2	O6	HF-preamp → CD7	output of current amplifier 6
3	O3	HF-preamp → CD7	output of current amplifier 3
4	O1	HF-preamp → CD7	output of current amplifier 1
5	O5	HF-preamp → CD7	output of current amplifier 5
6	O2	HF-preamp → CD7	output of current amplifier 2
7	LDon	CD7 → HF-preamp	control pin for switching the laser on/off
8	Vddl	laser power control → HF-preamp	laser supply voltage
9	Vrfe	HF-preamp →	equalized output voltage of sum signal of amplifiers 1...4
10	Vrf	not connected	unequalized output
11	HG	GND	control pin for gain switch
12	LS	CD7 → HF-preamp	control pin for double speed switch (switches equalization)
13	C		external capacitor (bandwidth of ALPC)
14	Adj		reference input
15	GND	GND	0V supply, substrate connection
16	Lo	HF-preamp → laser diode	current output to laser diode
17	MI	monitor diode → HF-preamp	laser monitor diode input
18	Vdd	+3.5	positive supply voltage
19	I2	GND	photo detector input 2 (not used)
20	I5	diode array → HF-preamp	photo detector input 5 (satellite)
21	I1	diode array → HF-preamp	photo detector input 1 (central)
22	I3	diode array → HF-preamp	photo detector input 3 (central)
23	I6	diode array → HF-preamp	photo detector input 6 (satellite)
24	I4	diode array → HF-preamp	photo detector input 4 (central)

TDA1548T – DAC WITH HEADPHONE AMPLIFIER AND DSP

Pin	Name	Direction	Description
1	VSSO	GND	ground (operational amplifier)
2	VCOM	DAC → sound control	common output pin
3	VOL	DAC → sound control	audio output left channel
4	IOL	→ DAC	capacitor for left channel 1st order filter function
5	MODE0	GND	mode0 selection pin
6	MODE1	GND	mode1 selection pin
7	BCK	NPC → DAC	bit clock input
8	WS	NPC → DAC	word select input
9	DATA	NPC → DAC	data input
10	VDDD	+LF	supply voltage (digital part)
11	VSSD	GND	ground (digital part)
12	SYSCLK	CD7 → DAC	64fs/256fs/384fs system clock input
13	IF1	GND	input format selection1
14	IF2	+LF	input format selection2
15	DEEM	GND	de-emphasis input (fs=44.1kHz)
16	MUTE	μP → DAC	soft-mute input
17	CLSEL	+LF	system clock selection input
18	ADREF	DAC → potmeter	reference voltage output to ext. potmeter
19	ADTR	→ DAC	analog sense input for treble setting
20	ADBB	→ DAC	analog sense input for bass boost setting
21	ADVC	→ DAC	analog sense input for volume control setting
22	AD3S	μP → DAC	3-position switch input for flat/min/max setting
23	VDDA	+LF	supply voltage (analog part)
24	VSSA	GND	ground (analog part)
25	VREF	→ DAC	internal reference voltage (typ. VDDA/2)
26	IOR	→ DAC	capacitor for right channel 1st order filter function
27	VOR	DAC → sound control	audio output right channel
28	VDDO	+LF	supply voltage (operational amplifier)

SAA7372 – DECODER AND DIGITAL SERVO IC CD7

Pin	Name	Direction	Description
1	VSSA1	GND	supply (analog) of CD7
2	VDDA1	+3.5	supply (analog) of CD7
3	D1	HF-preamp → CD7	unipolar current input (central diode signal input)
4	D2	HF-preamp → CD7	unipolar current input (central diode signal input)
5	D3	HF-preamp → CD7	unipolar current input (central diode signal input)
6	VRL	GND	reference input for ADC
7	D4	HF-preamp → CD7	unipolar current input (central diode signal input)
8	R1	HF-preamp → CD7	unipolar current input (satellite diode signal input)
9	R2	HF-preamp → CD7	unipolar current input (satellite diode signal input)
10	IREFT	→ CD7	current reference for calibration ADC
11	VRH		reference output from ADC
12	VSSA2	GND	supply (analog) of CD7
13	SELPLL	+3.5	selects whether internal clock multiplier PLL is used
14	ISLICE	CD7 →	current feedback from data slicer
15	HFIN	→ CD7	comparator signal input
16	VSSA3	GND	supply (analog) of CD7
17	HFREF	→ CD7	comparator common mode input
18	IREF	→ CD7	reference current pin (nom. VDD/2)
19	VDDA2	+3.5	supply (analog) of CD7
20	TEST1	GND	test control input
21	CRIN	X-Tal → CD7	crystal/resonator input
22	CDOUT	X-Tal → CD7	crystal/resonator output
23	TEST2	GND	test control input
24	CL16	CD7 → NPC, DAC	16.9344MHz system clock output
25	CL11	CD7 →	11.2896MHz or 5.6448MHz clock output (3-state)
26	RA	CD7 → servo driver	radial actuator output
27	FO	CD7 → servo driver	focus actuator output
28	SL	CD7 → servo driver	slide actuator output
29	TEST3	GND	test control input
30	VDD1P	+3.5	supply (digital) of CD7
31	DOBM	CD7 → digital output	bi-phase mark output (3-state)
32	VSS1	GND	supply (digital) of CD7
33	MOTO1	CD7 → servo driver	motor output1 of CD7; versatile (3-state)
34	MOTO2	CD7 → servo driver	motor output2 of CD7; versatile (3-state)
35	SBSY	CD7 → NPC, μP	subcode block sync (3-state)
36	SFSY	CD7 →	subcode frame sync (3-state)
37	RCK	→ CD7	subcode clock input
38	SUB	CD7 →	P to W subcode bits (3-state)
39	VSS2	GND	supply (digital) of CD7
40	V5	CD7 →	versatile output pin of CD7
41	V4	CD7 →	versatile output pin of CD7
42	V3	CD7 →	versatile output pin of CD7 (open drain)
43	KILL	CD7 →	kill output; programmable (open drain)
44	MISC	CD7 →	C2 error flag; output only defined in CD-ROM modes (3-state)
45	DATA	CD7 → NPC	serial data output (3-state)
46	WCLK	CD7 → NPC	word clock output (3-state)
47	VDD2P	+3.5	supply (digital) of CD7
48	SCLK	CD7 → NPC	serial bit clock output (3-state)
49	VSS3	GND	supply (digital) of CD7
50	CL4	CD7 →	4.2336MHz μP clock output
51	SDA	μP → CD7	μP interface data I/O line (open drain output)
52	SCL	μP → CD7	μP interface clock line
53	RAB	μP → CD7	μP interface R/W and load control line
54	SILD	μP → CD7	μP interface R/W and load control line
55	NC		no connection
56	VSS4	GND	supply (digital) of CD7
57	RESET	μP → CD7	power-on reset input (active low)
58	STATUS	CD7 → μP	servo interrupt request line/CD7 status register output (open drain)
59	VDD3C	+3.5	supply core (digital)
60	C2FAIL	CD7 →	indication of correction failure (open drain)
61	CFLG	CD7 →	correction flag output (open drain)
62	V1	→ CD7	versatile input pin
63	V2	→ CD7	versatile input pin
64	LDON	CD7 → HF-preamp	laser drive on output (open drain)

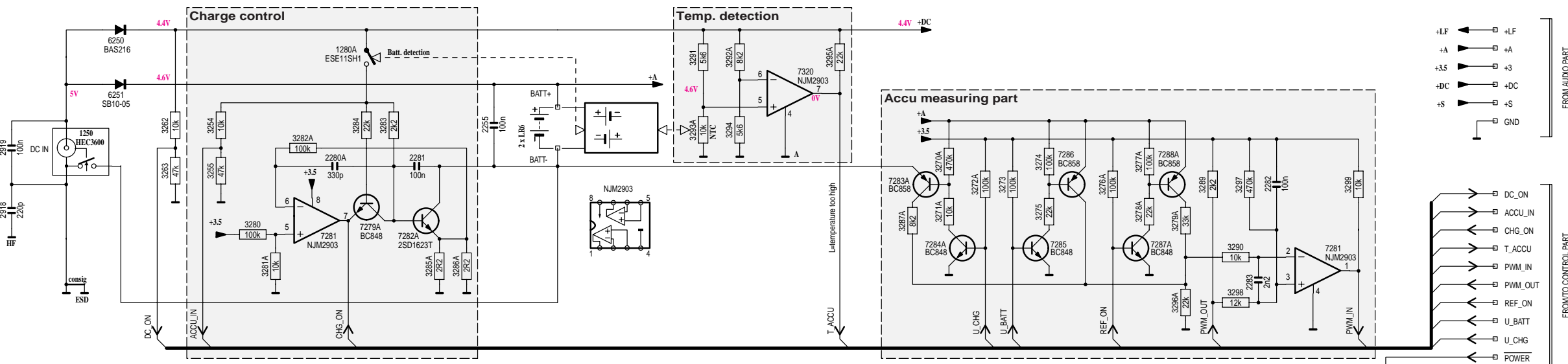
SM5856A1F – COMPRESSION-TYPE ANTI-SHOCK MEMORY CONTROLLER (NPC)

<i>Pin</i>	<i>Name</i>	<i>Direction</i>	<i>Description</i>
1	VDD	+3.5	supply voltage
2	UC1		μP interface extension I/O line 1
3	UC2		μP interface extension I/O line 2
4	UC3		μP interface extension I/O line 3
5	UC4		μP interface extension I/O line 4
6	UC5		μP interface extension I/O line 5
7	NTEST1	+3.5	test input1
8	NTEST2	+3.5	test input2
9	CLK	CD7 → NPC	16.9344MHz clock input
10	VSS	GND	ground
11	YSRDATA	CD7 → NPC	audio serial data input
12	YLRCK	CD7 → NPC	audio serial L/R clock input
13	YSCK	CD7 → NPC	audio serial bit clock input
14	ZSCK	NPC → DAC	audio serial bit clock output
15	ZLRCK	NPC → DAC	audio serial L/R clock output
16	ZSRDATA	NPC → DAC	audio serial data output
17	YFLAG	→ NPC	signal processor IC RAM overflow flag
18	YFCLK	GND	crystal-controlled frame clock input
19	YBLKCK	NPC → μP	subcode block clock signal output
20	RESET	μP → NPC	system reset input (active low)
21	ZSENSE	NPC → μP	μP interface status output
22	UC6		μP interface extension I/O line6
23	YDMUTE	GND	forced mute input
24	YMLD	μP → NPC	μP interface latch clock input
25	YMDATA	μP → NPC	μP interface serial data input
26	YMCLK	μP → NPC	μP interface shift clock input
27	OE	NPC →	DRAM OE control output (active low)
28	CAS	NPC → DRAM	DRAM CAS control output (active low)
29	D2	NPC ↔ DRAM	DRAM data input/output 2
30	D3	NPC ↔ DRAM	DRAM data input/output 3
31	D0	NPC ↔ DRAM	DRAM data input/output 0
32	D1	NPC ↔ DRAM	DRAM data input/output 1
33	WE	NPC → DRAM	DRAM WE control output (active low)
34	RAS	NPC → DRAM	DRAM RAS control output (active low)
35	A9	NPC → DRAM	DRAM address output 9
36	A8	NPC → DRAM	DRAM address output 8
37	A7	NPC → DRAM	DRAM address output 7
38	A6	NPC → DRAM	DRAM address output 6
39	A5	NPC → DRAM	DRAM address output 5
40	A4	NPC → DRAM	DRAM address output 4
41	A0	NPC → DRAM	DRAM address output 0
42	A1	NPC → DRAM	DRAM address output 1
43	A2	NPC → DRAM	DRAM address output 2
44	A3	NPC → DRAM	DRAM address output 3

MPC1718 – 4-STAGE PWM SERVODRIVER

<i>Pin</i>	<i>Name</i>	<i>Direction</i>	<i>Description</i>
1	Hin2	→ servo driver	power supply for H-bridge output section 2
2	Hout2A	servo driver → disc motor	H-bridge PWM output 2A
3	DCout2	DC/DC converter 2 → LC-filter	connects H-bridge DC/DC converter 2 to LC-filter
4	Vin	+A	power supply for servo driver
5	DCout1	DC/DC converter 1 → LC-filter	connects H-bridge DC/DC converter 1 to LC-filter
6	Gnd1,2	GND	ground for H-bridge section 1 and 2
7	Hout1A	servo driver → focus servo	H-bridge PWM output 1A
8	Hin1	→ servo driver	power supply for H-bridge output section 1
9	Hout1B	servo driver → focus servo	H-bridge PWM output 1B
10	Vout	servo driver →	PWM output of DC/DC converter of VLG power supply
11	DTC	→ servo driver	dead time control pin (used to set duty value of Vout output)
12	FBout	servo driver →	feedback for DC/DC converter of VLG power supply
13	INM	→ servo driver	inverting input for DC/DC converter of VLG power supply
14	INP	→ servo driver	non-inverting input for DC/DC converter of VLG power supply
15	VBias	servo driver →	bias stabilizing capacitor connection pin for DC/DC converter
16	Vd	servo driver → +S	power switch output pin of servo driver
17	S.Gnd	GND	ground for internal logic of servo driver
18	Vref	servo driver → +1.2	band-gap reference voltage output of servo driver
19	VG	+VG → servo driver	gate drive power supply for output transistor, power is supplied by using the Cg pin to form a charge pump. charge pump step-up capacitor connection
20	Cg	servo driver →	regulator output pin
21	Vreg	servo driver → +1.8	sawtooth waveform output, synchronized to the clock
22	Cosc	servo driver →	external clock input for separate excitation
23	Sync	→ servo driver	power control pin (low-active)
24	Power	µP → servo driver	H-bridge PWM output 3B
25	Hout3B	servo driver → track servo	power supply for H-bridge output section 3
26	Hin3	→ servo driver	H-bridge PWM output 3A
27	Hout3A	servo driver → track servo	ground for H-bridge section 3 and 4
28	Gnd3,4	GND	connects H-bridge DC/DC converter 3 to LC-filter
29	DCout3	DC/DC converter 3 → LC-filter	power supply for servo driver
30	Vin	+A	connects H-bridge DC/DC converter 4 to LC-filter
31	DCout4	DC/DC converter 4 → LC-filter	H-bridge PWM output 4A
32	Hout4A	servo driver → slide servo	power supply for H-bridge output section 4
33	Hin4	→ servo driver	H-bridge PWM output 4B
34	Hout4B	servo driver → slide servo	input pin, limits LC-filter output voltages of sections 2 and 4
35	Lim2,4	+LF	control input pin, receives track servo signals from CD7
36	Vinp3	CD7 → servo driver	H-bridge output is controlled by voltage between this pin and Vc
37	Vinp4	CD7 → servo driver	control input pin, receives slide servo signals from CD7
38	VLG	+3.5	H-bridge output is controlled by voltage between this pin and Vc
39	S.Gnd	GND	power supply for motor control circuit
40	Vc	DR_REF	ground for internal logic of servo driver
41	Vinp2	CD7 → servo driver	reference voltage for motor control circuit
42	Vinp1	CD7 → servo driver	control input pin, receives disc motor control signals from CD7
43	Lim1,3	+LF → servo driver	H-bridge output is controlled by voltage between this pin and Vc
44	Hout2B	servo driver → disc motor	control input pin, receives focus servo signals from CD7
			H-bridge output is controlled by voltage between this pin and Vc
			input pin, limits LC-filter output voltages of sections 1 and 3
			H-bridge PWM output 2B

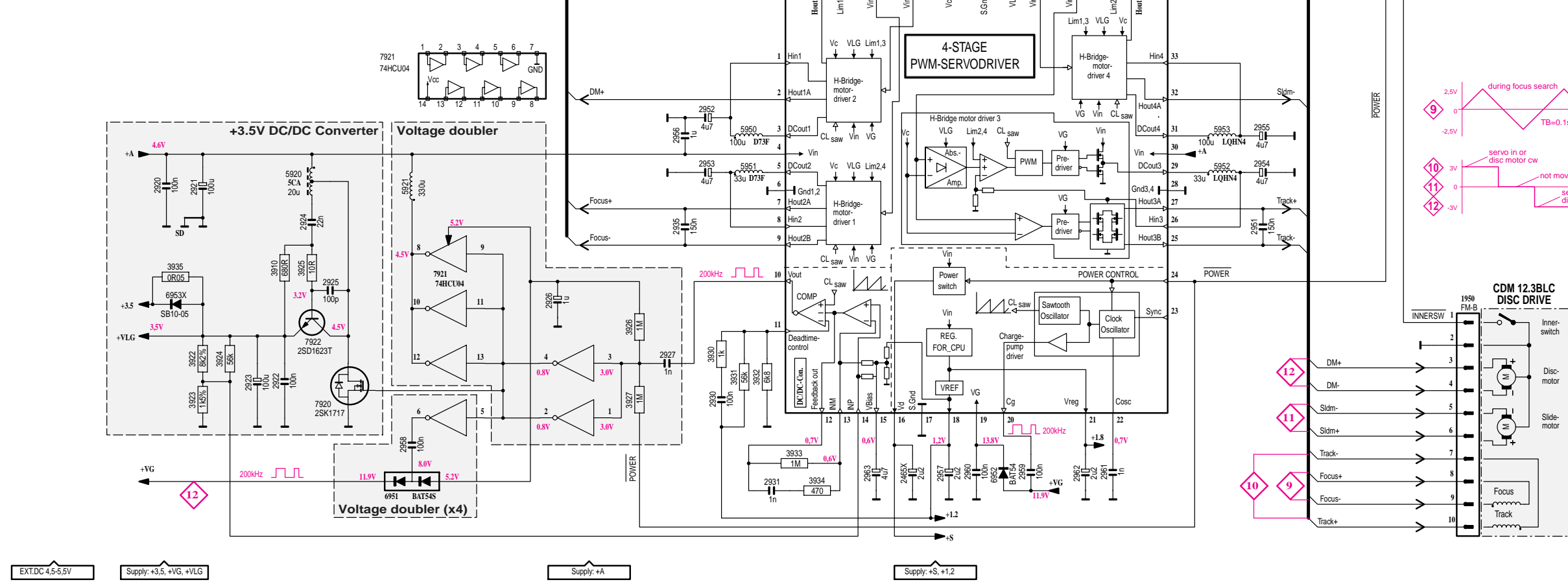
SUPPLY/SERVODRIVER PART



DC-voltages measured in
 EVM PLAY-mode, DBB off
 Set supplied via AC/DC adaptor

Explanation of itemnumber extensions:	Set description:
no extension ... common itemnumbers	AZ7562 A+B+D+H+K
A charge circuit	AZ7565 A+B+D+E+H+K
B LCD illumination	AZ7566 A+B+C+D+H+K
C play-key illumination	
D cord RC prepared	
E digital out (optical)	
F/G/H/K DRAM-size/Audio compression (see table on signal processing part)	
X component only forseen (not in use)	
% tolerance of resistor is 1%	

Supply voltages:
+A battery or external DC voltage
+S switched voltage +A
+DC stabilized external DC voltage
+3.5 stabilized voltage of DC/DC-converter
+1.2 reference voltage (only if power on)



EXT.DC 4.5-5.5V Supply: +3.5, +VG, +VLG Supply: +A Supply: +S, +1.2

- 1250 C 2
- 1280A B 5
- 1950 K 17
- 2255 C 6
- 2280A C 4
- 2281 C 5
- 2282 C 15
- 2283 D 14
- 2485X M 11
- 2816 F 11
- 2822 F 12
- 2918 D 1
- 2919 C 1
- 2920 J 2
- 2921 J 3
- 2922 L 3
- 2923 L 4
- 2924 J 4
- 2925 K 4
- 2926 K 7
- 2927 L 8
- 2930 L 9
- 2931 M 9
- 2935 J 8
- 2951 J 15
- 2952 I 8
- 2953 J 9
- 2958 M 5
- 2959 M 2
- 2960 M 11
- 2961 M 13
- 2962 M 13
- 2963 M 10
- 3254 C 3
- 3255 C 3
- 3262 C 3
- 3263 C 3
- 3270A C 11
- 3271A D 11
- 3272A C 11
- 3273 C 12
- 3274 C 12
- 3275 D 12
- 3276A C 13
- 3277A C 13
- 3278A D 13
- 3279A D 14
- 3280 D 3
- 3281A D 4
- 3282A C 4
- 3283 C 5
- 3284 C 5
- 3285A D 5
- 3286A D 6
- 3287A D 11
- 3288 C 14
- 3290 D 14
- 3291 B 8
- 3292A B 9
- 3293A C 8
- 3294 C 9
- 3295A B 10
- 3296A E 14
- 3297 C 14
- 3298 E 14
- 3299 C 16
- 3910 K 4
- 3922 L 3
- 3923 L 3
- 3924 L 3
- 3925 K 4
- 3926 K 8
- 3927 L 8
- 3930 L 9
- 3931 L 9
- 3932 L 9
- 3933 M 9
- 3934 M 10
- 3935 K 3
- 3950 C 10
- 3951 G 10
- 5920 J 4
- 5921 J 5
- 5950 I 9
- 5951 J 9
- 5952 J 14
- 5953 H 4
- 6250 B 2
- 6251 B 2
- 6951 M 5
- 6952 M 12
- 6953 K 3
- 7279A D 5
- 7281 D 5
- 7282 D 5
- 7283A C 11
- 7284A D 11
- 7285 D 12
- 7286 C 12
- 7287A D 13
- 7288A C 13
- 7320 B 9
- 7920 L 5
- 7921 K 6
- 7922 L 4
- 7950 H 9

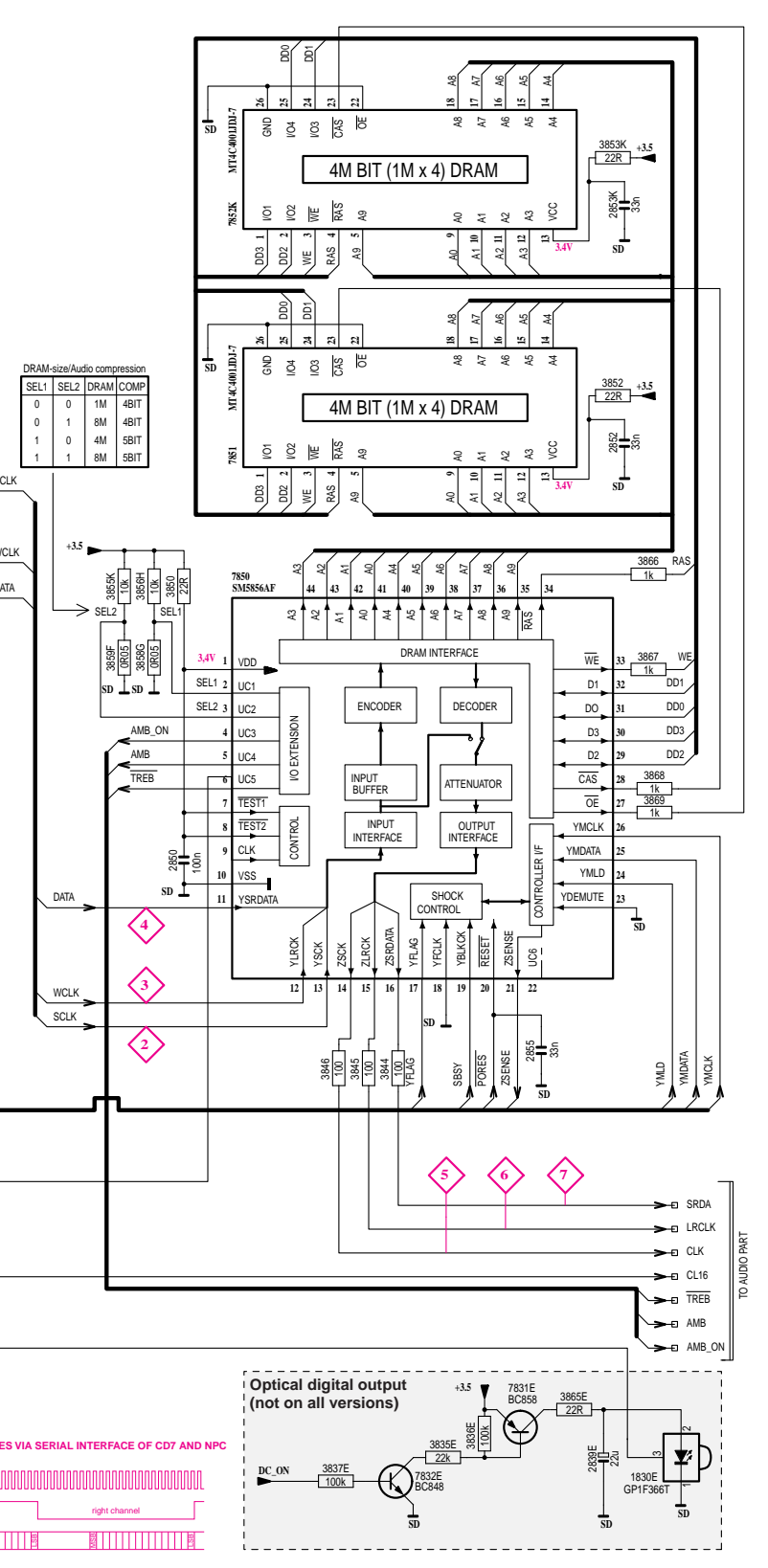
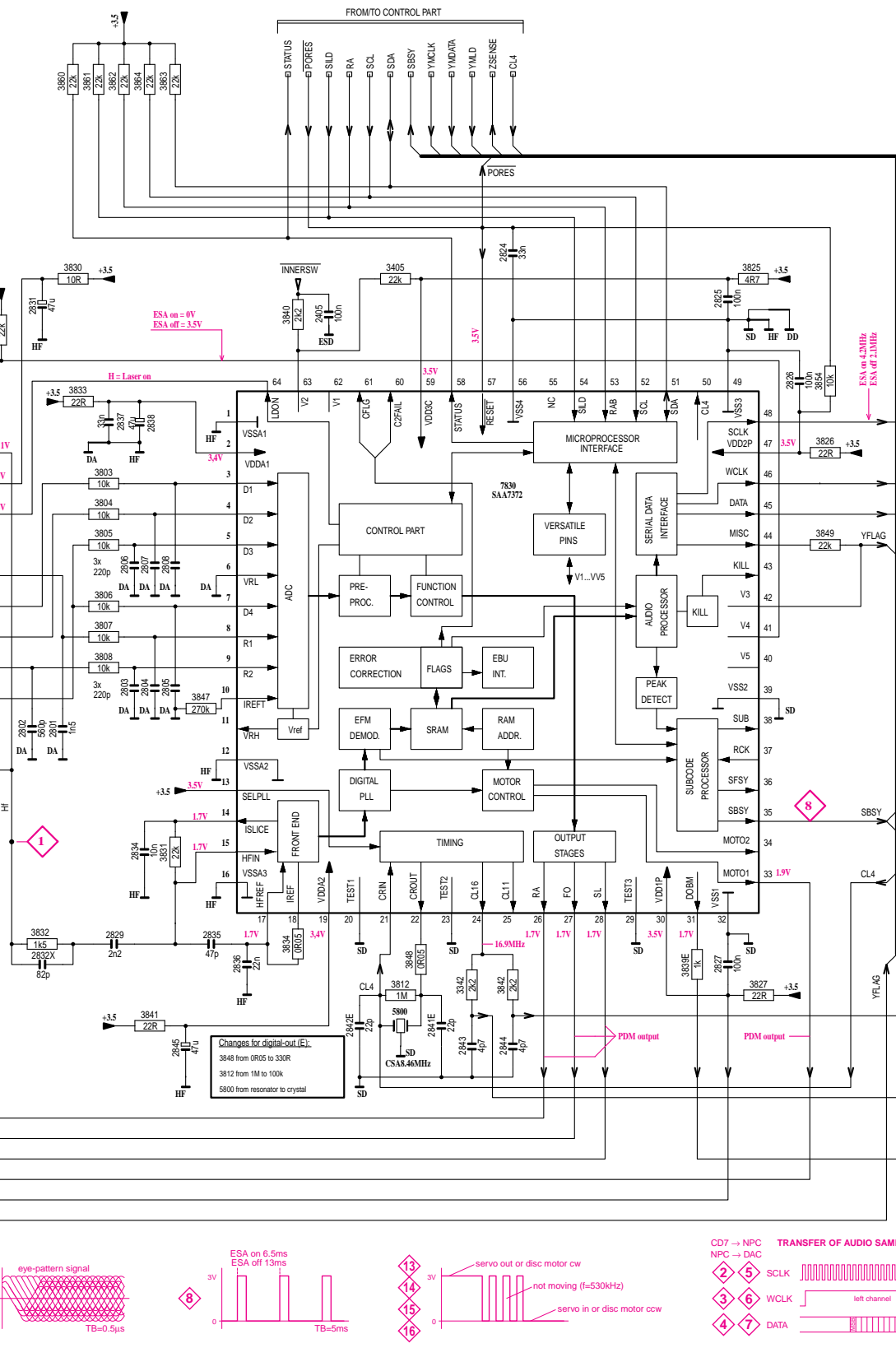
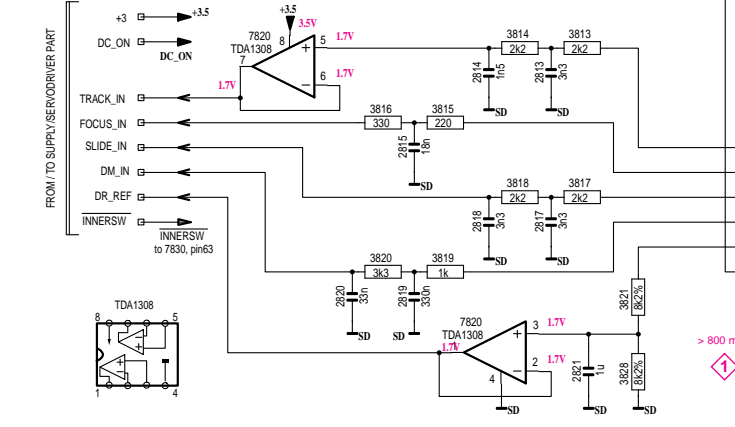
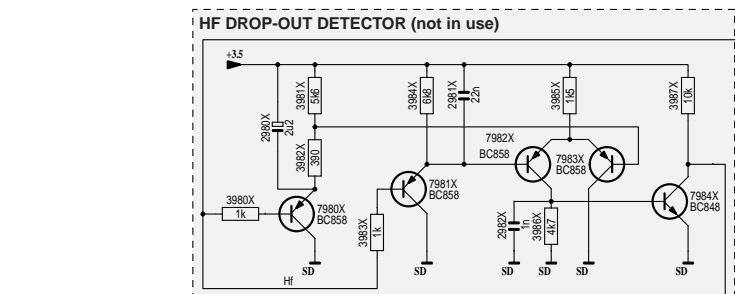
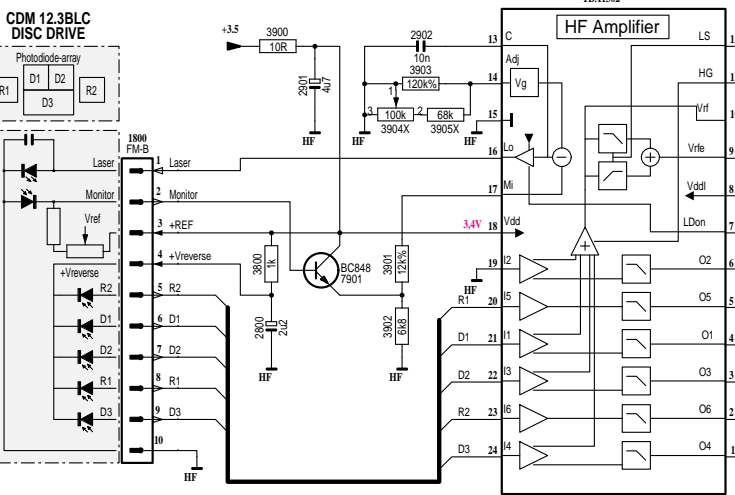
SIGNAL PROCESSING PART

DC-voltages measured in EVM PLAY-mode, DBB off
Set supplied via ACDC-adapter

Explanation of itemnumber extensions:
 A..... common itemnumbers
 B..... change circuit
 C..... LCD illumination
 D..... play-key illumination
 E..... cord RC prepared
 F..... digital out (optical)
 G/H/K..... DRAM-size/Audio compression
 X..... component only forseen (not in use)
 %..... tolerance of resistor is 1%

Set description:
 AZ7562..... A+B+D+H+K
 AZ7565..... A+B+D+E+H+K
 AZ7566..... A+B+C+D+H+K

Supply voltages:
 +A..... battery or external DC voltage
 (see table on signal processing part)
 +S..... switched voltage +A
 +DC..... stabilized external DC voltage
 +3.5..... stabilized voltage of DC/DC-converter
 +1.2..... reference voltage (only if power on)



Changes for digital-out (E):
 3848 from 0R05 to 330R
 3812 from 1M to 100k
 5800 from resonator to crystal

TRANSFER OF AUDIO SAMPLES VIA SERIAL INTERFACE OF CD7 AND NPC

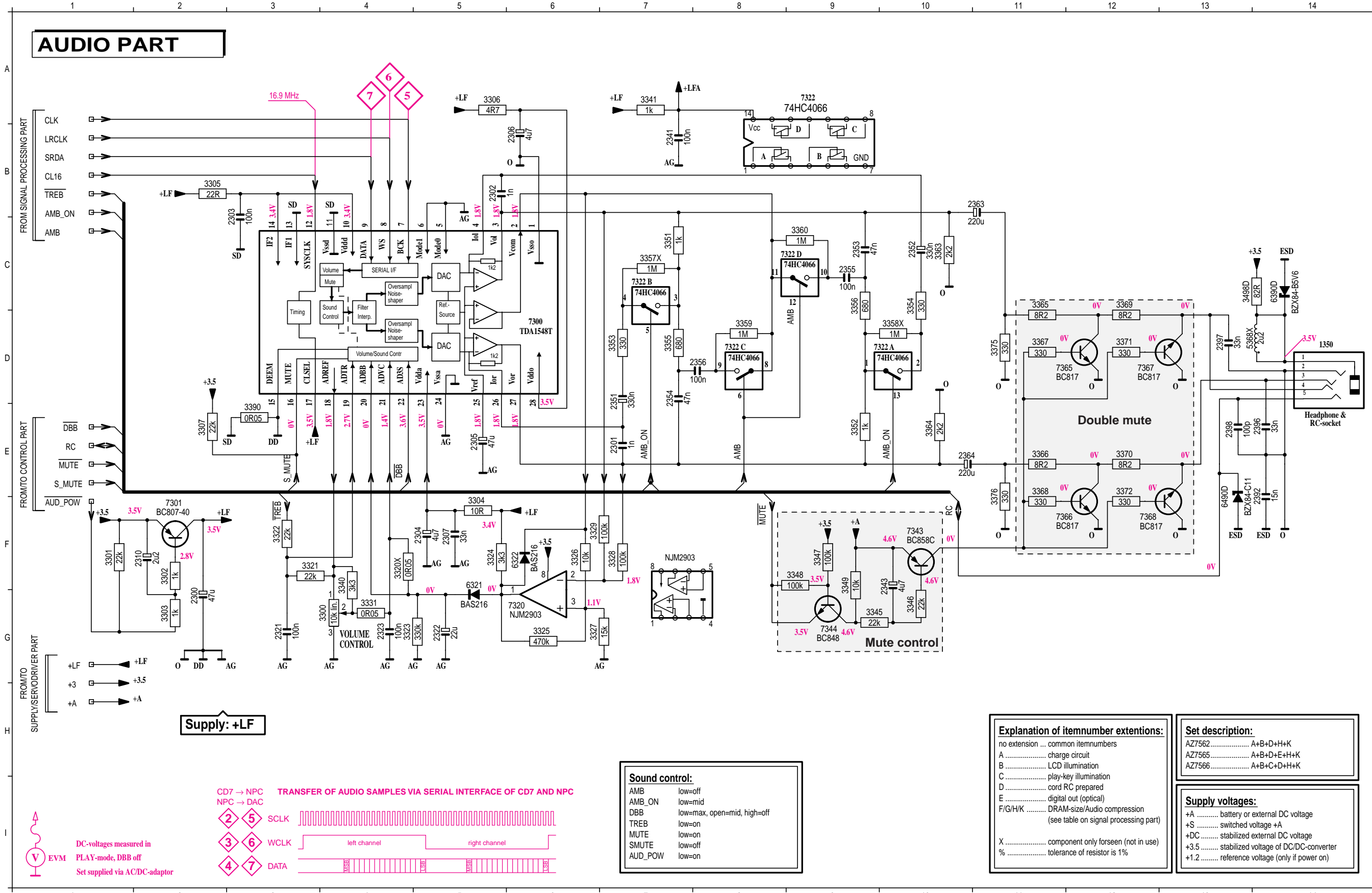
CD7 → NPC
 NPC → DAC

1 SCLK
 2 WCLK
 3 DATA

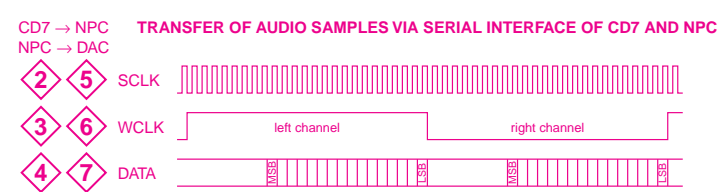
Optical digital output (not on all versions)

- 1800 E2
- 1830E M21
- 2405 D10
- 2800 F3
- 2801 H7
- 2802 H7
- 2803 G8
- 2804 G8
- 2805 G9
- 2806 F8
- 2807 F8
- 2808 F9
- 2813 K5
- 2814 K5
- 2815 L4
- 2817 L5
- 2818 L5
- 2819 M4
- 2820 M4
- 2821 M5
- 2824 C12
- 2825 D14
- 2826 D15
- 2827 J4
- 2829 J8
- 2831 D7
- 2832 J7
- 2834 J8
- 2835 J9
- 2836 J9
- 2837 E8
- 2838 E8
- 2839E M21
- 2841E K11
- 2842E K10
- 2843 K11
- 2844 K2
- 2845 K9
- 2850 H17
- 2852 D21
- 2853E K21
- 2855 I20
- 2901 D3
- 2902 D4
- 2980K I3
- 2981K I4
- 2982K I4
- 3342 J11
- 3405 C11
- 3600 F3
- 3605 F8
- 3804 F8
- 3805 F8
- 3806 G8
- 3807 G8
- 3808 G8
- 3812 J11
- 3813 K5
- 3814 K5
- 3815 K4
- 3816 K4
- 3817 L5
- 3818 L5
- 3819 M4
- 3820 M4
- 3821 M6
- 3822 D7
- 3825 C14
- 3826 E15
- 3827 J4
- 3828 M6
- 3830 C8
- 3831 J9
- 3832 D17
- 3833 E8
- 3834 J10
- 3835E M20
- 3836E M20
- 3837E M19
- 3838E M19
- 3840 D10
- 3841 K8
- 3842 J12
- 3844 J19
- 3845 J19
- 3848 J11
- 3849 F15
- 3850 F17
- 3852 D21
- 3853E B21
- 3854 D15
- 3855K F17
- 3856H F17
- 3856G F17
- 3858 F17
- 3860 A8
- 3861 A8
- 3862 A8
- 3863 A8
- 3864 A8
- 3865E L21
- 3866 E21
- 3867 F21
- 3868 G21
- 3869 G21
- 3900 D3
- 3901 F4
- 3902 F4
- 3903 D4
- 3904X E4
- 3905E E4
- 3980X J3
- 3981X I3
- 3982 I3
- 3983X J4
- 3984X I4
- 3985X I5
- 3986X J5
- 3987X I6
- 5800 K11
- 7800 D5
- 7820 M5
- 7820 K3
- 7830 E2
- 7831E L20
- 7832E M19
- 7850 F18
- 7851 E18
- 7852K C18
- 7901 F4
- 7800 J13
- 7981X I4
- 7982X I5
- 7983X I5
- 7984X I6

AUDIO PART



Supply: +LF



Sound control:

AMB	low=off
AMB_ON	low=mid
DBB	low=max, open=mid, high=off
TREB	low=on
MUTE	low=on
SMUTE	low=off
AUD_POW	low=on

Explanation of itemnumber extensions:

no extension ... common itemnumbers

A charge circuit

B LCD illumination

C play-key illumination

D cord RC prepared

E digital out (optical)

F/G/H/K DRAM-size/Audio compression (see table on signal processing part)

X component only foreseen (not in use)

% tolerance of resistor is 1%

Set description:

AZ7562 A+B+D+H+K

AZ7565 A+B+D+E+H+K

AZ7566 A+B+C+D+H+K

Supply voltages:

+A battery or external DC voltage

+S switched voltage +A

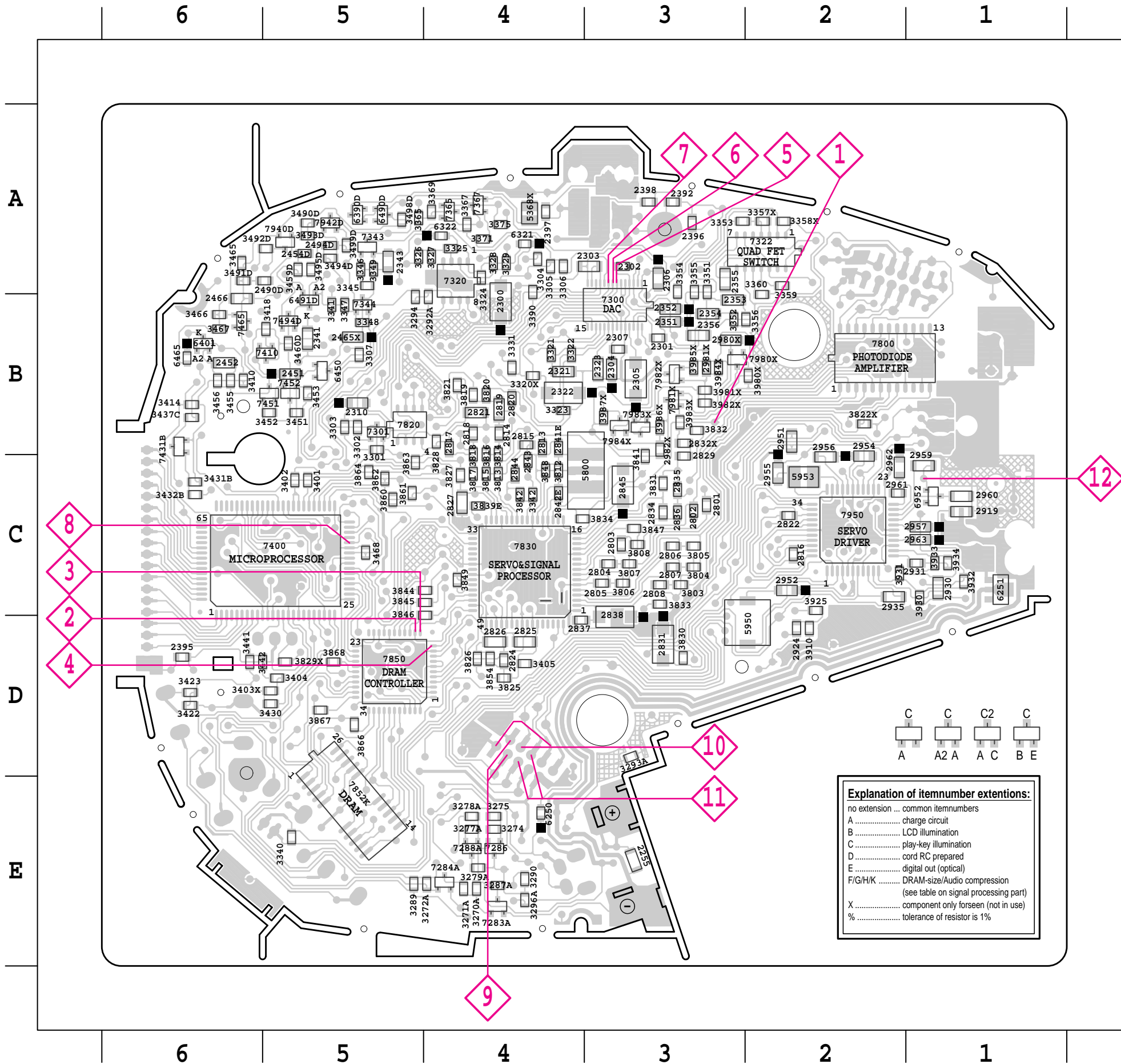
+DC stabilized external DC voltage

+3.5 stabilized voltage of DC/DC-converter

+1.2 reference voltage (only if power on)

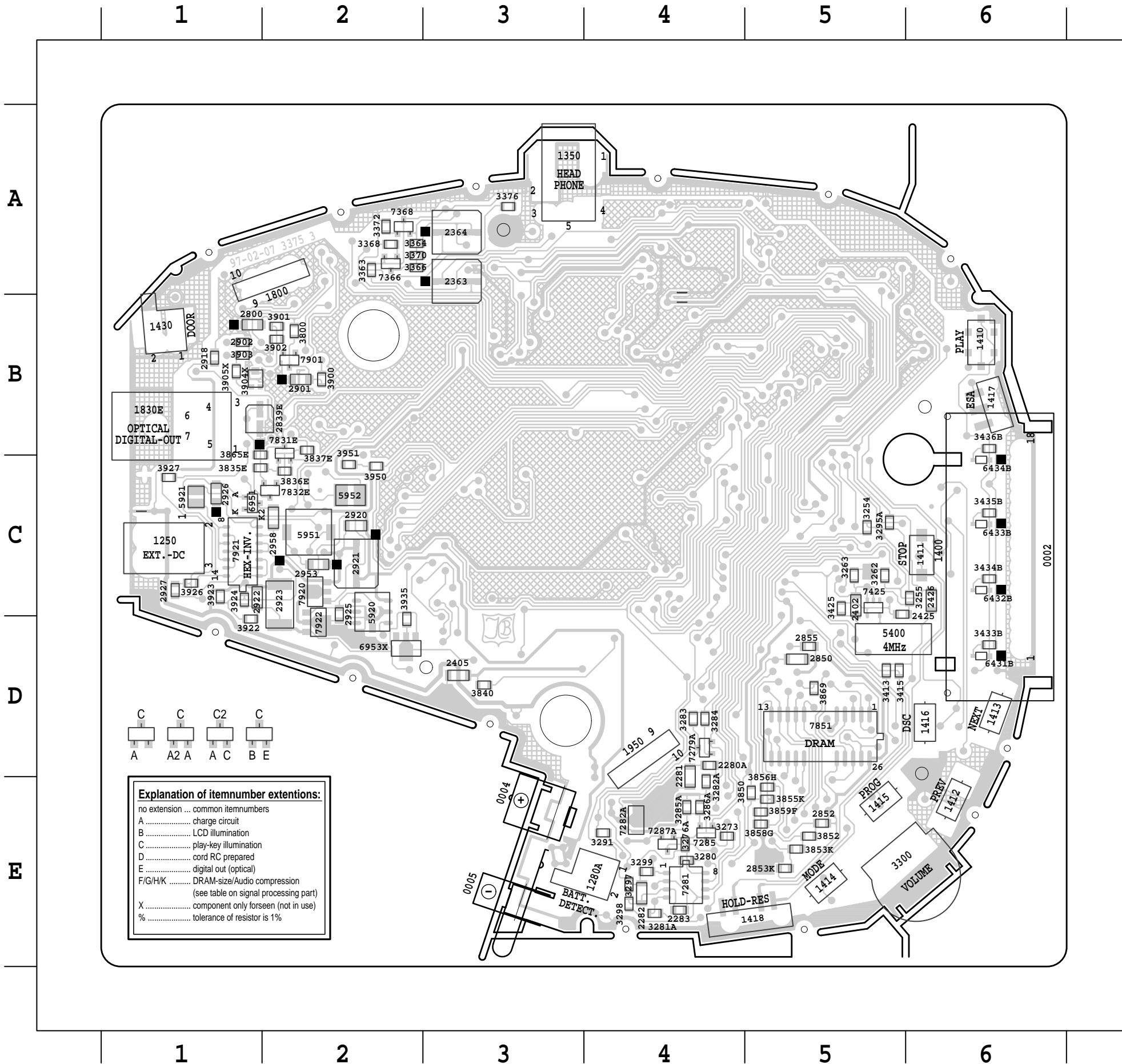
- 1350 D14
- 2300 G2
- 2301 E7
- 2302 B5
- 2303 B3
- 2304 F5
- 2305 E5
- 2306 B6
- 2307 F5
- 2310 F2
- 2321 G3
- 2322 G5
- 2323 G4
- 2341 B7
- 2343 F10
- 2351 D7
- 2352 C10
- 2353 C9
- 2354 D7
- 2355 C9
- 2356 D8
- 2363 B11
- 2364 E10
- 2392 E14
- 2396 E14
- 2397 D13
- 2398 E13
- 3300 G3
- 3301 F1
- 3302 F2
- 3303 G2
- 3304 F5
- 3305 B2
- 3306 A5
- 3307 E2
- 3320X F4
- 3321 F3
- 3322 F3
- 3323 G4
- 3324 F5
- 3325 G6
- 3326 F6
- 3327 G6
- 3328 F7
- 3329 F6
- 3331 G4
- 3340 F4
- 3341 A7
- 3345 G9
- 3346 G10
- 3347 F9
- 3348 F9
- 3349 F9
- 3351 C7
- 3352 E9
- 3353 D7
- 3354 C10
- 3355 D7
- 3356 C9
- 3357X C7
- 3358X D10
- 3359 D8
- 3360 C9
- 3363 C10
- 3364 E10
- 3365 C11
- 3366 E11
- 3367 D11
- 3368 E11
- 3369 C12
- 3370 E12
- 3371 D12
- 3372 E12
- 3375 D11
- 3376 E11
- 3390 E3
- 3498D C13
- 5368X D14
- 6321 F5
- 6322 F6
- 6390D C14
- 6490D E13
- 7300 C2
- 7301 F2
- 7320 G6
- 7322 D9
- 7322 C7
- 7322 D8
- 7322 C8
- 7343 F10
- 7344 G9
- 7365 D11
- 7366 F11
- 7367 D12
- 7368 F12

PRINTED CIRCUIT BOARD – COPPERSIDE VIEW

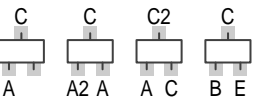


2255 E 3	2842E C 4	3351 A 3	3819 B 4	7286 E 4
2300 B 4	2843 C 4	3352 B 3	3820 B 4	7288A E 4
2301 B 3	2844 C 4	3353 A 3	3821 B 4	7300 B 3
2302 A 3	2845 C 3	3354 A 3	3822X B 2	7301 B 5
2303 A 3	2919 C 1	3355 A 3	3825 D 4	7320 A 4
2304 B 3	2924 D 2	3356 B 2	3826 D 4	7322 A 2
2305 B 3	2930 C 1	3357X A 2	3827 C 4	7343 A 5
2306 A 3	2931 C 1	3358X A 2	3828 B 4	7344 B 5
2307 B 3	2935 C 2	3359 A 2	3829X D 5	7365 A 4
2310 B 5	2951 B 2	3360 B 2	3830 D 3	7367 A 4
2321 B 4	2952 C 2	3365 A 5	3831 C 3	7400 C 5
2322 B 4	2954 C 2	3367 A 4	3832 B 3	7410 B 5
2323 B 3	2955 C 2	3369 A 4	3833 C 3	7431B B 6
2341 B 5	2956 C 2	3371 A 4	3834 C 4	7451 B 5
2343 A 5	2957 C 1	3375 A 4	3839E C 4	7452 B 5
2351 B 3	2959 C 1	3390 A 4	3841 C 3	7465 B 6
2352 B 3	2960 C 1	3401 C 5	3842 C 4	7494D B 5
2353 B 3	2961 C 2	3402 C 5	3844 C 4	7800 B 2
2354 B 3	2962 C 2	3403X D 5	3845 C 4	7820 B 5
2355 A 3	2963 C 1	3404 D 5	3846 D 4	7830 C 4
2356 B 3	2980X B 3	3405 D 4	3847 C 3	7850 D 5
2392 A 3	2981X B 3	3410 B 6	3848 C 4	7852K E 5
2395 D 6	2982X B 3	3414 B 6	3849 C 4	7940D A 5
2396 A 3	3270A E 4	3418 B 5	3854 D 4	7942D A 5
2397 A 4	3271A E 4	3422 D 6	3860 C 5	7950 C 2
2398 A 3	3272A E 4	3423 D 6	3861 C 5	7980X B 3
2451 B 5	3274 E 4	3430 D 5	3862 C 5	7981X B 3
2452 B 6	3275 E 4	3431B C 6	3863 C 5	7982X B 3
2454D A 5	3277A E 4	3432B C 6	3864 C 5	7983X B 3
2465X B 5	3278A E 4	3437C B 6	3866 D 5	7984X B 3
2466 B 6	3279A E 4	3441 D 6	3867 D 5	
2490D A 5	3287A E 4	3442 D 5	3868 D 5	
2494D A 5	3289 E 5	3451 B 5	3910 D 2	
2801 C 3	3290 E 4	3452 B 5	3925 C 2	
2802 C 3	3292A B 4	3453 B 5	3930 C 1	
2803 C 3	3293A D 3	3455 B 6	3931 C 2	
2804 C 3	3294 B 5	3456 B 6	3932 C 1	
2805 C 3	3296A E 4	3459D A 5	3933 C 1	
2806 C 3	3301 B 5	3460D B 5	3934 C 1	
2807 C 3	3302 B 5	3465 A 6	3980X B 2	
2808 C 3	3303 B 5	3466 B 6	3981X B 3	
2813 B 4	3304 A 4	3467 B 6	3982X B 3	
2814 B 4	3305 A 4	3468 C 5	3983X B 3	
2815 B 4	3306 A 4	3490D A 5	3984X B 3	
2816 C 2	3307 B 5	3491D A 6	3985X B 3	
2817 B 4	3320X B 4	3492D A 5	3986X B 3	
2818 B 4	3321 B 4	3493D A 5	3987X B 3	
2819 B 4	3322 B 4	3494D A 5	5368X A 4	
2820 B 4	3323 B 4	3495D A 5	5800 C 3	
2821 B 4	3324 A 4	3498D A 5	5950 D 2	
2822 C 2	3325 A 4	3499D A 5	5953 C 2	
2824 D 4	3326 A 5	3803 C 3	6250 E 4	
2825 D 4	3327 A 4	3804 C 3	6251 C 1	
2826 D 4	3328 A 4	3805 C 3	6321 A 4	
2827 C 4	3329 A 4	3806 C 3	6322 A 4	
2829 C 3	3331 B 4	3807 C 3	6390D A 5	
2831 D 3	3331 B 4	3808 C 3	6401 B 6	
2832X B 3	3341 B 5	3812 C 4	6450 B 5	
2834 C 3	3342 C 4	3813 C 4	6465 B 6	
2835 C 3	3345 A 5	3814 C 4	6490D A 5	
2836 C 3	3346 A 5	3815 C 4	6491D B 5	
2837 D 4	3347 B 5	3816 C 4	6952 C 1	
2838 D 3	3348 B 5	3817 C 4	7283A E 4	
2841E B 4	3349 A 5	3818 C 4	7284A E 4	

PRINTED CIRCUIT BOARD – COMPONENTSIDE VIEW

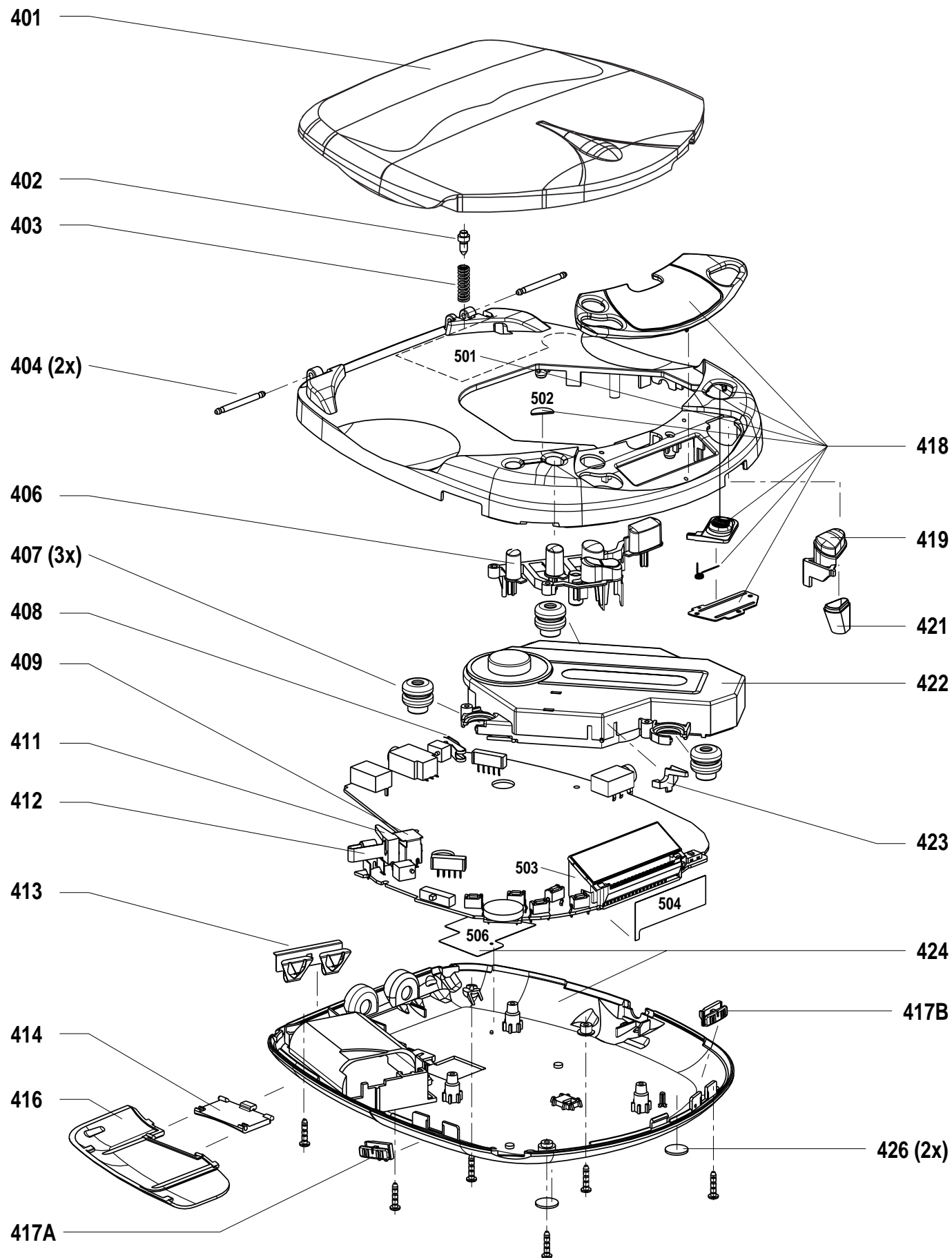


1250 C 1	3363 A 2	7901 B 2
1280A E 4	3364 A 2	7920 C 2
1350 A 3	3366 A 2	7921 C 1
1400 C 6	3368 A 2	7922 D 2
1410 B 6	3370 A 2	
1411 C 6	3372 A 2	
1412 E 6	3376 A 3	
1413 D 6	3413 D 5	
1414 E 5	3415 D 5	
1415 E 6	3425 C 5	
1416 D 6	3433B D 6	
1417 B 6	3434B C 6	
1418 E 5	3435B C 6	
1430 B 1	3436B B 6	
1800 A 2	3800 B 2	
1830E B 1	3835E C 1	
1950 E 4	3836E C 2	
2280A D 4	3837E B 2	
2281 E 4	3840 D 3	
2282 E 4	3850 E 5	
2283 E 4	3852 E 5	
2363 A 3	3853K E 5	
2364 A 3	3855K E 5	
2402 C 5	3856H E 5	
2405 D 3	3858G E 5	
2425 C 5	3859F E 5	
2426 C 6	3865E C 1	
2800 B 1	3869 D 5	
2839E B 1	3900 B 2	
2850 D 5	3901 B 2	
2852 E 5	3902 B 2	
2853K E 5	3903 B 1	
2855 D 5	3904X B 1	
2901 B 2	3905X B 1	
2902 B 1	3922 D 1	
2918 B 1	3923 C 1	
2920 C 2	3924 C 1	
2921 C 2	3926 C 1	
2922 C 1	3927 C 1	
2923 C 2	3935 D 2	
2925 C 2	3950 C 2	
2926 C 1	3951 C 2	
2927 C 1	5400 D 5	
2953 C 2	5920 C 2	
2958 C 2	5921 C 1	
3254 C 5	5951 C 2	
3255 C 6	5952 C 2	
3262 C 5	6431B D 6	
3263 C 5	6432B C 6	
3273 E 4	6433B C 6	
3276A E 4	6434B C 6	
3280 E 4	6951 C 1	
3281A E 4	6953X D 2	
3282A E 4	7279A D 4	
3283 D 4	7281 E 4	
3284 D 4	7282A E 4	
3285A E 4	7285 E 4	
3286A E 4	7287A E 4	
3291 E 4	7366 A 2	
3295A C 5	7368 A 2	
3297 E 4	7425 C 5	
3298 E 4	7831E B 2	
3299 E 4	7832E C 2	
3300 D 6	7851 D 5	



Explanation of itemnumber extensions:
 no extension ... common itemnumbers
 A charge circuit
 B LCD illumination
 C play-key illumination
 D cord RC prepared
 E digital out (optical)
 F/G/H/K DRAM-size/Audio compression
 (see table on signal processing part)
 X component only forseen (not in use)
 % tolerance of resistor is 1%

EXPLODED VIEW



MECHANICAL PARTSLIST

401	4822 443 10638	DOOR-CD AZ7562
401	4822 443 10564	DOOR-CD AZ7565
401	4822 443 10567	DOOR-CD AZ7566
402	4822 402 10347	PIN-OPEN
403	4822 492 11071	SPRING-OPEN
404	4822 535 10247	SPINDLE
406	4822 410 10396	BUTTON-SET PRINTED
407	4822 529 10382	DAMPER-RUBBER
408	4822 492 11169	SPRING-SWITCH
409	4822 492 11066	SPRING-BATTERY PLUS
411	4822 402 10157	PIN DETECTION
412	4822 492 11067	SPRING-BATTERY MINUS
413	4822 492 11065	SPRING-BATTERY SHORT
414	4822 417 11347	HINGE-DOOR-BATTERY AZ7562, AZ7566
414	4822 417 11348	HINGE-DOOR-BATTERY AZ7565
416	4822 443 10579	DOOR-BATTERY AZ7565
416	4822 443 10581	DOOR-BATTERY AZ7566
417 A	4822 463 11028	SLIDER RESUME/HOLD
417 B	4822 463 11028	SLIDER ESA
418	4822 449 80147	CABINET ASSEMBLY AZ7562
418	4822 449 80137	CABINET ASSEMBLY AZ7565
418	4822 449 80139	CABINET ASSEMBLY AZ7566
419	4822 410 10285	BUTTON-PLAY PRINTED
421	4822 410 10287	SLEEVE-BUTTON-PLAY
422	4822 691 10487	COMPACT DISC DRIVE CDM12.3BLC
423	4822 402 61554	PROTECTION BRACKET
424	4822 442 00905	BOTTOM ASSEMBLY AZ7562
424	4822 442 00806	BOTTOM ASSEMBLY AZ7565
424	4822 442 00814	BOTTOM ASSEMBLY AZ7566
426	4822 462 41819	RUBBER FOOT
502	4822 466 62624	RUBBER-PAD CABINET
504	4822 466 70781	FOIL (DIFFUSOR)
	4822 502 21247	SCREW M1.7x9

ELECTRICAL PARTSLIST

MISCELLANEOUS

for accessories see separate list chapter 1-3

1250	4822 265 10626	SOCKET, EXT. SUPPLY
1280	4822 276 13695	SWITCH, BATT. DETECTION
1350	4822 267 41192	HEADPHONE&RC-SOCKET
1400	4822 135 00112	LCD PANEL LPH6380-1
1410	4822 276 13319	SWITCH, TACT

1410	4822 276 13437	SWITCH, TACT (with LED)
1411	4822 276 13694	SWITCH, TACT
1412	4822 276 12469	SWITCH, TACT
1413	4822 276 12469	SWITCH, TACT
1414	4822 276 12469	SWITCH, TACT

1415	4822 276 12469	SWITCH, TACT
1416	4822 276 12469	SWITCH, TACT
1417	4822 277 21757	SWITCH, SLIDE
1418	4822 277 21705	SWITCH, SLIDE
1430	4822 276 13695	SWITCH, DOOR-CD

1800	4822 265 10625	CONNECTOR FLEXFOIL CDM
1950	4822 265 10625	CONNECTOR FLEXFOIL CDM

CAPACITORS

2255	4822 122 33496	100nF	10%	63V
2280	5322 122 31863	330pF	5%	50V
2281	4822 122 33496	100nF	10%	63V
2282	4822 122 33496	100nF	10%	63V
2283	4822 122 33175	2,2nF	20%	50V

2300	4822 124 11456	47μF	20%	4V
2301	5322 122 34123	1nF	10%	50V
2302	5322 122 34123	1nF	10%	50V
2303	4822 122 33496	100nF	10%	63V
2304	5322 124 23675	4,7μF	20%	4V

2305	4822 124 11456	47μF	20%	4V
2306	5322 124 23675	4,7μF	20%	4V
2307	4822 122 33342	33nF	10%	63V
2310	4822 124 11348	2,2μF	20%	10V
2321	4822 122 33496	100nF	10%	63V

2322	4822 124 11518	22μF	20%	6,3V
2323	4822 122 33496	100nF	10%	63V
2341	4822 122 33496	100nF	10%	63V
2343	5322 124 23675	4,7μF	20%	4V
2351	5322 124 10803	330nF	20%	35V

2352	5322 124 10803	330nF	20%	35V
2353	4822 122 32542	47nF	10%	63V
2354	4822 122 32542	47nF	10%	63V
2355	4822 122 33496	100nF	10%	63V
2356	4822 122 33496	100nF	10%	63V

2363	4822 124 81059	220μF	20%	4V
2364	4822 124 81059	220μF	20%	4V
2392	5322 122 31863	330pF	5%	50V
2395	4822 122 33575	220pF	5%	50V
2396	4822 122 33342	33nF	10%	63V

2397	4822 122 33342	33nF	10%	63V
2398	5322 122 32531	100pF	5%	50V
2402	4822 122 33496	100nF	10%	63V
2405	4822 122 33496	100nF	10%	63V
2425	4822 122 33173	560pF	10%	63V

2426	4822 126 11692	1μF	20%	16V
2430	4822 122 33575	220pF	5%	50V
2451	5322 124 23675	4,7μF	20%	4V
2452	4822 122 33496	100nF	10%	63V
2454	4822 122 33891	3,3nF	10%	63V

CAPACITORS

2466	4822 126 11692	1μF	20%	16V
2490	4822 126 13344	1,5nF	5%	63V
2494	5322 122 32658	22pF	5%	50V
2800	4822 124 11348	2,2μF	20%	10V
2801	5322 122 31865	1,5nF	10%	63V

2802	4822 122 33173	560pF	10%	63V
2803	4822 122 33575	220pF	5%	50V
2804	4822 122 33575	220pF	5%	50V
2805	4822 122 33575	220pF	5%	50V
2806	4822 122 33575	220pF	5%	50V

2807	4822 122 33575	220pF	5%	50V
2808	4822 122 33575	220pF	5%	50V
2813	4822 122 33891	3,3nF	10%	63V
2814	5322 122 31865	1,5nF	10%	63V
2815	4822 122 33893	18nF	10%	63V

2816	4822 122 33128	15nF	10%	63V
2817	4822 122 33891	3,3nF	10%	63V
2818	4822 122 33891	3,3nF	10%	63V
2819	4822 122 33064	330nF	20%	25V
2820	4822 122 33342	33nF	10%	63V

2821	4822 126 11692	1μF	20%	16V
2822	4822 122 33128	15nF	10%	63V
2824	4822 122 33342	33nF	10%	63V
2825	4822 122 33496	100nF	10%	63V
2826	4822 122 33496	100nF	10%	63V

2827	4822 122 33496	100nF	10%	63V
2829	4822 122 33175	2,2nF	20%	50V
2831	4822 124 11456	47μF	20%	4V
2834	4822 122 33177	10nF	20%	50V
2835	5322 122 32452	47pF	5%	50V

2836	5322 122 32654	22nF	10%	63V
2837	4822 122 33342	33nF	10%	63V
2838	4822 124 11456	47μF	20%	4V
2839	4822 124 81061	22μF	20%	6,3V
2841	5322 122 32658	22pF	5%	50V

2842	5322 122 32658	22pF	5%	50V
2843	5322 122 32287	4,7pF	5%	50V
2844	5322 122 32287	4,7pF	5%	50V
2845	4822 124 11456	47μF	20%	4V
2850	4822 122 33496	100nF	10%	63V

2852	4822 122 33342	33nF	10%	63V
2853	4822 122 33342	33nF	10%	63V
2855	4822 122 33342	33nF	10%	63V
2901	5322 124 23675	4,7μF	20%	4V
2902	4822 122 33177	10nF	20%	50V

2919	4822 122 33496	100nF	10%	63V
2920	4822 122 33496	100nF	10%	63V
2921	4822 124 11519	100μF	20%	10V
2922	4822 122 33496	100nF	10%	63V
2923	4822 124 41897	100μF	20%	4V

2924	5322 122 32654	22nF	10%	63V
2925	5322 122 32531	100pF	5%	50V
2926	5322 124 10798	1μF	20%	16V
2927	5322 122 34123	1nF	10%	50V
2930	4822 122 33496	100nF	10%	63V

2931	5322 122 34123	1nF	10%	50V
2935	4822 126 11691	150nF	10%	63V
2951	4822 126 11691	150nF	10%	63V
2952	5322 124 23675	4,7μF	20%	4V
2953	5322 124 23675	4,7μF	20%	4V

2954	5322 124 23675	4,7μF	20%	4V
2955	5322 124 23675	4,7μF	20%	4V
2956	4822 126 11692	1μF	20%	16V
2957	4822 124 11348	2,2μF	20%	10V

CAPACITORS

2958	4822 122 33496	100nF	10%	63V
2959	4822 122 33496	100nF	10%	63V
2960	4822 122 33496	100nF	10%	63V
2961	5322 122 34123	1nF	10%	50V
2962	4822 124 11348	2,2μF	20%	10V

2963	5322 124 23675	4,7μF	20%	4V
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RESISTORS

3254	4822 117 10833	10kΩ	1%	0,1W
3255	4822 051 20473	47kΩ	5%	0,1W
3262	4822 117 10833	10kΩ	1%	0,1W
3263	4822 051 20473	47kΩ	5%	0,1W
3270	4822 051 20474	470kΩ	5%	0,1W

3271	4822 117 10833	10kΩ	1%	0,1W
3272	4822 051 20104	100kΩ	5%	0,1W
3273	4822 051 20104	100kΩ	5%	0,1W
3274	4822 051 20104	100kΩ	5%	0,1W
3275	4822 051 20223	22kΩ	5%	0,1W

3276	4822 051 20104	100kΩ	5%	0,1W
3277	4822 051 20104	100kΩ	5%	0,1W
3278	4822 051 20223	22kΩ	5%	0,1W
3279	4822 051 20333	33kΩ	5%	0,1W
3280	4822 051 20104	100kΩ	5%	0,1W

3281	4822 117 10833	10kΩ	1%	0,1W
3282	4822 051 20104	100kΩ	5%	0,1W
3283	4822 117 11449	2,2kΩ	1%	0,1W
3284	4822 051 20223	22kΩ	5%	0,1W
3285	4822 051 20228	2,2Ω	5%	0,1W

3286	4822 051 20228	2,2Ω	5%	0,1W
3287	4822 051 20822	8,2kΩ	5%	0,1W
3289	4822 117 11449	2,2kΩ	1%	0,1W
3290	4822 117 10833	10kΩ	1%	0,1W
3291	4822 051 20562	5,6kΩ	5%	0,1W

3292	4822 051 20822	8,2kΩ	5%	0,1W
3293	4822 116 30467	10kΩ	5%	NTC
3294	4822 051 20562	5,6kΩ	5%	0,1W
3295	4822 051 20223	22kΩ	5%	0,1W
3296	4822 051 20223	22kΩ	5%	0,1W

3297	4822 051 20474	470kΩ	5%	0,1W
3298	4822 117 11383	12kΩ	1%	0,1W
3299	4822 117 10833	10kΩ	1%	0,1W
3300	4822 101 11372	10kΩ	POTMETER LIN.	
3301	4822 051 20223	22kΩ	5%	0,1W

3302	4822 051 10102	1kΩ	2%	0,25W
3303	4822 051 10102	1kΩ	2%	0,25W
3304	4822 051 20109	10Ω	5%	0,1W
3305	4822 051 20229	22Ω	5%	0,1W
3306	4822 051 20478	4,7Ω	5%	0,1W

3307	4822 051 20223	22kΩ	5%	0,1W
3321	4822 051 20223	22kΩ	5%	0,1W
3322	4822 051 20223	22kΩ	5%	0,1W
3323	4822 051 20334	330kΩ	5%	0,1W
3324	4822 051 20332	3,3kΩ	5%	0,1W

3325	4822 051 20474	470kΩ	5%	0,1W
3326	4822 117 10833	10kΩ	1%	0,1W
3327	4822 051 20153	15kΩ	5%	0,1W
3328	4822 051 20104	100kΩ	5%	0,1W
3329	4822 051 20104	100kΩ	5%	0,1W

3331	4822 051 20008	CHIP JUMPER 0805		
3340	4822 051 20332	3,3kΩ	5%	0,1W
3341	4822 051 10102	1kΩ	2%	0,25W
3342	4822 117 11449	2,2kΩ	1%	0,1W
3345	4822 051 20223	22kΩ	5%	0,1W

RESISTORS

3346	4822 051 20223	22kΩ	5%	0,1W
3347	4822 051 20104	100kΩ	5%	0,1W
3348	4822 051 20104	100kΩ	5%	0,1W
3349	4822 117 10833	10kΩ	1%	0,1W
3351	4822 051 10102	1kΩ	2%</	

RESISTORS

3498	©	4822 051 20829	82Ω	5%	0,1W
3499	©	4822 117 10833	10kΩ	1%	0,1W
3800	©	4822 051 10102	1kΩ	2%	0,25W
3803	©	4822 117 10833	10kΩ	1%	0,1W
3804	©	4822 117 10833	10kΩ	1%	0,1W
3805	©	4822 117 10833	10kΩ	1%	0,1W
3806	©	4822 117 10833	10kΩ	1%	0,1W
3807	©	4822 117 10833	10kΩ	1%	0,1W
3808	©	4822 117 10833	10kΩ	1%	0,1W
3812	©	4822 051 20104	100kΩ	5%	0,1W
3812	©	4822 051 20105	1MΩ	5%	0,1W
3813	©	4822 117 11449	2,2kΩ	1%	0,1W
3814	©	4822 117 11449	2,2kΩ	1%	0,1W
3815	©	4822 117 11503	220Ω	5%	0,1W
3816	©	4822 051 20331	330Ω	5%	0,1W
3817	©	4822 117 11449	2,2kΩ	1%	0,1W
3818	©	4822 117 11449	2,2kΩ	1%	0,1W
3819	©	4822 051 10102	1kΩ	2%	0,25W
3820	©	4822 051 20332	3,3kΩ	5%	0,1W
3821	©	4822 117 11437	8,2kΩ	1%	0,1W
3825	©	4822 051 20478	4,7Ω	5%	0,1W
3826	©	4822 051 20229	22Ω	5%	0,1W
3827	©	4822 051 20229	22Ω	5%	0,1W
3828	©	4822 117 11437	8,2kΩ	1%	0,1W
3830	©	4822 051 20109	10Ω	5%	0,1W
3831	©	4822 051 20223	22kΩ	5%	0,1W
3832	©	4822 117 11139	1,5kΩ	1%	0,1W
3833	©	4822 051 20229	22Ω	5%	0,1W
3834	©	4822 051 20008	CHIP JUMPER 0805		
3835	©	4822 051 20223	22kΩ	5%	0,1W
3836	©	4822 051 20104	100kΩ	5%	0,1W
3837	©	4822 051 20104	100kΩ	5%	0,1W
3839	©	4822 051 10102	1kΩ	2%	0,25W
3840	©	4822 117 11449	2,2kΩ	1%	0,1W
3841	©	4822 051 20229	22Ω	5%	0,1W
3842	©	4822 117 11449	2,2kΩ	1%	0,1W
3844	©	4822 051 20101	100Ω	5%	0,1W
3845	©	4822 051 20101	100Ω	5%	0,1W
3846	©	4822 051 20101	100Ω	5%	0,1W
3847	©	4822 051 20274	270kΩ	5%	0,1W
3848	©	4822 051 20008	CHIP JUMPER 0805		
3848	©	4822 051 20331	330Ω	5%	0,1W
3849	©	4822 051 20223	22kΩ	5%	0,1W
3850	©	4822 051 20229	22Ω	5%	0,1W
3852	©	4822 051 20229	22Ω	5%	0,1W
3853	©	4822 051 20229	22Ω	5%	0,1W
3854	©	4822 117 10833	10kΩ	1%	0,1W
3855	©	4822 117 10833	10kΩ	1%	0,1W
3856	©	4822 117 10833	10kΩ	1%	0,1W
3860	©	4822 051 20223	22kΩ	5%	0,1W
3861	©	4822 051 20223	22kΩ	5%	0,1W
3862	©	4822 051 20223	22kΩ	5%	0,1W
3863	©	4822 051 20223	22kΩ	5%	0,1W
3864	©	4822 051 20223	22kΩ	5%	0,1W
3865	©	4822 051 20229	22Ω	5%	0,1W
3866	©	4822 051 10102	1kΩ	2%	0,25W
3867	©	4822 051 10102	1kΩ	2%	0,25W
3868	©	4822 051 10102	1kΩ	2%	0,25W
3869	©	4822 051 10102	1kΩ	2%	0,25W
3900	©	4822 051 20109	10Ω	5%	0,1W
3901	©	4822 117 11383	12kΩ	1%	0,1W
3902	©	4822 051 20682	6,8kΩ	5%	0,1W
3903	©	4822 117 11374	120k	1%	RC12H
3910	©	4822 051 20681	680Ω	5%	0,1W

RESISTORS

3922	©	4822 117 11437	8,2kΩ	1%	0,1W
3923	©	4822 117 11139	1,5kΩ	1%	0,1W
3924	©	4822 051 20563	56kΩ	5%	0,1W
3925	©	4822 051 20109	10Ω	5%	0,1W
3926	©	4822 051 20105	1MΩ	5%	0,1W
3927	©	4822 051 20105	1MΩ	5%	0,1W
3930	©	4822 051 10102	1kΩ	2%	0,25W
3951	©	4822 051 20392	3,9kΩ	5%	0,1W
3931	©	4822 051 20563	56kΩ	5%	0,1W
3932	©	4822 051 20682	6,8kΩ	5%	0,1W
3933	©	4822 051 20105	1MΩ	5%	0,1W
3934	©	4822 051 20471	470Ω	5%	0,1W
3935	©	4822 051 20008	CHIP JUMPER 0805		
3950	©	4822 117 10833	10kΩ	1%	0,1W

COILS

5400		4822 242 72527	CER. RES. 4,0MHz		
5800	©	4822 242 81546	CER. RES. 8,4672MHz		
5800	©	4822 242 10339	CRYSTAL 8,4672MHz		
5920	©	4822 146 10412	20μH 395HN-A002EG		
5921	©	4822 157 10393	330μH 10% LQH3N		
5950	©	4822 157 10394	100μH 20% D73F		
5951	©	4822 157 10395	33μH 20% D73F		
5952	©	4822 157 10396	33μH 10% LQH4N		
5953	©	4822 157 70753	100μH 10% LQH4N		

DIODES

6250	©	4822 130 83757	BAS216		
6251	©	4822 130 82588	SB10-05PCP		
6321	©	4822 130 83757	BAS216		
6322	©	4822 130 83757	BAS216		
6390	©	4822 130 33004	BZX84-B5V6		
6401	©	5322 130 34331	BAV70		
6431	©	4822 130 83815	LED LN1371SG		
6432	©	4822 130 83815	LED LN1371SG		
6433	©	4822 130 83815	LED LN1371SG		
6434	©	4822 130 83815	LED LN1371SG		
6450	©	4822 130 80622	BAT54		
6465	©	4822 130 83757	BAS216		
6490	©	4822 130 81338	BZX84-C11		
6491	©	4822 130 82594	BAT54C		
6951	©	4822 130 82262	BAT54S		
6952	©	4822 130 80622	BAT54		

TRANSISTORS

7279	©	4822 130 61207	BC848		
7282	©	4822 130 63646	2SD1623T		
7283	©	4822 130 62748	BC858		
7284	©	4822 130 61207	BC848		
7285	©	4822 130 61207	BC848		
7286	©	4822 130 62748	BC858		
7287	©	4822 130 61207	BC848		
7288	©	4822 130 62748	BC858		
7301	©	5322 130 60123	BC807-40		
7343	©	4822 130 42513	BC858C		
7344	©	4822 130 61207	BC848		
7365	©	4822 130 42133	BC817		
7366	©	4822 130 42133	BC817		
7367	©	4822 130 42133	BC817		
7368	©	4822 130 42133	BC817		
7410	©	4822 130 61207	BC848		
7431	©	4822 130 62748	BC858		
7451	©	4822 130 61207	BC848		
7452	©	4822 130 61207	BC848		

TRANSISTORS

7465 ©	4822 130 62748	BC858
7494 ©	4822 130 62748	BC858
7831 ©	4822 130 62748	BC858
7832 ©	4822 130 61207	BC848
7901 ©	4822 130 61207	BC848
7920 ©	4822 130 63357	2SK1717
7922 ©	4822 130 63646	2SD1623T
7940 ©	4822 130 62748	BC858
7942 ©	4822 130 61207	BC848

INTEGRATED CIRCUITS

1830 ©	4822 130 10242	GP1F366T OPTICAL OUTPUT
7281 ©	4822 209 71448	NJM2903M
7300 ©	4822 209 12989	TDA1548TZ/N1
7320 ©	4822 209 71448	NJM2903M
7322 ©	5322 209 61482	PC74HC4066T
7400 ©	4822 209 15453	TMP87CK20AF-AZ7565.1
7425 ©	4822 209 12991	PST9127N
7800 ©	4822 209 12636	TDA1302T/N1
7820 ©	4822 209 33165	TDA1308T/N1
7830 ©	4822 209 90341	SAA7372GP/M1
7850 ©	4822 209 12992	SM5856AF
7851 ©	4822 209 33699	MT4LC4001JDJ-8S
7852 ©	4822 209 33699	MT4LC4001JDJ-8S
7921 ©	5322 209 11517	PC74HCU04T
7950 ©	4822 209 12994	MPC1718FB