

Service  
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**Service**



AZ7262/00/05

AZ7263/11

AZ7264/06/11/13

AZ7266/17

AZ7267/00/05/06

AZ7268/00/01/05/10/11/17

SHARON PLATFORM 1

# Service Manual



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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 AY3361 (NiCd) : 1.8-3.6V

### Battery lifetime

Battery 2xLR6 : 6hrs typ.  
 Accu-pack AY3361 (NiCd) : 3hrs typ.

### Battery empty detection

Battery weak level : 2.0V nom.  $\pm 200$ mV  
 Battery empty level : 1.8V nom.  $\pm 100$ mV

### Charge circuit

Charge current : 200mA nom.  $\pm 10\%$   
 Charge time for 80% : 3.5hrs nom.  
 Max. charge time : 7hrs nom.  
 Temperature protection : 60°C  $\pm 5$ °C

### Current consumption (DC-in=4.5V)

PLAY-mode : 210mA typ.  
 JUMP-mode : 485mA typ.  
 Stand-by (excl. recharge) : 150mA typ.

### Current consumption (Batt. supply=2.25V)

PLAY-mode : 270mA typ.  
 JUMP-mode : 460mA typ.  
 Stand-by (excl. recharge) : 50 $\mu$ A typ.

### Shock resistance

+X/-X direction :  $>4$ G  
 +Y/-Y direction :  $>4$ G  
 +Z/-Z direction :  $>3$ G

### Shock resistance by use of car base

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

### Headphone out (load impedance 16 $\Omega$ , except crosstalk)

Output power : 2x10mW  $\pm 2$ dB  
 Frequency response (max vol.) : 20Hz-20kHz within 8dB  
 S/N ratio (unw.) :  $>80$ dB (83dB typ.)  
 S/N ratio (A-wght) :  $>82$ dB (85dB typ.)  
 THD+N (1kHz, 1mW) :  $<0.3\%$  (0.05% typ.)  
 Channel crosstalk (1kHz, no load) :  $<-40$ dB  
 Channel unbalance (-40dB) :  $<5$ dB  
 Volume attenuation (1kHz) :  $>70$ dB

### CD out (not on all versions)

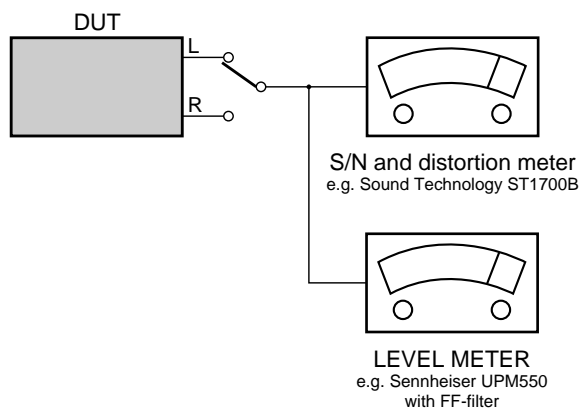
Output level (1kHz, 0dB) : 900mV  $\pm 2$ dB  
 Frequency response : 20Hz-20kHz within 6dB  
 S/N ratio (unw.) :  $>80$ dB (83dB typ.)  
 S/N ratio (A-wght) :  $>85$ dB (88dB typ.)  
 THD+N (1kHz, 0dB) :  $<0.2\%$  (0.05% typ.)  
 THD+N (10kHz, -20dB) : 0.5% typ.  
 Channel crosstalk (1kHz) :  $<-45$ dB (-50dB typ.)  
 Channel crosstalk (10kHz) : -40dB typ.  
 Channel unbalance (1kHz, 0dB) :  $<1$ dB (0.5dB typ.)  
 Dynamic range (1kHz, -60dB) : 90dB typ.

### Laser

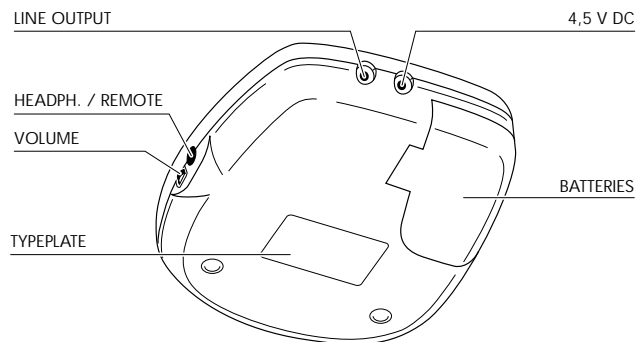
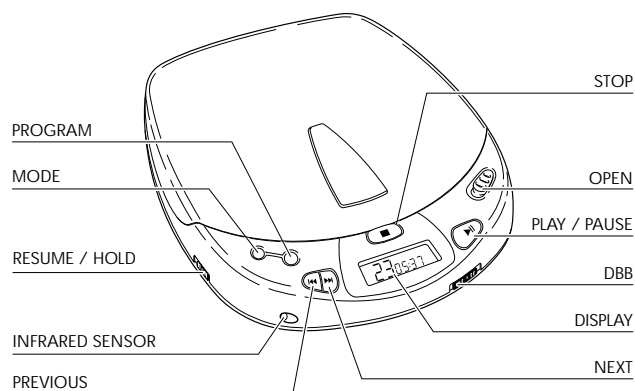
Output power :  $<5$ mW (3mW typ.)  
 Wavelength : 780nm

### 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
- RESUME/HOLD** .....Switch for activating the RESUME function (resuming CD play) and/or HOLD (blocking all buttons) function
- 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
- DBB** .....Dynamic Bass Boost: Button for boosting the bass response
- 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
- 🔊 / CD OUT** .....Headphone and remote control socket (3.5mm)
- 4.5 V DC** .....Socket for external power supply
- Battery compartment** .....for inserting batteries

## FEATURES SHARON PLATFORM 1

FEATURES SHARON 1	AZ7261	AZ7262	AZ7263	AZ7264	AZ7266	AZ7267	AZ7268
RESUME FUNCTION	X	X	X	X	X	X	X
DYNAMIC BASS BOOST	X	X	X	X	X	X	X
RECHARGE FUNCTION NiCd	X	X	X	X	X	X	X
CORD REMOTE CONTROL PREPARED	-	-	-	X	-	-	-
IR-REMOTE CONTROL PREPARED	-	-	X	-	-	-	-
LINE OUTPUT	-	-	X	-	-	-	-



## SAFETY WARNINGS


### **(GB) 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 wrist wrap with resistance. Keep components and tools at this potential.


### **(F) 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.

### **(GB)**

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 

### **(F)**

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 

### **(GB)**

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

### **(S) Varning !**

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

### **(GB)**

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.

### **ESD**




### **(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

### **SAFETY**



### **(D)**

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  markiert.



### **(DK) Advarsel !**

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


### **(NL) 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.


### **(I) AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta 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.

### **(NL)**

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 

### **(I)**

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 

### **(SF) Varoitus !**

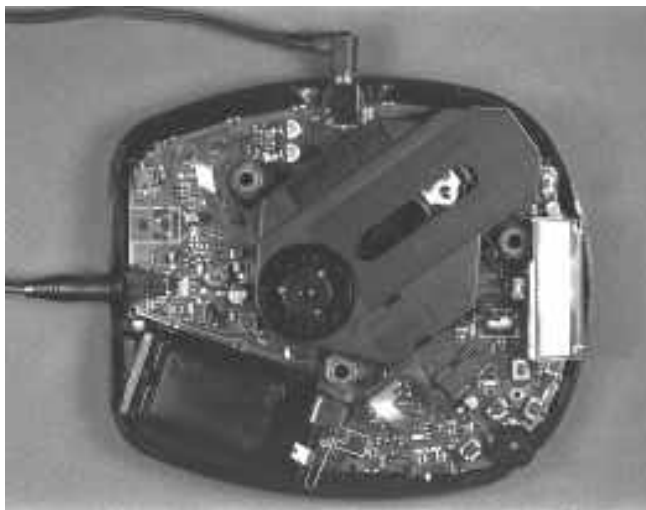
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

### **(F)**

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

## SERVICE HINTS

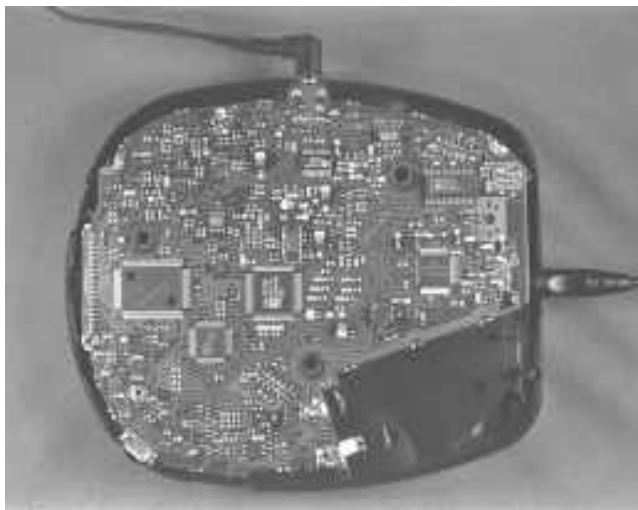
### REPAIR POSITION COMPONENTSIDE



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

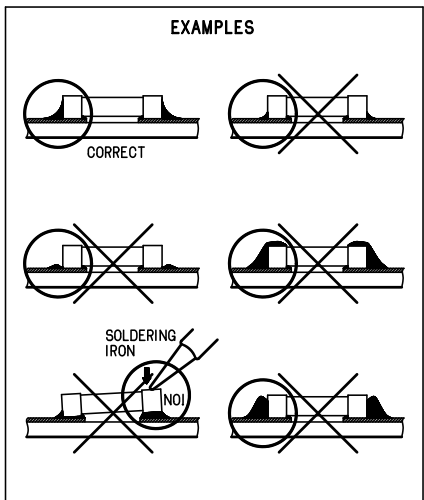
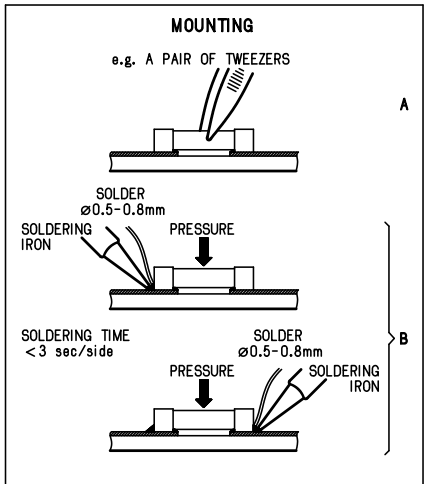
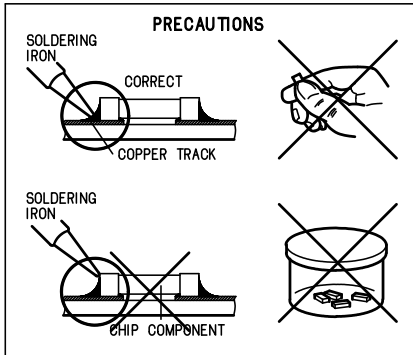
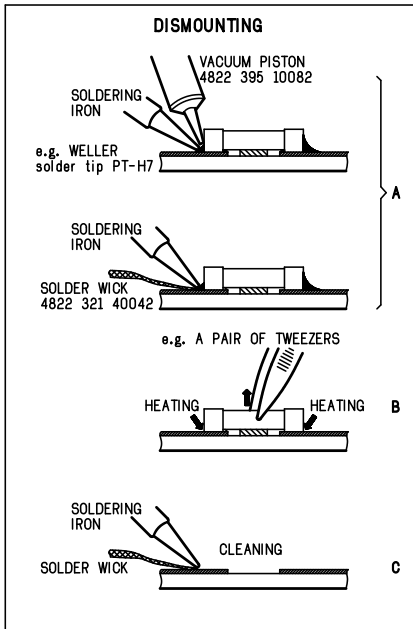
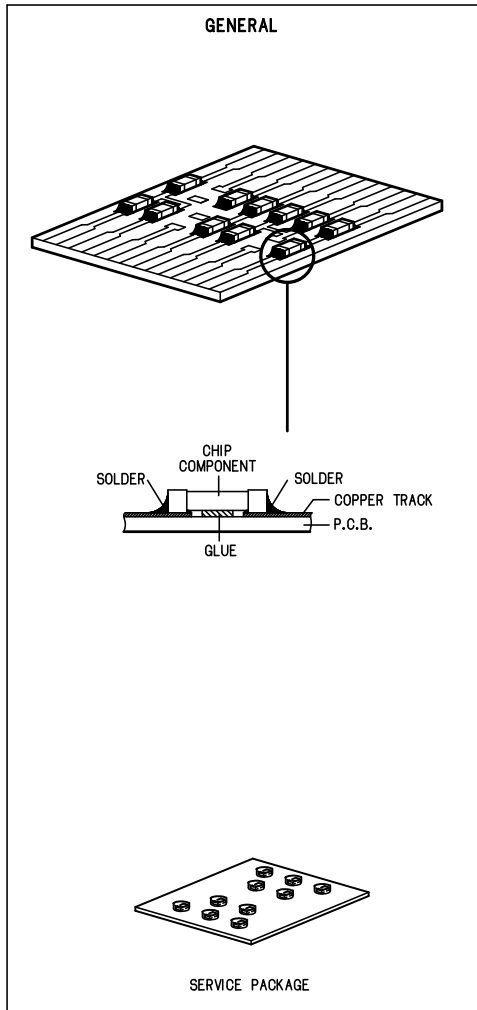
Playability test disc **SBC444**

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

**HANDLING CHIP COMPONENTS**



## SERVICE TEST PROGRAM

### 1. PRELIMINARY SETUP

- To enter the service test program hold the keys "PLAY" and "STOP" depressed while turning POWER ON.
- The display shows the software-version of the built-in microprocessor (e.g. "855").
- The program is now in the main menu – various tests can be entered by pressing the corresponding buttons (see flow chart on next page or detailed description of test programs below).

### 2. DISPLAY TEST

Purpose: Check the internal display driver of the  $\mu$ 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, all display segments are switched on.
- 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, cord remote control and IR-remote control.

- To enter the key & remote control test start service test program and press the "MODE" button.
- The display shows "--".
- Hold keys on the set resp. the remote control depressed and check 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 on next page).
- 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 "PROG" button. Note that the playback test can only be entered if the CD-door is closed.
- The set reads the TOC and switches to stand-by mode.
- 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 on next page).

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

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

### 5. SERVO TEST

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

- To enter the servo test start service test program and press the "PLAY" button.
- The display shows "x y". "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 "PROG" 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.

### 6. 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 "- 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 "PROG" 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.

### 7. 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 "- d ".

Note: During this test the  $\mu$ 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.

- To enter the radial test press the "PLAY" button, to exit the discmotor test and return to the main menu press the "STOP" button.

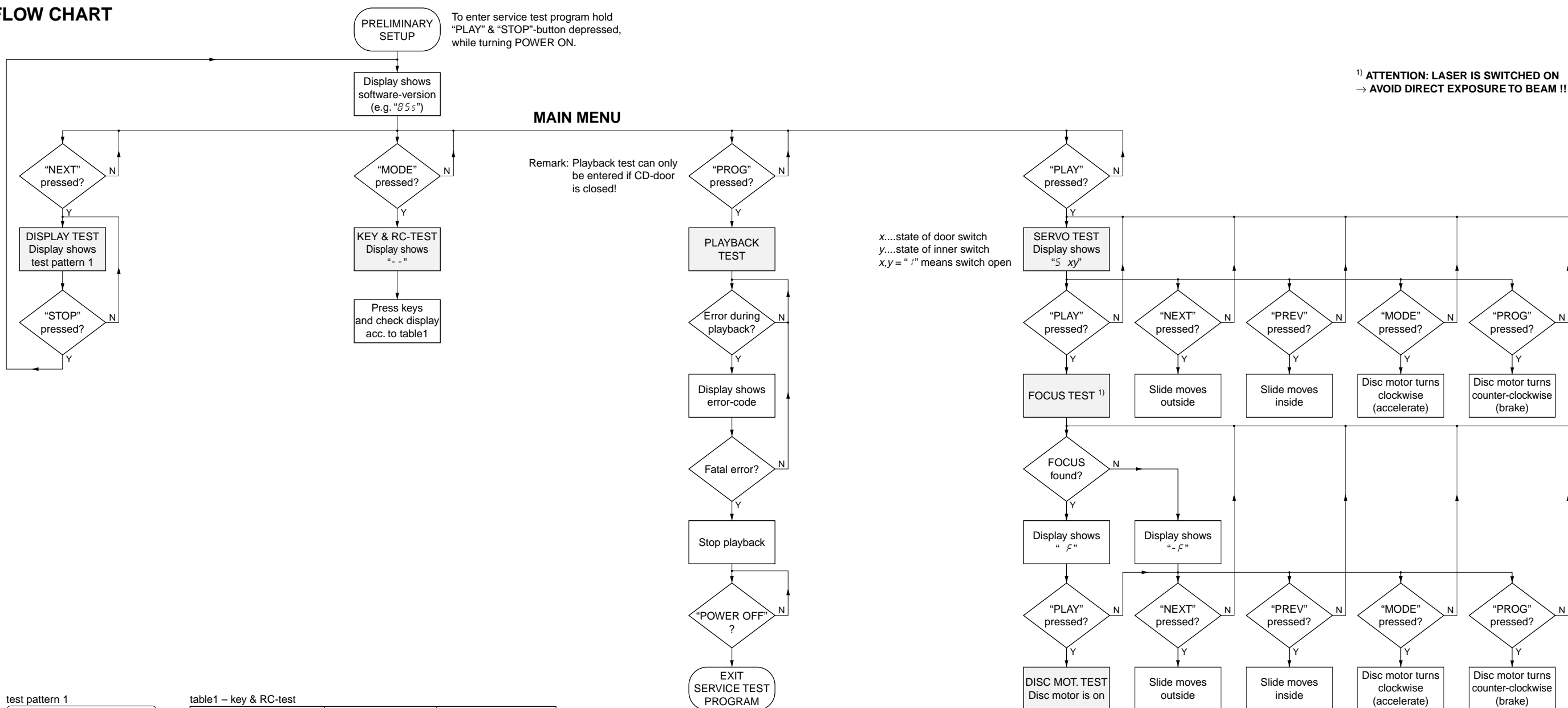
### 8. RADIAL TEST

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

- The display shows " 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 exit the radial test and return to the main menu press the "STOP" button.



**FLOW CHART**



1) ATTENTION: LASER IS SWITCHED ON  
→ AVOID DIRECT EXPOSURE TO BEAM !!

**MAIN MENU**

Remark: Playback test can only be entered if CD-door is closed!

x...state of door switch  
y...state of inner switch  
x,y = " / " means switch open

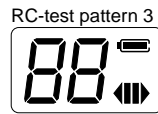
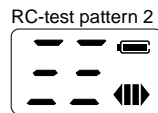
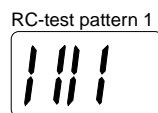
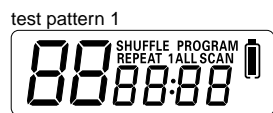


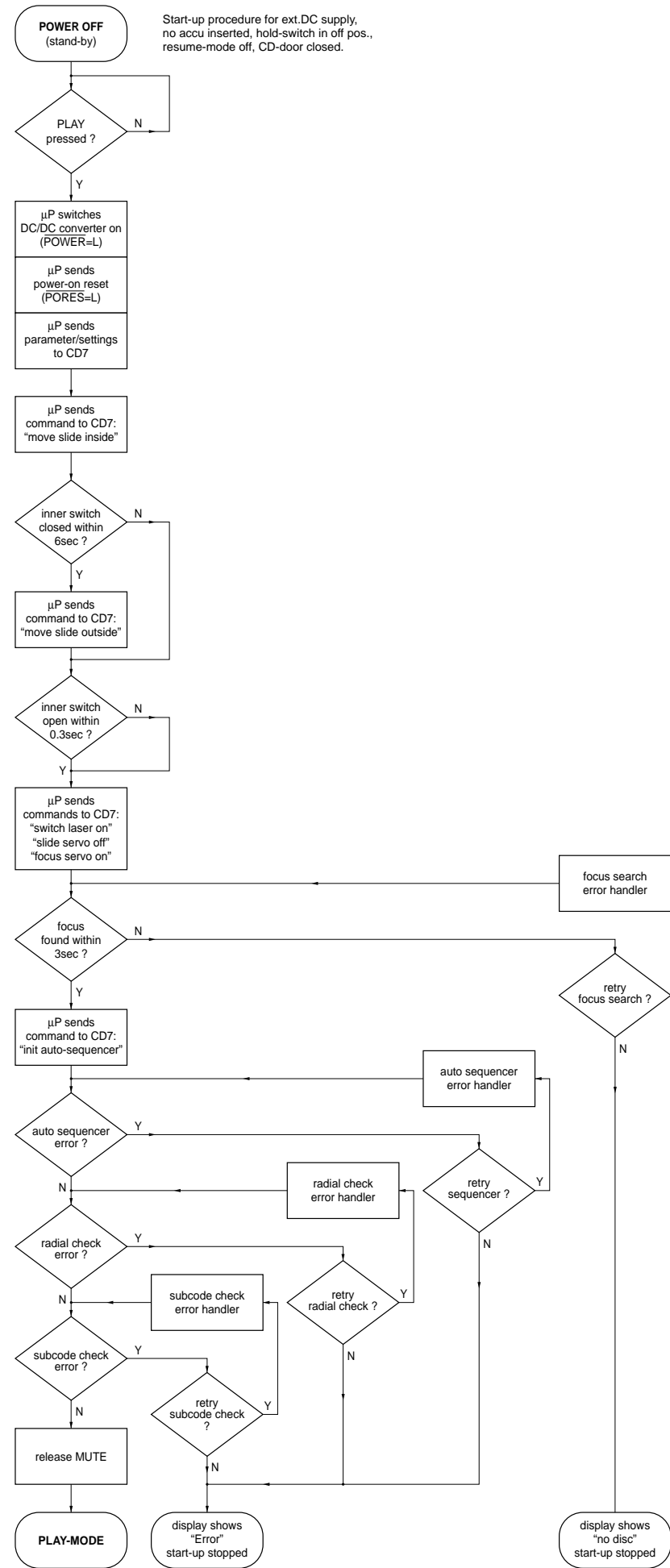
table1 – key & RC-test

	DISPLAY SET	DISPLAY CORD RC	
<b>KEYS OF SET</b>			
PLAY	01	no change	
MODE	02		
NEXT	03		
PREVIOUS	05		
PROGRAM	07		
<b>KEYS OF CORD-REMOTE CONTROL (not on all versions)</b>			
PLAY	r-c 01	RC-test pattern 1	
NEXT	r-c 03	RC-test pattern 2	
PREVIOUS	r-c 05	RC-test pattern 3	
STOP	r-c 06	no change	
<b>KEYS OF IR-REMOTE CONTROL (not on all versions)</b>			
DIGIT 0..9	1r-2000 ... 1r-2009	no change	
STAND-BY	1r-2012		
SHUFFLE	1r-2028		
REPEAT	1r-2029		
NEXT	1r-2032		
PREVIOUS	1r-2033		
SCAN	1r-2043		
PAUSE	1r-2048		
BACKWARD	1r-2050		
FORWARD	1r-2052		
PLAY	1r-2053		
STOP	1r-2054		
Press "STOP" on the CD-player to exit the key & RC-test.			

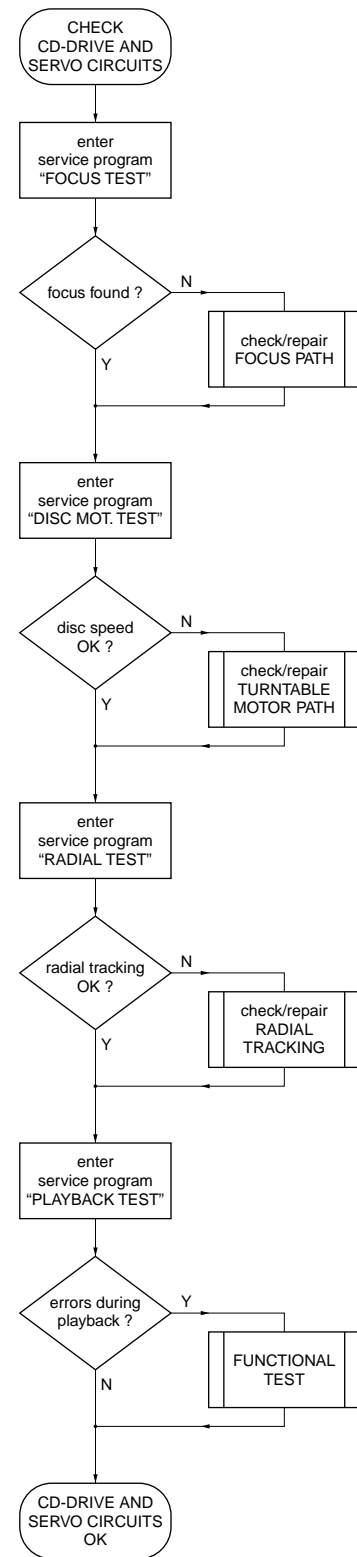
table2 – playback error analysis

CODE	ERROR	TYPE	CAUSE
E 1001	sledge out error	non fatal	The slide did not come out of it's inner position (inner switch of CDM12 doesn't open) before 160ms 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 1011	sledge in error	fatal	The slide did not reach it's inner pos. (inner switch of CDM12 doesn't close) before 4 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 occured 25 times.
E 1014	fatal subcode error	fatal	No valid subcode information for 6 seconds.
E 1018	motor N1 error	fatal	The disc didn't reach 75% of the nom. speed inbetween 3 sec.

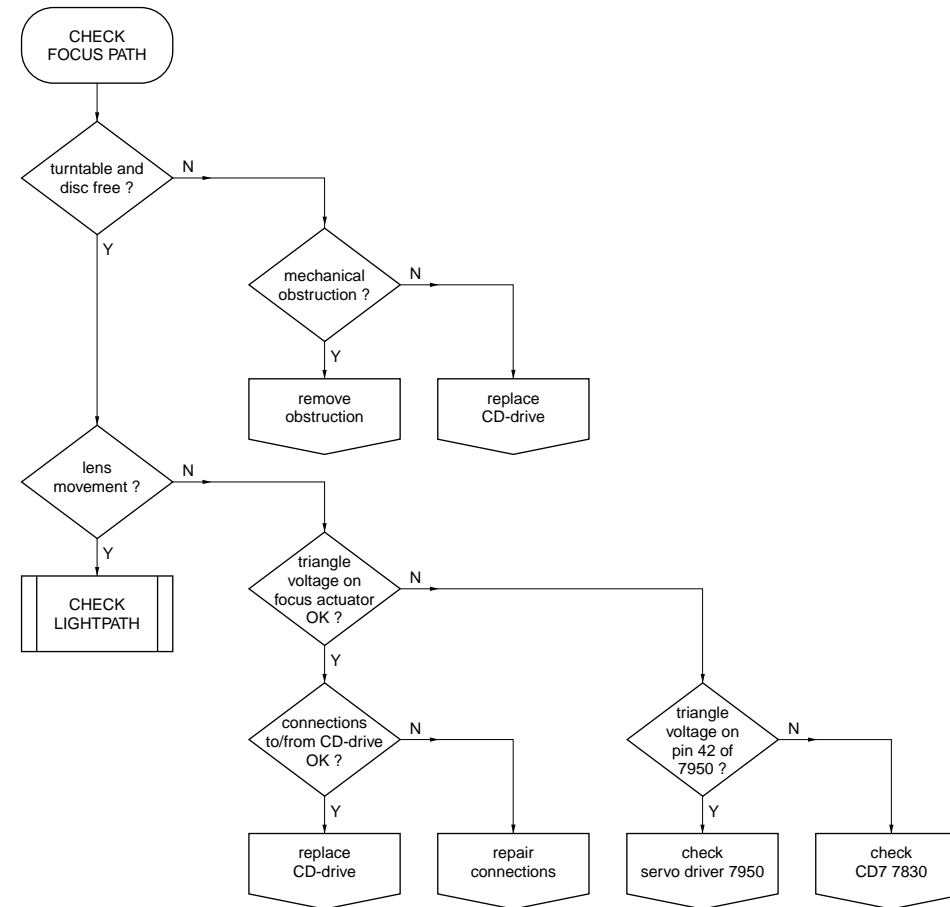
### START-UP PROCEDURE



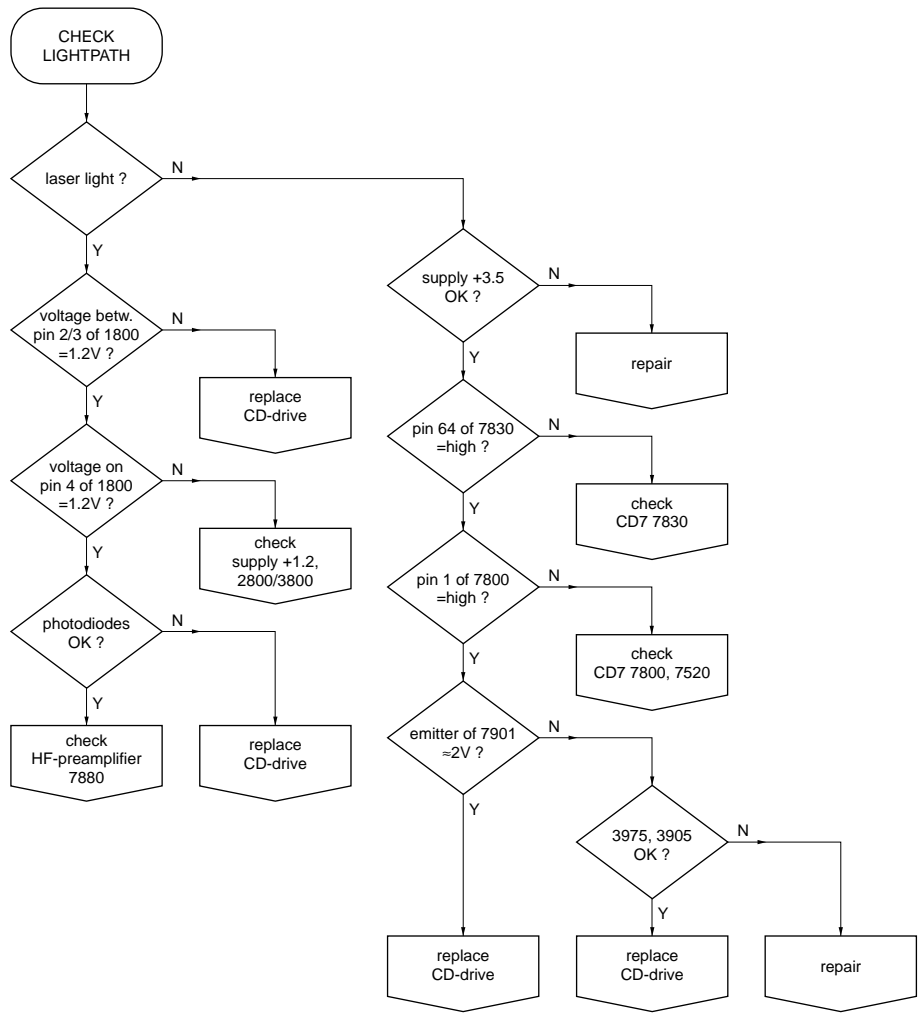
### MAIN FAULT FINDING GUIDE



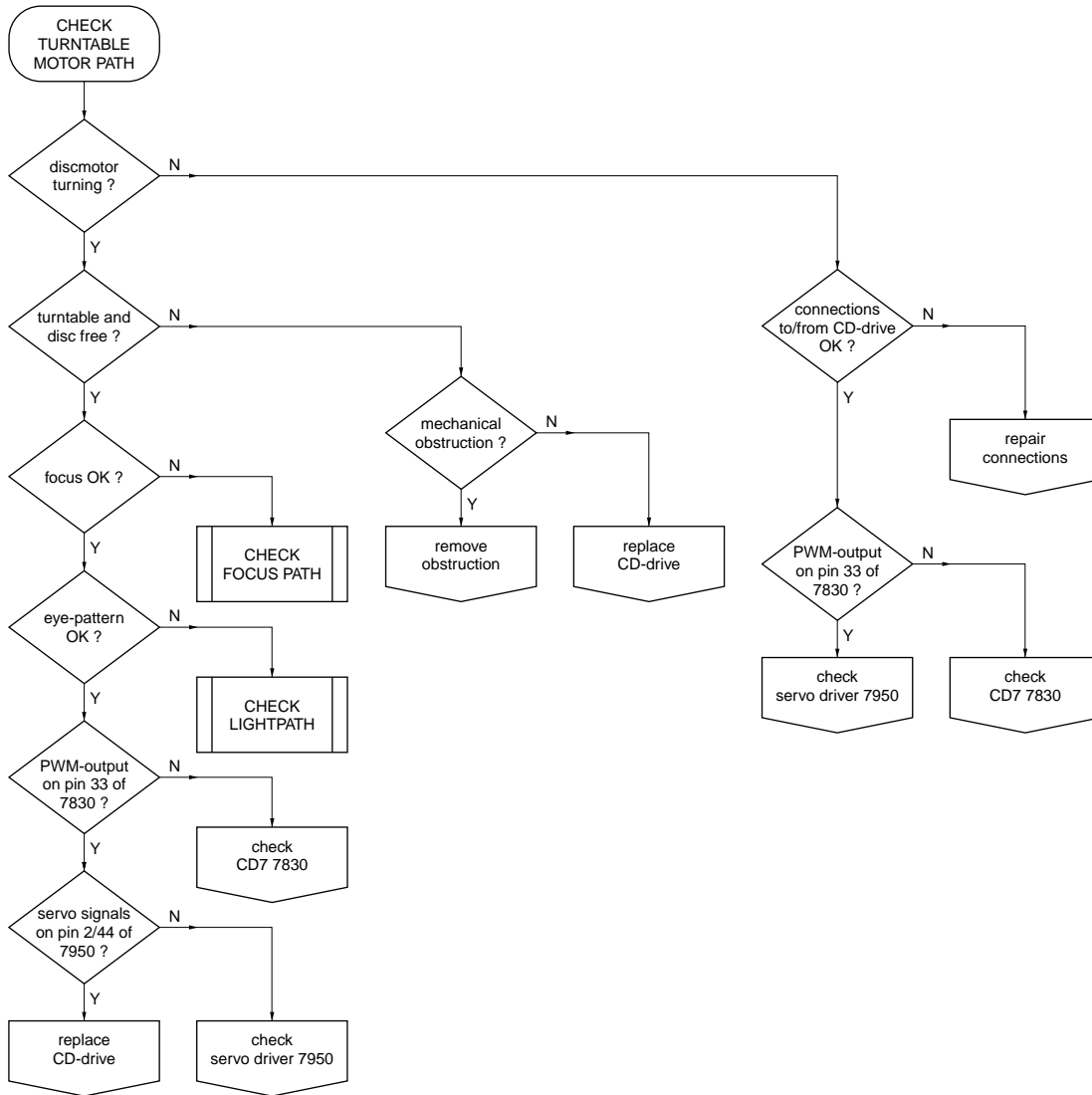
### FAULT FINDING GUIDE FOCUS PATH



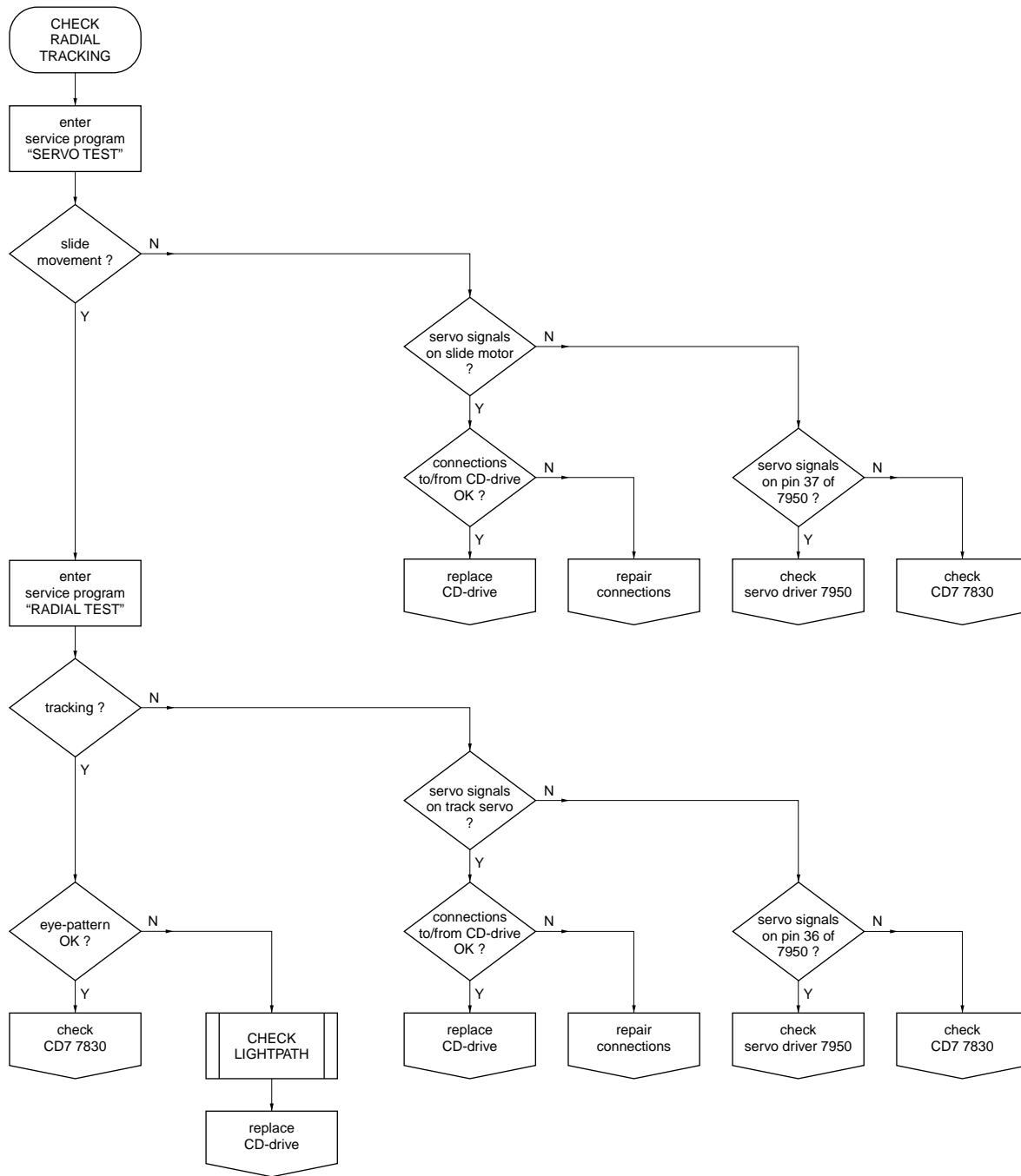
# FAULT FINDING GUIDE LIGHTPATH



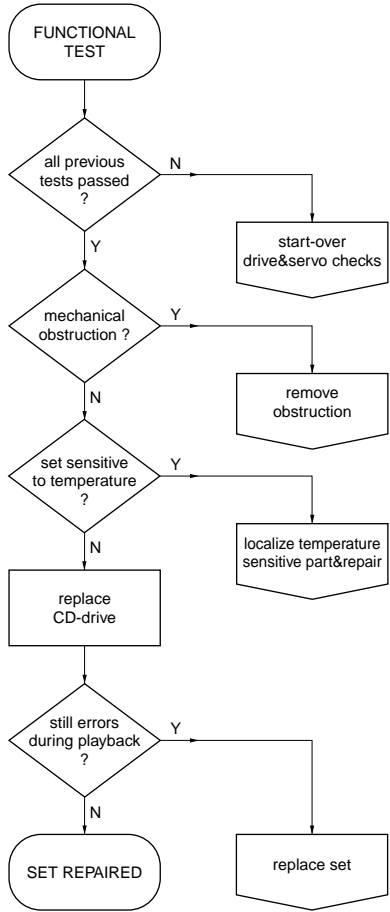
# FAULT FINDING GUIDE TURNTABLE MOTOR PATH



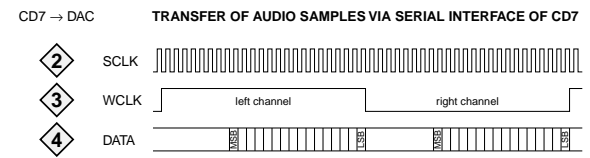
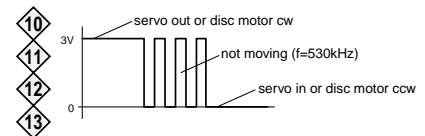
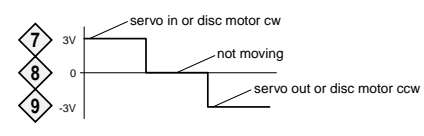
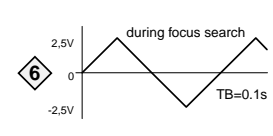
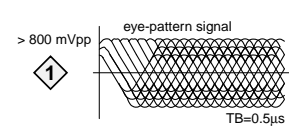
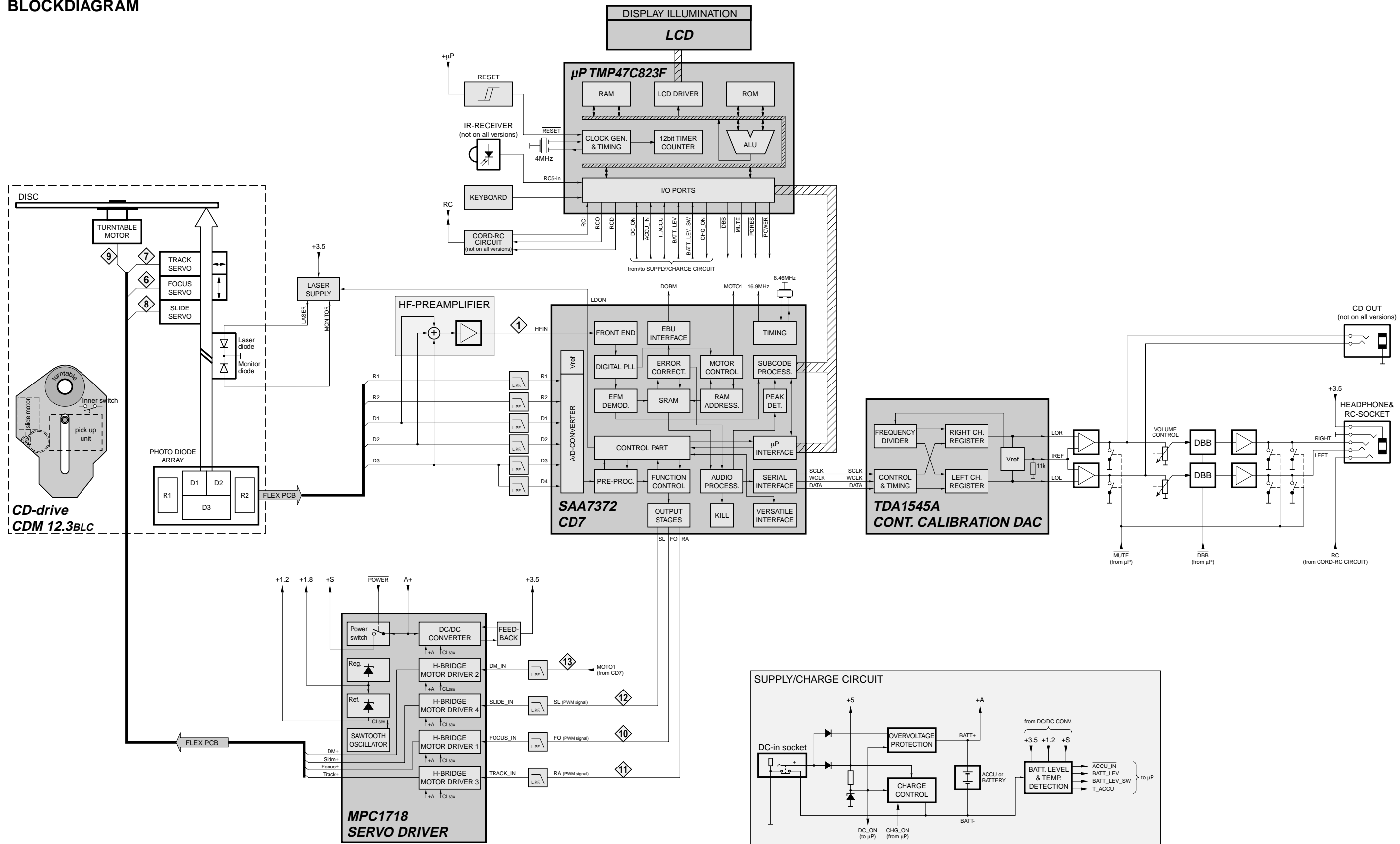
# FAULT FINDING GUIDE RADIAL TRACKING



# FAULT FINDING GUIDE FUNCTIONAL TEST



**BLOCKDIAGRAM**



## PINNING OF INTEGRATED CIRCUITS

## 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	CD-drive → CD7	unipolar current input (central diode signal input)
4	D2	CD-drive → CD7	unipolar current input (central diode signal input)
5	D3	CD-drive → CD7	unipolar current input (central diode signal input)
6	VRL	GND	reference input for ADC
7	D4	CD-drive → CD7	unipolar current input (central diode signal input)
8	R1	CD-drive → CD7	unipolar current input (satellite diode signal input)
9	R2	CD-drive → 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 →	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 →	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 →	motor output2 of CD7; versatile (3-state)
35	SBSY	CD7 →	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 → DAC	serial data output (3-state)
46	WCLK	CD7 → DAC	word clock output (3-state)
47	VDD2P	+3.5	supply (digital) of CD7
48	SCLK	CD7 → DAC	serial bit clock output (3-state)
49	VSS3	GND	supply (digital) of CD7
50	CL4	CD7 →	4.2336MHz $\mu$ P clock output
51	SDA	$\mu$ P → CD7	$\mu$ P interface data I/O line (open drain output)
52	SCL	$\mu$ P → CD7	$\mu$ P interface clock line
53	RAB	$\mu$ P → CD7	$\mu$ P interface R/W and load control line
54	SILD	$\mu$ P → CD7	$\mu$ P interface R/W and load control line
55	NC		no connection
56	VSS4	GND	supply (digital) of CD7
57	RESET	$\mu$ P → CD7	power-on reset input (active low)
58	STATUS	CD7 → $\mu$ P	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 → Laser supply	laser drive on output (open drain)

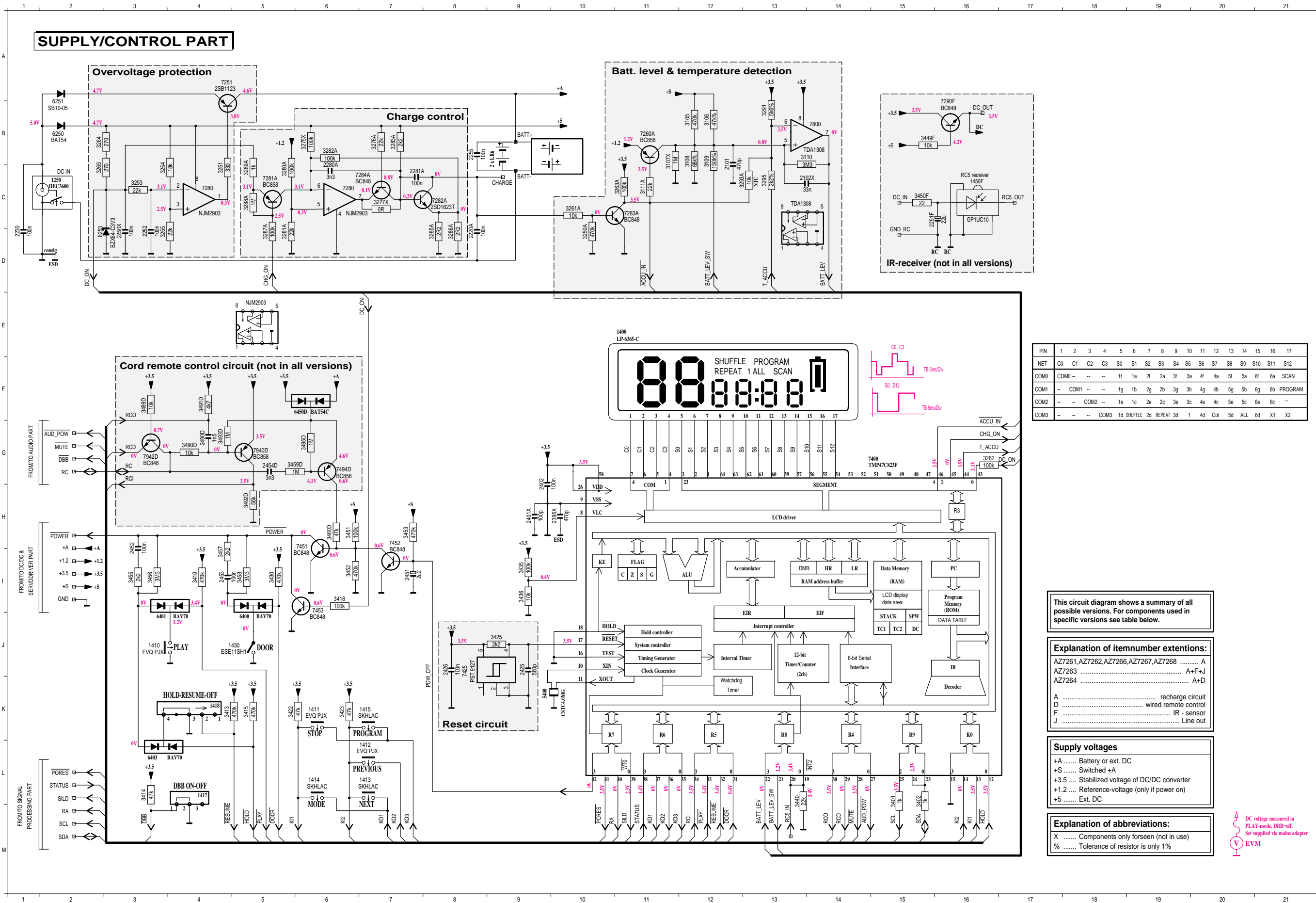
## MPC1718 – 4-STAGE PWM SERVODRIVER

Pin	Name	Direction	Description
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.
20	Cg	servo driver →	charge pump step-up capacitor connection
21	Vreg	servo driver → +1.8	regulator output pin
22	Cosc	servo driver →	sawtooth waveform output, synchronized to the clock
23	Sync	→ servo driver	external clock input for separate excitation
24	Power	$\mu$ P → servo driver	power control pin (low-active)
25	Hout3B	servo driver → track servo	H-bridge PWM output 3B
26	Hin3	→ servo driver	power supply for H-bridge output section 3
27	Hout3A	servo driver → track servo	H-bridge PWM output 3A
28	Gnd3,4	GND	ground for H-bridge section 3 and 4
29	DCout3	DC/DC converter 3 → LC-filter	connects H-bridge DC/DC converter 3 to LC-filter
30	Vin	+A	power supply for servo driver
31	DCout4	DC/DC converter 4 → LC-filter	connects H-bridge DC/DC converter 4 to LC-filter
32	Hout4A	servo driver → slide servo	H-bridge PWM output 4A
33	Hin4	→ servo driver	power supply for H-bridge output section 4
34	Hout4B	servo driver → slide servo	H-bridge PWM output 4B
35	Lim2,4	+LF	input pin, limits LC-filter output voltages of sections 2 and 4
36	Vinp3	CD7 → servo driver	control input pin, receives track servo signals from CD7
37	Vinp4	CD7 → servo driver	H-bridge output is controlled by voltage between this pin and Vc 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 power supply for motor control circuit
39	S.Gnd	GND	ground for internal logic of servo driver
40	Vc	DR_REF	reference voltage for motor control circuit
41	Vinp2	CD7 → servo driver	control input pin, receives disc motor control signals from CD7
42	Vinp1	CD7 → servo driver	H-bridge output is controlled by voltage between this pin and Vc control input pin, receives focus servo signals from CD7
43	Lim1,3	+LF → servo driver	H-bridge output is controlled by voltage between this pin and Vc input pin, limits LC-filter output voltages of sections 1 and 3
44	Hout2B	servo driver → disc motor	H-bridge PWM output 2B

## TDA1545A – CONTINUOUS CALIBRATION DAC

Pin	Name	Direction	Description
1	BCK	CD7 → DAC	bit clock input of DAC
2	WS	CD7 → DAC	word select input of DAC
3	DATA	CD7 → DAC	data input of DAC
4	GND	GND	ground
5	VDD	+LFD	supply voltage
6	IOL	DAC →	left channel output
7	IREF	DAC →	reference voltage output
8	IOR	DAC →	right channel output





PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
NET	C0	C1	C2	C3	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
COM0	COM0-	-	-	1f	1a	2f	2a	3f	3a	4f	4a	5f	5a	6f	6a	SCAN	
COM1	-	COM1-	-	1g	1b	2g	2b	3g	3b	4g	4b	5g	5b	6g	6b	PROGRAM	
COM2	-	COM2-	-	1e	1c	2e	2c	3e	3c	4e	4c	5e	5c	6e	6c	-	
COM3	-	-	COM3	1d	SHUFFLE	2d	REPEAT	3d	1	4d	COM	5d	ALL	6d	X1	X2	

This circuit diagram shows a summary of all possible versions. For components used in specific versions see table below.

**Explanation of itemnumber extensions:**  
 AZ7261,AZ7262,AZ7266,AZ7267,AZ7268 ..... A  
 AZ7263 ..... A+F+J  
 AZ7264 ..... A+D  
 A ..... recharge circuit  
 D ..... wired remote control  
 F ..... IR - sensor  
 J ..... Line out

**Supply voltages**  
 +A ..... Battery or ext. DC  
 +S ..... Switched +A  
 +3.5 ..... Stabilized voltage of DC/DC converter  
 +1.2 ..... Reference-voltage (only if power on)  
 +5 ..... Ext. DC

**Explanation of abbreviations:**  
 X ..... Components only forseen (not in use)  
 % ..... Tolerance of resistor is only 1%

⚡ DC voltage measured in PLAY-mode, DBB=off.  
 ⚡ Set supplied via mains adapter  
 ⚡ EVM

- 1250 C 2
- 1400 E12
- 1410 J 3
- 1411 K 6
- 1412 L 7
- 1413 L 7
- 1414 L 6
- 1415 K 7
- 1417 L 4
- 1418 K 4
- 1430 J 5
- 1450F C16
- 2101 B12
- 2102X C14
- 2200A D 8
- 2230 D 1
- 2250X D 3
- 2251F C15
- 2252 D 3
- 2255 B 8
- 2280A C 6
- 2281A C 7
- 2395X H10
- 2401X H 9
- 2402 G 9
- 2425 J 9
- 2426 J 8
- 2451 I 7
- 2452 H 3
- 2453 I 4
- 2454D G 5
- 2490D G 4
- 3105 B12
- 3106 B12
- 3107X B11
- 3108 B12
- 3109 B12
- 3110 B14
- 3111A C11
- 3250A D10
- 3251 C 4
- 3253 C 3
- 3254 C 3
- 3255 D 3
- 3261A C10
- 3262 G16
- 3263A C11
- 3264 B 2
- 3265 C 2
- 3275X B 6
- 3276A B 7
- 3277X C 7
- 3280A C 5
- 3281A D 5
- 3282A B 6
- 3283A B 7
- 3284A C 5
- 3285 C 2
- 3286A D 8
- 3287A D 5
- 3288A C 5
- 3289A C 5
- 3291 B13
- 3293A C13
- 3295 C14
- 3401 L15
- 3402 L15
- 3410 I 4
- 3413 K 4
- 3414 L 3
- 3415 K 5
- 3418 I 6
- 3422 K 5
- 3423 K 6
- 3425 J 9
- 3430 I 5
- 3435 F15
- 3436 I 9
- 3439 I 9
- 3440 L13
- 3445F15
- 3450F C15
- 3451 H 6
- 3452 I 6
- 3453 H 7
- 3455 I 3
- 3456 I 3
- 3457 I 4
- 3458 I 5
- 3459D G 6
- 3460D H 6
- 3490D G 4
- 3491F 4
- 3492D H 5
- 3493D G 4
- 3495D G 6
- 3499F 3
- 5400 K 9
- 6250 B 2
- 6251 B 2
- 6253 D 2
- 6400 J 5
- 6401 J 4
- 6403 L 3
- 6460F 6
- 7251 A 4
- 7260A B11
- 7260 C 4
- 7260 C 6
- 7281A C 5
- 7282A C 8
- 7283A C11
- 7284A C 6
- 7290F B16
- 7400 I 9
- 7425 J 8
- 7451 H 6
- 7452 H 7
- 7453 I 6
- 7494D G 6
- 7800 B14
- 7940D G 5
- 7942D G 3

# SERVO DRIVER PART

This circuit diagram shows a summary of all possible versions. For components used in specific versions see table below.

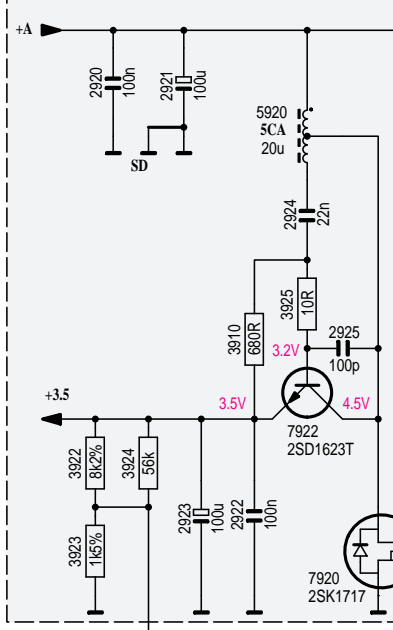
**Explanation of abbreviations:**  
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 % ..... Tolerance of resistor is only 1%

**Explanation of itemnumber extensons:**  
 AZ7261,AZ7262,AZ7266,AZ7267,AZ7268 ..... A  
 AZ7263 ..... A+F+J  
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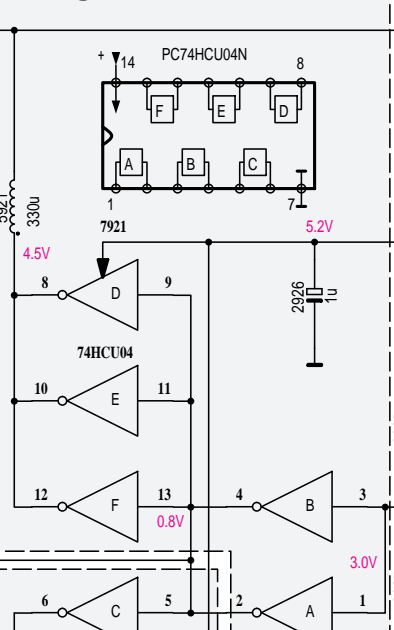
A ..... recharge circuit  
 D ..... wired remote control  
 F ..... IR - sensor  
 J ..... Line out

**Supply voltages**  
 +A ..... Battery or ext. DC  
 +S ..... Switched +A  
 +3.5 ..... Stabilized voltage of DC/DC converter  
 +1.2 ..... Reference-voltage (only if power on)  
 +5 ..... Ext. DC

## +3.5V DC/DC Converter



## Voltage Doubler

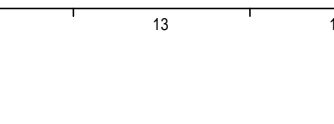
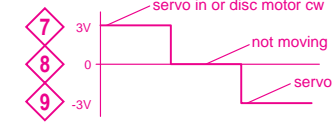
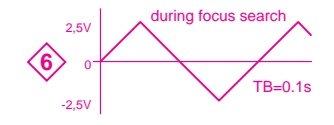
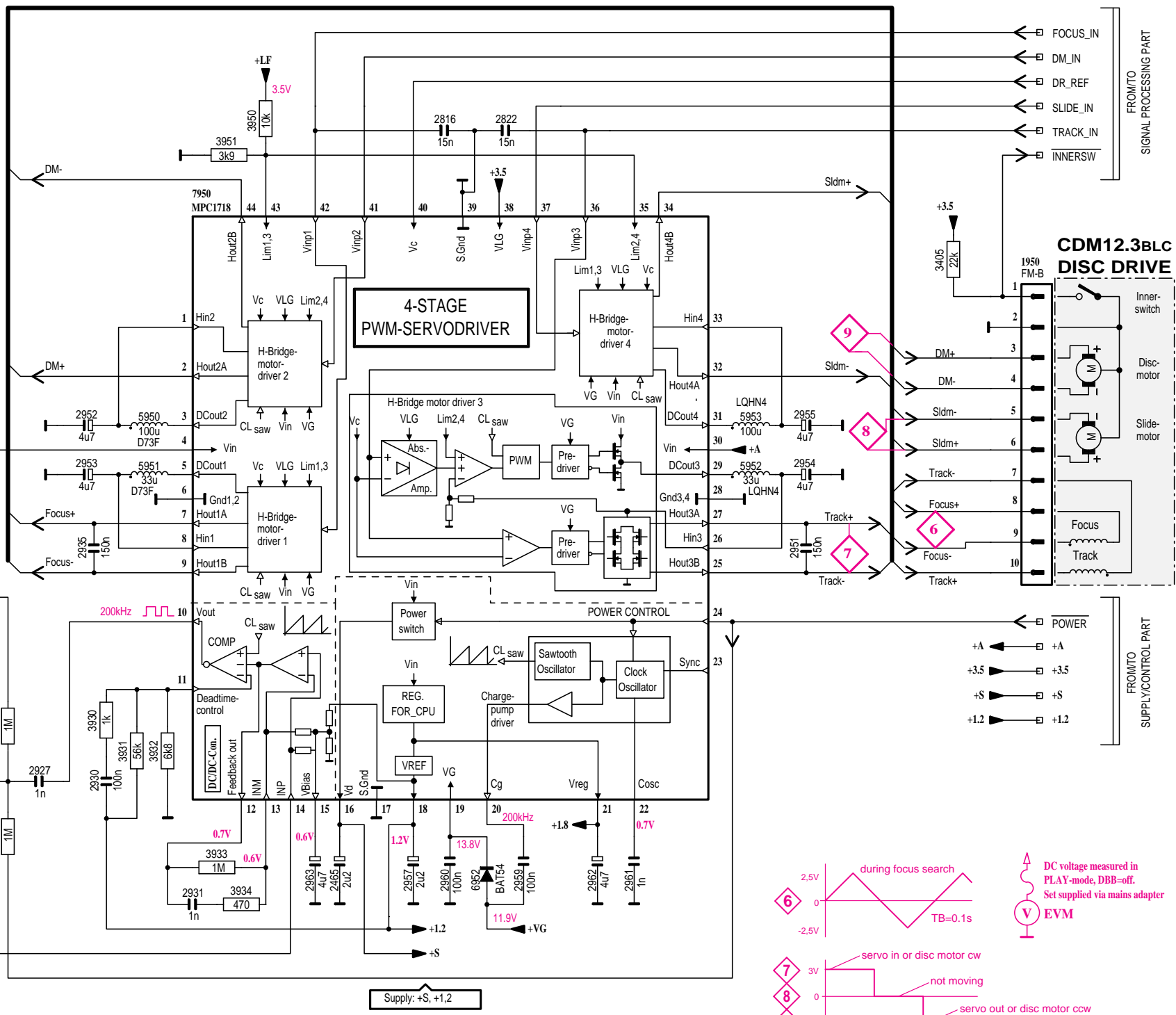


+VG 5

## Voltage Doubler (4X)



Supply: +3.5, +VG



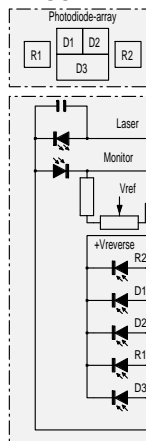
DC voltage measured in PLAY-mode, DBB-off. Set supplied via mains adapter

**V EVM**

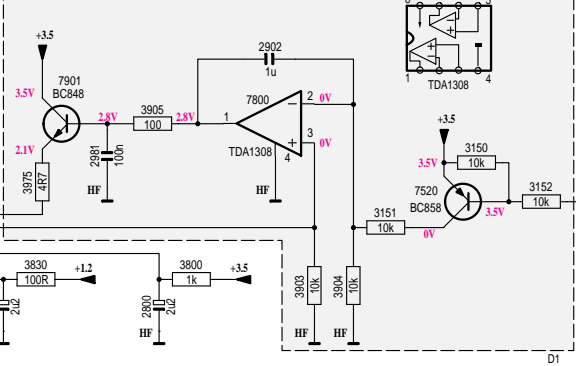
- 1950 C14
- 2465 H 9
- 2816 B10
- 2822 B10
- 2920 E 2
- 2921 E 2
- 2922 H 3
- 2923 H 2
- 2924 F 3
- 2925 G 3
- 2926 F 5
- 2927 H 6
- 2930 H 7
- 2931 I 8
- 2935 F 7
- 2951 F12
- 2952 E 7
- 2953 E 7
- 2954 E12
- 2955 E12
- 2957 H 9
- 2958 H 4
- 2959 H10
- 2960 H10
- 2961 H11
- 2962 H11
- 2963 H 8
- 3405 C14
- 3910 G 3
- 3922 G 2
- 3923 H 2
- 3924 G 2
- 3925 F 3
- 3926 G 6
- 3927 H 6
- 3930 G 7
- 3931 G 7
- 3932 G 7
- 3933 H 8
- 3934 I 8
- 3950 B 8
- 3951 B 8
- 5920 E 3
- 5921 F 4
- 5950 E 7
- 5951 E 7
- 5952 E12
- 5953 E12
- 6952 I 3
- 6952 H10
- 7920 H 3
- 7921 F 4
- 7922 G 3
- 7950 C 7

# SIGNAL PROCESSING PART

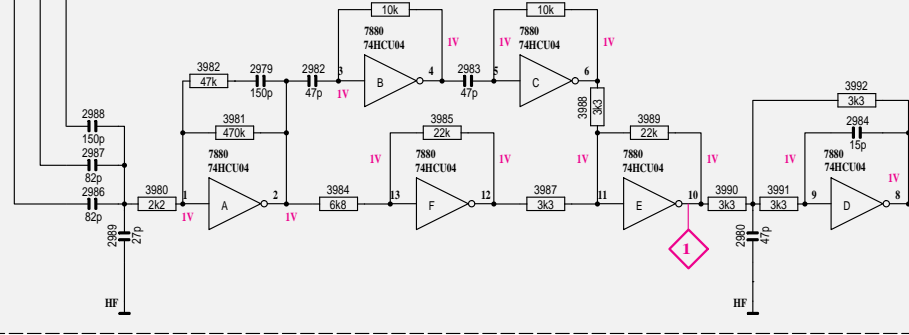
## CDM12.3BLC DISC DRIVE



## Laser supply



## HF-Preamplifier



This circuit diagram shows a summary of all possible versions. For components used in specific versions see table below.

### Explanation of itemnumber extensions:

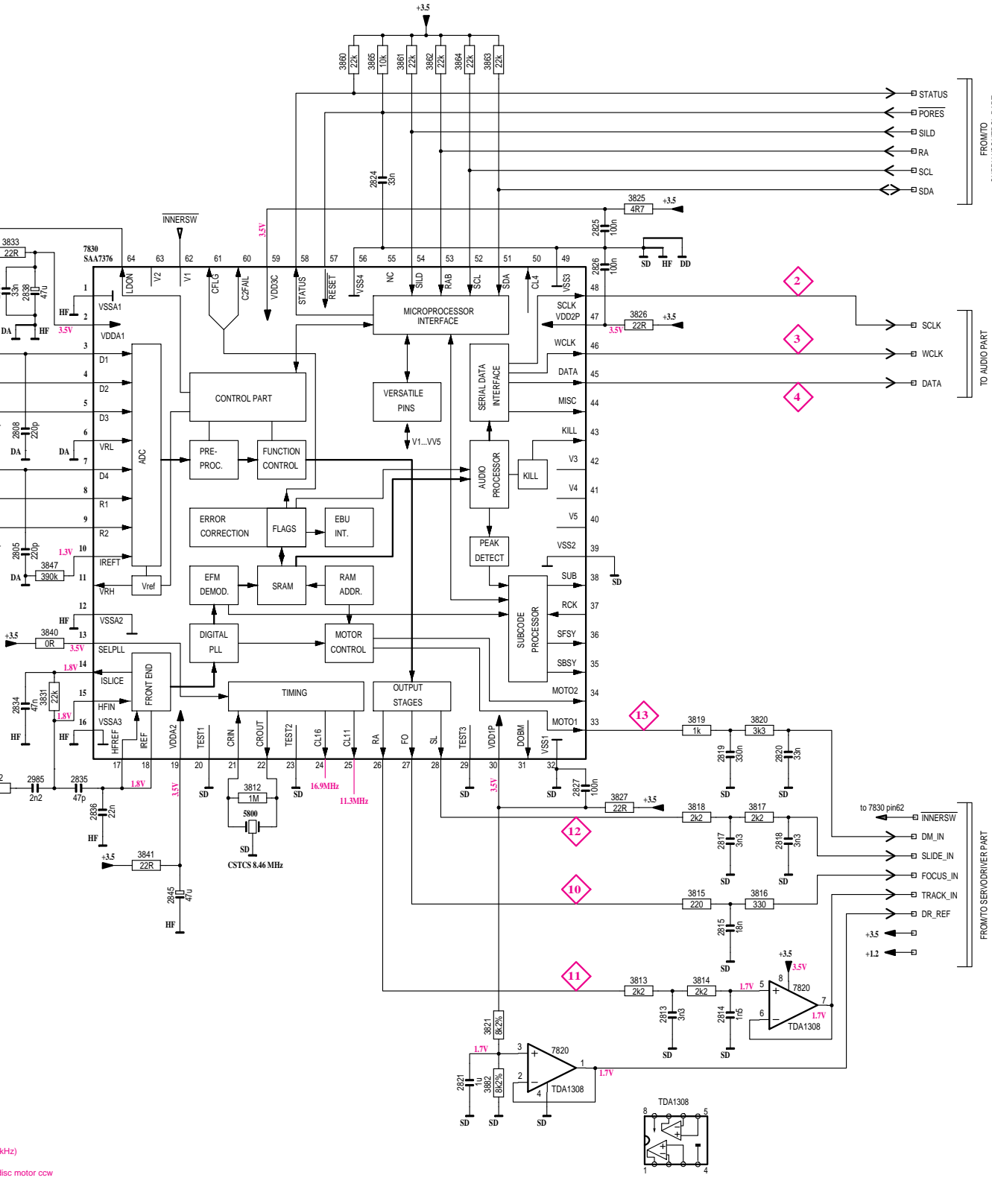
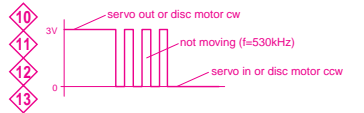
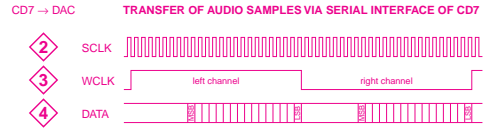
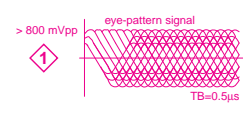
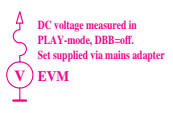
- AZ7261,AZ7262,AZ7266,AZ7267,AZ7268 ..... A
- AZ7263 ..... A+F+J
- AZ7264 ..... A+D
- A ..... recharge circuit
- D ..... wired remote control
- F ..... IR - sensor
- J ..... Line out

### Supply voltages

- +A ..... Battery or ext. DC
- +S ..... Switched +A
- +3.5 ..... Stabilized voltage of DC/DC converter
- +1.2 ..... Reference-voltage (only if power on)
- +5 ..... Ext. DC

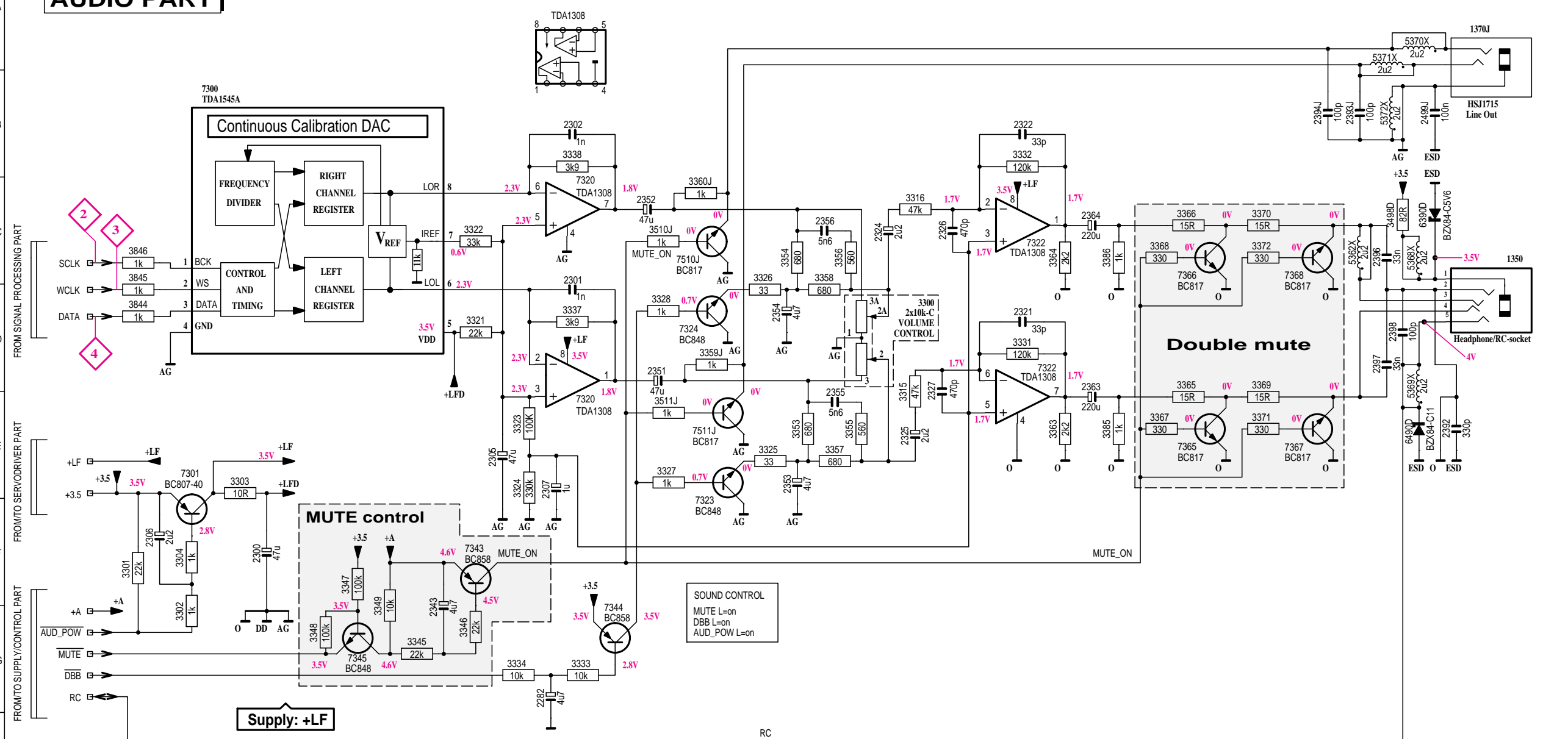
### Explanation of abbreviations:

- X ..... Components only forseen (not in use)
- % ..... Tolerance of resistor is only 1%



- 1800 C 3
- 2800 D 5
- 2801 G 10
- 2802 G 10
- 2803 G 11
- 2804 G 11
- 2805 G 12
- 2806 F 11
- 2807 F 11
- 2808 F 12
- 2809 F 10
- 2810 F 10
- 2811 F 9
- 2813 L 18
- 2814 L 19
- 2815 K 19
- 2817 J 19
- 2818 J 20
- 2819 J 19
- 2820 J 20
- 2821 L 16
- 2824 C 15
- 2825 C 18
- 2826 D 18
- 2827 L 18
- 2831 D 4
- 2833 K 7
- 2834 H 12
- 2835 J 2
- 2836 J 13
- 2837 D 12
- 2838 D 12
- 2845 J 13
- 2902 B 6
- 2979 H 6
- 2980 J 10
- 2981 C 5
- 2982 H 7
- 2983 B 9
- 2984 H 11
- 2985 J 2
- 2986 J 5
- 3150 C 8
- 3151 D 7
- 3152 C 8
- 3800 D 6
- 3801 H 11
- 3804 E 11
- 3805 E 11
- 3806 F 11
- 3807 F 11
- 3808 G 11
- 3809 E 9
- 3810 E 9
- 3811 E 9
- 3812 J 4
- 3813 K 18
- 3814 K 19
- 3815 J 19
- 3816 J 19
- 3817 J 19
- 3818 J 19
- 3819 J 19
- 3820 J 19
- 3821 L 17
- 3825 C 18
- 3826 D 18
- 3830 D 4
- 3831 H 12
- 3832 J 2
- 3833 D 12
- 3840 H 12
- 3841 J 13
- 3842 G 12
- 3843 G 12
- 3844 B 16
- 3845 B 16
- 3846 B 16
- 3847 B 16
- 3848 B 16
- 3849 B 16
- 3850 B 16
- 3851 B 16
- 3852 B 16
- 3853 B 16
- 3854 B 16
- 3855 B 16
- 3856 B 16
- 3857 B 16
- 3858 B 16
- 3859 B 16
- 3860 B 16
- 3861 B 16
- 3862 B 16
- 3863 B 16
- 3864 B 16
- 3865 B 16
- 3866 B 16
- 3867 B 16
- 3868 B 16
- 3869 B 16
- 3870 B 16
- 3871 B 16
- 3872 B 16
- 3873 B 16
- 3874 K 7
- 3875 C 4
- 3876 C 4
- 3877 H 8
- 3878 H 8
- 3879 H 8
- 3880 D 7
- 3881 H 7
- 3882 L 17
- 3883 D 6
- 3884 D 7
- 3885 C 5
- 3886 C 5
- 3887 C 5
- 3888 J 8
- 3889 J 8
- 3890 J 8
- 3891 H 10
- 3892 H 11
- 3893 H 11
- 3894 J 4
- 3895 C 8
- 3896 C 8
- 3897 C 8
- 3898 J 9
- 3899 J 9
- 3900 J 10
- 3901 H 10
- 3902 H 11
- 3903 H 11
- 3904 H 11
- 3905 C 5
- 3906 C 5
- 3907 C 5
- 3908 C 5
- 3909 C 5
- 3910 C 5
- 3911 C 5
- 3912 C 5
- 3913 C 5
- 3914 C 5
- 3915 C 5
- 3916 C 5
- 3917 C 5
- 3918 C 5
- 3919 C 5
- 3920 C 5
- 3921 C 5
- 3922 C 5
- 3923 C 5
- 3924 C 5
- 3925 C 5
- 3926 C 5
- 3927 C 5
- 3928 C 5
- 3929 C 5
- 3930 C 5
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- 3933 C 5
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- 3937 C 5
- 3938 C 5
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- 3940 C 5
- 3941 C 5
- 3942 C 5
- 3943 C 5
- 3944 C 5
- 3945 C 5
- 3946 C 5
- 3947 C 5
- 3948 C 5
- 3949 C 5
- 3950 C 5
- 3951 C 5
- 3952 C 5
- 3953 C 5
- 3954 C 5
- 3955 C 5
- 3956 C 5
- 3957 C 5
- 3958 C 5
- 3959 C 5
- 3960 C 5
- 3961 C 5
- 3962 C 5
- 3963 C 5
- 3964 C 5
- 3965 C 5
- 3966 C 5
- 3967 C 5
- 3968 C 5
- 3969 C 5
- 3970 C 5
- 3971 C 5
- 3972 C 5
- 3973 C 5
- 3974 C 5
- 3975 C 5
- 3976 C 5
- 3977 C 5
- 3978 C 5
- 3979 C 5
- 3980 C 5
- 3981 C 5
- 3982 C 5
- 3983 C 5
- 3984 C 5
- 3985 C 5
- 3986 C 5
- 3987 C 5
- 3988 C 5
- 3989 C 5
- 3990 C 5
- 3991 C 5
- 3992 C 5
- 3993 C 5
- 3994 C 5
- 3995 C 5
- 3996 C 5
- 3997 C 5
- 3998 C 5
- 3999 C 5
- 4000 C 5

# AUDIO PART



- 1350 C14
- 1370J A14
- 2282 G 5
- 2300 F 3
- 2301 C 6
- 2302 B 6
- 2305 E 5
- 2306 F 2
- 2307 E 5
- 2321 D10
- 2322 B10
- 2324 C 8
- 2325 E 9
- 2326 C 9
- 2327 D 9
- 2343 F 4
- 2351 D 6
- 2352 C 6
- 2353 E 8
- 2354 D 7
- 2355 E 8
- 2356 C 8
- 2363 D10
- 2364 C10
- 2392 E14
- 2393J B13
- 2394J B12
- 2396 C13
- 2397 D13
- 2398 D13
- 2499J B13
- 3300 D 8
- 3301 F 1
- 3302 G 2
- 3303 E 2
- 3304 F 2
- 3315 D 9
- 3316 C 9
- 3321 D 5
- 3322 C 5
- 3323 E 5
- 3324 E 5
- 3325 E 7
- 3326 C 7
- 3327 E 6
- 3328 D 6
- 3331 D10
- 3332 B10
- 3333 G 6
- 3334 G 6
- 3337 D 6
- 3338 B 6
- 3345 G 6
- 3346 G 6
- 3347 G 6
- 3349 F 6
- 3353 E 8
- 3354 C 8
- 3355 E 8
- 3356 C 8
- 3357 E 8
- 3358 C 8
- 3359J D 7
- 3360J C 7
- 3363 E10
- 3364 C10
- 3365 D11
- 3366 C11
- 3367 E11
- 3368 C11
- 3369 D12
- 3370 C12
- 3371 E12
- 3372 C12
- 3385 E11
- 3386 C11
- 3498D C13
- 3510J C 6
- 3511J E 6
- 3844 D 1
- 3845 C 1
- 3846 C 1
- 5362X C13
- 5368X C13
- 5369X D13
- 5370X A13
- 5371X A13
- 5372X B13
- 6390D C13
- 6490D E13
- 7300 B 2
- 7301 E 2
- 7320 D 5
- 7320 C 5
- 7322 C10
- 7322 D10
- 7323 F 7
- 7324 D 6
- 7343 F 4
- 7344 F 6
- 7345 G 4
- 7365 E11
- 7366 C11
- 7367 E12
- 7368 C12
- 7510J C 6
- 7511J E 7

This circuit diagram shows a summary of all possible versions. For components used in specific versions see table next right.

**Explanation of itemnumber extensions:**  
 AZ7261,AZ7262,AZ7266,AZ7267,AZ7268 ..... A  
 AZ7263 ..... A+F+J  
 AZ7264 ..... A+D

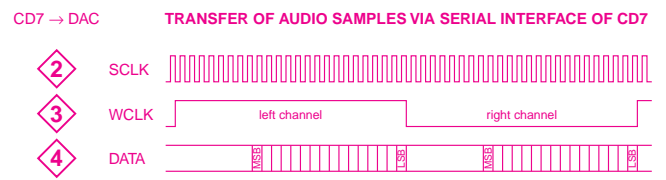
A ..... recharge circuit  
 D ..... wired remote control  
 F ..... IR - sensor  
 J ..... Line out

**Supply voltages**

- +A ..... Battery or ext. DC
- +S ..... Switched +A
- +3.5 .... Stabilized voltage of DC/DC converter
- +1.2 .... Reference-voltage (only if power on)
- +5 ..... Ext. DC

**Explanation of abbreviations:**

- X ..... Components only forseen (not in use)
- % ..... Tolerance of resistor is only 1%

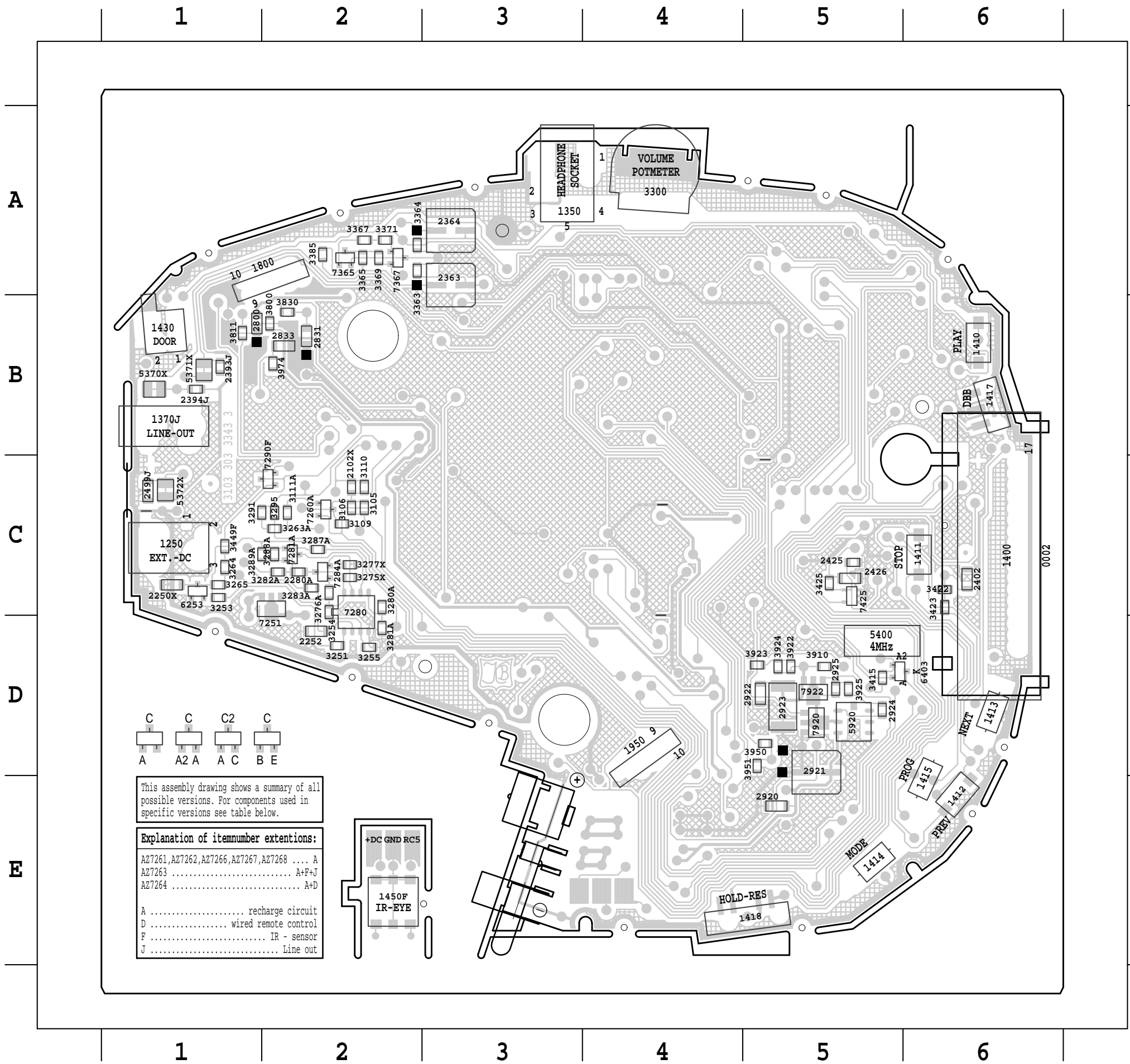


DC voltage measured in PLAY-mode, DBB=off.  
 Set supplied via mains adapter  
 EVM



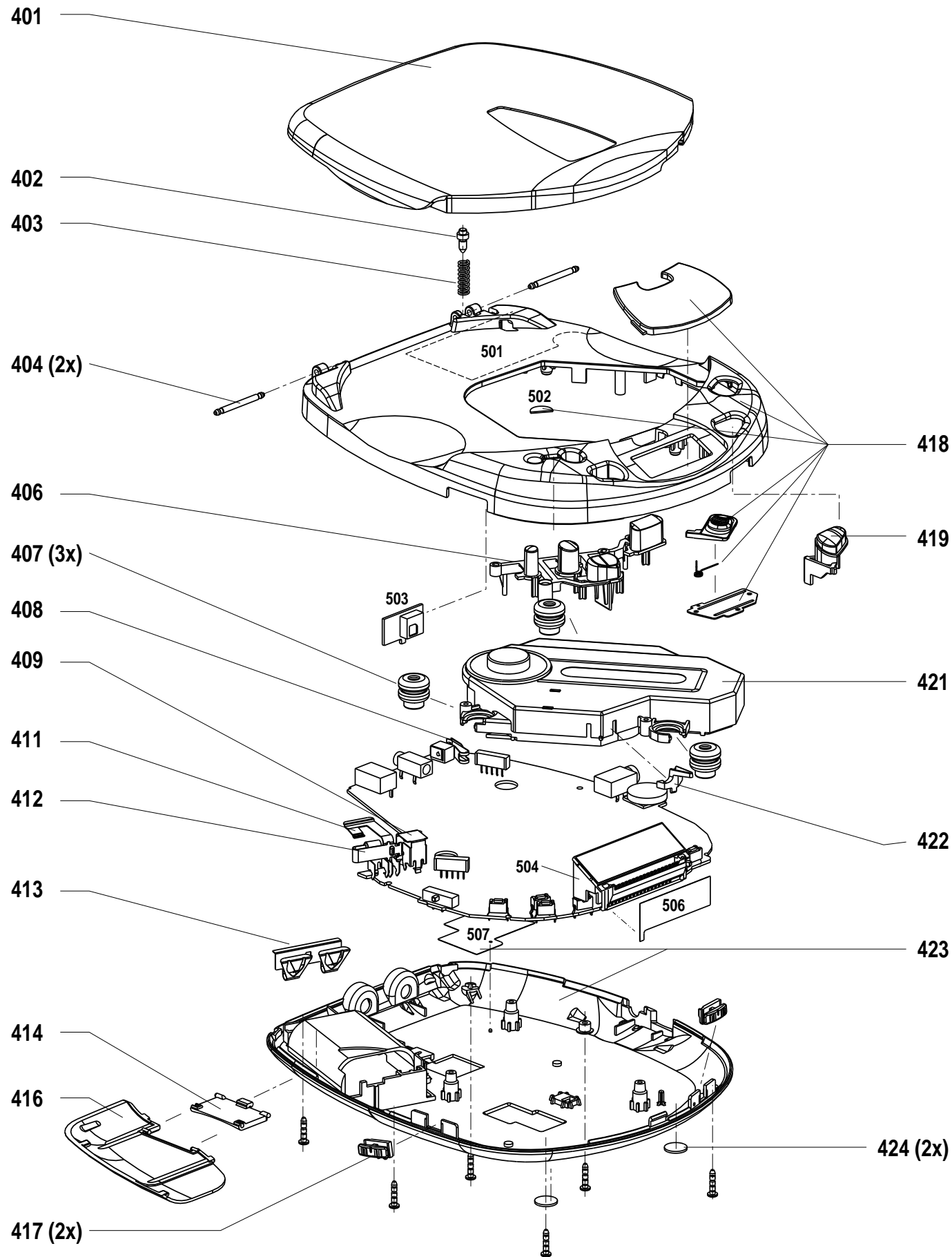


PRINTED CIRCUIT BOARD - COMPONENTSIDE VIEW



1250 C 1	3365 A 2
1350 A 3	3367 A 2
1370J B 1	3369 A 2
1400 C 6	3371 A 2
1410 B 6	3385 A 2
1411 C 6	3415 D 5
1412 E 6	3422 C 6
1413 D 6	3423 C 6
1414 E 6	3425 C 5
1415 E 6	3449F C 1
1417 B 6	3800 B 2
1418 E 5	3811 B 1
1430 B 1	3830 B 2
1450F E 2	3910 D 5
1800 A 2	3922 D 5
1950 E 4	3923 D 5
2102X C 2	3924 D 5
2250X C 1	3925 D 5
2252 D 2	3950 D 5
2280A C 2	3951 D 5
2363 A 3	3974 B 2
2364 A 3	5370X B 1
2393J B 1	5371X B 1
2394J B 1	5372X C 1
2402 C 6	5400 D 5
2425 C 5	5920 D 5
2426 C 5	6253 C 1
2499J C 1	6403 D 5
2800 B 1	7251 C 2
2831 B 2	7260A C 2
2833 B 2	7280 C 2
2920 E 5	7281A C 2
2921 D 5	7284A C 2
2922 D 5	7290F C 2
2923 D 5	7365 A 2
2924 D 5	7367 A 2
2925 D 5	7425 C 5
3105 C 2	7920 D 5
3106 C 2	7922 D 5
3109 C 2	
3110 C 2	
3111A C 2	
3251 D 2	
3253 C 1	
3254 C 2	
3255 D 2	
3263A C 2	
3264 C 1	
3265 C 1	
3275X C 2	
3276A C 2	
3277X C 2	
3280A C 2	
3281A D 2	
3282A C 2	
3283A C 2	
3287A C 2	
3288A C 2	
3289A C 1	
3291 C 1	
3295 C 2	
3300 A 4	
3363 A 2	
3364 A 2	

EXPLODED VIEW



MECHANICAL PARTSLIST

401	4822 443 10305	DOOR-CD ASSEMBLY AZ7261, AZ7263, AZ7266, AZ7267, AZ7268 (not for /17)
401	4822 443 10306	DOOR-CD ASSEMBLY AZ7261, AZ7263, AZ7266, AZ7267, AZ7268 (only for /17)
401	4822 443 10311	DOOR-CD ASSEMBLY AZ7262, AZ7264 (not for /17)
401	4822 443 10312	DOOR-CD ASSEMBLY AZ7262, AZ7264 (only for /17)
402	4822 402 10347	PIN-OPEN
403	4822 492 11071	SPRING-OPEN
404	4822 535 10247	SPINDLE
406	4822 410 10532	BUTTON-SET-PRINTED
407	4822 529 10346	RUBBER DAMPER
408	4822 492 11169	SPRING-SWITCH
409	4822 492 11066	SPRING-BATTERY +
411	4822 492 11171	SPRING-DETECTION
412	4822 492 11067	SPRING-BATTERY -
413	4822 492 11065	SPRING-BATTERY-SHORT
414	4822 417 11281	HINGE-DOOR-BATTERY-LACQUERED
416	4822 443 10236	DOOR-BATTERY-LACQUERED
417	4822 463 11028	SLIDER
418	4822 449 80075	CABINET ASSEMBLY AZ7261, AZ7263, AZ7266, AZ7267, AZ7268
418	4822 449 80076	CABINET ASSEMBLY AZ7262
418	4822 449 80077	CABINET ASSEMBLY AZ7263
418	4822 449 80078	CABINET ASSEMBLY AZ7264
419	4822 410 10531	BUTTON-PLAY-PRINTED
421	4822 691 10487	CDM-12.3BLC DISC DRIVE
422	4822 402 61554	PROTECTION BRACKET
423	4822 442 00384	BOTTOM ASSEMBLY AZ7261, AZ7263, AZ7266, AZ7267, AZ7268
423	4822 442 00385	BOTTOM ASSEMBLY AZ7262
423	4822 442 00386	BOTTOM ASSEMBLY AZ7263
423	4822 442 00387	BOTTOM ASSEMBLY AZ7264
424	4822 462 41819	RUBBER FOOT
502	4822 466 62624	RUBBER PAD CABINET
	4822 502 21247	SCREW M1,7x9

## ELECTRICAL PARTSLIST

## MISCELLANEOUS

for accessories see separate list chapter 1-3

421	4822 691 10487	CDM-12.3BLC DISC DRIVE
1250	4822 267 31354	SOCKET, EXT. SUPPLY
1350	4822 267 41192	HEADPHONE&RC SOCKET
1370	4822 267 31515	LINE-OUT SOCKET
1400	4822 135 00049	LCD LP-6365-C

1410	4822 276 13694	SWITCH-TACT
1411	4822 276 13694	SWITCH-TACT
1412	4822 276 13694	SWITCH-TACT
1413	4822 276 12469	SWITCH-TACT
1414	4822 276 12469	SWITCH-TACT

1415	4822 276 12469	SWITCH-TACT
1417	4822 277 21757	SWITCH-SLIDE
1418	4822 277 21705	SWITCH-SLIDE
1430	4822 276 13695	DOOR SWITCH
1800	4822 320 11479	CONNECTOR-FLEXFOIL

1950	4822 320 11479	CONNECTOR-FLEXFOIL
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## CAPACITORS

2101	5322 122 34099	470pF	10%	63V
2220	4822 122 33496	100nF	10%	63V
2230	4822 122 33496	100nF	10%	63V
2251	4822 124 11518	22μF	20%	6,3V
2252	4822 122 33496	100nF	10%	63V

2255	4822 122 33496	100nF	10%	63V
2280	4822 122 33891	3,3nF	10%	63V
2281	4822 122 33496	100nF	10%	63V
2282	5322 124 23675	4,7μF	20%	4V
2300	4822 124 11456	47μF	20%	4V

2301	5322 122 34123	1nF	10%	50V
2302	5322 122 34123	1nF	10%	50V
2305	4822 124 11456	47μF	20%	4V
2306	4822 124 10965	2,2μF	20%	6,3V
2307	5322 124 10798	1μF	20%	16V

2321	5322 122 32659	33pF	5%	50V
2322	5322 122 32659	33pF	5%	50V
2324	4822 124 11348	2,2μF	20%	10V
2325	4822 124 11348	2,2μF	20%	10V
2326	5322 122 34099	470pF	10%	63V

2327	5322 122 34099	470pF	10%	63V
2343	5322 124 23675	4,7μF	20%	4V
2351	4822 124 11456	47μF	20%	4V
2352	4822 124 11456	47μF	20%	4V
2353	5322 124 23675	4,7μF	20%	4V

2354	5322 124 23675	4,7μF	20%	4V
2355	4822 122 32646	5,6nF	10%	50V
2356	4822 122 32646	5,6nF	10%	50V
2363	4822 124 81059	220μF	20%	4V
2364	4822 124 81059	220μF	20%	4V

2392	5322 122 31863	330pF	5%	50V
2393	5322 122 32531	100pF	5%	50V
2394	5322 122 32531	100pF	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
2425	5322 116 80853	560pF	5%	63V
2426	4822 122 33496	100nF	10%	63V
2451	4822 124 11348	2,2μF	20%	10V

2452	4822 122 33496	100nF	10%	63V
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## CAPACITORS

2453	4822 122 33496	100nF	10%	63V
2454	4822 122 33891	3,3nF	10%	63V
2465	4822 124 11348	2,2μF	20%	10V
2490	5322 122 31865	1,5nF	10%	63V
2499	4822 122 33496	100nF	10%	63V

2800	4822 124 11348	2,2μF	20%	10V
2801	5322 122 31865	1,5nF	10%	63V
2802	5322 116 80853	560pF	5%	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
2809	5322 122 32268	470pF	10%	50V

2810	5322 122 32268	470pF	10%	50V
2811	5322 122 34123	1nF	10%	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
2831	4822 124 11348	2,2μF	20%	10V
2833	4822 126 11692	1μF	20%	16V
2834	4822 122 32542	47nF	10%	63V
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
2845	4822 124 11456	47μF	20%	4V
2902	4822 126 11692	1μF	20%	16V

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%	
2951	4822 126 11691	150nF	10%	
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
2957	4822 124 11348	2,2μF	20%	10V
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	5322 124 23675	4,7μF	20%	4V
2963	5322 124 23675	4,7μF	20%	4V
2979	5322 122 33538	150pF	5%	63V

## CAPACITORS

2980	5322 122 32452	47pF	5%	50V
2981	4822 122 33496	100nF	10%	63V
2982	5322 122 32452	47pF	5%	50V
2983	5322 122 32452	47pF	5%	50V
2984	5322 122 32481	15pF	5%	50V

2985	4822 122 33175	2,2nF	20%	50V
2986	4822 122 33515	82pF	5%	50V
2987	4822 122 33515	82pF	5%	50V
2988	5322 122 33538	150pF	5%	63V
2989	5322 122 31946	27pF	5%	63V

## RESISTORS

3105	4822 051 20474	470kΩ	5%	0,1W
3106	4822 117 10834	47kΩ	1%	0,1W
3108	4822 117 11137	68kΩ	1%	0,1W
3109	4822 117 12306	150kΩ	1%	0,1W
3110	4822 051 20335	3,3MΩ	5%	0,1W

3111	4822 051 20223	22kΩ	5%	0,1W
3150	4822 051 20103	10kΩ	5%	0,1W
3151	4822 051 20103	10kΩ	5%	0,1W
3152	4822 051 20103	10kΩ	5%	0,1W
3250	4822 051 20474	470kΩ	5%	0,1W

3251	4822 051 20331	330Ω	5%	0,1W
3253	4822 051 20223	22kΩ	5%	0,1W
3254	4822 051 20183	18kΩ	5%	0,1W
3255	4822 051 20223	22kΩ	5%	0,1W
3261	4822 051 20103	10kΩ	5%	0,1W

3262	4822 051 20104	100kΩ	5%	0,1W
3263	4822 051 20104	100kΩ	5%	0,1W
3264	4822 051 20271	270Ω	5%	0,1W
3265	4822 051 20271	270Ω	5%	0,1W
3276	4822 051 20223	22kΩ	5%	0,1W

3280	4822 051 20104	100kΩ	5%	0,1W
3281	4822 051 20223	22kΩ	5%	0,1W
3282	4822 051 20104	100kΩ	5%	0,1W
3283	4822 117 11449	2,2kΩ	1%	0,1W
3285	4822 051 20228	2,2Ω	5%	0,1W

3286	4822 051 20228	2,2Ω	5%	0,1W
3287	4822 051 20104	100kΩ	5%	0,1W
3288	4822 051 20105	1MΩ	5%	0,1W
3289	4822 051 10102	1kΩ	2%	0,25W
3291	4822 117 10358	5,6kΩ	1%	0,1W

3293	4822 116 30467	10kΩ	5%	NTC
3295	4822 117 11449	2,2kΩ	1%	0,1W
3300	4822 101 11428	2x10kΩ	POTMETER	
3301	4822 051 20223	22kΩ	5%	0,1W
3302	4822 051 10102	1kΩ	2%	0,25W

3303	4822 051 20109	10Ω	5%	0,1W
3304	4822 051 10102	1kΩ	2%	0,25W
3315	4822 051 20473	47kΩ	5%	0,1W
3316	4822 051 20473	47kΩ	5%	0,1W
3321	4822 051 20223	22kΩ	5%	0,1W

3322	4822 051 20333	33kΩ	5%	0,1W
3323	4822 051 20104	100kΩ	5%	0,1W
3324	4822 051 20334	330kΩ	5%	0,1W
3325	4822 051 20339	33Ω	5%	0,1W
3326	4822 051 20339	33Ω	5%	0,1W

3327	4822 051 10102	1kΩ	2%	0,25W
3328	4822 051 10102	1kΩ	2%	0,25W
3331	4822 051 20124	120kΩ	5%	0,1W
3332	4822 051 20124	120kΩ	5%	0,1W
3333	4822 051 20103	10kΩ	5%	0,1W

3334	4822 051 20103	10kΩ	5%	0,1W
3337	4822 051 20392	3,9kΩ	5%	0,1W

## RESISTORS

3338	4822 051 20392	3,9kΩ	5%	0,1W
3345	4822 051 20223	22kΩ	5%	0,1W
3346	4822 051 20223	22kΩ	5%	0,1W
3347	4822 051 20			



## RESISTORS

3805	© 4822 051 20103	10kΩ	5%	0,1W
3806	© 4822 051 20103	10kΩ	5%	0,1W
3807	© 4822 051 20103	10kΩ	5%	0,1W
3808	© 4822 051 20103	10kΩ	5%	0,1W
3809	© 4822 117 11149	82kΩ	1%	0,1W
3810	© 4822 117 11149	82kΩ	1%	0,1W
3811	© 4822 051 20393	39kΩ	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 051 20221	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
3830	© 4822 051 20101	100Ω	5%	0,1W
3831	© 4822 051 20223	22kΩ	5%	0,1W
3832	© 4822 051 10102	1kΩ	2%	0,25W
3833	© 4822 051 20229	22Ω	5%	0,1W
3840	© 4822 051 20008	CHIP JUMPER 0805		
3841	© 4822 051 20229	22Ω	5%	0,1W
3844	© 4822 051 10102	1kΩ	2%	0,25W
3845	© 4822 051 10102	1kΩ	2%	0,25W
3846	© 4822 051 10102	1kΩ	2%	0,25W
3847	© 4822 051 20394	390kΩ	5%	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 20103	10kΩ	5%	0,1W
3882	© 4822 117 11437	8,2kΩ	1%	0,1W
3903	© 4822 051 20103	10kΩ	5%	0,1W
3904	© 4822 051 20103	10kΩ	5%	0,1W
3905	© 4822 051 20101	100Ω	5%	0,1W
3910	© 4822 051 20681	680Ω	5%	0,1W
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
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
3950	© 4822 051 20103	10kΩ	5%	0,1W
3951	© 4822 051 20392	3,9kΩ	5%	0,1W
3973	© 4822 051 20103	10kΩ	5%	0,1W
3974	© 4822 051 20471	470Ω	5%	0,1W
3975	© 4822 051 20478	4,7Ω	5%	0,1W
3980	© 4822 117 11449	2,2kΩ	1%	0,1W
3981	© 4822 051 20474	470kΩ	5%	0,1W
3982	© 4822 051 20473	47kΩ	5%	0,1W
3983	© 4822 051 20103	10kΩ	5%	0,1W
3984	© 4822 051 20682	6,8kΩ	5%	0,1W
3985	© 4822 051 20223	22kΩ	5%	0,1W
3987	© 4822 051 20332	3,3kΩ	5%	0,1W

## RESISTORS

3988	© 4822 051 20332	3,3kΩ	5%	0,1W
3989	© 4822 051 20223	22kΩ	5%	0,1W
3990	© 4822 051 20332	3,3kΩ	5%	0,1W
3991	© 4822 051 20332	3,3kΩ	5%	0,1W
3992	© 4822 051 20332	3,3kΩ	5%	0,1W

## COILS

5400	4822 242 72527	CERAMIC RES.	4,0MHz
5800	© 4822 242 81546	CERAMIC RES.	8,46MHz
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

1450	© 4822 214 11453	GP1UC10P RC5-RECEIVER
6250	© 4822 130 80622	BAT54
6251	© 4822 130 82588	SB10-05PCP
6253	© 4822 130 33003	BZX84-C3V3
6390	© 4822 130 80125	BZX84-C5V6
6400	© 5322 130 34331	BAV70
6401	© 5322 130 34331	BAV70
6403	© 5322 130 34331	BAV70
6450	© 4822 130 82594	BAT54C
6490	© 4822 130 81338	BZX84-C11
6951	© 4822 130 82262	BAT54S
6952	© 4822 130 80622	BAT54

## TRANSISTORS

7251	© 4822 130 62808	2SB1123
7260	© 5322 130 42012	BC858
7281	© 5322 130 42012	BC858
7282	© 4822 130 63646	2SD1623T
7283	© 4822 130 61207	BC848
7284	© 4822 130 61207	BC848
7290	© 4822 130 61207	BC848
7301	© 5322 130 60123	BC807-40
7323	© 4822 130 61207	BC848
7324	© 4822 130 61207	BC848
7343	© 5322 130 42012	BC858
7344	© 5322 130 42012	BC858
7345	© 4822 130 61207	BC848
7365	© 4822 130 42133	BC817
7366	© 4822 130 42133	BC817
7367	© 4822 130 42133	BC817
7368	© 4822 130 42133	BC817
7451	© 4822 130 61207	BC848
7452	© 4822 130 61207	BC848
7453	© 4822 130 61207	BC848
7494	© 5322 130 42012	BC858
7510	© 4822 130 42133	BC817
7511	© 4822 130 42133	BC817
7520	© 5322 130 42012	BC858
7901	© 4822 130 61207	BC848
7920	© 4822 130 63357	2SK1717
7922	© 4822 130 63646	2SD1623T
7940	© 5322 130 42012	BC858
7942	© 4822 130 61207	BC848

INTEGRATED CIRCUITS

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7280 ©	4822 209 71448	NJM2903M
7300 ©	4822 209 33164	TDA1545AT/N2
7320 ©	4822 209 33165	TDA1308T/N1
7322 ©	4822 209 33165	TDA1308T/N1
7400 ©	4822 209 13566	μP TMP47C823F SHARON1-PB1
7425 ©	4822 209 12991	PST9127N
7800 ©	4822 209 33165	TDA1308T/N1
7820 ©	4822 209 33165	TDA1308T/N1
7830 ©	4822 209 13554	SAA7376GP/M1
7880 ©	5322 209 11517	PC74HCU04T
7921 ©	5322 209 11517	PC74HCU04T
7950 ©	4822 209 12994	MPC1718FB