

Service  
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**Service**



# Service Manual

**TABLE OF CONTENTS**

Handling chip components .....1-1  
 Technical specification.....2-1  
 Service tools .....2-1  
 Service measurement setup.....2-2  
 Connections and controls .....3-1...3-2

Disassembly diagram .....4-1  
 Pin description of ICs.....4-2...4-4  
 Set block diagram .....5-1  
 Set wiring diagram .....5-2

**LCD BOARD**  
 circuit diagram .....6-1  
 layout diagram .....6-2

**HEADPHONE BOARD**  
 circuit diagram .....6-1  
 layout diagram .....6-2

**KEY BOARD**  
 circuit diagram .....6-1  
 layout diagram .....6-2

**POWER BOARD**  
 circuit diagram .....6-1  
 layout diagram .....6-3



**CD BOARD**  
 circuit diagram .....7-1  
 layout diagram .....7-2

**MAIN BOARD**  
 circuit diagram - power amplifier.....8-1  
 circuit diagram - tuner .....8-2  
 layout diagram - component side.....8-3  
 layout diagram - SMD side .....8-4

Exploded view (main set).....9-1  
 Mechanical partslist .....10-1  
 Electrical partslist.....10-1



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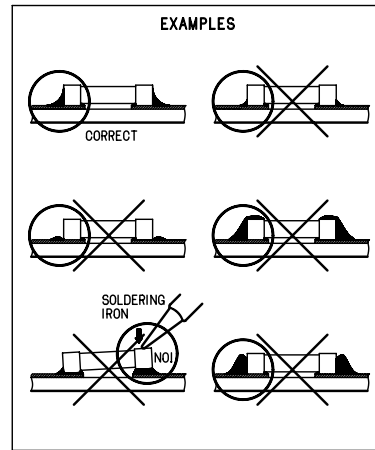
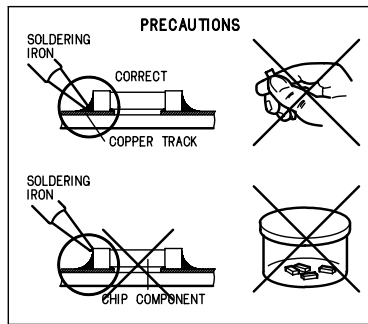
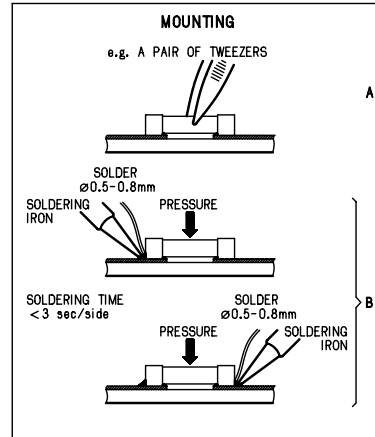
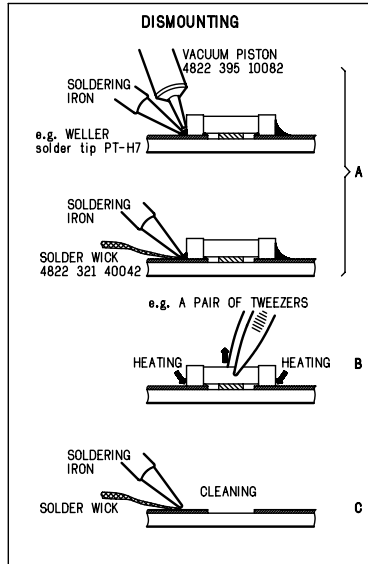
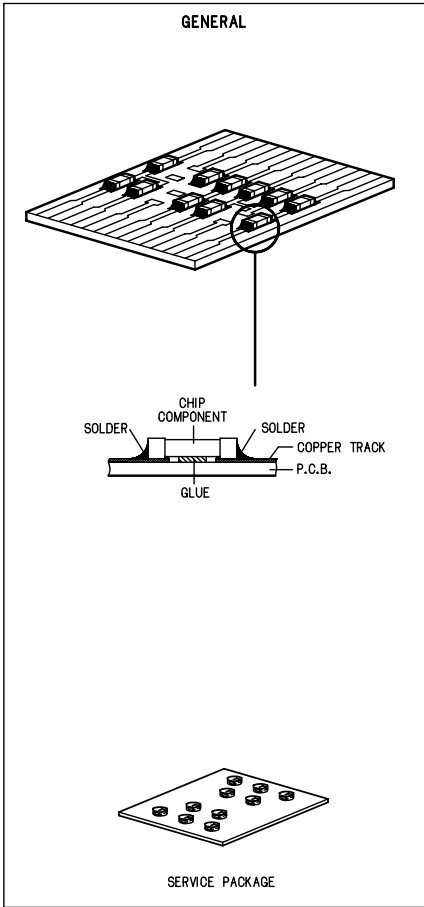
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**Version 1.0**



# HANDLING CHIP COMPONENTS



**(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 wristband with resistance. Keep components and tools at this potential.



**(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.

**(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 enfilier 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.

**(D) 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 Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

**(I) 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 dell'apparecchio tramite un braccialeto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(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

**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.

**(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 symbol

**(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

**(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.

**(DK) Advarsel !** Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.



**(FIN) Varoitus !** Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

**(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.

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

## TECHNICAL SPECIFICATIONS

### GENERAL

Mains voltage	-/21 : 110 - 127 / 220 - 240V -/22/25 : 230V ± 10%	Grid	-/22/25 : 9kHz -/21 : 9kHz/10kHz
Mains frequency	-/21 : 50 / 60 Hz Switchable -/22/25 : 50 Hz	IF frequency	: 450 kHz ± 1 kHz
Battery	remote : 3 V (R6 x 2)	Sensitivity	: ≥ 18 dB S9 / 300kHz
Power consumption	normal : 15 W Standby : < 3 W	IF rejection	: > 24 dB
Clock accuracy	: < 4 seconds per day	Distortion at RF=50mV, M=80%	: < 5%
Dimension (W x H x D)	: 156 x 222 x 216 mm	Image rejection ratio	: > 20 dB
Weight (without speakers)	: 2.95 Kg		

### AMPLIFIER

Output power	mains : 2 x 5 W RMS
Speaker impedance	: 2 x 3 ohm
Frequency response within ±3dB	: 60 Hz - 14 kHz
Dynamic Bass Boost	: DBB1, DBB2, Off
Headphone output at 32Ω	: 15mW ± 2dB (Max Vol.)

### TUNER - FM SECTION

Tuning range	: 87.5 - 108 MHz
Grid	-/21 : 50kHz/100kHz -/22/25 : 50kHz
IF frequency	: 10.7 MHz ± 0.02 MHz
Sensitivity	: < 22 dBf at 26dB S/N
Selectivity	300kHz : 40 dB
IF rejection	: 65 dB
Image rejection	: > 20 dB
Distortion at RF1mV, Dev. 75kHz	: < 3%
-3 dB Limiting Point	: < 23.5 μV
Crosstalk at RF1mV, Dev. 40kHz	: > 26 dB

### AUDIO CASSETTE RECORDER

Frequency response	Normal : 80 - 10000 Hz (8dB)
Wow & flutter	: ≤ 0.48 % JIS
Tape speed	: 4.76 cm/s ± 3 %
Fast wind/Rewind C60	: < 130 s
Bias system	: 73 kHz ± 10
Channel separation	1kHz : > 18 dB
Channel difference at overall	: ≤ 4 dB
S/N ratio (unw.)	Ferro : ≥ 36 dB

### DISC PLAYER

Frequency response	: 63Hz - 14kHz < ±3dB
S/N ratio (A-wght.)	: > 62 dBA
Total harmonic distortion	: < 1.5 %
Outband attenuation	: > 35 dB for Freq > 40kHz
Emphasis	: 15/50 μS
Channel separation	1 kHz : 35 dB
Channel unbalance	: < ± 2 dB

### TUNER - AM SECTION

Tuning range	MW -/22/25 : 531 - 1602 kHz -/21 : 530 - 1700 kHz
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### SERVICE TOOLS

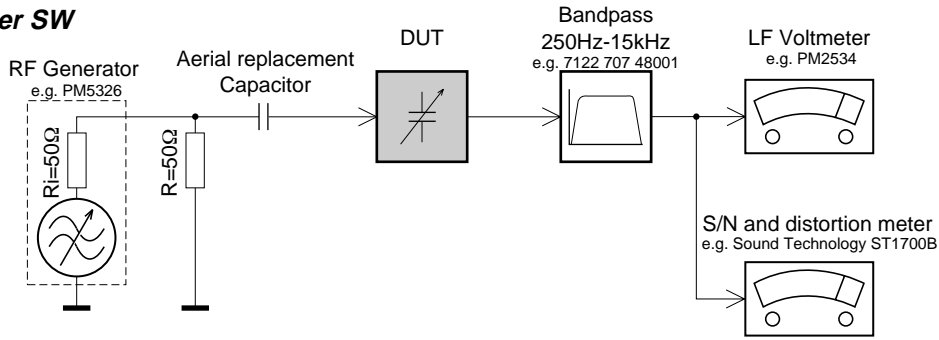
<b>TORX T10</b> screwdriver with shaftlength 150mm.....	4822 395 50423
<b>TORX screwdriver set</b> SBC 163.....	4822 295 50145
<b>Audio signal disc</b> SBC 429.....	4822 397 30184
<b>Playability test disc</b> SBC 444.....	4822 397 30245
<b>Test disc 5</b> (disc without errors) +	
<b>Test disc 5A</b> (disc with dropout errors, black spots and fingerprints)	
SBC 426/426A.....	4822 397 30096
<b>Burn in test disc</b> (65 min. 1kHz signal at -30 dB level without "pause").....	4822 397 30155
<b>Universal test cassette</b> Fe SBC 420.....	4822 397 30071

### AVAILABLE ESD PROTECTION EQUIPMENT

<b>anti-static table mat</b> large 1200x650x1.25mm	4822 466 10953
small 600x650x1.25mm	4822 466 10958
<b>anti-static wristband</b>	4822 395 10223
<b>connection box</b> (3 press stud connections, 1MΩ)	4822 320 11307
<b>extendible cable</b> (2m, 2MΩ, to connect wristband to connection box)	4822 320 11305
<b>connecting cable</b> (3m, 2MΩ, to connect table mat to connection box)	4822 320 11306
<b>earth cable</b> (1MΩ, to connect any product to mat or to connection box)	4822 320 11308
<b>KIT ESD3</b> (combining all 6 prior products - small table mat)	4822 310 10671
<b>wristband tester</b>	4822 344 13999

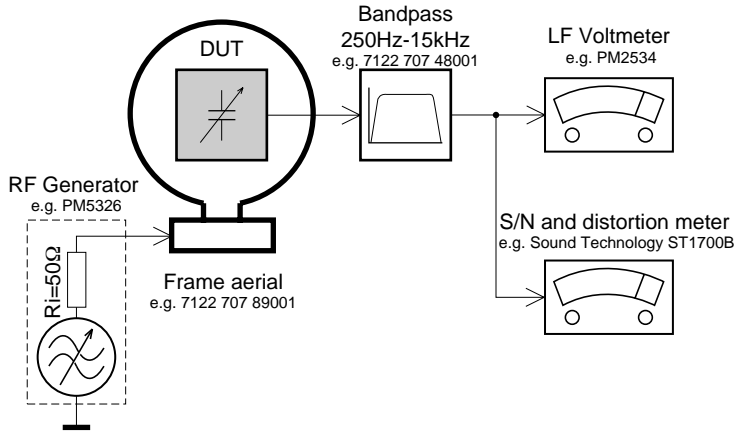
## SERVICE MEASUREMENT

### Tuner SW



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

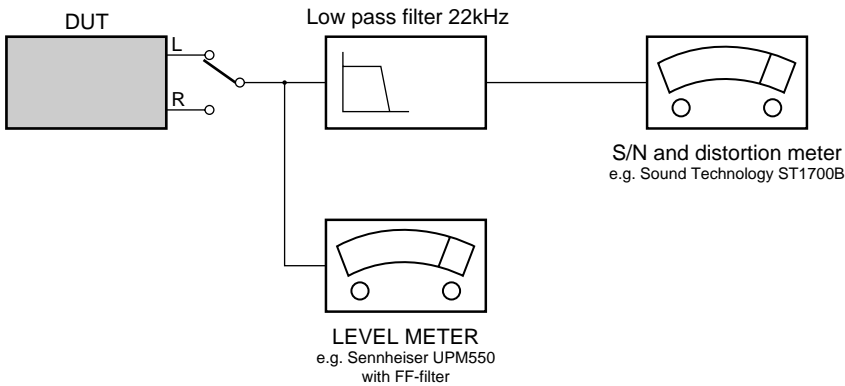
### Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage.

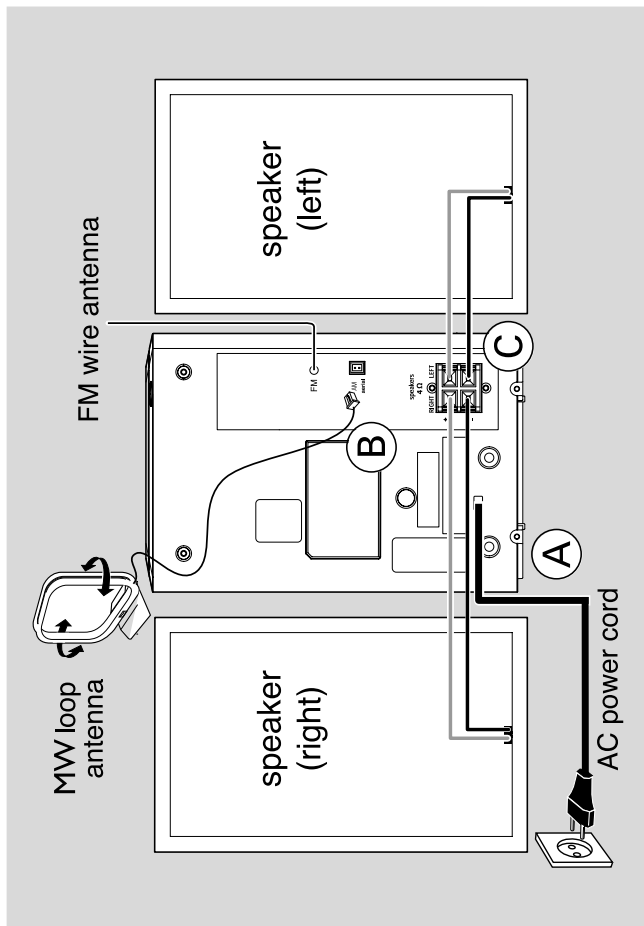
### CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)  
L.P.F. = 13<sup>th</sup> order filter 4822 395 30204



# PREPARATIONS AND CONTROLS

## Preparations



### Rear connections

The type plate is located at the rear of the system.  
For users in the U.K.: please follow the instructions.

**(A) Power**

Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.

### WARNING!

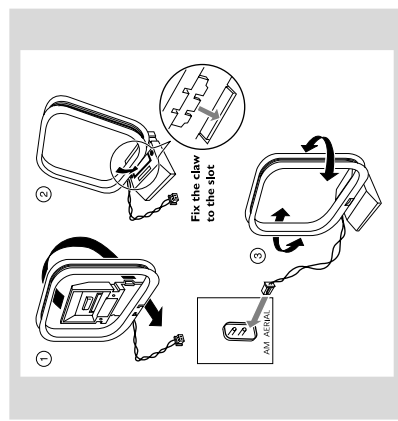
- For optimal performance, use only the original power cable.
- Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it (not available for all versions).

### (B) Antennas Connection

Connect the supplied AM loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

### AM Antenna



- Position the antenna as far as possible from a TV, VCR or other radiation source.

## Preparations

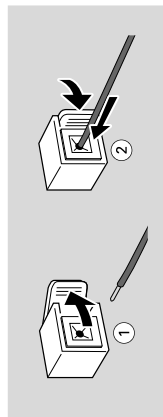
### FM Antenna

- Extend coil antenna at the back of the unit fully for optimum reception.

### (C) Speakers Connection

#### Front Speakers

Connect the speaker wires to the SPEAKERS terminals, right speaker to "RIGHT" and left speaker to "LEFT", coloured (marked) wire to "+" and black (unmarked) wire to "-".



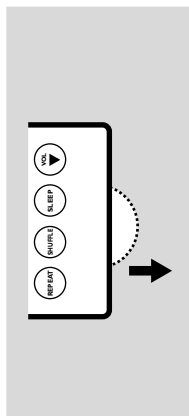
- Fully insert the stripped portion of the speaker wire into the terminal as shown.

### Notes:

- For optimal sound performance, use the supplied speakers.
- Do not connect more than one speaker to any one pair of + / - speaker terminals.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

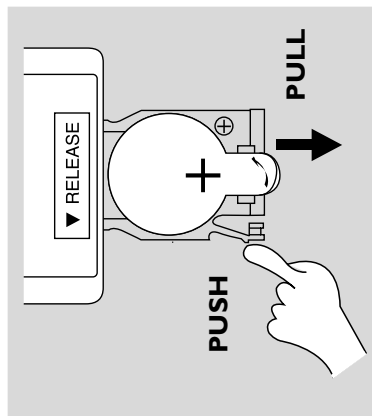
### Before using the remote control

- 1 Pull out the plastic protective sheet.
- 2 Select the source you wish to control by pressing one of the source select keys on the remote control (for example CD, TUNER).
- 3 Then select the desired function (for example ▶, ◀, ⏪, ⏩).



### Replacing battery (lithium CR2025) into the remote control

- 1 Pull out the knob (A) slightly to the right.
- 2 Pull out the battery compartment (B).
- 3 Replace a new battery and fully insert the battery compartment back to the original position.



### CAUTION!

Batteries contain chemical substances, so they should be disposed off properly.

# PREPARATIONS AND CONTROLS

## Controls

### Controls on the system and remote control

- 1 **STANDBY-ON /  $\phi$**   
switches the system to standby/on.
- 2 **SOURCE (CD/TUNER/TAPE)**  
selects the respective sound source for CD/ FM/ MW/ TAPE.
- 3 **DBB1 / DBB2 (DBB)**  
(Dynamic Bass Boost) enhances the bass.
- 4 **Display**  
shows the status of the system.
- 5 **Mode Selection STOP ■**  
for CD ..... stops CD playback or erase a CD program.

- 6 **PLAY-PAUSE  $\blacktriangleright$  II**  
for CD ..... starts or pauses CD playback.  
**◀◀ / ▶▶ / ◀◀ TUNE ▶▶ (H / ▶)**  
for CD ..... skips to the beginning of a current track/previous/ next track.

- 7 **PAUSE** ..... pauses recording or playback.  
adjusts volume level.  
adjusts the hours and minutes for clock/ timer functions.

- 8 **IR SENSOR**  
infrared sensor for remote control.
- 9 **TIMER / CLOCK**  
activates/deactivates or sets the timer function.  
sets the clock function.
- 10 **REPEAT / SHUFFLE**  
repeats a track/CD program/ entire CD.  
plays CD tracks in random order.

- 11 **PLAY-PAUSE  $\blacktriangleright$  II**  
for Tuner ..... tunes to radio stations.  
..... selects a preset radio station.

- 12 **Tape Deck Operation**  
**RECORD ●** ..... starts recording.  
**PLAY  $\blacktriangleright$**  ..... starts playback.  
**◀◀ / ▶▶** ..... fast rewinds/forwards the tape.  
**STOP-OPEN ..** stops the tape; opens the tape compartment.

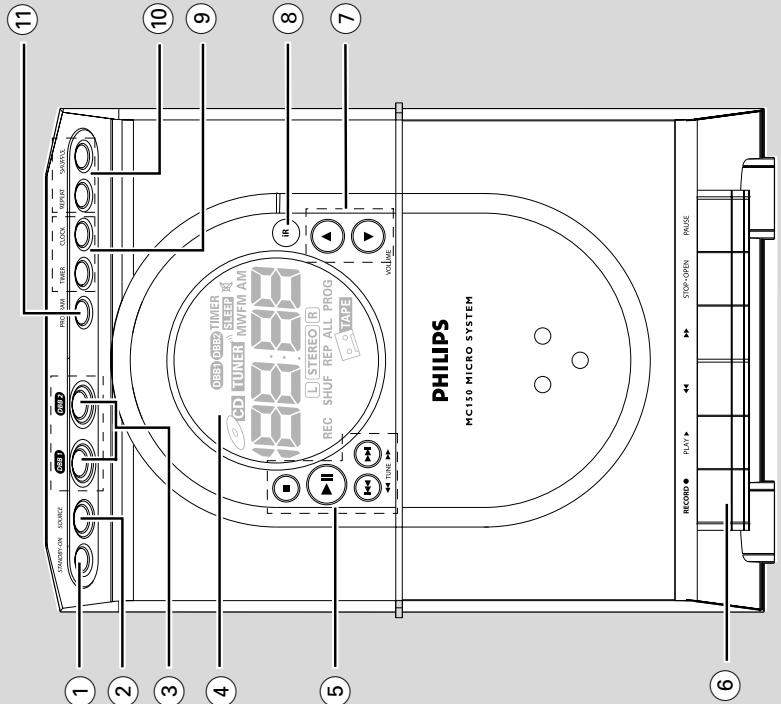
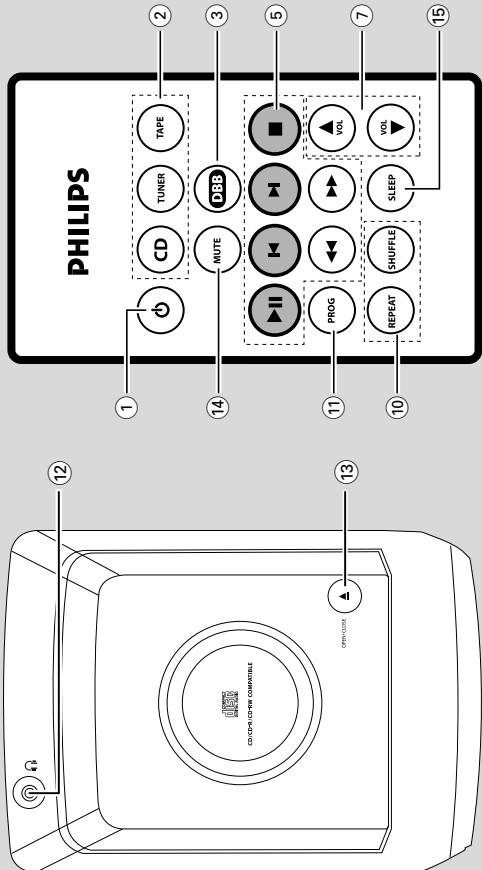
- 13 **VOLUME  $\blacktriangle$  /  $\blacktriangledown$  (VOL  $\blacktriangle$  /  $\blacktriangledown$ )**  
adjusts volume level.  
adjusts the hours and minutes for clock/ timer functions.

- 14 **IR SENSOR**  
infrared sensor for remote control.
- 15 **TIMER / CLOCK**  
activates/deactivates or sets the timer function.  
sets the clock function.

- 16 **REPEAT / SHUFFLE**  
repeats a track/CD program/ entire CD.  
plays CD tracks in random order.

### Notes for remote control:

- First select the source you wish to control by pressing one of the source select keys on the remote control (for example CD, TUNER).
- Then select the desired function (for example  $\blacktriangleright$ ,  $\blacktriangleleft$ ,  $\blacktriangleright$ ).



- 11 **PROGRAM (PROG)**  
for CD ..... programs tracks and reviews the program.  
for Tuner ..... programs tuner stations manually or automatically.
- 12 **connect headphones.**
- 13 **OPEN-CLOSE**  
opens/closes the CD door.
- 14 **MUTE**  
switches playback sound off and on.
- 15 **SLEEP**  
activates/deactivates or selects the sleeper time.

## PREPARATIONS AND CONTROLS

**Important notes for users in the U.K.****Mains plug**

This apparatus is fitted with an approved 13 Amp plug. To change a fuse in this type of plug proceed as follows:

- 1** Remove fuse cover and fuse.
- 2** Fix new fuse which should be a BS1362 5 Amp, A.S.T.A. or BSI approved type.
- 3** Refit the fuse cover:

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place.

If the mains plug contains a fuse, this should have a value of 5 Amp. If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

**Note:** *The severed plug must be disposed of to avoid a possible shock hazard should it be inserted into a 13 Amp socket elsewhere.*

**How to connect a plug**

The wires in the mains lead are coloured with the following code: blue = neutral (N), brown = live (L).

- As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:
    - Connect the blue wire to the terminal marked N or coloured black.
    - Connect the brown wire to the terminal marked L or coloured red.
    - Do not connect either wire to the earth terminal in the plug, marked E (or  $\text{⏏}$ ) or coloured green (or green and yellow).
- Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead - not simply over the two wires.

**Copyright in the U.K.**

Recording and playback of material may require consent. See Copyright Act 1956 and The Performer's Protection Acts 1958 to 1972.

**Italia****DICHIARAZIONE DI CONFORMITA'**

Si dichiara che l'apparecchio MC230, MC235 Philips risponde alle prescrizioni dell'art. 2 comma 1 del D.M. 28 Agosto 1995 n. 548.

Fatto a Eindhoven

Philips Consumer Electronics  
Philips, Glaslaan 2  
5616 JB Eindhoven, The Netherlands

**Norge**

Typeskilt finnes på apparatens underside.

**Observer:** *Nettbryteren er sekundert innkoplet. Den innebygde nettdelen er derfor ikke frakoplet nettet så lenge apparatet er tilsluttet nettkontaktene.*

For å redusere faren for brann eller elektrisk støt, skal apparatet ikke utsettes for regn eller fuktighet.

**CAUTION**

**Use of controls or adjustments or performance of procedures other than herein may result in hazardous radiation exposure or other unsafe operation.**

**VAROITUS**

**Muiden kuin tässä esitettyjen toimintojen säädön tai asetusten muutto saattaa altistaa vaaralliselle säteilylle tai muille vaarallisille toiminnolle.**



## PREPARATIONS AND CONTROLS

### Troubleshooting

#### WARNING

Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

If a fault occurs, first check the points listed below before taking the system for repair. If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

#### Problem

#### Solution

#### CD OPERATION

"no disc" is displayed.

- Insert a disc.
- Check if the disc is inserted upside down.
- Wait until the moisture condensation at the lens has cleared.
- Replace or clean the disc; see "Maintenance".
- Use a finalised CD-RW or CD-R.

#### RADIO RECEPTION

Radio reception is poor.

- If the signal is too weak, adjust the antenna or connect an external antenna for better reception.
- Increase the distance between the Micro HiFi System and your TV or VCR.

#### TAPE OPERATION / RECORDING

Recording or playback cannot be made.

- Clean deck parts; see "Maintenance".
- Use only normal (IEC I) tape for recording.
- Apply a piece of adhesive tape over the missing tab space.

#### GENERAL

The system does not react when buttons are pressed.

- Remove and reconnect the AC power plug and switch on the system again.

Sound cannot be heard or is of poor quality.

- Adjust the volume.
- Disconnect the headphones.
- Check that the speakers are connected correctly.
- Check if the stripped speaker wire is clamped.

The left and right sound outputs are reversed.

- Check the speaker connections and location.

The remote control does not function properly.

- Select the source (CD or TUNER; for example) before pressing the function button (▲, |, ◀, ▶).
- Reduce the distance between the remote control and the system.
- Insert the batteries with their polarities (+/- signs) aligned as indicated.
- Replace the batteries.
- Point the remote control directly toward IR sensor on the front of the system.

The timer is not working.

- Set the clock correctly.
- Press **TIMER** to switch on the timer.
- If a recording is in progress, stop the recording.

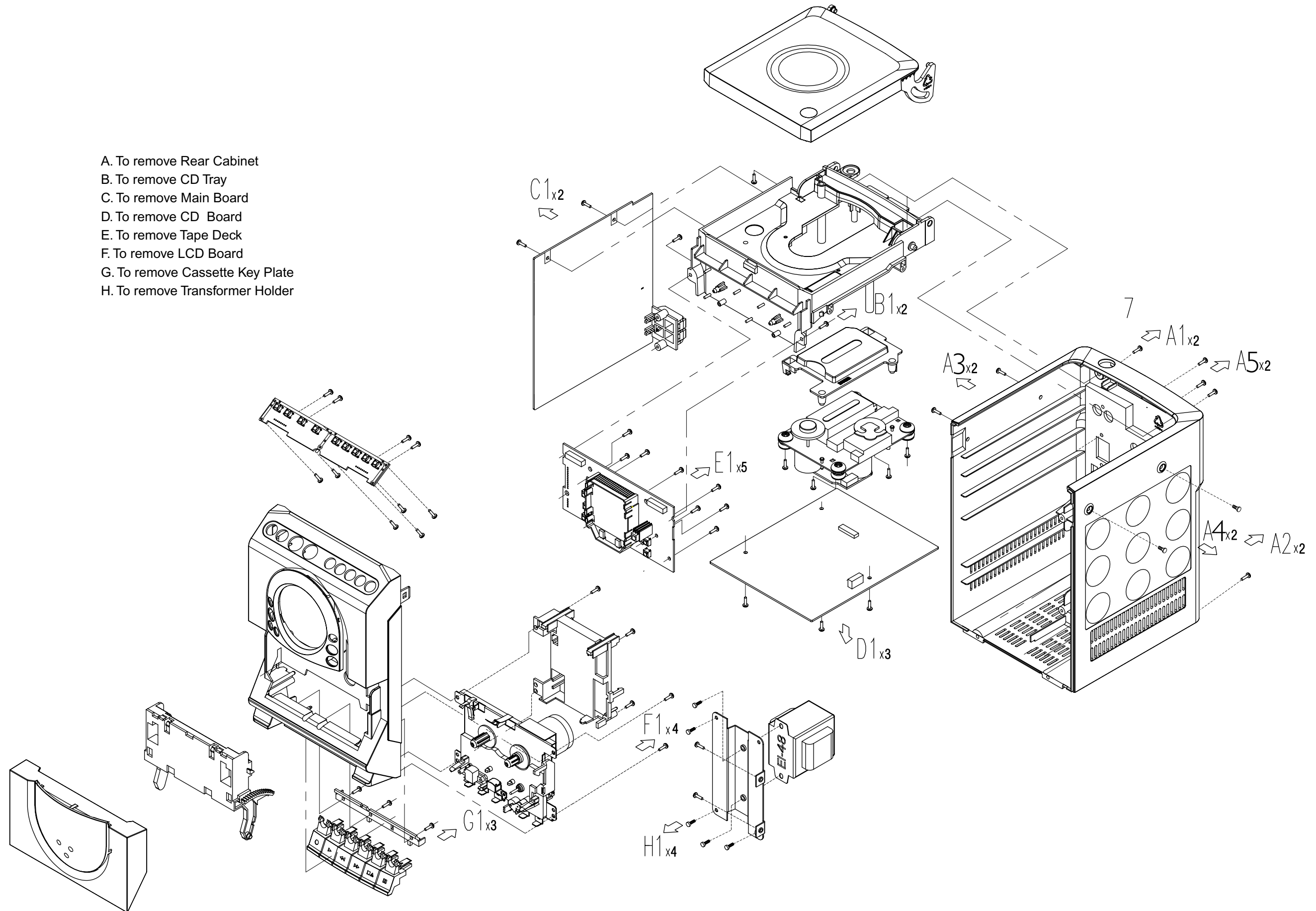
The Clock/Timer setting is erased.

- Power has been interrupted or the power cord has been disconnected. Reset the clock/timer.



## DISASSEMBLY DIAGRAM

- A. To remove Rear Cabinet
- B. To remove CD Tray
- C. To remove Main Board
- D. To remove CD Board
- E. To remove Tape Deck
- F. To remove LCD Board
- G. To remove Cassette Key Plate
- H. To remove Transformer Holder



## Abbreviations and Pin- description of ICs

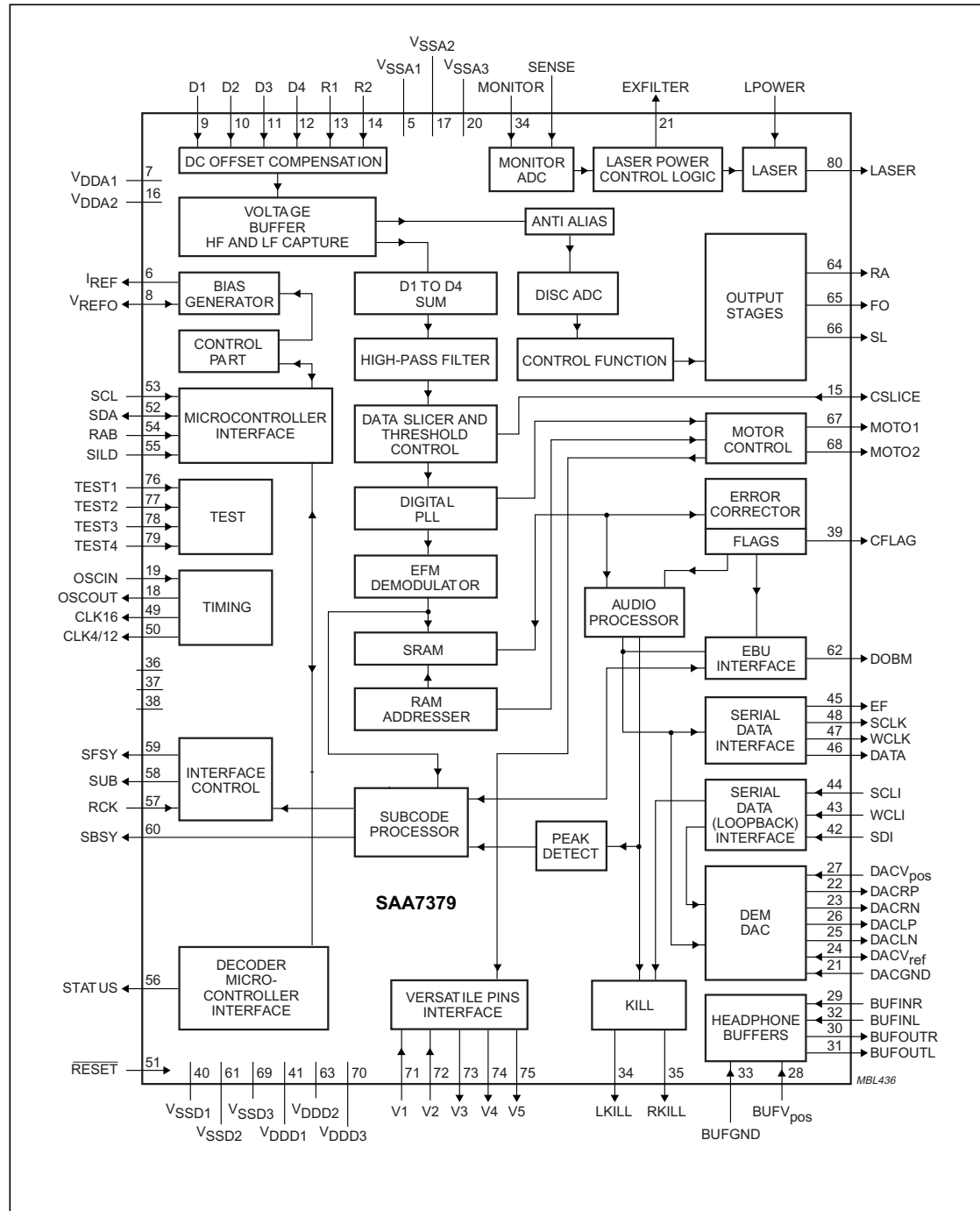
## SERVO PROCESSOR SAA7379HL

SYMBOL	PIN	I/O	DESCRIPTION
LFPOWER1		I	laser power supply
EXFILTER	2	O	10 nF capacitor for laser start-up control
MONITOR3		I	laser monitor diode
SENSE4		I	OPU ground reference point for MONITOR measurement
V <sub>SSA1</sub>	5	SUP	analog ground1
I <sub>REF</sub>	6	O	reference current output (24k $\Omega$ resistor connected to analog ground)
V <sub>DDA1</sub>	7	SUP	analog supply voltage1
V <sub>REFO</sub>	8	I/O	servo reference voltage
D1	9	I	diode voltage/current input (central diode signal input)
D2	10	I	diode voltage/current input (central diode signal input)
D3	11	I	diode voltage/current input (central diode signal input)
D4	12	I	diode voltage/current input (central diode signal input)
R1	13	I	diode voltage/current input (satellite diode signal input)
R2	14	I	diode voltage/current input (satellite diode signal input)
CSLICE	15	I/O	10n F capacitor for adaptive HF data slicer
V <sub>DDA2</sub>	16	SUP	analog supply voltage2
V <sub>SSA2</sub>	17	SUP	analog ground 2
OSCOUT	18	O	crystal/resonator output
OSCIN1	9	I	crystal/resonator input
V <sub>SSA3</sub>	20	SUP	analog ground 3
DACGND	21	I	audio DAC ground
DACRP2	2	O	audio DAC right channel differential positive output
DACRN2	3	O	audio DAC right channel differential negative output
DACV <sub>ref</sub>	24	I/O	audio DAC decoupling point (10 $\mu$ F or 100 nF to ground)
DACLN2	5	O	audio DAC left channel differential negative output
DACLP2	6	O	audio DAC left channel differential positive output
DACV <sub>pos</sub>	27	I	audio DAC positive supply voltage
BUFV <sub>pos</sub>	28	I	audio buffer positive supply voltage
BUFINR	29	I	audio buffer right input
BUFOUTR3	0	O	audio buffer right output
BUFOUTL3	1	O	audio buffer left output
BUFINL	32	I	audio buffer left input
BUFGND	33	I	audio buffer ground
LKILL3	4	O	KILL output for left channel (configurable as open-drain)
RKILL3	5	O	KILL output for right channel (configurable as open-drain)
N/C3	6	O	No connection
N/C3	7	O	No connection
N/C3	8	I	No connection
CFLAG3	9	O	correction flag output (open-drain)
V <sub>SSD1</sub>	40	SUP	digital ground1

SYMBOL	PIN	I/O	DESCRIPTION
V <sub>DDD1</sub>	41	SUP	digital supply voltage1
SDI	42	I	serial data input (loopback)
WCLI	43	I	word clock input (loopback)
SCLI	44	I	serial bit clock input (loopback)
EF	45	O	C2 error flag output
DATA	46	O	serial data output
WCLK	47	O	word clock output
SCLK	48	O	serial clock output
CLK16	49	O	16 MHz clock output
CLK4/12	50	O	configurable 4M Hz or 12 MHz clock output
RESET	51	I	power-on reset input (active LOW)
SDA	52	I/O	microcontroller interface data input/output (open-drain)
SCL	53	I	microcontroller interface clock input
RAB	54	I	microcontroller interface R/W and load control input (4-wire)
SILD	55	I	microcontroller interface R/W and load control input (4-wire)
STATUS	56	O	servo interrupt request line/decoder status register/DC offset value readback output
RCK	57	I	subcode clock input
SUB	58	O	P to W subcode output
SFSY	59	O	subcode frame sync output
SBSY	60	O	subcode block sync output
V <sub>SSD2</sub>	61	SUP	digital ground2
DOBM	62	O	bi-phase mark output (externally buffered)
V <sub>DDD2</sub>	63	SUP	digital supply voltage2
RA	64	O	radial actuator output
FO	65	O	focus actuator output
SL	66	O	sledge actuator output
MOTO1	67	O	motor output 1 output
MOTO2	68	O	motor output 2 output
V <sub>SSD3</sub>	69	SUP	digital ground3
V <sub>DDD3</sub>	70	SUP	digital supply voltage3
V1	71	I	versatile pin 1 input
V2	72	I	versatile pin 2 input
V3	73	O	versatile pin 3 output
V4	74	O	versatile pin 4 output
V5	75	O	versatile pin 5 output
TEST1	76	I	test pin 1 input
TEST2	77	I	test pin 2 input
TEST3	78	I	test pin 3 input
TEST4	79	I	test pin 4 input
LASER	80	O	laser drive output

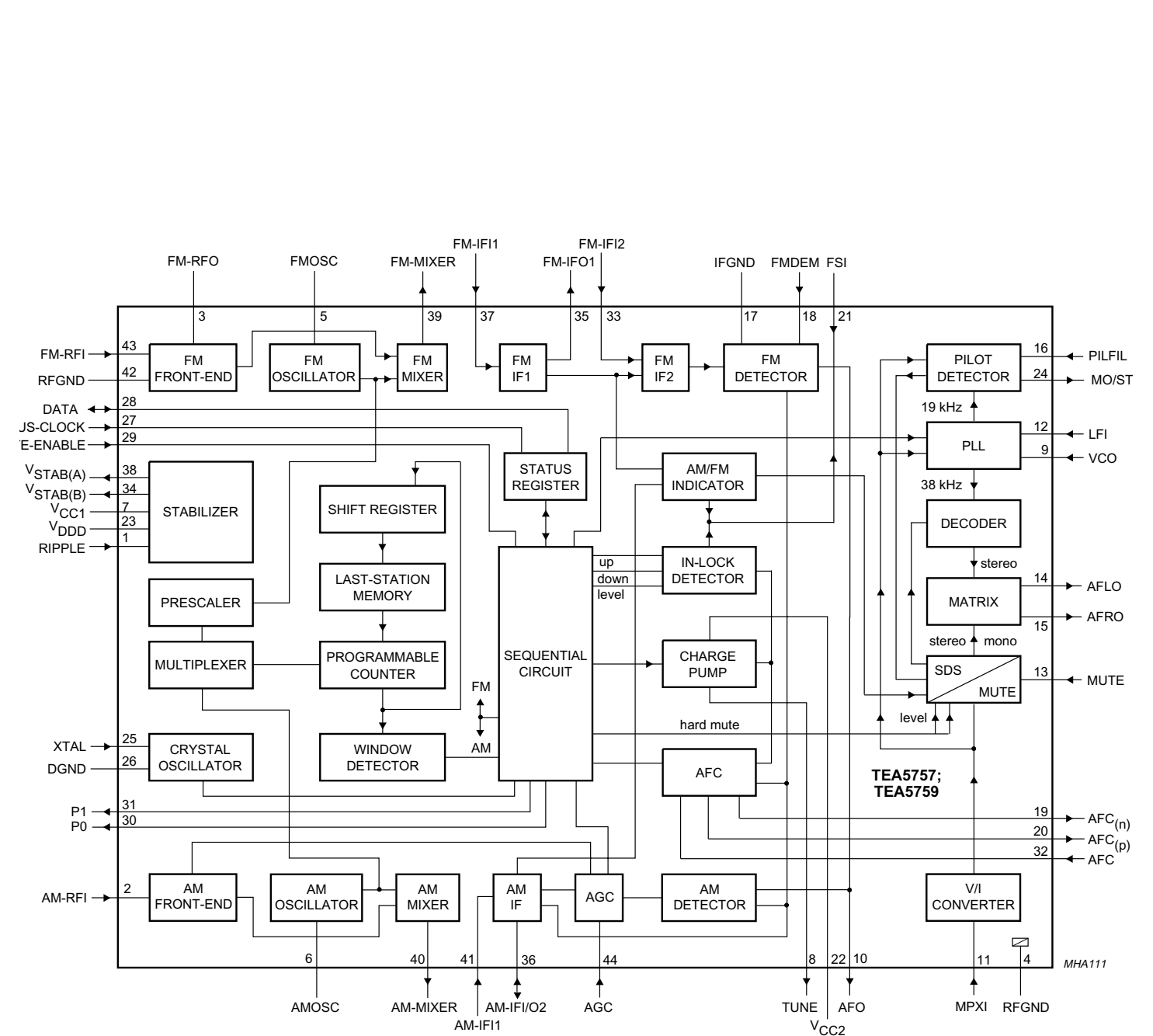
BLOCK DIAGRAM OF INTEGRATED CIRCUIT

SERVO PROCESSOR SAA7379 HL



BLOCK DIAGRAM OF INTEGRATED CIRCUIT

SELF TUNED RADIO TEA5757



## Abbreviations and Pin- description of ICs

### SELF TUNED RADIO TEA5757

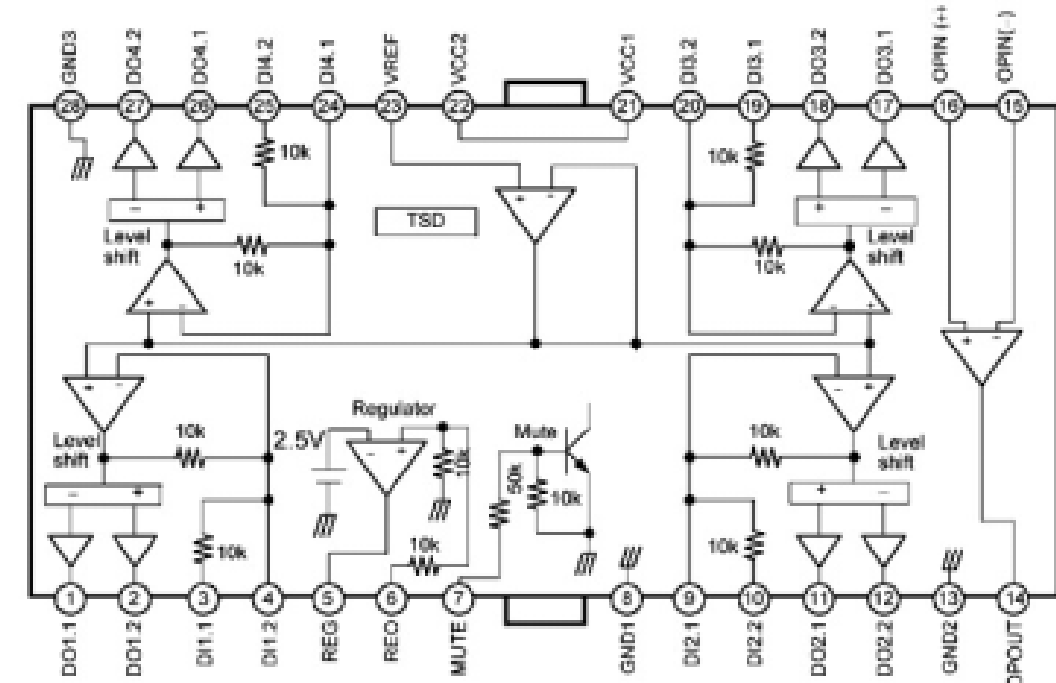
#### PINNING

SYMBOL	PIN	DESCRIPTION
RIPPLE	1	ripple capacitor input
AM-RFI	2	AMRF input
FM-RFO	3	parallel tuned FMRF circuit to ground
RFGND	4	RF ground and substrate
FMOSC	5	parallel tuned FM-oscillator circuit to ground
AMOSC	6	parallel tuned AM-oscillator circuit to ground
V <sub>CC1</sub>	7	supply voltage
TUNE	8	tuning current output
VCO	9	voltage controlled oscillator input
AFO	10	AM/FM AF output (output impedance typical 5 k $\Omega$ )
MPXI	11	stereo decoder input (input impedance typical 150 k $\Omega$ )
LFI	12	loop-filter input
MUTE	13	mute input
AFLO	14	left channel output (output impedance typical 4.3 k $\Omega$ )
AFRO	15	right channel output (output impedance typical 4.3 k $\Omega$ )
PILFIL	16	pilot detector filter input
IFGND	17	ground of IF, detector and MPX stage
FMDEM	18	ceramic discriminator input
AFC <sub>(n)</sub>	19	AFC negative output
AFC <sub>(p)</sub>	20	AFC positive output
FSI	21	field-strength indicator
V <sub>CC2</sub>	22	supply voltage for tuning
V <sub>DDD</sub>	23	digital supply voltage
MO/ST	24	mono/stereo and tuning indication output
XTAL	25	crystal input
DGND	26	digital ground
BUS-CLOCK	27	bus-clock input
DATA	28	bus data input/output
WRITE-ENABLE	29	bus write-enable input
P0	30	programmable output port (P0)
P1	31	programmable output port (P1)
AFC	32	450 kHz LC-circuit
FM-IFI2	33	FMIF input 2 (input impedance typical 330 $\Omega$ )
V <sub>STAB(B)</sub>	34	internal stabilized supply voltage (B)
FM-IFO1	35	FMIF output 1 (output impedance typical 330 $\Omega$ )
AM-IFI/O2	36	input/output to IF-Tank (IFT); output: current source
FM-IFI1	37	FMIF input 1 (input impedance typical 330 $\Omega$ )
V <sub>STAB(A)</sub>	38	internal stabilized supply voltage (A)
FM-MIXER	39	ceramic filter output (output impedance typical 330 $\Omega$ )
AM-MIXER	40	open-collector output to IFT

## Abbreviations and Pin- description of ICs

### 4- CH MOTOR DRIVER D9258

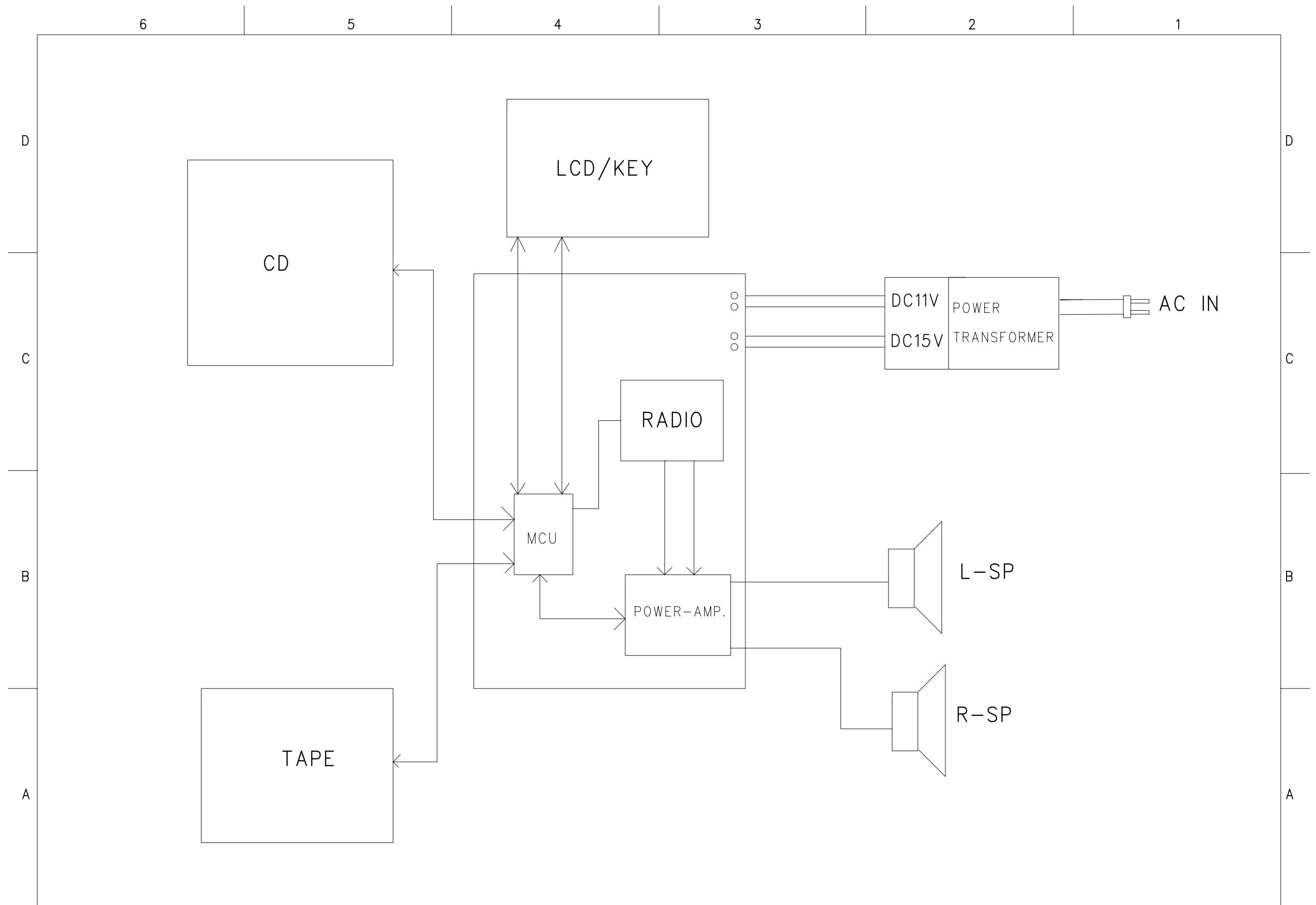
#### BLOCK DIAGRAM AND PIN CONFIGURATION



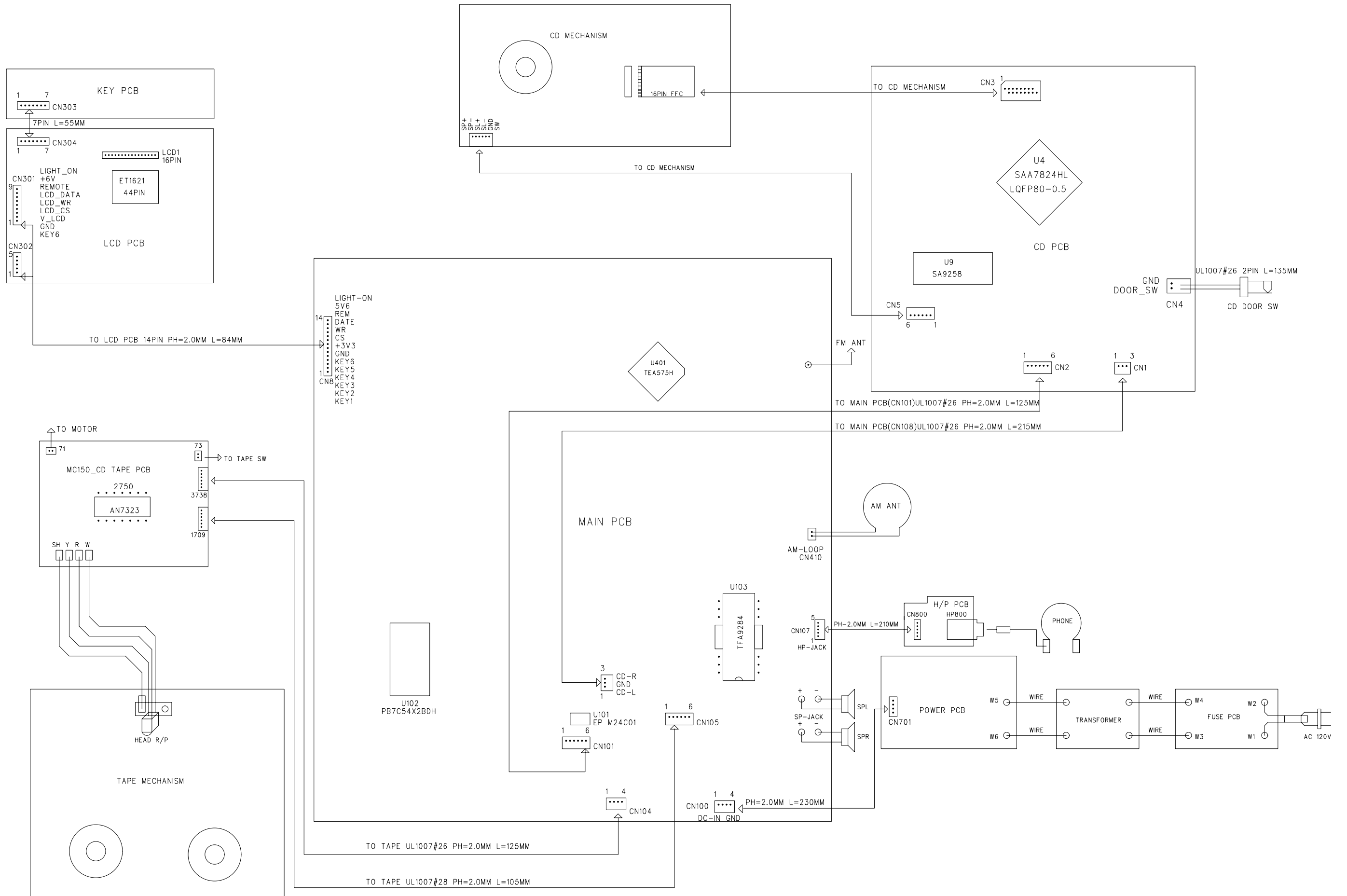
#### PIN DESCRIPTION

Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1	DO1.1	O	Drive output	15	OPIN(-)	I	Op-amp input(-)
2	DO1.2	O	Drive output	16	OPIN(+)	I	Op-amp input(+)
3	DI1.1	I	Drive input	17	DO3.1	O	Drive output
4	DI1.2	I	Drive input	18	DO3.2	O	Drive output
5	REG	-	Regulator	19	DI3.1	I	Drive input
6	REGO	O	Regulator output	20	DI3.2	I	Drive input
7	MUTE	I	Mute	21	V <sub>CC1</sub>		Supply voltage
8	GND1	-	Ground 1	22	V <sub>CC2</sub>		Supply voltage
9	DI2.1	I	Drive input	23	V <sub>REF</sub>	I	2.5V bias voltage
10	DI2.2	I	Drive input	24	DI4.1	I	Drive input
11	DO2.1	O	Drive output	25	DI4.2	I	Drive input
12	DO2.2	O	Drive output	26	DO4.1	O	Drive output
13	GND2	-	Ground 2	27	DO4.2	O	Drive output
14	OPOUT	O	Op-amp output	28	GND3		Ground 3

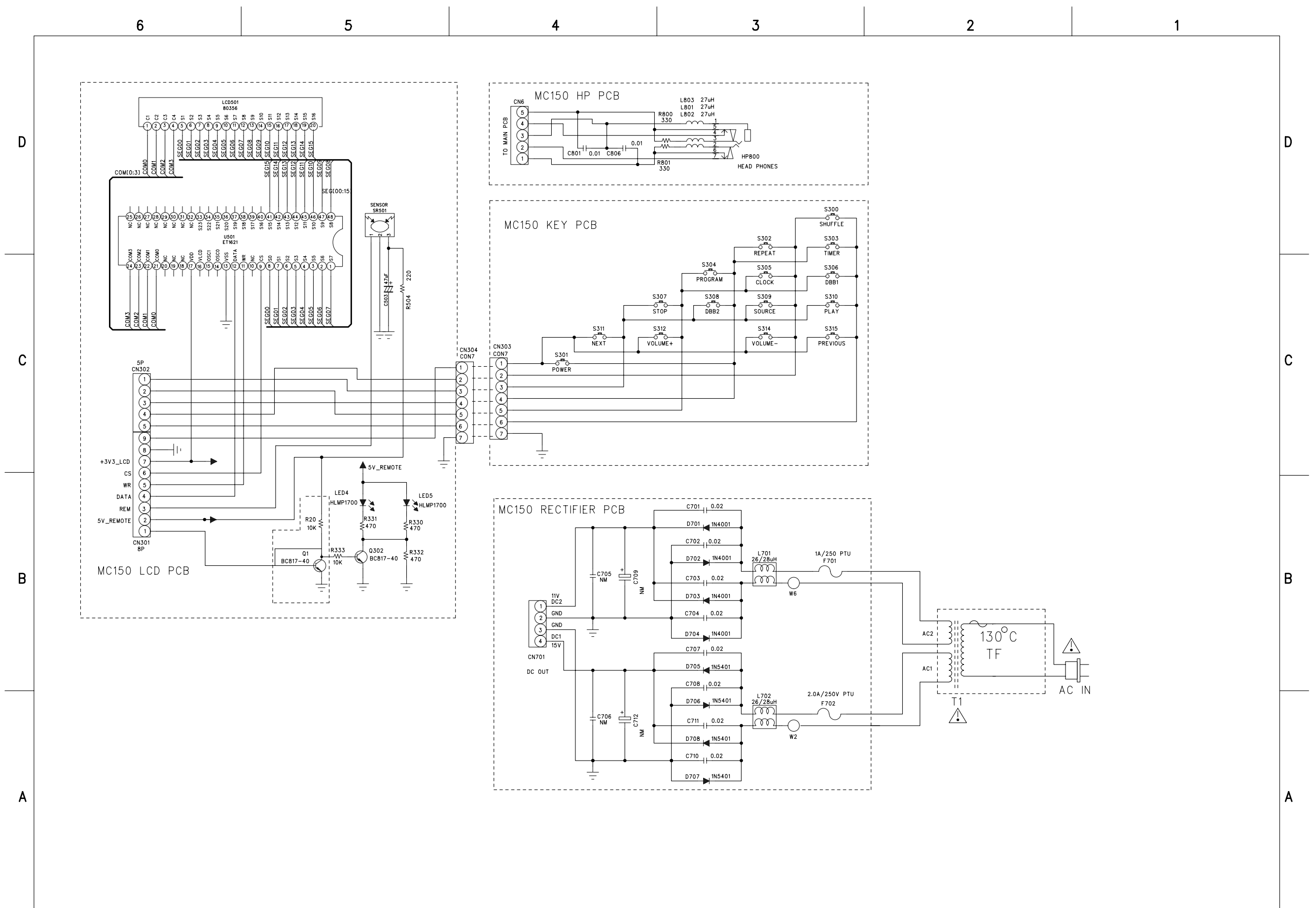
SET BLOCK DIAGRAM



# SET WIRING DIAGRAM



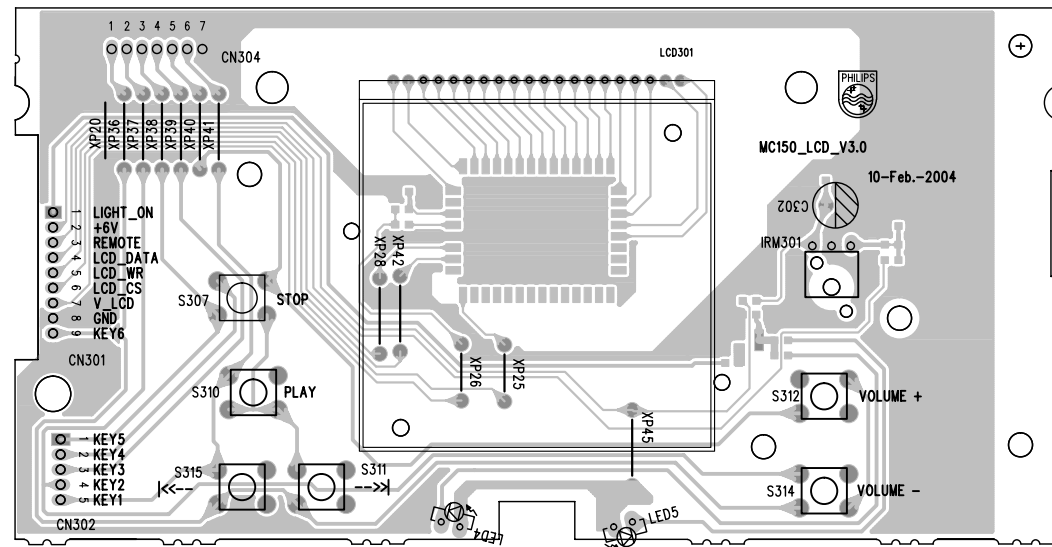
# CIRCUIT DIAGRAM - LCD, HP, KEY RECTIFIER BOARD



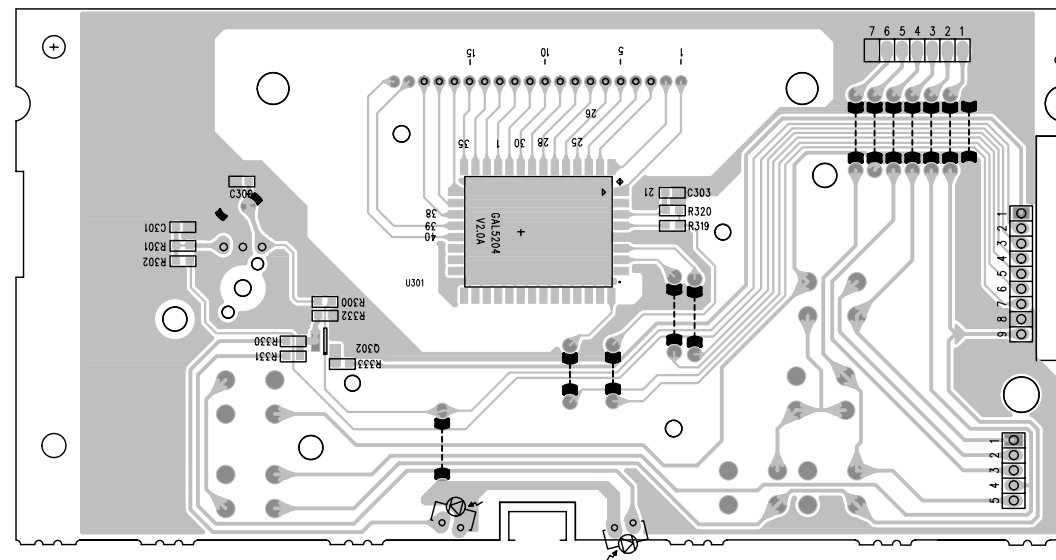


### LAYOUT DIAGRAM - LCD BOARD

#### COMPONENT LAYOUT

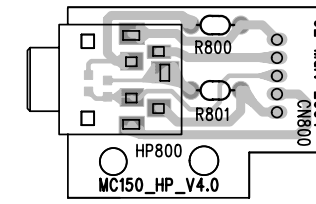


#### SMD LAYOUT

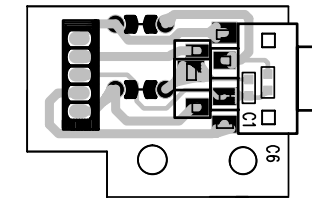


### LAYOUT DIAGRAM - HEADPHONE BOARD

#### COMPONENT LAYOUT

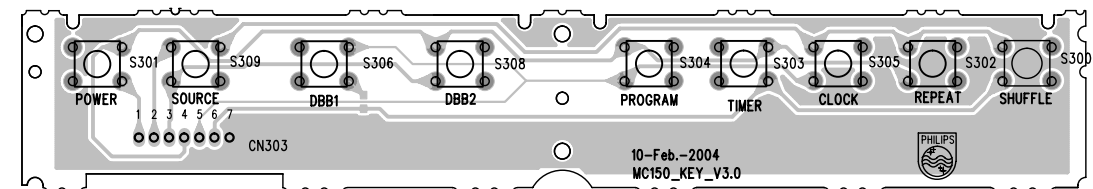


#### SMD LAYOUT

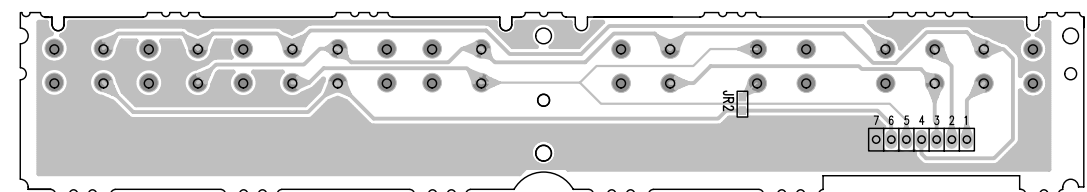


### LAYOUT DIAGRAM - KEY BOARD

#### COMPONENT LAYOUT

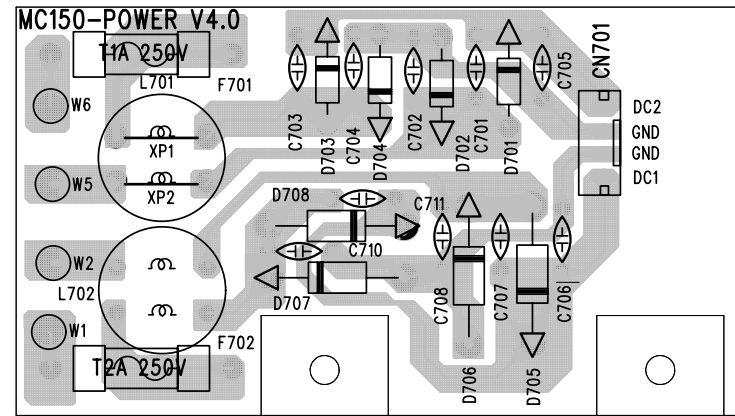


#### SMD LAYOUT

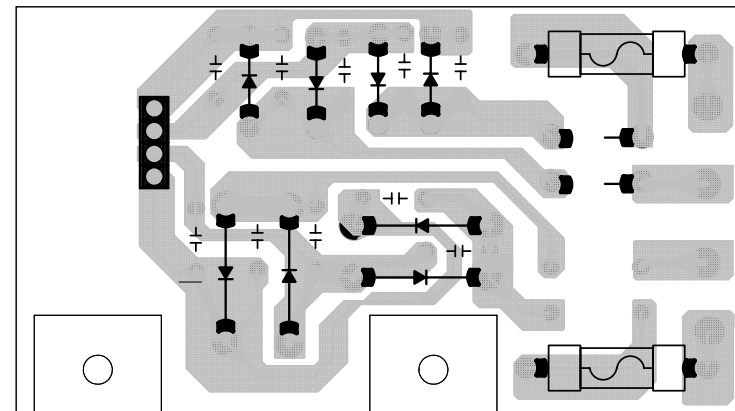


### LAYOUT DIAGRAM - POWER BOARD

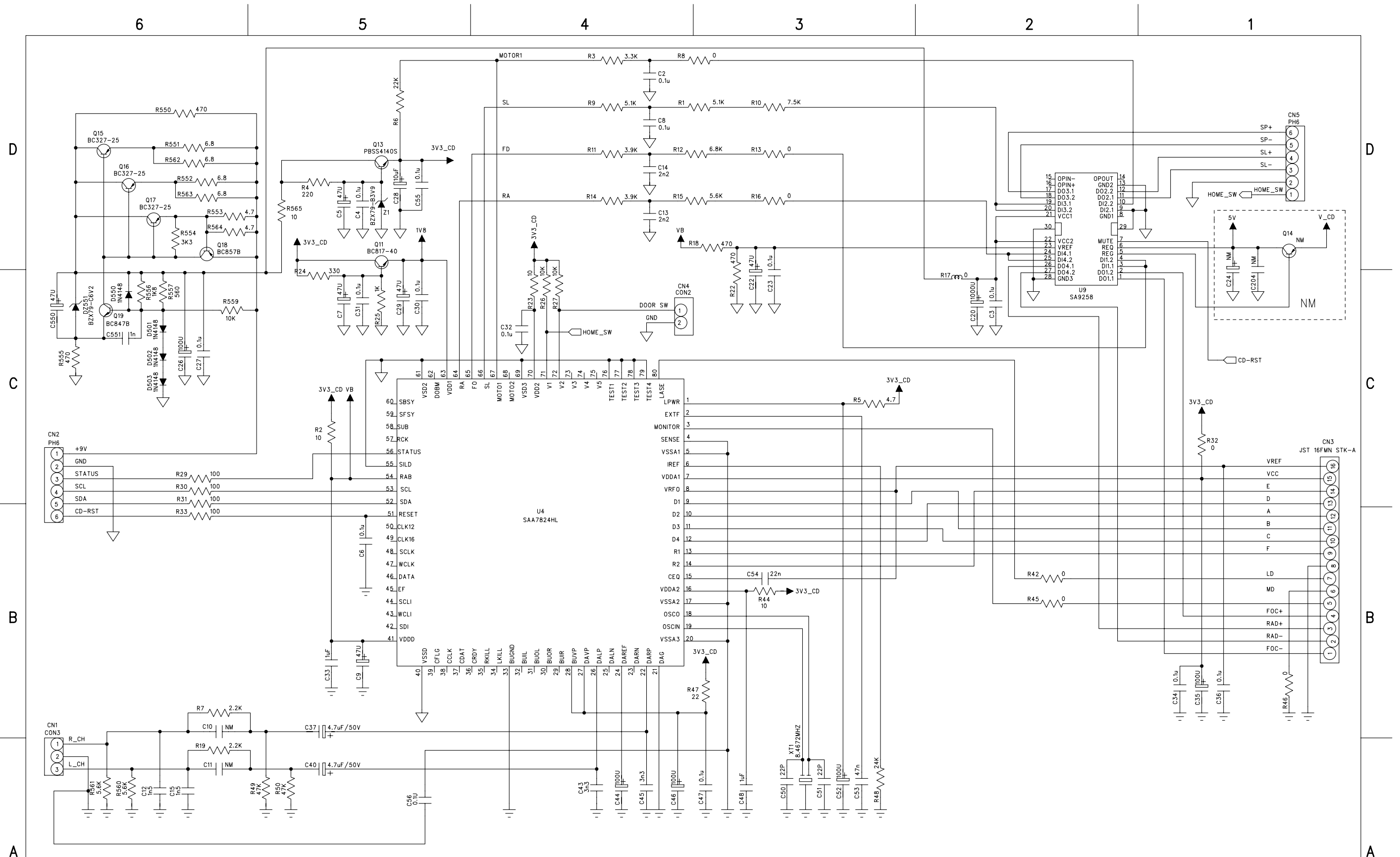
#### COMPONENT LAYOUT



#### SMD LAYOUT



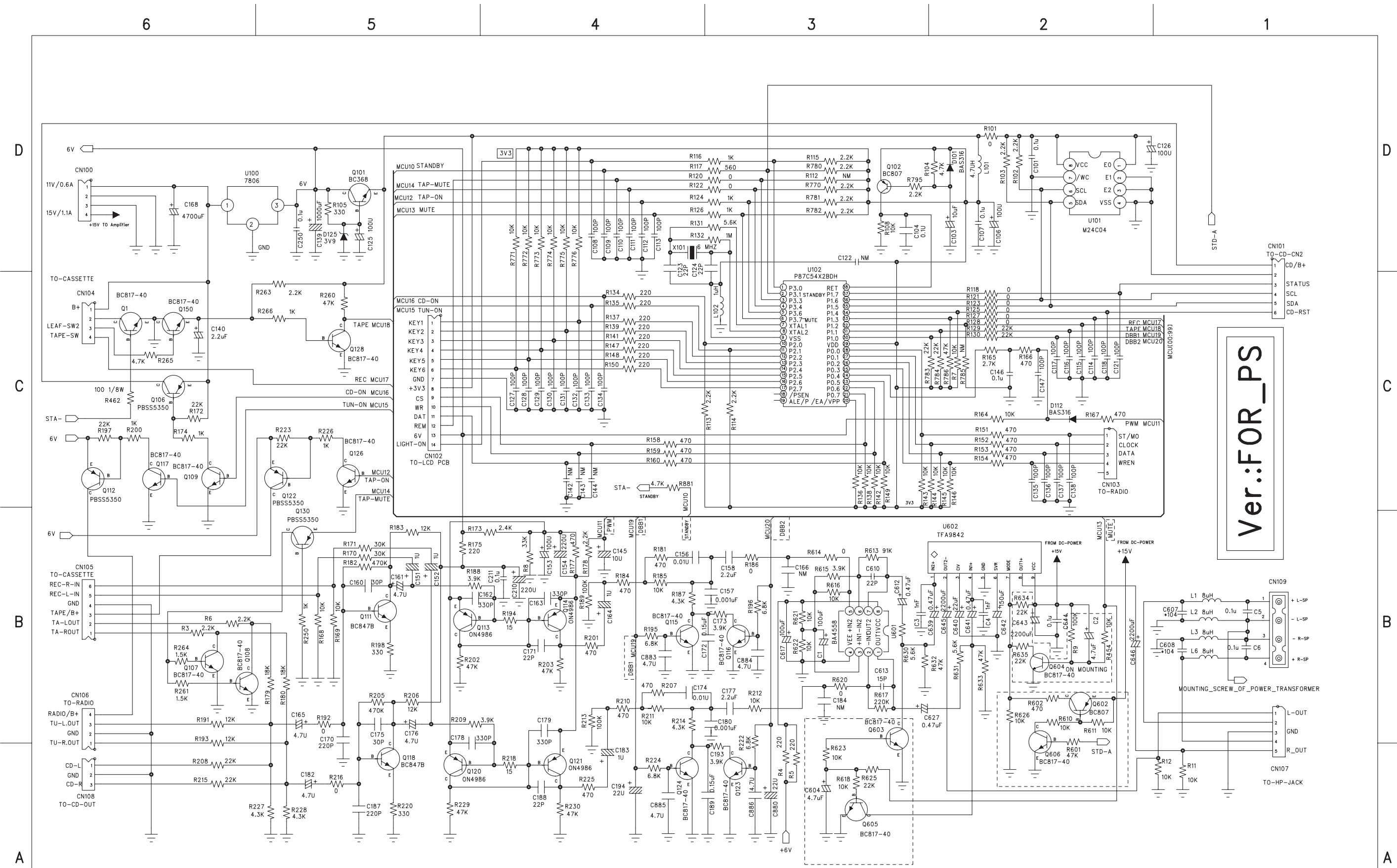
# CIRCUIT DIAGRAM - CD BOARD



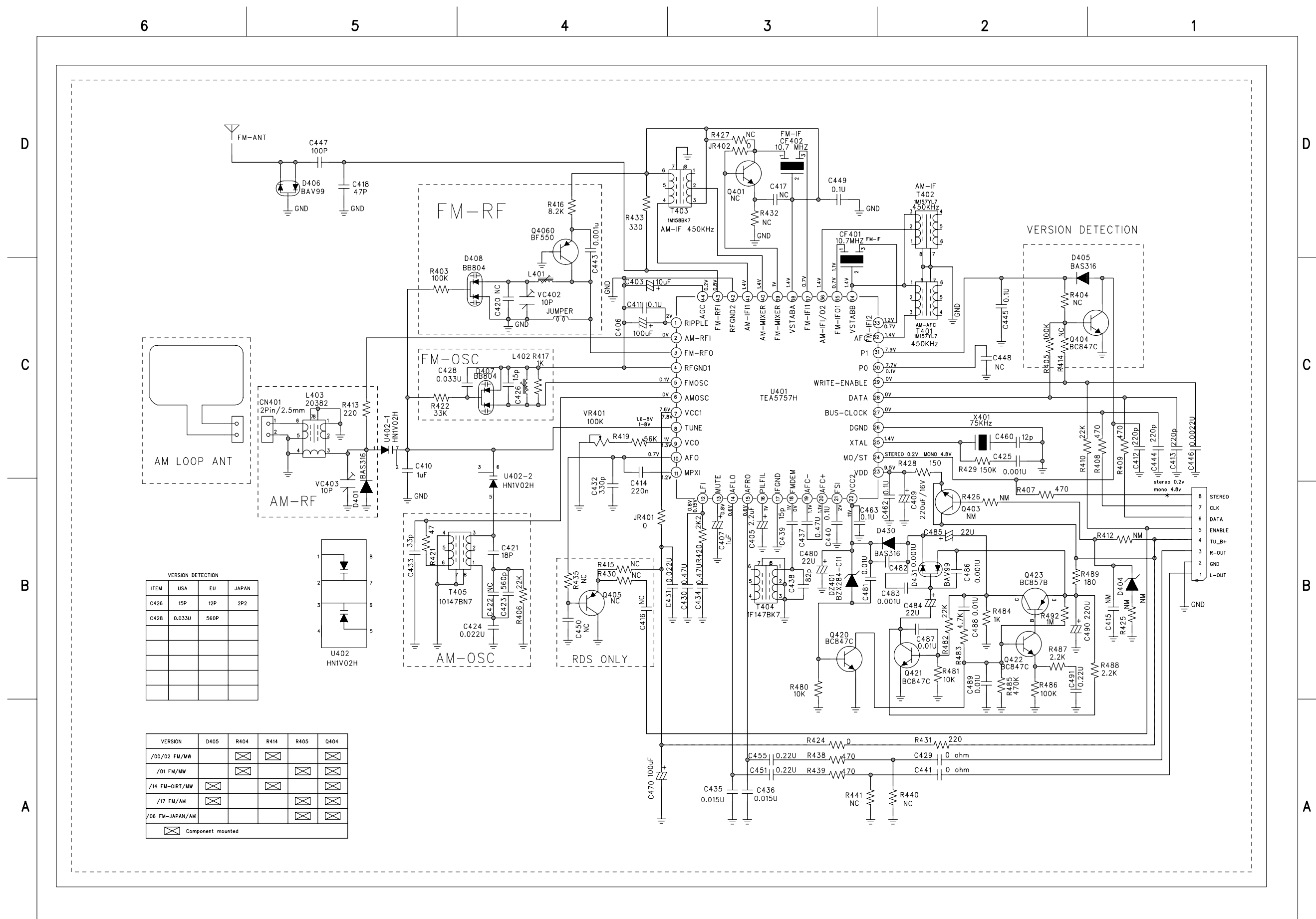
- (1) R560, 561 -- 3.9K --- 5.6K
- (2) R7, R19 -- 27K --- 2.2K
- (3) C37, C40 -- 0.1uF / 50V --- 4.7uF / 50V



# CIRCUIT DIAGRAM - MAIN BOARD



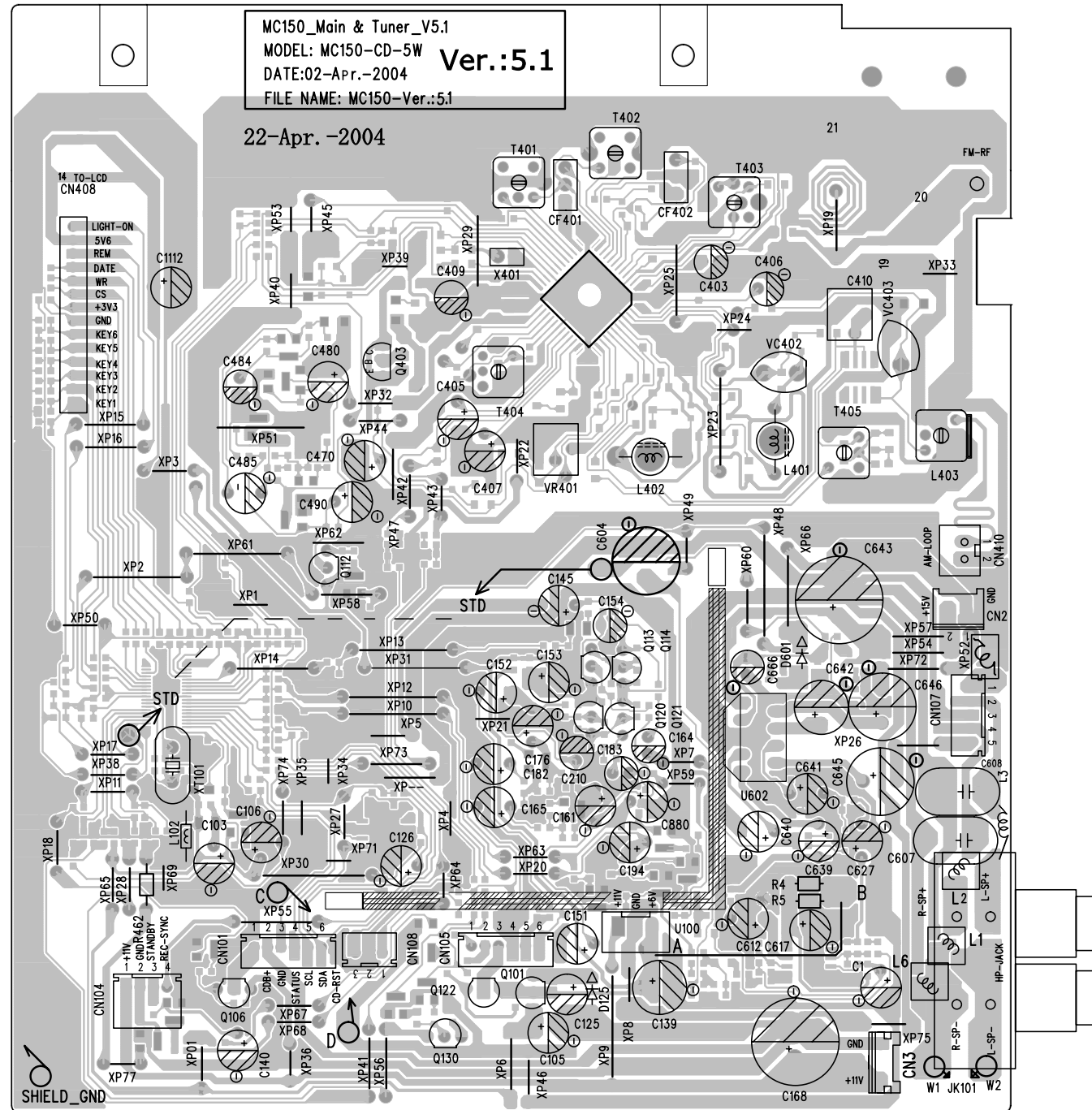
CIRCUIT DIAGRAM - MAIN BOARD  
TUNER PART





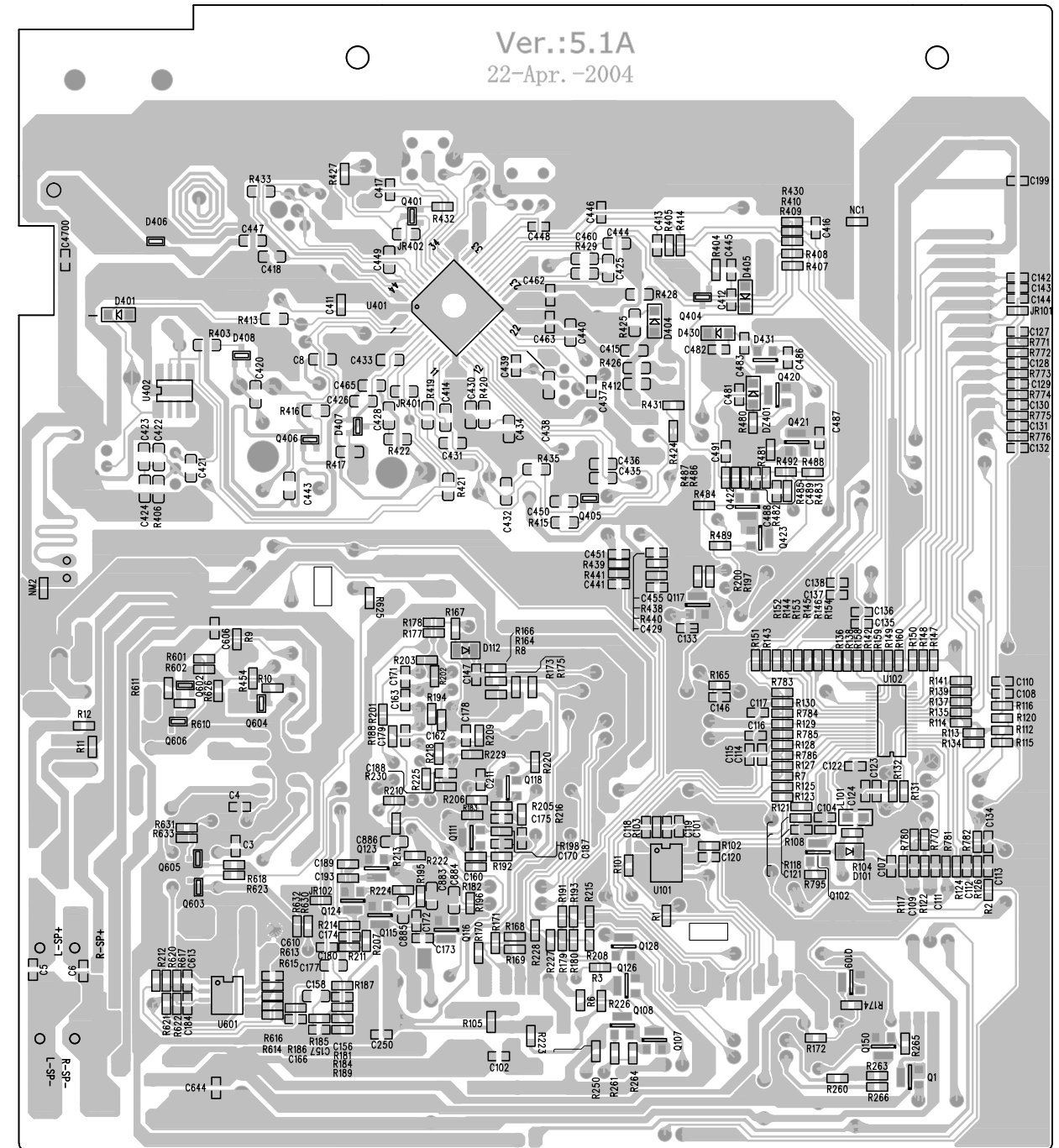
# LAYOUT DIAGRAM - MAIN BOARD

## COMPONENT LAYOUT



# LAYOUT DIAGRAM - MAIN BOARD

## SMD LAYOUT

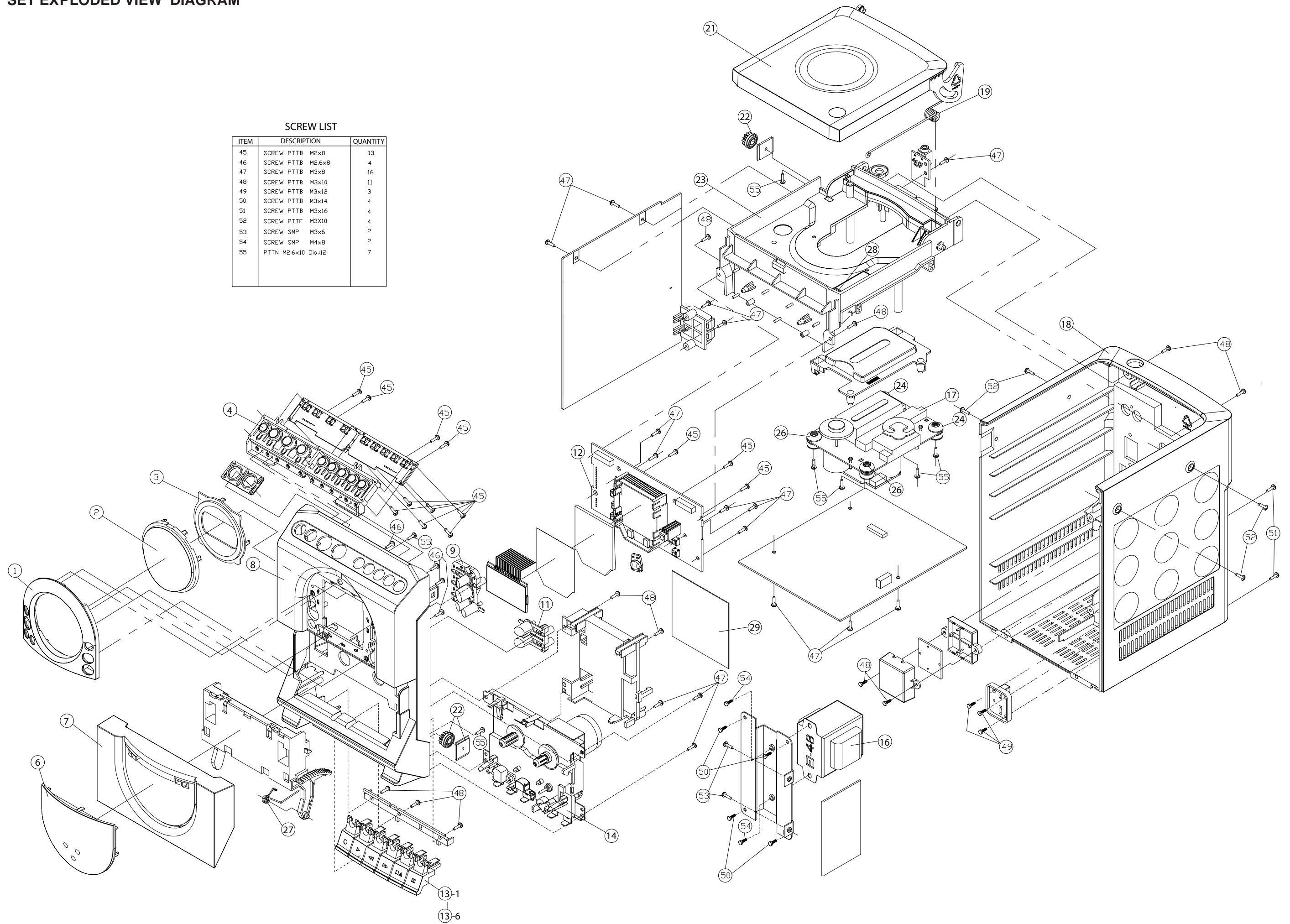




SET EXPLODED VIEW DIAGRAM

SCREW LIST

ITEM	DESCRIPTION	QUANTITY
45	SCREW PTTB M2x8	13
46	SCREW PTTB M2.6x8	4
47	SCREW PTTB M3x8	16
48	SCREW PTTB M3x10	11
49	SCREW PTTB M3x12	3
50	SCREW PTTB M3x14	4
51	SCREW PTTB M3x16	4
52	SCREW PTTF M3X10	4
53	SCREW SMP M3x6	2
54	SCREW SMP M4x8	2
55	PTTN M2.6x10 Dia.12	7



**MECHANICAL & ACCESSORIES PARTSLIST**

1	9940 000 00398	COSMETIC PANEL	9940 000 00373	FFC CABLE 16P P1.0 L70
2	9940 000 00397	LENS	△ 9940 000 00382	AC CORD VDE 230V /21/22
3	9940 000 00396	LCD CHAMFER	△ 9940 000 00512	AC CORD BS PLUG 2M /25
4	9940 000 00395	KEYSET TOP	9940 000 00507	SPEAKER BOX 5W MC150
6	9940 000 00403	CASSETTE PANEL	9940 000 00508	REMOTE CONTROL
7	9940 000 00402	CASSETTE DOOR	9940 000 00509	AM LOOP ANT
8	9940 000 00391	FRONT CABINET	△ 9940 000 00573	MAINS PLUG ADAPTOR /21
9	9940 000 00399	KNOB PLAY		
11	9940 000 00401	KNOB VOLUME		
12	9940 000 00566	LCD PC BOARD ASSEMBLY		
13-1	9940 000 00404	CASSETTE KEY RECORD		
13-2	9940 000 00405	CASSETTE KEY PLAY		
13-3	9940 000 00406	CASSETTE KEY REVERSE		
13-4	9940 000 00407	CASSETTE KEY FORWARD		
13-5	9940 000 00408	CASSETTE KEY STOP/OPEN		
13-6	9940 000 00409	CASSETTE KEY PAUSE		
14	9940 000 00387	CASSETTE DECK		
16	△ 9940 000 00383	POWER TRANSFO.230V /22/25		
16	△ 9940 000 00571	POWER TRANSFO.120/230V /21		
17	9940 000 00381	CD MECHANISM DA11B3N		
18	9940 000 00392	REAR CABINET /22/25		
18	9940 000 00574	REAR CABINET /21		
19	9940 000 00502	CD DOOR SPRING		
21	9940 000 00393	CD DOOR		
22	9940 000 00501	DAMPER GEAR ASSEMBLY		
23	9940 000 00394	CD TRAY		
24	9940 000 00505	CD DAMPER 658 TA 30		
26	9940 000 00506	CD DAMPER 658 TB 40		
27	9940 000 00503	CASSETTE DOOR SPRING		
28	9940 000 00379	CD DOOR SW DLS-02-W-1		
29	9940 000 00618	TAPE PCB ASS'Y		
	9940 000 00504	RECORD ARM		
	9940 000 00572	SLIDE SWITCH 1P2T /21		

**Note: Only these parts mentioned in the list are normal normal service parts.**

**ELECTRICAL PARTSLIST**

1707	9940 000 00389	REC SWITCH 18PIN
7705	9940 000 00388	IC, D7312CP PREAMPLIFIER
D407	9940 000 00376	CH-VARIABLE CAP DIODE, BB804
D408	9940 000 00376	CH-VARIABLE CAP DIODE, BB804
F701	△ 9940 000 00384	FUSE PTU 1A 250V
F702	△ 9940 000 00385	FUSE PTU 2A 250V
HP800	9940 000 00386	HP JACK MSJ-2000
IRM301	9940 000 00569	IR SENSOR 902V5A
LCD301	9940 000 00575	LCD 80356TT-P 20PIN
LED4	9940 000 00567	LED 23B53SCC29
LED5	9940 000 00567	LED 23B53SCC29
S300	9940 000 00568	TACT SWITCH
S301	9940 000 00568	TACT SWITCH
S302	9940 000 00568	TACT SWITCH
S303	9940 000 00568	TACT SWITCH
S304	9940 000 00568	TACT SWITCH
S305	9940 000 00568	TACT SWITCH
S306	9940 000 00568	TACT SWITCH
S307	9940 000 00568	TACT SWITCH
S308	9940 000 00568	TACT SWITCH
S309	9940 000 00568	TACT SWITCH
S310	9940 000 00568	TACT SWITCH
S311	9940 000 00568	TACT SWITCH
S312	9940 000 00568	TACT SWITCH
S314	9940 000 00568	TACT SWITCH
S315	9940 000 00568	TACT SWITCH
SP-JK	9940 000 00511	SP TERMINAL MSP-134V-05
U100	9940 000 00369	IC,L7806CV REGULATOR
U101	9965 000 12283	IC:MEMORY BR24C04F-W
U102	9940 000 00372	IC P87C54X2BDH
U4	9940 000 00564	IC SAA7379HL
U401	9351 740 80557	IC SM TEA5757H/V1 (PHSE) Y
U402	9940 000 00375	CH-VARIABLE CAP DIODE
U601	9940 000 00374	IC,BA4558F OPERATIONAL
U9	9940 000 00565	IC D9258 MOTOR DRIVER
VC402	9940 000 00378	TRIMMER CAP 220VDC +50%-0%
VC403	9940 000 00378	TRIMMER CAP 220VDC +50%-0%

**Note: Only these parts mentioned in the list are normal normal service parts.**