VCD Micro System

MCV250

all versions

Service
Service
Service

Service Manual

VIDEO CD   MP3-CD PLAYBACK **MP3**   ReWritable CD COMPATIBLE   COMPACT disc DIGITAL AUDIO

TABLE OF CONTENTS

**CLASS 1
LASER PRODUCT**

version 1.0

PHILIPS

HANDLING CHIP COMPONENTS

GENERAL

CHIP COMPONENT
SOLDER — SOLDER
COPPER TRACK
P.C.B.
GLUE

SERVICE PACKAGE

DISMOUNTING

VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER solder tip PT-H7

SOLDERING IRON
SOLDER WICK
4822 321 40042

A

e.g. A PAIR OF TWEEZERS
HEATING   HEATING

B

SOLDERING IRON
CLEANING
SOLDER WICK

C

MOUNTING

e.g. A PAIR OF TWEEZERS

A

SOLDER ø0.5-0.8mm
SOLDERING IRON   PRESSURE

SOLDERING TIME <3 sec/side   SOLDER ø0.5-0.8mm
PRESSURE   SOLDERING IRON

B

PRECAUTIONS

SOLDERING IRON
CORRECT
COPPER TRACK

SOLDERING IRON
CHIP COMPONENT

EXAMPLES

CORRECT

SOLDERING IRON
(NO!)

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.

F ATTENTION

Tous les IC et beaucoup d«autres semi-conducteurs sont sensibles aux d charges statiques (ESD). Leur long vite pourrait tre consid rablement court e par le fait qu«aucune pr caution n st prise leur manipulation.
Lors de r parations, s«assurer de bien tre reli au m me potentiel que la masse de l«appareil et enfileer le bracelet serti d«une r sistance de s curit .
Veiller ce que les composants ainsi que les outils que l«on utilise soient galement 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 s curit exigent que l'appareil soit remis l' tat d'origine et que soient utilis es les pi ces de rechange identiques celles sp cifi es.
Les composants de s curit sont marqu s⚠

ESD

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen ber elektrostatischen Entladungen (ESD).
Unsorgf ltige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie daf r, daß Sie im Reparaturfall ber ein Puls-armband mit Widerstand mit dem Massepotential des Ger tes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

SAFETY

D

Bei jeder Reparatur sind die geltenden Sicherheitsvor-schriften zu beachten. Der Originalzustand des Ger tes darf nicht ver ndert werden. F r Reparaturen sind Original-ersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

NL WAARSCHUWING

Alle IC«s en vele andere halfgeleiders zijn gevoelig voor elektrostatische 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 longevit potrebbe essere fortemente ridatta in caso di non osservazione della pi grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa del pparecchio 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 oorspronkeliijke 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 ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

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

S Varning !

Osynlig laserstr lning n r apparaten r ppnad och sp rren r urkopplad. Betrakta ej str len.

DK Advarsel !

Usynlig laserstr ling ved bning n r sikkerhedsafbrydere er ude af funktion. Undg udsaettelse for str ling.

CLASS 1 LASER PRODUCT

FIN Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina n kym tt m lle laseris teilylle. l katso s teeseen !

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 s curite, ces documents doivent tre utilis s par des sp cialistes agr s, seuls habilit s r parer votre appareil en panne".

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/21/21M :	120 / 230 V
	-/22 :	230 V
Mains frequency	-/22 :	50 Hz
	-/21/21M :	50 / 60 Hz
Battery	remote :	3 V (R6 x 2)
Power consumption	normal :	40 W
	Standby :	< 2 W
Dimension (W x H x D)	:	140 x 220 x 265 mm
Weight	:	4.1 Kg

AMPLIFIER

Output power	mains :	2 x 10 W
Speaker impedance	:	2 x 8 ohm
Frequency response	:	63 Hz - 16 kHz (±3dB)

TUNER - FM SECTION

Tuning range	:	87.5 - 108 MHz
IF frequency	:	10.7 MHz ± 0.02 MHz
Sensitivity	:	< 22 dBf at 26dB
Selectivity	300kHz :	> 33 dB
IF Rejection	:	> 60 dB
Image Rejection	:	> 20 dB
Channel separation	1kHz :	30 dB

TUNER - AM SECTION

Tuning range	:	531 - 1602 kHz
		530 - 1700 kHz for /21
IF frequency		450 kHz ± 1 kHz
Sensitivity	:	≤ 3.25 mV/m at 26dB
Selectivity S9/300kHz	:	> 20 dB
IF rejection	:	> 24 dB
Spurious rejection	:	< 28 dB
Image rejection	:	< 20 dB

AUDIO CASSETTE RECORDER

Frequency response	:	80 - 12.5 kHz
Wow & flutter	:	< 0.4 % (DIN)
Tape speed	:	4.76 cm/s
Channel difference	1kHz :	0 dB
P/B S/N (A wght.)	:	55 dB
R/P S/N (A wght.)	:	45 dB

COMPACT DISC

Frequency response	:	63 Hz – 14 kHz
S/N ratio (A-wght.)	:	67 dBA
THD+N	1 kHz :	0.6 %
Channel Separation	1kHz :	35 dB (Lim.30dB)
Channel unbalance	:	≤ 2 dB

VIDEO PERFORMANCE

Amplitude output	:	1.0 Vpp (+10/-10%)
S/N luminance	:	≥ 48 dB
Video bandwidth	:	6 MHz
Chroma/Luminance delay	:	≤ 80ns

SERVICE TOOLS

Audio signal disc SBC 429..4822 397 30184
Playability test disc SBC 444...4822 397 30245
Test disc 5   (disc without errors) +
Test disc 5A (disc with dropout errors, black spots and fingerprints)
           SBC 426/426A 4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without "pause").....4822 397 30155

AVAILABLE ESD PROTECTION EQUIPMENT

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

SERVICE MEASUREMENT

Tuner SW
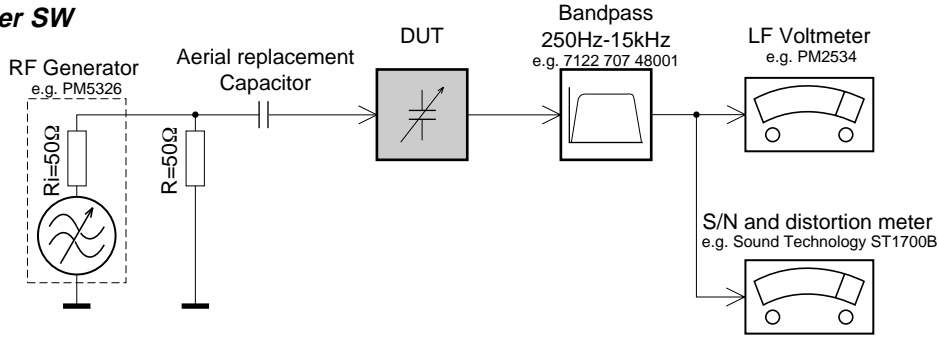
RF Generator
e.g. PM5326

Aerial replacement
Capacitor

DUT

Bandpass
250Hz-15kHz
e.g. 7122 707 48001

LF Voltmeter
e.g. PM2534

Ri=50Ω

R=50Ω

S/N and distortion meter
e.g. Sound Technology ST1700B
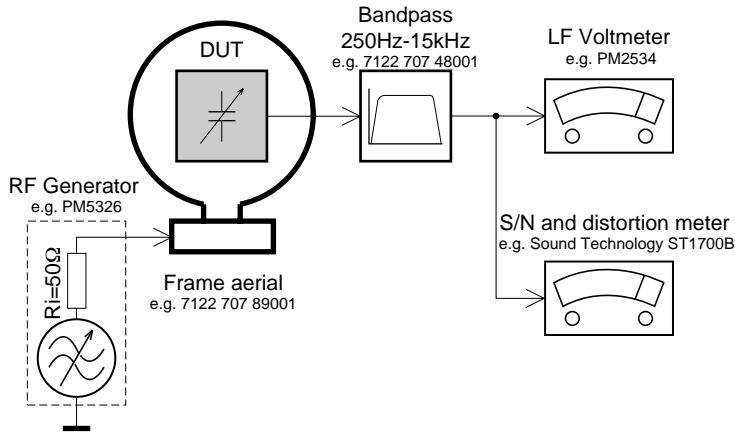
To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage.
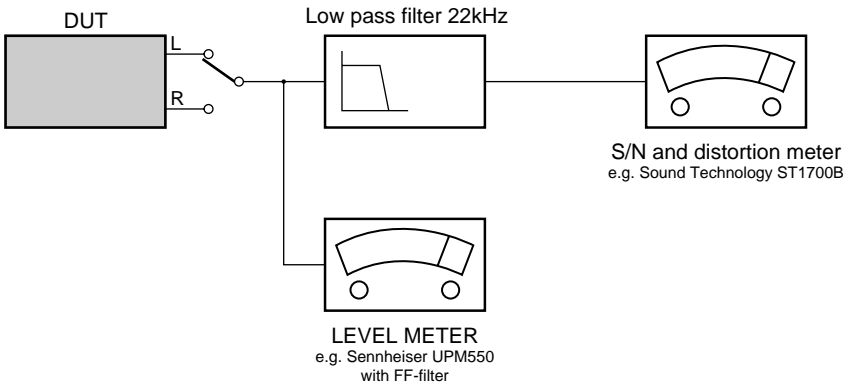Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).
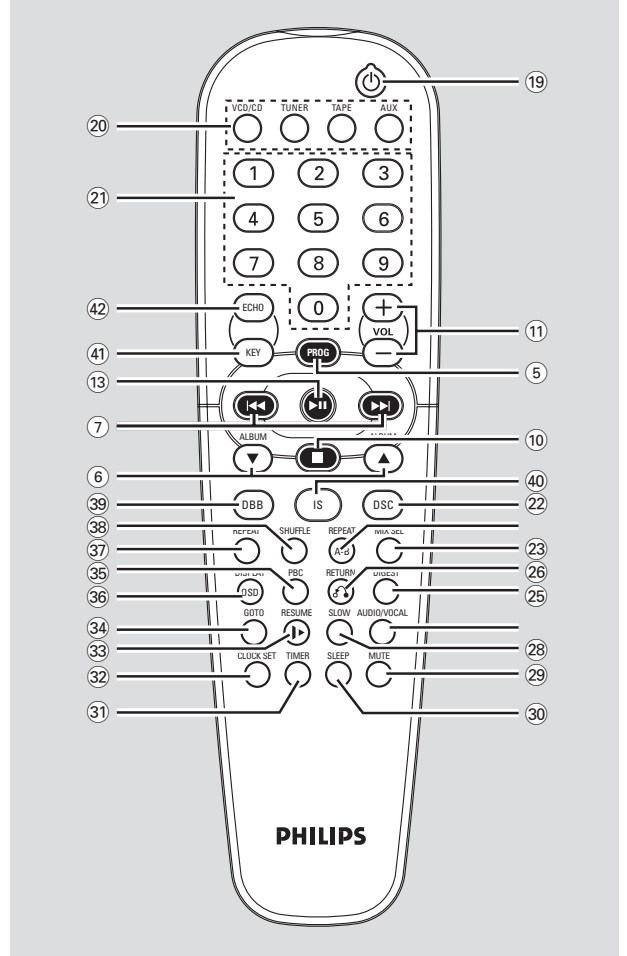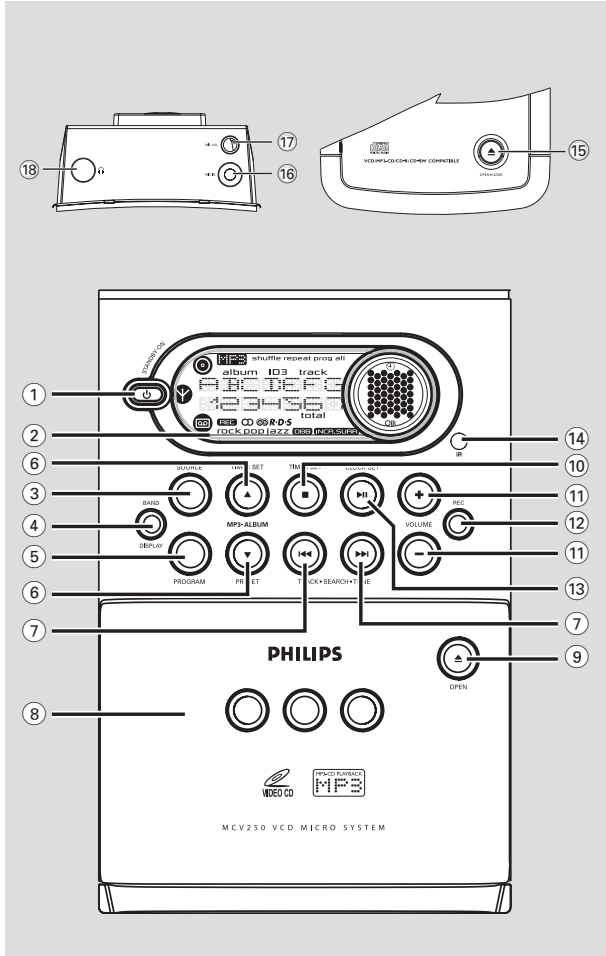
Tuner AM (MW,LW)

DUT

Bandpass
250Hz-15kHz
e.g. 7122 707 48001

LF Voltmeter
e.g. PM2534

RF Generator
e.g. PM5326

Ri=50Ω

S/N and distortion meter
e.g. Sound Technology ST1700B

Frame aerial
e.g. 7122 707 89001

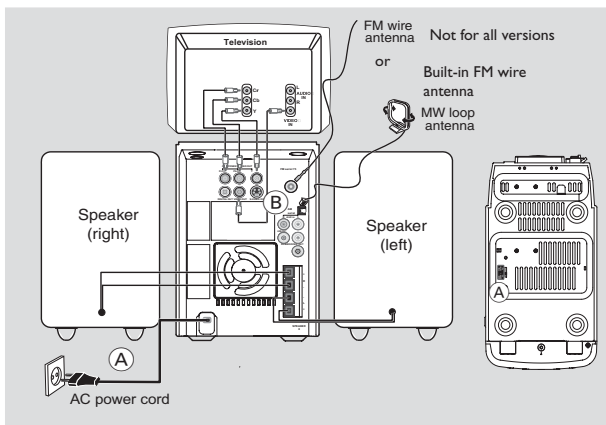To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage.

CD

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

DUT

L

R

Low pass filter 22kHz

S/N and distortion meter
e.g. Sound Technology ST1700B

LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

CONNECTION AND CONTROLS

MCV250 VCD MICRO SYSTEM

Preparations

FM wire antenna

Not for all versions

or

Built-in FM wire antenna

MW loop antenna

Television

Speaker (right)

Speaker (left)

AC power cord

Rear connections

The type plate is located at the rear of the system.

Ⓐ **Power**
Before connecting the AC power cord to the wall outlet, ensure that the following are done;
– If your system is equipped with a Voltage Selector, set the VOLTAGE SELECTOR to the local power line voltage.
– 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).

Ⓑ **Antennas Connection**
Connect the supplied MW loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.
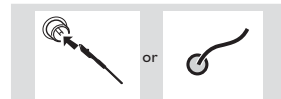
MW Antenna

Fix the claw to the slot
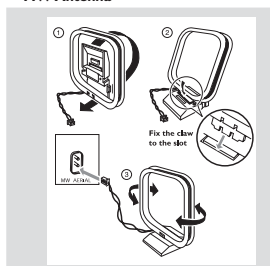
MW AERIAL

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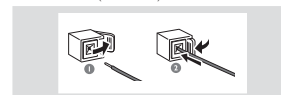
FM Antenna

or

Not for all versions

For better FM stereo reception, connect an outdoor FM antenna to the FM AERIAL (FM ANTENNA) terminal.
For some versions, a built-in FM attenna is provided.

Ⓒ **Speakers Connection**

Connect the speaker wires to the SPEAKERS terminals, right speaker to "**RIGHT**" and left speaker to "**LEFT**", colored (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.

Ⓓ **Video Out Connection**
Connect the **VIDEO OUT** terminal at the rear of the system to the TV or VCR VIDEO IN for viewing or recording.

Preparations

Optional connection
The optional equipment and connecting cords are not supplied. Refer to the operating instructions of the connected equipment for details.

Connecting other equipment to your system
Connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the **AUX** terminals.

Note:
– If you are connecting equipment with a mono output (a single audio out terminal), connect it to the AUX left terminal. Alternatively, you can use a "single to double" cinch cable (the output sound still remain mono).

Inserting batteries into the Remote Control
Insert two batteries (type R06 or AA) into the remote control with the correct polarity as indicated by the ＋ and － symbols inside the battery compartment.
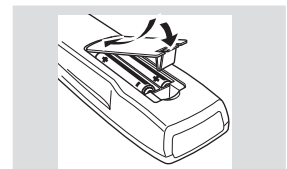
CAUTION!
– Remove batteries if they are exhausted or not to be used for a long time.
– Do not use old and new or different types of batteries in combination.
– Batteries contain chemical substances, so they should be disposed off properly.

CONNECTION AND CONTROLS

Controls *(main set's illustration on page 3&4)*

Controls on the system and remote control

1 **STANDBY ON** ⏻
– Switches the system on or to standby mode.

2 **Display screen**
– Views the current status of the system.

3 **SOURCE**
– Selects the respective sound source :VCD/CD TUNER, TAPE or AUX.

4 **BAND / DISPLAY**
for Tuner .... selects waveband : FM or MW.
for VCD/CD/MP3-CD…selects disc information display mode.

5 **PROGRAM**
for VCD/CD/MP3-CD…programs disc tracks.
for Tuner .... programs preset radio stations.

6 ▲▼ **PRESET / MP3•ALBUM / TIMER SET**
for MP3-CD ..... selects previous/next album.
for Tuner .... selects a preset radio station.
for Timer (▲) ... sets the timer function.

7 |◀◀ ▶▶| **TRACK•SEARCH•TUNE**
for VCD/CD.................. fast reverses/forwards the disc. (It is impossible to fast reverse / forward for MP3-CD)
for VCD/CD/MP3 CD… selects a desired track.
for Tuner .... tunes to a lower or higher radio frequency.
for Tape .... rewinds or fast forwards.

8 **Tape deck**

9 **OPEN** ⏏
– Opens tape compartment.

10 ■
for VCD/CD/MP3-CD…stops playback or to clears a program.
for Tape .... stops playback or recording.

11 **VOLUME** +/−
– Increases or decreases the volume.
– adjusts the hours and minutes for the clock/timer functions.

12 **REC**
– Starts recording.

13 ⊪◇ **/ CLOCK SET**
for VCD/CD/MP3-CD…starts or interrupts
playback.
for Tape .... starts playback.
for Clock .... *(on the system only)* sets the clock function.

14 **iR sensor**
– infrared sensor for remote control.

15 **OPEN•CLOSE** ⏏
– Opens or closes the disc tray.

16 **MIC IN** –connects microphone

17 **MIC VOL** –adjsuts the mixing level for Karaoke

18 🎧
– connects headphones.

19 ⏻
– Switches the set to standby / on if the set is operating on AC power.

20 **SOURCE**
– Selects VCD/CD,TUNER,TAPE or AUX.
– *VCD/CD
Selectes PAL or NTSC.

38 **DIGIT 0 – 9**
– for CD/VCD/MP3-CD - to select a track number. (numbers consisting more than 2 figures must be keyed in within 2 seconds)
DSC (Digital Sound Control)
– (Digital Sound Control) selects sound characteristics: POP/ JAZZ/ ROCK/ OPTIMAL..

23 **MIX SEL**
– Selects disc format (CD/MP3-CD) from a mixed mode disc.
REPEAT A - B
– Plays a certain scene or passage of a CD/VCD repeatedly (REPEAT A - B is not possible for MP3-CD)
DIGEST
– Scans through a VCD or a specific track.

(FIN) **RETURN** 🎝
– Returns to the previous MENU level during playack (for VCD with PBC on)
AUDIO/VOCAL
– Fades out the original vocal from a Karaoke VCD

** = Press and hold the button for more than two seconds.*

Controls

– or switches between mono or stereo mode during audio disc playback.
– Selects channel left / channel right / stereo suond, or selects a luanguage in a billingual VCD.
SLOW
– Watches the VCD at a slower speed.

22 **MUTE**
– Mutes or restores sound.

(BR) **SLEEP**
– Activates / deactivates or sets sleep timer
TIMER
– Activates or deactivates te timer function

26 **CLOCK SET**
– Enters clock setting mode
– Switches to clock display mode
RESUME ▶|
– Continues playback again from where you have stopped (for VCD with PBC switched off).
GOTO
– starts playback at any chosen time on the disc (for CD/VCD operation only and PBC mode is off).
PBC (Playback Control)
– Switches on or off the PBC mode (for VCD 2.0 only)
DISPLAY (OSD)
– Shows the status of the system

(CH) **REPEAT**
– Repeats a track / CD program / entire disc.

25 **SHUFFLE**
– Plays tracks in a random order
DBB (Dynamic Bass Boost)
– Enhances the bass
IS (Incredible Surround)
– Creates super-enhanced stereo sound effect

41 **KEY**
– Changes the VCD key tone level to suit your vocal range

42 **ECHO**
– Adjusts the VCD echo level for Karaoke after inserting the microphone.
– Selects MIC ON or OFF.

Notes for remote control:
– First, select the source you wish to control by pressing one of the source select keys on the remote control (VCD/ CD or TUNER, for example).
– Then select the desired function (⊪◇, |◀◀ ▶▶| for example).

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* = Press and hold the button for more than two seconds.

Basic Functions
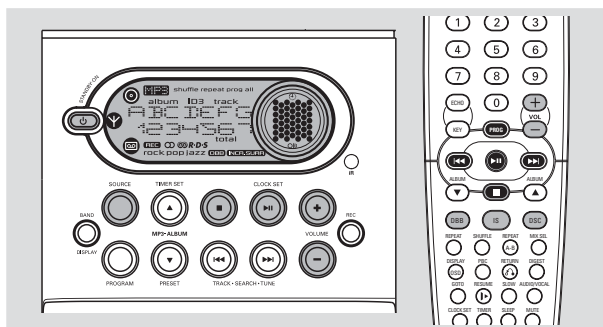
IMPORTANT!
Before you operate the system, complete the preparation procedures.

Switching the system on

Press ⏻ **STANDBY ON**.
    The system will switch to the last selected source.
Press **SOURCE** on the system or **VCD/CD**, **TUNER**, **TAPE** or **AUX** on the remote control.
    The system will switch to the selected source.

To switch the system to standby mode
Press ⏻ **STANDBY ON**.
If in recording mode, press **STOP** ■ first.
    The volume level(up to a maximum volume level of 20), interactive sound settings, last selected source and tuner presets will be retained in the player's memory.

Power-saving automatic standby

As a power-saving feature, the system automatically switches to standby 15 minutes after a tape or CD has reached the end and no control is operated.

Adjusting volume and sound

1 Press **VOLUME** –/+ to decrease to increase volume on the system.
    Display shows the volume level *VOL* and a number from MIN 1, 2, ...30, 31 MAX.

2 Press **DSC** repeatedly to select the desired sound effect: ROCK/POP/JAZZ/OPTIMAL.

3 Press **DBB** to switch bass enhancement on or off.
   Display shows: **DBB ON** *or* **DBB OFF**.

Note:
The speakers will be muted when headphones are connected to the set.

Incredible Surround
The Incredible Surround magnifies the virtual distance between the front speakers for an incredibly wide, enveloping, stereo effect.

Press **IS** to switch Incredible Surround on or off.
    If activated, **IS ON** is shown and "*IS ON*" is displayed.
    If deactivated, "*IS OFF*" is displayed.

CD/VCD/MP3-CD Operation
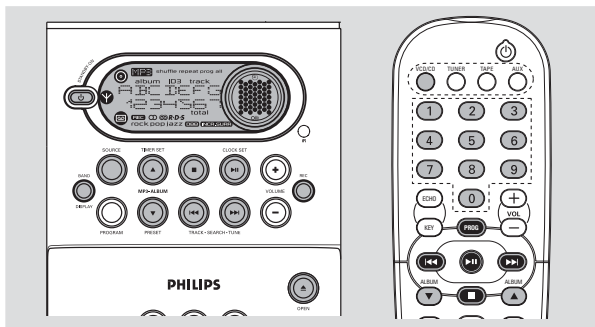
IMPORTANT!
– This system is designed for regular discs. Therefore, do not use any accessories such as disc stabiliser rings or disc treatment sheets, etc., as offered on the market, because they may jam the disc mechanism.
– Do not load more than one disc into the tray.

Before viewing the Video CD, ensure that the set is switched to corresponding PAL or NTSC system of your TV set (except Multi-system TV).

Discs for Playback

This system can play all digital audio CD, video CD, MP3-CD format discs, finalised digital audio CD-Recordable (CDR) discs and finalised digital audio CD-Rewritable (CDRW)discs.

Support following MP3-CD formats (ISO9660 format):
The max. number of tracks: 400
The max. nested directory: 8 levels
The max. number of albums: 99

Supported variable bit rate.
The max. number of programmed MP3 tracks: 20
Supported sampling frequencies for MP3 disc : 32 kHz, 44.1 kHz, 48 kHz
Supported Bit-rates of MP3 disc: 56, 64, 96, 128, 192, 256 (kbps)

Formats not supported
Files such as *.WMA, *.AAC, *.DLF, *.M3U, *.PLS
Non-English album/title names
CD-ROM, CD-I, CDV, DVD or computer CDs, however, are not possible.

IMPORTANT!
The lens of the CD player should never be touched.

INSTRUCTIONS FOR USE

CD/VCD/MP3-CD Operation

Playing a disc

1 Select **VCD/ CD** source.

2 Press **OPEN/CLOSE** on the top of the system to open the CD compartment.
   OPEN is displayed when you open the CD compartment.

3 Load a disc with the printed side facing up. Push the top panel to close.
   READING is displayed as the CD player scans the contents of a disc, and then the total number of tracks and playing time are shown. (CD/ VCD only)

4 Playback starts automatically.
   Current track number and elapsed playing time of the track are displayed during disc playback.

5 To interrupt playback, press �⟨◇. Press it again to resume playback.

6 To stop playback, press **STOP** ■.

Note: Playback will also stop when;
– the CD door is opened.
– the disc has reached the end.
– you select another source: TAPE, TUNER or AUX.

For MP3-CD only

Load a MP-3 music disc on the disc tray.
   The total album number and total title/ track number " *18   120*" will be displayed. **MP3**, **ALBUM** and **TRACK** will be shown.

Notes:
– To ensure good system performance, wait until the disc is completely read before proceeding.
– For MP3-CD, the disc reading time may exceed 10 seconds due to the large number of songs and different formats compiled in one disc.

Selecting a different track

Press ⏮ / ⏭ once or repeatedly until the desired track number appears in the display. Press digit **0-9** on the remote control to select the desired track.(numbers consisting more than 2 figures must be keyed in within 2 seconds).

For MP3-CD only

To select a desired Album

Press ▼ or ▲ repeatedly until the desired Album appears on the display.
   ALBUM and "*0XX   120*" will be displayed.

To select a desired Title/ Track

Press ⏮ / ⏭ repeatedly until the desired Title appears on the display.
Use the digital keys on the remote control to select the track.
   TRACK and "*0 18 XXX*" will be displayed.

Finding a passage within a track

To search for a particular passage during playback:

1 Press and hold ⏮ / ⏭. (CD only)

2 When you recognise the passage you want, release ⏮ / ⏭.
   Normal playback continues.

Note:
– During a disc programme, searching is only possible within the same track.

For VCD only

Press and hold ⏮ / ⏭ to select a different search speed and release the button until the desired rewind or forward speed is shown on the display or the TV.
   "REWINDX1", "REWINDX2", "REWINDX3" or "REWINDX4" will be displayed on the TV screen when you select a fast rewind search.
   ""FORWARDX1", "FORWARDX2", "FORWARDX3" or "FORWARDX4" will be displayed on the TV screen when you select a fast forward search.
   Normal playback will begin at the end of the fast rewinding or forwarding of the selected track.
Playback returns to normal when **PLAY** ⏸⟨◇ is pressed or when a new track is selected.

Different play modes: SHUFFLE and REPEAT

You can select and change the various play modes before or during playback.
SHUFFLE .... tracks of the entire disc are played in random order
SHUFFLE REP ALL...repeats the entire disc continuously in random order
REP ALL .... repeats the entire disc/ program
REP .... plays the current track repeatedly

1 To select your play mode, press the **REPEAT** or **SHUFFLE** on the remote control before or during playback until the display shows the desired function. (SHUFFLE, REP, REP ALL)

2 Press ⏸⟨◇ to start playback if in the STOP position.

3 To return to normal playback, press **REPEAT** or **SHUFFLE** until the various SHUFFLE / REPEAT modes are no longer displayed.

You can also press **STOP** ■ to cancel your play mode.

Text display and ID3 Text

In CD mode

Press **DISPLAY** repeatedly to see the following information.
   Track number and elapsed play time of current track.
   Remaining play time of current track.
   Total number of tracks played and total played-back time.
   Total remaining number of tracks and total remaining play time.

In MP3-CD mode

This feature is used to display the title and album name for MP3-CD.
Press **DISPLAY** repeatedly to display the title or album name and ID3 Text.

Notes:
– Album No., Title No. & Playing time
– Title name album name, ID3 Text & playing time

Programming the disc tracks

Programming tracks is possible when playback is stopped. Up to 20 tracks can be stored in the memory in any order.

1 Load the desired disc on the disc tray.

2 Press the **VCD/ CD** button to select the Source.

3 Press **PROGRAM** to start programming.
   A track number is shown and **PROG** appears.

4 Press ⏮ / ⏭ (or **Digits 0-9** on the remote control) repeatedly to select the desired track. For MP3-CD, ⏮ / ⏭ to select the desired Album and Title for programming.

5 Press **PROGRAM** to store the track.
   Repeat *steps 3–5* to store other tracks.

6 Press ⏸⟨◇ to start programme playback.

CD/VCD/MP3-CD Operation

To end programming without starting playback, press ▣ once.

Notes:
– Programme cannot be used for VCDs when PBC is switched on. Switch off PBC before storing tracks.
– If you attempt to programme more than 20 tracks, "FULL" will be displayed.

Erasing the program

You can erase the program by:
pressing **STOP** ■ twice during playback;
opening the CD compartment;
change to other source

Playing a mixed mode disc

This set can play a mixed mode disc.
– mixture of audio CD and MP3-CD
– mixture of other combination may not be operated normally.

1 As default, audio CD tracks will be read first.

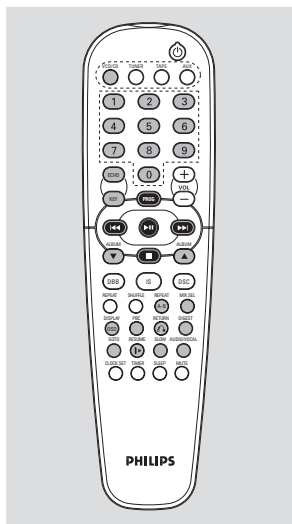2 Press **MIX/SEL** (on the remote control) repeatedly to select other disc modes.
   MP3-CD:
   MP3 is displayed.
   TV screen, MP3 menu is displayed.

Note :
For protected CDs, "MIX CD-DA" is displayed on your TV screen even if the disc does not have other format. The MIX/SEL normal functions are not available for protected CDs.

VIDEO CD

Adjusting the TV System

Before viewing the Video CD, ensure that the set is switched to corresponding PAL or NTSC system of your TV set (except Multi–system TV).

Press and hold **VCD/ CD** on the remote control for more than **3 seconds** to switch between PAL or NTSC TV system.

OSD – On Screen Display

If you insert a VCD/ CD/ MP3 disc, your TV screen will serve as an additional display for messages (e.g. PLAY, STOP), and information stored on the VCD.
Press **DISPLAY** (**OSD**) on the remote control repeatedly to switch on or off the On Screen Display.
When OSD is switched ON; you can see the

following display on the TV screen. Below is an example of the OSD message.
– Track playing time
– Track remaining playing time
– Total remaining playing time
– OFF

SINGLE REMAIN
XX   MM:SS
– "XX" is the current track.
– "MM" is in minutes.
– "SS" is in seconds.

Note:
– You can also view the information from a MP3-CD or normal CD.

Playing a Video CD with PBC

VCD with PBC (Playback Control) will be indicated on the display of the set as soon as the disc is inserted. PBC is a predefined play sequence stored in the VCD.

1 Switch on the TV, insert a VCD with PBC and press ⏸⟨◇ to start playback.

2 MENU appears on the TV screen.

If the menu consists of a list of titles, you can select a sequence directly

Press **Digits 0-9** on the remote control to select your choice.
   The VCD starts to play in the selected sequence automatically.

Note:
– If a menu consists of more than one page, press ⏮ / ⏭ to go through the pages.

Switching off PBC

Press **PBC** on the remote control.
   "PBC OFF" appears on the TV screen.

Notes:
– The programme mode is not available whenever the PBC mode is switched on.
– The menu structure depends on the information stored on the VCD. Please refer to the information supplied with the disc.
– PBC will be set to OFF if ■ is pressed. To play the same VCD with PBC on, please press PBC on the remote control again.

Return

Press **RETURN** to return to the previous VCD disc MENU level. PBC mode must be switched on.

VIDEO CD

Digest

This feature allows you to scan through a VCD for a quick review. PBC mode must be switched off.

In the stop mode

1 Press **DIGEST** on the remote control.
   The first 6 seconds of each track are played.

2 Press **digit 0 – 9** on the remote control to play the desired tracks.
   Press ⏮ / ⏭ to view the previous or next page for additional information.

During playback

1 Press **DIGEST** on the remote control.
   The current track of the selected disc will be divided into 9 parts and displayed on the TV screen.

2 Press **digit 0 – 9** on the remote control to play from the desired position.

3 Press ⏮ / ⏭ to digest the previous or next track.

To exit the DIGEST mode

Press DIGEST again.
Press ⏸⟨◇ on the remote control.
Press ■ on the remote control.

A-B Repeat

This feature is also applicable to audio CD *(except MP3-CD).* To play a certain scene or passage of the disc repeatedly:

1 Press **REPEAT A- B** on the remote control during playback to mark the start of the chosen scene or passage.
   "REPEAT A" appears on the TV screen.
   REPEAT A-B flashes on the display.

2 Press **REPEAT A- B** again to mark the end of the chosen scene or passage.
   "REPEAT AB" appears on the display.
   The selected scene or passage is played repeatedly.

3 Press **REPEAT A- B** once more to return to normal playback.
   "REPEAT AB CANCEL" appears on the display.

Notes:
– You can also cancel the A-B Repeat by pressing ⏮ / ⏭.
– You can set the A-B mark within the same track.
– If the track is completed before you set the end point, "REPEAT A" will disappear at the end of the track and "REPEAT AB CANCEL" will appear on the TV screen.

GOTO

1 Press **GOTO** on the remoto control.
   "GOTO--:--" appears on the TV screen.

2 Press **digit 0– 9** on the remoto control to key in the disc time from which you want the disc to begin.

Notes:
– Switch off PBC before selecting GOTO.

Resume

In the stop mode, press **RESUME** on the remote control to start playback again from where you have stopped.

Note:
– The resume information is lost if the disc tray is opened, the source is changed or the system is disconnected from the power supply.
– Resume is not available when PBC mode is switched on.
– For VCD, it may take more than 20 seconds to resume playback due to the large number or size of tracks.

INSTRUCTIONS FOR USE

VIDEO CD

Slow

1 Press **SLOW** on the remote control to watch a VCD at a slower speed. There are 4 types of slow modes to select.
   The sound is muted.
   On TV screen, "SLOW 1/2", "SLOW 1/4", "SLOW 1/8", SLOW 1/16 or PLAY is displayed.

2 To resume playback at normal speed, press ◄II►.

Microphone Mixing

Connect microphones (not supplied) to the system to sing along with the music source.

1 Connect microphones to **MIC** jack.
   Before connecting the microphone, set the microphone level with VOL to the lower level to prevent howling sound by turning the MIC VOL knob.

2 Select **VCD/CD** to start playback.
   Press ECHO to select MIC ON.

3 Adjust the volume level of the source with **VOLUME −/+** control.

4 Start singing or talking through the microphone.

5 Press **KEY** to select key tone if necessary.

Notes:
– Keep the microphones away from the speakers to prevent howling.
– Microphone mixing only available in VCD mode.

Vocal

This feature allows you to fade out the original vocal from a karaoke VCD. This feature is used together with Echo mode. You can also use it to select the different audio modes.

Pressing **VOCAL** on the remote control repeatedly allows you to select the following modes.
   STEREO   VOCAL←VOCAL R   MONO
   L   MONO R   STEREO ...
VOCAL LEFT/RIGHT - fade out the original vocal for specially recorded karaoke discs only (press ECHO to select MIC ON)

STEREO – same effect as the original recorded disc.
MONO L/R – select the language on a bilingual VCD.

Ensure that the MIC mode is switched on when pressing **VOCAL** to fade out the original vocal during STEREO VOCAL L/R mode.

Key Control

This feature allows you to change the key tone of your vocal range.

Press **KEY** on the remote control.
   "-KEY SHIFT+" appears on the TV screen.

Press **VOLUME −/+** to decrease or increase the vocal key level between -6 and +6.
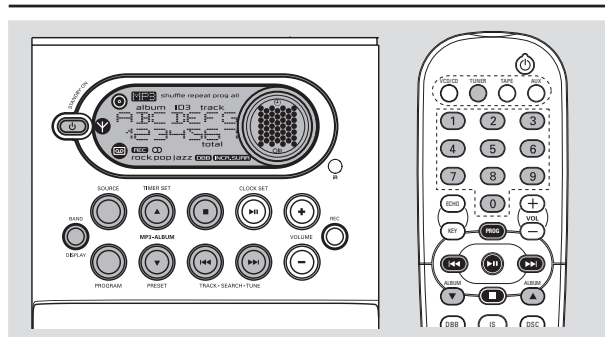
Echo

This feature allows you to add echo while singing or talking through a microphone.

Press **ECHO** on the remote control
   "-ECHO DELAY+" appears on the TV screen.
Press **VOLUME −/+** to decrease or increase the echo level.

Radio Reception

Tuning to radio stations

1 Select **TUNER** source.
   "TUNER" is displayed briefly.

2 Press **BAND** to select the desired waveband : FM or MW.

3 Press and hold |◄◄ or ►►| and then release it.
   The display will show "SEARCH" until a radio station with sufficient signal strength is found.
   If a FM station is received in stereo, ∞ is shown.

4 Repeat step **3** if necessary until you find the desired station.
   To tune to a weak station, press |◄◄ or ►►| briefly and repeatedly until you have found optimal reception.

Programming radio stations

You can store up to 40 radio stations in the memory.

Automatic programming

Press **PROGRAM** for more than two seconds to activate programming.
   All available stations are programmed.
   AUTO is displayed and available stations are programmed in order of waveband reception strength: FM followed by MW. The last preset automatically stored will then be played.
.

Manual programming

1 Tune to your desired station (refer to "Tuning to radio stations").

2 Press **PROGRAM** to activate programming.
   prog flashes on the display.

3 Press ▼ or ▲ to allocate a number from 1 to 40 for this station.

4 Press **PROGRAM** again to confirm the setting.
   prog disappears, the preset number and the frequency of the preset station are shown.

5 Repeat the above four steps to store other stations.
   You can override a preset station by storing another frequency in its place.

Deleting preset radio stations

Press and hold ►II until "CLR ALL" is displayed.
   All preset radio stations will be deleted.

Radio Reception

Tuning to preset radio stations

Press ▼ or ▲ until the desired preset station is displayed.

Changing tuning grid *(not available for all versions)*

In North and South America, the frequency step between adjacent channels in the MW band is 10 kHz (9 kHz in some areas). The preset frequency step in the factory is 9 kHz.

Changing the tuning grid will erase all previously stored preset radio stations.

1 Disconnect the system from the AC power supply (pull out the AC power cord).

2 While holding ■ on the system, reconnect the system to the AC power supply.
   The display will show "GRID 9" or "GRID 10".

Notes:
– GRID 9 and GRID 10 indicate that the tuning grid is in step of 9 kHz and 10 kHz respectively.
– The FM tuning grid also will be changed from 50 kHz to 100 kHz or vice versa.

Tape Operation/Recording
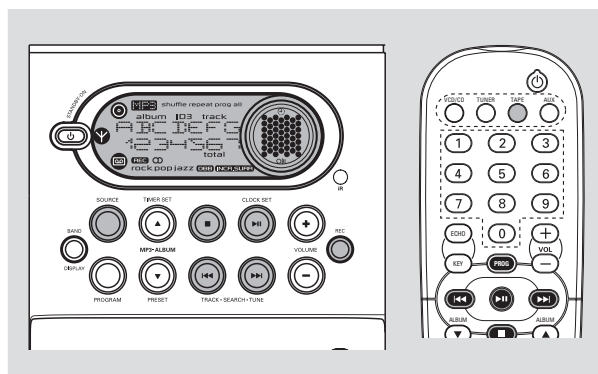
Tape playback

1 Select **TAPE** source.
   The display shows "TAPE" briefly.

2 Press **OPEN** ⏏ to open the tape door.

3 Insert a recorded tape and close the tape door.
   Load the tape with the open side downward and the full spool to the left.

4 Press ◄II► to start playback.

To stop playback
Press ►II.

To reset the tape counter display
In stop mode, press ►II once.

Rewinding / Fast forwarding

1 Stop playback, press |◄◄ or ►►| .
   The tape will stop automatically at the end of rewinding or fast forwarding.
   During fast winding, you can monitor the tape message with the tape counter.

2 Press ►II to stop rewinding or fast forwarding.

Note:
– During rewinding or fast forwarding of a tape, it is also possible to select another source (CD or TUNER, for example).

General information on recording

For recording, use only NORMAL (IEC type I) tapes on which the tabs have not yet been broken. This deck is not suitable for recording on METAL (IEC IV) type tapes.

The best recording level is set automatically. Altering the VOLUME, INCREDIBLE SURROUND or DBB will not affect the recording in progress.

At the very beginning and end of the tape, no recording will take place during the 7 seconds when the leader tape passes the recorder heads.

To protect a tape from accidental erasure, have the tape in front of you and break out the left tab. Recording on this side is no longer possible. If, however, you wish to record over this side again, cover the tabs with a piece of adhesive tape.

IMPORTANT!
Recording is permissible if copyright or other rights of third parties are not infringed upon. METAL (IEC IV) type tapes.

INSTRUCTIONS FOR USE

Tape Operation/Recording

Preparation for recording

1 Select **TAPE** source.

2 Load a recordable tape into the tape deck with the full spool to the left.

3 Prepare the source to be recorded.
   CD/VCD – load the disc.
   TUNER – tune to the desired radio station.
   AUX – connect external equipment.

   When recording is in progress
   REC is shown.

   To stop recording, press ■.

   It is not possible to listen to another source.

Synchro start CD recording

1 Select **CD** source.
   Press |◀◀ or ▶▶| to select the desired track to start recording.
   You can programme the tracks in the order you want them to be recorded (refer to "CD/MP3-CD Operations - Programming the disc tracks").

2 Press **REC** to start recording.
   Playing of the CD programme starts automatically from the beginning of the CD after 7 seconds. It is not necessary to start the CD player separately.

One touch recording

1 Select **VCD/CD**, **TUNER** or **AUX** source.

2 If necessary, start playback of the selected source.

3 Press **REC** to start recording.

Recording timer

To record from the radio, you will need to use a preset radio station and to set a start (ON) and finish (OFF) time.

1 Select the preset radio station to record from (refer to "Radio Reception - Tuning to preset radio stations").

2 In standby mode, press **TIMER SET** for more than two seconds.
   The current selected source is displayed.

3 Press **SOURCE** repeatedly until "*REC TUN*" source is displayed.

4 Press **TIMER SET** to confirm the source.
   "*SET ON TIME*" is displayed and the clock digits for the hours flash.

5 Press **VOLUME** +/− to set the hours.

6 Press **TIMER SET** again.
   The clock digits for the minutes flash.

7 Press **VOLUME** +/− to set the minutes.

8 Press **TIMER SET** to confirm the recording start time.
   "*SET OFF TIME*" is displayed and the clock digits for the hours flash.

9 Repeat steps **5-7** to set the finish time.

0 Press **TIMER SET** to confirm the timer settings.
   ⏲ is shown and the recording timer is now set.

Note:
− The recording timer will not be activated if the system is in tape play mode.

Clock/Timer
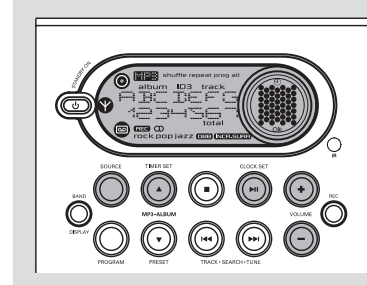
Clock setting

1 In standby mode, press and hold **CLOCK SET**.
   The clock digits for the hours flash.

2 Press **VOLUME** +/− to set the hours.

3 Press **CLOCK SET** again.
   The clock digits for the minutes flash.

4 Press **VOLUME** +/− to set the minutes.

5 Press **CLOCK SET** to confirm the time.

Timer setting

The system can be used as an alarm clock, whereby the CD, TUNER or TAPE is switched on at a set time (one time operation). The clock time needs to be set first before the timer can be used.
During setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.

1 In standby mode, press **TIMER SET** for more than two seconds.

2 Press **SOURCE** repeatedly to select the sound source. Press **TIMER SET** again.
   Press **VOLUME** +/− to increase or decrease the volume.

3 Press **VOLUME** +/− to set the hours.

4 Press **TIMER SET** again.
   The clock digits for the minutes flash.

5 Press **VOLUME** +/− to set the minutes.

6 Press **TIMER SET** to confirm the time.
   The timer is now set and activated.

Activating and deactivating timer

In standby or during playback, press **TIMER SET once** on the remote control.
   Display shows ⏲ if activated, and disappears if deactivated.

Sleep timer setting

The sleep timer enables the system to switch off by itself after a set period of time.

1 Press **SLEEP** on the remote control repeatedly to select a preset time.
   The selections are as follows (time in minutes):
   90 80 70 60 50 40 30
   20 10 OFF
   "*SLEEP XX*" or "*OFF*" is displayed. "*XX*" is the time in minutes.

2 When you reach the desired length of time, stop pressing the **SLEEP** button.

   To deactivate the sleep timer
   Press **SLEEP** repeatedly until "*OFF*" is displayed, or press the **STANDBY ON** button.

Maintenance

Cleaning the Cabinet
Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs
When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out.
Do not use solvents such as benzene, thinner, commercially available cleaners, or antistatic spray intended for analogue records.

Cleaning the disc lens
After prolonged use, dirt or dust may accumulate at the disc lens. To ensure good playback quality, clean the disc lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with cleaner.

Cleaning the Heads and the Tape Paths
To ensure good recording and playback quality, clean the heads (Ⓐ), the capstan(s) (Ⓑ), and pressure roller(s) (Ⓒ) after every 50 hours of tape operation.
Caution: Do not rotate the heads during cleaning.
Use a cotton swab slightly moistened with cleaning fluid or alcohol.
You can also clean the heads by playing a cleaning tape once.
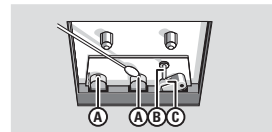
Demagnetising the heads
Use a demagnetising tape available at your dealer.

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 Philips for help.
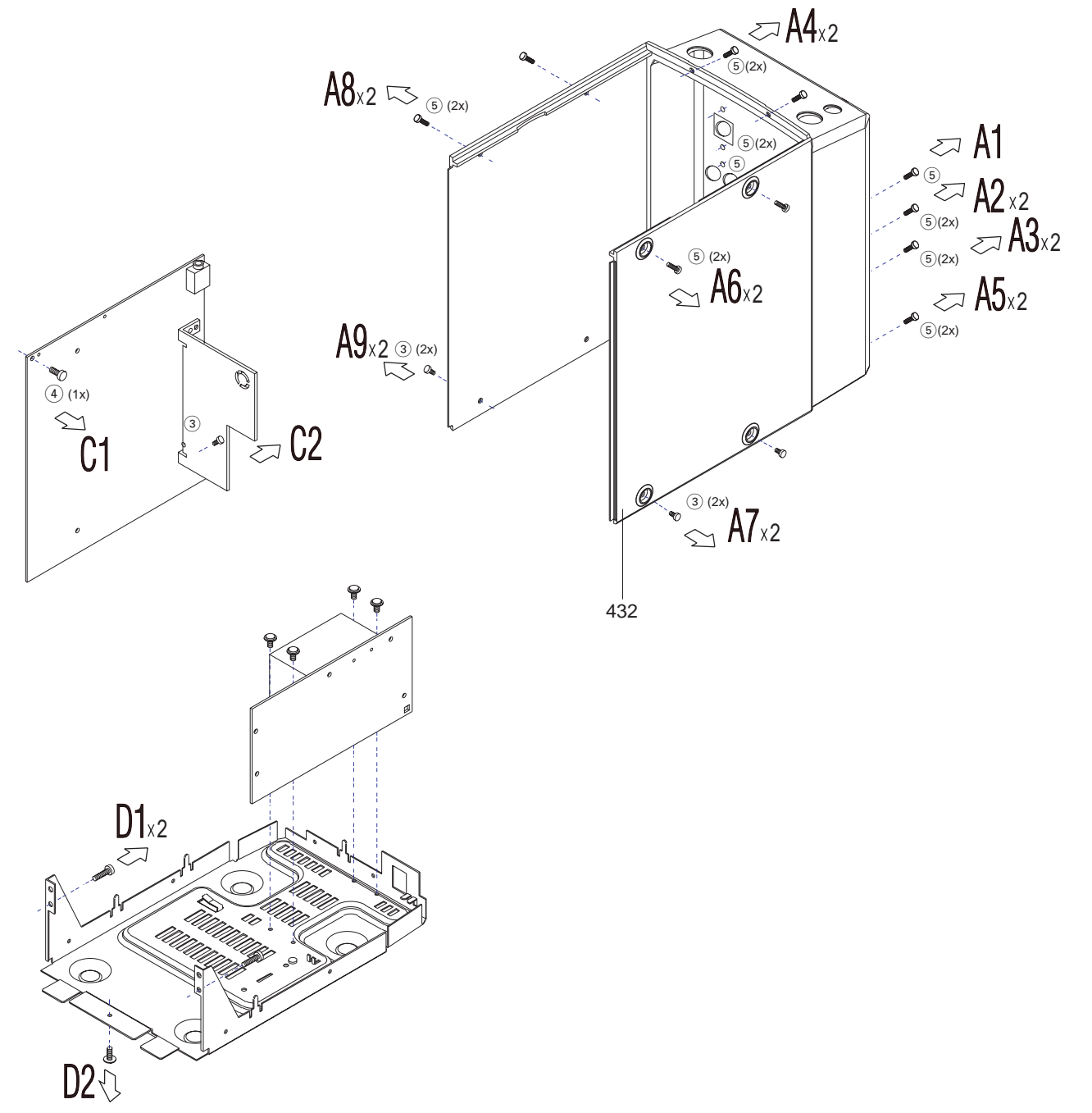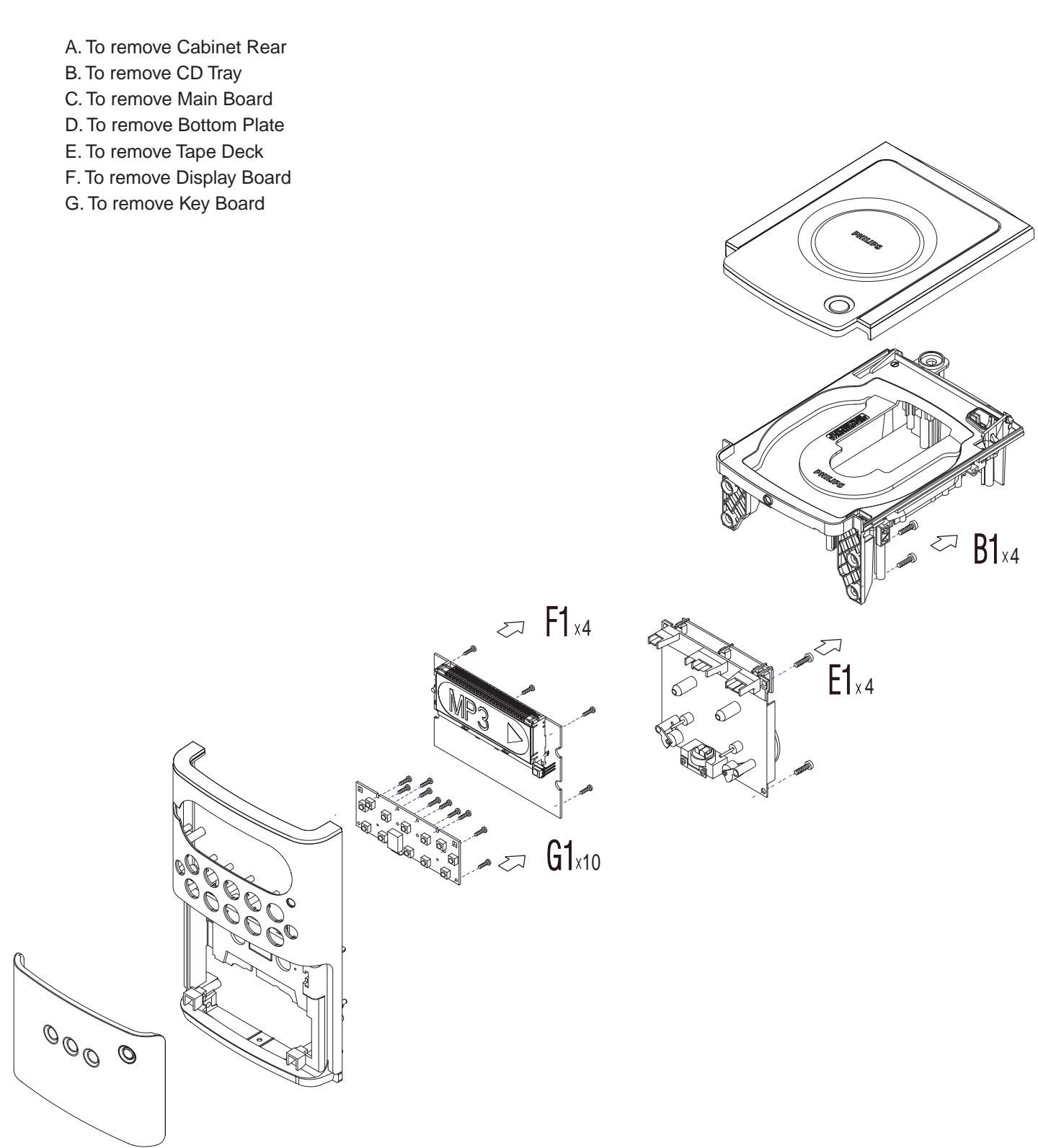
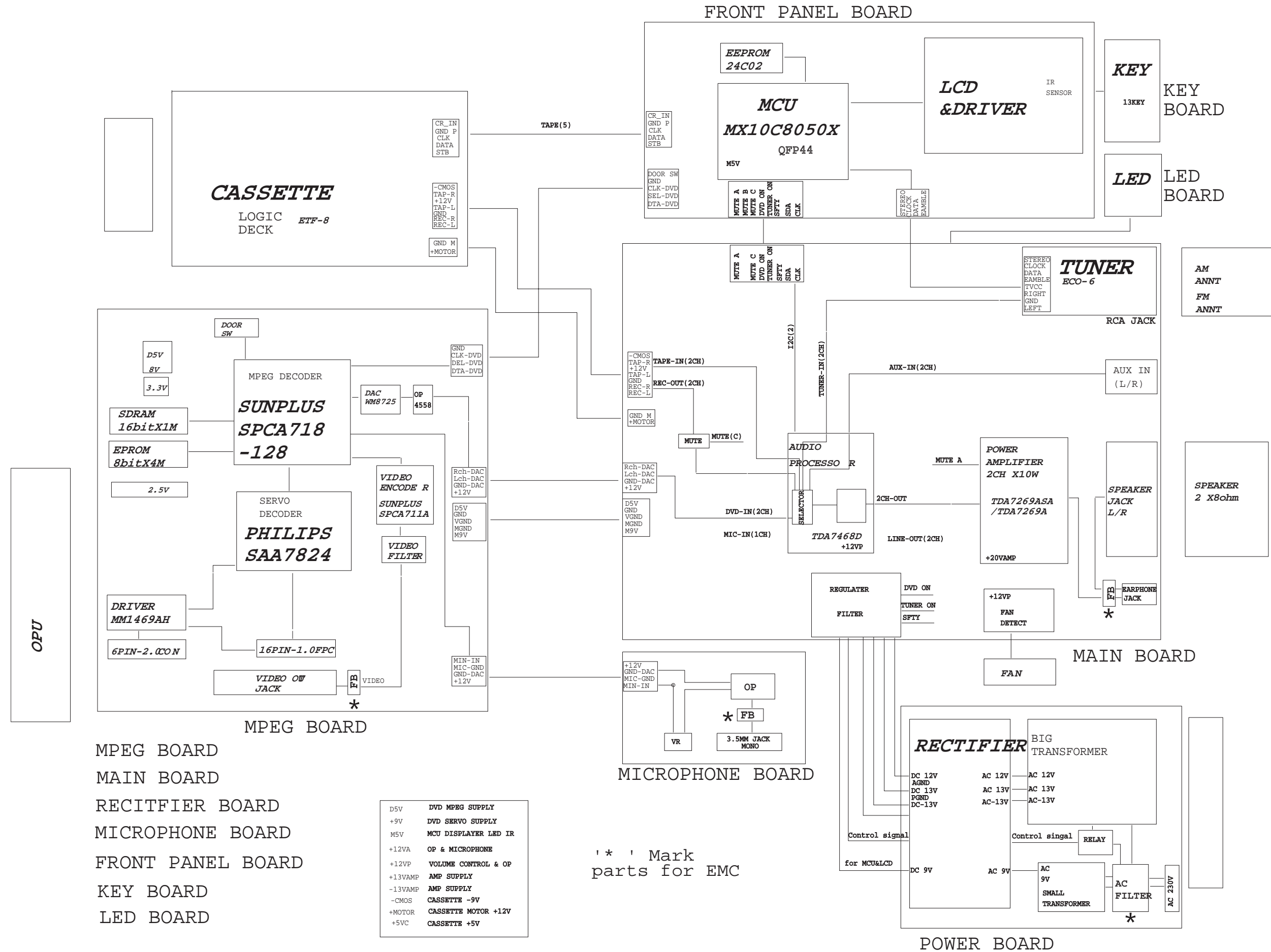| Problem	Solution
"*NO DISC*" **is displayed.**	Insert a disc. Check if the disc is inserted upside down. Wait until the moisture condensation at the lens has cleared. Replace or clean the disc, see "Maintenance". Use a finalised CD-RW or CD-R.
No picture on TV screen.	Connect the cable betwen the system and TV.
No colour on TV.	Change the system to the respective PAL or NTSC setting.

Troubleshooting

Problem	Solution
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.
Recording or playback cannot be made.	Clean deck parts, see "Maintenance". Use only normal (IEC I) tape for recording.
"*CHECK TAPE*" **is displayed.**	Apply a piece of adhesive tape over the missing tab space.
The tape deck door cannot open.	Remove and reconnect the AC power plug and switch on the system again.
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 battery with its polarities (+/− signs) aligned as indicated. Replace the battery. 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 ON / OFF 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 Cabinet Rear
B. To remove CD Tray
C. To remove Main Board
D. To remove Bottom Plate
E. To remove Tape Deck
F. To remove Display Board
G. To remove Key Board

A4 x2

A8 x2   ⑤ (2x)

A1

A2 x2

A3 x2

A6 x2

A5 x2

A9 x2   ③ (2x)

④ (1x)

③

C1   C2

A7 x2

432

B1 x4

F1 x4

E1 x4

D1 x2

G1 x10

D2

SET BLOCK DIAGRAM

FRONT PANEL BOARD

EEPROM
24C02

MCU
MX10C8050X
QFP44
M5V

LCD
&DRIVER

IR
SENSOR

KEY
13KEY

KEY
BOARD

LED

LED
BOARD

CASSETTE

LOGIC
DECK   ETF-8

CR_IN
GND P
CLK
DATA
STB

TAPE(5)

CR_IN
GND P
CLK
DATA
STB

-CMOS
TAP-R
+12V
TAP-L
GND
REC-R
REC-L

DOOR SW
GND
CLK-DVD
SEL-DVD
DTA-DVD

GND M
+MOTOR

MUTE A
MUTE B
MUTE C
DVD ON
TUNER ON
SFTY
SDA
CLK

STEREO
CLOCK
DATA
EAMBLE

MUTE A
MUTE C
DVD ON
TUNER ON
SFTY
SDA
CLK

STEREO
CLOCK
DATA
EAMBLE
TVCC
RIGHT
GND
LEFT

TUNER
ECO-6

AM
ANNT

FM
ANNT

RCA JACK

DOOR
SW

D5V
8V
3.3V

SDRAM
16bitX1M

EPROM
8bitX4M

2.5V

MPEG DECODER

SUNPLUS
SPCA718
-128

DAC
WM8725

OP
4558

GND
CLK-DVD
DEL-DVD
DTA-DVD

-CMOS
TAP-R
+12V
TAP-L
GND
REC-R
REC-L

TAPE-IN(2CH)

REC-OUT(2CH)

GND M
+MOTOR

I2C(2)

TUNER-IN(2CH)

AUX-IN(2CH)

AUX IN
(L/R)

VIDEO
ENCODE R
SUNPLUS
SPCA711A

SERVO
DECODER

PHILIPS
SAA7824

VIDEO
FILTER

Rch-DAC
Lch-DAC
GND-DAC
+12V

D5V
VGND
MGND
M9V

Rch-DAC
Lch-DAC
GND-DAC
+12V

D5V
GND
VGND
MGND
M9V

MUTE MUTE(C)

MUTE

AUDIO
PROCESSO R

DVD-IN(2CH)

MIC-IN(1CH)

SELECTOR

TDA7468D
+12VP

MUTE A

2CH-OUT

LINE-OUT(2CH)

POWER
AMPLIFIER
2CH X10W

TDA7269ASA
/TDA7269A

+20VAMP

SPEAKER
JACK
L/R

SPEAKER
2 X8ohm

DRIVER
MM1469AH

6PIN-2.00CON

16PIN-1.0FPC

VIDEO OW
JACK

FB

VIDEO

*

MIN-IN
MIC-GND
GND-DAC
+12V

REGULATER

FILTER

DVD ON

TUNER ON

SFTY

+12VP

FAN
DETECT

FB

EARPHONE
JACK

*

FAN

MAIN BOARD

MPEG BOARD

+12V
GND-DAC
MIC-GND
MIN-IN

OP

FB

*

VR

3.5MM JACK
MONO

RECTIFIER

BIG
TRANSFORMER

MICROPHONE BOARD

MPEG BOARD

MAIN BOARD

RECITFIER BOARD

MICROPHONE BOARD

FRONT PANEL BOARD

KEY BOARD

LED BOARD

D5V	DVD MPEG SUPPLY
+9V	DVD SERVO SUPPLY
M5V	MCU DISPLAYER LED IR
+12VA	OP & MICROPHONE
+12VP	VOLUME CONTROL & OP
+13VAMP	AMP SUPPLY
-13VAMP	AMP SUPPLY
-CMOS	CASSETTE -9V
+MOTOR	CASSETTE MOTOR +12V
+5VC	CASSETTE +5V

'*' Mark
parts for EMC

DC 12V
AGND
DC 13V
PGND
DC-13V

AC 12V
AC 13V
AC-13V

AC 12V
AC 13V
AC-13V

Control signal

for MCU&LCD

DC 9V

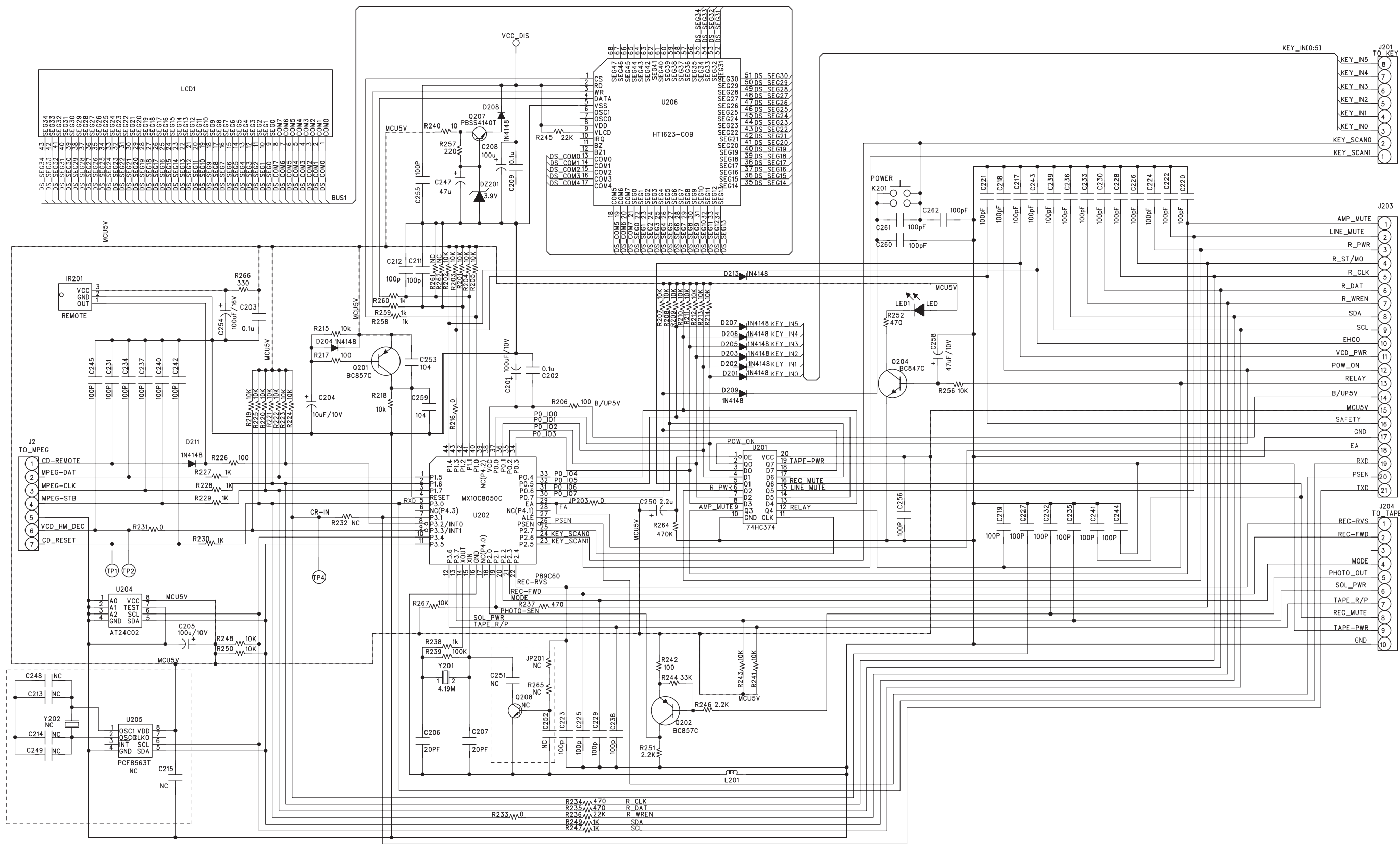Control singal

AC 9V

RELAY

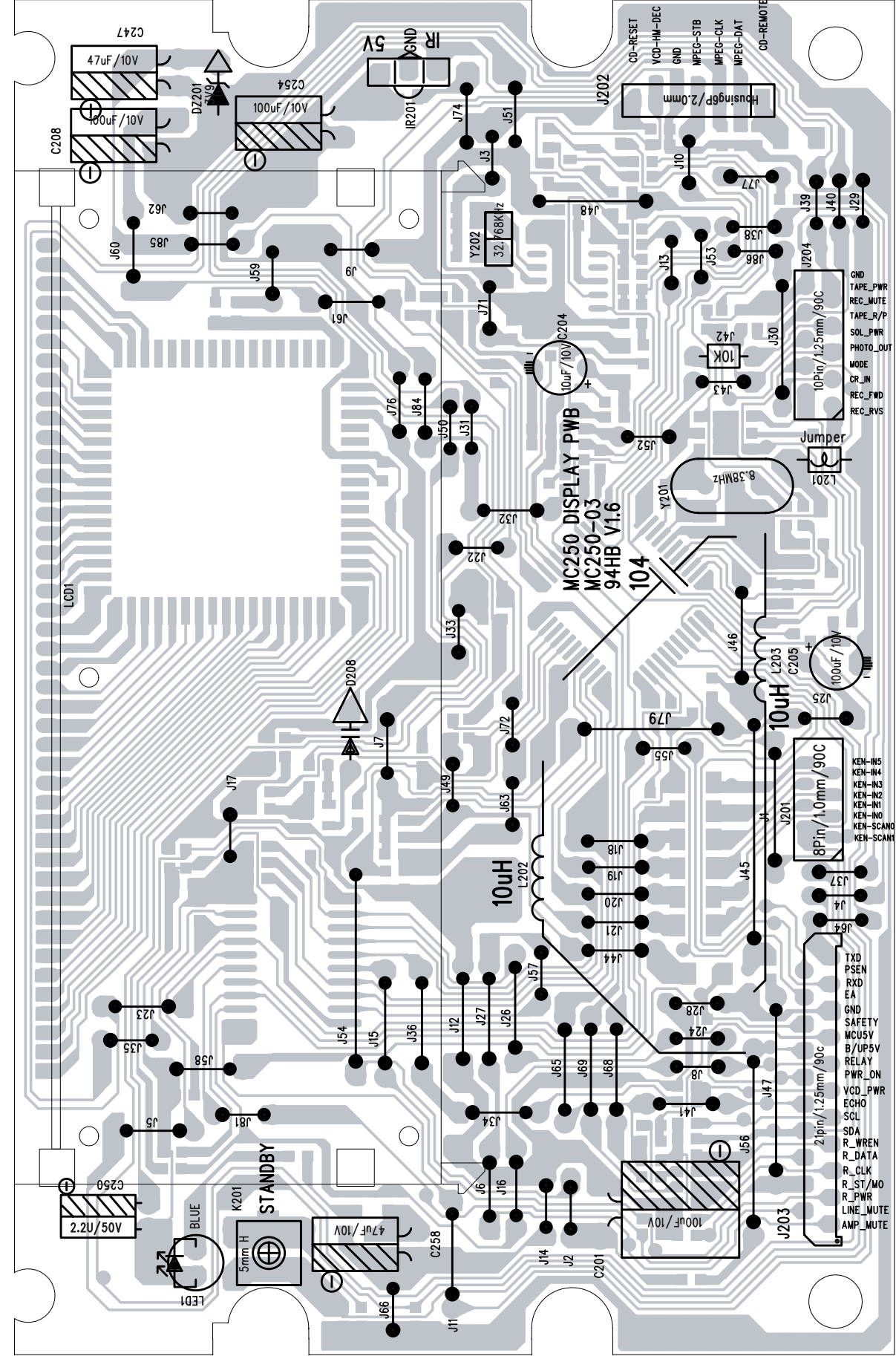AC
9V
SMALL
TRANSFORMER

AC
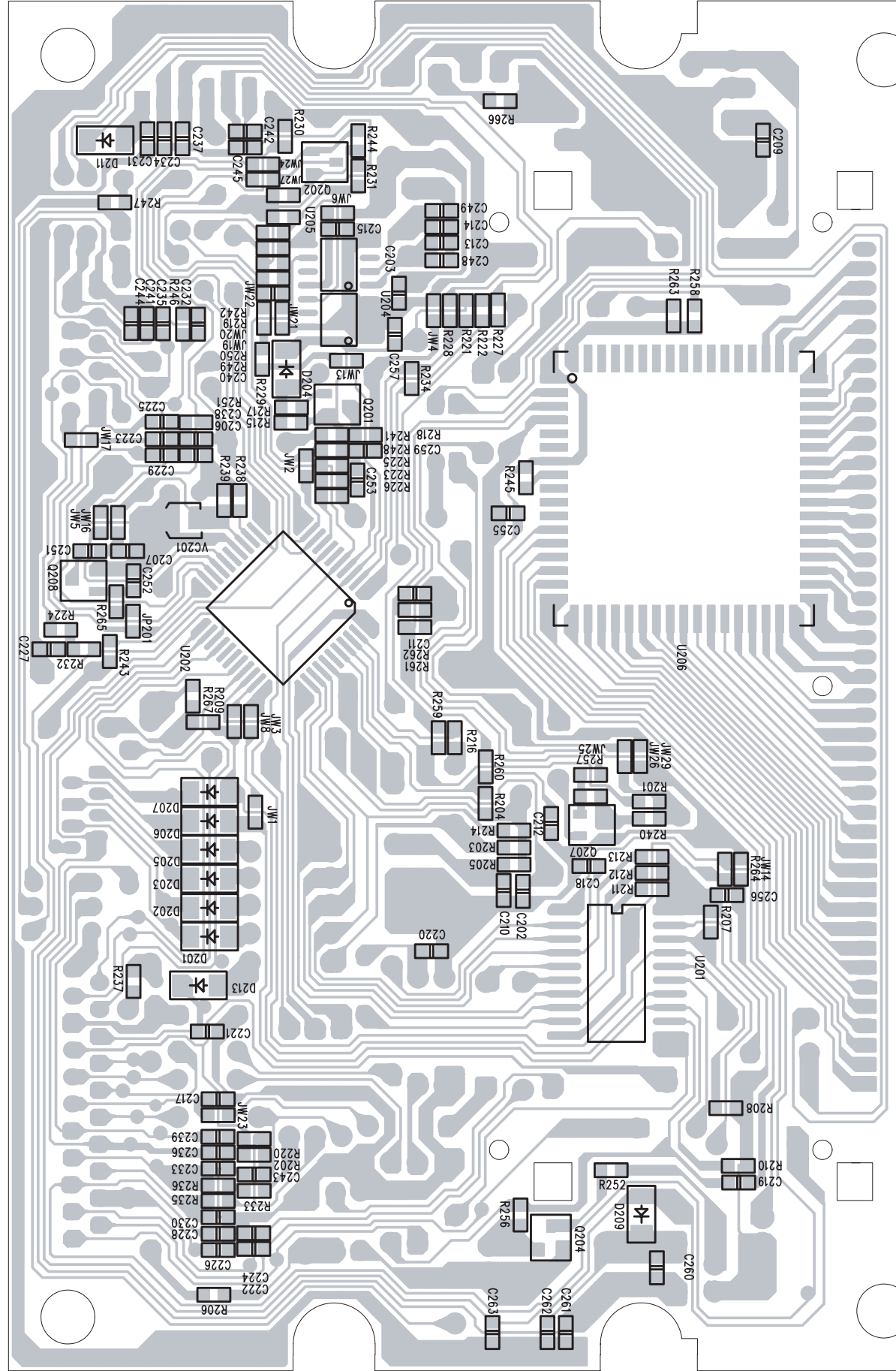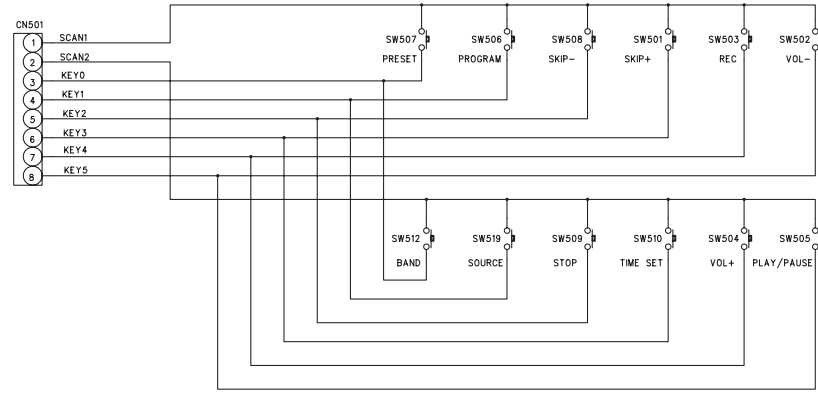FILTER

AC 230V

POWER BOARD

OPU

SET WIRING DIAGRAM
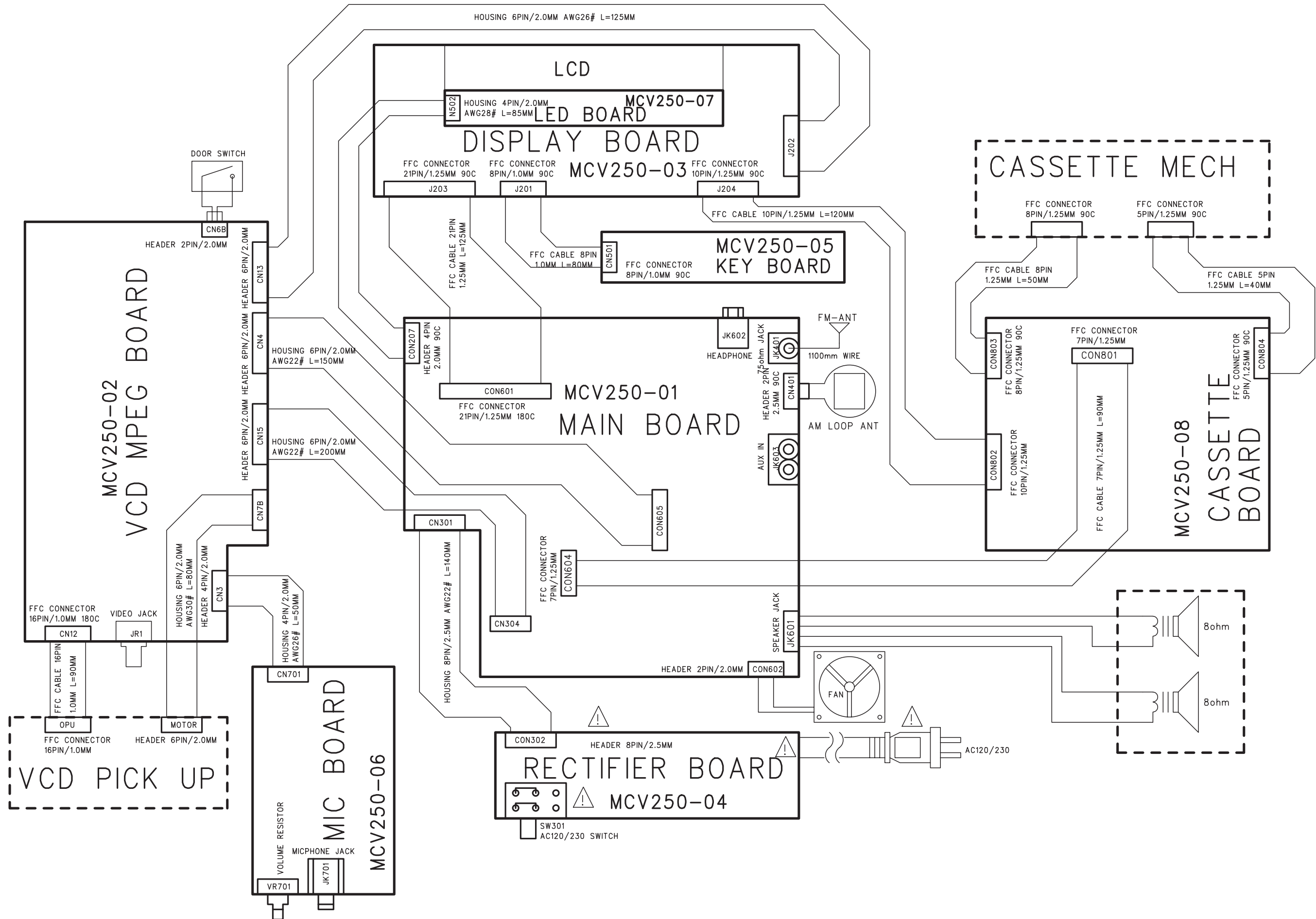
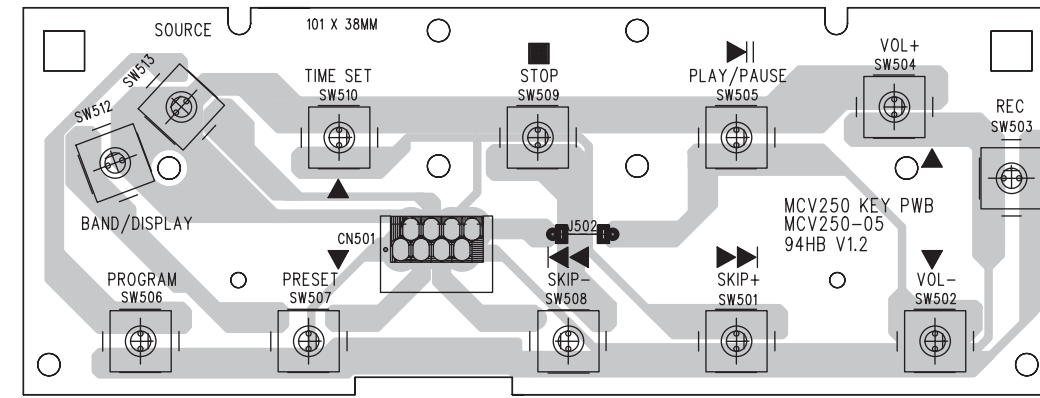# CIRCUIT DIAGRAM - DISPLAY BOARD

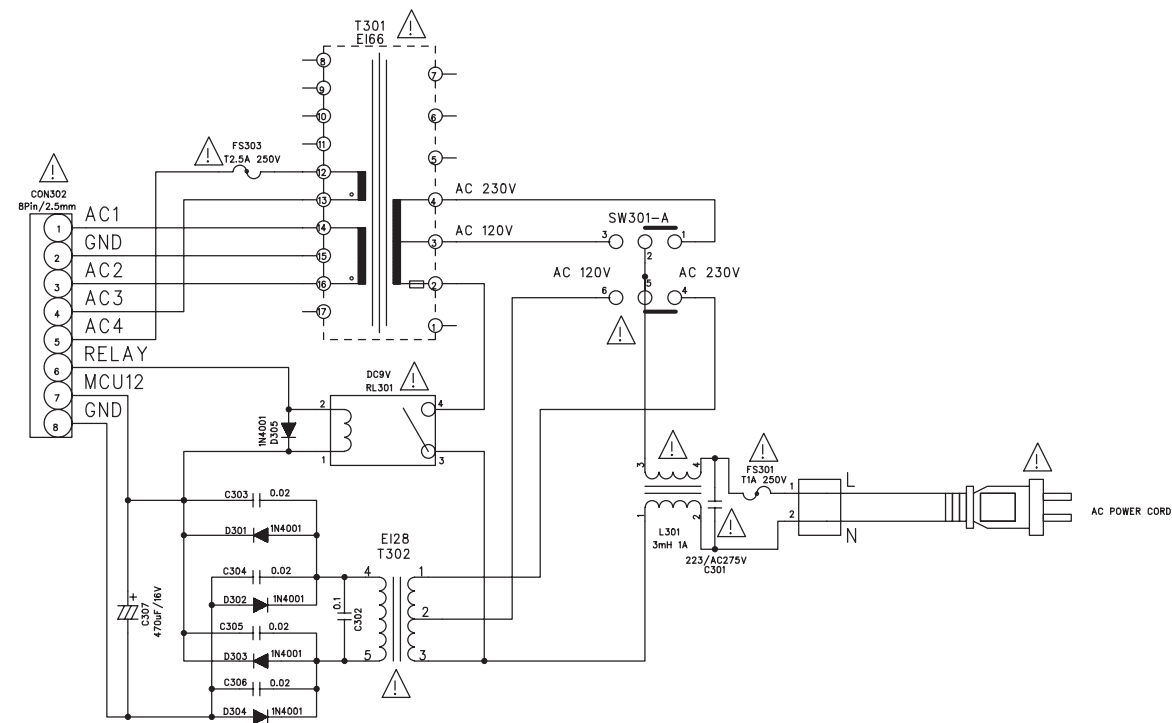# LAYOUT DIAGRAM - DISPLAY BOARD
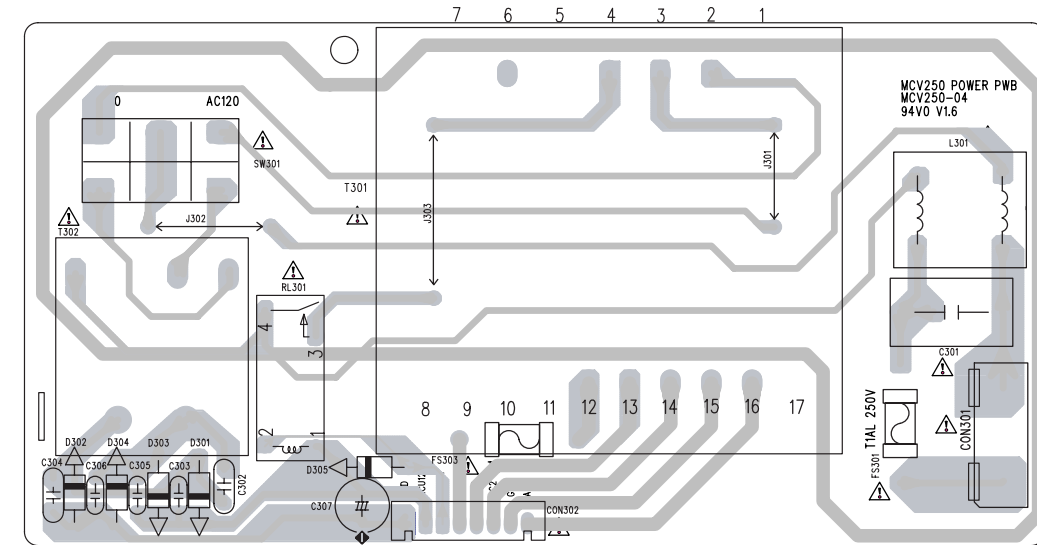
CIRCUIT DIAGRAM - KEY BOARD

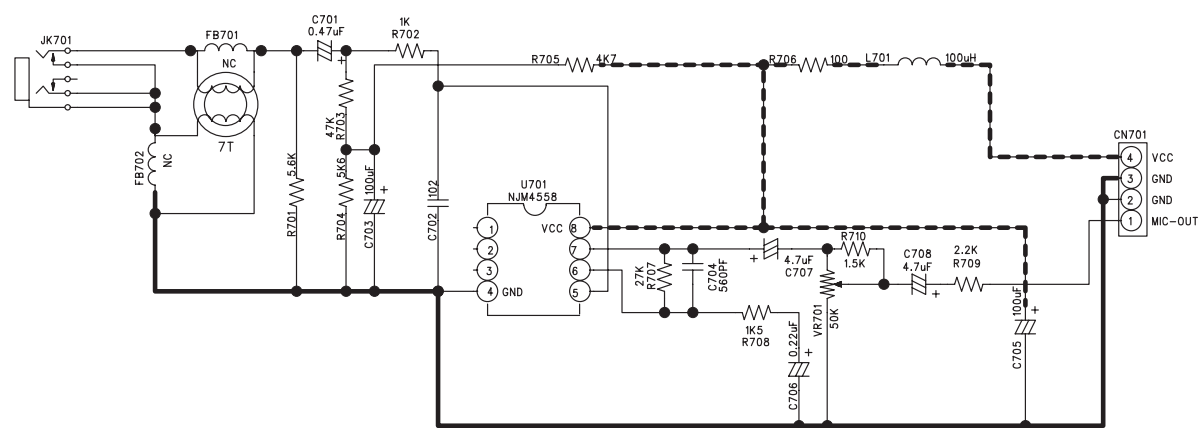## LAYOUT DIAGRAM - KEY BOARD
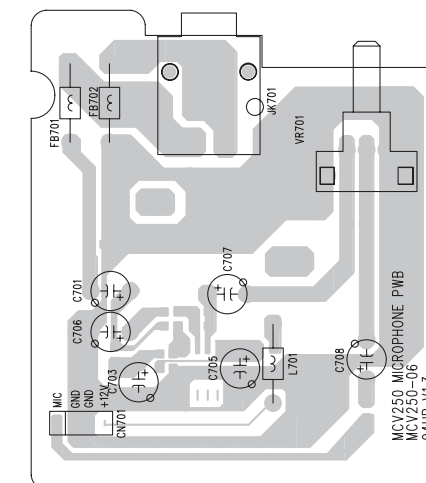

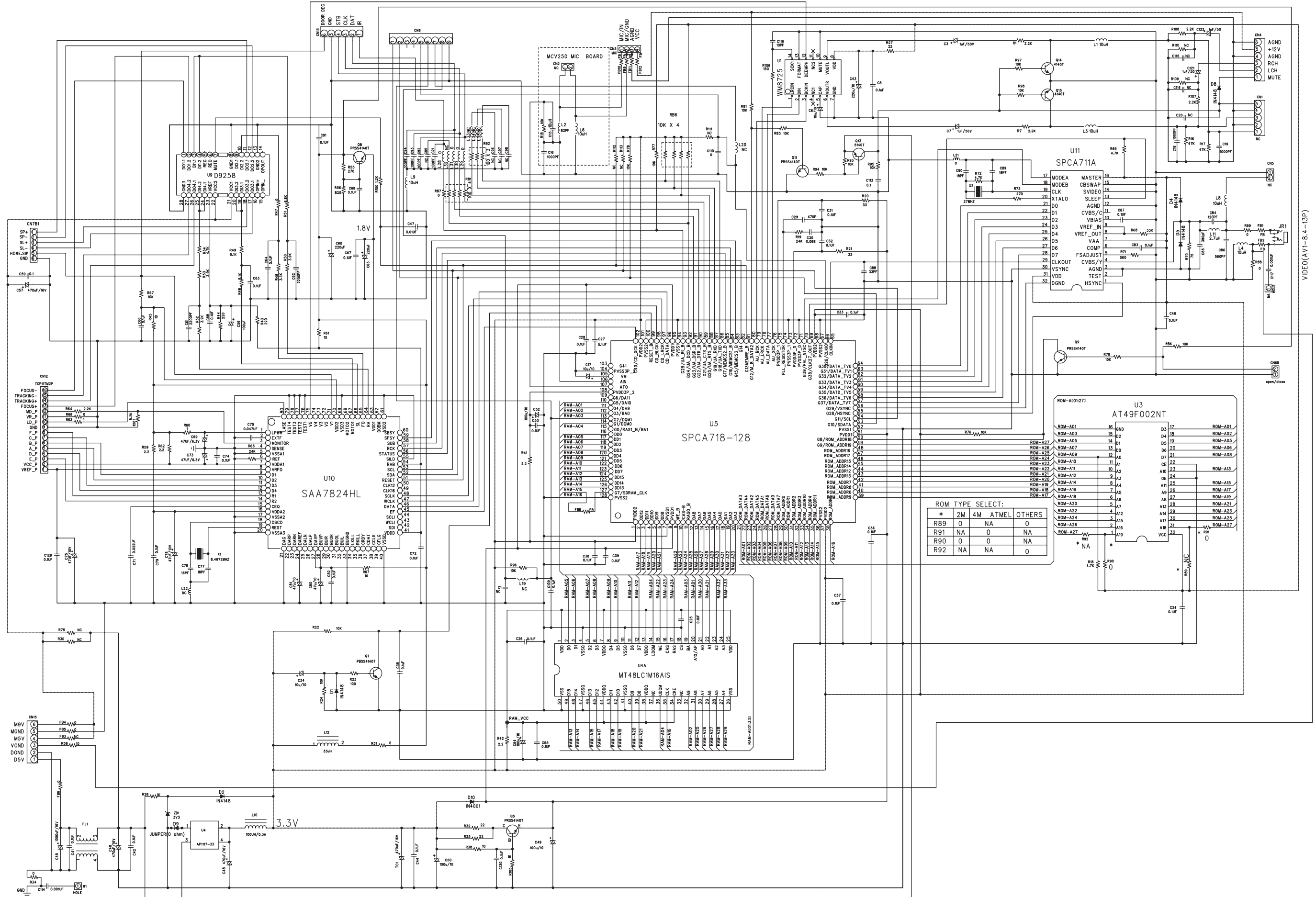## CIRCUIT DIAGRAM - POWER BOARD

LAYOUT DIAGRAM - POWER BOARD
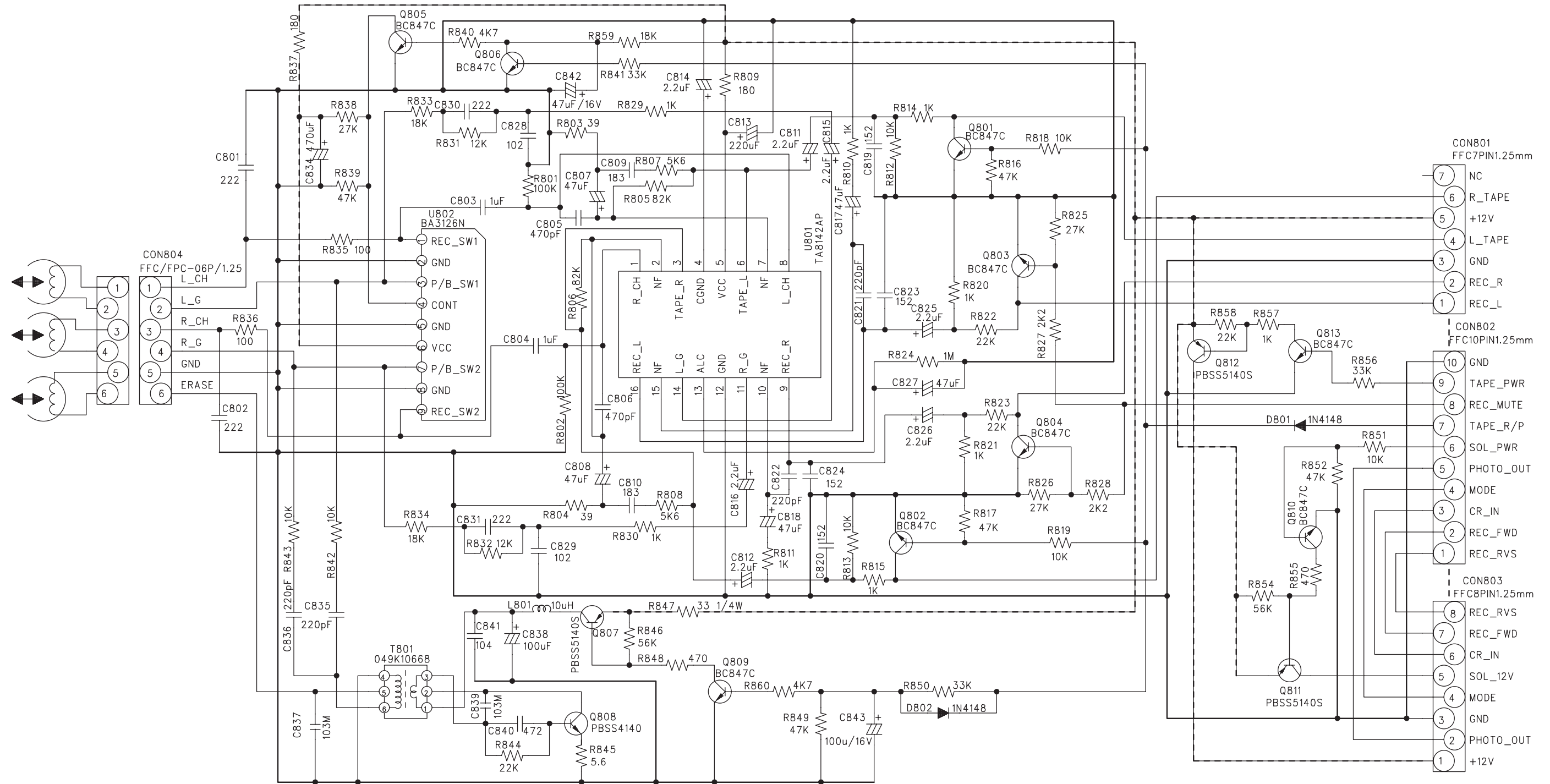

CIRCUIT DIAGRAM - MICROPHONE BOARD

LAYOUT DIAGRAM - MICROPHONEBOARD

CIRCUIT DIAGRAM - MPEG BOARD

LAYOUT DIAGRAM - MPEG BOARD

LAYOUT DIAGRAM - MPEG BOARD

MPEG BOARD V1.4
MCV250-02

CIRCUIT DIAGRAM - TAPE BOARD

LAYOUT DIAGRAM - TAPE BOARD

CON803
1:+12V
2:PHOTO_OUT
3:GND
4:MODE
5:SOL_12V
6:CR_IN
7:REC_FWD
8:REC_RVC

CON802
1:REC_RVS
2:REC_FWD
3:CR_IN
4:MODE
5:PHOTO_OUT
6:SOL_PWR
7:TAPE_R/P
8:REC_MUTE
9:TAPE_PWR
10:GND

CON801
7:NC
6:TAPE_R
5:+12V
4:TAPE_L
3:GND
2:REC_R
1:REC_L

CON804
6:L_CH
5:COM
4:R_CH
3:COM
2:GND
1:ERASE

MCV250/D280 CASS PWB   94HB V1.3
MCV250-08   94V0 V1.4   83 X 70.5MM

CIRCUIT DIAGRAM - COMBI BOARD
PART 1

CIRCUIT DIAGRAM - COMBI BOARD
PART 2

LAYOUT DIAGRAM - COMBI BOARD

LAYOUT DIAGRAM - COMBI BOARD

EXPLODED VIEW DIAGRAM

MECHANICAL PARTSLIST

401	9940 000 00668	CASSETTE DOOR ASSY
402	9940 000 00669	DOOR CASS
403	9940 000 00659	SPRING PLATE
404	9940 000 00657	PANEL FRONT ASSY
406	9940 000 00666	SPRING COMPRESSION
407	4822 529 10322	DAMPER ASSY
408	9940 000 00658	SPRING CASSETTE
409	9940 000 00661	BRACKET RIGHT
410	9940 000 00663	WINDOW LCD
411	9940 000 00665	PUSH CATCH
412	9940 000 00662	BUTTON POWER
413	9940 000 00664	BUTTON SET CONTROL
414	9940 000 00656	BRACKET LCD
415	9940 000 00643	DISPLAY PC BOARD ASSEMBLY
416	3139 118 79220	TAPE DECK CFL 4217
417	9940 000 00506	CD DAMPER 658 TB 40
418	9940 000 00505	CD DAMPER 658 TA 30
419	9940 000 00632	VCD PICK UP KSM213VSCM
420	9940 000 00629	VCD PC BOARD ASSEMBLY
421	4822 529 10322	DAMPER ASSY
422	9940 000 00652	TRAY CD
423	9940 000 00379	CD DOOR SW DLS-02-W-1
424	9940 000 00655	CHUCK PLATE ASSY
426	9940 000 00671	SPRING CD DOOR
427	9940 000 00667	CD DOOR ASSY
427	2422 549 45067	ANT AM LOOP LAN-006 B
429	9940 000 00675	SPEAKER BOX 4" 8OHM 30W
431	9940 000 00651	REAR CABINET
432	9940 000 00653	MIC KNOB
	9940 000 00674	REMOTE CONTROL UNIT
	4822 303 50063	FM AERIAL (not for -/22)

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

SCREW LIST

1. T2 x 10
2. T2.5 x 12
3. T3 x 6
4. T3 x 8
5. T3 x10
6. T3 x12
7. P/W C2.5 x 10
8. P/W T3 x 6
9. P/W T3 x 10

432

431

503

ELECTRICAL PARTSLIST

- MISCELLANEOUS -

JK601	9940 000 00621	SPEAKER JACK WP4-19
JK602	9940 000 00386	HP JACK MSJ-2000
JK603	9940 000 00623	JACK AV2-8.4-13P
JK401	9940 000 00628	JACK FM ANT
JR1	9940 000 00631	CONNECTOR
T801	9940 000 00648	IFT 049K10668 TYPE 7CDA
JK701	9940 000 00635	MICRO PHONE JACK
FS301 ⚠	9940 000 00637	FUSE PTU 1A 250V
FS303 ⚠	9940 000 00638	FUSE PTU2.5A 250V
	9940 000 00633	FFC CABLE 16P
SW301	9940 000 00636	VOLTAGE SELECTOR SWITCH (not for -/22)
SW501	9940 000 00568	TACT SWITCH
SW502	9940 000 00568	TACT SWITCH
SW503	9940 000 00568	TACT SWITCH
SW504	9940 000 00568	TACT SWITCH
SW505	9940 000 00568	TACT SWITCH
SW506	9940 000 00568	TACT SWITCH
SW507	9940 000 00568	TACT SWITCH
SW508	9940 000 00568	TACT SWITCH
SW509	9940 000 00568	TACT SWITCH
SW510	9940 000 00568	TACT SWITCH
SW512	9940 000 00568	TACT SWITCH
SW513	9940 000 00568	TACT SWITCH
VR701	9940 000 00634	RESISTOR 50K
VR401	9940 000 00627	SEMI-FIXED RES 100K
LED511	9940 000 00644	LED ORANGE 3MM
LED502	9940 000 00644	LED ORANGE 3MM
LED503	9940 000 00644	LED ORANGE 3MM
LED504	9940 000 00644	LED ORANGE 3MM
LED505	9940 000 00644	LED ORANGE 3MM
LED506	9940 000 00644	LED ORANGE 3MM
LED507	9940 000 00644	LED ORANGE 3MM
LED508	9940 000 00644	LED ORANGE 3MM
LED509	9940 000 00644	LED ORANGE 3MM
LED510	9940 000 00644	LED ORANGE 3MM
⚠	9940 000 00382	POWER AC WIRE VDE 230V
T301 ⚠	9940 000 00641	TRANSFORMER EI66 (-/21/21M)
T302 ⚠	9940 000 00642	TRANSFORMER EI28 (-/21/21M)
T301 ⚠	9940 000 00736	TRANSFORMER EI66 (-/22)
T302 ⚠	9940 000 00737	TRANSFORMER EI28 (-/22)
LCD1	9940 000 00645	LCD G892TT-P
U802	4822 209 30188	BA3126N
U801	4822 209 32082	TA8142AP
U301	9940 000 00619	IC,AP1501-50T5 150KHZ
U601	9940 000 00624	AMPLIFIER IC TDA7269ASA
U602	9322 150 74668	IC SM TDA7468D
U401	9351 740 80557	IC SM TEA5757H/V1

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