

Service
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Service Manual



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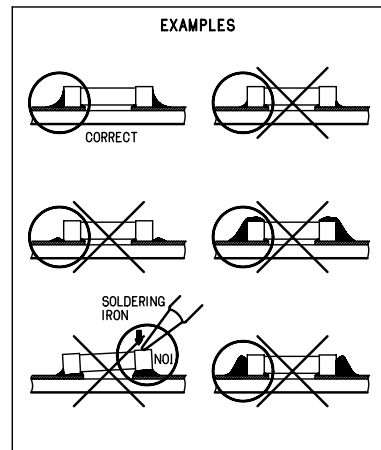
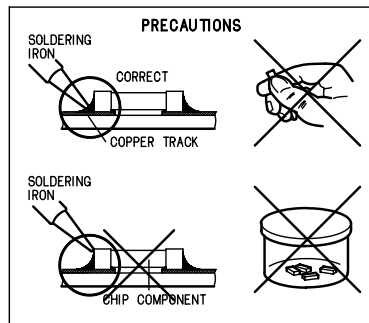
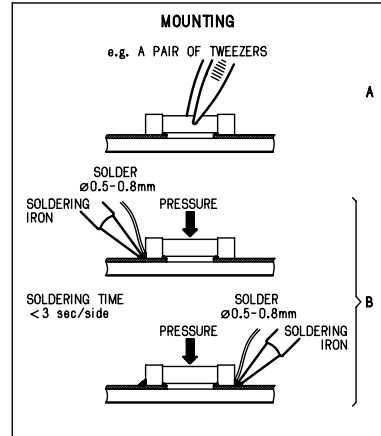
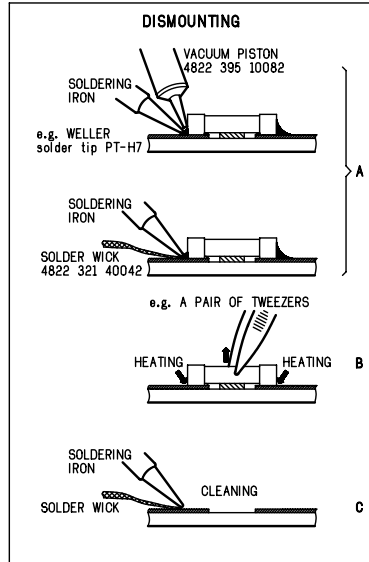
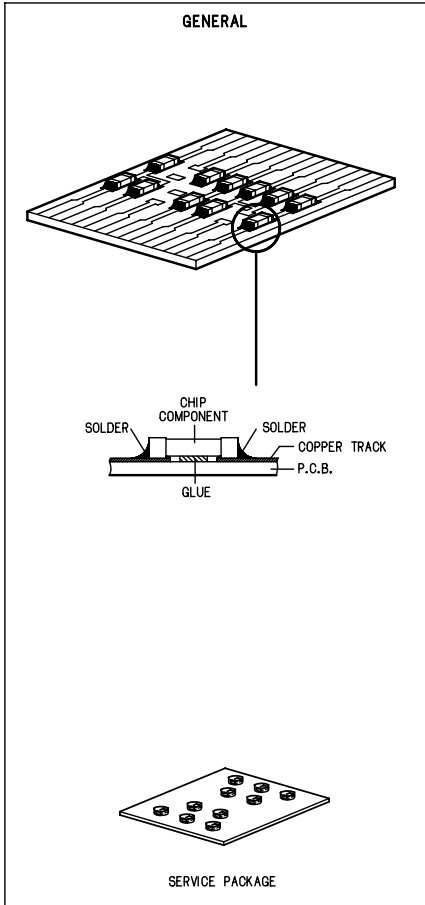
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PHILIPS

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.

ESD



(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 bracelet sert 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 ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa 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 symbool

(I)

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

(GB)

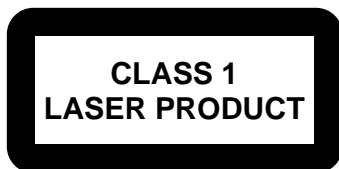
DANGER: Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

(S) Varning !

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

(DK) Advarsel !

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



(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".

(FIN) Varoitus !

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

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/01 : 120/230 V
Mains frequency	-/01 : 50 / 60 Hz
Battery	mains : 9 V (R20 x 6)
Power consumption	: 18W

AMPLIFIER

Output power	mains : 2 x 5 W(CD/Tape/FM)
	: 2 x 4 W(AM)
Speaker impedance	battery : 2 x 5 W(CD/Tape/FM)
	: 2 x 4 W(AM)
	: 2 x 6 ohm

TUNER - FM SECTION

Tuning range	: 87.5 - 108 MHz
IF frequency	: 10.7 MHz
Sensitivity	: < 15 dB μ V at 26dB S/N
Selectivity	: > 20 dB at \pm 300kHz
IF rejection	: > 50 dB
Image rejection	: > 20 dB

TUNER - AM SECTION

Tuning range	: 526.5 - 1606.5 kHz
IF frequency	: 465 kHz \pm 3 kHz
Sensitivity	: < 72 dB μ V/m at 26dB
Selectivity	: < 16 dB
IF rejection	: > 25 dB
Image rejection ratio	: < 28 dB

AUDIO CASSETTE RECORDER

Number of tracks	: 1 stereo
Tape speed	: 4.76 cm/sec +3/-2%
Wow & flutter	: < 0.35 % JIS UWTD
Fast wind/rewind C60	: < 130 sec.
Frequency response	P/B : 125 - 8000 Hz
S/N ratio	: > 36 dB

COMPACT DISC

Frequency response	: 100 Hz - 10 kHz
S/N ratio	: > 57 dBA
Channel difference	1 kHz : < 2 dB
Channel crosstalk	1 kHz : > 15 dB
Shock resistance	\pm Z axis : 5G
	\pm X or Y axis : 5G

SERVICE TOOLS

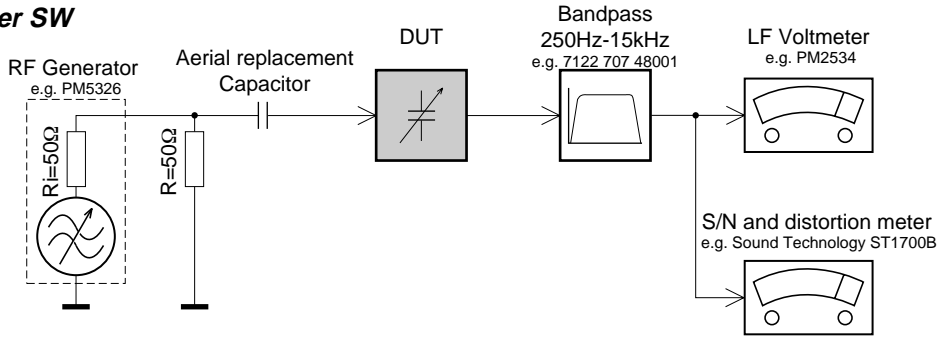
Audio signal disc SBC 429.....	4822 397 30184
Playability test disc SBC 444.....	4822 397 30245
Test disc 5 (disc without errors) +	
Test disc 5A (disc with dropout errors, black spots and fingerprints)	
SBC 426/426A.....	4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without "pause").....	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, 1M Ω)		4822 320 11307
extendible cable (2m, 2M Ω , to connect wristband to connection box)		4822 320 11305
connecting cable (3m, 2M Ω , to connect table mat to connection box)		4822 320 11306
earth cable (1M Ω , to connect any product to mat or to connection box)		4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)		4822 310 10671
wristband tester		4822 344 13999

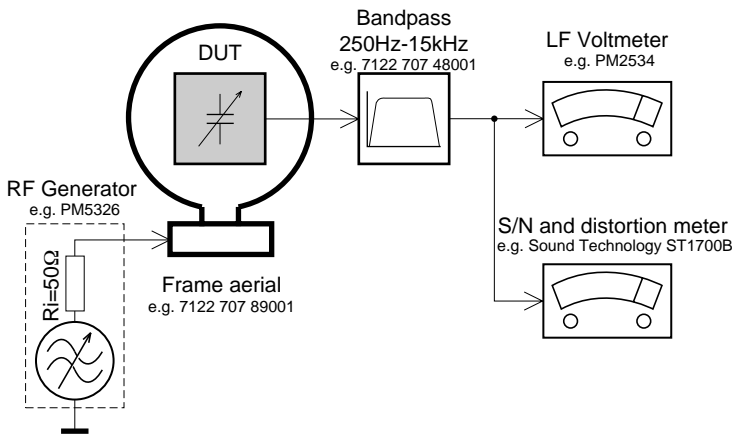
SERVICE MEASUREMENT

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).

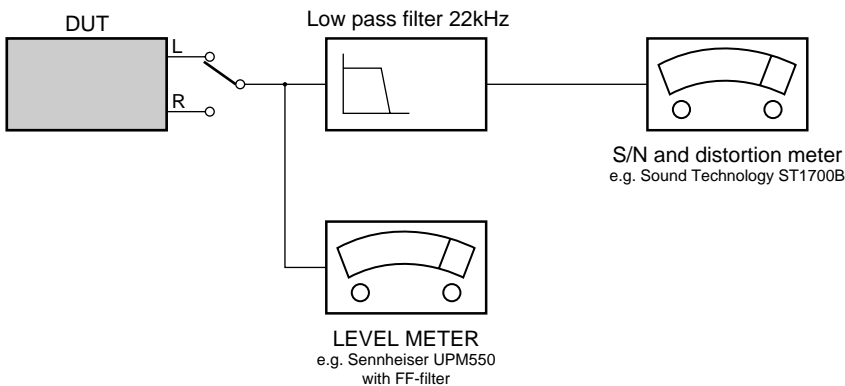
Tuner AM (MW,LW)



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. = 13th order filter 4822 395 30204



CONNECTIONS AND CONTROLS

CONTROLS

SUPPLIED ACCESSORIES

- Remote Control 1 pc
- Mains Cord 1 pc
- Audio / Video Cable 1 pc

TOP AND FRONT PANEL(see figure 1)

- 1 **Source selector :**
FM, MW, CD/VCD, TAPE/OFF - to select source of sound/radio waveband, and also the POWER OFF switch.
- 2 **INCREDIBLE SURROUND** - to create a phenomenal surround sound stereo effect.
- 3 **DYNAMIC BASS BOOST** - for a more vivid bass response.
- 4 **VOLUME** - to adjust volume level.
- 5 **↕** - 3.5 mm stereo headphone socket

CASSETTE RECORDER :

- 6 **PAUSE II** - to interrupt recording or playback.
- STOP•OPEN** - To stop the tape and to open the cassette holder.
- SEARCH** ◀◀ or ▶▶ - to fast wind/rewind the tape.
- PLAY** ▶ - to start playback.
- RECORD** ● - to start recording.
- 7 **REMOTE SENSOR** - infrared sensor for remote control

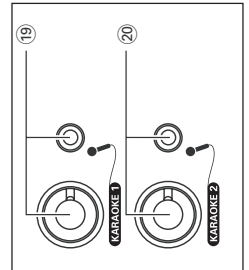
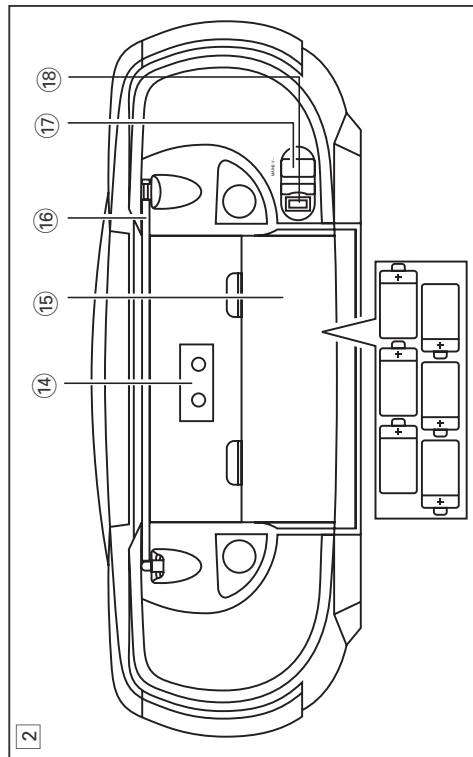
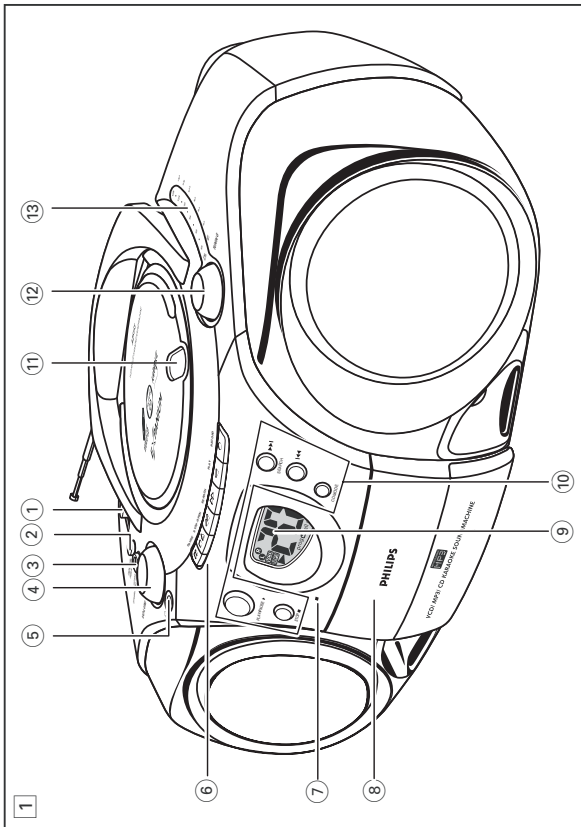
8 Cassette compartment

CD PLAYER :

- 9 **CD/VCD Display** - to show the CD/VCD/MP3-CD functions and disc status.
- 10 **PLAY/PAUSE** ▶II - To start or interrupt CD/VCD/MP3-CD playback.
- STOP** ■ - to stop CD/VCD/MP3-CD playback.
- CD MODE** - to select a different play mode e.g. SHUFFLE/REPEAT.
- SEARCH** ◀◀ or ▶▶ - to skip or search a passage or a track.
- 11 **OPEN** - to open / close the CD door.

RADIO:

- 12 **TUNING** - to tune to radio stations.
- 13 **Tuning dial pointer**



REMOTE CONTROL

BACK PANEL(see figure 2)

- 14 **AUDIO / VIDEO SOCKET** - to connect to a TV set.
- 15 **Battery door** - to open the battery compartment.
- 16 **Telescopic aerial** - to improve FM reception.
- 17 **AC MAINS** - Socket for mains lead.
- 18 **Voltage selector** (some version only) - to adjust to match the local voltage 110/220V before plugging in the set.

KARAOKE PANEL(see figure 3)

- 19 **KARAOKE 1 LEVEL / MIC**
- 20 **KARAOKE 2 LEVEL / MIC** - to connect microphone jack.
- to adjust the mixing level for karaoke.

REMOTE CONTROL (see figure 4)

- 1 **PBC (PLAYBACK CONTROL)** - to switch on or off PBC mode (for VCD version 2.0 only).
- 2 **RETURN** - to return to the previous MENU level during playback (for VCD with PBC on).
- 3 **VIEW** - to scan through a VCD with 9 pictures display on TV screen. Only when PBC mode is switched off (for VCD operation only).
- 4 **OSD** - to switch on/off the on screen display on the TV screen.
- 5 **SLOW** - to watch a VCD at a slower speed (for VCD operation only).
- 6 **RESUME** - to resume playback in stop mode.
- 7 **GOTO** - to start playback at any chosen time on the disc (for CD/VCD operation only and PBC mode is off).

1

2

19

20

CONNECTIONS AND CONTROLS

POWER SUPPLY

IMPORTANT!
For best CD/MP3-CD/VCD playback, please plug in your set to an AC power supply where convenient.
If operated in DC mode, see below approximate playtime. (Playtime is also varied from different brand batteries):

Battery type	Playtime
Alkaline	approximate 9 hrs
Zinc Carbonate	approximate 45 minutes

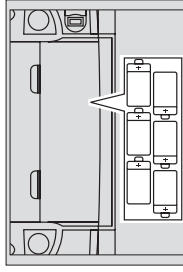
The CD part of this system also serves as a Video CD player if you connect it to your TV set.
Before viewing the Video CD, ensure that the set is switched to corresponding PAL or NTSC system of your TV set (exception Multi-system TV).

BATTERIES (NOT SUPPLIED)

Whenever convenient, use the mains supply if you want to conserve battery life. The battery supply will be switched off when the set is connected to the mains. Make sure you remove the plug from the set and wall outlet before inserting batteries.

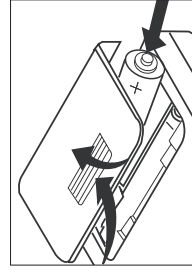
Batteries

1. Open the battery compartment and insert six batteries, type **R20, UM1 or D-cells. (preferably alkaline)** with the correct polarity as indicated by the "+" and "-" symbols inside the compartment.



Remote control

Open the battery compartment and insert two batteries, type **AAA, R03 or UM4** (preferably alkaline).



2. Replace the compartment door, making sure the batteries are firmly and correctly in place.

3. Remove the batteries if they are exhausted or if they will not be used for a long period.

- The incorrect use of batteries can cause electrolyte leakage and will corrode the compartment or cause the batteries to burst. Therefore:
- Do not mix battery types, e.g. alkaline with zinc carbonate.
- When inserting new batteries, replace all at the same time.
- Remove the batteries if the set is not to be used for a long time.

Notes :

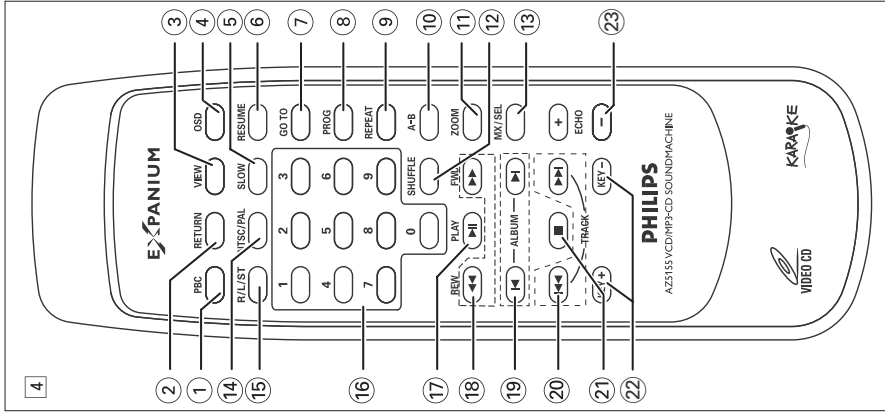
- The battery supply is switched off when the set is connected to the mains.

TV screen is disabled during CD / MP3-CD playing if your AZ5155 is battery powered.

Batteries contain chemical substances, so they should be disposed of properly

REMOTE CONTROL

- 22 **KEY+ / KEY-** - to change the VCD key tone to suit to your vocal range.
- 23 **ECHO + / ECHO -** - to adjust the VCD echo level for karaoke after you inserted a microphone.



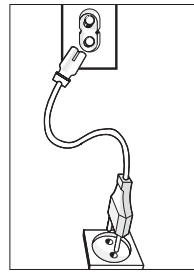
- 8 **PROG**
for CD/VCD/MP3-CD ... to programme disc tracks.
- 9 **REPEAT**
for MP3-CD to repeat a track, or whole disc.
- for CD/VCD to repeat a disc track or the whole disc.
- 10 **A - B** - to playback a certain scene or passage repeatedly (for CD/VCD operation only).
- 11 **ZOOM**
for VCD only to zoom in or zoom out picture.
- 12 **SHUFFLE** - When in CD/VCD mode, press to start or stop shuffle play mode.
- 13 **MIX/SEL** - to select disc format (CD / MP3-CD) in a mixed mode disc.
- 14 **NTSC/PAL** - to select the video output for NTSC or PAL system.
- 15 **RL/ST** - to select channel left / channel right / stereo sound, or to select a language in a bilingual VCD.
- 16 **DIGITS 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)
- 17 **PLAY/PAUSE** **▶||**
- to start or interrupt playback.
- 18 **SEARCH** **◀◀** or **▶▶** (for CD/VCD/MP3-CD)
- to search back or forward.
- 19 **ALBUM** **◀▶**
for MP3-CD only to select previous / next album
- 20 **TRACK** **▶▶** **◀◀**
for MP3-CD only to select previous/next title.
for CD/VCD to search backward/ forward track.
- 21 **STOP** **■**
- to stop playback or to clear a programme.

INSTRUCTIONS FOR USE

GENERAL OPERATION

CD/VCD/MP3-CD

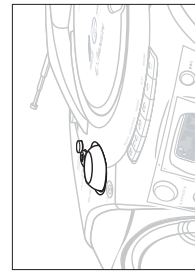
MAINS



1. Check if the mains voltage as shown on the type plate (on the bottom of the set) corresponds to your local mains voltage. Select 110 or 220V by the selector (for some version only).
2. If your set is equipped with a voltage selector, adjust the selector so that it matches with the local mains.
3. Connect the mains lead to the **AC MAINS ~** socket and the wall socket.
→ The set is now ready for use.
4. To switch off the mains supply completely, pull the mains plug out of the wall socket.
→ Disconnect the mains lead when you change over to battery supply, or to protect the set during heavy thunderstorms.

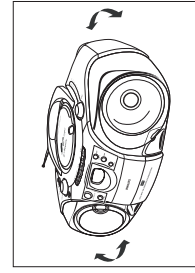
The type plate is located on the bottom of the set.

GENERAL OPERATION

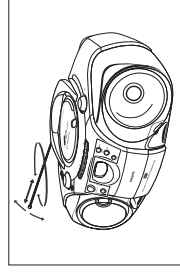


1. To switch on the set, adjust the source selector.
2. Adjust the sound using the **VOLUME, DYNAMIC BASS BOOST** and **INCREDIBLE SURROUND** control buttons.
3. To switch off the set, adjust the source selector to the **TAPE/OFF** position, with the cassette keys released.

RADIO RECEPTION



1. Set the source selector to **FM** or **MW**.
2. Adjust the sound using the **VOLUME, DYNAMIC BASS BOOST** and **INCREDIBLE SURROUND** control buttons.
3. Tune to a radio station using the **TUNING** knob.
 - For FM, pull out the telescopic aerial. To improve FM-reception, incline and turn the aerial. Reduce its length if the FM-signal is too strong (very close to a transmitter).
 - For MW, the set is provided with a built-in aerial, so the telescopic aerial is not needed. Direct the aerial by turning the whole set.
4. To switch off, set the source selector to the **TAPE/OFF** position (with the cassette keys released).



CAUTION

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

Environmental information

All unnecessary packaging material has been omitted. We have done our utmost to make the packaging easily separable into three mono materials: cardboard, polystyrene and plastic.

Your set consists of materials which can be recycled if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

DISCS FOR PLAYBACK

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

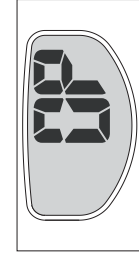
Support following MP3-CD formats:

- ISO 9660 or ISO 9660 + Joliet format - Max. 30 characters
- Max. Track number is 400
- Max. nested directory is 8 levels
- The max. album number is 99
- The max. MP3 programme track number is 20
- The max. length of each track is 99 minutes 59 seconds
- The player can play mixed mode disc of CD / MP3-CD
- Supported VBR bit-rate
- Supported sampling frequencies for MP3 disc : 8 kHz to 48 kHz (44.1kHz preferably)
- Supported bit-rates of MP3 disc are: 32 - 320 kbps (128 kbps preferably)

Following formats are not supported

- The files like *.WMA, *.AAC, *.DLF, *.M3U, *.PLS, MP3 PRO
- The non-session closed discs

LOADING A DISC



1. Set the source selector to **CD/VCD**.
2. Lift to open the CD door.
→ "CD" will be displayed
3. Insert a disc with the label side facing up.
4. Close the CD door.
→ The total number of tracks of the disc appear on the display.
→ "CD" will be displayed if no disc is inserted or error in CD operation

For MP3-CD only

- The total track number "XXXX" and album number "XXXX" will be displayed interchangeably.



INSTRUCTIONS FOR USE

CD/VCD/MP3-CD

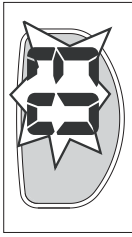
→ On TV screen, the total ALBUM and TRACK number will display, also with the album list (max. 10 lines per page). The current selected music is highlighted.

Notes : - To ensure good system performance, wait until the disc completely reads before proceeding.

- For MP3-CD, the disc reading time may exceed 1 minute due to the large number of songs compiled into one disc.

PLAYING A NORMAL DISC

1. Press **▶II** to start playback.
→ The track number of the current track and **▶** appear on the display.
- To interrupt playback, press **▶II**.
→ **▶** will disappear and the current track number will start flashing.
- To resume playback, press **▶II** again.
2. To stop playback, press **■**.

**SELECTING A DESIRED TRACK/PASSAGE**

To select a desired track

- Press **◀◀** or **▶▶** on the set repeatedly (or use digits 0 - 9 buttons on the remote control) until the desired track appears on the display.
- If playback is stopped, press **▶II** to start playback.

To search for a particular passage during playback

- Press and hold **◀◀** or **▶▶** on the set for 1 second (or on the remote control, press **◀◀** or **▶▶**)
→ During searching, the volume will be muted.

For MP3-CD only

To select a desired album

- On the remote control, press **◀** or **▶** until the desired album number appear on the display.
→ "P.X.X" will be displayed.
- On TV screen, the arrow will move forward/backward in the ALBUM menu.

To select a desired track

- Press **◀◀** or **▶▶** on the set repeatedly (or on the remote control, press **◀◀** or **▶▶**) to select a desired track from the current album.
→ "X.X.X" will be displayed.
- On TV screen, the arrow will move forward/backward in the TRACK menu.
- Use the digital keys on the remote control to select the track under current album directly.

To select and playback another track during playback mode

1. Press **◀◀** or **▶▶** repeatedly to select another track.
→ The new selected track will show on the display screen and TV screen and playback continuously.
2. Press **▶II** to start playback the new selected track.

For VCD only

- Either press **◀◀** or **▶▶** on the remote control repeatedly to select fast search speed (x1, x2, x3 or x4) or
press & hold **◀◀** or **▶▶** on the set for 1 second and then release **◀◀** or **▶▶** to select fast search speed (x1). Repeat this step to select other speed (x2, x3, x4).

CD/VCD/MP3-CD

PROGRAMMING TRACKS

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

1. In stop mode, press **PROG** on the remote control to enter programme setting.
→ **PROG** will flash on the display.
2. Press **digits 0 - 9** on the remote control or **◀◀** / **▶▶** to select the desired track.
3. Press **PROG** to store the select track. The number "X.X.X" represents the track no.
• Repeat steps **1** to **3** to store other tracks.
4. Press **■** to end programme setting.
→ **PROG** will remain on the display.
- Press **PROG** (on remote control) in stop mode to review the programme sequence.
5. Press **▶II** to play the programmed tracks.
• If you press **REPEAT** during programme playback, the current track or all programmed tracks will be played repeatedly.
→ **REPEAT/REPEAT ALL** icon and **PROG** will appear on the display.
6. Press **■** in stop mode to clear the programme.
→ **PROG** will disappear from the display.

Notes : - The programming is automatically cleared as soon as the CD compartment is opened.

- The function of programme setting is disabled in PLAY/PAUSE mode.

- Programme cannot be used for VCDs when PBC is switched on. Switch off PBC before storing tracks from such a VCD.

For MP3-CD only

1. In stop mode, press **PROG** on the remote control to enter programme setting.
→ **PROG** will start flashing and "P.C.I" will be displayed.
→ On TV screen, "PROG" program list (5 lines per page) will be displayed.
2. Press **digits 0 - 9** on the remote control or **◀** / **▶** to select the desired album.
3. Press **PROG** to store the select album. The number "P.X.X" represents the album no.
4. Press **◀◀** / **▶▶** repeatedly (or **digits 0 - 9** on the remote control) to select the desired TRACK for programming.
5. Press **PROG** to store the select track.
→ **PROG** will remain on the display.
- Repeat steps **1** to **5** to store other desired album and track.
6. Press **■** to end programme setting.
- Press **PROG** in stop mode can review the programme sequence.
7. Press **▶** to start programme playback. You can press **◀◀** / **▶▶** to select the programmed track to play.
8. Press **■** once stop programme playback or **twice** to clear the programme.

INSTRUCTIONS FOR USE

CD/VCD/MP3-CD



SHUFFLE

You can play all the tracks in random order.

1. During playing, pause or stop mode, press **SHUFFLE** on the remote control or press **CD MODE** on the set to enable SHUFFLE play mode.
→ **SHUFFLE** will appear on the display.
2. To exit shuffle mode, press **SHUFFLE** again or **■**.
→ **SHUFFLE** will disappear from the display.

REPEAT

You can play the current track or the whole disc repeatedly.

1. During CD/MP3-CD playing or pause mode, press **REPEAT** on the remote control or **CD MODE** on the set.
→ **REPEAT** icon  - To repeat the current track.
→ **REPEAT ALL** icon  - To repeat the whole disc.
2. To exit the repeat mode, press **REPEAT** on the remote control or **CD MODE** on the set until the **REPEAT/REPEAT ALL** icon disappears from the display.

Notes : - If the Repeat function is enable, and the Stop button is pressed, will disable all the repeat play modes.

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 (exception Multi - system TV).

1. On the remote control, press **NTSC/PAL** to switch between NTSC and PAL TV system.

OSD - On Screen Display

If you insert VCD/CD, your TV screen will serve as an additional display for messages (e.g. PLAY, STOP), and information stored on the VCD/CD.

- Press OSD on the remote control to select viewing various information.
→ The current track and current /elapsed time in the track/disc appear on the display.

CD/VCD/MP3-CD

VIDEO CD**Playing a Video CD with PBC**

VCD with PBC (Playback Control) will be indicated of the set and on your TV screen as soon as they are inserted. PBC is a predefined play sequence stored on the VCD.

1. Switch on the TV, insert a VCD with PBC.
2. Menu appears on the TV screen.

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

1. Press **digits 0 - 9** on the remote control to select your choice.
→ The VCD starts playing of the selected sequence automatically.
2. Press **RETURN** on the remote control to go back to the previous menu.
Note : - If a menu consists of more than one page, press **◀ / ▶** to go through the pages.

Switching off PBC

- In stop mode, press **PBC**.
→ On TV screen, "PBC OFF" will be displayed shortly.

Notes : - Programme mode is not available whenever PBC mode is switched on.

- The menu structure depends on the programme stored on the VCD. Please refer to the information supplied with the disc.

Pause

1. During playback, press **▶II** to have a still picture on the TV screen.
→ The sound will be muted.
→ On TV screen, "PAUSE" will be displayed.
2. Press **▶II** again to continue playback.

Goto

1. Press **GOTO** on the remote control.
→ On TV screen, "GOTO --:--" will be displayed.
2. Press **digits 0 - 9** on the remote control to key in the disc time which you want the disc to begin playback.

Note : - The disc time entered should not be greater than the total disc time.

- Goto mode is not available whenever PBC mode is switched on.

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 will be muted.
→ On TV screen, "SLOW 1/4", "SLOW 1/8" or "SLOW 1/16" will be displayed.
2. To resume playback at normal speed, press **SLOW** repeatedly until "PLAY" appears on the TV screen or press **▶II**.

A-B repeat

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

1. Press **A-B** on the remote control during playback to mark the start point of the chosen scene or passage.

→ "REPEAT A" will appear on the screen.

2. Press **A-B** again to mark the end of the chosen scene or passage.

→ "REPEAT AB" will appear on the screen.

→ The selected scene or passage will start playing repeatedly.

3. Press **A-B** once more to return to normal playback.

→ "REPEAT AB" will disappear from the display.

Notes : - You can also cancel A-B repeat by pressing **◀◀** or **▶▶**.

- A-B repeat marking can cross from one track to another. But for VCD 2.0, you are only able to set the A-B repeat marking within the same track.

Resume

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

Note : - Resume will not be available if you have changed the disc, opened the disc tray or disconnected the system from the power supply.

View

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

1. In stop mode, press **VIEW** on the remote control to go to disc view function.

→ On TV screen, up to 9 pictures will be displayed. If a menu consists of more than one page,

press **◀◀** or **▶▶** to view the previous/next page.

→ The first several seconds of each track will be played.

To exit review mode, press **digits 0 - 9** to play the desired track or **▶▶** to play the current selected track.

2. In playback mode, press **VIEW** on the remote control to go to track view function.

→ press **◀◀** or **▶▶** to select the track.

→ On TV screen, up to 9 pictures within the track will be displayed.

→ The first several seconds of each picture will be played.

To exit review mode, press **digits 0 - 9** to play the desired position within the track or **▶▶** to play the current selected position.

Note : - If the disc is AVCD disc and there're no video tracks on the same viewed page, cannot use the direct digital key to play the track.

Return

- Press **RETURN** on the remote control to return to the previous VCD disc MENU level. It is functional only for Video CD when PBC is switched on.

R/L/ST

You can use it to select the different audio modes.

- Press **R/L/ST** on the remote control repeatedly to select the following modes:

◀ → **◀** → **◀** → **◀** on the LCD represents channel left/channel right / dual channel on a bilingual VCD or mono left / mono right / stereo on single language VCD.

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.

→ **◀** **B** will be displayed.

→ TV screen, "MIX, CD-DA" will be displayed.

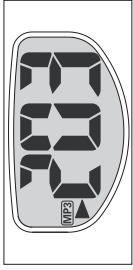
2. Press **MIX/SEL** (on the remote control) repeatedly to select other disc modes.

- **MP3-CD**.

→ **MP3** is displayed.

→ TV screen, MP3 menu is displayed.



Notes : - 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.

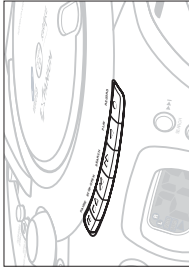


INSTRUCTIONS FOR USE

CASSETTE RECORDER

CASSETTE PLAYBACK

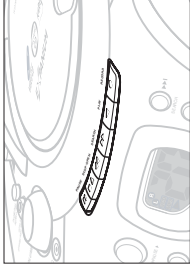
1. Set the source selector to **TAPE/OFF**.
2. Press **STOP•OPEN**  to open the cassette holder.
3. Insert a recorded cassette.
4. Press **PLAY**  and playback will start.
5. Adjust the sound using the **VOLUME** and **DYNAMIC BASS BOOST** controls.
6. For brief interruptions, press **PAUSE II**. Press **PAUSE II** again to resume playback.
7. By pressing **◀** or **▶**, fast winding of the tape is possible in both directions.
8. To stop playback, press **STOP•OPEN** .
 - The keys are automatically released at the end of the tape.
9. Set the source selector to **TAPE/OFF** position (with the cassette keys are released) to switch off the set.



CASSETTE RECORDER

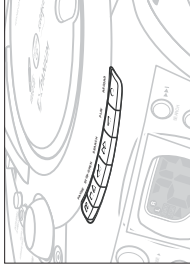
RECORDING FROM THE RADIO

1. Set the source selector to **FM** or **MW**.
2. Tune to the desired radio station using the **TUNING** knob.
3. Press **STOP•OPEN**  to open the cassette holder.
4. Insert a blank tape.
5. Press **RECORD**  to start recording.
6. For brief interruptions, press **PAUSE II**. To resume recording, press **PAUSE II** again.
7. To stop recording, press **STOP•OPEN** .





SYNCHRO START CD RECORDING

1. Set the source selector to **CD•VCD**.
2. Insert a CD and if desired, programme track numbers.
3. Press **STOP•OPEN**  to open the cassette holder.
4. Insert a blank cassette.
5. Press **RECORD**  to start recording.
 - Playing of the CD programme starts automatically from the beginning of the programme. It is not necessary to start the CD player separately.
6. For brief interruptions, press **PAUSE II**. To resume recording, press **PAUSE II** again.
7. To stop recording press **STOP•OPEN** .




To select and record a particular passage within a track

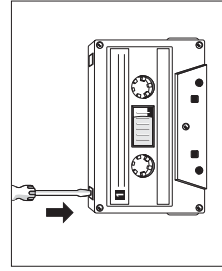
1. Press and hold **SEARCH**  or **▶▶** on the set to select a passage.
2. Put the CD player in **PAUSE II** position at the selected passage.
 - Recording will start from this exact point when you press **RECORD** .

KARAOKE

Microphone mixing

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

1. Connect microphones to the jacks .
 - Before connecting the microphone, set the microphone level with **KARAOKE 1/KARAOKE 2** volume knobs to the lower level to prevent howling sound.
2. Select **VCD** and press **▶II** to start playback.
3. Adjust the volume level of the source with **VOLUME** control.
4. Press **ECHO +/-** to adjust the **ECHO** level to the desired mixing level.
5. Start singing or talking through the microphone.
6. Press **KEY +/-** to select key tone if necessary.



CASSETTE RECORDING

General information on cassette recording

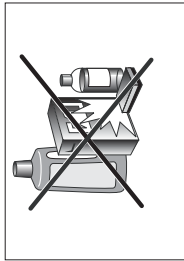
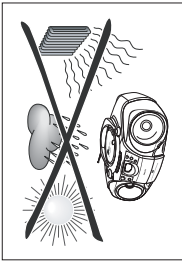
- Recording is permissible insofar as copyright or other rights of third parties are not infringed.
- This deck is not suitable for recording on **CHROME** (IEC II) or **METAL** (IEC IV) type cassettes. For recording you should use **NORMAL** type cassettes (IEC I) on which the tabs have not been broken.
- Check and tighten slack tape before use with a pencil, to avoid jamming the deck mechanism.
- The recording level is set automatically. Altering the **VOLUME** and **DYNAMIC BASS BOOST** controls will not affect the recording in progress.
- No recording will take place during the 3 seconds, when the leader tape passes the recorder heads.

Notes : -No recording will take place during the 7 seconds in the beginning of the tape.

- To prevent the accidental erasure of a recording, keep the cassette side to be safeguarded in front of you and break out the left tab. Recording on this side is no longer possible.

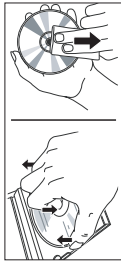
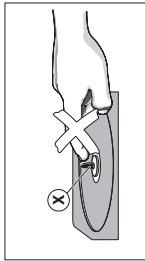
PRECAUTIONS & GENERAL MAINTENANCE

- Place the set on a hard, flat surface so that the system does not tilt.
- Do not expose the set, CDs, batteries or cassettes to humidity, rain, sand or excessive heat caused by heating equipment or direct sunlight.
- Always shut the CD door to keep the CD compartment dust-free. To clean, dust the compartment with a soft dry cloth.
- Do not cover the set. Adequate ventilation with a minimum gap of 15 cms between the ventilation holes and surrounding surfaces is necessary to prevent heat build-up.
- The mechanical parts of the set contain self-lubricating bearings and must not be oiled or lubricated.
- To clean the set, use a soft, slightly dampened chamois leather. Do not use any cleaning agents containing alcohol, ammonia, benzene or abrasives as these may harm the housing.



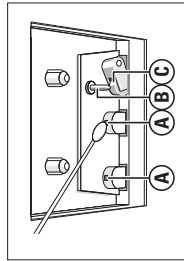
CD PLAYER AND CD HANDLING

- The lens of the CD player should *never be touched*.
- Sudden changes in the surrounding temperature can cause condensation to form and the lens of your CD player to cloud over. Playing a CD is then not possible. Do not attempt to clean the lens but leave the set in a warm environment until the moisture evaporates.
- Use only Digital Audio CDs.
- To take a CD out of its box, press the centre spindle while lifting the CD.
- Always pick up the CD by the edge and replace the CD back in its box after use to avoid scratching and dust.
- To clean the CD, wipe in a straight line from the centre towards the edge using a soft, lint-free cloth. Do not use cleaning agents as they may damage the disc.
- *Never write* on a CD or attach stickers to it.



TAPE DECK MAINTENANCE

- To ensure a good recording and playback of the tape deck, clean parts (A), (B) and (C) show in the diagram below, after approx. 50 hours of operation, or on average once a month. Use a cotton bud slightly moistened with alcohol or a special head cleaning fluid to clean the deck.
- Open the cassette holder by pressing **STOP•OPEN** (A).
 - Press **PLAY** (B) and clean the rubber pressure rollers (C).
 - Press **PAUSE II** and clean the magnetic heads (A) and also the capstans (B).
 - After cleaning, press **STOP•OPEN** (A).



Cleaning of the heads can also be done by playing a cleaning cassette through once.

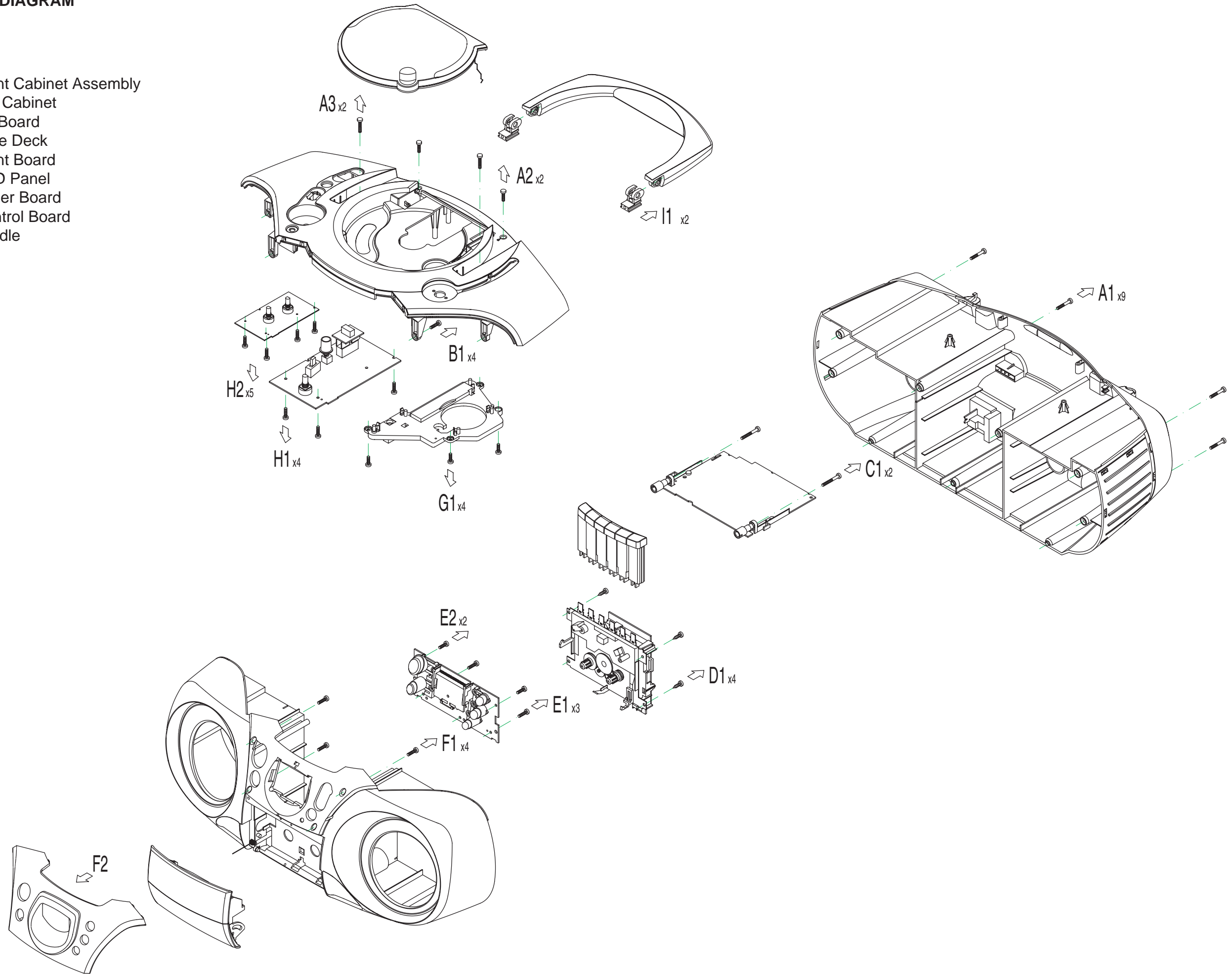
If a fault occurs, first check the points listed below before taking the set for repair. If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

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

Problem	Solution
CD/VCD OPERATION "NO DISC" is displayed	<ul style="list-style-type: none"> - 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 readable disc or correct recorded format MP3-CD.
No picture on TV screen No colour on TV	<ul style="list-style-type: none"> - Connect the cable between the system and TV. - Change the system to the respective PAL or NTSC setting.
RADIO RECEPTION Radio reception is poor	<ul style="list-style-type: none"> - If the signal is too weak, adjust the antenna for better reception. - Increase the distance between the Receiver and your TV or VCR.
TAPE OPERATION/RECORDING Recording or playback cannot be made	<ul style="list-style-type: none"> - Clean deck parts, see "Maintenance". - Use only NORMAL (IEC I) tape. - Apply a piece of adhesive tape over the missing tab space.
GENERAL The system does not react when buttons pressed/set does not work/no display on LCD. Sound cannot be heard or is of poor quality The remote control does not function properly	<ul style="list-style-type: none"> - Slide the source selector to TAPE/OFF. Remove and reconnect the AC power plug for 30 seconds and switch on the system again. - Adjust the volume. - Make sure the MP3-CD was recorded within 32-320 kbps (128kbps preferably) with sampling frequencies at 8 - 48 kHz (44.1kHz preferably). - 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 in the direction of the system's IR sensor.

DISASSEMBLY DIAGRAM

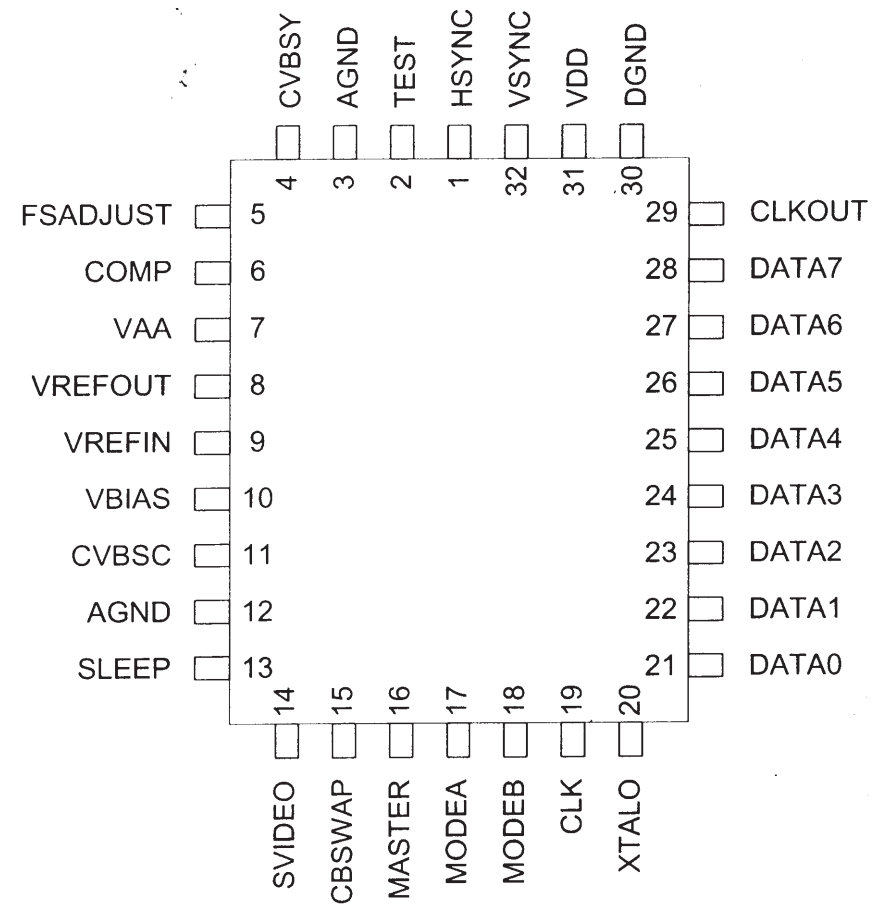
- A.Remove Front Cabinet Assembly
- B.Remove Top Cabinet
- C.Remove AF Board
- D.Remove Tape Deck
- E.Remove Front Board
- F. Remove LCD Panel
- G.Remove Tuner Board
- H.Remove Control Board
- I. Remove Handle



BLOCK DIAGRAM OF INTEGRATED CIRCUIT

SPCA711A

PINOUT and DESCRIPTION



(Table 1.)

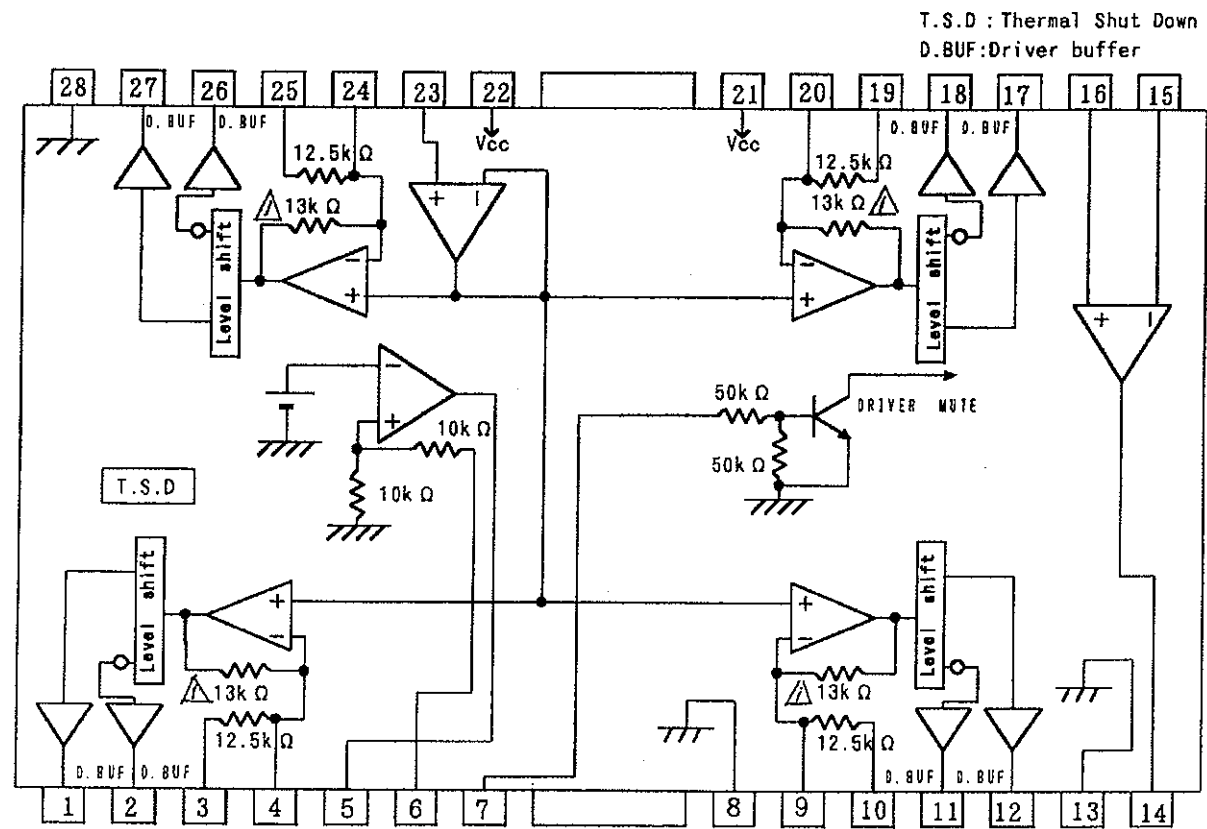
Mnemonic	PIN No.	Type	Description
DATA[7:0]	21 - 28	I	YCrCb pixel inputs. They are latched on the rising edge of CLK. YCrCb input data conform to CCIR 601.
CLKOUT	29	O	Pixel clock output
VSYNC	32	I/O	Vertical sync input/output. VSYNC is latched/output following the rising edge of CLK.
HSYNC	1	I/O	Horizontal sync input/output. HSYNC is latched/output following the rising edge of CLK.
MASTER	16	I	Master/slave mode selection. A logical high for master mode operation. A logical 0 for slave mode operation.
CBSWAP	15	I	Cr and Cb pixel sequence configuration pin. A logic high swap the

Mnemonic	PIN No.	Type	Description
			Cr and Cb sequence.
SVIDEO	14	I	SVIDEO select input pin. A logic high selects Y/C output. A logic low selects composite video output.
SLEEP	13	I	Power save mode. A logic high on this pin puts the chip into power-down mode. This pin is equal to reset pin. An external logic high pulse should input to the pin when power on.
MODEA	17	I	Mode configuration pin.
MODEB	18	I	Mode configuration pin.
CLK	19	I	27MHz crystal oscillator input. A crystal with 27MHz clock frequency can be connected between this pin and XTALO.
XTALO	20	O	Crystal oscillator output.
TEST	2	I	Test pin. These pins must be connected to DGND.
VREFIN	9	I	Voltage reference input. An external voltage reference must supply, typical 1.235V to this pin. A 0.1µF ceramic capacitor must be used to de-couple this input to GND. The decoupling capacitor must be as closed as possible to minimize the length of the lead. This pin may be connected directly to VREFOUT.
VREFOUT	8	O	Voltage reference output. It generates typical 1.2V voltage reference and may be used to drive VREFIN pin directly.
FSADJ	5	-	Full-Scale adjust control pin. The Full-Scale current of D/A converters can be adjusted by connecting a resistor (RSET) between this pin and ground.
COMP	6	-	Compensation pin. A 0.1µF ceramic capacitor must be used to bypass this pin to VAA. The lead length must be kept as short as possible to avoid noise.
VBIAS	10	-	DAC bias voltage. Potential normally 0.7V less than COMP.
VDD	31	-	Digital power pin
DGND	30	-	Digital ground pin
CVBSY	4	O	Composite/Luminance output. This is a high-impedance current source output. The output format can be selected by the PAL pin. The CVBSY can drive a 37.5 Ω-load.
CVBSC	11	O	Composite/Chroma output. This is a high impedance current source Output. The output format can be selected by the PAL pin. The pin can drive a 37.5 Ω load.

BLOCK DIAGRAM OF INTEGRATED CIRCUIT

MM1469AH

SPCA718A



4. SIGNAL DESCRIPTIONS

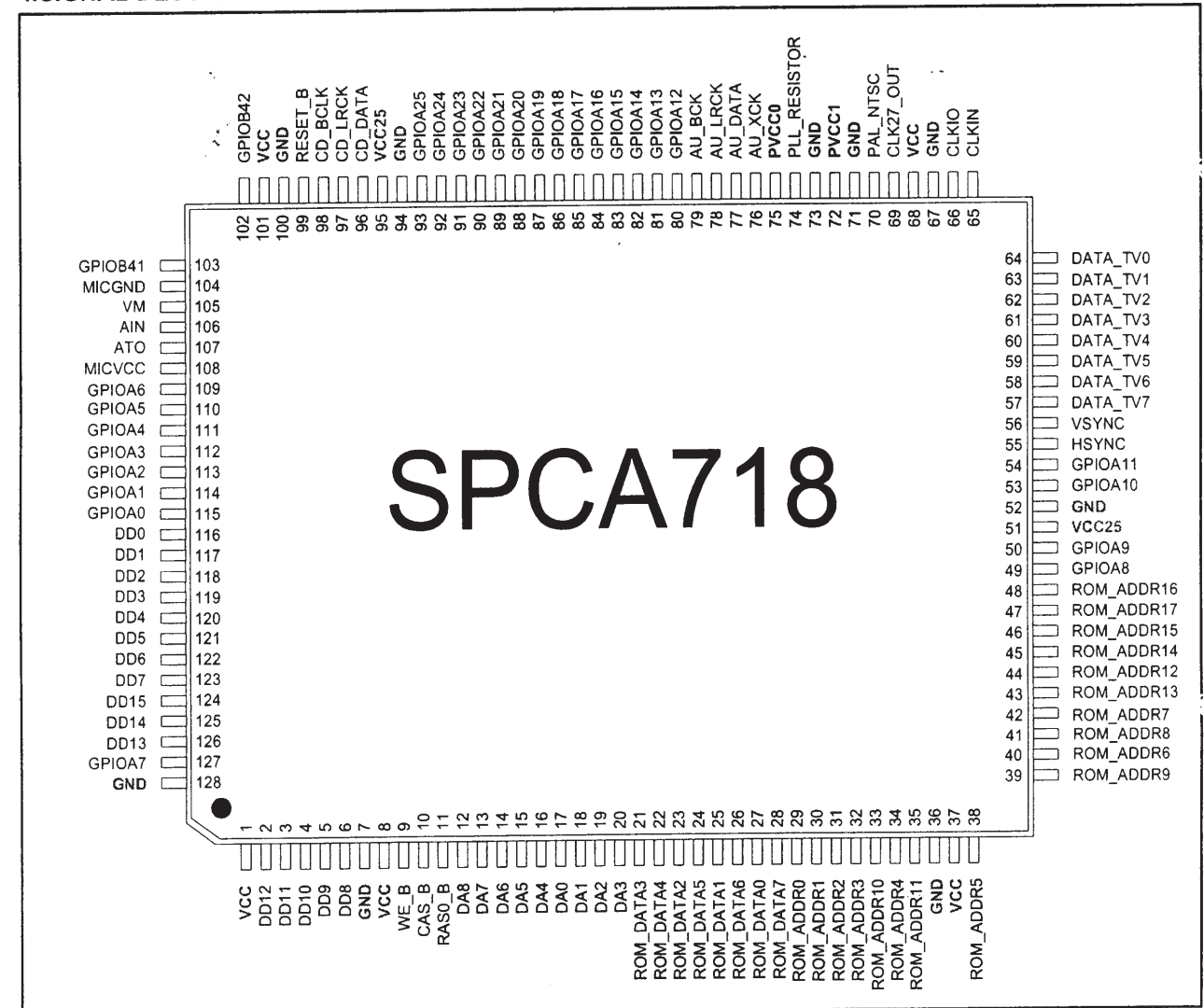
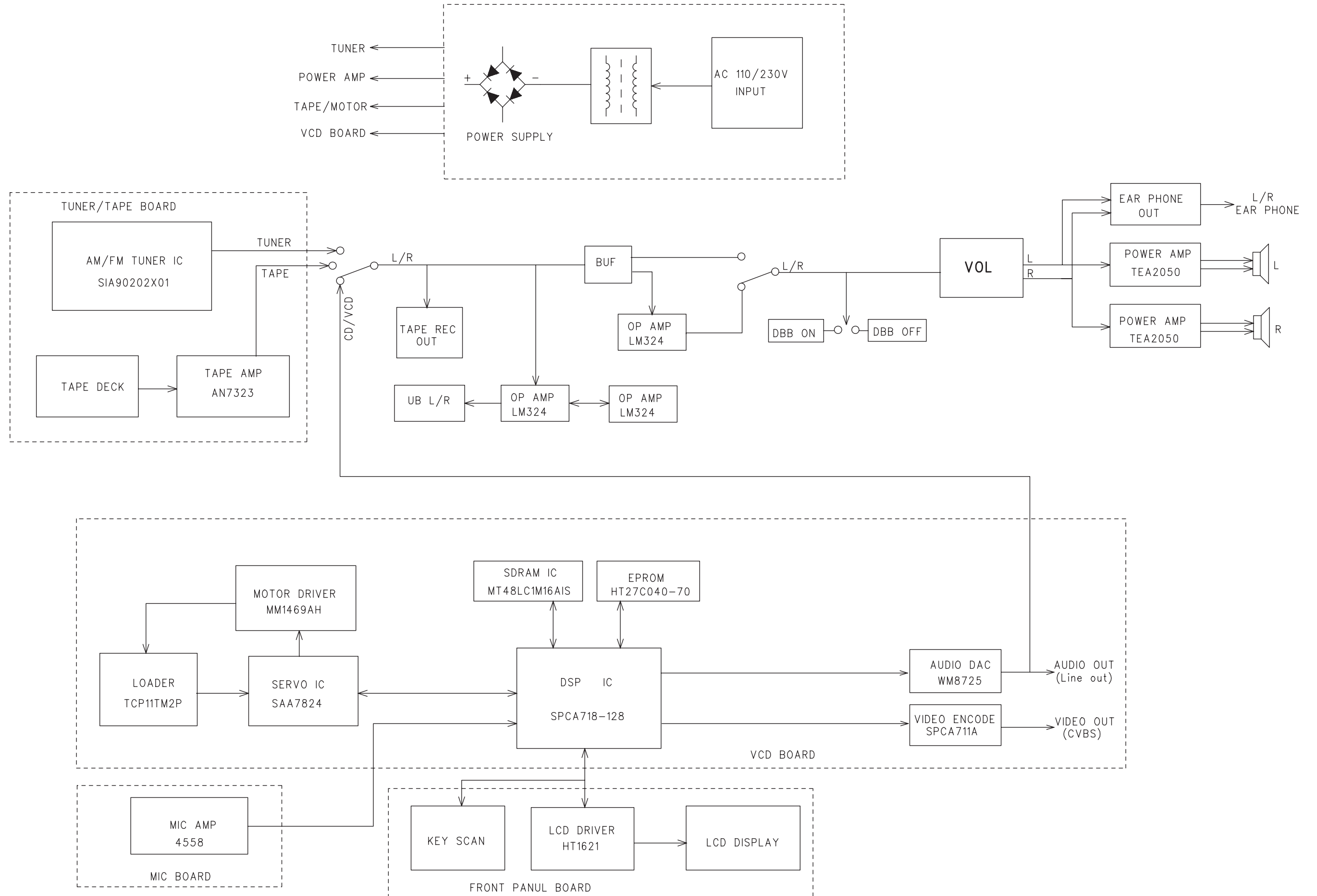
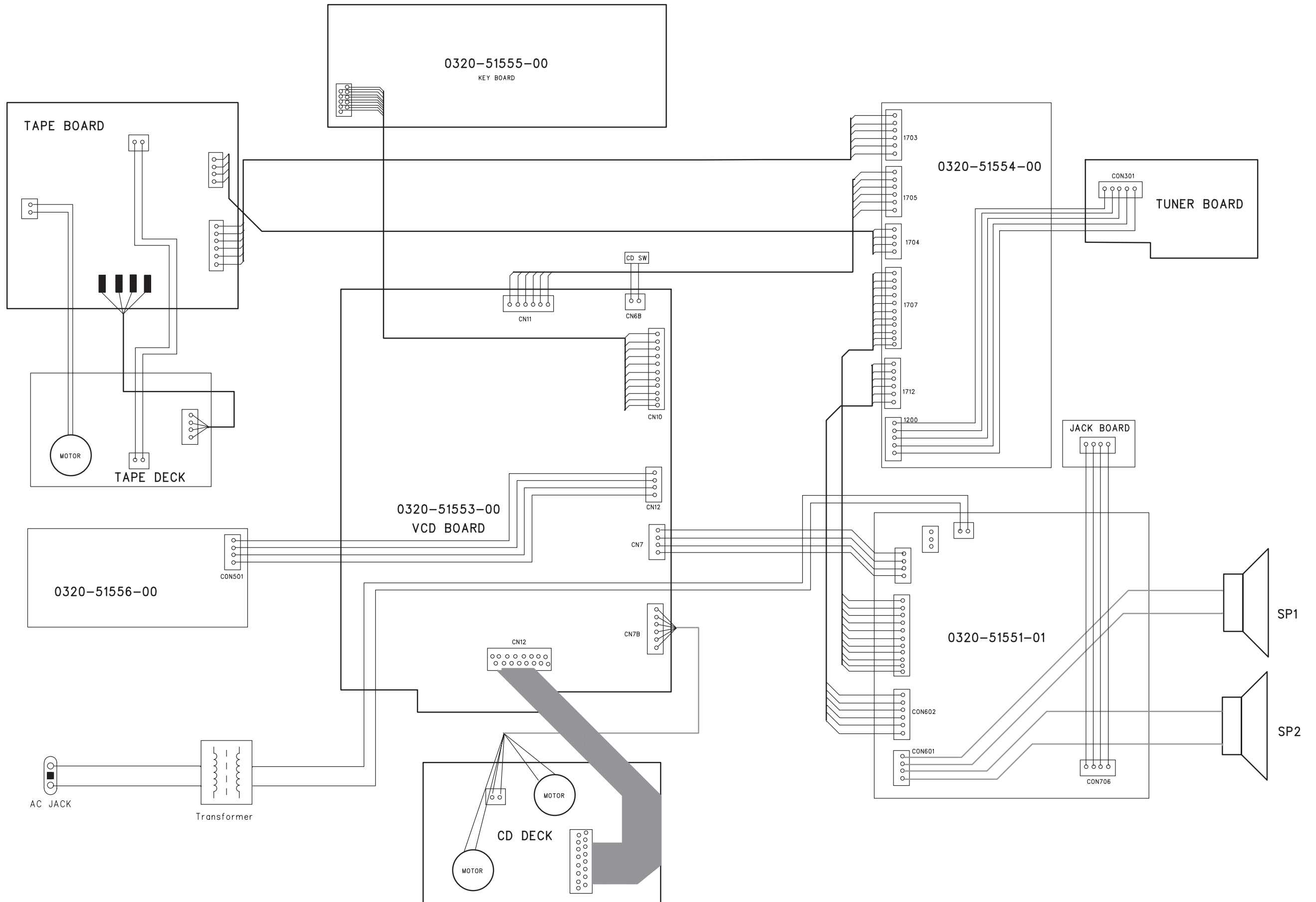


Figure 4-1 SPCA718A Pin Map

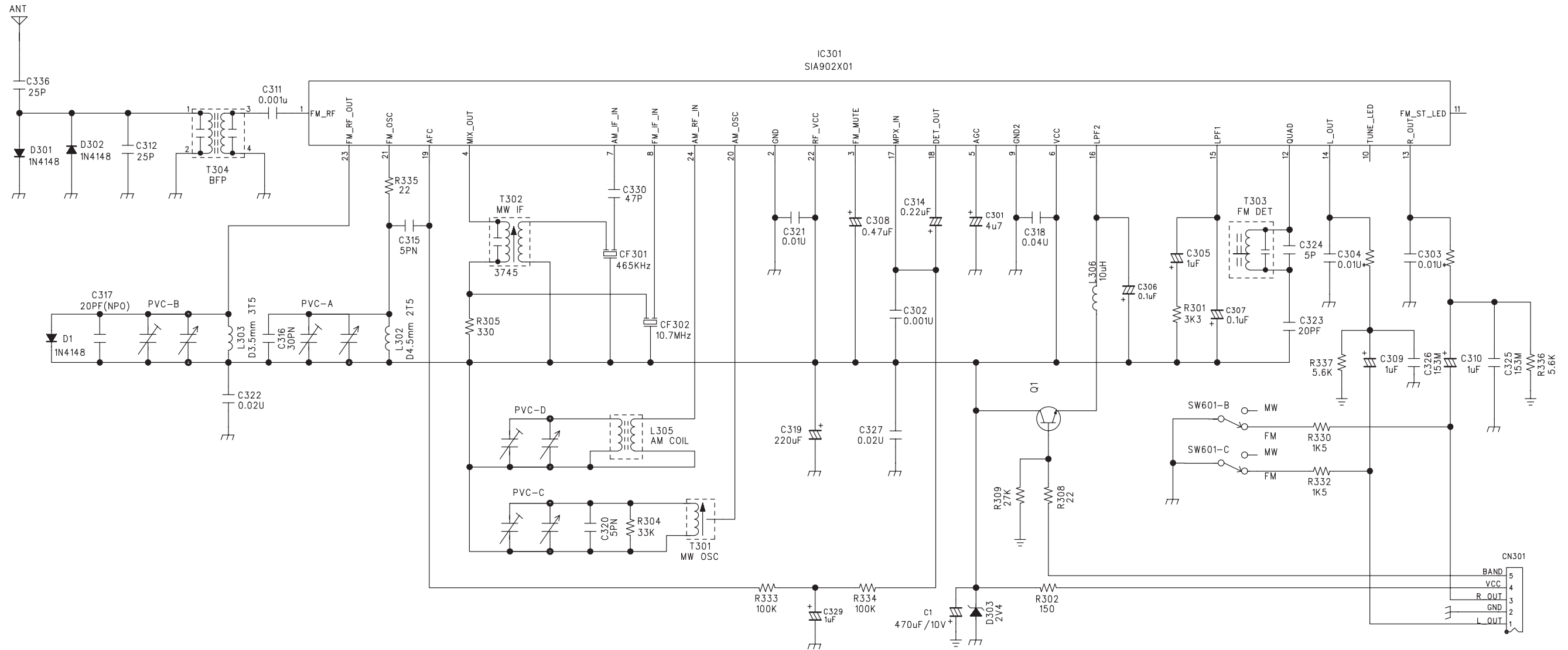
BLOCK DIAGRAM



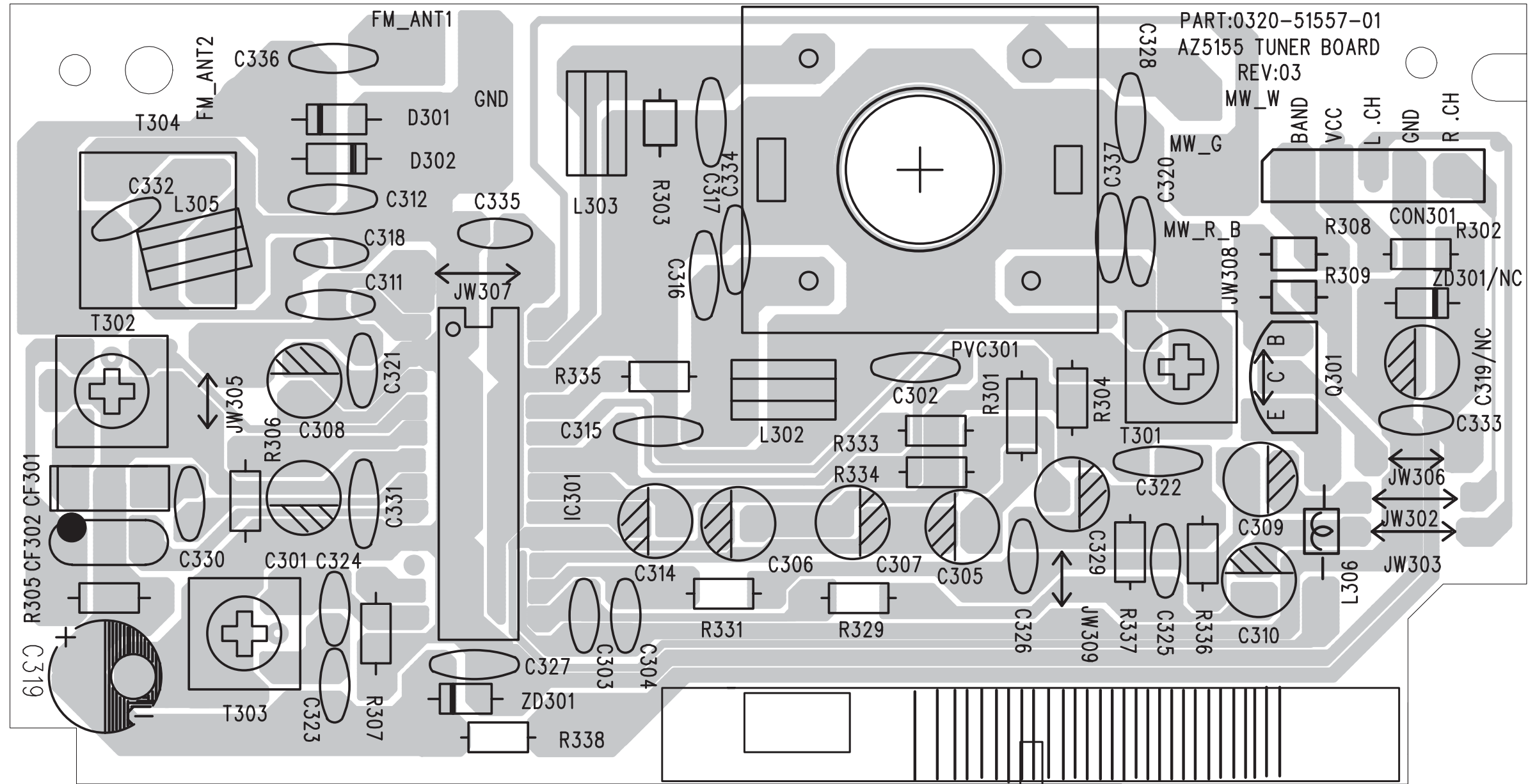
WIRING DIAGRAM



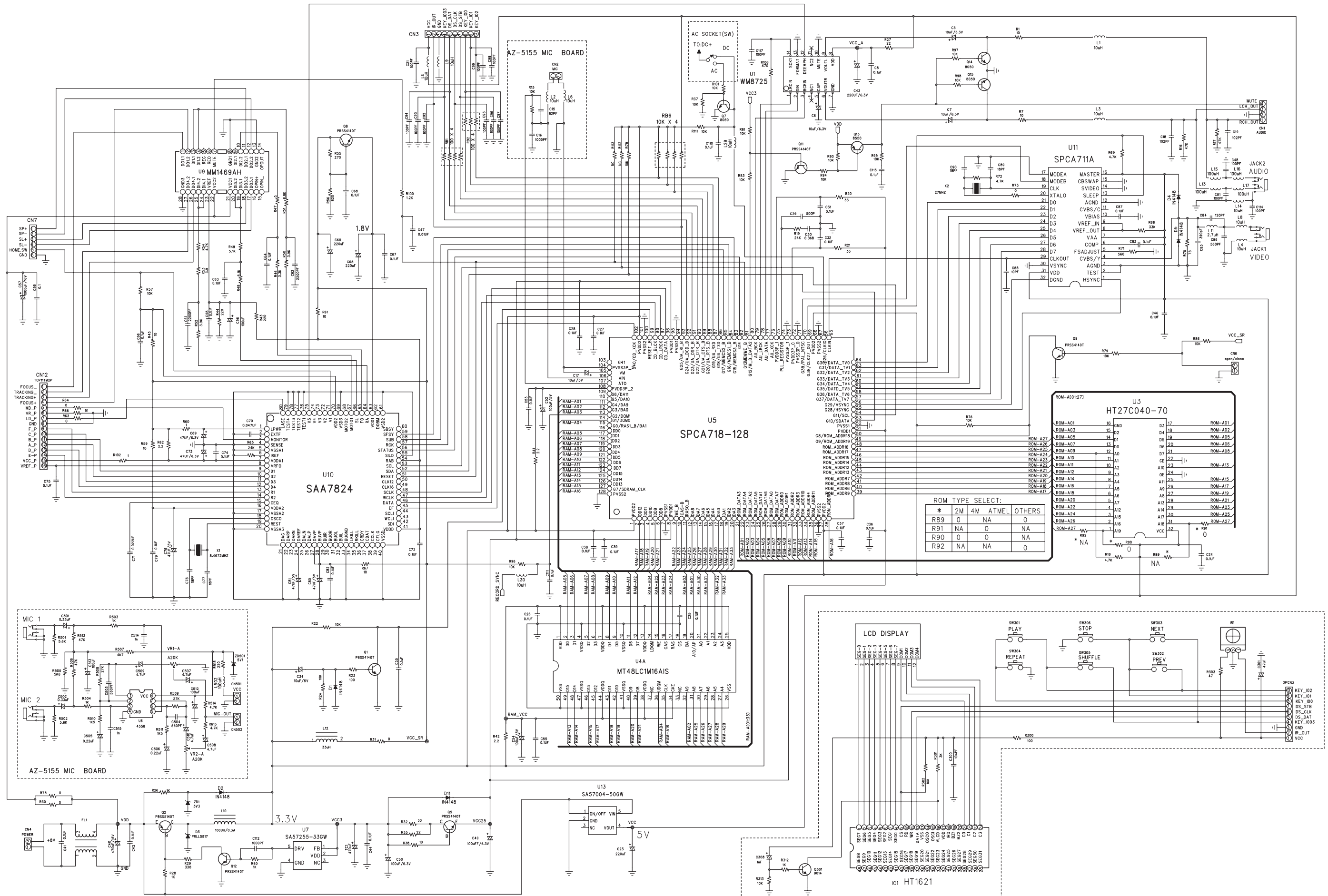
TUNER BOARD - CIRCUIT DIAGRAM



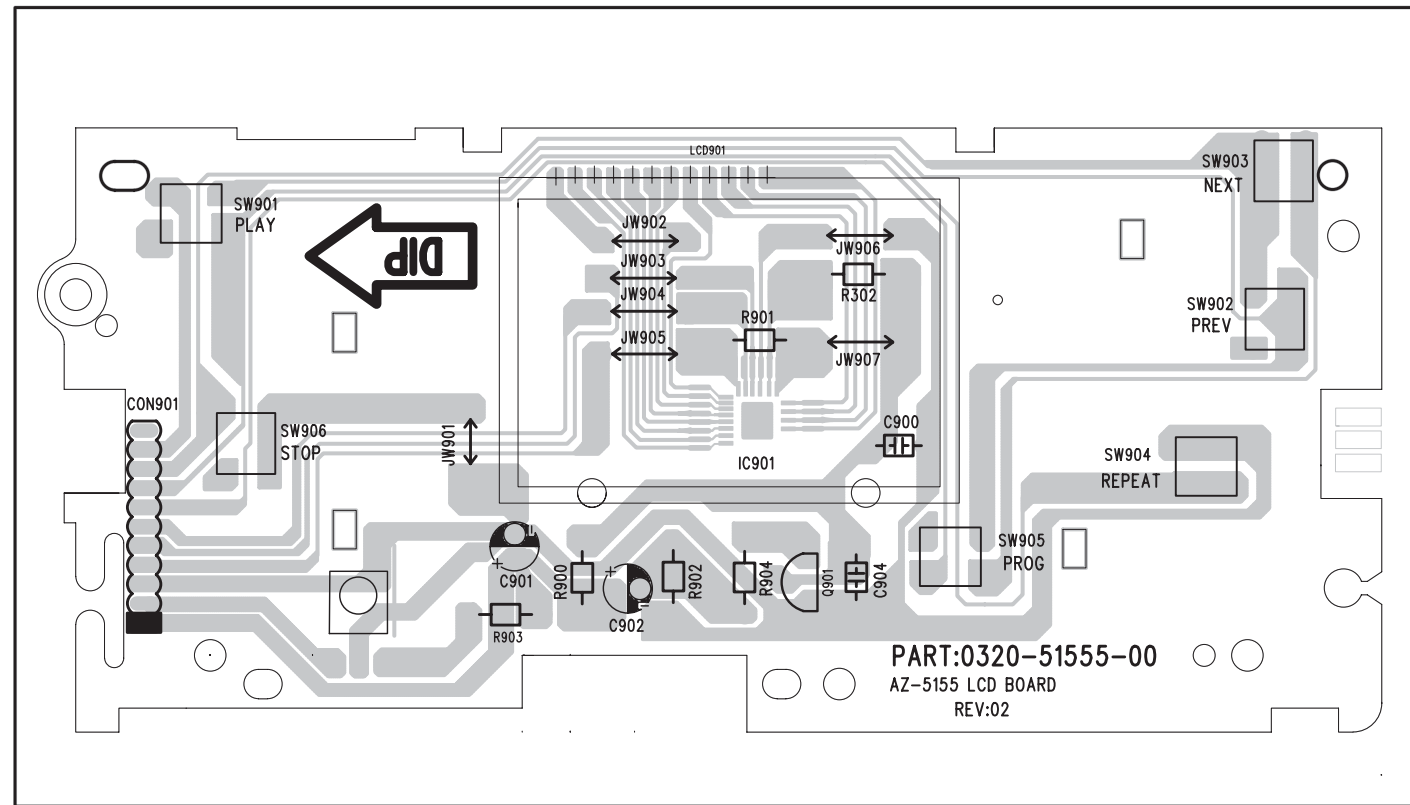
TUNER BOARD - LAYOUT DIAGRAM



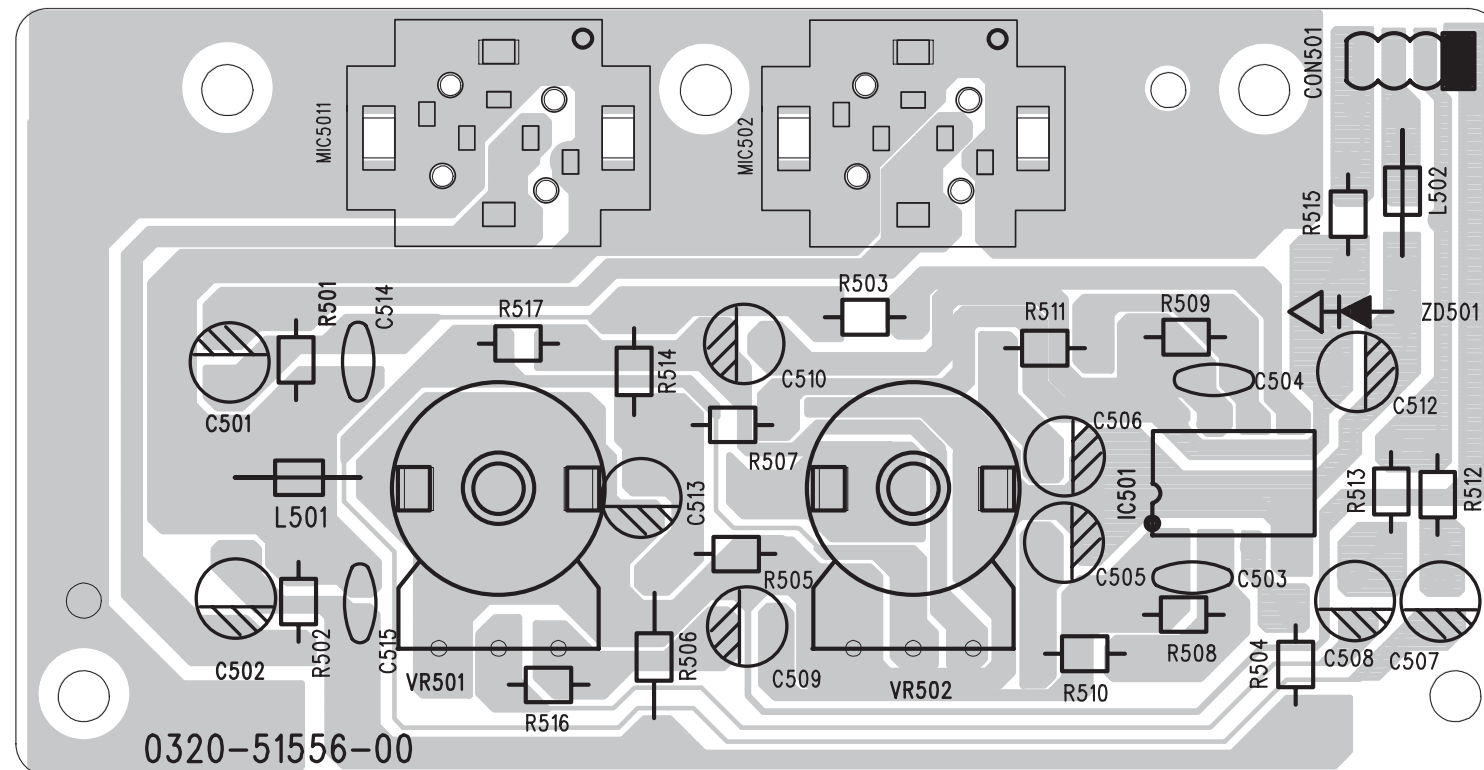
VCD BOARD/ LCD BOARD/ KARAOKE BOARD - CIRCUIT DIAGRAM



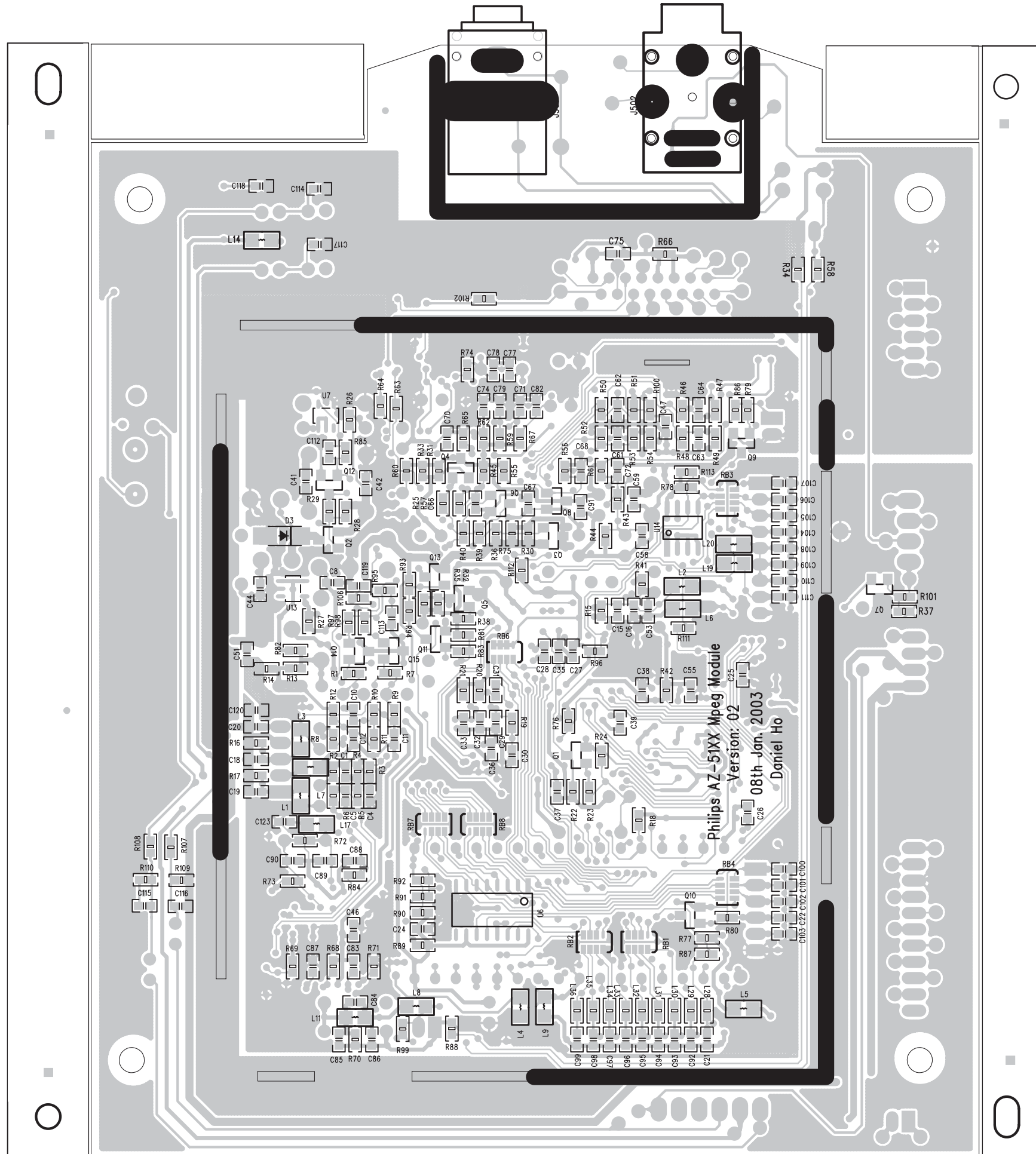
LCD BOARD - LAYOUT DIAGRAM



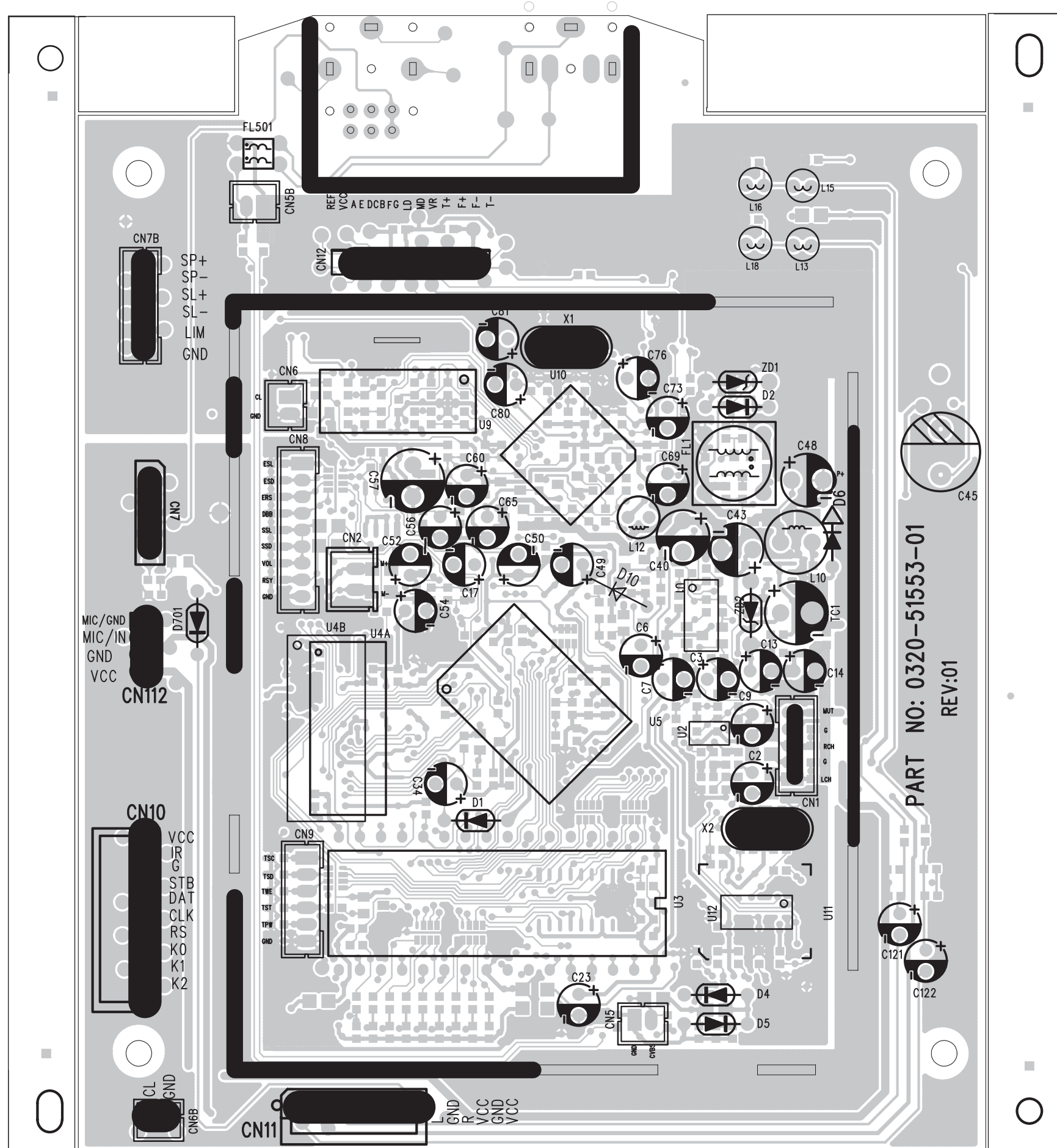
KARAOKE BOARD - LAYOUT DIAGRAM



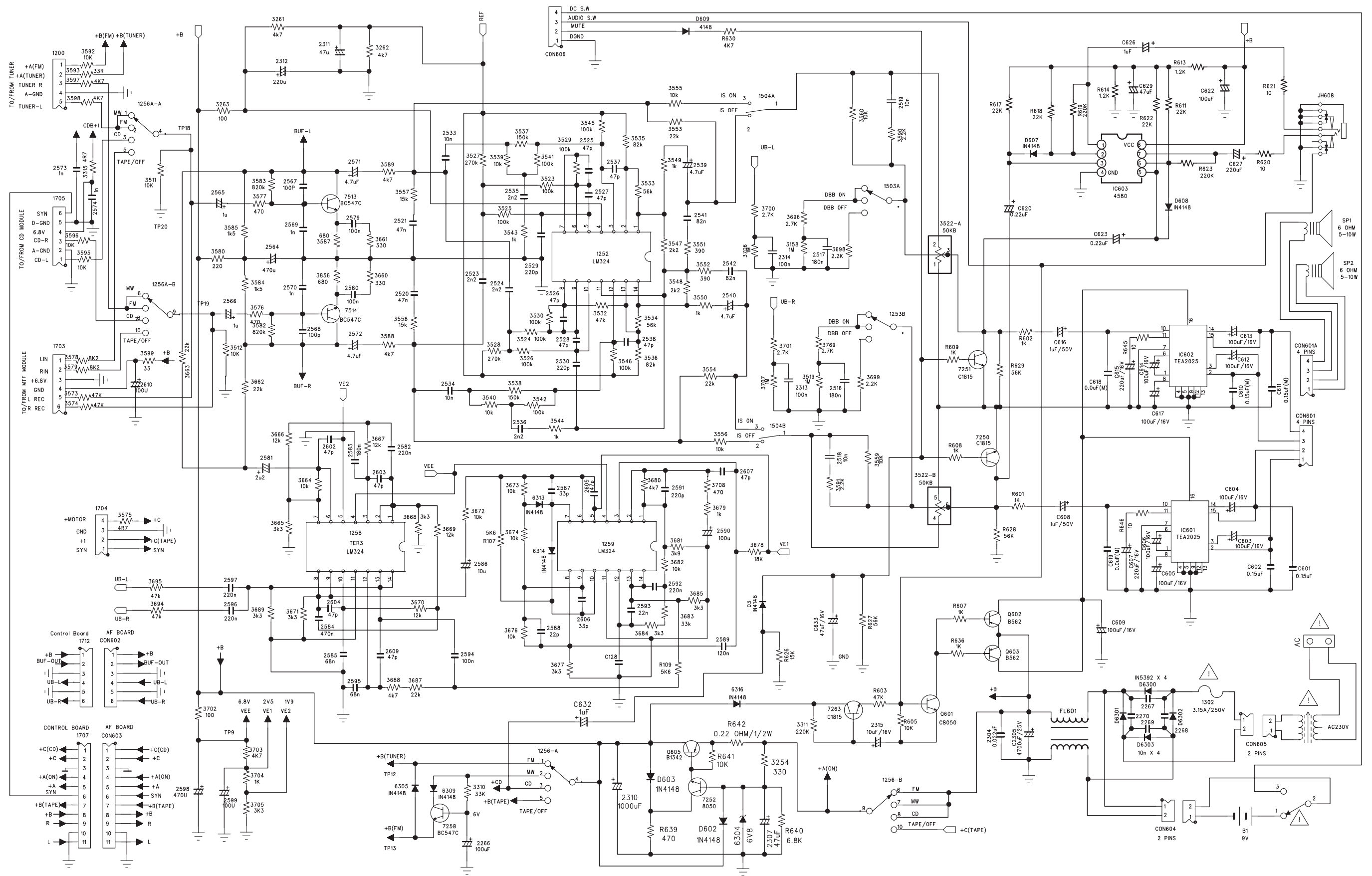
VCD BOARD - LAYOUT DIAGRAM



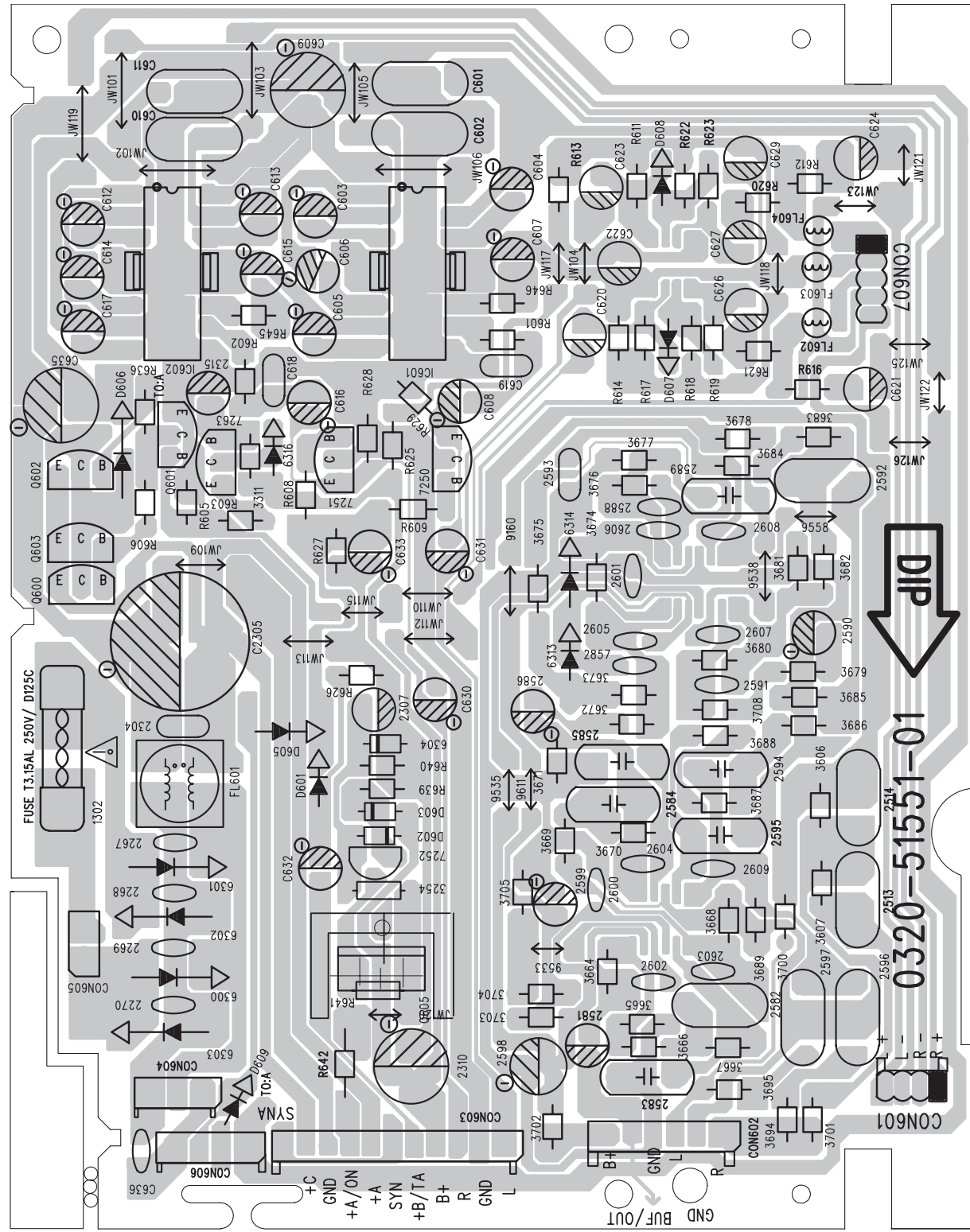
VCD BOARD - LAYOUT DIAGRAM



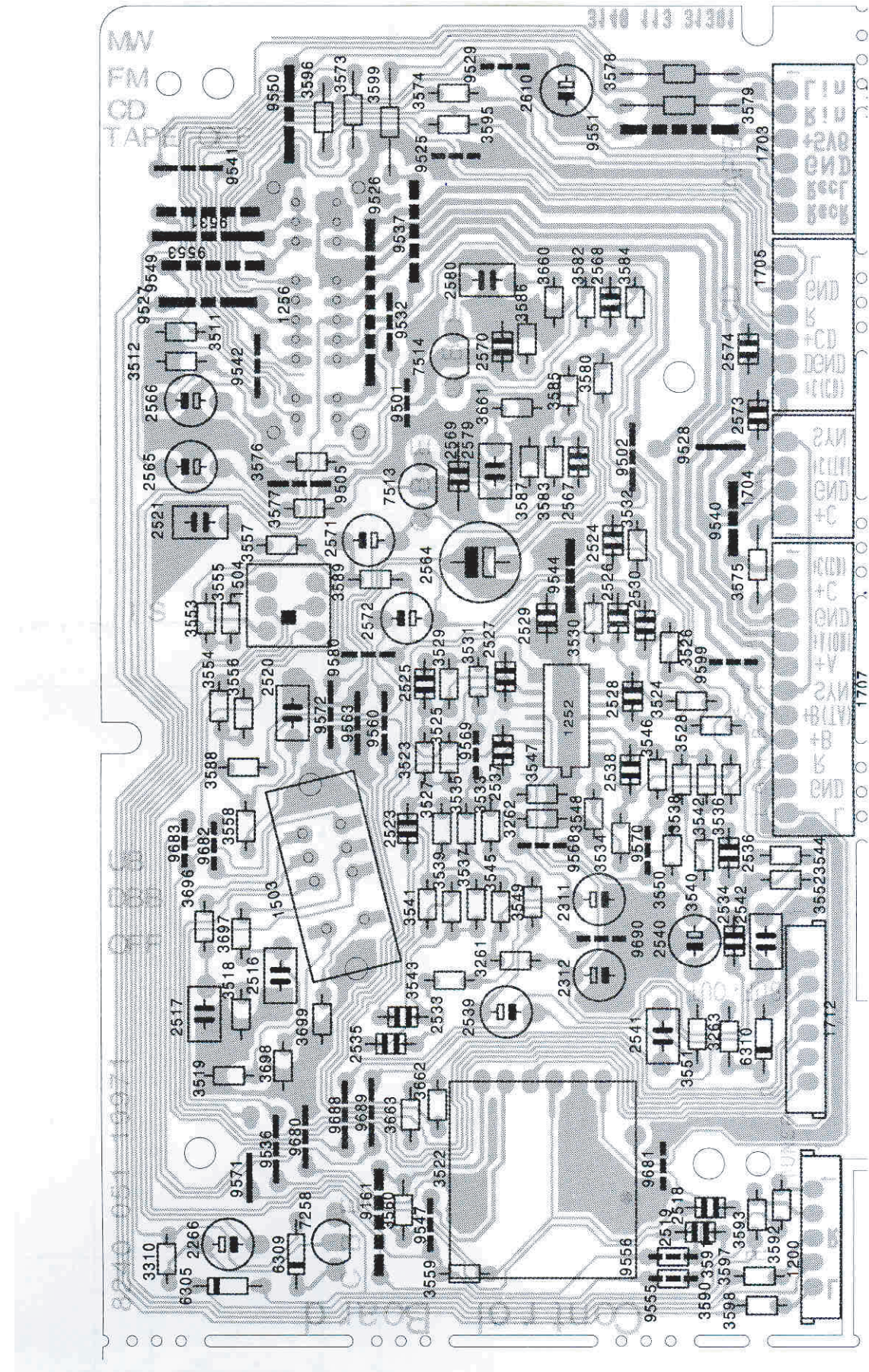
AF BOARD AND CONTROL BOARD - CIRCUIT DIAGRAM



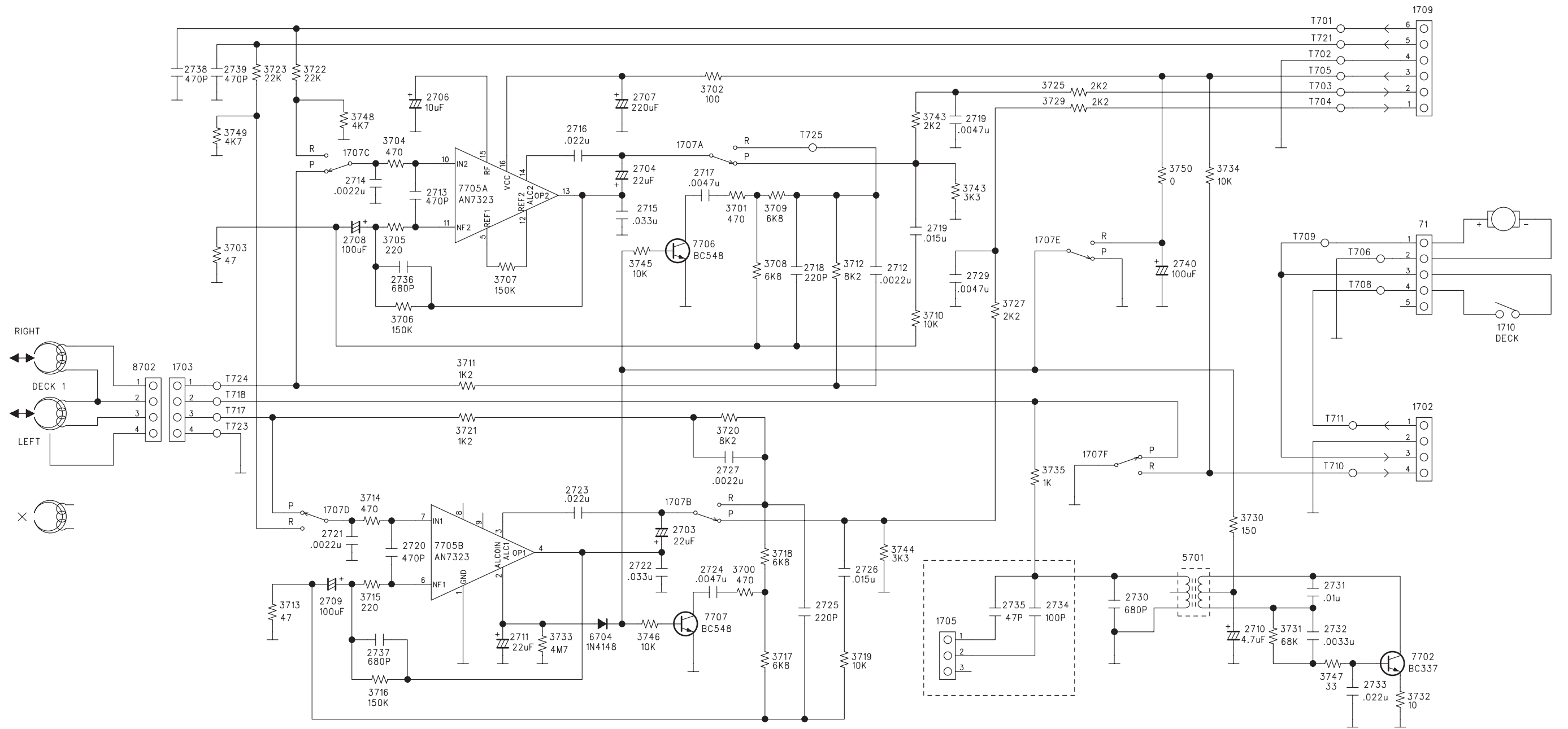
AF BOARD - LAYOUT DIAGAM



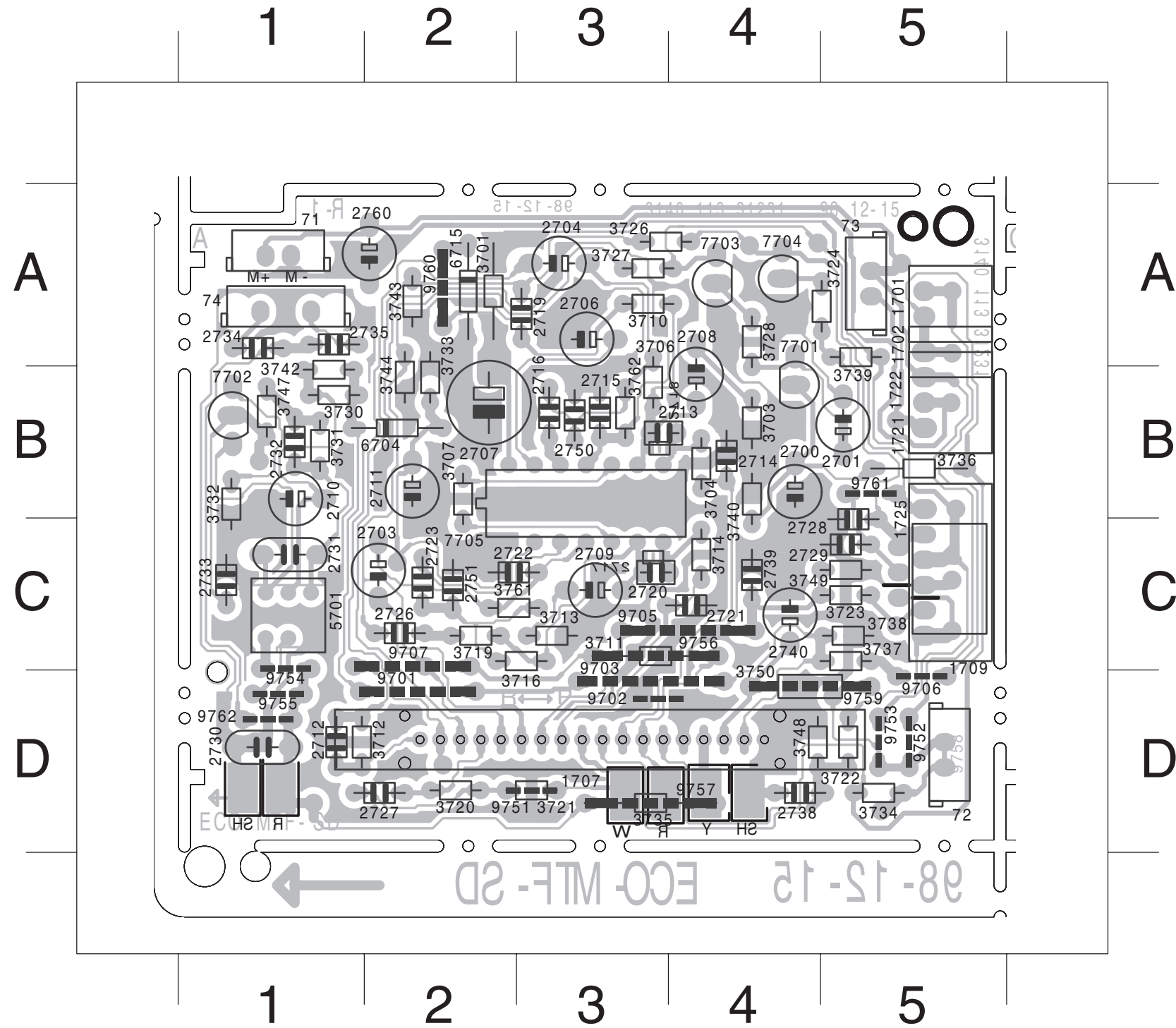
CONTROL BOARD - LAYOUT DIAGRAM



CASSETTE BOARD - CIRCUIT DIAGRAM



CASSETTE BOARD - LAYOUT DIAGRAM



71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 B 1	T705 B 5
1722 B 5	2740 C 4	3743 A 2	T706 B 5
1725 C 5	2750 B 3	3744 B 2	T709 A 5
2700 B 4	2751 C 2	3747 B 1	T710 C 1
2701 B 5	2760 A 2	3748 D 4	T711 B 5
2703 C 2	3701 A 2	3749 C 5	T712 C 2
2704 A 3	3703 B 4	3750 D 4	T713 A 5
2706 A 3	3704 B 4	3761 C 2	T714 D 5
2707 B 2	3706 B 3	3762 B 3	T715 D 5
2708 B 4	3707 B 2	5701 C 1	T716 D 1
2709 C 3	3710 A 3	6704 B 2	T719 B 1
2710 B 1	3711 C 3	6715 A 2	T720 A 5
2711 B 2	3712 D 1	7701 B 4	T721 C 5
2712 D 1	3713 C 3	7702 B 1	T722 C 2
2713 B 3	3714 C 4	7703 A 4	T725 D 2
2714 B 4	3716 C 3	7704 A 4	T7707 A 4
2715 B 3	3719 C 2	7705 B 3	T7708 A 4
2716 B 3	3720 D 2	9701 D 2	
2717 C 3	3721 D 3	9702 D 3	
2718 B 3	3722 D 5	9703 D 3	
2719 A 3	3723 C 5	9705 C 4	
2720 C 3	3724 A 5	9706 D 5	
2721 C 4	3726 A 3	9707 C 2	
2722 C 2	3727 A 3	9751 D 3	
2723 C 2	3728 A 4	9752 D 5	
2726 C 2	3730 B 1	9753 D 5	
2727 D 2	3731 B 1	9754 C 1	
2728 C 5	3732 B 1	9755 D 1	

CASSETTE ADJUSTMENT

Adjustment	Cassette	SK	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

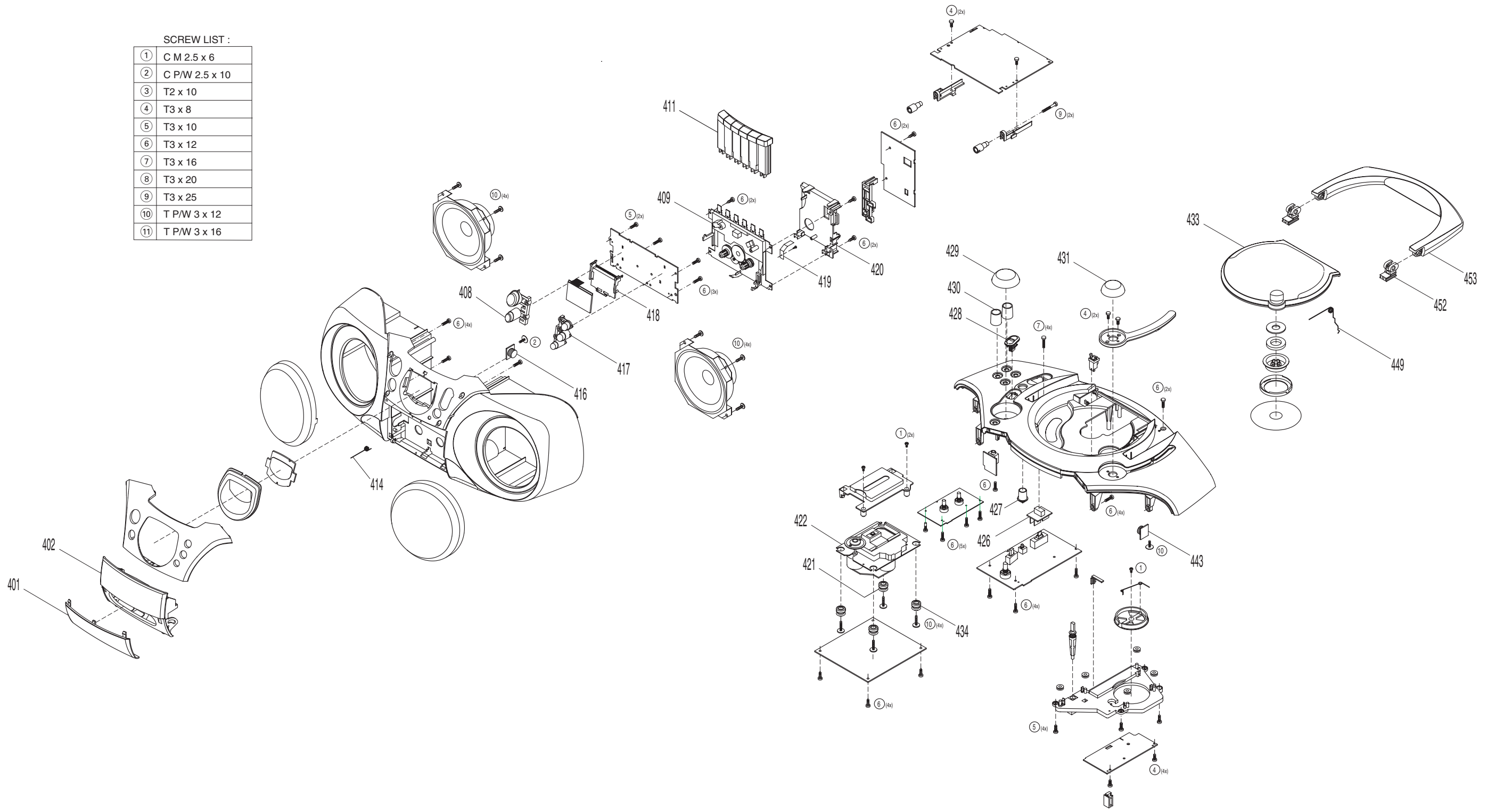
* SBC420 : 4822 397 30071

**a The maximum permissible speed deviation is ± 3%.
Moreover, the wow and flutter value can be read.

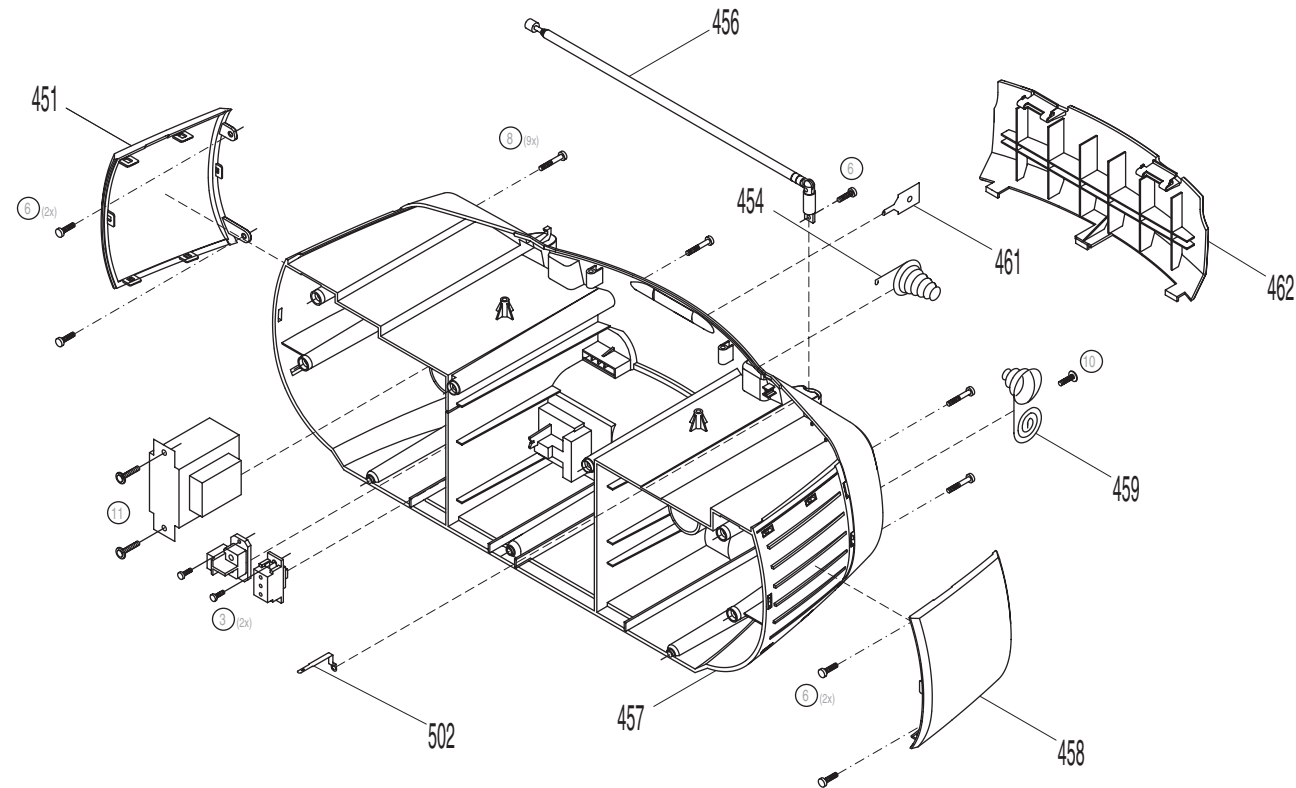
EXPLODED VIEW DIAGRAM - CABINET

SCREW LIST :

①	C M 2.5 x 6
②	C P/W 2.5 x 10
③	T2 x 10
④	T3 x 8
⑤	T3 x 10
⑥	T3 x 12
⑦	T3 x 16
⑧	T3 x 20
⑨	T3 x 25
⑩	T P/W 3 x 12
⑪	T P/W 3 x 16



EXPLODED VIEW DAIGARM - CABINET

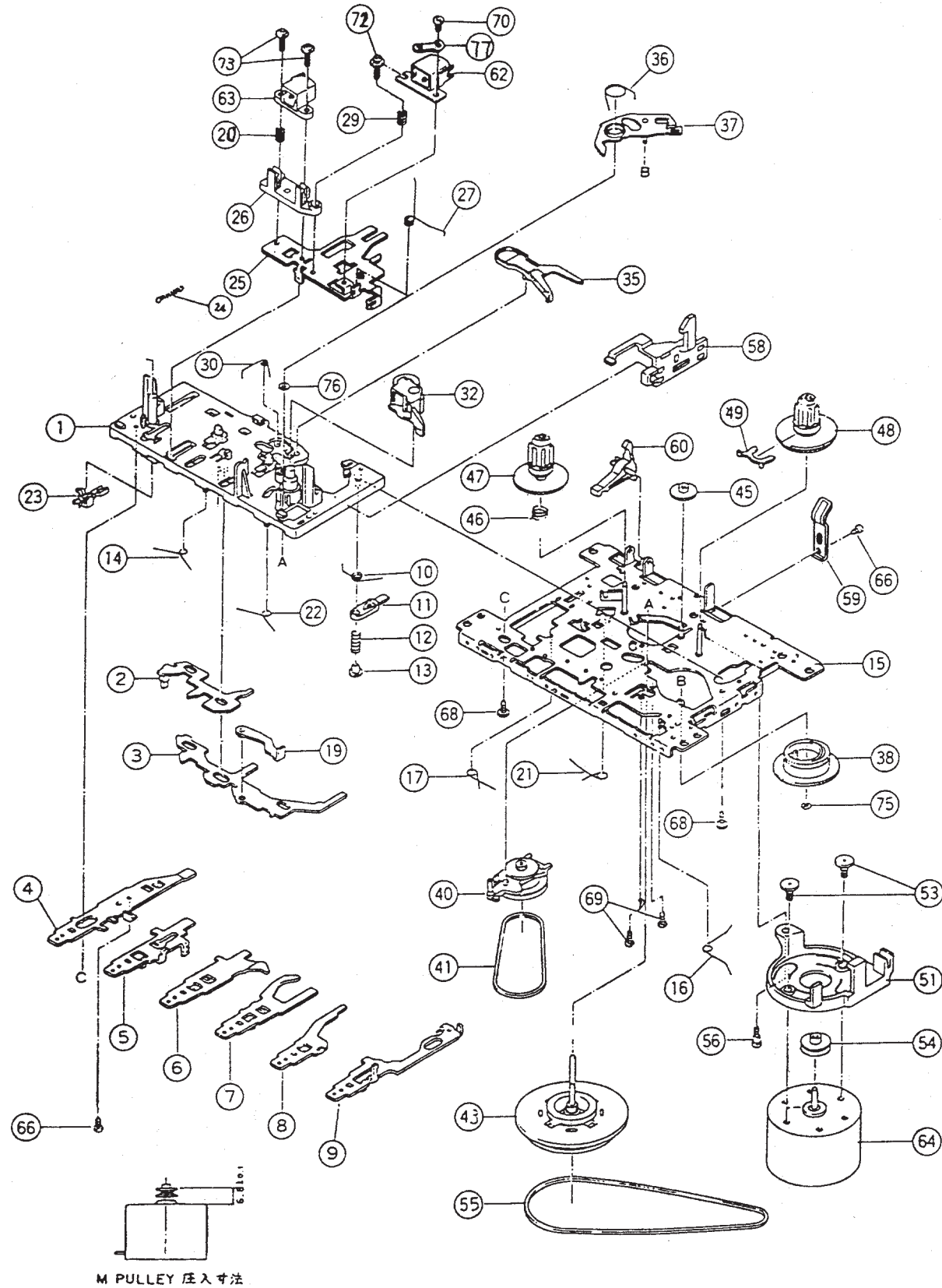


MECHANICAL PARTSLIST - CABINET

401	9965 000 20742	CASS LENS
402	9965 000 20741	DOOR CASS
408	9965 000 20738	BUTTON SET-PLAY
409	9965 000 14240	TAPE DECK TK20FX-V682-001
411	9965 000 20737	CASS KNOB SET
414	9965 000 20731	SPRING-CASS DOOR
417	9965 000 20739	BUTTON SET-MODE
418	9965 000 20740	LCD BKT
419	9965 000 08506	REC SPRING
420	3140 114 20430	BRACKET ECO-MTF-SD
421	9965 000 20540	DAMPER RUBBER 30JIS BLK
422	9965 000 20735	TCP11TK2-P CD MECH.(THOMSON)
426	9965 000 20744	FUNCTION KNOB
427	9965 000 20746	IS KNOB
428	9965 000 20747	DBB KNOB
429	9965 000 20745	VOL KNOB
430	9965 000 20750	KARAOKAE VOL KNOB
431	9965 000 20748	TUN.KNOB
433	9965 000 20736	CD DOOR
434	9965 000 20541	DAMPER RUBBER 40JIS GREY
443	4822 529 10322	DAMPER ASSY
449	9965 000 20730	SPRING-CD
452	9965 000 20729	HANDLE BKT
453	9965 000 20749	HANDLE
454	9965 000 20733	BATTERY SPRING(+)
456	9965 000 20732	SWIVEL ANTENNA
459	9965 000 20734	BATTERY SPRING(+/-)
461	9965 000 08510	COMP.SPRING (-)
462	9965 000 20743	DOOR BATT.
	9965 000 14258	REMOTE BATT. DOOR

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

EXPLODED VIEW DIAGRAM - TAPE DECK



MECHANICAL PARTSLIST - TAPE DECK

32	4822 403 20244	Roller Arm Assy
41	4822 358 31323	F. Belt
55	4822 358 31322	Main Belt
58	4822 403 71219	Eject Belt
62	4822 249 10475	R/P Head
63	4822 249 10531	E. Head
64	4822 361 21599	Motor EG-530AD-2B

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

ELECTRICAL PARTSLIST**- MISCELLANEOUS -**

1256	9965 000 20763	SLIDE SWITCH
1302	⚠ 9965 000 20760	FUSE 3,15A 250V
1503	9965 000 20761	SLIDE SWITCH
1504	9965 000 20762	SLIDE SWITCH
1707	4822 277 11504	PUSH-SWITCH
9556	9965 000 20764	ROTARY SWITCH
CD SW	9965 000 20752	DOOR LATCH SWITCH
IR901	9965 000 20561	TSOP1838 IR RECEIVER
J501	9965 000 20544	EARPHONE JACK
J502	9965 000 20543	STEREO EARPHONE JACK
MIC501	9965 000 20765	3,5MM PHONE JACK
MIC502	9965 000 20765	3,5MM PHONE JACK
SW901	9965 000 20557	TACT SWITCH
SW902	9965 000 20557	TACT SWITCH
SW903	9965 000 20557	TACT SWITCH
SW904	9965 000 20557	TACT SWITCH
SW906	9965 000 20557	TACT SWITCH
	⚠ 2422 070 98151	MAINSCORD EUR 1M5 BK B
	4822 277 30971	SWITCH
	⚠ 9965 000 08577	AC SOCKET
	9965 000 10684	FERRITE BAR
	9965 000 20751	FLAT CABLE (FCC) 16P
	9965 000 20755	LCD DISPLAY
	9965 000 20768	MINIATURE PHONE JACK
	⚠ 9965 000 20769	AC TRANSFORMER
	9965 000 20770	4" SPK,6 OHM 5-8W

- CAPACITORS & RESISTORS -

PVC301	9965 000 20563	PVC 20P-160P/20X2
RB1	9965 000 20553	100OHM X4 RESISTOR ARRAY
RB2	9965 000 20553	100OHM X4 RESISTOR ARRAY
RB6	9965 000 20554	10 KOHM X4 RESISTOR ARRAY
VR501	9965 000 20766	VR 100KB
VR502	9965 000 20766	VR 100KB

- COILS & FILTERS -

5701	4822 157 10371	COIL
CF301	9965 000 16797	CERAMIC FILTER SFU465B
CF302	9965 000 16789	LT10,7MS CER,FILTER
L1	9965 000 20549	10μH CHIP INDUCTOR
L10	9965 000 20753	100μH 0,3A INDUCTOR
L11	9965 000 20550	2,7μH SMD COIL
L12	9965 000 20754	33μH CHOKE COIL
L14	9965 000 20549	10μH CHIP INDUCTOR
L17	9965 000 20549	10μH CHIP INDUCTOR
L19	9965 000 20549	10μH CHIP INDUCTOR

- COILS & FILTERS -

L20	9965 000 20549	10μH CHIP INDUCTOR
L3	9965 000 20549	10μH CHIP INDUCTOR
L301	9965 000 20756	10μH INDUCTOR
L302	4822 157 71567	COIL 2,5T
L303	9965 000 11817	FM COIL 3-1/2T
L306	9965 000 20756	10μH INDUCTOR
L4	9965 000 20549	10μH CHIP INDUCTOR
L5	9965 000 20549	10μH CHIP INDUCTOR
L6	9965 000 20549	10μH CHIP INDUCTOR
L8	9965 000 20550	2,7μH SMD COIL
L9	9965 000 20549	10μH CHIP INDUCTOR
T301	9965 000 16786	MW OSC,COIL 843744
T302	9965 000 16787	IFT MW 843745
T303	4822 157 10689	FM DET COIL
T304	9965 000 16790	BAND PASS FILTER
X1	9965 000 20552	8,4672 MHZ CRYSTAL
X2	9965 000 14271	CRYSTAL 27MHZ
	9965 000 14465	AM COIL 100T

- DIODES -

6300	5322 130 34574	1N4004G
6301	5322 130 34574	1N4004G
6302	5322 130 34574	1N4004G
6303	5322 130 34574	1N4004G
6304	9965 000 20759	6,8V 1/2W ZENER DIODE
6305	4822 130 30621	1N4148
6309	4822 130 30621	1N4148
6313	4822 130 30621	1N4148
6314	4822 130 30621	1N4148
6316	4822 130 30621	1N4148
6704	4822 130 30621	1N4148
D1	4822 130 30621	1N4148
D10	4822 130 30621	1N4148
D2	4822 130 30621	1N4148
D301	4822 130 30621	1N4148
D302	4822 130 30621	1N4148
D303	4822 130 30621	1N4148
D4	4822 130 30621	1N4148
D5	4822 130 30621	1N4148
D601	4822 130 30621	1N4148
D602	4822 130 30621	1N4148
D603	4822 130 30621	1N4148
D605	4822 130 30621	1N4148
D606	5322 130 34574	1N4004G
D607	4822 130 30621	1N4148
D608	4822 130 30621	1N4148
D701	4822 130 30621	1N4148
ZD1	5322 130 31504	BZX79-B3V3
ZD301	9965 000 16799	ZENER DIODE 2,4V 1/2W
ZD501	4822 130 34233	BZX79-B5V1

ELECTRICAL PARTSLIST**- IC & TRANSISTORS -**

1252	5322 209 61473	LM324M
1258	5322 209 61473	LM324M
1259	5322 209 61473	LM324M
7250	4822 130 41319	2SC1815BL
7251	4822 130 41319	2SC1815BL
7252	4822 130 62718	JE8050C
7258	4822 130 62718	JE8050C
7263	4822 130 41319	2SC1815BL
7513	4822 130 62718	JE8050C
7514	4822 130 62718	JE8050C
7702	4822 130 40981	BC337-25
7705	4822 209 17498	AN7323
D3	9965 000 20551	SM5817
IC301	9965 000 16785	KA22902
IC501	9965 000 20767	KIA4558P
IC601	4822 209 61395	TEA2025B
IC602	4822 209 61395	TEA2025B
IC603	9965 000 20758	NJM4580
IC901	9965 000 10667	HT1621
Q1	9965 000 16236	PBSS4140T
Q11	9965 000 16236	PBSS4140T
Q12	9965 000 16236	PBSS4140T
Q13	9965 000 14276	HMBT8550
Q14	9965 000 16236	PBSS4140T
Q15	9965 000 16236	PBSS4140T
Q2	9965 000 16235	PBSS5140T
Q301	4822 130 41319	2SC1815BL
Q5	9965 000 16236	PBSS4140T
Q601	4822 130 62718	JE8050C
Q602	4822 130 41945	2SB562(C)
Q603	4822 130 41945	2SB562(C)
Q605	9965 000 20757	2SB1342
Q8	9965 000 16236	PBSS4140T
Q9	9965 000 16236	PBSS4140T
Q901	9965 000 20559	SS9014C
U1	9965 000 13432	WM8725
U10	9965 000 16922	SAA7824HL
U11	9965 000 14730	SPCA711A
U13	9965 000 20547	SA57004-50GW
U3	9965 000 20546	AT27C040-70PC
U4	9965 000 10689	KAS161622D
U5	9965 000 20545	SPCA718A
U7	9965 000 20548	SA57255-33GW
U9	9965 000 16777	MM1469A

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