

Service
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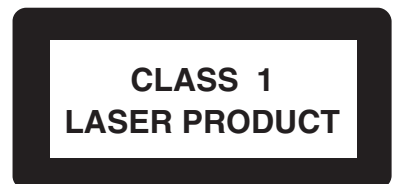


Service Manual



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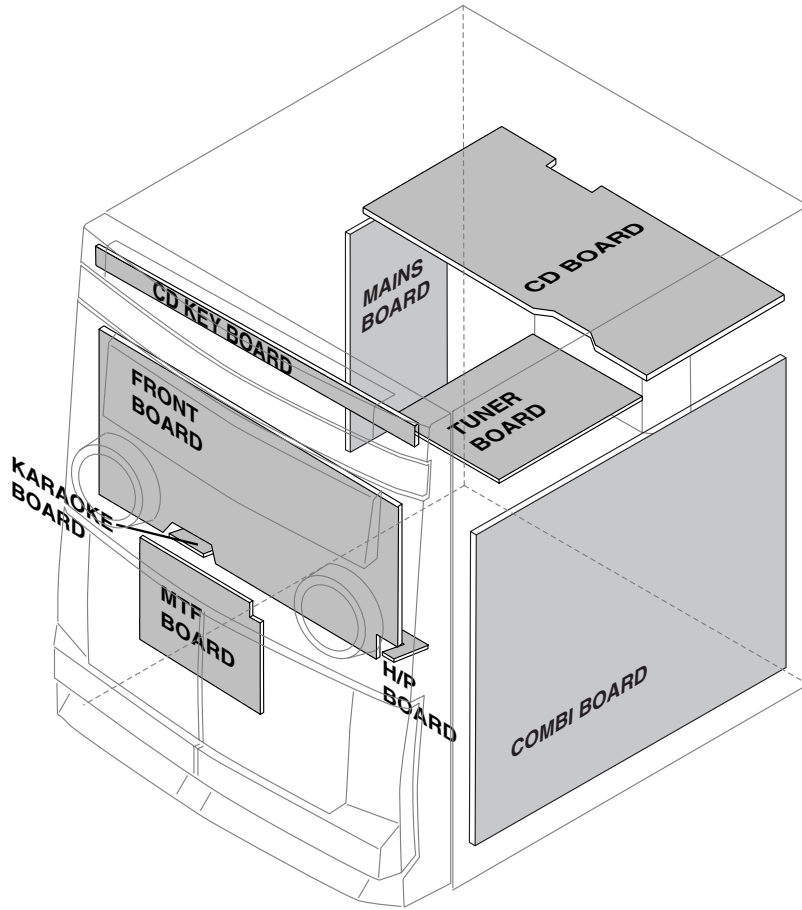


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PHILIPS

LOCATION OF PC BOARDS

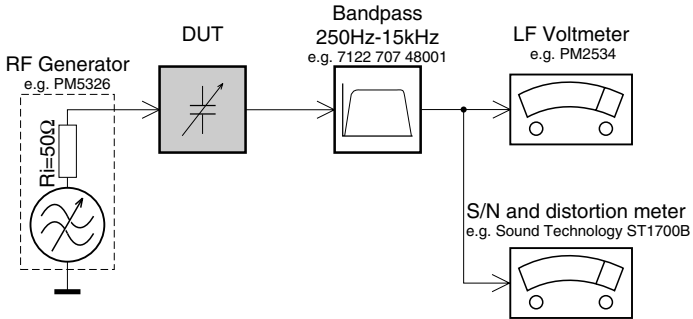


VERSION VARIATIONS:

Type /Versions:	FW-C150						
	/37						
Features & Board in used:							
Incredible Surround							
Karaoke							
News							
RDS							
Rotary Encoder (volume control)							
Jog Shuttle							
Voltage Selector							
Aux Input	x						
Digital Output							
Headphone Socket	x						
Line Output							
Subwoofer Output							
Surround Output							
Matrix Surround Loudspeakers							
Standby - Clock Display	x						
Standby - Dark							
Tuner board - ECO5 Sys	x						
Tuner board - Tuner 95							
Combi board 12W version	x						
Combi board 18W version							
Combi board 25W version							

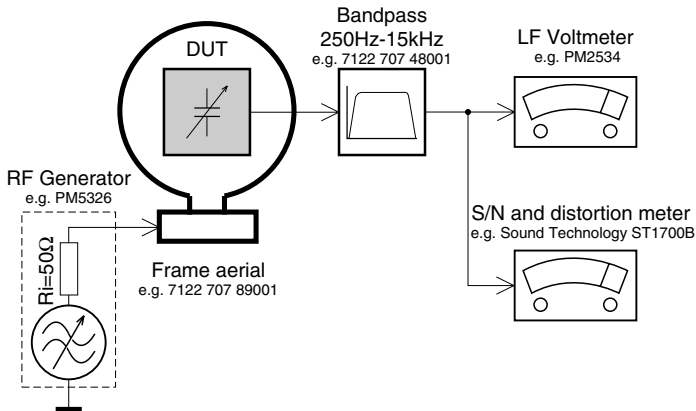
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

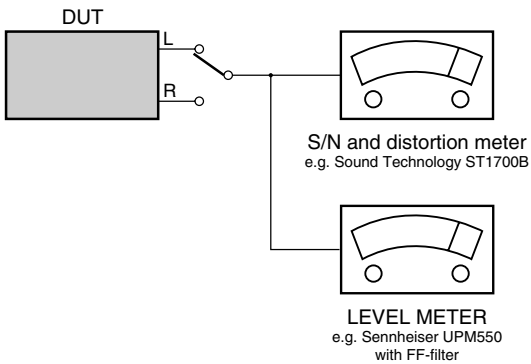
Tuner AM (MW,LW)



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).

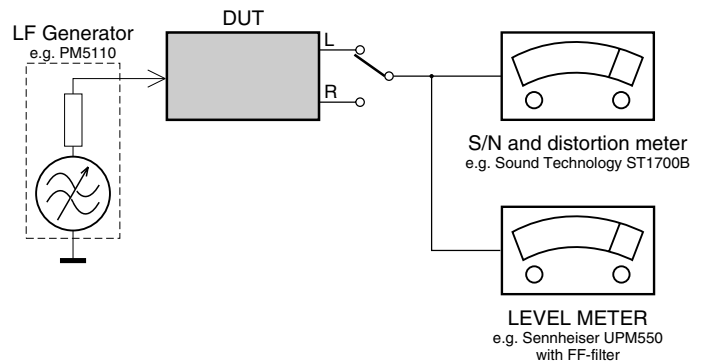
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

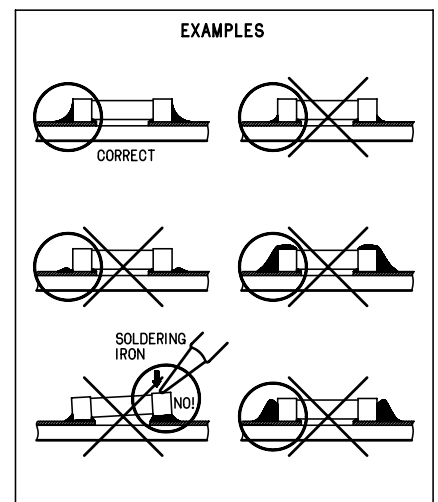
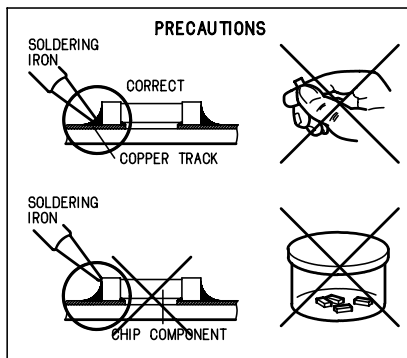
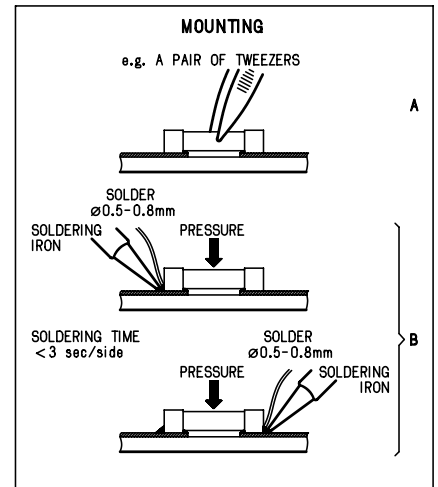
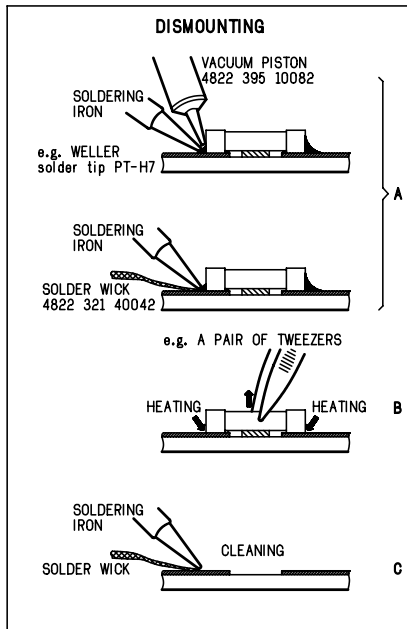
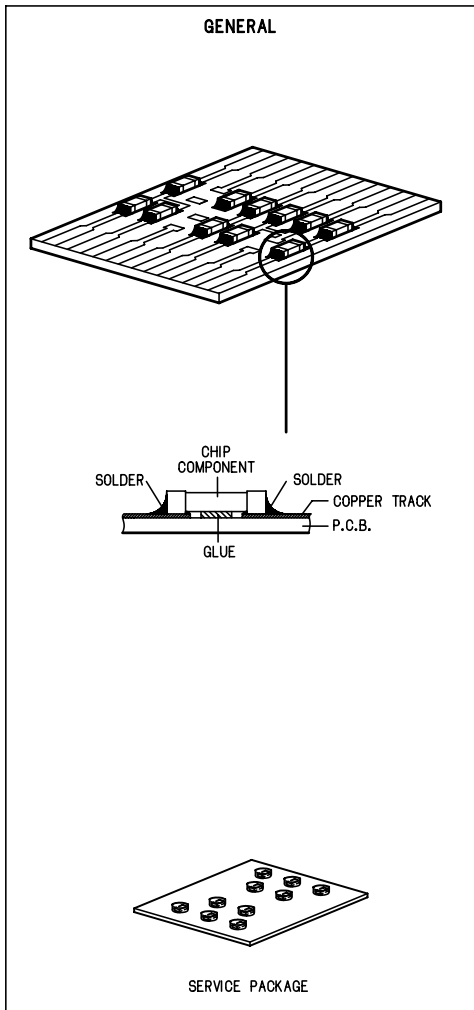
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm ...	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



(GB) WARNING

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

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also 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 enfiler le bracelet serti 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.

Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(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 braccialetto 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.

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

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

**(F)**

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

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(S) Varning !

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

(I)

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

(SF) Varoitus !

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

(DK) Advarse !

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

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

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GENERAL INFORMATION

General Information

- **The typeplate (which contains the serial number) is located at the rear of the system.**
- **Recording is permissible if copyright or other rights of third parties are not infringed.**
- **This device complies with the Federal Communications Commission (FCC) rules, part 15 and with 21 CFR 1040.10. Operation is subject to the following two conditions:**
 - **This device may not cause harmful interference, and**
 - **This device must accept any interference received, including interference that may cause undesired operation.**

Environmental Information

All unnecessary packaging has been omitted. We have tried to make the packaging easy to separate into three materials: cardboard (box), polystyrene foam (buffer) and polyethylene (bags, protective foam sheet).

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

Accessories (Supplied)

- Remote control
- AM loop antenna
- FM wire antenna
- AC power cord

SAFETY INFORMATION

Safety Information

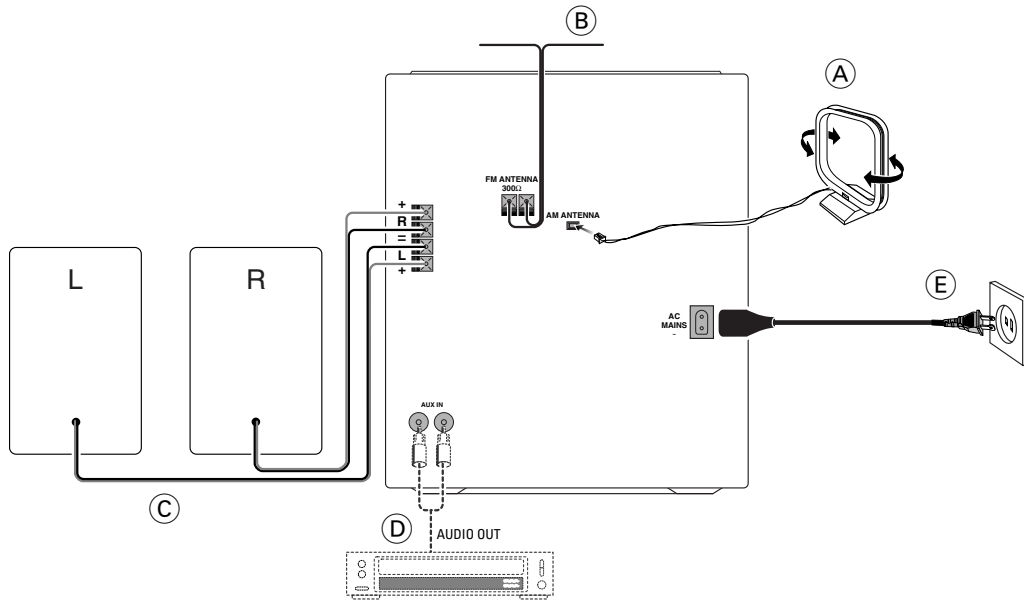
- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The typeplate is located at the rear of your system.
- When the system is switched on, do not move it around.
- Place the system on a solid base (e.g. a cabinet).
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system. Allow at least 10cm (4 inches) clearance from the rear and the top of the unit and 5cm (2 inches) from each side.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the system yourself, as this will invalidate the warranty!
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the CD unit inside the system. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the system until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

**CLASS 1
LASER PRODUCT**

PREPARATION

8

Rear Connections



PREPARATION

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A AM Loop Antenna Connection

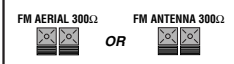
Connect the supplied loop antenna to the AM ANTENNA terminal. Place the AM loop antenna far away from the system and adjust its position for the best reception.

B FM Wire Antenna Connection

Connect the supplied FM wire antenna to the FM AERIAL (FM ANTENNA) 300 Ω terminal. Adjust the position of the FM antenna for the best reception.

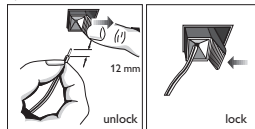
Outdoor Antenna

For better FM stereo reception, connect an outdoor FM antenna to the FM AERIAL (FM ANTENNA) 300 Ω terminal using a 300 Ω dipole wire.



C Speakers Connection

- Connect the right speaker to Front terminal R, with the colored wire to + and the black wire to -.
- Connect the left speaker to Front terminal L, with the colored wire to + and the black wire to -.
- Clip the stripped portion of the speaker wire as shown.



CAUTION:

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

D Connecting other equipment to your system

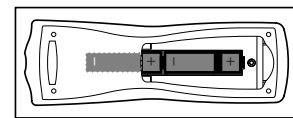
You can connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the AUX IN terminals at the rear of the system.

E AC Power Supply

After all other connections have been made, connect the AC power cord to the system and to the wall outlet.

Inserting batteries into the Remote Control

- Insert the batteries (not supplied) into the remote control as shown in the battery compartment (Type R06 or AA).

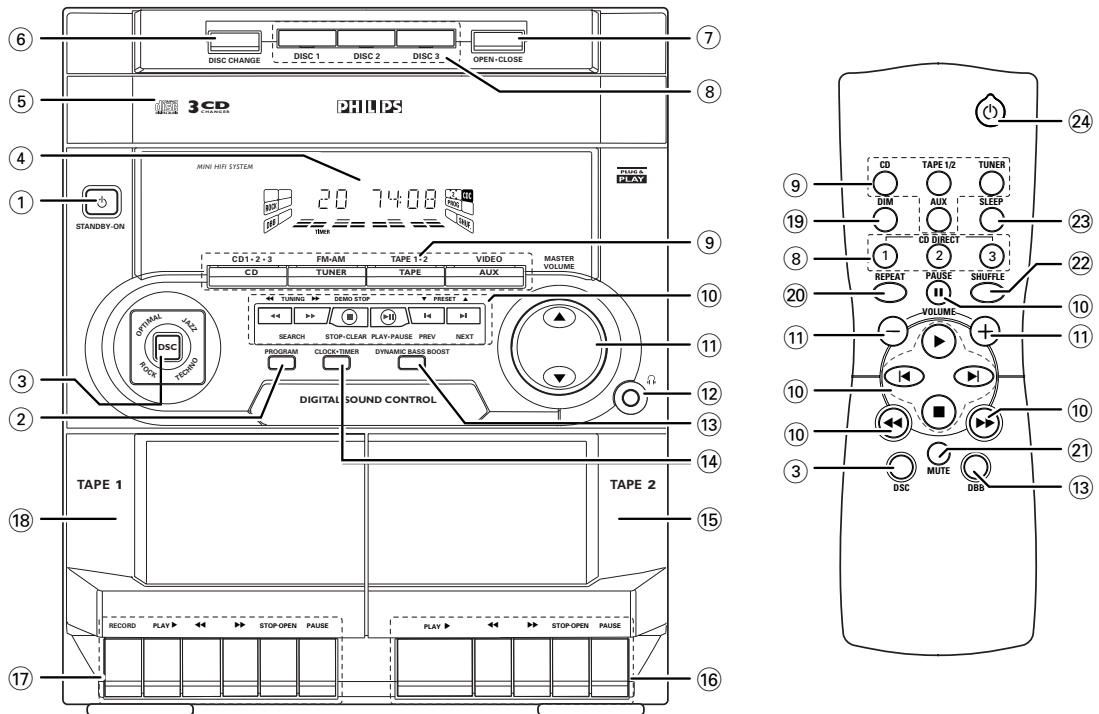


CAUTION

- 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.

CONTROLS

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CONTROLS

Controls on the system and remote control

① STANDBY-ON

- to switch the system on or to standby mode.

② PROGRAM

- for CD to program CD tracks.
- for TUNER ... to program preset radio stations.
- for CLOCK .. to select 12 or 24 hour in clock setting mode.

③ DSC (DIGITAL SOUND CONTROL)

- to select the desired sound effect: OPTIMAL, JAZZ, ROCK or TECHNO.

④ DISPLAY SCREEN

- to view the current setting of the system.

⑤ CD CHANGER TRAY

⑥ DISC CHANGE

- to change disc(s).

⑦ OPEN-CLOSE

- to open or close the CD changer tray.

⑧ DISC 1 / DISC 2 / DISC 3 (CD DIRECT PLAY)

- to select a CD tray for playback.

⑨ SOURCE – to select the following:

CD / (CD 1•2•3)

- to select CD mode. When disc playback is stopped, press to select disc tray 1, 2 or 3.

TUNER / (FM•AM)

- to select Tuner mode. When in tuner mode, press to select the waveband: FM or AM.

TAPE / (TAPE 1• 2)

- to select Tape mode.

AUX (VIDEO)

- to select sound from an external source (e.g. TV, VCR, Laser Disc player, DVD player or CD Recorder).

⑩ MODE SELECTION

SEARCH ◀▶ (TUNING ◀▶)

- for CD to search backward/forward.

- for TUNER ... to tune to a lower or higher radio frequency.

- for CLOCK .. to set the hour (on the system only).

STOP-CLEAR ■

- for CD to stop disc playback or to clear a programme.

- for TUNER ... to stop programming (on the system only).

- for DEMO ... to start or stop demonstration mode (on the system only).

- for CLOCK .. to exit clock setting or cancel timer (on the system only).

for PLUG & PLAY

- to exit plug & play mode and return to standby mode (on the system only).

PLAY ▶ / PAUSE II

- for CD to start or interrupt playback.

- for PLUG & PLAY to initiate and start plug & play from standby/demo mode (on the system only).

PREV ◀ / NEXT ▶ (PRESET ▼▲)

- for CD to skip to the beginning of the current, previous, or next track.

- for TUNER ... to select a preset station in memory.

- for CLOCK .. to set the minute (on the system only).

⑪ MASTER VOLUME ▲▼

- to increase or decrease the volume.

- ⑫ to connect headphones.

⑬ DBB (DYNAMIC BASS BOOST)

- to switch on bass boost to enhance bass response or to switch off bass boost.

⑭ CLOCK-TIMER

- to view the clock, set the clock or set the timer.

⑮ TAPE DECK 2

⑯ TAPE DECK 2 OPERATION

- PLAY ▶ to start playback.
- ◀◀ to rewind the tape.
- ▶▶ to fast forward the tape.

- STOP-OPEN... to stop playback or to open the tape door.

PAUSE to interrupt playback

⑰ TAPE DECK 1 OPERATION

- RECORD ... to start recording.
- PLAY ▶ to start playback.
- ◀◀ to rewind the tape.
- ▶▶ to fast forward the tape.

- STOP-OPEN... to stop playback/ recording or to open the tape door.

- PAUSE to interrupt playback or recording.

⑱ TAPE DECK 1

DIM

- to select different brightness for the display screen: DIM 1, DIM 2, DIM 3 or DIM OFF.

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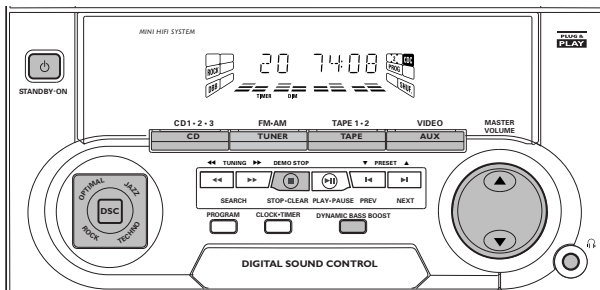
CONTROLS

- 20 **REPEAT**
 - to repeat a track, a disc, or all available discs.
- 21 **MUTE**
 - to switch off the sound temporarily.
- 22 **SHUFFLE**
 - to play all the available discs and their tracks in random order.
- 23 **SLEEP**
 - to switch the system to standby mode at a selected time.
- 24 **⏻**
 - to switch the system to standby mode.

Notes for remote control:

- First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. CD or TUNER).
- Then select the desired function (▶, ◀, ▶, etc.).

OPERATING THE SYSTEM



Important:
Before you operate the system, complete the preparation procedures.

Plug and Play

The system provides PLUG and PLAY feature that allows you to store all available radio stations automatically upon power up.

If the PLUG and PLAY has not been installed

- 1 Upon power up, "AUTO INSTALL - PRESS PLAY" will be displayed.

- 2 Press **PLAY** (on the system only) to start installation.
 - "INSTALL" will be displayed and followed by "TUNER" and then "AUTO".
 - The **PROGRAM** starts flashing.
 - PLUG and PLAY will start searching for all radio stations on FM band and then followed by radio stations on AM band.
 - All available radio stations with sufficient signal strength will be stored. Up to 40 presets may be stored.
 - The last preset radio station will appear on the display when PLUG and PLAY is completed.

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OPERATING THE SYSTEM

To reinstall the PLUG & PLAY

- 1 In Standby or Demonstration mode, press and hold **PLAY** (on the system only) "AUTO INSTALL - PRESS PLAY" will be displayed.
 - 2 Press **PLAY** (on the system only) again to start installation.
- To exit without storing the PLUG and PLAY, press **■** button (on the system only).

Notes:

- PLUG and PLAY will be reinitiated again during the next power up if:
 - i) PLUG and PLAY installation was not completed.
 - ii) No stereo frequency being detected during PLUG and PLAY, "CHECK ANTENNA" will be displayed.
- You can store any radio stations manually or automatically after PLUG and PLAY.
- When PLUG and PLAY is used, all previously stored radio stations will be replaced.
- During PLUG and PLAY, if no button is pressed within 15 seconds, the system will go to demonstration mode (if demonstration mode is enable)

Demonstration mode

The system has a demonstration mode that shows the various features offered by the system.

To disable the demonstration mode

- Press and hold **■** (on the system only) for **five seconds** when the system is in demonstration mode.
 - "DIM OFF" is displayed.
 - The system will switch to standby mode.

To enable the demonstration mode

- Press and hold **■** (on the system only) for **five seconds** when the system is in standby mode.
 - The demonstration will begin.

Notes:

- If the demonstration mode has not been disabled, it will resume five seconds later after the system switches to standby mode.
- When the system is switched on from the main power outlet, the CD changer tray may open and close again to initialize the set.
- Even though the AC power cord is removed from and reconnected to the wall socket, the demonstration will remain off until it is switched on again.

Switching the system ON

- Press **CD, TUNER, TAPE** or **AUX**.
- Press **STANDBY-ON** in demo.

You can also switch on the system by pressing any one of the CD DIRECT PLAY buttons (on the system only).

Switching the system to standby mode

- Press **STANDBY-ON** or **⏻** on the remote control.
 - The system will switch to standby mode.

Selecting the Source

- Press the respective source selection button: **CD, TUNER, TAPE** or **AUX**.
 - The display indicates the selected source.

Note:

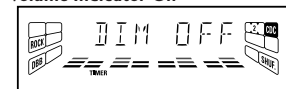
- For an external source, make sure you have connected the audio left and right OUT terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX IN terminals.

DIM mode (only on remote control)

You can select the desired brightness for the display.

- Press **DIM** to select DIM 1, DIM 2, DIM 3 or DIM OFF display mode.
 - The **DIM** display lights up.
 - "DIM 1", "DIM 2", "DIM 3" or "DIM OFF" will be displayed depending on the mode selected.

DIM OFF - normal brightness with Volume Indicator On



DIM 1 - normal brightness with Volume Indicator Off



DIM 2 - half brightness with Volume Indicator On



DIM 3 - half brightness with Volume Indicator Off**Sound Control****VOLUME ADJUSTMENT**

Press **MASTER VOLUME ▲** or **▼** to increase or decrease the sound level.

For Personal Listening

Connect the headphones plug to the socket at the front of the system. The speakers will be muted.

DIGITAL SOUND CONTROL (DSC)

The DSC feature enables you to enjoy special sound effects that have preset equalizer settings, providing the best music reproduction.

- Press **DSC** to select OPTIMAL, JAZZ, ROCK or TECHNO.
→ "OPTIMAL, JAZZ, ROCK or TECHNO" and the respective flag will be displayed.

Note:

– When "OPTIMAL" sound is selected DBB will be switched on automatically.

DYNAMIC BASS BOOST (DBB)

The DBB mode enhances the bass response.

- Press **DBB** to switch on bass response.
→ "DBB ON" and the DBB flag will be displayed.

To switch off DBB

- Press **DBB** again.
→ "DBB OFF" will be displayed.

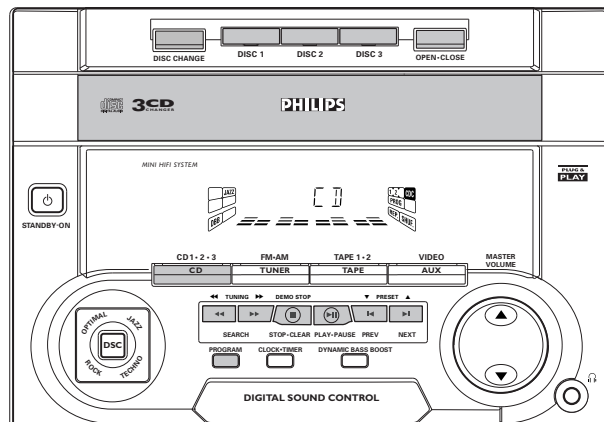
Note:

– Some discs or tapes might be recorded in high modulation, which causes a distortion at high volume. If this occurs, switch off DBB or reduce the volume.

MUTE (only on remote control)

This feature allows you to temporarily switch off the sound of the system without switching off the system when you require a moment of silence.

- Press **MUTE** on the remote control to switch off the sound.
→ "MUTE" and the MUTE flag will be displayed.
- Press **MUTE** again on the remote control or increase the **MASTER VOLUME** to switch on the sound.

**Warning!**

- 1) This system is designed for conventional discs. Do not use any accessories such as disc stabilizer rings or disc treatment sheets, etc., which may damage the disc mechanism.
- 2) Do not load more than one disc into each tray.
- 3) When the CD changer is loaded with discs, do not turn over or shake the system. This may jam the changer.

You may load three discs in the CD changer for continuous playback without interruption.

Discs for playback

This system can play all digital audio CD, finalized digital audio CD-Recordable and finalized digital audio CD-Rewritable format discs.

**Loading the CD Changer**

- 1 Press **CD** to select CD mode.
- 2 Press **OPEN-CLOSE**.
→ The CD changer tray slides out.
- 3 Load a disc with the printed side up in the right tray.
 - You can load another disc in the left tray.
 - To load the third disc, press the **DISC CHANGE** button.
→ The CD changer tray will rotate until the empty tray is ready for loading.
- 4 Press **OPEN-CLOSE** to close the CD changer tray.
→ A lit on the respective CD numeric flag indicates that its corresponding disc(s) is loaded in the disc tray.

Note:

– To ensure good system performance, wait until the CD changer completely reads the disc(s) before proceeding.

Disc Direct Play

- You can play a disc directly by pressing the **DISC 1**, **DISC 2** or **DISC 3** button. The CD player will stop at the end of playback of the selected disc.
→ The corresponding CD numeric flag starts to flash.

Playing a Disc

- 1 Press **▶** to start playback.
→ A flashing on the CD numeric flag indicates the selected disc.
→ The track number and elapsed playing time of the current track appear on the display.
 - To interrupt playback, press **||**.
→ The playing time flashes.
 - To resume playback, press **▶** again.
- 2 To stop playback, press **■**.

Note:

– All the available discs will play once, then stop.

Disc Change

You can change the outer two discs while the third inner disc is stopped or is playing.

- 1 Press **DISC CHANGE**.
→ The CD changer tray slides out.
- 2 Replace the discs in the left and right disc trays.

- If you wish to change the inner disc during playback, press **DISC CHANGE** again.
→ "DISC CHANGE" will be displayed.
→ The disc will stop playing.
→ The CD changer tray will close to retrieve the inner disc and then open again with the inner disc accessible.
- 3 Press **OPEN-CLOSE** to close the CD changer tray.

Selecting a desired track
Selecting a desired track when playback is stopped

- 1 Press **◀** or **▶** until the desired track appears on the display.
- 2 Press **▶** to start playback.
→ The selected track number and elapsed playing time appear on the display.

Selecting a desired track during playback

- Press **◀** or **▶** until the desired track appears on the display.
→ The selected track number and elapsed playing time appear on the display.
- If you press **◀** once it will skip to the beginning of the current track and play the track again.

Note:

– Pressing **◀** during shuffling can only skip to the beginning of the current track.

Searching for a particular passage during playback

- Press and hold **◀◀** or **▶▶** until the desired passage is located.
→ The volume will be reduced.
- Play returns to normal when **◀◀** or **▶▶** is released.

Programming Tracks

Programming tracks of a loaded disc is possible when playback is stopped. The display will indicate the total tracks stored in the program. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "FULL".

- 1 Load the desired discs in the disc trays.
- 2 Press **PROGRAM** to start programming.
→ The **PROG** flag starts flashing.
→ A flashing on the CD numeric flag indicates the selected disc.
- 3 Press the **CD (CD 1•2•3)** or **DISC 1/2/3** button to select the disc.
- 4 Press **◀** or **▶** to select the desired track.

- Press **PROGRAM** to store the track.
- Repeat steps 3 to 5 to store other discs and tracks.
- Press **■** once to end programming.
 - The total number of tracks programmed and total playing time appear on the display.

Notes:

- If the total playing time is more than "99:59" or if one of the programmed tracks has a number greater than 30, then "--:--" appears on the display instead of the total playing time.
- If the system is reading the discs, programming is not possible, "READING" will be displayed and followed by "DISC N. N" is the current read disc number.
- During programming, if no button is pressed within 20 seconds, the system will exit program mode automatically.
- "SELECT A DISC" will be displayed when programming an empty disc slot.

Reviewing the program

Reviewing of the program is possible only when playback is stopped.

- Press **◀** or **▶** repeatedly to review the programmed tracks.
- Press **■** to exit review mode.

Playing the program

- Press **▶** to start program playback.
 - "PLAY PROGRAM" will be displayed.
 - The track number and elapsed playing time of the current track will appear on the display.
- If you press **REPEAT** during program playback, the current track or all programmed tracks will be played repeatedly.
 - "TRACK" or "PROGRAM" will be displayed.
 - The **REP** and **PROG** flags appear on the display.

- Press **■** to stop program playback.

Notes:

- If you press any of the **DISC DIRECT** **PLAY** buttons, the system will play the selected disc and the stored program will be ignored temporarily. The **PROG** display also will disappear temporarily from the display. It will reappear when playback of the selected disc ends.
- **REPEAT DISC** mode will be cancelled when program playback begins.

Erasing the program (when playback is stopped)

- Press **■**.
- "PROGRAM CLEAR" will be displayed.

Note:

- The program will be erased when the system is disconnected from the power supply or when the CD changer tray is opened.

Shuffle (only on remote control)

In shuffle mode, the system plays all the available discs and their tracks in random order. Shuffle may be used also when tracks are programmed.

To shuffle all the discs and tracks

- Press **SHUFFLE**.
 - "SHUFFLE" will be displayed.
 - The **SHUF** flag and the track selected at random appear on the display.
- The discs and the tracks will be played in random order until you press **■**.
- If you press **REPEAT** during shuffling, the current track or all available discs will be played repeatedly.
 - "TRACK" or "ALL DISC" will be displayed.
 - The **REP** and **SHUF** flags appear on the display.
- Press **SHUFFLE** again to resume normal playback.
 - The **SHUF** flag disappears from the display.

Note:

- **REPEAT DISC** mode will be cancelled when shuffle is selected.

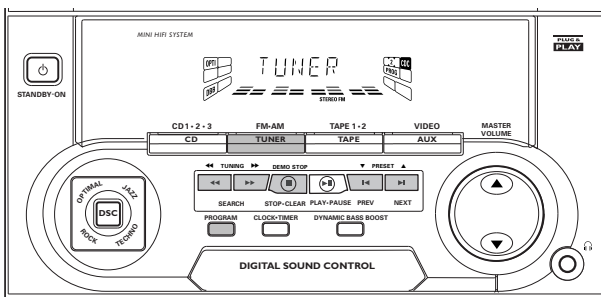
Repeat (only on remote control)

You can play the current track, a disc or all available discs repeatedly.

- Press **REPEAT** on the remote control to select the various repeat modes.
 - "TRACK", "DISC", "ALL DISC" or "OFF" will be displayed.
 - The **REP** flag appears on the display.
- The selected track, selected disc or all available discs will now be played repeatedly until you press **■**.
- Press **REPEAT** until the "OFF" mode is displayed to resume normal playback.
 - The **REP** flag disappears from the display.

Notes:

- **REPEAT DISC** mode is not available during program play or shuffle mode.
- You can also repeat shuffling a program.
 - "TRACK" or "PROGRAM" will be displayed.
 - The **REP**, **PROG**, and **SHUF** flags appear on the display.



Note:

- For 'PLUG & PLAY' feature, please refer to page 12.

Tuning to radio stations

- Press **TUNER** (FM•AM) to select **TUNER** mode.
 - "TUNER" will be displayed.
 - A few seconds later, the current radio frequency will be displayed.
- Press **TUNER** (FM•AM) again to select the desired waveband: FM or AM.
- Press **◀** or **▶** for more than one second, then release.
 - The display will show "SEARCH" until a radio station with sufficient signal strength is found.
- Repeat this procedure until the desired station is reached.

- To tune to a weak station, briefly press **◀** or **▶** repeatedly until the display shows the desired frequency and/or when the best reception has been obtained.

Storing Preset Stations

You can store up to 40 radio stations in the memory. When a preset radio station is selected, the preset number appears next to the frequency on the display.

Automatic programming

- Press **TUNER** (FM•AM).
- Press **PROGRAM** for more than one second.
 - The **PROG** flag starts flashing and "AUTO" will be displayed.

- The system will search for every available station in the FM waveband first, then search the AM waveband.
- All available stations will be stored automatically. The frequency and preset number will be displayed briefly.
- The system will stop searching when all the available radio stations are stored or when the memory for 40 preset radio stations is used.
- The system will remain tuned to the last stored preset radio station.

Notes:

- You can cancel the automatic programming by pressing **PROGRAM** or **■** (on the system only).
- If you want to reserve a section of preset numbers, for example preset numbers 1 to 9, select preset 10 before starting automatic programming, only the preset numbers 10 to 40 will be programmed.

Manual programming

- Press **TUNER** (FM•AM).
- Press **TUNER** (FM•AM) again to select the desired waveband: FM or AM.
- Press **PROGRAM** for less than one second.

- The **PROG** flag starts flashing.
- The next available preset number will be displayed for selection.
- Press **◀** or **▶** to tune to the desired frequency.
 - If you wish to store the radio station to another preset number, press **▼** or **▲** to select the desired preset number.
- Press **PROGRAM** again.
 - The **PROG** flag disappears and the radio station will be stored.
- Repeat steps 3 – 5 to store other preset radio stations.

Notes:

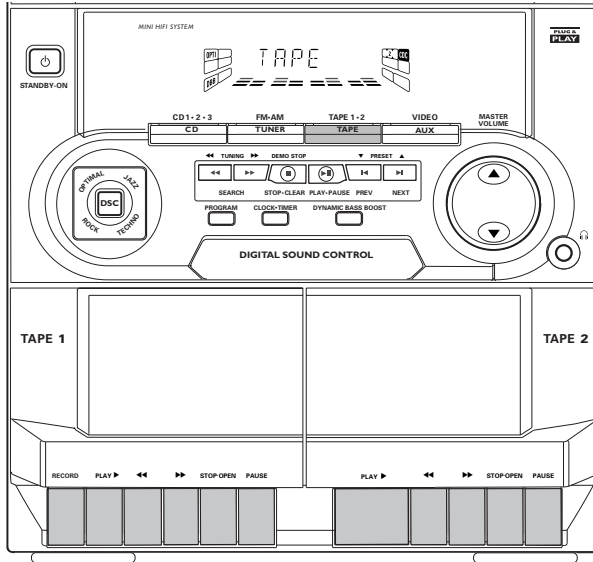
- When 40 radio stations are stored and you attempt to store another radio station, the display will show "FULL". If you want to change an existing preset number, repeat steps 3 – 5.
- You can cancel manual programming by pressing **■** (on the system only).
- During programming, if no button is pressed within 20 seconds, the system will exit program mode automatically.

Tuning to Preset Radio Stations

- Press **▼** or **▲** to select the desired preset number.
 - The preset number, radio frequency, and waveband appear on the display.

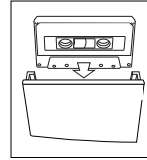
18

TAPE



Loading a tape

- 1 Press **STOP-OPEN**.
- 2 The tape deck door opens.
- 3 Load the tape with the open side downward and the full spool to the left.



- 4 Close the tape deck door.

Tape Playback

- 1 Press **TAPE** to select TAPE mode.
→ "TAPE" will be displayed.
- 2 Load the tape into the selected tape deck.
- 3 Press **PLAY** to start playback.
 - To interrupt playback, press **PAUSE**.
 - To resume playback, press **PAUSE** again.
- 4 Press **STOP-OPEN** to end playback.

Rewind/Fast Forward

When playback is stopped

- 1 You can rewind or fast forward a tape by pressing **◀◀** or **▶▶**, respectively.
 - The tape will stop automatically at the end of rewinding or fast forwarding.
- 2 Press **STOP-OPEN** to stop rewinding or fast forwarding.

Continuous Playback From Tape Deck 2 to Tape Deck 1

- 1 Press **TAPE** to select TAPE mode.
- 2 Load the tapes in tape deck 1 and 2.
- 3 Press **PLAY** on tape deck 2.
- 4 Press **PAUSE** on tape deck 1.
- 5 Press **PLAY** on tape deck 1.
 - Playback will begin with tape deck 2 and will continue with tape deck 1 when playback on tape deck 2 ends.
- 6 Press **STOP-OPEN** if you want to stop playback before the end of the tape in tape deck 1 or tape deck 2.

Notes:

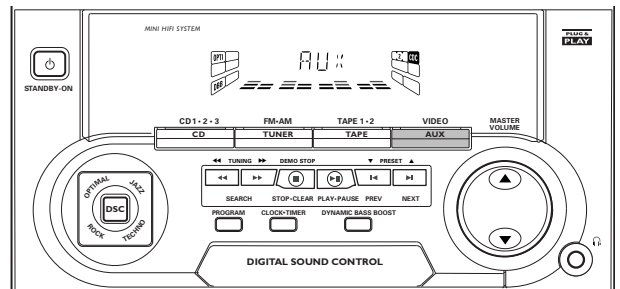
- During rewinding or fast forwarding of a tape, it is also possible to listen to another source (e.g. CD, TUNER or AUX).

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TAPE

- Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.
- C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.
- Store the tapes at room temperature and do not put them too close to a magnetic field (for example, a transformer, TV or speaker).

AUX



Selecting External Equipment

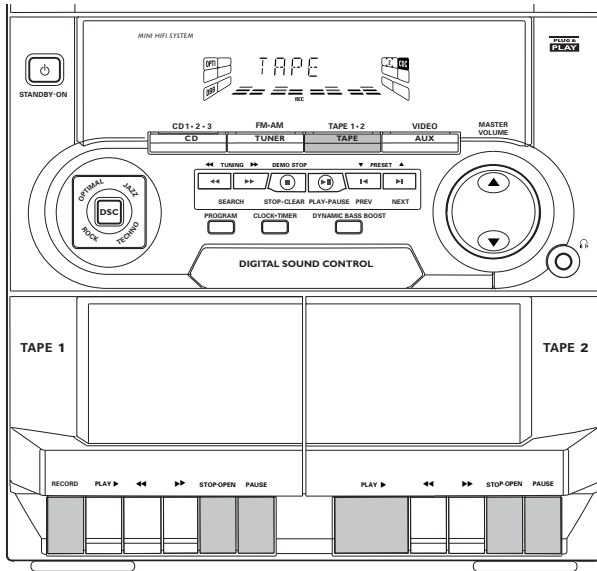
If you have connected the audio out terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX IN terminals, you can hear the enhanced sound from the system.

- Press **AUX** to select the external equipment.
→ "AUX" will be displayed.

Note:

- All the sound control features (e.g. DSC, DBB, etc.) are available for selection.

RECORDING



Notes:

- For recording, use only tape of IEC type I (normal tape).
- The tape is secured at both ends with leader tape. At the beginning and end of tape, nothing will be recorded for six to seven seconds.
- The recording level is set automatically, regardless of the position of Volume, DBB or DSC.
- To prevent accidental recording, break out the tab on the left shoulder of the tape side you want to protect.

One Touch Recording

- For One Touch Recording, as soon as you press RECORD, the current source (CD, TUNER or AUX) will be recorded on tape deck 1.

- 1 Load a blank tape in tape deck 1.
- 2 Press **RECORD** on tape deck 1 to start recording.
→ The **REC** starts flashing.
- 3 Press **PAUSE** to interrupt recording.
- 4 Press **STOP•OPEN** on tape deck 1 to stop recording.

CD Synchro Start Recording

During CD synchro start recording,

- Do not fast forward/rewind your tape in tape deck 2.
- 1 Load a blank tape into tape deck 1 and a disc into the disc tray.
 - 2 Press **CD**.
• You can program the tracks in the order you want them to be recorded (see Programming Tracks). If you do not, the tracks are recorded according to the order on the selected disc.
 - 3 Press **RECORD** on tape deck 1 to start recording.
→ The **REC** starts flashing.
 - 4 Press **STOP•OPEN** on tape deck 1 to stop recording, then press **■** to stop disc playback.

RECORDING

CLOCK

Dubbing tapes (from tape deck 2 to tape deck 1)

- 1 Load the prerecorded tape into tape deck 2 and a blank tape into tape deck 1.
- Make sure both tapes have their full spool to the left.
- 2 Press **PAUSE** on tape deck 1.
- 3 Press **RECORD** on tape deck 1.
→ The **REC** starts flashing.
- 4 Press **PLAY ▶** on tape deck 2.
• Recording will start automatically.
- 5 Press **STOP•OPEN** on tape deck 1 and tape deck 2 to stop dubbing.

Notes:

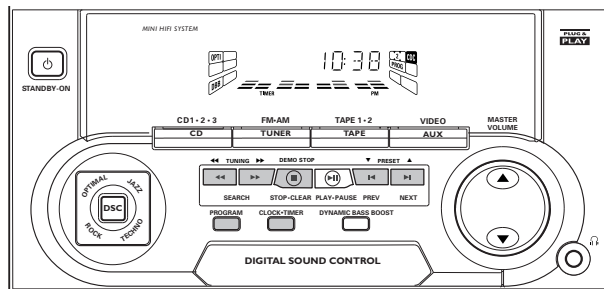
- At the end of side A, flip the tapes to side B and repeat the procedure.
- Dubbing of tapes is only possible from tape deck 2 to tape deck 1.
- To ensure good dubbing, use tapes of the same length.

Recording from other sources (only on tape deck 1)

- 1 Load a blank tape into tape deck 1.
- 2 Press **CD, TUNER** or **AUX**.
- Start playback of the selected source.
- 3 Press **RECORD** on tape deck 1 to start recording.
→ The **REC** starts flashing.
- 4 Press **PAUSE** to interrupt recording.
- 5 Press **STOP•OPEN** on tape deck 1 to stop recording.

Note:

- During recording, it is not possible to listen to another sound source.



View Clock

You can view the clock (if it is set) if the system is in Standby mode or when any sound source is selected (CD, TUNER, etc.). The clock will be displayed for about seven seconds.

- Press **CLOCK•TIMER** briefly (on the system only).
→ "10:38 PM" or "22:38" (the current time) will be displayed depending on whether you have selected 12- or 24-hour mode.
→ "----" will be displayed if the clock is not set.

Clock Setting

The clock can be set in either 12- or 24-hour mode, e.g. "12:00 AM" or "00:00". Before setting the clock, you must be in the View Clock mode.

- 1 Press **CLOCK•TIMER** to select clock mode.
- 2 Press **PROGRAM** to select 12- and 24- hour mode.
→ If 12-hour mode is selected, "12:00" starts flashing and the **AM** lights up.
→ If 24-hour mode is selected, "00:00" starts flashing.
- 3 Set the hour with **◀◀** or **▶▶** on the system.
- 4 Set the minute with **◀** or **▶** on the system.

- 5 Press **CLOCK•TIMER** again to store the setting.
→ The clock starts.

- To exit without storing the setting, press **■** on the system.

Notes:

- During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.
- When a power interruption occurs, the clock setting is erased.

Timer Setting

- The system can switch on to CD or TUNER mode automatically at a preset time. It can serve as an alarm to wake you up.
- Before setting the timer, make sure the clock is set correctly.
- The timer will always be switched on once it is set.
- **The volume of the timer will increase from the minimum level to the most recently selected volume level.**

- 1 Press and hold **CLOCK•TIMER** for more than **two seconds** to select timer mode.

→ "TU_ _:XX:XX" or "CD_ _:XX:XX" starts flashing. "XX:XX" is "12:00 AM" or "00:00" or the last timer setting, depending on whether 12- or 24-hour mode has been selected.

→ The **TIMER** starts flashing.

- 2 Press **CD** or **TUNER** to select the desired source.

→ "TU_ _:XX:XX" indicates the Tuner mode is selected.

→ "CD_ _:XX:XX" indicated the CD mode is selected.

- Before selecting CD, make sure a disc is loaded in the CD changer tray.

- 3 Press **◀** or **▶** on the system to set the hour for the timer to start.

- 4 Press **◀** or **▶** on the system to set the minute for the timer to start.

- 5 Press **CLOCK•TIMER** to store the start time.

→ The timer is now set.

→ The **TIMER** remains on the display.

- At the preset time, the timer will be activated.

→ The selected source will be played.

Notes:

– During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.

– If the source selected is TUNER, the last tuned frequency will be switched on.

- If the source selected is CD, playback will begin with the first track of the selected disc or program. If the CD trays are empty, the TUNER will be selected instead.
- The timer will not activate if a recording is in progress.

To switch off the TIMER

- 1 Press and hold **CLOCK•TIMER** for more than **two seconds**.

- 2 Press **■** on the system to cancel the timer.

→ The timer is now switched off.

→ The display will show "OFF" and the **TIMER** disappears.

To start the TIMER again (for the same preset time and source)

- 1 Press and hold **CLOCK•TIMER** for more than **two seconds**.

- 2 Press **CLOCK•TIMER** again to store the start time.

→ The timer is now on.

→ The **TIMER** appears on the display.

Sleep Timer (only on remote control)

This feature allows you to select a length of time after which the system will switch to the standby mode automatically.

- 1 Press **SLEEP** on the remote control repeatedly to select a period of time.

→ The selections are as follows (time in minutes): 15 → 30 → 45 → 60 → OFF → 15 ...

→ "SLEEP XX" or "OFF" will be displayed. "XX" is the time in minutes.

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

→ The **SLEEP** display lights up.

→ The Sleep Timer is now set. Before the system switches to standby mode, a countdown of 10 seconds will be displayed.

"SLEEP 10" → "SLEEP 9" ... →

"SLEEP 1" → "SLEEP"

While SLEEP mode is activated

- Press **SLEEP** once to view the remaining length of time.
- Press **SLEEP** twice to change the pre-selected period of time.
→ The display will show the remaining time followed by the sequence of sleep timer options.

To switch off 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 center out.
- Do not use solvents such as benzene, thinner; commercially available cleaners, or antistatic spray intended for analog records.



Cleaning the CD lens

- After prolonged use, dirt or dust may accumulate at the CD lens. To ensure good playback quality, clean the CD 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.
- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You can also clean the heads by playing a cleaning tape once.

Demagnetizing the heads

- Use a demagnetizing tape available at your dealer.

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

- If a fault occurs, check the points listed below before taking the system for repair.
- Should any problems persist after you have made these checks, consult your nearest dealer or service center.

CD Player Operation

"NO DISC" is displayed.

- The disc is inserted upside down.
- Place CD with printed side up.
- Moisture condensation at the lens.
- Wait until lens has adjusted to normal room temperature.
- There is no disc in the CD tray.
- Insert a CD.
- The CD is dirty, badly scratched or warped.
- Clean or replace the CD.
- The CD lens is dirty or dusty.
- See section under Maintenance (page 24).

"DISC NOT FINALIZED" is displayed.

- The CD-RW or CD-R disc is not properly recorded for use with a standard CD player.
- Read the instruction booklet of your CD-Rewritable or CD-Recorder on how to finalize a recording.
- The CD is badly scratched or dirty.
- Replace or clean CD.

Radio Reception

Poor radio reception.

- The signal is too weak.
- Adjust the antenna.
- Connect an external antenna for better reception.
- The TV or VCR is too close to the stereo system.
- Separate the stereo system from the TV or VCR.

TROUBLESHOOTING

Tape Deck Operation**Recording or playback cannot be made or there is a decrease in audio level.**

- Dirty tape heads, capstans or pressure rollers.
- See section on *tape deck maintenance* (page 24).
- Magnetic build-up in the record/playback head.
- Use *demagnetizing tape*.

General**System does not react when any button is pressed.**

- Electrostatic discharge.
- Press *STANDBY-ON* to switch the system off. Remove the *AC power plug* from the wall outlet, then reconnect the power plug and switch on the system again.

No or poor sound.

- Volume is not turned up.
- Adjust *VOLUME*.
- The headphones are connected.
- Disconnect the headphones.
- Speakers are not connected or are connected wrongly.
- Check that the speakers are connected correctly.
- Make sure the stripped speaker wire is clamped.

Reversed left and right sound.

- Speakers are connected wrongly.
- Check the speaker connections and location.

Lack of bass sound or apparently imprecise physical location of musical instruments.

- Speakers are connected wrongly.
- Check the speaker connection for proper phasing, colored/black wires to colored/black terminals.

Remote control has no effect on the system.

- Wrong source is selected.
- Select the source (*CD, TUNER*, etc.) before pressing the function button, (▶, ◀, ▶, etc.).
- The distance to the system is too large.
- Reduce the distance.
- Batteries are inserted incorrectly.
- Insert the batteries with their polarities (+/- signs) as indicated.
- Batteries are exhausted.
- Replace the batteries.

Timer is not working.

- Clock is not set.
- Set the clock.
- Timer is not switched on.
- Press *CLOCK•TIMER* to switch on the timer.
- Recording or dubbing is in progress.
- Stop recording.

Clock setting is erased.

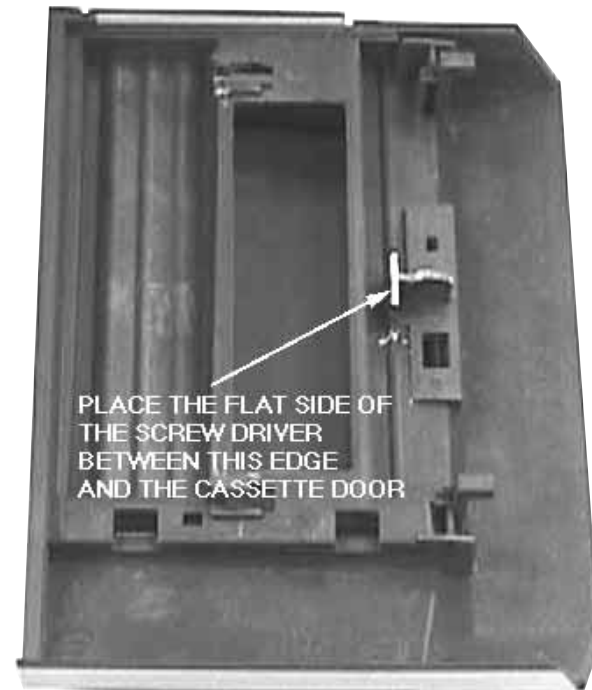
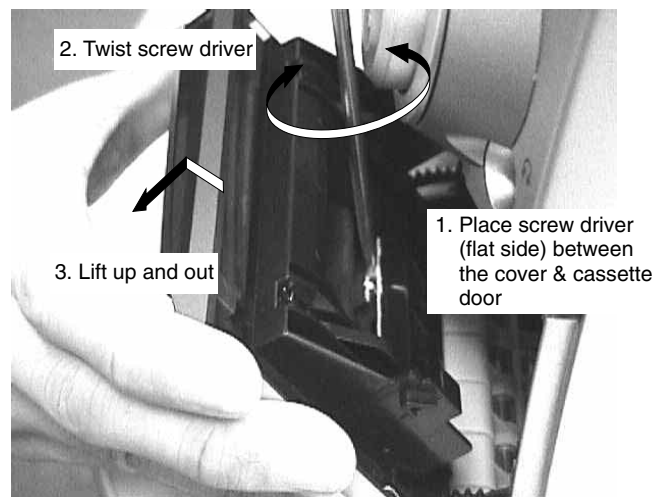
- There was a power failure.
- Reset the clock.

System displays features automatically.

- Demonstration mode is switched on.
- Press and hold ■ (on the system) for five seconds to switch off the demonstration.

DISMANTLING INSTRUCTIONS

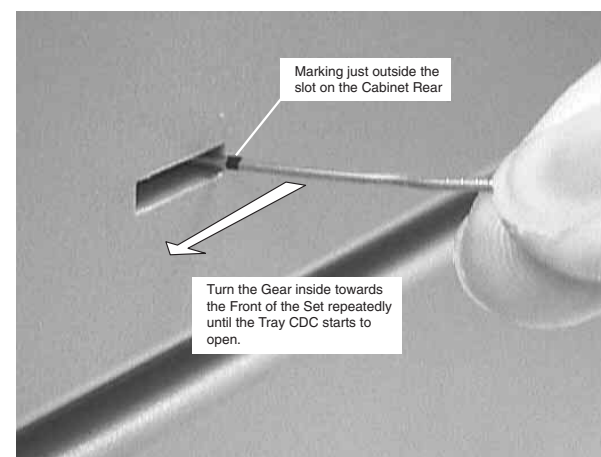
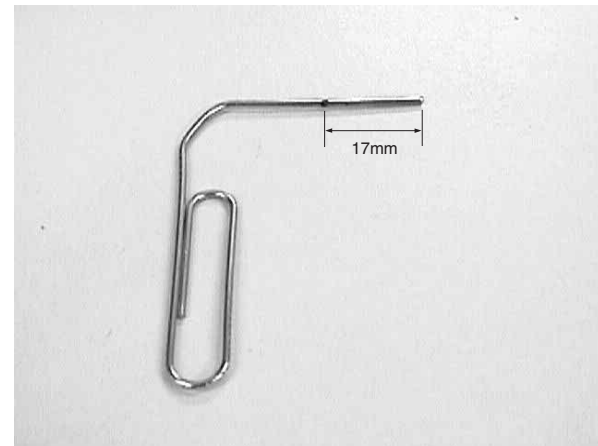
Dismantling of the Cassette Cover



Cassette door

Opening the CDC Tray manually

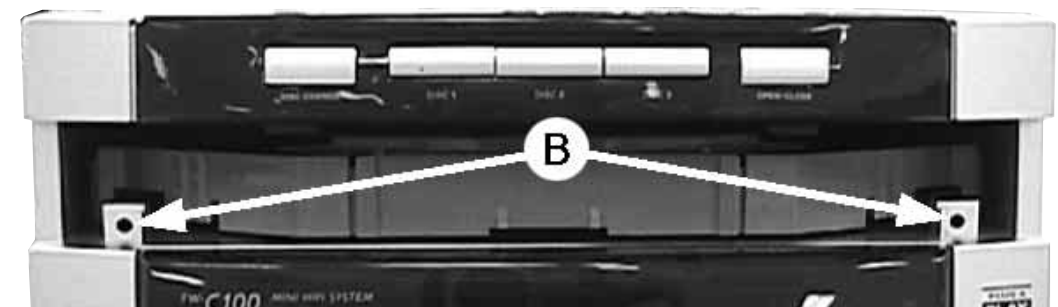
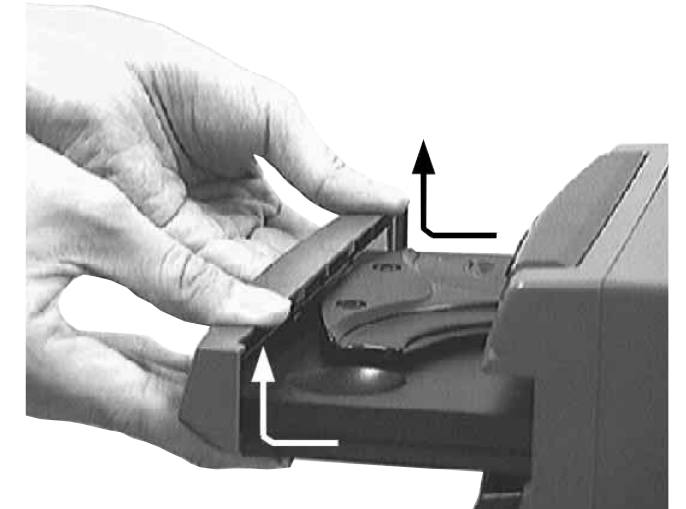
- 1) Take a paper clip or any stiff wire diameter of 1 mm -1.5mm and make a marking about 17mm from the tip.
- 2) Place the set in an upright position and insert the paper clip into the slot on the right side of the Cabinet Rear.
- 3) With the marking just outside the Cabinet Rear, you should be able to engage the gear on the side of the 3CDC-LC Module. Because of the distance between the gear and the Cabinet Rear the chance of the paper clip slipping above or below the gear is high, therefore you have to feel and adjust slightly to engage the gear correctly.
- 4) Push the gear slowly towards the front as shown until the Tray CDC starts to move out of the Front Cabinet. The Tray CDC is now disengage and can be pulled out completely



Note: If the Cabinet Rear has to be replaced, it has to be replaced by one that has a similar slot on the right side of the Cabinet otherwise there is no possibility to disassemble the same set in the future.

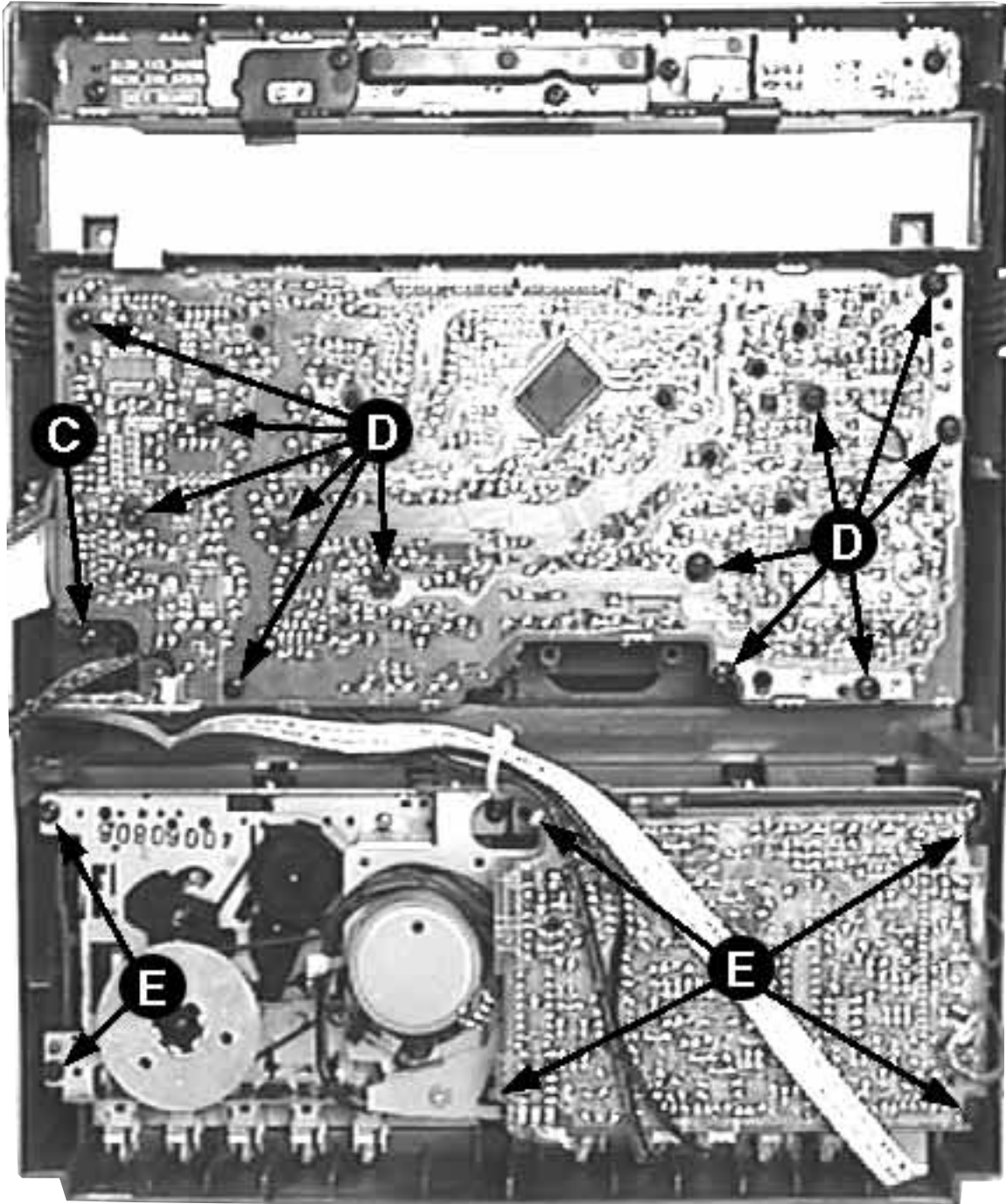
Dismantling of the Front Panel

- 1) With the CDC tray opened remove the Cover Tray CDC (pos 107) as indicated.
- 2) Loosen the 8 screws to separate the Front Panel from the rear portion.
 - 2 screws B on the front
 - 2 screws each on the left & right side
 - 2 screws at the bottom

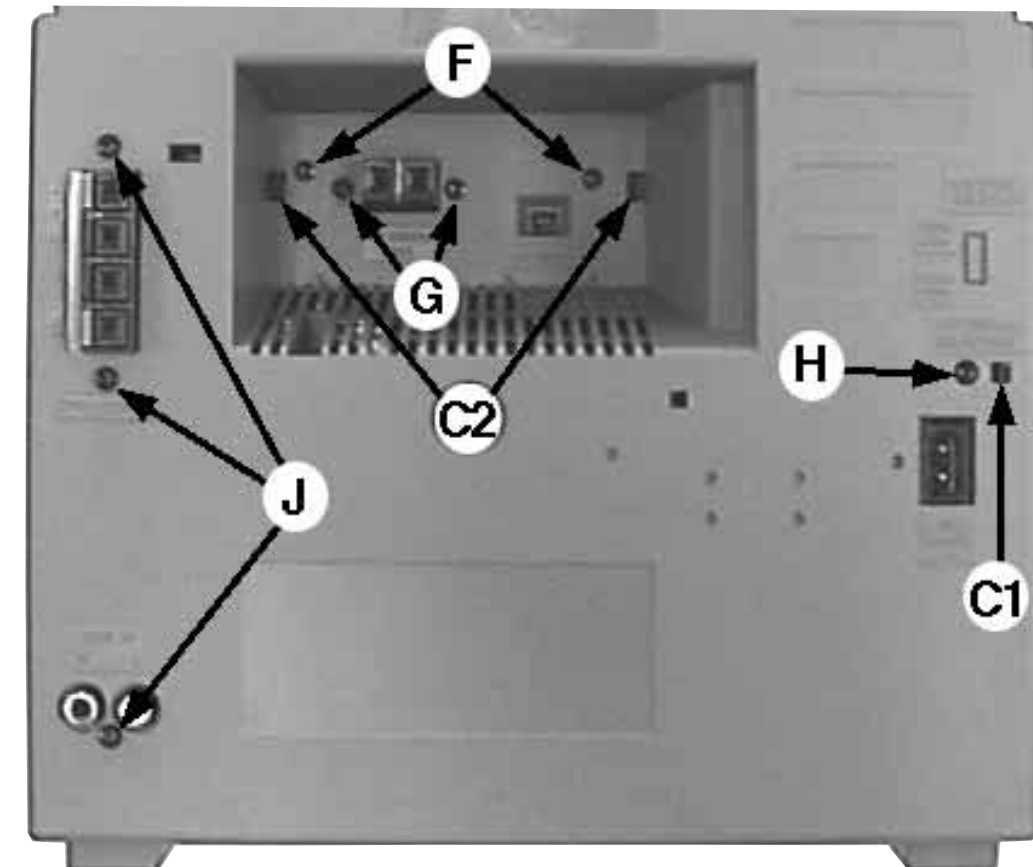
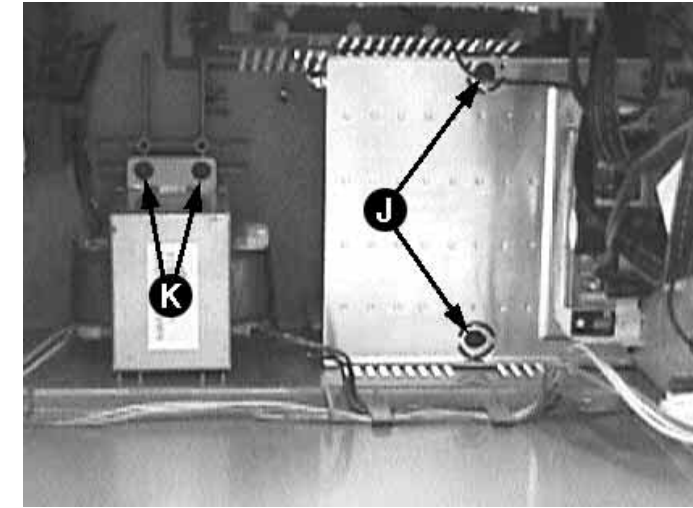


Dismantling of Assemblies on the Front Panel

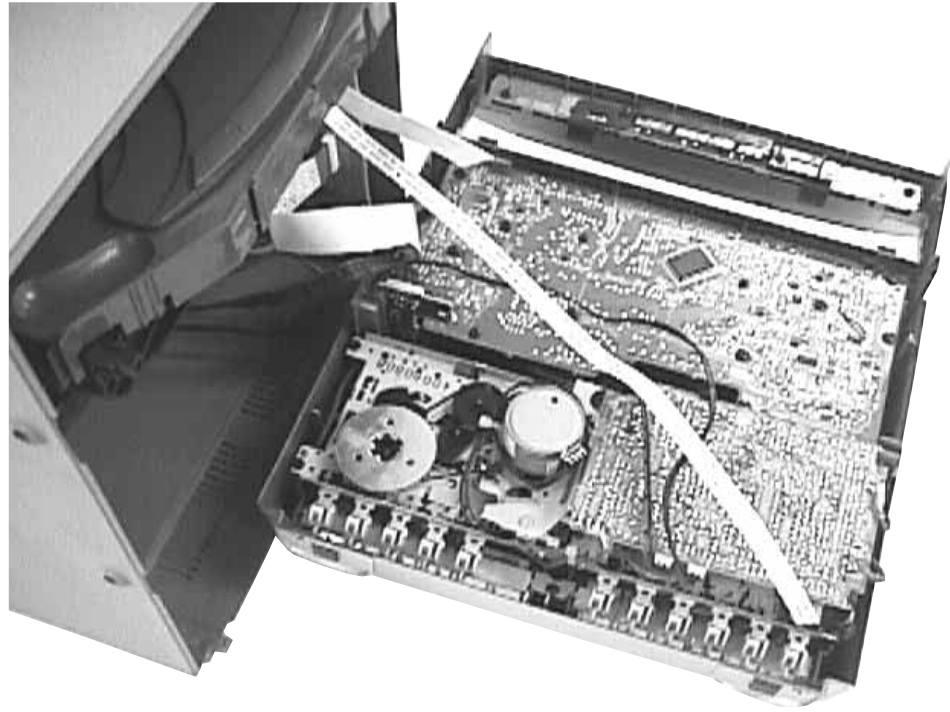
- 1) Remove 1 screw C to loosen the Headphone board.
- 2) Remove 12 screws D as indicated to loosen the Front board.
- 3) Remove 6 screws E to loosen the ECO-MTF Module

***Dismantling of Rear Portion***

- 1) Remove 1 screw H & uncatch C1 to loosen the Mains socket board.
- 2) Remove 2 screws F, 2 screws G and uncatch C2 to loosen the Tuner board assembly.
- 3) Remove 5 screws J (3x on the rear and 2x on the heatsink) to loosen the Combi board (Main part).
- 4) Remove 2 screws K to loosen the Mains Transformer.

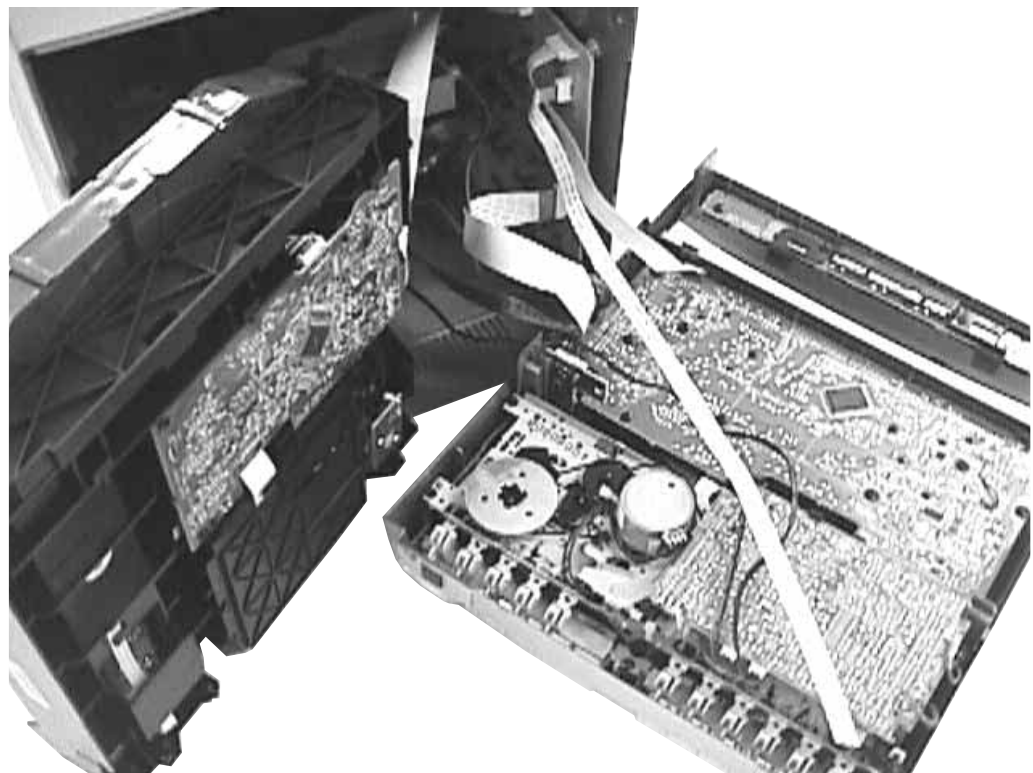


Service pos A

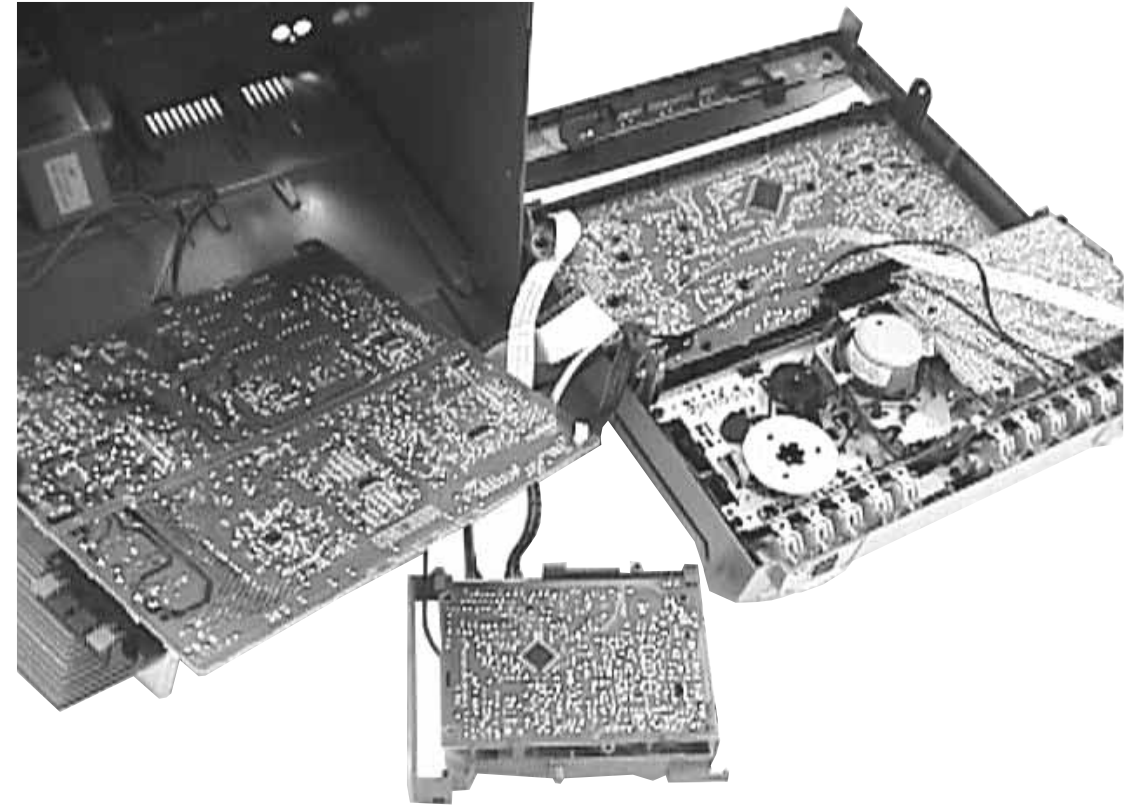
**Note:**

1. During repair it is possible to disconnect the following assemblies or modules while working on other areas:
 - Tuner Board
 - 3CDC Module
2. Flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occur.

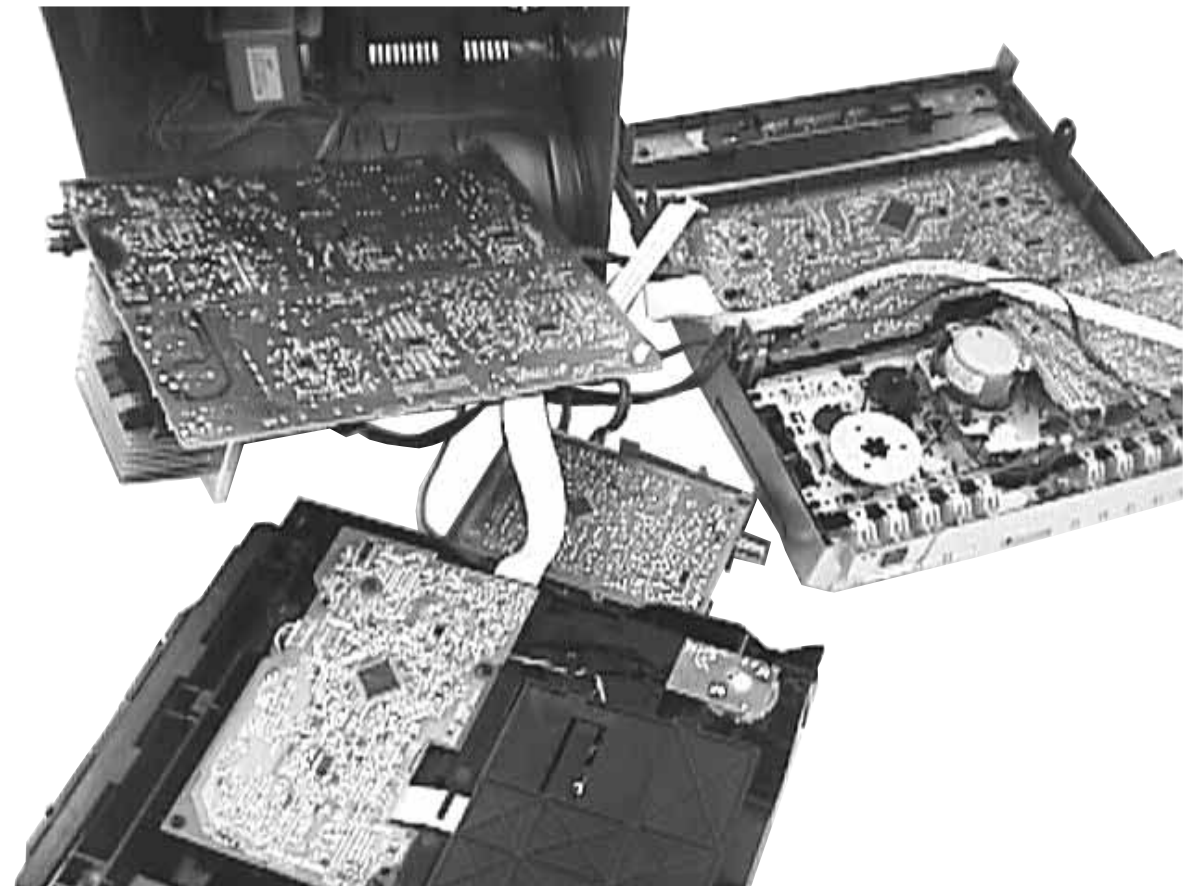
Service pos B



Service pos C



Service pos D



SERVICE TEST PROGRAM

To start service test program hold **▶▶** & **AUX** depressed while plugging in the mains cord

Display shows the ROM version * "S-Vyy" (Main menu)

S refers to Service Mode.
V refers to Version.
yy refers to Software version number of Processor. (Counting up from 01 to 99)

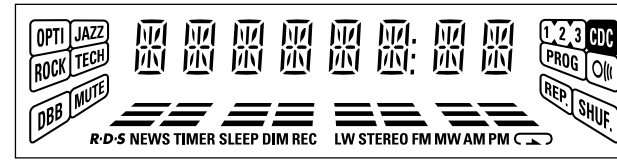
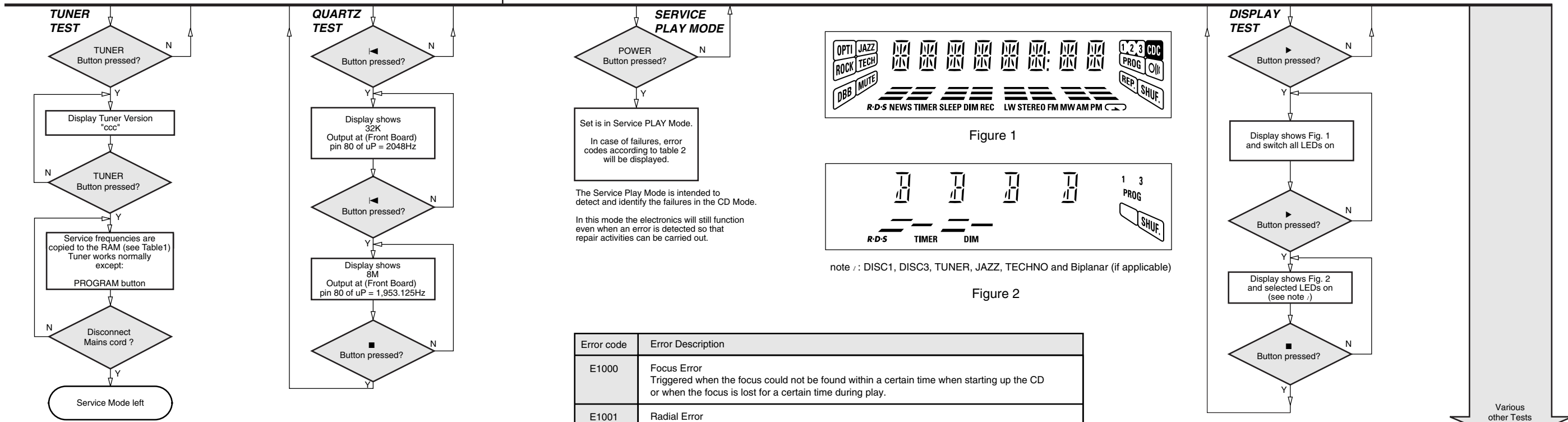
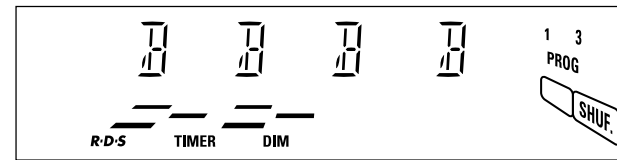


Figure 1



note : DISC1, DISC3, TUNER, JAZZ, TECHNO and Biplanar (if applicable)

Figure 2

Error code	Error Description
E1000	Focus Error Triggered when the focus could not be found within a certain time when starting up the CD or when the focus is lost for a certain time during play.
E1001	Radial Error Triggered when the radial servo is off-track for a certain time during play.
E1002	Sledge In Error The sledge did not reach its inner position (inner-switch is still close) before approximately 6 Sec. have passed by. Inner-switch or sledge motor problem.
E1003	Sledge Out Error The sledge did not come out of its inner position (inner-switch is still open) before approximately 250 mSec. have passed by. Inner-switch or sledge motor problem.
E1005	Jump-offtrack error Triggered in normal play when the jump destination could not be found within a certain time. When this error occurred, software will try to recover by initiating the jump command again. If it is recoverable, the disc will continue to play.
E1006	Subcode Error Triggered when a new subcode was missing for a certain time during play.
E1007	PLL Error The Phase Lock Loop could not lock within a certain time.
E1008	Turntable Motor Error Generated when the CD could not reached 75% of speed during startup within a certain time. Discmotor problem.
E1020	Focus Search Error The focus point has not been found within a certain time.
E1070	The carousel switch is not open within certain time. This can happen when either the switch is defective and closed all the time, or when the carousel is blocked when located exactly at a disc position.
E1071	The carousel position switch did not close within a certain time. This can happen when the switch is defective and never closes electrically, or when the carousel is blocked in between two disc positions. The time-out is approximately 5 Sec.
E1079	The drawer could not enter the inside position and is opening again. This happen when the drawer is blocked and cannot go fully inside or when the drawer switch is defective and does not close.

Table 2

PRESET	Europe "EUR"	East Eur. "EAS"	East Eur. Extended-band "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	153kHz	87.5MHz	558kHz	98MHz	87.5/98MHz*
8	279kHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	198kHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	98MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	87.5MHz	98MHz	65.81MHz	87.5MHz	98/87.5MHz*

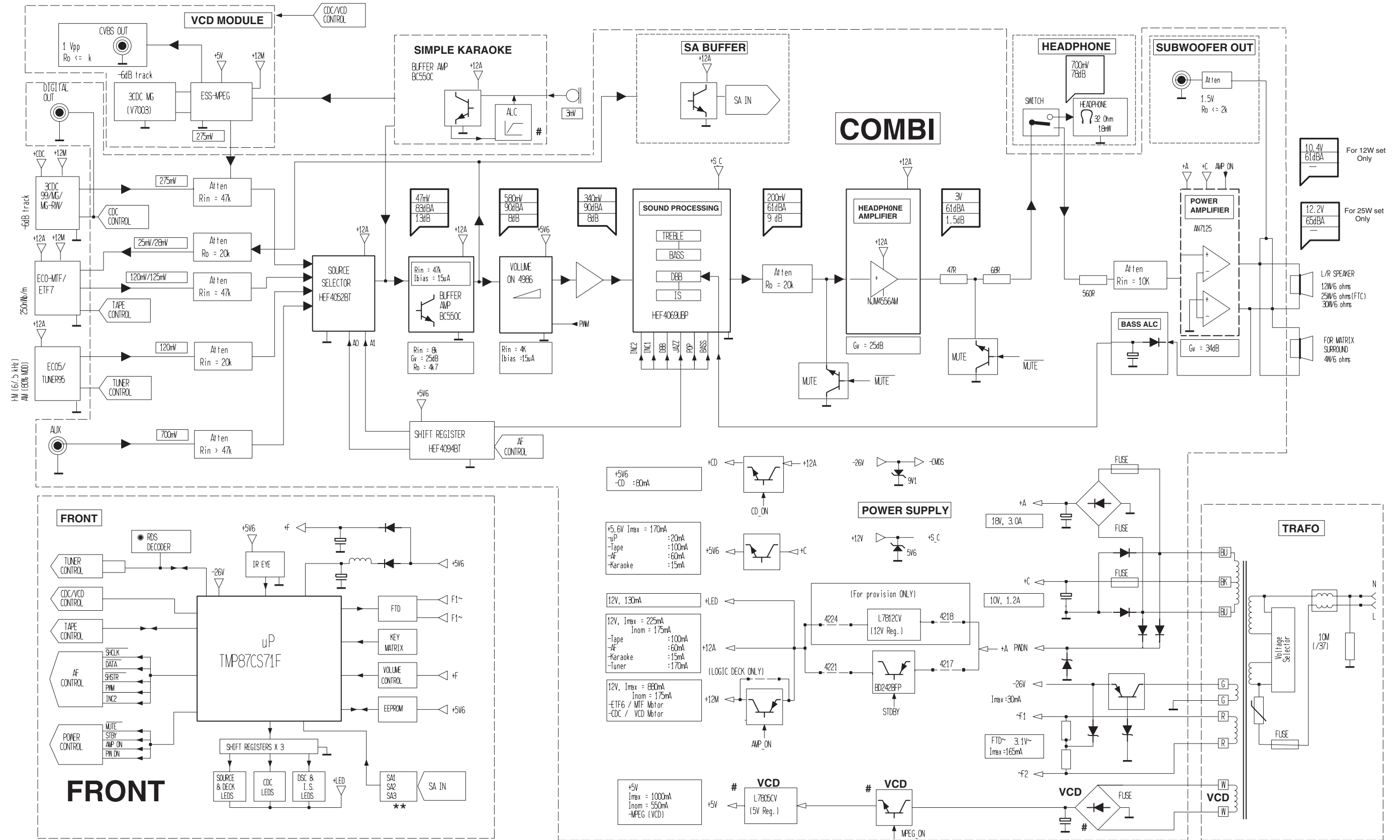
Table 1

Note: * Depending on the selected grid frequency (9 or 10kHz)
By holding the TUNER and **▶▶** buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
- the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.

TEST	Activated with	ACTION
EEPROM TEST	▶▶	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERROR" will be displayed.
EEPROM FORMAT	◀◀	Load default data. Display shows "NEW" for 1 second. Caution! All presets from the customer will be lost!!
ENCODER TEST	Volume Knob or Jog Shuttle knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

Various other Tests

SET BLOCK DIAGRAM



NOTE :

- ➔ MAIN SIGNAL PATH
- MEASUREMENTS ARE IN AUX MODE
- XX mV LEVELS AT MAX VOL
- YY dBA S/N AT 500mW
- ZZ dB HEADROOM (1% 1hd) WRT TO LEVEL AT MAX VOL.
- ** For version with small FTD, only SA3 is use.
- # Provision for VCD

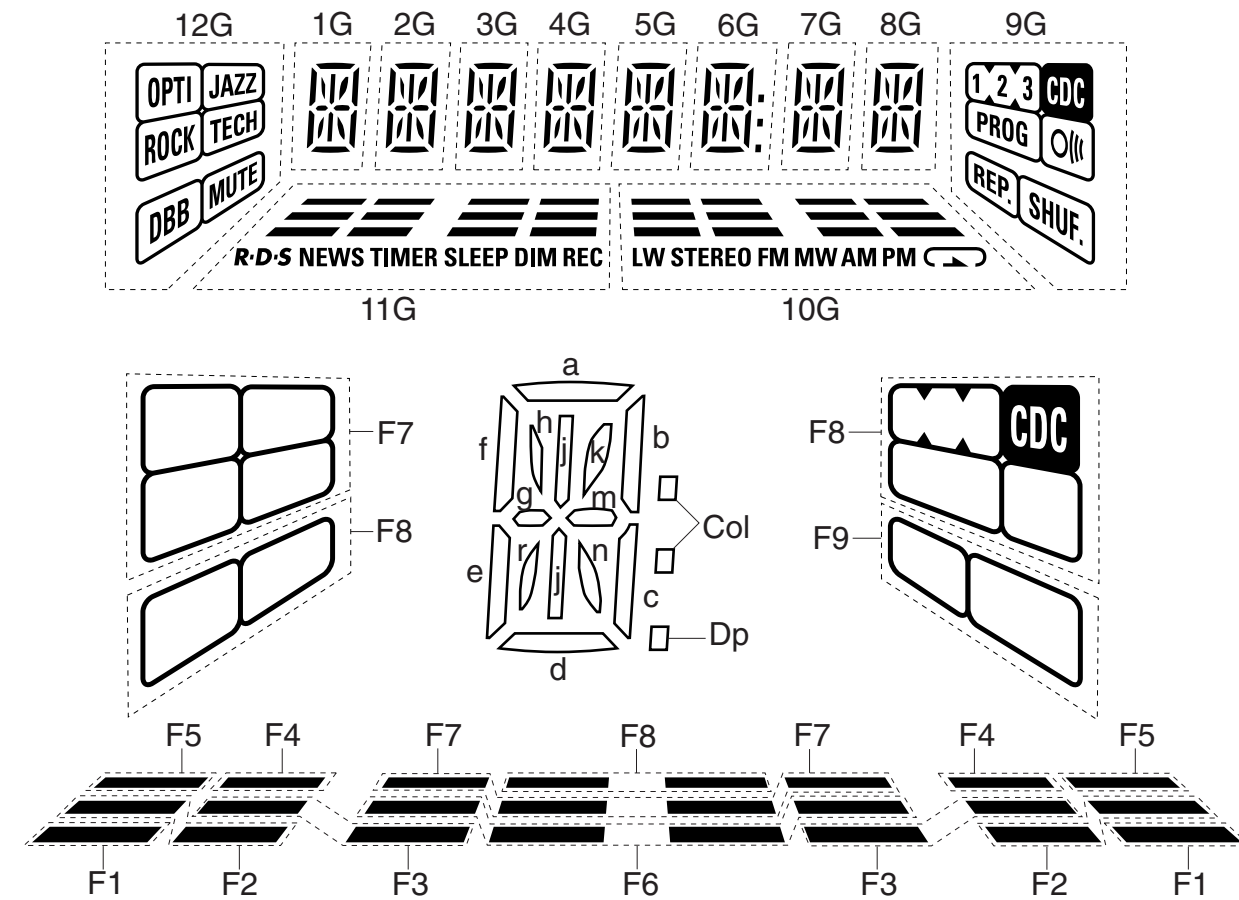
Updated on 10-06-99

FRONT BOARD

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FTD DISPLAY PIN CONNECTIONS



	1G - 5G	6G	7G - 8G	9G	10G	11G	12G
P1	a	a	a	1	F1	F1	OPTI
P2	h	h	h	2	F2	F2	JAZZ
P3	j	j	j	3	F3	F3	TECH
P4	k	k	k	OK	F4	F4	MUTE
P5	b	b	b	SHUF.	F5	F5	DBB
P6	f	f	f	REP.	F6	F6	ROCK
P7	m	m	m	PROG	F7	F7	F7
P8	g	g	g	F8	F8	F8	F8
P9	c	c	c	F9	LW	R-D-S	-
P10	e	e	e	-	STEREO	NEWS	-
P11	r	r	r	-	FM	TIMER	-
P12	n	n	n	-	MW	SLEEP	-
P13	d	d	d	-	AM	DIM	-
P14	-	Col	-	-	PM	REC	-
P15	-	Dp	-	-	▶	-	-
P16	-	-	-	-	⌋	-	-

Front Board application

A53920	FW-C200/21/21M, FW-C220/21K
A53930	FW-C220/22/34
A53940	FW-C200/33
A53950	FW-C100/21/21M/22/30/33/34/37, FW-C105/21
A53970	FW-C250/37
A53980	FW-C250/21
A53990	FW-C280/22/34
A54000	FW-C290/21
A54340	FW-C200/30
A54450	FW-C150/37

FEATURES:	A53920	A53930	A53940	A53950	A53970	A53980	A53990	A54000	A54340	A54450
RDS	-	x	-	-	-	-	x	-	-	-
Rotary Encoder	x	x	x	-	x	x	x	x	x	-
Jog Encoder	-	-	-	-	x	x	x	x	-	-
Spectrum Analyzer	-	-	-	-	-	-	x	x	-	-
Biplaner LED	-	-	-	-	-	-	x	x	-	-
Small FTD	x	x	x	x	x	x	-	-	x	x
Large FTD	-	-	-	-	-	-	x	x	-	-
NTC	-	-	-	-	-	x	-	x	-	-
LED Control	x	x	x	-	x	x	x	x	x	-

Variations table for Front Board

ITEM NO.	A53920	A53930	A53940	A53950	A53970	A53980	A53990	A54000	A54340	A54450
DM21	-	-	-	x	x	x	-	-	-	x
DM23	-	-	-	-	-	-	-	-	-	-
DM26	x	-	x	x	x	x	-	x	x	x
DM27	-	x	-	-	-	-	x	-	-	-
DM29	-	-	-	-	-	x	-	x	-	-
1402	-	-	-	-	-	-	x	x	-	-
1403	x	x	x	x	x	x	-	-	x	x
1404	x	x	x	x	x	x	x	x	x	x
1405	x	x	x	-	-	-	x	x	x	-
1418	-	-	-	-	-	-	x	x	-	-
1419	-	-	-	-	-	-	x	x	-	-
1420	-	-	-	-	-	-	x	x	-	-
1421	x	x	x	-	-	-	x	x	x	-
1423	x	x	x	-	-	-	x	x	x	-
1425	-	x	-	-	-	-	x	-	-	-
1426	x	x	x	-	-	-	x	x	x	-
1427	-	x	-	-	-	-	x	-	-	-
1428	-	-	-	x	-	-	-	-	-	x
1429	-	-	-	x	-	-	-	-	-	x
1430	x	x	x	x	-	-	-	-	x	x
2417	220μF	220μF	220μF	-	220μF	220μF	220μF	220μF	220μF	-
2421	22μF	22μF	22μF	2.2μF	22μF	22μF	22μF	22μF	22μF	2.2μF
2432	-	100pF	-	-	-	-	100pF	-	-	-
2433	-	47pF	-	-	-	-	47pF	-	-	-
2462	220nF	220nF	220nF	-	220nF	220nF	220nF	220nF	220nF	-
3407	-	-	-	-	-	-	1k	1k	-	-
3417	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3419	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3433	820R	820R	820R	-	820R	820R	820R	820R	820R	-

ITEM NO.	A53920	A53930	A53940	A53950	A53970	A53980	A53990	A54000	A54340	A54450
3448	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3449	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3451	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3452	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3457	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3458	-	-	-	-	-	-	1k	1k	-	-
3460	-	-	-	-	-	-	1k	1k	-	-
3465	1k	1k	1k	-	1k	1k	1k	1k	1k	-
3471	4R7	4R7	4R7	4R7	4R7	4R7	1R	4R7	4R7	4R7
3475	820R	820R	820R	-	820R	820R	820R	820R	820R	-
3479	1k	1k	1k	-	1k	1k	1k	1k	1k	-
3483	4R7	4R7	4R7	4R7	4R7	4R7	1R	4R7	4R7	4R7
3516	-	-	-	330R	-	-	-	-	-	330R
3518	-	-	-	-	-	-	330R	330R	-	-
3524	1k	1k	1k	-	-	-	1k	1k	1k	-
3539	10k	-	10k	10k	10k	10k	-	10k	10k	10k
3541	-	1k	-	-	-	-	1k	-	-	-
3546	10k	-	10k	10k	10k	10k	-	10k	10k	10k
3555	10k	10k	10k	10k	10k	10k	-	-	10k	10k
3575	10k	10k	10k	10k	10k	10k	-	-	10k	10k
3576	10k	10k	10k	10k	10k	10k	-	-	10k	10k
3577	-	-	-	-	-	-	12k	12k	-	-
3578	-	-	-	-	-	-	5k6	5k6	-	-
3586	-	-	-	-	-	-	1k	1k	-	-
3588	-	-	-	10k	-	-	-	-	-	10k
3600	5k6	5k6	5k6	5k6	5k6	5k6	-	-	5k6	5k6
3602	-	-	-	10k	10k	10k	-	-	-	10k
3603	10k	10k	10k	6k8	10k	10k	10k	10k	10k	10k
3613	12k	12k	12k	47k	12k	12k	12k	12k	12k	12k
3614	-	-	-	-	-	-	820R	820R	-	-
3615	-	-	-	-	-	-	820R	820R	-	-
3616	-	-	-	-	-	-	1k	-	1k	-
3617	10k	10k	10k	10k	10k	10k	-	10k	-	10k
4400	x	x	x	x	-	-	-	-	x	x
4407	x	x	x	-	x	x	-	-	x	-
4410	x	x	x	x	x	x	-	x	-	x
4412	-	-	-	-	-	-	x	x	-	-
4413	-	-	-	x	-	-	-	-	-	x
4417	x	x	x	-	-	-	-	-	x	-
4436	x	x	x	-	-	-	-	-	x	-
4588	-	-	-	x	-	-	-	-	-	x
6401	-	-	-	-	-	x	x	x	x	-
6402	-	-	-	-	-	-	-	x	x	-
6404	-	-	-	-	-	x	x	x	x	-
6405	-	-	-	-	-	-	-	x	x	-
6420	-	-	-	-	-	-	-	x	x	-
6422	-	-	-	x	-	-	-	-	-	x
6423	x	-	x	-	-	-	x	-	x	-
6424	-	-	-	-	-	x	x	-	-	-
6428	x	x	x	-	-	x	x	x	x	-
6433	-	-	-	-	-	x	x	-	-	-
6445	x	x	x	-	-	-	-	-	x	-
6446	x	x	x	-	-	-	-	-	x	-
6447	x	x	x	-	-	x	x	-	-	x
9475	x	x	x	x	x	x	-	-	x	x
9488	-	-	-	-	-	x	x	x	x	-
9520	-	-	-	-	-	x	x	x	x	-
9523	x	x	x	x	x	x	-	-	x	x

x = Item in use.

ELECTRICAL PARTS LIST - FRONT BOARD**MISCELLANEOUS**

1400	3139 110 52070	FTD Display BJ722GNK
1401	2422 025 14546	Flex Socket 16pin Hort.
1404	4822 265 11531	Flex Socket 9pin Hort.
1406	4822 276 13775	Tact Switch
1407	4822 276 13775	Tact Switch
1408	4822 276 13775	Tact Switch
1409	4822 276 13775	Tact Switch
1410	4822 276 13775	Tact Switch
1411	4822 276 13775	Tact Switch
1412	4822 276 13775	Tact Switch
1413	4822 276 13775	Tact Switch
1414	4822 276 13775	Tact Switch
1415	4822 276 13775	Tact Switch
1416	4822 276 13775	Tact Switch
1422	4822 276 13775	Tact Switch
1424	4822 276 13775	Tact Switch
1428	4822 276 13775	Tact Switch
1429	4822 276 13775	Tact Switch
1430	4822 276 13775	Tact Switch
1432	4822 276 13775	Tact Switch

CAPACITORS

2406	5322 122 32659	33pF 5% 50V
2407	5322 122 32659	33pF 5% 50V
2412	4822 126 14585	100nF 10% 50V
2414	4822 126 13838	100nF +80/-20% 50V
2415	4822 126 14585	100nF 10% 50V
2416	4822 124 23432	100µF 20% 10V
2418	4822 126 14043	1µF +80/-20% 16V
2419	4822 124 41584	100µF 20% 10V
2420	4822 124 12032	4,7µF 20% 50V
2421	4822 124 22652	2,2µF 20% 50V
2422	4822 126 14585	100nF 10% 50V
2423	4822 126 13486	15pF 2% 63V
2424	4822 126 13486	15pF 2% 63V
2425	4822 126 13838	100nF +80/-20% 50V
2426	4822 126 13751	47nF 10% 63V
2427	4822 122 33127	2,2nF 10% 63V
2428	4822 122 33177	10nF 20% 50V
2431	4822 126 14585	100nF 10% 50V
2434	4822 126 13692	47pF 1% 63V
2435	4822 126 13692	47pF 1% 63V
2436	4822 126 13692	47pF 1% 63V
2437	4822 126 13692	47pF 1% 63V
2443	4822 122 33177	10nF 20% 50V
2475	4822 126 14585	100nF 10% 50V
2476	4822 124 12032	4,7µF 20% 50V
2477	4822 126 14043	1µF +80/-20% 16V
2479	4822 126 14585	100nF 10% 50V
2481	5322 122 32268	470pF 10% 50V
2482	4822 126 12882	100nF +80-20% 50V
2483	5322 122 32268	470pF 10% 50V

2484	5322 122 32268	470pF 10% 50V
2485	5322 122 32268	470pF 10% 50V
2486	5322 122 32268	470pF 10% 50V
2488	4822 126 14585	100nF 10% 50V
2489	4822 122 33891	3,3nF 10% 63V
2493	4822 126 14585	100nF 10% 50V

RESISTORS

3406	4822 051 20479	47R 5% 0,1W
3410	4822 051 20392	3k9 5% 0,1W
3412	4822 051 20392	3k9 5% 0,1W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 051 10102	1k 2% 0,25W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 051 10102	1k 2% 0,25W
3431	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 117 13577	330R 1% 0,1W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 117 10833	10k 1% 0,1W
3459	4822 050 21003	10k 1% 0,6W
3461	4822 117 10833	10k 1% 0,1W
3462	4822 117 13577	330R 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 117 10833	10k 1% 0,1W
3466	4822 117 10833	10k 1% 0,1W
3467	4822 117 13577	330R 1% 0,1W
3469	4822 051 10102	1k 2% 0,25W
3471	4822 050 24708	4R7 1% 0,6W
3472	4822 051 10102	1k 2% 0,25W
3474	4822 117 13577	330R 1% 0,1W

ELECTRICAL PARTS LIST - FRONT BOARD

3476	4822 051 10102	1k 2% 0,25W
3477	4822 051 10102	1k 2% 0,25W
3478	4822 051 20101	100R 5% 0,1W
3480	4822 117 13577	330R 1% 0,1W
3481	4822 051 10102	1k 2% 0,25W
3482	4822 051 10102	1k 2% 0,25W
3483	4822 050 24708	4R7 1% 0,6W
3484	4822 051 10102	1k 2% 0,25W
3485	4822 051 10102	1k 2% 0,25W
3486	4822 051 10102	1k 2% 0,25W
3488	4822 117 13577	330R 1% 0,1W
3489	4822 051 10102	1k 2% 0,25W
3490	4822 051 10102	1k 2% 0,25W
3493	4822 117 13577	330R 1% 0,1W
3494	4822 117 13577	330R 1% 0,1W
3495	4822 117 10833	10k 1% 0,1W
3496	4822 051 10102	1k 2% 0,25W
3497	4822 050 11002	1k 1% 0,4W
3498	4822 051 10102	1k 2% 0,25W
3499	4822 117 10833	10k 1% 0,1W
3500	4822 051 10102	1k 2% 0,25W
3501	4822 116 52226	560R 5% 0,5W
3502	4822 051 20182	1k8 5% 0,1W
3503	4822 050 11002	1k 1% 0,4W
3504	4822 051 10102	1k 2% 0,25W
3505	4822 117 13577	330R 1% 0,1W
3506	4822 051 10102	1k 2% 0,25W
3507	4822 050 11002	1k 1% 0,4W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 050 11002	1k 1% 0,4W
3511	4822 051 20182	1k8 5% 0,1W
3512	4822 050 21003	10k 1% 0,6W
3513	4822 050 21003	10k 1% 0,6W
3515	4822 117 10837	100k 1% 0,1W
3516	4822 117 13577	330R 1% 0,1W
3517	4822 117 11507	6k8 1% 0,1W
3519	4822 117 13577	330R 1% 0,1W
3520	4822 050 21003	10k 1% 0,6W
3521	4822 051 10102	1k 2% 0,25W
3522	4822 117 12955	2k7 1% 0,1W
3525	4822 050 11002	1k 1% 0,4W
3527	4822 050 11002	1k 1% 0,4W
3533	4822 117 10833	10k 1% 0,1W
3534	4822 117 10833	10k 1% 0,1W
3535	4822 117 10833	10k 1% 0,1W
3536	4822 051 20474	470k 5% 0,1W
3537	4822 051 20474	470k 5% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3543	4822 051 10102	1k 2% 0,25W
3545	4822 051 10102	1k 2% 0,25W
3546	4822 117 10833	10k 1% 0,1W

3547	4822 051 10102	1k 2% 0,25W
3548	4822 051 10102	1k 2% 0,25W
3549	4822 117 10833	10k 1% 0,1W
3551	4822 117 13577	330R 1% 0,1W
3552	4822 117 13577	330R 1% 0,1W
3553	4822 117 10833	10k 1% 0,1W
3554	4822 117 10833	10k 1% 0,1W
3555	4822 117 10833	10k 1% 0,1W
3556	4822 051 10102	1k 2% 0,25W
3558	4822 117 10833	10k 1% 0,1W
3559	4822 051 20105	1M 5% 0,1W
3561	4822 051 20472	4k7 5% 0,1W
3562	4822 117 10833	10k 1% 0,1W
3563	4822 117 10833	10k 1% 0,1W
3564	4822 117 10833	10k 1% 0,1W
3565	4822 051 20472	4k7 5% 0,1W
3566	4822 117 10833	10k 1% 0,1W
3567	4822 117 10833	10k 1% 0,1W
3568	4822 117 10834	47k 1% 0,1W
3569	4822 051 20223	22k 5% 0,1W
3570	4822 051 20223	22k 5% 0,1W
3571	4822 117 11383	12k 1% 0,1W
3572	4822 117 10833	10k 1% 0,1W
3573	4822 051 20223	22k 5% 0,1W
3574	4822 051 20223	22k 5% 0,1W
3575	4822 117 10833	10k 1% 0,1W
3576	4822 117 10833	10k 1% 0,1W
3581	4822 117 10833	10k 1% 0,1W
3582	4822 117 10833	10k 1% 0,1W
3583	4822 117 10833	10k 1% 0,1W
3584	4822 051 10102	1k 2% 0,25W
3585	4822 051 10102	1k 2% 0,25W
3587	4822 050 21003	10k 1% 0,6W
3588	4822 117 10833	10k 1% 0,1W
3600	4822 051 20562	5k6 5% 0,1W
3601	4822 117 10833	10k 1% 0,1W
3602	4822 117 10833	10k 1% 0,1W
3603	4822 117 10833	10k 1% 0,1W
3607	4822 051 20182	1k8 5% 0,1W
3608	4822 051 20182	1k8 5% 0,1W
3609	4822 051 20182	1k8 5% 0,1W
3610	4822 051 20182	1k8 5% 0,1W
3611	4822 051 20474	470k 5% 0,1W
3612	4822 117 10833	10k 1% 0,1W
3613	4822 117 11383	12k 1% 0,1W
3617	4822 050 21003	10k 1% 0,6W
4400	4822 051 20008	0R Jumper 0805
4401	4822 051 20008	0R Jumper 0805
4402	4822 051 20008	0R Jumper 0805
4404	4822 051 20008	0R Jumper 0805
4405	4822 051 20008	0R Jumper 0805
4410	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD**RESISTORS**

4520	4822 051 20008	OR Jumper 0805
4521	4822 051 20008	OR Jumper 0805
4522	4822 051 20008	OR Jumper 0805
4523	4822 051 20008	OR Jumper 0805
4524	4822 051 20008	OR Jumper 0805
4525	4822 051 20008	OR Jumper 0805
4526	4822 051 20008	OR Jumper 0805
4527	4822 051 20008	OR Jumper 0805
4528	4822 051 20008	OR Jumper 0805
4529	4822 051 20008	OR Jumper 0805
4530	4822 051 20008	OR Jumper 0805
4531	4822 051 20008	OR Jumper 0805
4532	4822 051 20008	OR Jumper 0805
4533	4822 051 20008	OR Jumper 0805
4534	4822 051 20008	OR Jumper 0805
4535	4822 051 20008	OR Jumper 0805
4536	4822 051 20008	OR Jumper 0805
4537	4822 051 20008	OR Jumper 0805
4538	4822 051 20008	OR Jumper 0805
4539	4822 051 20008	OR Jumper 0805
4540	4822 051 20008	OR Jumper 0805
4541	4822 051 20008	OR Jumper 0805
4542	4822 051 20008	OR Jumper 0805
4543	4822 051 20008	OR Jumper 0805
4544	4822 051 20008	OR Jumper 0805
4545	4822 051 20008	OR Jumper 0805
4546	4822 051 20008	OR Jumper 0805
4547	4822 051 20008	OR Jumper 0805
4549	4822 051 20008	OR Jumper 0805
4588	4822 051 20008	OR Jumper 0805

COILS & FILTERS

5400	4822 242 72066	Ceram Resonator 8MHz
5401	2422 543 01069	X'tal Resonator 32,768kHz
5402	4822 157 62552	Coil 2,2 μ H 5%
5404	4822 157 62552	Coil 2,2 μ H 5%
5405	4822 157 62552	Coil 2,2 μ H 5%

DIODES

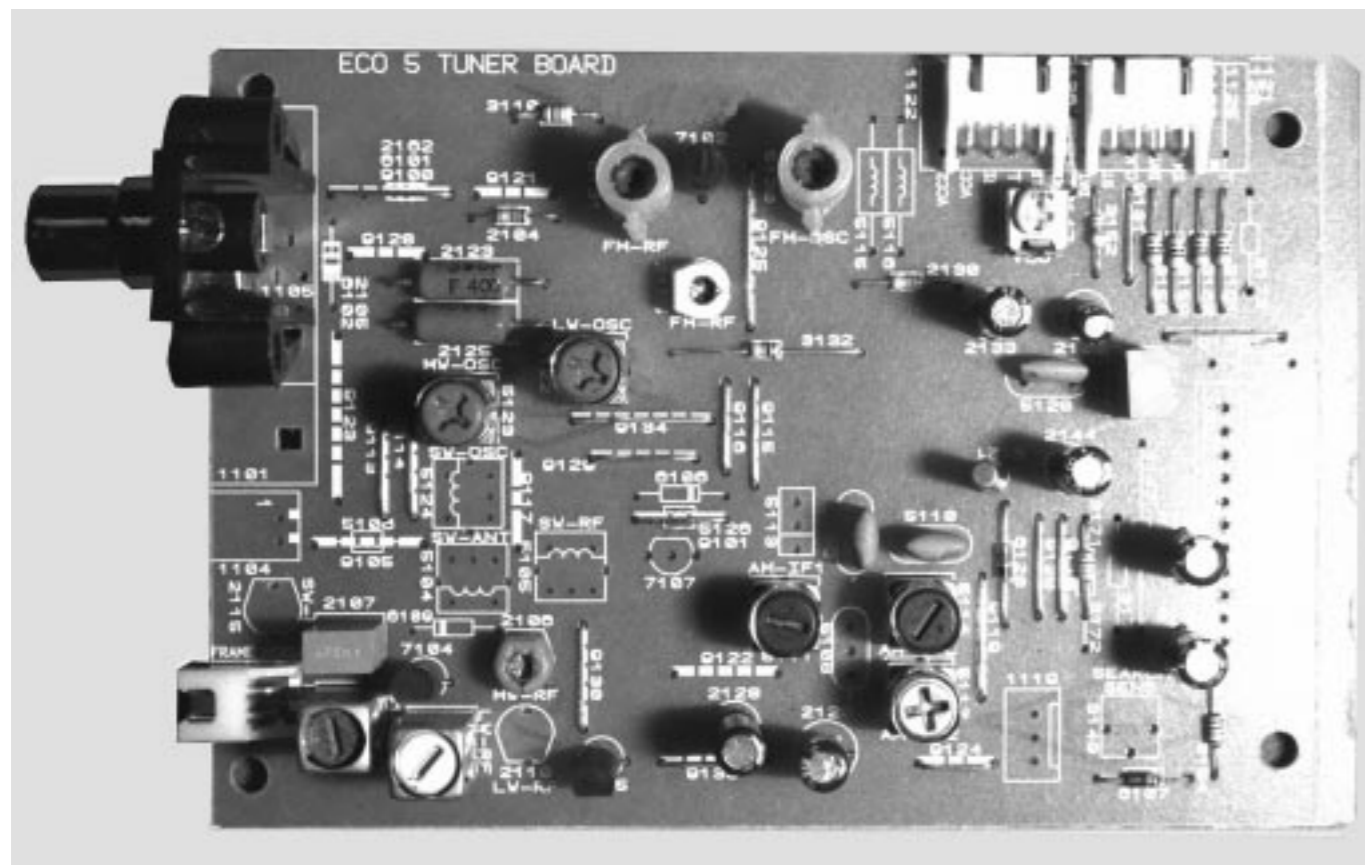
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	4822 130 30621	1N4148
6418	4822 130 30621	1N4148
6419	4822 130 30621	1N4148
6421	4822 130 30621	1N4148
6422	4822 130 30621	1N4148
6425	4822 130 31878	1N4003G
6426	4822 130 31878	1N4003G

TRANSISTORS & INTEGRATED CIRCUITS

7401	3139 110 52500	TMP87CP71F "C100S52501"
7402	9965 000 04931	M24C01-WMN6
7404	5322 209 11306	HEF4094BT
7408	5322 130 60159	BC847B
7409	4822 130 10165	GP1U28XP
7410	5322 130 60159	BC847B
7411	5322 130 60159	BC847B
7412	5322 130 60159	BC847B
7413	5322 130 60159	BC847B

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

BLOCKDIAGRAM

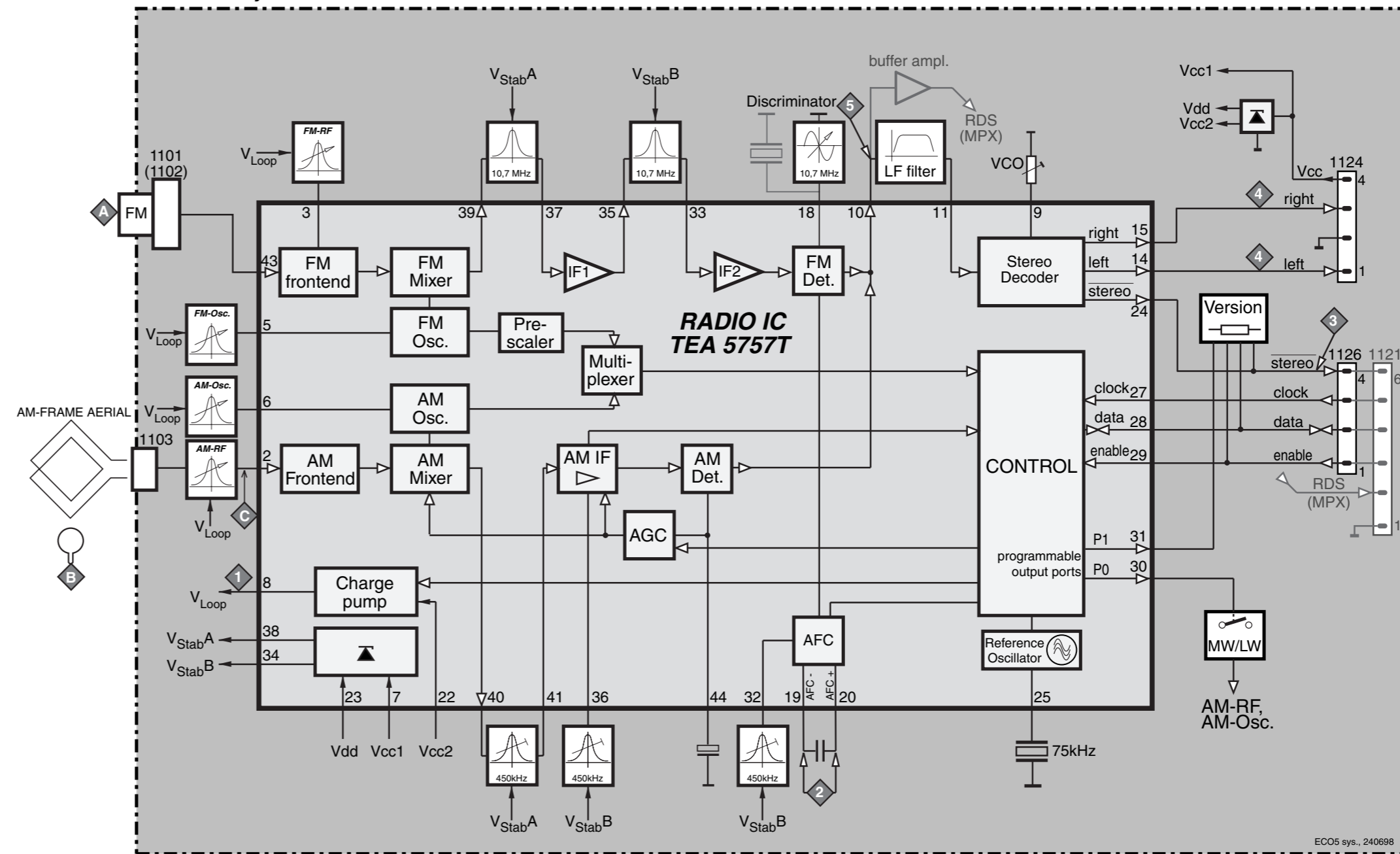


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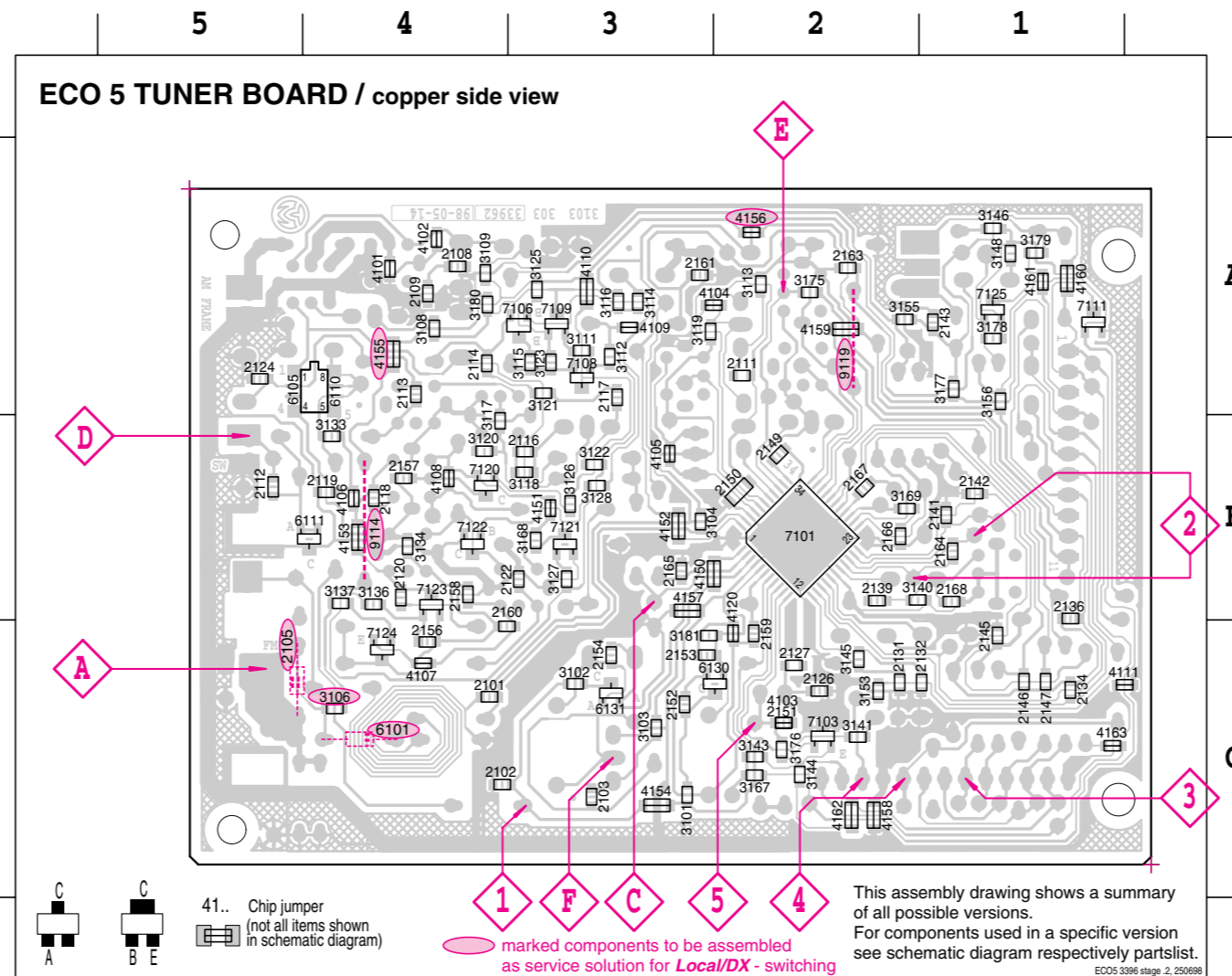
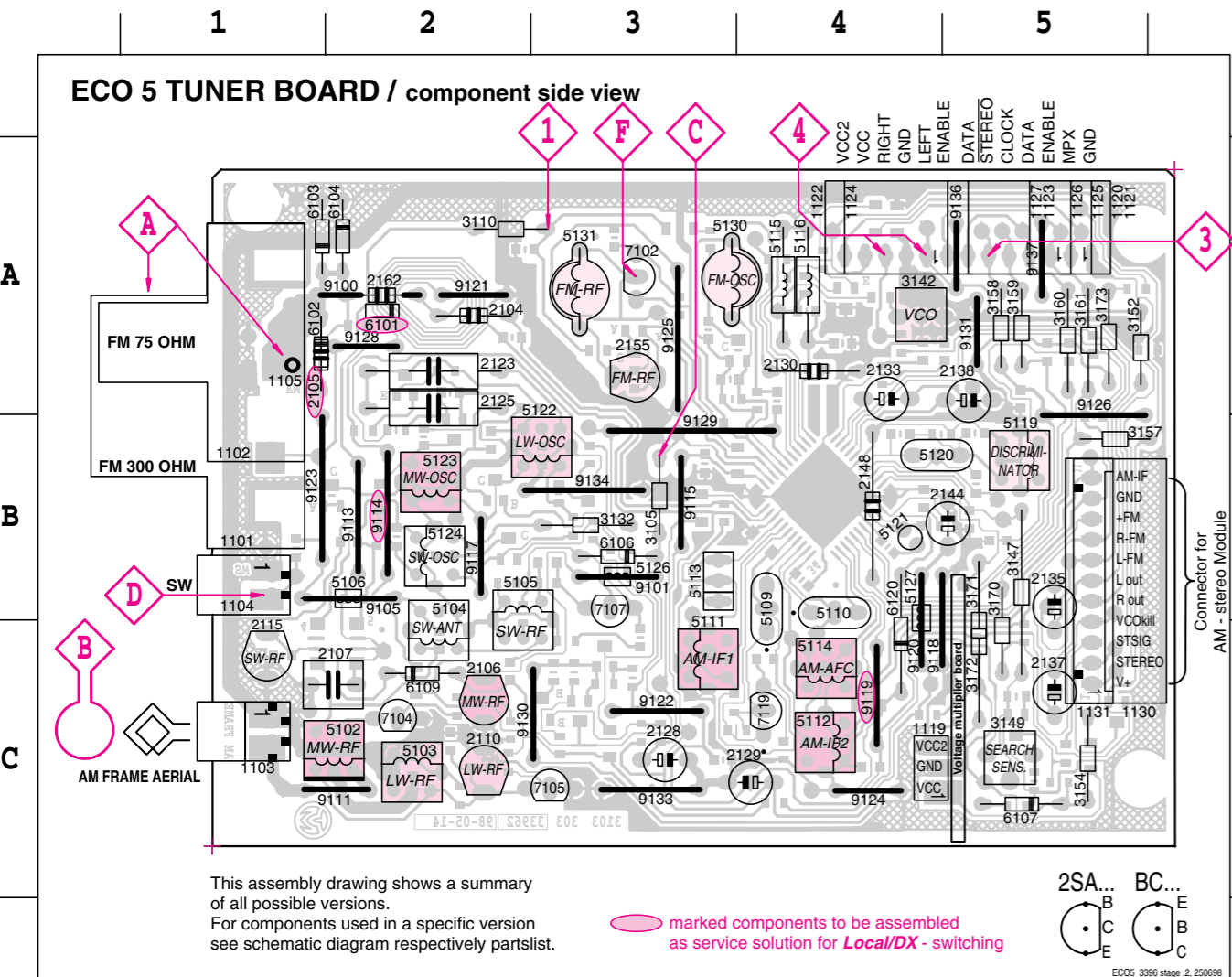


1101 A1	2106 C2	2137 C5	3149 C5	3173 A5	5114 C4	5130 A3	7104 C2	9117 B2	9129 B3
1102 A1	2107 C2	2138 A5	3152 A5	5102 C2	5115 A4	5131 A3	7105 C3	9118 B4	9130 C3
1103 C1	2110 C2	2144 B5	3154 C5	5103 C2	5116 A4	6101 A2	7107 B3	9119 C4	9131 A5
1104 B1	2115 C1	2148 B4	3157 B5	5104 C2	5119 B5	6102 A1	7119 C4	9120 B4	9133 C3
1105 A1	2123 A2	2155 A3	3158 A5	5105 B2	5120 B4	6103 A1	9100 A2	9121 A2	9134 B3
1119 C5	2125 A2	2162 A2	3159 A5	5106 B2	5121 B4	6104 A2	9101 B3	9122 C3	9136 A5
1120 A5	2128 C3	3105 B3	3160 A5	5109 B4	5122 B3	6106 B3	9105 B2	9123 B1	9137 A5
1130 B5	2129 C4	3110 A2	3161 A5	5110 B4	5123 B2	6107 C5	9111 C2	9124 C4	
1131 B5	2130 A4	3132 B3	3170 C5	5111 C3	5124 B2	6109 C2	9113 B2	9125 A3	
2104 A2	2133 A4	3142 A4	3171 C5	5112 C4	5126 B3	6120 C4	9114 B2	9126 B5	
2105 A1	2135 B5	3147 B5	3172 C5	5113 B3	5127 B4	7102 A3	9115 B3	9128 A2	

2101 C4	2118 B4	2139 B2	2153 C3	2166 B2	3112 A3	3123 A3	3143 C2	3175 A2	4105 B3	4153 B4	6105 A4	7120 B4
2102 C4	2119 B4	2141 B1	2154 C3	2167 B2	3113 A2	3125 A3	3144 C2	3176 C2	4106 B4	4154 C3	6110 A4	7121 B3
2103 C3	2120 B4	2142 B1	2156 C4	2168 B1	3114 A3	3126 B3	3145 C2	3177 A1	4107 C4	4155 A4	6111 B4	7122 B4
2108 A4	2122 B3	2143 A1	2157 B4	3101 C3	3115 A3	3127 B3	3146 A1	3178 A1	4108 B4	4156 A2	6130 C2	7123 B4
2109 A4	2124 A5	2145 C1	2158 B4	3102 C3	3116 A3	3128 B3	3148 A1	3179 A1	4109 A3	4157 B3	6131 C2	7124 C4
2111 A2	2126 C2	2146 C1	2159 C2	3103 C3	3117 B4	3133 B4	3153 C2	3180 A4	4110 A3	4158 C2	7101 B2	7125 A1
2112 B5	2127 C2	2147 C1	2160 C4	3104 B3	3118 B3	3134 B4	3155 A2	3181 C3	4111 C1	4159 A2	7103 C2	
2113 A4	2131 C2	2149 B2	2161 A3	3106 C4	3119 A3	3136 B4	3156 A1	4101 A4	4112 C2	4160 A1	7106 A3	
2114 A4	2132 C1	2150 B2	2163 A2	3108 A4	3120 B4	3137 B4	3167 C2	4102 A4	4150 B2	4161 A1	7108 A3	
2116 B3	2134 C1	2151 C2	2164 B1	3109 A4	3121 A3	3140 B2	3168 B3	4103 C2	4151 B3	4162 C1	7109 A3	
2117 A3	2136 B1	2152 C3	2165 B3	3111 A3	3122 B3	3141 C2	3169 B2	4104 A2	4152 B3	4163 C1	7111 A1	

TUNER ADJUSTMENT TABLE (ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Wavrange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW	153 - 279kHz		279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 50mV continuous wave	F	IC 7101 21 shortcircuit to block AFC	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A		2155	4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz		5131		
VCO						
FM	98MHz, 1mV continuous wave	A		98MHz	3	152kHz ±1kHz ¹⁾
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	C	IC 7101 36 100nF	5111	4	symmetric
		C	IC 7101 40 100nF see remark 2)	5112		
AM AFC		C		5114	2	0 ± 2 mV DC
AM RF³⁾						
MW⁴⁾ FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B		1494kHz	2106	4
	558kHz			558kHz	5102	
LW	198kHz			198kHz	5103	
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V _{RF} as low as possible		1500kHz	2106	4
	560kHz			560kHz	5102	



Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

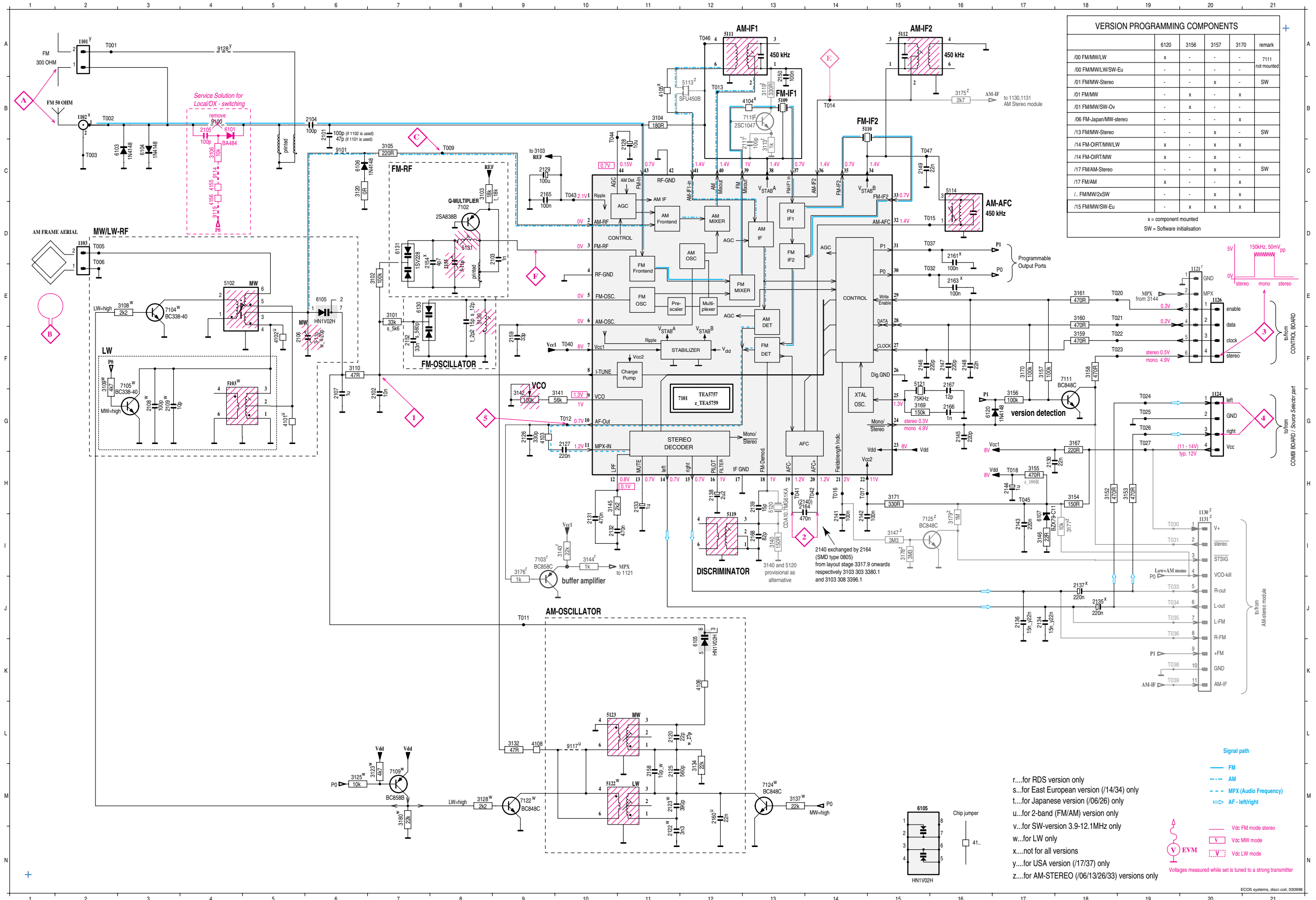
2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used!

4) MW has to be aligned before LW.

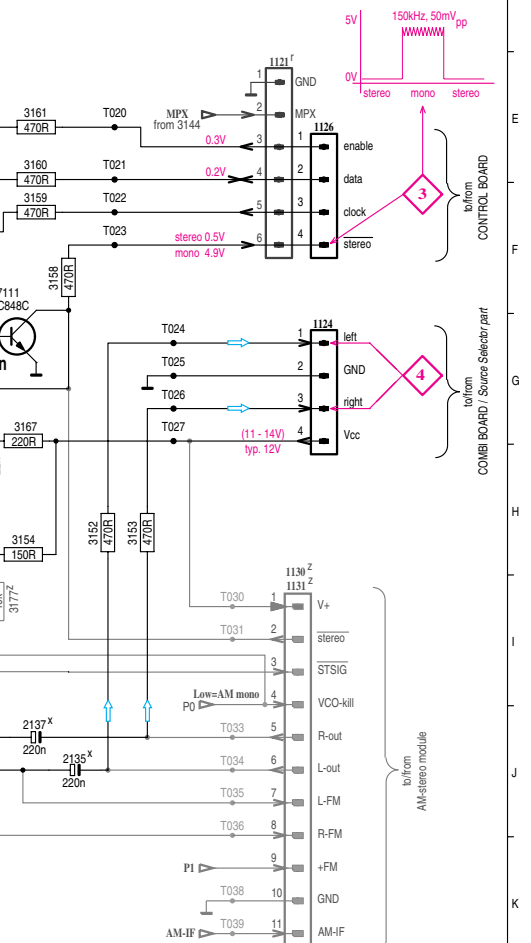
Repeat

TUNER BOARD ECO5 / Systems

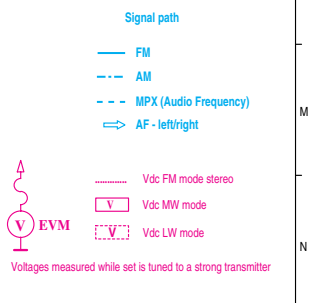


VERSION PROGRAMMING COMPONENTS					
	6120	3156	3157	3170	remark
/00 FMMW/LW	x	-	-	-	7111 not mounted
/06 FMMW/LW/SW-Eu	-	-	-	-	
/01 FMMW-Stereo	-	-	x	-	SW
/01 FMMW	-	x	-	x	
/01 FMMW/SW-Ov	-	x	-	-	
/06 FMMW/Japan/MW-stereo	-	-	-	x	
/13 FMMW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FM/AM-Stereo	-	-	x	-	SW
/17 FM/AM	x	-	-	x	
/.. FMMW/2xSW	-	-	x	x	
/15 FMMW/SW-Eu	-	x	x	x	

x = component mounted
SW = Software initialisation



r....for RDS version only
s....for East European version (/14/34) only
t....for Japanese version (/06/26) only
u....for 2-band (FM/AM) version only
v....for SW-version 3.9-12.1MHz only
w....for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only



1101 A 1
1102 B 2
1103 D 2
1121 E20
1124 C20
1126 E20
1130 I20
1131 I20
2101 C 6
2102 G 7
2103 J 9
2104 S 6
2106 F 5
2107 G 6
2108 G 3
2109 G 3
2111 C13
2120 L11
2122 M11
2123 M11
2125 M11
2126 G 9
2127 G10
2128 C11
2129 C 9
2130 H17
2131 I10
2132 I10
2133 H10
2134 I17
2135 I18
2136 J17
2137 H18
2138 H12
2139 H13
2140 H14
2141 H14
2142 H14
2143 I17
2144 H17
2145 H16
2146 F15
2147 F16
2148 F16
2149 C15
2150 B13
2152 F 7
2153 D 8
2154 E 7
2155 D 8
2156 F 8
2158 F 8
2160 M12
2161 D16
2162 S13
2164 H14
2165 C 9
2166 H16
2167 F16
2168 I13
3101 E 7
3102 E 8
3103 C 6
3104 B11
3105 C 7
3106 S 3
3109 F 2
3110 F 6
3113 C13
3118 B13
3119 B13
3120 C 6
3123 M 7
3125 S 6
3128 M 8
3132 J 9
3134 M12
3142 G 9
3143 I10
3144 I10
3145 H10
3146 I17
3147 I15
3152 H18
3153 H18
3154 H18
3155 H17
3156 G17
3157 F17
3158 F16
3159 F18
3160 H18
3161 H18
3167 G18
3169 G15
3170 F17
3171 H15
3175 B16
3176 J 9
3177 H18
3178 I15
3179 I16
3180 M7
4101 G 5
4102 F 5
4103 G 9
4104 B13
4105 B11
4106 K12
4108 L 9
5102 E 4
5103 F 4
5109 B13
5110 B14
5111 A13
5112 A15
5113 B12
5114 C16
5119 I12
5120 H13
5121 F15
5122 M11
5123 L11
5130 E 8
5131 D 8
6103 C 2
6104 C 3
6105 K12
6105 E 6
6106 C 6
6107 H17
6120 B16
6130 E 7
6131 D 7
7101 B11
7102 D 8
7103 J 9
7104 E 3
7105 F 2
7108 M7
7111 F18
7119 B13
7122 M 9
7124 M13
7125 H16
9100 B 4
9101 C 6
9117 L10
9128 A 4

ELECTRICAL PARTS LIST - ECO5 TUNER BOARD**MISCELLANEOUS**

1101	4822 267 31505	Antenna Socket 300R
1102	4822 267 10283	Antenna Socket Coax IEC 75R

CAPACITORS

2101	5322 122 32531	100pF 5% 50V	
2101	4822 126 13692	47pF 1% 63V	for USA
2102	4822 122 33177	10nF 20% 50V	
2103	5322 122 34123	1nF 10% 50V	
2104	4822 122 33195	100pF 10% 50V	
2106	4822 125 50355	Trimmer 4-20pF	for LW version
2106	4822 125 60101	Trimmer 3-11pF 100V	
2107	4822 121 51319	1μF 10% 63V	
2108	5322 122 32531	100pF 5% 50V	for LW version
2109	5322 122 32448	10pF 5% 50V	for LW version
2120	4822 126 13691	27pF 1% 63V	for LW version
2120	5322 122 32658	22pF 5% 50V	
2122	4822 122 33891	3,3nF 10% 63V	for LW version
2125	4822 121 51381	560pF 5% 400V	
2126	5322 122 31863	330pF 5% 50V	
2127	4822 126 13473	220nF +80/-20% 50V	
2128	4822 124 41579	10μF 20% 50V	
2129	4822 124 41584	100μF 20% 10V	
2130	4822 126 11585	22nF+80/- 20% 25V	
2131	4822 122 33325	470nF 16V	
2132	4822 122 33325	470nF 16V	
2131	4822 126 13482	470nF +80/- 20% 16V	
2132	4822 126 13482	470nF +80/- 20% 16V	
2133	4822 124 40242	1μF 20% 63V	
2134	4822 126 13188	15nF 5% 63V	
2134	5322 122 32654	22nF 10% 63V	for USA
2135	4822 124 40746	0,22μF 20% 63V	
2136	4822 126 13188	15nF 5% 63V	
2136	5322 122 32654	22nF 10% 63V	for USA
2137	4822 124 40746	0,22μF 20% 63V	
2138	4822 124 41576	2,2μF 20% 50V	
2139	4822 126 14236	50V 15pF 5%	
2140	4822 121 51252	470nF 5% 63V	
2141	4822 126 10002	100nF 20% 25V	
2142	4822 126 10002	100nF 20% 25V	
2143	4822 126 13473	220nF +80/-20% 50V	
2144	4822 124 40242	1μF 20% 63V	
2145	4822 122 33575	220pF 5% 50V	
2146	4822 122 33575	220pF 5% 50V	
2147	4822 122 33575	220pF 5% 50V	
2148	4822 126 11585	22nF+80/- 20% 25V	
2149	5322 122 32654	22nF 10% 63V	
2150	4822 122 31947	100nF 20% 63V	
2152	5322 116 80853	560pF 5% 63V	for East. Europe
2152	4822 126 12105	33nF 5% 63V	
2153	4822 122 32139	12pF 2% 63V	for East. Europe
2153	4822 122 32504	15pF 2% 63V	
2155	4822 125 60101	Trimmer 3-11pF 100V	

2158	5322 122 32448	10pF 5% 50V	for LW version
2159	5322 122 32659	33pF 5% 50V	
2160	5322 122 32654	22nF 10% 63V	
2161	4822 126 10002	100nF 20% 25V	
2163	4822 126 10002	100nF 20% 25V	
2164	4822 126 13482	470nF +80/- 20% 16V	
2165	4822 126 10002	100nF 20% 25V	
2166	5322 122 34123	1nF 10% 50V	
2167	4822 122 32139	12pF 2% 63V	
2168	4822 126 13695	82pF 1% 63V	

RESISTORS

3101	4822 051 20562	5k6 5% 0,1W	for East. Europe
3101	4822 051 20333	33k 5% 0,1W	
3102	4822 051 20104	100k 5% 0,1W	
3103	4822 117 10965	18k 1% 0,1W	
3104	4822 117 11448	180R 1% 0,1W	
3105	4822 116 83872	220R 5% 0,5W	
3108	4822 117 11449	2k2 1% 0,1W	for LW version
3109	4822 051 20472	4k7 5% 0,1W	for LW version
3110	4822 116 52195	47R 5% 0,5W	
3120	4822 051 20008	0R Jumper 0805	
3123	4822 051 20472	4k7 5% 0,1W	for LW version
3125	4822 117 10833	10k 1% 0,1W	for LW version
3128	4822 117 11449	2k2 1% 0,1W	for LW version
3132	4822 116 52195	47R 5% 0,5W	
3134	4822 051 20223	22k 5% 0,1W	
3137	4822 051 20223	22k 5% 0,1W	for LW version
3140	4822 051 20008	0R Jumper 0805	
3140	4822 117 10353	150R 1% 0,1W	
3141	4822 051 20563	56k 5% 0,1W	
3142	4822 100 11163	Trimmer 100k 30% 0,1W	
3143	4822 051 20223	22k 5% 0,1W	for RDS version
3144	4822 051 10102	1k 2% 0,25W	for RDS version
3145	4822 117 11449	2k2 1% 0,1W	
3146	4822 051 20229	22R 5% 0,1W	
3152	4822 116 83883	470R 5% 0,5W	
3153	4822 051 20471	470R 5% 0,1W	
3154	4822 116 83868	150R 5% 0,5W	
3155	4822 051 20471	470R 5% 0,1W	
3156	4822 051 20104	100k 5% 0,1W	for /21/30/33 only
3157	4822 116 52234	100k 5% 0,5W	for East. Europe
3158	4822 116 83883	470R 5% 0,5W	
3159	4822 116 83883	470R 5% 0,5W	
3160	4822 116 83883	470R 5% 0,5W	
3161	4822 116 83883	470R 5% 0,5W	
3167	4822 117 11503	220R 1% 0,1W	
3169	4822 051 20154	150k 5% 0,1W	
3170	4822 116 52234	100k 5% 0,5W	
3171	4822 116 52219	330R 5% 0,5W	

ELECTRICAL PARTS LIST - ECO5 TUNER BOARD

3176	4822 051 10102	1k 2% 0,25W	for RDS version
3180	4822 051 20223	22k 5% 0,1W	for LW version
4101	4822 051 20008	0R Jumper 0805	for 2-Band only
4102	4822 051 20008	0R Jumper 0805	for 2-Band only
4103	4822 051 20008	0R Jumper 0805	
4104	4822 051 20008	0R Jumper 0805	
4105	4822 051 20008	0R Jumper 0805	
4106	4822 051 20008	0R Jumper 0805	
4108	4822 051 20008	0R Jumper 0805	
4111	4822 051 20008	0R Jumper 0805	
4120	4822 051 20008	0R Jumper 0805	
4150	4822 051 10008	0R Jumper 1206	
4151	4822 051 20008	0R Jumper 0805	
4152	4822 051 10008	0R Jumper 1206	
4153	4822 051 10008	0R Jumper 1206	
4154	4822 051 10008	0R Jumper 1206	
4155	4822 051 10008	0R Jumper 1206	
4156	4822 051 20008	0R Jumper 0805	
4157	4822 051 10008	0R Jumper 1206	
4158	4822 051 10008	0R Jumper 1206	
4159	4822 051 10008	0R Jumper 1206	
4162	4822 051 10008	0R Jumper 1206	

COILS & FILTERS

5102	4822 157 71634	MW RF Coil	
5103	4822 157 71635	LW RF Coil	for LW version
5109	4822 242 70665	Ceram Filter 10,7MHz	
5110	4822 242 70665	Ceram Filter 10,7MHz	
5111	4822 158 60511	AM-IF Filter 450kHz	
5112	4822 157 70302	AM-IF Filter 450kHz	
5114	4822 157 70302	AM-IF Filter 450kHz	
5119	4822 157 11443	Discriminator 10,7MHz	
5120	4822 242 82065	Cer. Disc. 10,7MG40K	
5120	4822 242 10251	Cer. Disc.10,7MG61KA-TF21	
5121	4822 242 10261	Quartz 75kHz	
5122	4822 157 60517	Osc. Coil LW	for LW version
5123	4822 157 60517	Osc. Coil MW	
5130	4822 156 30947	RF-Coil 1.5T	
5131	4822 156 30947	RF-Coil 1.5T	

DIODES

6103	4822 130 30621	1N4148	
6104	4822 130 30621	1N4148	
6105	4822 130 83075	HN1V02H-B	
6106	4822 130 30621	1N4148	
6107	4822 130 34488	BZX79-B11	
6120	4822 130 30621	1N4148	not for /21/30/33
6130	4822 130 82833	1SV228	
6131	4822 130 82833	1SV228	

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90924	TEA5757H/V1	
------	----------------	-------------	--

7102	4822 130 60093	2SA838B	
7103	4822 130 42513	BC858C	for RDS version
7104	5322 130 44779	BC338-40	for LW version
7105	5322 130 44779	BC338-40	for LW version
7109	5322 130 41983	BC858B	for LW version
7111	5322 130 42136	BC848C	
7122	5322 130 42136	BC848C	for LW version
7124	5322 130 42136	BC848C	for LW version

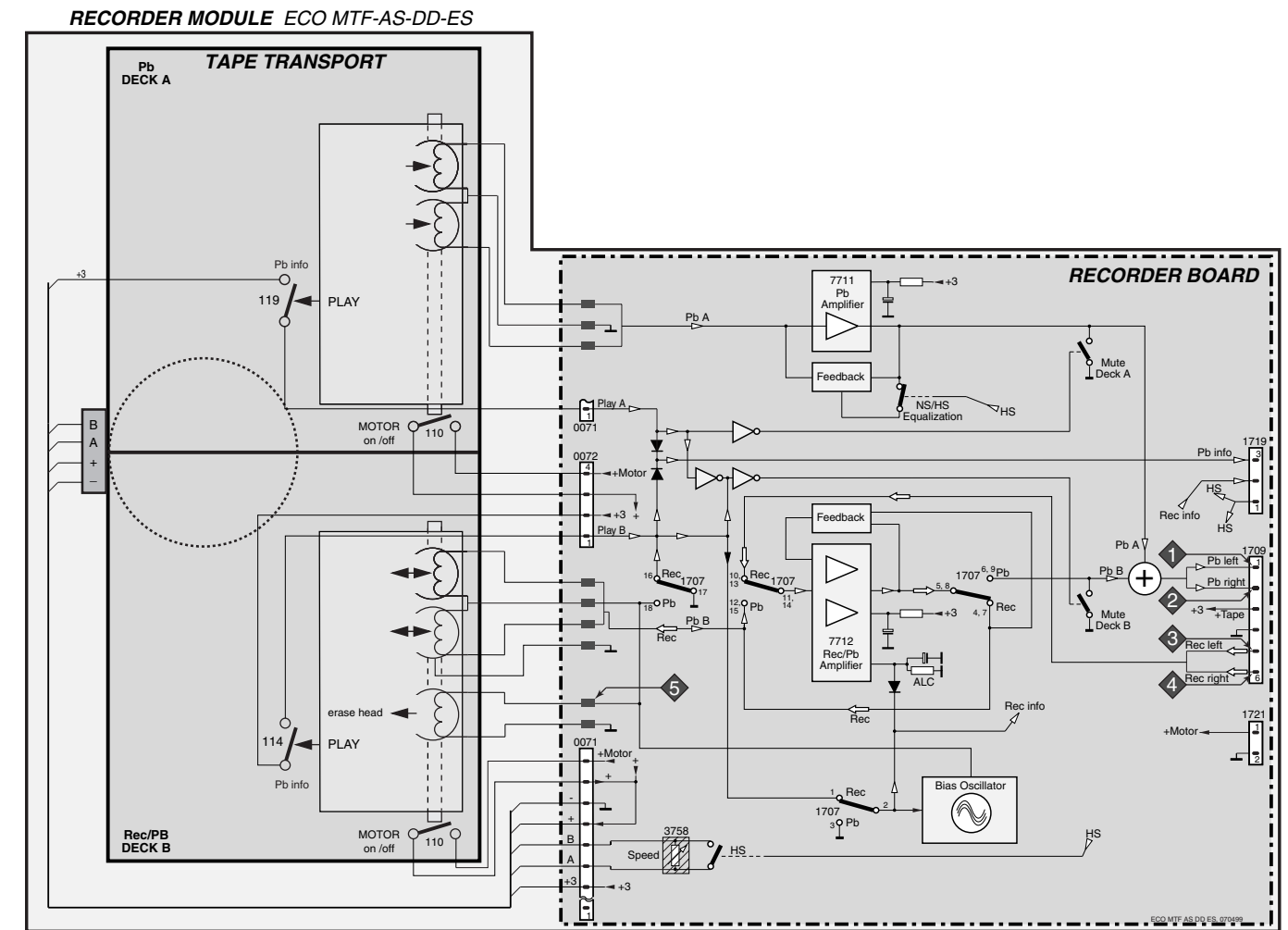
Note: Only the parts mentioned in this list are normal service spare parts.

ECO MTF MODULE

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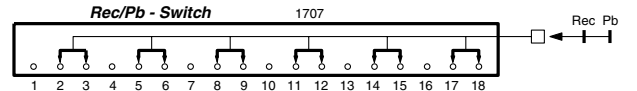
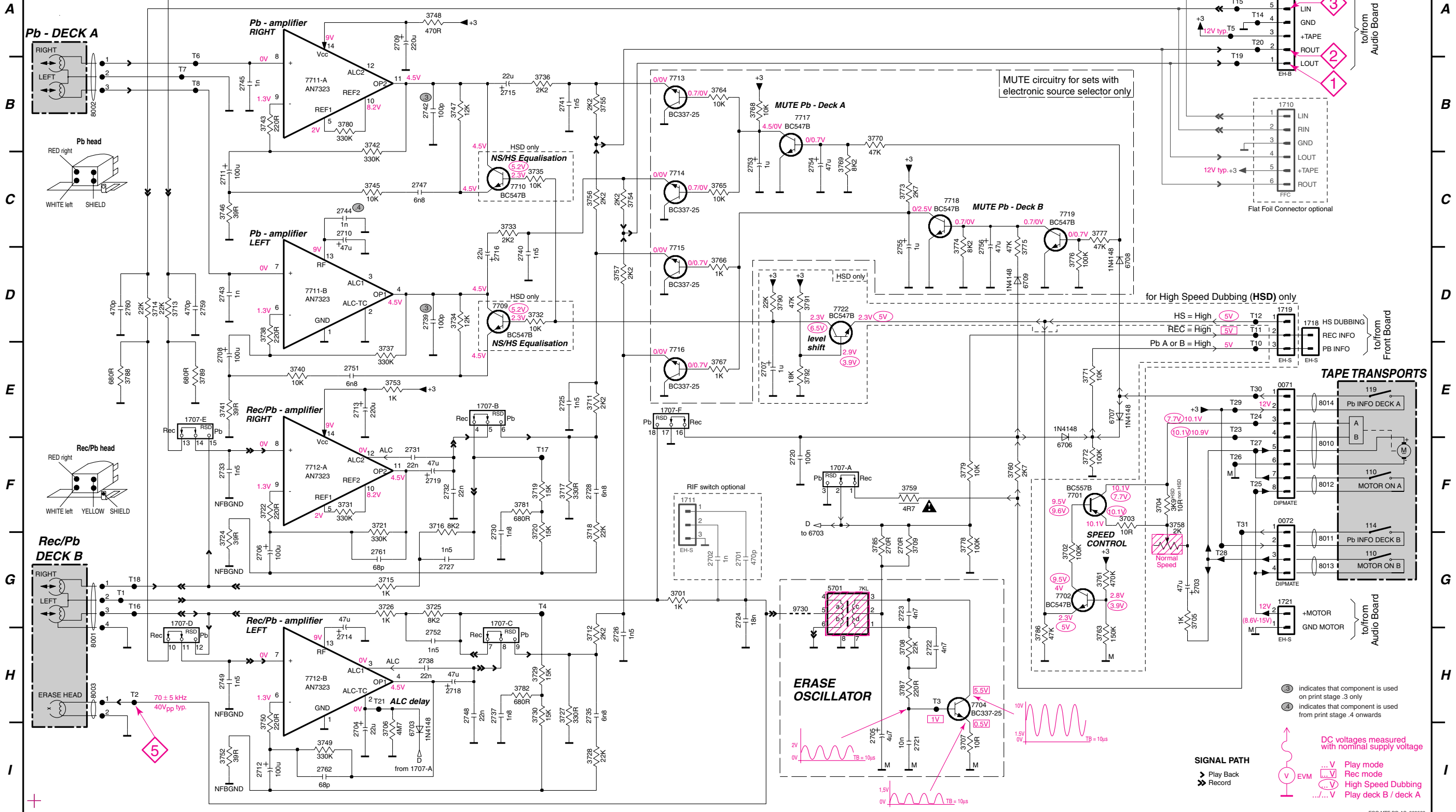
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BLOCK DIAGRAM



0071 E14	1707-F E7	2702 G8	2709 A5	2716 D6	2724 G8	2732 F5	2741 B6	2749 H3	2759 D2	3704 F13	3712 H7	3719 F6	3727 H6	3734 D5	3742 B4	3750 H3	3758 F13	3766 D8	3773 C10	3780 B4	3789 E2	6707 E12	7710 C6	7715 C8
0072 F14	1709 A14	2703 G13	2710 C4	2718 H5	2725 E6	2733 F3	2742 B5	2751 E4	2760 D2	3705 G13	3713 D2	3720 F6	3728 I7	3735 C6	3743 B3	3752 I3	3759 F10	3767 E8	3774 C10	3781 F6	3790 D9	6708 D12	7711-A B4	7716 E8
1707-A F9	1710 B14	2704 I4	2711 C3	2719 F5	2726 H7	2735 H7	2743 D3	2752 H5	2761 G4	3706 I4	3714 D2	3721 F4	3729 H6	3736 B6	3745 C4	3753 E5	3760 F11	3768 B8	3775 D11	3782 H6	3791 D9	6709 D11	7711-B D4	7717 B9
1707-B E5	1719 D14	2705 I10	2712 I3	2720 F9	2727 G5	2737 H6	2744 C4	2753 C8	2762 I4	3707 I11	3715 G4	3722 F3	3730 H6	3737 E4	3746 C3	3754 C7	3761 G12	3769 C9	3776 D12	3785 G10	3792 E9	7701 F12	7712-A F4	7718 C10
1707-C G6	1721 G14	2706 G3	2713 E4	2721 I10	2728 F7	2738 H5	2745 B3	2754 C9	2763 H8	3701 G8	3716 F5	3724 G3	3731 F4	3738 D3	3747 B5	3755 B7	3763 H12	3770 B10	3777 C12	3786 H11	3793 G9	7702 G12	7712-B H4	7719 C12
1707-D G2	1780 D14	2707 E8	2714 H4	2722 H10	2730 F6	2739 D5	2747 C5	2756 C10	2764 G12	3708 G10	3717 F6	3725 G5	3732 D6	3740 E4	3748 A5	3756 C7	3764 B8	3771 E12	3778 G11	3787 H10	6703 I5	7704 H11	7713 B8	7722 D9
1707-E E2	2701 G8	2708 E3	2715 B6	2723 G10	2731 F5	2740 D6	2748 H5	2756 C11	2765 F12	3711 E7	3718 F7	3726 G4	3733 C6	3741 E3	3749 I4	3757 D7	3765 C8	3772 F12	3779 F11	3788 E2	6706 F12	7709 D6	7714 C8	9730 G9

RECORDER BOARD
ECO MTF AS



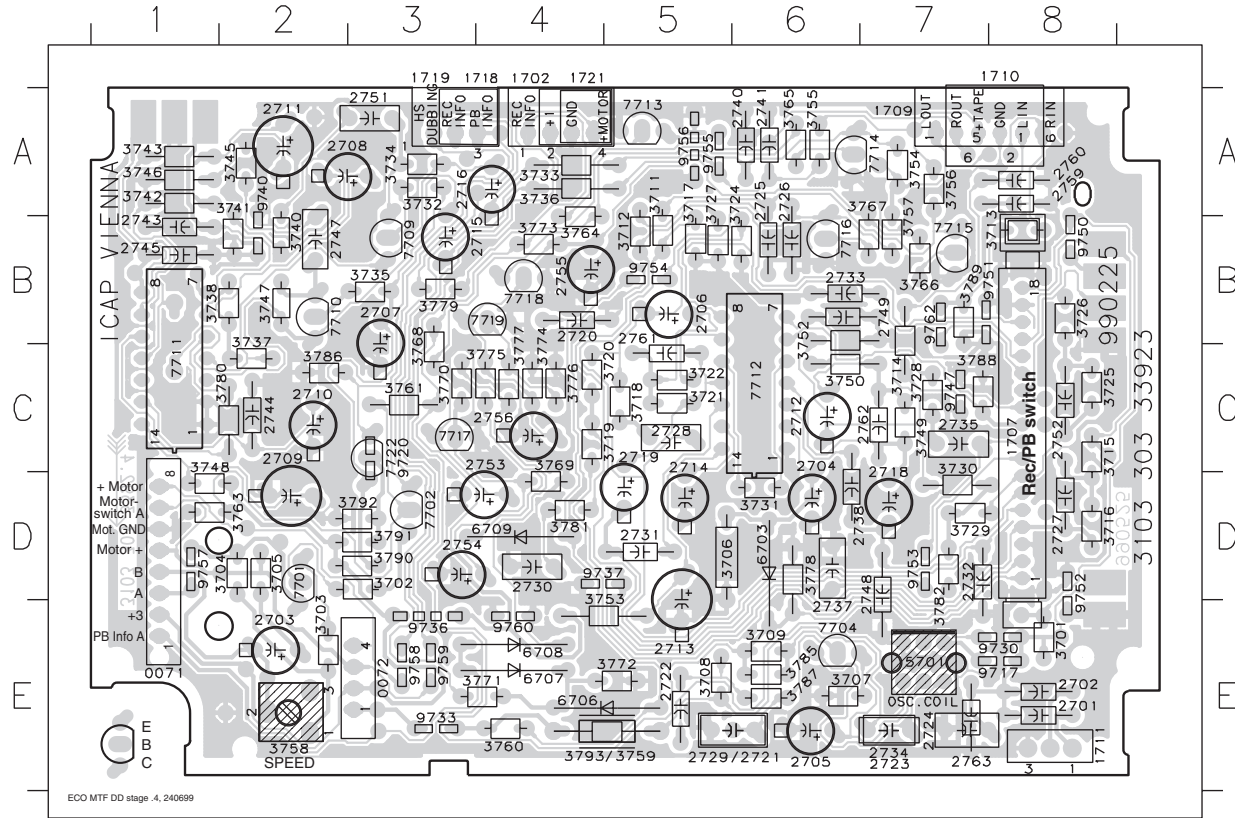
③ indicates that component is used on print stage .3 only
④ indicates that component is used from print stage .4 onwards

DC voltages measured with nominal supply voltage

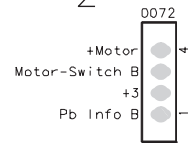
SIGNAL PATH
▶ Play Back
▶▶ Record

Ⓜ V EVM
Ⓜ V Rec mode
Ⓜ V High Speed Dubbing
Ⓜ V Play deck B / deck A

RECORDER BOARD / componentside view

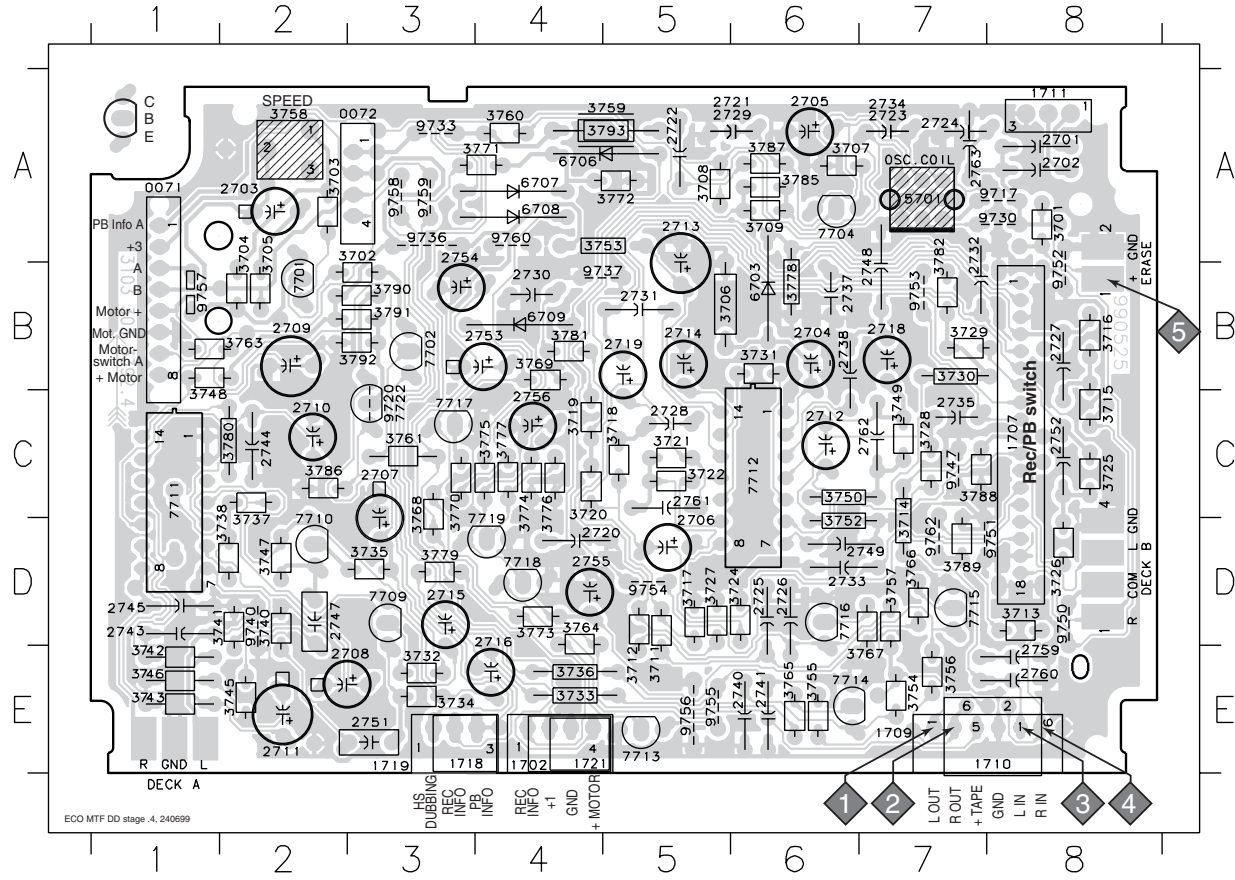


- | | | | | | | | |
|------|----|------|----|------|----|------|----|
| 0071 | E1 | 2744 | C2 | 3735 | B3 | 3789 | B7 |
| 0072 | E3 | 2745 | A1 | 3736 | A4 | 3790 | D3 |
| 1702 | A5 | 2747 | B2 | 3737 | B2 | 3791 | D3 |
| 1707 | B8 | 2748 | D7 | 3738 | B2 | 3792 | D3 |
| 1709 | A7 | 2749 | B7 | 3740 | B2 | 3793 | E4 |
| 1710 | A7 | 2751 | A3 | 3741 | A2 | 5701 | E7 |
| 1711 | E8 | 2752 | C8 | 3742 | B1 | 6703 | D6 |
| 1719 | A3 | 2753 | D4 | 3743 | B1 | 6706 | E4 |
| 1721 | A4 | 2754 | D4 | 3745 | A2 | 6707 | E4 |
| 1721 | E8 | 2755 | B4 | 3746 | A1 | 6708 | E4 |
| 2702 | E8 | 2756 | C4 | 3747 | B2 | 6709 | D4 |
| 2703 | E2 | 2759 | A8 | 3748 | C1 | 7701 | D2 |
| 2704 | C6 | 2760 | A8 | 3749 | C7 | 7702 | D3 |
| 2705 | E6 | 2761 | B5 | 3750 | C6 | 7704 | E6 |
| 2706 | B5 | 2762 | C7 | 3752 | B6 | 7709 | B3 |
| 2707 | B3 | 2763 | E7 | 3753 | D5 | 7710 | B2 |
| 2708 | A3 | 3701 | E8 | 3754 | A7 | 7711 | C1 |
| 2709 | D2 | 3702 | D3 | 3755 | A6 | 7712 | B6 |
| 2710 | C2 | 3703 | E2 | 3756 | A7 | 7713 | A5 |
| 2711 | A2 | 3704 | D2 | 3757 | B7 | 7714 | A7 |
| 2712 | C6 | 3705 | D2 | 3758 | E2 | 7715 | B7 |
| 2713 | E5 | 3706 | D6 | 3759 | E5 | 7716 | B6 |
| 2714 | D5 | 3707 | E6 | 3760 | E4 | 7717 | C3 |
| 2715 | B4 | 3708 | E5 | 3761 | C3 | 7718 | B4 |
| 2716 | A3 | 3709 | E6 | 3763 | D2 | 7719 | B4 |
| 2718 | D7 | 3711 | A5 | 3764 | B4 | 7722 | C3 |
| 2719 | D5 | 3712 | B5 | 3765 | A6 | 9717 | E8 |
| 2720 | B4 | 3713 | B8 | 3766 | B7 | 9720 | C3 |
| 2721 | E6 | 3714 | C7 | 3767 | A7 | 9730 | E7 |
| 2722 | E5 | 3715 | B8 | 3768 | C3 | 9733 | E3 |
| 2723 | E7 | 3716 | D8 | 3769 | C4 | 9736 | E3 |
| 2724 | E7 | 3717 | B5 | 3770 | C3 | 9737 | D4 |
| 2725 | A6 | 3718 | C5 | 3771 | E4 | 9740 | B2 |
| 2726 | A6 | 3719 | C5 | 3772 | E5 | 9747 | C7 |
| 2727 | D8 | 3720 | C5 | 3773 | B4 | 9750 | B8 |
| 2728 | C5 | 3721 | C5 | 3774 | C4 | 9751 | B8 |
| 2729 | E5 | 3722 | C5 | 3775 | C4 | 9752 | D8 |
| 2730 | D4 | 3724 | A5 | 3776 | C4 | 9753 | D7 |
| 2731 | D5 | 3725 | C8 | 3777 | C4 | 9754 | B5 |
| 2732 | D7 | 3726 | B8 | 3778 | D6 | 9755 | A5 |
| 2733 | B6 | 3727 | A5 | 3779 | B3 | 9756 | A5 |
| 2734 | E7 | 3728 | C7 | 3780 | C1 | 9757 | D1 |
| 2735 | C7 | 3729 | D7 | 3781 | D4 | 9758 | E3 |
| 2737 | E6 | 3730 | C7 | 3782 | E7 | 9759 | E3 |
| 2738 | D7 | 3731 | D6 | 3785 | E6 | 9760 | E4 |
| 2740 | A5 | 3732 | A3 | 3786 | C2 | 9762 | B7 |
| 2741 | A6 | 3733 | A4 | 3787 | E6 | | |
| 2743 | A1 | 3734 | A3 | 3788 | C7 | | |



These assembly drawings show a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

RECORDER BOARD / copperside view



- | | | | | | | | |
|------|----|------|----|------|----|------|----|
| 0071 | B1 | 2744 | C2 | 3735 | D3 | 3789 | D7 |
| 0072 | A3 | 2745 | E1 | 3736 | E4 | 3790 | B3 |
| 1702 | E4 | 2747 | D2 | 3737 | D2 | 3791 | B2 |
| 1707 | B8 | 2748 | B7 | 3738 | D2 | 3792 | B3 |
| 1709 | E8 | 2749 | D6 | 3740 | D2 | 3793 | A5 |
| 1710 | E8 | 2751 | E3 | 3741 | D1 | 5701 | A7 |
| 1711 | A8 | 2752 | C8 | 3742 | E1 | 6703 | B6 |
| 1719 | E3 | 2753 | B4 | 3743 | E1 | 6706 | A4 |
| 1721 | A4 | 2754 | D3 | 3745 | E2 | 6707 | A4 |
| 2701 | A8 | 2755 | D5 | 3746 | D1 | 6708 | A4 |
| 2702 | A8 | 2756 | C4 | 3747 | D2 | 6709 | B4 |
| 2703 | A2 | 2759 | E8 | 3748 | C1 | 7701 | B2 |
| 2704 | C6 | 2760 | E8 | 3749 | C7 | 7702 | B3 |
| 2705 | A6 | 2761 | D5 | 3750 | C6 | 7704 | A6 |
| 2706 | D5 | 2762 | C7 | 3752 | D6 | 7709 | D3 |
| 2707 | C3 | 2763 | A7 | 3753 | A4 | 7710 | D2 |
| 2708 | E3 | 3701 | A8 | 3754 | E7 | 7711 | C1 |
| 2709 | B2 | 3702 | A3 | 3755 | E6 | 7712 | C6 |
| 2710 | C2 | 3703 | A2 | 3756 | E7 | 7713 | E5 |
| 2711 | E2 | 3704 | B2 | 3757 | E7 | 7714 | E7 |
| 2712 | C6 | 3705 | B2 | 3758 | A2 | 7715 | D7 |
| 2713 | A5 | 3706 | B5 | 3759 | A5 | 7716 | D6 |
| 2714 | B5 | 3707 | A6 | 3760 | A4 | 7717 | C3 |
| 2715 | D4 | 3708 | A5 | 3761 | C3 | 7718 | D4 |
| 2716 | D4 | 3709 | A6 | 3763 | B2 | 7719 | D4 |
| 2718 | B7 | 3711 | E5 | 3764 | A4 | 7722 | C3 |
| 2719 | B5 | 3712 | E5 | 3765 | E6 | 9717 | A8 |
| 2720 | D4 | 3713 | D8 | 3766 | D7 | 9720 | C3 |
| 2721 | A6 | 3714 | C7 | 3767 | E7 | 9730 | A7 |
| 2722 | A5 | 3715 | B8 | 3768 | C3 | 9733 | A3 |
| 2723 | A7 | 3716 | B8 | 3769 | C4 | 9736 | A3 |
| 2724 | A7 | 3717 | E5 | 3770 | C3 | 9737 | B4 |
| 2725 | D6 | 3718 | C5 | 3771 | A4 | 9740 | D2 |
| 2726 | E6 | 3719 | C5 | 3772 | A5 | 9747 | C7 |
| 2727 | B8 | 3720 | D4 | 3773 | D4 | 9750 | E8 |
| 2728 | C5 | 3721 | C5 | 3774 | D4 | 9751 | D8 |
| 2729 | A6 | 3722 | C5 | 3775 | C4 | 9752 | B8 |
| 2730 | B4 | 3724 | E6 | 3776 | C4 | 9753 | B7 |
| 2731 | B5 | 3725 | C8 | 3777 | C4 | 9754 | D5 |
| 2732 | B7 | 3726 | D8 | 3778 | B6 | 9755 | E6 |
| 2733 | D6 | 3727 | D5 | 3779 | D3 | 9756 | E5 |
| 2734 | A7 | 3728 | C7 | 3780 | C2 | 9757 | B1 |
| 2735 | C7 | 3729 | B7 | 3781 | B4 | 9758 | A3 |
| 2737 | B6 | 3730 | C7 | 3782 | A7 | 9759 | A3 |
| 2738 | B7 | 3731 | B5 | 3785 | A6 | 9760 | A4 |
| 2740 | E6 | 3732 | E3 | 3786 | C2 | 9762 | D7 |
| 2741 | E6 | 3733 | E4 | 3787 | A6 | | |
| 2743 | E1 | 3734 | E3 | 3788 | C8 | | |

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
General						
ADJUST MOTOR SPEED	SBC420 (4822 397 30071) 3150Hz	PLAY deck A or B	1 or 2 LEFT or RIGHT or headphone socket	frequency counter	3758	3150Hz ±1%
CHECK WOW & FLUTTER	SBC420 (4822 397 30071) 3150Hz	PLAY deck A or B	1 or 2 LEFT or RIGHT or headphone socket	W&F-meter	check only	≤0.4 % DIN or ≤0.35 % CCIR
ADJUST AZIMUTH	SBC420 (4822 397 30071) 10kHz	PLAY deck A PLAY deck B	1 or 2 LEFT or RIGHT or headphone socket	mV-meter or oscilloscope	left hand screw	max. output level & left=right
Playback						
CHECK PLAYBACK FREQUENCY RESPONSE	SBC420 (4822 397 30071)	PLAY deck A PLAY deck B	1 or 2 LEFT or RIGHT	mV-meter	Check	limits see fig.1
Recording						
PRE-ADJUST BIAS	FERRO	RECORD	5	mV-meter	5701	14V _{rms} (40V _{pp})
CHECK OVERALL FREQUENCY RESPONSE	FERRO	RECORD				
Input signal: 3mV 100Hz, 250Hz, 1kHz, 10kHz	RECORDED CASSETTE	PLAY	1 or 2 LEFT or RIGHT	mV-meter	check only	limits see fig.2
CHECK DISTORTION	FERRO	RECORD				
Input signal: 300mV 1kHz	RECORDED CASSETTE	PLAY	1 or 2 LEFT or RIGHT	THD-meter	check only	≤5%
Remark: If high frequencies are not within lower limit, decrease bias and re-measure. If distortion is too high increase bias and re-measure.						

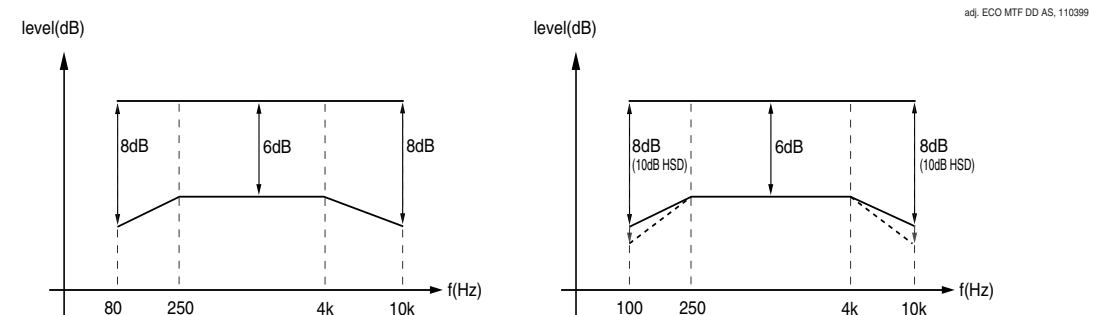
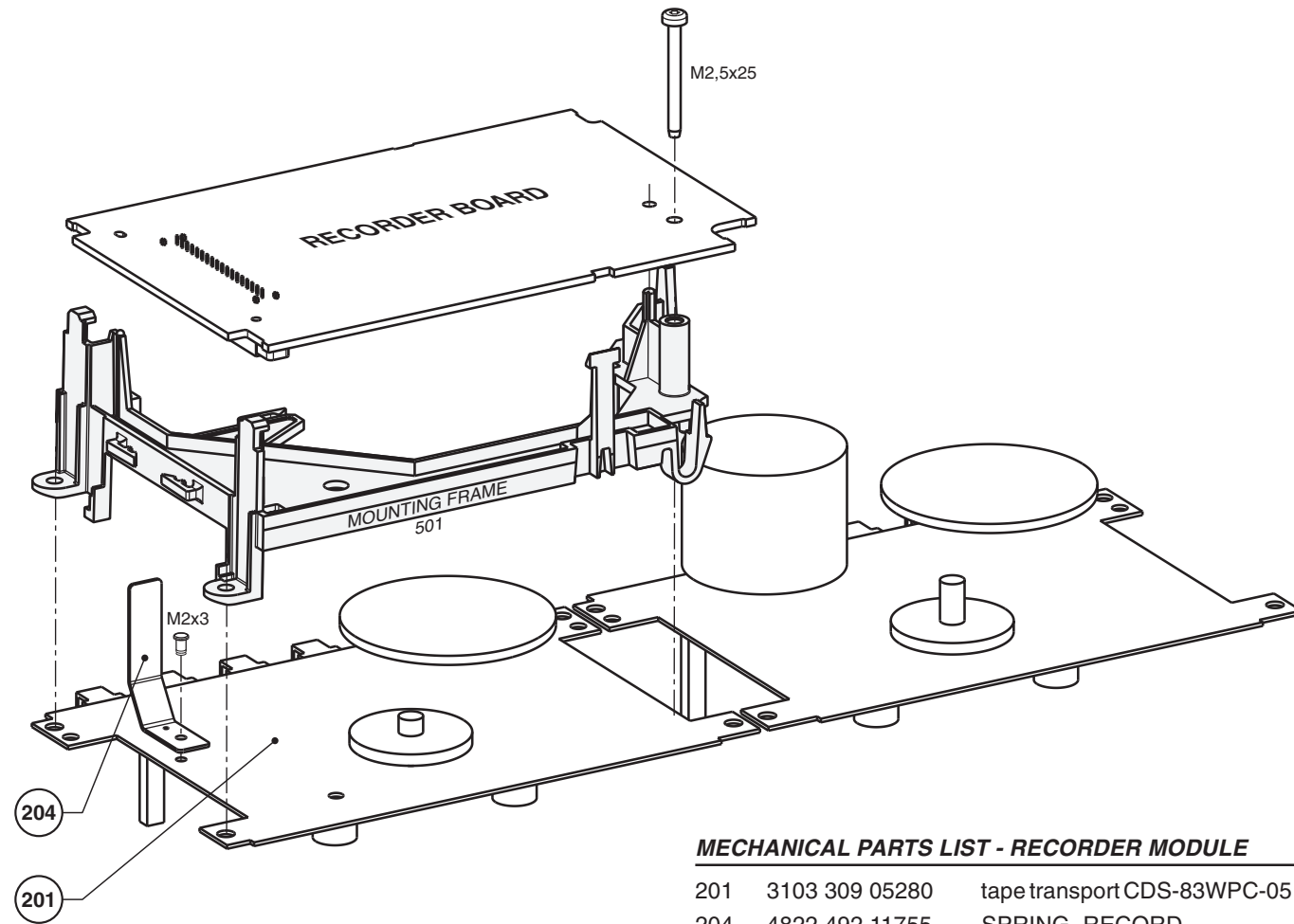


figure. 1

figure. 2

EXPLODED VIEW / RECORDER MODULE



MECHANICAL PARTS LIST - RECORDER MODULE

201	3103 309 05280	tape transport CDS-83WPC-05
204	4822 492 11755	SPRING, RECORD

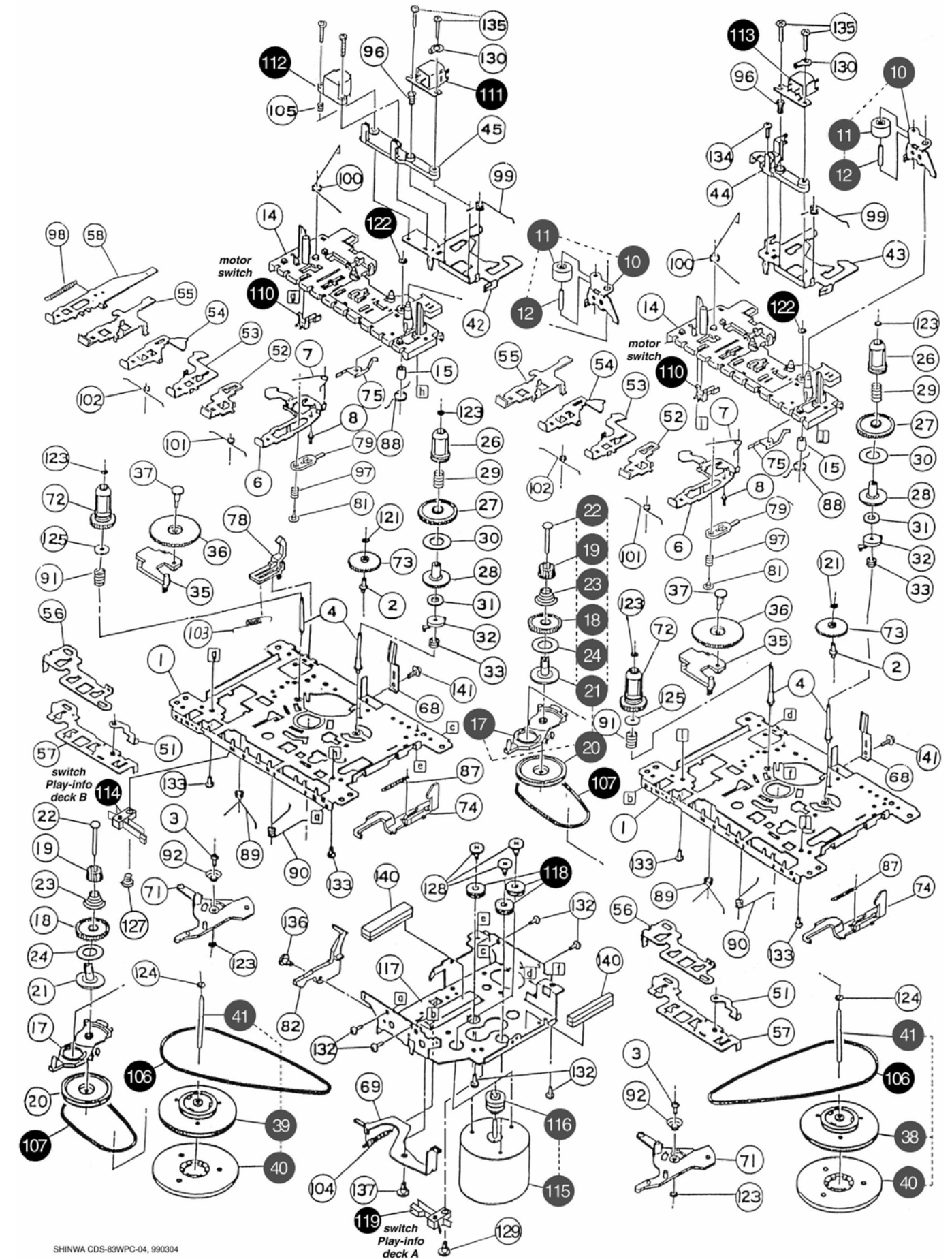
Note: Only the parts mentioned in this list are normal service spare parts.

MECHANICAL PARTS LIST - TAPE TRANSPORT

10-12	4822 528 11189	PINCH ROLLER ASSY	112	4822 249 10548	ERASE HEAD, LE15B-C1
17-24	4822 402 10966	CLUTCH ASSY	113	4822 249 10565	REC/PB-HEAD, TC951-B
38-41	4822 528 11242	FLYWHEEL ASSY, PB DECK	114	4822 277 11754	LEAF SWITCH, INDICAT. „PLAY“ REC/PB-DECK
39-41	4822 528 11243	FLYWHEEL ASSY, REC/PB DECK	115/116	4822 361 11053	MOTOR ASSY, EG530YD-2BH + PULLEY
106	4822 358 31225	MAIN BELT	118	4822 466 11787	MOTOR CUSHION
107	4822 358 31124	SUB BELT	119	4822 277 11753	LEAF SWITCH, INDICAT. „PLAY“ PB-DECK
110	4822 278 90663	LEAF SWITCH, MOTOR ON/OFF	122	4822 532 12937	WASHER, 1.6X3.5X0.4
111	4822 249 10565	REC/PB-HEAD, TC951-B			

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

EXPLODED VIEW TAPE TRANSPORT



ELECTRICAL PARTS LIST - ECO MTF BOARD**MISCELLANEOUS**

1707	4822 277 11504	SWITCH SLIDE, REC/PB
1710	4822 265 11207	FFC-SOCKET 6P, SIDE ENTRY (not on all versions)

CAPACITORS

2703	4822 124 40433	47µF	20%	25V	
2704	4822 124 81151	22µF	20%	50V	
2705	4822 124 40769	4,7µF	20%	100V	
2706	4822 124 41584	100µF	20%	10V	
2707	4822 124 40242	1µF	20%	63V	HSD only
2708	4822 124 41584	100µF	20%	10V	
2709	4822 124 40196	220µF	20%	16V	
2710	4822 124 40433	47µF	20%	25V	
2711	4822 124 23432	100µF	20%	10V	
2712	4822 124 41584	100µF	20%	10V	
2713	4822 124 40196	220µF	20%	16V	
2714	4822 124 40433	47µF	20%	25V	
2715	4822 124 81151	22µF	20%	50V	
2716	4822 124 81151	22µF	20%	50V	
2718	4822 124 40433	47µF	20%	25V	
2719	4822 124 40433	47µF	20%	25V	
2720	4822 126 12882	100nF	20%	50V	
2721	4822 121 41857	10nF	5%	250V	
2722	4822 126 11714	4,7nF	20%	16V	
2723	4822 121 10686	4,7nF	10%	50V	
2724	4822 121 43179	18nF	5%	63V	
2725	4822 126 12878	1,5nF	10%	16V	
2726	4822 126 12878	1,5nF	10%	16V	
2727	4822 126 12878	1,5nF	10%	16V	
2728	4822 121 10746	6,8nF	10%	50V	
2730	4822 121 10685	1,8nF	10%	50V	
2731	4822 126 11585	22nF	20%	50V	
2732	4822 126 11585	22nF	20%	50V	
2733	4822 126 12878	1,5nF	10%	16V	
2735	4822 121 10746	6,8nF	10%	50V	
2737	4822 121 10685	1,8nF	10%	50V	
2738	4822 126 11585	22nF	20%	50V	
2739	4822 122 33195	100pF	10%	50V	.3 only
2740	4822 126 12878	1,5nF	10%	16V	
2741	4822 126 12878	1,5nF	10%	16V	
2742	4822 122 33195	100pF	10%	50V	.3 only
2743	4822 122 33197	1nF	10%	50V	
2744	4822 122 33197	1nF	10%	50V	.4 onwards
2745	4822 122 33197	1nF	10%	50V	
2747	4822 121 10746	6,8nF	10%	50V	
2748	4822 126 11585	22nF	20%	50V	
2749	4822 126 12878	1,5nF	10%	16V	
2751	4822 121 10746	6,8nF	10%	50V	
2752	4822 126 12878	1,5nF	10%	16V	
2753	4822 124 40242	1µF	20%	63V	
2754	4822 124 40433	47µF	20%	25V	
2755	4822 124 40242	1µF	20%	63V	

2756	4822 124 40433	47µF	20%	25V
2759	4822 122 33519	470pF	10%	50V
2760	4822 122 33519	470pF	10%	50V
2761	4822 126 10329	68pF	10%	50V
2762	4822 126 10329	68pF	10%	50V

RESISTORS

3701	4822 050 11002	1kΩ	5%	0,2W	
3702	4822 116 52234	100kΩ	5%	0,5W	HSD only
3703	4822 116 52176	10Ω	5%	0,5W	HSD only
3704	4822 116 52176	10Ω	5%	0,5W	Normal Speed only
3704	4822 116 52276	3,9kΩ	5%	0,5W	HSD only
3705	4822 050 11002	1kΩ	5%	0,2W	
3706	4822 050 24705	4,7MΩ	1%	0,6W	
3707	4822 116 52176	10Ω	5%	0,5W	
3708	4822 116 52257	22kΩ	5%	0,5W	
3709	4822 116 83876	270Ω	5%	0,16W	
3711	4822 116 52256	2,2kΩ	5%	0,16W	
3712	4822 116 52256	2,2kΩ	5%	0,16W	
3713	4822 116 52257	22kΩ	5%	0,5W	
3714	4822 116 52257	22kΩ	5%	0,5W	
3715	4822 050 11002	1kΩ	5%	0,2W	
3716	4822 116 52303	8,2kΩ	5%	0,5W	
3717	4822 116 52219	330Ω	5%	0,5W	
3718	4822 116 52257	22kΩ	5%	0,5W	
3719	4822 116 52244	15kΩ	5%	0,5W	
3720	4822 116 52244	15kΩ	5%	0,5W	
3721	4822 116 52272	330kΩ	5%	0,5W	
3722	4822 116 83872	220Ω	5%	0,5W	
3724	4822 116 52193	39Ω	5%	0,16W	
3725	4822 116 52303	8,2kΩ	5%	0,5W	
3726	4822 050 11002	1kΩ	5%	0,2W	
3727	4822 116 52219	330Ω	5%	0,5W	
3728	4822 116 52257	22kΩ	5%	0,5W	
3729	4822 116 52244	15kΩ	5%	0,5W	
3730	4822 116 52244	15kΩ	5%	0,5W	
3731	4822 116 52272	330kΩ	5%	0,5W	
3732	4822 116 83864	10kΩ	5%	0,5W	HSD only
3733	4822 116 52256	2,2kΩ	5%	0,16W	
3734	4822 116 52238	12kΩ	5%	0,5W	
3735	4822 116 83864	10kΩ	5%	0,5W	HSD only
3736	4822 116 52256	2,2kΩ	5%	0,16W	
3737	4822 116 52272	330kΩ	5%	0,5W	
3738	4822 116 83872	220Ω	5%	0,5W	
3740	4822 116 83864	10kΩ	5%	0,5W	
3741	4822 116 52193	39Ω	5%	0,16W	
3742	4822 116 52272	330kΩ	5%	0,5W	
3743	4822 116 83872	220Ω	5%	0,5W	
3745	4822 116 83864	10kΩ	5%	0,5W	
3746	4822 116 52193	39Ω	5%	0,16W	
3747	4822 116 52238	12kΩ	5%	0,5W	
3748	4822 116 83883	470Ω	5%	0,16W	

ELECTRICAL PARTS LIST - ECO MTF BOARD**RESISTORS**

3749	4822 116 52272	330kΩ	5%	0,5W	
3750	4822 116 83872	220Ω	5%	0,5W	
3752	4822 116 52193	39Ω	5%	0,16W	
3753	4822 050 11002	1kΩ	5%	0,2W	
3754	4822 116 52256	2,2kΩ	5%	0,16W	
3755	4822 116 52256	2,2kΩ	5%	0,16W	
3756	4822 116 52256	2,2kΩ	5%	0,16W	
3757	4822 116 52256	2,2kΩ	5%	0,16W	
3758	4822 100 11368	2kΩ		TRIMPOT. LIN.	
3759	△ 4822 052 10478	4,7Ω	5%	NFR	
3760	4822 116 52263	2,7kΩ	5%	0,5W	
3761	4822 116 52285	470kΩ	5%	0,5W	HSD only
3763	4822 116 52245	150kΩ	5%	0,16W	HSD only
3764	4822 116 83864	10kΩ	5%	0,5W	
3765	4822 116 83864	10kΩ	5%	0,5W	
3766	4822 050 11002	1kΩ	5%	0,2W	
3767	4822 050 11002	1kΩ	5%	0,2W	
3768	4822 116 83864	10kΩ	5%	0,5W	
3769	4822 116 52303	8,2kΩ	5%	0,5W	
3770	4822 116 83884	47kΩ	5%	0,16W	
3771	4822 116 83864	10kΩ	5%	0,5W	
3772	4822 116 52234	100kΩ	5%	0,5W	
3773	4822 116 52263	2,7kΩ	5%	0,5W	
3774	4822 116 52303	8,2kΩ	5%	0,5W	
3775	4822 116 83884	47kΩ	5%	0,16W	
3776	4822 116 52234	100kΩ	5%	0,5W	
3777	4822 116 83884	47kΩ	5%	0,16W	
3778	4822 116 52234	100kΩ	5%	0,5W	
3779	4822 116 83864	10kΩ	5%	0,5W	
3780	4822 116 52272	330kΩ	5%	0,5W	
3781	4822 116 52228	680Ω	5%	0,5W	
3782	4822 116 52228	680Ω	5%	0,5W	
3785	4822 116 83876	270Ω	5%	0,16W	
3786	4822 116 83884	47kΩ	5%	0,16W	HSD only
3787	4822 116 83872	220Ω	5%	0,5W	
3788	4822 116 52228	680Ω	5%	0,5W	
3789	4822 116 52228	680Ω	5%	0,5W	
3790	4822 116 52257	22kΩ	5%	0,5W	HSD only
3791	4822 116 83884	47kΩ	5%	0,16W	HSD only
3792	4822 116 52251	18kΩ	5%	0,5W	HSD only

7702	4822 130 40959	BC547B	HSD only
7704	4822 130 40981	BC337-25	
7709	4822 130 40959	BC547B	HSD only
7710	4822 130 40959	BC547B	HSD only
7713	4822 130 40981	BC337-25	
7714	4822 130 40981	BC337-25	
7715	4822 130 40981	BC337-25	
7716	4822 130 40981	BC337-25	
7717	4822 130 40959	BC547B	
7718	4822 130 40959	BC547B	
7719	4822 130 40959	BC547B	
7722	4822 130 40959	BC547B	HSD only

INTEGRATED CIRCUITS

7711	4822 209 17498	AN7323, REC/PB-AMPLIFIER IC
7712	4822 209 17498	AN7323, REC/PB-AMPLIFIER IC

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

COILS

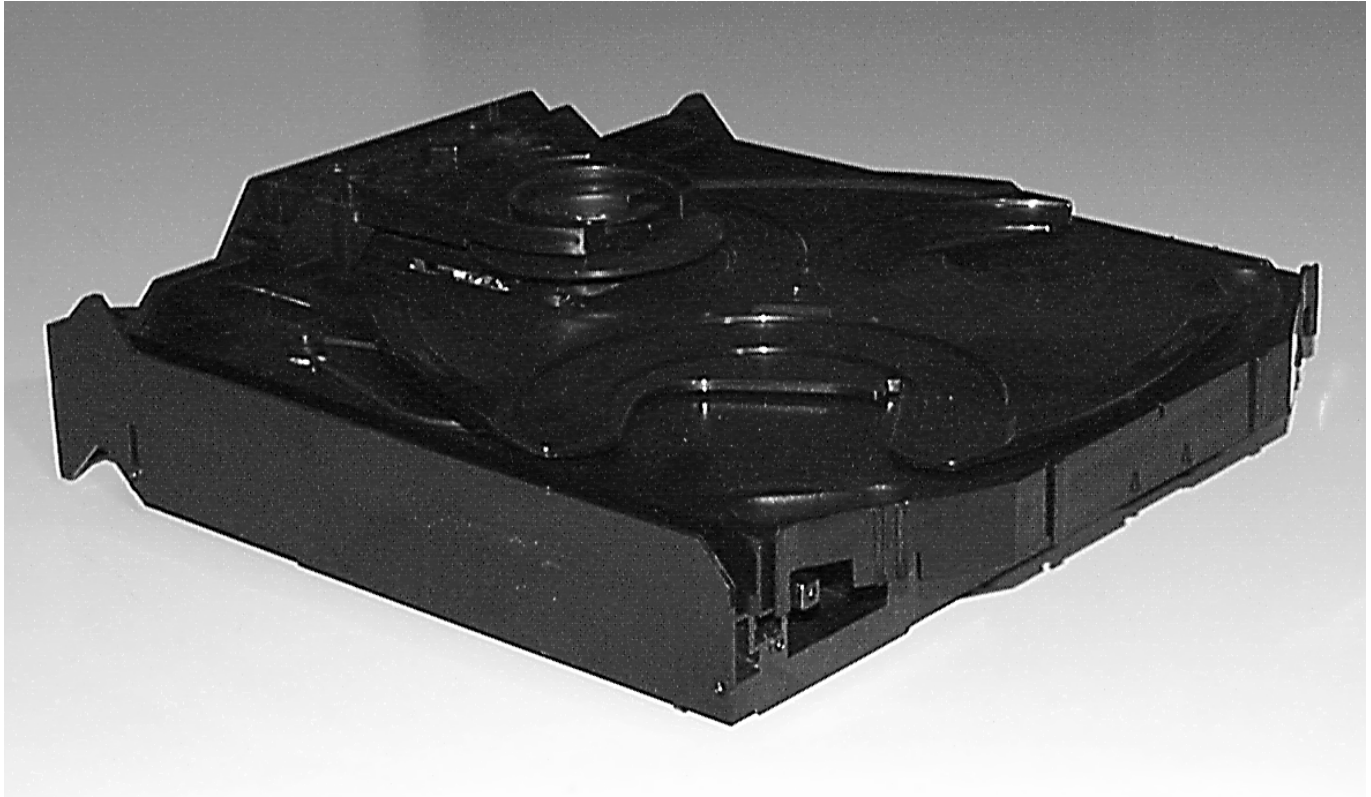
5701	4822 157 10371	OSC. COIL VAR. 100kHz
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DIODES

6703	4822 130 30621	1N4148
6706	4822 130 30621	1N4148
6707	4822 130 30621	1N4148
6708	4822 130 30621	1N4148
6709	4822 130 30621	1N4148

TRANSISTORS

7701	4822 130 44568	BC557B	HSD only
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3CDC-LC-MB Module

(3 Disc Carousel Changer)

Layout stage .2

TABLE OF CONTENTS

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Exploded View	10A-10
Partslist	10A-12



WARNING

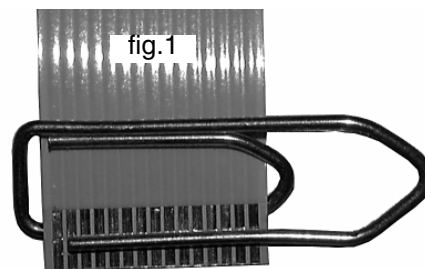
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

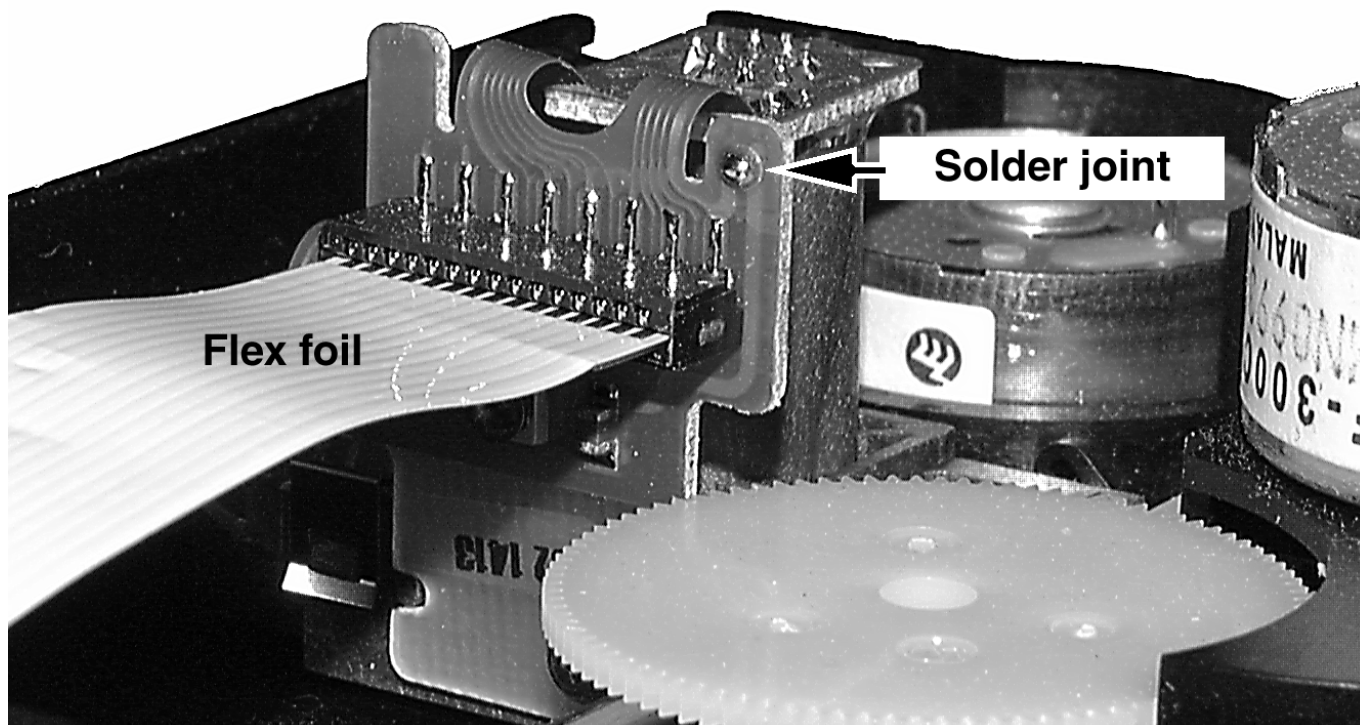
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:

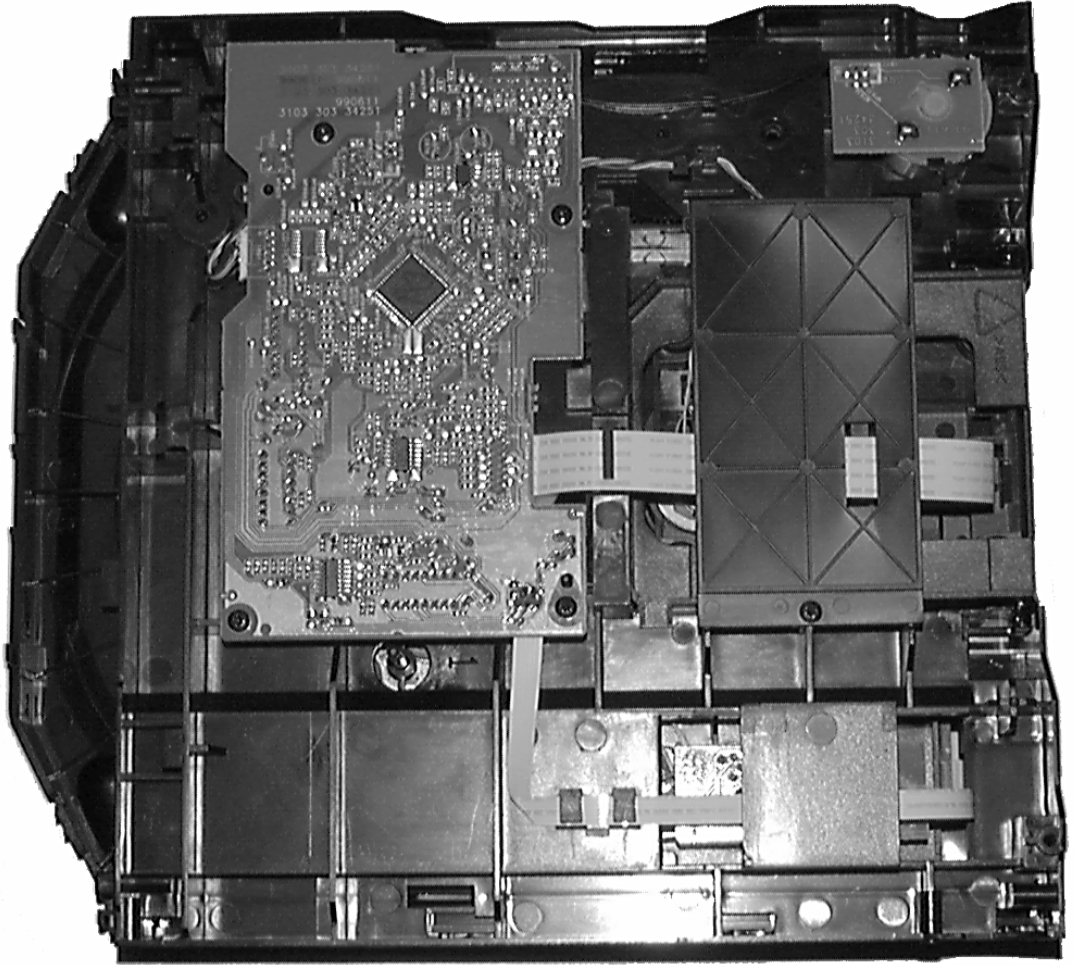
1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil of CD drive
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit



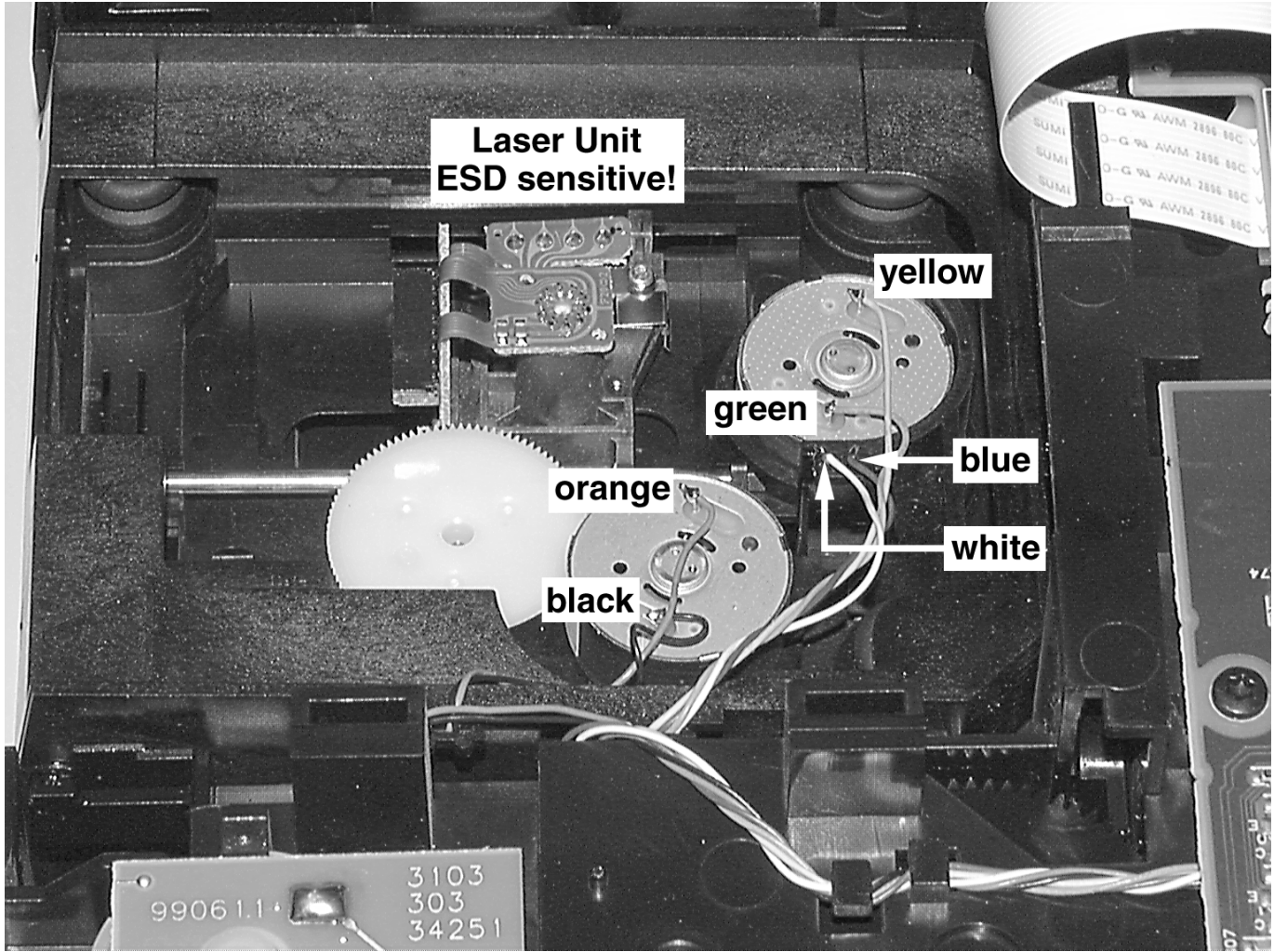
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.

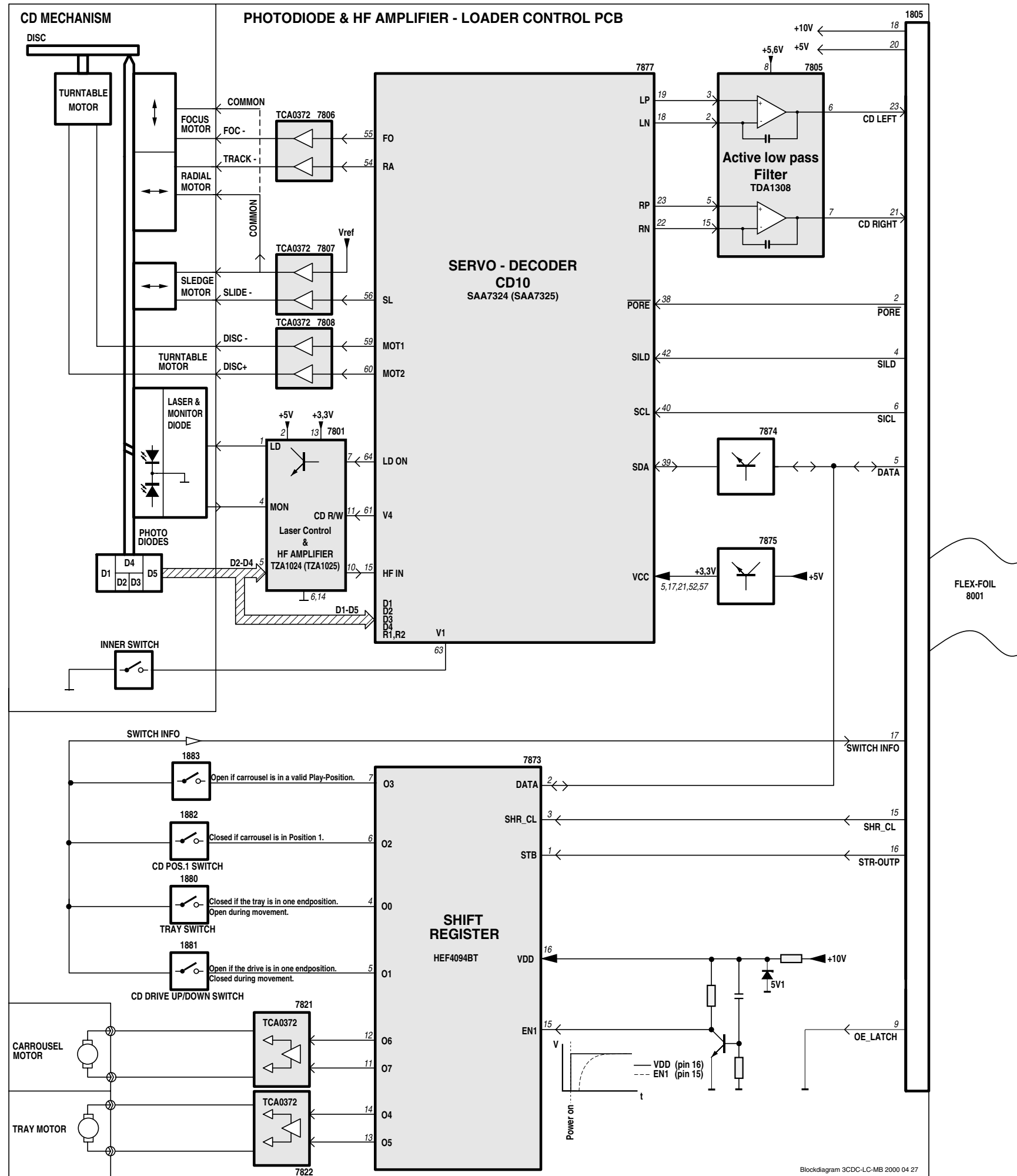


Service Position

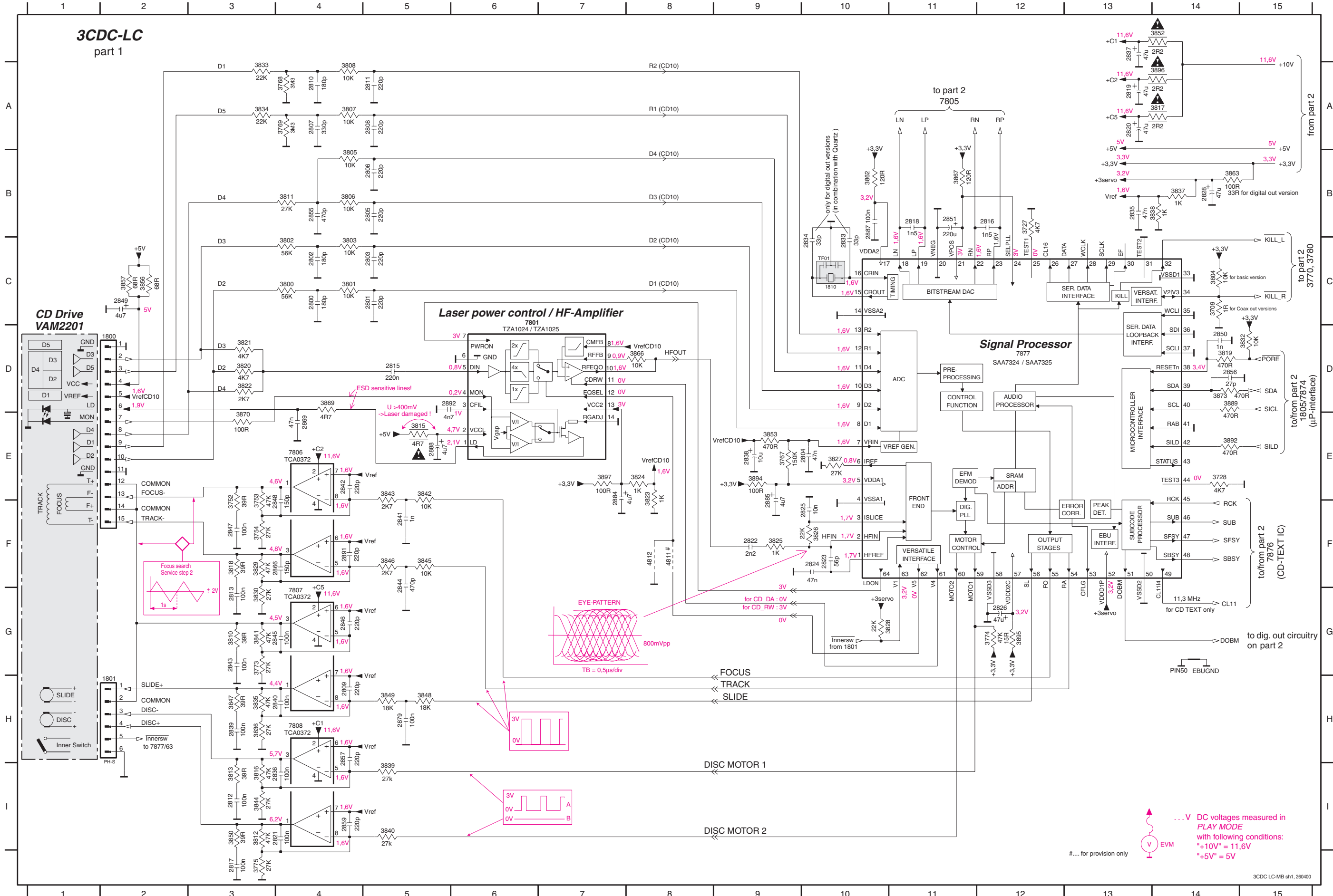


Wiring



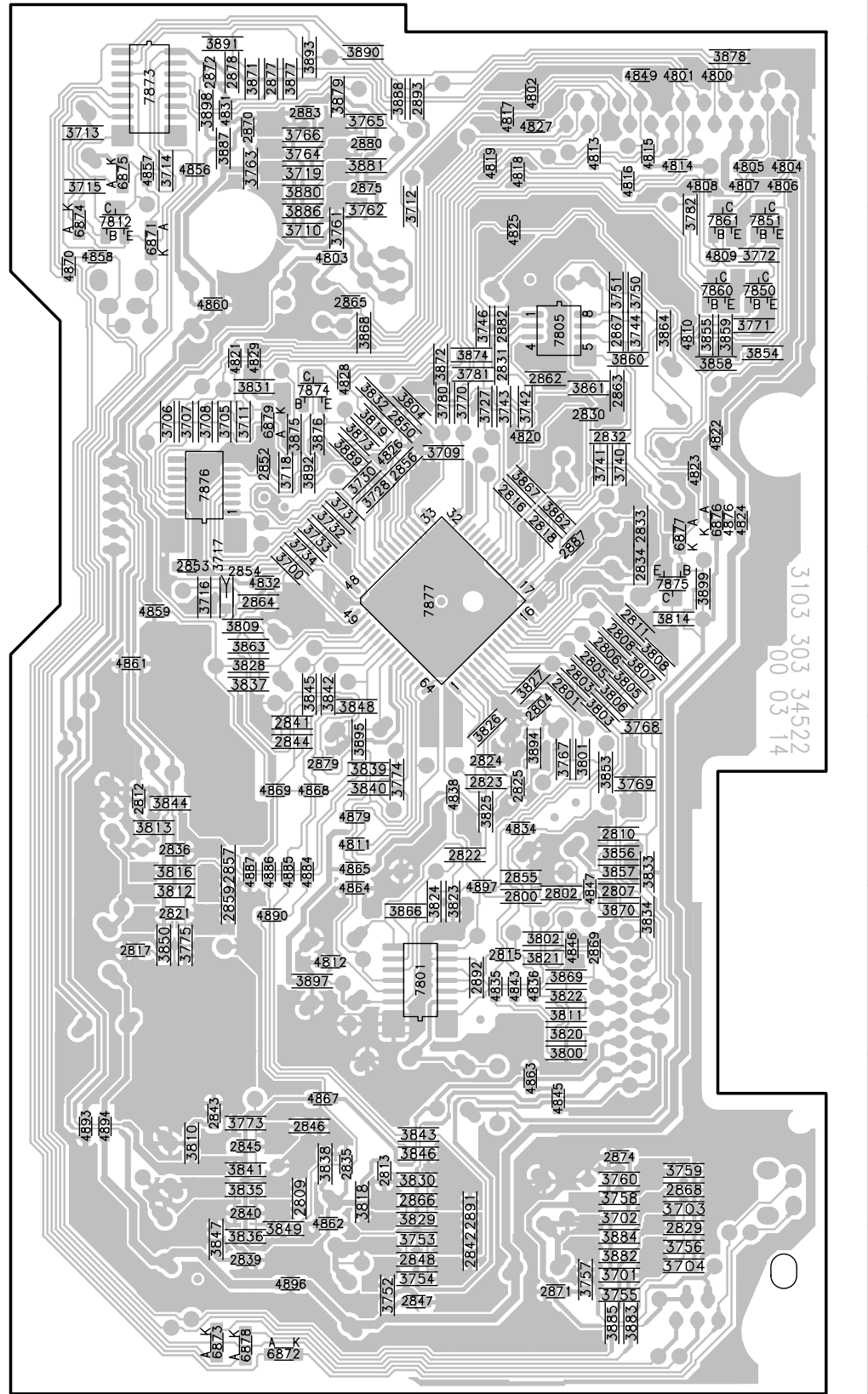


1800 D1 2801 C5 2805 B5 2809 H4 2813 G3 2818 B11 2822 F9 2826 G12 2835 B13 2839 H3 2843 G3 2847 F3 2851 B11 2859 I4 2884 E7 2891 F4 3728 E14 3767 E9 3774 G12 3802 C4 3806 B4 3811 B4 3816 I3 3820 D3 3824 E8 3828 G10 3833 A3 3837 B14 3841 G3 3845 F5 3849 H5 3856 C2 3866 D8 3873 D14 3895 G12 4812 F8 7808 H4
 1801 G1 2802 C4 2806 B5 2810 A4 2815 D5 2819 A13 2823 F10 2828 B14 2836 I4 2840 H4 2844 F5 2848 F4 2855 B4 2866 F4 2885 F9 2892 D5 3729 C14 3752 F3 3768 A4 3775 I3 3803 C4 3807 A4 3812 I3 3817 A14 3821 D3 3825 F10 3829 F3 3834 A3 3838 B14 3842 E5 3846 F5 3850 I3 3857 C2 3867 B11 3889 D14 3896 A17 7801 E7 7877 D12
 1810 C10 2803 C5 2807 A4 2811 A5 2816 B12 2820 A13 2824 F10 2833 C10 2837 A13 2841 F5 2845 G4 2849 C2 2856 D14 2869 E4 2887 B10 3709 C14 3753 F3 3769 A4 3800 C4 3804 C14 3808 A4 3813 I3 3818 F3 3822 D3 3826 F9 3830 G3 3835 H3 3839 I5 3843 E5 3847 H3 3852 A14 3862 B10 3869 D4 3892 E14 3897 E7 7806 E4 7807 G4
 2800 C4 2804 E10 2808 A5 2812 I3 2817 I3 2825 F10 2834 C10 2838 E8 2842 E4 2846 G4 2850 D14 2857 H4 2888 E5 3727 B12 3754 F3 3773 G3 3801 C4 3805 B4 3810 G3 3815 E5 3819 D14 3823 E8 3827 E10 3832 D15 3836 H3 3840 I5 3844 I3 3848 H5 3853 E9 3863 B14 3870 E3 3894 E9 4811 F8 7807 G4



... V DC voltages measured in PLAY MODE with following conditions: "+10V" = 11,6V "+5V" = 5V

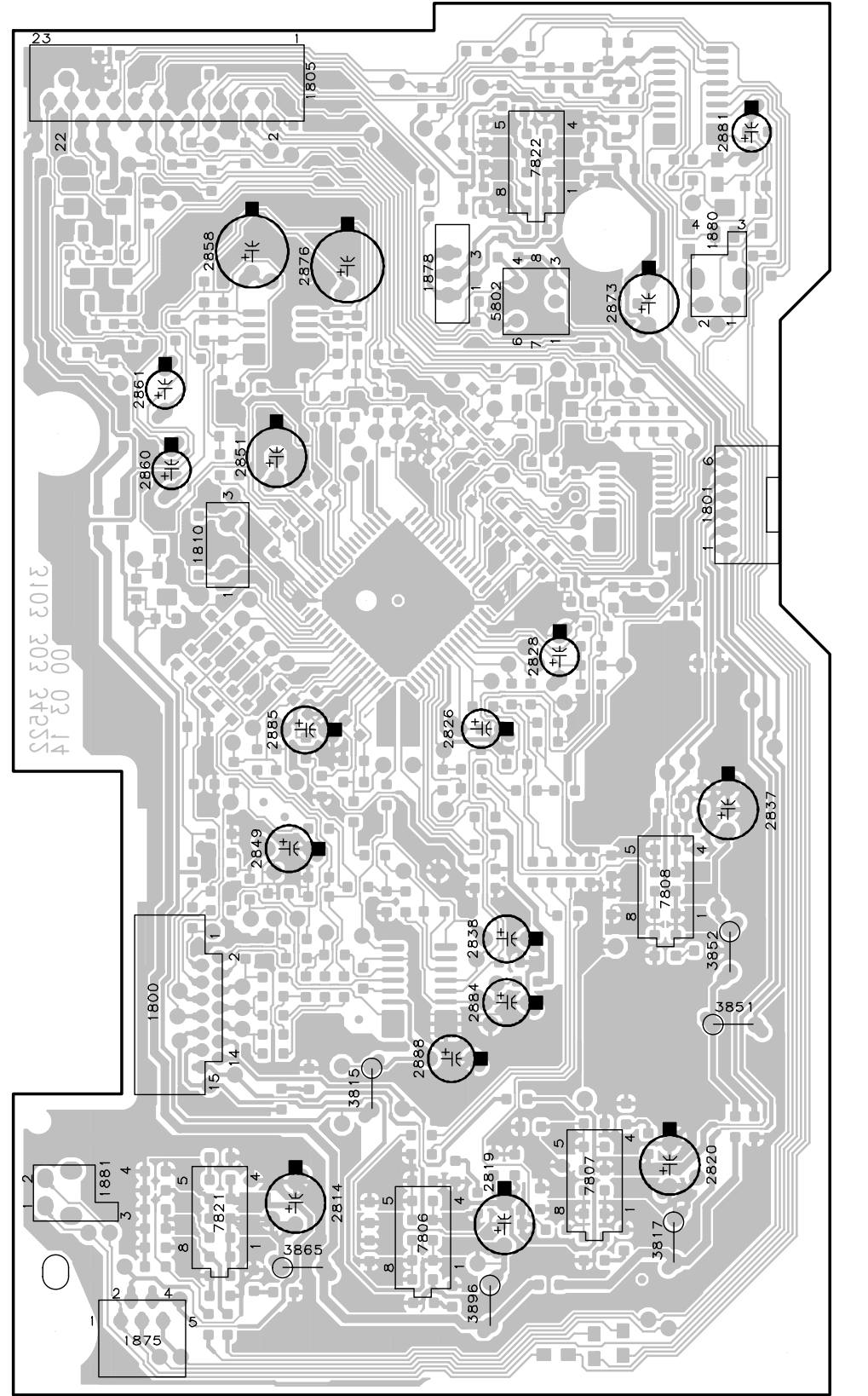
3CDC-LC-MB Copperside view



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

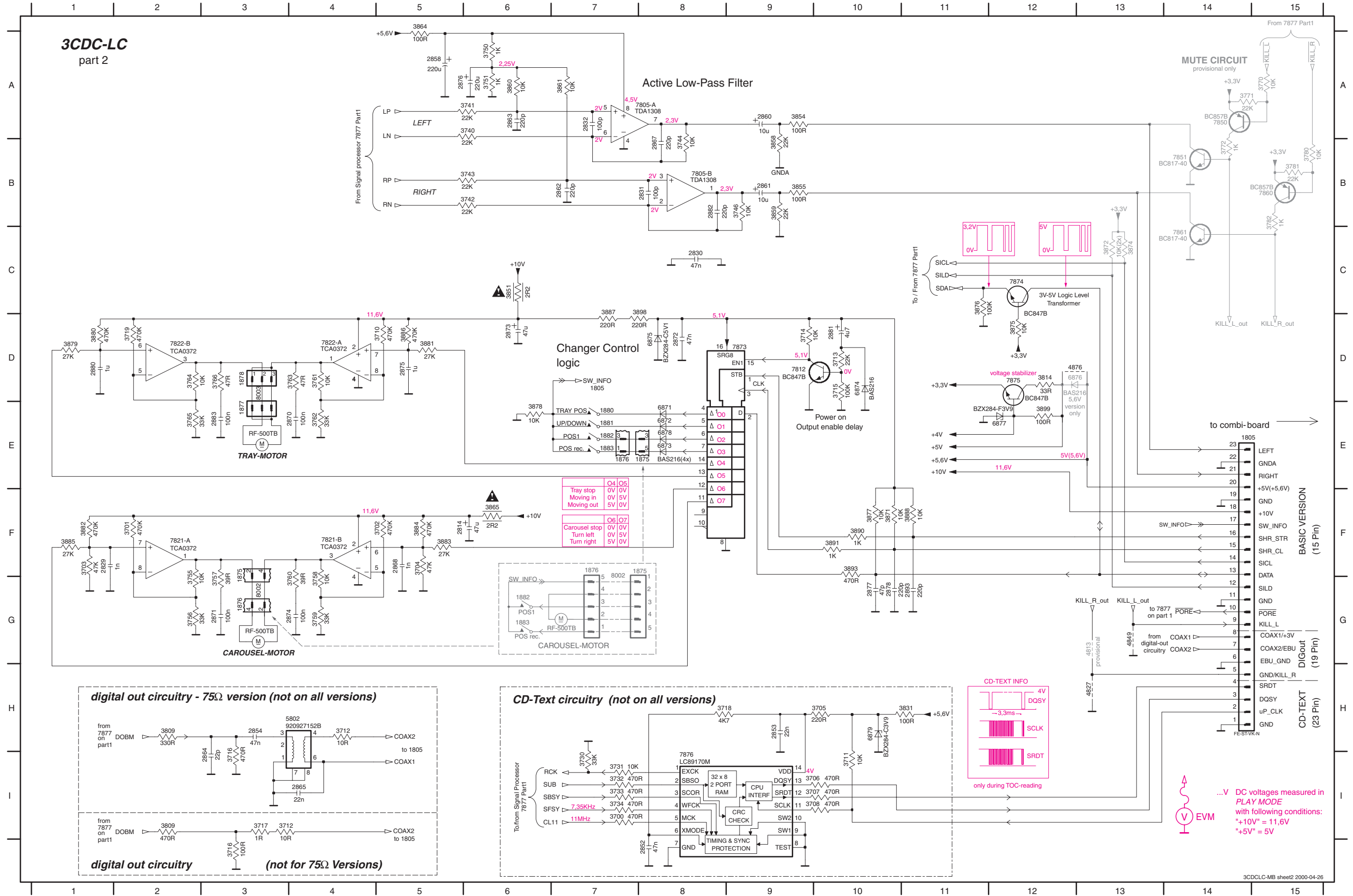
Copperside	Componentside
2800 F4	3750 B4
2801 D4	3751 B4
2802 F4	3752 H3
2803 D4	3753 H3
2804 D4	3754 H3
2805 D4	3755 H4
2806 D4	3756 H4
2807 F4	3757 H4
2808 D4	3758 G4
2809 G2	3759 G4
2810 E4	3760 G4
2811 D4	3761 B2
2812 E1	3762 B3
2813 G3	3763 A2
2815 F3	3764 A2
2816 C3	3765 A3
2817 F1	3766 A2
2818 C4	3767 E4
2821 F1	3768 E4
2822 E3	3769 E4
2823 E3	3770 C3
2824 E3	3771 B5
2825 E3	3772 B5
2829 H4	3773 G2
2830 C4	3774 F2
2831 B3	3775 F2
2832 C4	3780 C3
2833 C4	3781 B3
2834 D4	3782 B5
2835 G2	3800 F4
2836 E1	3801 E4
2839 H2	3802 F4
2840 G2	3803 D4
2841 E2	3804 C3
2842 H3	3805 D4
2843 G2	3806 D4
2844 E2	3807 D4
2845 G2	3808 D4
2846 G2	3809 D2
2847 H3	3810 G2
2848 H3	3811 F4
2850 C3	3812 F1
2852 C2	3813 E1
2853 D2	3814 D4
2854 D2	3816 E1
2855 E4	3818 G3
2856 C3	3819 C3
2857 E2	3820 F4
2859 F2	3821 F4
2862 C4	3822 F4
2863 C4	3823 F3
2864 D2	3824 F3
2865 B3	3825 E3
2866 G3	3826 E3
2867 B4	3827 D4
2868 G4	3828 D2
2869 F4	3829 G3
2870 A2	3830 G3
2871 H4	3831 C2
2872 A2	3832 C3
2874 G4	3833 E4
2875 A3	3834 F4
2877 A2	3835 G2
2878 A2	3836 H2
2879 E2	3837 D2
2880 A3	3838 G2
2882 B3	3839 E3
2883 A2	3840 E3
2887 C4	3841 G2
2891 G3	3842 D2
2892 F3	3843 G3
2893 A3	3844 E1
3700 D2	3845 D2
3701 H4	3846 G3
3702 G4	3847 H2
3703 G4	3848 D3
3704 H4	3849 H2
3705 C2	3850 F1
3706 C1	3853 E4
3707 C2	3854 B5
3708 C2	3855 B5
3709 C3	3856 E4
3710 B2	3857 E4
3711 C2	3858 B5
3712 A3	3859 B5
3713 A1	3860 B4
3714 A1	3861 C4
3715 A1	3862 C4
3716 D2	3863 D2
3717 D2	3864 B4
3718 C2	3866 F3
3719 A2	3867 C4
3727 C3	3868 B3
3728 C3	3869 F4
3730 C3	3870 F4
3731 C2	3871 A2
3732 C2	3872 B3
3733 C2	3873 C3
3734 D2	3874 B3
3740 C4	3875 C2
3741 C4	3876 C2
3742 C4	3877 A2
3743 C3	3878 A5
3744 B4	3879 A2
3746 B3	3880 A2
	3881 A3
	3882 H4
	3883 H4
	3884 H4
	3885 H4
	3886 B2
	3887 A2
	3888 A3
	3889 C2
	3890 A3
	3891 A2
	3892 C2
	3893 A2
	3894 E4
	3895 E3
	3897 F2
	3898 A2
	3899 D5
	4800 A5
	4801 A4
	4802 A4
	4803 B2
	4804 A5
	4805 A5
	4806 A5
	4807 A5
	4808 A5
	4809 B5
	4810 B4
	4811 E3
	4812 F2
	4813 A4
	4814 A4
	4815 A4
	4816 A4
	4817 A3
	4818 A3
	4819 A3
	4820 C4
	4821 B2
	4822 C5
	4823 C5
	4824 C5
	4825 B3
	4826 C3
	4827 A4
	4828 C2
	4829 B2
	4831 A2
	4832 D2
	4834 F4
	4835 F3
	4836 F4
	4838 E3
	4843 F3
	4845 G4
	4846 F4
	4847 F4
	4849 A4
	4856 A2
	4857 A1
	4858 B1
	4859 D1
	4860 B2
	4861 D1
	4862 G2
	4863 G4
	4864 F3
	4865 E3
	4867 G2
	4868 E2
	4869 E2
	4870 B1
	4876 C5
	4879 E3
	4884 E2
	4885 E2
	4886 E2
	4887 E2
	4890 F2
	4893 G1
	4894 G1
	4896 H2
	4897 F3
	6871 B1
	6872 H2
	6873 H2
	6874 B1
	6875 A1
	6876 C5
	6877 C4
	6878 H2
	6879 C2
	7801 F3
	7805 B4
	7812 B1
	7850 B5
	7851 B5
	7860 B5
	7861 B5
	7873 A1
	7874 C2
	7875 D4
	7876 C2
	7877 D3

3CDC-LC-MB Componentside view



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

1805	E14	1880	E7	2831	B8	2861	B9	2870	E4	2877	G10	3372	C13	3705	H10	3713	D10	3730	I7	3743	B6	3757	G3	3764	D2	3781	B15	3855	B9	3871	F10	3881	D5	3888	F11	4827	H13	6874	D10	7805-B	B8	7851	B14
1850	G3	1881	E7	2832	A7	2862	B7	2871	G3	2878	D10	3374	C13	3706	I10	3714	D9	3732	I7	3744	B8	3758	G4	3765	E2	3782	B15	3858	B9	3875	D12	3882	F1	3890	F10	4849	G13	6875	D8	7812	D9	7860	B15
1875	E8	1882	E7	2852	I8	2863	A6	2872	D8	2880	D10	3700	I7	3707	I10	3715	D10	3733	I7	3746	B9	3759	G4	3766	D3	3809	H2	3859	B9	3876	C11	3883	F5	3891	F10	4876	D12	6876	D12	7821-A	F2	7861	C14
1876	E7	1883	E7	2853	H9	2864	I3	2873	D6	2881	D10	3701	F2	3708	I10	3716	I3	3734	I7	3750	A6	3760	G4	3770	A15	3814	D12	3860	A6	3877	F10	3884	F5	3893	F10	5802	H4	6877	E12	7821-B	F4	7873	D9
1877	E3	2814	F6	2854	H3	2865	I4	2874	G4	2882	B8	3702	F5	3710	D5	3718	H8	3740	A6	3751	A6	3761	D4	3771	A14	3831	H11	3861	A7	3878	E6	3885	F1	3898	D7	6871	E8	6878	E8	7822-A	D4	7874	C12
1878	D3	2829	F2	2858	A5	2867	B8	2875	D5	2883	E3	3703	F1	3711	I10	3719	D2	3741	A6	3755	G2	3762	E4	3772	B14	3851	C6	3864	A5	3879	D1	3886	D5	3899	E12	6872	E8	6879	H10	7822-B	D2	7875	D12
1878	G3	2830	C8	2860	A9	2868	F5	2876	A6	2893	G11	3704	F5	3712	H4	3730	I7	3742	B6	3756	G2	3763	D4	3780	B15	3854	A9	3865	F6	3880	D1	3887	D7	4813	G13	6873	E8	7805-A	A7	7850	A14	7876	I8



EXPLODED VIEW (3CDC-LC MODULE)

MECHANICAL PARTS Loader → this page

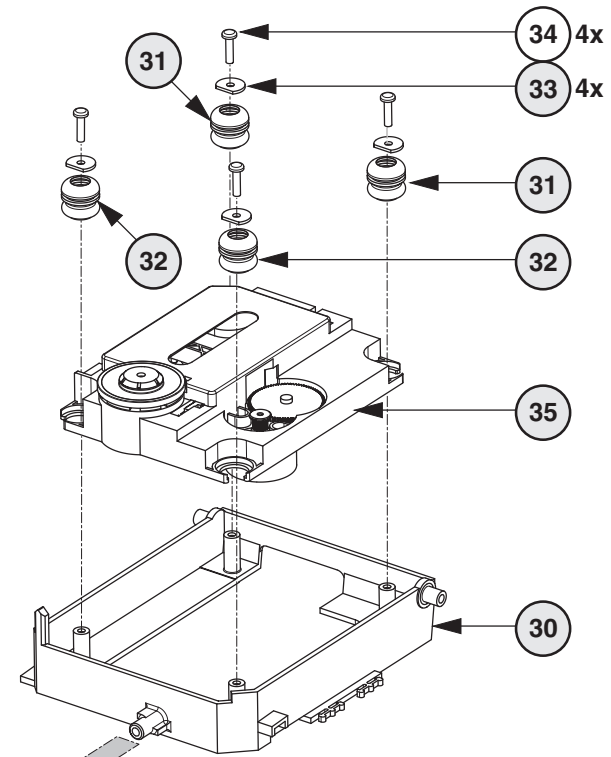
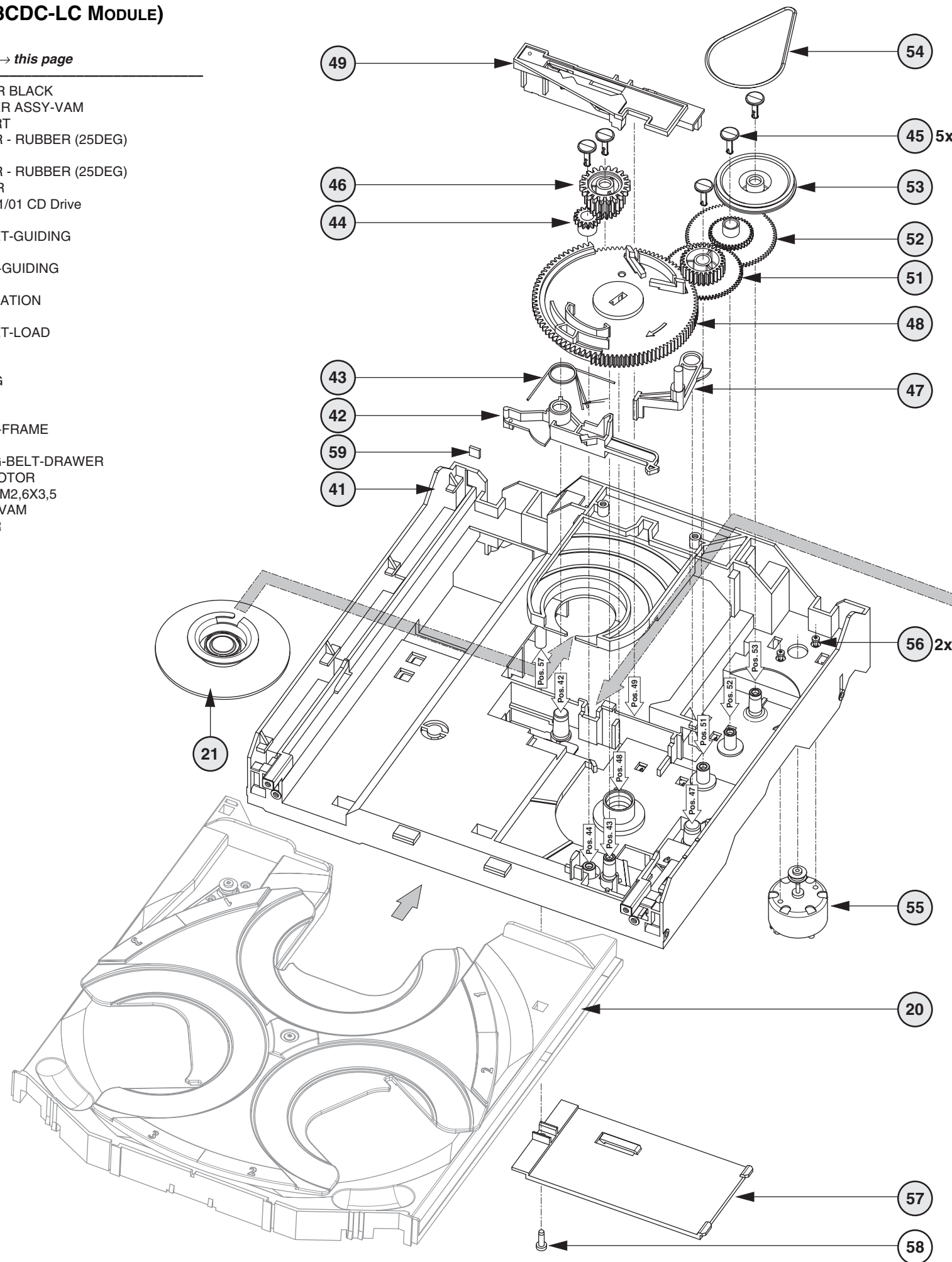
- 20 3103 304 66500 DRAWER BLACK
- 21 3140 117 58650 CLAMPER ASSY-VAM
- 30 3103 304 66560 SUPPORT
- 31 4822 529 10431 DAMPER - RUBBER (25DEG)

- 32 4822 529 10431 DAMPER - RUBBER (25DEG)
- 33 3103 304 06970 WASHER
- 35 4822 691 10772 VAM2201/01 CD Drive
- 41 3103 304 66480 FRAME
- 42 3103 304 66540 BRACKET-GUIDING

- 43 3103 301 06460 SPRING-GUIDING
- 44 3103 304 06890 GEAR-3
- 45 3103 304 06980 NAIL FIXATION
- 46 3103 304 06880 GEAR-2
- 47 3103 304 66530 BRACKET-LOAD

- 48 3103 304 06910 CAM
- 49 3103 304 66510 GUIDING
- 51 3103 304 06900 GEAR-4
- 52 3103 304 06870 GEAR-1
- 53 3103 304 06960 PULLEY-FRAME

- 54 3103 304 66910 DRIVING-BELT-DRAWER
- 55 4822 361 10753 TRAY MOTOR
- 56 4822 502 12548 SCREW M2,6X3,5
- 57 3103 304 68890 COVER-VAM
- 59 4822 466 12146 RUBBER



MECHANICAL PARTS Drawer → Chapter 10A-11

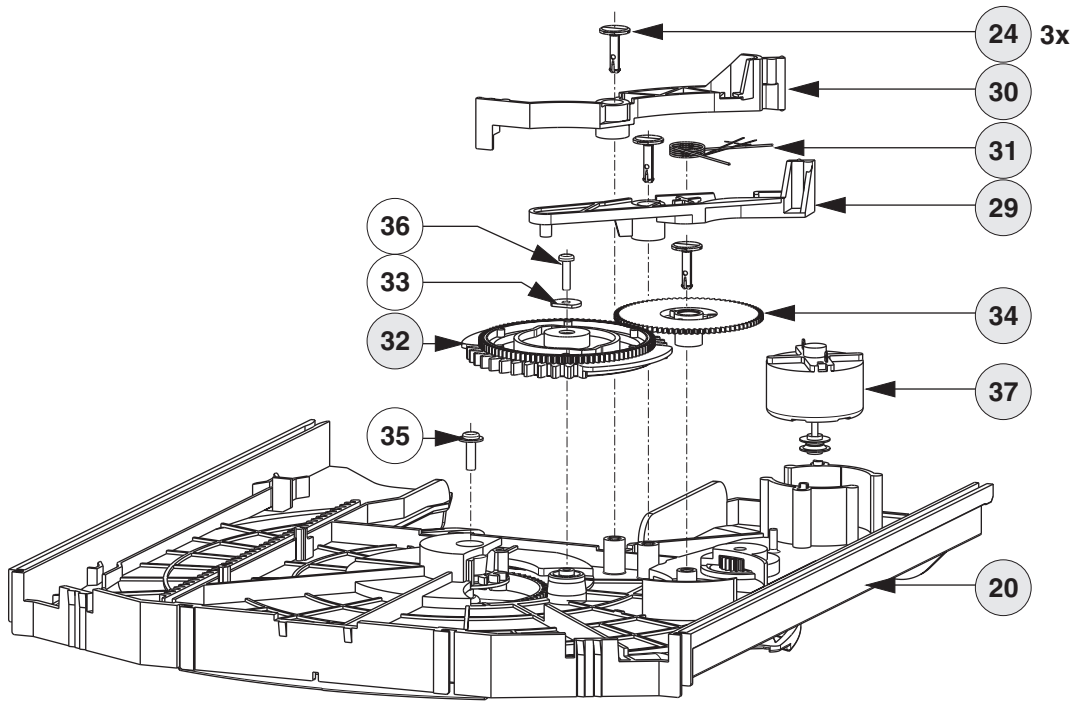
- 20 3103 304 66500 DRAWER BLACK
- 21 3103 304 66490 CAROUSEL BLACK
- 22 3103 304 06860 PULLEY-DRAWER
- 23 3103 304 06850 ECCENTRIC GEAR WHEEL
- 24 3103 304 06980 NAIL FIXATION

- 25 3103 304 66850 DRIVING BELT CAROUSEL
- 27 3103 304 07100 BUSH DRAWER (height=8,5mm,d=16mm)
- 27 4822 532 12365 BUSH DRAWER (height=5,5mm,d=9,4mm)
- 29 3103 304 66550 BRACKET-DISC
- 30 3103 304 66520 TUMBLER

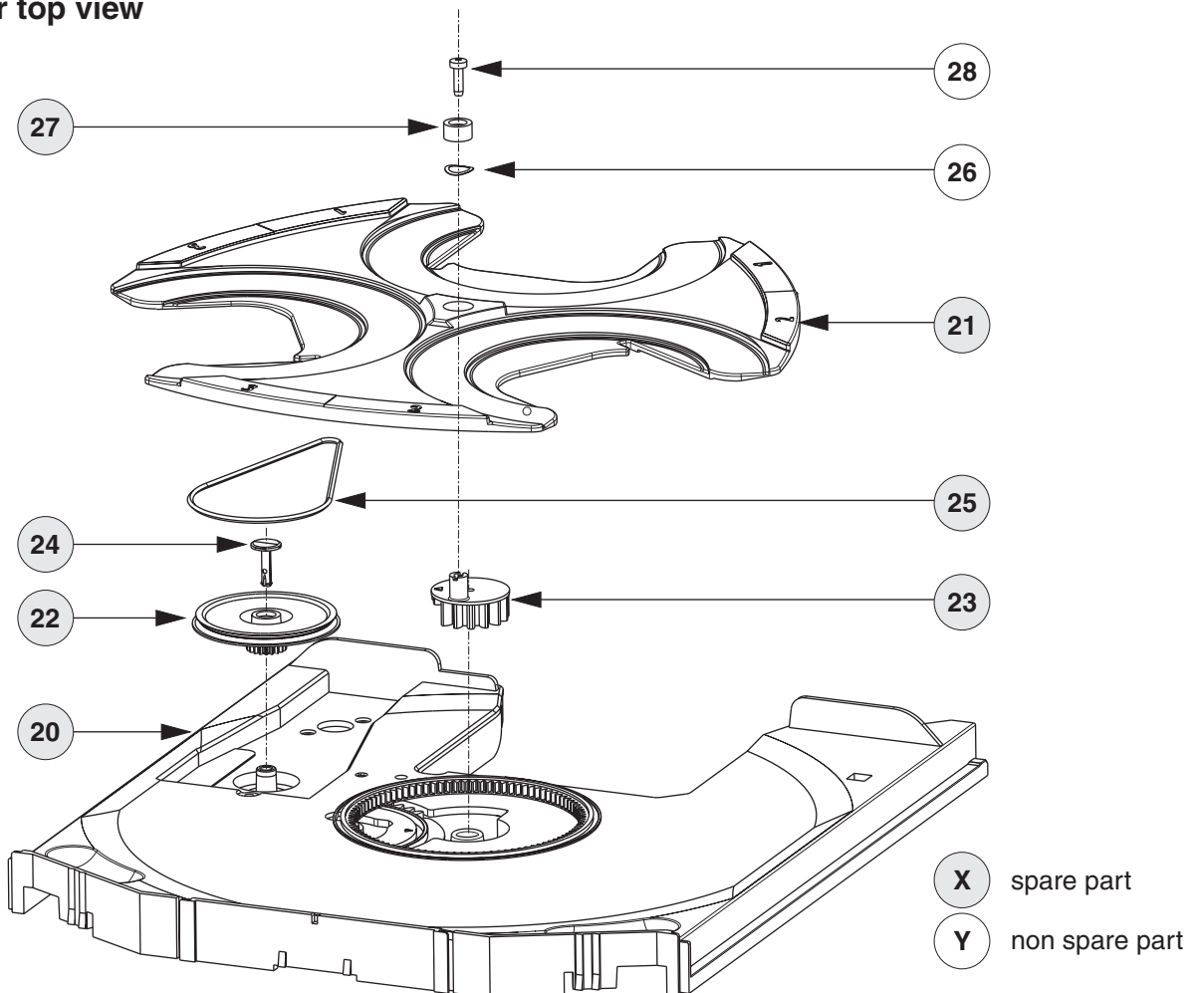
- 31 3103 301 06470 SPRING-DISC
- 32 3103 304 06920 CONTROL-DISC
- 34 3103 304 06870 GEAR-1
- 37 4822 361 10753 CAROUSEL MOTOR

X spare part
Y non spare part

Drawer bottom view



Drawer top view



ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE**MISCELLANEOUS**

1800	4822 265 10925	FFC-CONNECTOR, 15P, SIDE ENTRY
1805	4822 265 10979	FLEX FOIL CONNECTOR 15PIN
1805	4822 265 11182	FLEX FOIL CONNECTOR 23PIN
1805	4822 265 11545	FLEX FOIL CONNECTOR 19PIN
1875	4822 267 10958	FFC-CONNECTOR, 5P, SIDE ENTRY
1876	2422 025 08332	FLEX FOIL CONNECTOR 5PIN
1880	4822 276 13503	SWITCH, Tray in endposition
1881	4822 276 13503	SWITCH, Drive up/down
1882	4822 276 13503	SWITCH, Position 1
1883	4822 276 13503	SWITCH, Position recognized
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 91980	FLEX FOIL CABLE 15P, 170mm

CAPACITORS

2800	4822 126 10326	180pF	5%	
2801	4822 122 33575	220pF	5%	50V
2802	4822 126 10326	180pF	5%	
2803	4822 122 33575	220pF	5%	50V
2804	4822 126 13751	47nF	10%	50V
2805	4822 122 33575	220pF	5%	50V
2806	4822 122 33575	220pF	5%	50V
2807	5322 122 31863	330pF	5%	50V
2808	4822 122 33575	220pF	5%	50V
2809	4822 122 33575	220pF	5%	50V
2810	4822 126 10326	180pF	5%	
2811	4822 122 33575	220pF	5%	50V
2812	4822 126 14585	100nF	10%	50V
2813	4822 126 14585	100nF	10%	50V
2814	4822 124 40433	47μF	20%	25V
2815	4822 126 14076	220nF	20%	25V
2816	4822 126 13344	1,5nF	5%	63V
2817	4822 126 14585	100nF	10%	50V
2818	4822 126 13344	1,5nF	5%	63V
2819	4822 124 40433	47μF	20%	25V
2820	4822 124 40433	47μF	20%	25V
2821	4822 126 14585	100nF	10%	50V
2822	2222 861 15222	2,2nF	10%	50V
2823	4822 126 13693	56pF	1%	63V
2824	4822 126 13751	47nF	10%	50V
2825	4822 122 33177	10nF	20%	50V
2826	4822 124 12362	47μF	20%	4V
2828	4822 124 12362	47μF	20%	4V
2829	5322 122 31647	1nF	10%	63V
2830	4822 126 13751	47nF	10%	50V
2831	5322 122 32531	100pF	5%	50V
2832	5322 122 32531	100pF	5%	50V
2833	5322 122 32659	33pF	5%	50V
2834	5322 122 32659	33pF	5%	50V
2835	4822 126 13751	47nF	10%	50V
2836	4822 126 14585	100nF	10%	50V
2837	4822 124 40433	47μF	20%	25V
2838	4822 124 40248	10μF	20%	63V
2839	4822 126 14585	100nF	10%	50V
2840	4822 126 14585	100nF	10%	50V
2841	5322 122 31647	1nF	10%	63V
2842	5322 126 10794	220pF	10%	
2843	4822 126 14585	100nF	10%	50V
2844	5322 122 34099	470pF	10%	63V
2845	4822 126 14585	100nF	10%	50V
2846	4822 122 33575	220pF	5%	50V
2847	4822 126 14585	100nF	10%	50V
2848	5322 122 33538	150pF	5%	63V
2849	4822 124 40769	4,7μF	20%	100V
2850	5322 122 31647	1nF	10%	63V

CAPACITORS

2851	4822 124 42383	220μF	20%	4V
2852	4822 126 13751	47nF	10%	50V
2853	5322 122 32654	22nF	10%	63V
2854	4822 126 13751	47nF	10%	50V
2855	5322 122 34099	470pF	10%	63V
2856	4822 126 13691	27pF	1%	63V
2857	4822 122 33575	220pF	5%	50V
2858	4822 124 12245	220μF	20%	16V
2859	4822 122 33575	220pF	5%	50V
2860	4822 124 11947	10μF	20%	16V
2861	4822 124 11947	10μF	20%	16V
2862	4822 122 33575	220pF	5%	50V
2863	4822 122 33575	220pF	5%	50V
2864	5322 122 32658	22pF	5%	50V
2865	5322 122 32654	22nF	10%	63V
2866	5322 122 33538	150pF	5%	63V
2867	4822 122 33575	220pF	5%	50V
2868	5322 122 31647	1nF	10%	63V
2869	4822 126 13751	47nF	10%	50V
2870	4822 126 14585	100nF	10%	50V
2871	4822 126 14585	100nF	10%	50V
2872	4822 126 13751	47nF	10%	50V
2873	4822 124 40433	47μF	20%	25V
2874	4822 126 14585	100nF	10%	50V
2875	4822 126 14043	1μF	20%	16V
2876	4822 124 12245	220μF	20%	16V
2877	4822 126 13692	47pF	1%	63V
2878	4822 122 33575	220pF	5%	50V
2879	4822 126 14585	100nF	10%	50V
2880	4822 126 14043	1μF	20%	16V
2881	4822 124 40769	4,7μF	20%	100V
2882	4822 122 33575	220pF	5%	50V
2883	4822 126 14585	100nF	10%	50V
2884	4822 124 40769	4,7μF	20%	100V
2885	4822 124 40769	4,7μF	20%	100V
2887	4822 126 14585	100nF	10%	50V
2888	4822 124 40769	4,7μF	20%	100V
2891	4822 122 33575	220pF	5%	50V
2892	5322 126 10223	4,7nF	10%	63V
2893	4822 122 33575	220pF	5%	50V

RESISTORS

3700	4822 051 20471	470Ω	5%	0,1W
3701	4822 051 20474	470kΩ	5%	0,1W
3702	4822 051 20474	470kΩ	5%	0,1W
3703	4822 117 10834	47kΩ	1%	0,1W
3704	4822 117 10834	47kΩ	1%	0,1W
3705	4822 117 11503	220Ω	5%	0,1W
3706	4822 051 20471	470Ω	5%	0,1W
3707	4822 051 20471	470Ω	5%	0,1W
3708	4822 051 20471	470Ω	5%	0,1W
3709	4822 051 20108	1Ω	5%	0,1W
3710	4822 051 20474	470kΩ	5%	0,1W
3711	4822 117 10833	10kΩ	1%	0,1W
3712	4822 051 20109	10Ω	5%	0,1W
3713	4822 051 20223	22kΩ	5%	0,1W
3714	4822 117 10833	10kΩ	1%	0,1W
3715	4822 117 10837	100kΩ	1%	0,1W
3716	4822 051 20471	470Ω	5%	0,1W
3718	4822 051 20472	4,7kΩ	5%	0,1W
3719	4822 051 20474	470kΩ	5%	0,1W
3727	4822 051 20472	4,7kΩ	5%	0,1W
3728	4822 051 20472	4,7kΩ	5%	0,1W
3730	4822 051 20333	33kΩ	5%	0,1W
3731	4822 117 10833	10kΩ	1%	0,1W
3732	4822 051 20471	470Ω	5%	0,1W
3733	4822 051 20471	470Ω	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE

RESISTORS

3734	© 4822 051 20471	470Ω	5%	0,1W
3740	© 4822 051 20223	22kΩ	5%	0,1W
3741	© 4822 051 20223	22kΩ	5%	0,1W
3742	© 4822 051 20223	22kΩ	5%	0,1W
3743	© 4822 051 20223	22kΩ	5%	0,1W
3744	© 4822 117 10833	10kΩ	1%	0,1W
3746	© 4822 117 10833	10kΩ	1%	0,1W
3750	© 4822 051 10102	1kΩ	2%	0,25W
3751	© 4822 051 10102	1kΩ	2%	0,25W
3752	© 4822 051 20399	39Ω	5%	0,1W
3753	© 4822 117 10834	47kΩ	1%	0,1W
3754	© 4822 117 12024	27kΩ	1%	0,1W
3755	© 4822 117 10833	10kΩ	1%	0,1W
3756	© 2120 108 92632	33kΩ	1%	0,1W
3757	© 4822 051 20399	39Ω	5%	0,1W
3758	© 4822 117 10833	10kΩ	1%	0,1W
3759	© 2120 108 92632	33kΩ	1%	0,1W
3760	© 4822 051 20399	39Ω	5%	0,1W
3761	© 4822 117 10833	10kΩ	1%	0,1W
3762	© 2120 108 92632	33kΩ	1%	0,1W
3763	© 4822 051 20479	47Ω	5%	0,1W
3764	© 4822 117 10833	10kΩ	1%	0,1W
3765	© 2120 108 92632	33kΩ	1%	0,1W
3766	© 4822 051 20479	47Ω	5%	0,1W
3773	© 4822 117 12024	27kΩ	1%	0,1W
3775	© 4822 117 12024	27kΩ	1%	0,1W
3800	© 4822 117 11148	56kΩ	1%	0,1W
3801	© 4822 117 10833	10kΩ	1%	0,1W
3802	© 4822 117 11148	56kΩ	1%	0,1W
3803	© 4822 117 10833	10kΩ	1%	0,1W
3804	© 4822 117 10833	10kΩ	1%	0,1W
3805	© 4822 117 10833	10kΩ	1%	0,1W
3806	© 4822 117 10833	10kΩ	1%	0,1W
3807	© 4822 117 10833	10kΩ	1%	0,1W
3808	© 4822 117 10833	10kΩ	1%	0,1W
3809	© 4822 117 13577	330Ω	1%	0,1W
3810	© 4822 051 20399	39Ω	5%	0,1W
3811	© 4822 051 20273	27kΩ	5%	0,1W
3812	© 4822 117 10834	47kΩ	1%	0,1W
3813	© 4822 051 20399	39Ω	5%	0,1W
3814	© 4822 051 20339	33Ω	5%	0,1W
3815	© 4822 052 10478	4,7Ω	5%	NFR
3816	© 4822 117 10834	47kΩ	1%	0,1W
3817	© 4822 052 10228	2,2Ω	5%	0,33W
3818	© 4822 051 20399	39Ω	5%	0,1W
3819	© 4822 051 20471	470Ω	5%	0,1W
3820	© 4822 051 20472	4,7kΩ	5%	0,1W
3821	© 4822 051 20472	4,7kΩ	5%	0,1W
3822	© 4822 117 12955	2,7kΩ	1%	0,1W
3823	© 4822 051 10102	1kΩ	2%	0,25W
3824	© 4822 051 10102	1kΩ	2%	0,25W
3825	© 4822 051 10102	1kΩ	2%	0,25W
3826	© 4822 051 20223	22kΩ	5%	0,1W
3827	© 4822 051 20273	27kΩ	5%	0,1W
3828	© 4822 051 20223	22kΩ	5%	0,1W
3829	© 4822 117 10834	47kΩ	1%	0,1W
3830	© 4822 117 12024	27kΩ	1%	0,1W
3831	© 4822 051 20101	100Ω	5%	0,1W
3832	© 4822 117 10833	10kΩ	1%	0,1W
3833	© 4822 051 20223	22kΩ	5%	0,1W
3834	© 4822 051 20223	22kΩ	5%	0,1W
3835	© 4822 117 10834	47kΩ	1%	0,1W
3836	© 4822 117 12024	27kΩ	1%	0,1W
3837	© 4822 051 10102	1kΩ	2%	0,25W
3838	© 4822 051 10102	1kΩ	2%	0,25W

RESISTORS

3839	© 4822 051 20273	27kΩ	5%	0,1W
3840	© 4822 051 20273	27kΩ	5%	0,1W
3841	© 4822 117 10834	47kΩ	1%	0,1W
3842	© 4822 117 10833	10kΩ	1%	0,1W
3843	© 4822 117 12955	2,7kΩ	1%	0,1W
3844	© 4822 117 12024	27kΩ	1%	0,1W
3845	© 4822 117 10833	10kΩ	1%	0,1W
3846	© 4822 117 12955	2,7kΩ	1%	0,1W
3847	© 4822 051 20399	39Ω	5%	0,1W
3848	© 4822 117 10965	18kΩ	2%	0,1W
3849	© 4822 117 10965	18kΩ	2%	0,1W
3850	© 4822 051 20399	39Ω	5%	0,1W
3851	© 4822 052 10228	2,2Ω	5%	0,33W
3852	© 4822 052 10228	2,2Ω	5%	0,33W
3853	© 4822 051 20471	470Ω	5%	0,1W
3854	© 4822 051 20101	100Ω	5%	0,1W
3855	© 4822 051 20101	100Ω	5%	0,1W
3856	© 4822 117 12521	68Ω	1%	0,1W
3857	© 4822 117 12521	68Ω	1%	0,1W
3858	© 4822 051 20223	22kΩ	5%	0,1W
3859	© 4822 051 20223	22kΩ	5%	0,1W
3860	© 4822 117 10833	10kΩ	1%	0,1W
3861	© 4822 117 10833	10kΩ	1%	0,1W
3862	© 4822 051 20121	120Ω	5%	0,1W
3863	© 4822 051 20101	100Ω	5%	0,1W
3863	© 4822 051 20339	33Ω	5%	0,1W
3864	© 4822 051 20101	100Ω	5%	0,1W
3865	© 4822 052 10228	2,2Ω	5%	0,33W
3866	© 4822 117 10833	10kΩ	1%	0,1W
3867	© 4822 051 20121	120Ω	5%	0,1W
3869	© 4822 051 20478	4,7Ω	5%	0,1W
3870	© 4822 051 20101	100Ω	5%	0,1W
3871	© 4822 117 10833	10kΩ	1%	0,1W
3873	© 4822 051 20471	470Ω	5%	0,1W
3875	© 4822 117 10833	10kΩ	1%	0,1W
3876	© 4822 117 10837	100kΩ	1%	0,1W
3877	© 4822 117 10833	10kΩ	1%	0,1W
3878	© 4822 117 10833	10kΩ	1%	0,1W
3879	© 4822 051 20273	27kΩ	5%	0,1W
3880	© 4822 051 20474	470kΩ	5%	0,1W
3881	© 4822 051 20273	27kΩ	5%	0,1W
3882	© 4822 051 20474	470kΩ	5%	0,1W
3883	© 4822 051 20273	27kΩ	5%	0,1W
3884	© 4822 051 20474	470kΩ	5%	0,1W
3885	© 4822 051 20273	27kΩ	5%	0,1W
3886	© 4822 051 20474	470kΩ	5%	0,1W
3887	© 4822 117 11503	220Ω	5%	0,1W
3888	© 4822 117 10833	10kΩ	1%	0,1W
3889	© 4822 051 20471	470Ω	5%	0,1W
3890	© 4822 051 10102	1kΩ	2%	0,25W
3891	© 4822 051 10102	1kΩ	2%	0,25W
3892	© 4822 051 20471	470Ω	5%	0,1W
3893	© 4822 051 20471	470Ω	5%	0,1W
3894	© 4822 051 20101	100Ω	5%	0,1W
3895	© 4822 051 20159	15Ω	5%	0,1W
3896	© 4822 052 10228	2,2Ω	5%	0,33W
3897	© 4822 051 20101	100Ω	5%	0,1W
3898	© 4822 117 11503	220Ω	5%	0,1W
3899	© 4822 051 20101	100Ω	5%	0,1W
4800	© 4822 051 20008	CHIP JUMPER	0805	
4801	© 4822 051 20008	CHIP JUMPER	0805	
4802	© 4822 051 20008	CHIP JUMPER	0805	
4804	© 4822 051 20008	CHIP JUMPER	0805	
4805	© 4822 051 20008	CHIP JUMPER	0805	
4806	© 4822 051 20008	CHIP JUMPER	0805	

ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE**RESISTORS**

4807	4822 051 20008	CHIP JUMPER 0805
4808	4822 051 20008	CHIP JUMPER 0805
4809	4822 051 20008	CHIP JUMPER 0805
4810	4822 051 20008	CHIP JUMPER 0805
4812	4822 051 20008	CHIP JUMPER 0805
4814	4822 051 20008	CHIP JUMPER 0805
4815	4822 051 20008	CHIP JUMPER 0805
4816	4822 051 20008	CHIP JUMPER 0805
4817	4822 051 20008	CHIP JUMPER 0805
4818	4822 051 20008	CHIP JUMPER 0805
4819	4822 051 20008	CHIP JUMPER 0805
4820	4822 051 20008	CHIP JUMPER 0805
4821	4822 051 20008	CHIP JUMPER 0805
4822	4822 051 20008	CHIP JUMPER 0805
4823	4822 051 20008	CHIP JUMPER 0805
4824	4822 051 20008	CHIP JUMPER 0805
4825	4822 051 20008	CHIP JUMPER 0805
4826	4822 051 20008	CHIP JUMPER 0805
4827	4822 051 20008	CHIP JUMPER 0805
4828	4822 051 20008	CHIP JUMPER 0805
4831	4822 051 20008	CHIP JUMPER 0805
4832	4822 051 20008	CHIP JUMPER 0805
4834	4822 051 20008	CHIP JUMPER 0805
4835	4822 051 20008	CHIP JUMPER 0805
4836	4822 051 20008	CHIP JUMPER 0805
4838	4822 051 20008	CHIP JUMPER 0805
4843	4822 051 20008	CHIP JUMPER 0805
4845	4822 051 20008	CHIP JUMPER 0805
4846	4822 051 20008	CHIP JUMPER 0805
4847	4822 051 20008	CHIP JUMPER 0805
4849	4822 051 20008	CHIP JUMPER 0805
4856	4822 051 20008	CHIP JUMPER 0805
4857	4822 051 20008	CHIP JUMPER 0805
4858	4822 051 20008	CHIP JUMPER 0805
4859	4822 051 20008	CHIP JUMPER 0805
4860	4822 051 20008	CHIP JUMPER 0805
4861	4822 051 20008	CHIP JUMPER 0805
4862	4822 051 20008	CHIP JUMPER 0805
4863	4822 051 20008	CHIP JUMPER 0805
4864	4822 051 20008	CHIP JUMPER 0805
4865	4822 051 20008	CHIP JUMPER 0805
4867	4822 051 20008	CHIP JUMPER 0805
4868	4822 051 20008	CHIP JUMPER 0805
4869	4822 051 20008	CHIP JUMPER 0805
4870	4822 051 20008	CHIP JUMPER 0805
4876	4822 051 20008	CHIP JUMPER 0805
4879	4822 051 20008	CHIP JUMPER 0805
4884	4822 051 20008	CHIP JUMPER 0805
4885	4822 051 20008	CHIP JUMPER 0805
4886	4822 051 20008	CHIP JUMPER 0805
4887	4822 051 20008	CHIP JUMPER 0805
4890	4822 051 20008	CHIP JUMPER 0805
4893	4822 051 20008	CHIP JUMPER 0805
4894	4822 051 20008	CHIP JUMPER 0805
4896	4822 051 20008	CHIP JUMPER 0805
4897	4822 051 20008	CHIP JUMPER 0805

COILS

1810	2422 543 01068	RESONATOR 8MHZ
1810	4822 242 73557	CERAMIC RES. 8.46MHZ
5802	4822 156 31058	FILTER DIGITAL OUT

DIODES

6871	4822 130 11397	BAS316
6872	4822 130 11397	BAS316
6873	4822 130 11397	BAS316
6874	4822 130 11397	BAS316
6875	9340 548 52115	BZX284-C5V1
6877	9322 129 34685	BZX284-C3V9
6878	4822 130 11397	BAS316
6879	9322 129 34685	BZX284-C3V9

TRANSISTORS

7812	5322 130 60159	BC846B
7874	5322 130 60159	BC846B
7875	5322 130 60159	BC846B

INTEGRATED CIRCUITS

7801	9352 622 36118	TZA1025T/V2, HF-Amplifier
7805	4822 209 33165	TDA1308T/N1, OPAMP
7806	4822 209 62059	TCA0372DP1, Motor driver
7807	4822 209 62059	TCA0372DP1, Motor driver
7808	4822 209 62059	TCA0372DP1, Motor driver
7821	4822 209 62059	TCA0372DP1, Motor driver
7822	4822 209 62059	TCA0372DP1, Motor driver
7873	5322 209 11306	HEF4094BT, Shift register
7876	4822 209 16143	LC89170M, CD TEXT IC
7877	9352 642 17557	SAA7325H/M2B Signal processor CD10

COMBI BOARD

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Brief introduction of the Combi Board

A. TRANSFORMER PRIMARY PART

Transformer Primary Circuit provide connection for AC mains supply and primary wires of transformer.

B. POWER SUPPLY PART

Power Supply Circuit consists of rectifiers, capacitive filters and voltage regulators. Regulated voltage include +5V6, +LED, +12A, +12M, -32V, PWDN. The +C supply to the power amplifier is not regulated. F1-F2 is the ac supply voltage to the FTD Display filament.

C. SOURCE SELECT & AMPLIFIER PART

a) SHIFT REGISTER (AF CONTROL)

This shift register deliver commands from the μ P to control the AF functions which include source selection (A0 & A1 control lines), DSC modes , DBB, IS and CD_STBY. Other control lines such as MUTE, AMPON, STBY and PWM are coming directly from the μ P on the Front board.

b) SOURCE SELECTION

One of the 4 sources, namely AUX, TAPE, TUNER, CD, can be selected via A0 & A1 lines which control the IC 7501 (HEF4052BT). Karaoke mic. mixing is connected to th e selected source before the signal is amplified with a buffer amplifier (Tr 7503 & 7504). The source signal is then split into recording path (for recording on tape) and main signal path (to the PWM volume control).

c) PWM VOLUME CONTROL

The discrete volume control makes use of 4 Transistors 7505, 7506, 7507 & 7508 (ON4986 or selected BC557B) and PWM control signal from μ P. For good performance transistors for the left and right channels should be paired for gain characteristics.

d) SOUND FEATURES

Sound Features include the DBB, IS and 4 DSC modes. The sound features are realised with a hex-inverter IC 7530 (HEF4069UBT) as analog buffer/amplifier and transistors as electronic switches controlled by the shift registers (AF control).

e) POWER AMPLIFIER

IC 7391 (AN7125) is used as power amplifier.

f) CD_STBY CONTROL

This Transistor 7401 (BC337-25) switches on the supply +CD supply (derived from +12A) to CD servo control, HF circuit and the laser light pen on the CD Module during the CD mode only.

g) MATRIX SURROUND OUTPUT

The matrix surround feature is provided on board. This feature is only optional on certain type version.

D. KARAOKE PART

This simple Karaoke consists of a 1-mic. mono amplifier using discrete components. It has a level control using a rotary potmeter. This feature is available for some version only.

E. HEADPHONE PART

The headphone output is derived from the power amplifier output after the attenuation resistors which are tailored to deliver 18mW output power into a 32 ohm headphone.

F. CDC KEY PART

The CDC key buttons and LEDs are provided on this board.

Combi Board application

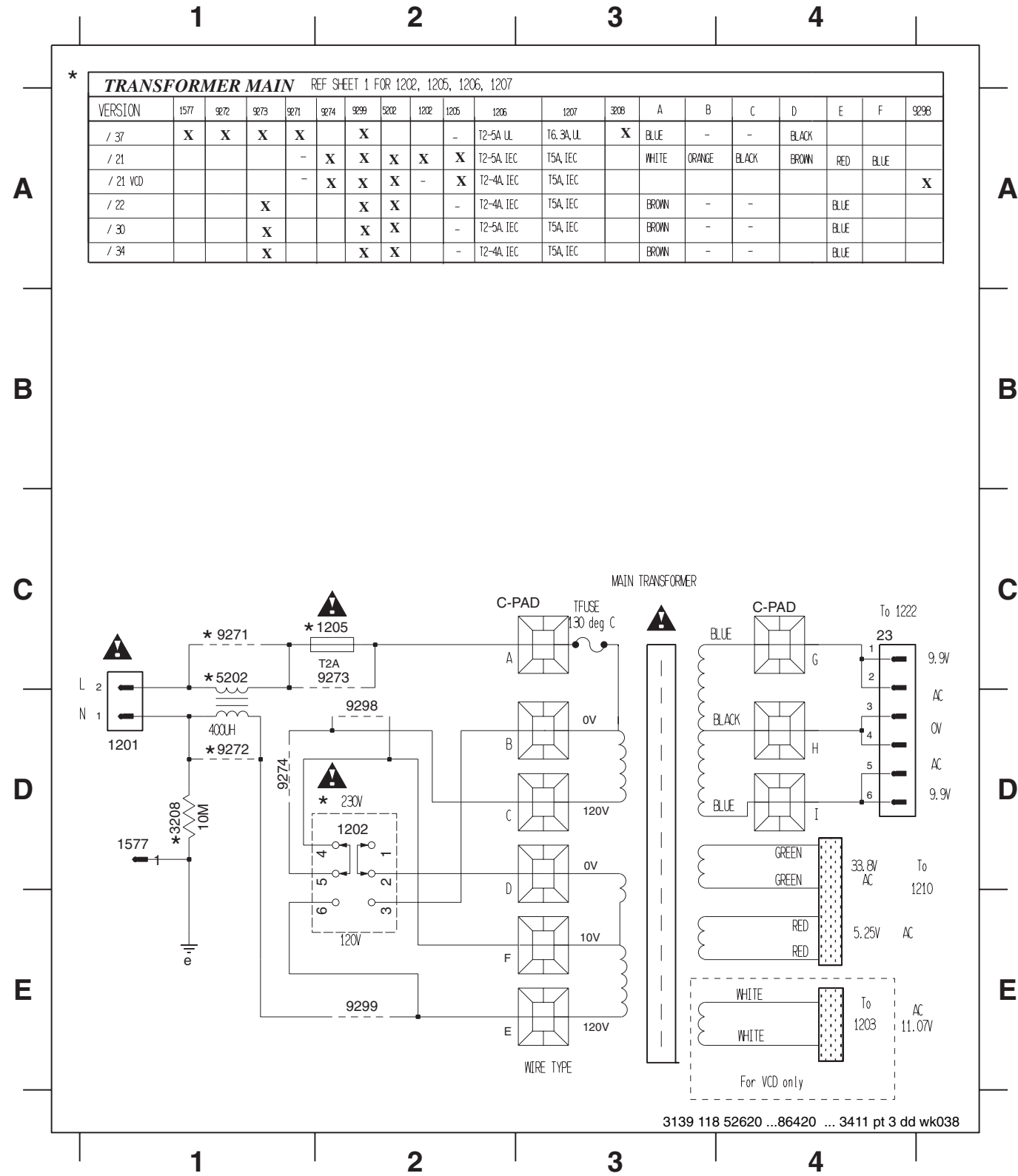
A54050	FW-C200/21/21M, FW-C220/21K
A54060	FW-C220/22/34
A54090	FW-C250/37
A54100	FW-C250/21
A54110	FW-C280/22/34
A54120	FW-C290/21
A54330	FW-C200/30
A54350	FW-C200/33
A54440	FW-C150/37

NOTES:

Features/Configuration:	A54050	A54060	A54090	A54100	A54110	A54120	A54330	A54350	A54440		
Aux-In	x	x	x	x	x	x	x	x	x		
Sub-woofer Out	-	-	-	-	-	-	-	-	-		
Digital Out	-	-	-	-	-	-	-	-	-		
I.S.	-	-	-	-	x	x	-	-	-		
Voltage Selector	x	-	-	x	-	x	-	-	-		
Karaoke	x	-	-	x	-	x	-	x	-		
DBB	x	x	x	x	x	x	x	x	x		
DSC	x	x	x	x	x	x	x	x	x		
Matrix Surround	-	-	-	-	-	-	-	-	-		
1-band Spectrum Analyser	x	x	x	x	x	x	x	x	-		
3-band Spectrum Analyser	-	-	-	-	-	-	-	-	-		
12W	-	-	-	-	-	-	-	-	x		
18W	x	x	-	-	-	-	x	x	-		
25W	-	-	x	x	x	x	-	-	-		
VCD	-	-	-	-	-	-	-	-	-		
NTC	-	-	-	x	-	x	-	-	-		
ECO-MTF	-	-	x	x	-	-	-	-	x		
ETF7	x	x	-	-	x	x	x	x	-		

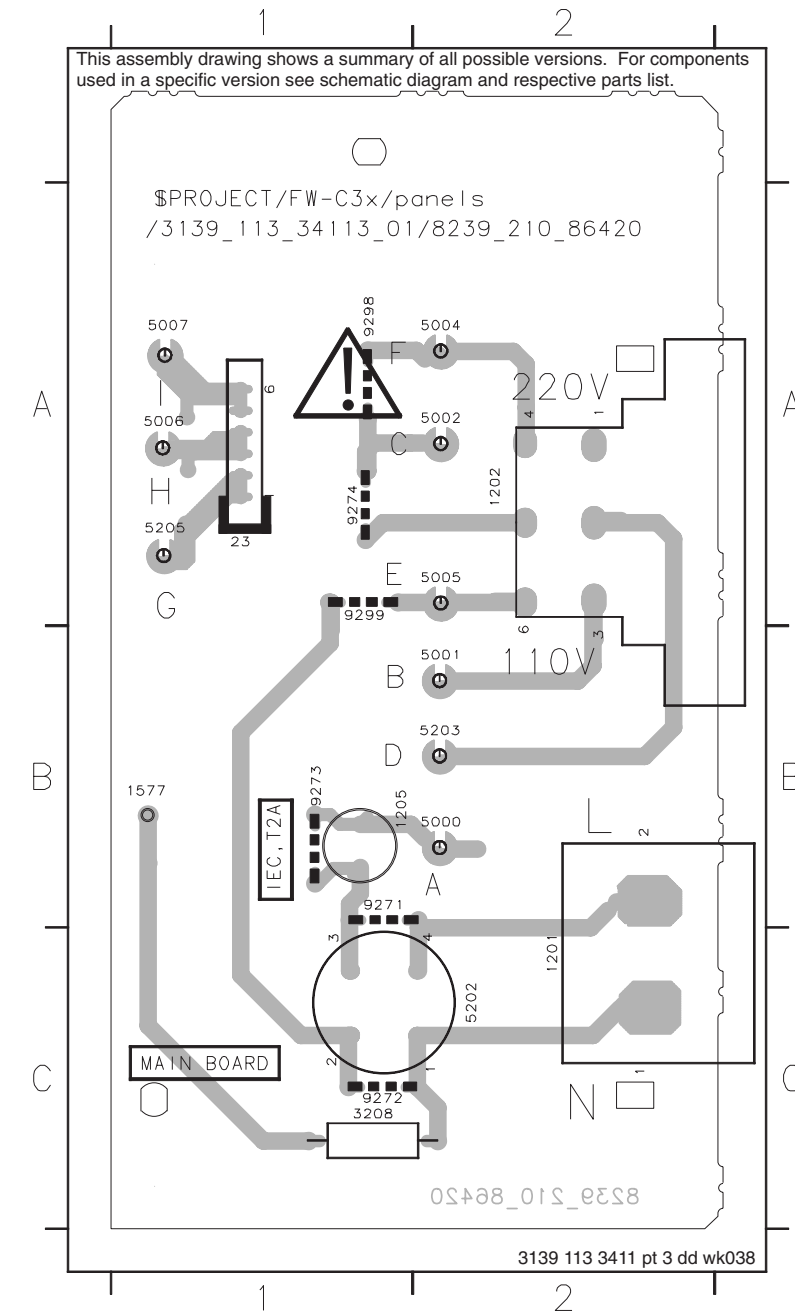
CIRCUIT DIAGRAM - TRANSFORMER PRIMARY PART

23 C4 1202 D2 1577 D1 5202 C1 9272 D1 9274 D1 9299 E2
 1201 D1 1205 C2 3208 D1 9271 C1 9273 C2 9298 D2



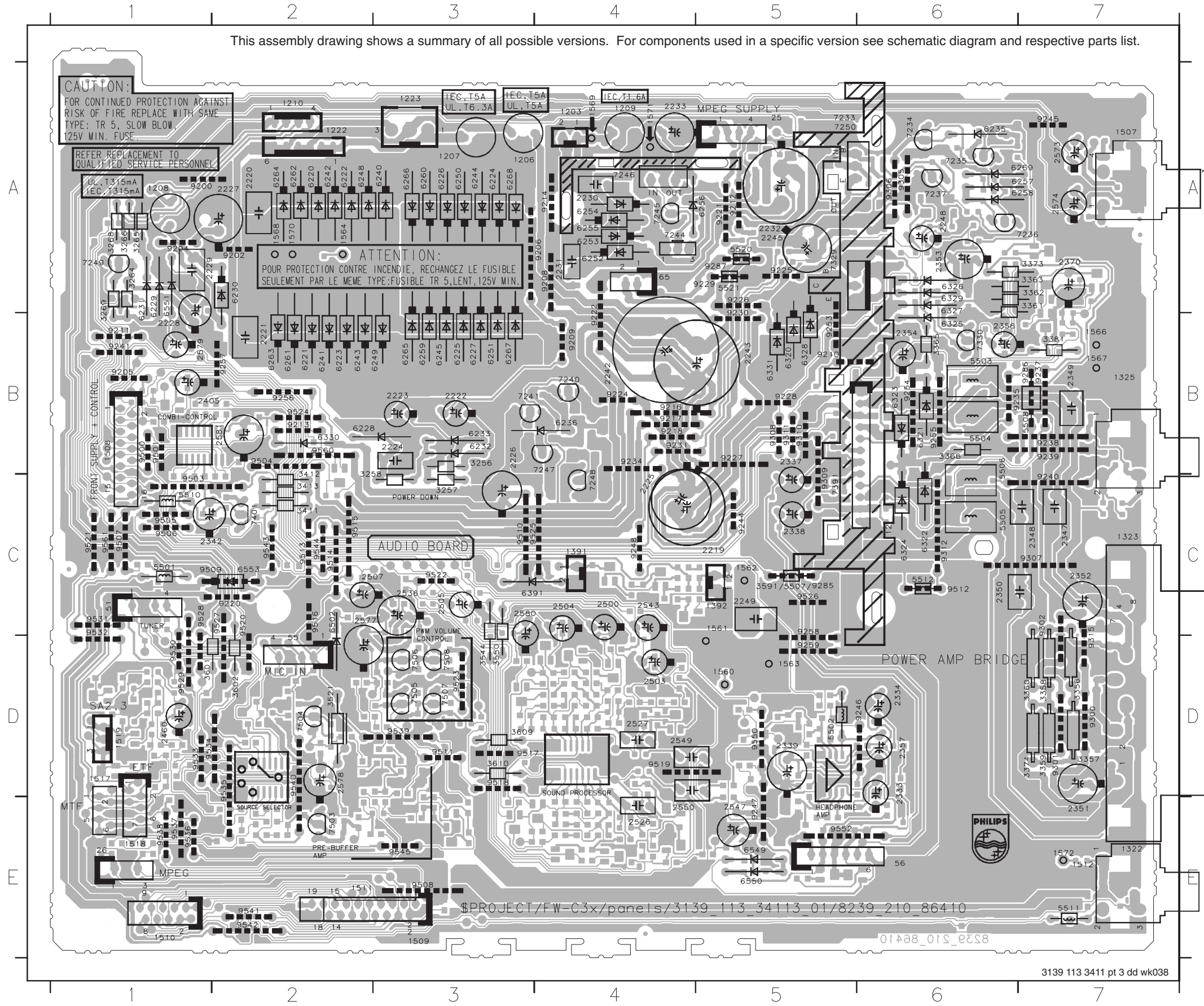
COMPONENT LAYOUT - TRANSFORMER PRIMARY

23 A1 1577 B1 5002 A2 5007 A1 9271 B1 9298 A1
 1201 C2 3208 C1 5004 A2 5202 C2 9272 C1 9299 A1
 1202 A2 5000 B2 5003 A2 5203 B2 9273 C1
 1205 B1 5001 B2 5006 A1 5205 A1 9274 A1



COMPONENT LAYOUT - MAIN PART

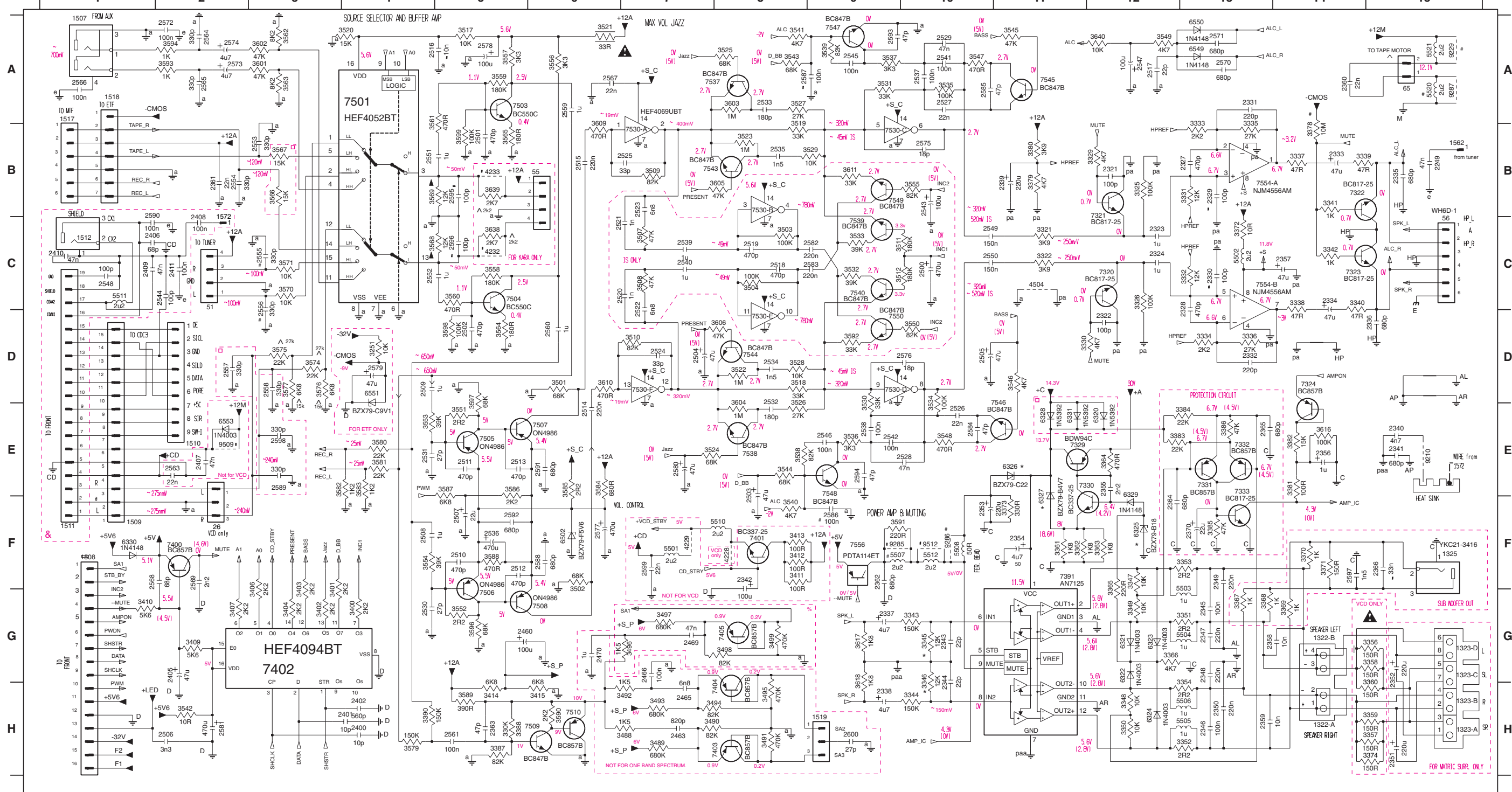
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.



25	A5
24	A5
23	A5
22	A5
21	A5
20	A5
19	A5
18	A5
17	A5
16	A5
15	A5
14	A5
13	A5
12	A5
11	A5
10	A5
9	A5
8	A5
7	A5
6	A5
5	A5
4	A5
3	A5
2	A5
1	A5
0	A5
92	A5
91	A5
90	A5
89	A5
88	A5
87	A5
86	A5
85	A5
84	A5
83	A5
82	A5
81	A5
80	A5
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15	A5
14	A5
13	A5
12	A5
11	A5
10	A5
9	A5
8	A5
7	A5
6	A5
5	A5
4	A5
3	A5
2	A5
1	A5

CIRCUIT DIAGRAM - SOURCE SELECT & AMPLIFIER PART

26 F2	1511 F1	2331 A13	2347 G13	2363 H5	2463 H7	2511 E5	2527 A10	2543 B10	2559 A6	2576 D10	2592 F5	3331 B13	3347 F12	3364 E12	3383 E12	3411 F8	3499 G8	3522 D8	3538 E8	3554 F4	3570 C3	3589 H5	3609 B6	5503 G13	6325 F12	7324 D14	7505 E5	7543 B7	9512 F10
51 C2	1512 C1	2332 D13	2348 G13	2364 F12	2465 H7	2512 F5	2528 E10	2544 C2	2560 D6	2577 F6	2593 A9	3332 C13	3348 H12	3365 F12	3384 E12	3412 F8	3501 D6	3523 B8	3539 A9	3555 B10	3571 C3	3590 H6	3610 D6	5504 G13	6326 E11	7325 E11	7506 G5	7544 D8	
55 C15	1517 A1	2333 B14	2349 F13	2365 E13	2466 G7	2513 E5	2529 G4	2545 A9	2561 H5	2578 A5	2594 E9	3333 B13	3349 G12	3366 F12	3385 F13	3413 F8	3502 F6	3524 E7	3540 F8	3556 A6	3574 D3	3591 F9	3611 B9	5505 H13	6327 F11	7330 E11	7507 E6	7545 A11	
65 A15	1519 H9	2336 B15	2351 H15	2370 F13	2470 G6	2515 B6	2531 E4	2546 E9	2562 E2	2579 D4	2595 B5	3334 D13	3350 H12	3367 G13	3386 E13	3414 H5	3503 C8	3525 A8	3541 A8	3557 A5	3575 D3	3592 D9	3616 E14	5506 H13	6328 E11	7331 E13	7508 G6	7546 D11	
1322-A H14	1522 B15	2337 D15	2352 G15	2400 H4	2471 G6	2516 A4	2532 E8	2548 C1	2564 A2	2580 E7	2596 C5	3335 B13	3351 G13	3368 G13	3387 H5	3415 H6	3504 C8	3526 E8	3542 H2	3558 C5	3576 D3	3593 A2	3617 G9	5507 F9	6329 F12	7332 E13	7509 H6	7547 A9	
1323-B G14	1522 B15	2337 G9	2353 F10	2401 H4	2471 G6	2501 B5	2517 A12	2533 A8	2549 C10	2582 C9	2598 E3	3337 B14	3353 F13	3370 F14	3389 H4	3488 H7	3508 C7	3528 D8	3544 E8	3560 C5	3579 H4	3596 G5	3618 G9	5508 F10	6330 F12	7333 E13	7510 H6	7548 E9	
1323-A H15	2249 B15	2338 H9	2354 F11	2402 H4	2502 D5	2518 C8	2534 D8	2550 C10	2567 A6	2583 C9	2599 F7	3338 C14	3354 H13	3371 F14	3400 G4	3490 H7	3509 B7	3529 B9	3545 A11	3561 A4	3580 E4	3597 D5	3639 B5	5511 C1	6502 F6	7400 F2	7530-B H8	7550 D10	
1323-B H15	2321 B12	2339 B11	2355 E12	2405 G2	2503 E8	2519 C8	2535 B8	2551 B4	2568 F1	2584 E10	2600 H9	3339 B14	3356 G15	3372 C13	3401 G3	3491 H8	3510 D7	3530 E9	3546 D11	3562 A3	3581 E4	3598 D5	3640 A12	5512 F10	6504 A13	7401 F8	7530-C B9	7554-B C13	
1323-C G15	2322 D12	2340 E15	2356 E14	2406 C1	2504 D7	2520 C7	2536 F5	2552 C4	2569 F2	2585 A10	3251 D4	3340 C14	3357 H15	3373 F11	3402 G3	3492 H7	3511 C10	3531 A9	3547 A10	3563 A3	3582 E3	3599 B5	3628 F8	5520 A15	6550 A13	7402 G3	7530-D D9	7556 F9	
1323-D G15	2323 C12	2341 E15	2357 C14	2407 E2	2505 D10	2521 C6	2537 A10	2553 B3	2570 A13	2586 F9	3321 C11	3341 B14	3358 G15	3374 H15	3403 G3	3493 H7	3512 C10	3532 C9	3548 H10	3564 D5	3583 E4	3601 A3	3629 F7	5521 A15	6551 D4	7403 H8	7530-E D8	7559 E15	
1325 F15	2324 C12	2342 F8	2358 G13	2408 B2	2506 H2	2522 C7	2538 E9	2554 B2	2571 A13	2587 A8	3322 C11	3342 C14	3359 H15	3378 B14	3404 G3	3494 H7	3517 A5	3533 C9	3549 A12	3565 B5	3584 E6	3602 A3	3630 E2	6320 E12	6553 E2	7404 G8	7530-F D7	7559 A15	
1507 A1	2327 B13	2343 D10	2359 H13	2409 C1	2507 F5	2523 B7	2539 C7	2555 C3	2572 A2	2588 F6	3325 B12	3343 G10	3360 H15	3379 H15	3406 G3	3495 H8	3518 D8	3534 E10	3550 D10	3566 B3	3585 E6	3603 A5	3631 B5	6321 G12	7320 C12	7405 F8	7530-G B7	7559 B10	
1508 F1	2328 C13	2344 H10	2360 A14	2410 C1	2508 F4	2524 D7	2540 C7	2556 B3	2573 A2	2589 E3	3326 C12	3344 H10	3361 F11	3380 H11	3407 G2	3496 G7	3519 B8	3535 A10	3551 E5	3567 B3	3586 E5	3604 E8	3635 E8	6322 G12	7321 C12	7501 A4	7530-H B8	7559 C10	
1509 F1	2329 B13	2345 G13	2361 B2	2411 C2	2509 D4	2525 B7	2541 A10	2557 D2	2574 A2	2590 C1	3329 D12	3345 G10	3362 F11	3381 E14	3409 G2	3497 G7	3520 A4	3536 E9	3552 G5	3568 C4	3587 E5	3605 B8	3636 B8	6323 G12	7322 B14	7503 A5	7530-I B8	7559 D15	
1510 E2	2330 C13	2346 H13	2362 F9	2460 G5	2510 F5	2526 E10	2542 E9	2558 D3	2575 B10	2591 E6	3330 D11	3346 G10	3363 F12	3382 E14	3410 G1	3498 G8	3521 A6	3537 A9	3553 E4	3569 B4	3588 F5	3606 D8	5502 C13	6324 H12	7323 C14	7504 C5	7530-J B8	7559 E12	



Remark : +A AND +C SUPPLY SWITCH AT VOL 32

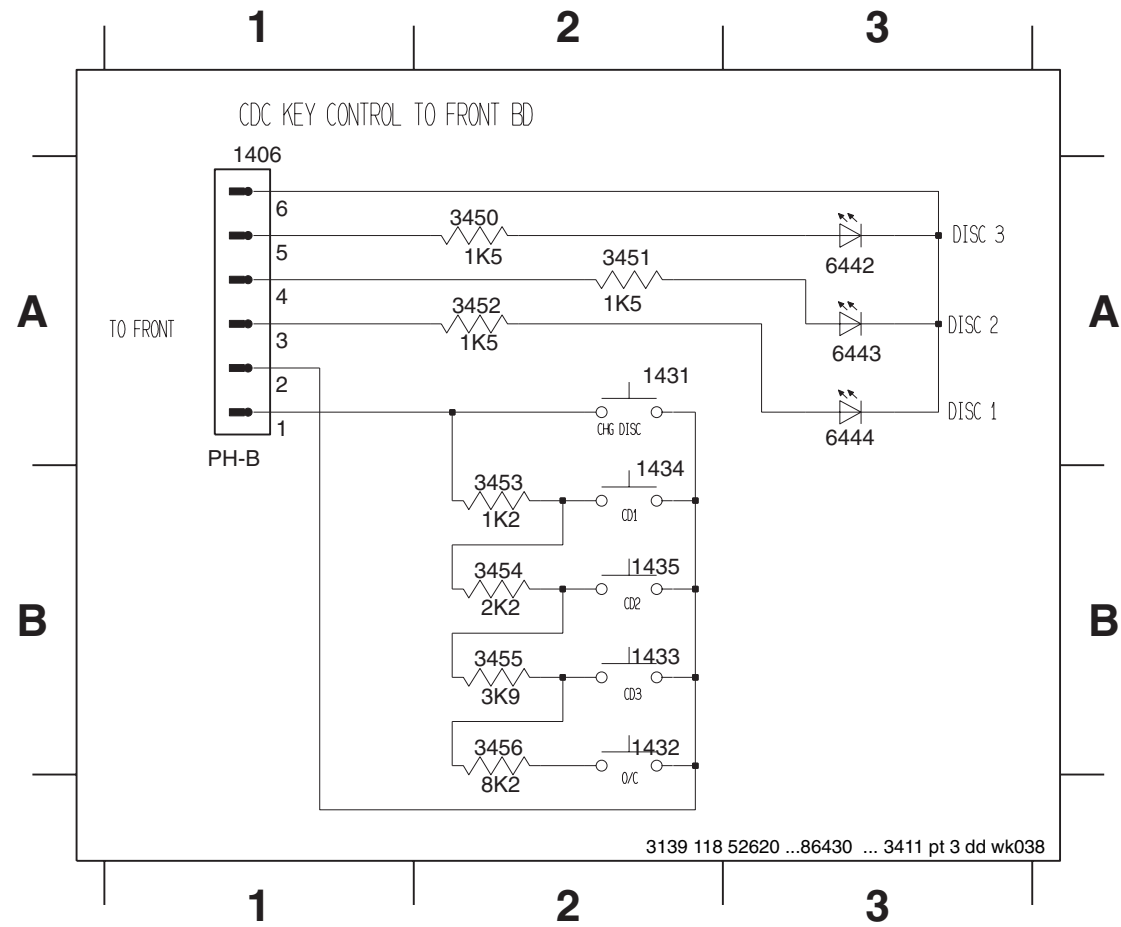
Provision on layout	Inc1	Inc2	Jazz	Bass	Pre	DBB
For set with Karaoke	X	X	L	H	L	L
For set without Karaoke	X	X	H	H	H	H
For set with Digital Out	X	X	L	H	L	H
For VCD version only	X	X	H	L	H	H
Refer to parts list for usage	L	H	X	X	X	X
	H	L	X	X	X	X

ALX	1	1
TUNER	1	1
TAPE	1	1
CD	1	1

% VALUE FOR ONE BAND SPECTRUM ANALYZER			
ITEM #	3497	3498	3499
VALUE	150K	56K	220K

* VALUE FOR 12W & 18W VERSIONS				
ITEM	3345	3346	6325	6326
12W	6K8	6K8	BZX79-F15	BZX79-C18
18W	10K	10K	BZX79-F15	BZX79-C18

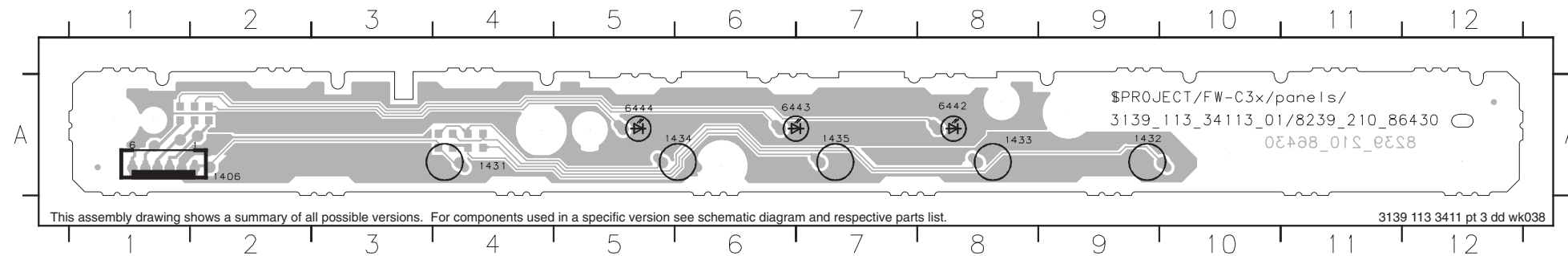
CDC KEY PART - CIRCUIT & COMPONENT LAYOUT



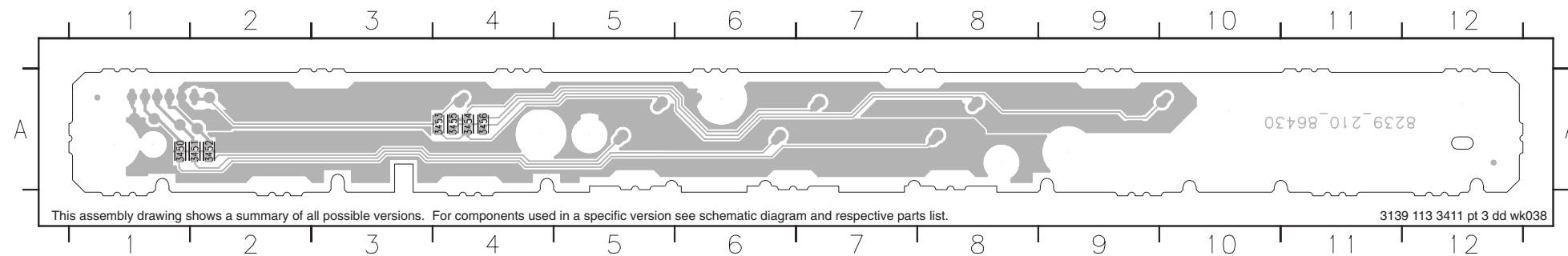
- 1406 A1
- 1431 A2
- 1432 B2
- 1433 B2
- 1434 B2
- 1435 B2
- 3450 A2
- 3451 A2
- 3452 A2
- 3453 B2
- 3454 B2
- 3455 B2
- 3456 B2
- 6442 A3
- 6443 A3
- 6444 A3
- T400 A1
- T401 A1
- T402 A1
- T403 A1
- T404 A1
- T408 A1

3139 118 52620 ...86430 ... 3411 pt 3 dd wk038

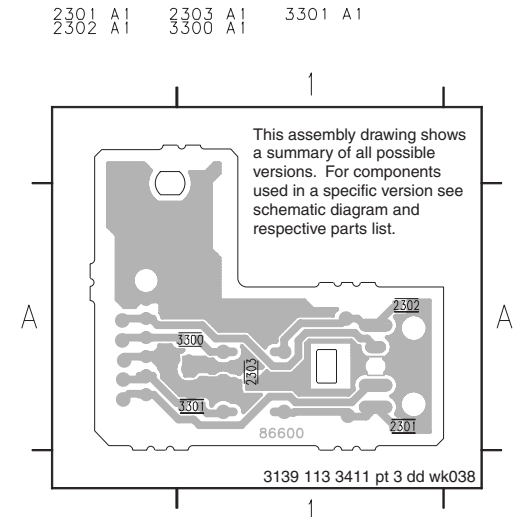
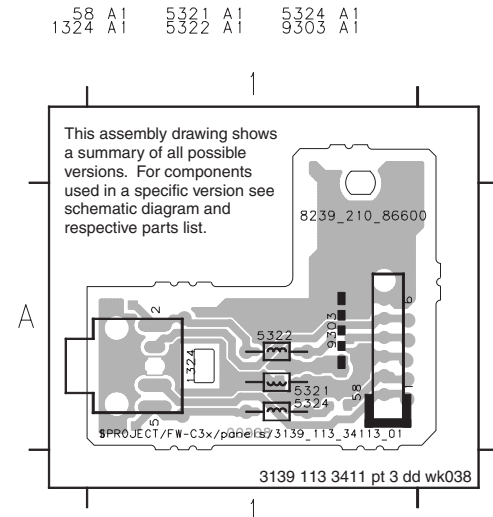
- 1406 A2
- 1431 A4
- 1432 A9
- 1433 A8
- 1434 A6
- 1435 A7
- 6442 A8
- 6443 A6
- 6444 A5



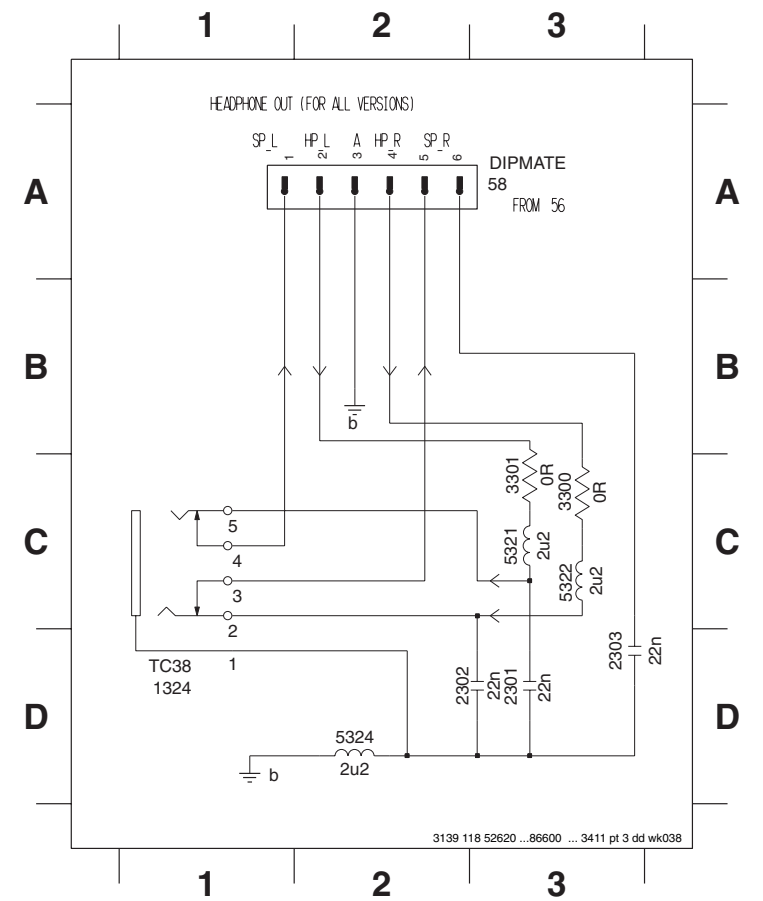
- 3450 A1
- 3451 A2
- 3452 A2
- 3453 A4
- 3454 A4
- 3455 A4
- 3456 A4



HEADPHONE PART - CIRCUIT & COMPONENT LAYOUT



- 58 A3
- 1324 D1
- 2301 D3
- 2302 D2
- 2303 D3
- 3300 C3
- 3301 C3
- 5321 C3
- 5322 C3
- 5324 D2



3139 118 52620 ...86600 ... 3411 pt 3 dd wk038

ELECTRICAL PARTS LIST - COMBI BOARD

MISCELLANEOUS

1201	4822 265 31016	△	Mains Socket
1206	4822 071 55002	△	Fuse T5A 250V
1207	4822 252 51123	△	Fuse T6,3A 250V
1208	4822 252 51151	△	Fuse T315mA 250V
1322	4822 267 31176		Loudspeaker Socket
1324	4822 265 11547		Headphone Socket
1431	4822 276 13775		Tact Switch
1432	4822 276 13775		Tact Switch
1433	4822 276 13775		Tact Switch
1434	4822 276 13775		Tact Switch
1435	4822 276 13775		Tact Switch
1507	4822 265 20553		Aux-in Socket
1508	2422 025 14526		Flex Socket 16pin Vert.
1509	4822 265 10981		Flex Socket 15pin Vert.
1510	2422 025 14518		Flex Socket 9pin Vert.
1517	4822 267 10731		Flex Socket 6pin Vert.

CAPACITORS

2219	4822 124 42367		3300µF 20% 35V
2220	5322 121 42386		100nF 5% 63V
2221	5322 121 42386		100nF 5% 63V
2222	4822 124 21913		1µF 20% 63V
2223	4822 124 21913		1µF 20% 63V
2224	4822 121 43526		47nF 5% 250V
2226	4822 124 80144		220µF 20% 25V
2227	4822 124 40255		100µF 20% 63V
2228	4822 124 41751		47µF 20% 50V
2229	5322 121 42386		100nF 5% 63V
2234	5322 122 34098		10nF 10% 63V
2235	5322 122 32654		22nF 10% 63V
2242	4822 124 80415		4700µF 20% 50V
2245	4822 124 81144		1000µF 20% 16V
2246	5322 122 31647		1nF 10% 63V
2247	5322 122 31647		1nF 10% 63V
2248	4822 124 40433		47µF 20% 25V
2249	4822 121 43526		47nF 5% 250V
2301	5322 122 32654		22nF 10% 63V
2302	5322 122 32654		22nF 10% 63V
2303	5322 122 32654		22nF 10% 63V
2321	5322 122 32531		100pF 5% 50V
2322	5322 122 32531		100pF 5% 50V
2323	4822 126 14043		1µF +80/-20% 16V
2324	4822 126 14043		1µF +80/-20% 16V
2327	5322 122 34099		470pF 10% 63V
2328	5322 122 34099		470pF 10% 63V
2331	4822 122 33575		220pF 5% 63V
2332	4822 122 33575		220pF 5% 63V
2333	4822 124 40433		47µF 20% 25V
2334	4822 124 40433		47µF 20% 25V
2335	4822 122 32535		680pF 10% 63V
2336	4822 122 32535		680pF 10% 63V
2337	4822 124 40769		4,7µF 20% 100V

2338	4822 124 40769		4,7µF 20% 100V
2339	4822 124 80144		220µF 20% 25V
2340	5322 126 10223		4,7nF 10% 63V
2341	4822 122 32535		680pF 10% 63V
2342	4822 124 40207		100µF 20% 25V
2343	5322 122 32658		22pF 5% 50V
2344	5322 122 32658		22pF 5% 50V
2345	4822 126 14585		100nF 10% 50V
2346	4822 126 14585		100nF 10% 50V
2347	4822 121 42408		220nF 5% 63V
2348	4822 121 42408		220nF 5% 63V
2349	4822 121 42408		220nF 5% 63V
2350	4822 121 42408		220nF 5% 63V
2353	4822 124 80144		220µF 20% 25V
2354	4822 124 40769		4,7µF 20% 100V
2355	4822 122 33127		2,2nF 10% 63V
2356	4822 124 21913		1µF 20% 63V
2357	4822 124 40433		47µF 20% 25V
2358	4822 122 33177		10nF 20% 50V
2359	4822 122 33177		10nF 20% 50V
2360	5322 122 32654		22nF 10% 63V
2361	5322 122 32654		22nF 10% 63V
2362	4822 122 32535		680pF 10% 63V
2364	4822 122 32535		680pF 10% 63V
2365	4822 122 32535		680pF 10% 63V
2370	4822 124 81151		22µF 20% 50V
2400	5322 122 32448		10pF 5% 63V
2401	5322 122 32448		10pF 5% 63V
2402	5322 116 80853		560pF 5% 63V
2405	4822 124 40433		47µF 20% 25V
2501	5322 122 32268		470pF 10% 50V
2502	5322 122 32268		470pF 10% 50V
2503	4822 124 40433		47µF 20% 25V
2504	4822 124 40433		47µF 20% 25V
2505	4822 124 40433		47µF 20% 25V
2506	4822 122 33891		3,3nF 10% 63V
2507	4822 124 81151		22µF 20% 50V
2508	4822 126 14043		1µF +80/-20% 16V
2509	4822 126 14043		1µF +80/-20% 16V
2510	5322 122 34099		470pF 10% 63V
2511	5322 122 34099		470pF 10% 63V
2512	5322 122 34099		470pF 10% 63V
2513	5322 122 34099		470pF 10% 63V
2514	4822 126 13561		220nF 10% 16V
2515	4822 126 13561		220nF 10% 16V
2517	5322 122 32658		22pF 5% 50V
2524	5322 122 32659		33pF 5% 50V
2525	5322 122 32659		33pF 5% 50V
2526	4822 121 41856		22nF 5% 250V
2527	4822 121 41856		22nF 5% 250V
2528	4822 126 13751		47nF 10% 63V
2529	4822 126 13751		47nF 10% 63V

ELECTRICAL PARTS LIST - COMBI BOARD

RESISTORS

2530	4822 126 13691		27pF 1% 63V
2531	4822 126 13691		27pF 1% 63V
2532	4822 126 10326		180pF 5% 63V
2533	4822 126 10326		180pF 5% 63V
2534	5322 122 31865		1,5nF 10% 63V
2535	5322 122 31865		1,5nF 10% 63V
2536	4822 124 80195		470µF 20% 10V
2537	4822 126 13838		100nF +80/-20% 50V
2538	4822 126 13838		100nF +80/-20% 50V
2541	4822 126 14585		100nF 10% 50V
2542	4822 126 14585		100nF 10% 50V
2545	4822 126 13838		100nF +80/-20% 50V
2546	4822 126 13838		100nF +80/-20% 50V
2547	4822 124 40207		100µF 20% 25V
2549	4822 121 41854		150nF 5% 63V
2550	4822 121 41854		150nF 5% 63V
2551	4822 126 14043		1µF +80/-20% 16V
2552	4822 126 14043		1µF +80/-20% 16V
2553	5322 122 31863		330pF 5% 63V
2554	5322 122 31863		330pF 5% 63V
2557	5322 122 31863		330pF 5% 63V
2558	5322 122 31863		330pF 5% 63V
2559	4822 126 14043		1µF +80/-20% 16V
2560	4822 126 14043		1µF +80/-20% 16V
2563	5322 122 32654		22nF 10% 63V
2564	5322 122 31863		330pF 5% 63V
2565	5322 122 31863		330pF 5% 63V
2566	4822 126 13838		100nF +80/-20% 50V
2567	5322 122 32654		22nF 10% 63V
2568	4822 126 13694		68pF 1% 63V
2569	4822 122 33127		2,2nF 10% 63V
2570	4822 122 32535		680pF 10% 63V
2571	4822 122 32535		680pF 10% 63V
2572	4822 126 13838		100nF +80/-20% 50V
2573	4822 124 40769		4,7µF 20% 100V
2574	4822 124 40769		4,7µF 20% 100V
2575	4822 126 13689		18pF 1% 63V
2576	4822 126 13689		18pF 1% 63V
2577	4822 124 80195		470µF 20% 10V
2578	4822 124 40207		100µF 20% 25V
2580	4822 124 40433		47µF 20% 25V
2581	4822 124 80791		470µF 20% 16V
2584	4822 126 13692		47pF 1% 63V
2585	4822 126 13692		47pF 1% 63V
2588	4822 122 32535		680pF 10% 63V
2591	4822 122 32535		680pF 10% 63V
2592	4822 122 32535		680pF 10% 63V
2593	4822 126 13692		47pF 1% 63V
2594	4822 126 13692		47pF 1% 63V
2599	5322 122 32654		22nF 10% 63V

3208	4822 053 21106		10M 5% 0,5W
3209	4822 051 20478		4R7 5% 0,1W
3210	4822 051 20478		4R7 5% 0,1W
3212	4822 051 20109		10R 5% 0,1W
3213	4822 051 20122		1k2 5% 0,1W
3214	4822 051 20478		4R7 5% 0,1W
3215	4822 051 20478		4R7 5% 0,1W
3242	4822 051 20478		4R7 5% 0,1W
3243	4822 051 20478		4R7 5% 0,1W
3246	4822 117 13577		330R 1% 0,1W
3247	4822 117 12521		68R 1% 0,1W
3248	4822 117 13577		330R 1% 0,1W
3249	4822 117 12521		68R 1% 0,1W
3252	4822 051 10102		1k 2% 0,25W
3253	4822 051 20109		10R 5% 0,1W
3254	4822 051 20109		10R 5% 0,1W
3256	4822 050 21003		10k 1% 0,6W
3257	4822 050 21003		10k 1% 0,6W
3258	4822 116 52283		4k7 5% 0,5W
3259	4822 116 83933		15k 1% 0,1W
3260	4822 117 11503		220R 1% 0,1W
3261	4822 117 11383		12k 1% 0,1W
3263	4822 117 11383		12k 1% 0,1W
3264	4822 116 52289		5k6 5% 0,5W
3265	4822 116 52257		22k 5% 0,5W
3266	4822 116 83872		220R 5% 0,5W
3268	4822 116 83872		220R 5% 0,5W
3269	4822 116 52256		2k2 5% 0,5W
3270	4822 117 10833		10k 1% 0,1W
3271	4822 117 10833		10k 1% 0,1W
3272	4822 051 20472		4k7 5% 0,1W
3273	4822 117 11449		2k2 5% 0,1W
3274	4822 051 20472		4k7 5% 0,1W
3275	4822 051 20472		4k7 5% 0,1W
3276	4822 051 20393		39k 5% 0,1W
3277	4822 117 10834		47k 1% 0,1W
3278	4822 117 10361		680R 1% 0,1W
3279	4822 117 11139		1k5 1% 0,1W
3280	4822 117 11139		1k5 1% 0,1W
3281	4822 117 11139		1k5 1% 0,1W
3282	4822 117 10833		10k 1% 0,1W
3283	4822 051 20121		120R 5% 0,1W
3286	4822 117 13577		330R 1% 0,1W
3287	4822 117 13577		330R 1% 0,1W
3288	4822 117 13577		330R 1% 0,1W
3289	4822 117 13577		330R 1% 0,1W
3300	4822 051 20008		0R Jumper 0805
3301	4822 051 20008		0R Jumper 0805
3321	4822 051 20392		3k9 5% 0,1W
3322	4822 051 20392		3k9 5% 0,1W
3325	4822 117 10837		100k 1% 0,1W
3326	4822 117 10837		100k 1% 0,1W

ELECTRICAL PARTS LIST - COMBI BOARD

RESISTORS

3329	4822 051 20472	4k7 5% 0,1W
3330	4822 051 20472	4k7 5% 0,1W
3331	4822 117 11383	12k 1% 0,1W
3332	4822 117 11383	12k 1% 0,1W
3333	4822 117 11449	2k2 5% 0,1W
3334	4822 117 11449	2k2 5% 0,1W
3335	4822 051 20273	27k 5% 0,1W
3336	4822 051 20273	27k 5% 0,1W
3337	4822 051 20479	47R 5% 0,1W
3338	4822 051 20479	47R 5% 0,1W
3339	4822 051 20479	47R 5% 0,1W
3340	4822 051 20479	47R 5% 0,1W
3341	4822 051 10102	1k 2% 0,25W
3342	4822 051 10102	1k 2% 0,25W
3343	4822 051 20154	150k 5% 0,1W
3344	4822 051 20154	150k 5% 0,1W
3345	4822 117 11507	6k8 1% 0,1W
3346	4822 117 11507	6k8 1% 0,1W
3347	4822 117 10833	10k 1% 0,1W
3348	4822 117 10833	10k 1% 0,1W
3349	4822 117 10833	10k 1% 0,1W
3350	4822 117 10833	10k 1% 0,1W
3351	4822 051 20228	2R2 5% 0,1W
3352	4822 051 20228	2R2 5% 0,1W
3353	4822 051 20228	2R2 5% 0,1W
3354	4822 051 20228	2R2 5% 0,1W
3361	4822 116 52249	1k8 5% 0,5W
3362	4822 116 52249	1k8 5% 0,5W
3363	4822 116 52249	1k8 5% 0,5W
3364	4822 051 20471	470R 5% 0,1W
3365	4822 116 83872	220R 5% 0,5W
3366	4822 116 52283	4k7 5% 0,5W
3372	4822 051 20109	10R 5% 0,1W
3373	4822 116 52219	330R 5% 0,5W
3379	4822 051 20472	4k7 5% 0,1W
3380	4822 051 20392	3k9 5% 0,1W
3381	4822 116 52175	100R 5% 0,5W
3382	4822 116 83933	15k 1% 0,1W
3383	4822 051 20223	22k 5% 0,1W
3384	4822 051 20223	22k 5% 0,1W
3385	4822 117 10834	47k 1% 0,1W
3386	4822 117 10834	47k 1% 0,1W
3400	4822 117 11449	2k2 5% 0,1W
3401	4822 117 11449	2k2 5% 0,1W
3402	4822 117 11449	2k2 5% 0,1W
3403	4822 117 11449	2k2 5% 0,1W
3404	4822 117 11449	2k2 5% 0,1W
3406	4822 117 11449	2k2 5% 0,1W
3407	4822 117 11449	2k2 5% 0,1W
3409	4822 051 20562	5k6 5% 0,1W
3410	4822 051 20562	5k6 5% 0,1W
3411	4822 116 52175	100R 5% 0,5W

3412	4822 116 52175	100R 5% 0,5W
3413	4822 116 52175	100R 5% 0,5W
3453	4822 051 20122	1k2 5% 0,1W
3454	4822 117 11449	2k2 5% 0,1W
3455	4822 051 20392	3k9 5% 0,1W
3456	4822 051 20822	8k2 5% 0,1W
3501	4822 051 20683	68k 5% 0,1W
3502	4822 051 20683	68k 5% 0,1W
3509	4822 117 11149	82k 1% 0,1W
3510	4822 117 11149	82k 1% 0,1W
3517	4822 117 10833	10k 1% 0,1W
3518	4822 051 20333	33k 5% 0,1W
3519	4822 051 20333	33k 5% 0,1W
3520	4822 116 83933	15k 1% 0,1W
3521	4822 052 10339 Δ	33R 5% 0,33W
3522	4822 051 20105	1M 5% 0,1W
3523	4822 051 20105	1M 5% 0,1W
3524	4822 051 20683	68k 5% 0,1W
3525	4822 051 20683	68k 5% 0,1W
3526	4822 051 20273	27k 5% 0,1W
3527	4822 051 20273	27k 5% 0,1W
3528	4822 117 10833	10k 1% 0,1W
3529	4822 117 10833	10k 1% 0,1W
3530	4822 051 20333	33k 5% 0,1W
3531	4822 051 20333	33k 5% 0,1W
3534	4822 117 10837	100k 1% 0,1W
3535	4822 117 10837	100k 1% 0,1W
3536	4822 051 20332	3k3 5% 0,1W
3537	4822 051 20332	3k3 5% 0,1W
3538	4822 117 11149	82k 1% 0,1W
3539	4822 117 11149	82k 1% 0,1W
3540	4822 051 20472	4k7 5% 0,1W
3541	4822 051 20472	4k7 5% 0,1W
3542	4822 051 20109	10R 5% 0,1W
3543	4822 051 20683	68k 5% 0,1W
3544	4822 116 52297	68k 5% 0,5W
3545	4822 117 10834	47k 1% 0,1W
3546	4822 117 10834	47k 1% 0,1W
3547	4822 051 20471	470R 5% 0,1W
3548	4822 051 20471	470R 5% 0,1W
3549	4822 051 20472	4k7 5% 0,1W
3551	4822 051 20228	2R2 5% 0,1W
3552	4822 051 20228	2R2 5% 0,1W
3553	4822 051 20393	39k 5% 0,1W
3554	4822 051 20393	39k 5% 0,1W
3556	4822 051 20332	3k3 5% 0,1W
3557	4822 051 20332	3k3 5% 0,1W
3558	4822 051 20184	180k 5% 0,1W
3559	4822 051 20184	180k 5% 0,1W
3560	4822 051 20471	470R 5% 0,1W
3561	4822 051 20471	470R 5% 0,1W
3562	4822 051 20822	8k2 5% 0,1W

ELECTRICAL PARTS LIST - COMBI BOARD

3563	4822 051 20822	8k2 5% 0,1W
3564	4822 117 11448	180R 1% 0,1W
3565	4822 117 11448	180R 1% 0,1W
3566	4822 116 83933	15k 1% 0,1W
3567	4822 116 83933	15k 1% 0,1W
3568	4822 117 11383	12k 1% 0,1W
3569	4822 117 11383	12k 1% 0,1W
3570	4822 117 10833	10k 1% 0,1W
3571	4822 117 10833	10k 1% 0,1W
3574	4822 051 20223	22k 5% 0,1W
3575	4822 051 20223	22k 5% 0,1W
3576	4822 117 11507	6k8 1% 0,1W
3577	4822 117 11507	6k8 1% 0,1W
3580	4822 051 20223	22k 5% 0,1W
3581	4822 051 20223	22k 5% 0,1W
3582	4822 051 20122	1k2 5% 0,1W
3583	4822 051 20122	1k2 5% 0,1W
3584	4822 117 10361	680R 1% 0,1W
3585	4822 051 20228	2R2 5% 0,1W
3586	4822 117 11449	2k2 5% 0,1W
3587	4822 117 11507	6k8 1% 0,1W
3588	4822 051 20471	470R 5% 0,1W
3591	4822 116 83872	220R 5% 0,5W
3593	4822 051 10102	1k 2% 0,25W
3594	4822 051 10102	1k 2% 0,25W
3596	4822 051 20683	68k 5% 0,1W
3597	4822 051 20683	68k 5% 0,1W
3598	4822 117 10837	100k 1% 0,1W
3599	4822 117 10837	100k 1% 0,1W
3601	4822 116 83884	47k 5% 0,5W
3602	4822 116 83884	47k 5% 0,5W
3603	4822 051 20105	1M 5% 0,1W
3604	4822 051 20105	1M 5% 0,1W
3605	4822 117 10834	47k 1% 0,1W
3606	4822 117 10834	47k 1% 0,1W
3609	4822 116 83883	470R 5% 0,5W
3610	4822 116 83883	470R 5% 0,5W
3616	4822 117 10837	100k 1% 0,1W
3617	4822 051 20182	1k8 5% 0,1W
3618	4822 051 20182	1k8 5% 0,1W
3640	4822 117 10833	10k 1% 0,1W
4214	4822 051 20008	OR Jumper 0805
4215	4822 051 20008	OR Jumper 0805
4217	4822 051 20008	OR Jumper 0805
4221	4822 051 20008	OR Jumper 0805
4229	4822 051 20008	OR Jumper 0805
4244	4822 051 20008	OR Jumper 0805
4269	4822 051 20008	OR Jumper 0805
4270	4822 051 20008	OR Jumper 0805
4271	4822 051 20008	OR Jumper 0805
4272	4822 051 20008	OR Jumper 0805
4273	4822 051 20008	OR Jumper 0805

4275	4822 051 20008	OR Jumper 0805
4276	4822 051 20008	OR Jumper 0805
4278	4822 051 20008	OR Jumper 0805
4279	4822 051 20008	OR Jumper 0805
4280	4822 051 20008	OR Jumper 0805
4288	4822 051 20008	OR Jumper 0805
4502	4822 051 20008	OR Jumper 0805
4503	4822 051 20008	OR Jumper 0805
4504	4822 051 20008	OR Jumper 0805
4505	4822 051 20008	OR Jumper 0805
4506	4822 051 20008	OR Jumper 0805
4508	4822 051 20008	OR Jumper 0805
4509	4822 051 20008	OR Jumper 0805
4510	4822 051 20008	OR Jumper 0805
4511	4822 051 20008	OR Jumper 0805
4512	4822 051 20008	OR Jumper 0805
4513	4822 051 20008	OR Jumper 0805
4514	4822 051 20008	OR Jumper 0805
4515	4822 051 20008	OR Jumper 0805
4516	4822 051 20008	OR Jumper 0805
4517	4822 051 20008	OR Jumper 0805
4518	4822 051 20008	OR Jumper 0805
4519	4822 051 20008	OR Jumper 0805
4520	4822 051 20008	OR Jumper 0805
4521	4822 051 20008	OR Jumper 0805
4522	4822 051 20008	OR Jumper 0805
4523	4822 051 20008	OR Jumper 0805
4524	4822 051 20008	OR Jumper 0805
4525	4822 051 20008	OR Jumper 0805
4526	4822 051 20008	OR Jumper 0805
4527	4822 051 20008	OR Jumper 0805
4529	4822 051 20008	OR Jumper 0805
4530	4822 051 20008	OR Jumper 0805
4531	4822 051 20008	OR Jumper 0805
4532	4822 051 20008	OR Jumper 0805
4533	4822 051 20008	OR Jumper 0805
4534	4822 051 20008	OR Jumper 0805
4535	4822 051 20008	OR Jumper 0805
4536	4822 051 20008	OR Jumper 0805
4537	4822 051 20008	OR Jumper 0805
4538	4822 051 20008	OR Jumper 0805
4539	4822 051 20008	OR Jumper 0805
4540	4822 051 20008	OR Jumper 0805
4541	4822 051 20008	OR Jumper 0805
4542	4822 051 20008	OR Jumper 0805
4543	4822 051 20008	OR Jumper 0805
4544	4822 051 20008	OR Jumper 0805
4545	4822 051 20008	OR Jumper 0805
4546	4822 051 20008	OR Jumper 0805
4548	4822 051 20008	OR Jumper 0805
4550	4822 051 20008	OR Jumper 0805
4551	4822 051 20008	OR Jumper 0805

ELECTRICAL PARTS LIST - COMBI BOARD**RESISTORS**

4552	4822 051 20008	0R Jumper 0805
4553	4822 051 20008	0R Jumper 0805
4554	4822 051 20008	0R Jumper 0805
4555	4822 051 20008	0R Jumper 0805
4556	4822 051 20008	0R Jumper 0805
4558	4822 051 20008	0R Jumper 0805
4559	4822 051 20008	0R Jumper 0805
4560	4822 051 20008	0R Jumper 0805
4561	4822 051 20008	0R Jumper 0805
4562	4822 051 20008	0R Jumper 0805
4563	4822 051 20008	0R Jumper 0805
4564	4822 051 20008	0R Jumper 0805
4565	4822 051 20008	0R Jumper 0805
4566	4822 051 20008	0R Jumper 0805
4567	4822 051 20008	0R Jumper 0805
4568	4822 051 20008	0R Jumper 0805
4569	4822 051 20008	0R Jumper 0805
4570	4822 051 20008	0R Jumper 0805
4571	4822 051 20008	0R Jumper 0805
4573	4822 051 20008	0R Jumper 0805
4574	4822 051 20008	0R Jumper 0805
4575	4822 051 20008	0R Jumper 0805
4576	4822 051 20008	0R Jumper 0805
4577	4822 051 20008	0R Jumper 0805
4578	4822 051 20008	0R Jumper 0805
4579	4822 051 20008	0R Jumper 0805
4580	4822 051 20008	0R Jumper 0805
4581	4822 051 20008	0R Jumper 0805
4582	4822 051 20008	0R Jumper 0805
4583	4822 051 20008	0R Jumper 0805
4584	4822 051 20008	0R Jumper 0805
4585	4822 051 20008	0R Jumper 0805
4586	4822 051 20008	0R Jumper 0805
4587	4822 051 20008	0R Jumper 0805
4589	4822 051 20008	0R Jumper 0805
4590	4822 051 20008	0R Jumper 0805
4592	4822 051 20008	0R Jumper 0805
4593	4822 051 20008	0R Jumper 0805
4594	4822 051 20008	0R Jumper 0805
4595	4822 051 20008	0R Jumper 0805
4596	4822 051 20008	0R Jumper 0805
4597	4822 051 20008	0R Jumper 0805
4598	4822 051 20008	0R Jumper 0805
4599	4822 051 20008	0R Jumper 0805
4677	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5321	4822 157 62552	Coil 2,2μH 5%
5322	4822 157 62552	Coil 2,2μH 5%
5324	4822 157 62552	Coil 2,2μH 5%
5501	4822 157 62552	Coil 2,2μH 5%
5502	4822 157 62552	Coil 2,2μH 5%

5503	4822 157 62255	Coil 1μH 18,5 Turns
5504	4822 157 62255	Coil 1μH 18,5 Turns
5505	4822 157 62255	Coil 1μH 18,5 Turns
5506	4822 157 62255	Coil 1μH 18,5 Turns
5508	4822 526 10704	FE Bead 100MHz
5510	4822 157 62552	Coil 2,2μH 5%
5512	4822 157 62552	Coil 2,2μH 5%
5521	4822 157 62552	Coil 2,2μH 5%

DIODES

6220	4822 130 31878	1N4003G
6221	4822 130 31878	1N4003G
6222	4822 130 31878	1N4003G
6223	4822 130 31878	1N4003G
6224	4822 130 31878	1N4003G
6225	4822 130 31878	1N4003G
6226	4822 130 31878	1N4003G
6227	4822 130 31878	1N4003G
6228	4822 130 34173	BZX79-B5V6
6229	4822 130 34142	BZX79-B33
6230	4822 130 31878	1N4003G
6231	4822 130 34174	BZX79-B4V7
6232	4822 130 30621	1N4148
6233	4822 130 30621	1N4148
6235	4822 130 30621	1N4148
6236	4822 130 34174	BZX79-B4V7
6240	4822 130 31878	1N4003G
6241	4822 130 31878	1N4003G
6242	4822 130 31878	1N4003G
6243	4822 130 31878	1N4003G
6244	4822 130 31878	1N4003G
6245	4822 130 31878	1N4003G
6248	4822 130 31878	1N4003G
6249	4822 130 31878	1N4003G
6250	4822 130 31878	1N4003G
6251	4822 130 31878	1N4003G
6257	4822 130 30621	1N4148
6258	4822 130 34173	BZX79-B5V6
6259	4822 130 31878	1N4003G
6260	4822 130 31878	1N4003G
6261	4822 130 31878	1N4003G
6262	4822 130 31878	1N4003G
6263	4822 130 31878	1N4003G
6264	4822 130 31878	1N4003G
6265	4822 130 31878	1N4003G
6266	4822 130 31878	1N4003G
6267	4822 130 31878	1N4003G
6268	4822 130 31878	1N4003G
6269	4822 130 30621	1N4148
6321	4822 130 31878	1N4003G
6322	4822 130 31878	1N4003G
6323	4822 130 31878	1N4003G

ELECTRICAL PARTS LIST - COMBI BOARD

6324	4822 130 31878	1N4003G
6325	4822 130 34281	BZX79-B15
6326	4822 130 31024	BZX79-B18
6327	5322 130 31504	BZX79-B3V3
6328	4822 130 31878	1N4003G
6329	4822 130 30621	1N4148
6330	4822 130 30621	1N4148
6502	4822 130 34173	BZX79-B5V6
6549	4822 130 30621	1N4148
6550	4822 130 30621	1N4148
6553	4822 130 31878	1N4003G

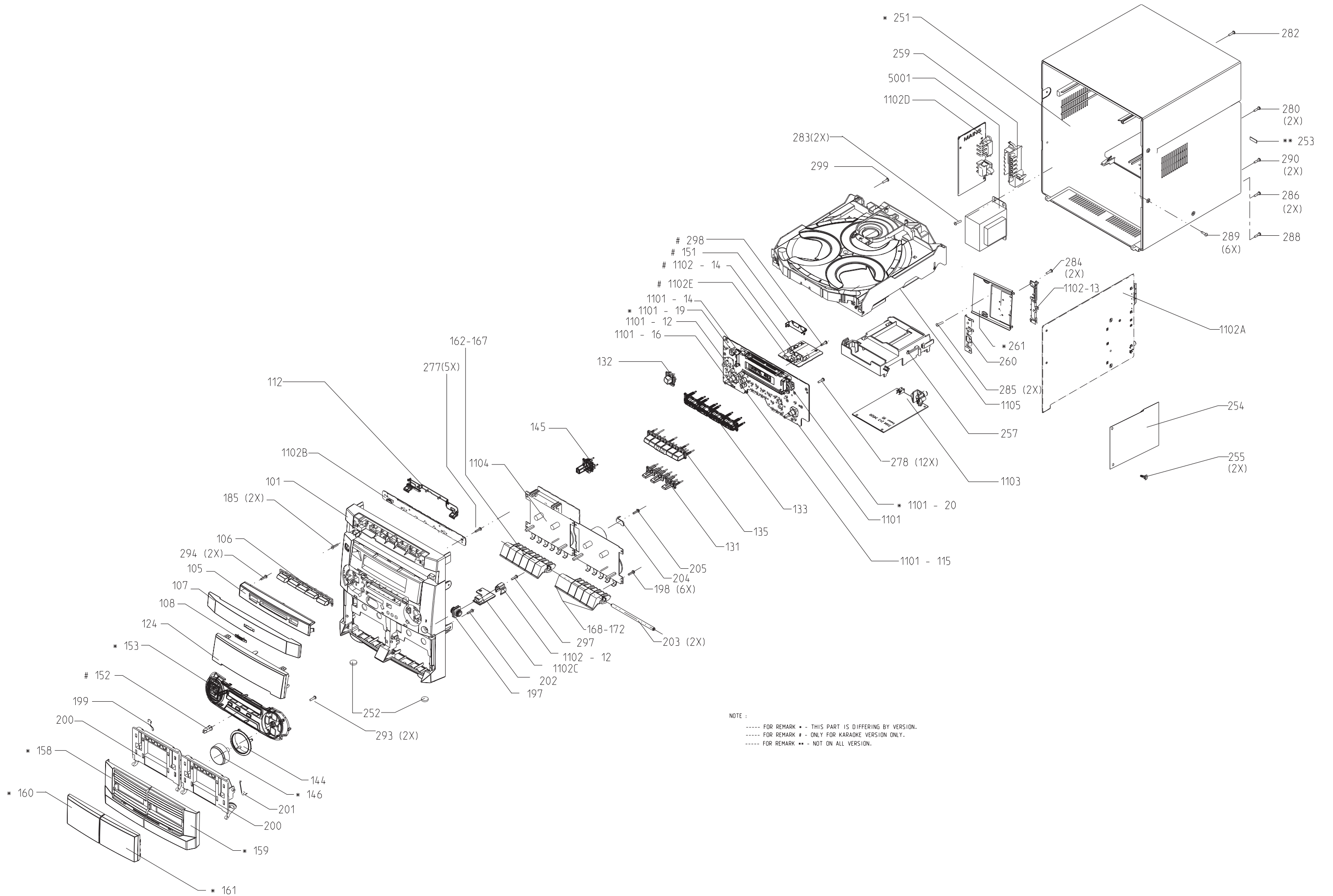
TRANSISTORS & INTEGRATED CIRCUITS

7233	9322 139 22687	BD242BFP
7234	5322 130 44593	BC369
7235	4822 130 40959	BC547B
7236	4822 130 41246	BC327-25
7237	4822 130 40981	BC337-25
7238	5322 130 60159	BC847B
7239	4822 130 42804	BC817-25
7240	4822 130 40981	BC337-25
7241	4822 130 40981	BC337-25
7247	4822 130 40981	BC337-25
7248	4822 130 40981	BC337-25
7249	4822 130 41246	BC327-25
7320	4822 130 42804	BC817-25
7321	4822 130 42804	BC817-25
7322	4822 130 42804	BC817-25
7323	4822 130 42804	BC817-25
7324	4822 130 60373	BC857B
7329	4822 130 10847	BDW94C
7330	4822 130 40981	BC337-25
7331	4822 130 60373	BC857B
7332	4822 130 60373	BC857B
7333	4822 130 42804	BC817-25
7391	4822 209 16224	AN7125
7400	4822 130 60373	BC857B
7401	4822 130 40981	BC337-25
7402	5322 209 11306	HEF4094BT
7501	5322 209 11102	HEF4052BT
7503	4822 130 41096	BC550C
7504	4822 130 41096	BC550C
7505	4822 130 44568	ON4986
7506	4822 130 44568	ON4986
7507	4822 130 44568	ON4986
7508	4822 130 44568	ON4986
7530	5322 209 14482	HEF4069UBT
7537	5322 130 60159	BC847B
7538	5322 130 60159	BC847B
7543	5322 130 60159	BC847B
7544	5322 130 60159	BC847B
7545	5322 130 60159	BC847B

7546	5322 130 60159	BC847B
7547	5322 130 60159	BC847B
7548	5322 130 60159	BC847B
7554	4822 209 31378	NJM4556MB
7556	3198 010 44010	PDTA114ET

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

EXPLODED VIEW - MAIN UNIT



MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT**SCREW LISTS - MAIN UNIT**

101	3139 118 13520	Cabinet Front	185	D3 x 25
105	3139 118 10440	Window CDC Control	198	D3 x 12
106	3139 118 13230	Button Set CDC Select	202	D3 x 12
107	3139 118 13210	Cover Tray CDC-LC	205	D3 x 12
108	4822 454 13408	Badge Philips		
			277	D3 x 12
124	3139 118 14300	Window Display	278	D3 x 12
131	3139 118 13540	But Set Program/Clock/DBB	280	D3 x 12
132	3139 118 13550	Button Power On/Off	282	D3 x 12
133	3139 118 13240	Button Set Source Select		
135	3139 118 13560	Button Set Controls	283	D3 x 16
			284	M3 x 15
144	3139 118 13570	Cover Ring Volume	285	D3 x 16
145	3139 118 13580	Button DSC	286	D3 x 12
146	3139 118 13590	Knob Volume Up/Down		
153	3139 118 13250	Cover Control	288	D3 x 12
158	3139 118 13780	Cover Cassette Left	289	D3 x 12
			290	D3 x 12
159	3139 118 13790	Cover Cassette Right	293	D3 x 12
160	3139 114 71840	Lens Cassette Left		
161	3139 114 71850	Lens Cassette Right	294	D2 x 8
162-167	8240 009 27040	Rec/PB Button set	297	D3 x 12
168-172	8240 009 27050	Play Button set	299	D3 x 12
197	4822 529 10322	Damper Assembly		
199	4822 492 70231	Spring Leaf		
200	4822 443 10881	Door Cassette (Mech)		
201	4822 492 42709	Spring Cassette Door		
251	3139 114 69850	Cabinet Rear		
252	4822 462 40683	Foot Rubber SQ		
255	4822 466 93148	Spacer 5mm		
260	4822 492 11734	Spring IC		
350	3139 118 78370	LS Box FWB-C150/17		
351	4822 320 11094	FM Antenna Wire 300_		
356	3139 228 86180	Remote Cont. RC282430/01		
384	4822 303 50082	AM Frame Aerial		
385	4822 321 11466	△ Mains Cord		
387	3139 115 20540	Instruction For Use		
1450	3139 110 34770	Flex Cable 15pin 22cm BD		
1451	4822 320 12604	Flex Cable 9pin 22cm AD		
1456	3139 110 34180	Flex Cable 16pin 22cm AD		
1556	3139 110 34320	Flex Cable 6pin 40cm BD		
5001	3139 118 32380	△ Mains Transformer		

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