Philips Consumer Electronics Company
A Division of Philips Electronics North America Corp.

Technical Service Data

Service Solutions Group
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MANUAL 1849

Philips Magnavox Model: FW560C3701
Chassis: FW560C/37

File: 1998: 1849

MANUAL 1849 (Model: FW560C3701)

FW560C3701 AUDIO SYSTEM

CLASS 1
LASER PRODUCT

MANUAL 1849 (Model: FW560C3701)

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To order parts, call the TOLL FREE Philips Sales Center number:
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REFER TO BACK COVER FOR IMPORTANT SAFETY NOTICE/GUIDELINES

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST BECOME FAMILIAR WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING

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IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company** equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS AND NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate, and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

** Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

* Broken line: — — — — — — — —

FOR PRODUCTS CONTAINING LASER:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION - The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL

SPECIFICATIONS
(subject to modification)

GENERAL:

Input voltage : 120VAC
Input frequency : 50/60Hz
Power consumption : < 20W at clock mode FTD on
< 165W at 1/8 rated power out
Clock accuracy : < 4 seconds per day
Dimensions : 265 x 310 x 374mm

TUNER:

FM

Tuning range : 87.5-108MHz
Grid : 50kHz
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75ohm coaxial
300ohm click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 50dB
Image rejection : > 25dB [> 75dB]
Distortion at RF=1mV, dev. 75kHz : < 3% [< 2%]
-3dB Limiting point : < 7µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB [> 26dB]

AM

Tuning range : 530-1700kHz
Grid : 10kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.0mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5% [< 7%]

LW

Tuning range : 153-279kHz
Grid : 3kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : [< 7.0mV/M]
Selectivity at 18kHz bandwidth : [> 24dB]
IF rejection : [> 26dB]
Image rejection : [> 35dB]
Distortion at RF=50mV, m=80% : [< 7%]

AMPLIFIER:

Output power
L & R (6 ohms, 1kHz, THD 10%) : 2 x 130W RMS
Surround Channel : 2 x 20W RMS

Frequency response within -3dB : 60Hz-16kHz
Dynamic Bass Boost : BEAT, PUNCH, BLAST, DBB Off [1)]
Digital Sound Control : Classic,Rock,Techno,Optimal,Jazz [1)]

Headphone output at 33 ohm (max. vol) : 0.7V ± 1dB
Input sensitivity
Aux/Line-in : 350mV ± 2dB at 600 ohm
Output sensitivity
Line-out : 500mV ± 2dB at 22 kohm
Sub-woofer (max. vol.) : 1.5V ± 2dB at 22 kohm

CASSETTE RECORDER:

Number of tracks : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
1.7 x 4.76 cm/sec
Wow and flutter : < 0.4% DIN
Fast-wind/Rewind time C60 : 110 sec
Bias system : 75kHz ± 5kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to noise ratio (IEC I) : > 40dB

COMPACT DISC:

Measurement done at output conn. of the CDC module.
Frequency response within ± 1.5dB : 20Hz - 20kHz
Output level (in Vrms) : 550mV ± 2dB unloaded
Signal/Noise ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.5%
Channel difference at 1kHz : < 1dB
Channel crosstalk at 1kHz : > 45dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

[....] Values indicated are for "Tuner 95 Board" only

1) Frequency response in each setting is software controlled.

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 part 15 of FCC rules. 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 material has been omitted. We have done our utmost to make the packaging easily separable into three mono-materials: cardboard (box), polystyrene foam (buffer) and polythene (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
- Batteries (2 x AAA size) for remote control
- AM loop antenna
- FM antenna wire
- AC power cord
- Philips Magnavox SS-50 surround speakers *(for model FW560C only).*
- Philips Magnavox SS-15R surround speakers *(for model FW520C only).*

Accessories (Recommended)

- Philips Magnavox FB 201 active subwoofer.
- Philips Magnavox FB 202W wireless active subwoofer.

SAFETY INFORMATION

English

Safety Information

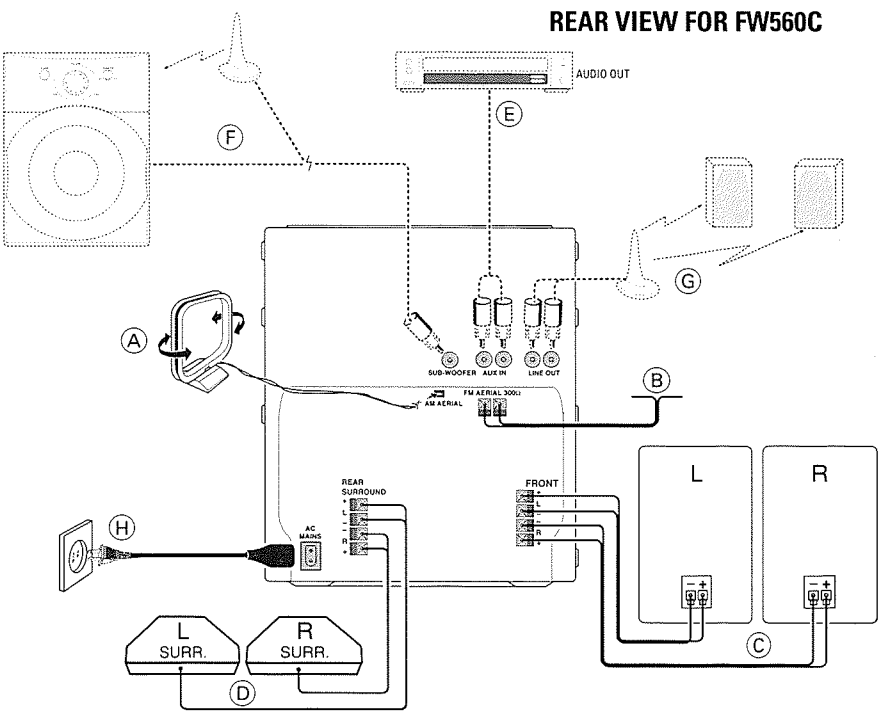
- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The type plate is located at the rear of your 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.
- The system incorporates a built-in safety feature that prevents over heating *(for model FW560C only).*
- 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.**

PREPARATION

English

Rear Connections

REAR VIEW FOR FW560C



Ⓐ AM Antenna Connection

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

Ⓑ FM Wire Antenna Connection

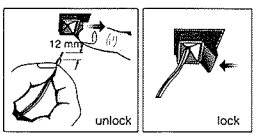
Connect the supplied FM wire antenna to the FM 300 Ω terminal. Adjust the position of the FM antenna for the best reception.

Outdoor Antenna

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

Ⓒ Speakers' Connection

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



Ⓓ Rear Surround Speakers' Connection

- Connect the supplied surround speakers to enhance the surround effect. The surround speakers should be placed at normal listening ear level or mounted on the wall at the back of the room.
- Connect the black or non-marked wires to the black REAR terminals and the white or marked wires to the red REAR terminals.

Ⓔ Connecting other equipment to your system

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

Ⓕ Subwoofer Out Connection

You can connect either an optional active subwoofer (recommended model FB 201) or an optional wireless active subwoofer (recommended model FB 202W) to the SUBWOOFER OUT terminal. The wireless system uses a radio frequency transmitter. The subwoofer reproduces just the low bass effect (e.g. explosions, the rumble of spaceships, etc.). Be sure to follow the instructions supplied with the subwoofer.

Ⓖ Line Out *(wireless ready) (for model FW560C only)*

You may install additional front active speakers away from the system (e.g. in another room) to reduce the inconvenience of running long speaker wires across rooms. You can place as many remote speakers as you like provided that they operate at the same radio frequency. Connect the wireless radio frequency transmitter to the LINE OUT terminals. Place the active speakers at your preferred location. Be sure to follow the instructions supplied with the active speakers.

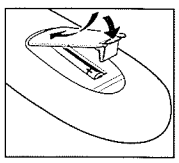
Note:

– *Availability of wireless transmitter and its peripherals are subjected to the approval of local authorities. Please check with respective local safety or approving authority.*

Ⓗ AC Power Supply

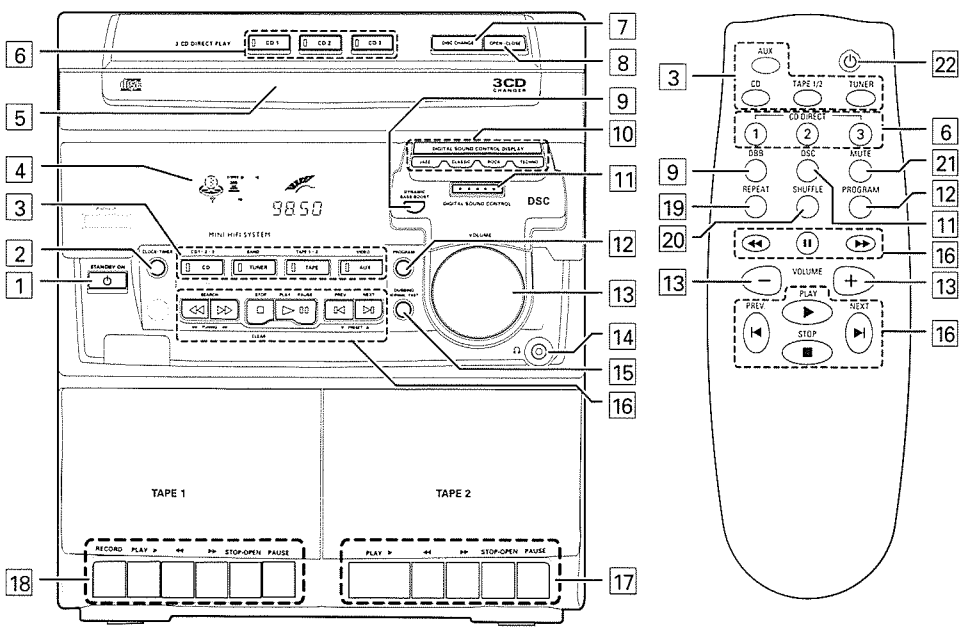
After all other connections have been made, connect the AC power cord to the system and to the wall outlet.

Inserting batteries into the Remote Control



- Insert the batteries (Type R03 or AAA) into the remote control as shown in the battery compartment.
- To avoid damage from possible battery leakage, remove dead batteries or batteries that will not be used for a long time. For replacement, use type R03 or AAA batteries.

CONTROLS



FW560C

CONTROLS

English

Controls on the system and remote control

1 **STANDBY•ON**
- to switch the system on or to standby mode.
- to store radio stations automatically by pressing and holding for 2 seconds *(only in Standby or Demonstration mode)*.

2 **CLOCK•TIMER**
- to view clock, set clock or timer.

3 **SOURCE** – to select the following :
- **CD (CD 1•2•3)** ..... to select CD mode. When in CD stop mode; to select respective disc tray.
- **TUNER (BAND)** ..... to select Tuner mode. When in Tuner mode; to select the waveband: FM or AM.
- **TAPE (TAPE 1•2)** ..... to select Tape mode.
- **AUX (VIDEO)** ..... to select external source (e.g. DVD, TV, Laser Disc or VCR sound).

4 **DISPLAY**
- to view the current setting of the system.

5 **CD CAROUSEL TRAY**

6 **3 CD DIRECT PLAY**
- to select a CD tray for playback.

7 **DISC CHANGE**
- to change CD(s).

8 **OPEN•CLOSE**
- to open or close the CD carousel tray.

9 **DYNAMIC BASS BOOST (DBB)**
- to select bass boost level (Beat, Punch, Blast).

10 **DIGITAL SOUND CONTROL DISPLAY PANEL**
- to view the selected DSC setting.

11 **DIGITAL SOUND CONTROL (DSC)**
- to select the desired sound effect : OPTIMAL, JAZZ, CLASSIC, ROCK or TECHNO.

12 **PROGRAM**
- to program CD tracks in CD mode or preset radio stations in tuner mode.

13 **VOLUME**
- to adjust the volume level.

14 **HEADPHONES** 🎧
- to connect headphones jack.

15 **DUBBING**
- to dub a tape in normal or high speed.

16 **MODE SELECTION**

◀◀ SEARCH ▶▶ (◀◀ TUNING ▶▶)
- for CD ..... to search backward/forward.
- for TUNER ..... to tune to a lower or higher radio frequency.

STOP ■ (CLEAR)
- for CD ..... to stop CD playback or clear a program.
- for TUNER ..... to stop programming.

PLAY ▶ / PAUSE ❚❚
- for CD ..... to start or interrupt playback.

PREV |◀ / NEXT ▶| (▼ PRESET ▲)
- for CD ..... to skip to the beginning of the current or previous/next track.
- for TUNER ..... to select a preset radio station in memory.

17 **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.

18 **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.

19 **REPEAT**
- to repeat a CD track.

20 **SHUFFLE**
- to play all the available discs and their tracks in random order.

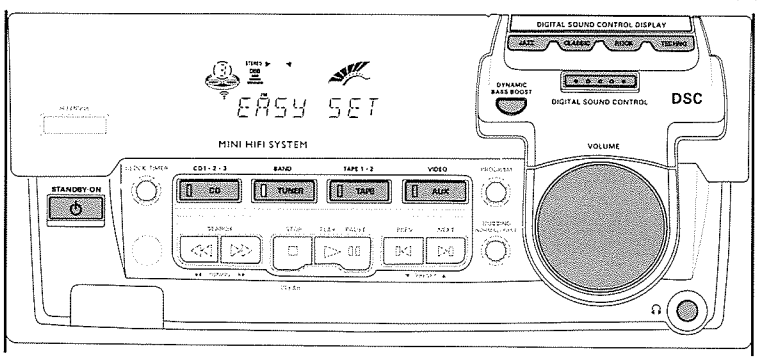
21 **MUTE**
- to switch off the sound temporarily or to switch on again.

22 ⏻
- 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 buttons on the remote control (e.g. CD, TUNER, TAPE 1/2 or AUX).*
- *Then select the desired function (PLAY, NEXT, etc.).*

OPERATING THE SYSTEM

English



Important:
Before you begin operating the system, complete the preparation procedures.

Demonstration mode

The system has a demonstration mode that shows the various features offered by the system. ***Whenever the system is switched on from the wall socket, the demonstration mode will start automatically.***

Notes:
- *During demonstration mode, if you press any source (or standby-on) button, the system will switch to the respective (or standby) mode.*
- *When the system is switched to standby mode, 5 seconds later, the demonstration mode will begin again.*

To cancel demonstration mode
- Press and hold **STOP ■** *(on the system only)* for ***3 seconds*** to stop the demonstration.
  → The demonstration mode will be switched off permanently.

Easy Set *(only in Standby or Demonstration mode)*

EASY SET allows you to store all available radio stations in a particular band (FM•AM) automatically (see Easy Set under TUNER section).

Switching the system ON

- Press **STANDBY•ON** *(on the system only)*, **CD**, **TUNER**, **TAPE** or **AUX**.

You can also switch on the system by pressing any one of the 3 CD DIRECT PLAY buttons.

Switching the system to standby mode

- Press **STANDBY•ON** again.

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 or DVD player) to the AUX IN terminals.*

Sound Control

VOLUME ADJUSTMENT

Adjust **VOLUME** to increase or decrease the sound level.

For Personal Listening

Connect the headphones jack 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 **DIGITAL SOUND CONTROL (DSC)** to select **OPTIMAL**, **JAZZ**, **CLASSIC**, **ROCK** or **TECHNO**.
  → The Digital Sound Control display panel will light up respectively. At OPTIMAL setting, the DSC display panel does not light up.
  → "OPTIMAL, JAZZ, CLASSIC, ROCK or TECHNO" will be displayed.

Automatic DSC-DBB selection

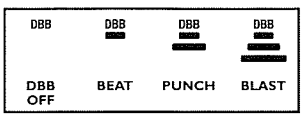
The best setting for the DBB is automatically generated for the respective DSC selection. You can also manually select the DBB setting that best suits your listening environment.

DSC Selection	DBB Selection
Optimal	Punch
Jazz	Punch
Classic	Beat
Rock	Blast
Techno	Blast

DYNAMIC BASS BOOST (DBB)

The DBB mode enhances the bass response.

- Press **DBB** briefly to select the various level of bass boost.
  → The DBB button lights up.
  → "BEAT, PUNCH or BLAST" will be displayed.



To switch off DBB

- Press **DBB** briefly until the DBB button light is switched off.
  → "DBB OFF" will be displayed.

Note:

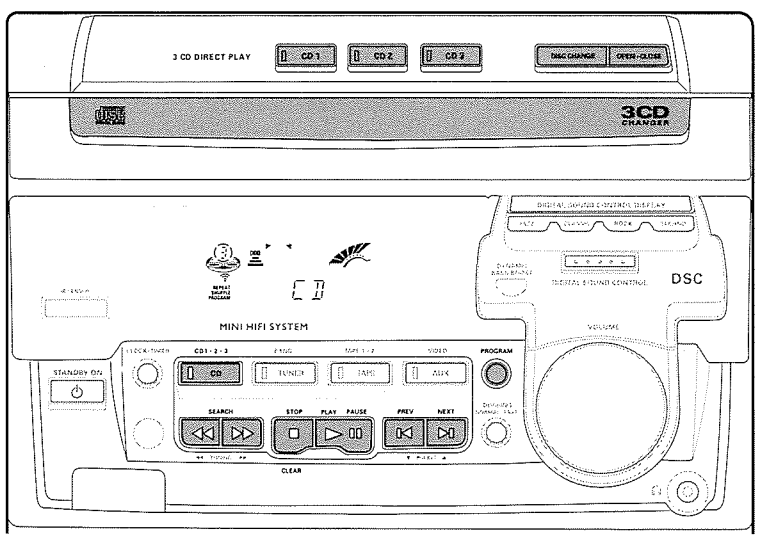
– *Some CDs or tapes might be recorded in high modulation. It may cause distortion at high volume. If this occurs, switch off Incredible Surround (if available), DBB level or reduce the volume.*

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" will be displayed.
- Press **MUTE** again on the remote control or increase the **VOLUME** level to switch on the sound.

CD



Warning!

1) This system is designed for conventional CDs. Do not use any accessories like disc stabilizer rings or CD treatment sheets, etc., which may damage the CD mechanism.

2) Do not load more than one disc into each tray.

3) When the CD changer is loaded with CD(s), do not turn over or shake the system. This may jam the changer.

You can load up to three discs in the CD changer for continuous playback without interruption.

Loading the CD Changer

1 Press **CD** to select CD mode.
2 Press **OPEN•CLOSE**.
  → The CD compartment slides out.
3 Load a CD with the printed side up in the right tray.
- You can load another disc in the left tray.
- To load the third disc, press **DISC CHANGE**.
  → The CD changer carousel will rotate until the empty tray is at the right hand side and is ready for loading.
  → Playback will always start with the disc in the outer right disc tray.

4 Press **OPEN•CLOSE** to close the CD compartment.
  → The total number of tracks and playing time of the last selected disc appear on the display.

CD

English

3 CD Direct Play

- You can play a CD directly by pressing the corresponding **3 CD DIRECT PLAY (1 - 3)** button. The CD player will stop at the end of playback of the selected disc.
  → When the button is lighted, it indicates that there is a disc loaded in the disc tray.

Playing a CD

1 Press **PLAY** ▶ to start playback.
  → The disc tray, track number and elapsed playing time of the current track appear on the display.
  → The LED on the respective 3 CD Direct Play button will be flashing.
- To interrupt playback, press **PAUSE** ❚❚.
  → The playing time flashes.
- To resume playback, press **PLAY** ▶ again.

2 To stop playback, press **STOP** ■.

Note:

– *All the available discs will be played once, then stop. When the CD has stopped playing, the system will switch to the standby mode after 15 minutes if no button is pressed.*

Disc Change

You can change the outer 2 discs while the third inner disc is at the stop or playback mode.

1 Press **DISC CHANGE**.
  → The CD compartment slides out.
2 Replace the discs in the left and right disc trays.
- If you press **DISC CHANGE** again during playback, the CD will stop playing.
  → The CD carousel tray will rotate until the inner tray is at the right hand side and is ready for changing.

3 Press **OPEN•CLOSE** to close the CD compartment.

Selecting a desired track

Selecting a desired track at the stop mode

1 Press **PREV** ⏮ or **NEXT** ⏭ until the desired track appears on the display.
2 Press **PLAY** ▶ to start playback.
  → The selected track number and elapsed playing time appear on the display.

Selecting a desired track during playback

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

Searching for a particular passage during playback

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

Programming Tracks

Programming tracks of a loaded CD is possible in the stop mode. 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 "PROGRAM FULL."

1 Load the desired discs in the disc trays.
2 Press **PROGRAM** to start programming.
  → The PROGRAM flag starts flashing
3 Press the **CD (CD 1•2•3)** to select the desired disc.
4 Press **PREV** ⏮ or **NEXT** ⏭ to select the desired track.
5 Press **PROGRAM** to store the track.
- Repeat steps ***3*** to ***5*** to store other discs and tracks.

6 Press **STOP** ■ once to end programming mode.
  → The total number of tracks programmed and total playing time appear on the display.

CD

English

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 in the display instead of the total playing time.*
– *During programming , If no button is pressed within 20 seconds, the system will exit program mode automatically.*

Playing the program

1 Press **PLAY** ▶ 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 will be played repeatedly.
  → The REPEAT and PROGRAM flags will be displayed.

2 Press **STOP** ■ to stop program playback.

Note:

– *If you press any of the 3 CD DIRECT PLAY buttons, the system will play the selected disc or track and the stored program will be ignored temporarily. The PROGRAM flag will also temporarily disappear from the display and then reappear, when the playback for the selected disc ends.*

Reviewing the program

Reviewing of the program is only possible in the stop mode.

- Press **PREV** ⏮ or **NEXT** ⏭ repeatedly to review the programmed tracks.
- Press **STOP** ■ to exit review mode.

Erasing the program *(in the stop mode)*

- Press **CLEAR** on the system.
  → "PROGRAM CLEARED" will be displayed.

Note:

– *The program will be erased when the system is disconnected from the power supply. If the CD carousel is opened, the tracks belonging to the outer two trays will be erased and the display will show "CLEARED."*

Shuffle *(only on remote control)*

It will play all the available discs and their tracks in random order. Shuffle may also be used when tracks are programmed.

To shuffle all the discs and tracks

1 Press **SHUFFLE**.
  → "SHUFFLE" will be displayed.
  → The SHUFFLE flag, the disc and the track selected at random appear on the display.
- The discs and the tracks will now be played in random order until you press **STOP** ■.
- If you press **REPEAT** during shuffling, the current track will be played repeatedly.
  → The REPEAT and SHUFFLE flags will be displayed.

2 Press **SHUFFLE** again to resume normal playback.
  → The SHUFFLE flag disappears from the display.

Note:

– *All the available discs will be played once, then stop.*

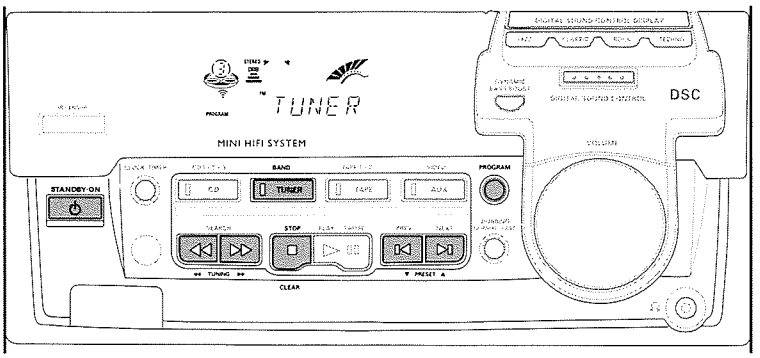
Repeat *(only on remote control)*

It will play the current track repeatedly.

1 Press **REPEAT** during playback.
  → "REPEAT TRACK" will be displayed.
  → The REPEAT flag and the track selected appear on the display.
- The track will now be played repeatedly until you press **STOP** ■.

2 Press **REPEAT** again to resume normal playback.
  → The REPEAT flag disappears from the display.

TUNER



Easy Set *(only in Standby or Demonstration mode)*

EASY SET allows you to store all available radio stations in a particular band (FM•AM) automatically.

- Press and hold **STANDBY•ON** *(on the system only)* for 2 seconds.
  → "EASY SET" will be displayed and followed by "TUNER".
  → Easy set will start with the last active band.
  → All available radio stations with sufficient signal strength will be stored or until 40 presets are filled.

Notes :
- *When EASY SET is used, all previously stored stations will be erased.*
- *The last preset station will appear on the display when Easy Set is completed.*

Tuning to Radio Stations

1 Press **TUNER** to select TUNER mode.
  → "TUNER" will be displayed.
  → The preset station number, frequency and waveband appear on the display.
2 Press **TUNER (BAND)** to select the desired waveband: FM or AM.
3 Press **TUNING** ◀◀ 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 radio station is reached.
- To tune to a weak station, briefly press **TUNING** ◀◀ or ▶▶ until the display shows the desired frequency and/or when the best reception has been obtained.

Storing Preset Radio Stations

English

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

1 Press **TUNER**.
2 Press **TUNER (BAND)** to select the desired waveband: FM or AM.
3 Press **PROGRAM** for more than one second.
  → PROGRAM flag starts flashing and "AUTO" will be displayed.
  → Every available radio station 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.

- Repeat the above procedure to store other preset stations for the other waveband. Remember to select the next available preset number before proceeding. If not, some of the preset radio stations may be erased.

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

TUNER

English

Manual programming

1 Press **TUNER**.
2 Press **TUNER (BAND)** to select the desired waveband: FM or AM.
3 Press **PROGRAM** for less than one second.
  → PROGRAM flag, the frequency and preset station number start flashing.
  → The next available preset number will be displayed for selection.
4 Press **TUNING** ◀◀ or ▶▶ to tune to the desired frequency.
- When all 40 presets are stored, no preset number is shown.
  → The message "PROGRAM FULL" will be displayed.
- If you wish to store the radio station to another preset number, press **PRESET** ▼ or ▲ to select the desired preset number.
5 Press **PROGRAM** again.
  → PROGRAM flag will stop flashing, and the radio station will be stored.

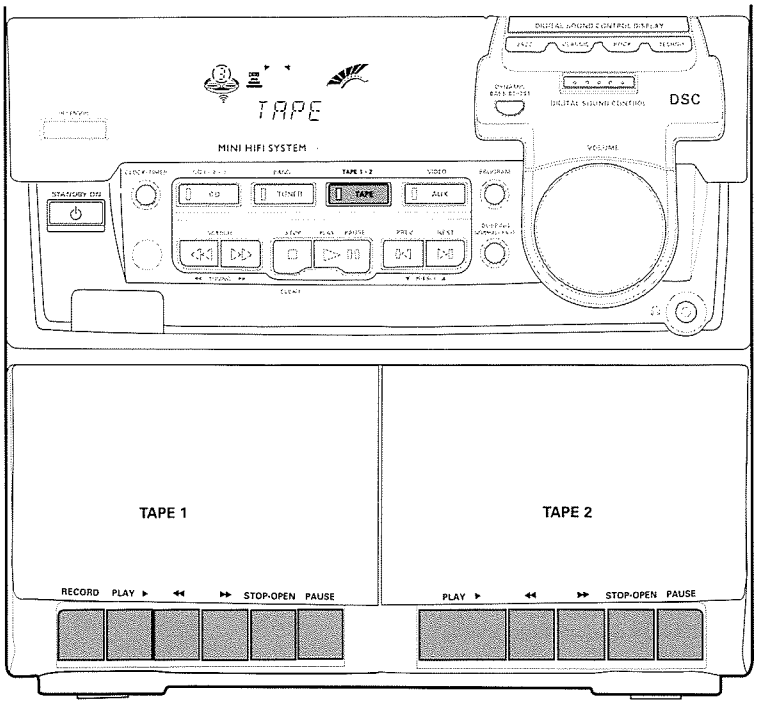
- Repeat the above procedure to store other preset radio stations.

Notes:
- *You can cancel the manual programming by pressing STOP ■ .*
- *During programming, if no button is pressed within 20 seconds, the system will exit program mode automatically.*

Tuning to Preset Radio Stations

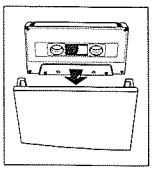
- Press **PRESET** ▼ or ▲ to select the desired preset number.
  → The preset number, frequency and waveband appear on the display.

TAPE



English

Loading a tape



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

Tape Playback

1 Press **TAPE** to select TAPE mode.
→ "TAPE" will be displayed.
2 Load the tape into the desired 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

At the stop mode

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

TAPE

English

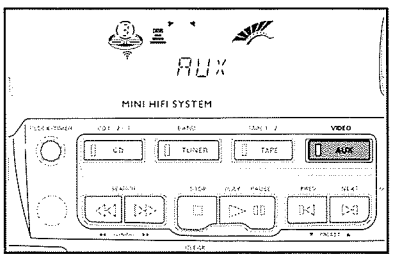
Continuous Playback from Tape Deck 2 to Tape Deck 1

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 tape deck 2 ends.
6 Press **STOP•OPEN** if you want to stop playback before the end of the tape in tape deck 1 and 2.

Notes:

- *During rewinding or fast forwarding a tape, it is also possible to select another source mode (e.g. CD, TUNER or AUX mode).*
- *Check and tighten slack tape with a pencil before use. Slack tape may get jammed or break in the mechanism.*
- *C-120 tape is extremely thin and 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, transformer, TV or loudspeaker boxes).*

AUX



Selecting External Equipment

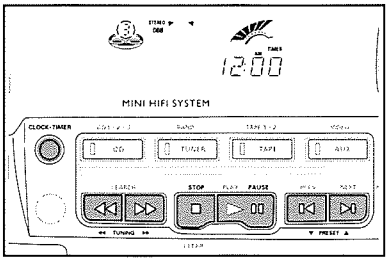
If you have connected the audio out terminals of the external equipment (TV, VCR, Laser Disc or DVD player) to the AUX IN terminals, you can hear the sound from the system.

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

Note:

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

CLOCK



View Clock

You can view the clock (if it is set) at standby or any source mode. It will be displayed for about 7 seconds.

- Press **CLOCK•TIMER** briefly.
  → "10:25 AM" (the current time) will be displayed.
  → "- - : - -" will be displayed if the clock is not set.

Clock setting

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

1 Press **CLOCK•TIMER** to select clock mode.
  → "12:00 AM" or the current time starts flashing.
  → "◀◀, ▶▶, ⏮, ⏭, ■" light up.
2 Set the hour with ◀◀ or ▶▶.
3 Set the minute with ⏮ or ⏭.
4 Press **CLOCK•TIMER** again to store the setting.
  → The clock starts running.

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

TIMER

Notes:
- *During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.*
- *When 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. After half an hour from the preset time, the system will return to the standby mode if no button is pressed.
- Before setting the timer, make sure the clock is set correctly.
- The timer has to be reset or started again for each subsequent preset time.
- **The volume of the timer will be at the last setting before the system is switched to standby mode.**

1 Press and hold **CLOCK•TIMER** for more than 2 seconds to select timer mode.
  → "ON 12:00 AM" or the last set time starts flashing. The TIMER flag will be displayed.
  → The last selected source is lighted while other available sources are flashing.
  → "◀◀, ▶▶, ⏮, ⏭, ■" light up.
2 Press **CD** or **TUNER** to select the desired source.
3 Press ◀◀ or ▶▶ to set the hour for the timer to start.
4 Press ⏮ or ⏭ to set the minute for the timer to start.
5 Press **CLOCK•TIMER** again to store the start time and the selected source.
  → The TIMER is now set.
  → The TIMER flag remains on the display.

- To exit without storing the setting, press **STOP** ■.
- At the preset time, the TIMER will be activated.
  → The selected source will be played.
  → The TIMER flag disappears from the display.

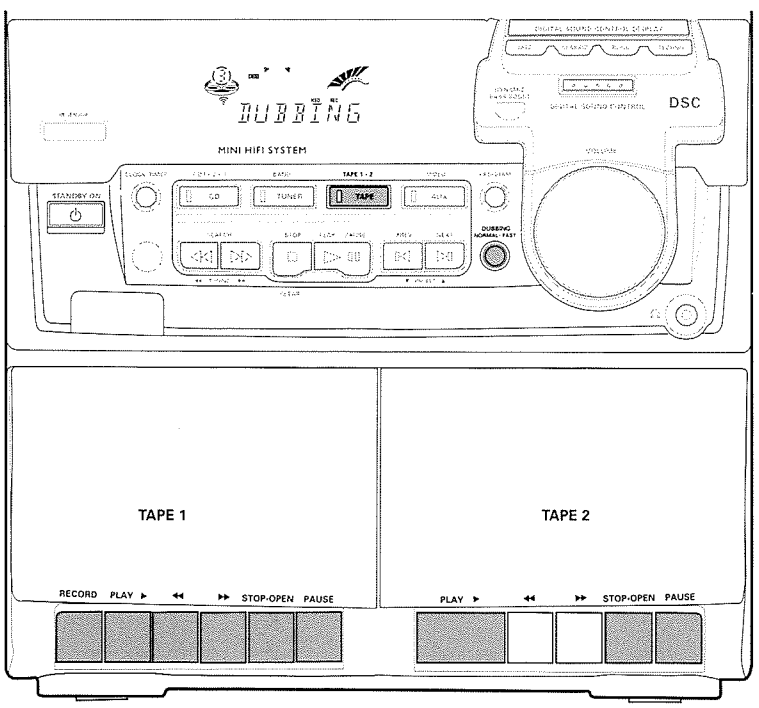
Notes:
- *During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.*
- *If the source selected is TUNER, the last tuned frequency will be switched on.*
- *If the source selected is CD, playback will begin with the first track of the last selected disc. If the CD trays are empty, the TUNER will be selected instead.*

To cancel the TIMER
1 Press **CLOCK•TIMER** for more than 2 seconds.
2 Press **PAUSE** ❚❚ to cancel the timer.
  → "CANCEL" will be displayed.
  → The TIMER flag disappears from the display.

To start the TIMER again *(for the same time)*
1 Press **CLOCK•TIMER** for more than 2 seconds.
2 Press **CLOCK•TIMER** again to store the start time and the selected source.

English

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 or DBB.*
- *To prevent accidental recording, break out the tab on the left shoulder of the tape side.*

One Touch Recording

- For One Touch recording, as soon as you press **RECORD**, the current source 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 flag starts flashing.
3 Press **PAUSE** to interrupt recording.
4 Press **STOP•OPEN** on tape deck 1 to stop recording.

RECORDING

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 flag is 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.*

CD Synchro Start Recording

During CD synchro start recording;
• It it not advisable to fast forward/rewind your tape in tape deck 2.
• It is not possible to listen to another sound source.

1 Load a blank tape into tape deck 1 and a disc into the disc tray.
2 Select **CD** and start playback.
• You can program the tracks in the order you want them to be recorded (see Programming Tracks). If not, the tracks are recorded according to the selected disc.
3 Press **RECORD** on tape deck 1 to start recording.
→ The REC flag is flashing.
4 Press **PAUSE** to interrupt recording.
5 Press **STOP•OPEN** on tape deck 1 to stop recording and **STOP** ■ to stop CD playback.

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 that both tapes have their full spool to the left.
2 Press **DUBBING** to switch between normal and high speed dubbing.
→ "NORMAL" (normal speed) or "FAST" (high speed) will be displayed.
→ The HSD flag appears on the display for high speed dubbing.
3 Press **PAUSE** on tape deck 1.
4 Press **RECORD** on tape deck 1.
5 Press **PLAY** ▶ on tape deck 2.
→ Recording will start automatically.
→ The REC flag starts flashing.
6 Press **STOP•OPEN** on tape deck 1 and 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.*
– *During high speed dubbing in Tape mode, the sound is reduced to a low volume.*

MAINTENANCE

English

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 benzine, thinner, commercially available cleaners, or antistatic spray intended for analog records.

Cleaning the CD lens
• After prolonged usage, dirt or dust may accumulate on the CD lens. To ensure good playback quality, clean the CD lens with Philips CD Lens Cleaner or any commercially available product. Follow the instructions supplied with the Lens Cleaner.

Cleaning the Heads and the Tape Paths
• To ensure good recording and playback quality, clean the heads, 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 through once.

Demagnetizing the heads
• Use a demagnetizing tape available at your dealer.

TROUBLESHOOTING

English

Warning! Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty.

• 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.*

Radio Reception

Poor radio reception.
• The signal strength is too weak.
→ *Adjust the antenna.*
• The TV or VCR is too close to the stereo system.
→ *Separate the stereo system from the TV or VCR.*
→ *Connect an external antenna for better reception.*

Tape Deck Operation

"RECORDING ACTIVE" is displayed.
• A recording is in progress.
→ *Stop the recording or wait until it is finished.*

"TAPE DUBBING ONLY" is displayed.
• Tape dubbing is only possible in tape mode.
→ *Switch source to tape mode.*

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.*
• Magnetic build-up in the record/playback head.
→ *Use demagnetizing tape.*

General

System switches to standby mode automatically *(for model FW560C only).*
• The system is operating in an extremely hot environment or internal heat build-up is high.
→ *This is not a malfunction. The system incorporates a built-in safety feature that prevents overheating.*
→ *Let the system cool down, then switch on again.*

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 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 that the stripped speaker wire is clamped.*

Reversed left and right sound.
• Speakers are incorrectly connected.
→ *Check the speaker connections and location.*

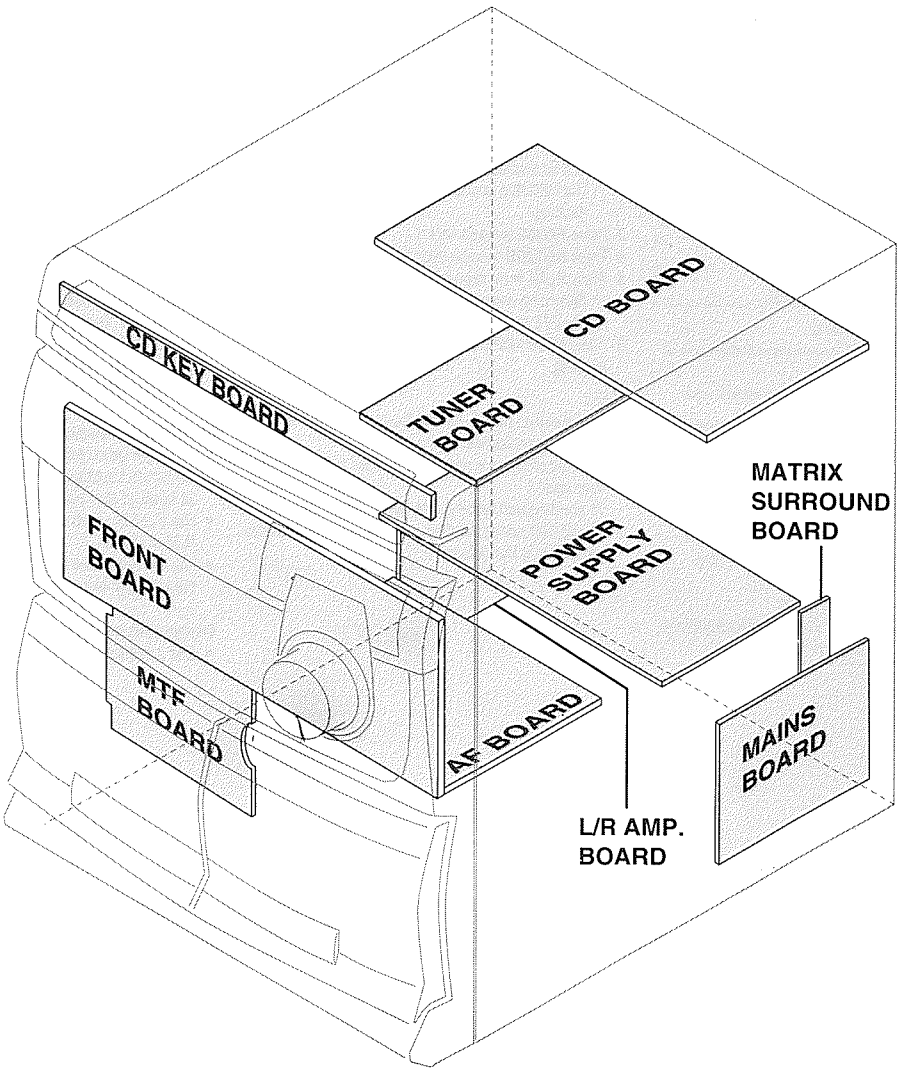
Lack of bass sound or apparently imprecise physical location of musical instruments.
• Speakers are incorrectly connected.
→ *Check the speaker connection for proper phasing, red/black wires to red/black terminals.*

Remote control has no effect on the system.
• Wrong source is selected.
→ *Select the source (CD, TUNER, etc.) before pressing the function button (PLAY, PREV/NEXT, 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 not working.
• Timer is not switched on.
→ *Press CLOCK•TIMER on the system to switch on the timer.*
• Dubbing/recording is in progress.
→ *Stop dubbing/recording.*

System displays features automatically and buttons flash continuously.
• Demonstration mode is switched on.
→ *Press and hold STOP* ■ *for 3 seconds to switch off the demonstration.*

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

Features & Board in used: / Versions:	/21 /21M	/22	/25	/26	/30	/33	/34	/37
Aux Input								x
Line Output								x
Subwoofer Output								x
Surround Output								
Digital Output								
Dolby B								
RDS								
CD Text								
Karaoke Feature								
Tuner board - ECO5 Sys								x
Tuner board - Tuner 95								

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
Ground 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

Warning !

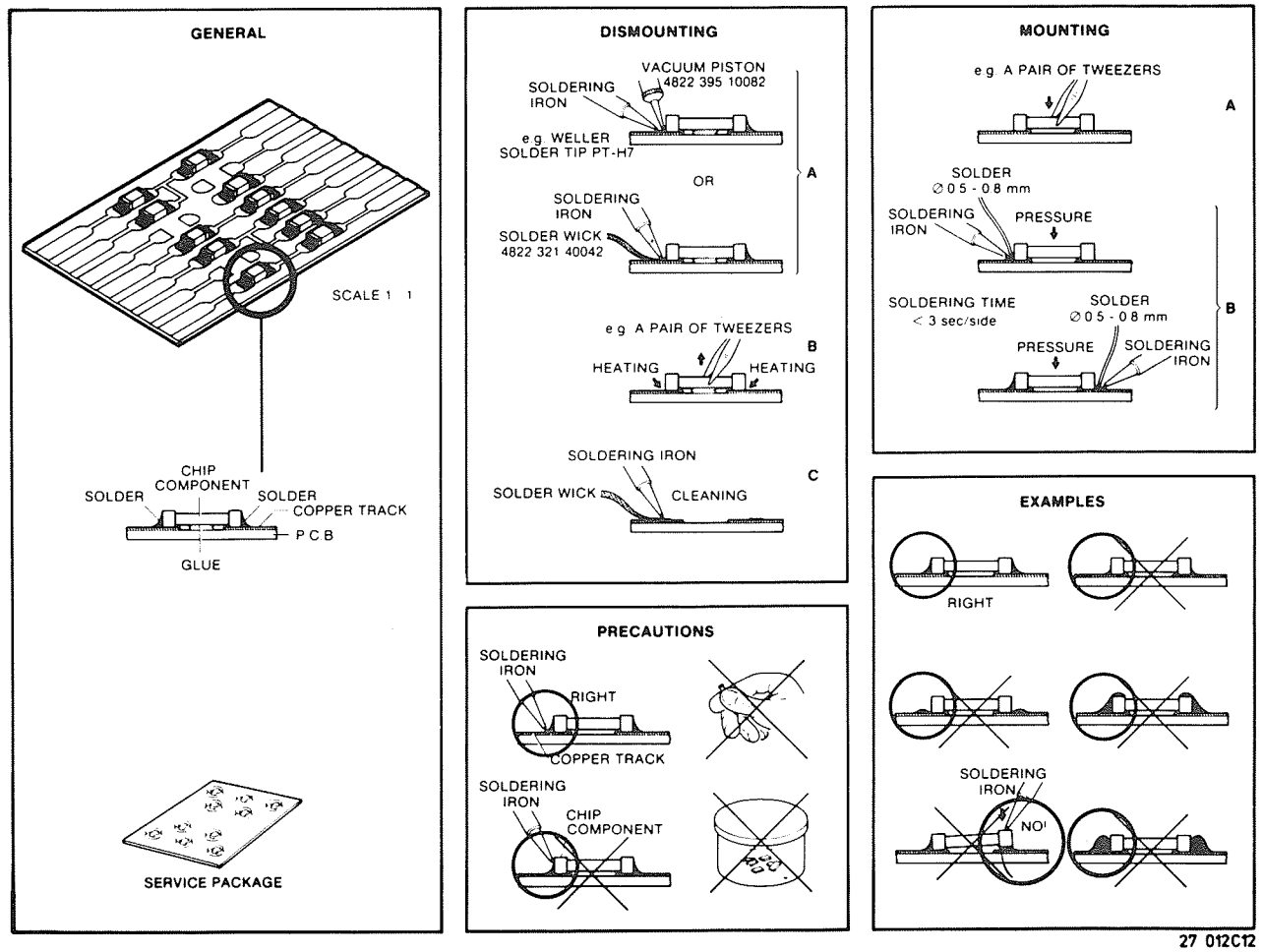
Invisible laser radiation when open.
Avoid direct exposure to beam.

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

ESD **WARNING**

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

HANDLING CHIP COMPONENTS



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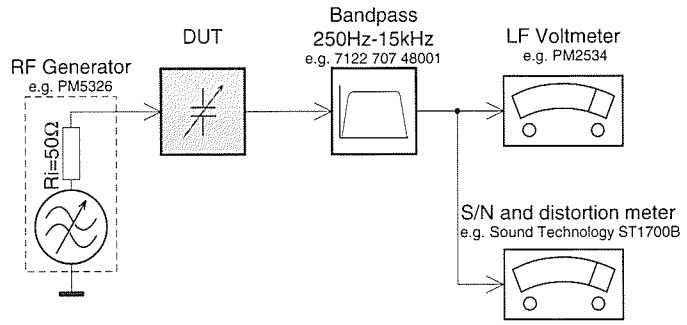
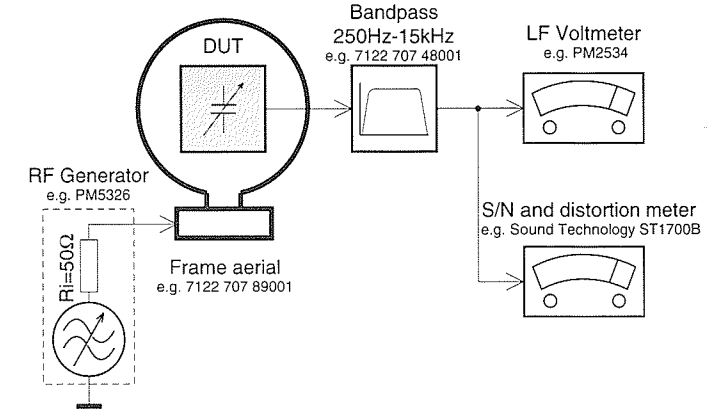
MEASUREMENT SETUP

Tuner FM



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

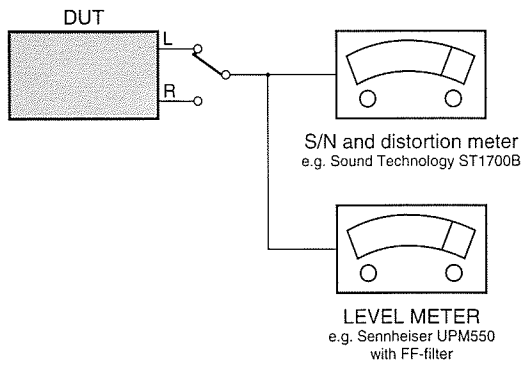
Tuner AM (MW,LW)



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).

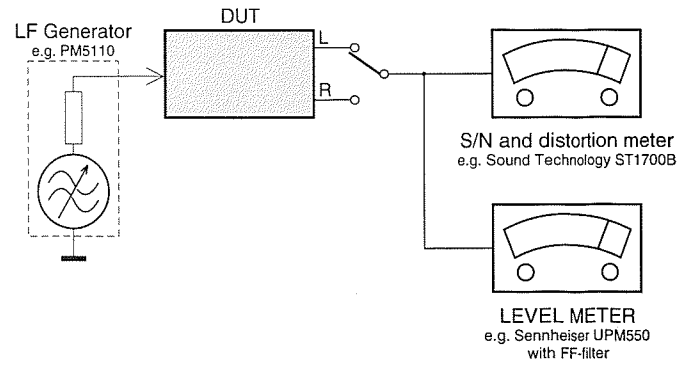
CD

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



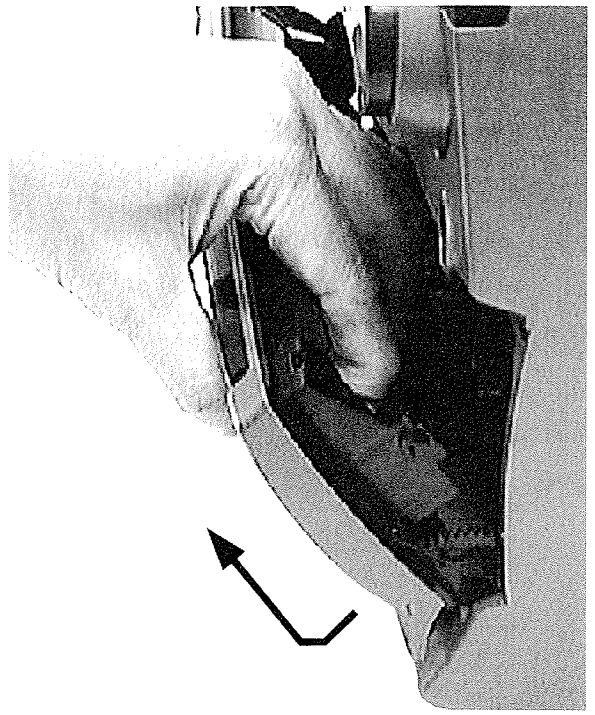
Recorder

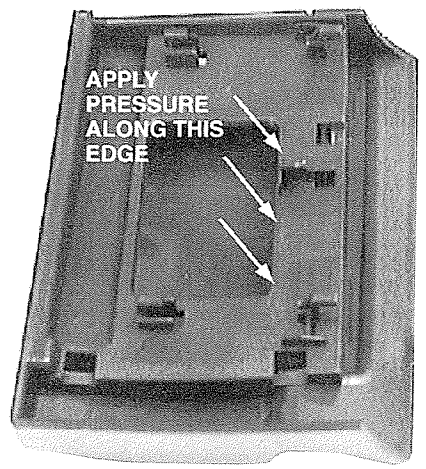
Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



DISASSEMBLY

Dismantling of the Cassette Cover

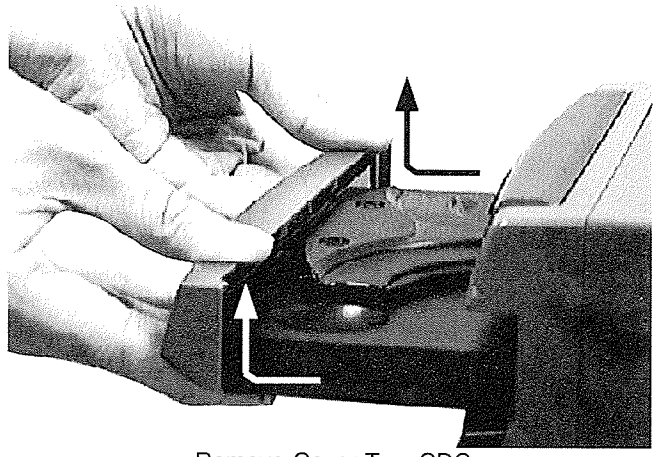




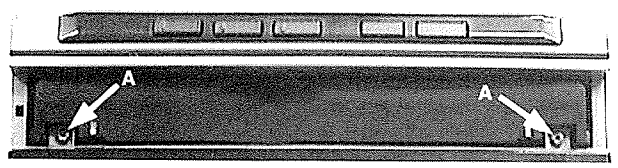
Cassette door

Dismantling of the CDC Module and Front Panel

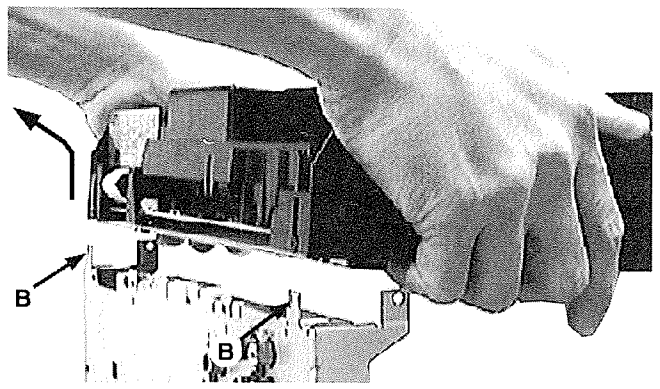
1) Loosen the 16 screws to remove the Cabinet Rear (pos 289).
   - 5 screws each on the left & right side of the Cabinet
   - 6 screws at the rear of the Cabinet
2) Slide out the tray and remove the Cover Tray CDC (pos 205) as indicated.
3) Loosen the 2 screws A and 2 screws B to remove the CDC Module (pos 1104) as indicated.
4) Remove 1 screw at the bottom of the Bottom Plate to separate the Front Panel Assembly from the Bottom Plate (pos 286).



Remove Cover Tray CDC



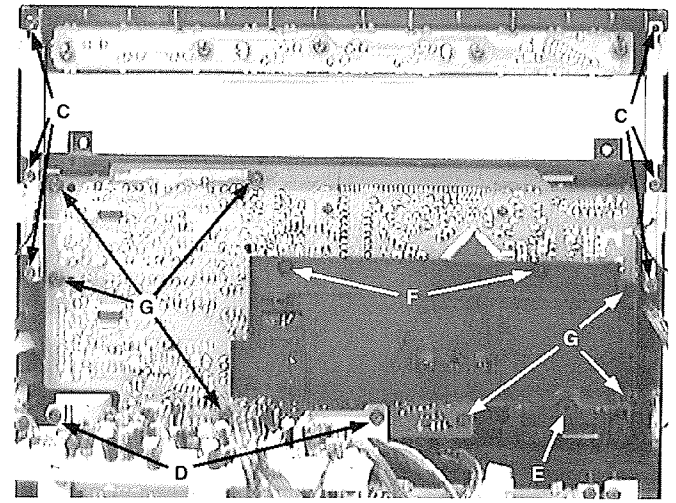
Front CDC



Remove CDC Module

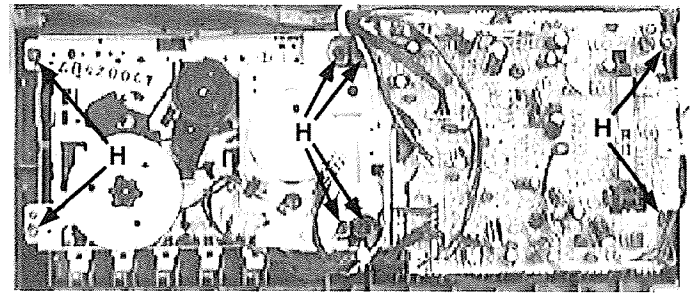
Dismantling of the Front Board

1) Remove 6 screws C as indicated to take out the CDC Left Bracket (pos 267) and CDC Right Bracket (pos 268).
2) Remove 2 screws D as indicated to loosen the AF Board (pos 1101).
3) Remove 1 screw E as indicated to loosen the Karaoke Board (only for set with Karaoke board).
4) Remove 2 screws F as indicated to loosen the Plate Front (pos 266) from the Front Board.
5) Remove 7 screws G as indicated to loosen the Front Board (pos 1102).



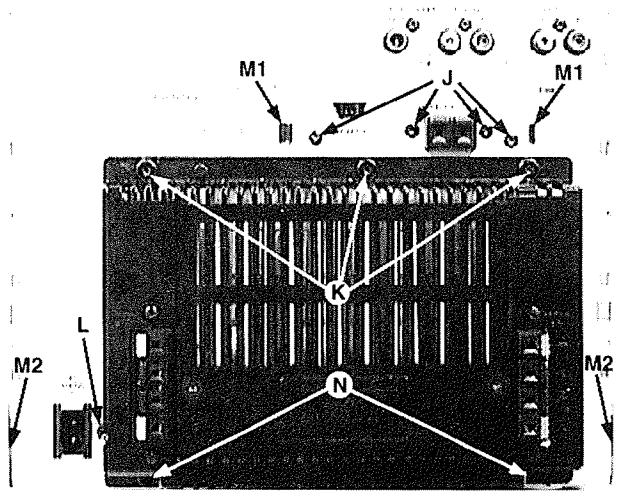
Dismantling of the MTF Module

1) Remove 8 screws H as indicated to loosen the MTF Module (pos 1105).



Dismantling of Rear Portion

1) Remove 4 screws J and uncatch M1 to loosen the Tuner Board (pos 1100).
2) Remove 3 screws K and 1 screw L (if obstructed) and uncatch M2 to take out the Rear Plate (pos 284).
3) Remove 2 screws N to free the Power Module (pos 1103) from the Bottom Plate assembly.

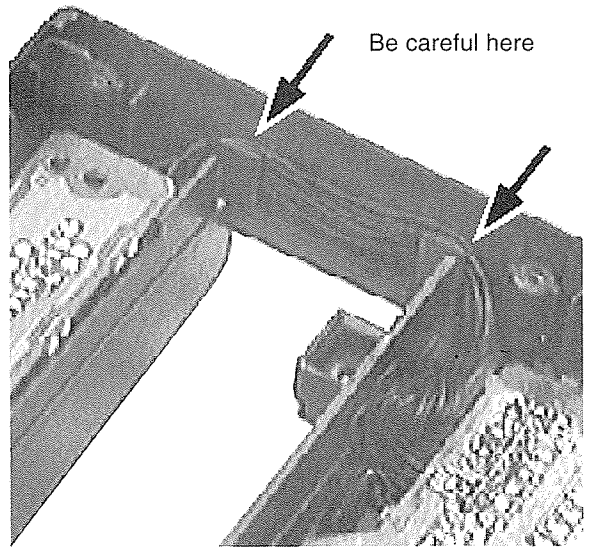


REPAIR HINTS

Repair Hints

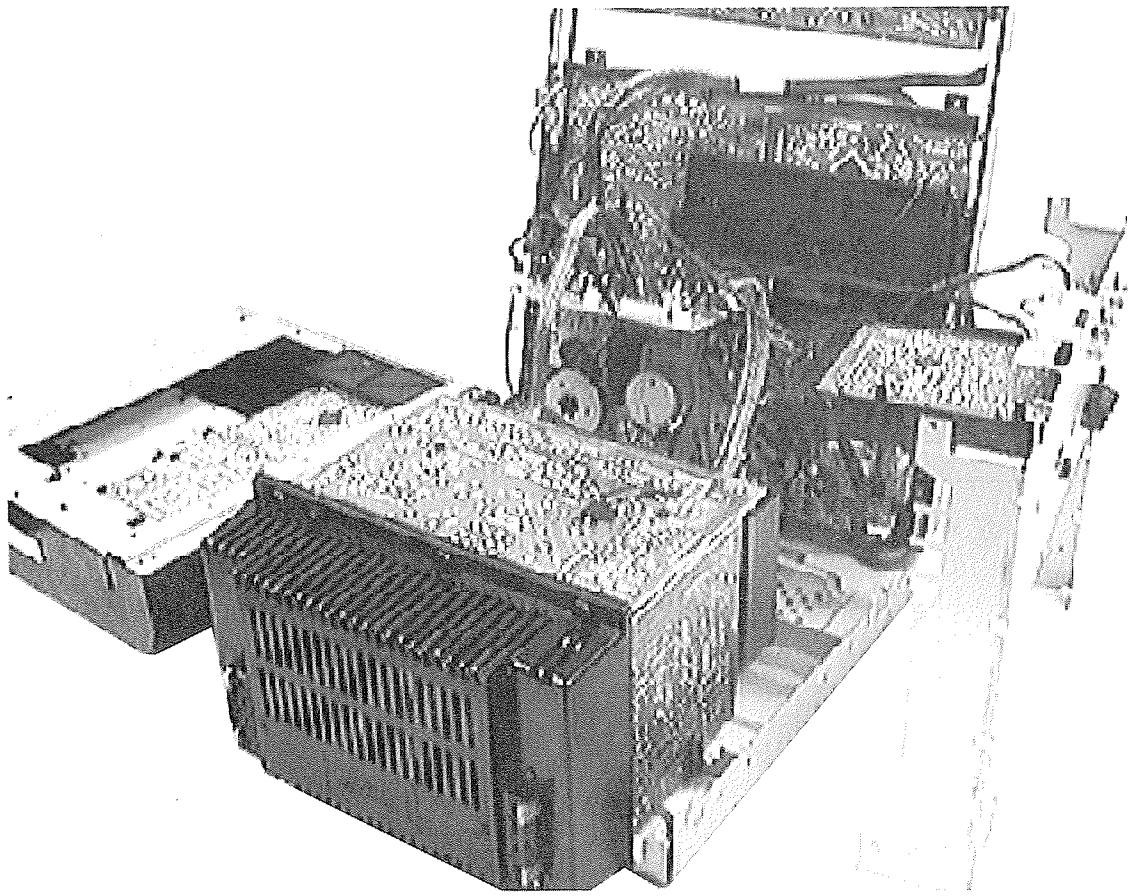
1) During reassembly of the Front Board, care should be taken to dress the thin bunch of wires (between Front board & CDC Key board) properly in the slots provided so that it will not be damaged by the CDC bracket (pos 267). See picture 1.

2) During repair it is possible to disconnect the Tuner board and CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

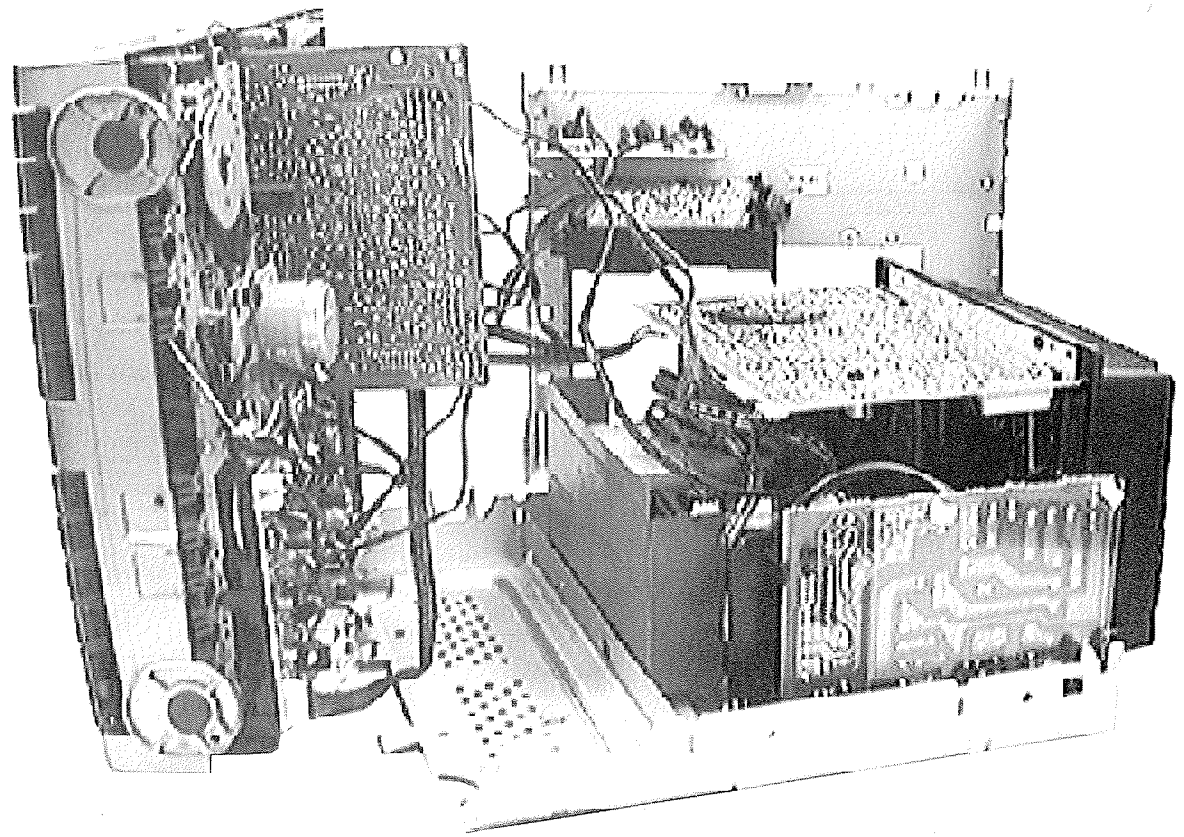


Picture 1

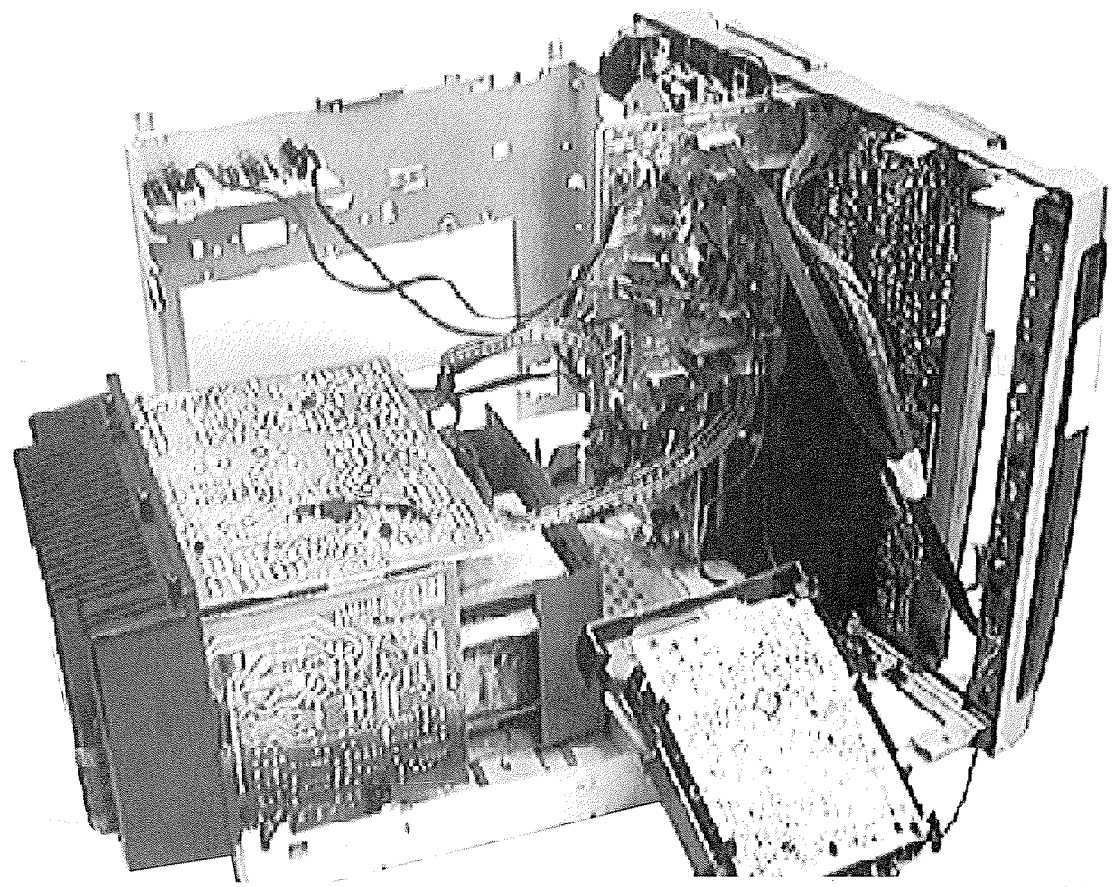
Service pos A



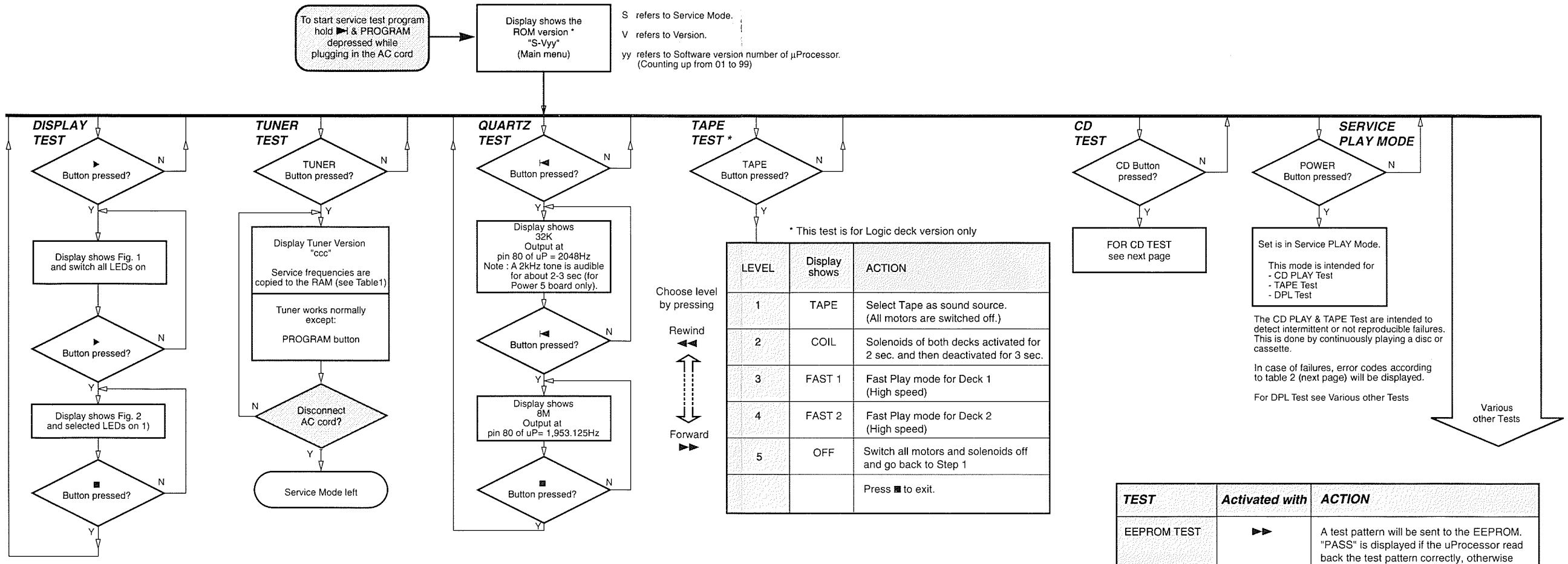
Service pos B



Service pos C



SERVICE TEST PROGRAM I



* This test is for Logic deck version only

LEVEL	Display shows	ACTION
1	TAPE	Select Tape as sound source. (All motors are switched off.)
2	COIL	Solenoids of both decks activated for 2 sec. and then deactivated for 3 sec.
3	FAST 1	Fast Play mode for Deck 1 (High speed)
4	FAST 2	Fast Play mode for Deck 2 (High speed)
5	OFF	Switch all motors and solenoids off and go back to Step 1
		Press ■ to exit.

The CD PLAY & TAPE Test are intended to detect intermittent or not reproducible failures. This is done by continuously playing a disc or cassette.

In case of failures, error codes according to table 2 (next page) will be displayed.

For DPL Test see Various other Tests

PRESET	Europe "EUR"	East Eur. 3-band "EAS"	East Eur. 2-band "EAS"	USA "USA"	Oversea "OSE"	Korea "KOR"	Japan "JAP"
1	87.5MHz	65.81MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz	76MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz	108MHz	CH3 107.75MHz
3	531kHz	74MHz	74MHz	530kHz	531/530kHz	531kHz	90MHz
4	1602kHz	87.5MHz	87.5MHz	1700kHz	1602/1700kHz	1602kHz	CH1 95.75MHz
5	558kHz	531kHz	531kHz	560kHz	558/560kHz	558kHz	CH2 101.75MHz
6	1494kHz	1602kHz	1602kHz	1500kHz	1494/1500kHz	1494kHz	531kHz
7	153kHz	558kHz	558kHz	98MHz	87.5MHz	87.5MHz	1602kHz
8	279kHz	1494kHz	1494kHz	87.5MHz	87.5MHz	87.5MHz	558kHz
9	198kHz	153kHz	98MHz	87.5MHz	87.5MHz	87.5MHz	1494kHz
10	98MHz	279kHz	70.01MHz	87.5MHz	87.5MHz	87.5MHz	80MHz
11	87.5MHz	198kHz	65.81MHz	87.5MHz	98MHz	98MHz	76MHz

Table 1

East Europe TUNER IF offset correction

1) Input a reference frequency of 87.5MHz from the generator.

2) Proceed to the Tuner Test Mode

3) Hold TUNER button down for > 3 seconds

4) The set will self-calibrate automatically and display "OFS-xx" when calibration is successful, otherwise it will display "00E".

xx : offset value between -3 to +3

Note: This has to be done whenever the EEprom, Microprocessor or the components in the oscillator circuitry are replaced.

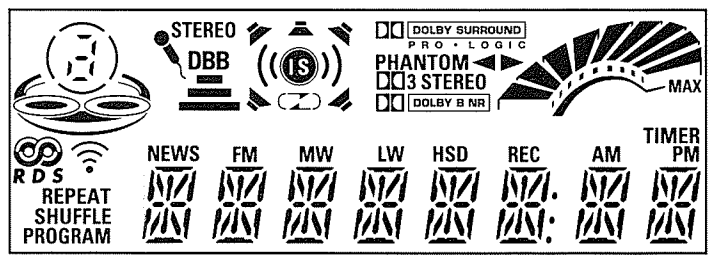
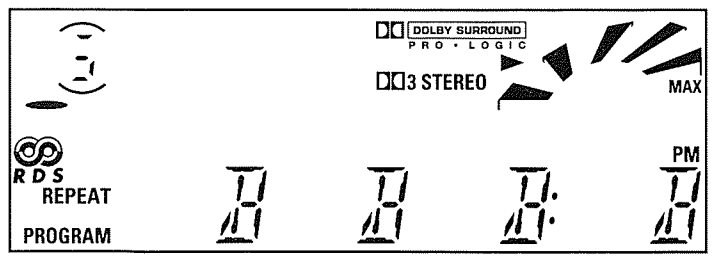


Figure 1



1) CDC1, CDC3, Tuner, Aux, Incredible Surround, Jazz, Rock, Center Phantom, ◀◀, ▶, |◀.

Figure 2

TEST	*Activated with*	*ACTION*
EEPROM TEST	▶▶ ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERR" will be displayed.
EEPROM FORMAT	◀◀	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost.***
KEY TEST	▶| ■ to Exit	Key numbers noted in table 3 are shown on the display. (see next page)
FAST CLOCK TEST	CLOCK/TIMER	The clock is switched to fast mode. "FAST" is displayed for 1 sec. Press CLOCK/TIMER again to reset the clock to normal. "NORMAL" displayed for 1 sec.
VOLUME TEST	Volume Knob	Display shows volume value for 2 seconds. Volume increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
DPL TEST (only possible in Service Play mode)	DPL	The set enters into Pro-logic install mode. The noise-source switches between Left, Center, Right and Rear speakers. Pro-logic settings cannot be installed in this test.
LEAVE SERVICE TESTPROGRAM	Disconnect AC cord	

Error code	Type	Error Description
E1000	W	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	W	Radial Error Triggered when the radial servo is off-track for a certain time during play.
E1002	W	Sledge In Error The sledge did not reach its inner position (inner-switch is still closed) before approximately 6 Sec. have passed. Inner-switch or sledge motor problem.
E1003	W	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	W	Jump-offtrack error Triggered in normal play when the jump destination could not be found within a certain time.
E1006	W	Subcode Error (no subcode within time) Triggered when a new subcode was missing for a certain time during play.
E1007	W	PLL Error The Phase Lock Loop could not lock within a certain time.
E1008	W	Turntable Motor Error Generated when the CD could not reach 75% of speed during startup within a certain time. Disc motor problem.
E1020	F	Focus Search Error The focus point has not been found within a certain time.
E1070	W	The carousel switch is not open within 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	W	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	W	The drawer could not enter the inside position and is opening again. This can be caused because the drawer is blocked by something and cannot go fully inside, or the drawer switch is defective and does not close.
E2020	F	Head Movement Error Deck 1 Generated if the head does not reach the desired position within a certain time.
E2021	F	Head Movement Error Deck 2 Generated if the head does not reach the desired position within a certain time.

F = Fatal error & the set stops play function W = Warning

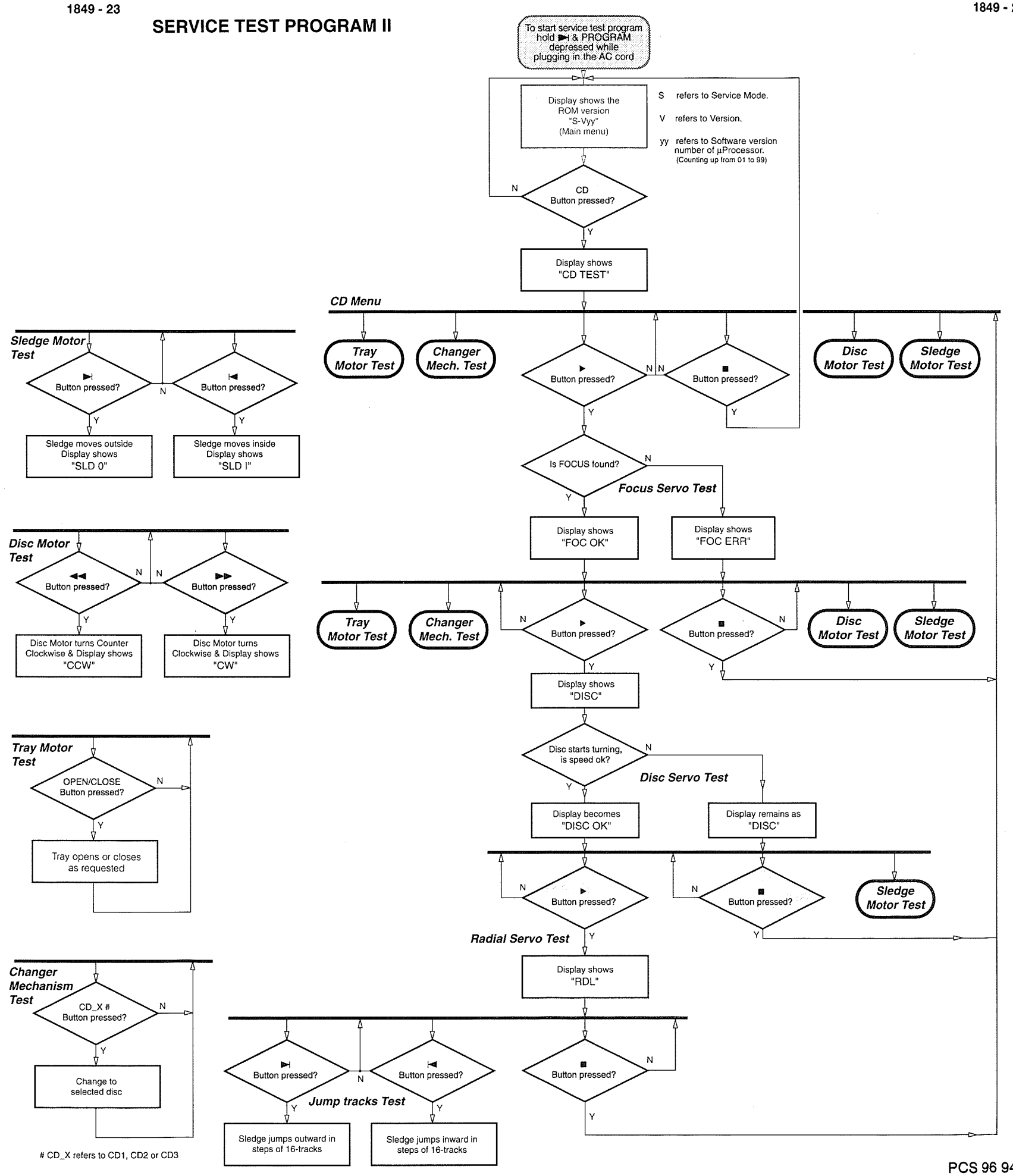
Table 2

Keys activated	Display shows	Keys activated	Display shows	Keys activated	Display shows
No Key pressed	--	PROLOGIC*	10	MODE*	21
Any Remote control key	RC	PHANTOM*	11	RECORD*	22
CD1*	1	3 STEREO*	12	◄◄	23
CD2*	2	INCREDIBLE SURROUND*	13	►►	24
CD3*	3	STANDBY-ON	14	■	Exit
DISC CHANGE	4	CLOCK / TIMER	15	►II	26
OPEN / CLOSE	5	CD	16	I◄	27
RDS*	6	TUNER	17	►I	28
NEWS*	7	TAPE	18	HSD	29
DSC	8	AUX	19		
DBB	9	PROGRAM	20		

* Not for all type/version

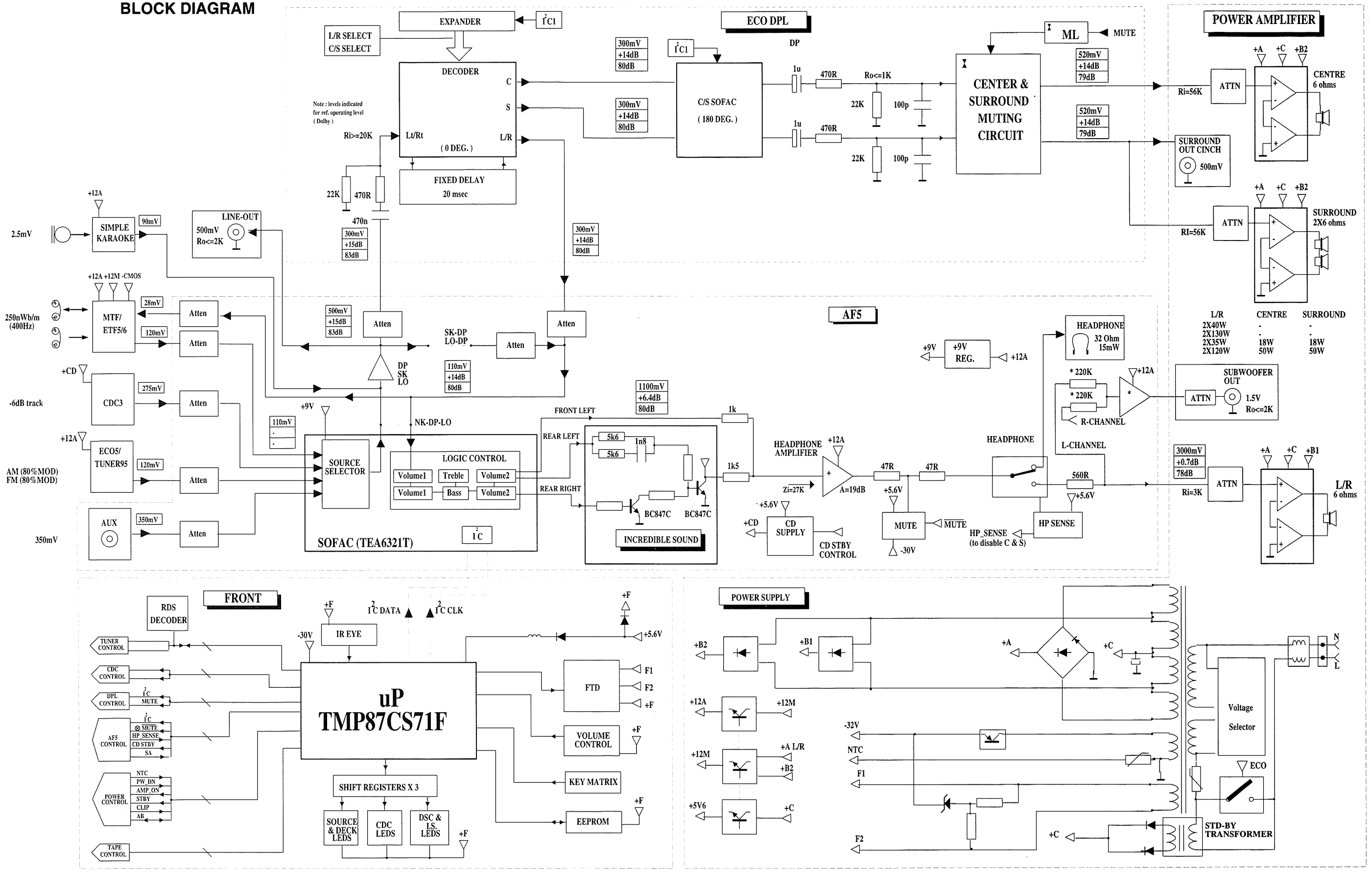
Table 3

SERVICE TEST PROGRAM II



PCS 96 941

BLOCK DIAGRAM

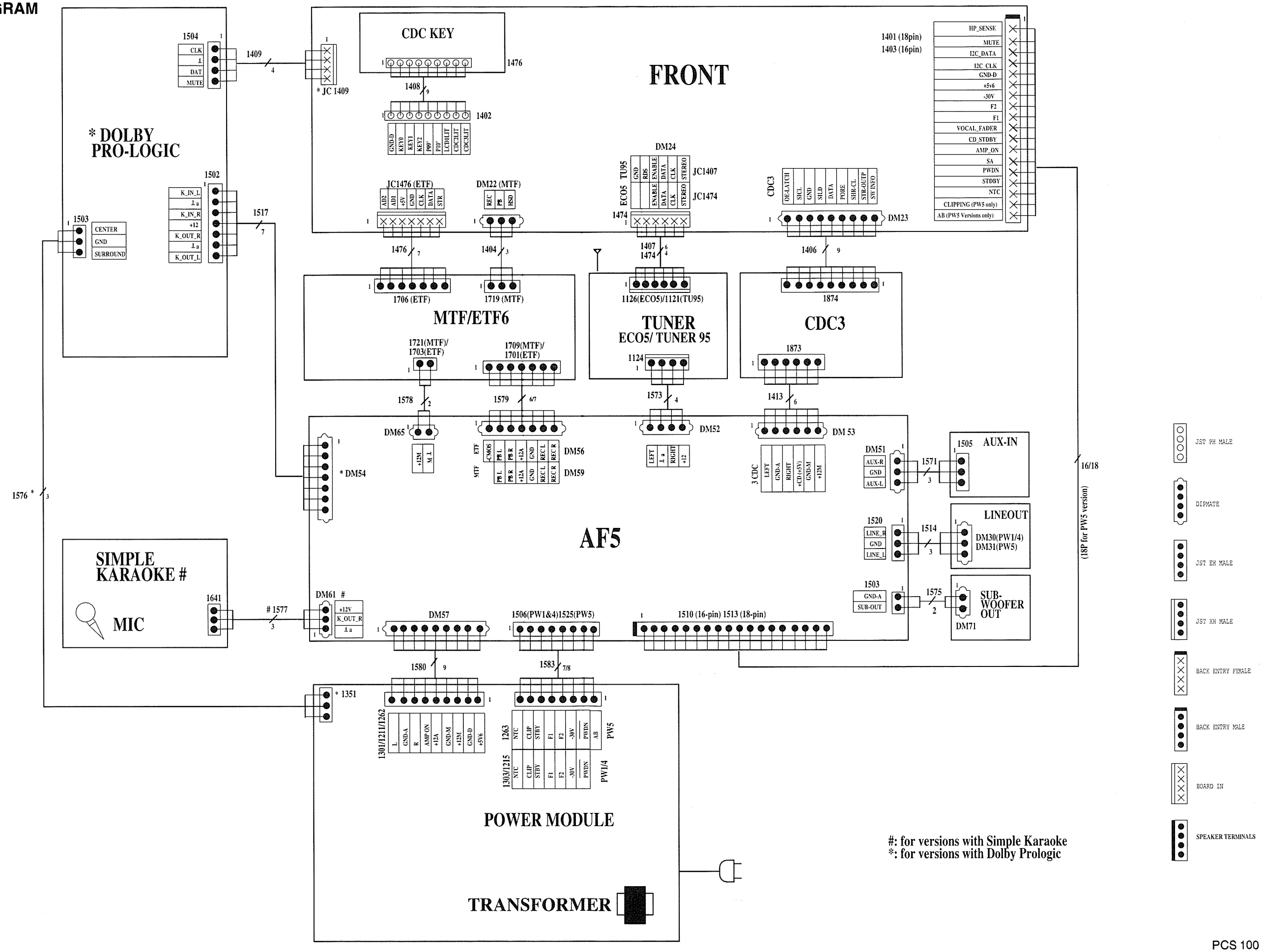


LEGEND :
SK : SIMPLE KARAOKE
NK : NON KARAOKE LO : LINE-OUT
DP : DOLBY PROLOGIC

mV	AC SIGNAL LEVEL
dB	HEADROOM
dB	S/N RATIO

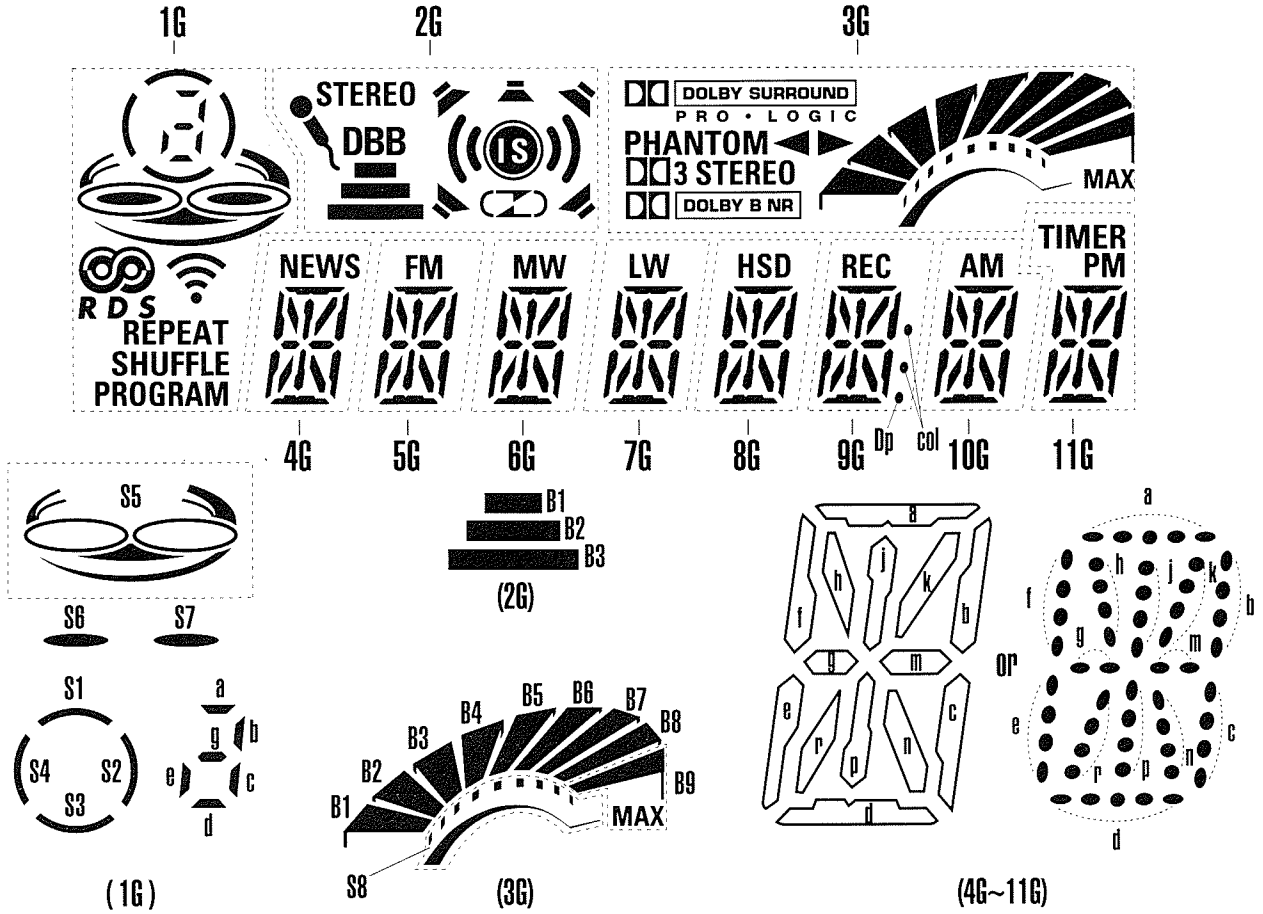
→ SIGNAL FLOW (MAIN & CONTROL)
⧗ : MUTE CENTER & SURROUND WHEN PLUG IN HEADPHONE

WIRING DIAGRAM



#: for versions with Simple Karaoke
*: for versions with Dolby Prologic

LCD DISPLAY PIN CONNECTIONS



	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G
P1	S1	STEREO	DOLBY SURROUND PRO • LOGIC	a	a	a	a	a	a	a	a
P2	S2	DBB	PHANTOM	h	h	h	h	h	h	h	h
P3	S3	B1	3 STEREO	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p
P4	S4	B2	DOLBY B NR	k	k	k	k	k	k	k	k
P5	a , g , d	B3	B1	b	b	b	b	b	b	b	b
P6	b		B2	f	f	f	f	f	f	f	f
P7	c		B3	m	m	m	m	m	m	m	m
P8	e		B4	g	g	g	g	g	g	g	g
P9	REPEAT		B5	c	c	c	c	c	c	c	c
P10	SHUFFLE		B6	e	e	e	e	e	e	e	e
P11	PROGRAM		B7	r	r	r	r	r	r	r	r
P12	S5		B8	n	n	n	n	n	n	n	n
P13	S6		B9	d	d	d	d	d	d	d	d
P14	S7		S8	NEWS	FM	MW	LW	HSD	REC	AM	TIMER
P15	RDS			-	-	-	-	-	col	-	PM
P16				-	-	-	-	-	Dp	-	-

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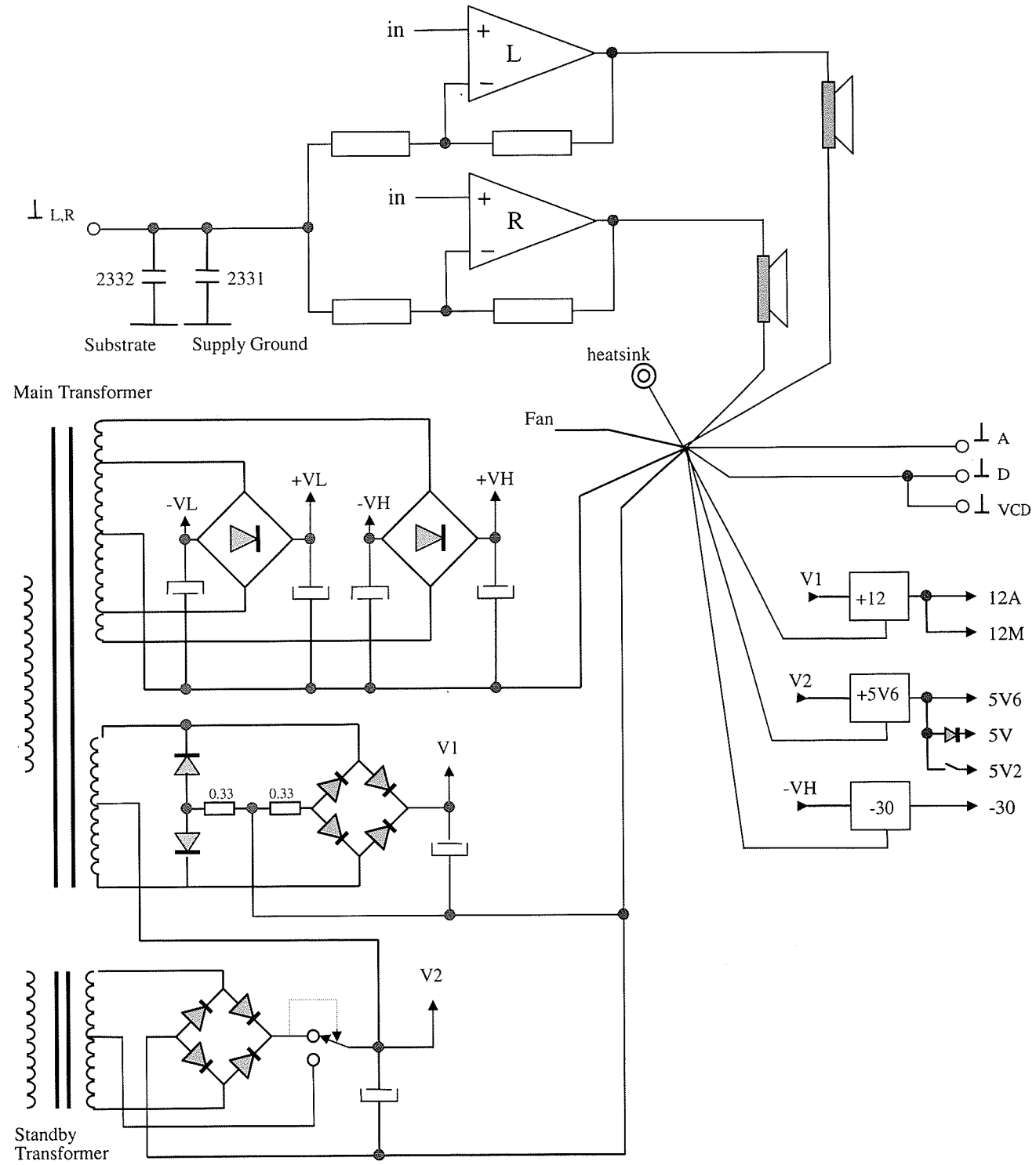
GROUND PLANE DIAGRAM



FRONT BOARD COMPONENT MATRIX

Front Boards application

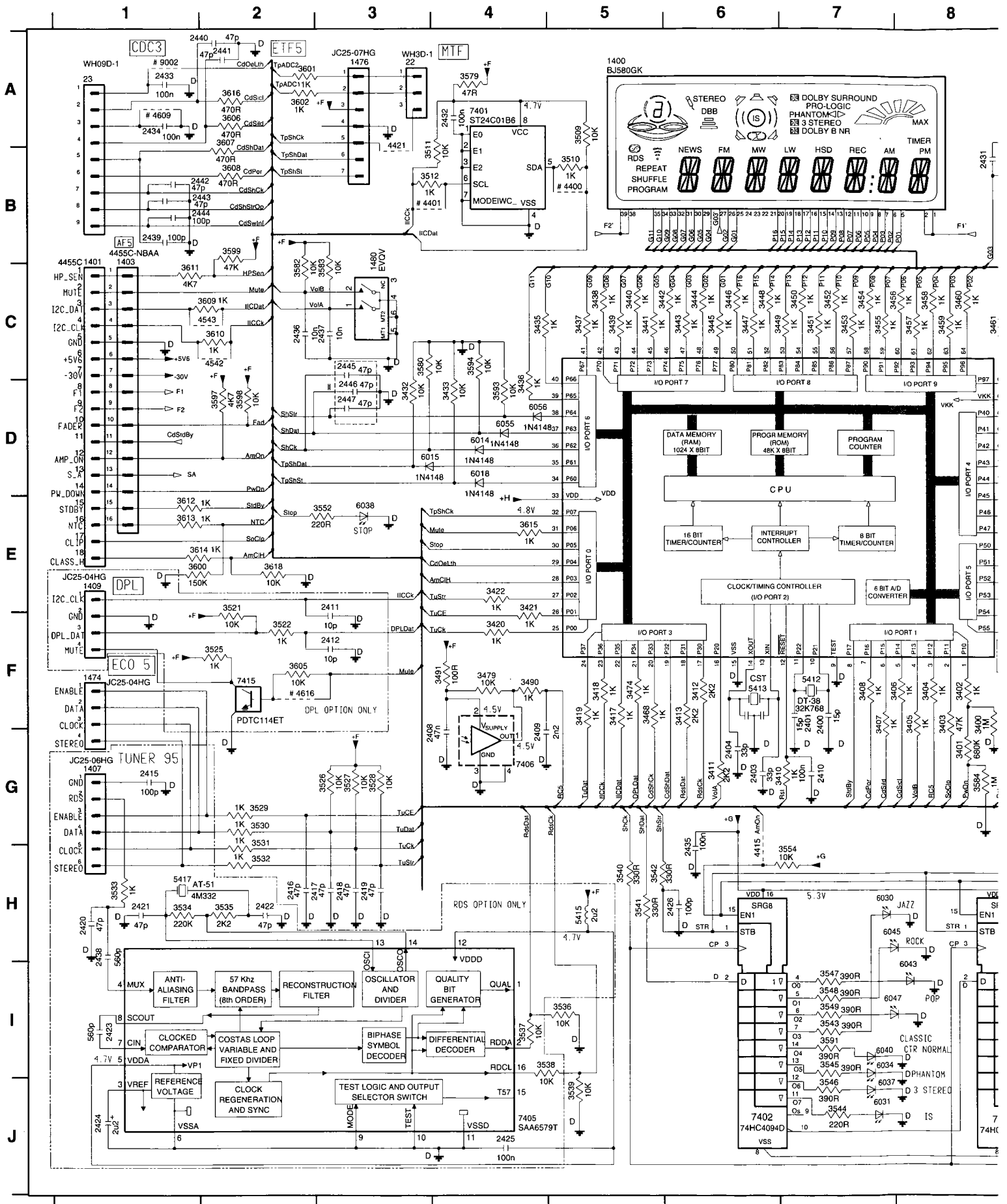
A50160	FW530C/37 , FW535C/30 , FW72/37
A50150	FW530C/22/34 , FW535C/22/34 , FW538/22
A50140	FW530C/21/21M , FW535C/21/21M , FW575C/21/21M/33 , FW538/21
A50390	FW550C/22
A50520	FW560C/37
A50380	FW570C/21/21M/33
A50370	FW570C/22
A50360	FW570C/37

Variations table for Front Board

	A50160	A50150	A50140	A50390	A50520	A50380	A50370	A50360
22	-	-	-	-	x	-	-	-
1407	-	x	-	x	-	-	x	-
1458	x	x	x	x	-	x	x	x
1462,1463	-	x	-	x	-	-	x	-
1474	x	-	x	-	x	x	-	x
1476	x	x	x	x	-	x	x	x
2415	-	100pF	-	100pF	-	-	100pF	-
2420	-	47pF	-	47pF	-	-	47pF	-
2421,2422	-	47pF	-	47pF	-	-	47pF	-
2423	-	560pF	-	560pF	-	-	560pF	-
2424	-	2,2µF	-	2,2µF	-	-	2,2µF	-
2425	-	100nF	-	100nF	-	-	100nF	-
2438	-	560pF	-	560pF	-	-	560pF	-
3533	-	1k	-	1k	-	-	1k	-
3534	-	220k	-	220k	-	-	220k	-
3535	-	2k2	-	2k2	-	-	2k2	-
3536	10k	-	10k	-	10k	10k	-	10k
3537,3538	-	10k	-	10k	-	-	10k	-
3539	10k	-	10k	-	10k	10k	-	10k
3544	220R	220R	220R	220R	-	220R	220R	220R
3603	-	-	-	-	6k8	-	-	-
3604	-	-	-	-	8k2	-	-	-
4421	-	-	-	-	x	-	-	-
4610	-	-	-	-	-	x	-	-
4611	-	x	-	-	x	-	x	-
4612	x	x	x	-	-	x	x	x
4613	-	-	-	x	-	x	-	x
4614	x	x	x	-	x	x	x	x
4615	-	-	-	x	x	x	-	x
5415	-	x	-	x	-	-	x	-
5417	-	x	-	x	-	-	x	-
6007	-	-	-	-	x	-	-	-
6010	-	-	x	-	-	x	-	-
6012	-	-	-	x	-	x	x	x
6031	x	x	x	x	-	x	x	x
6054	-	-	-	x	x	-	-	-
7405	-	x	-	x	-	-	x	-

x = Item in use.

FRONT BOARD SCHEMATIC



FRONT BOARD SCHEMATIC DIAGRAM

Note: Some values may vary, see variant table and respective parts list for correct value.

\# Provision on layout.

* For MTF only.

22 A3	3453 C7	4421 B3
23 A1	3454 C7	4542 C2
1400 A5	3455 C7	4543 C2
1401 C1	3456 C8	4609 A1
1402 B13	3457 C8	4610 I13
1403 C1	3458 C8	4611 I13
1407 G1	3459 C8	4612 I13
1409 E1	3460 C8	4613 I13
1440 C10	3461 C8	4614 J13
1441 C11	3463 D9	4615 J13
1442 D11	3464 D9	4616 F2
1443 D10	3466 D9	5412 F7
1444 D11	3467 E9	5413 F6
1445 D11	3468 F5	5414 F13
1446 C10	3470 E9	5415 H5
1447 C11	3474 F5	5416 H13
1448 C11	3475 F9	5417 H1
1449 C11	3478 G9	6003 E10
1450 C10	3479 F4	6004 C12
1451 D11	3490 F4	6006 C12
1452 D11	3491 F4	6007 E10
1453 E11	3492 C11	6008 C12
1454 E11	3493 C11	6010 E10
1455 E11	3494 D11	6011 D12
1456 E10	3495 D11	6012 D10
1457 E10	3496 D11	6013 D12
1458 E11	3497 E11	6014 D4
1459 D10	3498 E11	6015 D3
1460 D10	3499 E11	6017 D12
1461 D11	3505 C13	6018 D4
1462 C11	3506 G11	6020 E12
1463 C11	3507 G11	6021 E12
1474 F1	3508 G9	6022 E12
1476 A3	3509 A5	6028 F13
1480 C3	3510 B5	6029 C12
2400 F7	3511 B3	6030 H7
2401 F7	3512 B3	6031 J7
2402 F9	3521 E2	6032 I9
2403 G6	3522 F2	6033 I9
2404 G6	3525 F2	6034 I7
2405 D9	3526 G3	6035 J12
2407 G9	3527 G3	6036 I9
2408 G3	3528 G3	6037 J7
2409 G4	3529 G2	6038 E3
2410 G7	3530 G2	6039 I9
2411 E3	3531 G2	6040 I7
2412 F3	3532 H2	6041 I12
2415 G1	3533 H1	6042 J9
2416 H2	3534 H1	6043 I8
2417 H2	3535 H2	6045 H7
2418 H3	3536 I5	6046 I12
2419 H3	3537 I4	6047 I7
2420 H1	3538 I4	6048 I12
2421 H1	3539 J5	6052 I12
2422 H2	3540 H5	6053 I12
2423 I1	3541 H5	6054 D10
2424 J1	3542 H5	6055 D4
2425 J4	3543 I7	6056 D4
2426 H6	3544 J7	7400 F4
2427 E13	3545 I7	7401 A4
2428 F13	3546 J7	7402 J6
2429 G13	3547 I7	7403 J9
2430 G13	3548 I7	7404 J11
2431 B8	3549 I7	7405 J4
2432 A4	3550 I9	7406 G4
2433 A1	3551 I9	7407 F9
2434 A1	3552 E3	7408 B9
2435 H6	3553 J9	7415 F2
2436 C2	3554 H7	9002 A1
2437 C3	3555 I11	
2438 H1	3556 I11	
2439 B1	3557 J11	
2440 A1	3558 I11	
2441 A2	3559 I9	
2442 B2	3560 I11	
2443 B2	3561 E13	
2444 B2	3562 E13	
2445 C3	3564 C13	
2446 D3	3578 B9	
2447 D3	3579 A4	
3400 F8	3580 C3	
3401 G8	3581 D9	
3402 F8	3582 C2	
3403 F8	3583 C3	
3404 F8	3584 G8	
3405 F8	3588 H13	
3406 F8	3589 I11	
3407 F7	3590 I9	
3408 F7	3591 I7	
3410 G6	3592 H1	
3411 G6	3593 D4	
3412 F6	3594 C4	
3413 F6	3595 D9	
3417 F5	3596 G10	
3418 F5	3597 D2	
3419 F5	3598 D2	
3420 F4	3599 B2	
3421 E4	3600 E1	
3422 E4	3601 A2	
3432 D3	3602 A2	
3433 D4	3603 F8	
3435 C4	3604 F9	
3436 D4	3605 F2	
3437 C5	3606 A2	
3438 C5	3607 A2	
3439 C5	3608 B2	
3440 C5	3609 C2	
3441 C5	3610 C2	
3442 C6	3611 C1	
3443 C6	3612 E1	
3444 C6	3613 E1	
3445 C6	3614 E1	
3446 C6	3615 E4	
3447 C6	3616 A2	
3448 C6	3617 E9	
3449 C7	3618 E2	
3450 C7	4400 B5	
3451 C7	4401 B3	
3452 C7	4415 H6	

FRONT DISPLAY BOARD - COMPONENT VIEW

FRONT DISPLAY B

22 C3 1444 B4 1456 A6 2427 A5 3601 B3 6008 A4 6028 C5 6040 A6 6056 A5 9420 B2 9436 A1 9459 B5 9471 A6 9486 A3 9505 B7 9520 B5 9617 B5 9633 B3 9646 B4
23 C3 1445 B5 1457 A7 2428 A5 3602 B3 6010 A4 6029 A3 6041 B3 7401 B6 9422 A1 9438 B1 9460 B5 9472 A6 9487 A7 9506 C6 9521 B4 9618 A5 9634 A1 9647 A3
1400 A3 1446 C1 1458 A7 2429 A2 5412 A2 6011 A4 6030 A7 6042 B2 7406 A5 9423 A2 9440 B2 9461 A6 9473 A6 9489 A7 9507 C6 9522 B5 9621 A5 9635 A6 9648 C4
1401 C4 1447 B2 1459 B5 2430 C4 5413 B2 6012 B5 6031 A7 6043 A6 9002 B7 9424 A1 9441 B2 9462 B5 9474 A6 9491 A7 9508 C6 9523 B5 9622 B7 9636 B4 9649 B5
1402 A1 1448 C2 1460 B5 3412 B2 5414 A1 6013 A4 6032 A5 6045 A5 9410 A4 9425 A1 9446 B3 9463 B6 9475 A6 9492 A7 9509 C5 9600 A5 9625 B5 9637 A4 9650 B5
1403 C4 1449 C3 1461 B5 3493 B4 5415 B1 6014 A5 6033 B4 6046 B3 9412 A4 9426 A1 9447 B3 9464 B6 9478 A6 9495 A7 9510 C5 9610 B7 9626 A6 9638 B2
1407 A1 1450 B3 1462 A1 3495 A5 5416 A4 6015 A2 6034 A6 6047 A6 9413 A4 9428 A2 9451 B4 9465 B6 9479 A6 9496 A7 9511 B1 9611 A7 9627 A5 9639 A1
1409 B1 1451 C4 1463 A1 3533 B1 5417 B2 6017 A4 6035 A4 6048 B2 9414 B3 9429 A2 9453 B4 9466 B6 9480 A6 9497 B7 9512 B4 9612 C6 9628 A5 9640 C5
1440 B1 1452 C4 1474 B1 3558 C6 6003 A4 6018 A2 6036 B3 6052 B4 9415 B3 9430 A2 9454 B4 9467 B6 9481 A3 9498 A7 9513 B4 9613 C6 9629 B3 9641 A7
1441 B2 1453 A5 1476 C3 3588 C5 6004 A4 6020 A4 6037 A7 6053 B5 9416 B3 9433 A1 9455 B4 9468 B6 9483 A3 9499 A7 9515 B4 9614 B4 9630 A5 9642 A6
1442 B2 1454 A6 1480 B6 3589 C6 6006 A3 6021 A4 6038 B3 6054 A4 9418 B3 9434 A1 9456 A5 9469 B6 9484 A3 9501 B7 9518 C3 9615 B4 9631 B7 9644 C2
1443 B3 1455 A6 2424 B1 3598 B5 6007 A4 6022 A4 6039 B4 6055 A5 9419 B2 9435 A1 9457 B5 9470 B6 9485 A3 9502 B7 9519 B5 9616 A4 9632 B7 9645 A4

2400 B6 2420 B7 2442 B1 3413 A6 3443 A5 3460 A5 3497 A4 3529 B7 3547
2401 B6 2421 B6 2443 B1 3417 A6 3444 A5 3461 A5 3498 A4 3530 B7 3548
2402 B6 2422 B6 2444 B1 3418 A6 3445 A5 3463 A5 3499 A4 3531 A7 3549
2403 B6 2423 B7 2445 A3 3419 A6 3446 A5 3464 A5 3505 A7 3532 A7 3550
2404 A6 2425 B7 2446 A3 3420 A6 3447 A5 3466 A5 3506 A7 3534 B6 3551
2405 A5 2426 A2 2447 A3 3421 A6 3448 A5 3467 A5 3507 A7 3535 B6 3552
2407 B6 2431 A5 3400 B5 3422 A6 3449 A5 3468 B2 3508 B2 3536 B7 3553
2408 A4 2432 B2 3401 B5 3432 A6 3450 A5 3470 A5 3509 B2 3537 B7 3554
2409 A3 2433 B1 3402 B5 3433 A6 3451 A5 3474 A6 3510 B2 3538 B7 3555
2410 B6 2434 B1 3403 B5 3435 A6 3452 A5 3475 B5 3511 B2 3539 B6 3556
2411 B7 2435 C2 3404 B5 3436 A6 3453 A5 3476 B6 3512 B2 3540 A1 3557
2412 B7 2436 C2 3405 B6 3437 A6 3454 A5 3479 A4 3521 B7 3541 A1 3559
2415 B7 2437 C2 3406 B6 3438 A6 3455 A5 3490 A3 3522 B7 3542 A1 3560
2416 B7 2438 B7 3407 B6 3439 A5 3456 A5 3491 A3 3525 B7 3543 A1 3561
2417 B7 2439 B1 3408 B6 3440 A5 3457 A5 3492 A7 3526 A7 3544 A1 3562
2418 B7 2440 B1 3410 B6 3441 A5 3458 A5 3494 A3 3527 A7 3545 A1 3564
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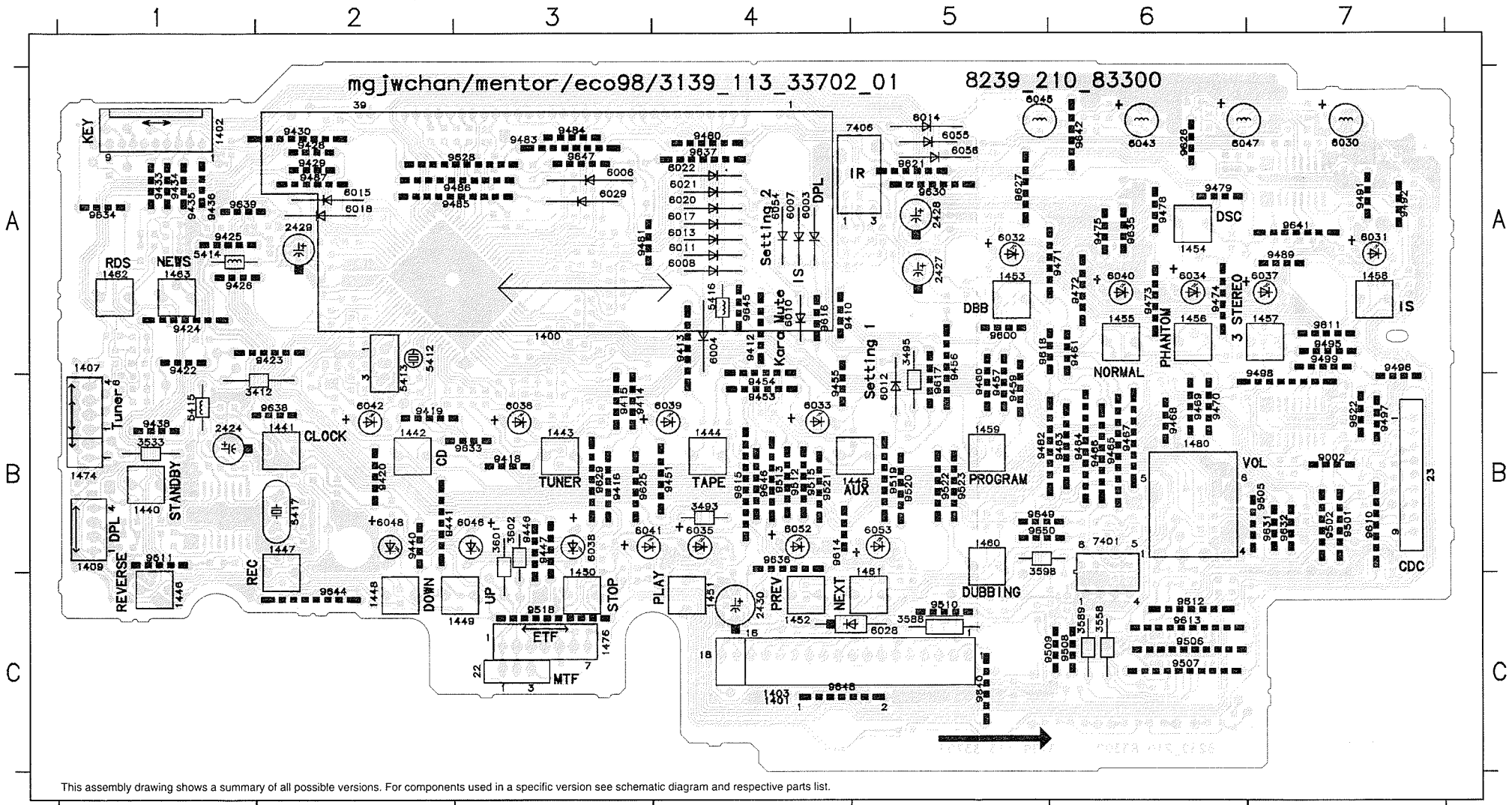
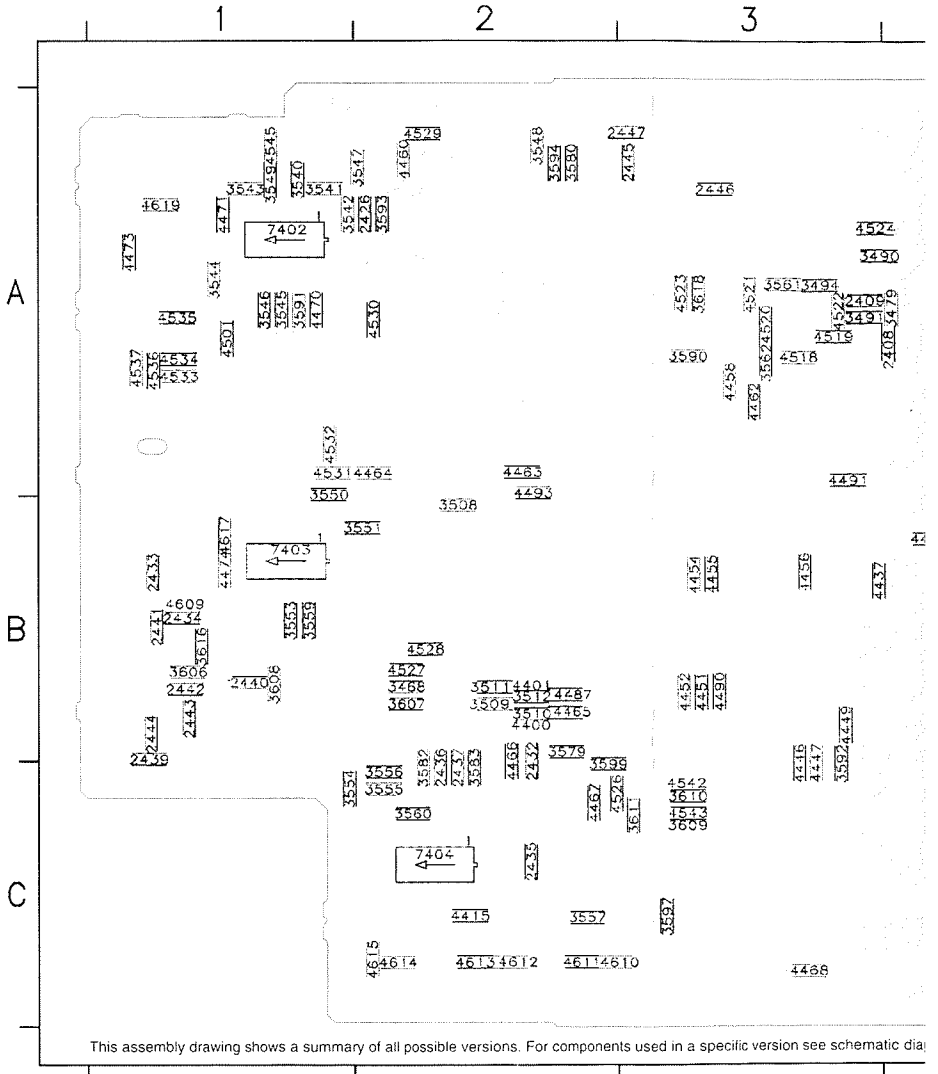


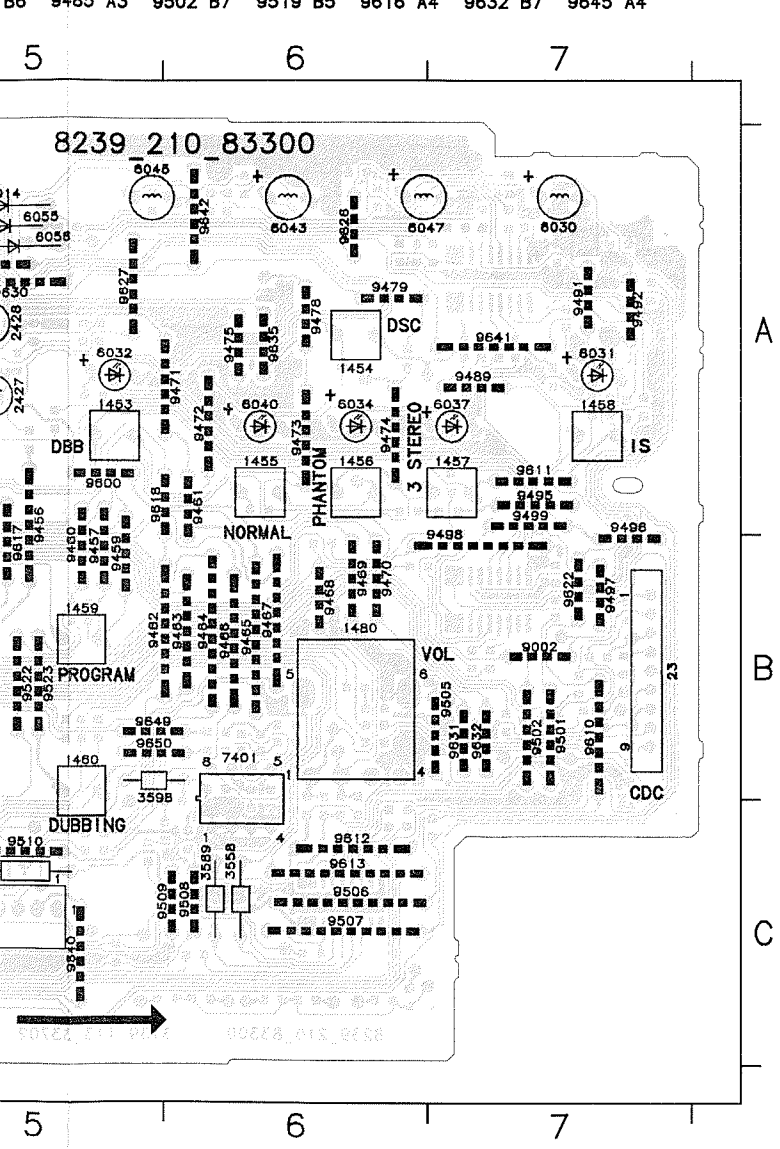
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

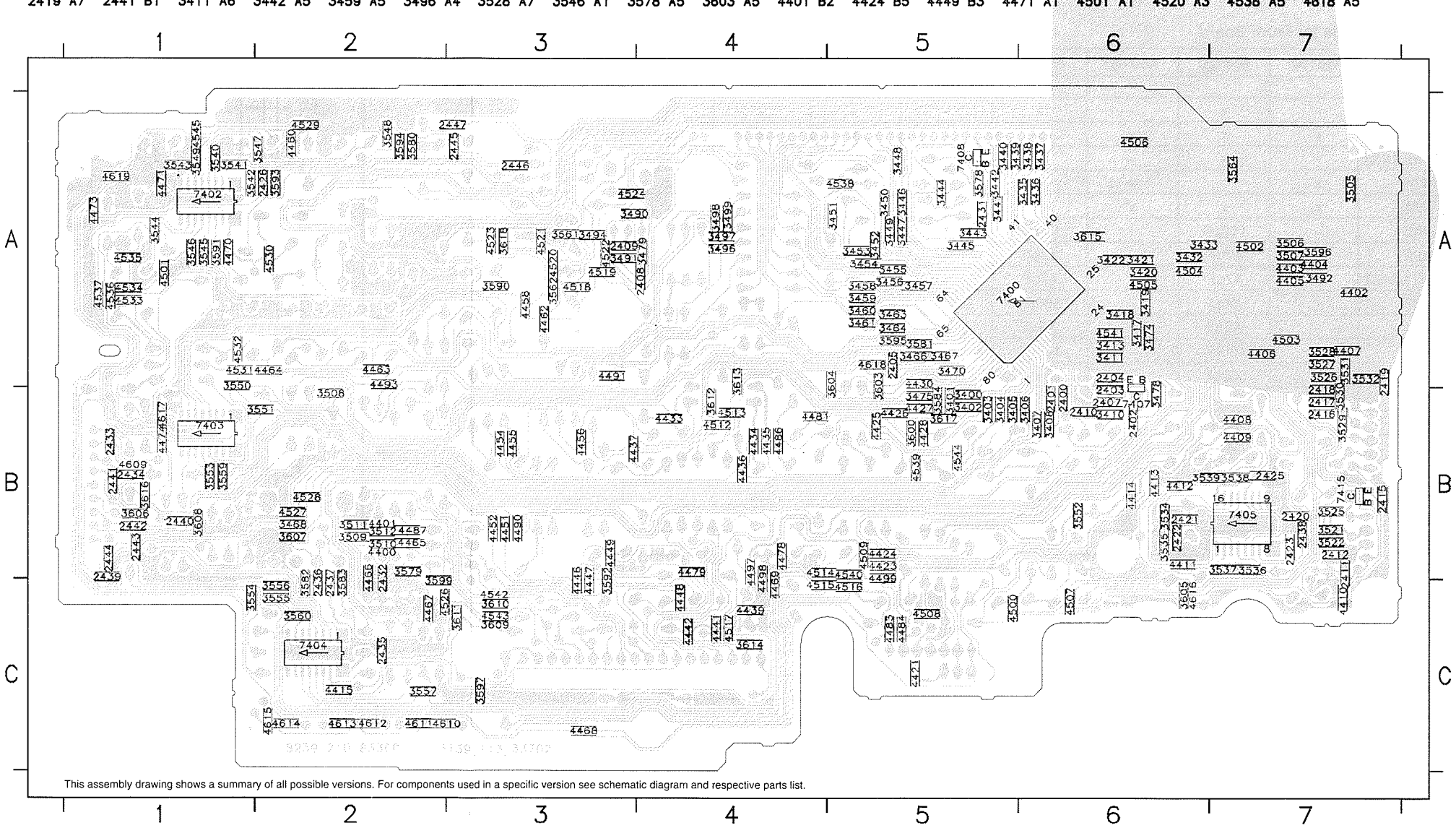


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic dia

NT VIEW

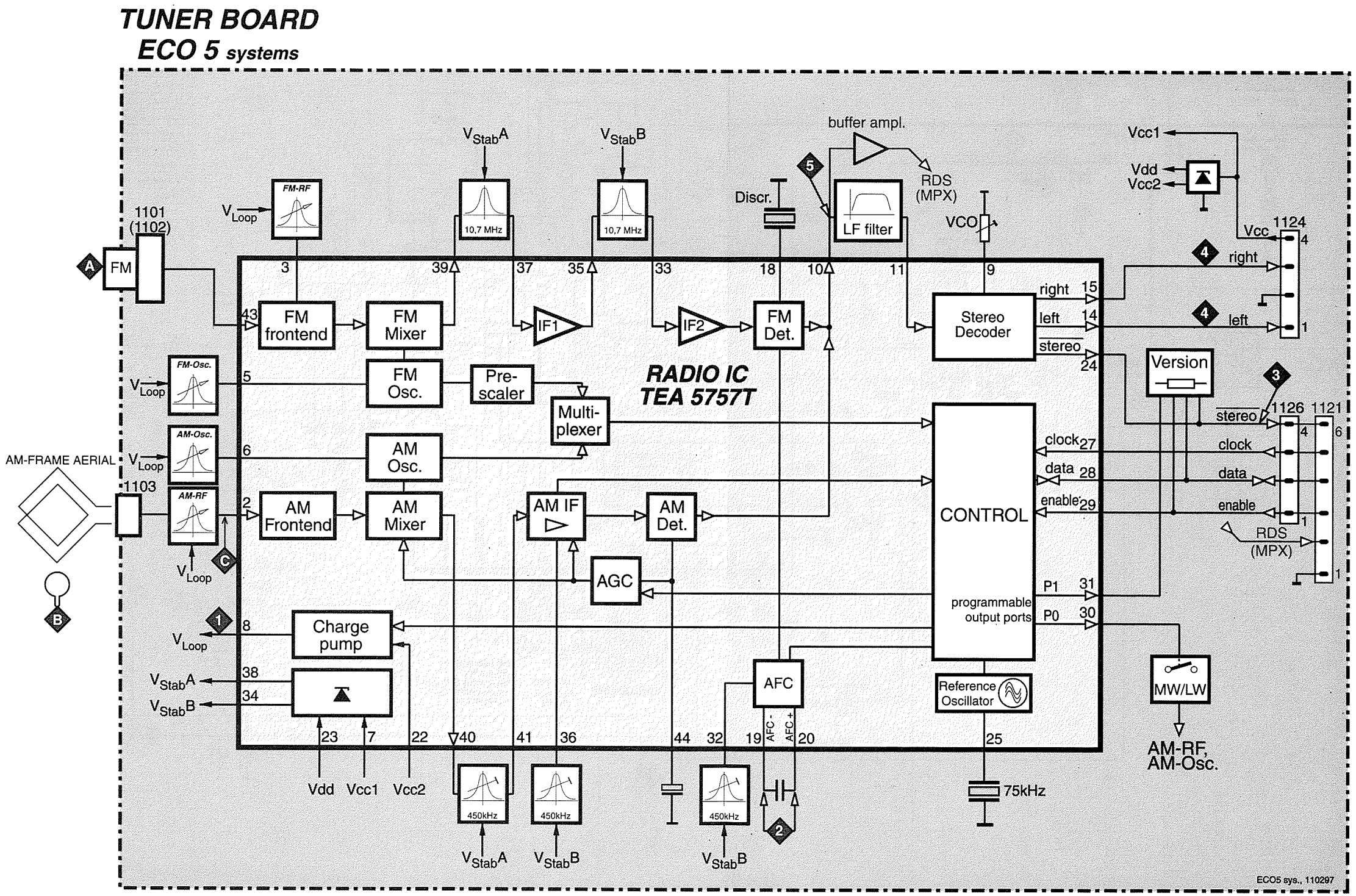
FRONT DISPLAY BOARD - COPPER SIDE VIEW





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

TUNER BOARD BLOCK DIAGRAM



TUNER BOARD SCHEMATIC DIAGRAM

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

Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right

Vdc FM mode stereo
Vdc MW mode
Vdc LW mode

Voltages measured while set is tuned to a strong transmitter

ECO5 systems, dscr col, 240997

TUNER CBA

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
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1130 B5 2129 C4 3110 A2 3161 A5 5110 B4 5123 B2 6107 C5 9111 C2 9124 C4
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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 4106 B4 4154 C3 6110 A4 7121 B3
2102 C4 2119 B4 2141 B1 2154 C3 2167 B2 3113 A2 3125 A3 3144 C2 3176 C2 4107 C4 4155 A4 6111 B4 7122 B4
2103 C3 2120 B4 2142 B1 2156 C4 2168 B1 3114 A3 3126 B3 3145 C2 3177 A1 4108 B4 4156 A2 6130 C2 7123 B4
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2109 A4 2124 A5 2145 C1 2158 B4 3102 C3 3116 A3 3128 B3 3148 A1 3179 A1 4110 A3 4158 C2 7101 B2 7125 A1
2111 A2 2126 C2 2146 C1 2159 C2 3103 C3 3117 B4 3133 B4 3153 C2 3180 A4 4111 C1 4159 A2 7103 C2
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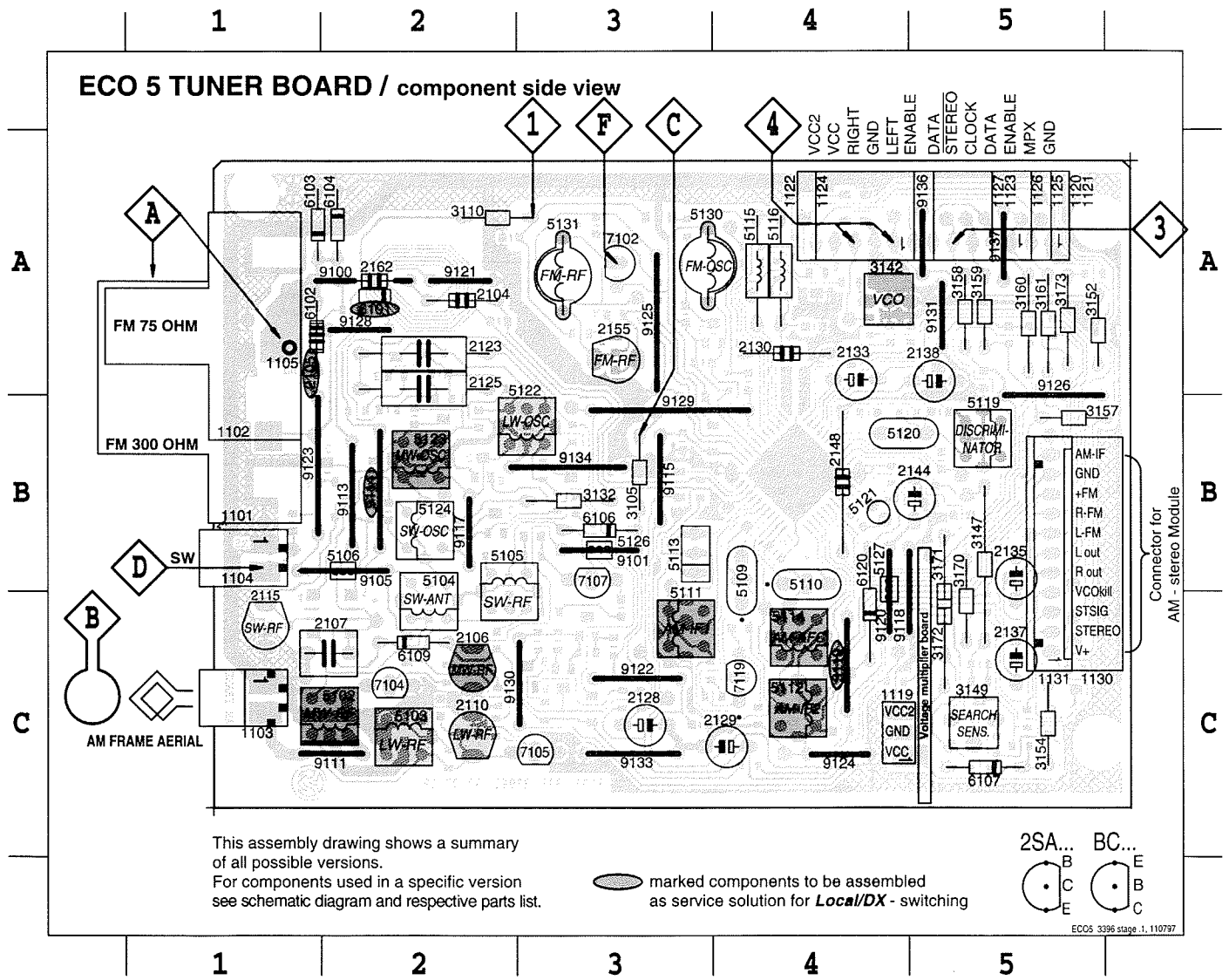

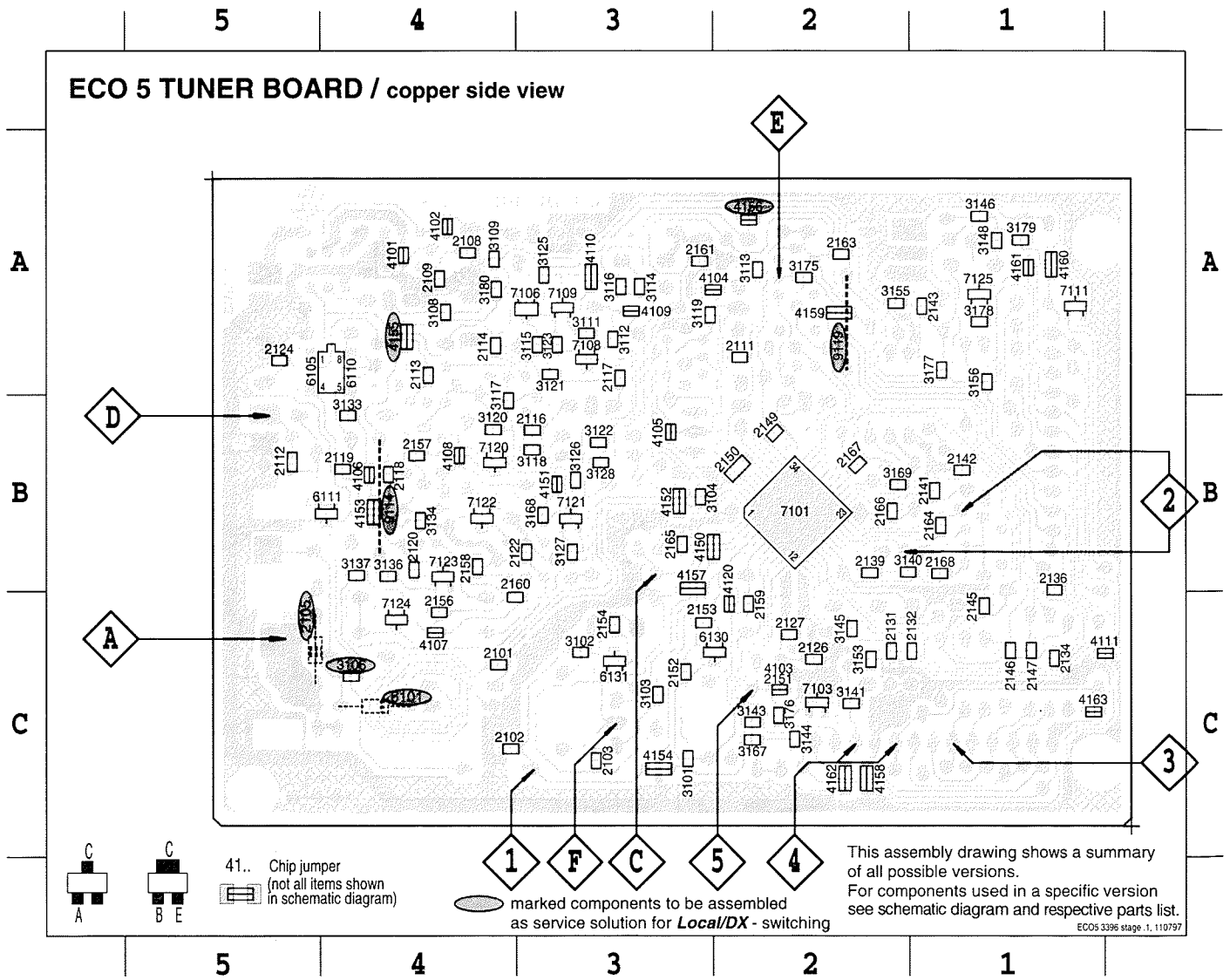

TUNER CBA

9129 B3
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9133 C3
9134 B3
9136 A5
9137 A5

2101 C4 2102 C4 2103 C3 2108 A4 2109 A4 2111 A2 2112 B5 2113 A4 2114 A4 2116 B3 2117 A3
2118 B4 2119 B4 2120 B4 2122 B3 2124 A5 2126 C2 2127 C2 2131 C2 2132 C1 2134 C1 2136 B1
2139 B2 2141 B1 2142 B1 2143 A1 2145 C1 2146 C1 2147 C1 2149 B2 2150 B2 2151 C2 2152 C3
2153 C3 2154 C3 2156 C4 2157 B4 2158 B4 2159 C2 2160 C4 2161 A3 2163 A2 2164 B1 2165 B3
2166 B2 2167 B2 2168 B1 3101 C3 3102 C3 3103 C3 3104 B3 3106 C4 3108 A4 3109 A4 3111 A3
3112 A3 3113 A2 3114 A3 3115 A3 3116 A3 3117 B4 3118 B3 3119 A3 3120 B4 3121 A3 3122 B3
3123 A3 3125 A3 3126 B3 3127 B3 3128 B3 3133 B4 3134 B4 3136 B4 3137 B4 3140 B2 3141 C2
3143 C2 3144 C2 3145 C2 3146 A1 3148 A1 3153 C2 3154 A2 3155 A2 3156 B3 3167 C2 3168 B3
3169 B2 3175 A2 3176 C2 3177 A1 3178 A1 3179 A1 3180 A4 4101 A4 4102 A4 4103 C2 4104 B3
4105 B3 4106 B4 4107 C4 4108 B4 4109 A4 4110 A4 4111 A2 4112 B3 4120 C2 4150 B2 4151 C1
4152 B3 4153 B4 4154 C3 4155 A4 4156 A2 4157 B3 4158 C2 4159 A2 4160 A1 4161 A1 4162 C1
4163 C1 6105 A4 6110 A4 6111 B4 6130 C2 6131 C3 7101 B2 7103 C2 7106 A3 7108 A3 7109 A3
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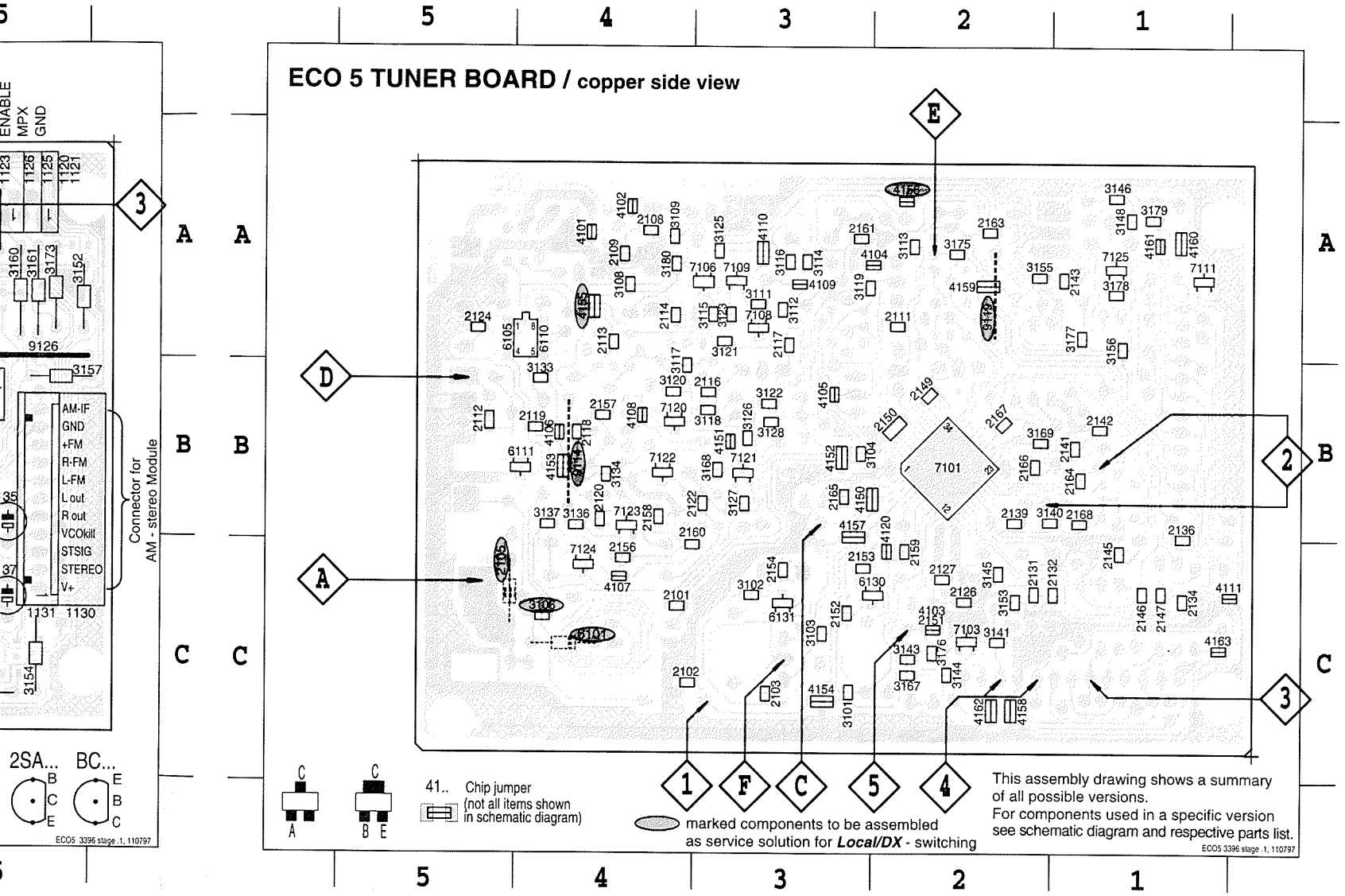


TUNER ADJUSTMENT TABLE (ECO5 FM/AM- and FM/AM/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	◇1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
AM FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/AM- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
AM FM/AM/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 2141	5119	◇2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz 1)
AM IF						
AM	450kHz connect pin 6 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	◇C Δf=±15kHz V_{RF} = 3mV	IC 7101 36 100nF 220R	5111	◇4	max. f_o symmetric
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **AM**		◇C continuous wave V_{RF} = 10mV		5114	◇2	0 ± 2 mV DC
AM RF 3)						
AM 4) FM/AM/LW- and FM/AM-version (9kHz grid) 531 - 1602kHz	1494kHz	◇B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	◇4	max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
AM FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5102		

ECO5, discr. coil, 090797

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)

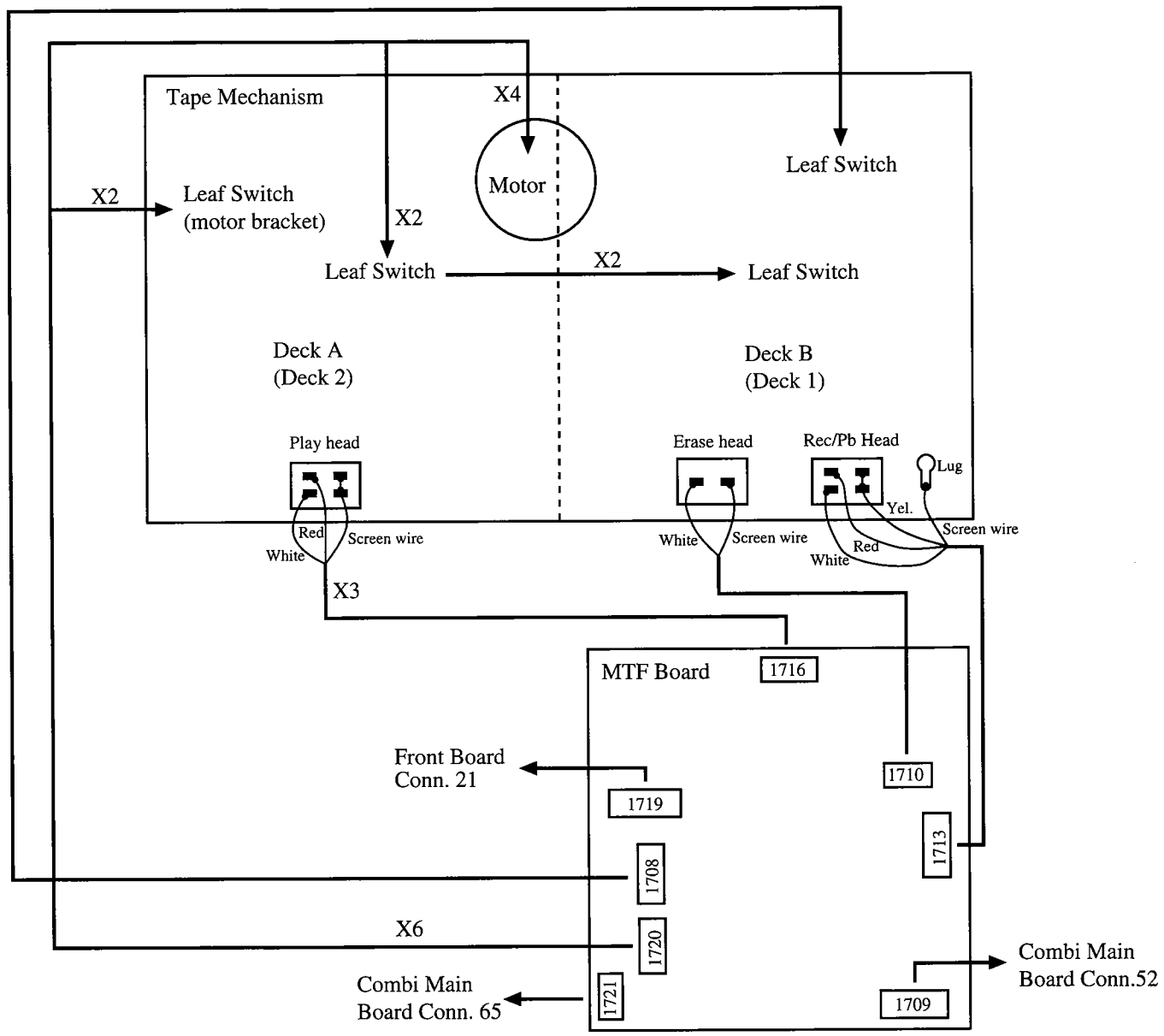
2) RC network serves for damping the IF-filter while adjusting the other one.

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

4) AM has to be aligned before LW.

↕ Repeat

TAPE DECK WIRING DIAGRAM

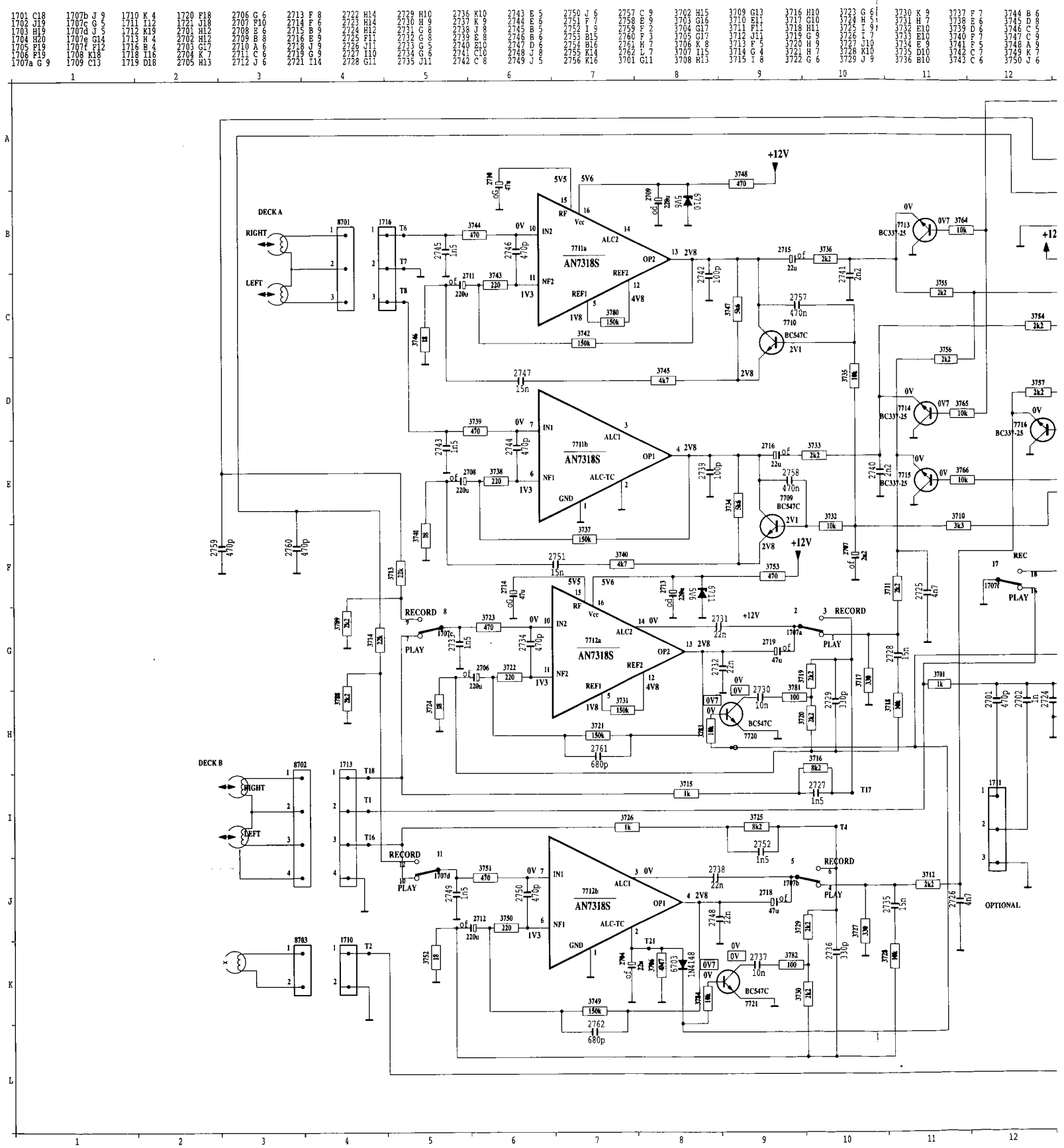


TAPE MECHANISM ADJUSTMENT

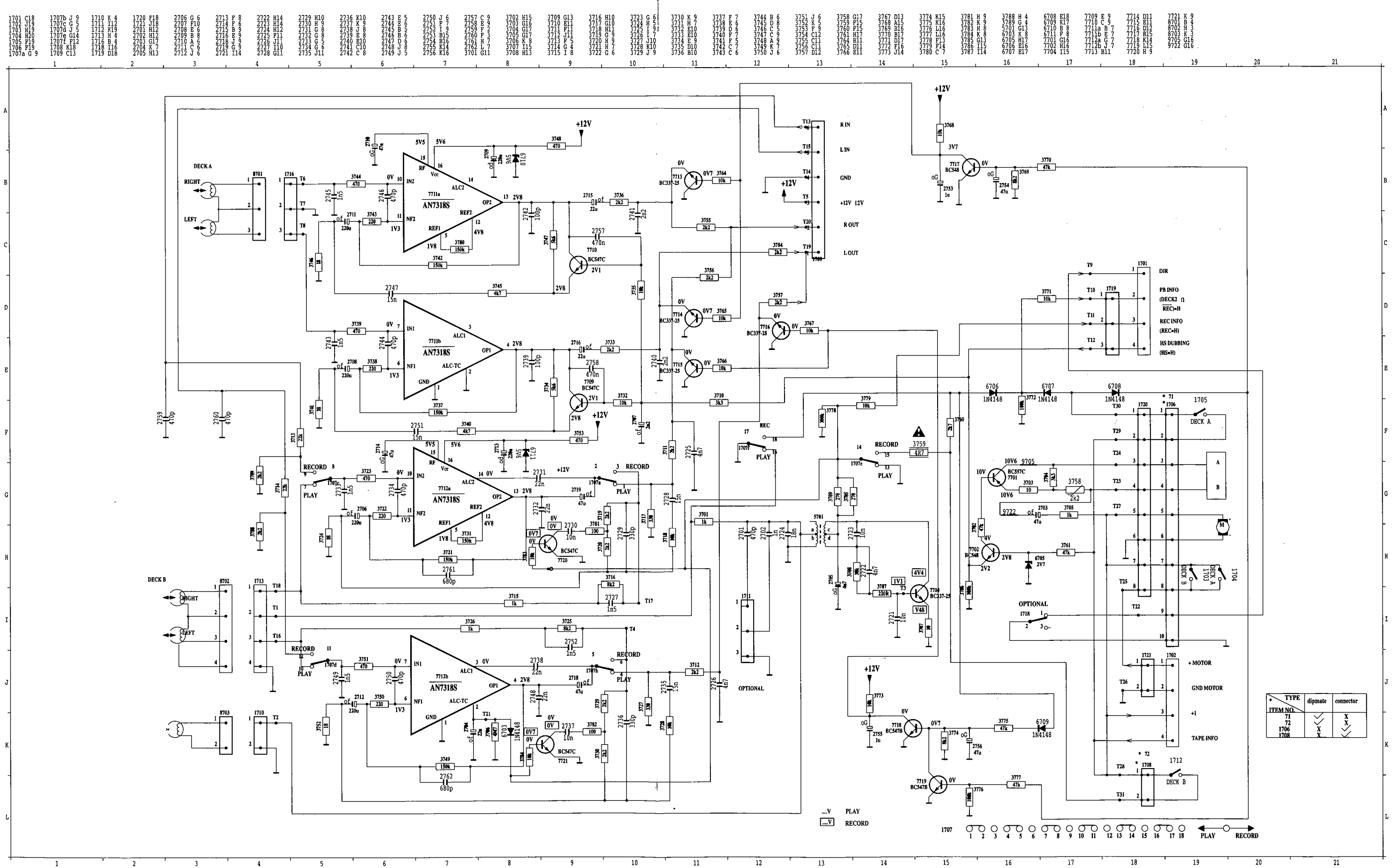
ADJUSTMENT	CASSETTE	DECK 1 (DECK B)	DECK 2 (DECK A)	MEASURE ON	READ ON	ADJUST WITH	ADJUST TO
Azimuth	10kHz	Play	-	L & R out T019/T020	mV-meter	Left hand screw of Play or R/P head	Maximum
	SBC420*	-	Play				L = R
Motor speed	3150Hz	Play	-	L & R out T019/T020	Wow and Futter meter	3758	**a
	SBC420*	-	Play				

* SBC 420: 4822 397 30071
**a: The maximum permissible speed deviation is +3/-2%. Moreover, the Wow & Flutter value can be read. This value should not exceed 0.4%.

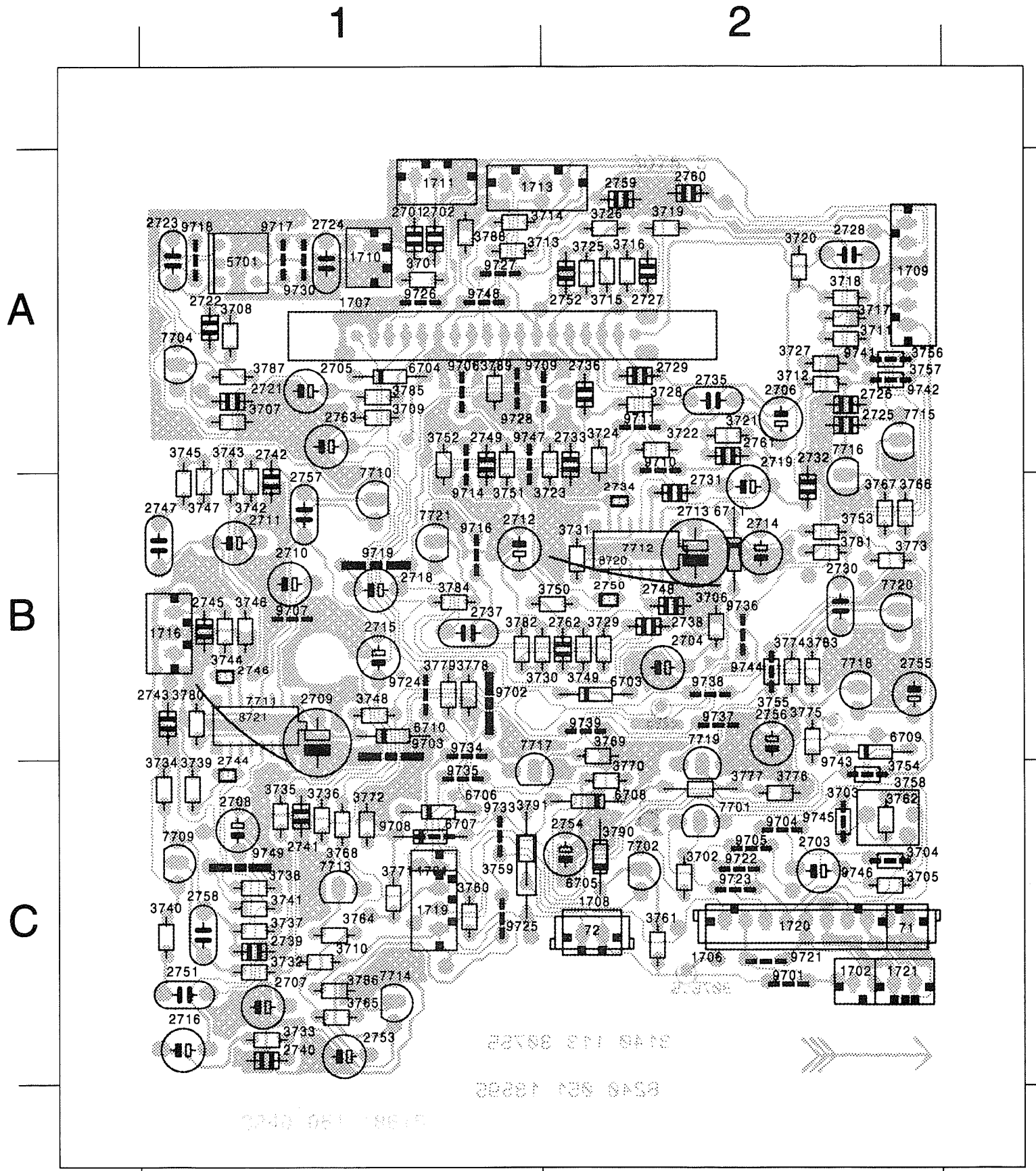
CASSETTE SCHEMATIC DIAGRA



CASSETTE SCHEMATIC DIAGRAM

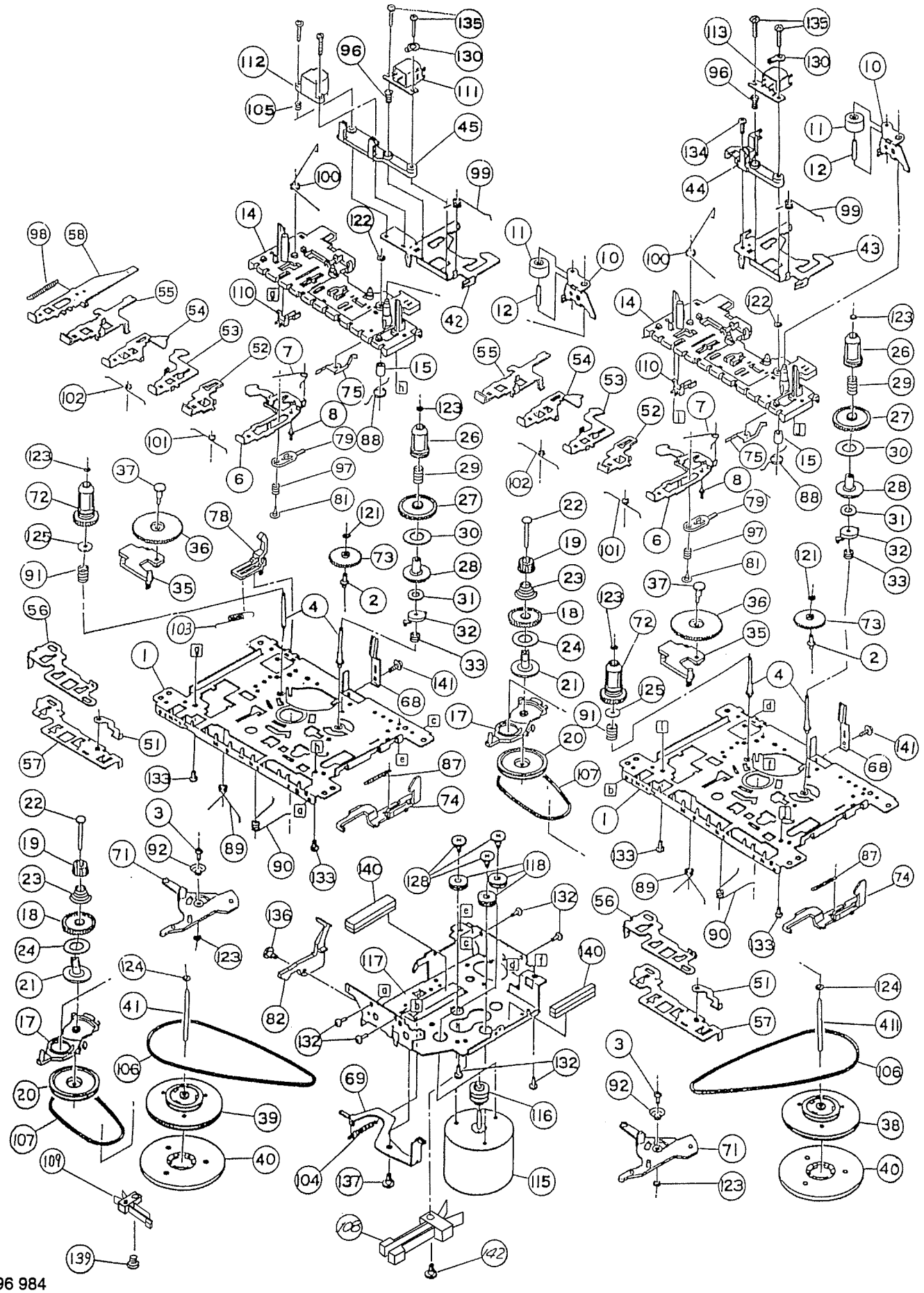


CASSETTE CBA



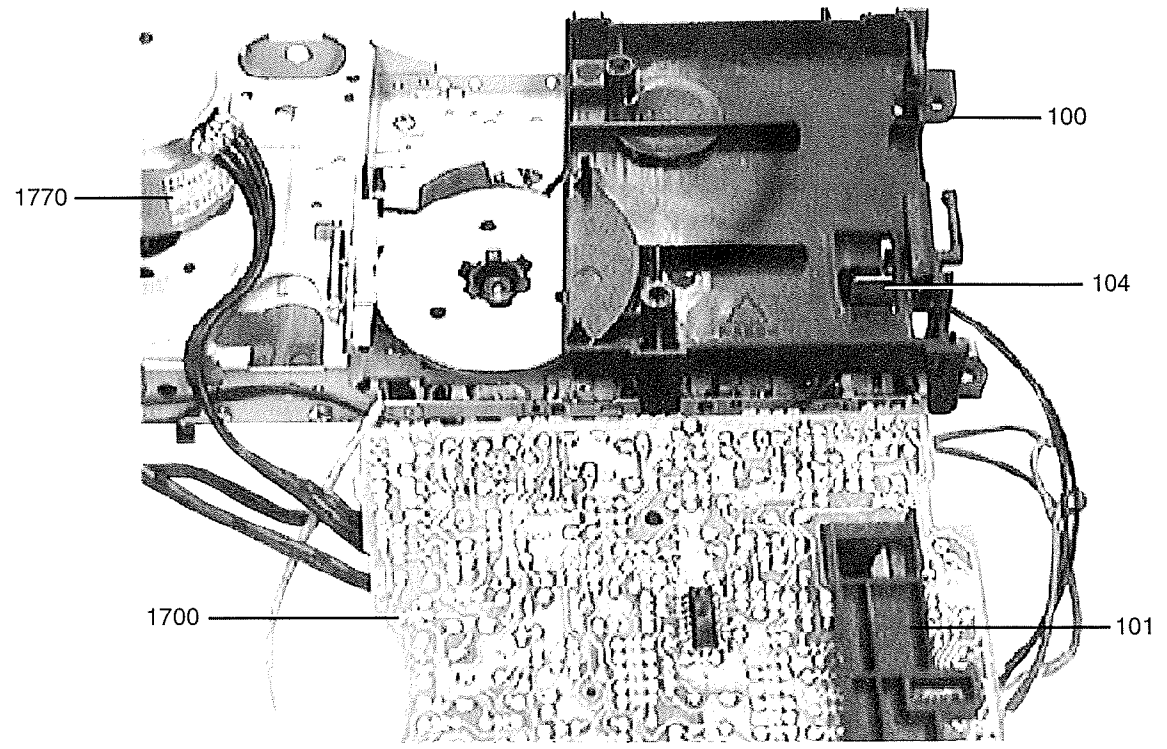
71 C 2	2744 C 1	3737 C 1	6704 A 1	9741 A 2
72 C 2	2745 B 1	3738 C 1	6705 C 2	9742 A 2
1701 C 1	2746 B 1	3739 C 1	6706 C 1	9743 C 2
1702 C 2	2747 B 1	3740 C 1	6707 C 1	9744 B 2
1706 C 2	2748 B 2	3741 C 1	6708 C 2	9745 C 2
1707 A 1	2749 A 1	3742 B 1	6709 B 2	9746 C 2
1708 C 2	2750 B 2	3743 B 1	6710 B 1	9747 A 1
1709 A 2	2751 C 1	3744 B 1	6711 B 2	9748 A 1
1710 A 1	2752 A 2	3745 B 1	7701 C 2	9749 C 1
1711 A 1	2753 C 1	3746 B 1	7702 C 2	
1713 A 1	2754 C 2	3747 B 1	7704 A 1	
1716 B 1	2755 B 2	3748 B 1	7709 C 1	
1719 C 1	2756 B 2	3749 B 2	7710 B 1	
1720 C 2	2757 B 1	3750 B 2	7711 B 1	
1721 C 2	2758 C 1	3751 A 1	7712 B 2	
2701 A 1	2759 A 2	3752 A 1	7713 C 1	
2702 A 1	2760 A 2	3753 B 2	7714 C 1	
2703 C 2	2761 A 2	3754 C 2	7715 A 2	
2704 B 2	2762 B 2	3755 B 2	7716 B 2	
2705 A 1	2763 A 1	3756 A 2	7717 C 1	
2706 A 2	3701 A 1	3757 A 2	7718 B 2	
2707 C 1	3702 C 2	3758 C 2	7719 C 2	
2708 C 1	3703 C 2	3759 C 1	7720 B 2	
2709 B 1	3704 C 2	3760 C 1	7721 B 1	
2710 B 1	3705 C 2	3761 C 2	9701 C 2	
2711 B 1	3706 B 2	3762 C 2	9702 B 1	
2712 B 1	3707 A 1	3764 C 1	9703 B 1	
2713 B 2	3708 A 1	3765 C 1	9704 C 2	
2714 B 2	3709 A 1	3766 B 2	9705 C 2	
2715 B 1	3710 C 1	3767 B 2	9706 A 1	
2716 C 1	3711 A 2	3768 C 1	9707 B 1	
2718 B 1	3712 A 2	3769 B 2	9708 C 1	
2719 B 2	3713 A 1	3770 C 2	9709 A 2	
2721 A 1	3714 A 1	3771 C 1	9710 A 2	
2722 A 1	3715 A 2	3772 C 1	9711 A 2	
2723 A 1	3716 A 2	3773 B 2	9714 A 1	
2724 A 1	3717 A 2	3774 B 2	9716 B 1	
2725 A 2	3718 A 2	3775 B 2	9717 A 1	
2726 A 2	3719 A 2	3776 C 2	9718 A 1	
2727 A 2	3720 A 2	3777 C 2	9719 B 1	
2728 A 2	3721 A 2	3778 B 1	9721 C 2	
2729 A 2	3722 A 2	3779 B 1	9722 C 2	
2730 B 2	3723 A 2	3780 B 1	9723 C 2	
2731 B 2	3724 A 2	3781 B 2	9724 B 1	
2732 B 2	3725 A 2	3782 B 1	9725 C 1	
2733 A 2	3726 A 2	3783 B 2	9726 A 1	
2734 B 2	3727 A 2	3784 B 1	9727 A 1	
2735 A 2	3728 A 2	3785 A 1	9728 A 1	
2736 A 2	3729 B 2	3786 C 1	9730 A 1	
2737 B 1	3730 B 2	3787 A 1	9733 C 1	
2738 B 2	3731 B 2	3788 A 1	9734 B 1	
2739 C 1	3732 C 1	3789 A 1	9735 C 1	
2740 C 1	3733 C 1	3790 C 2	9736 B 2	
2741 C 1	3734 C 1	3791 C 1	9737 B 2	
2742 B 1	3735 C 1	5701 A 1	9738 B 2	
2743 B 1	3736 C 1	6703 B 2	9739 B 2	

TAPE MECHANISM EXPLODED VIEW



PCS 96 984

MTF MODULE



MTF MODULE MECHANICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description
MTF MODULE		
101	4822 402 10126	Lever Recording
104	4822 492 11061	Spring Recording
1770	4822 691 10669	Tape Mechanism CDS-83WPC

Note: Only the parts listed are normal service spare parts.

Ref.	Part No.	Description
TAPE MECHANISM		
10-12	4822 528 11189	Pinch Roller Assembly
17-24	4822 402 10966	FR Arm Assembly
38-41	4822 528 11242	Flywheel (W) Assembly
39-41	4822 528 11243	Flywheel Assembly
106	4822 358 31225	Main Belt (W2) 1.1x59.5
107	4822 358 31124	Sub Belt
108	4822 277 11753	Leaf Switch
109	4822 277 11754	Leaf Switch
110	4822 278 90663	Leaf Switch
111	4822 249 30218	Rec/PB Head
112	4822 249 10548	Erase Head
113	4822 249 30218	Play Head
115-116	4822 361 11053	Motor Assembly
118	4822 466 11787	Motor Cushion
122	4822 532 12937	Washer PSW-S 1.6x3.5x0.4

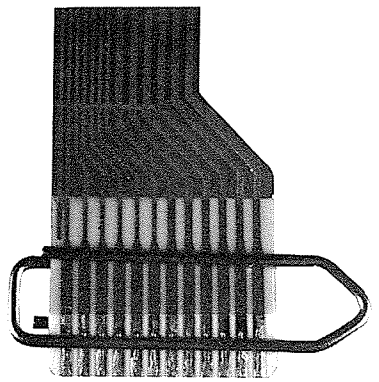
Note: Only the parts listed are normal service spare parts.

3CDC MODULE SERVICING HINTS

Replacement of CD Drive

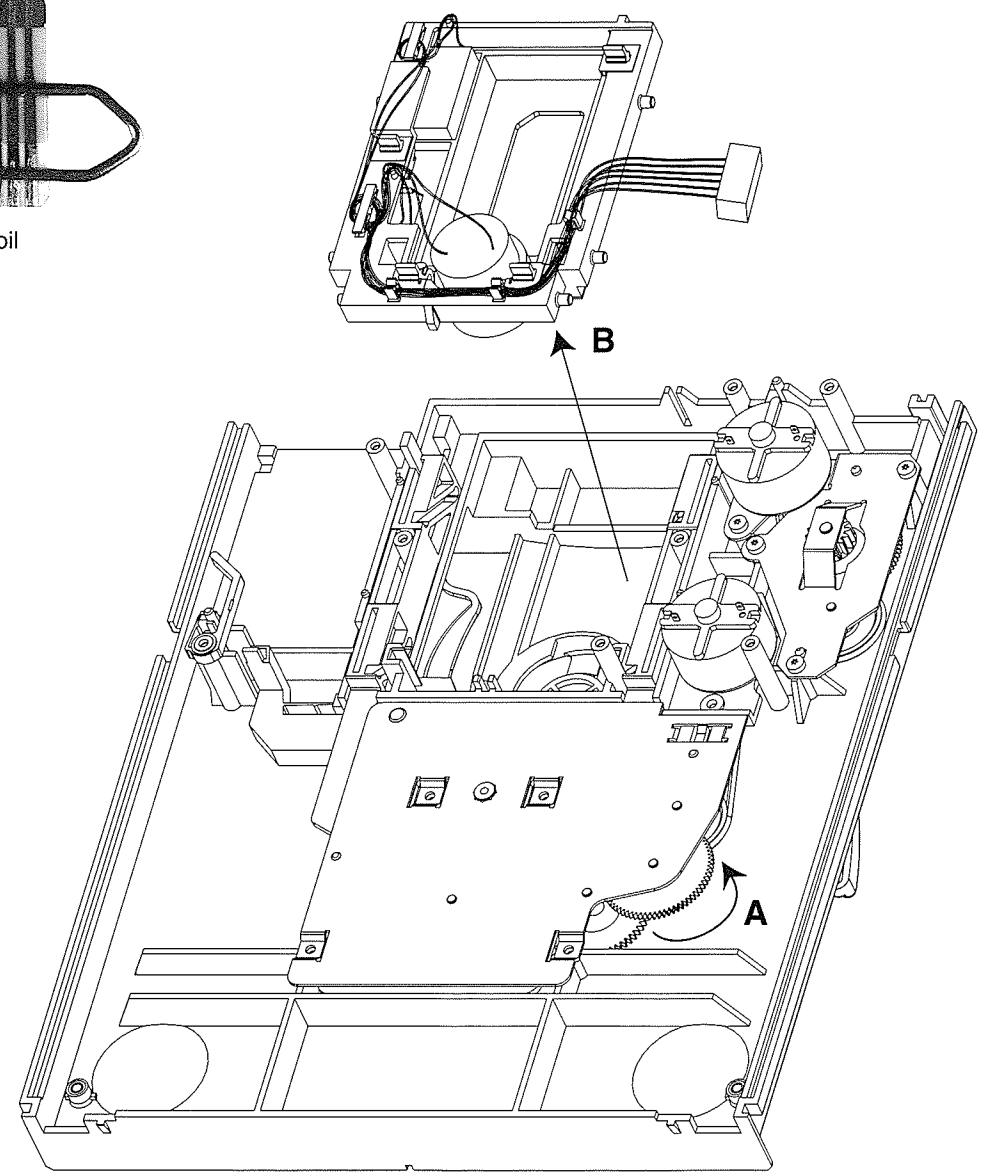
See also exploded view of changer mechanism.

1. Demount flex plate (pos 140).
2. Demount printed circuit board: remove 6 screws and desolder lips of tray motor and carousel motor.
3. Disconnect flexfoil and JST connector of CD drive from printed circuit board. Short circuit the flexfoil with a paperclip to protect the laser against ESD.



CD drive flex foil

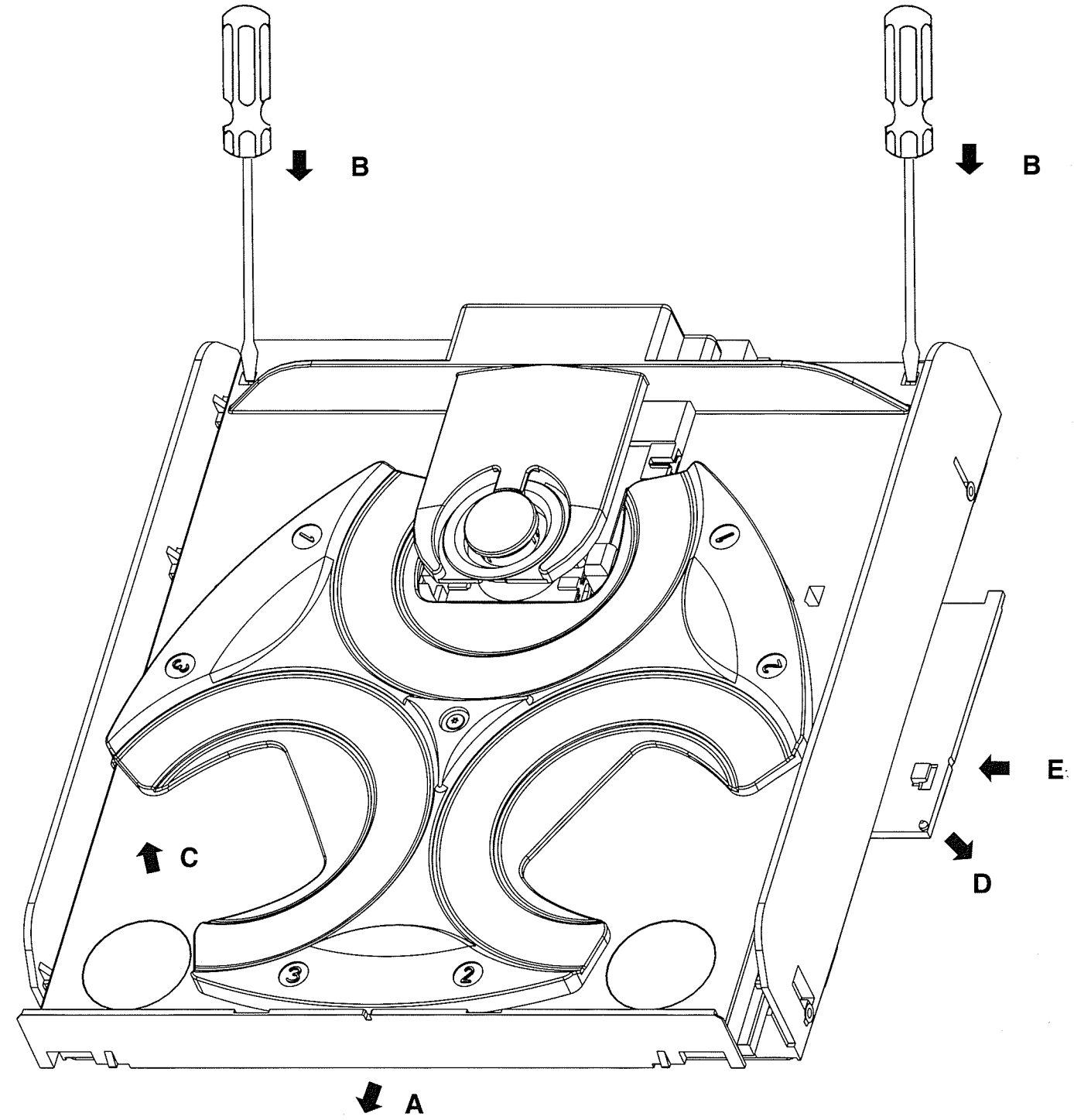
4. Remove 2 screws (pos 107,108) and demount CD drive lockings (pos 105,106).
5. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below Ⓐ.
6. Demount CD drive support (pos 95) Ⓑ.
7. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive.



Mounting of Carousel

1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carousel (pos 115) so that disc is positioned right on turn table. Carousel position number doesn't matter.

3CDC MODULE DISASSEMBLY



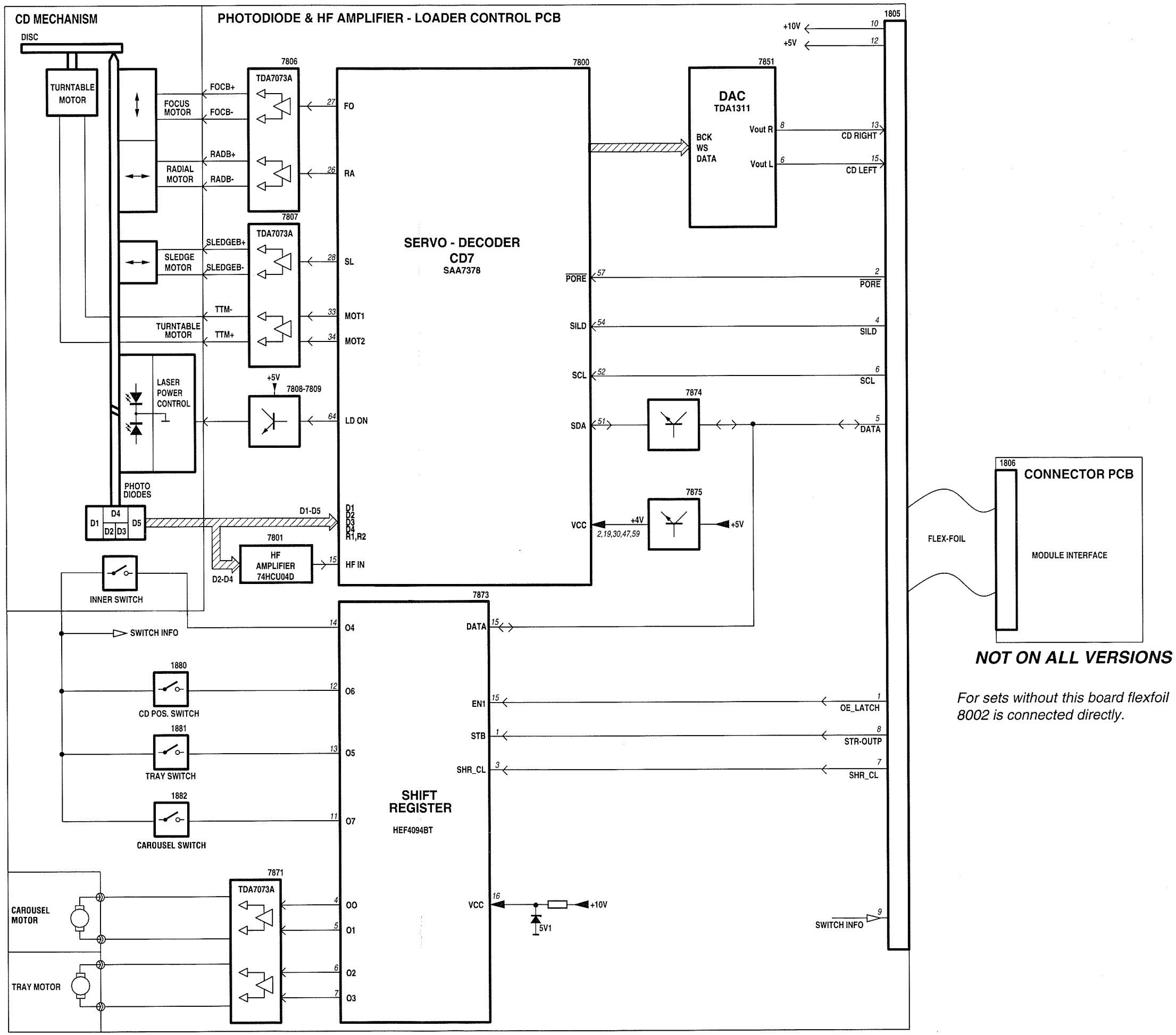
Demounting of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to demount from chassis

Demounting of Flex Plate

→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to demount from bottom plate

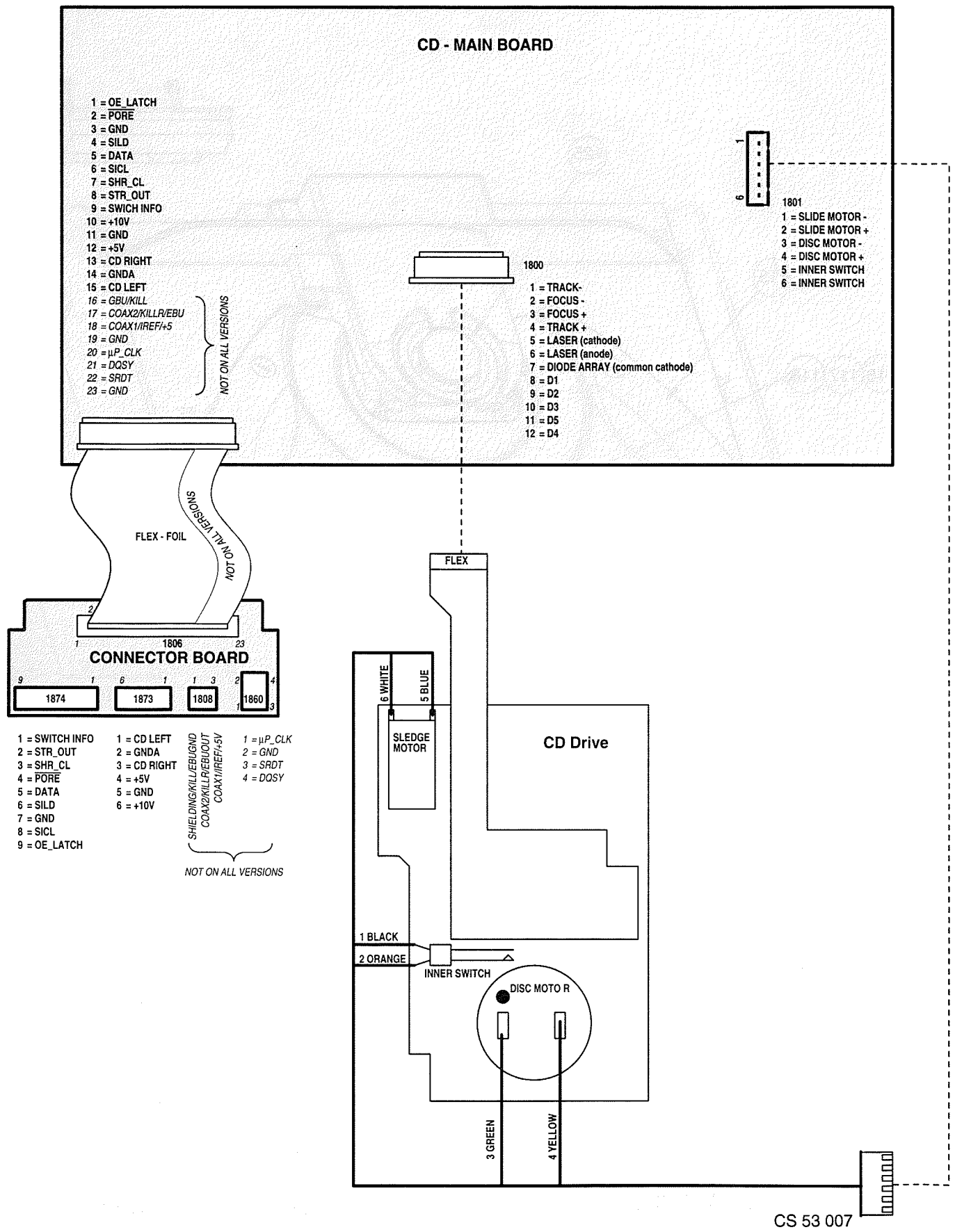
3CDC MODULE BLOCK DIAGRAM



NOT ON ALL VERSIONS

For sets without this board flexfoil 8002 is connected directly.

3CDC MODULE WIRING DIAGRAM

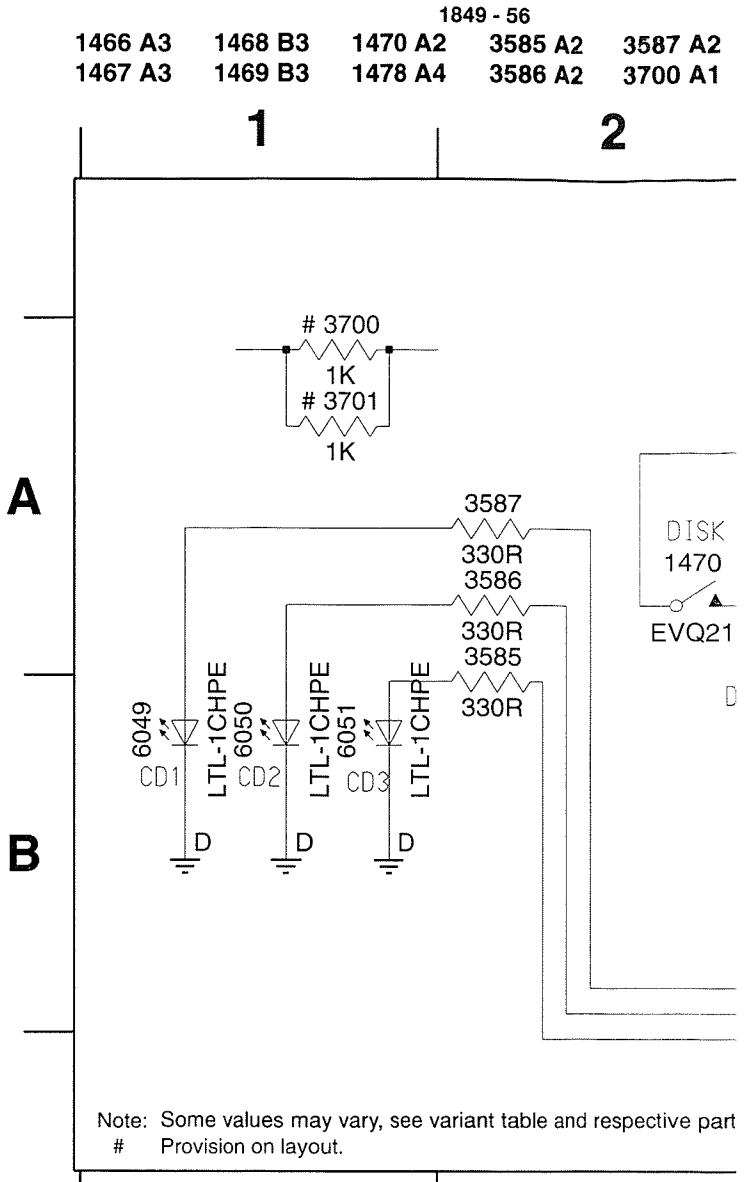


CS 53 007

KEY-CDC PART

KEY-CDC SCHEMATIC DIAGRAM

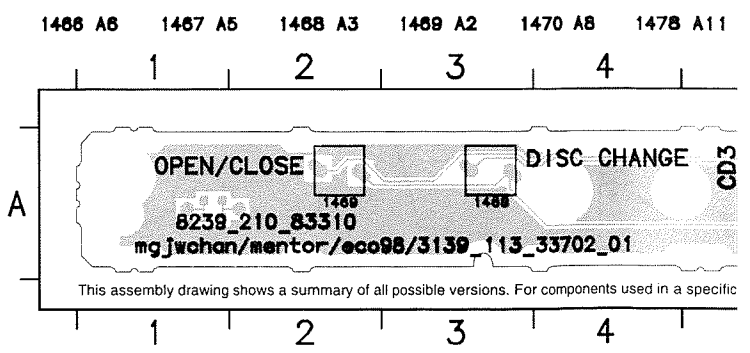
1466 A3 1468 B3 1470 A2 3585 A2 3587 A2
1467 A3 1469 B3 1478 A4 3586 A2 3700 A1



Note: Some values may vary, see variant table and respective part
Provision on layout.

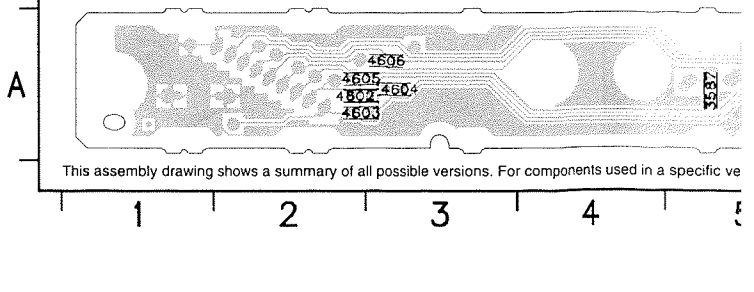
KEY-CDC BOARD - COMPONENT VIEW

1466 A6 1467 A5 1468 A3 1469 A2 1470 A8 1478 A11



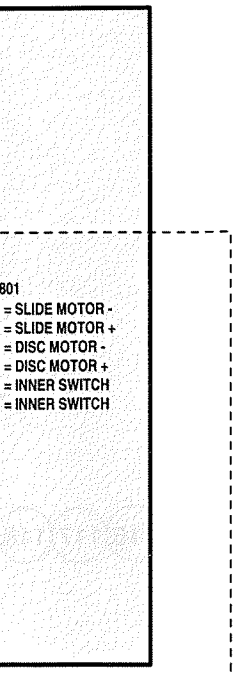
3585 A8 3586 A6 3587 A5 3700 A12 3701 A12 4601 A8

KEY-CDC BOARD - COPPER SIDE VIEW



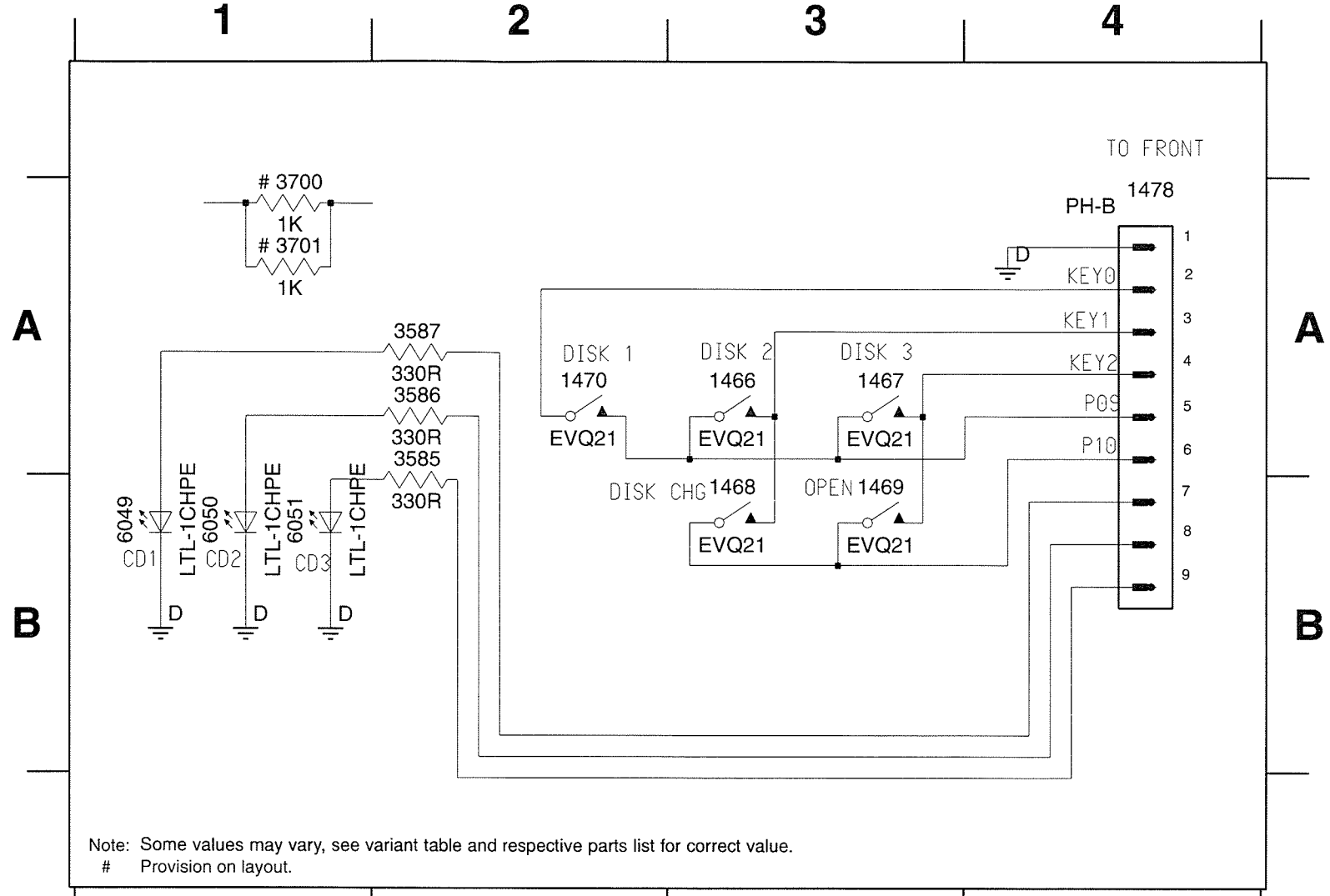
KEY-CDC PART

KEY-CDC SCHEMATIC DIAGRAM



S 53 007

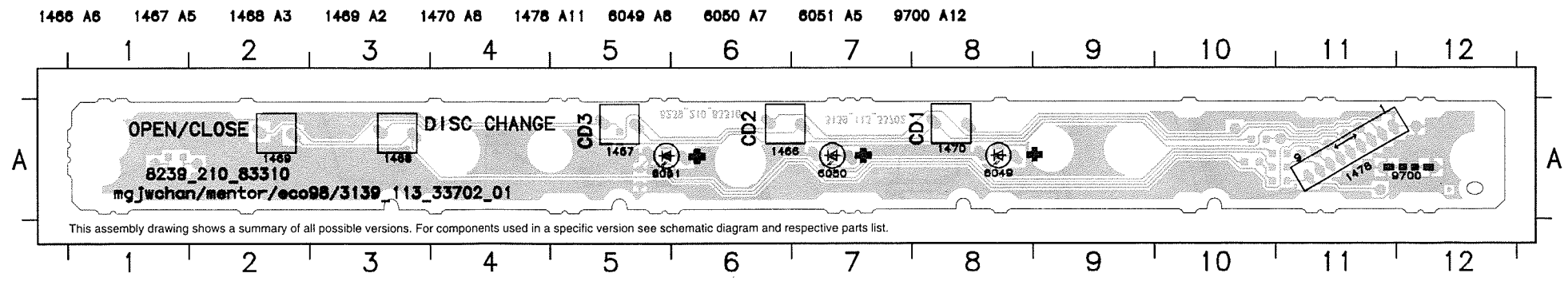
1466 A3 1468 B3 1470 A2 3585 A2 3587 A2 3701 A1 6050 B1
1467 A3 1469 B3 1478 A4 3586 A2 3700 A1 6049 B1 6051 B1



Note: Some values may vary, see variant table and respective parts list for correct value.
Provision on layout.

KEY-CDC BOARD - COMPONENT VIEW

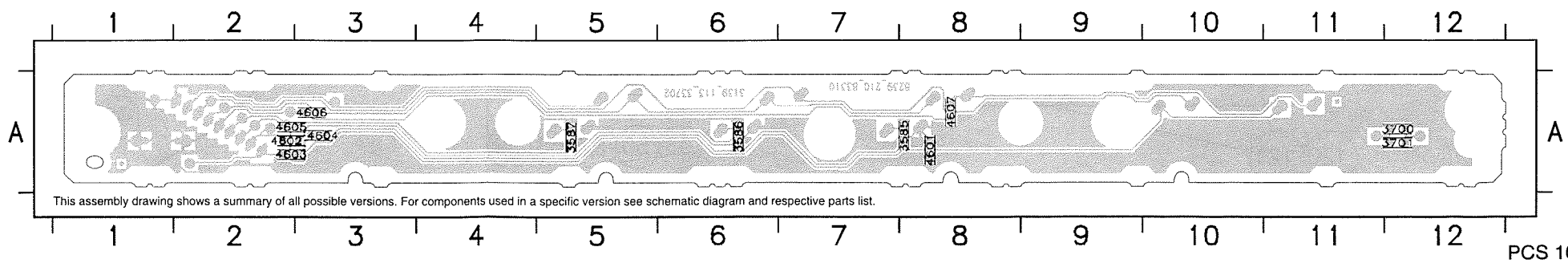
1466 A6 1467 A5 1468 A3 1469 A2 1470 A8 1478 A11 6049 A8 6050 A7 6051 A5 9700 A12



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

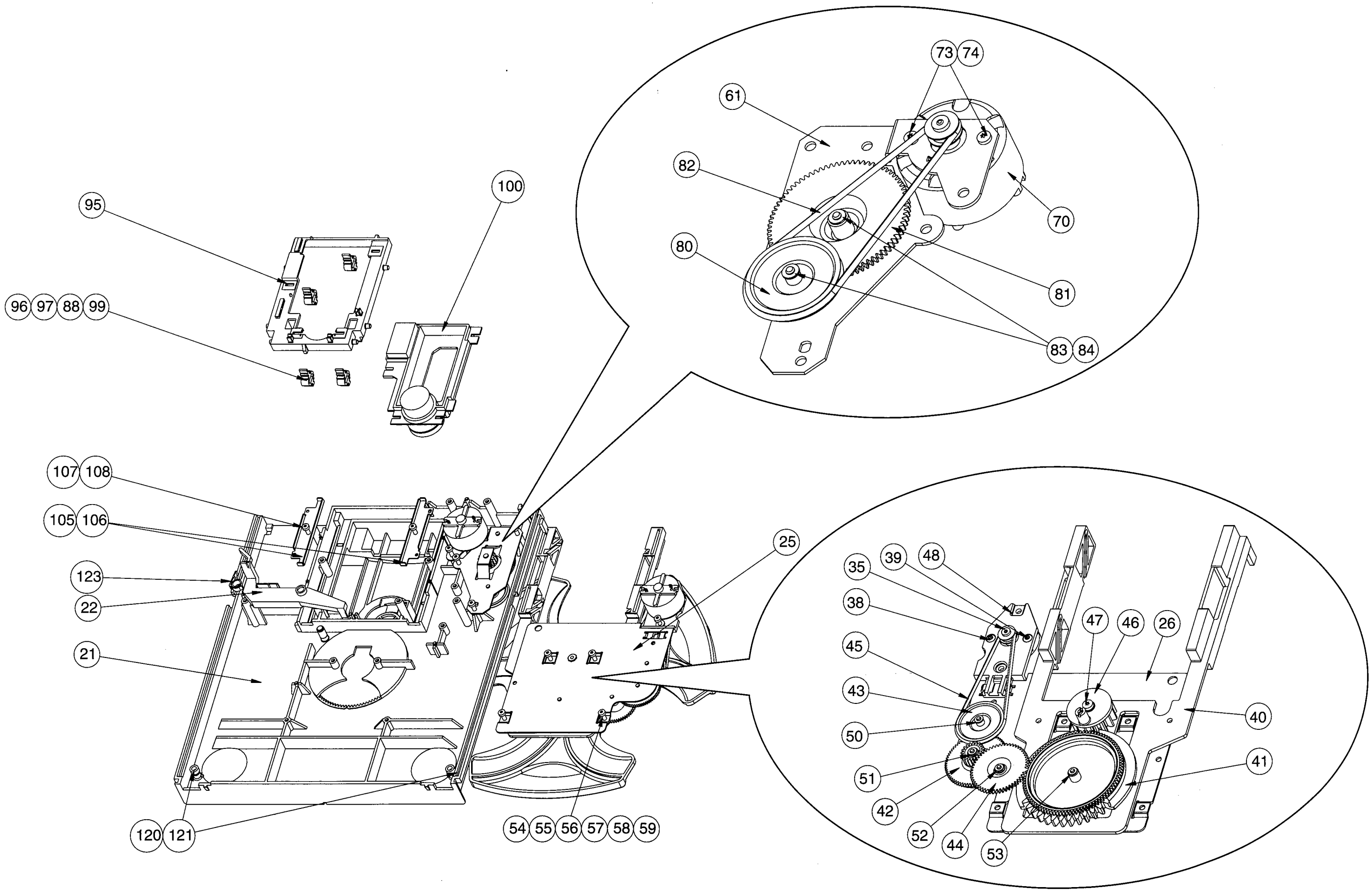
KEY-CDC BOARD - COPPER SIDE VIEW

3585 A8 3586 A6 3587 A5 3700 A12 3701 A12 4601 A8 4602 A2 4603 A2 4604 A3 4605 A2 4606 A3 4607 A8



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

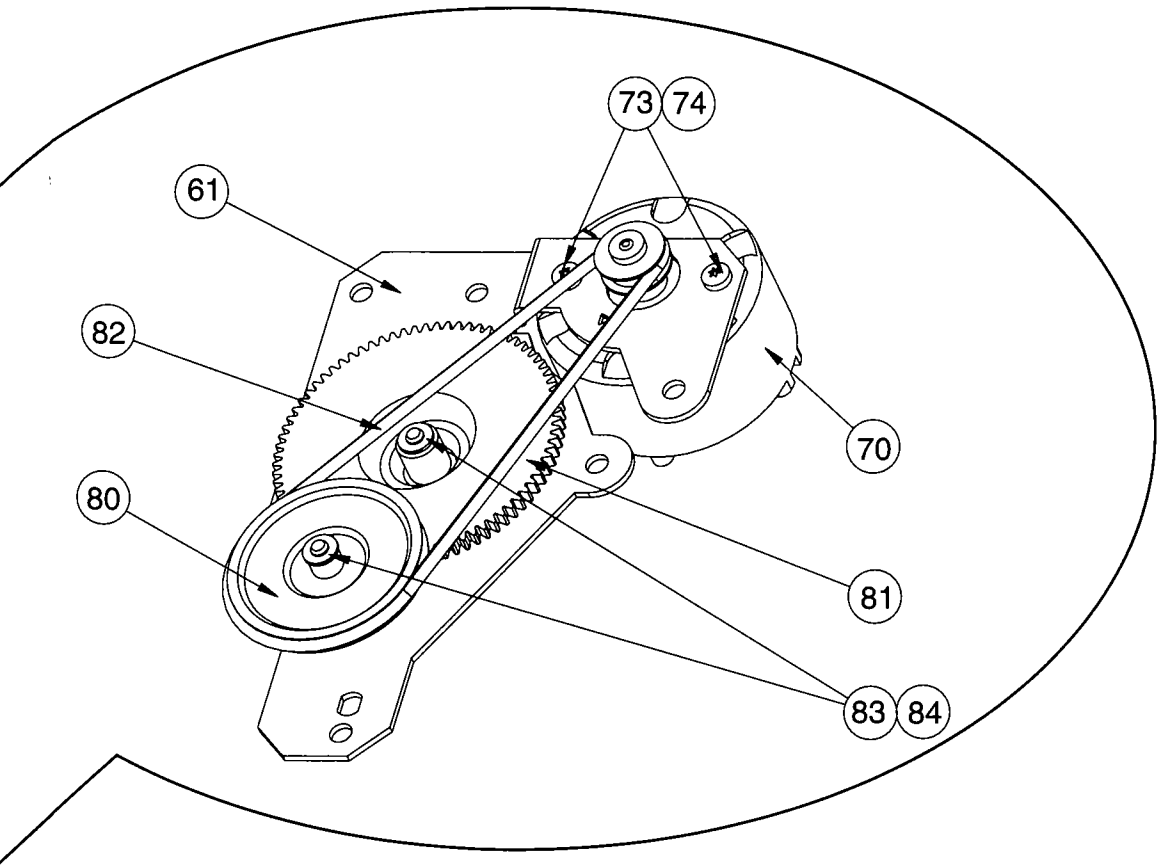
3CDC MODULE EXPLODED VIEW AND MECHANICAL REPLACEMENT PARTS LIST

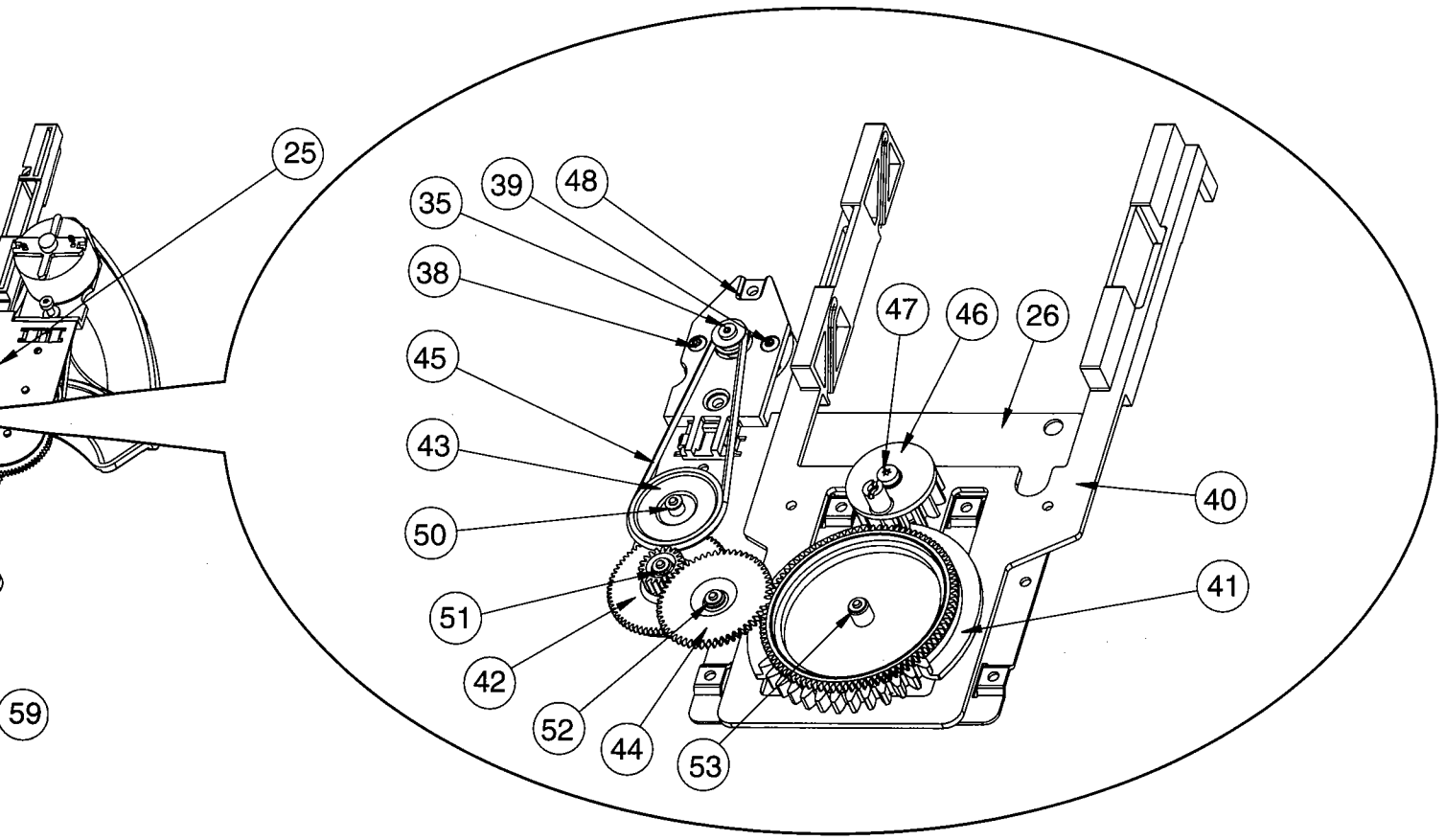


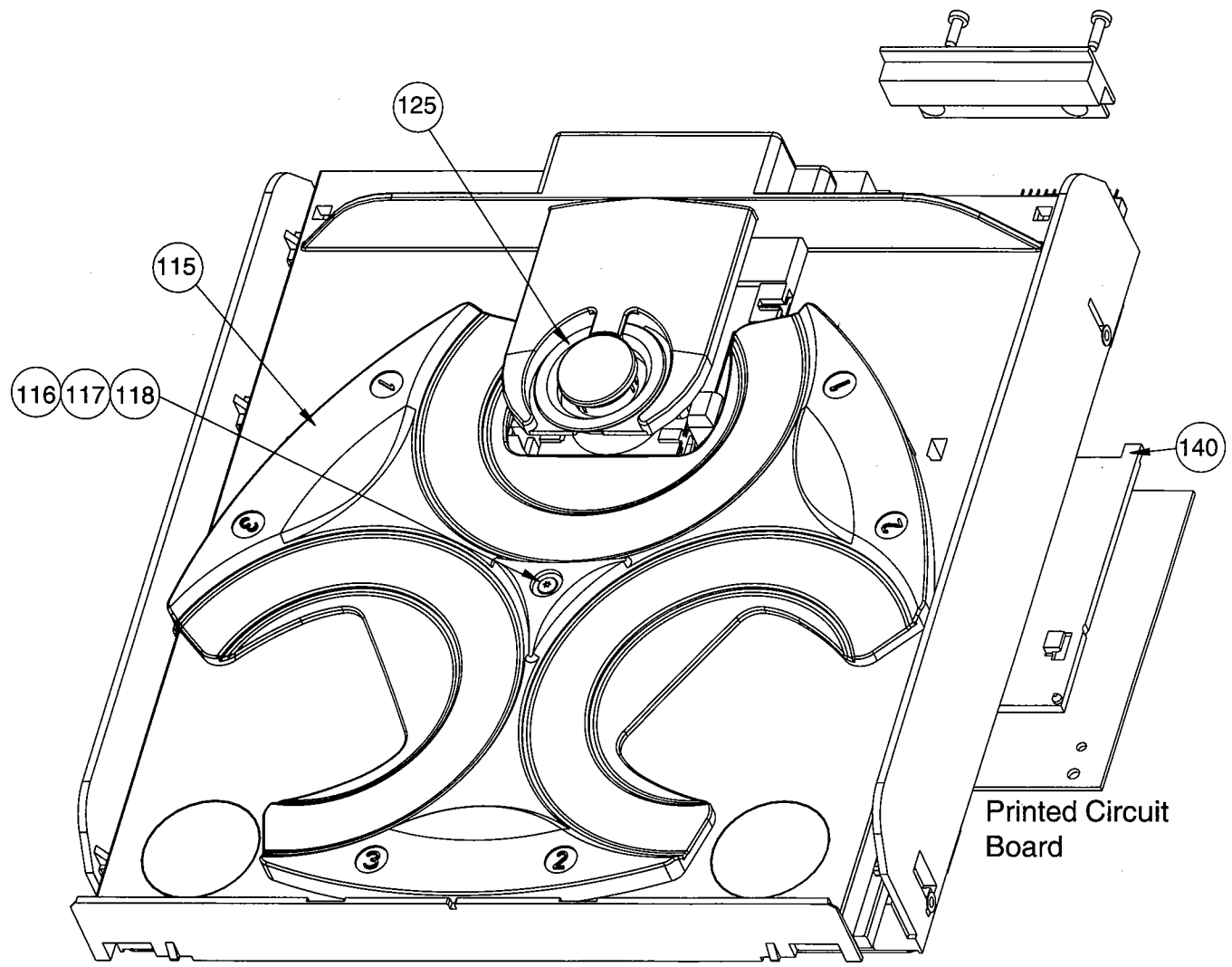
3CDC MODULE M

Ref.	Part No.
	4822 390 10136
3	4822 463 11008
4	4822 463 11009
21	4822 441 11615
22	4822 402 10088
38	4822 502 12548
39	4822 502 12548
40	4822 463 11011
41	4822 522 10509
42	4822 522 10492

3CDC MODULE EXPLODED VIEW AND MECHANICAL REPLACEMENT PARTS LIST



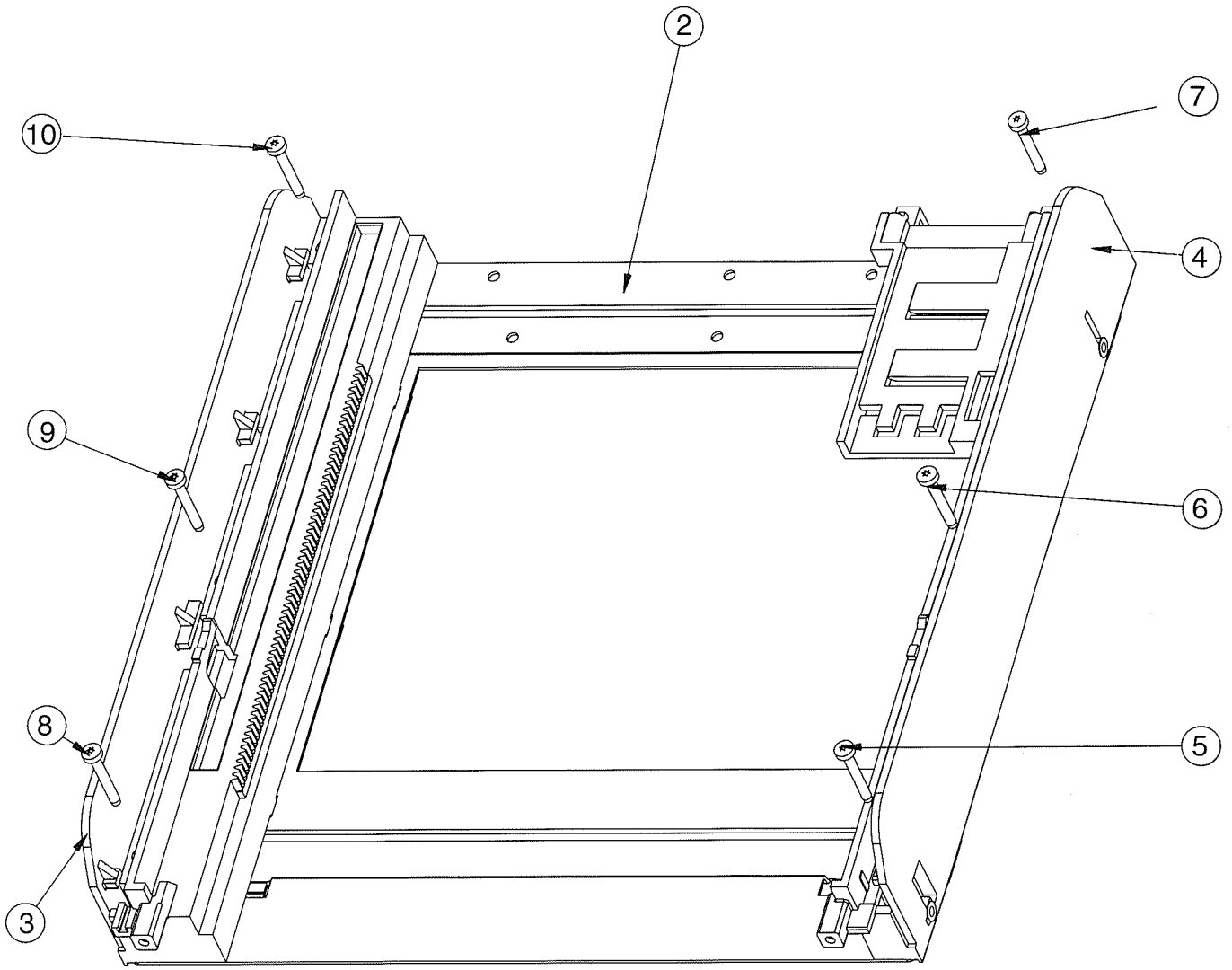




3CDC MODULE MECHANICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description	Ref.	Part No.	Description
	4822 390 10136	POLYLUB GLY801 (GREASE)	43	4822 528 10937	PULLEY
3	4822 463 11008	GUIDE LEFT	44	4822 522 10493	IDLER WHEEL
4	4822 463 11009	GUIDE RIGHT	45	4822 358 10115	BELT
21	4822 441 11615	DRAWER	46	4822 466 10735	ECCENTRIC GEAR WHEEL
22	4822 402 10088	BRACKET TUMBLER	50	4822 532 12364	WASHER
38	4822 502 12548	SCREW M2.6X3.5	51	4822 532 12364	WASHER
39	4822 502 12548	SCREW M2.6X3.5	52	4822 532 12364	WASHER
40	4822 463 11011	SLIDE	53	4822 532 12364	WASHER
41	4822 522 10509	CONTROL DISC	35	4822 361 10753	CAROUSEL MOTOR
42	4822 522 10492	GEAR WHEEL	70	4822 361 10753	CAROUSEL MOTOR

3CDC MODULE EXPLODED VIEW AND MECHANICAL REPLACEMENT PARTS LIST (CONTINUED)



3CDC MODULE MECHANICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
73	4822 502 12548	SCREW M2.6X3.5
74	4822 502 12548	SCREW M2.6X3.5
80	4822 528 10937	PULLEY
81	4822 522 10494	GEAR DRAWER
82	4822 358 10115	BELT
83	4822 532 12364	WASHER
84	4822 532 12364	WASHER
95	4822 404 10894	SUPPORT
96	4822 325 50215	SUSPENSION
97	4822 325 50215	SUSPENSION
98	4822 325 50215	SUSPENSION
99	4822 325 50215	SUSPENSION
100	4822 691 10615	CD DRIVE VAM1201
115	4822 466 10736	CAROUSEL
117	4822 532 12365	BUSH DRAWER
120	4822 532 51756	GROMMET
121	4822 532 51756	GROMMET
123	4822 402 10085	SWITCH BRACKET
125	4822 401 11708	DISC CLAMP
140	4822 466 10734	PLATE

3CDC MODULE REPLACEMENT

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 CDM mechanism:

1. Disconnect old CD drive flexfoil from printed board
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Short-circuit printed board with **brass-sheet (4822 321 11197)** plugged into the flexfoil connector (fig.2)
4. Remove old CD drive mechanism
5. Position new CD mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CD drive
8. Connect new flexfoil to print connector (fig.3)

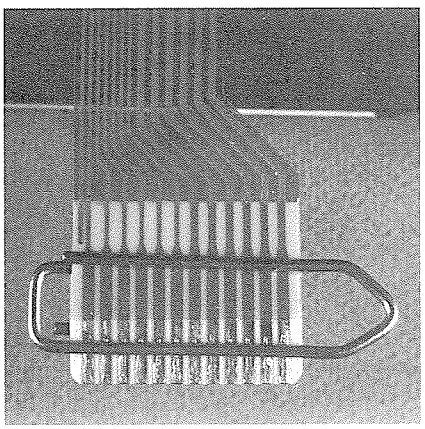


fig.1

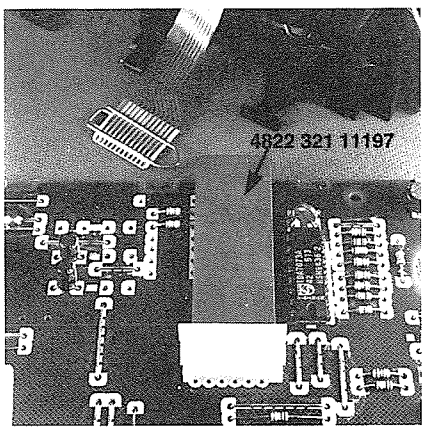


fig.2

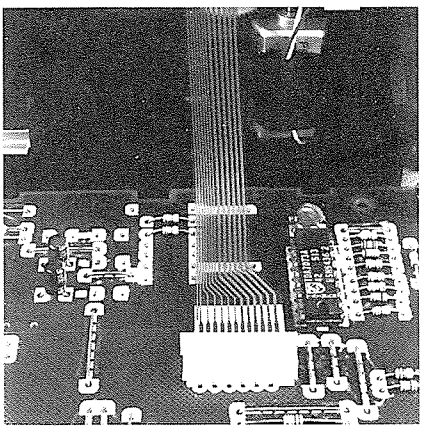
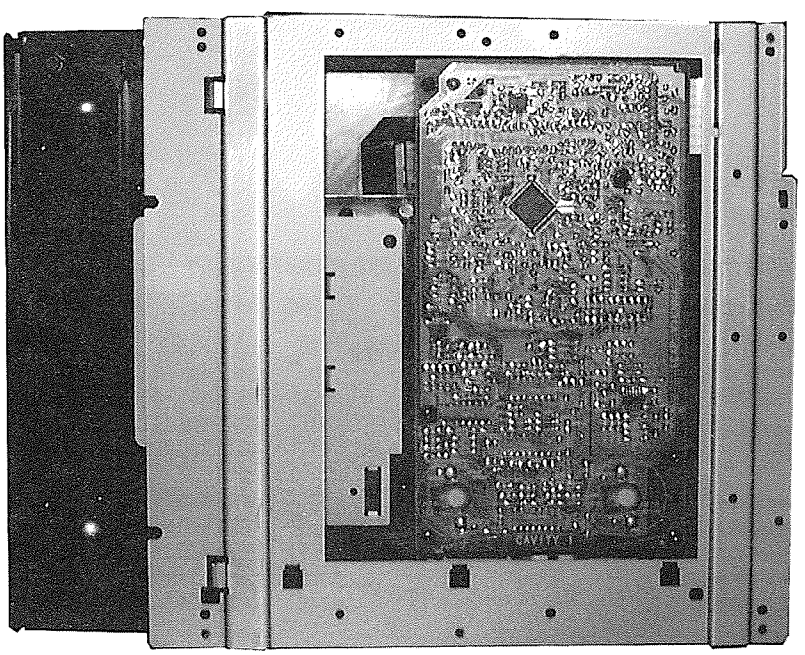


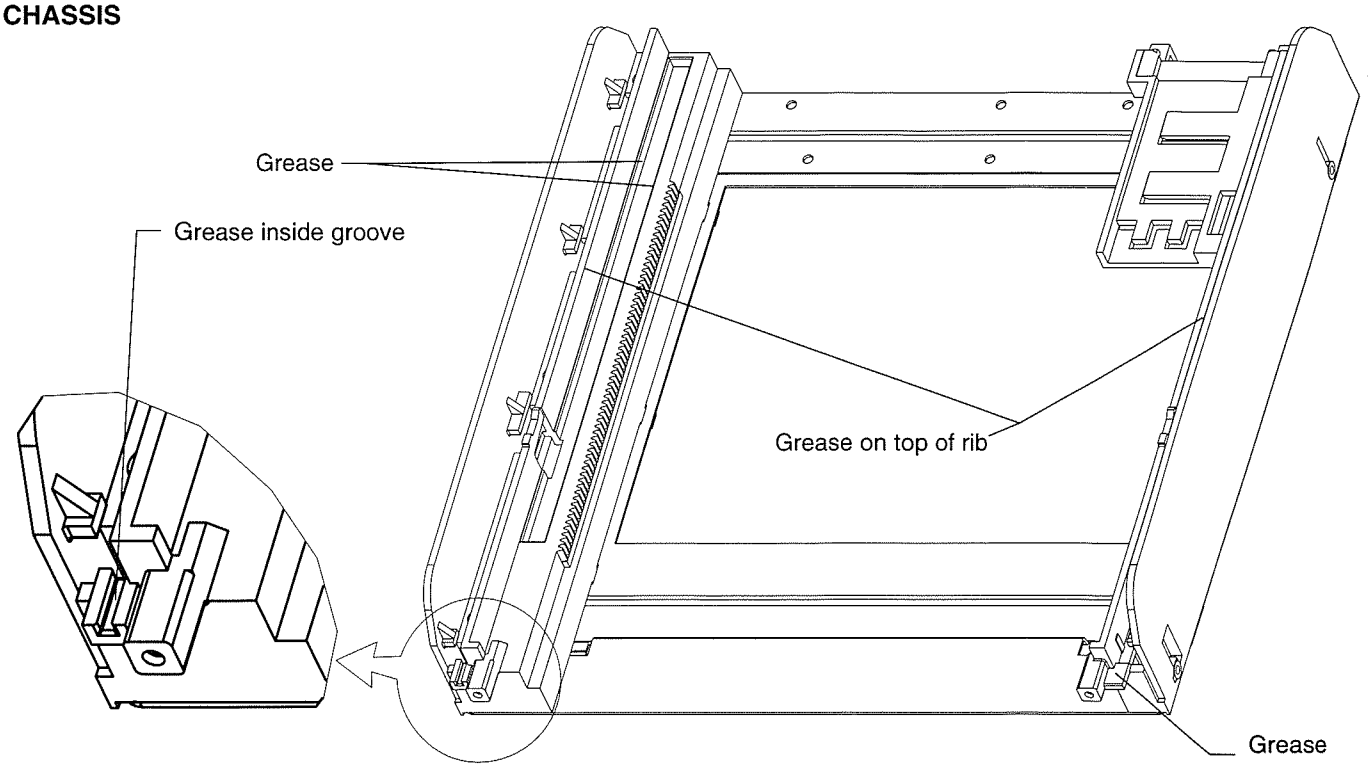
fig.3

Service Position

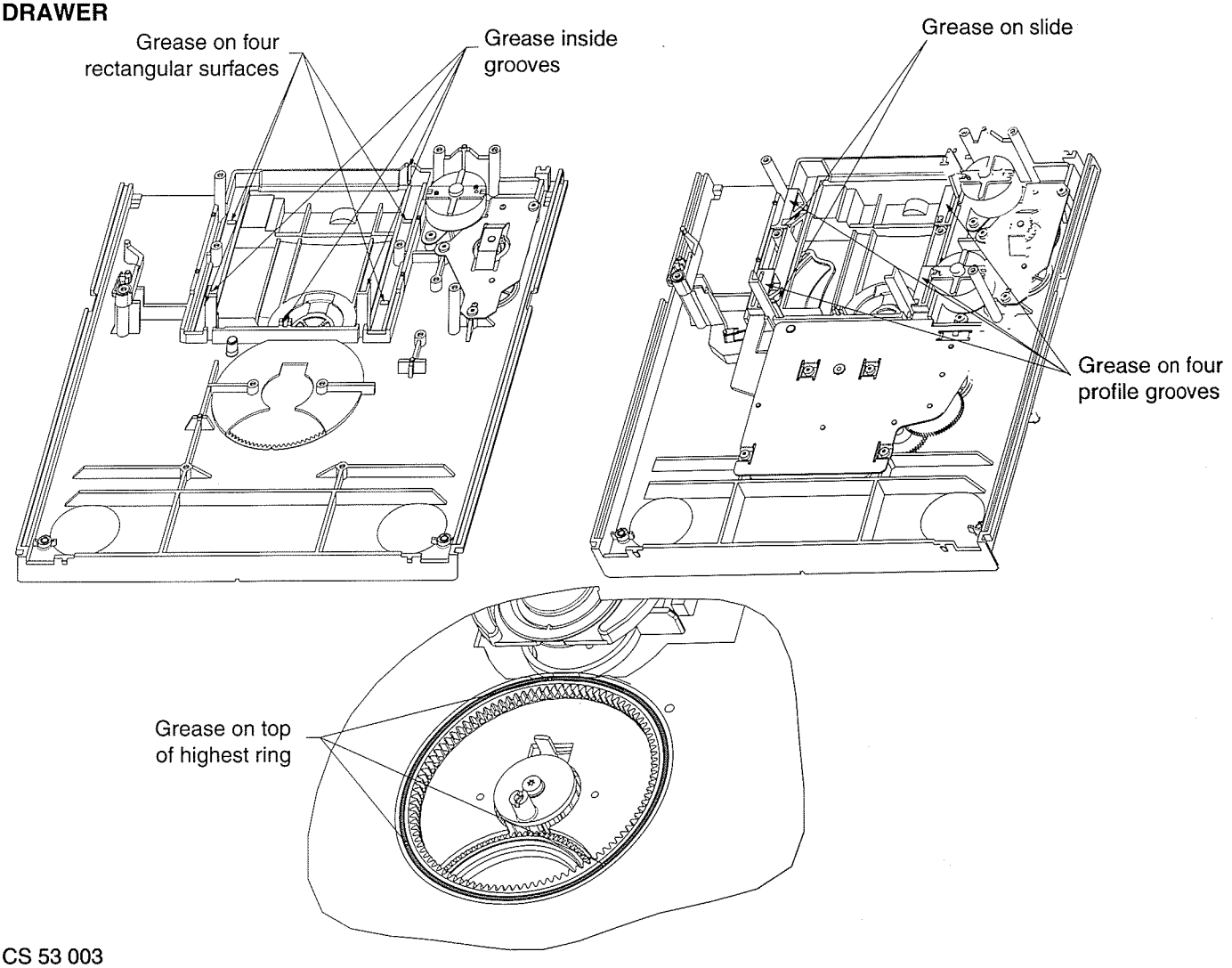


3CDC MODULE LUBRICATION INSTRUCTIONS

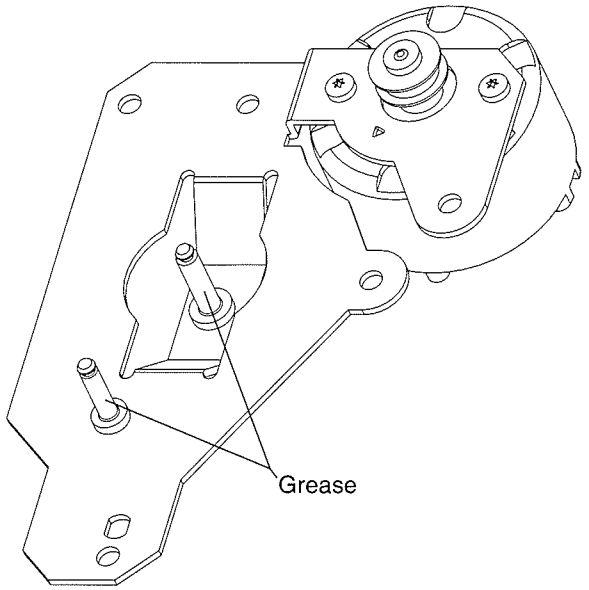
CHASSIS



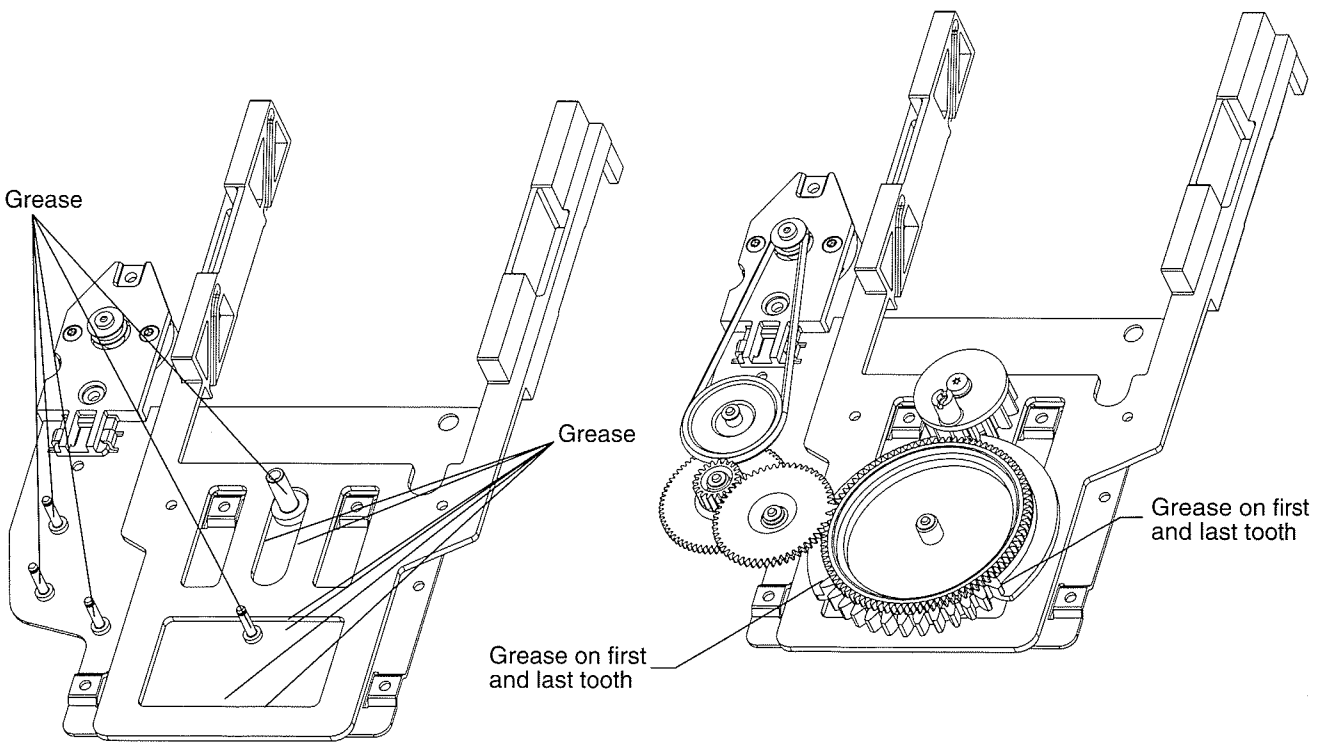
DRAWER



DRAWER MECHANISM

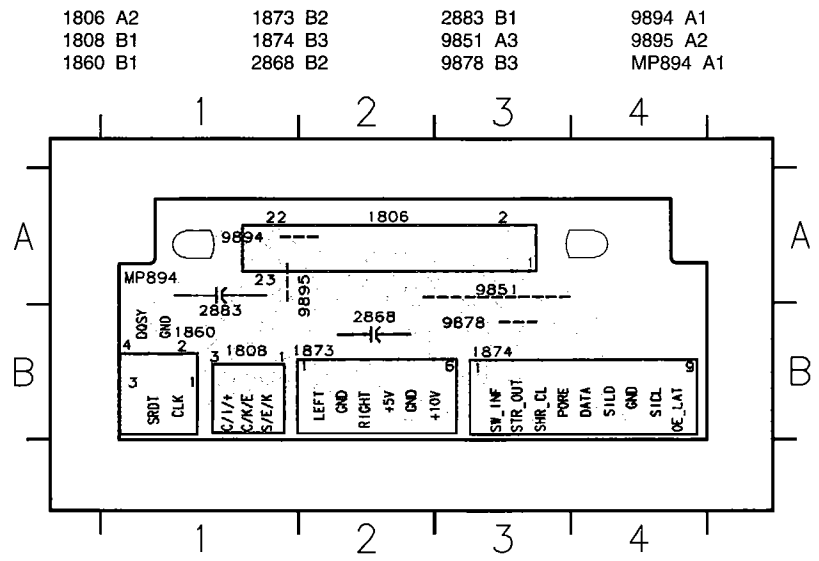


DISC CHANGE MECHANISM

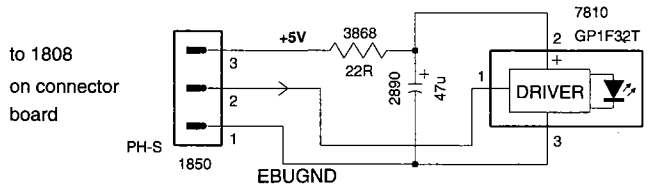


Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

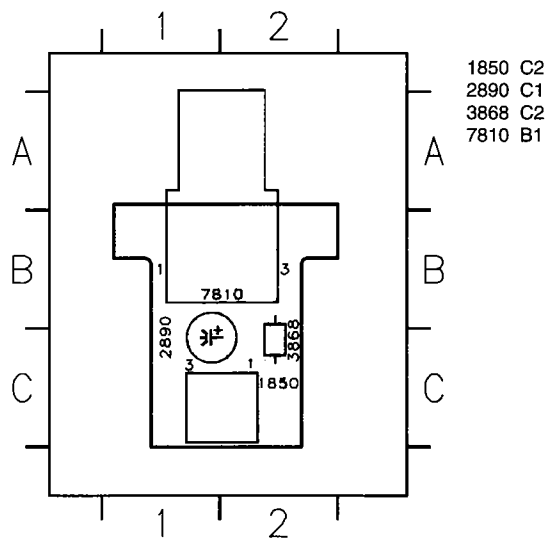
CONNECTOR BOARD CBA (COPPER SIDE VIEW)



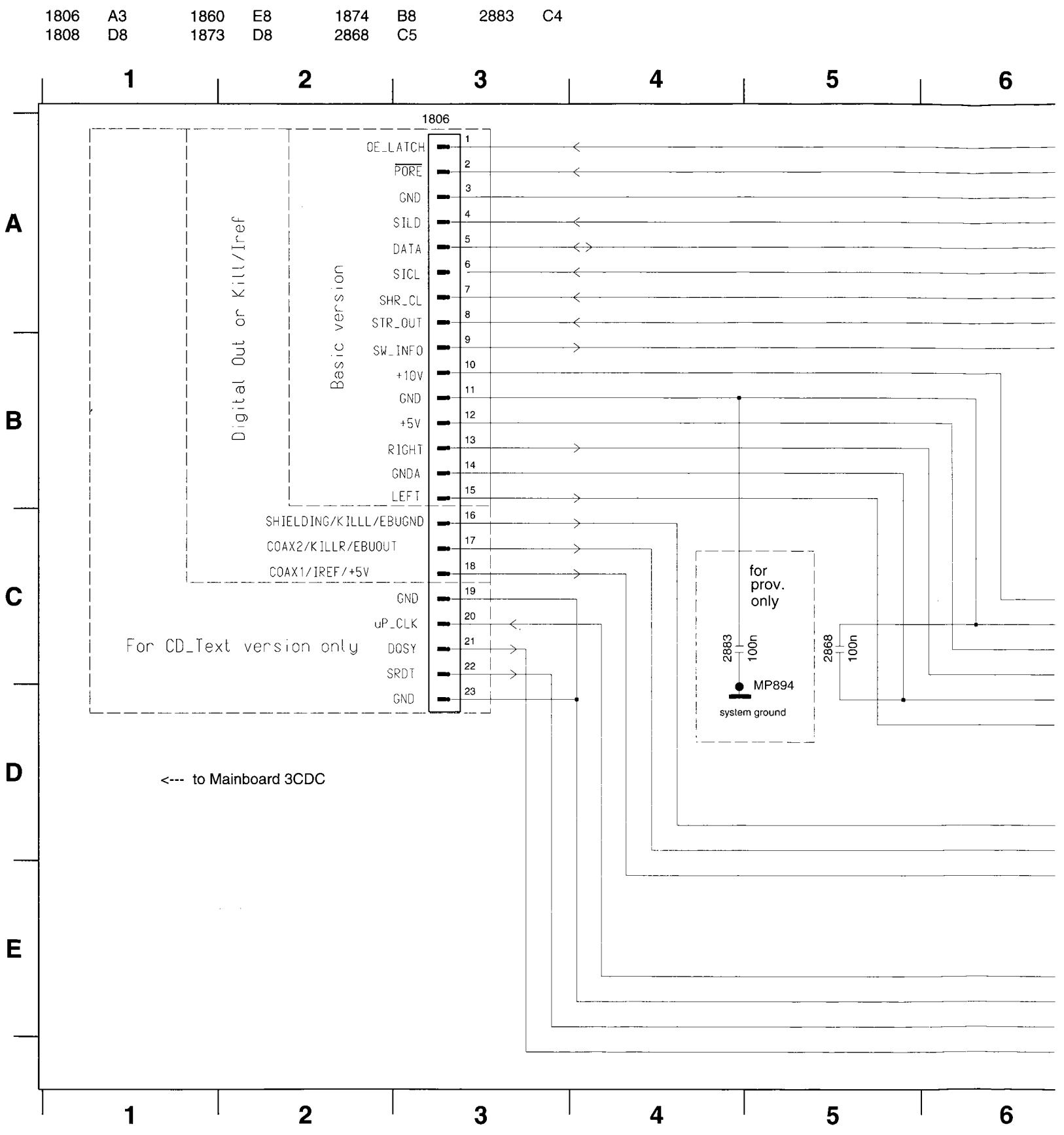
OPTICAL OUTPUT SCHEMATIC DIAGRAM



OPTICAL OUTPUT CBA



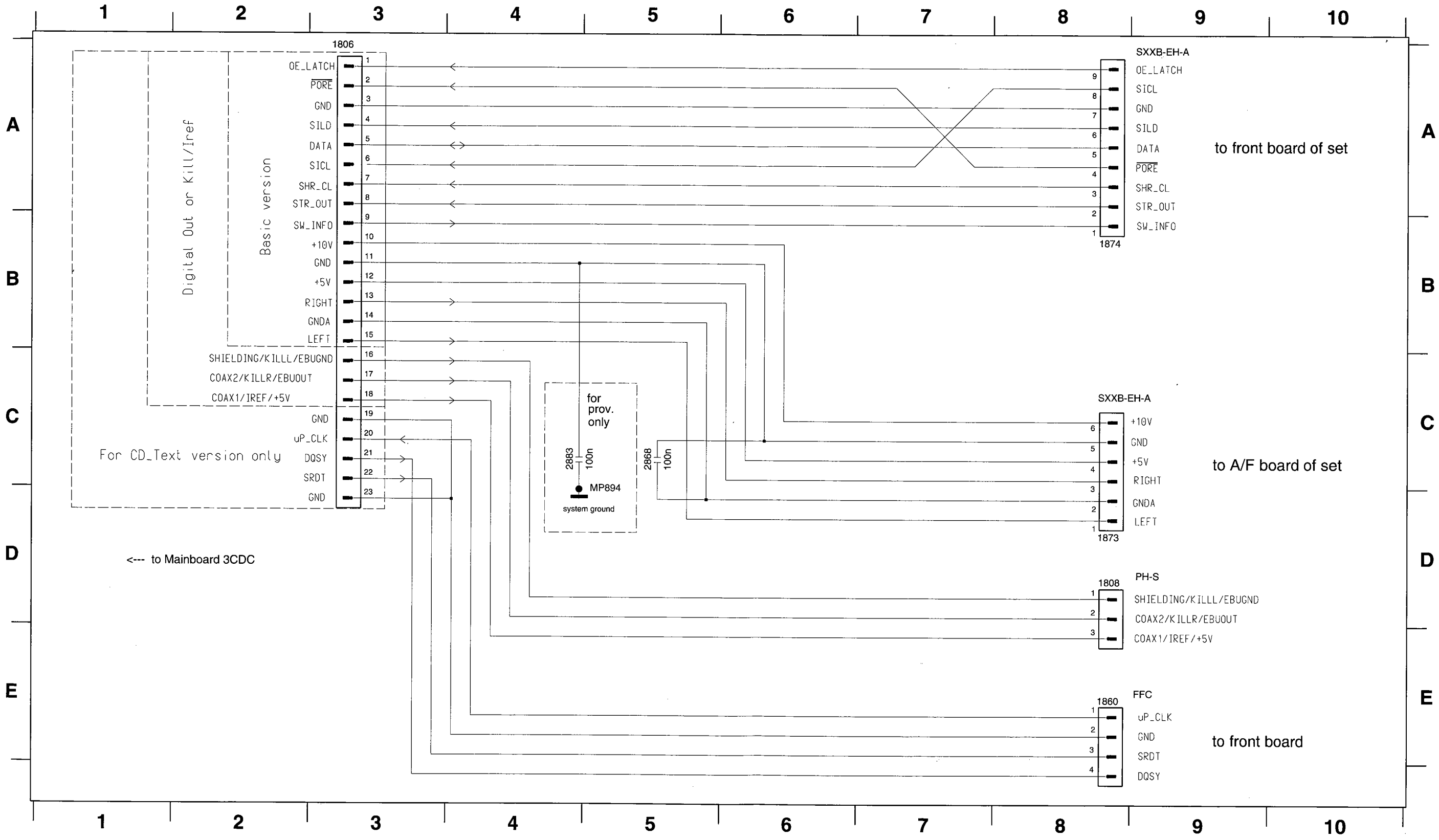
CONNECTOR BOARD SCHEMATIC DI



CONNECTOR BOARD SCHEMATIC DIAGRAM

1806 A3 1808 D8 1860 E8 1873 D8 1874 B8 2868 C5 2883 C4

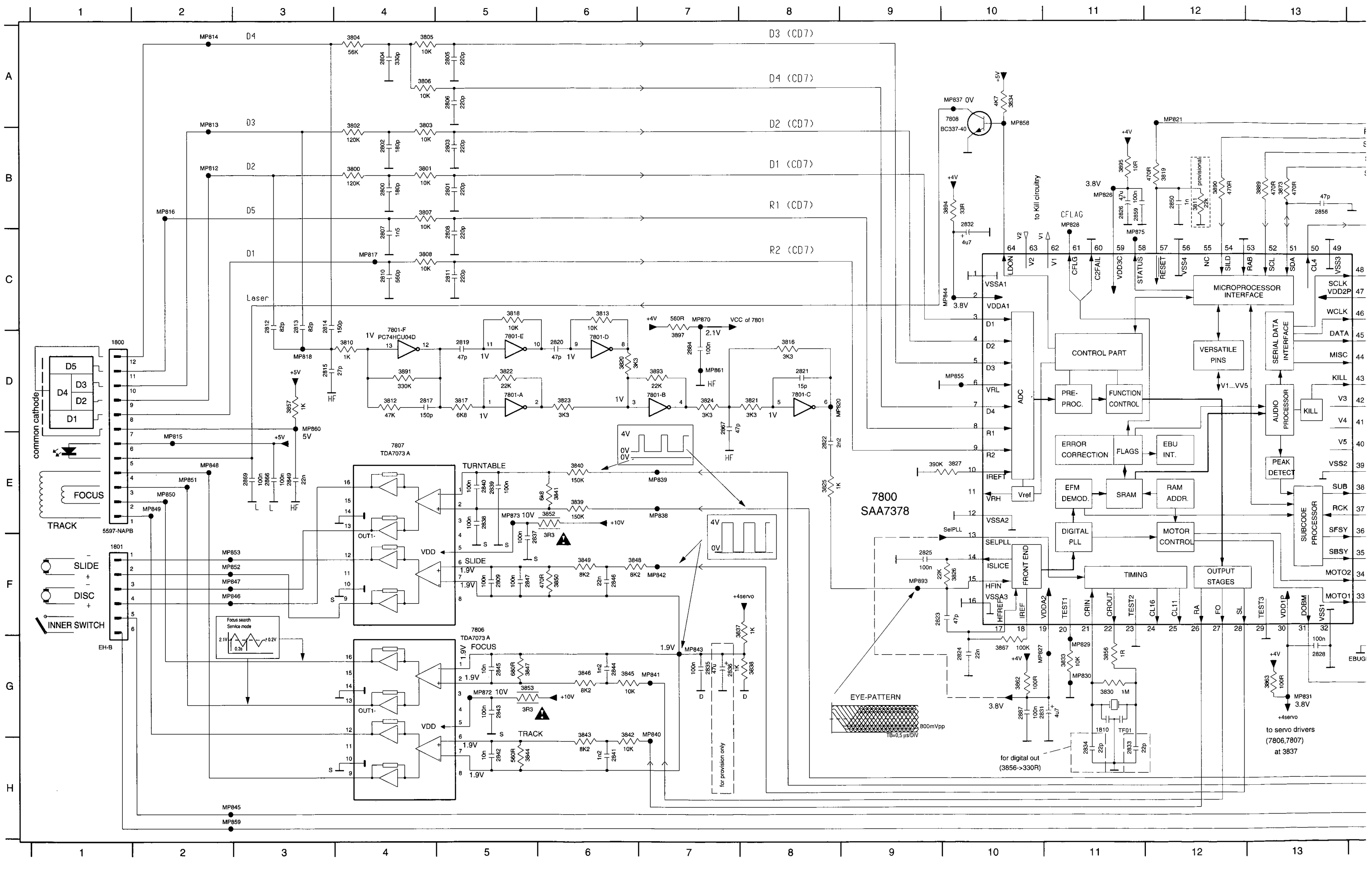
1850 C2
2890 C1
3868 C2
7810 B1



NOT ON ALL VERSIONS

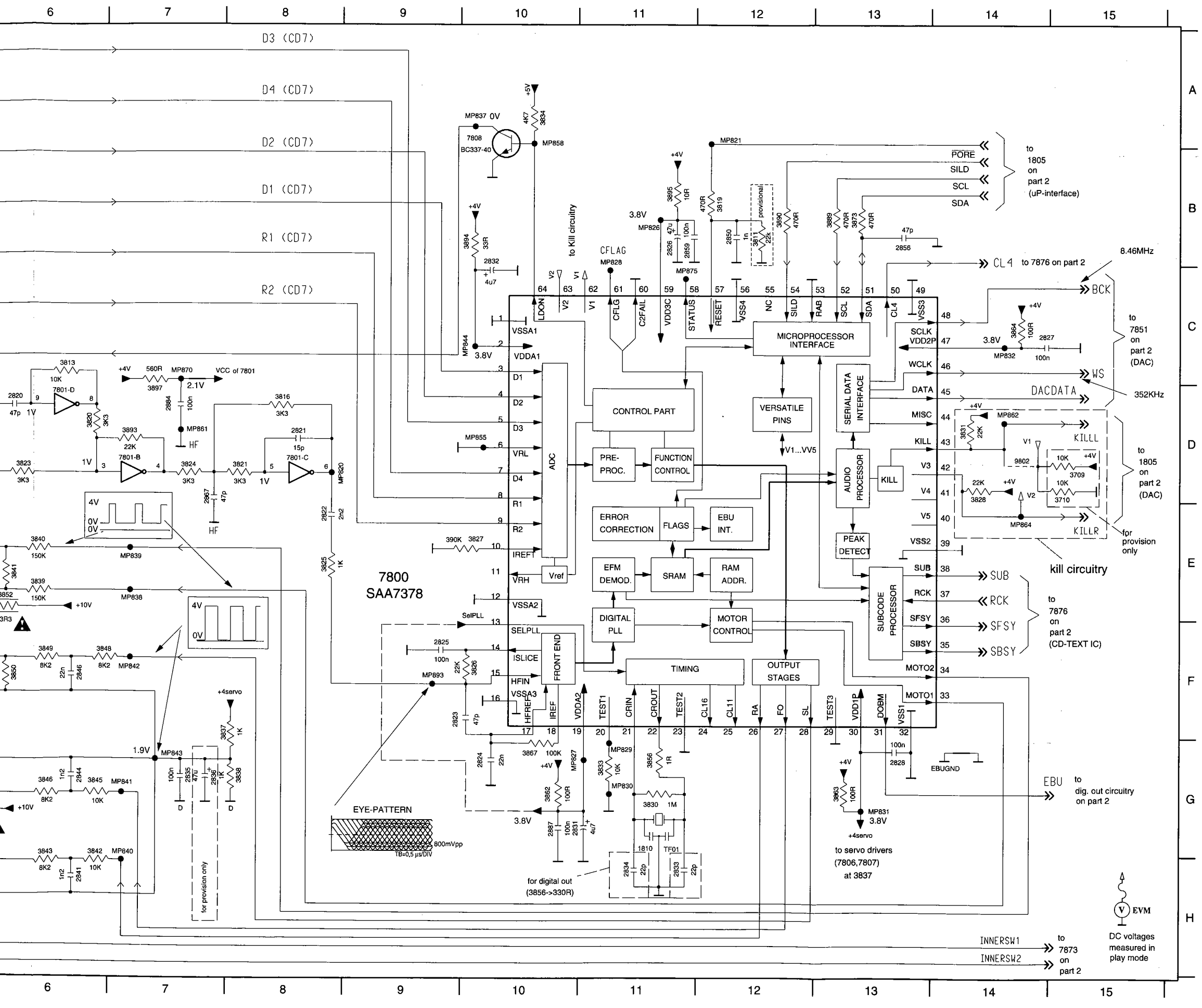
CS 53 018

MAIN 3CDC SCHEMATIC DIAGRAM I



CS 53 020

MAIN 3CDC SCHEMATIC DIAGRAM I



1800 D1	3807 B4	MP813 A2
1801 F1	3808 C4	MP814 A2
1810 G11	3810 D4	MP815 E2
2800 B4	3811 B12	MP816 B2
2801 B5	3812 D4	MP817 C4
2802 B4	3813 C6	MP818 D3
2803 B5	3816 D8	MP820 D8
2804 A4	3817 D5	MP821 B12
2805 A5	3818 C5	MP826 B11
2806 A5	3819 B12	MP827 G10
2807 C4	3820 D6	MP828 B11
2808 C5	3821 D8	MP829 G11
2809 F5	3822 D5	MP830 G11
2810 C4	3823 D6	MP831 G13
2811 C5	3824 D7	MP832 C14
2812 C3	3825 E8	MP837 B10
2813 C3	3826 F10	MP838 E6
2814 C3	3827 E10	MP839 E6
2815 D3	3828 D14	MP840 G7
2817 D4	3830 G11	MP841 G7
2819 D5	3831 D14	MP842 F7
2820 D6	3833 G11	MP843 G7
2821 D8	3834 B10	MP844 C10
2822 E8	3837 F8	MP845 H3
2823 F9	3838 G8	MP846 F2
2824 G9	3839 E6	MP847 F2
2825 F9	3840 E6	MP848 E2
2826 B11	3841 E6	MP849 E2
2827 C14	3842 G6	MP850 E2
2828 G13	3843 G6	MP851 E2
2831 G10	3844 H5	MP852 F2
2832 B10	3845 G6	MP853 F2
2833 H11	3846 G6	MP855 D10
2834 H11	3847 G5	MP858 B10
2835 G7	3848 F6	MP859 H3
2836 G7	3849 F6	MP860 D3
2837 F5	3850 F6	MP861 D7
2838 E5	3852 E6	MP862 D14
2839 E5	3853 G5	MP864 E14
2840 E5	3856 G11	MP870 C7
2841 H6	3857 D3	MP872 G5
2842 H5	3862 G10	MP873 E5
2843 G5	3863 G13	MP875 C11
2844 G6	3864 C14	MP893 F9
2845 G5	3867 G10	
2846 F6	3873 B13	
2847 F5	3889 B13	
2849 E3	3890 B12	
2850 B12	3891 D4	
2856 B13	3893 D7	
2859 B11	3894 B10	
2866 E3	3895 B11	
2867 D7	3897 D7	
2869 E3	7800 E9	
2884 D7	7801-A D5	
2887 G10	7801-B D7	
3709 D15	7801-C D8	
3710 D15	7801-D D6	
3800 B4	7801-E D5	
3801 B4	7801-F D4	
3802 A4	7806 G5	
3803 A4	7807 E4	
3804 A4	7808 B10	
3805 A4	9802 D14	
3806 A4	MP812 B2	

MAIN 3CDC SCHEMATIC DIAGRAM II

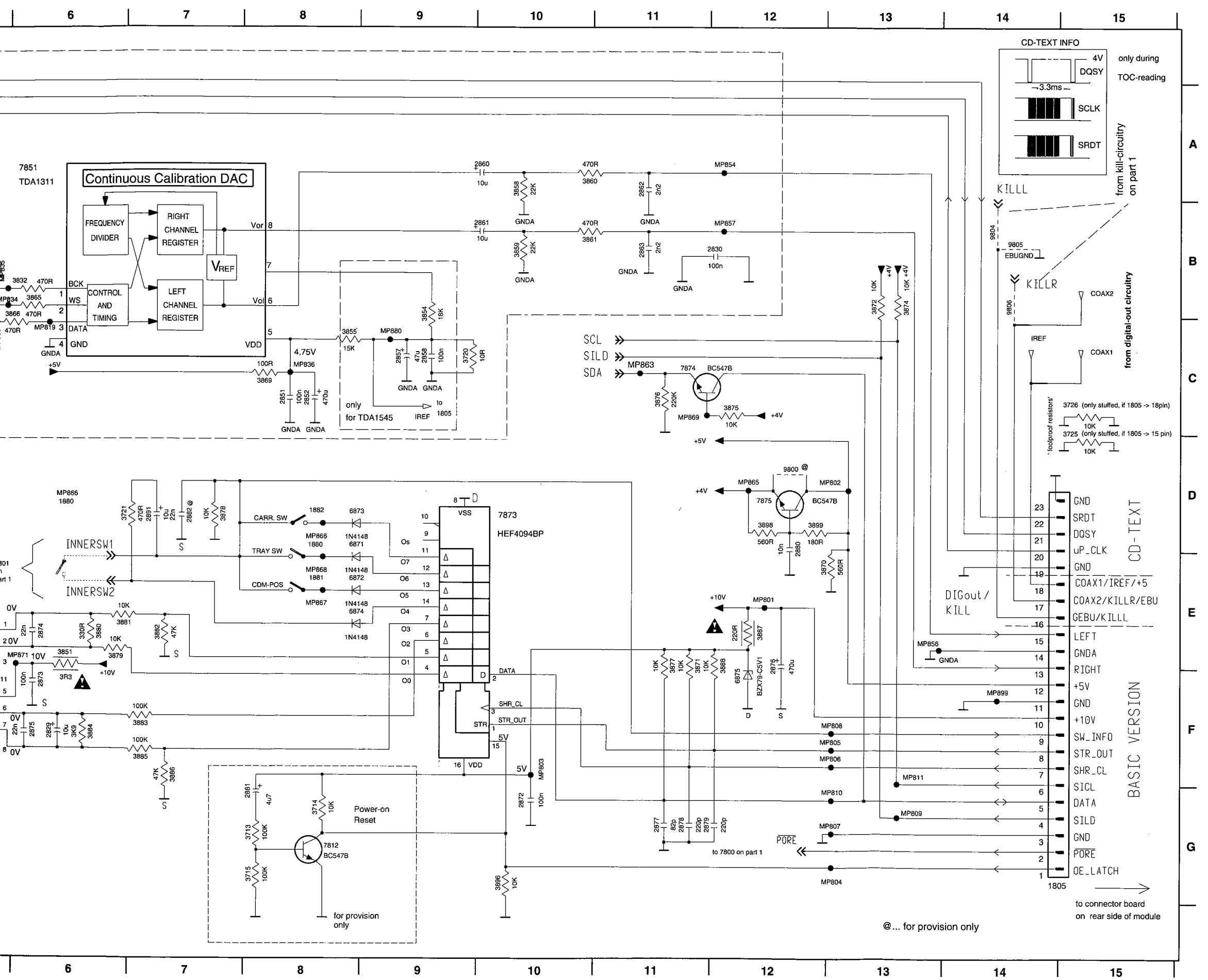
CD-Text circuitry

digital out circuitry

ITEM	OPT_OUT	COAX_OUT
5802	NO	YES
5801	YES	NO
9803	YES	NO
3809	YES	YES
3717	YES	NO
3716	NO	YES
3712	NO	YES
2865	NO	YES
2864	YES	YES
2854	NO	YES

@... for provis

MAIN 3CDC SCHEMATIC DIAGRAM II

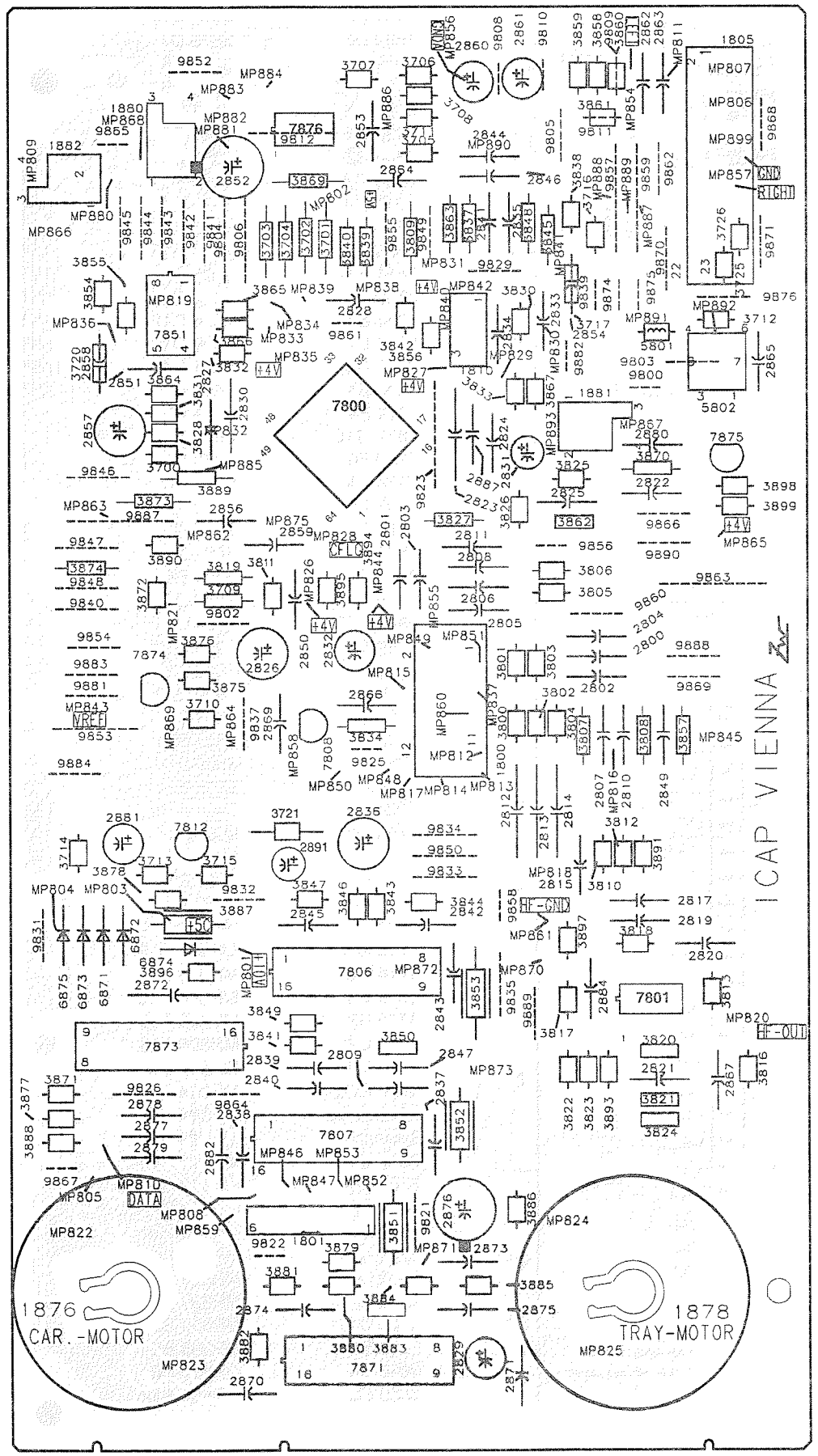


1805 G14
1876 E3
1878 F3
1880 D8
1881 E8
1882 D8
2829 F6
2830 B12
2851 C8
2852 C8
2853 B2
2854 C2
2857 C9
2858 C9
2860 A10
2861 B10
2862 A11
2863 B11
2864 D2
2865 D3
2870 E4
2871 F4
2872 G10
2873 F6
2874 E6
2875 F6
2876 E12
2877 G11
2878 G11
2879 G11
2880 D12
2881 G8
2882 D7
3700 B2
3701 B2
3702 B2
3703 A2
3704 A2
3705 A2
3706 A4
3707 B4
3708 B4
3711 A4
3712 C3
3713 G8
3714 G8
3715 G8
3716 D2
3717 C2
3720 C9
3725 D15
3726 C15
3809 C2
3832 B6
3851 E6
3854 B9
3855 C8
3858 A10
3859 B10
3860 A10
3861 B10
3865 B6
3866 C6
3869 C8
3870 E12
3871 E11
3872 B13
3874 B13
3875 C12
3876 C11
3877 E11
3878 D7
3879 E6
3880 E6
3881 E6
3882 E7
3883 F7
3884 F6
3885 F7
3886 F7
3887 E12
3888 E12
3896 G10
3898 D12
3899 D12
5801 C4
5802 C3
6871 D8
6872 E8
6873 D8
6874 E8
6875 F12
7812 G8
7851 A6
7871 E5
7873 D10
7874 C11
7875 D12
7876 A2
9800 D12
9803 C3
9804 B14
9805 B14
9806 B14
9808 A10
9809 A10
9810 B10
9811 B10
9812 A2
MP801 E12
MP802 D13
MP803 F10
MP804 G13
MP805 F13
MP806 F13
MP807 G13
MP808 F13
MP809 G13
MP810 G13
MP811 F13
MP819 C6
MP822 E4
MP823 E4
MP824 F4
MP825 F4
MP833 C5
MP834 B5
MP835 B5
MP836 C8
MP854 A12
MP856 E13
MP857 B12
MP863 C11
MP865 D12
MP866 D8
MP867 E8
MP868 E8
MP869 C11
MP871 E6
MP880 C9
MP881 A2
MP882 A2
MP883 B2
MP884 B2
MP885 B2
MP886 A4
MP887 B4
MP888 B4
MP889 B4
MP890 C2
MP891 D4
MP892 D4
MP899 F14

CS 53 022

MAIN 3CDC CBA

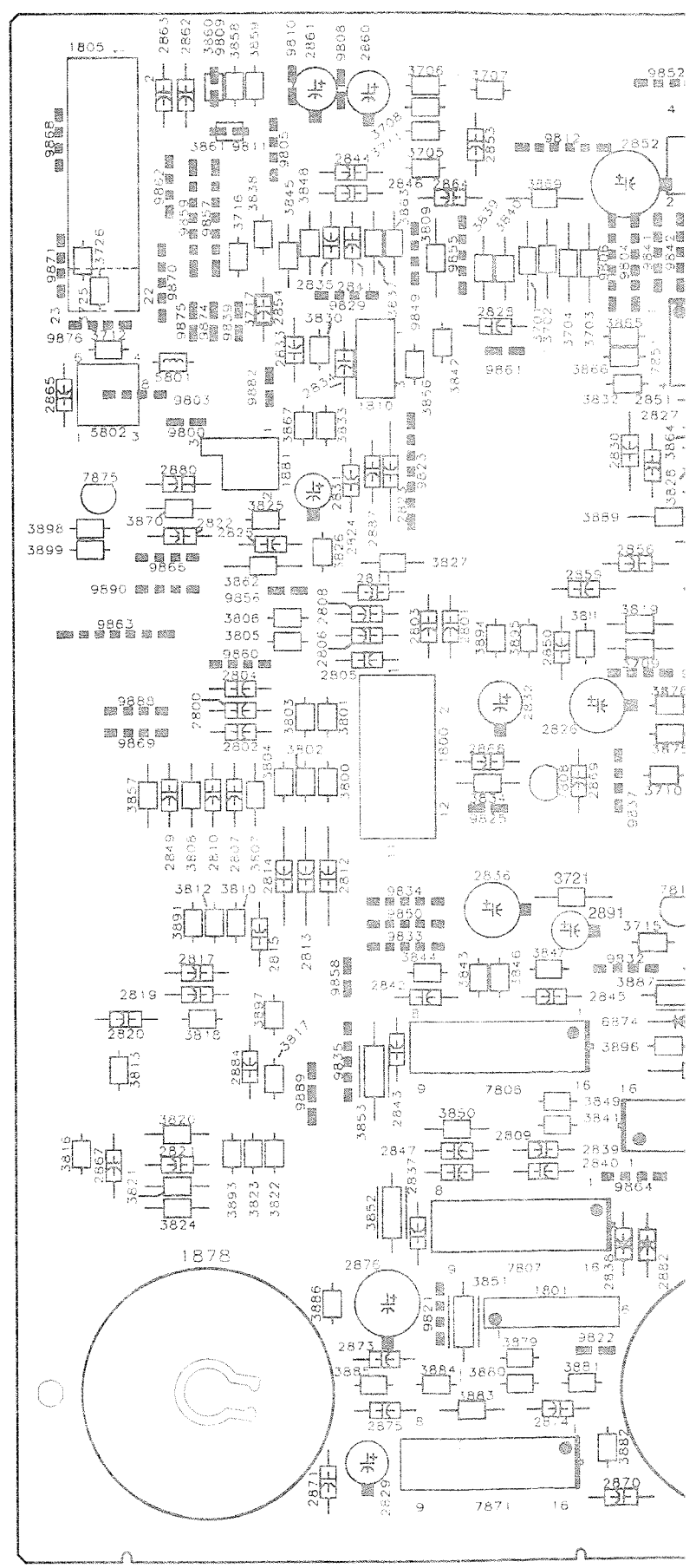
Copper side view



CS 53 019

1800 E3	2862 A4	3826 D4	3898 D5	9864 G2
1801 H2	2863 A5	3827 D3	3899 D5	9865 A1
1805 B5	2864 B3	3828 C1	5801 B5	9866 D5
1810 C3	2865 C5	3830 B4	5802 C5	9867 H1
1876 I1	2866 E3	3831 C1	6871 F1	9868 A5
1878 I4	2867 G5	3832 C2	6872 F1	9869 E5
1880 B2	2869 E2	3833 C4	6873 F1	9870 B5
1881 C4	2870 I2	3834 E3	6874 F2	9871 B5
1882 B1	2871 I4	3837 B3	6875 F1	9874 B4
2800 D4	2872 G2	3838 B4	7800 C2	9875 B4
2801 D3	2873 H3	3839 B3	7801 G4	9876 B5
2802 E4	2874 I2	3840 B3	7806 G3	9881 E1
2803 D3	2875 I3	3841 G2	7807 H3	9882 C4
2804 D4	2876 H3	3842 B3	7808 E2	9883 E1
2805 D3	2877 G1	3843 F3	7812 F2	9884 E1
2806 D3	2878 G1	3844 F3	7851 B2	9887 D1
2807 E4	2879 H1	3845 B4	7871 I3	9888 E5
2808 D3	2880 C5	3846 F3	7873 G1	9889 G4
2809 G3	2881 F1	3847 F2	7874 E1	9890 D5
2810 E4	2882 H2	3848 B4	7875 C5	
2811 D3	2884 G4	3849 G2	9800 C4	
2812 F4	2887 C3	3850 G3	9602 D2	
2813 F4	3700 C1	3851 H3	9803 C5	
2814 F4	3701 B3	3852 G3	9804 B2	
2815 F4	3702 B2	3853 G3	9805 A4	
2817 F4	3703 B2	3854 B1	9806 B2	
2819 F4	3704 B2	3855 B1	9808 A4	
2820 F5	3705 A3	3856 C3	9809 A4	
2821 G5	3706 A3	3857 E5	9810 A4	
2822 D5	3707 A3	3858 A4	9811 A4	
2823 C3	3708 A3	3859 A4	9812 A2	
2824 C4	3709 D2	3860 A4	9821 H3	
2825 D4	3710 E2	3861 A4	9822 H2	
2826 D2	3711 A3	3862 D4	9823 C3	
2827 C2	3712 B5	3863 B3	9825 E3	
2828 B3	3713 F1	3864 C1	9826 G1	
2829 I3	3714 F1	3865 B2	9829 B4	
2830 C2	3715 F2	3866 C2	9831 F1	
2831 C4	3716 B4	3867 C4	9832 F2	
2832 E3	3717 B4	3869 B2	9833 F3	
2833 B4	3720 C1	3870 C5	9834 F3	
2834 C3	3725 B5	3871 G1	9835 G4	
2835 B4	3726 B5	3872 D1	9837 E2	
2836 F3	3800 E4	3873 D1	9839 B4	
2837 H3	3801 E4	3874 D1	9840 D1	
2838 H2	3802 E4	3875 E2	9841 B2	
2839 G2	3803 E4	3876 E2	9842 B2	
2840 G2	3804 E4	3877 G1	9843 B2	
2841 B3	3805 D4	3878 F2	9844 B1	
2842 F3	3806 D4	3879 H3	9845 B1	
2843 G3	3807 E4	3880 H3	9846 C1	
2844 B4	3808 E4	3881 H2	9847 D1	
2845 F2	3809 B3	3882 I2	9848 D1	
2846 B4	3810 F4	3883 I3	9849 B3	
2847 G3	3811 D2	3884 H3	9850 F3	
2849 E5	3812 F4	3885 H3	9852 A2	
2850 D2	3813 G5	3886 H4	9853 E1	
2851 C1	3816 G5	3887 F2	9854 D1	
2852 A2	3817 G4	3888 H1	9855 B3	
2853 A3	3818 F4	3889 C2	9856 D4	
2854 B4	3819 D2	3890 D1	9857 B4	
2856 D2	3820 G5	3891 F4	9858 F4	
2857 C1	3821 G5	3893 G4	9859 B4	
2858 C1	3822 G4	3894 D3	9860 D4	
2859 D2	3823 G4	3895 D3	9861 B3	
2860 A3	3824 G5	3896 G2	9862 B5	
2861 A4	3825 C4	3897 F4	9863 D5	

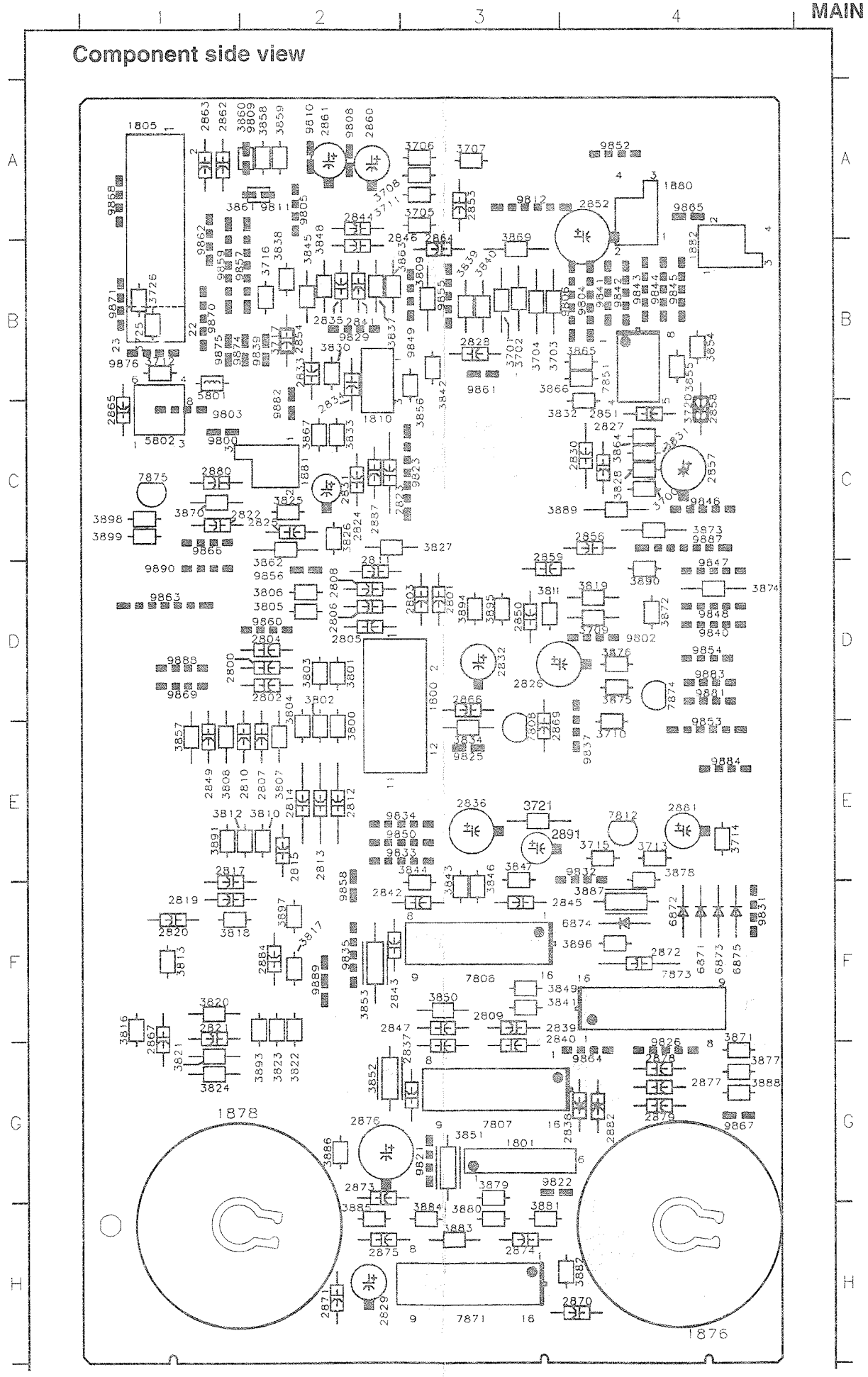
Component side view



CBA

1800 E3	2862 A4	3826 D4	3898 D5	9864 G2
1801 H2	2863 A5	3827 D3	3899 D5	9865 A1
1805 B5	2864 B3	3828 C1	5801 B5	9866 D5
1810 C3	2865 C5	3830 B4	5802 C5	9867 H1
1876 I1	2866 E3	3831 C1	6871 F1	9868 A5
1878 I4	2867 G5	3832 C2	6872 F1	9869 E5
1880 B2	2869 E2	3833 C4	6873 F1	9870 B5
1881 C4	2870 I2	3834 E3	6874 F2	9871 B5
1882 B1	2871 I4	3837 B3	6875 F1	9874 B4
2800 D4	2872 G2	3838 B4	7800 C2	9875 B4
2801 D3	2873 H3	3839 B3	7801 G4	9876 B5
2802 E4	2874 I2	3840 B3	7806 G3	9881 E1
2803 D3	2875 I3	3841 G2	7807 H3	9882 C4
2804 D4	2876 H3	3842 B3	7808 E2	9883 E1
2805 D3	2877 G1	3843 F3	7812 F2	9884 E1
2806 D3	2878 G1	3844 F3	7851 B2	9887 D1
2807 E4	2879 H1	3845 B4	7871 I3	9888 E5
2808 D3	2880 C5	3846 F3	7873 G1	9889 G4
2809 G3	2881 F1	3847 F2	7874 E1	9890 D5
2810 E4	2882 H2	3848 B4	7875 C5	
2811 D3	2884 G4	3849 G2	9800 C4	
2812 F4	2887 C3	3850 G3	9802 D2	
2813 F4	3700 C1	3851 H3	9803 C5	
2814 F4	3701 B3	3852 G3	9804 B2	
2815 F4	3702 B2	3853 G3	9805 A4	
2817 F4	3703 B2	3854 B1	9806 B2	
2819 F4	3704 B2	3855 B1	9808 A4	
2820 F5	3705 A3	3856 C3	9809 A4	
2821 G5	3706 A3	3857 E5	9810 A4	
2822 D5	3707 A3	3858 A4	9811 A4	
2823 C3	3708 A3	3859 A4	9812 A2	
2824 C4	3709 D2	3860 A4	9821 H3	
2825 D4	3710 E2	3861 A4	9822 H2	
2826 D2	3711 A3	3862 D4	9823 C3	
2827 C2	3712 B5	3863 B3	9825 E3	
2828 B3	3713 F1	3864 C1	9826 G1	
2829 I3	3714 F1	3865 B2	9829 B4	
2830 C2	3715 F2	3866 C2	9831 F1	
2831 C4	3716 B4	3867 C4	9832 F2	
2832 E3	3717 B4	3869 B2	9833 F3	
2833 B4	3720 C1	3870 C5	9834 F3	
2834 C3	3725 B5	3871 G1	9835 G4	
2835 B4	3726 B5	3872 D1	9837 E2	
2836 F3	3800 E4	3873 D1	9839 B4	
2837 H3	3801 E4	3874 D1	9840 D1	
2838 H2	3802 E4	3875 E2	9841 B2	
2839 G2	3803 E4	3876 E2	9842 B2	
2840 G2	3804 E4	3877 G1	9843 B2	
2841 B3	3805 D4	3878 F2	9844 B1	
2842 F3	3806 D4	3879 H3	9845 B1	
2843 G3	3807 E4	3880 H3	9846 C1	
2844 B4	3808 E4	3881 H2	9847 D1	
2845 F2	3809 B3	3882 I2	9848 D1	
2846 B4	3810 F4	3883 I3	9849 B3	
2847 G3	3811 D2	3884 H3	9850 F3	
2849 E5	3812 F4	3885 H3	9852 A2	
2850 D2	3813 G5	3886 H4	9853 E1	
2851 C1	3816 G5	3887 F2	9854 D1	
2852 A2	3817 G4	3888 H1	9855 B3	
2853 A3	3818 F4	3889 C2	9856 D4	
2854 B4	3819 D2	3890 D1	9857 B4	
2856 D2	3820 G5	3891 F4	9858 F4	
2857 C1	3821 G5	3893 G4	9859 B4	
2858 C1	3822 G4	3894 D3	9860 D4	
2859 D2	3823 G4	3895 D3	9861 B3	
2860 A3	3824 G5	3896 G2	9862 B5	
2861 A4	3825 C4	3897 F4	9863 D5	

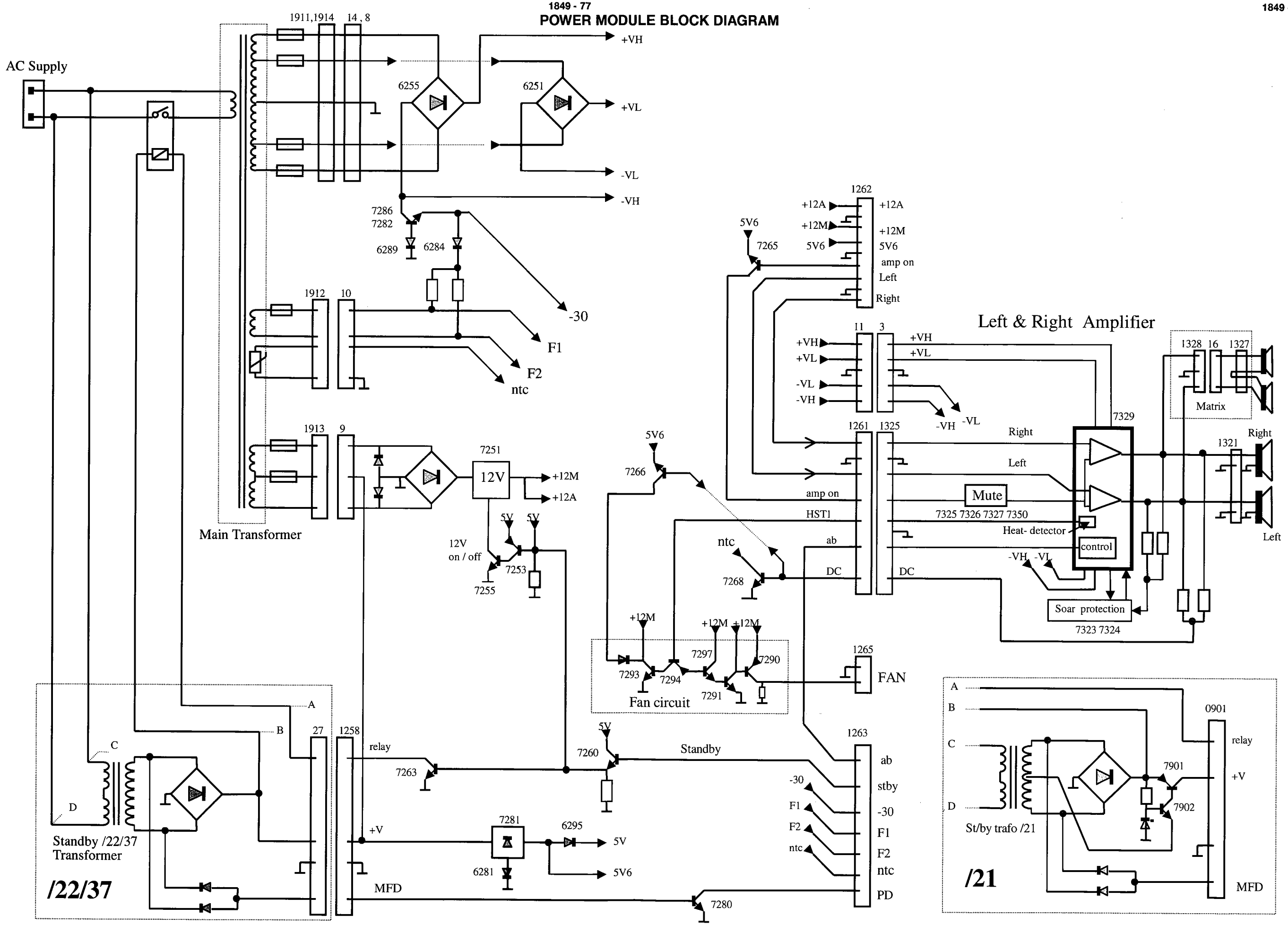
Component side view



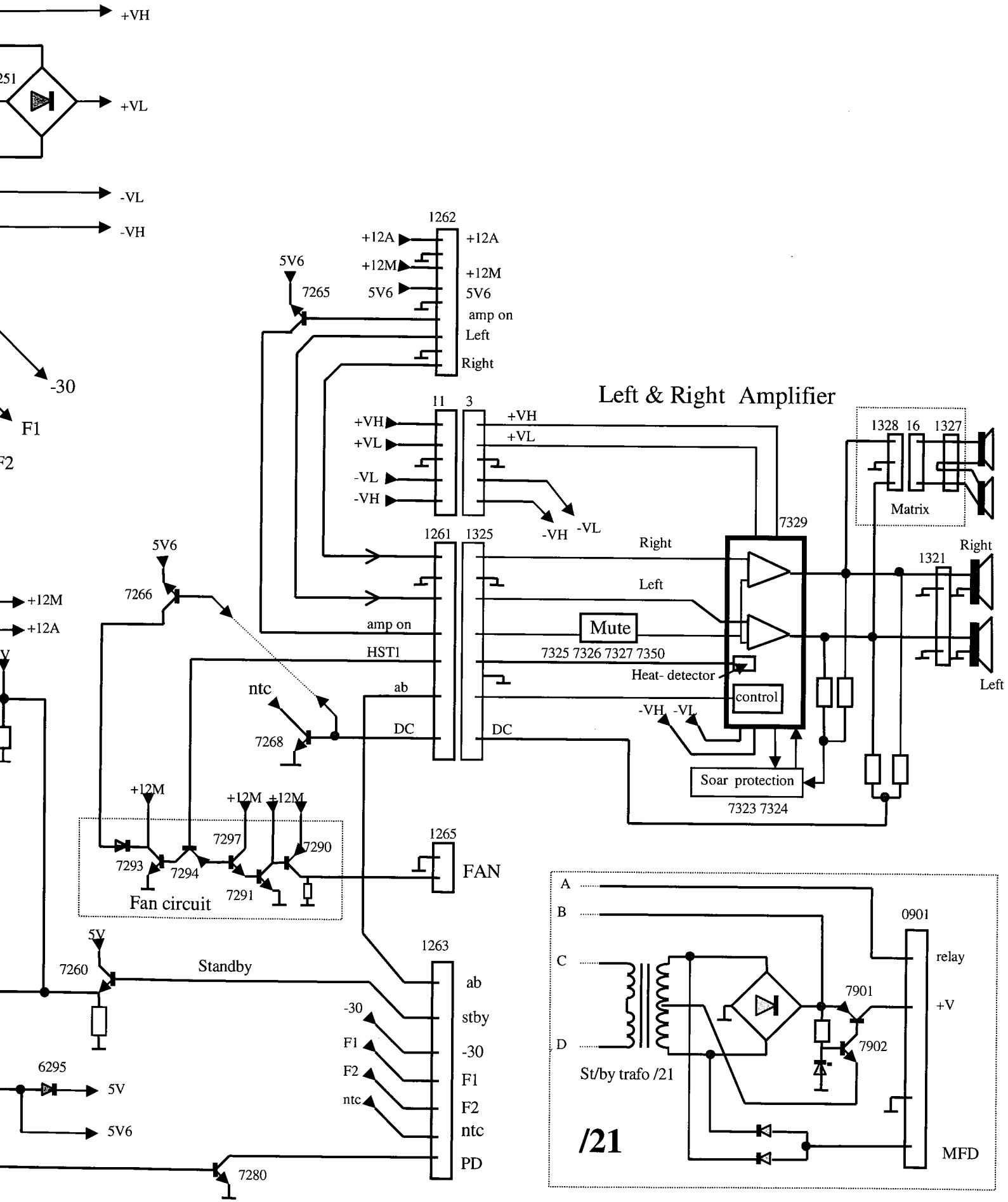
MAIN 3CDC CBA

1800 D3	2862 A1	3826 C2	3898 C1	9866 C1
1801 G3	2863 A1	3827 C2	3899 C1	9867 G4
1805 A1	2864 B3	3828 C4	5801 B1	9868 A1
1810 B2	2865 C1	3830 B2	5802 C1	9869 D1
1876 H4	2866 E3	3831 C4	6871 F4	9870 B1
1878 H1	2867 F1	3832 C4	6872 F4	9871 B1
1880 B4	2869 E3	3833 C2	6873 F4	9874 B2
1881 C2	2870 H4	3834 E3	6874 F4	9875 B1
1882 B4	2871 H2	3837 B2	6875 F4	9876 B1
2800 D2	2872 F4	3838 B2	7806 F3	9881 D4
2801 D3	2873 G2	3839 B3	7807 G3	9882 C2
2802 D2	2874 H3	3840 B3	7808 E3	9883 D4
2803 D3	2875 H2	3841 F3	7812 E4	9884 E4
2804 D2	2876 G3	3842 B3	7851 B4	9887 C4
2805 D2	2877 G4	3843 F3	7871 H3	9888 D1
2806 D2	2878 G4	3844 F3	7873 F4	9889 F2
2807 E2	2879 G4	3845 B2	7874 D4	9890 D1
2808 D2	2880 C1	3846 F3	7875 C1	
2809 F3	2881 E4	3847 E3	9800 C1	
2810 E2	2882 G4	3848 B2	9802 D4	
2811 D2	2884 F2	3849 F3	9803 C1	
2812 E2	2887 C2	3850 F3	9804 B4	
2813 E2	3700 C4	3851 G3	9805 A2	
2814 E2	3701 B3	3852 G2	9806 B4	
2815 E2	3702 B3	3853 F2	9808 A2	
2817 F1	3703 B3	3854 B4	9809 A2	
2819 F1	3704 B3	3855 B4	9810 A2	
2820 F1	3705 A3	3856 B3	9811 A2	
2821 G1	3706 A3	3857 E1	9812 A3	
2822 C1	3707 A3	3858 A2	9821 G3	
2823 C2	3708 A3	3859 A2	9822 G3	
2824 C2	3709 D4	3860 A2	9823 C3	
2825 C2	3710 E4	3861 A2	9825 E3	
2826 D3	3711 A3	3862 C2	9826 G4	
2827 C4	3712 B1	3863 B2	9829 B2	
2828 B3	3713 E4	3864 C4	9831 F4	
2829 H2	3714 E4	3865 B4	9832 E4	
2830 C4	3715 E4	3866 B4	9833 E2	
2831 C2	3716 B2	3867 C2	9834 E2	
2832 D3	3717 B2	3869 B3	9835 F2	
2833 B2	3720 C4	3870 C1	9837 E4	
2834 B2	3725 B1	3871 G4	9839 B2	
2835 B2	3726 B1	3872 D4	9840 D4	
2836 E3	3800 E2	3873 C4	9841 B4	
2837 G2	3801 D2	3874 D4	9842 B4	
2838 G4	3802 E2	3875 D4	9843 B4	
2839 F3	3803 D2	3876 D4	9844 B4	
2840 F3	3804 E2	3877 G4	9845 B4	
2841 B2	3805 D2	3878 E4	9846 C4	
2842 F3	3806 D2	3879 G3	9847 D4	
2843 F2	3807 E2	3880 H3	9848 D4	
2844 B2	3808 E1	3881 H3	9849 B3	
2845 F3	3809 B3	3882 H4	9850 E2	
2846 B2	3810 E2	3883 H3	9852 A4	
2847 F3	3811 D3	3884 H3	9853 E4	
2849 E1	3812 E2	3885 H2	9854 D4	
2850 D3	3813 F1	3886 G2	9855 B3	
2851 C4	3816 F1	3887 F4	9856 D2	
2852 A4	3817 F2	3888 G4	9857 B2	
2853 A3	3818 F1	3889 C4	9858 F2	
2854 B2	3819 D4	3890 D4	9859 B1	
2856 C4	3820 F1	3891 E1	9860 D2	
2857 C4	3821 G1	3893 F2	9861 B3	
2858 C4	3822 F2	3894 D3	9862 A1	
2859 C3	3823 F2	3895 D3	9863 D1	
2860 A2	3824 G1	3896 F4	9864 G4	
2861 A2	3825 C2	3897 F2	9865 A4	

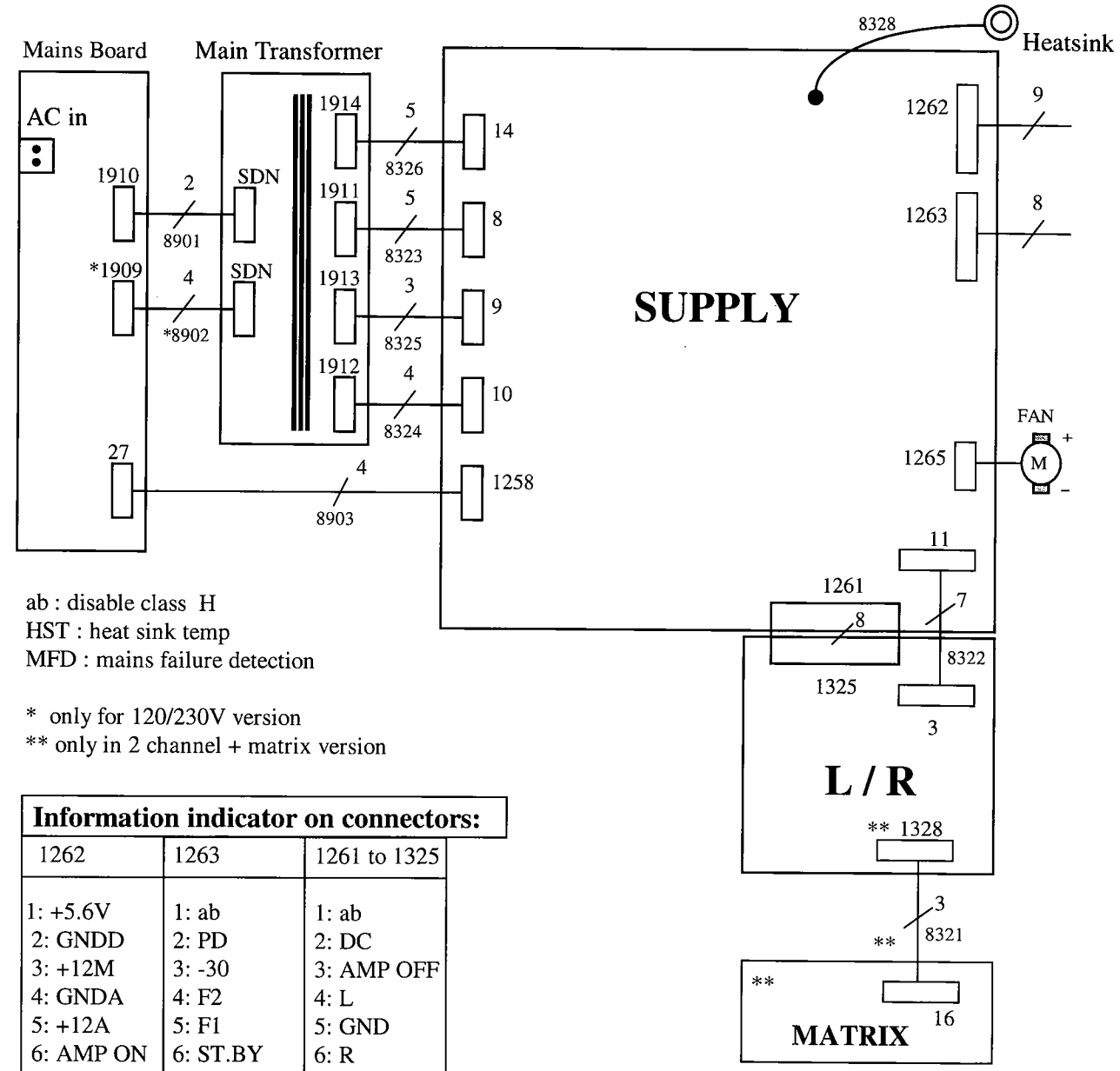
POWER MODULE BLOCK DIAGRAM



POWER MODULE BLOCK DIAGRAM



POWER MODULE WIRING DIAGRAM



ab : disable class H
HST : heat sink temp
MFD : mains failure detection

* only for 120/230V version
** only in 2 channel + matrix version

Information indicator on connectors:

1262	1263	1261 to 1325
1: +5.6V 2: GNDD 3: +12M 4: GNDA 5: +12A 6: AMP ON 7: Rin 8: GND 9: Lin	1: ab 2: PD 3: -30 4: F2 5: F1 6: ST.BY 7: CLIP 8: NTC	1: ab 2: DC 3: AMP OFF 4: L 5: GND 6: R 7: HST1 8: NC

11 to 3	1911 to 8	1914 to 14	1912 to 10	1909
1: + VH 2: + VL 3: GNDL 4: GND 5: GNDR 6: - VL 7: - VH	1: AC2 2: AC1 3: GND 4: AC1' 5: AC2'	1: AC2 2: AC1 3: GND 4: AC1' 5: AC2'	1: F1 2: F2 3: NTC 4: GND	1: 0VA 2: 120VB 3: 10VB 4: 0VB

1265	1326 to 22	1328 to 16	1913 to 9	1258 to 27
1 : + 2: -	1: Surround 2: GND 3: Center	1: Left 2: GND 3: Right	1: AC3 2: AC4 3: AC5	1: REL 2: MFD 3: +V 4: GND

POWER SUPPLY 2x 130W (+MTX)

POWER SUPPLY SCHEMATIC DIAGRAM

MAINS

1901 NEUTRAL LIFE
5902
9903
1902 1 - 120V 3 - 230V
1905 T-5A
1906 T-5A
1907 T-5A
8901
1910
9916 9917 9920 9921 9922 9923 9924 9925
120V 110V 10V
5905
9915
4 - 120V 6 - 230V
5904
~230V ~120V
~10V ~5,5V ~10V ~5,5V
1k 3902 1k 3903
6905 1N4148 6906 1N4148
2902 47n
6901 6903 4x 1N4003GP 6902 6904
25,3V 12,7V
2903 47n
2904 100µ
4K7 3904
7901 BC327-25
3V 12,7V
6909 1N4003GP
6911 1N4148 6912 1N4148
4K7 3905
25V 12V
8,3V 7,2V
25V 6,5V
7902 BC547B
6908 BZX79/ C8V2
10k 3906
2905 100µ
12,6V 6,5V
6910 1N4003GP 12V 12V
A B C
ELECTRONIC VOLTAGE SELECTOR CIRCUIT

/21 3104 217 05510 bl 130-1 .....V ~230V [.....V] ~120V

MAINS

1901 NEUTRAL LIFE
9902▲ 5902■ 1905 ■ T-5A ▲ T-6,3A
9901▲
10R 3901▲
9916 9917 8901 FUSE 1910 9921
9904 9905 ACA 9920
5905 OPEN
5903 ~10V
9908▲ 9909■ 9907▲
2902 47n
6901 6903 4x 1N4003GP 6902 6904
6906 1N4148 3903 1k
6911 1N4148 6912 1N4148
9910
2903 47n
6905 1N4148 3902 1k
A B C
27
MFD = Mains Failure Detection

/22/37 3104 217 05500/05520 bl 130-1
■ Only for /22
▲ Only for /37

Mains Transfo

MAINS

1920 1921 1922 1923 T-5A
1911 1914
3920 only in /21 1E ■ 9930▲
1912
1924 T-2A
1925 T-1A
1913
AC2 AC1 AC1' AC2' NTC AC3 AC4 AC5
~79V ~51V
6251 GBU4D
6255 GBU8D
2252 100n 2251 100n 2253 100n 2254 47n 2255 47n 2256 47n
~4,3V
A D

+VL +33V 0V 2262 4700µ
+VH +53V 0V 2258 6800µ
-VH -53V 0V 2257 6800µ
-VL -33V 0V 2260 4700µ
9252
47E 3282
9254
7286 BC327-25 7282 BC327-25
-50V -40V -39V
3285 3k3 3286 3k3
6284 BZX79/ C5V6
-30V
6289 BZX79/ C30
-30 -30V 0V
22R 3287 47E 3288 47E 3289
-24V -24V

-30V CIRCUIT

+12V CIRCUIT

9 AC3 AC4 AC5
~10V 2280 4700µ ~10V
6294 1N5392 6252 1N5392
2263 100n
6260 6262 4x 1N5392 6251 6263
2264 100n
0E33 3260 0E33 3270
+24 0V 24V
7251 BDX53BFI
2267 100µ 23V
3251 2k2
2268 220µ 2V
6264 BZX79/ F10
2271 47µ A
+12A +12V 0V 0V
+12M +12V 0V 0V
13,5V 0V 470E 3255
2k2 3252
2269 1n
0,7V
7252 BC547B A
270E 3261
120E 3262 A

1258
+V
Relay
MFD ~0,2V
+5V +5 9261 120k 3280
10k 3281
8,2V
2289 1µ
7280 BC547B
6293 BZX79/ C8V2
POWER DOWN CIRCUIT

7281 L7805CP
10V 12V 9256
2279 100n D
6281 1N4003GP D
6295 1N4148
2282 10µ D
2270 10µ
+5V6 +5,6V
+5 +5V

12V ON/OFF CIRCUIT

13,5V 0V
7255 BC547B
0V 0,7V
10k 3269
3259 10k
10k 3264 0V 4,9V
7253 BC557B
+5V +5 10k 3312
4,8V 4,3V
22k 3306
0V 0V 12V
7263 BC547B
3313 1k
0,8V 0,8V 0,4V
7260 BC547B
4,7V 1,7V 0,4V
+5V +5 3316 47k 5,5V 2,3V 0V
2k2 3307 47k 3315

RELAY ON/OFF CIRCUIT

+5,6V +5V6 680E 3254 47k 3302
7266 BC557B
+5V +5 680E 3266
7268 BC547B
2300 10n 100k 3265

DC PROTI CIRCU

FAN CIRCUIT

+12V +12M 4k7 3275
9255
7294 BC557B 6k8 3276
+12V +12M 4k7 3273
7293 BC547B
4k7 3277
6253 BZX79/ C8V2
2k7 3291
6300 1N4148
3294 1k5
+12V +12M 1k2 3293
7297 BC547B
6292 1N4148
+12V +12M 2291 22µ 10k
100k 3271 4k7
220E 3292

..... V 12V ON Mode
[.....V] Clock Mode
[.....V] St/By Mode

POWER SUPPLY SCHEMATIC DIAGRAM

MAINS

1920 T-5A 1921 T-5A 1922 T-5A 1923 T-5A

1911 1914 14 8

AC2 AC1 AC1' AC2'

~79V ~51V

2252 100n 6251 GBU4D 2253 100n 2255 47n 6255 GBU8D 2256 47n 2251 100n

+VL +33V 0V 2262 4700µ

+VH +53V 0V 2258 6800µ

−VH −53V 0V 2257 6800µ

−VL −33V 0V 2260 4700µ

−30 −30V 0V

9252 9254

47E 3282

−39V −50V 7286 BC327-25 7282 BC327-25 −40V 3285 3k3 3286 3k3 −30V

6284 BZX79/ C5V6 6289 BZX79/ C30 22k 3287 47E 3288 47E 3289

−30V CIRCUIT

−24V −24V

1912 3920 only in /21 1E 9930

10 F1 F2 NTC ~4,3V

1924 T-2A 1925 T-1A

1913 AC3 AC4 AC5

~10V ~10V 2280 4700µ 6294 1N5392 6252 1N5392 6260 6262 4x 1N5392 6261 6263 2263 100n 2264 100n 0E33 3260 0E33 3270

+24 24V 7251 BDX53BFI 13,5V 0V 2267 100µ 23V 7V 9253 +33V +VL 3251 2k2 3252 2268 220µ 2V 6264 BZX79/ F10 2271 47µ A

2265 4700µ 470E 3255 2k2 3252 2269 1n 0,7V 7252 BC547B A 270E 3261 270E 3262 A

+12A +12V 0V +12M +12V 0V

+12V CIRCUIT

7281 L7805CP 10V 12V 9256 I G O 2279 100n D 6281 1N4003GP D 6295 1N4148 2282 10µ D 2270 10µ +5V6 +5,6V +5 +5V

12V ON/OFF CIRCUIT

13,5V 0V 0V 0,7V 7255 BC547B 10k 3269 10k 3264 3259 10k 7253 BC557B 22k 3306 4,6V 4,3V 3312 +5V +5 +5V +5

27 1258 +V Relay MFD −0,2V 9261 +5V +5 10k 3281 120k 3280 2289 1µ 7280 BC547B 8,2V 6293 BZX79/ C8V2

MFD = Mains Failure Detection

POWER DOWN CIRCUIT

0V 0V 12V 7263 BC547B 3313 1k 0,8V 0,8V 0,4V 7260 BC547B 4,7V 1,7V 0,4V 2k2 3307 3316 47k 5,5V 3,3V 0V 47k 3315

+5V +5 +5V +5

RELAY ON/OFF CIRCUIT

*			
ST.BY	REL 5905	+12A +12M	MODE
LOW	OFF	OFF	ST.BY
OPEN	ON	OFF	CLOCK
HIGH	ON	ON	12V ON MODE

+5,6V +5V6 +5,6V +5V6 680E 3254 47k 3302

7266 BC557B 6298 BZX79/ C6V8 0V 1261 2 DC

+5V +5 680E 3266 7268 BC547B 6299 1N4148 2300 10n 100k 3265 2301 100µ

DC PROTECTION CIRCUIT

HST = Heatsink Temperature 8 NC 7 HST1

1 ab 3 AMP OFF 6 R 5 L

To 1325 LEFT & RIGHT AMPLIFIER

AMP ON = −52V AMP OFF (MUTE) = 4,5V

+53V +VH 22k 3305 6302 BZX79/ C3V3 7265 BC556B AMP ON = 5V AMP OFF = 0V 6301 1N4148 2303 10n 47k 3304

1262 9 L 8 7 R 6 AMP ON 5 +12A +12V 4 A 3 +12M +12V 2 D 1 +5V6 +5,6V

To COMBI

AMP ON/OFF CIRCUIT

+12V +12M 4E7 3300

+12V +12M 4k7 3275 9255 7294 BC557B 8k8 3276 4k7 3277 7293 BC547B

+12V +12M 2k7 3291 6253 BZX79/ C8V2 6300 1N4148 6292 1N4148 1k2 3293 220E 3292

+12V +12M 3294 1k5 2291 22µ 100k 3271 10k 3295 7291 BC547B 3297 2k2 7290 BC327-25 2292 100p 4k7 3296 2290 100µ 330E 3298 330E 3299

FAN CIRCUIT

V 3,5 Class AB H Class AB = 3,5V Class H = 0,4V

+5V +5 10k 3268 ab = Disable class H

1265 + 1241 − 2 FAN

1263 3267 3k9 +5 +5V −30 −30V 7 CLP 3 −30 −30V 1 ab 8 NTC 5 F1 4 F2 6 ST.BY* 2 PD

~4,3V 8,2V

To COMBI

8328 Heatsink

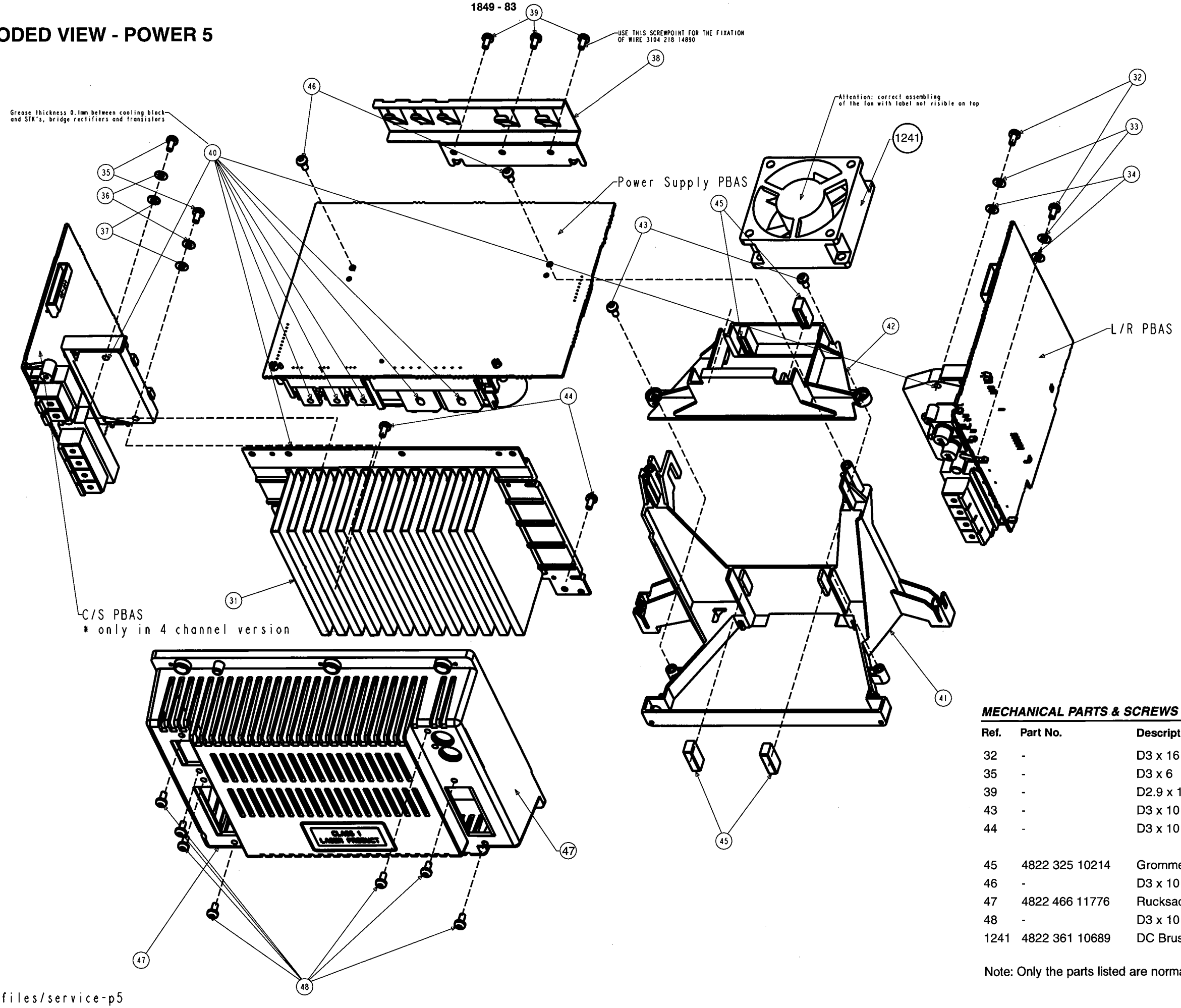
.....V 12V ON Mode

.....V Clock Mode

.....V St/By Mode

8	B14		
9	H13	3920	F11
10	F13	5902	J3
11	B30	5902	B3
14	B13	5903	L3
27	L12	5904	F3
1241	L31	5905	D5
1258	L13	5905	K7
1261	E30	6251	C15
1262	I30	6252	I14
1263	M30	6253	K23
1265	L30	6255	C17
1901	J2	6260	I15
1901	B2	6261	J15
1902	C7	6262	I16
1905	K4	6263	J16
1906	B8	6264	I19
1907	C8	6281	L15
1909	C9	6284	E19
1910	J9	6289	F19
1910	B9	6292	L23
1911	B12	6293	O15
1912	F12	6294	I14
1913	H12	6295	K15
1914	B12	6298	E25
1920	B11	6299	F25
1921	B11	6300	K24
1922	C11	6301	J29
1923	D11	6302	J28
1924	I11	6901	F4
1925	I11	6901	M4
2251	C15	6902	G4
2252	C15	6902	N4
2253	C16	6903	F5
2254	C17	6903	M5
2255	C17	6904	G5
2256	C18	6904	N5
2257	D19	6905	N6
2258	C19	6905	F4
2260	E19	6906	L6
2262	B19	6906	F4
2263	I15	6908	H6
2264	I16	6909	F7
2265	I17	6910	H7
2267	I17	6911	M7
2268	I18	6911	F7
2269	J18	6912	M7
2270	L16	6912	F8
2271	I20	7251	I17
2279	L14	7252	J18
2280	I14	7253	L19
2282	L15	7255	L17
2289	O14	7260	M19
2290	K26	7263	M18
2291	K24	7265	I28
2292	L25	7266	E24
2300	F24	7268	F23
2301	F26	7280	O14
2303	J28	7281	K15
2902	F4	7282	E18
2902	M4	7286	E18
2903	G5	7290	K25
2903	M5	7291	K25
2904	G6	7293	M23
2905	H5	7294	L22
3251	I18	7297	L23
3252	J18	7901	F6
3254	D24	7902	H6
3255	J17	8328	O30
3259	L18	8901	J9
3260	J15	8901	B9
3261	J19	8902	C9
3262	J18	9252	D17
3264	L18	9253	I18
3265	F24	9254	E17
3266	F24	9255	K22
3267	M30	9256	K14
3268	M28	9261	N14
3269	L18	9901	K3
3270	J17	9902	J3
3271	L24	9903	C4
3273	L23	9904	K8
3275	K22	9905	K8
3276	L22	9907	N3
3277	M22	9908	M3
3280	N14	9909	M3
3281	N15	9910	M6
3282	E17	9915	D8
3285	F18	9916	B7
3286	F18	9916	J8
3287	F19	9917	B8
3288	F20	9917	J8
3289	F20	9920	B10
3291	K24	9920	K10
3292	M24	9921	J10
3293	L24	9921	B10
3294	K24	9922	C10
3295	K25	9923	D10
3296	L25	9924	D10
3297	L25	9925	E10
3298	K26	9930	G11
3299	K27		
3300	K26		
3302	D24		
3304	J29		
3305	I28		
3306	L19		
3307	N20		
3312	K19		
3313	M18		
3315	N20		
3316	M20		
3901	K5		
3902	N6		
3902	E3		
3903	L6		
3903	E4		
3904	G6		
3905	G6		
3906	H5		

EXPLODED VIEW - POWER 5



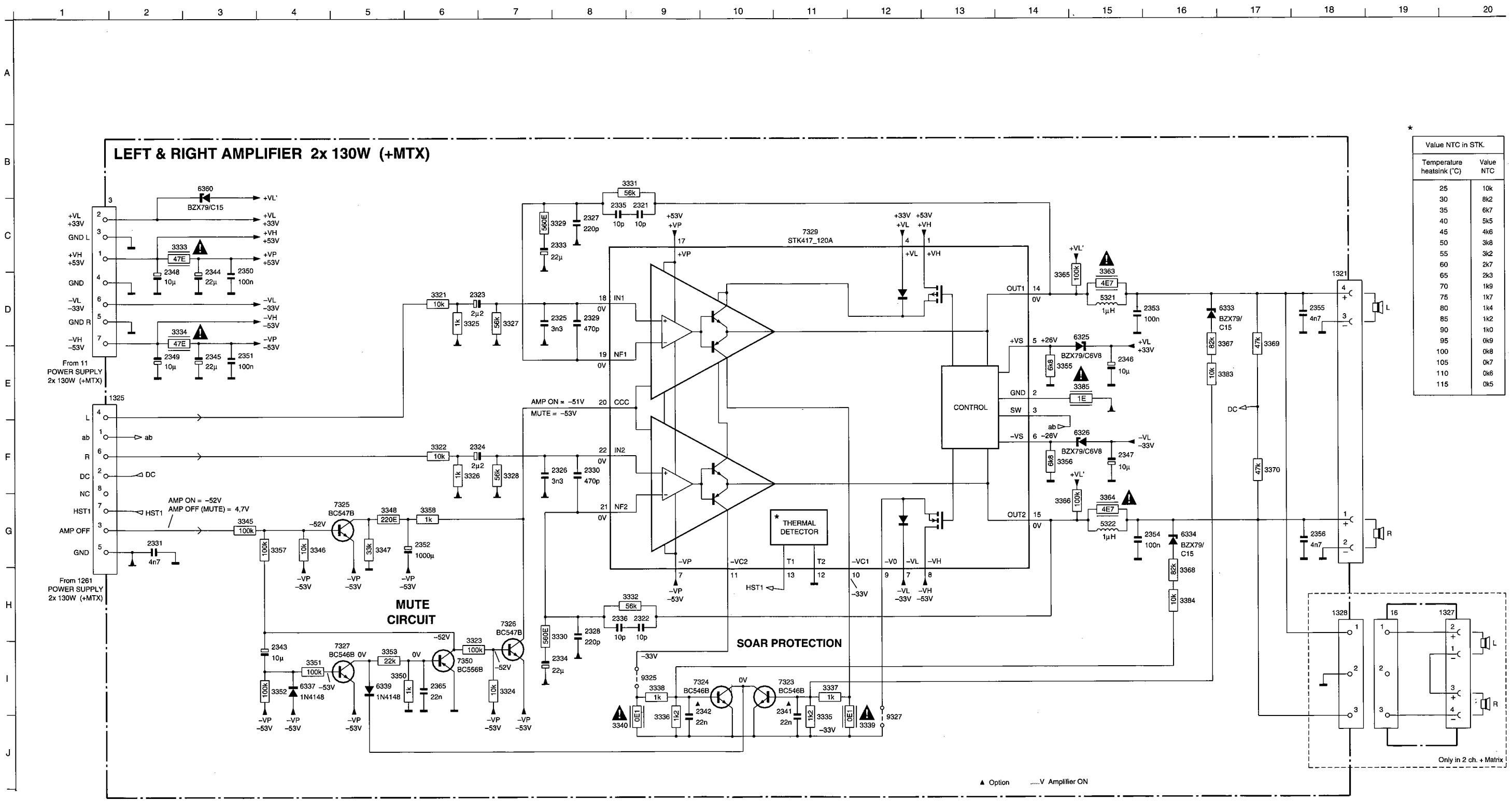
MECHANICAL PARTS & SCREWS LIST

Ref.	Part No.	Description
32	-	D3 x 16
35	-	D3 x 6
39	-	D2.9 x 13
43	-	D3 x 10
44	-	D3 x 10
45	4822 325 10214	Grommet
46	-	D3 x 10
47	4822 466 11776	Rucksack P5
48	-	D3 x 10
1241	4822 361 10689	DC Brushless Fan

Note: Only the parts listed are normal service spare parts.

LEFT/RIGHT AMPLIFIER SCHEMATIC DIAGRAM

3	C1	1327	H19	2323	D6	2327	C8	2331	G2	2336	H8	2344	D3	2348	D2	2352	G6	2356	G18	3323	I6	3327	D7	3331	B8	3335	J11	3339	J12	3347	G5	3352	I4	3357	G4	3365	D14	3369	E17	3385	E15	6326	F15	6339	I5	7325	G5	7350	I6
16	H19	1328	H18	2324	F6	2328	H8	2333	C7	2341	I11	2345	E3	2349	E2	2353	D16	2365	I6	3324	I7	3328	F7	3332	H8	3336	J9	3340	J8	3348	G5	3353	I5	3358	G6	3366	G14	3370	F17	5321	D15	6333	D17	6360	B3	7326	H7	9325	I9
1321	D18	2321	C9	2325	D7	2329	D8	2334	I7	2342	I9	2346	E15	2350	D3	2354	G16	3321	D6	3325	D6	3329	C7	3333	C2	3337	I11	3345	G3	3350	I5	3355	E14	3363	D15	3367	E17	3383	E17	5322	G15	6334	G16	7323	I11	7327	I5	9327	J12
1325	E1	2322	H9	2326	F7	2330	F8	2335	C8	2343	I4	2347	F15	2351	E3	2355	D18	3322	F6	3326	F6	3330	H7	3334	D2	3338	I9	3346	G4	3351	I4	3356	F14	3364	G15	3368	H16	3384	H16	6325	D15	6337	I4	7324	I9	7329	C11		

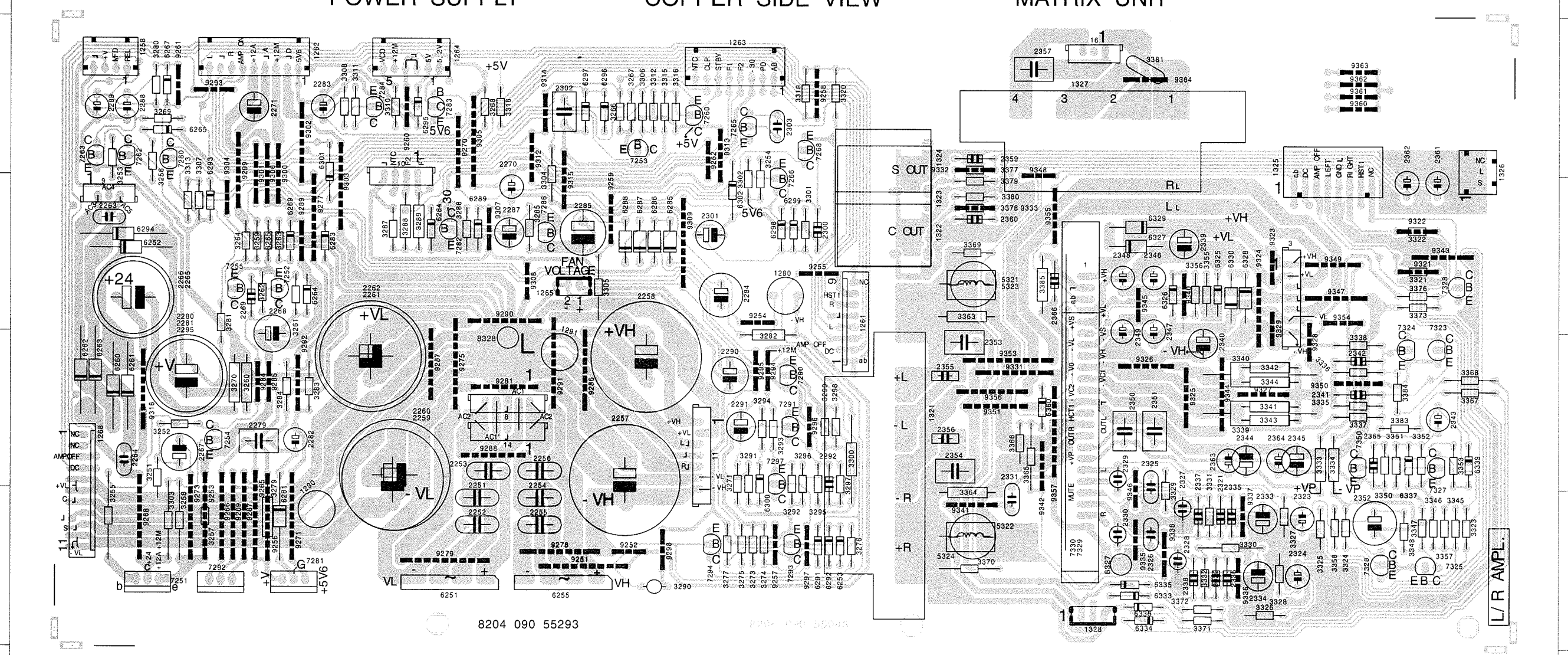


*

Value NTC in STK.	
Temperature heatsink (°C)	Value NTC
25	10k
30	8k2
35	6k7
40	5k5
45	4k6
50	3k8
55	3k2
60	2k7
65	2k3
70	1k9
75	1k7
80	1k4
85	1k2
90	1k0
95	0k9
100	0k8
105	0k7
110	0k6
115	0k5

POWER SUPPLY AND LEFT/RIGHT AMPLIFIER CBA

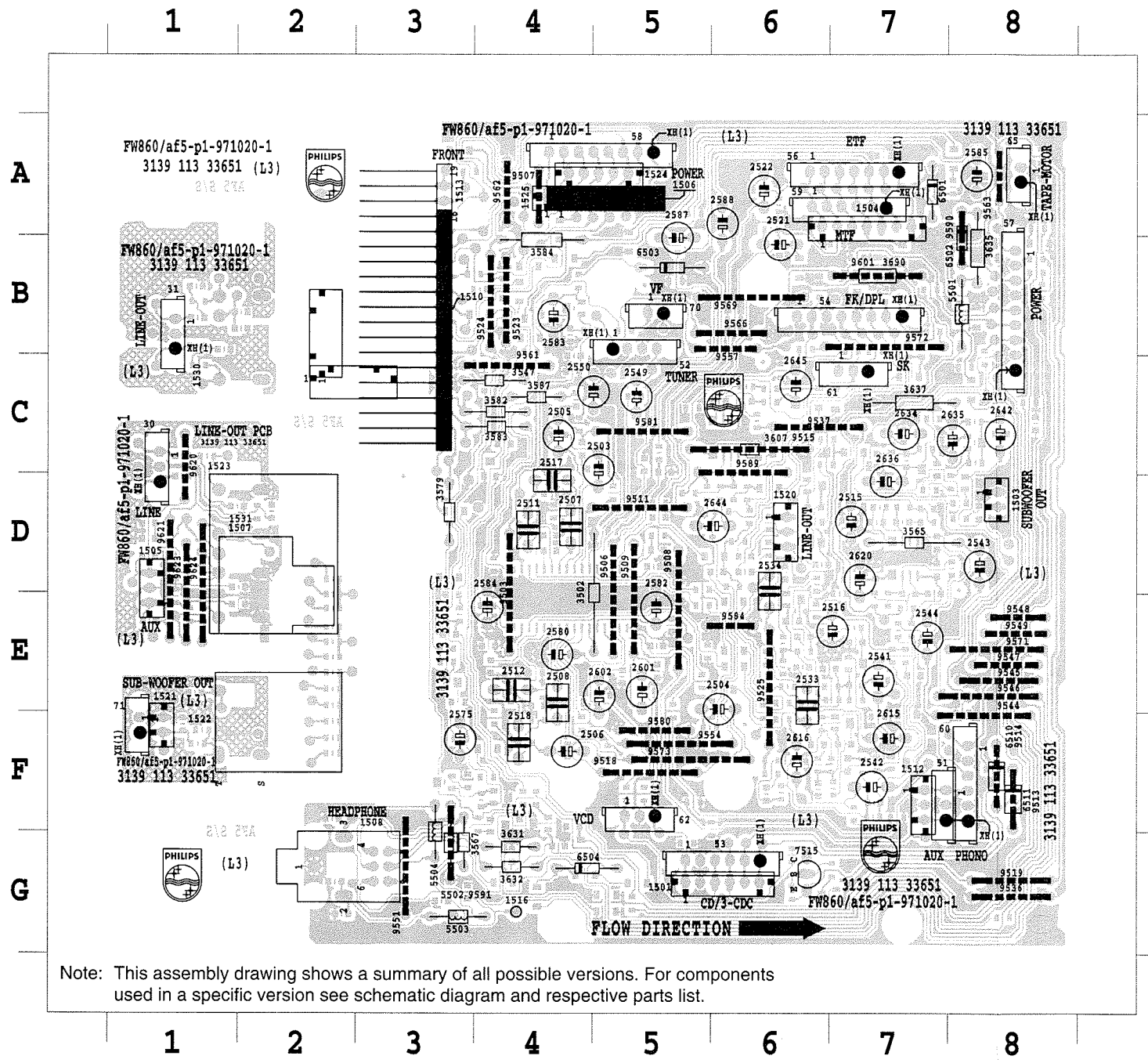
9362 A 1 9307 B 7 9292 C 8 9271 D 8 9254 B 5 7281 D 8 6300 C 5 6284 B 7 3320 A 5 3302 B 5 3287 B 8 3270 C 9 3255 D 9 2287 B 7 2264 C 9 1290 D 8 9357 C 3 9341 D 4 9323 B 2 6337 C 1 3385 B 3 3366 C 3 3345 D 1 3330 D 2 2361 B 1 2344 C 2 2328 D 2 3 B 2
9363 A 1 9308 B 7 9293 A 9 9273 D 9 9255 B 5 7282 B 7 6301 A 8 6285 B 6 6251 D 7 3303 D 9 3288 B 7 3271 C 5 3256 A 9 2288 A 9 2265 B 9 1291 C 6 - - - - 9342 C 3 9324 B 2 6339 C 1 5321 B 4 3367 C 1 3346 D 1 3331 D 2 2362 B 1 2345 C 2 2329 C 3 1321 C 4
9364 A 3 9309 B 6 9294 C 5 9275 C 7 9256 D 8 7283 A 7 6302 B 5 6286 B 6 6252 B 9 3304 B 6 3289 B 7 3273 D 5 3257 D 9 2289 A 9 2266 B 9 2251 D 7 6 C 7 9343 B 1 9325 C 2 6360 C 3 5322 D 4 3368 C 1 3347 D 1 3332 D 2 2363 C 2 2346 B 3 2330 D 3 1322 B 4
9312 A 7 9295 C 5 9277 B 8 9257 D 5 7284 A 8 7251 D 9 6287 B 6 6253 D 5 3305 B 6 3290 D 6 3274 D 5 3258 D 9 2290 C 5 2267 C 9 2252 D 7 9 B 9 9344 C 2 9326 C 3 7323 C 1 5323 B 4 3369 B 4 3348 D 1 3333 C 2 2364 C 2 2347 B 3 2331 D 4 1323 B 4
9313 A 5 9296 C 5 9278 D 6 9258 A 5 7286 B 7 7252 B 8 6288 B 6 6255 D 6 3306 A 6 3291 C 5 3275 D 5 3259 B 8 2291 C 5 2268 C 8 2253 C 7 10 B 7 9345 B 3 9327 C 2 7324 C 1 5324 D 4 3370 D 4 3350 C 1 3334 C 1 2365 C 1 2348 B 3 2333 D 2 1324 A 4
9314 A 7 9297 D 5 9279 D 7 9259 B 6 7290 C 5 7253 A 6 6289 B 7 6260 C 9 3307 B 9 3292 C 5 3276 D 5 3260 C 8 2292 C 5 2269 B 8 2254 D 7 11 C 6 9346 C 3 9328 C 2 7325 D 1 6325 B 2 3371 D 2 3351 C 1 3335 C 1 2366 B 3 2349 B 3 2334 D 2 1325 B 1
9315 B 6 9298 D 6 9281 C 7 9260 A 7 7291 C 5 7254 C 9 6291 D 5 6261 C 9 3308 A 8 3293 C 5 3277 D 5 3261 B 8 2295 C 9 2270 B 7 2255 D 7 14 C 7 9347 B 1 9329 B 2 7326 D 1 6326 B 3 3372 D 2 3352 C 1 3336 C 1 3321 B 1 2350 C 3 2335 D 2 1326 A 1
9316 C 9 9299 A 8 9284 C 8 9261 A 9 7292 D 9 7255 B 9 6292 D 5 6262 C 9 3310 A 7 3294 C 5 3279 D 8 3262 B 8 2300 B 5 2271 A 8 2256 C 7 1258 A 9 9348 B 3 9331 C 4 7327 C 1 6327 B 3 3373 B 1 3353 C 1 3337 C 1 3322 B 1 2351 C 3 2336 D 2 1328 D 3
- - - - 9300 B 8 9285 C 8 9262 A 5 7293 D 5 7260 A 6 6293 B 9 6263 C 9 3311 A 8 3295 C 5 3280 A 9 3263 B 8 2301 B 5 2279 C 8 2257 C 6 1261 B 5 9349 B 1 9332 A 4 7328 B 1 6328 B 2 3376 B 1 3355 B 2 3338 C 1 3323 D 1 2352 D 1 2337 D 2 2321 D 2
16 A 3 9301 B 8 9286 C 6 9265 D 8 7294 D 5 7262 A 9 6294 B 9 6264 B 8 3312 A 6 3296 C 5 3281 B 9 3265 B 8 2302 A 6 2280 C 9 2258 C 6 1262 A 8 9350 C 1 9333 B 4 7329 C 3 6329 B 3 3377 A 4 3356 B 2 3339 C 2 3324 D 1 2353 C 4 2338 D 2 2322 D 2
1327 A 3 9302 A 8 9287 C 7 9266 D 9 7297 C 5 7263 A 9 6295 A 7 6265 A 9 3313 B 9 3297 C 5 3282 C 5 3265 B 8 2303 A 5 2281 C 9 2259 C 7 1263 A 5 9351 C 4 9335 D 3 7330 C 3 6330 B 2 3378 B 4 3357 D 1 3340 C 2 3325 D 2 2354 C 4 2339 B 2 2323 D 2
2357 A 3 9303 B 8 9288 C 7 9267 D 8 8328 C 7 7265 A 5 6296 A 6 6267 A 9 3315 A 6 3316 A 6 3299 C 5 3284 C 8 3267 A 6 3251 C 9 3252 C 9 2283 A 8 2261 C 8 1264 A 7 9353 C 4 9336 D 2 7350 C 1 6333 D 3 3379 B 4 3358 D 1 3341 C 2 3326 D 2 2355 C 4 2340 C 2 2324 D 2
3381 A 3 9304 B 9 9289 B 8 9268 D 9 9251 D 6 7266 B 5 6297 A 6 6269 B 8 3316 A 6 3300 C 5 3285 B 7 3268 A 7 3253 A 9 2284 B 5 2262 C 8 1265 B 6 9354 B 1 9337 D 2 8327 D 3 6334 D 3 3380 B 4 3363 B 4 3342 C 2 3327 D 2 2356 C 4 2341 C 1 2325 C 3
9360 A 1 9305 A 7 9290 B 7 9269 D 9 9252 D 6 7268 A 5 6298 B 5 6281 D 8 3318 A 7 3300 C 5 3285 B 7 3268 A 7 3253 A 9 2284 B 5 2262 C 8 1265 B 6 9354 B 1 9337 D 2 8327 D 3 6334 D 3 3380 B 4 3363 B 4 3342 C 2 3327 D 2 2356 C 4 2341 C 1 2325 C 3
9361 A 1 9306 B 8 9291 C 6 9270 A 7 9253 D 9 7280 A 9 6299 B 5 6283 B 8 3319 A 5 3301 B 5 3286 B 7 3269 A 9 3254 B 5 2285 B 6 2263 B 9 1280 B 5 9356 C 4 9340 B 2 9322 B 1 6336 D 3 3384 C 1 3365 C 3 3344 C 2 3329 D 3 2360 B 4 2343 C 1 2327 D 2



trf5 D 3 27 B 1
trf6 C 3 1901 D 2
trf7 C 3 1902 D 1
trf8 C 3 1905 C 2
- - - - 1906 C 1
1911 A 3 1907 D 1
1912 B 3 1909 C 1
1913 B 3 1910 C 1
1914 A 3 2902 A 2
1920 A 3 2903 A 2
1921 A 3 2904 A 1
1922 A 3 2905 A 1
1923 B 3 2906 B 1
1924 B 3 3901 B 1
1925 C 3 3902 A 1
3920 B 3 3903 A 1
9930 B 3 3904 A 1
9931 A 3 3905 A 1
9932 A 3 3906 A 1
9933 A 3
9934 A 3 5901 C 2
9935 A 3 5902 C 2
9936 B 3 5903 B 2
9937 B 3 5904 B 2
9938 B 3 5905 B 1
9939 B 3 6901 A 2
9940 B 3 6902 A 2
9941 B 3 6903 A 2
9942 C 3 6904 A 2
trf10 A 3 6905 A 2
trf11 A 3 6906 A 1
trf12 A 3 6908 B 1
trf13 A 3 6909 A 1
trf14 A 3 6910 A 1
trf15 B 3 6911 B 1
trf16 B 3 6912 B 1
trf17 B 3 7901 A 1
trf18 B 3 7902 A 1
trf19 B 3 9901 C 2
trf20 B 3 9902 C 2
trf21 C 3 9903 C 2
9904 C 1
9905 C 1
9906 D 1
9907 B 2
9908 B 2
9909 B 2
9910 A 1
9911 A 1
9912 A 1
9913 A 1
9914 A 1
9915 C 1
9916 C 2
9917 C 1
9918 C 2
- - - -
8901 D 3
8902 C 3
9920 D 3
9921 D 3
9922 D 3
9923 C 3
9924 C 3
9925 C 3
trf3 D 3
trf4 D 3

AF5 CBA

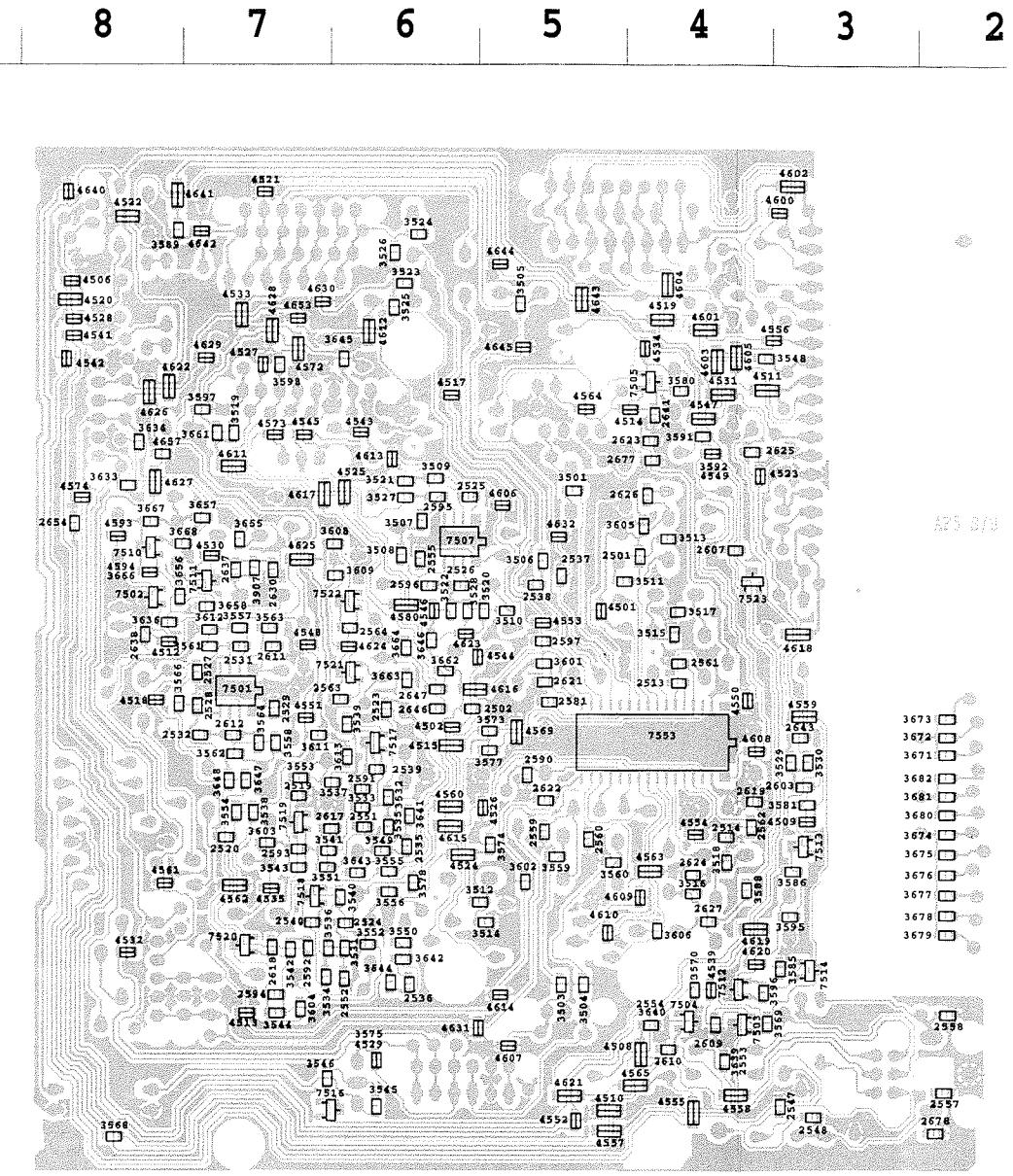
COMPONENT LAYOUT



30 C 1	2580 E 4	9536 G 8	
31 B 1	2582 E 5	9537 C 6	
51 F 7	2583 B 4	9544 F 8	
52 B 5	2584 E 4	9545 E 8	
53 G 6	2585 A 8	9546 E 8	
54 B 7	2587 B 5	9547 E 8	
56 A 7	2588 A 6	9548 E 8	
57 B 8	2601 E 5	9549 E 8	
58 A 5	2602 E 5	9551 G 3	
59 A 7	2615 F 7	9554 F 5	
60 F 8	2616 F 6	9557 B 6	
61 C 7	2620 D 7	9561 C 4	
62 F 5	2634 C 7	9562 A 4	
65 A 8	2635 C 8	9563 A 8	
70 B 5	2636 D 7	9566 B 6	
71 F 1	2642 C 8	9569 B 6	
1501 G 6	2644 D 6	9571 E 8	
1503 D 8	2645 C 6	9572 B 7	
1504 A 7	3502 E 5	9573 F 5	
1505 D 1	3547 C 4	9580 F 5	
1506 A 5	3565 D 7	9581 C 5	
1507 E 2	3567 G 3	9584 E 6	
1508 G 2	3579 D 3	9589 C 6	
1510 B 3	3582 C 4	9590 B 8	
1512 F 7	3583 C 4	9591 G 3	
1513 B 3	3584 B 4	9601 B 7	
1516 G 4	3587 C 4	9620 C 1	
1520 D 6	3607 C 6	9621 D 1	
1521 F 1	3631 G 4	9623 E 1	
1522 F 2	3632 G 4	9624 D 1	
1523 D 2	3635 B 8		
1524 A 5	3637 C 7		
1525 A 5	3690 B 7		
1530 B 2	5501 B 8		
1531 C 2	5502 G 3		
2503 C 5	5503 G 3		
2504 E 6	5504 G 3		
2505 C 4	6501 A 7		
2506 F 4	6502 B 8		
2507 D 4	6503 B 5		
2508 E 4	6504 G 4		
2511 D 4	6510 F 8		
2512 E 4	6511 F 8		
2515 D 7	7515 G 6		
2516 E 7	9503 E 4		
2517 D 4	9506 E 5		
2518 F 4	9507 A 4		
2521 B 6	9508 E 5		
2522 A 6	9509 E 5		
2533 E 6	9511 D 5		
2534 D 6	9513 F 8		
2541 E 7	9514 F 8		
2542 F 7	9515 C 6		
2543 D 8	9518 F 5		
2544 E 7	9519 G 8		
2549 C 5	9523 B 4		
2550 C 5	9524 B 4		
2575 F 3	9525 E 6		

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

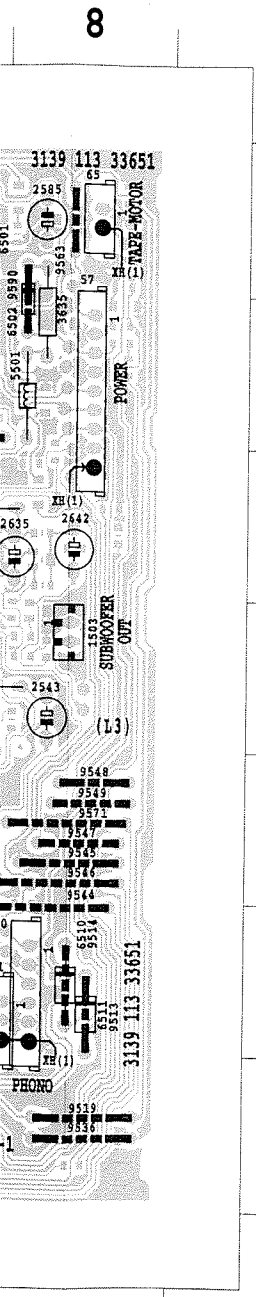
CHIP LAYOUT



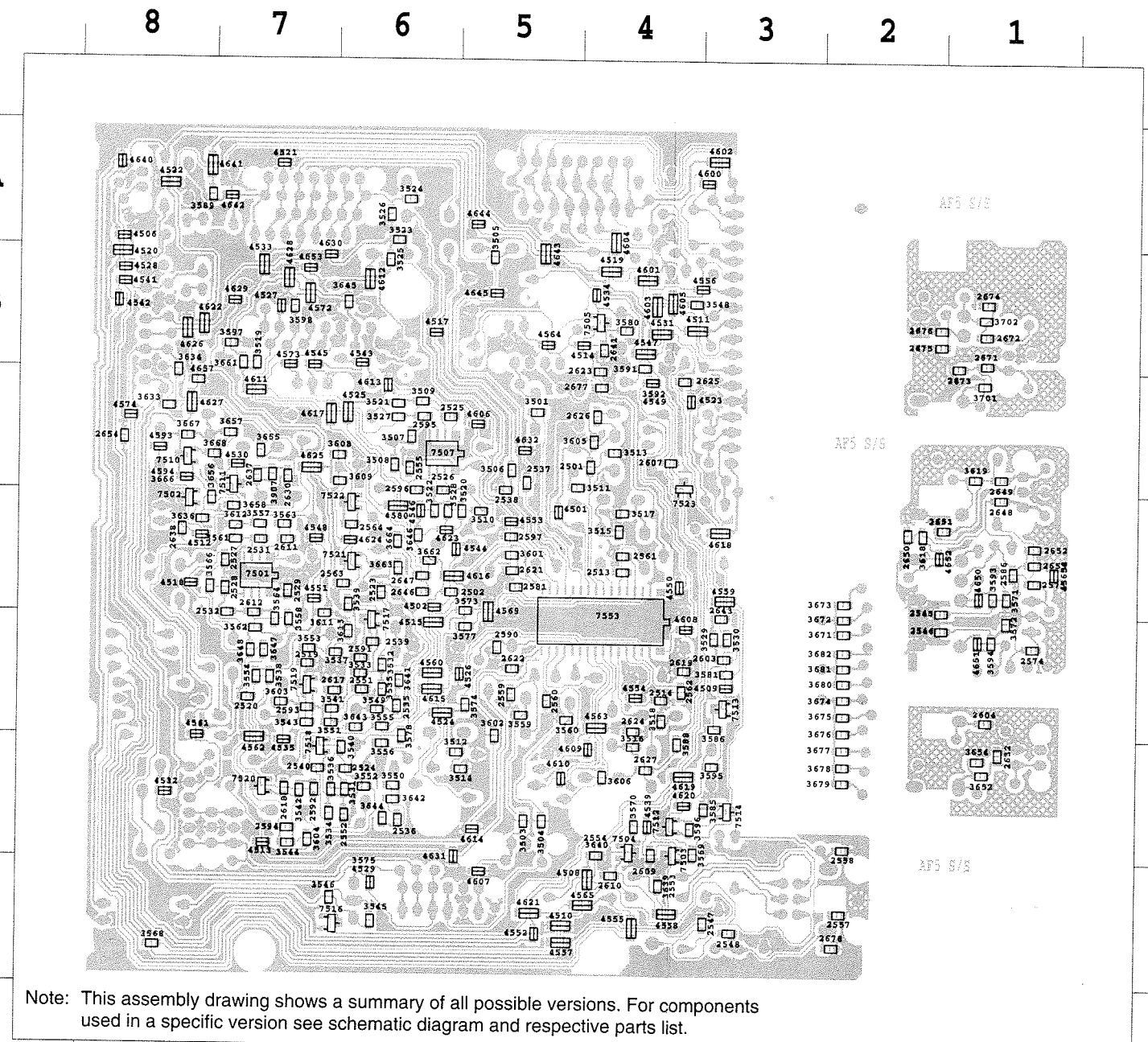
Note: This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

AF5 CBA

CHIP LAYOUT



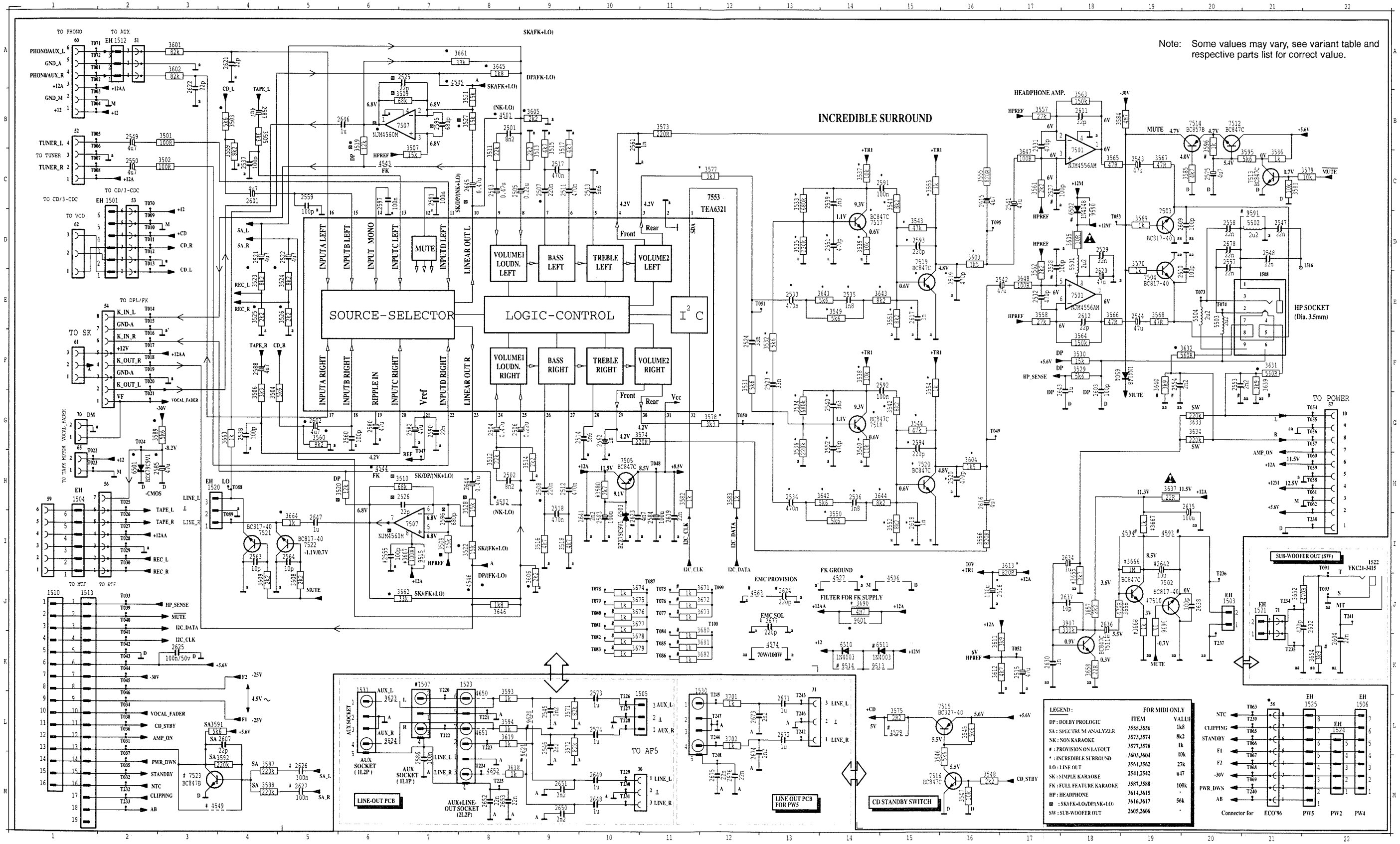
30	C 1	2580	E 4	9536	G 8	1506	A 5	3565	D 7	9581	C 5
31	B 1	2582	E 5	9537	C 6	1507	E 2	3567	G 3	9584	E 6
51	F 7	2583	B 4	9544	F 8	1508	G 2	3579	D 3	9589	C 6
52	B 5	2584	E 4	9545	E 8	1510	B 3	3582	C 4	9590	B 8
53	G 6	2585	A 8	9546	E 8	1512	F 7	3583	C 4	9591	G 3
54	B 7	2587	B 5	9547	E 8	1513	B 3	3584	B 4	9601	B 7
56	A 7	2588	A 6	9548	E 8	1516	G 4	3587	C 4	9620	C 1
57	B 8	2601	E 5	9549	E 8	1520	D 6	3607	C 6	9621	D 1
58	A 5	2602	E 5	9551	G 3	1521	F 1	3631	G 4	9623	E 1
59	A 7	2615	F 7	9554	F 5	1522	F 2	3632	G 4	9624	D 1
60	F 8	2616	F 6	9557	B 6	1523	D 2	3635	B 8		
61	C 7	2620	D 7	9561	C 4	1524	A 5	3637	C 7		
62	F 5	2634	C 7	9562	A 4	1525	A 5	3690	B 7		
65	A 8	2635	C 8	9563	A 8	1530	B 2	5501	B 8		
70	B 5	2636	D 7	9566	B 6	1531	C 2	5502	G 3		
71	F 1	2642	C 8	9569	B 6	2503	C 5	5503	G 3		
1501	G 6	2644	D 6	9571	E 8	2504	E 6	5504	G 3		
1503	D 8	2645	C 6	9572	B 7	2505	C 4	6501	A 7		
1504	A 7	3502	E 5	9573	F 5	2506	F 4	6502	B 8		
1505	D 1	3547	C 4	9580	F 5	2507	D 4	6503	B 5		
						2508	E 4	6504	G 4		
						2511	D 4	6510	F 8		
						2512	E 4	6511	F 8		
						2515	D 7	7515	G 6		
						2516	E 7	9503	E 4		
						2517	D 4	9506	E 5		
						2518	F 4	9507	A 4		
						2521	B 6	9508	E 5		
						2522	A 6	9509	E 5		
						2533	E 6	9511	D 5		
						2534	D 6	9513	F 8		
						2541	E 7	9514	F 8		
						2542	F 7	9515	C 6		
						2543	D 8	9518	F 5		
						2544	E 7	9519	G 8		
						2549	C 5	9523	B 4		
						2550	C 5	9524	B 4		
						2575	F 3	9525	E 6		



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

2501	C 4	2618	F 7	3528	D 6	3596	F 4	4502	D 6	4574	C 8	7514	F 3
2502	D 6	2619	E 4	3529	E 3	3597	B 7	4506	A 8	4580	D 6	7516	G 7
2513	D 4	2621	D 5	3530	E 3	3598	B 7	4508	G 4	4593	C 8	7517	E 6
2514	E 4	2622	E 5	3531	F 6	3601	D 5	4509	E 3	4594	C 8	7518	F 7
2519	E 7	2623	C 4	3532	E 6	3602	E 5	4510	G 5	4600	A 3	7519	E 7
2520	E 7	2624	E 4	3533	E 6	3603	E 7	4511	B 4	4601	B 4	7520	F 7
2523	D 6	2625	C 4	3534	F 7	3604	F 7	4512	D 8	4602	A 3	7521	D 6
2524	F 6	2626	C 4	3535	E 6	3605	C 4	4513	F 7	4603	B 4	7522	D 6
2525	C 6	2627	F 4	3536	F 7	3606	F 4	4514	B 4	4604	A 4	7523	C 4
2526	C 6	2630	C 7	3537	E 6	3608	C 6	4515	E 6	4605	B 4	7553	E 4
2527	D 7	2632	F 1	3538	E 7	3609	C 6	4517	B 6	4606	C 5	45658	D 1
2528	D 7	2637	C 7	3539	D 6	3611	E 7	4518	D 8	4607	G 5		
2529	D 7	2638	D 8	3540	F 6	3612	D 7	4519	B 4	4608	E 4		
2531	D 7	2641	B 4	3541	E 7	3613	E 6	4520	B 8	4609	F 4		
2532	E 7	2643	E 3	3542	F 7	3618	D 2	4521	A 7	4610	F 5		
2535	E 6	2646	D 6	3543	E 7	3619	C 1	4522	A 8	4611	C 7		
2536	F 6	2647	D 6	3544	F 7	3633	C 8	4523	C 4	4612	B 6		
2537	C 5	2648	D 1	3545	G 6	3634	C 8	4524	E 6	4613	C 6		
2538	C 5	2649	C 1	3546	G 7	3636	D 8	4525	C 6	4614	F 5		
2539	E 6	2650	D 2	3548	B 4	3639	G 4	4526	E 5	4615	E 6		
2540	F 7	2651	D 2	3549	E 6	3640	F 4	4527	B 7	4616	D 6		
2545	D 2	2652	D 1	3550	F 6	3641	E 6	4528	B 8	4617	C 7		
2546	E 2	2653	D 1	3551	E 7	3642	F 6	4529	G 6	4618	D 3		
2547	G 3	2654	C 8	3552	F 6	3643	E 6	4530	C 7	4619	F 4		
2548	G 3	2671	B 1	3553	E 7	3644	F 6	4531	B 4	4620	F 4		
2551	E 6	2672	B 1	3554	E 7	3645	B 6	4532	F 8	4621	G 5		
2552	F 6	2673	B 1	3555	E 6	3646	D 6	4533	B 7	4622	B 8		
2553	G 4	2674	B 1	3556	F 6	3647	E 7	4534	B 4	4623	D 6		
2554	F 4	2675	B 2	3557	D 7	3648	E 7	4535	F 7	4624	D 6		
2555	C 6	2676	B 2	3558	E 7	3652	F 1	4539	F 4	4625	C 7		
2557	G 2	2677	C 4	3559	E 5	3654	F 1	4541	B 8	4626	B 8		
2558	F 2	2678	G 2	3560	E 5	3655	C 7	4542	B 8	4627	C 8		
2559	E 5	3501	C 5	3561	D 7	3656	D 8	4543	B 6	4628	B 7		
2560	E 5	3503	F 5	3562	E 7	3657	C 7	4544	D 6	4629	B 7		
2561	D 4	3504	F 5	3563	D 7	3658	D 7	4545	B 7	4630	B 7		
2562	E 4	3505	B 5	3564	E 7	3661	B 7	4546	D 6	4631	F 6		
2563	D 6	3506	C 5	3566	D 8	3662	D 6	4547	B 4	4632	C 5		
2564	D 6	3507	C 6	3568	G 8	3663	D 6	4548	D 7	4640	A 8		
2573	D 1	3508	C 6	3569	F 4	3664	D 6	4549	C 4	4641	A 8		
2574	E 1	3509	C 6	3570	F 4	3666	C 8	4550	D 4	4642	A 7		
2581	D 5	3510	D 5	3571	D 1	3667	C 8	4551	D 7	4643	B 5		
2586	D 1	3511	C 5	3572	E 1	3668	C 8	4552	G 5	4644	A 5		
2590	E 5	3512	F 5	3573	D 5	3671	E 2	4553	D 5	4645	B 5		
2591	E 6	3513	C 4	3574	E 5	3672	E 2	4554	E 4	4650	D 1		
2592	F 7	3514	F 5	3575	G 6	3673	D 2	4555	G 4	4651	E 1		
2593	E 7	3515	D 4	3577	E 5	3674	E 2	4556	B 4	4652	D 2		
2594	F 7	3516	F 4	3578	F 6	3675	E 2	4557	G 5	4653	B 7		
2595	C 6	3517	D 4	3580	B 4	3676	E 2	4558	G 4	4657	C 8		
2596	C 6	3518	E 4	3581	E 3	3677	F 2	4559	D 3	7501	D 7		
2597	D 5	3519	B 7	3585	F 3	3678	F 2	4560	E 6	7502	D 8		
2603	E 3	3520	D 5	3586	E 3	3679	F 2	4561	F 8	7503	F 4		
2604	E 1	3521	C 6	3588	F 4	3680	E 2	4562	F 7	7504	F 4		
2607	C 4	3522	D 6	3589	A 8	3681	E 2	4563	E 4	7505	B 4		
2609	F 4	3523	A 6	3591	B 4	3682	E 2	4564	B 5	7507	C 6		
2610	G 4	3524	A 6	3592	C 4	3701	C 1	4565	G 4	7510	C 8		
2611	D 7	3525	B 6	3593	D 1	3702	B 1	4569	D 5	7511	C 7		
2612	E 7	3526	A 6	3594	E 1	3907	C 7	4572	B 7	7512	F 4		
2617	E 7	3527	C 6	3595	F 3	4501	D 5	4573	B 7	7513	E 3		

AF5 BOARD SCHEMATIC DIAGRAM



AF5 BOARD INFORMATION

The AF5 Board consists of the following features :

a. SOFAC IC

SOFAC IC TEA6321 (7553) which includes functions such as source selection, loudness control, dynamic bass control, treble control, front/rear volume control and muting function. Sound features such as DBB, DSC and IS are controllable via I²C data from the microprocessor.

The SOFAC IC caters for 4 input sources, namely tuner, tape, CD and AUX. It also has a MONO input which is tied to ground via 100n. In our application, software will switch the input source to MONO input during STANDBY mode and some other occasions where noise from other input sources is undesirable.

Note that the input to the SOFAC IC must be AC coupled to prevent 'pop' noise. Input networks are included to provide appropriate attenuation for various sources.

b. KARAOKE MIC. MIXING

Karaoke Mic. Mixing can be configured to cater for one of the following :
NK : Non Karaoke.
SK : Simple Karaoke which caters for mic. mixing with additional mic. amplifier board.
FK : Full Karaoke with vocal fader and echo effect with additional karaoke board.

c. DOLBY PRO LOGIC (DPL) INTERFACE

DPL Interface can be configured to cater for DPL and also DPL with one of the karaoke functions.

d. LINE OUT

Line Out with JST XH connector for connection to LINE OUT cinch socket.

e. SUB-WOOFER OUTPUT

Sub-Woofer Output with cinch socket for connection to active sub-woofer speaker.

f. INCREDIBLE SURROUND

Incredible Surround effect using transistor circuit BC847C (7517, 7518, 7519, 7520) to create phase shifting and spatial effect.

g. HEADPHONE AMPLIFIER

Headphone Amplifier using Op-Amp. NJM4556AM (7501).

h. CD STANDBY SWITCH

CD Standby control circuit using transistors BC327-40 (7515) and BC847C (7516) which switches on the supply to CD servo control IC, HF circuit and the laser light pen in CD mode only.

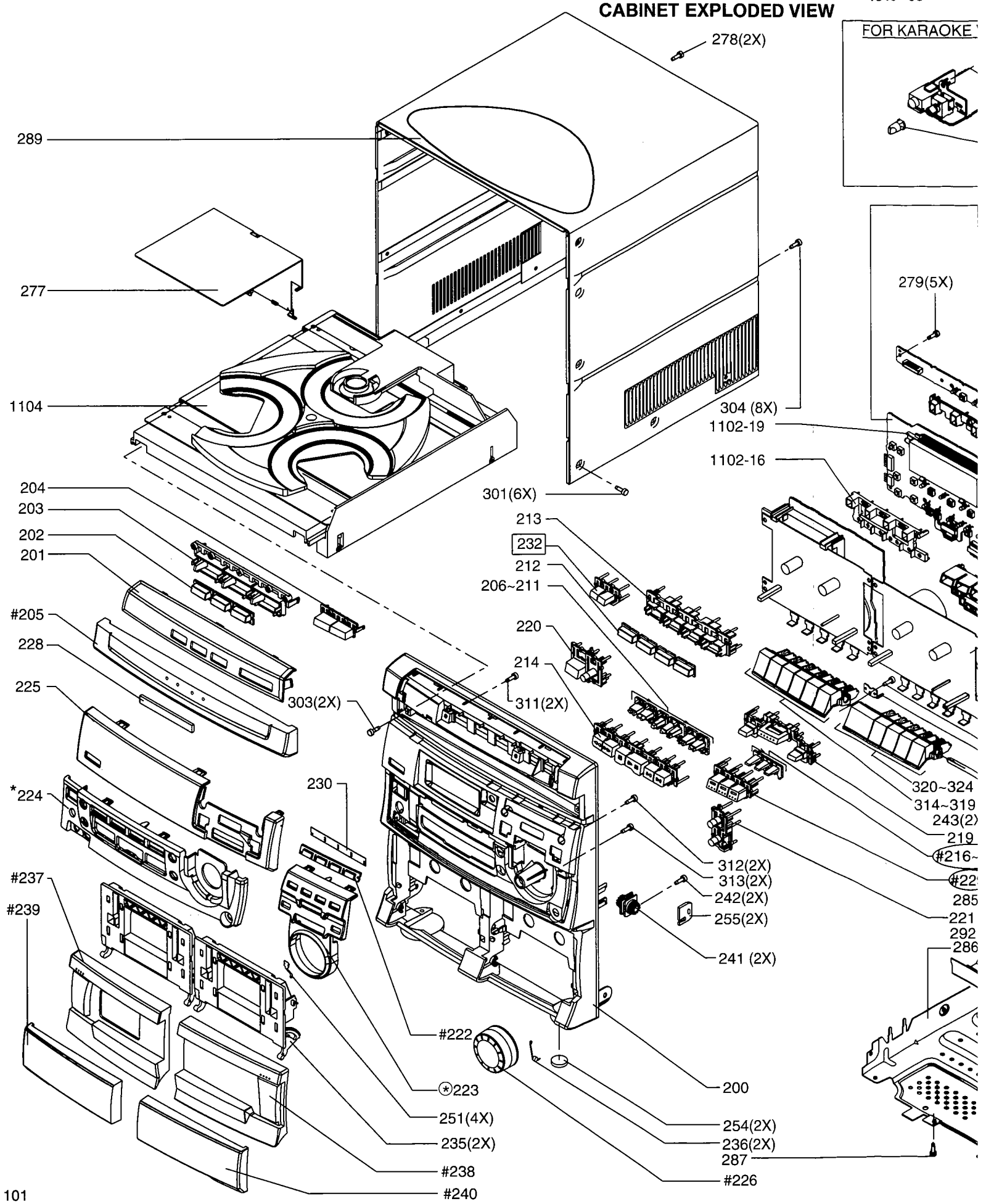
i. HEADPHONE SENSING CIRCUIT

Headphone Sensing circuit to mute center and surround channels in DPL application.

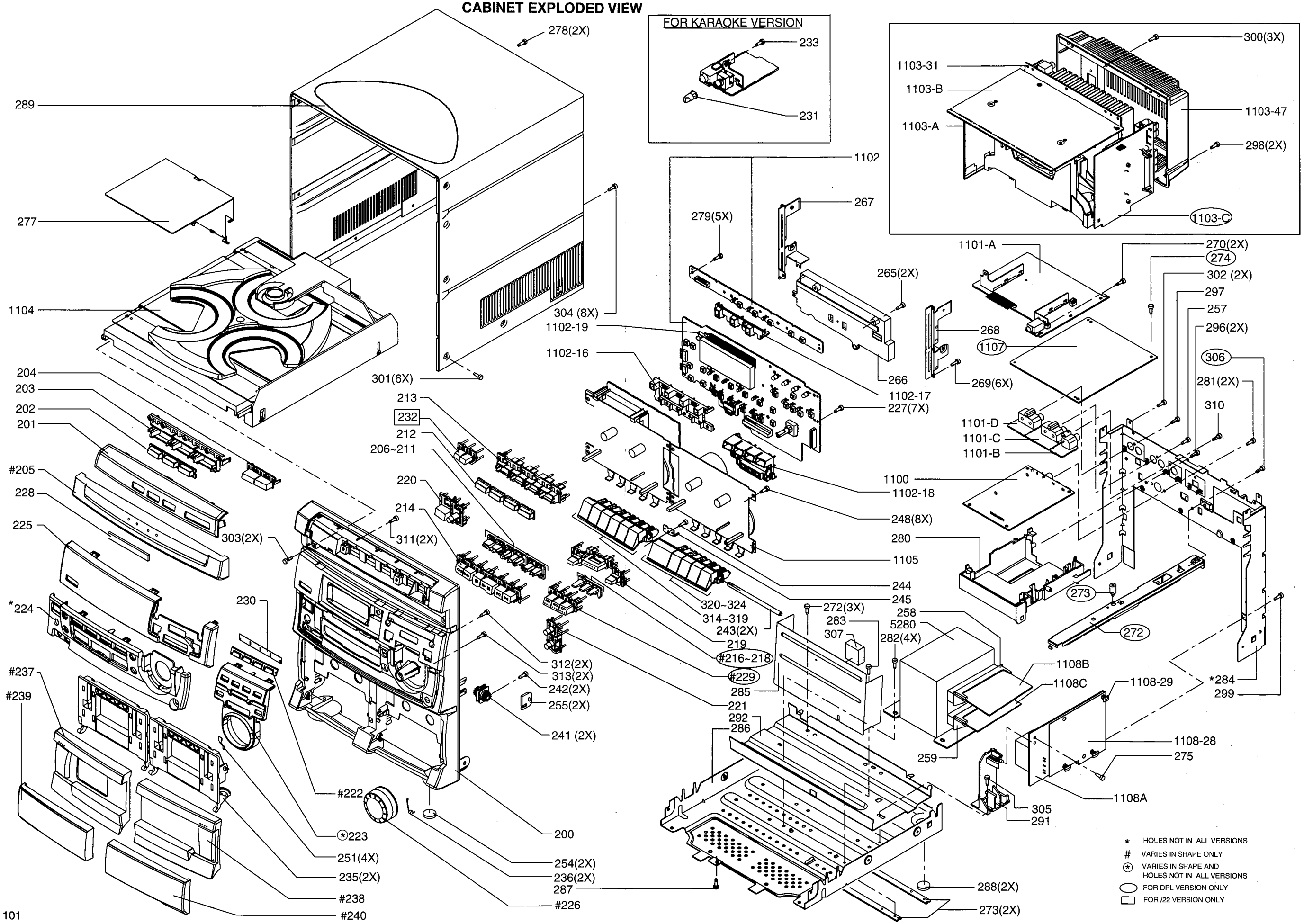
j. ATTENUATION NETWORK

Attenuation network is provided at the output of the AF5 Board for interfacing with the power board of different output power.

CABINET EXPLODED VIEW



CABINET EXPLODED VIEW



MECHANICAL AND ACCESSORIES REPLACEMENT PARTS LIST

Ref.	Part No.	Description
200	4822 459 04914	Cabinet Front
201	4822 450 10442	Window CDC
202	4822 410 11645	Button Set CDC
203	4822 464 10372	Frame Button Set CDC
204	4822 410 11646	Button Set Open/Close
205	4822 442 01271	Cover Tray CDC
212	4822 410 11647	Button Set Source Select
213	4822 464 10373	Frame Button Source Select
214	4822 410 11648	Button Set Control
219	4822 410 11706	Button Set DSC 2
220	4822 410 11701	Button Set Power/Clock
221	4822 410 11652	Button Set PROG/HSD
223	4822 426 10599	Panel Control 2 No DPL
224	4822 454 13287	Panel Display 2
225	4822 450 10462	Window Display 2
226	4822 410 11697	Knob Volume
228	4822 454 13265	Badge (Ph-Mag) Assembly
235	4822 443 10881	Door Cassette (Mech)
236	4822 492 42709	Spring-Door
237	4822 442 01272	Cover Cassette Left
238	4822 442 01273	Cover Cassette Right
239	4822 381 11941	Lens Cassette Left
240	4822 381 11942	Lens Cassette Right
241	4822 529 10322	Damper Assy
251	4822 492 70231	Spring Leaf
254	4822 462 40683	Plate (Foot)
288	4822 462 40683	Plate (Foot)
289	4822 426 10601	Cabinet Rear
291	4822 402 10962	Bracket AC
314	4822 410 11656	Button Record 1
315	4822 410 11658	Button Play 1
316	4822 410 11659	Button Rewind 1
317	4822 410 11661	Button F.Forward 1
318	4822 410 11662	Button Stop/Eject 1
319	4822 410 11663	Button Pause 1
320	4822 410 11664	Button Play 1
321	4822 410 11665	Button Rewind 2
322	4822 410 11666	Button F.Forward 2
323	4822 410 11667	Button Stop/Eject 2
324	4822 410 11668	Button Pause 2
349	4822 445 10741	Surround Speaker
350	4822 445 10743	LS Pair To Left
350	4822 445 10744	LS Pair To Right
351	4822 320 11094	FM Aerial
356	4822 219 10433	Remote Control

Ref.	Part No.	Description
384	4822 303 50082	AM Frame Aerial
⚠ 385	4822 321 10882	AC Cord
387	4822 736 15956	Instruction For Use
⚠ 5280	4822 146 10941	AC Transformer

Note: Only the parts listed are normal service spare parts.

SCREW LISTING

227	D3 x 12
242	M3 x 12
244	D3 x 12
248	D3 x 12
257	D3 x 12
265	D3 x 12
269	D3 x 12
270	D3 x 12
272	M3 x 6
275	D3 x 10
278	M3 x 10
279	D3 x 12
281	D3 x 12
282	M3 x 10
283	M3 x 6
287	M3 x 6
296	D3 x 12
297	D3 x 12
298	M3 x 10
299	D3 x 12
300	M3 x 10
301	M3 x 10
302	D3 x 10
303	D3 x 10
304	M3 x 10
305	M3 x 10
310	D3 x 12
311	D3 x 10
312	D3 x 10
313	D3 x 10

FRONT BOARD ELECTRICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description
MISCELLANEOUS		
1400	4822 135 00177	FTD Display (Dot Matrix)
1401	4822 267 10736	Connector 18 Pin
1440	4822 276 13114	Tact Switch
1441	4822 276 13114	Tact Switch
1442	4822 276 13114	Tact Switch
1443	4822 276 13114	Tact Switch
1444	4822 276 13114	Tact Switch
1445	4822 276 13114	Tact Switch
1446	4822 276 13114	Tact Switch
1447	4822 276 13114	Tact Switch
1448	4822 276 13114	Tact Switch
1449	4822 276 13114	Tact Switch
1450	4822 276 13114	Tact Switch
1451	4822 276 13114	Tact Switch
1452	4822 276 13114	Tact Switch
1453	4822 276 13114	Tact Switch
1454	4822 276 13114	Tact Switch
1459	4822 276 13114	Tact Switch
1460	4822 276 13114	Tact Switch
1461	4822 276 13114	Tact Switch
1466	4822 276 13114	Tact Switch
1467	4822 276 13114	Tact Switch
1468	4822 276 13114	Tact Switch
1469	4822 276 13114	Tact Switch
1470	4822 276 13114	Tact Switch
1480	4822 101 21261	Rot Encoder 24P
CAPACITORS		
2400	4822 122 32504	15pF 2% 50V
2401	4822 122 32504	15pF 2% 50V
2402	4822 126 10002	100nF20% 25V
2403	5322 122 32659	33pF 5% 50V
2404	5322 122 32659	33pF 5% 50V
2405	4822 126 13473	220nF +80/-20% 50V
2407	4822 122 33177	10nF 20% 50V
2408	4822 126 13751	47nF10% 63V
2409	4822 122 33175	2.2nF 20% 50V
2410	4822 126 10002	100nF20% 25V
2416	4822 126 13692	47pF 1% 63V
2417	4822 126 13692	47pF 1% 63V
2418	4822 126 13692	47pF 1% 63V
2419	4822 126 13692	47pF 1% 63V
2426	5322 122 32531	100pF 5% 50V
2427	4822 124 40242	1µF 20% 63V
2428	4822 124 40242	1µF 20% 63V
2429	4822 124 80483	47µF 20% 6,3V
2430	4822 124 42446	100µF 20% 10V
2431	5322 122 32531	100pF 5% 50V
2432	4822 126 10002	100nF 20% 25V
2433	4822 126 13296	100nF 10% 16V
2434	4822 126 13296	100nF10% 16V
2435	4822 126 13296	100nF10% 16V
2436	4822 122 33177	10nF 20% 50V
2437	4822 122 33177	10nF 20% 50V
2439	5322 122 32531	100pF 5% 50V
2440	4822 126 13692	47pF 1% 63V
2441	4822 126 13692	47pF 1% 63V
2442	4822 126 13692	47pF 1% 63V
2443	4822 126 13692	47pF 1% 63V
2444	5322 122 32531	100pF 5% 50V
RESISTORS		
3400	4822 051 20105	1M 5% 0.1W
3401	4822 051 20684	680K 5% 0.1W
3402	4822 051 10102	1k 2% 0.25W
3403	4822 117 10834	47k 1% 0.1W
3404	4822 051 10102	1k 2% 0.25W
3405	4822 051 10102	1k 2% 0.25W
3406	4822 051 10102	1k 2% 0.25W
3407	4822 051 10102	1k 2% 0.25W
3408	4822 051 10102	1k 2% 0.25W
3410	4822 051 10102	1k 2% 0.25W
3411	4822 117 11449	2k2 1% 0.1W
3412	4822 116 52256	2k2 5% 0.25W
3413	4822 117 11449	2k2 1% 0.1W
3417	4822 051 10102	1k 2% 0.25W
3418	4822 051 10102	1k 2% 0.25W
3419	4822 051 10102	1k 2% 0.25W
3420	4822 051 10102	1k 2% 0.25W
3421	4822 051 10102	1k 2% 0.25W
3422	4822 051 10102	1k 2% 0.25W
3432	4822 117 10833	10k 1% 0.1W
3433	4822 117 10833	10k 1% 0.1W
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
3448	4822 051 10102	1k 2% 0.25W
3449	4822 051 10102	1k 2% 0.25W
3450	4822 051 10102	1k 2% 0.25W
3451	4822 051 10102	1k 2% 0.25W
3452	4822 051 10102	1k 2% 0.25W
3453	4822 051 10102	1k 2% 0.25W
3454	4822 051 10102	1k 2% 0.25W
3455	4822 051 10102	1k 2% 0.25W

FRONT BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
3456	4822 051 10102	1k 2% 0.25W
3457	4822 051 10102	1k 2% 0.25W
3458	4822 051 10102	1k 2% 0.25W
3459	4822 051 10102	1k 2% 0.25W
3460	4822 051 10102	1k 2% 0.25W
3461	4822 051 10102	1k 2% 0.25W
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 10833	10k 1% 0.1W
3468	4822 051 10102	1k 2% 0.25W
3470	4822 117 10833	10k 1% 0.1W
3474	4822 051 10102	1k 2% 0.25W
3475	4822 051 10102	1k 2% 0.25W
3478	4822 051 20104	100k 5% 0.1W
3479	4822 117 10833	10k 1% 0.1W
3490	4822 051 10102	1k 2% 0.25W
3491	4822 051 20101	100R 5% 0.1W
3492	4822 051 20331	330R 5% 0.1W
3493	4822 116 52219	330R 5% 0.5W
3494	4822 051 20331	330R 5% 0.1W
3495	4822 116 52219	330R 5% 0.5W
3496	4822 051 20331	330R 5% 0.1W
3497	4822 051 20331	330R 5% 0.1W
3498	4822 051 20331	330R 5% 0.1W
3499	4822 051 20331	330R 5% 0.1W
3505	4822 051 20331	330R 5% 0.1W
3506	4822 051 20474	470k 5% 0.1W
3507	4822 051 20474	470k 5% 0.1W
3508	4822 051 20474	470k 5% 0.1W
3509	4822 117 10833	10k 1% 0.1W
3510	4822 051 10102	1k 2% 0.25W
3511	4822 117 10833	10k 1% 0.1W
3512	4822 051 10102	1k 2% 0.25W
3526	4822 117 10833	10k 1% 0.1W
3527	4822 117 10833	10k 1% 0.1W
3528	4822 117 10833	10k 1% 0.1W
3529	4822 051 10102	1k 2% 0.25W
3530	4822 051 10102	1k 2% 0.25W
3531	4822 051 10102	1k 2% 0.25W
3532	4822 051 10102	1k 2% 0.25W
3536	4822 117 10833	10k 1% 0.1W
3539	4822 117 10833	10k 1% 0.1W
3540	4822 051 20331	330R 5% 0.1W
3541	4822 051 20331	330R 5% 0.1W
3542	4822 051 20331	330R 5% 0.1W
3543	4822 051 20391	390R 5% 0.1W
3547	4822 051 20391	390R 5% 0.1W
3548	4822 051 20391	390R 5% 0.1W
3549	4822 051 20391	390R 5% 0.1W
3550	4822 051 20391	390R 5% 0.1W
3551	4822 051 20391	390R 5% 0.1W
3552	4822 117 11503	220R 1% 0.1W
3553	4822 051 20391	390R 5% 0.1W
3554	4822 117 10833	10k 1% 0.1W
3555	4822 117 11503	220R 1% 0.1W
3556	4822 117 11503	220R 1% 0.1W
3557	4822 117 11503	220R 1% 0.1W
3558	4822 116 83872	220R 1% 0.5W
3559	4822 051 20391	390R 5% 0.1W
3560	4822 117 11503	220R 1% 0.1W
3561	4822 051 20108	1R 5% 0.1W
3562	4822 051 20108	1R 5% 0.1W
3564	4822 051 20331	330R 5% 0.1W
3578	4822 051 20104	100k 5% 0.1W
3579	4822 051 20479	47R 5% 0.1W
3580	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 20105	1M 5% 0.1W
3585	4822 051 20331	330R 5% 0.1W
3586	4822 051 20331	330R 5% 0.1W
3587	4822 051 20331	330R 5% 0.1W
⚠ 3588	4822 052 10478	4R7 5% 0.33W
3589	4822 116 83872	220R 5% 0.5W
3590	4822 117 11503	220R 1% 0.1W
3592	4822 051 10102	1k 2% 0.25W
3593	4822 117 10833	10k 1% 0.1W
3594	4822 117 10833	10k 1% 0.1W
3595	4822 117 10833	10k 1% 0.1W
3596	4822 051 20474	470k 5% 0.1W
3597	4822 051 20472	4k7 5% 0.1W
3598	4822 116 83864	10k 5% 0.5W
3599	4822 117 10834	47k 1% 0.1W
3600	4822 051 20154	150k 5% 0.1W
3601	4822 050 11002	1k 1% 0.4W
3602	4822 050 11002	1k 1% 0.4W
3603	4822 117 11507	6k8 1% 0.1W
3604	4822 051 20822	8k2 5% 0.1W
3606	4822 051 20471	470R 5% 0.1W
3607	4822 051 20471	470R 5% 0.1W
3608	4822 051 20471	470R 5% 0.1W
3609	4822 051 10102	1k 2% 0.25W
3610	4822 051 10102	1k 2% 0.25W
3611	4822 051 20472	4k7 5% 0.1W
3612	4822 051 10102	1k 2% 0.25W
3613	4822 051 10102	1k 2% 0.25W
3614	4822 051 10102	1k 2% 0.25W
3615	4822 051 10102	1k 2% 0.25W
3616	4822 051 20471	470R 5% 0.1W
3617	4822 051 10102	1k 2% 0.25W
4402	4822 051 20008	0R Jumper 0805
4403	4822 051 20008	0R Jumper 0805

FRONT BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
RESISTORS		
4404	4822 051 20008	0R Jumper 0805
4405	4822 051 20008	0R Jumper 0805
4406	4822 051 20008	0R Jumper 0805
4407	4822 051 20008	0R Jumper 0805
4408	4822 051 20008	0R Jumper 0805
4409	4822 051 20008	0R Jumper 0805
4410	4822 051 20008	0R Jumper 0805
4411	4822 051 20008	0R Jumper 0805
4412	4822 051 20008	0R Jumper 0805
4413	4822 051 20008	0R Jumper 0805
4414	4822 051 20008	0R Jumper 0805
4421	4822 051 20008	0R Jumper 0805
4423	4822 051 20008	0R Jumper 0805
4424	4822 051 20008	0R Jumper 0805
4425	4822 051 20008	0R Jumper 0805
4426	4822 051 20008	0R Jumper 0805
4427	4822 051 20008	0R Jumper 0805
4428	4822 051 20008	0R Jumper 0805
4430	4822 051 20008	0R Jumper 0805
4433	4822 051 20008	0R Jumper 0805
4434	4822 051 20008	0R Jumper 0805
4435	4822 051 20008	0R Jumper 0805
4436	4822 051 20008	0R Jumper 0805
4437	4822 051 20008	0R Jumper 0805
4439	4822 051 20008	0R Jumper 0805
4441	4822 051 20008	0R Jumper 0805
4442	4822 051 20008	0R Jumper 0805
4446	4822 051 20008	0R Jumper 0805
4447	4822 051 20008	0R Jumper 0805
4448	4822 051 20008	0R Jumper 0805
4449	4822 051 20008	0R Jumper 0805
4451	4822 051 20008	0R Jumper 0805
4452	4822 051 20008	0R Jumper 0805
4454	4822 051 20008	0R Jumper 0805
4455	4822 051 20008	0R Jumper 0805
4456	4822 051 20008	0R Jumper 0805
4458	4822 051 20008	0R Jumper 0805
4460	4822 051 20008	0R Jumper 0805
4462	4822 051 20008	0R Jumper 0805
4463	4822 051 20008	0R Jumper 0805
4464	4822 051 20008	0R Jumper 0805
4465	4822 051 20008	0R Jumper 0805
4466	4822 051 20008	0R Jumper 0805
4467	4822 051 20008	0R Jumper 0805
4468	4822 051 20008	0R Jumper 0805
4469	4822 051 20008	0R Jumper 0805
4470	4822 051 20008	0R Jumper 0805
4471	4822 051 20008	0R Jumper 0805
4473	4822 051 20008	0R Jumper 0805
4474	4822 051 20008	0R Jumper 0805
4478	4822 051 20008	0R Jumper 0805
4479	4822 051 20008	0R Jumper 0805
4481	4822 051 20008	0R Jumper 0805
4483	4822 051 20008	0R Jumper 0805
4484	4822 051 20008	0R Jumper 0805
4486	4822 051 20008	0R Jumper 0805
4487	4822 051 20008	0R Jumper 0805
4490	4822 051 20008	0R Jumper 0805
4491	4822 051 20008	0R Jumper 0805
4493	4822 051 20008	0R Jumper 0805
4497	4822 051 20008	0R Jumper 0805
4498	4822 051 20008	0R Jumper 0805
4499	4822 051 20008	0R Jumper 0805
4500	4822 051 20008	0R Jumper 0805
4501	4822 051 20008	0R Jumper 0805
4502	4822 051 20008	0R Jumper 0805
4503	4822 051 20008	0R Jumper 0805
4504	4822 051 20008	0R Jumper 0805
4505	4822 051 20008	0R Jumper 0805
4506	4822 051 20008	0R Jumper 0805
4507	4822 051 20008	0R Jumper 0805
4508	4822 051 20008	0R Jumper 0805
4509	4822 051 20008	0R Jumper 0805
4512	4822 051 20008	0R Jumper 0805
4513	4822 051 20008	0R Jumper 0805
4514	4822 051 20008	0R Jumper 0805
4515	4822 051 20008	0R Jumper 0805
4516	4822 051 20008	0R Jumper 0805
4517	4822 051 20008	0R Jumper 0805
4518	4822 051 20008	0R Jumper 0805
4519	4822 051 20008	0R Jumper 0805
4520	4822 051 20008	0R Jumper 0805
4521	4822 051 20008	0R Jumper 0805
4522	4822 051 20008	0R Jumper 0805
4523	4822 051 20008	0R Jumper 0805
4524	4822 051 20008	0R Jumper 0805
4526	4822 051 20008	0R Jumper 0805
4527	4822 051 20008	0R Jumper 0805
4528	4822 051 20008	0R Jumper 0805
4529	4822 051 20008	0R Jumper 0805
4530	4822 051 20008	0R Jumper 0805
4531	4822 051 20008	0R Jumper 0805
4532	4822 051 20008	0R Jumper 0805
4533	4822 051 20008	0R Jumper 0805
4534	4822 051 20008	0R Jumper 0805
4535	4822 051 20008	0R Jumper 0805
4536	4822 051 20008	0R Jumper 0805
4537	4822 051 20008	0R Jumper 0805
4538	4822 051 20008	0R Jumper 0805
4539	4822 051 20008	0R Jumper 0805
4540	4822 051 20008	0R Jumper 0805
4541	4822 051 20008	0R Jumper 0805
4544	4822 051 20008	0R Jumper 0805
4545	4822 051 20008	0R Jumper 0805

FRONT BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
4601	4822 051 20008	0R Jumper 0805
4602	4822 051 20008	0R Jumper 0805
4603	4822 051 20008	0R Jumper 0805
4604	4822 051 20008	0R Jumper 0805
4605	4822 051 20008	0R Jumper 0805
4606	4822 051 20008	0R Jumper 0805
4607	4822 051 20008	0R Jumper 0805
4611	4822 051 20008	0R Jumper 0805
4614	4822 051 20008	0R Jumper 0805
4615	4822 051 20008	0R Jumper 0805
4617	4822 051 20008	0R Jumper 0805
4618	4822 051 20008	0R Jumper 0805
4619	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5412	4822 242 70938	X'tal Resonator 32.768kHZ
5413	4822 242 72066	Ceramic Resonator
5414	4822 157 11477	Fixed Inductor 2µ2 5%
5416	4822 157 11477	Fixed Inductor 2µ2 5%

DIODES

6004	4822 130 30621	1N4148
6006	4822 130 30621	1N4148
6007	4822 130 30621	1N4148
6008	4822 130 30621	1N4148
6011	4822 130 30621	1N4148
6013	4822 130 30621	1N4148
6014	4822 130 30621	1N4148
6015	4822 130 30621	1N4148
6017	4822 130 30621	1N4148
6018	4822 130 30621	1N4148
6020	4822 130 30621	1N4148
6021	4822 130 30621	1N4148
6022	4822 130 30621	1N4148
⚠ 6028	4822 130 31878	1N4003G
6029	4822 130 30621	1N4148
6030	4822 130 83119	LTL-307C
6032	4822 130 10791	LTL-1CHGE
6033	4822 130 10792	LTL-1CHPE
6035	4822 130 10791	LTL-1CHGE
6036	4822 130 10792	LTL-1CHPE
6038	4822 130 10791	LTL-1CHGE
6039	4822 130 10792	LTL-1CHPE
6041	4822 130 10791	LTL-1CHGE
6042	4822 130 10792	LTL-1CHPE
6043	4822 130 83119	LTL-307C
6045	4822 130 83119	LTL-307C
6046	4822 130 10791	LTL-1CHGE
6047	4822 130 83119	LTL-307C
6048	4822 130 10791	LTL-1CHGE
6049	4822 130 10792	LTL-1CHPE
6050	4822 130 10792	LTL-1CHPE
6051	4822 130 10792	LTL-1CHPE
6052	4822 130 10791	LTL-1CHGE
6053	4822 130 10791	LTL-1CHGE
6054	4822 130 30621	1N4148
6055	4822 130 30621	1N4148
6056	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7400	4822 209 16221	TMP87CS71F - '755S51631'
7401	4822 209 31508	ST24C01B1
7402	4822 209 15449	74HC4094D
7403	4822 209 15449	74HC4094D
7404	4822 209 15449	74HC4094D
7406	4822 130 10165	GP1U28XP
7407	4822 130 60511	BC847B
7408	4822 130 60511	BC847B

Note: Only the parts listed are normal service spare parts.

ECO5 TUNER BOARD ELECTRICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description	
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 20224	220k 5% 0.1W	
3137	4822 051 20223	22k 5% 0.1W	for LW version
3140	4822 051 20008	0R Jumper 0805	
		5120=CDA10.7MG40K	
3140	4822 117 10353	150R 1% 0.1W	
		5120=CDA10.7MG61KA	
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	

ECO5 TUNER BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description	
3176	4822 051 10102	1k 2% 0.25W	for RDS 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	AM 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 AM	
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 listed are normal service spare parts.

MTF BOARD ELECTRICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description
MISCELLANEOUS		
1707	4822 277 11504	Recording Switch
CAPACITORS		
2703	4822 124 40433	47µF 20% 25V
2704	4822 124 81151	22µF 50V
2705	4822 124 40246	4.7µF 20% 63V
2706	4822 124 12068	220µF 20% 10V
2707	4822 124 41576	2.2µF 20% 50V
2708	4822 124 12068	220µF 20% 10V
2709	4822 124 80144	220µF 20% 25V
2710	4822 124 40433	47µF 20% 25V
2711	4822 124 12068	220µF 20% 10V
2712	4822 124 12068	220µF 20% 10V
2713	4822 124 80144	220µF 20% 25V
2714	4822 124 40433	47µF 20% 25V
2715	4822 124 81151	22µF 50V
2716	4822 124 81151	22µF 50V
2718	4822 124 40433	47µF 20% 25V
2719	4822 124 40433	47µF 20% 25V
2721	4822 121 51387	10nF 20% 16V
2722	4822 126 11714	4.7nF 20%
2723	4822 121 41857	10nF 5% 250V
2724	4822 121 51306	18nF 10% 50V
2725	4822 126 11714	4.7nF 20%
2726	4822 126 11714	4.7nF 20%
2727	4822 126 12878	1.5nF 10% 16V
2728	4822 121 51305	15nF 10% 50V
2729	4822 126 12787	330pF 10% 50V
2730	4822 121 51304	10nF 10% 50V
2731	4822 126 11585	22nF +80/-20% 25V
2732	4822 126 11585	22nF +80/-20% 25V
2733	4822 126 12878	1.5nF 10% 16V
2734	5322 122 32311	470pF 10% 100V
2735	4822 121 51305	15nF 10% 50V
2736	4822 126 12787	330pF 10% 50V
2737	4822 121 51304	10nF 10% 50V
2738	4822 126 11585	22nF +80/-20% 25V
2739	4822 122 33195	100pF 10% 50V
2740	4822 126 12339	2.2nF 10% Y5R
2741	4822 126 12339	2.2nF 10% Y5R
2742	4822 122 33195	100pF 10% 50V
2743	4822 126 12878	1.5nF 10% 16V
2744	5322 122 32311	470pF 10% 100V
2745	4822 126 12878	1.5nF 10% 16V
2746	5322 122 32311	470pF 10% 100V
2747	4822 121 51305	15nF 10% 50V
2748	4822 126 11585	22nF +80/-20% 25V
2749	4822 126 12878	1.5nF 10% 16V
2750	5322 122 32311	470pF 10% 100V
2751	4822 121 51305	15nF 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
2757	4822 121 51252	470nF 5% 63V
2758	4822 121 51252	470nF 5% 63V
2759	4822 122 33519	470pF 10% 50V
2760	4822 122 33519	470pF 10% 50V
2761	4822 126 14316	680pF 10% 50V
2762	4822 126 14316	680pF 10% 50V
RESISTORS		
3701	4822 050 21002	1k 1% 0.6W
3702	4822 116 83884	47k 5% 0.5W
3703	4822 050 11009	10R 1% 0.4W
3704	4822 050 13302	3k3 1% 0.4W
3705	4822 050 21002	1k 1% 0.6W
3706	4822 111 30893	4M7 5% 0.2W
3707	4822 116 52176	10R 5% 0.5W
3708	4822 050 11003	10k 1% 0.4W
3709	4822 111 20434	270R
3710	4822 116 52269	3k3 5% 0.5W
3711	4822 050 12202	2k2 1% 0.4W
3712	4822 050 12202	2k2 1% 0.4W
3713	4822 116 52257	22k 5% 0.5W
3714	4822 116 52257	22k 5% 0.5W
3715	4822 050 11002	1k 1% 0.4W
3716	4822 050 18202	8k2 1% 0.4W
3717	4822 116 52219	330R 5% 0.5W
3718	4822 050 11003	10k 1% 0.4W
3719	4822 050 12202	2k2 1% 0.4W
3720	4822 050 12202	2k2 1% 0.4W
3721	4822 116 52245	150k 5% 0.5W
3722	4822 116 83872	220R 5% 0.5W
3723	4822 116 83883	470R 5% 0.5W
3724	4822 116 52184	18R 5% 0.5W
3725	4822 050 18202	8k2 1% 0.4W
3726	4822 050 11002	1k 1% 0.4W
3727	4822 116 52219	330k 5% 0.5W
3728	4822 050 11003	10k 1% 0.4W
3729	4822 050 12202	2k2 1% 0.4W
3730	4822 050 12202	2k2 1% 0.4W
3731	4822 116 52245	150k 5% 0.5W
3732	4822 116 83864	10K 5% 0.5W
3733	4822 116 52256	2k2 5% 0.5W
3734	4822 050 15602	5k6 1% 0.4W
3735	4822 116 83864	10K 5% 0.5W
3736	4822 116 52256	2k2 5% 0.5W
3737	4822 116 52245	150k 5% 0.5W
3738	4822 116 83872	220R 5% 0.5W
3739	4822 116 83883	470R 5% 0.5W
3740	4822 116 52283	4k7 5% 0.5W
3741	4822 116 52184	18R 5% 0.5W

MTF BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
RESISTORS		
3742	4822 116 52245	150k 5% 0,5W
3743	4822 116 83872	220R 5% 0.5W
3744	4822 116 83883	470R 5% 0.5W
3745	4822 116 52283	4k7 5% 0.5W
3746	4822 116 52184	18R 5% 0.5W
3747	4822 050 15602	5k6 1% 0,4W
3748	4822 116 83883	470R 5% 0.5W
3749	4822 116 52245	150k 5% 0,5W
3750	4822 116 83872	220R 5% 0.5W
3751	4822 116 83883	470R 5% 0.5W
3752	4822 116 52184	18R 5% 0.5W
3753	4822 116 83883	470R 5% 0.5W
3754	4822 050 12202	2k2 1% 0.4W
3755	4822 050 12202	2k2 1% 0,4W
3756	4822 050 12202	2k2 1% 0,4W
3757	4822 050 12202	2k2 1% 0,4W
3758	4822 101 11166	Trimmer 2k2
⚠ 3759	4822 052 10478	4R7 5% 0,33W
3760	4822 050 12702	2k7 1% 0,4W
3761	4822 116 83884	47k 5% 0,5W
3764	4822 116 83864	10k 5% 0,5W
3765	4822 116 83864	10k 5% 0,5W
3766	4822 050 11003	10k 1% 0,4W
3767	4822 050 11003	10k 1% 0,4W
3768	4822 116 83864	10k 5% 0,5W
3769	4822 050 18202	8k2 1% 0,4W
3770	4822 116 83884	47k 5% 0,5W
3771	4822 116 83864	10k 5% 0.5W
3772	4822 116 52234	100k 5% 0,5W
3773	4822 050 11003	10k 1% 0,4W
3774	4822 050 18202	8k2 1% 0.4W
3775	4822 116 83884	47k 5% 0,5W
3776	4822 050 11004	100k 1% 0,4W
3777	4822 116 83884	47k 5% 0,5W
3778	4822 116 52234	100k 5% 0,5W
3779	4822 116 83864	10k 5% 0.5W
3780	4822 050 11504	150k 1% 0,4W
3781	4822 050 11001	100R 1% 0,4W
3782	4822 050 11001	100R 1% 0,4W
3783	4822 116 83864	10k 5% 0.5W
3784	4822 116 83864	10k 5% 0,5W
3785	4822 111 20434	270R
3786	4822 116 52234	100k 5% 0.5W
3787	4822 116 83872	220R 5% 0,5W
3788	4822 050 12202	2k2 1% 0.4W
3789	4822 050 12202	2k2 1% 0.4W
COILS		
5701	4822 157 10371	Osc Coil 100kHz
DIODES		
6703	4822 130 30621	1N4148
6705	5322 130 34563	BZX79-C2V7
6706	4822 130 30621	1N4148
6707	4822 130 30621	1N4148
6708	4822 130 30621	1N4148
6709	4822 130 30621	1N4148
6710	4822 130 34173	BZX79-B5V6
6711	4822 130 34173	BZX79-B5V6
TRANSISTORS & INTEGRATED CIRCUITS		
7701	4822 130 42231	BC557C
7702	4822 130 40938	BC548
7704	4822 130 40981	BC337-25
7709	4822 130 44503	BC547C
7710	4822 130 44503	BC547C
7711	4822 209 32918	AN7318S
7712	4822 209 32918	AN7318S
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 40938	BC548
7718	4822 130 40959	BC547B
7719	4822 130 40959	BC547B
7720	4822 130 44503	BC547C
7721	4822 130 44503	BC547C

Note: Only the parts listed are normal service spare parts.

3CDC MODULE ELECTRICAL REPLACEMENT PARTS LIST

MISCELLANEOUS

1800	4822 267 51453	Flex Foil connector 12pin
1805	4822 265 10979	Flex Foil connector 15pin
1805	4822 265 11182	Flex Foil connector 23pin
1805	4822 265 11184	Flex Foil connector 18pin
1806	4822 265 10981	Flex Foil connector 15pin
1806	4822 267 10757	Flex Foil connector 23pin top entry
1806	4822 265 11185	Flex Foil connector 18pin top entry
1860	4822 265 11183	Flex Foil connector 4pin side entry
1880	4822 276 13503	Switch
1881	4822 276 13503	Switch
1882	4822 276 13503	Switch
8002	4822 320 11974	Flex Foil 15pin length= 190mm
8002	4822 320 12229	Flex Foil 18pin length= 190mm
8002	4822 320 12231	Flex Foil 23pin length= 190mm
8002	4822 320 12232	Flex Foil 15pin length= 480mm

CAPACITORS

2800	4822 126 10053	180pF	10%	50V
2801	4822 122 10466	220pF	10%	50V
2802	4822 126 10053	180pF	10%	50V
2803	4822 122 10466	220pF	10%	50V
2804	4822 126 12787	330pF	10%	50V
2805	4822 122 10466	220pF	10%	50V
2806	4822 122 10466	220pF	10%	50V
2807	4822 126 12878	1.5nF	10%	16V
2808	4822 122 10466	220pF	10%	50V
2809	4822 126 12882	100nF	20%	50V
2810	4822 122 10459	560pF	10%	50V
2811	4822 122 10466	220pF	10%	50V
2812	4822 122 10319	82pF	5%	50V
2813	4822 122 10319	82pF	5%	50V
2814	4822 122 33849	150pF	10%	50V
2815	4822 122 33192	27pF	5%	50V
2817	4822 122 33849	150pF	10%	50V
2819	4822 122 33848	47pF	5%	50V
2820	4822 122 33848	47pF	5%	50V
2821	4822 122 10462	15pF	5%	50V
2822	4822 126 12339	2.2nF	10%	16V
2823	4822 122 33848	47pF	5%	50V
2824	4822 126 11585	22nF	20%	50V
2825	4822 126 12882	100nF	20%	50V
2826	4822 124 23624	470µF	20%	16V
2827	4822 126 12882	100nF	20%	50V
2828	4822 126 12882	100nF	20%	50V
2829	4822 124 41579	10µF	20%	50V
2830	4822 126 12882	100nF	20%	50V
2831	4822 124 12032	4.7µF	20%	50V
2832	4822 124 12032	4.7µF	20%	50V
2833	4822 122 33191	22pF	5%	50V
2834	4822 122 33191	22pF	5%	50V
2835	4822 126 12882	100nF	20%	50V
2837	4822 126 12882	100nF	20%	50V
2838	4822 126 12882	100nF	20%	50V
2839	4822 126 12882	100nF	20%	50V
2840	4822 126 12882	100nF	20%	50V
2841	4822 122 10574	1.2nF	10%	16V
2842	4822 121 51387	10nF	20%	16V
2843	4822 126 12882	100nF	20%	50V
2844	4822 122 10574	1.2nF	10%	16V
2845	4822 121 51387	10nF	20%	16V
2846	4822 126 11585	22nF	20%	50V
2847	4822 126 12882	100nF	20%	50V

CAPACITORS

2849	4822 126 11585	22nF	20%	50V
2850	4822 122 33197	1nF	10%	50V
2851	4822 126 12882	100nF	20%	50V
2852	4822 124 80857	470µF	20%	16V
2853	4822 126 12882	100nF	20%	50V
2856	4822 122 33848	47pF	5%	50V
2859	4822 126 12882	100nF	20%	50V
2860	4822 124 41579	10µF	20%	50V
2861	4822 124 41579	10µF	20%	50V
2862	4822 126 12339	2.2nF	10%	16V
2863	4822 126 12339	2.2nF	10%	16V
2864	4822 122 33848	47pF	5%	50V
2866	4822 126 12882	100nF	20%	50V
2867	4822 122 33848	47pF	5%	50V
2868	4822 126 12882	100nF	20%	50V
2869	4822 126 12882	100nF	20%	50V
2870	4822 126 12882	100nF	20%	50V
2871	4822 126 11585	22nF	20%	50V
2872	4822 126 12882	100nF	20%	50V
2873	4822 126 12882	100nF	20%	50V
2874	4822 126 11585	22nF	20%	50V
2875	4822 126 11585	22nF	20%	50V
2876	4822 124 80857	470µF	20%	16V
2877	4822 122 10319	82pF	5%	50V
2878	4822 122 10466	220pF	10%	50V
2879	4822 122 10466	220pF	10%	50V
2880	4822 121 51387	10nF	20%	16V
2884	4822 126 12882	100nF	20%	50V
2887	4822 126 12882	100nF	20%	50V
2890	4822 124 23624	470µF	20%	16V
2891	4822 124 12125	10µF	20%	16V

RESISTORS

3700	4822 116 83883	470Ω	5%	0.16W
3701	4822 116 83883	470Ω	5%	0.16W
3702	4822 116 83883	470Ω	5%	0.16W
3703	4822 116 83883	470Ω	5%	0.16W
3704	4822 116 83883	470Ω	5%	0.16W
3705	4822 116 52195	47Ω	5%	0.5W
3706	4822 116 83883	470Ω	5%	0.16W
3707	4822 116 83883	470Ω	5%	0.16W
3708	4822 116 83883	470Ω	5%	0.16W
3710	4822 116 83864	10kΩ	5%	0.5W
3711	4822 116 83864	10kΩ	5%	0.5W
3717	4822 116 80176	1Ω	5%	0.5W
3720	4822 116 52176	10Ω	5%	0.5W
3721	4822 116 83883	470Ω	5%	0.16W
3725	4822 116 83864	10kΩ	5%	0.5W
3726	4822 116 83864	10kΩ	5%	0.5W
3800	4822 116 52239	120kΩ	5%	0.5W
3801	4822 116 83864	10kΩ	5%	0.5W
3802	4822 116 52239	120kΩ	5%	0.5W
3803	4822 116 83864	10kΩ	5%	0.5W
3804	4822 116 52291	56kΩ	5%	0.5W
3805	4822 116 83864	10kΩ	5%	0.5W
3806	4822 116 83864	10kΩ	5%	0.5W
3807	4822 116 83864	10kΩ	5%	0.5W
3808	4822 116 83864	10kΩ	5%	0.5W
3809	4822 116 52175	100Ω	5%	0.5W
3810	4822 050 11002	1kΩ	5%	0.2W
3812	4822 116 83884	47kΩ	5%	0.16W
3813	4822 116 83864	10kΩ	5%	0.5W
3816	4822 116 52269	3.3kΩ	5%	0.5W

3CDC MODULE ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description		
RESISTORS				
3817	4822 116 83961	6.8kΩ	5%	0.16W
3818	4822 116 83864	10kΩ	5%	0.5W
3819	4822 116 83883	470Ω	5%	0.16W
3820	4822 116 52269	3.3kΩ	5%	0.5W
3821	4822 116 52269	3.3kΩ	5%	0.5W
3822	4822 116 52257	22kΩ	5%	0.5W
3823	4822 116 52269	3.3kΩ	5%	0.5W
3824	4822 116 52269	3.3kΩ	5%	0.5W
3825	4822 050 11002	1kΩ	5%	0.2W
3826	4822 116 52257	22kΩ	5%	0.5W
3827	4822 116 52278	390kΩ	5%	0.5W
3828	4822 116 52257	22kΩ	5%	0.5W
3830	4822 116 52235	1MΩ	5%	0.5W
3831	4822 116 52257	22kΩ	5%	0.5W
3832	4822 116 83883	470Ω	5%	0.16W
3833	4822 116 83864	10kΩ	5%	0.5W
3834	4822 116 52283	4.7kΩ	5%	0.5W
3837	4822 050 11002	1kΩ	5%	0.2W
3838	4822 050 11002	1kΩ	5%	0.2W
3839	4822 116 52245	150kΩ	5%	0.16W
3840	4822 116 52245	150kΩ	5%	0.16W
3841	4822 116 83961	6.8kΩ	5%	0.16W
3842	4822 116 83864	10kΩ	5%	0.5W
3843	4822 116 52303	8.2kΩ	5%	0.5W
3844	4822 116 52226	560Ω	5%	0.5W
3844	4822 116 83883	470Ω	5%	0.16W
3845	4822 116 83864	10kΩ	5%	0.5W
3846	4822 116 52303	8.2kΩ	5%	0.5W
3847	4822 116 52228	680Ω	5%	0.5W
3847	4822 116 83883	470Ω	5%	0.16W
3848	4822 116 52303	8.2kΩ	5%	0.5W
3849	4822 116 52303	8.2kΩ	5%	0.5W
3850	4822 116 83883	470Ω	5%	0.16W
⚠ 3851	4822 052 10338	3.3Ω		NFR25
⚠ 3852	4822 052 10338	3.3Ω		NFR25
⚠ 3853	4822 052 10338	3.3Ω		NFR25
3856	4822 116 52219	330Ω	5%	0.5W
3856	4822 116 80176	1Ω	5%	0.5W
3857	4822 050 11002	1kΩ	5%	0.2W
3858	4822 116 52257	22kΩ	5%	0.5W
3859	4822 116 52257	22kΩ	5%	0.5W
3860	4822 116 83883	470Ω	5%	0.16W
3861	4822 116 83883	470Ω	5%	0.16W
3862	4822 116 52175	100Ω	5%	0.5W
3863	4822 116 52175	100Ω	5%	0.5W
3864	4822 116 52175	100Ω	5%	0.5W
3865	4822 116 83883	470Ω	5%	0.16W
3866	4822 116 83883	470Ω	5%	0.16W
3867	4822 116 52234	100kΩ	5%	0.5W
3868	4822 116 52191	33Ω	5%	0.5W
3869	4822 116 52175	100Ω	5%	0.5W
3870	4822 116 52226	560Ω	5%	0.5W
3871	4822 116 83864	10kΩ	5%	0.5W
3872	4822 116 83864	10kΩ	5%	0.5W
3873	4822 116 83883	470Ω	5%	0.16W
3874	4822 116 83864	10kΩ	5%	0.5W
3875	4822 116 83864	10kΩ	5%	0.5W
3876	4822 116 83874	220kΩ	5%	0.5W
3877	4822 116 83864	10kΩ	5%	0.5W
3878	4822 116 83864	10kΩ	5%	0.5W
3879	4822 116 83864	10kΩ	5%	0.5W
3880	4822 116 52219	330Ω	5%	0.5W
3881	4822 116 83864	10kΩ	5%	0.5W
3882	4822 116 83884	47kΩ	5%	0.16W
3883	4822 116 52234	100kΩ	5%	0.5W
3884	4822 116 52276	3.9kΩ	5%	0.5W
3885	4822 116 52234	100kΩ	5%	0.5W
3886	4822 116 83884	47kΩ	5%	0.16W
⚠ 3887	4822 052 10221	220Ω	5%	
3888	4822 116 83864	10kΩ	5%	0.5W
3889	4822 116 83883	470Ω	5%	0.16W
3890	4822 116 83883	470Ω	5%	0.16W
3891	4822 116 52272	330kΩ	5%	0.5W
3893	4822 116 52257	22kΩ	5%	0.5W
3894	4822 116 52191	33Ω	5%	0.5W
3895	4822 116 52176	10Ω	5%	0.5W
3896	4822 116 83864	10kΩ	5%	0.5W
3897	4822 116 52226	560Ω	5%	0.5W
3898	4822 116 52226	560Ω	5%	0.5W
3899	4822 116 52213	180Ω	5%	0.5W

Ref.	Part No.	Description
COILS		
1810	4822 242 10849	CRYSTAL 8MHz
1810	4822 242 73557	CERAMIC RES. 8,46MHz
5801	4822 157 11477	2.2µH
DIODES		
6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-B5V1
TRANSISTORS		
7808	4822 130 41344	BC337-40
7874	4822 130 40959	BC547B
7875	4822 130 40959	BC547B
INTEGRATED CIRCUITS		
7800©	4822 209 12752	SAA7378GP (Signal Processor CD7)
7801©	5322 209 11517	PC74HCU04T (HF Amplifier)
7806	4822 209 32852	TDA7073A/N2 (Servo Driver)
7807	4822 209 32852	TDA7073A/N2 (Motor Driver)
7810	4822 130 10845	OPTICAL OUT UNIT
7851	4822 209 32421	TDA1311A/N2(DAC)
7871	4822 209 32852	TDA7073A/N2 (Motor Driver)
7873	5322 209 10421	HEF4094BP (Shift Register)
7876	4822 209 16143	LC89170M (CD Text)

PS & L/R AMP. BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
RESISTORS		
3296	4822 116 52283	4k7 5% 0.5W
3297	4822 116 52256	2k2 5% 0.5W
3298	4822 116 52219	330R 5% 0.5W
3299	4822 116 52219	330R 5% 0.5W
⚠ 3300	4822 052 10478	4R7 5% 0.33W
3302	4822 116 83884	47k 5% 0.5W
3304	4822 116 83884	47k 5% 0.5W
3305	4822 116 52257	22k 5% 0.5W
3306	4822 116 52257	22k 5% 0.5W
3307	4822 116 52256	2k2 5% 0.5W
3312	4822 116 83864	10k 5% 0.5W
3313	4822 050 11002	1k 1% 0.4W
3315	4822 116 83884	47k 5% 0.5W
3316	4822 116 83884	47k 5% 0.5W
3321	4822 116 83864	10k 5% 0.5W
3322	4822 116 83864	10k 5% 0.5W
3323	4822 116 52234	100k 5% 0.5W
3324	4822 116 83864	10k 5% 0.5W
3325	4822 050 11002	1k 1% 0.4W
3326	4822 050 11002	1k 1% 0.4W
3327	4822 116 52291	56k 5% 0.5W
3328	4822 116 52291	56k 5% 0.5W
3329	4822 116 52226	560R 5% 0.5W
3330	4822 116 52226	560R 5% 0.5W
3331	4822 116 52291	56k 5% 0.5W
3332	4822 116 52291	56k 5% 0.5W
⚠ 3333	4822 052 10479	47R 5% 0.33W
⚠ 3334	4822 052 10479	47R 5% 0.33W
3335	4822 116 52207	1k2 5% 0.5W
3336	4822 116 52207	1k2 5% 0.5W
3337	4822 050 11002	1k 1% 0.4W
3338	4822 050 11002	1k 1% 0.4W
⚠ 3339	4822 113 80633	0R1 5% 3W
⚠ 3340	4822 113 80633	0R1 5% 3W
3345	4822 116 52234	100k 5% 0.5W
3346	4822 116 83864	10k 5% 0.5W
3347	4822 116 52271	33k 5% 0.5W
3348	4822 116 83872	220R 5% 0.5W
3350	4822 050 11002	1k 1% 0.4W
3351	4822 116 52234	100k 5% 0.5W
3352	4822 116 52234	100k 5% 0.5W
3353	4822 116 52257	22k 5% 0.5W
3355	4822 116 83961	6k8 5%
3356	4822 116 83961	6k8 5%
3357	4822 116 52234	100k 5% 0.5W
3358	4822 050 11002	1k 1% 0.4W
⚠ 3363	4822 053 10478	4R7 5% 1W
⚠ 3364	4822 053 10478	4R7 5% 1W
3365	4822 116 52234	100k 5% 0.5W
3366	4822 116 52234	100k 5% 0.5W
3367	4822 116 52304	82k 5% 0.5W
3368	4822 116 52304	82k 5% 0.5W
3369	4822 116 83884	47k 5% 0.5W
3370	4822 116 83884	47k 5% 0.5W
3383	4822 116 83864	10k 5% 0.5W
3384	4822 116 83864	10k 5% 0.5W
⚠ 3385	4822 052 10108	1R 5% 0.33W
COILS		
5321	4822 157 70599	Ind. Fxd Bead EMI 1µH
5322	4822 157 70599	Ind. Fxd Bead EMI 1µH
DIODES		
6251	4822 130 83302	GBU4D
6252	5322 130 80686	1N5392
6253	4822 130 34382	BZX79-C8V2
⚠ 6255	4822 130 11139	GBU8D
6260	5322 130 80686	1N5392
6261	5322 130 80686	1N5392
6262	5322 130 80686	1N5392
6263	5322 130 80686	1N5392
6264	4822 130 61219	BZX79-F10
6281	4822 130 31878	1N4003GP
6284	4822 130 34173	BZX79-C5V6
6289	4822 130 34328	BZX79-C30
6292	4822 130 30621	1N4148
6293	4822 130 34382	BZX79-C8V2
6294	5322 130 80686	1N5392
6295	4822 130 30621	1N4148
6298	4822 130 34278	BZX79-C6V8
6299	4822 130 30621	1N4148
6300	4822 130 30621	1N4148
6301	4822 130 30621	1N4148
6302	5322 130 31504	BZX79-C3V3
6325	4822 130 34278	BZX79-C6V8
6326	4822 130 34278	BZX79-C6V8
6333	4822 130 34281	BZX79-C15
6334	4822 130 34281	BZX79-C15
6337	4822 130 30621	1N4148
6339	4822 130 30621	1N4148
6360	4822 130 34281	BZX79-C15
TRANSISTORS & INTEGRATED CIRCUITS		
7251	4822 130 10812	BDX53BFI
7252	4822 130 40959	BC547B
7253	4822 130 44568	BC557B
7255	4822 130 40959	BC547B
7260	4822 130 40959	BC547B
7263	4822 130 40959	BC547B
7265	4822 130 41691	BC556B
7266	4822 130 44568	BC557B
7268	4822 130 40959	BC547B
7280	4822 130 40959	BC547B
7281	4822 209 31841	L7805CP

PS & L/R AMP. BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
7282	4822 130 41246	BC327-25
7286	4822 130 41246	BC327-25
7290	4822 130 41246	BC327-25
7291	4822 130 40959	BC547B
7293	4822 130 40959	BC547B
7294	4822 130 44568	BC557B
7297	4822 130 40959	BC547B
7323	4822 130 44461	BC546B
7324	4822 130 44461	BC546B
7325	4822 130 40959	BC547B
7326	4822 130 40959	BC547B
7327	4822 130 44461	BC546B
7329	4822 209 16165	STk417-120A
7350	4822 130 41691	BC556B

Note: Only the parts listed are normal service spare parts.

AF5 BOARD ELECTRICAL REPLACEMENT PARTS LIST

Ref.	Part No.	Description
MISCELLANEOUS		
1508	4822 267 40898	Headphone Socket
1513	4822 267 10737	Connector 18 Pin
1522	4822 267 31729	Cinch Socket - Sub-Woofer out
1530	4822 267 20452	Cinch Socket - Line-out
1531	4822 267 20452	Cinch Socket - Aux
CAPACITORS		
2501	4822 126 10525	8.2nF10% 63V
2502	4822 126 10525	8.2nF10% 63V
2503	4822 124 41407	0.47µF 20% 63V
2504	4822 124 41407	0.47µF 20% 63V
2505	4822 124 40746	0.22µF20% 63V
2506	4822 124 40746	0.22µF20% 63V
2507	4822 121 42408	220nF 5% 63V
2508	4822 121 42408	220nF 5% 63V
2511	4822 121 51252	470nF 5% 63V
2512	4822 121 51252	470nF 5% 63V
2513	4822 122 32646	5.6nF10% 50V
2514	4822 122 32646	5.6nF10% 50V
2515	4822 124 81029	100µF20% 25V
2517	4822 121 51252	470nF 5% 63V
2518	4822 121 51252	470nF 5% 63V
2521	4822 124 41407	0.47µF 20% 63V
2522	4822 124 41407	0.47µF 20% 63V
2525	5322 122 32658	22pF 5% 50V
2526	5322 122 32658	22pF 5% 50V
2529	5322 122 32654	22nF10% 63V
2531	5322 122 32268	470pF 10% 50V
2532	5322 122 32268	470pF 10% 50V
2537	5322 122 32531	100pF 5% 50V
2538	5322 122 32531	100pF 5% 50V
2541	4822 124 41751	47µF 20% 50V
2542	4822 124 41751	47µF 20% 50V
2543	4822 124 41751	47µF 20% 50V
2544	4822 124 41751	47µF 20% 50V
2545	5322 122 32268	470pF 10% 50V
2546	5322 122 32268	470pF 10% 50V
2547	5322 122 32654	22nF10% 63V
2548	4822 126 10002	100nF20% 25V
2549	4822 124 40246	4.7µF20% 63V
2550	4822 124 40246	4.7µF20% 63V
2551	5322 122 32268	470pF 10% 50V
2552	5322 122 32268	470pF 10% 50V
2557	5322 122 32654	22nF10% 63V
2558	5322 122 32654	22nF10% 63V
2559	5322 122 32531	100pF 5% 50V
2560	5322 122 32531	100pF 5% 50V
2561	5322 122 34123	1nF10% 50V
2562	5322 122 34123	1nF10% 50V
2563	5322 122 32448	10pF 5% 50V
2564	5322 122 32448	10pF 5% 50V
2573	4822 126 13836	1µF 16V
2574	4822 126 13836	1µF 16V
2575	4822 124 40246	4.7µF20% 63V
2580	4822 124 41751	47µF 20% 50V
2581	4822 126 10002	100nF20% 25V
2582	4822 124 41751	47µF 20% 50V
2583	4822 124 81029	100µF20% 25V
2584	4822 124 81029	100µF20% 25V
2586	4822 126 13838	100nF +80/-20% 50V
2587	4822 124 40246	4.7µF20% 63V
2588	4822 124 40246	4.7µF20% 63V
2590	5322 122 32654	22nF10% 63V
2595	4822 122 32535	680pF10% 63V
2596	4822 122 32535	680pF10% 63V
2597	4822 126 10002	100nF20% 25V
2601	4822 124 40246	4.7µF20% 63V
2602	4822 124 40246	4.7µF20% 63V
2604	5322 122 32654	22nF10% 63V
2609	5322 122 32531	100pF 5% 50V
2610	5322 122 32531	100pF 5% 50V
2611	5322 122 32658	22pF 5% 50V
2612	5322 122 32658	22pF 5% 50V
2615	4822 124 40246	4.7µF20% 63V
2616	4822 124 40246	4.7µF20% 63V
2619	5322 122 32654	22nF10% 63V
2620	4822 124 40433	47µF20% 25V
2621	5322 122 32658	22pF 5% 50V
2622	5322 122 32658	22pF 5% 50V
2623	5322 126 10223	4.7nF10% 63V
2625	4822 126 10002	100nF20% 25V
2630	5322 122 34123	1nF10% 50V
2632	5322 122 32268	470pF 10% 50V
2634	4822 124 40242	1µF20% 63V
2635	4822 124 81029	100µF20% 25V
2636	4822 124 40242	1µF20% 63V
2637	5322 122 32448	10pF 5% 50V
2638	5322 122 32531	100pF 5% 50V
2641	4822 122 33175	2.2nF 20% 50V
2644	4822 124 41407	0.47µF 20% 63V
2645	4822 124 41407	0.47µF 20% 63V
2646	4822 126 13836	1µF 16V
2647	4822 126 13836	1µF 16V
2654	4822 122 33575	220pF 5% 50V
2671	4822 126 13836	1µF 16V
2672	4822 126 13836	1µF 16V
2673	4822 122 33175	2.2nF 20% 50V
2674	4822 122 33175	2.2nF 20% 50V
2675	5322 122 32654	22nF10% 63V
2676	5322 122 32654	22nF10% 63V
2678	5322 122 32654	22nF10% 63V
RESISTORS		
3501	4822 117 10833	10k 1% 0,1W

AF5 BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
3502	4822 116 83864	10k 5% 0.5W
3503	4822 051 20562	5k6 5% 0.1W
3504	4822 051 20562	5k6 5% 0.1W
3505	4822 051 20332	3k3 5% 0.1W
3506	4822 051 20332	3k3 5% 0.1W
3507	4822 051 20153	15k 5% 0.1W
3508	4822 051 20153	15k 5% 0.1W
3509	4822 051 20683	68k 5% 0.1W
3510	4822 051 20683	68k 5% 0.1W
3511	4822 051 20223	22k 5% 0.1W
3512	4822 051 20223	22k 5% 0.1W
3513	4822 117 11449	2k2 1% 0.1W
3514	4822 117 11449	2k2 1% 0.1W
3515	4822 051 20472	4k7 5% 0.1W
3516	4822 051 20472	4k7 5% 0.1W
3517	4822 051 20472	4k7 5% 0.1W
3518	4822 051 20472	4k7 5% 0.1W
3523	4822 117 10834	47k 1% 0.1W
3524	4822 117 10834	47k 1% 0.1W
3525	4822 051 20393	39k 5% 0.1W
3526	4822 051 20393	39k 5% 0.1W
3527	4822 051 20153	15k 5% 0.1W
3528	4822 051 20153	15k 5% 0.1W
3545	4822 051 20562	5k6 5% 0.1W
3546	4822 051 20562	5k6 5% 0.1W
3547	4822 116 83864	10k 5% 0.5W
3548	4822 117 11449	2k2 1% 0.1W
3555	4822 117 11454	820R 1% 0.1W
3556	4822 117 11454	820R 1% 0.1W
3557	4822 051 20273	27k 5% 0.1W
3558	4822 051 20273	27k 5% 0.1W
3559	4822 051 20822	8k2 5% 0.1W
3560	4822 051 20822	8k2 5% 0.1W
3561	4822 051 20153	15k 5% 0.1W
3562	4822 051 20153	15k 5% 0.1W
3563	4822 051 20104	100k 5% 0.1W
3564	4822 051 20104	100k 5% 0.1W
3565	4822 116 52195	47R 5% 0.5W
3566	4822 051 20479	47R 5% 0.1W
3567	4822 116 52195	47R 5% 0.5W
3568	4822 051 20479	47R 5% 0.1W
3569	4822 051 10102	1k 2% 0.25W
3570	4822 051 10102	1k 2% 0.25W
3571	4822 117 11149	82k 1% 0.1W
3572	4822 117 11149	82k 1% 0.1W
3573	4822 117 11503	220R 1% 0.1W
3574	4822 117 11503	220R 1% 0.1W
3575	4822 051 20228	2R20 5% 0.1W
3579	4822 116 83864	10k 5% 0.5W
3581	4822 117 10833	10k 1% 0.1W
3582	4822 050 11002	1k 1% 0.4W
3583	4822 050 11002	1k 1% 0.4W
3584	4822 050 24705	4M7 1% 0.6W
3585	4822 051 20472	4k7 5% 0.1W
3586	4822 051 10102	1k 2% 0.25W
3593	4822 051 10102	1k 2% 0.25W
3594	4822 051 10102	1k 2% 0.25W
3595	4822 051 20562	5k6 5% 0.1W
3601	4822 117 11149	82k 1% 0.1W
3602	4822 117 11149	82k 1% 0.1W
3608	4822 117 11449	2k2 1% 0.1W
3609	4822 117 11449	2k2 1% 0.1W
3611	4822 051 20392	3k9 5% 0.1W
3612	4822 051 20472	4k7 5% 0.1W
3631	4822 116 52226	560R 5% 0.5W
3632	4822 116 52226	560R 5% 0.5W
3633	4822 051 20224	220k 5% 0.1W
3634	4822 051 20224	220k 5% 0.1W
⚠ 3635	4822 052 10109	10R 5% 0.33W
3636	4822 051 10102	1k 2% 0.25W
⚠ 3637	4822 052 10229	22R 5% 0.33W
3647	4822 051 20101	100R 5% 0.1W
3648	4822 051 20101	100R 5% 0.1W
3652	4822 051 20471	470R 5% 0.1W
3654	4822 051 20392	3k9 5% 0.1W
3656	4822 051 20471	470R 5% 0.1W
3657	4822 117 11449	2k2 1% 0.1W
3658	4822 051 20229	22R 5% 0.1W
3663	4822 051 10102	1k 2% 0.25W
3664	4822 051 10102	1k 2% 0.25W
3674	4822 051 20822	8k2 5% 0.1W
3675	4822 051 20822	8k2 5% 0.1W
3701	4822 051 10102	1k 2% 0.25W
3702	4822 051 10102	1k 2% 0.25W
3907	4822 051 20334	330k 5% 0.1W
4501	4822 051 20008	0R Jumper 0805
4502	4822 051 20008	0R Jumper 0805
4506	4822 051 20008	0R Jumper 0805
4508	4822 051 10008	0R Jumper 1206
4509	4822 051 20008	0R Jumper 0805
4510	4822 051 10008	0R Jumper 1206
4512	4822 051 20008	0R Jumper 0805
4513	4822 051 20008	0R Jumper 0805
4514	4822 051 20008	0R Jumper 0805
4515	4822 051 10008	0R Jumper 1206
4517	4822 051 20008	0R Jumper 0805
4518	4822 051 20008	0R Jumper 0805
4519	4822 051 10008	0R Jumper 1206
4520	4822 051 10008	0R Jumper 1206
4521	4822 051 20008	0R Jumper 0805
4523	4822 051 20008	0R Jumper 0805
4524	4822 051 10008	0R Jumper 1206
4526	4822 051 20008	0R Jumper 0805
4528	4822 051 20008	0R Jumper 0805

AF5 BOARD ELECTRICAL REPLACEMENT PARTS LIST (CONTINUED)

Ref.	Part No.	Description
RESISTORS		
4530	4822 051 20008	0R Jumper 0805
4531	4822 051 10008	0R Jumper 1206
4532	4822 051 20008	0R Jumper 0805
4533	4822 051 10008	0R Jumper 1206
4534	4822 051 20008	0R Jumper 0805
4535	4822 051 20008	0R Jumper 0805
4539	4822 051 20008	0R Jumper 0805
4541	4822 051 20008	0R Jumper 0805
4542	4822 051 20008	0R Jumper 0805
4548	4822 051 20008	0R Jumper 0805
4550	4822 051 20008	0R Jumper 0805
4551	4822 051 20008	0R Jumper 0805
4552	4822 051 20008	0R Jumper 0805
4553	4822 051 20008	0R Jumper 0805
4554	4822 051 20008	0R Jumper 0805
4555	4822 051 10008	0R Jumper 1206
4556	4822 051 20008	0R Jumper 0805
4557	4822 051 10008	0R Jumper 1206
4558	4822 051 10008	0R Jumper 1206
4559	4822 051 10008	0R Jumper 1206
4560	4822 051 10008	0R Jumper 1206
4561	4822 051 20008	0R Jumper 0805
4562	4822 051 10008	0R Jumper 1206
4569	4822 051 10008	0R Jumper 1206
4573	4822 051 20008	0R Jumper 0805
4593	4822 051 20008	0R Jumper 0805
4594	4822 051 20008	0R Jumper 0805
4600	4822 051 20008	0R Jumper 0805
4601	4822 051 10008	0R Jumper 1206
4602	4822 051 10008	0R Jumper 1206
4603	4822 051 10008	0R Jumper 1206
4604	4822 051 10008	0R Jumper 1206
4606	4822 051 20008	0R Jumper 0805
4607	4822 051 20008	0R Jumper 0805
4608	4822 051 20008	0R Jumper 0805
4609	4822 051 20008	0R Jumper 0805
4610	4822 051 20008	0R Jumper 0805
4613	4822 051 20008	0R Jumper 0805
4614	4822 051 20008	0R Jumper 0805
4615	4822 051 10008	0R Jumper 1206
4616	4822 051 10008	0R Jumper 1206
4617	4822 051 10008	0R Jumper 1206
4622	4822 051 10008	0R Jumper 1206
4623	4822 051 20008	0R Jumper 0805
4624	4822 051 20008	0R Jumper 0805
4625	4822 051 10008	0R Jumper 1206
4626	4822 051 10008	0R Jumper 1206
4628	4822 051 10008	0R Jumper 1206
4629	4822 051 20008	0R Jumper 0805
4630	4822 051 20008	0R Jumper 0805
4631	4822 051 20008	0R Jumper 0805
4632	4822 051 20008	0R Jumper 0805
4640	4822 051 20008	0R Jumper 0805
4643	4822 051 10008	0R Jumper 1206
4644	4822 051 20008	0R Jumper 0805
4645	4822 051 20008	0R Jumper 0805
4653	4822 051 20008	0R Jumper 0805
4657	4822 051 20008	0R Jumper 0805
COILS & FILTERS		
5501	4822 157 11477	Fixed Inductor 2µ2 50%
5502	4822 157 11477	Fixed Inductor 2µ2 50%
5503	4822 157 11477	Fixed Inductor 2µ2 50%
5504	4822 157 11477	Fixed Inductor 2µ2 50%
DIODES		
6503	4822 130 30862	BZX79-B9V1
6504	4822 130 30621	1N4148
6510	4822 130 31878	1N4003G
6511	4822 130 31878	1N4003G
TRANSISTORS & INTEGRATED CIRCUITS		
7501	4822 209 31378	NJM4556MB
7502	4822 130 42804	BC817-25
7503	4822 130 42804	BC817-25
7504	4822 130 42804	BC817-25
7505	5322 130 42755	BC847C
7507	4822 209 83357	NJM4560M
7511	5322 130 42755	BC847C
7512	5322 130 42755	BC847C
7513	5322 130 42755	BC847C
7514	5322 130 60508	BC857B
7515	4822 130 41246	BC327-25
7516	5322 130 42755	BC847C
7521	5322 130 42755	BC847C
7522	5322 130 42755	BC847C
7553	4822 209 33652	TEA6321T/V1

Note: Only the parts listed are normal service spare parts.

To order parts call the TOLL FREE Philips Sales Center number:
(In U.S.A.) 1-800-851-8885 • 1-800-535-3715 (Fax)
(In Canada) 1-800-363-PART

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips Consumer Electronics Company. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

* Broken Line: — - — - — - — - —

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

AUDIO SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Important

Proper service and repair is important to the safe, reliable operation of all Philips equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate, and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could unknowingly be passed on to your customer. Be sure to check all of the following:

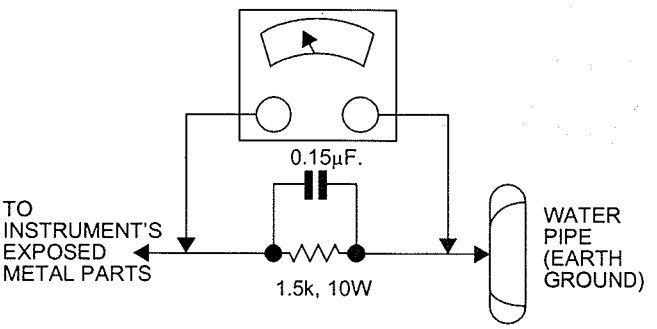
Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those units which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed according to the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should not be used.
9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc., to be sure the unit is safe to operate without danger of electrical shock.

* Broken line: — — — — — — — — —

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled unit directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15µF. capacitor between each exposed metallic cabinet part and a good earth ground, such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Parts Replacement

1. Many electrical and mechanical parts in Philips equipment have special safety related characteristics. These characteristics are often not evident from visual inspection, nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.
2. All ICs and many other semiconductor parts are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce the life of the part drastically.

FOR PRODUCTS CONTAINING LASER:

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

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION - The use of optical instruments with this product will increase eye hazard.