Service
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Service Manual

COMPACT disc DIGITAL AUDIO

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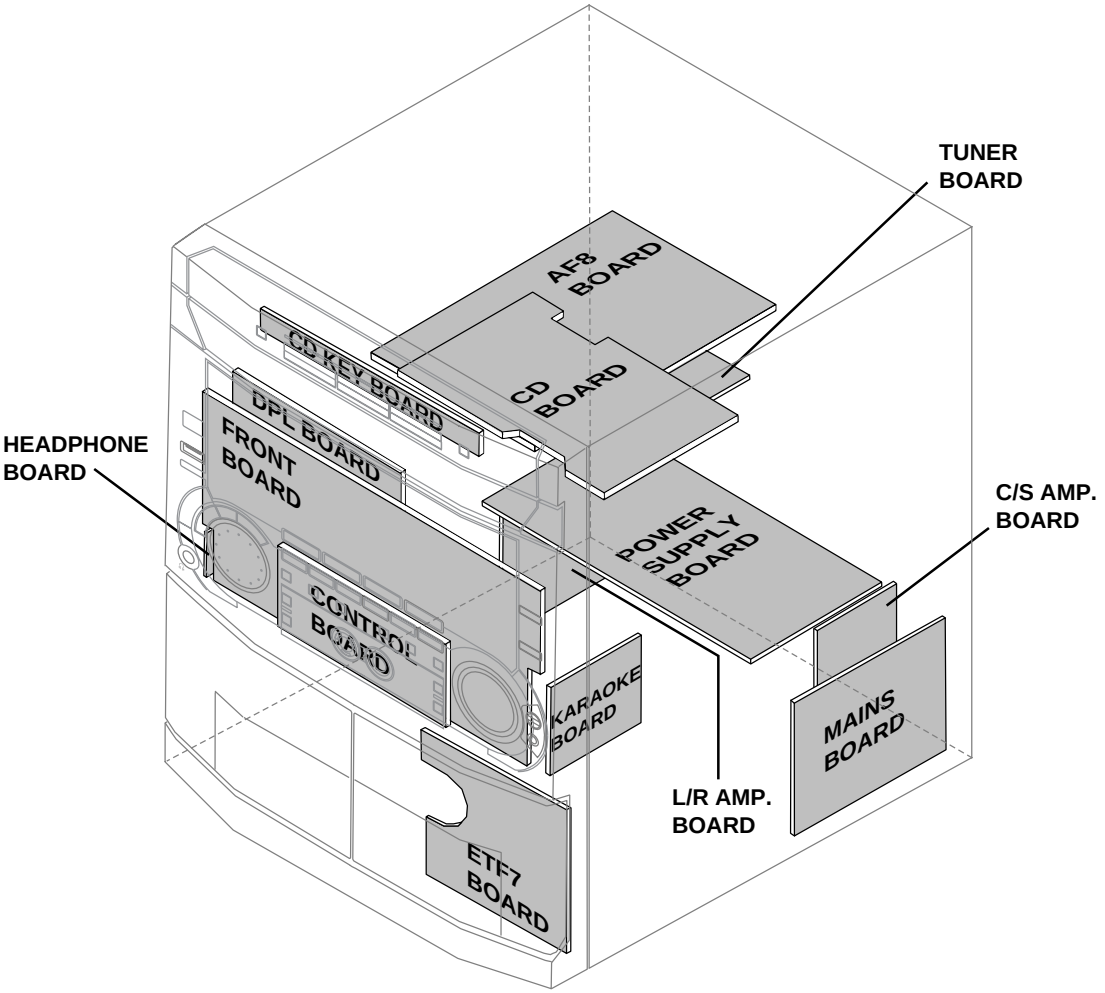
CLASS 1
LASER PRODUCT

Published by BB 0045 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 22560

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

Type /Versions: / Features & Board in used:	FW-C870				FW-P880					
	/21	/37			/37					
Aux/CDR In	x	x			x					
Line Out	x	x			x					
Surround Out					x					
Subwoofer Out	x	x			x					
Digital Out	x	x			x					
Matrix Surround										
CD Text										
Dolby B										
RDS										
News										
Dolby Pro Logic (DPL)					x					
Incredible Surround										
Karaoke Features	x									
Voltage Selector	x									
ECO Power Standby (Clock Display Off)	x	x			x					
Tuner board - ECO5 Sys	x	x			x					
Tuner board - Tuner 95										
Center/Surround Channel					x					

Note: 3CDC-LC-MB Module is mechanically the same as 3CDC-LC Module except the schematics, layouts & electrical parts list related to the CDC Board.The CDC Board (recognized by 12NC : *3103 303 34522* printed on the Board) is introduced as an alternative to supplement for the shortage of Servo IC TDA7073A.

SPECIFICATIONS

GENERAL:

Mains voltage : 110-127V/220-240V Switchable for /21/21M
120V for /37
220V for /33
220-230V for /22/34
230-240V for /30
Mains frequency : 50/60Hz
Power consumption : < 2W at ECO Power Standby
: < 20W at Standby
: 180W at Active
Clock accuracy : < 4 seconds per day
Dimension centre unit : 265 x 310 x 390mm

TUNER:

FM

Tuning range : 87.5-108MHz
65.81-74MHz for /34 [1)]
Grid : 50kHz (& 30kHz for /34)
100kHz for /37
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75Ω coaxial
300Ω click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 25dB
Image rejection : > 25dB [> 75dB]
Distortion at RF=1mV, dev. 75kHz : < 3%
-3dB Limiting point : < 8µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
530-1700kHz for /21/21M/37
Grid : 9kHz
10kHz for /21/21M/37
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%

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% : [< 5%]

AMPLIFIER:

Output power (6Ω, 1kHz, 10% THD)
L & R : 2 x 150W RMS /FW-C870/21

Output power (6Ω, 60Hz-12.5kHz, 10% THD)
L & R : 2 x 120W FTC /FW-C870/37
L & R : 2 x 115W FTC /FW-P880/37
Surround : 2 x 25W /FW-P880/37
Center : 40W /FW-P880/37

Frequency response within -3dB : 60Hz-16kHz
Digital Sound Control (DSC) :
Optimal, Classic, Techno, Jazz, Rock, Vocal
Virtual Environment Control (VEC) :
Hall, Disco, Concert, Club, Cinema, Arcade
WOOX : 1, 2, 3
Dolby Pro Logic (DPL) : Dolby Surround
Dolby Center Phantom
Dolby 3 Stereo
Normal Stereo
Input sensitivity
Aux in : 500mV ± 2dB, 1kHz
CDR in : 800mV ± 2dB, 1kHz
Microphone : 4mV ± 2dB
Output sensitivity
Line out (Left/Right) : 500mV ± 2dB at 22 kΩ
Subwoofer out (100Hz) : 1.3V ± 2dB at 22 kΩ
at maximum volume
Surround out (1kHz) : 500mV ± 2dB at 22 kΩ
Digital out : IEC 958, 44.1kHz
Headphone output at 32Ω : 18mW ± 1dB

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
Wow and flutter : < 0.4% (DIN)
Fast-wind/Rewind time C60 : 130 sec
Bias system : 75kHz ± 10kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to noise ratio (unweighted): > 44dB

COMPACT DISC:

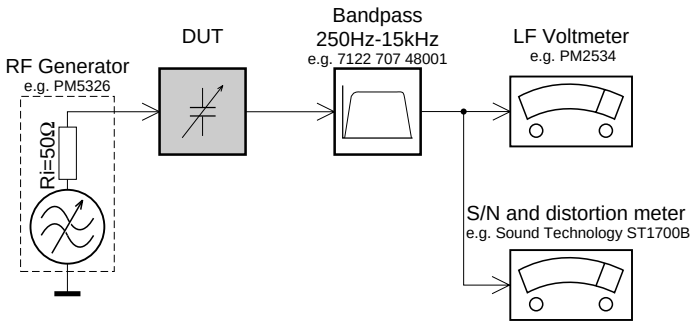
Measurement done at Set level at 6Ω speaker loads.
Frequency response : < ±3dB for 63Hz-14kHz
Signal to Noise ratio (Unweighted) : 60dBA
Signal to Noise ratio (A-weighted) : 67dBA
THD (30Hz-16kHz) : 1.5%
Channel difference (250Hz-10kHz) : < ±2dB
Channel separation (20Hz-20kHz) : 30dB
(1kHz) : 40dB

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

[1)] Default setting is OFF, to switch on please refer page 3-4.

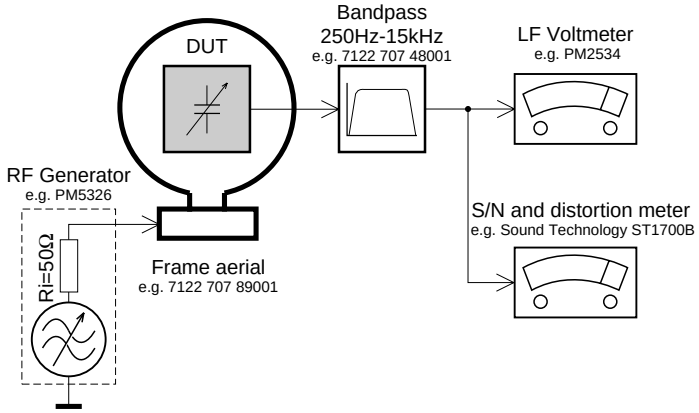
MEASUREMENT SETUP

Tuner FM



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

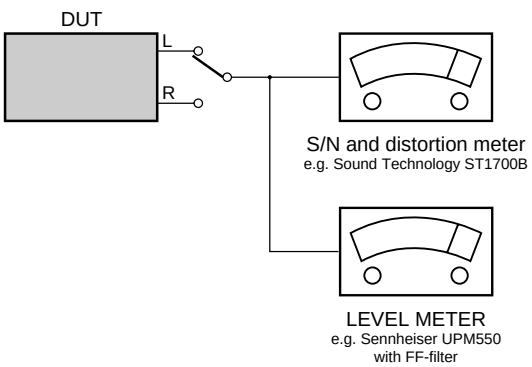
Tuner AM (MW,LW)



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

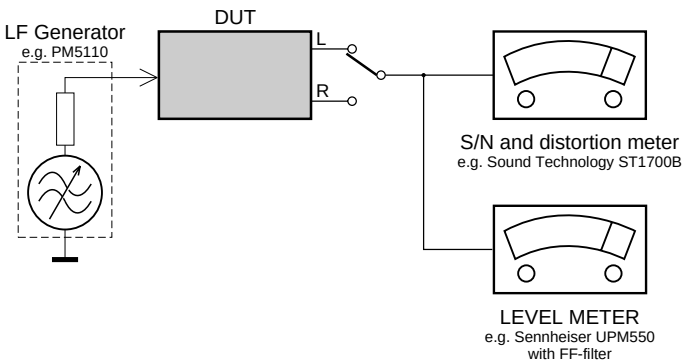
CD

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



Recorder

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



SERVICE AIDS

Service Tools:

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

Cassette:

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

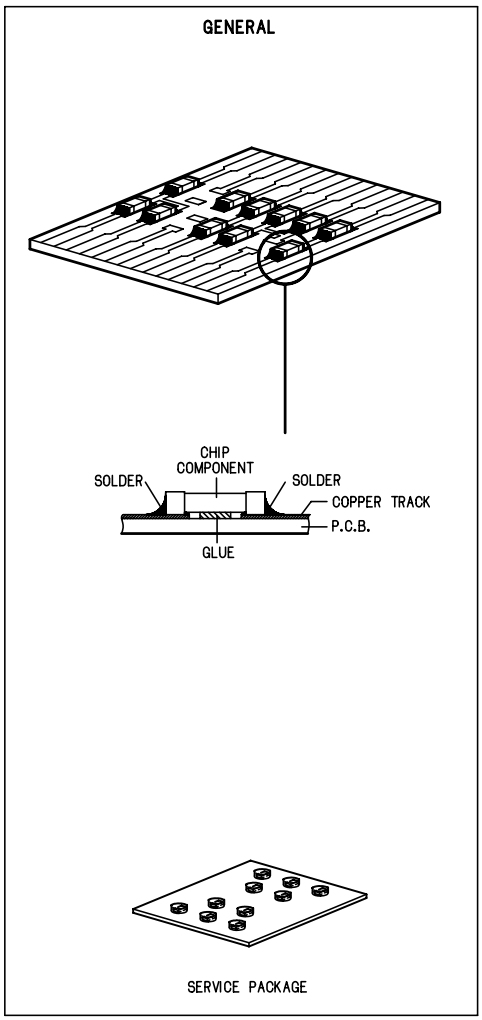
Compact Disc:

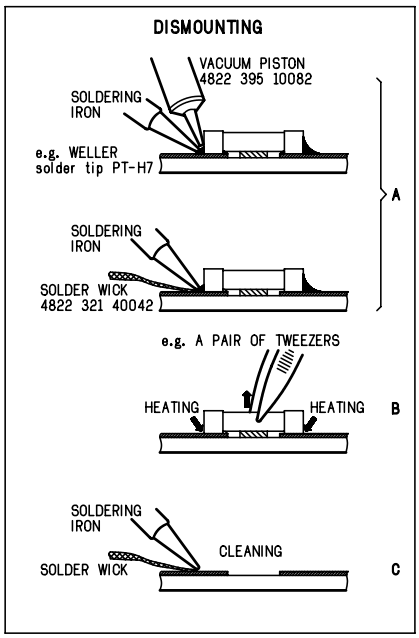
SBC426/426A Test disc 5 + 5A 4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz 4822 397 30155
SBC429 Audio Signals disc 4822 397 30184
Dolby Pro-logic Test Disc 4822 395 10216

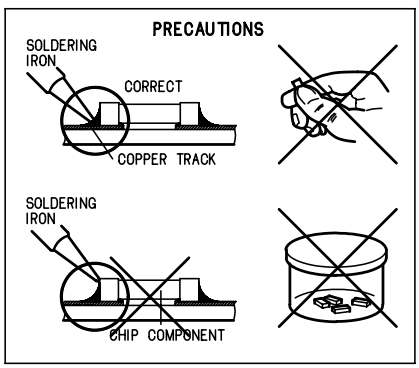
ESD Equipment:

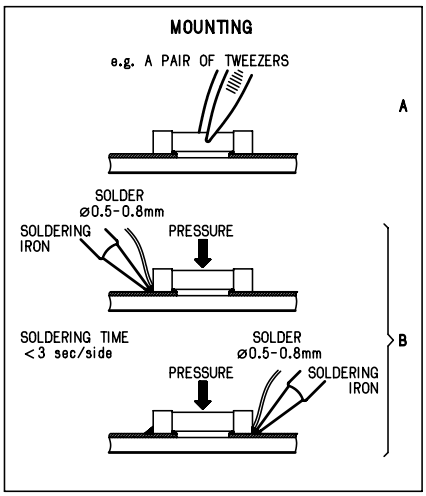
Anti-static table mat - large 1200x650x1.25mm ... 4822 466 10953
Anti-static table mat - small 600x650x1.25mm 4822 466 10958
Anti-static wristband 4822 395 10223
Connector box (1MΩ) 4822 320 11307
Extension cable
(to connect wristband to conn. box) 4822 320 11305
Connecting cable
(to connect table mat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

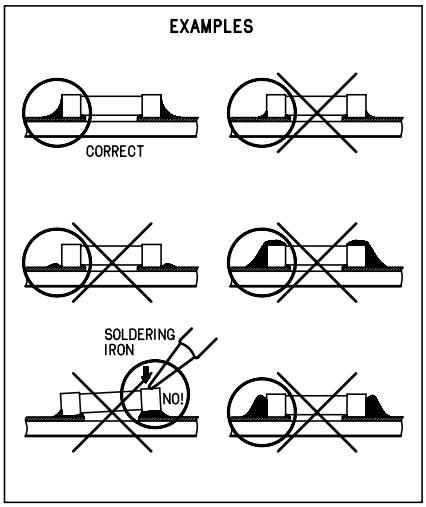
HANDLING CHIP COMPONENTS











ESD

GB WARNING

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

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

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

NL

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

F

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

D

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

I

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

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

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

GB Warning !

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

S Varning !

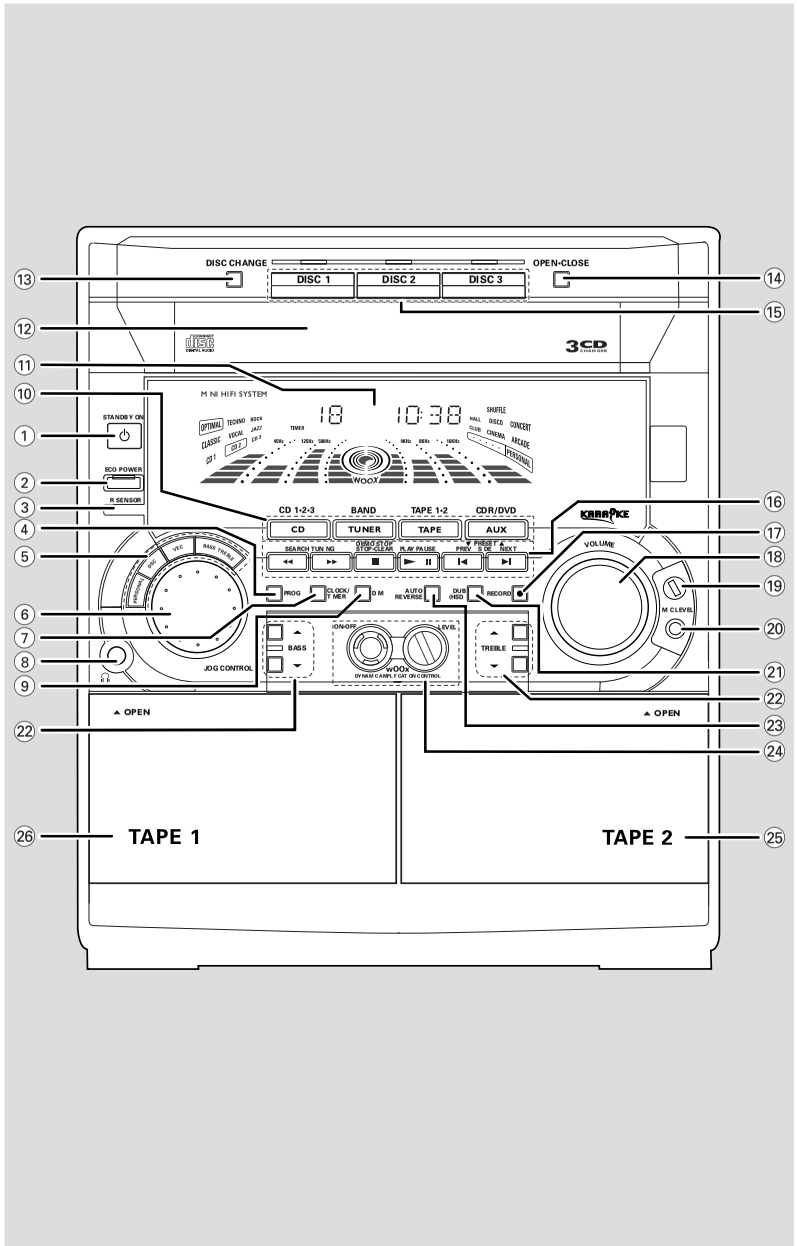
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

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

DK Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.



English

Contents

English

IMPORTANT!
PLEASE NOTE THAT THE VOLTAGE SELECTOR LOCATED AT THE REAR OF THIS SYSTEM IS PRESET AT 220V FROM THE FACTORY. FOR COUNTRIES THAT OPERATE AT 110V-127V, PLEASE ADJUST TO 110V-127V BEFORE YOU SWITCH ON THE SYSTEM.

Environmental Information

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

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

Acknowledgement

Energy Star
As an ENERGY STAR® Partner; Philips has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

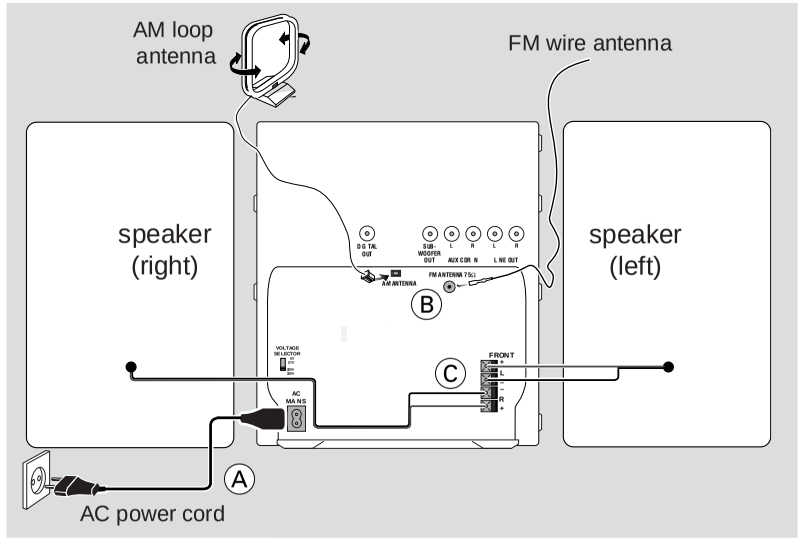
Supplied accessories

– Remote control
– Batteries (two AA size) for remote control
– AM loop antenna
– FM wire antenna
– AC power cord

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.
- Place the system on a flat, hard and stable surface.
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system. Allow at least 10 cm (4 inches) clearance from the rear and the top of the unit and 5 cm (2 inches) from each side.
- Do not expose the system, batteries or discs to excessive moisture, rain, sand or heat sources caused by heating equipment or direct sunlight.
- 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 disc unit inside the system. Should this occur, the CD player would not operate normally. Leave the power on for about one hour with no disc in the system until normal playback is possible.
- The mechanical parts of the set contain self-lubricating bearings and must not be oiled or lubricated.
- **When the system is switched to Standby mode, it is still consuming some power. To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

English



Rear Connections

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

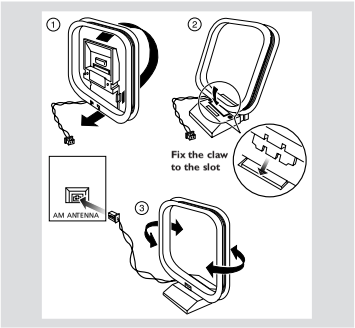
Ⓐ **Power**
Before connecting the AC power cord to the wall outlet, ensure that the following are done;
– If your system is equipped with a Voltage Selector, set the VOLTAGE SELECTOR to the local power line voltage.
– All other connections have been made.

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

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

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

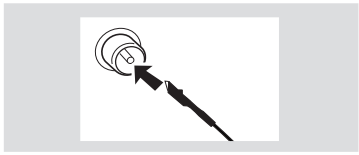
AM Antenna



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

English

FM Antenna



- For better FM stereo reception, connect an outdoor FM antenna to the FM ANTENNA terminal.

Ⓒ Speakers Connection

Front Speakers

Connect the speaker wires to the SPEAKERS (FRONT) terminals, right speaker to "**R**" and left speaker to "**L**", colored (marked) wire to "**+**" and black (unmarked) wire to "**−**".

- Clip the stripped portion of the speaker wire as shown.

Notes:

– For optimal sound performance, use the supplied speakers.

– Do not connect more than one speaker to any one pair of + / − speaker terminals.

– Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Optional Connections

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

Line Out Connection

Connect this output to any analogue audio equipment for playback or recording (CD recorder, tape recorder or amplifier for example). Use a cinch cable to connect the **LINE OUT** terminals to the analogue audio in terminals of the equipment.

Connecting other equipment to your system

Connect the audio left and right OUT terminals of a TV,VCR, Laser Disc player, DVD player or CD Recorder to the **AUX/CDR IN** terminals.

Notes:

– Do not connect equipment to both the LINE OUT and AUX/CDR IN terminals at the same time. Otherwise, noise will be generated and malfunction might occur.

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

Subwoofer Out Connection

Connect the subwoofer to the **SUBWOOFER OUT** terminal. The subwoofer reproduces just the low bass sound effect (explosions or the rumble of spaceships, for example).

Digital Out Connection

Connect this digital output when recording on any audio equipment with digital input (CD Recorder, Digital Audio Tape [DAT] deck, Digital to Analogue Converter and Digital Signal Processor, for example). Use a cinch cable to connect the **DIGITAL OUT** terminal to the digital input terminal of the equipment.

Inserting batteries into the Remote Control

Insert two batteries (Type R06 or AA) into the remote control with the correct polarity as indicated by the + and − symbols inside the battery compartment.

CAUTION

– Remove batteries if they are exhausted or not to be used for a long t me.

– Do not use old and new or different types of batteries in combination.

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

English

Controls on the system and remote control

① **STANDBY ON** ⏻
– to switch the system on or to Standby mode.
– to start EASY SET operation.

② **ECO POWER**
– to activate or deactivate Eco Power Standby mode.

③ **iR SENSOR**
– infrared sensor for remote control.

④ **PROG (PROGRAM)**
for CD ..... to programme disc tracks.
for TUNER ..... to programme preset radio stations.
for CLOCK ..... *(on the system only)* to select 12- or 24-hour clock mode.

⑤ **INTERACTIVE SOUND CONTROLS**
– to select the desired sound feature : PERSONAL, DSC, VEC or BASS/TREBLE.

⑥ **JOG CONTROL**
– to select the desired sound effect for the respective sound feature selected.
PERSONAL ..... PERSONAL 1-6, six personal preferred Spectrum Analyser settings.
DSC ..... OPTIMAL, CLASSIC, TECHNO, VOCAL, ROCK or JAZZ.
VEC ..... HALL, CLUB, DISCO, CINEMA, CONCERT or ARCADE.

⑦ **CLOCK/TIMER**
– to view the clock, set the clock or set the timer.

⑧ 🎧
– to connect headphones.

⑨ **DIM**
– to select brightness of the display screen : DIM 1, DIM 2, DIM 3 or DIM OFF.

⑩ **SOURCE** – to select the following:
CD / (CD 1•2•3)
– to select disc tray 1, 2 or 3.
TUNER / (BAND)
– to select waveband : FM or MW.
TAPE / (TAPE 1• 2)
– to select tape deck 1 or 2.
AUX / (CDR/DVD)
– to select a connected external source : CDR/DVD or AUX (auxiliary) mode.

⑪ **DISPLAY SCREEN**
– to view the current status of the system.

⑫ **DISC TRAY**

⑬ **DISC CHANGE**
– to change disc(s).

⑭ **OPEN•CLOSE**
– to open or close the disc tray.

⑮ **DISC 1 / DISC 2 / DISC 3 (CD DIRECT)**
– to select a disc tray for playback.

⑯ **Mode Selection**
SEARCH• TUNING ◀◀ ▶▶
for CD ..... to search backward/forward.
for TUNER ..... to tune to a lower or higher radio frequency.
for TAPE ..... to rewind or fast forward.
for CLOCK ..... *(on the system only)* to set the hour.
STOP•CLEAR ■ (DEMO STOP)
for CD ..... to stop playback or to clear a programme.
for TUNER ..... to stop programming.
for TAPE ..... to stop playback or recording.
for DEMO ..... *(on the system only)* to activate/ deactivate the demonstration.
PLAY PAUSE ▶II
for CD ..... to start or interrupt playback.
for TAPE ..... to start playback.
I◀ PREV / SIDE / NEXT ▶I
(PRESET ▼▲)
for CD ..... to skip to the beginning of the current, previous, or next track.
for TUNER ..... to select a preset radio station.
for TAPE ..... to select tape side (back or front) in tape deck 2 only.
for CLOCK ..... *(on the system only)* to set the minute.

⑰ **RECORD**
– to start recording on tape deck 2.

⑱ **VOLUME**
– to increase or decrease the volume.

⑲ **MIC LEVEL**
– to adjust the mixing level for karaoke or microphone recording.

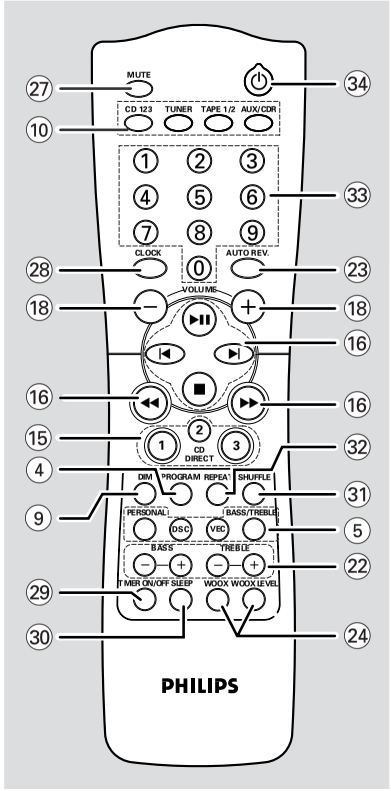
⑳ **MIC JACK**
– to connect microphone jack.

㉑ **DUB (HSD) (HIGH SPEED DUBBING)**
– to dub a tape in normal or fast speed.

㉒ **BASS/TREBLE CONTROL** – to adjust the BASS/TREBLE level :
BASS ▲ ▼ (BASS +/−)
– to increase or decrease the low tone level.
TREBLE ▲ ▼ (TREBLE +/−)
– to increase or decrease the high tone level.

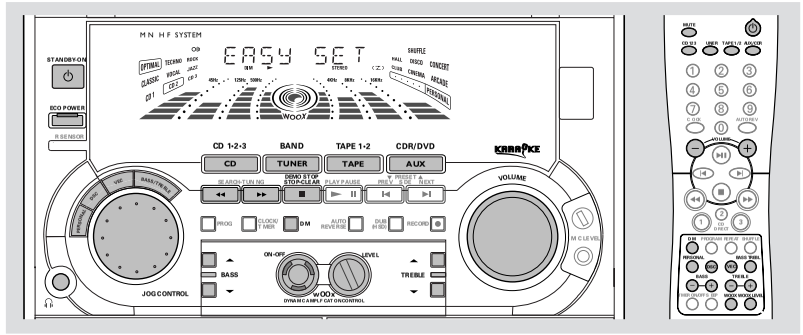
Controls

㉓ **AUTO REVERSE**
– to select the desired playback modes in tape deck 2 only.
㉔ **wOOx ON•OFF**
– to select enhanced or normal wOOx sound effect.
wOOx LEVEL
– to select desired wOOx level : WOOX 1, WOOX 2 or WOOX 3.
㉕ **TAPE DECK 2**
㉖ **TAPE DECK 1**
㉗ **MUTE**
– to interrupt or resume sound reproduction.
㉘ **CLOCK**
– to view the clock display.
㉙ **TIMER ON/OFF**
– to activate or deactivate the timer function.
㉚ **SLEEP**
– to activate, deactivate or set the sleep timer function.
㉛ **SHUFFLE**
– to playback all available discs and their tracks/ programme in random order.
㉜ **REPEAT**
– to playback track(s)/disc(s)/programme repeatedly.
㉝ **DIGITS 0 – 9**
(numbers consisting of more than two figures must be keyed in within 2 seconds.)
for CD ..... to key in a CD track for playback or programming.
for TUNER ..... to key in a preset radio station.
㉞ ⏻
– to switch the system to Standby mode or Eco Power Standby mode.



Notes for remote control:
– First, select the source you wish to control by pressing one of the source select keys on the remote control (CD 123 or TUNER for example).
– Then select the desired function (▶, I◀, ▶I for example).

Basic Functions



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

Demonstration mode

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

To activate the demonstration
- In Standby mode, press and hold **DEMO STOP ■** on the system until "DEMO ON" is displayed.
  ➜ The demonstration will begin.

To deactivate the demonstration
- Press and hold **DEMO STOP ■** on the system until "DEMO OFF" is displayed.
  ➜ The system will switch to Standby mode.

Notes:
– Even if you remove the AC power cord and reconnect it to the wall socket, the demonstration will remain off until you activate it again.
– When the power is turned on, the disc tray may open and close to initialize the system.

Easy Set

EASY SET allows you to store all available radio stations automatically.

- In Standby or Demonstration mode, press and hold **STANDBY ON** until "EASY SET" is displayed.
  ➜ The system will search for all radio stations on the FM band, then the MW band.
  ➜ All available radio stations with sufficient signal strength will be stored automatically.
  ➜ 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 last preset radio station will play when EASY SET is completed.

Note:
– When EASY SET is used, all previously stored radio stations will be replaced.

English

Switching the system on

In Standby mode

- Press **STANDBY ON** or **CD/TUNER/TAPE/AUX** on the system.
  ➜ The system will switch to the last selected source or the selected source.
- Press any one of the DISC DIRECT PLAY buttons or **OPEN•CLOSE**.
  ➜ The system will switch to CD mode.

In Eco Power Standby mode

- Press **CD 123**, **TUNER**, **TAPE 1/2** or **AUX/CDR** on the remote control.
  ➜ The system will switch to the selected source.

Switching the system to Standby mode

In Demonstration mode

- Press and hold **DEMO STOP** ■ on the system.

In Eco Power Standby mode

- Press **ECO POWER**.

In any other source mode

- Press **STANDBY ON** (or ⏻ on the remote control).
  ➜ The clock will appear on the display when the system is in Standby mode.

Switching the system to Eco Power Standby mode

- Press **ECO POWER** (or press and hold ⏻ on the remote control).
  ➜ "LOW POWER STANDBY ON" will be displayed, then the display screen will go blank.
  ➜ The low power ECO POWER LED will be lighted.

Note:

– If you have not deactivated the demonstration, it will resume five seconds after the system switches to Eco Power Standby or Standby mode.

Power Saving Automatic Standby

As a power-saving feature, the system will automatically switch to Standby mode if you do not press any buttons within 30 minutes after a disc or tape has stopped playing.

Dim mode

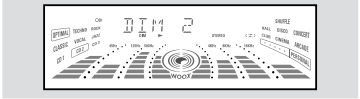
You can select the desired brightness for the display.

- Press **DIM** repeatedly to select DIM 1, DIM 2, DIM 3 or DIM OFF.
  ➜ **DIM** appears on the display, except for DIM OFF mode.

DIM OFF - normal brightness with Spectrum Analyser On

DIM 1 - normal brightness w th Spectrum Analyser Off

DIM 2 - half brightness with Spectrum Analyser On



DIM 3 - half brightness with Spectrum Analyser Off and all LEDs on the system will be switched off.

English

Volume Control

Adjust **VOLUME** to increase (turn knob clockwise or press VOLUME +) or decrease (turn knob anti-clockwise or press VOLUME −) the sound level.

To listen through the headphones

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

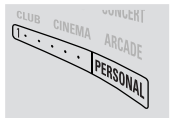
To switch off the volume temporarily

- Press **MUTE** on the remote control.
  ➜ Playback will continue without sound and "MUTE" will be displayed.
- To restore the volume, press **MUTE** again or increase the VOLUME level.

Interactive Sound Control

For optimal sound listen ng, select only one of the following interactive sound controls at a t me : PERSONAL, DSC, VEC or BASS/TREBLE.

Personal Sound



1. Press **PERSONAL**.
2. Adjust the **JOG CONTROL** (or press **PERSONAL** on the remote control repeatedly) to select the desired Personal setting.
   ➜ The selected Personal setting number will appear on the display.
   ➜ If no name has been stored previously, "PERSONAL X" will be displayed. "X" is the setting number.

Personal Setting

You can use the JOG CONTROL to adjust the Personal setting to your desired level. Up to 6 Personal settings can be stored.

1. Press and hold **PERSONAL** on the system until "SELECT PRESET NUMBER" is displayed.
2. Adjust the **JOG CONTROL** to select the desired Personal setting number and press ▶▶ on the system to confirm the selection.
   ➜ "ADAPT LOW FREQ LEVEL" will be displayed.
3. Adjust the **JOG CONTROL** to select the desired Spectrum Analyser band level for low frequency.
   ➜ The level will increase or decrease between + 3 and − 3.
4. Press ▶▶ to confirm the selection.
   ➜ "ADAPT MID FREQ LEVEL" will be displayed, followed by "ADAPT HIGH FREQ LEVEL".
- Repeat ***steps 3–4*** to select the desired middle and high frequency Spectrum Analyser band levels.
5. You can edit the name for the personal setting.
   ➜ The first character of the setting name will be flashing.
6. Adjust the **JOG CONTROL** to select the desired letter, number or symbol.
   ➜ "A to Z", "0 to 9" or "*, -, +, \, /, _".
7. Press ▶▶ to confirm the selection.
   ➜ The next character for editing will be flashing.
- Repeat ***steps 6–7*** to store up to 10 characters.
8. To store the setting, press **PERSONAL** on the system again.

To change any previous setting before storing

- Press ◀◀ on the system to retrace the steps in reverse order and make the changes accordingly.

To exit without storing the setting

- Press ■ on the system.

Notes:

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

– The wOOx level cannot be stored as part of the Personal setting.

– When making a Personal setting, it is not possible to adjust the Bass/Treble level, "USE JOG" will be displayed.

English

Digital Sound Control (DSC)

The DSC feature enables you to adjust the system to suit your type of music.

1 Press **DSC**.
2 Adjust the **JOG CONTROL** (or press **DSC** on the remote control repeatedly) to select the desired Digital Sound Control effect : OPTIMAL, CLASSIC, TECHNO, VOCAL, ROCK or JAZZ.
➜ The selected DSC will be encircled.

Note:
– *For a neutral sound effect, select CLASSIC.*

Virtual Environment Control (VEC)

The VEC feature enables you to adjust the system to select a type of environment.

1 Press **VEC**.
2 Adjust the **JOG CONTROL** (or press **VEC** on the remote control repeatedly) to select the desired Virtual Environment Control effect : HALL, CLUB, DISCO, CINEMA, CONCERT or ARCADE.
➜ The selected VEC will be encircled.

BASS/TREBLE

The BASS/TREBLE feature enables you to define the sound-processor settings for Bass and Treble.

1 Press **BASS/TREBLE**.
➜ The BASS and TREBLE LEDs will be lighted.
➜ "ADAPT BASS AND TREBLE LEVELS" will be displayed.
2 Use the BASS/TREBLE controls to select the desired BASS or TREBLE levels respectively.
➜ The BASS/TREBLE level will increase or decrease between level +3 and −3.
● Press **BASS** ▲ or ▼ (or **BASS** +/− on the remote control) repeatedly to select the low tone level.
➜ "BASS -x" or "BASS +x" will be displayed.
● Press **TREBLE** ▲ or ▼ (or **TREBLE** +/− on the remote control) repeatedly to select the high tone level.
➜ "TREBLE -x" or "TREBLE +x" will be displayed.

Note:
– *"x" denotes the sound level.*

Automatic DSC-wOOx /VEC-wOOx selection

The best wOOx setting is generated automatically for each DSC or VEC selection. You can manually select the wOOx setting that best suits your listening environment.

wOOx

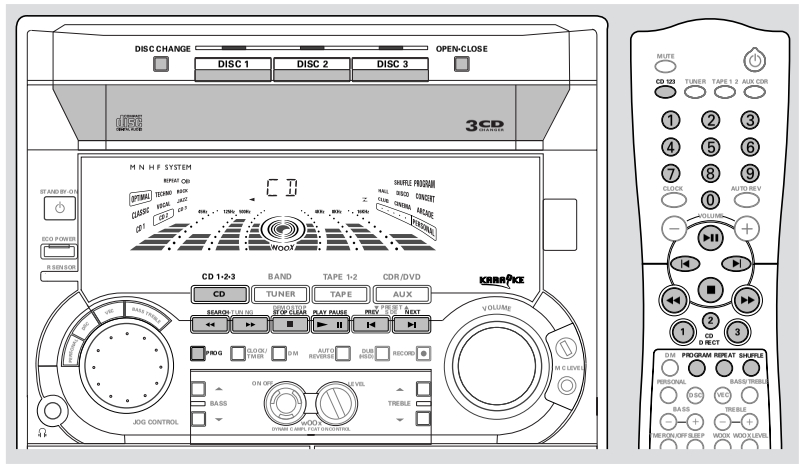
There are three wOOx settings to enhance the bass response.

1 Press **wOOx ON•OFF** (or **wOOx** on the remote control) to switch ON (enhanced) or OFF (normal) the wOOx sound effect.

● When wOOx is switched on;
➜ The **woox** will appear on the display.
● When wOOx is switched off;
➜ The display will show "WOOX NORM" and **woox** will disappear from the display.
2 When wOOx is switched on, adjust **wOOx LEVEL** to select the desired wOOx settings: WOOX 1, WOOX 2 or WOOX 3.

Notes:
– *When Personal or Bass/Treble sound control is selected, wOOx will be switched off automatically.*
– *Some discs or tapes might be recorded in high modulation, which causes a distortion at high volume. If this occurs, deactivate wOOx or reduce the volume.*

English



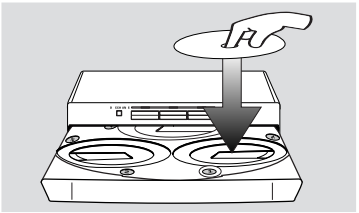
IMPORTANT!
– This system is designed for regular discs. Therefore, do not use any accessories such as disc stabiliser r ngs or disc treatment sheets, etc., as offered on the market, because they may jam the changer mechanism.
– Do not load more than one disc into each tray.

Discs for Playback

This system can playback all digital audio CD, finalised digital audio CD-Recordable (CDR) discs and finalised digital audio CD-Rewritable (CDRW)discs.

Loading Discs

1 Press **CD** to select CD mode.
2 Press **OPEN•CLOSE** to open the disc tray.
3 Load up to two discs on the individual disc trays. To load the third disc, press **DISC CHANGE**.
➜ The disc tray will rotate until the empty tray is ready for loading.



4 Press **OPEN•CLOSE** to close the disc tray.
➜ "READING" will be displayed. The selected disc, total number of tracks and the playing time will appear on the display.
➜ A lighted button indicates that a disc is loaded on the disc tray.

Notes:
– *Load the discs with the label side facing up.*
– *To ensure good system performance, wait until the disc tray completely reads the disc(s) before proceeding.*

English

Disc Playback

To playback all discs on the disc tray

- Press **PLAY ▶II**.
  ➜ All the available discs will playback once, then stop.
  ➜ During playback, the selected disc tray, track number and elapsed playing time of the current track will appear on the display.

To playback one disc only

- Press the DISC DIRECT PLAY button : **DISC 1**, **DISC 2** or **DISC 3**.
  ➜ The selected disc will playback once, then stop.

To interrupt playback

- Press **PAUSE ▶II**.
- To resume playback, press **PLAY ▶II** again.

To stop playback

- Press ■.

To search for a particular passage during playback

- Press and hold ◀◀ or ▶▶ and release it when the desired passage is located.
  ➜ During searching, the volume will be reduced.

To select a desired track

- Press I◀ or ▶I repeatedly (or **Digits 0–9** on the remote control) until the desired track appears on the display.
- If playback is stopped, press **PLAY ▶II** to start playback.

Note:
– In Shuffle mode, pressing I◀ will cause the player to skip only to the beginning of the current track.

To skip to the beginning of the current track during playback

- Press I◀ **once**.

Replace discs during playback

1 Press **DISC CHANGE**.
2 To change the inner disc, press **DISC CHANGE** again.
➜ "DISC CHANGE" will be displayed and the disc will stop playing.
➜ The disc tray will close to retrieve the inner disc, then reopen with the inner disc accessible.

Programming the disc tracks

Programming tracks is possible when playback is stopped. Up to 40 tracks can be stored in the memory in any order.

1 Load the desired discs on the disc tray (refer to "Loading Discs").
2 Press **PROG** to start programming.
➜ **PROGRAM** will start flashing.
3 Press **CD** (CD 1•2•3) or **DISC 1/2/3** button to select a disc.
4 Press I◀ or ▶I (or **Digits 0–9** on the remote control) to select the desired track.
5 Press **PROG** to store the track.
- Repeat ***steps 3–5*** to store other discs and tracks.

6 Press **PLAY ▶II** to start programme playback.
➜ "PLAY PROGRAM" will be displayed.
- To end programming without starting playback, press ■ **once** .
  ➜ The total number of tracks programmed and the total playing time will appear on the display.

Notes:
– If the total playing time is more than "99:59" or if one of the programmed tracks has a number greater than 30, then "- -:- -" will appear on the display instead of the total playing time.
– If you attempt to programme more than 40 tracks, "PROGRAM FULL" will be displayed.
– If you press any of the DISC DIRECT PLAY buttons, the system will playback the selected disc or track, and the stored programme will be ignored temporarily. The PROGRAM symbol also will disappear temporarily from the display. It will reappear when playback of the selected disc ends.
– During programming, if no button is pressed within 20 seconds, the system will exit the Programme mode automatically.

English

To review the programme

- Stop playback and press I◀ or ▶I repeatedly.
- To exit review mode, press ■.

To erase the entire programme

- Press ■ **once** when playback is stopped or **twice** during playback.
  ➜ "PROGRAM CLEARED" will be displayed.
  ➜ **PROGRAM** will disappear from the display.

Note:
– The programme will be erased when the system is disconnected from the power supply or when the disc tray is opened.

Repeat

The current track, a disc, all available discs or all programmed tracks can be played repeatedly.

1 Press **REPEAT** on the remote control repeatedly to select various repeat modes.
- **In normal playback**
  ➜ "TRACK" – to repeat the current track.
  "DISC" – to repeat the entire disc.
  "ALL DISC" – to repeat all available discs.
  ➜ **REPEAT** appears on the display.
- **In programme playback**
  ➜ "TRACK" – to repeat the current programmed track.
  "PROGRAM" – to repeat all programmed tracks.
  ➜ **REPEAT** and **PROGRAM** will appear on the display.
- The selected track/disc(s)/programme will now be played repeatedly until you press ■.

2 To resume normal playback, press **REPEAT** until the "OFF" mode is displayed.
➜ **REPEAT** will disappear from the display.

Note:
– Selecting SHUFFLE during repeat playback will cancel all repeat modes.

Shuffle

All the available discs and their tracks or all the programmed tracks can be played in random order.

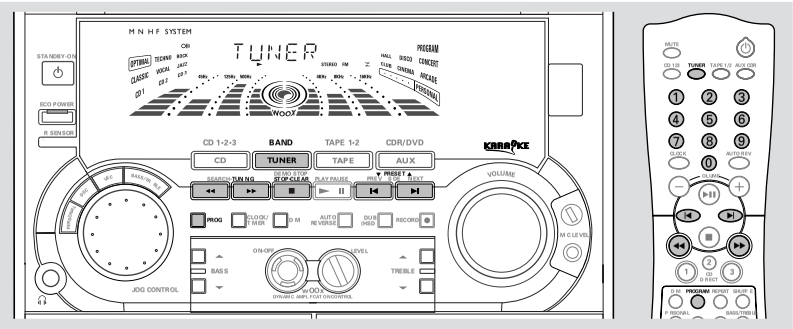
1 Press **SHUFFLE** on the remote control.
➜ "SHUFFLE" and **SHUFFLE** will appear on the display.
- The discs and the tracks will be played in random order until you press ■.

2 To resume normal playback, press **SHUFFLE** again.
➜ **SHUFFLE** will disappear from the display.

When REPEAT is selected during shuffling

- **In normal shuffled playback**
  ➜ "TRACK" and "ALL DISC" repeat modes are available for selection.
  ➜ **REPEAT** and **SHUFFLE** will appear on the display.
- **In programme shuffled playback**
  ➜ "TRACK" or "PROGRAM" repeat modes are available for selection.
  ➜ **REPEAT**, **PROGRAM** and **SHUFFLE** will appear on the display.

For Recording, please refer to "Tape Operation/Recording".



Storing Preset Radio Stations

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

Automatic Preset Programming

- EASY SET setting (refer to "Basic Functions - EAST SET").

OR

1 Press **TUNER** (BAND) to select TUNER mode.
➜ "TUNER" will be displayed. A few seconds later, the current radio frequency will be displayed.

To begin automatic preset from a desired preset number

- Press ⏮ or ⏭ (or **Digits 0–9** on the remote control) to select the desired preset number.
➜ For those radio stations that had been stored in one of the preset will not be restored again to another preset number.

2 Press and hold **PROG** until "AUTO" appears on the display.
➜ **PROGRAM** will start flashing.
➜ The system will start searching for all radio stations on the FM band, then the MW band.
➜ All available radio stations with sufficient signal strength will be stored automatically.
➜ 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 last preset radio station will then be played when completed.

To stop storing the automatic preset

- Press **PROG** or ■ on the system.

Note:
– If no preset number is selected, automatic preset will begin from preset (1) and all your former presets will be overridden.

Manual Preset Programming

1 Press **TUNER** (BAND) repeatedly to select the desired waveband : FM or MW.
2 Press **PROG**.
➜ **PROGRAM** will start flashing.
➜ The next available preset number will be displayed for selection.
3 Press and hold ◀◀ or ▶▶ until the frequency indication starts to change, then release.
➜ The display will show "SEARCH" until a radio station with sufficient signal strength is found.

To store the radio station to another preset number

- Press ⏮ or ⏭ (or **Digits 0–9** on the remote control) to select the desired preset number.

4 Press **PROG** again to store the radio station.
➜ **PROGRAM** will disappear from the display.

- Repeat ***steps 2–4*** to store other preset radio stations.

Tuning to a weak radio station

- Press ◀◀ or ▶▶ briefly and repeatedly until the optimal reception is found.

To stop storing the manual preset

- Press ■ on the system.

Notes:
– If you attempt to store more than 40 preset radio stations, "PROGRAM FULL" will be displayed.
– During programming, if no button is pressed within 20 seconds, the system will exit the Programme mode automatically.

Tuning to Preset Radio Stations

- Press ⏮ or ⏭ (or **Digits 0–9** on the remote control) to select the desired preset number.
➜ The preset number, radio frequency, and waveband will appear on the display.

For Recording, please refer to "Tape Operation/Recording".

Changing Tuning Grid *(not available for all versions)*

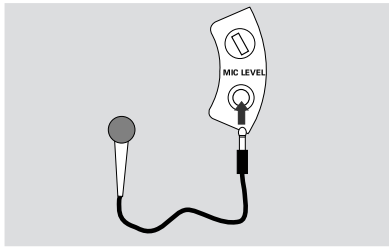
In North and South America, the frequency step between adjacent channels in the MW band is 10 kHz (9 kHz in some areas). The preset frequency step in the factory is 9 kHz.

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

1 Disconnect the system from the AC power supply (pull out the AC power cord).
2 While holding down **TUNER** and ▶▶ on the system, reconnect the system to the AC power supply.
➜ The display will show "GRID 9" or "GRID 10".

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

Karaoke



Microphone Mixing

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

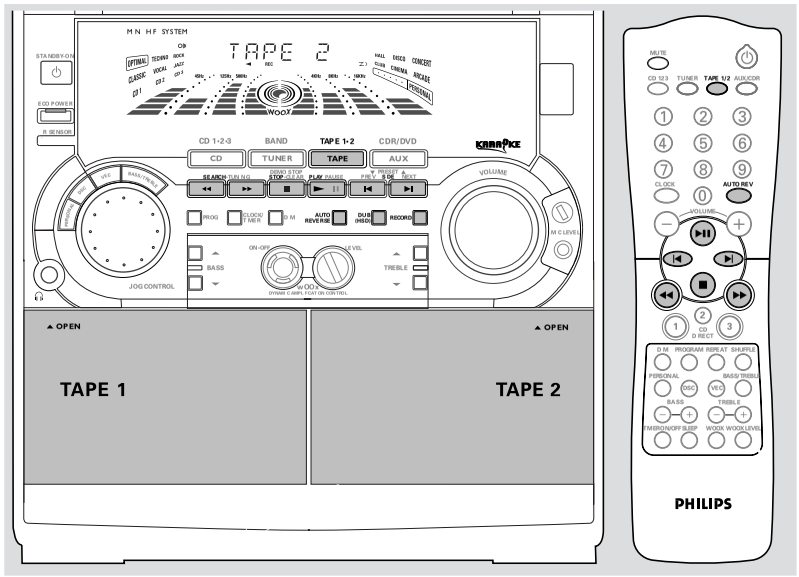
1 Connect a microphone to the MIC jack.

- Before connecting the microphone, set the **MIC LEVEL** to the minimum level to prevent howling sound.

2 Press **CD**, **TUNER**, **TAPE** or **AUX** to select the source to be mixed and start playback.
3 Adjust the volume level of the source with **VOLUME** control.
4 Adjust the microphone volume with **MIC LEVEL** control.

Note:
– Keep the microphone away from the speakers to prevent howling.

For Recording, please refer to "Tape Operation/Recording".



IMPORTANT!

– Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.

– C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.

– Store the tapes at room temperature and do not put them too close to a magnetic field (for example, a transformer, TV or speaker).

Tape Playback

1 Press ▲ **OPEN** to open the tape deck door.

2 Insert a recorded tape and close the tape door.

- Load the tape with the open side down and the full spool to the left.

3 Press **TAPE** (TAPE 1•2) repeatedly to select tape deck 1 or tape deck 2.
➜ The selected tape deck number is displayed.

4 Press **PLAY ▶II** to start playback.

To stop playback

- Press ■.

To change the playback side on tape deck 2 only

- Press ⏮ or ⏭.
➜ The ◀ (BACK) or ▶ (FRONT) appear on the display, depending on the tape side selected.

To change the playback mode on tape deck 2 only

- Press **AUTO REVERSE** repeatedly to select the different playback modes.
: playback on one side of the tape only.
: both sides are played once.
: both sides are played repeatedly, up to 10 times each side unless you press ■.

To rewind or fast forward during playback

- Press and hold ◀◀ or ▶▶ until the desired passage is reached, then release.
➜ The tape continues playing.
- The tape will stop automatically at the end of the rewinding or fast forwarding.
➜ During searching, the sound is reduced to a low volume.

To rewind or fast forward when playback is stopped

1 Press ◀◀ or ▶▶.

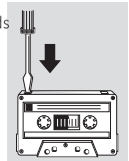
2 Press ■ when you reached the desired passage.

Note:

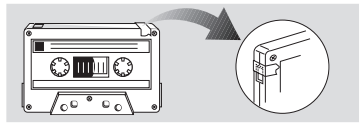
– During rewinding or fast forwarding of a tape, it is also possible to select another source (CD, TUNER or AUX, for example).

General Information on Recording

- If you do not intend to record via the microphone, unplug the microphone to avoid accidental mixing with other recording source.
- For recording, use only tape of IEC type I (normal tape) or IEC type II (CrO_2).
- The recording level is set automatically, regardless of the position of the Volume, VEC, DSC and so forth.
- The tape is secured at both ends with leader tape. At the beginning and end of the tape, nothing will be recorded for six to seven seconds.



- To prevent accidental recording, break out the tab on the left shoulder of the tape side you want to protect.
- If "CHECK TAPE" is displayed, the protection tab has been broken. Put a piece of clear adhesive tape over the opening. Do not cover the CrO_2 tape detection hole when covering the tab opening.



IMPORTANT!

– Recording is permissible if copyright or other rights of third parties are not infringed upon.

– Recording is possible only on tape deck 2.

Preparation for Recording

1 Press **TAPE** (TAPE 1•2) to select TAPE 2.

2 Load a recordable tape into tape deck 2.

3 Press ⏮ or ⏭ to select the recording tape side.
➜ ◀ appears on the display for the reverse side.
➜ ▶ appears on the display for the forward side.

4 Press **AUTO REVERSE** repeatedly to select a recording mode.
➜ for recording on one side only.
➜ for recording on both sides.

5 Prepare the source to be recorded.
CD – load the disc(s).
TUNER – tune to the desired radio station.
TAPE – load the prerecorded tape into tape deck 1 with the full spool to the left.
AUX – connect external equipment.

When recording is in progress

➜ **REC** starts flashing.

- It is not possible to change tape side.
- It is not possible listen to another source except for dubbing tapes.
- It is not possible to activate the timer function.

One Touch Recording/Recording the mixed sound

1 Press **CD**, **TUNER** or **AUX** to select the source.

- You can connect a microphone to record the mixed sound in tape deck 2 (refer to "Karaoke - Microphone Mixing").

2 Start playback of the selected source.

3 Press **RECORD** to start recording.

To stop recording

- Press ■.

Note:

– One Touch Recording is not possible in TAPE mode, "SELECT SOURCE" will be displayed.

CD Synchro Recording

1 Press **CD 1•2•3** to select the disc.

- Press ⏮ or ⏭ (or **Digits 0–9** on the remote control) to select the desired track to start recording.
- You can programme the tracks in the order you want them to be recorded (refer to "CD Operation - Programming the disc tracks").

2 Press **RECORD** to start recording.
➜ The disc will start playback automatically.

Tape Operation/Recording

To select another track during recording

1 Press **PAUSE ▶II** to interrupt recording.
2 Press ⏮ or ⏭ (or **Digits 0–9** on the remote control) to select the desired track.
3 Press **PLAY ▶II** to resume recording.

To stop recording

● Press ■.
➜ Recording and disc playback will stop simultaneously.

Dubbing Tapes

1 Load the prerecorded tape in tape deck 1.
● You can set the tape to the desired passage where recording will start.
2 Press **DUB (HSD) once** for normal speed dubbing or **twice** (within 2 seconds) for high speed dubbing.
➜ Playing and recording will start simultaneously.
➜ "NORMAL" (normal speed) or "FAST" (high speed) will be displayed, followed by "DUB" with an indication on the selected tape side direction.
➜ During high speed dubbing, the volume will be reduced and **HSD** will appear on the display.

● Dubbing of tapes is possible on one side of the tape only. To continue record on the reverse side, at the end of side A, flip the tapes to side B and repeat the procedure.

To stop dubbing

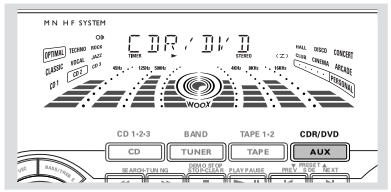
● Press ■.

Notes:
– Only ⌶ mode is available during dubbing.
– Dubbing of tapes is possible only from tape deck 1 to tape deck 2.
– To ensure good dubbing, use tapes of the same length.
– You can listen to another source while dubbing.
– During tape dubbing, it is not possible to use the microphone to record the mixed sound.

Digital Recording via Digital Out

For CD digital recording, please refer to the instruction manuals for the CD recorder, digital audio equipment and so forth.

External Sources



Listening to External Sources

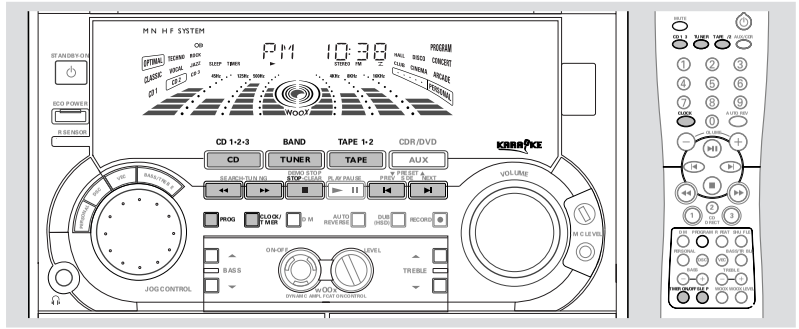
1 Connect the audio out terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX/CDR IN terminals of your system.
2 Press **AUX** (CDR/DVD) repeatedly to select CDR/DVD or normal AUX mode.
➜ "CDR/DVD" or "AUX" will be displayed.

● When CDR/DVD mode is selected, any audio equipment connected to the LINE OUT terminals of this mini system will be muted. You will not be able to record or listen to the sound from the LINE OUT source.
● If the sound from the external source is distorted, select CDR/DVD mode for listening.

Notes:
– You are advised not to listen to and record from the same source simultaneously.
– All the interactive sound control features (DSC or VEC, for example) are available for selection.
– Refer to the operating instructions for the connected equipment for details.

For Recording, please refer to "Tape Operation/Recording".

Clock/Timer



View Clock

The clock (if it is set) will be shown in Standby mode.

To view the clock in any source mode (CD or TUNER for example)

● Press **CLOCK/TIMER** briefly (or **CLOCK** on the remote control).
➜ The clock will be displayed for a few seconds.
➜ If the clock has not been set, "--:--" will be displayed.

Note:
– When in Eco Power Standby mode, the clock will not be displayed.

Clock Setting

The clock can be set in either 12-hour or 24-hour mode ("AM 12:00" or "00:00" for example)

1 Press **CLOCK/TIMER twice**.
2 Press **PROG** on the system repeatedly to select clock mode.
➜ If 12-hour mode is selected, "AM 12:00" will start flashing.
➜ If 24-hour mode is selected, "00:00" will start flashing.
3 Press ◀◀ or ▶▶ on the system repeatedly to set the hour.
4 Press ⏮ or ⏭ on the system repeatedly to set the minute.
5 Press **CLOCK/TIMER** again to store the setting.
➜ The clock will start working.

To exit without storing the setting

● Press ■ on the system.

Notes:
– The clock setting will be cancelled when the power cord is disconnected or if a power failure occurs.
– When in Eco Power Standby mode, the clock/timer function will not operate.
– During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.

Timer Setting

The system can switch on to CD, TUNER, or TAPE 2 mode automatically at a preset time, serving as an alarm to wake you up.

IMPORTANT!
– Before setting the timer, ensure that the clock is set correctly.
– The timer will always be switched on after it has been set.
– The timer will not start if a recording is in progress.
– The volume of the timer will increase gradually from the minimum level until it reaches the last tuned volume level.

1 Press and hold **CLOCK/TIMER** for more than **two seconds** to select timer mode.
➜ "AM 12:00" or "00:00" or the last timer setting will start flashing.
➜ **TIMER** will start flashing.
➜ The selected source will be lighted while other available sources are flashing.

Clock/Timer

2 Press **CD**, **TUNER** or **TAPE** to select the desired source.
- Make sure the music source has been prepared.
  CD – Load the disc(s). To start from a specific track, make a programme (refer to "CD Operation - Programming the disc tracks").
  TUNER – tune to the desired radio station.
  TAPE – load the prerecorded tape into tape deck 2.

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

4 Press ⏮ or ⏭ on the system repeatedly to set the minute for the timer to start.

5 Press **CLOCK/TIMER** to store the start time.
➜ The timer is now set and activated.
➜ **TIMER** will remain on the display.
- At the preset time, the selected source will play.

To exit without storing the setting
- Press ■ on the system.

Notes:
– If the selected source (CD or TAPE) is not available when preset timer is reached, TUNER will be selected automatically.
– During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.

To deactivate the TIMER
- Press **TIMER ON/OFF** on the remote control.
  ➜ The display will show "CANCEL" and **TIMER** will disappear from the display.

To activate the TIMER
- Press **TIMER ON/OFF** on the remote control.
  ➜ The last set timer information will be shown for a few seconds and **TIMER** will appear on the display.

Sleep Timer Setting

The sleep timer enables the system to switch to Standby mode automatically at a preset time.

1 Set the clock (refer to "Clock Setting").

2 Press **SLEEP** on the remote control repeatedly to select a preset time.
➜ The selections are as follows (time in minutes):
60 → 45 → 30 → 15 → OFF → 60 ...
➜ "SLEEP xx" or "OFF" will be displayed. "xx" is the time in minutes.

3 When you reach the desired length of time, stop pressing the **SLEEP** button.
➜ The Sleep Timer is now set. After this amount of time passes, the system will switch to Standby mode.

To deactivate the Sleep Timer
- Press **SLEEP** repeatedly until "OFF" is displayed, or press the **STANDBY ON** button.

Maintenance

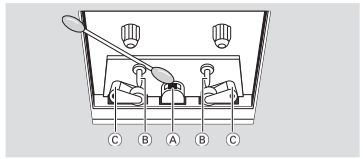
Cleaning the Cabinet
- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs
- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out. Do not wipe in circular motion.

- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analogue records.

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

Cleaning the Heads and the Tape Paths
- To ensure good recording and playback quality, clean the heads Ⓐ, the capstan(s) Ⓑ, and pressure roller(s) Ⓒ after every 50 hours of tape operation.
- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You also can clean the heads by playing a cleaning tape once.



Demagnetising the heads
- Use a demagnetising tape available at your dealer.

Troubleshooting

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

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

Problem	Solution
CD OPERATION	
"NO DISC" **is displayed.**	– Insert a disc. – Check if the disc is inserted upside down. – Wait until the moisture condensation at the lens has cleared. – Replace or clean the disc, see "Maintenance".
"DISC NOT FINALIZED" **is displayed.**	– Use a finalised CD-R(W) or CD-R.

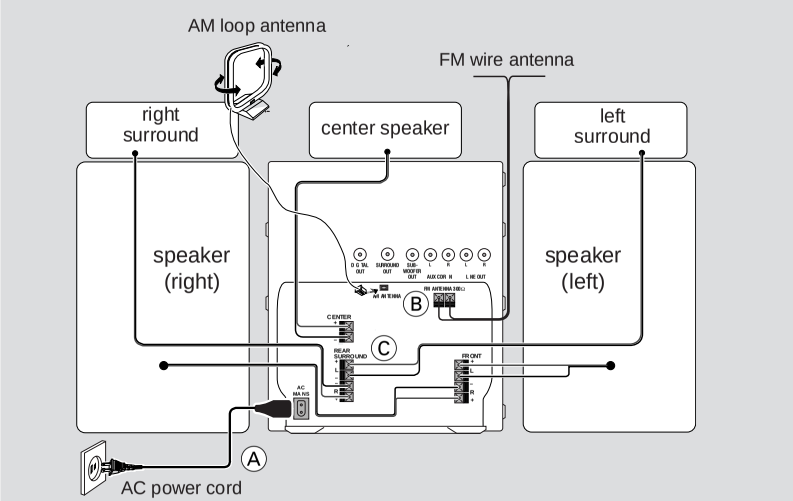
Troubleshooting

RADIO RECEPTION	
Radio reception is poor.	– If the signal is too weak, adjust the antenna or connect an external antenna for better reception. – Increase the distance between the Mini HiFi System and your TV or VCR.

TAPE OPERATION/RECORDING	
Recording or playback cannot be made.	– Clean deck parts, see "Maintenance". – Use only NORMAL (IEC I) or IEC type II (CrO_2) tape. – Apply a piece of adhesive tape over the missing tab space.
The tape deck door cannot open.	– Remove and reconnect the AC power plug and switch on the system again.

GENERAL	
The system does not react when buttons are pressed.	– Remove and reconnect the AC power plug and switch on the system again.
Sound cannot be heard or is of poor quality.	– Adjust the volume. – Disconnect the headphones. – Check that the speakers are connected correctly. – Check if the stripped speaker wire is clamped.
The left and right sound outputs are reversed.	– Check the speaker connections and location.
The remote control does not function properly.	– Select the source (CD or TUNER, for example) before pressing the function button (▶, ⏮, ⏭). – Reduce the distance between the remote control and the system. – Insert the batteries with their polarities (+/– signs) aligned as indicated. – Replace the batteries. – Point the remote control in the direction of the system's IR sensor.
The timer is not working.	– Set the clock correctly. – Press TIMER ON/OFF to switch on the timer. – If recording is in progress, stop recording.
Not all lighted buttons are showing light.	– Press DIM to select DIM OFF display mode.
The Clock/Timer setting is erased.	– Power has been interrupted or the power cord has been disconnected. Reset the clock/timer.
The system displays features automatically and buttons start flashing.	– Press and hold DEMO STOP ■ on the system to switch off the demonstration.

English



Rear Connections

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

Ⓐ **Power**

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

WARNING!

– For optimal performance, use only the original power cable.

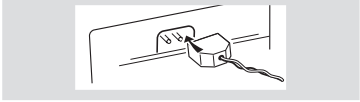
– Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety c rcuit has been bui t in. Therefore, your system may sw tch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing t *(not available for all versions)***.**

Ⓑ **Antennas Connection**

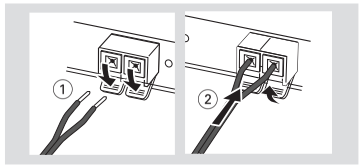
Connect the supplied AM loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

AM Antenna



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

FM Antenna



- For better FM stereo reception, connect an outdoor FM antenna to the FM ANTENNA terminal.

Additional Features For FW-P880/37
Preparations

English

Ⓒ **Speakers Connection**

Front Speakers

Connect the speaker wires to the SPEAKERS (FRONT) terminals, right speaker to "**R**" and left speaker to "**L**", colored (marked) wire to "**+**" and black (unmarked) wire to "**–**".

- Clip the stripped portion of the speaker wire as shown.

Rear Surround Speakers

Connect the speaker wires to the REAR SURROUND terminals, right speaker to "**R**" and left speaker to "**L**", colored (marked) wire to "**+**" and black (unmarked) wire to "**–**".

Center Speaker

Connect the speaker wires to the CENTER terminal, colored (marked) wire to "**+**" and black (unmarked) wire to "**–**".

Notes:

– For optimal sound performance, use the supplied speakers.

– Do not connect more than one speaker to any one pair of + / – speaker terminals.

– Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Wireless Surround Out Connection

Connect the transmitter unit of wireless rear speakers to the **SURROUND OUT** terminal.

Note:

– The availability of a wireless transmitter and its peripherals are subjected to the approval of local authorities. Please check with your respective local safety or approving authority.

English

Dolby ProLogic Surround Sound provides the current industry standard for home cinema sound from VCR and TV broadcasts. The front left and right speakers deliver detailed, directional sound as the center speaker "steers" dialogue/ vocal sound and center screen action toward the TV screen. Both surround speakers add a greater sense of depth with special effects.

Audio and video tapes and discs with the DOLBY SURROUND Dolby Surround mark are encoded for multi channel Dolby Surround sound. The DOLBY PRO LOGIC sound setting allows you to listen to audio tracks as they were recorded through the left, right, center, and rear channels.

IMPORTANT!
– Dolby Pro Logic Surround sound can only be reproduced if the program is broadcast in Dolby Surround Sound.
– For the best Dolby Pro Logic sound, sw tch on DPL w th DSC set to "Classic" and with VEC off.
– Dolby Pro Logic mode will automatically sw tch to normal Stereo mode when headphones is connected.
– When recording, switch to normal stereo mode.

Setting up the Dolby Pro Logic system

You must set up the system properly in order to experience and enjoy a Home Cinema sound ambience.

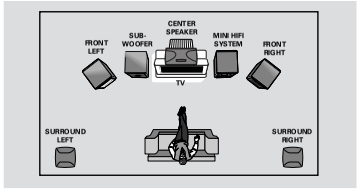
Connecting the Speakers

5-Speakers Connection (refer to "Preparations - Rear Connections")

- ***Front speakers:*** Connect the front speakers.
- ***Center speaker:*** Connect the center speaker.
- ***Rear (surround) speakers:*** Connect either the wired rear surround speakers or a pair of wireless rear speakers (not supplied) to the SURROUND OUT terminals.

Positioning the Speakers

To get the best surround sound effect, place the speakers as follows.



Front Left and Right Speakers
For the best sound, place the left and right speakers at an angle of approximately 45 degrees to the listener.

Note:
– To avoid magnetic interference with the picture on your TV, do not position the front speakers too close to the TV.

Rear (surround) Speakers
The surround speakers should be placed at normal listening ear level or mounted on the wall at the back of the room. Most importantly, experiment when placing the surround speakers to obtain the best sound.

Center Speaker
For the best sound, place the center speaker at the same height as the left and right speakers. Place the center speaker directly above or beneath the television.

Test Tone

This feature enables you to adjust the Front Left, Front Right, Center and Surround Sound levels of the respective speakers in Dolby Pro Logic mode.

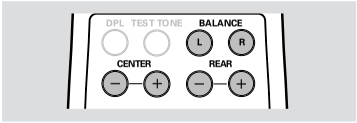
You must sit at the ideal sitting position and use the remote control to perform this operation.

1 Press **CD**, **TUNER**, **TAPE** or **AUX** to switch on the system.
2 Press **TEST TONE** on the remote control.
➜ A test signal is generated; it will move through the Left, Center, Right, and Surround speakers.

English

➜ "TEST TONE" followed by "ADAPT BALANCE, CENTER AND REAR LEVEL" will be displayed.
➜ The test signal will last for about 90 seconds.

Adjust the sound level



Front speakers
- Press **BALANCE L** on the remote control for left speaker and press **BALANCE R** on the remote control for right speaker.
➜ "BAL L +XX" or "BAL R +XX" will be displayed.

Center speaker
- Press **CENTER** + or – on the remote control.
➜ "CENT +XX" or "CENT-XX" will be displayed.

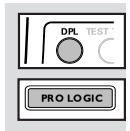
Surround speakers
- Press **REAR** + or – on the remote control.
➜ "REAR +XX" or "REAR -XX" will be displayed.

To switch off the TEST TONE
- Press **TEST TONE**.

Notes:
– It is advisable to set the speakers' level at normal listening level.
– "XX" denotes the sound level.

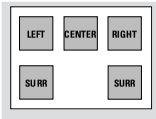
Switching the Dolby Pro Logic

- Press **DPL (PRO LOGIC)** repeatedly to select and cycle through the various sound modes.
➜ The Dolby Pro Logic display panel will light up with the selection.

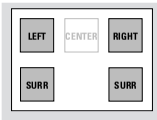


Dolby Surround ➜ Dolby Center Phantom ➜ Dolby 3 Stereo ➜ Stereo ➜ Dolby Surround ...

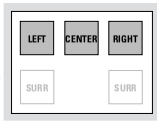
Dolby Surround
This setting is for a full Dolby Surround Pro Logic mode.
➜ "DOLBY SURROUND" will be displayed.



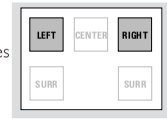
Dolby Center Phantom
This setting is for use without the center speaker. It redistributes the center speaker sound to the left and right speakers, providing conventional stereo across the front.
➜ "DOLBY CENTER PHANTOM" will be displayed.



Dolby 3 Stereo
Use this setting when full surround is not required, but a wide stereo sound is desired. It requires only the left, right and center speakers.
➜ "DOLBY 3 STEREO" will be displayed.

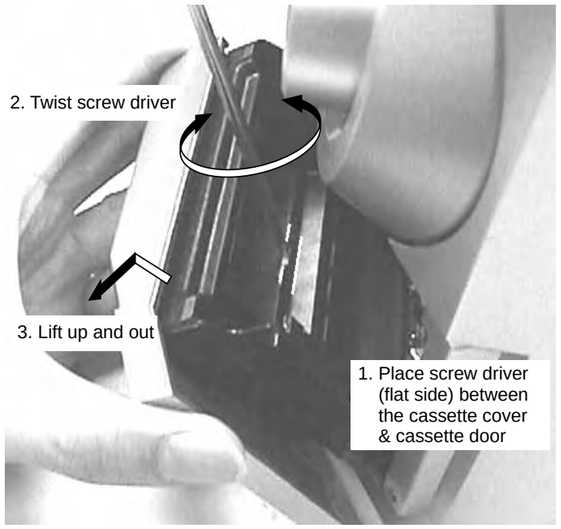


Normal Stereo
This setting is for normal stereo sound without Dolby Pro Logic. It requires only the left and right speakers.
➜ "STEREO" will be displayed.

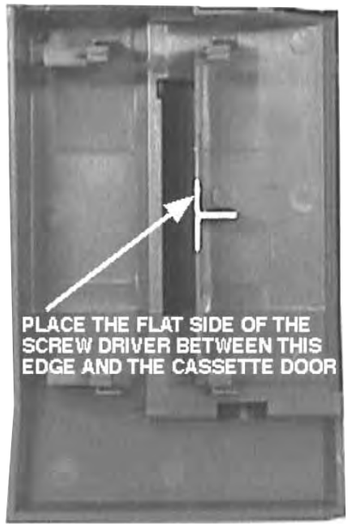


DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



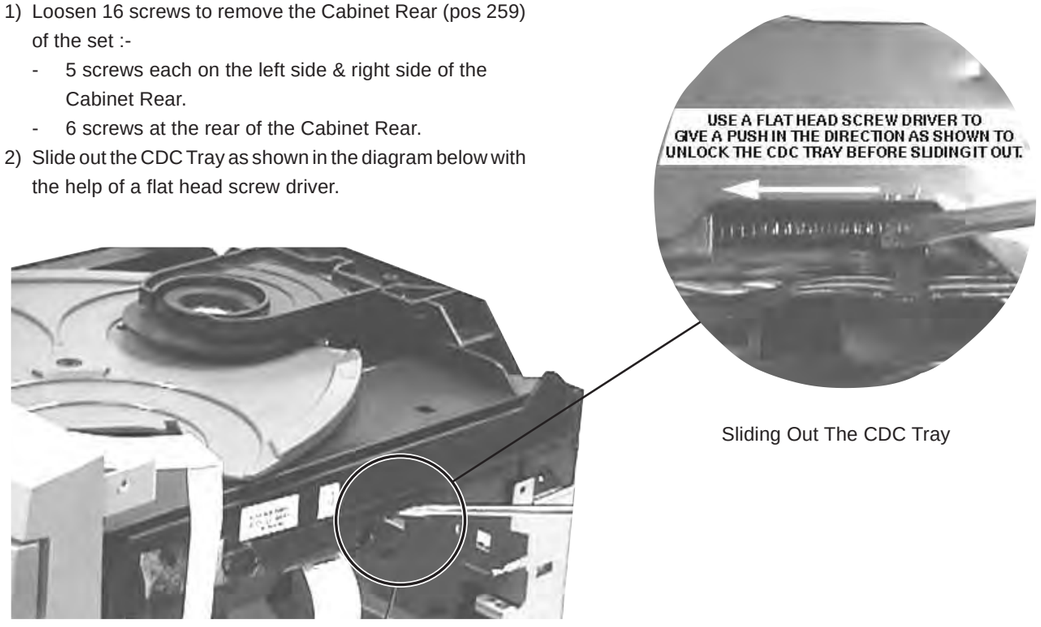
Remove Cassette Cover



Cassette Cover

Dismantling of the CDC Module and Front Panel

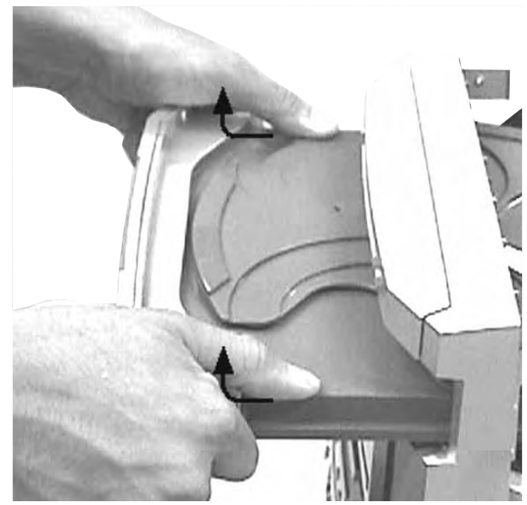
1) Loosen 16 screws to remove the Cabinet Rear (pos 259) of the set :-
   - 5 screws each on the left side & right side of the Cabinet Rear.
   - 6 screws at the rear of the Cabinet Rear.
2) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.



Sliding Out The CDC Tray

Dismantling of the CDC Module and Front Panel

3) Remove the Cover Tray CDC (pos 106) as indicated.



Remove Cover Tray CDC

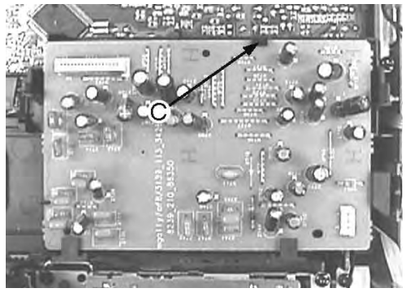
4) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1104) as indicated.
5) Remove 1 screw (pos 305) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 236).

Front View CDC

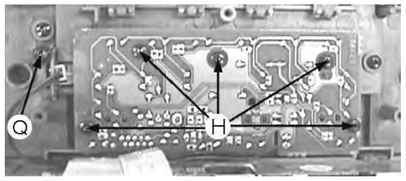
Remove CDC Module

Dismantling of the Front Board

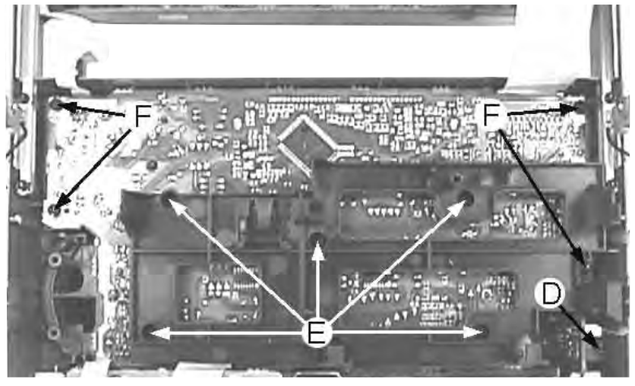
1) Uncatch C as indicated to loosen the Dolby Pro Logic Board (pos 1108) for set with DPL.
2) Remove 1 screw D as indicated to loosen the Headphone Board (pos 1100-E).
3) <u>For set with DPL</u>
   Remove 5 screws E as indicated to loosen the Plate Front (pos 254) and 4 screws F as indicated to loosen the Front Board (pos 1100-A).
   <u>For set without DPL</u>
   Remove 5 screws E and 4 screws F as indicated to loosen the Front Board (pos 1100-A).
4) Remove 5 screws H as indicated to loosen the Control Board (pos 1100-B).
5) Remove 1 screw Q as indicated to loosen the Blue Strip LED Board (pos 1100-F).



Remove Dolby Pro Logic (DPL) Board



Remove Control and Blue Strip LED Boards

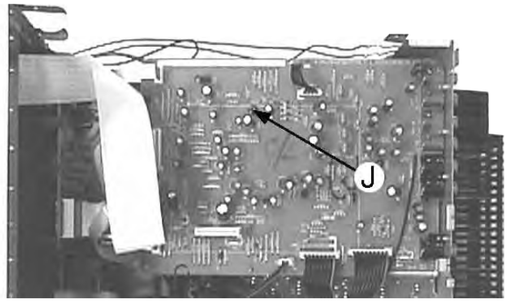


Dismantling of the ETF Tape Module

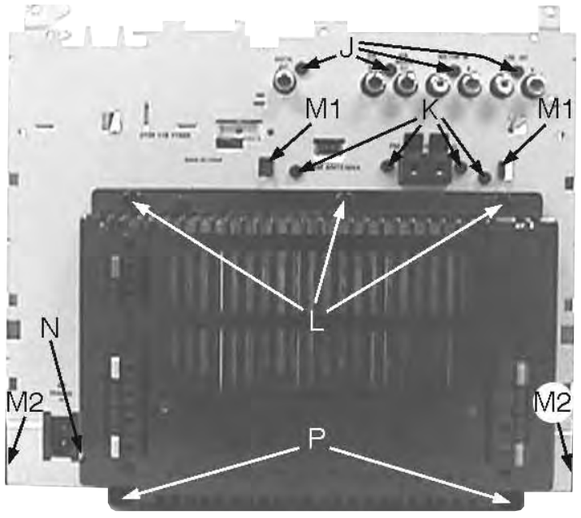
1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1103).

Dismantling of Rear Portion

1) Remove 5 screws J as indicated to loosen the AF Board (pos 1101).
2) Remove 4 screws K and uncatch M1 as indicated to loosen the Tuner Board (pos 1102).
3) Remove 3 screws L and 1 screw N (if obstructed) and uncatch M2 as indicated to take out the Plate Rear (pos 234).
4) Remove 2 screws P to free the Power Module (pos 1105) from the Bottom Plate assembly.



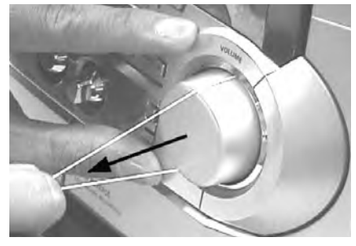
AF Board Top View



Repair Hints

1) The Knob Volume Rotary (pos 149) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 1.

Picture 1



2) The Knob Jog Rotary (pos 138) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 2.

Picture 2

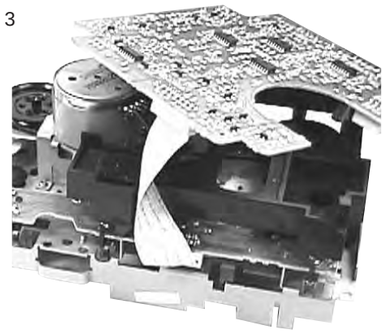
Repair Hints

3) 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.

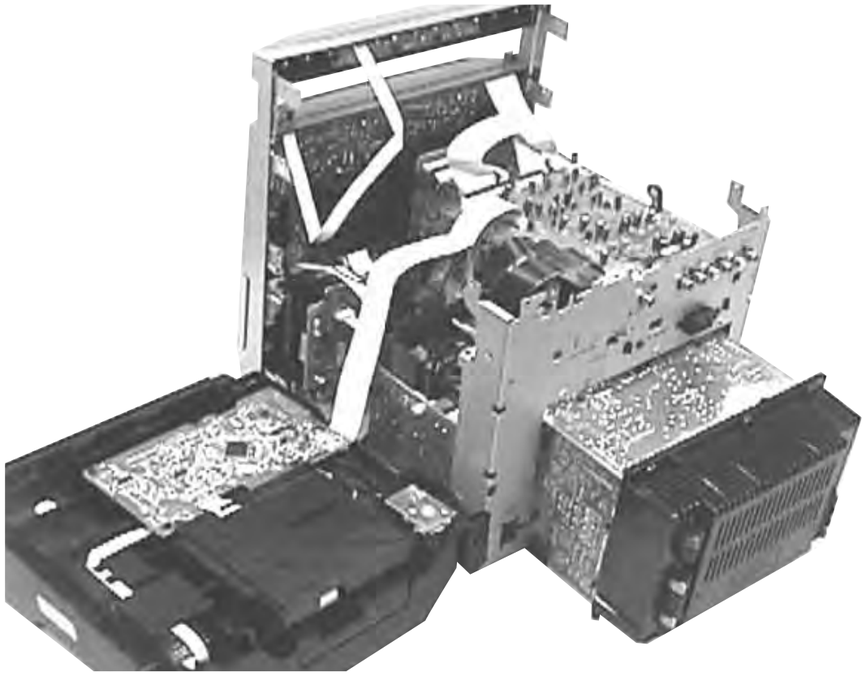
4) Due to the short flex cable wires in the ETF Module, the pc board should be disconnected and reconnected on the reverse side of the tape mechanism to keep it electrically connected during repair. See picture 3.

Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

Picture 3



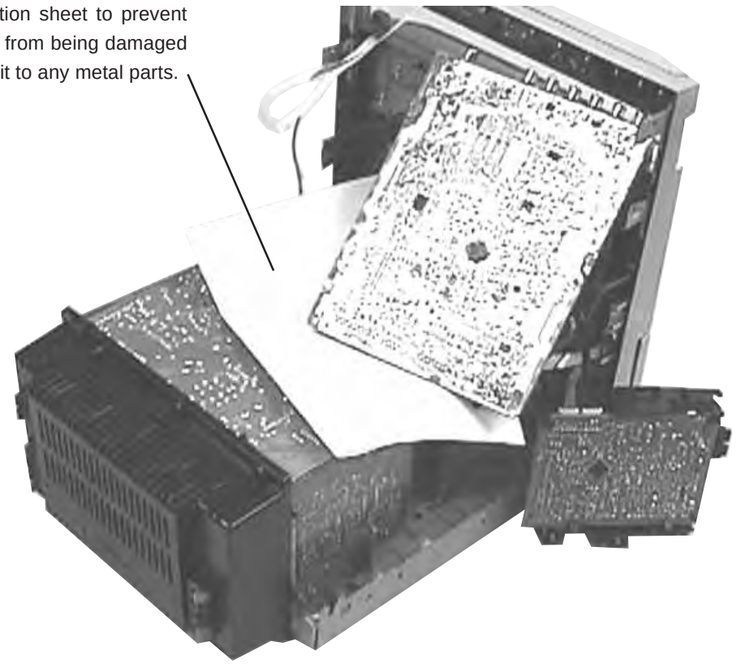
Service pos A



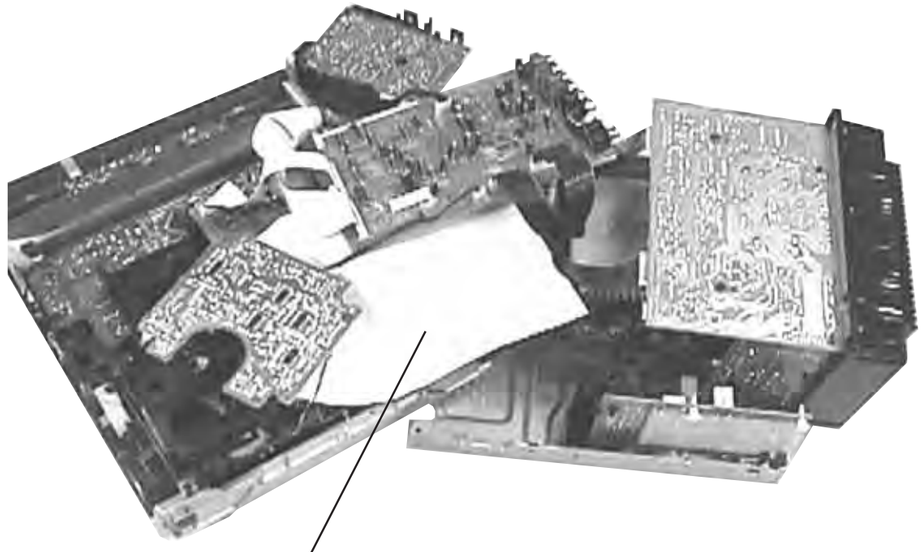
3-3

Service pos B

Use a insulation sheet to prevent the AF board from being damaged or short-circuit to any metal parts.



Service pos C



Use a insulation sheet to prevent the ETF board from being damaged or short-circuit to any metal parts.

3-4

SERVICE TEST PROGRAM

To start service test program hold ▶| & Aux depressed while plugging in the mains cord

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

S refers to Service Mode

V refers to Version

yy refers to Software version number of the µProcessor (counting up from 01 to 99)

TUNER TEST

TUNER Button pressed? N

Y

Display Tuner Version "ccc"

TUNER Button pressed? N

Service frequencies are copied to the RAM (see Table 1) Tuner works normally except:

PROGRAM button

Disconnect Mains cord ? N

Y

Service Mode left

QUARTZ TEST

|◀ Button pressed? N

Y

Display shows 32K Output at (Front Board) pin 19 of uP = 2048Hz

|◀ Button pressed? N

Y

Display shows 12M Output at (Front Board) pin 19 of uP = 2,929.6875Hz

■ Button pressed? N

Y

SERVICE PLAY MODE

POWER Button pressed? N

Y

Set is in Service PLAY Mode.

In case of failures, error codes according to Table 2 will be displayed.

The Service Play Mode is intended to detect and identify the failures in the CD Mode.

In this mode the electronics will still function even when an error is detected so that repair activities can be carried out.

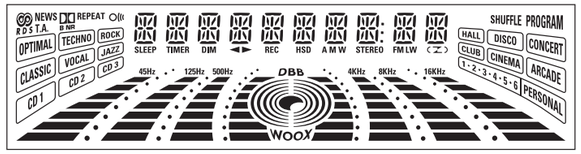


Figure 1

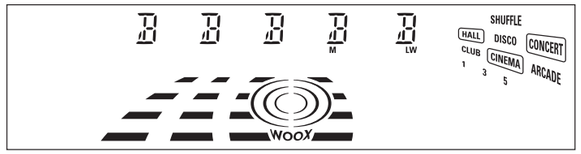


Figure 2

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

Table 2

DISPLAY TEST

▶ Button pressed? N

Y

Display shows Figure 1 and switch all LEDs on

▶ Button pressed? N

Y

Display shows Figure 2 and switch alternate LEDs on (see Table 3)

■ Button pressed? N

Y

LEDs	FW-C870	FW-P880 , FW-P900
DISC 1	On	On
DISC 3	On	On
CD	On	On
TAPE	On	On
DECOR	On	On
DPL CENTRE		On
STEREO RIGHT		On

Table 3

Various other Tests

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

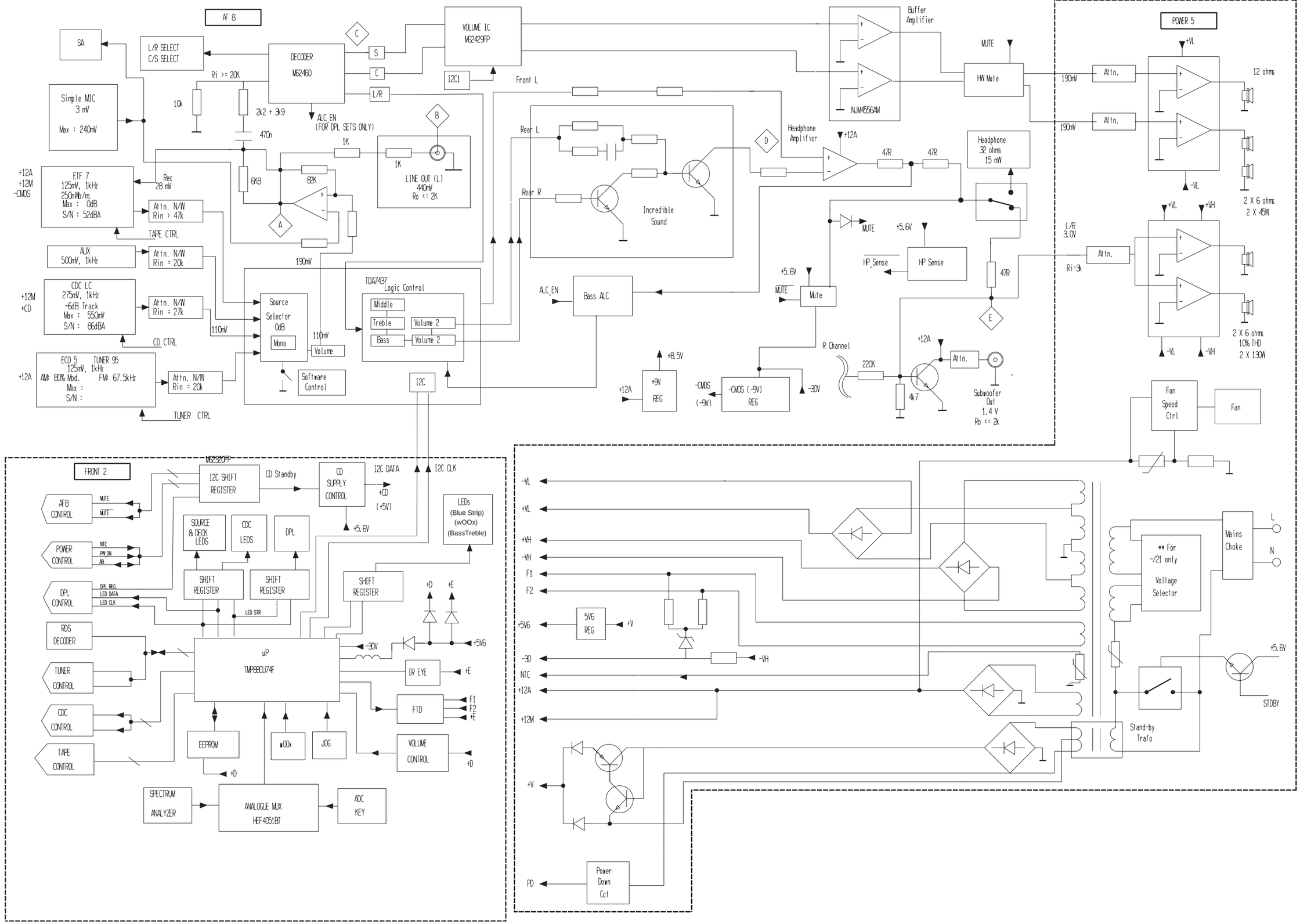
Table 1

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

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

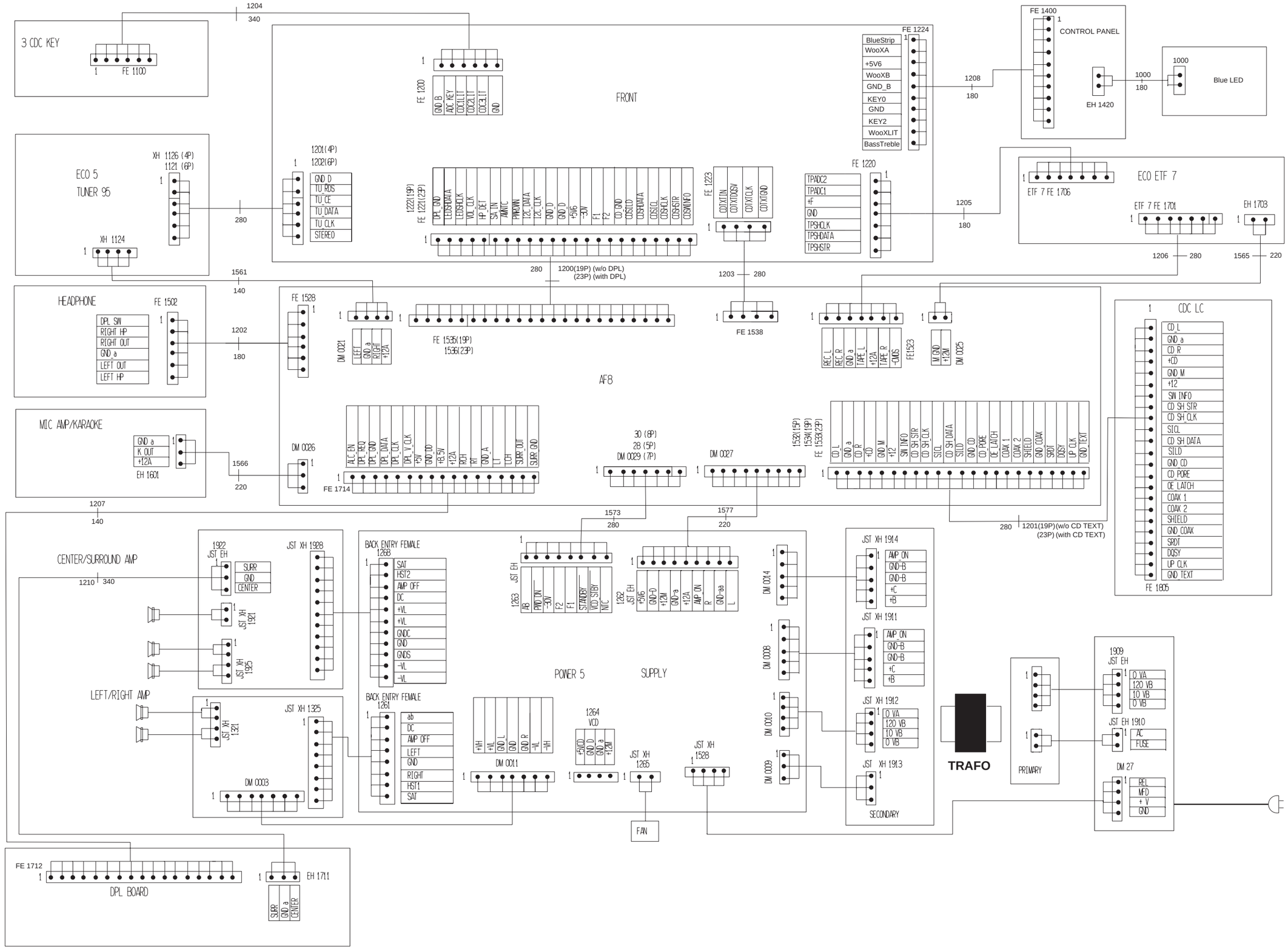
4-1

SET BLOCK DIAGRAM



5-1

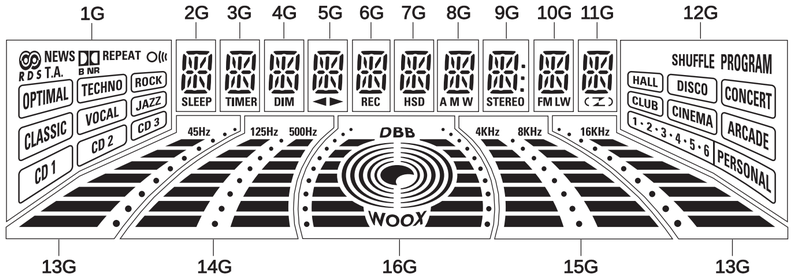
SET WIRING DIAGRAM

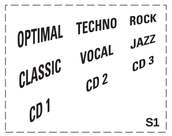


FRONT BOARD

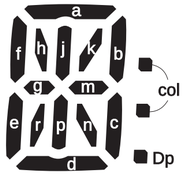
TABLE OF CONTENTS

FTD DISPLAY PIN CONNECTIONS

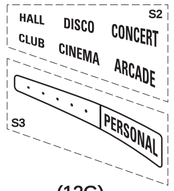




(1G)

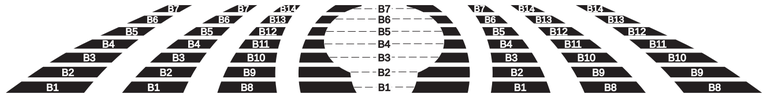


(2G~11G)



(12G)

(13G) (14G) (16G) (15G) (13G)



(13G) (14G) (16G) (15G) (13G)

(16G)

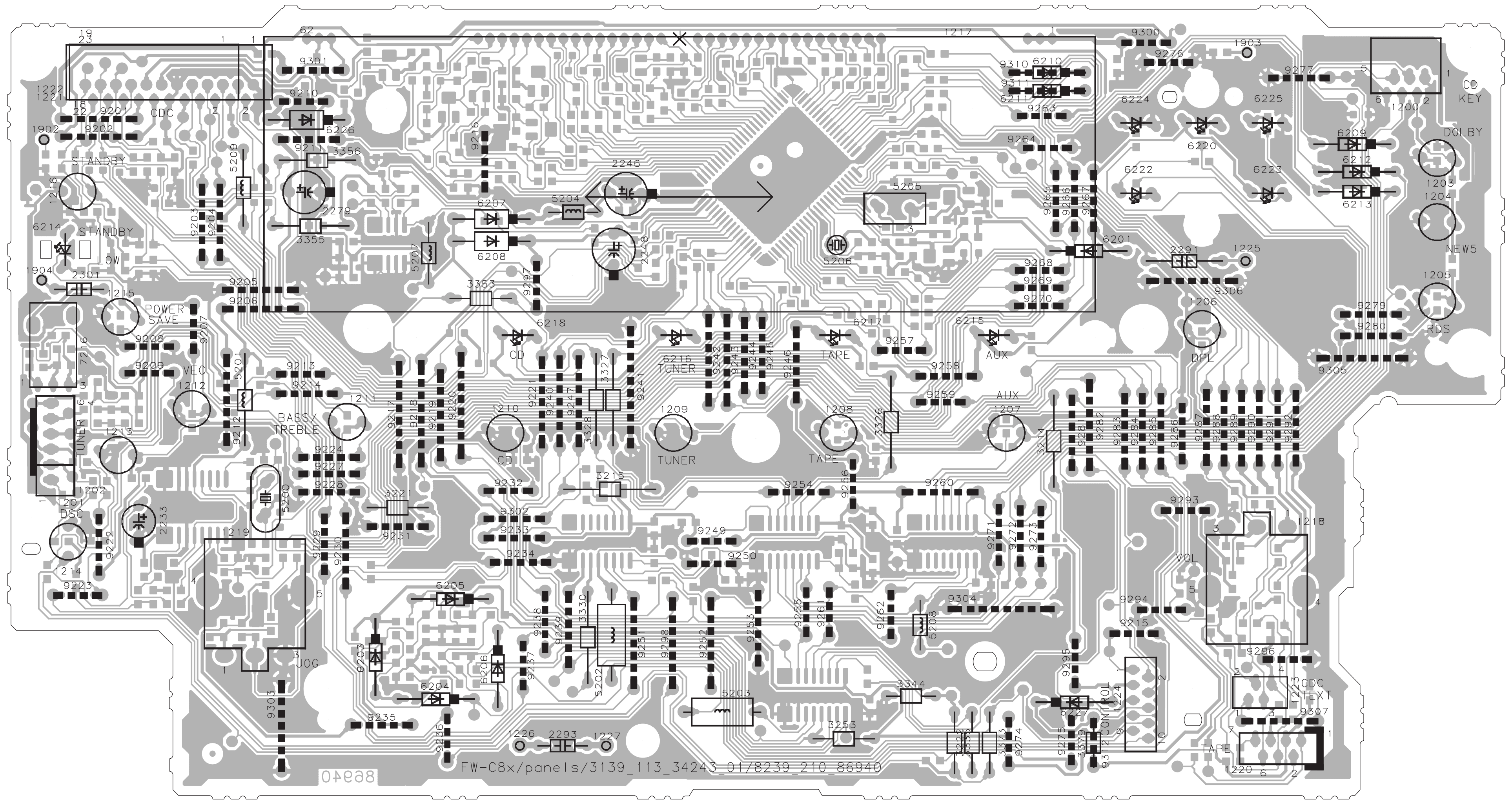
FTD DISPLAY PIN CONNECTIONS

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G
P1	RDS	a	a	a	a	a	a	a	a	a	a	SHUFFLE	B1	B1	B1	B1
P2	NEWS	h	h	h	h	h	h	h	h	h	h	PROGRAM	B2	B2	B2	B2
P3	T.A.	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	(HALL)	B3	B3	B3	B3
P4	B NR	k	k	k	k	k	k	k	k	k	k	(DISCO)	B4	B4	B4	B4
P5	REPEAT	b	b	b	b	b	b	b	b	b	b	(CONCERT)	B5	B5	B5	B5
P6		f	f	f	f	f	f	f	f	f	f	(CLUB)	B6	B6	B6	B6
P7	(OPTIMAL)	m	m	m	m	m	m	m	m	m	m	(CINEMA)	B7	B7	B7	B7
P8	(TECHNO)	g	g	g	g	g	g	g	g	g	g	(ARCADE)	S4	S6	S7	S8
P9	(ROCK)	c	c	c	c	c	c	c	c	c	c	S2	B8	B8	B8	S9
P10	(CLASSIC)	e	e	e	e	e	e	e	e	e	e	S3	B9	B9	B9	S10
P11	(VOCAL)	r	r	r	r	r	r	r	r	r	r	1	B10	B10	B10	S11
P12	(JAZZ)	n	n	n	n	n	n	n	n	n	n	2	B11	B11	B11	S12
P13	(CD 1)	d	d	d	d	d	d	d	d	d	d	3	B12	B12	B12	S13
P14	(CD 2)	SLEEP	TIMER	DIM	►	REC	HSD	A	STEREO	FM	⊼	4	B13	B13	B13	S14
P15	(CD 3)	-	-	-	◄	-	-	M	col	LW	☾	5	B14	B14	B14	WOOX
P16	S1	-	-	-	-	-	-	W	Dp	-	☽	6	S5	-	-	DBB

FRONT BOARD - COMPONENT LAYOUT

1200 A10	1212 C2	1224 E8	2293 E4	3344 E6	5206 B6	6210 A7	6224 A8	9208 B1	9220 C3	9234 D4	9246 C6	9259 C7	9271 D7	9284 C8	9296 E9	9311 A7
1201 D1	1213 C1	1225 B9	2301 B1	3353 B4	5207 B3	6211 A7	6225 A9	9209 C1	9221 C4	9235 E3	9247 C4	9260 C7	9272 D7	9285 C8	9297 B4	9312 E8
1202 C1	1214 D1	1226 E4	3214 C7	3355 B2	5208 D7	6212 A9	6226 A3	9210 A2	9222 D1	9236 E3	9249 D5	9261 D6	9273 D7	9286 C8	9298 D5	
1203 A10	1215 B1	1227 E4	3215 C4	3356 A3	5209 A2	6213 B9	6227 E7	9211 A2	9223 D1	9237 E4	9250 D5	9262 D6	9274 E7	9287 C8	9300 A8	
1204 B10	1216 B1	1902 A1	3221 C3	3373 E7	6201 B8	6214 B1	7216 C1	9212 C2	9224 C3	9238 D4	9251 D5	9263 A7	9275 E7	9288 C8	9301 A3	
1205 B10	1217 A7	1903 A9	3222 E7	3379 E8	6203 E3	6215 B7	9201 A1	9213 C2	9227 C3	9239 D4	9252 D5	9264 A7	9276 A8	9289 C9	9302 D4	
1206 B8	1218 D9	1904 B1	3253 E6	5200 D2	6204 E3	6216 C5	9202 A1	9214 C2	9228 C3	9240 C4	9253 D5	9265 B7	9277 A9	9290 C9	9303 E2	
1207 C7	1219 D2	2233 D2	3326 C6	5201 C2	6205 D3	6217 B6	9203 B2	9215 D8	9229 D3	9241 C5	9254 C6	9266 B7	9279 B9	9291 C9	9304 D7	
1208 C6	1220 E9	2246 A5	3327 C4	5202 E4	6206 E4	6218 B4	9204 B2	9216 A4	9230 D3	9242 C5	9255 D6	9267 B8	9280 B9	9292 C9	9305 C9	
1209 C5	1221 A1	2248 B5	3328 C4	5203 E5	6207 B4	6220 A8	9205 B2	9217 C3	9231 D3	9243 C5	9256 C6	9268 B7	9281 C8	9293 D8	9306 B8	
1210 C4	1222 A1	2279 B3	3330 D4	5204 B4	6208 B4	6222 A8	9206 B2	9218 C3	9232 C4	9244 C5	9257 B6	9269 B7	9282 C8	9294 D8	9307 E9	
1211 C3	1223 E9	2291 B8	3335 E7	5205 A6	6209 A9	6223 A9	9207 B2	9219 C3	9233 D4	9245 C5	9258 C7	9270 B7	9283 C8	9295 E7	9310 A7	

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



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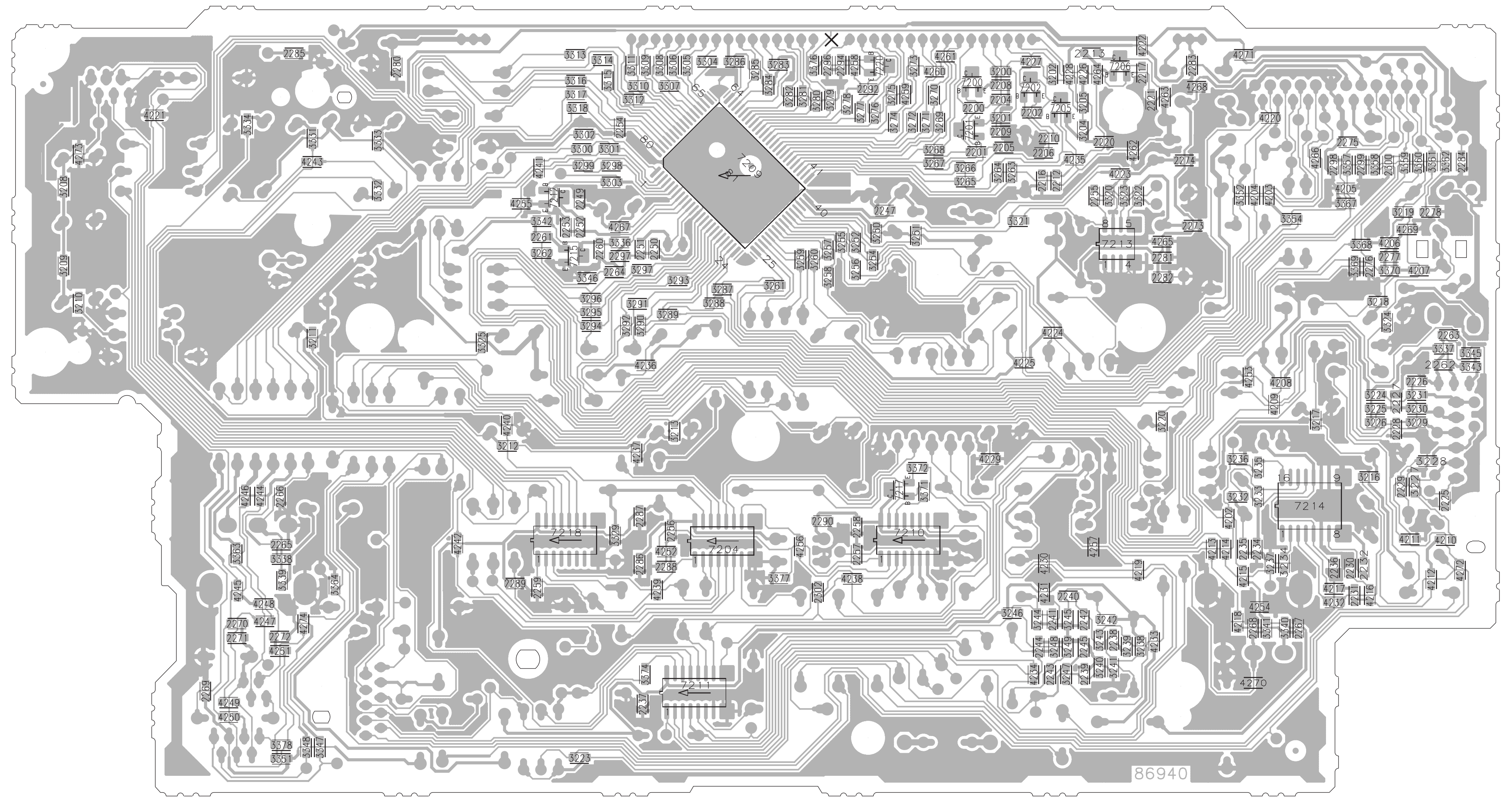
FRONT BOARD - CHIP LAYOUT

2200 A7	2230 D10	2253 B4	2273 B8	2297 B5	3220 C8	3242 D8	3263 A7	3283 A6	3303 A5	3324 B10	3352 B9	4202 D9	4222 A8	4242 D4	4262 A8	7210 D7
2201 A7	2231 D10	2254 A5	2274 A8	2298 A9	3223 E4	3243 D8	3264 A7	3284 A6	3304 A5	3325 C4	3354 B9	4203 B9	4223 A8	4243 A3	4263 A8	7211 E5
2202 A7	2232 D10	2255 B8	2275 A9	2299 A10	3224 C10	3244 D7	3265 A7	3285 A6	3305 A5	3329 D5	3357 A9	4204 B9	4224 B8	4244 D2	4264 A8	7212 B4
2204 A7	2234 D9	2256 D5	2276 B10	2300 A10	3225 C10	3245 D8	3266 A7	3286 A5	3306 A5	3331 A3	3358 A10	4205 A9	4225 C7	4245 D2	4265 B8	7213 B8
2205 A7	2235 D9	2257 D6	2277 B10	2302 D6	3226 C10	3246 D7	3267 A7	3287 B5	3307 A5	3332 B3	3359 A10	4206 B10	4226 A8	4246 D2	4266 A9	7214 D9
2206 A7	2236 D9	2258 D6	2278 B10	3200 A7	3227 C10	3247 E8	3268 A7	3288 B5	3308 A5	3333 A3	3360 A10	4207 B10	4227 A7	4247 D2	4267 B5	7215 B4
2208 A7	2237 E5	2259 D4	2280 A3	3201 A7	3228 C10	3248 E8	3269 A7	3289 B5	3309 A5	3334 A2	3361 A10	4208 C9	4228 A8	4248 D2	4268 A9	7217 C7
2209 A7	2238 D8	2260 B5	2281 B8	3202 A8	3229 C10	3249 E8	3270 A7	3290 B5	3310 A5	3336 B5	3362 A10	4209 C9	4229 C7	4249 E2	4269 B10	7218 D4
2210 A8	2239 E8	2261 B4	2282 B8	3204 A8	3230 C10	3250 B6	3271 A7	3291 B5	3311 A5	3337 C10	3363 D2	4210 D10	4230 D7	4250 E2	4270 E9	7220 A6
2212 A8	2240 D8	2262 C10	2283 A8	3205 A8	3231 C10	3251 B7	3272 A7	3292 B5	3312 A5	3338 D2	3364 D3	4211 D10	4231 D7	4251 E2	4271 A9	
2213 A8	2241 D8	2263 B10	2284 A10	3208 A1	3232 D9	3252 B6	3273 A7	3293 B5	3313 A4	3339 D2	3367 B9	4212 D10	4232 D9	4252 D5	4272 D10	
2216 A7	2242 D8	2264 B5	2285 A3	3209 B1	3233 D9	3254 B6	3274 A7	3294 B5	3314 A5	3340 D9	3368 B10	4213 D9	4233 D8	4253 C9	4273 A1	
2217 A8	2243 E8	2265 D2	2286 D5	3210 B1	3234 D9	3255 B6	3275 A6	3295 B5	3315 A5	3341 D9	3369 B10	4214 D9	4234 E7	4254 D9	4274 D3	
2220 A8	2244 E7	2266 D2	2287 D5	3211 B3	3235 C9	3256 B6	3276 A6	3296 B5	3316 A4	3342 B4	3370 B10	4215 D9	4235 A8	4255 B4	7200 A7	
2221 A8	2245 E8	2267 D9	2288 D5	3212 C4	3236 C9	3257 B6	3277 A6	3297 B5	3317 A4	3343 C10	3371 C7	4216 D10	4236 C5	4256 D6	7201 A7	
2225 D10	2247 B6	2268 D9	2289 D4	3213 C5	3237 D9	3258 B6	3278 A6	3298 A5	3318 A4	3345 C10	3372 C7	4217 D9	4237 C5	4257 D8	7202 A7	
2226 C10	2249 B4	2269 E2	2290 D6	3216 C10	3238 E8	3259 B6	3279 A6	3299 A4	3320 B8	3346 B4	3374 E5	4218 D9	4238 D6	4258 A6	7204 D5	
2227 C10	2250 B5	2270 D2	2292 A6	3217 C9	3239 E8	3260 B6	3280 A6	3300 A4	3321 B7	3347 E3	3376 A6	4219 D8	4239 D5	4259 A7	7205 A8	
2228 C10	2251 B5	2271 D2	2294 A6	3218 B10	3240 E8	3261 B6	3281 A6	3301 A5	3322 B8	3348 E3	3377 D6	4220 A9	4240 C4	4260 A7	7206 A8	
2229 C10	2252 B4	2272 D2	2296 A6	3219 B10	3241 E8	3262 B4	3282 A6	3302 A4	3323 B8	3351 E2	3378 E2	4221 A2	4241 A4	4261 A7	7209 A6	

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



Some location on this board is prepared for both 0603 & 0805 SMDs footprint, in such locations 0603 SMDs may be substituted.

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FRONT BOARD - CIRCUIT DIAGRAM

1200 D1	1207 E4	1214 F3	1221 D21	1902 K20	2205 B4	2216 D3	2228 I3	2235 H4	2242 I8
1201 H1	1208 E5	1215 F4	1222 E21	1903 K20	2206 B5	2217 D4	2229 I3	2236 I5	2243 J8
1202 G1	1209 E5	1216 F4	1223 H21	1904 K11	2208 B4	2220 D4	2230 I1	2237 E7	2244 J7
1203 E3	1210 F5	1217 B10	1224 I21	2200 B3	2209 B5	2221 D5	2231 I1	2238 H8	2245 J8
1204 E3	1211 F5	1218 J13	1225 C8	2201 B4	2210 B6	2225 H2	2232 J1	2239 I7	2246 D9
1205 E3	1212 F4	1219 J15	1226 D7	2202 B5	2212 C3	2226 I2	2233 J1	2240 I8	2247 D10
1206 E4	1213 F3	1220 C21	1227 D8	2204 B3	2213 C4	2227 I3	2234 H4	2241 I7	2248 D8

2249 G13	2256 A17	2263 K11	2270 D20	2277 H19	2284 K20	2291 C7	2299 G20	3204 D3	3213 E5
2250 G12	2257 B15	2264 K12	2271 D20	2278 H20	2285 K20	2292 B6	2300 G20	3205 D4	3214 E5
2251 G12	2258 D17	2265 K14	2272 D20	2279 J17	2286 A17	2293 D7	2301 K11	3208 E3	3215 E5
2252 G12	2259 D15	2266 K14	2273 F20	2280 J19	2287 D17	2294 B6	2302 E16	3209 E3	3216 F3
2253 G13	2260 J12	2267 K16	2274 F20	2281 K17	2288 G15	2296 B7	3200 B3	3210 E3	3217 F3
2254 F14	2261 J13	2268 K16	2275 G20	2282 K17	2289 G17	2297 J12	3201 B4	3211 E4	3218 F4
2255 H14	2262 K10	2269 D19	2276 G19	2283 K19	2290 G17	2298 G20	3202 B5	3212 E4	3219 F4

3220 F4	3227 H2	3234 J5	3241 I8	3248 J7	3255 E10	3262 F10	3269 C11	3276 C12	3283 C13
3221 F5	3228 H2	3235 J5	3242 I8	3249 J8	3256 E10	3263 C10	3270 C11	3277 C12	3284 C13
3222 F5	3229 H2	3236 J5	3243 I8	3250 D10	3257 E10	3264 C10	3271 C11	3278 C12	3285 C13
3223 F5	3230 H2	3237 J6	3244 I7	3251 E10	3258 E10	3265 C11	3272 C12	3279 C13	3286 C14
3224 H2	3231 H2	3238 H8	3245 I8	3252 E10	3259 F10	3266 C11	3273 C12	3280 C13	3287 G10
3225 H3	3232 H4	3239 H9	3246 J7	3253 E9	3260 F10	3267 C11	3274 C12	3281 C13	3288 G10
3226 H3	3233 I4	3240 I7	3247 J8	3254 E10	3261 F10	3268 C11	3275 C12	3282 C13	3289 G10

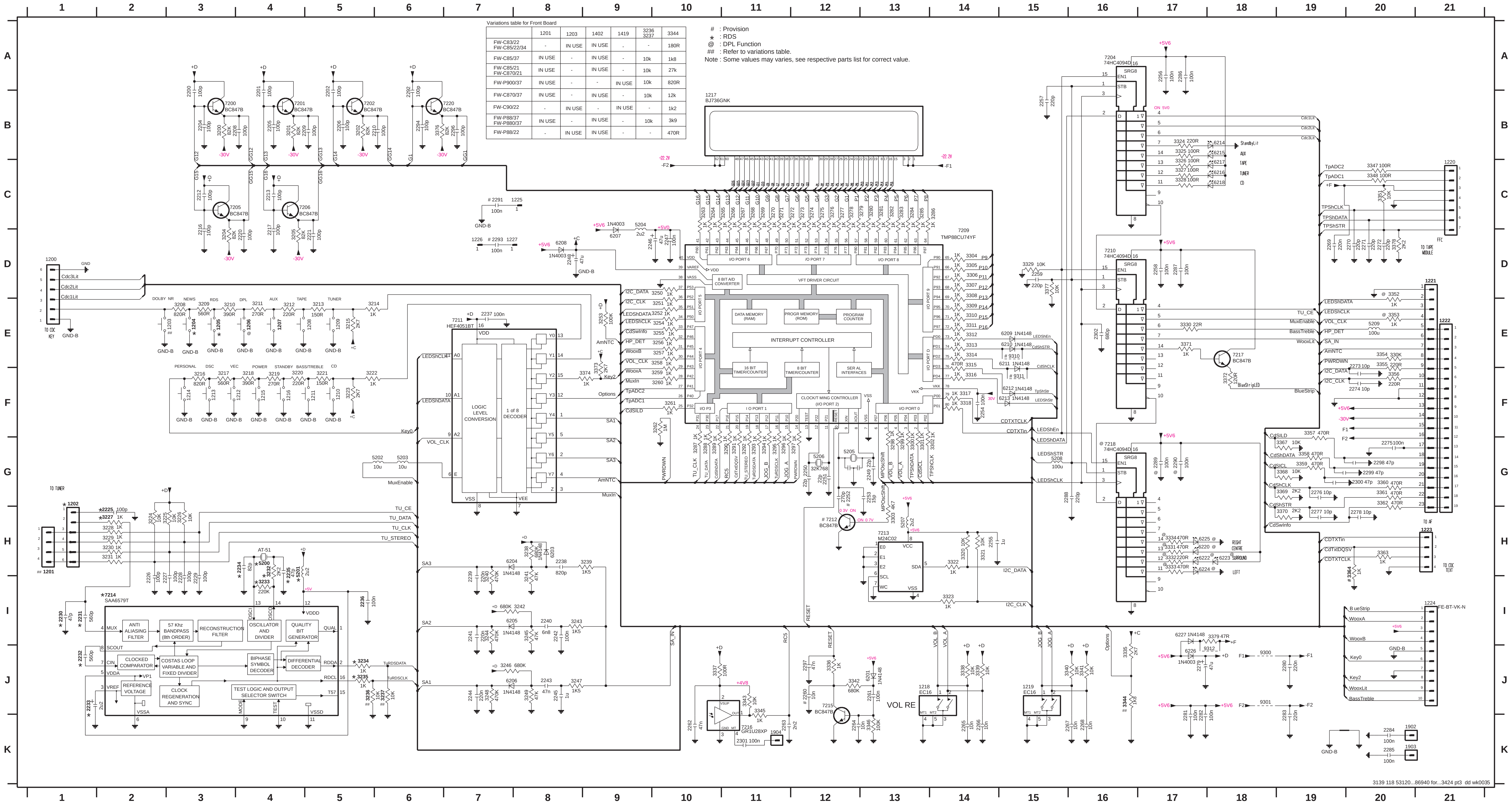
3290 G11	3297 G12	3304 D14	3311 E14	3318 F14	3326 C17	3333 H17	3340 J16	3347 C20	3356 F20
3291 G11	3298 G13	3305 D14	3312 E14	3320 H14	3327 C17	3334 H17	3341 J16	3348 C20	3357 F19
3292 G11	3299 G13	3306 D14	3313 E14	3321 H14	3328 C17	3335 J16	3342 J12	3351 C20	3358 G19
3293 G11	3300 G13	3307 D14	3314 E14	3322 H14	3329 D15	3336 J12	3343 J11	3352 D20	3359 G19
3294 G11	3301 G13	3308 D14	3315 E14	3323 I14	3330 E17	3337 J10	3344 J16	3353 E20	3360 G20
3295 G11	3302 G14	3309 E14	3316 F14	3324 B17	3331 H17	3338 J14	3345 J11	3354 E20	3361 G20
3296 G11	3303 H13	3310 E14	3317 F14	3325 B17	3332 H17	3339 J14	3346 K13	3355 E20	3362 G20

3363 H20	3372 F18	5200 H4	5207 H13	6206 J7	6213 F15	6222 H17	7201 B4	7211 E7	7218 G16
3364 H20	3373 F9	5201 H4	5208 G15	6207 D9	6214 B18	6223 H18	7202 B5	7212 H12	7220 B6
3367 G19	3374 F9	5202 G6	5209 E20	6208 D8	6215 B18	6224 H17	7204 A16	7213 H13	9300 J18
3368 G19	3376 B6	5203 G6	6201 J13	6209 E15	6216 C18	6225 H17	7205 C3	7214 I2	9301 J18
3369 G19	3377 D15	5204 C9	6203 H8	6210 E15	6217 C18	6226 J17	7206 C4	7215 J12	9310 E15
3370 H19	3378 D20	5205 G12	6204 H7	6211 E15	6218 C18	6227 I17	7209 D14	7216 K11	931 F15
3371 E17	3379 I18	5206 G12	6205 I7	6212 F15	6220 H17	7200 B3	7210 D16	7217 E18	9312 J18

Variations table for Front Board

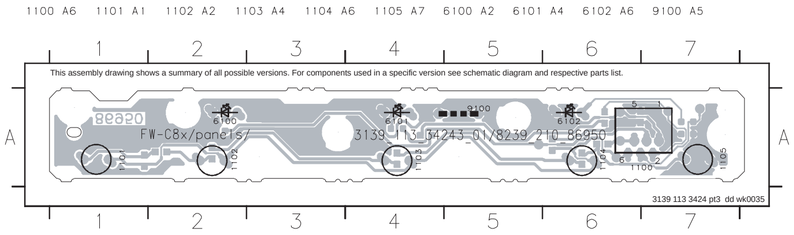
	1201	1203	1402	1419	3236 3237	3344
FW-C83/22 FW-C85/22/34	-	IN USE	IN USE	-	-	180R
FW-C85/37	IN USE	-	IN USE	-	10k	1k8
FW-C85/21 FW-C870/21	IN USE	-	IN USE	-	10k	27k
FW-P900/37	IN USE	-	-	IN USE	10k	820R
FW-C870/37	IN USE	-	IN USE	-	10k	12k
FW-C90/22	-	IN USE	-	IN USE	-	1k2
FW-P88/37 FW-P880/37	IN USE	-	IN USE	-	10k	3k9
FW-P88/22	-	IN USE	IN USE	-	-	470R

: Provision
* : RDS
@ : DPL Function
: Refer to variations table.
Note : Some values may varies, see respective parts list for correct value.

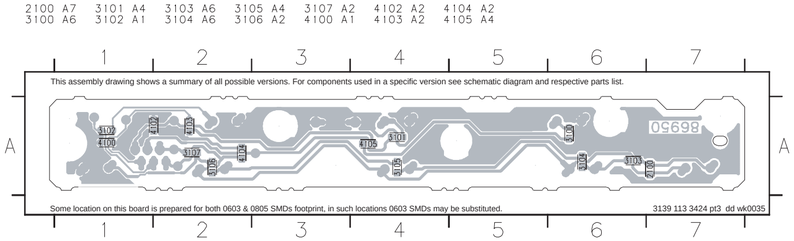


3139 118 53120...86940 for...3424 pt3 dd wk0035

KEY-CDC BOARD - COMPONENT LAYOUT

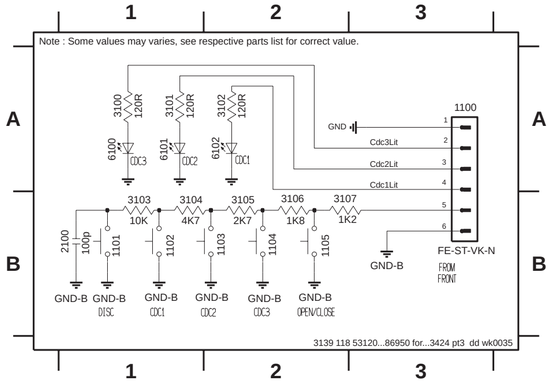


KEY-CDC BOARD - CHIP LAYOUT

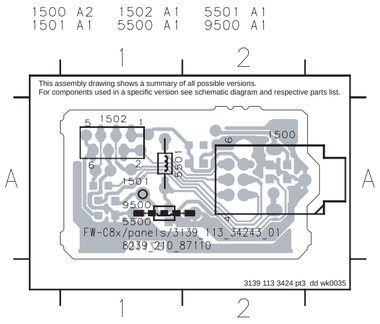


KEY-CDC PART - CIRCUIT DIAGRAM

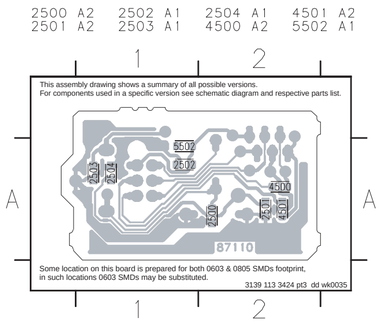
1100 A3	**1102 B1**	**1104 B2**	**2100 B1**	**3101 A1**	**3103 B1**	**3105 B2**	**3107 B2**	**6101 A1**	
1101 B1	**1103 B2**	**1105 B2**	**3100 A1**	**3102 A2**	**3104 B1**	**3106 B2**	**6100 A1**	**6102 A2**	



HEADPHONE BOARD - COMPONENT LAYOUT

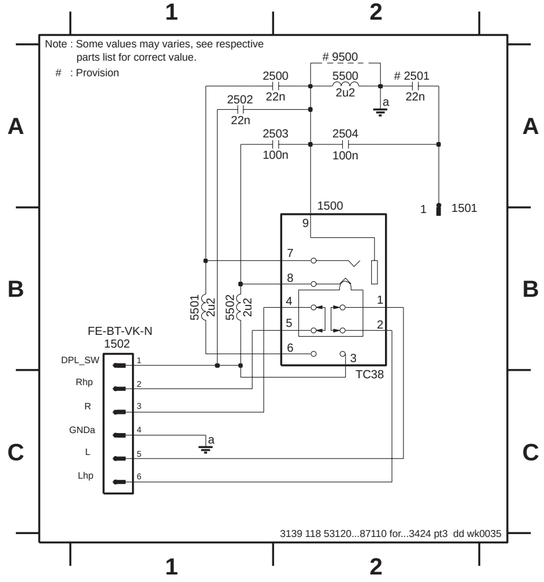


HEADPHONE BOARD - CHIP LAYOUT



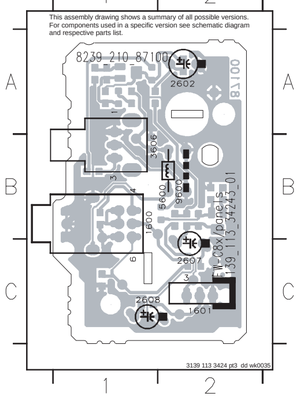
HEADPHONE PART - CIRCUIT DIAGRAM

1500 B2	**1502 B1**	**2501 A2**	**2503 A2**	**5500 A2**	**5502 B1**	
1501 A2	**2500 A2**	**2502 A1**	**2504 A2**	**5501 B1**	**9500 A2**	



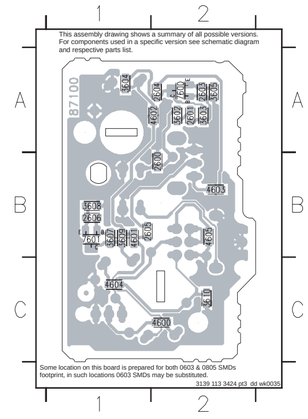
KARAOKE BOARD - COMPONENT LAYOUT

1600 B1	2607 C2	5600 B2
1601 C2	2608 C1	9600 B2
2602 A2	3606 B1	



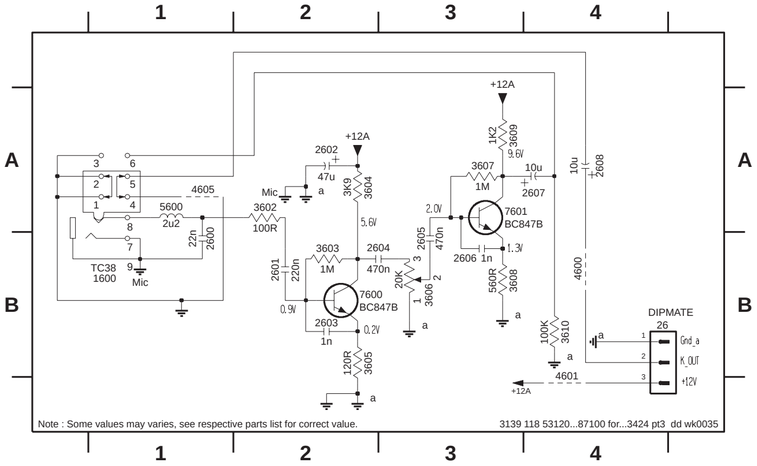
KARAOKE BOARD - CHIP LAYOUT

2600 B2	3604 A1	4602 A2
2601 A2	3605 A2	4603 B2
2603 A2	3607 B1	4604 C1
2604 A2	3608 B1	4605 B2
2605 B1	3609 B1	7600 A2
2606 B1	3610 C2	7601 B1
3602 A2	4600 C2	
3603 A2	4601 B1	



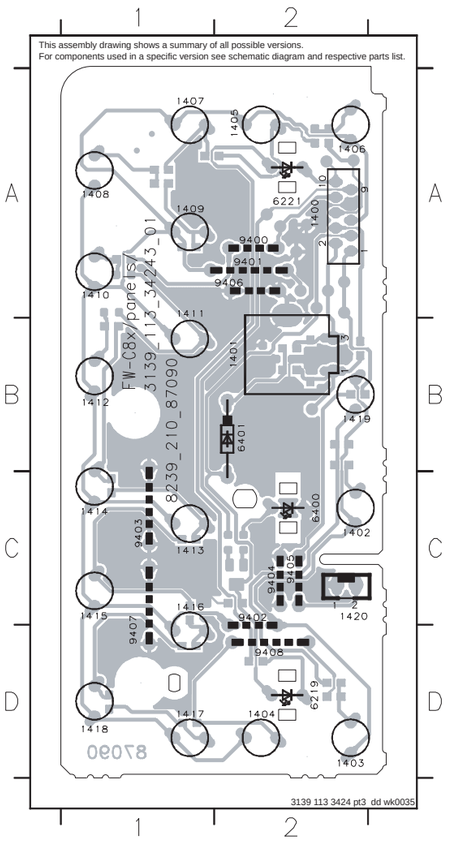
KARAOKE PART - CIRCUIT DIAGRAM

26 B4	**2600 B1**	**2602 A2**	**2604 B2**	**2606 B3**	**2608 A4**	**3603 B2**	**3605 B2**	**3607 A3**	**3609 A3**	**4600 B4**	**4605 A1**	**7600 B**		
1600 B1	**2601 B2**	**2603 B2**	**2605 B3**	**2607 A4**	**3602 A2**	**3604 A2**	**3606 B3**	**3608 B3**	**3610 B4**	**4601 B4**	**5600 A1**	**7601 B**		



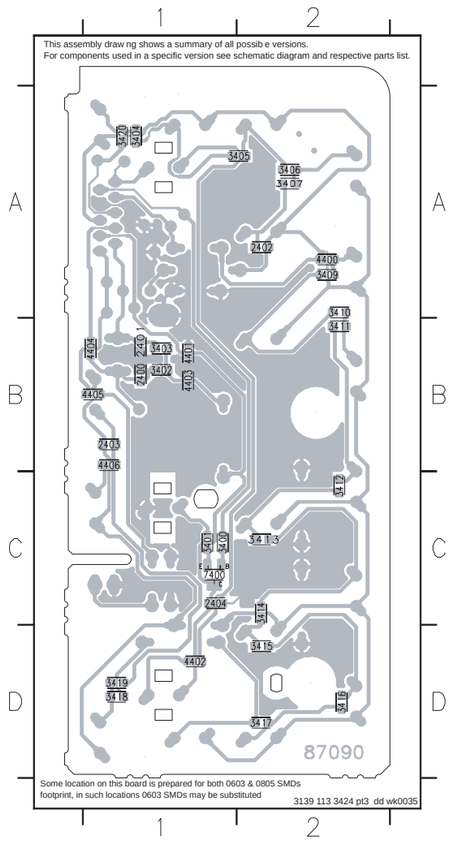
CONTROL BOARD - COMPONENT LAYOUT

1400 A2	1407 A1	1414 C1	6219 D2	9403 C1
1401 B2	1408 A1	1415 C1	6221 A2	9404 C2
1402 C2	1409 A1	1416 C1	6400 C2	9405 C2
1403 D2	1410 A1	1417 D1	6401 B2	9406 A2
1404 D2	1411 A1	1418 D1	9400 A2	9407 D1
1405 A2	1412 B1	1419 B2	9401 A2	9408 D2
1406 A2	1413 C1	1420 C2	9402 C2	



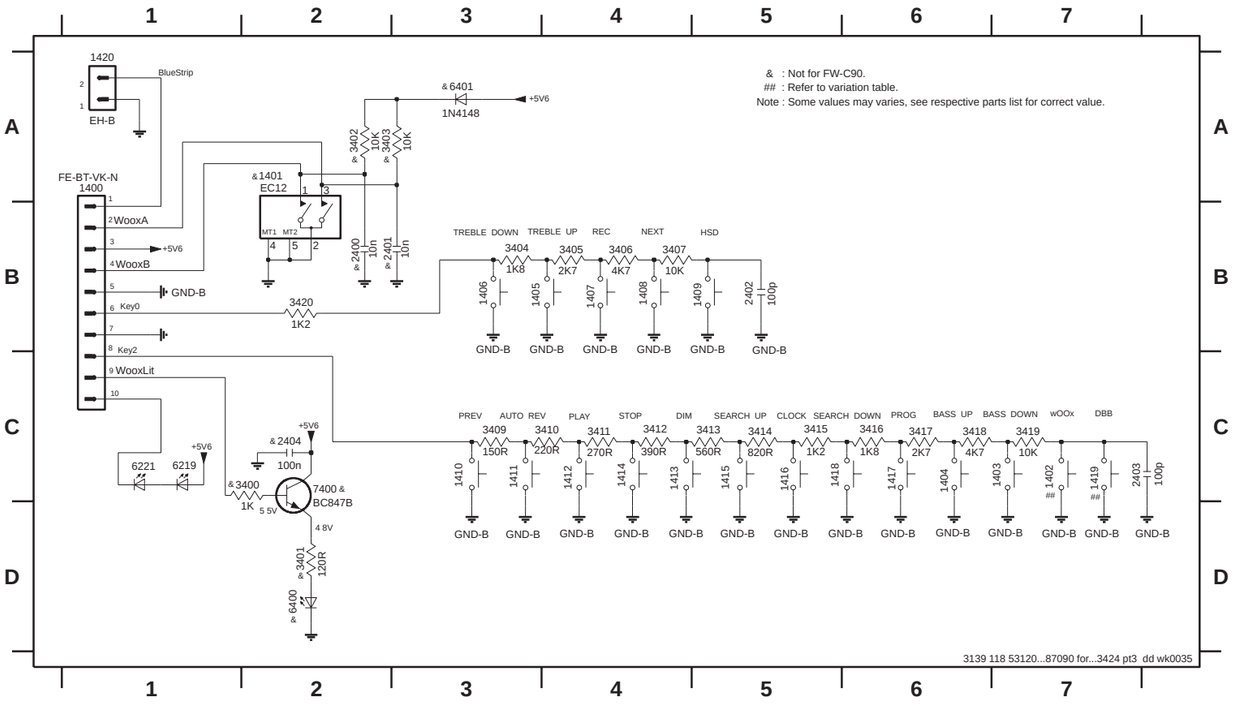
CONTROL BOARD - CHIP LAYOUT

2400 B1	3402 B1	3410 A2	3417 D2	4403 B1
2401 B1	3403 B1	3411 B2	3418 D1	4404 B1
2402 A2	3404 A1	3412 C2	3419 D1	4405 B1
2403 B1	3405 A2	3413 C2	3420 A1	4406 B1
2404 C1	3406 A2	3414 C2	4400 A2	7400 C1
3400 C1	3407 A2	3415 D2	4401 B1	
3401 C1	3409 A2	3416 D2	4402 D1	



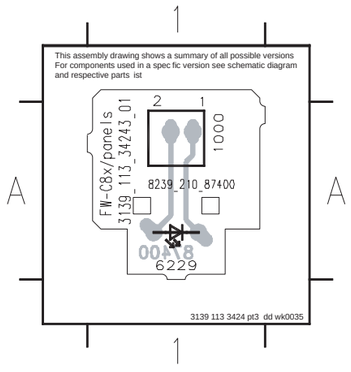
CONTROL PART - CIRCUIT DIAGRAM

1400 A1	1403 C7	1406 B3	1409 B5	1412 C4	1415 C5	1418 C5	2400 B2	2403 C7	3401 D2	3404 B3	3407 B4	3411 C4	3414 C5	3417 C6	3420 B2	6400 D2	
1401 A2	1404 C6	1407 B4	1410 C3	1413 C4	1416 C5	1419 C7	2401 B2	2404 C2	3402 A2	3405 B4	3409 C3	3412 C4	3415 C5	3418 C6	6219 C1	6401 A3	
1402 C7	1405 B3	1408 B4	1411 C3	1414 C4	1417 C6	1420 A1	2402 B5	3400 C2	3403 A2	3406 B4	3410 C4	3413 C5	3416 C6	3419 C7	6221 C1	7400 C2	



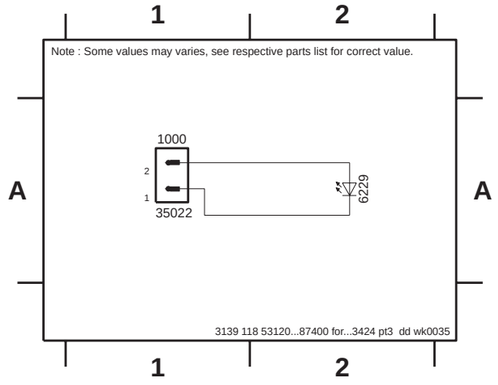
BLUE STRIP LED BOARD - COMPONENT LAYOUT

1000 A1	6229 A1



BLUE STRIP LED PART - CIRCUIT DIAGRAM

1000 A1	6229 A2



6-6

ELECTRICAL PARTS LIST - FRONT BOARD

ELECTRICAL PARTS LIST - FRONT BOARD

MISCELLANEOUS

1100	4822 265 11207	Flex Connector 6P
1101	4822 276 13775	Tact Switch
1102	4822 276 13775	Tact Switch
1103	4822 276 13775	Tact Switch
1104	4822 276 13775	Tact Switch
1105	4822 276 13775	Tact Switch
1200	4822 265 11207	Flex Connector 6P
1206	4822 276 13775	Tact Switch
1207	4822 276 13775	Tact Switch
1208	4822 276 13775	Tact Switch
1209	4822 276 13775	Tact Switch
1210	4822 276 13775	Tact Switch
1211	4822 276 13775	Tact Switch
1212	4822 276 13775	Tact Switch
1213	4822 276 13775	Tact Switch
1214	4822 276 13775	Tact Switch
1215	4822 276 13775	Tact Switch
1216	4822 276 13775	Tact Switch
1217	3139 110 52250	FTD Display
1218	4822 273 10365	Rotary Encoder 24P
1219	2422 129 16385	Rotary Encoder 12P
1220	4822 267 10953	Flex Connector 7P
1221	4822 265 11182	Flex Connector 23P
1222	4822 265 11545	Flex Connector 19P
1224	4822 267 10729	Flex Connector 10P
1400	4822 267 10729	Flex Connector 10P
1401	2422 129 16386	Rotary Encoder 12P
1402	4822 276 13775	Tact Switch
1403	4822 276 13775	Tact Switch
1404	4822 276 13775	Tact Switch
1405	4822 276 13775	Tact Switch
1406	4822 276 13775	Tact Switch
1407	4822 276 13775	Tact Switch
1408	4822 276 13775	Tact Switch
1409	4822 276 13775	Tact Switch
1410	4822 276 13775	Tact Switch
1411	4822 276 13775	Tact Switch
1412	4822 276 13775	Tact Switch
1413	4822 276 13775	Tact Switch
1414	4822 276 13775	Tact Switch
1415	4822 276 13775	Tact Switch
1416	4822 276 13775	Tact Switch
1417	4822 276 13775	Tact Switch
1418	4822 276 13775	Tact Switch
1500	4822 265 11529	Headphone Socket
1502	4822 267 10731	Flex Connector 6P
1600	4822 265 11529	Microphone Socket

CAPACITORS

2100	5322 122 32531	100pF 5% 50V
2200	5322 122 32531	100pF 5% 50V
2201	5322 122 32531	100pF 5% 50V
2202	5322 122 32531	100pF 5% 50V
2204	5322 122 32531	100pF 5% 50V
2205	5322 122 32531	100pF 5% 50V
2206	5322 122 32531	100pF 5% 50V
2208	5322 122 32531	100pF 5% 50V
2209	5322 122 32531	100pF 5% 50V
2210	5322 122 32531	100pF 5% 50V
2212	5322 122 32531	100pF 5% 50V
2213	5322 122 32531	100pF 5% 50V
2216	5322 122 32531	100pF 5% 50V
2217	5322 122 32531	100pF 5% 50V
2220	5322 122 32531	100pF 5% 50V
2221	5322 122 32531	100pF 5% 50V
2226	5322 122 32531	100pF 5% 50V
2227	5322 122 32531	100pF 5% 50V
2228	5322 122 32531	100pF 5% 50V
2229	5322 122 32531	100pF 5% 50V
2237	4822 126 14585	100nF 10% 50V
2238	4822 122 33806	820pF 10% 63V
2239	4822 126 14076	220nF +80/-20% 25V
2240	5322 122 31866	6,8nF 10% 63V
2241	4822 126 14076	220nF +80/-20% 25V
2242	4822 126 14585	100nF 10% 50V
2243	4822 126 13751	47nF 10% 63V
2244	4822 126 14076	220nF +80/-20% 25V
2245	4822 126 14043	1µF +80/-20% 16V
2246	4822 124 81286	47µF 20% 16V
2247	4822 126 14585	100nF 10% 50V
2248	4822 124 81286	47µF 20% 16V
2249	5322 122 32658	22pF 5% 50V
2250	5322 122 32658	22pF 5% 50V
2251	5322 122 32658	22pF 5% 50V
2253	4822 126 13486	15pF 2% 63V
2254	4822 126 13838	100nF +80/-20% 50V
2255	4822 126 14043	1µF +80/-20% 16V
2256	4822 126 14585	100nF 10% 50V
2257	4822 122 33575	220pF 5% 63V
2258	4822 126 14585	100nF 10% 50V
2259	4822 122 33575	220pF 5% 63V
2261	4822 126 14585	100nF 10% 50V
2262	4822 126 13751	47nF 10% 63V
2263	4822 122 33127	2,2nF 10% 63V
2264	4822 122 33177	10nF 20% 50V
2265	4822 122 33177	10nF 20% 50V
2266	4822 122 33177	10nF 20% 50V
2267	4822 122 33177	10nF 20% 50V
2268	4822 122 33177	10nF 20% 50V
2269	4822 126 14076	220nF +80/-20% 25V
2270	4822 122 33575	220pF 5% 63V
2271	4822 122 33575	220pF 5% 63V
2272	4822 122 33575	220pF 5% 63V
2273	5322 122 32448	10pF 5% 63V
2274	5322 122 32448	10pF 5% 63V
2275	4822 126 14585	100nF 10% 50V
2276	5322 122 32448	10pF 5% 63V
2277	5322 122 32448	10pF 5% 63V
2278	5322 122 32448	10pF 5% 63V
2279	4822 124 81286	47µF 20% 16V
2280	4822 126 13473	220nF +80/-20% 50V
2281	4822 126 14585	100nF 10% 50V
2282	4822 126 14585	100nF 10% 50V
2283	4822 126 13473	220nF +80/-20% 50V
2284	4822 126 14585	100nF 10% 50V
2285	4822 126 14585	100nF 10% 50V
2286	4822 126 14585	100nF 10% 50V
2287	4822 126 14585	100nF 10% 50V
2288	4822 122 33575	220pF 5% 63V
2289	4822 126 14585	100nF 10% 50V
2290	4822 126 14585	100nF 10% 50V
2292	5322 122 32531	100pF 5% 50V
2294	5322 122 32531	100pF 5% 50V
2296	5322 122 32531	100pF 5% 50V
2297	4822 126 13751	47nF 10% 63V
2298	4822 126 13692	47pF 1% 63V
2299	4822 126 13692	47pF 1% 63V
2300	4822 126 13692	47pF 1% 63V
2301	4822 126 12882	100nF +80/-20% 50V
2302	5322 126 10733	680pF 5% 50V
2400	4822 122 33177	10nF 20% 50V
2401	4822 122 33177	10nF 20% 50V
2402	5322 122 32531	100pF 5% 50V
2403	5322 122 32531	100pF 5% 50V
2404	4822 126 13838	100nF +80/-20% 50V
2500	5322 122 32654	22nF 10% 63V
2502	5322 122 32654	22nF 10% 63V
2503	4822 126 14585	100nF 10% 50V
2504	4822 126 13838	100nF +80/-20% 50V
2600	5322 122 32654	22nF 10% 63V
2601	4822 126 14076	220nF +80/-20% 25V
2602	4822 124 40433	47µF 20% 25V
2603	5322 122 31647	1nF 10% 63V
2604	4822 126 13482	470nF +80/-20% 16V
2605	4822 126 13482	470nF +80/-20% 16V
2606	5322 122 31647	1nF 10% 63V
2607	4822 124 21732	10µF 20% 25V
2608	4822 124 21732	10µF 20% 25V

RESISTORS

3100	4822 051 20121	120R 5% 0,1W
3101	4822 051 20121	120R 5% 0,1W
3102	4822 051 20121	120R 5% 0,1W
3103	4822 117 10833	10k 1% 0,1W
3104	4822 051 20472	4k7 5% 0,1W
3105	4822 117 12955	2k7 1% 0,1W
3106	4822 051 20182	1k8 5% 0,1W
3107	4822 051 20122	1k2 5% 0,1W
3200	4822 117 11149	82k 1% 0,1W
3201	4822 117 11149	82k 1% 0,1W
3202	4822 117 11149	82k 1% 0,1W
3204	4822 117 11149	82k 1% 0,1W
3205	4822 117 11149	82k 1% 0,1W
3208	4822 117 11454	820R 1% 0,1W
3209	4822 051 20561	560R 5% 0,1W
3210	4822 051 20391	390R 5% 0,1W
3211	4822 117 11504	270R 1% 0,1W
3212	4822 117 11503	220R 1% 0,1W
3213	4822 117 10353	150R 1% 0,1W
3214	4822 050 11002	1k 1% 0,4W
3215	4822 116 52263	2k7 5% 0,5W
3216	4822 117 11454	820R 1% 0,1W
3217	4822 051 20561	560R 5% 0,1W
3218	4822 051 20391	390R 5% 0,1W
3219	4822 117 11504	270R 1% 0,1W
3220	4822 117 11503	220R 1% 0,1W
3221	4822 116 83868	150R 5% 0,5W
3222	4822 050 11002	1k 1% 0,4W
3223	4822 117 12955	2k7 1% 0,1W
3224	4822 117 10833	10k 1% 0,1W
3225	4822 117 10833	10k 1% 0,1W
3226	4822 117 10833	10k 1% 0,1W
3228	4822 051 10102	1k 2% 0,25W
3229	4822 051 10102	1k 2% 0,25W
3230	4822 051 10102	1k 2% 0,25W
3231	4822 051 10102	1k 2% 0,25W
3236	4822 117 10833	10k 1% 0,1W
3237	4822 117 10833	10k 1% 0,1W
3238	4822 051 20684	680k 5% 0,1W
3239	4822 117 11139	1k5 1% 0,1W
3240	4822 051 20474	470k 5% 0,1W
3241	4822 117 10834	47k 1% 0,1W
3242	4822 051 20684	680k 5% 0,1W
3243	4822 117 11139	1k5 1% 0,1W
3244	4822 051 20474	470k 5% 0,1W
3245	4822 117 10834	47k 1% 0,1W
3246	4822 051 20684	680k 5% 0,1W
3247	4822 117 11139	1k5 1% 0,1W
3248	4822 051 20474	470k 5% 0,1W
3249	4822 117 10834	47k 1% 0,1W
3250	4822 051 10102	1k 2% 0,25W
3251	4822 051 10102	1k 2% 0,25W
3252	4822 051 10102	1k 2% 0,25W
3253	4822 116 52234	100k 5% 0,5W
3254	4822 051 10102	1k 2% 0,25W
3255	4822 051 10102	1k 2% 0,25W
3256	4822 051 10102	1k 2% 0,25W
3257	4822 051 10102	1k 2% 0,25W

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ELECTRICAL PARTS LIST - FRONT BOARD

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

3258	4822 051 10102	1k 2% 0,25W	3311	4822 051 10102	1k 2% 0,25W	3368	4822 117 10833	10k 1% 0,1W	4209	4822 051 20008	0R Jumper 0805
3259	4822 051 10102	1k 2% 0,25W	3312	4822 051 10102	1k 2% 0,25W	3369	4822 117 11449	2k2 5% 0,1W	4210	4822 051 20008	0R Jumper 0805
3260	4822 051 10102	1k 2% 0,25W	3313	4822 051 10102	1k 2% 0,25W	3370	4822 117 11449	2k2 5% 0,1W	4211	4822 051 20008	0R Jumper 0805
3261	4822 051 10102	1k 2% 0,25W	3314	4822 051 10102	1k 2% 0,25W	3371	4822 051 10102	1k 2% 0,25W	4212	4822 051 20008	0R Jumper 0805
3262	4822 051 20105	1M 5% 0,1W	3315	4822 051 20471	470R 5% 0,1W	3372	4822 051 20121	120R 5% 0,1W	4213	4822 051 20008	0R Jumper 0805
3263	4822 051 10102	1k 2% 0,25W	3316	4822 051 10102	1k 2% 0,25W	3373	4822 116 52263	2k7 5% 0,5W	4214	4822 051 20008	0R Jumper 0805
3264	4822 051 10102	1k 2% 0,25W	3317	4822 051 10102	1k 2% 0,25W	3374	4822 051 10102	1k 2% 0,25W	4215	4822 051 20008	0R Jumper 0805
3265	4822 051 10102	1k 2% 0,25W	3318	4822 051 10102	1k 2% 0,25W	3376	4822 117 11149	82k 1% 0,1W	4216	4822 051 20008	0R Jumper 0805
3266	4822 051 10102	1k 2% 0,25W	3320	4822 117 10833	10k 1% 0,1W	3377	4822 117 10833	10k 1% 0,1W	4217	4822 051 20008	0R Jumper 0805
3267	4822 051 10102	1k 2% 0,25W	3321	4822 117 10833	10k 1% 0,1W	3378	4822 117 11449	2k2 5% 0,1W	4218	4822 051 20008	0R Jumper 0805
3268	4822 051 10102	1k 2% 0,25W	3322	4822 051 10102	1k 2% 0,25W	3379	4822 116 52195	47R 5% 0,5W	4219	4822 051 20008	0R Jumper 0805
3269	4822 051 10102	1k 2% 0,25W	3323	4822 051 10102	1k 2% 0,25W	3400	4822 051 10102	1k 2% 0,25W	4220	4822 051 20008	0R Jumper 0805
3270	4822 051 10102	1k 2% 0,25W	3324	4822 117 11503	220R 1% 0,1W	3401	4822 051 20121	120R 5% 0,1W	4221	4822 051 20008	0R Jumper 0805
3271	4822 051 10102	1k 2% 0,25W	3325	4822 051 20101	100R 5% 0,1W	3402	4822 117 10833	10k 1% 0,1W	4222	4822 051 20008	0R Jumper 0805
3272	4822 051 10102	1k 2% 0,25W	3326	4822 116 52175	100R 5% 0,5W	3403	4822 117 10833	10k 1% 0,1W	4223	4822 051 20008	0R Jumper 0805
3273	4822 051 10102	1k 2% 0,25W	3327	4822 116 52175	100R 5% 0,5W	3404	4822 051 20182	1k8 5% 0,1W	4224	4822 051 20008	0R Jumper 0805
3274	4822 051 10102	1k 2% 0,25W	3328	4822 116 52175	100R 5% 0,5W	3405	4822 117 12955	2k7 1% 0,1W	4225	4822 051 20008	0R Jumper 0805
3275	4822 051 10102	1k 2% 0,25W	3329	4822 117 10833	10k 1% 0,1W	3406	4822 051 20472	4k7 5% 0,1W	4226	4822 051 20008	0R Jumper 0805
3276	4822 051 10102	1k 2% 0,25W	3330	4822 116 52186	22R 5% 0,5W	3407	4822 117 10833	10k 1% 0,1W	4227	4822 051 20008	0R Jumper 0805
3277	4822 051 10102	1k 2% 0,25W	3331	4822 051 20471	470R 5% 0,1W	3409	4822 117 10353	150R 1% 0,1W	4228	4822 051 20008	0R Jumper 0805
3278	4822 051 10102	1k 2% 0,25W	3332	4822 117 11503	220R 1% 0,1W	3410	4822 117 11503	220R 1% 0,1W	4229	4822 051 20008	0R Jumper 0805
3279	4822 051 10102	1k 2% 0,25W	3333	4822 051 20471	470R 5% 0,1W	3411	4822 117 11504	270R 1% 0,1W	4230	4822 051 20008	0R Jumper 0805
3280	4822 051 10102	1k 2% 0,25W	3334	4822 051 20471	470R 5% 0,1W	3412	4822 051 20391	390R 5% 0,1W	4231	4822 051 20008	0R Jumper 0805
3281	4822 051 10102	1k 2% 0,25W	3335	4822 116 52263	2k7 5% 0,5W	3413	4822 051 20561	560R 5% 0,1W	4232	4822 051 20008	0R Jumper 0805
3282	4822 051 10102	1k 2% 0,25W	3336	4822 051 10102	1k 2% 0,25W	3414	4822 117 11454	820R 1% 0,1W	4233	4822 051 20008	0R Jumper 0805
3283	4822 051 10102	1k 2% 0,25W	3337	4822 051 20101	100R 5% 0,1W	3415	4822 051 20122	1k2 5% 0,1W	4234	4822 051 20008	0R Jumper 0805
3284	4822 051 10102	1k 2% 0,25W	3338	4822 117 10833	10k 1% 0,1W	3416	4822 051 20182	1k8 5% 0,1W	4235	4822 051 20008	0R Jumper 0805
3285	4822 051 10102	1k 2% 0,25W	3339	4822 117 10833	10k 1% 0,1W	3417	4822 117 12955	2k7 1% 0,1W	4236	4822 051 20008	0R Jumper 0805
3286	4822 051 10102	1k 2% 0,25W	3340	4822 117 10833	10k 1% 0,1W	3418	4822 051 20472	4k7 5% 0,1W	4237	4822 051 20008	0R Jumper 0805
3287	4822 051 10102	1k 2% 0,25W	3341	4822 117 10833	10k 1% 0,1W	3419	4822 117 10833	10k 1% 0,1W	4238	4822 051 20008	0R Jumper 0805
3288	4822 051 10102	1k 2% 0,25W	3342	4822 051 20684	680k 5% 0,1W	3420	4822 051 20122	1k2 5% 0,1W	4239	4822 051 20008	0R Jumper 0805
3289	4822 051 10102	1k 2% 0,25W	3343	4822 117 10833	10k 1% 0,1W	3602	4822 051 20101	100R 5% 0,1W	4240	4822 051 20008	0R Jumper 0805
3290	4822 051 10102	1k 2% 0,25W	3344	4822 116 52264	27k 5% 0,5W /FW-C870/21	3603	4822 051 20105	1M 5% 0,1W	4241	4822 051 20008	0R Jumper 0805
3291	4822 051 10102	1k 2% 0,25W	3344	4822 116 52238	12k 5% 0,5W /FW-C870/37	3604	4822 051 20392	3k9 5% 0,1W	4242	4822 051 20008	0R Jumper 0805
3292	4822 051 10102	1k 2% 0,25W	3344	4822 116 52276	3k9 5% 0,5W /FW-P880/37	3605	4822 051 20121	120R 5% 0,1W	4243	4822 051 20008	0R Jumper 0805
3293	4822 051 10102	1k 2% 0,25W	3345	4822 051 10102	1k 2% 0,25W	3606	2120 366 90291	POTM CAR LOG 20k	4244	4822 051 20008	0R Jumper 0805
3294	4822 051 10102	1k 2% 0,25W	3346	4822 117 10837	100k 1% 0,1W	3607	4822 051 20105	1M 5% 0,1W	4245	4822 051 20008	0R Jumper 0805
3295	4822 051 10102	1k 2% 0,25W	3347	4822 051 20101	100R 5% 0,1W	3608	4822 051 20561	560R 5% 0,1W	4246	4822 051 20008	0R Jumper 0805
3296	4822 051 10102	1k 2% 0,25W	3348	4822 051 20101	100R 5% 0,1W	3609	4822 051 20122	1k2 5% 0,1W	4247	4822 051 20008	0R Jumper 0805
3297	4822 051 10102	1k 2% 0,25W	3351	4822 117 10833	10k 1% 0,1W	3610	4822 117 10837	100k 1% 0,1W	4248	4822 051 20008	0R Jumper 0805
3298	4822 051 10102	1k 2% 0,25W	3352	4822 051 10102	1k 2% 0,25W	4100	4822 051 20008	0R Jumper 0805	4249	4822 051 20008	0R Jumper 0805
3299	4822 051 10102	1k 2% 0,25W	3353	4822 050 11002	1k 1% 0,4W	4102	4822 051 20008	0R Jumper 0805	4250	4822 051 20008	0R Jumper 0805
3300	4822 051 10102	1k 2% 0,25W	3354	4822 051 20334	330k 5% 0,1W	4103	4822 051 20008	0R Jumper 0805	4251	4822 051 20008	0R Jumper 0805
3301	4822 051 10102	1k 2% 0,25W	3355	4822 116 83872	220R 5% 0,5W	4104	4822 051 20008	0R Jumper 0805	4252	4822 051 20008	0R Jumper 0805
3302	4822 051 10102	1k 2% 0,25W	3356	4822 116 83872	220R 5% 0,5W	4105	4822 051 20008	0R Jumper 0805	4253	4822 051 20008	0R Jumper 0805
3304	4822 051 10102	1k 2% 0,25W	3357	4822 051 20471	470R 5% 0,1W	4202	4822 051 20008	0R Jumper 0805	4254	4822 051 20008	0R Jumper 0805
3305	4822 051 10102	1k 2% 0,25W	3358	4822 051 20471	470R 5% 0,1W	4203	4822 051 20008	0R Jumper 0805	4255	4822 051 20008	0R Jumper 0805
3306	4822 051 10102	1k 2% 0,25W	3359	4822 051 20471	470R 5% 0,1W	4204	4822 051 20008	0R Jumper 0805	4256	4822 051 20008	0R Jumper 0805
3307	4822 051 10102	1k 2% 0,25W	3360	4822 051 20471	470R 5% 0,1W	4205	4822 051 20008	0R Jumper 0805	4257	4822 051 20008	0R Jumper 0805
3308	4822 051 10102	1k 2% 0,25W	3361	4822 051 20471	470R 5% 0,1W	4206	4822 051 20008	0R Jumper 0805	4258	4822 051 20008	0R Jumper 0805
3309	4822 051 10102	1k 2% 0,25W	3362	4822 051 20471	470R 5% 0,1W	4207	4822 051 20008	0R Jumper 0805	4259	4822 051 20008	0R Jumper 0805
3310	4822 051 10102	1k 2% 0,25W	3367	4822 117 10833	10k 1% 0,1W	4208	4822 051 20008	0R Jumper 0805	4260	4822 051 20008	0R Jumper 0805

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ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

4261	4822 051 20008	0R Jumper 0805
4262	4822 051 20008	0R Jumper 0805
4263	4822 051 20008	0R Jumper 0805
4264	4822 051 20008	0R Jumper 0805
4265	4822 051 20008	0R Jumper 0805
4266	4822 051 20008	0R Jumper 0805
4267	4822 051 20008	0R Jumper 0805
4268	4822 051 20008	0R Jumper 0805
4269	4822 051 20008	0R Jumper 0805
4270	4822 051 20008	0R Jumper 0805
4271	4822 051 20008	0R Jumper 0805
4272	4822 051 20008	0R Jumper 0805
4273	4822 051 20008	0R Jumper 0805
4274	4822 051 20008	0R Jumper 0805
4400	4822 051 20008	0R Jumper 0805
4401	4822 051 20008	0R Jumper 0805
4402	4822 051 20008	0R Jumper 0805
4403	4822 051 20008	0R Jumper 0805
4404	4822 051 20008	0R Jumper 0805
4405	4822 051 20008	0R Jumper 0805
4406	4822 051 20008	0R Jumper 0805
4500	4822 051 20008	0R Jumper 0805
4501	4822 051 20008	0R Jumper 0805
4600	4822 051 20008	0R Jumper 0805
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

COILS & FILTERS

5202	4822 157 51462	Coil 10µH 10%
5203	4822 157 51462	Coil 10µH 10%
5204	4822 157 62552	Coil 2,2µH 5%
5205	5322 242 73686	RES CER 12MHz
5206	4822 242 70938	RES XTL 32,768kHz
5207	4822 157 62552	Coil 2,2µH 5%
5208	4822 157 11228	Coil 100µH 5%
5209	4822 157 11228	Coil 100µH 5%
5500	4822 157 62552	Coil 2,2µH 5%
5501	4822 157 62552	Coil 2,2µH 5%
5502	4822 157 10586	Coil 2,2µH 10%
5600	4822 157 62552	Coil 2,2µH 5%

DIODES

6100	4822 130 10791	LTL-1CHGE
6101	4822 130 10791	LTL-1CHGE
6102	4822 130 10791	LTL-1CHGE
6201	4822 130 30621	1N4148
6203	4822 130 30621	1N4148
6204	4822 130 30621	1N4148
6205	4822 130 30621	1N4148
6206	4822 130 30621	1N4148
6207	4822 130 31878	1N4003G
6208	4822 130 31878	1N4003G
6209	4822 130 30621	1N4148
6210	4822 130 30621	1N4148
6211	4822 130 30621	1N4148
6212	4822 130 30621	1N4148
6213	4822 130 30621	1N4148
6214	4822 130 82978	LTL-1CHPE
6215	4822 130 10791	LTL-1CHGE
6216	4822 130 10791	LTL-1CHGE
6217	4822 130 10791	LTL-1CHGE
6218	4822 130 10791	LTL-1CHGE
6219	4822 130 10791	LTL-1CHGE
6220	9322 153 38676	LO3336UV-E7898
6221	4822 130 10791	LTL-1CHGE
6222	9322 153 38676	LO3336UV-E7898
6223	9322 153 38676	LO3336UV-E7898
6224	9322 153 38676	LO3336UV-E7898
6225	9322 153 38676	LO3336UV-E7898
6226	4822 130 31878	1N4003G
6227	4822 130 30621	1N4148
6229	9322 153 37676	LB3333RT-E7898
6400	9322 153 37676	LB3333RT-E7898
6401	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7200	5322 130 60159	BC847B
7201	5322 130 60159	BC847B
7202	5322 130 60159	BC847B
7204	4822 209 15449	74HC4094D
7205	5322 130 60159	BC847B
7206	5322 130 60159	BC847B
7209	3139 110 52611	TMP88CU74YF - '870S52611'
7210	4822 209 15449	74HC4094D
7211	5322 209 11446	HEF4051BT
7213	9322 145 26668	M24C02-WMN6
7215	5322 130 60159	BC847B
7216	4822 130 10165	GR1U28XP
7217	5322 130 60159	BC847B
7218	4822 209 15449	74HC4094D
7220	5322 130 60159	BC847B
7400	5322 130 60159	BC847B
7600	5322 130 60159	BC847B
7601	5322 130 60159	BC847B

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

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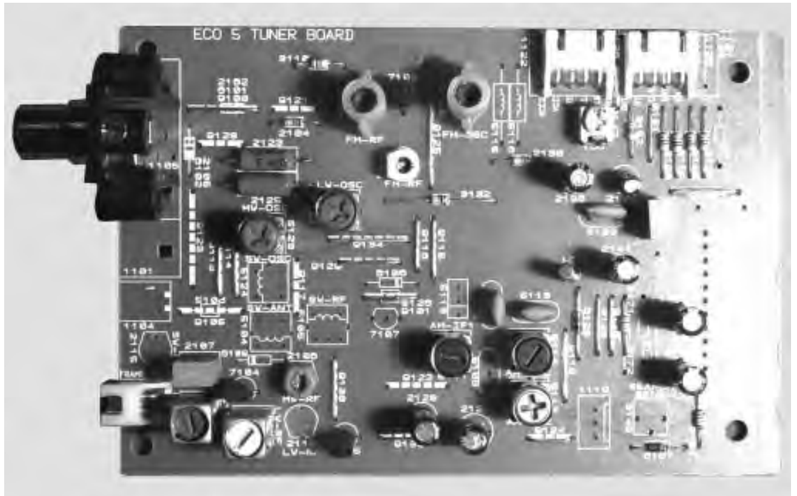
7B-1

BLOCKDIAGRAM



TUNER BOARD ECO5

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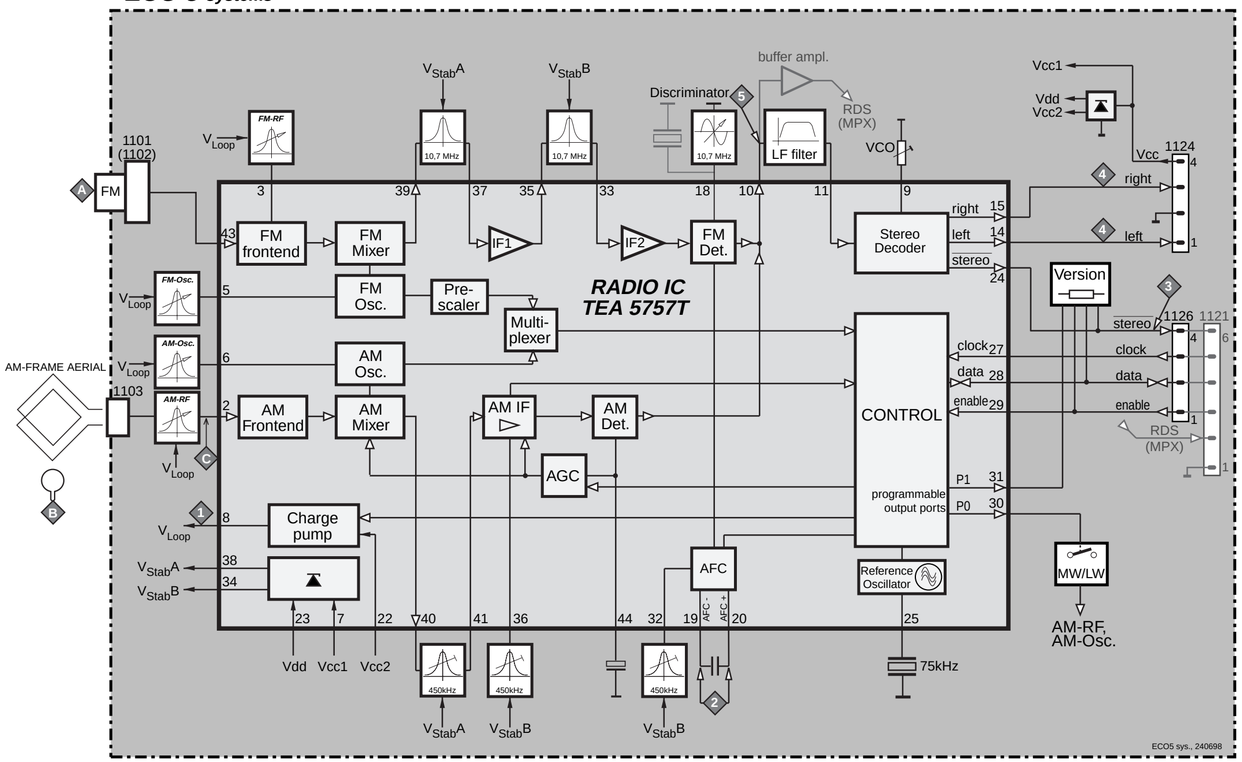
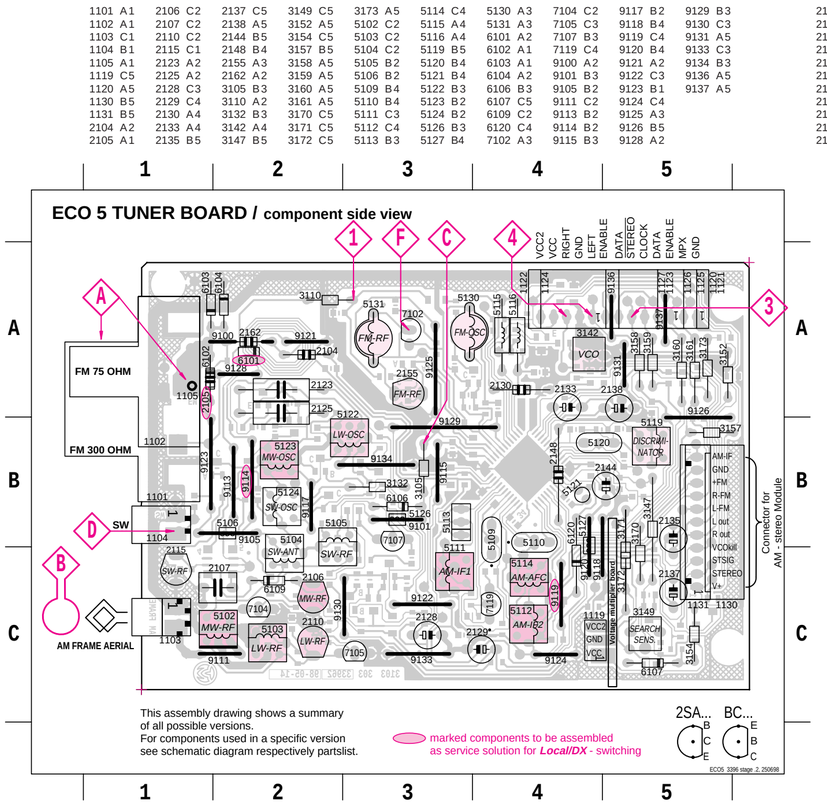
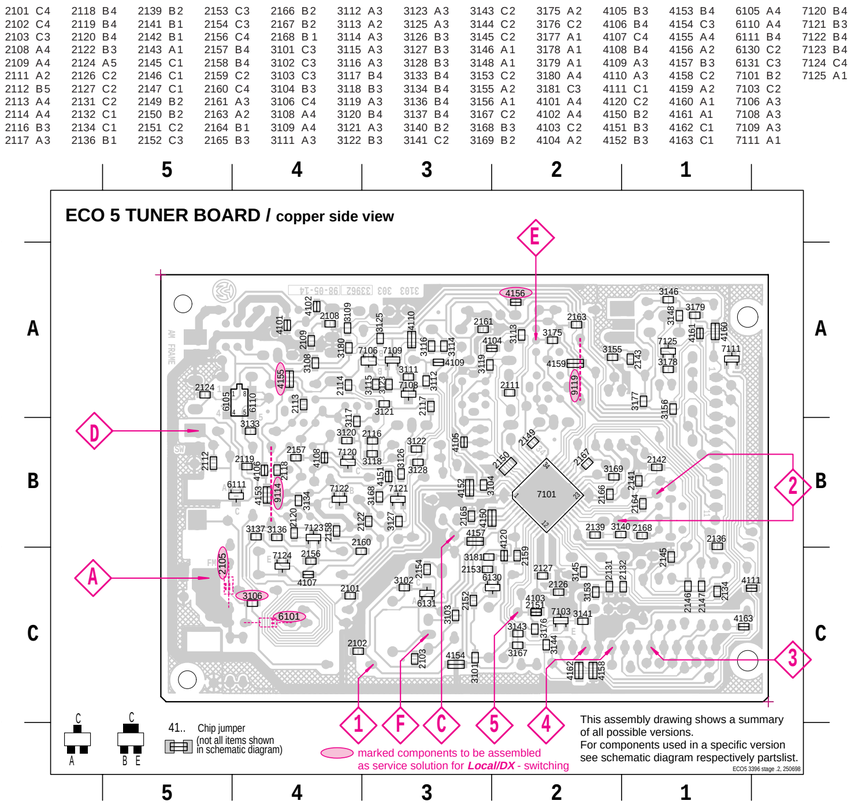
TUNER BOARD
ECO 5 systems



7B-2

7B-2





TUNER ADJUSTMENT TABLE (ECO5 FM/MW- and FM/MW/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		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	◇1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 50mV continuous wave	◇F	IC 7101 21 shortcircuit to block AFC 2141	5119	◇2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
AM IF						
MW	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 220R 100nF	5111	◇4	max. f_o symmetric
			IC 7101 40 see remark [2] 220R 100nF	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 10mV		5114	◇2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-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		
MW 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) MW has to be aligned before LW.

↕ Repeat

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TUNER BOARD ECO5 / Systems

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-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/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

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ELECTRICAL PARTS LIST - ECO5 TUNER BOARD

ELECTRICAL PARTS LIST - ECO5 TUNER BOARD

MISCELLANEOUS

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

CAPACITORS

2101	5322 122 32531	100pF 5% 50V	
2101	4822 126 13692	47pF 1% 63V	for USA
2102	4822 122 33177	10nF 20% 50V	
2103	5322 122 34123	1nF 10% 50V	
2104	4822 122 33195	100pF 10% 50V	
2106	4822 125 50355	Trimmer 4-20pF	for LW version
2106	4822 125 60101	Trimmer 3-11pF 100V	
2107	4822 121 51319	1µF 10% 63V	
2108	5322 122 32531	100pF 5% 50V	for LW version
2109	5322 122 32448	10pF 5% 50V	for LW version
2120	4822 126 13691	27pF 1% 63V	for LW version
2120	5322 122 32658	22pF 5% 50V	
2122	4822 122 33891	3,3nF 10% 63V	for LW version
2125	4822 121 51381	560pF 5% 400V	
2126	5322 122 31863	330pF 5% 50V	
2127	4822 126 13473	220nF +80/-20% 50V	
2128	4822 124 41579	10µF 20% 50V	
2129	4822 124 41584	100µF 20% 10V	
2130	4822 126 11585	22nF+80/- 20% 25V	
2131	4822 122 33325	470nF 16V	
2132	4822 122 33325	470nF 16V	
2131	4822 126 13482	470nF +80/- 20% 16V	
2132	4822 126 13482	470nF +80/- 20% 16V	
2133	4822 124 40242	1µF 20% 63V	
2134	4822 126 13188	15nF 5% 63V	
2134	5322 122 32654	22nF 10% 63V	for USA
2135	4822 124 40746	0,22µF 20% 63V	
2136	4822 126 13188	15nF 5% 63V	
2136	5322 122 32654	22nF 10% 63V	for USA
2137	4822 124 40746	0,22µF 20% 63V	
2138	4822 124 41576	2,2µF 20% 50V	
2139	4822 126 14236	50V 15pF 5%	
2140	4822 121 51252	470nF 5% 63V	
2141	4822 126 10002	100nF 20% 25V	
2142	4822 126 10002	100nF 20% 25V	
2143	4822 126 13473	220nF +80/-20% 50V	
2144	4822 124 40242	1µF 20% 63V	
2145	4822 122 33575	220pF 5% 50V	
2146	4822 122 33575	220pF 5% 50V	
2147	4822 122 33575	220pF 5% 50V	
2148	4822 126 11585	22nF+80/- 20% 25V	
2149	5322 122 32654	22nF 10% 63V	
2150	4822 122 31947	100nF 20% 63V	
2152	5322 116 80853	560pF 5% 63V	for East. Europe
2152	4822 126 12105	33nF 5% 63V	
2153	4822 122 32139	12pF 2% 63V	for East. Europe
2153	4822 122 32504	15pF 2% 63V	
2155	4822 125 60101	Trimmer 3-11pF 100V	
2158	5322 122 32448	10pF 5% 50V	for LW version
2159	5322 122 32659	33pF 5% 50V	
2160	5322 122 32654	22nF 10% 63V	
2161	4822 126 10002	100nF 20% 25V	
2163	4822 126 10002	100nF 20% 25V	
2164	4822 126 13482	470nF +80/- 20% 16V	
2165	4822 126 10002	100nF 20% 25V	
2166	5322 122 34123	1nF 10% 50V	
2167	4822 122 32139	12pF 2% 63V	
2168	4822 126 13695	82pF 1% 63V	

RESISTORS

3101	4822 051 20562	5k6 5% 0,1W	for East. Europe
3101	4822 051 20333	33k 5% 0,1W	
3102	4822 051 20104	100k 5% 0,1W	
3103	4822 117 10965	18k 1% 0,1W	
3104	4822 117 11448	180R 1% 0,1W	
3105	4822 116 83872	220R 5% 0,5W	
3108	4822 117 11449	2k2 1% 0,1W	for LW version
3109	4822 051 20472	4k7 5% 0,1W	for LW version
3110	4822 116 52195	47R 5% 0,5W	
3120	4822 051 20008	0R Jumper 0805	
3123	4822 051 20472	4k7 5% 0,1W	for LW version
3125	4822 117 10833	10k 1% 0,1W	for LW version
3128	4822 117 11449	2k2 1% 0,1W	for LW version
3132	4822 116 52195	47R 5% 0,5W	
3134	4822 051 20223	22k 5% 0,1W	
3137	4822 051 20223	22k 5% 0,1W	for LW version
3140	4822 051 20008	0R Jumper 0805	
		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	
3176	4822 051 10102	1k 2% 0,25W	for RDS version
3180	4822 051 20223	22k 5% 0,1W	for LW version
4101	4822 051 20008	0R Jumper 0805	for 2-Band only
4102	4822 051 20008	0R Jumper 0805	for 2-Band only
4103	4822 051 20008	0R Jumper 0805	
4104	4822 051 20008	0R Jumper 0805	
4105	4822 051 20008	0R Jumper 0805	
4106	4822 051 20008	0R Jumper 0805	
4108	4822 051 20008	0R Jumper 0805	
4111	4822 051 20008	0R Jumper 0805	
4120	4822 051 20008	0R Jumper 0805	
4150	4822 051 10008	0R Jumper 1206	
4151	4822 051 20008	0R Jumper 0805	
4152	4822 051 10008	0R Jumper 1206	
4153	4822 051 10008	0R Jumper 1206	
4154	4822 051 10008	0R Jumper 1206	
4155	4822 051 10008	0R Jumper 1206	
4156	4822 051 20008	0R Jumper 0805	
4157	4822 051 10008	0R Jumper 1206	
4158	4822 051 10008	0R Jumper 1206	
4159	4822 051 10008	0R Jumper 1206	
4162	4822 051 10008	0R Jumper 1206	

COILS & FILTERS

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

DIODES

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

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90924	TEA5757H/V1	
7102	4822 130 60093	2SA838B	
7103	4822 130 42513	BC858C	for RDS version
7104	5322 130 44779	BC338-40	for LW version
7105	5322 130 44779	BC338-40	for LW version
7109	5322 130 41983	BC858B	for LW version
7111	5322 130 42136	BC848C	
7122	5322 130 42136	BC848C	for LW version
7124	5322 130 42136	BC848C	for LW version

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

ETF7 TAPE MODULE

(Non-Dolby Version)

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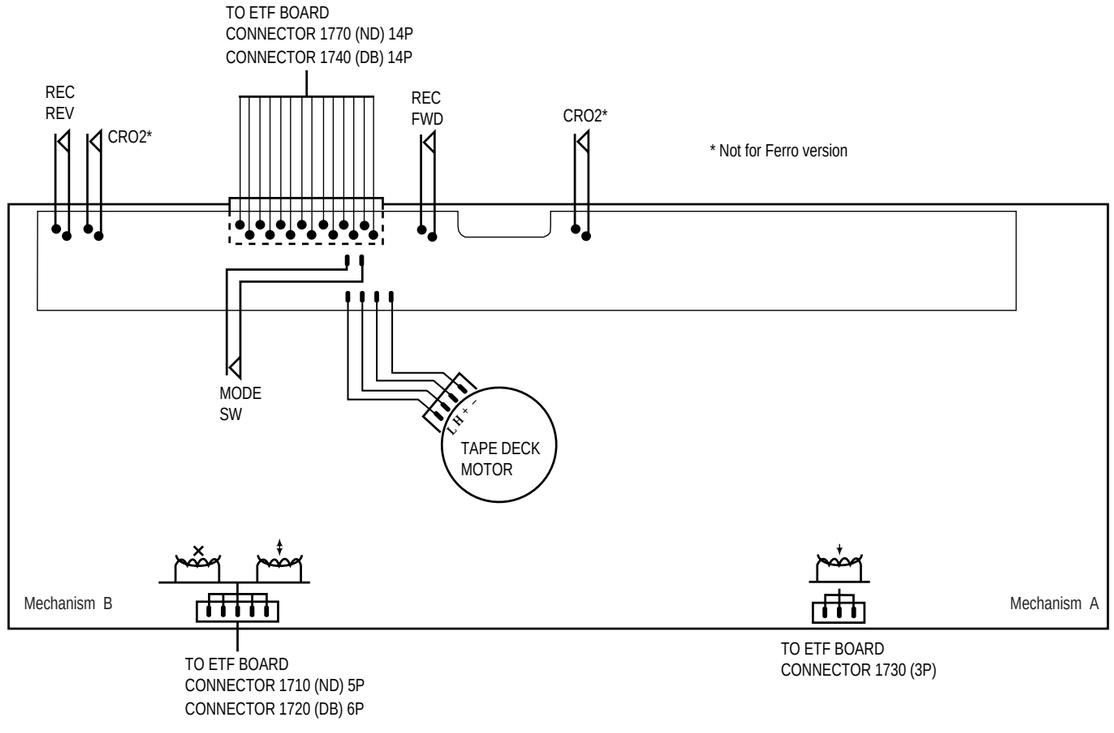
Tapedeck wiring (Double deck)



Variations table for Analog Circuit

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
2624	-	-	100nF
2701 , 2702	150pF	270pF	270pF
2703 , 2704	100pF	220pF	220pF
2717 , 2718	10nF	15nF	15nF
2721 , 2722	6,8nF	6,8nF	-
2727 , 2728	470pF	1nF	1nF
3616	10k	1k	1k
3618	6k8	-	-
3620	10k trimmer	-	-
3622	-	10k trimmer	10k trimmer
3672	4k7	-	-
3676	47k	-	-
3687	220R	220R	-
3688	680R	-	-
3723 , 3724	15k	18k	18k
3725 , 3726	10R	10R	-
3727 , 3728	5k6	6k8	6k8
3729 , 3730	3k3	4k7	4k7
3743 , 3744	1k5	2k2	2k2
3745 , 3746	3k3	5k6	5k6
3754 , 3755	1M	47R	47R

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
3769	12k	8k2	8k2
3772	6k8	5k6	5k6
4785	-	-	0R jumper
3774	15k	8k2	8k2
6614	1N4148	-	-
7616	BC857B	-	-
7622	BC847B	-	-

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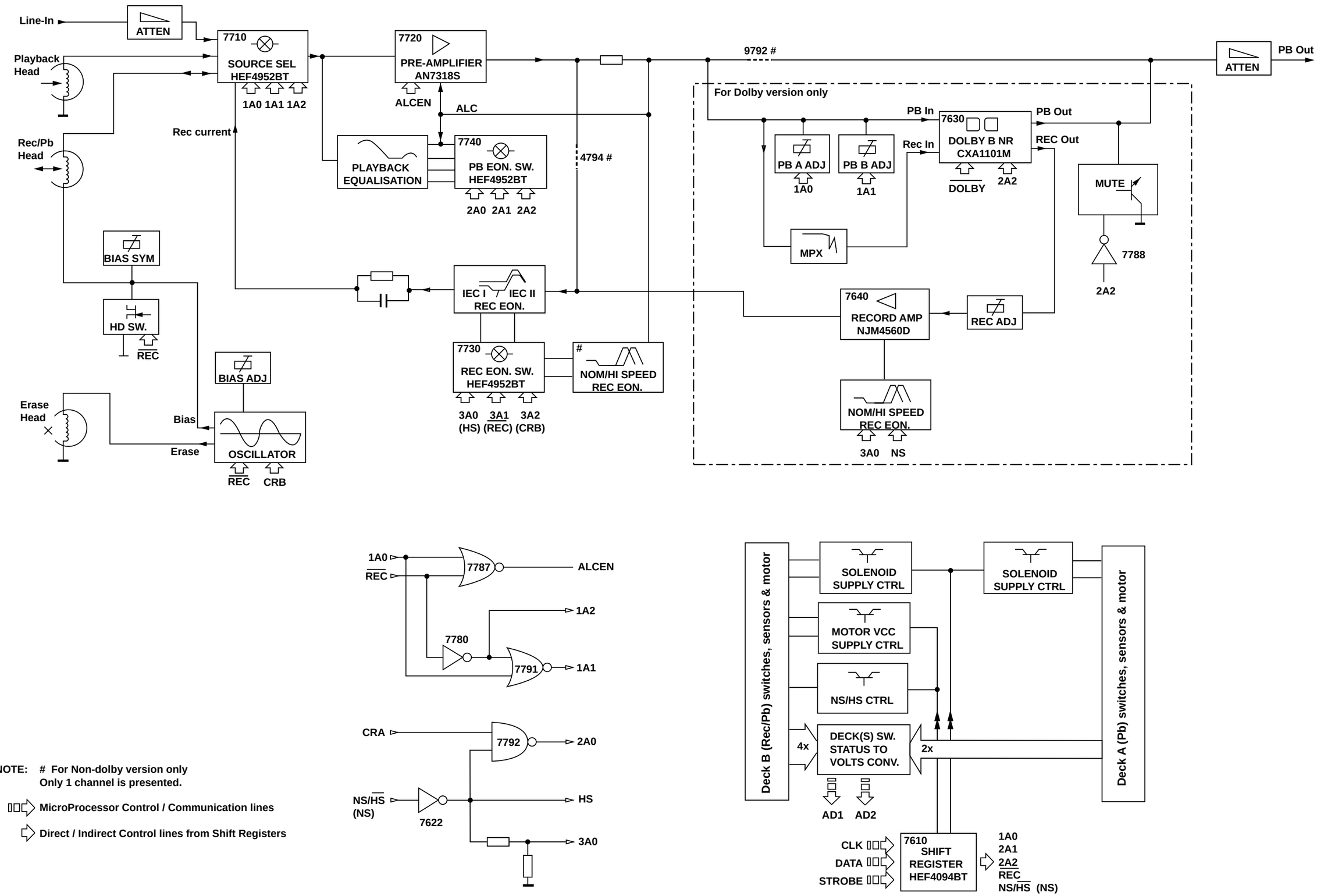
BLOCK DIAGRAM



NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers

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Brief introduction

General

1. Playback Mode
   Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.

2. Recording Mode
   Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.

3. Dubbing Mode
   In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.

4. Mode Selector
   The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.

5. Amplifier PB/REC
   Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.

6. Automatic Level Control (ALC)
   ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762 , 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.

7. Muting Circuit (For Non-Dolby version only)
   Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.

8. IC7740 (HEF4952BT)
   The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.

9. IC7730 (HEF4952BT)
   The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).

10. Bias Level
    Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.

11. Bias Symm (For Dolby B NR version only)
    Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.

12. PB Switch
    Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)
    During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.

14. IC7610 (HEF4094BT)
    IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)
    IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by $\overline{\text{DOLBY}}$, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.

16. 19kHz Filter
    The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.

17. Level Adjust
    The Variable resistor 3635, 3636,3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz , 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.

18. Amplifier IC7640 (NJM4560M)
    The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.

19. Muting Circuit
    The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

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CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 — INTERCONNECTION TO AF BOARD

1	REC-L	Record input left
2	REC-R	Record input right
3	GND A	AF Ground
4	TAPE-L	Playback output left
5	+12V	D.C. supply (+12V) for AF electronics
6	TAPE-R	Playback output right
7	-CMOS	Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703 — INTERCONNECTION TO AF BOARD

1	GND M	Motor Ground
2	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706 — INTERCONNECTION TO FRONT BOARD

1	AD2	Deck sensing switches output voltage / Deck A EOT
2	AD1	Deck sensing switches output voltage / Deck B EOT
3	+5V	DC supply +5V for ADC network
4	GND P	Control & Oscillator Ground
5	CLK	HEF4094BT shift register Clock line
6	DATA	HEF4094BT shift register Data line
7	STROBE	HEF4094BT shift register Strobe line

CONNECTOR 1710 — DECK B HEADS CONNECTON ***(For Non-Dolby version only)***

1	B R/P HD L+	R/P Head left channel positive
2	GND A	R/P Head return ground
3	B R/P HD R+	R/P Head right channel positive
4	ERASE HEAD	Erase Head
5	GND A	Erase Head ground

CONNECTOR 1720 — DECK B HEADS CONNECTON ***(For Dolby B NR version only)***

1	B R/P HD L+	R/P Head left channel positive
2	B R/P HD L-	R/P Head left channel negative
3	B R/P HD R+	R/P Head right channel positive
4	B R/P HD R-	R/P Head right channel negative
5	ERASE HEAD	Erase Head
6	GND A	Erase Head ground

CONNECTOR 1730 — DECK A HEAD CONNECTIONS ***(For Double Deck versions only)***

1	A PB HD L+	Pb Head left channel positive
2	GND A	Pb Head return ground shield
3	A PB HD R+	Pb Head right channel positive

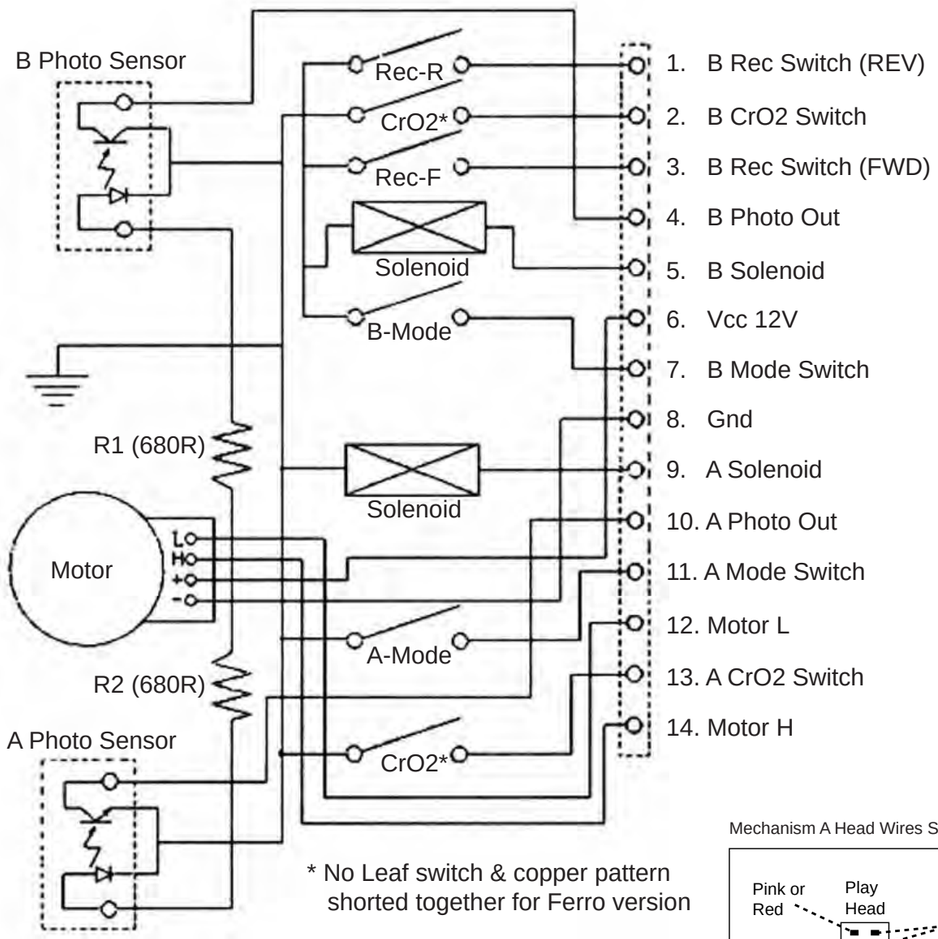
CONNECTOR 1740 — DECK A & B CONTROL INTERFACE ***(For Dolby B NR version only)***

1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
4	PHOTO B	Photo sensor output (tape movement indication)	
5	SOL B	Solenoid supply for deck B	
6	Vcc	Deck / Motor supply	
7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
8	GND M	Deck / Motor ground	
9	SOL A	Solenoid supply for deck A	
10	PHOTO A	Photo sensor output (tape movement indication)	
11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
12	L	L pin for motor	
13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
14	H	H pin for motor	

CONNECTOR 1770 — DECK A & B CONTROL INTERFACE ***(For Non-Dolby version only)***

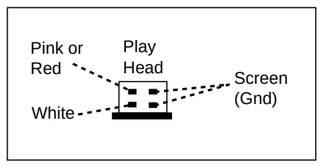
1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
4	PHOTO B	Photo sensor output (tape movement indication)	
5	SOL B	Solenoid supply for deck B	
6	Vcc	Deck / Motor supply	
7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
8	GND M	Deck / Motor ground	
9	SOL A	Solenoid supply for deck A	
10	PHOTO A	Photo sensor output (tape movement indication)	
11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
12	L	L pin for motor	
13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
14	H	H pin for motor	

TAPE MECHANISM ELECTRONICS

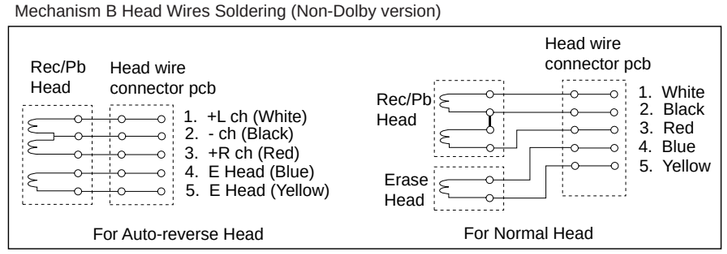


* No Leaf switch & copper pattern shorted together for Ferro version

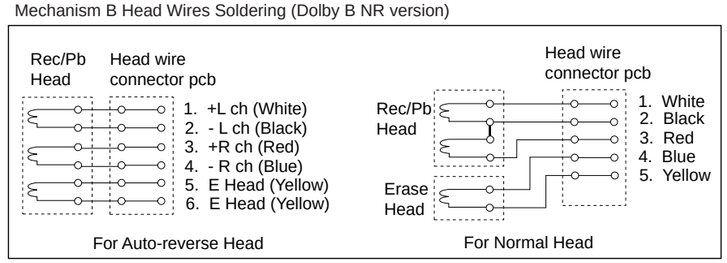
Mechanism A Head Wires Soldering



Mechanism B Head Wires Soldering (Non-Dolby version)



Mechanism B Head Wires Soldering (Dolby B NR version)



TAPE ADJUSTMENT & CHECK TABLE

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420 3150Hz	PLAY B	◇1 or ◇2 LEFT RIGHT	frequency counter	3620	3150Hz – 0.5%
		PLAY A			check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 3150Hz	PLAY	◇1 or ◇2 LEFT RIGHT	W&F-meter	check	†0.4 % DIN
ADJUST AZIMUTH						
DECK A & B	SBC420 10kHz	PLAY FWD	◇1 or ◇2 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			right hand screw	
CHECK PLAYBACK FREQUENCY RESPONSE						
DECK A & B	SBC420	PLAY	◇1 or ◇2 LEFT RIGHT	mV-meter	check	limits see fig.1
ADJUST BIAS CURRENT						
DECK B	SBC419A^	RECORD	◇5 or ◇6 LEFT RIGHT	mV-meter	3773	995mV
	SBC420				check	750mV – 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via ◇3 or ◇4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	◇1 or ◇2 LEFT RIGHT	mV-meter	check	limits see fig. 2 *
Inject 1kHz 8.85mV via ◇3 or ◇4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	◇1 or ◇2 LEFT RIGHT	THD-meter	check	†3% *

SBC419A^ : 4822 397 30069
SBC420 : 4822 397 30071

\# For Auto-reverse version only
* If high frequencies are not within limits, decrease bias and re-measure.
If distortion is too high, increase bias and re-meaure
^ Not applicable for Ferro version

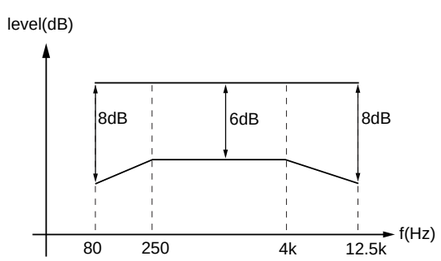


figure. 1

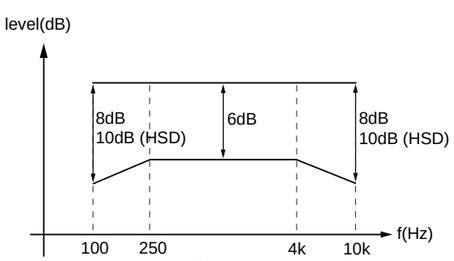
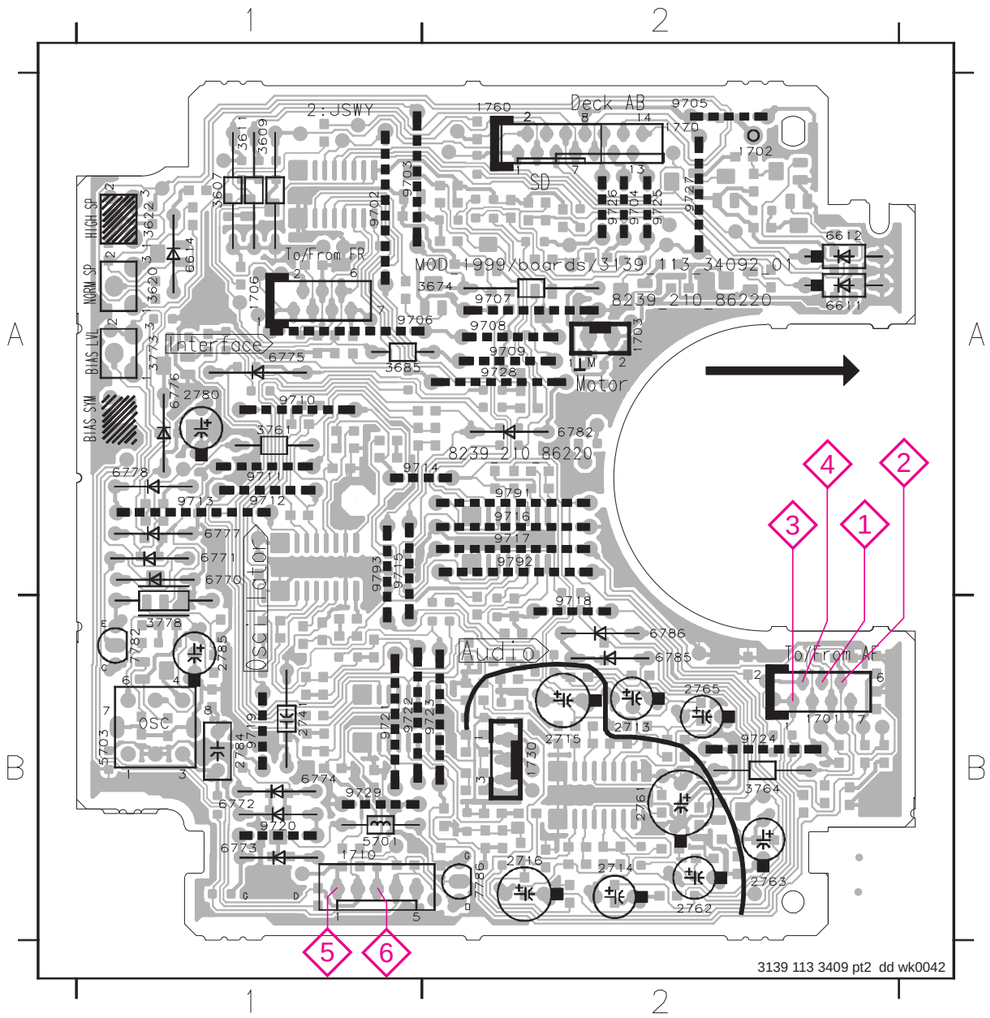


figure. 2

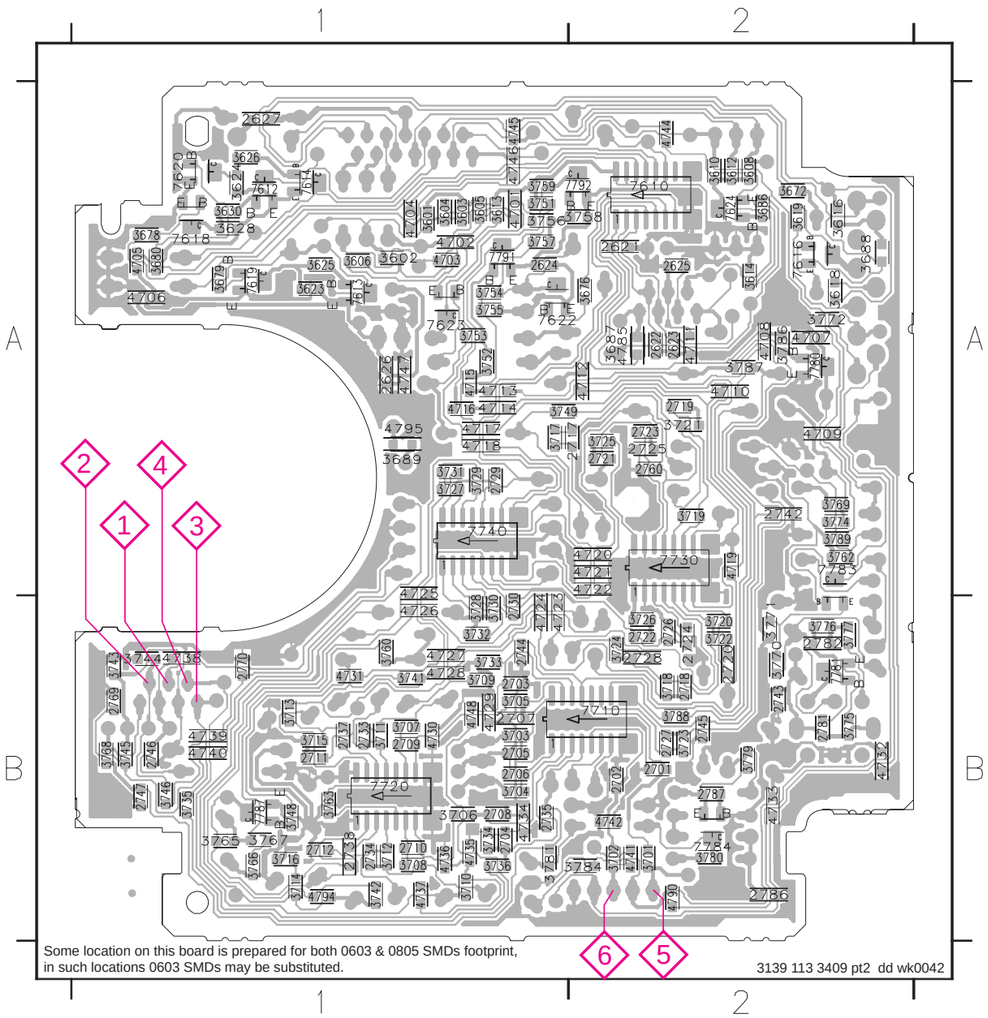
COMPONENT LAYOUT

1701 B2	2714 B2	2784 B1	3761 A1	6770 A1	6782 A2	9706 A1	9715 A1	9724 B2
1702 A2	2715 B2	2785 B1	3764 B2	6771 A1	6785 B2	9707 A2	9716 A2	9725 A2
1703 A2	2716 B2	3607 A1	3773 A1	6772 B1	6786 B2	9708 A2	9717 A2	9726 A2
1706 A1	2741 B1	3609 A1	3778 B1	6773 B1	7782 B1	9709 A2	9718 B2	9727 A2
1710 B1	2761 B2	3611 A1	5701 B1	6774 B1	7786 B2	9710 A1	9719 B1	9728 A2
1730 B2	2762 B2	3620 A1	5703 B1	6775 A1	9702 A1	9711 A1	9720 B1	9729 B1
1760 A2	2763 B2	3622 A1	6611 A2	6776 A1	9703 A1	9712 A1	9721 B1	9791 A2
1770 A2	2765 B2	3674 A2	6612 A2	6777 A1	9704 A2	9713 A1	9722 B1	9792 A2
2713 B2	2780 A1	3685 A1	6614 A1	6778 A1	9705 A2	9714 A1	9723 B2	9793 A1



CHIP LAYOUT

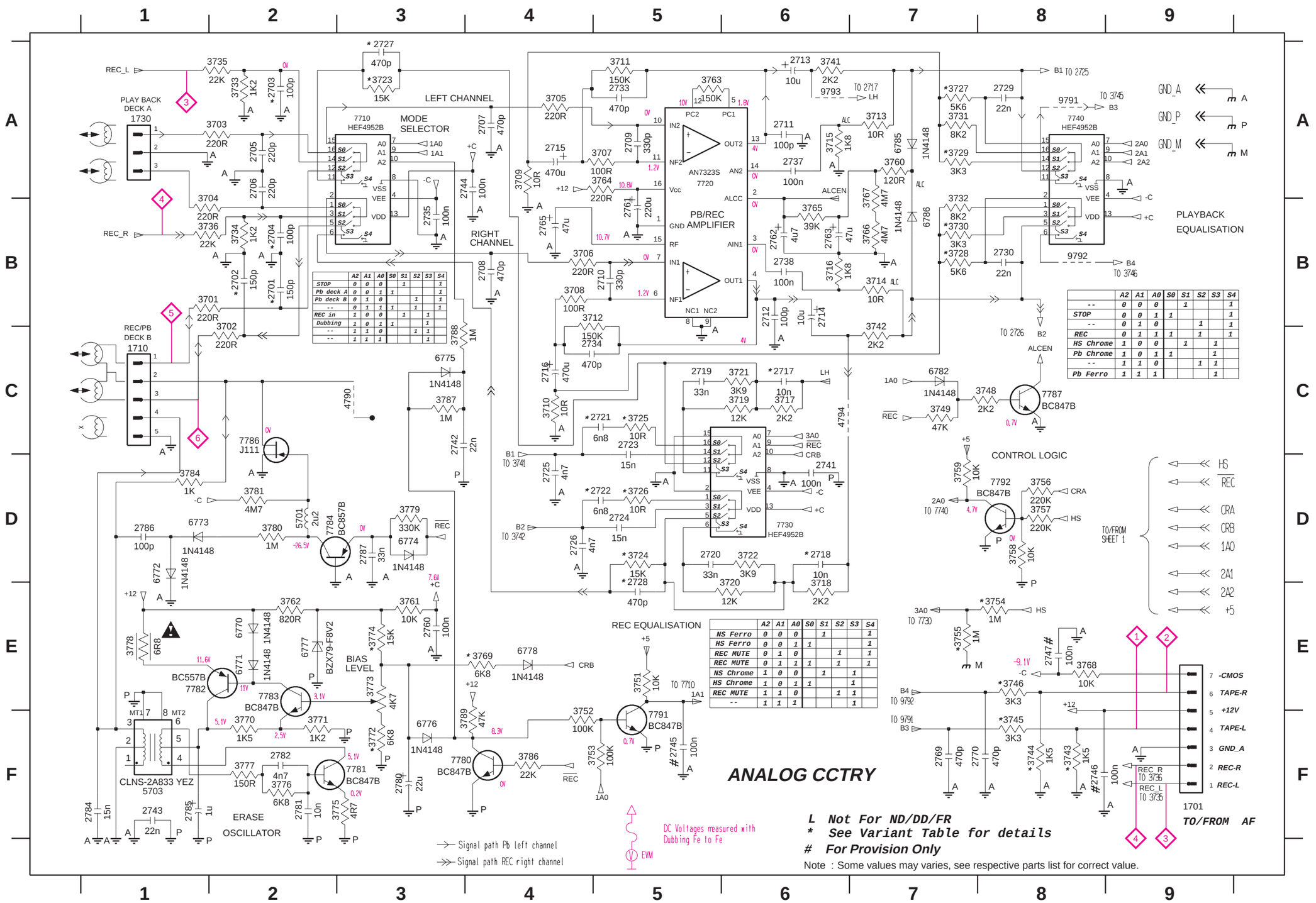
2621 A2	2724 B2	3602 A1	3688 A2	3725 A2	3757 A1	4701 A1	4727 B1	7612 A1
2622 A2	2725 A2	3603 A1	3689 A1	3726 B2	3758 A2	4702 A1	4728 B1	7613 A1
2623 A2	2726 B2	3604 A1	3701 B2	3727 A1	3759 A1	4703 A1	4729 B1	7614 A1
2624 A1	2727 B2	3605 A1	3702 B2	3728 B1	3760 B1	4704 A1	4730 B1	7616 A2
2625 A2	2728 B2	3606 A1	3703 B1	3729 A1	3762 A2	4705 A1	4731 B1	7618 A1
2626 A1	2729 A1	3608 A2	3704 B1	3730 B1	3763 B1	4706 A1	4732 B2	7619 A1
2627 A1	2730 B1	3610 A2	3705 B1	3731 A1	3765 B1	4707 A2	4733 B2	7620 A1
2701 B2	2733 B1	3612 A2	3706 B1	3732 B1	3766 B1	4708 A2	4734 B1	7622 A1
2702 B2	2734 B1	3613 A1	3707 B1	3733 B1	3767 B1	4709 A2	4735 B1	7623 A1
2703 B1	2735 B1	3614 A2	3708 B1	3734 B1	3768 B1	4710 A2	4736 B1	7624 A2
2704 B1	2737 B1	3616 A2	3709 B1	3735 B1	3769 A2	4711 A2	4737 B1	7710 B2
2705 B1	2738 B1	3618 A2	3710 B1	3736 B1	3770 B2	4712 A2	4738 B1	7720 B1
2706 B1	2742 A2	3619 A2	3711 B1	3741 B1	3771 B2	4713 A1	4739 B1	7730 A2
2707 B1	2743 B2	3623 A1	3712 B1	3742 B1	3772 A2	4714 A1	4740 B1	7740 A1
2708 B1	2744 B1	3624 A1	3713 B1	3743 B1	3774 A2	4715 A1	4741 B2	7780 A2
2709 B1	2745 B2	3625 A1	3714 B1	3744 B1	3775 B2	4716 A1	4742 B2	7781 B2
2710 B1	2746 B1	3626 A1	3715 B1	3745 B1	3776 B2	4717 A1	4744 A2	7783 A2
2711 B1	2747 B1	3628 A1	3716 B1	3746 B1	3777 B2	4718 A1	4745 A1	7784 B2
2712 B1	2760 A2	3630 A1	3717 A1	3748 B1	3779 B2	4719 A2	4746 A1	7787 B1
2717 A2	2769 B1	3672 A2	3718 B2	3749 A1	3780 B2	4720 A2	4747 A1	7791 A1
2718 B2	2770 B1	3676 A2	3719 A2	3751 A1	3781 B1	4721 A2	4748 B1	7792 A2
2719 A2	2781 B2	3678 A1	3720 B2	3752 A1	3784 B2	4722 A2	4785 A2	
2720 B2	2782 B2	3679 A1	3721 A2	3753 A1	3786 A2	4723 B1	4790 B2	
2721 A2	2786 B2	3680 A1	3722 B2	3754 A1	3787 A2	4724 B1	4794 B1	
2722 B2	2787 B2	3686 A2	3723 B2	3755 A1	3788 B2	4725 A1	4795 A1	
2723 A2	3601 A1	3687 A2	3724 B2	3756 A1	3789 A2	4726 B1	7610 A2	



9-7

ANALOG CIRCUIT

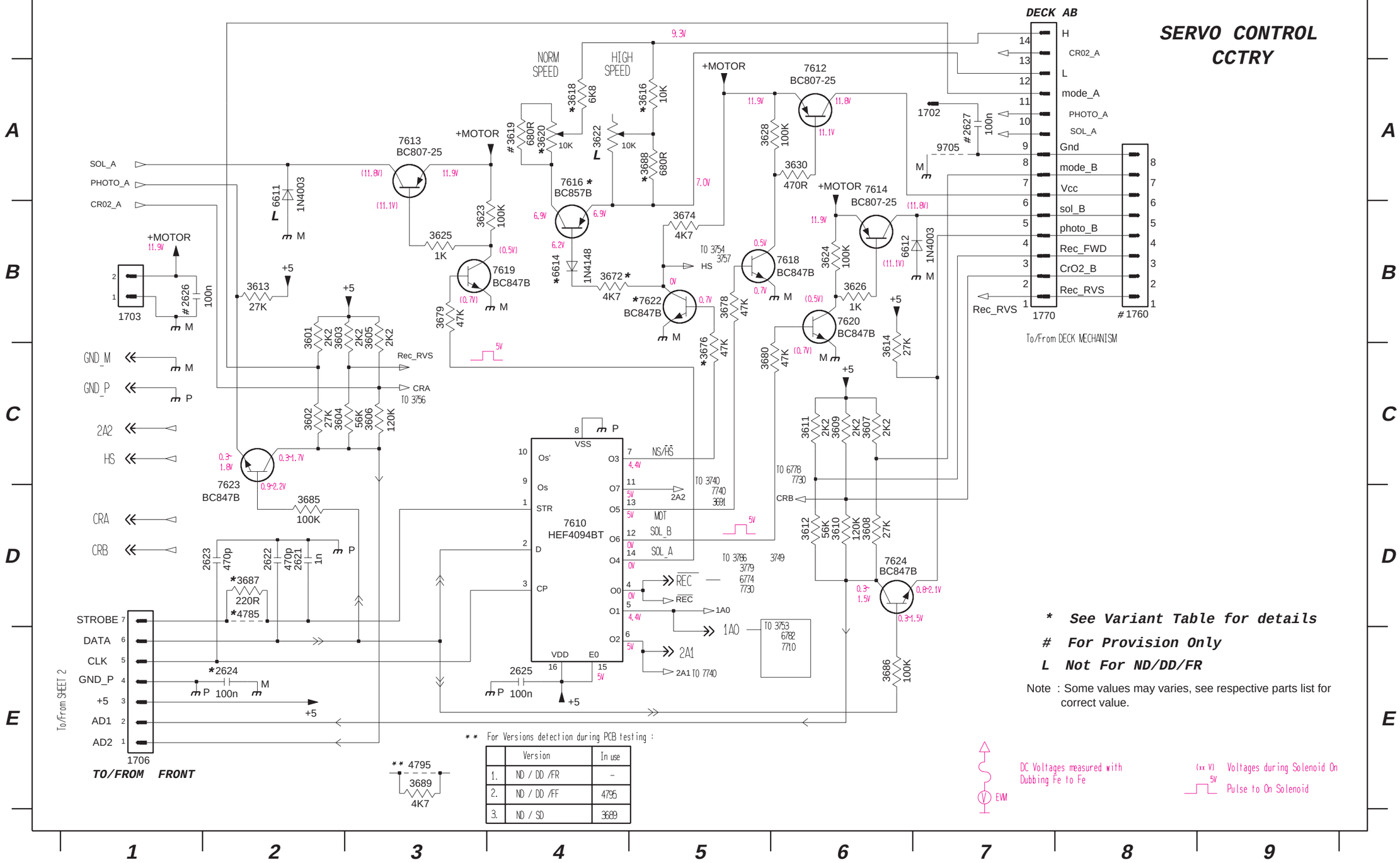
1701 F9	2705 A2	2712 B6	2719 C5	2726 D4	2735 B3	2745 F5	2765 B4	2785 F1	3705 A4	3712 B4	3719 C6	3726 D5	3733 A2	3744 F8	3753 F5	3760 A7	3767 A7	3774 E3	3781 D2	4794 C6	6774 D3	6786 B7	7782 E1	9791 A8
1710 C1	2706 A2	2713 A6	2720 D5	2727 A3	2737 A6	2746 F8	2769 F7	2786 D1	3706 B4	3713 A7	3720 E6	3727 A7	3734 B2	3745 F8	3754 E8	3761 E3	3768 E8	3775 F3	3784 D1	5701 D2	6775 C3	7710 A3	7783 E2	9792 B8
1730 A1	2707 A4	2714 B6	2721 C5	2728 E5	2738 B6	2747 E8	2770 F8	2787 D3	3707 A5	3714 B7	3721 C6	3728 B7	3735 A2	3746 E8	3755 E7	3762 E2	3769 E4	3776 F2	3786 F4	5703 F1	6776 F3	7720 A5	7784 D2	9793 A6
2701 B2	2708 B4	2715 A4	2722 D5	2729 A8	2741 D6	2760 E3	2780 F3	3701 B1	3708 B4	3715 A6	3722 D6	3729 A7	3736 B1	3748 C8	3756 D8	3763 A5	3770 F2	3777 F2	3787 C3	6770 E2	6777 E2	7730 D6	7786 C2	
2702 B2	2709 A5	2716 C4	2723 C5	2730 B8	2742 C3	2761 B5	2781 F2	3702 C2	3709 A4	3716 B6	3723 A3	3730 B7	3741 A6	3749 C7	3757 D8	3764 A5	3771 F2	3778 E1	3788 C3	6771 E2	6778 E4	7740 A8	7787 C8	
2703 A2	2710 B5	2717 C6	2724 D5	2733 A5	2743 F1	2762 B6	2782 F2	3703 A2	3710 C4	3717 C6	3724 D5	3731 A7	3742 C7	3751 E5	3758 D8	3765 B6	3772 F3	3779 D3	3789 F4	6772 D1	6782 C7	7780 F4	7791 F5	
2704 B2	2711 A6	2718 D6	2725 D4	2734 C4	2744 A4	2763 B6	2784 F1	3704 B1	3711 A5	3718 E6	3725 C5	3732 B7	3743 F8	3752 F4	3759 D7	3766 B7	3773 E3	3780 D2	4790 C3	6773 D1	6785 A7	7781 F3	7792 D8	

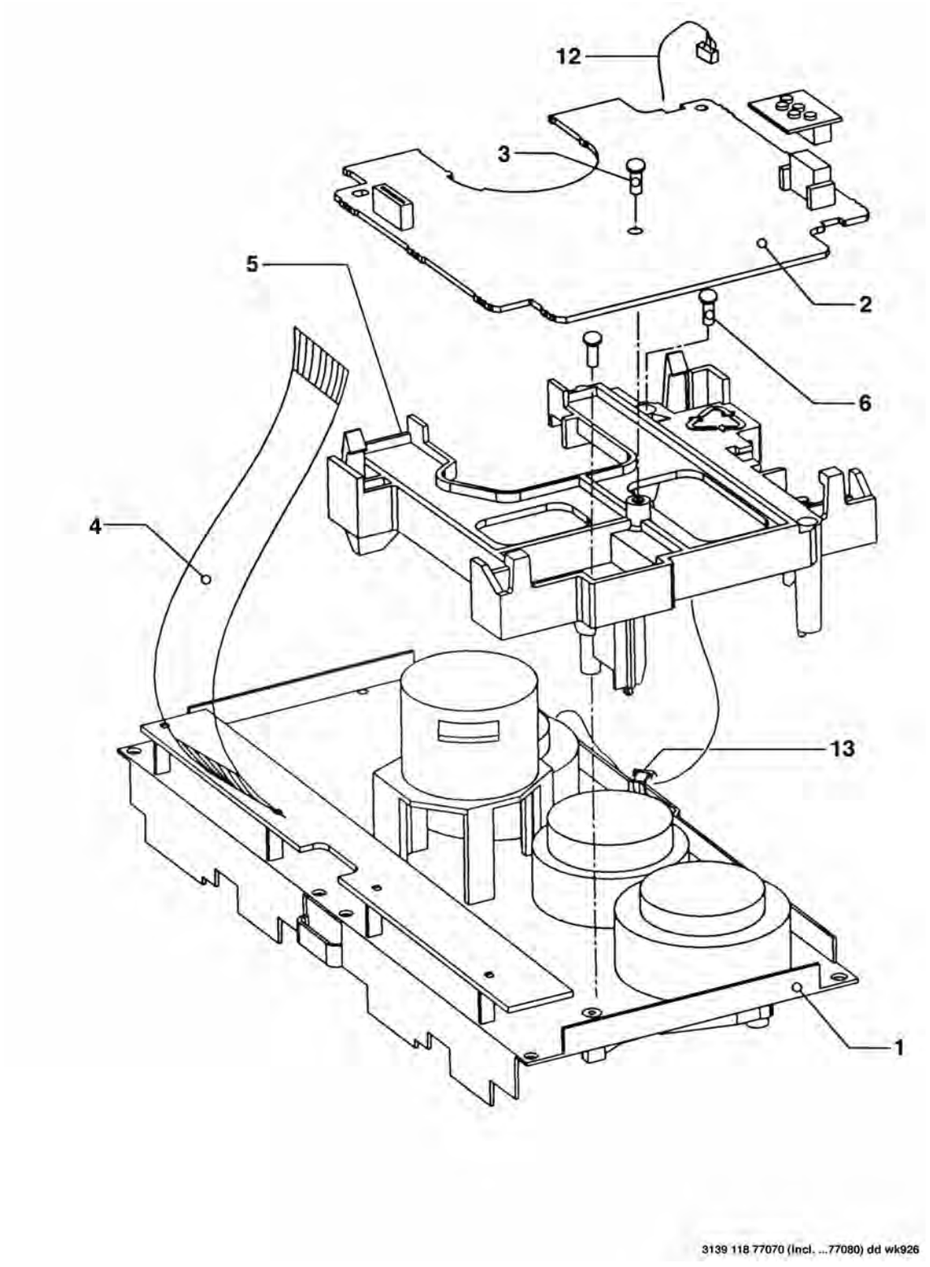


9-8

SERVO CONTROL CIRCUIT

1702 A7 1760 B8 2622 D2 2625 E4 3601 B2 3604 C2 3607 C6 3610 D6 3613 B2 3618 A4 3622 A4 3625 B3 3630 A6 3676 C5 3680 C5 3687 D2 4785 D2 6612 B6 7612 A6 7616 A4 7620 B6 7624 D6
1703 B1 1770 B7 2623 D2 2626 B1 2627 A7 3602 C2 3605 B3 3608 D6 3611 C6 3614 C6 3616 A5 3619 A4 3623 B3 3626 B6 3628 A5 3672 B4 3674 B5 3678 B5 3679 B3 3685 E6 3688 E5 3689 E3 4795 E3 6611 A2 6614 B4 7610 D4 7613 A6 7618 A4 7622 B5 9705 A7
1706 E1 2621 D2 2624 E2 2627 A7 3603 B2 3606 C3 3609 C6 3612 D6 3616 A5 3620 A4 3624 B6 3628 A5 3674 B5 3679 B3 3686 E6 3689 E3 6611 A2 6610 D4 6614 A6 7619 A4 7623 B2 7624 B6



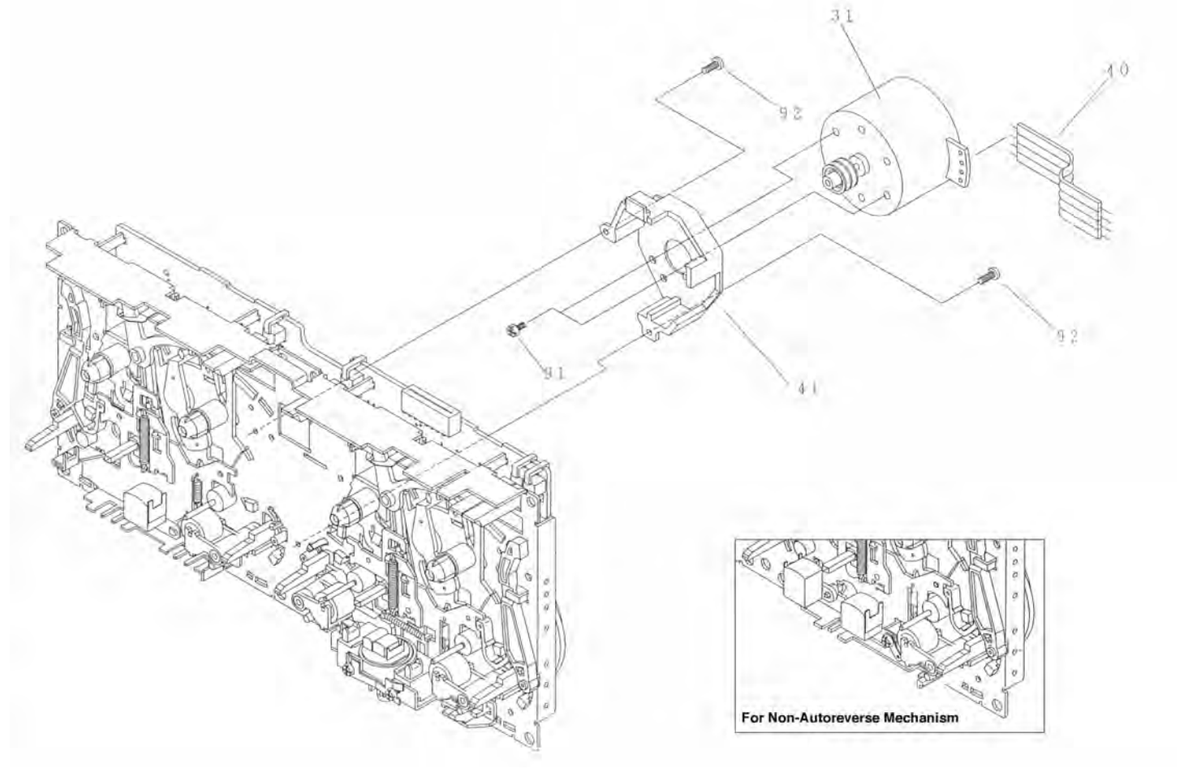


TAPE MODULE EXPLODED VIEW

1	3139 118 77130	Autoreverse Mech. CWE44FR01
1	3139 118 77140	Non-Autoreverse Mech. CWE44FF02 Chrome/Ferro
1	3139 118 77950	Non-Autoreverse Mech. CWE44FF05 Ferro
3	-	Screw D3 x 10
6	-	Screw M2 x 16
7	3139 110 34080	Flex Cable 14 pin 7,5 cm

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

9-9



TAPE MECHANISM - MOTOR EXPLODED VIEW

31	4822 361 11055	Motor Assembly
91	-	Screw M2,6 x 5
92	-	Screw M2 x 5

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

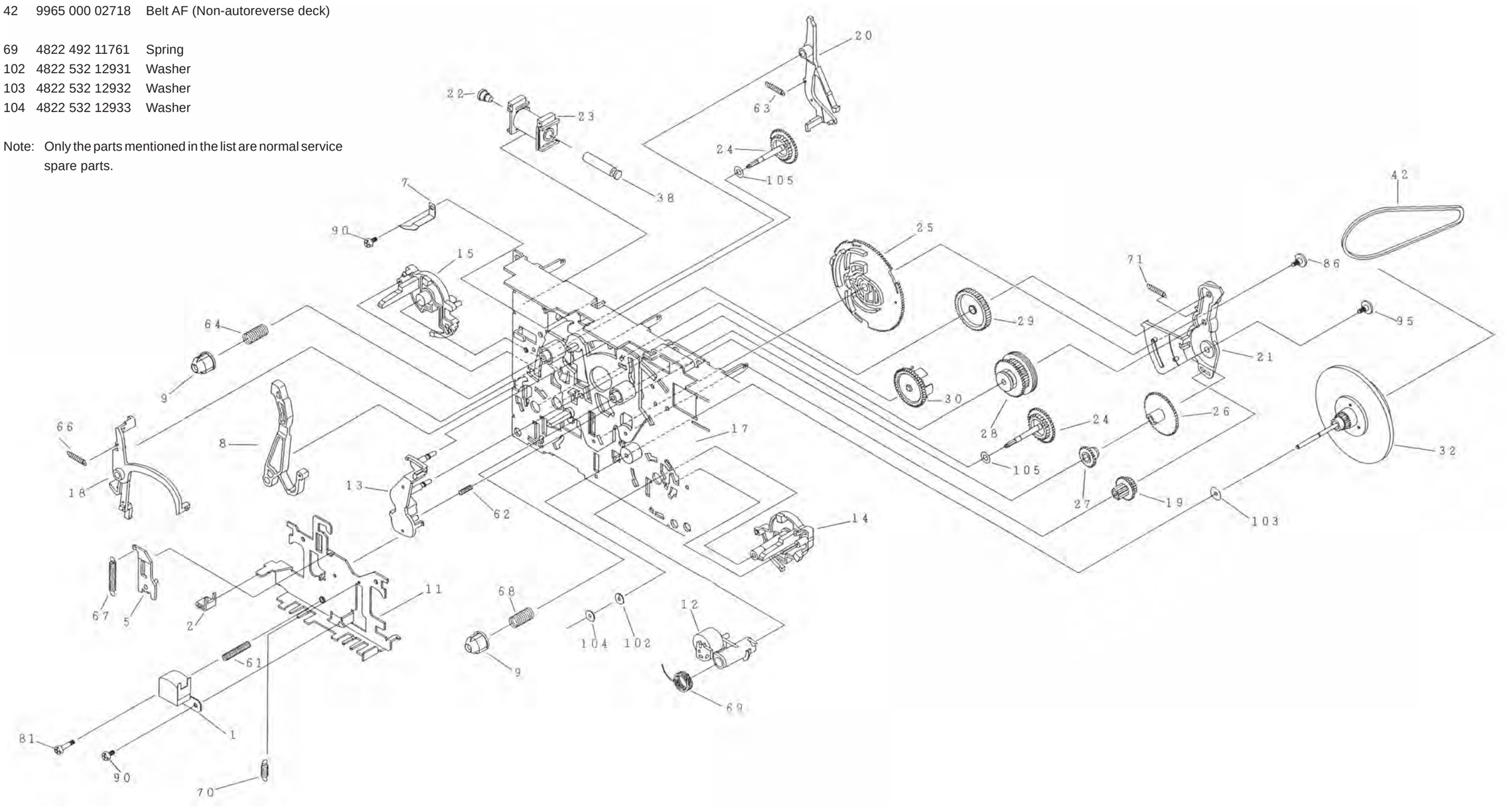
9-10

TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	9965 000 02313	Play Head (Non-Autoreverse deck)
1	9965 000 02321	Play Head (Autoreverse deck)
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
42	9965 000 02315	Belt AF (Autoreverse deck)
42	9965 000 02718	Belt AF (Non-autoreverse deck)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

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



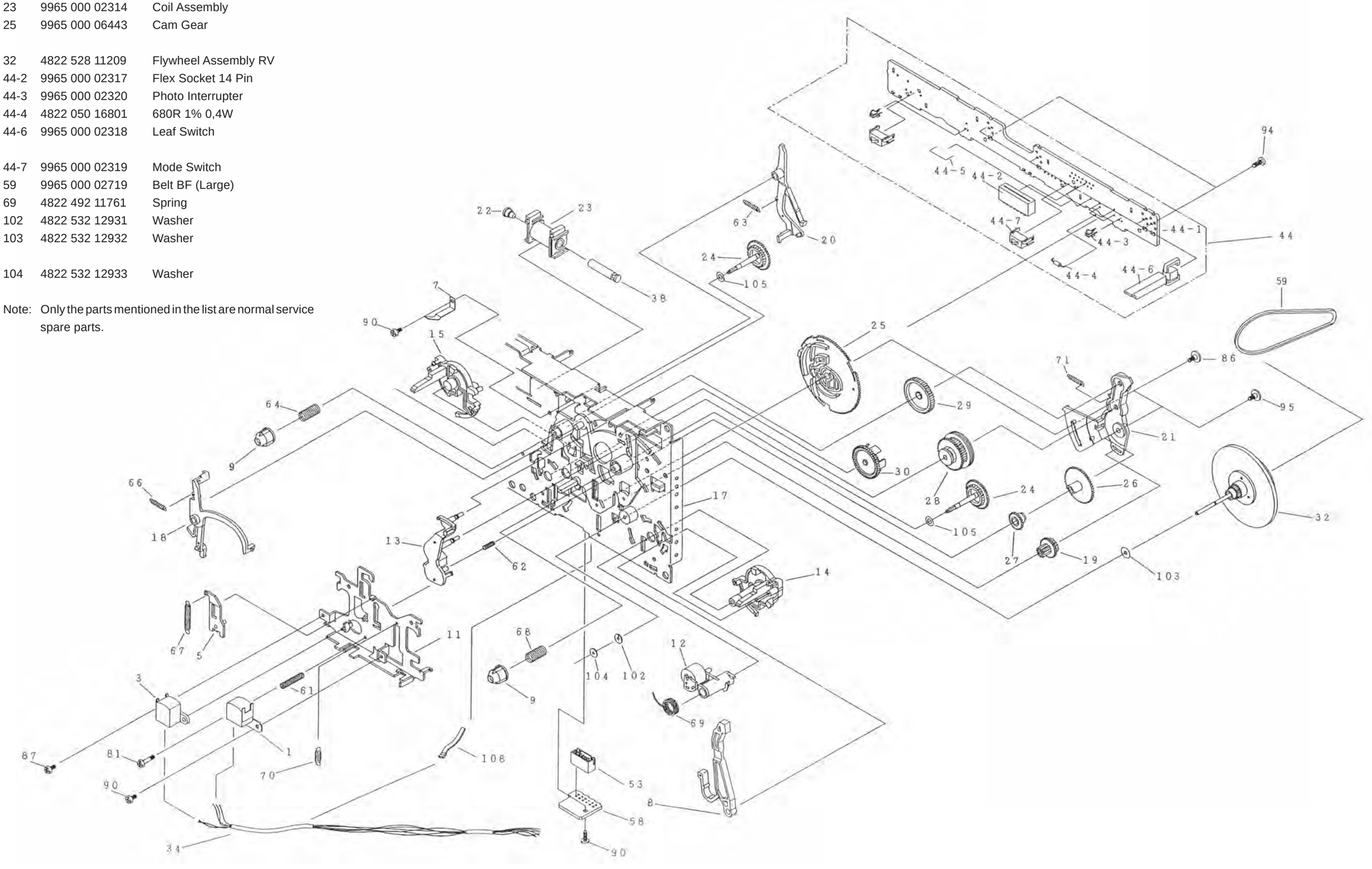
9-11

TAPE MECHANISM B - RECORD/PLAYBACK *(Non-Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

1	9965 000 02313	Play Head
3	9965 000 02600	Head, Erase
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
59	9965 000 02719	Belt BF (Large)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

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



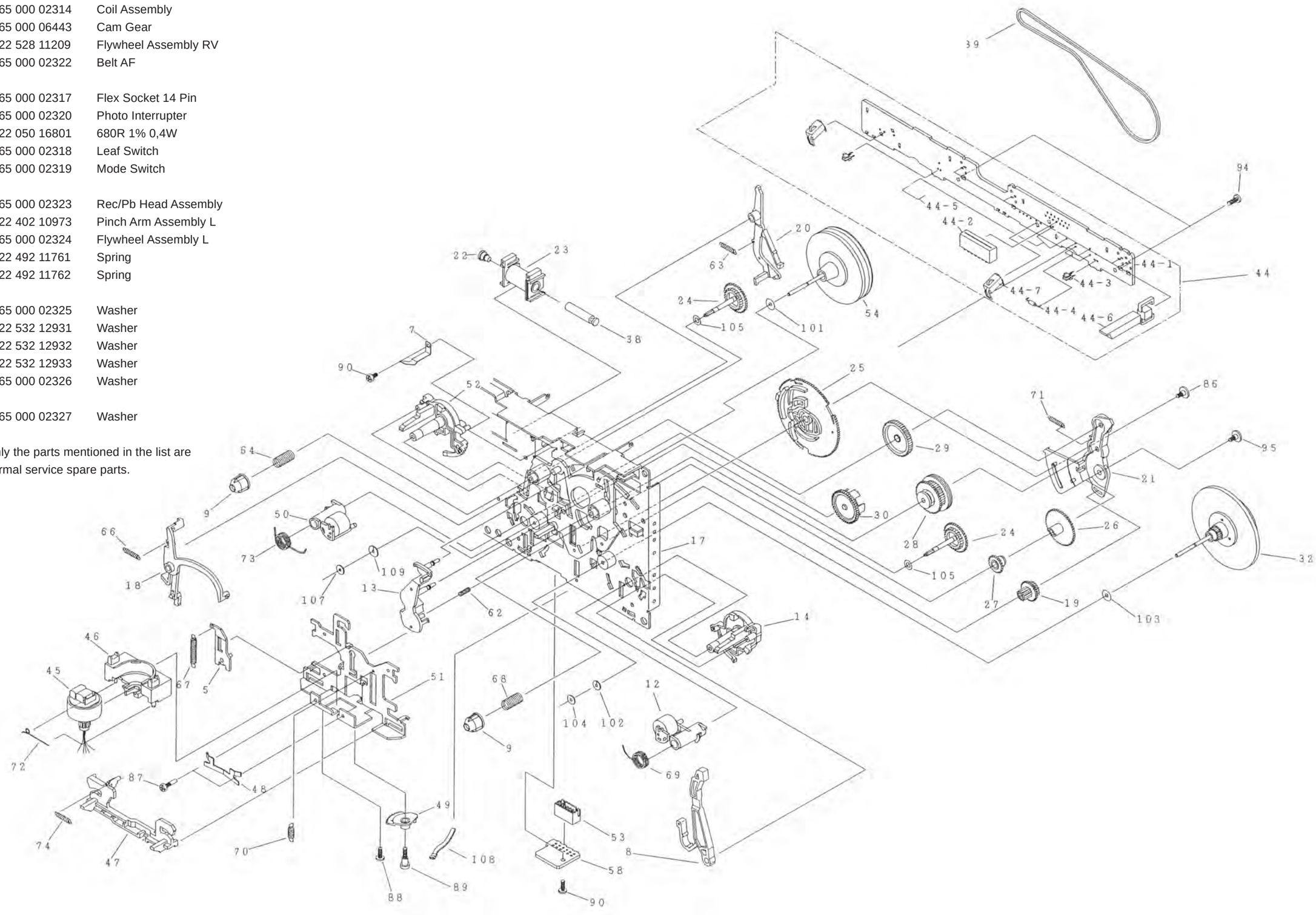
9-12

TAPE MECHANISM B - RECORD/PLAYBACK *(Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
39	9965 000 02322	Belt AF
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
45	9965 000 02323	Rec/Pb Head Assembly
50	4822 402 10973	Pinch Arm Assembly L
54	9965 000 02324	Flywheel Assembly L
69	4822 492 11761	Spring
73	4822 492 11762	Spring
101	9965 000 02325	Washer
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer
107	9965 000 02326	Washer
109	9965 000 02327	Washer

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



9-13

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

MISCELLANEOUS

1701	482226710953	Flex Socket 7pin Vert.
1706	482226710953	Flex Socket 7pin Vert.
1770	482226751255	Flex Socket 14pin Vert.

CAPACITORS

2621	532212231647	1nF 10% 63V	
2622	532212234099	470pF 10% 63V	
2623	532212234099	470pF 10% 63V	
2624	482212614585	100nF 10% 50V	only for Ferro
2625	482212614585	100nF 10% 50V	
2701	532212233538	150pF 2% 63V	Autoreverse
2701	482212233216	270pF 5% 63V	Non-autoreverse
2702	532212233538	150pF 2% 63V	Autoreverse
2702	482212233216	270pF 5% 63V	Non-autoreverse
2703	532212232531	100pF 5% 50V	Autoreverse
2703	482212233575	220pF 5% 63V	Non-autoreverse
2704	532212232531	100pF 5% 50V	Autoreverse
2704	482212233575	220pF 5% 63V	Non-autoreverse
2705	482212233575	220pF 5% 63V	
2706	482212233575	220pF 5% 63V	
2707	532212234099	470pF 10% 63V	
2708	532212234099	470pF 10% 63V	
2709	532212231863	330pF 5% 63V	
2710	532212231863	330pF 5% 63V	
2711	532212232531	100pF 5% 50V	
2712	532212232531	100pF 5% 50V	
2713	482212440248	10µF 20% 63V	
2714	482212440248	10µF 20% 63V	
2715	482212480195	470µF 20% 10V	
2716	482212480195	470µF 20% 10V	
2717	482212233177	10nF 20% 50V	Autoreverse
2717	482212613188	15nF 5% 63V	Non-autoreverse
2718	482212233177	10nF 20% 50V	Autoreverse
2718	482212613188	15nF 5% 63V	Non-autoreverse
2719	482212612105	33nF 5% 50V	
2720	482212612105	33nF 5% 50V	
2721	532212231866	6,8nF 10% 63V	not for Ferro
2722	532212231866	6,8nF 10% 63V	not for Ferro
2723	482212613188	15nF 5% 63V	
2724	482212613188	15nF 5% 63V	
2725	532212610223	4,7nF 10% 63V	
2726	532212610223	4,7nF 10% 63V	
2727	532212234099	470pF 10% 63V	Autoreverse
2727	532212231647	1nF 10% 63V	Non-autoreverse
2728	532212234099	470pF 10% 63V	Autoreverse
2728	532212231647	1nF 10% 63V	Non-autoreverse
2729	532212232654	22nF 10% 63V	
2730	532212232654	22nF 10% 63V	
2733	532212234099	470pF 10% 63V	
2734	532212234099	470pF 10% 63V	
2735	482212614585	100nF 10% 50V	
2737	482212614585	100nF 10% 50V	
2738	482212614585	100nF 10% 50V	
2741	482212611585	22nF +80/-20% 25V	
2742	532212232654	22nF 10% 63V	
2743	532212232654	22nF 10% 63V	
2744	482212614585	100nF 10% 50V	
2760	482212614585	100nF 10% 50V	
2761	482212480144	220µF 20% 25V	
2762	482212440769	4,7µF 20% 100V	
2763	482212440433	47µF 20% 25V	
2765	482212440433	47µF 20% 25V	
2769	532212234099	470pF 10% 63V	
2770	532212234099	470pF 10% 63V	
2780	482212481151	22µF 20% 50V	
2781	482212233177	10nF 20% 50V	
2782	532212610223	4,7nF 10% 63V	
2784	482212151305	15nF 10% 50V	
2785	482212421913	1µF 20% 63V	
2786	532212232531	100pF 5% 50V	
2787	482212612105	33nF 5% 50V	

RESISTORS

3601	482211711449	2k2 1% 0,1W	
3602	482205120273	27k 5% 0,1W	
3603	482211711449	2k2 1% 0,1W	
3604	482211711148	56k 1% 0,1W	
3605	482211711449	2k2 1% 0,1W	
3606	482205120124	120k 5% 0,1W	
3607	482211652256	2k2 5% 0,5W	
3608	482205120273	27k 5% 0,1W	
3609	482211652256	2k2 5% 0,5W	
3610	482205120124	120k 5% 0,1W	
3611	482211652256	2k2 5% 0,5W	
3612	482211711148	56k 1% 0,1W	
3613	482205120273	27k 5% 0,1W	
3614	482205120273	27k 5% 0,1W	
3616	482211710833	10k 1% 0,1W	Autoreverse
3616	482205110102	1k 2% 0,25W	Non-autoreverse
3618	482211711507	6k8 1% 0,1W	Autoreverse
3620	482210011141	Trim. 10k 30%	Autoreverse
3622	482210011141	Trim. 10k 30%	Non-autoreverse
3623	482211710837	100k 1% 0,1W	
3624	482211710837	100k 1% 0,1W	
3625	482205110102	1k 2% 0,25W	
3626	482205110102	1k 2% 0,25W	
3628	482211710837	100k 1% 0,1W	
3630	482205120471	470R 5% 0,1W	
3672	482205120472	4k7 5% 0,1W	Autoreverse
3674	482211652283	4k7 5% 0,5W	
3676	482211710834	47k 1% 0,1W	Autoreverse
3678	482211710834	47k 1% 0,1W	
3679	482211710834	47k 1% 0,1W	
3680	482211710834	47k 1% 0,1W	
3685	482211652234	100k 5% 0,5W	
3686	482211710837	100k 1% 0,1W	
3687	482211711503	220R 1% 0,1W	not for Ferro
3688	482211710361	680R 1% 0,1W	Autoreverse
3701	482211711503	220R 1% 0,1W	
3702	482211711503	220R 1% 0,1W	
3703	482211711503	220R 1% 0,1W	
3704	482211711503	220R 1% 0,1W	
3705	482211711503	220R 1% 0,1W	
3706	482211711503	220R 1% 0,1W	
3707	482205120101	100R 5% 0,1W	
3708	482205120101	100R 5% 0,1W	
3709	482205120109	10R 5% 0,1W	
3710	482205120109	10R 5% 0,1W	
3711	482205120154	150k 5% 0,1W	
3712	482205120154	150k 5% 0,1W	
3713	482205120109	10R 5% 0,1W	
3714	482205120109	10R 5% 0,1W	
3715	482205120182	1k8 5% 0,1W	
3716	482205120182	1k8 5% 0,1W	
3717	482211711449	2k2 1% 0,1W	
3718	482211711449	2k2 1% 0,1W	
3719	482211711383	12k 1% 0,1W	
3720	482211711383	12k 1% 0,1W	
3721	482205120392	3k9 5% 0,1W	
3722	482205120392	3k9 5% 0,1W	
3723	482211683933	15k 1% 0,1W	Autoreverse
3723	482211710965	18k 1% 0,1W	Non-autoreverse
3724	482211683933	15k 1% 0,1W	Autoreverse
3724	482211710965	18k 1% 0,1W	Non-autoreverse
3725	482205120109	10R 5% 0,1W	not for Ferro
3726	482205120109	10R 5% 0,1W	not for Ferro
3727	482205120562	5k6 5% 0,1W	Autoreverse
3727	482211711507	6k8 1% 0,1W	Non-autoreverse
3728	482205120562	5k6 5% 0,1W	Autoreverse
3728	482211711507	6k8 1% 0,1W	Non-autoreverse
3729	482205120332	3k3 5% 0,1W	Autoreverse
3729	482205120472	4k7 5% 0,1W	Non-autoreverse
3730	482205120332	3k3 5% 0,1W	Autoreverse
3730	482205120472	4k7 5% 0,1W	Non-autoreverse
3731	482205120822	8k2 5% 0,1W	
3732	482205120822	8k2 5% 0,1W	
3733	482205120122	1k2 5% 0,1W	
3734	482205120122	1k2 5% 0,1W	
3735	482205120223	22k 5% 0,1W	
3736	482205120223	22k 5% 0,1W	
3741	482211711449	2k2 1% 0,1W	
3742	482211711449	2k2 1% 0,1W	
3743	482211711139	1k5 1% 0,1W	Autoreverse
3743	482211711449	2k2 1% 0,1W	Non-autoreverse
3744	482211711139	1k5 1% 0,1W	Autoreverse
3744	482211711449	2k2 1% 0,1W	Non-autoreverse
3745	482205120332	3k3 5% 0,1W	Autoreverse
3745	482205120562	5k6 5% 0,1W	Non-autoreverse
3746	482205120332	3k3 5% 0,1W	Autoreverse
3746	482205120562	5k6 5% 0,1W	Non-autoreverse
3748	482211711449	2k2 1% 0,1W	
3749	482211710834	47k 1% 0,1W	
3751	482211710833	10k 1% 0,1W	
3752	482211710837	100k 1% 0,1W	
3753	482211710837	100k 1% 0,1W	
3754	482205120105	1M 5% 0,1W	Autoreverse
3754	482205120479	47R 5% 0,1W	Non-autoreverse
3755	482205120105	1M 5% 0,1W	Autoreverse
3755	482205120479	47R 5% 0,1W	Non-autoreverse
3756	482211713579	220k 1% 0,1W	
3757	482211713579	220k 1% 0,1W	
3758	482211710833	10k 1% 0,1W	
3759	482211710833	10k 1% 0,1W	
3760	482205120121	120R 5% 0,1W	
3761	482205021003	10k 1% 0,6W	
3762	482211711454	820R 1% 0,1W	
3763	482205120154	150k 5% 0,1W	
3764	482211683872	220R 5% 0,5W	
3765	482205120393	39k 5% 0,1W	
3766	482205120475	4M7 5% 0,1W	
3767	482205120475	4M7 5% 0,1W	
3768	482211710833	10k 1% 0,1W	
3769	482211711383	12k 1% 0,1W	Autoreverse
3769	482205120822	8k2 5% 0,1W	Non-autoreverse
3770	482211711139	1k5 1% 0,1W	
3771	482205120122	1k2 5% 0,1W	
3772	482211711507	6k8 1% 0,1W	Autoreverse
3772	482205120562	5k6 5% 0,1W	Non-autoreverse
3773	482210012227	Trimmer 4k7 30% 0,1W	
3774	482211683933	15k 1% 0,1W	Autoreverse
3774	482205120822	8k2 5% 0,1W	Non-autoreverse
3775	482205120478	4R7 5% 0,1W	
3776	482211711507	6k8 1% 0,1W	
3777	482211710353	150R 1% 0,1W	
3778	482205210688	⚠ 6R8 5% 0,33W	
3779	482205120334	330k 5% 0,1W	
3780	482205120105	1M 5% 0,1W	
3781	482205120475	4M7 5% 0,1W	
3784	482205110102	1k 2% 0,25W	
3786	482205120223	22k 5% 0,1W	
3787	482205120105	1M 5% 0,1W	
3788	482205120105	1M 5% 0,1W	
3789	482211710834	47k 1% 0,1W	
4701	482205120008	0R Jumper 0805	
4702	482205120008	0R Jumper 0805	
4703	482205120008	0R Jumper 0805	
4704	482205120008	0R Jumper 0805	
4705	482205120008	0R Jumper 0805	

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ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

RESISTORS

4706	482205120008	0R Jumper 0805	
4707	482205120008	0R Jumper 0805	
4708	482205120008	0R Jumper 0805	
4709	482205120008	0R Jumper 0805	
4710	482205120008	0R Jumper 0805	
4711	482205120008	0R Jumper 0805	
4712	482205120008	0R Jumper 0805	
4713	482205120008	0R Jumper 0805	
4714	482205120008	0R Jumper 0805	
4715	482205120008	0R Jumper 0805	
4716	482205120008	0R Jumper 0805	
4717	482205120008	0R Jumper 0805	
4718	482205120008	0R Jumper 0805	
4719	482205120008	0R Jumper 0805	
4720	482205120008	0R Jumper 0805	
4721	482205120008	0R Jumper 0805	
4722	482205120008	0R Jumper 0805	
4723	482205120008	0R Jumper 0805	
4724	482205120008	0R Jumper 0805	
4725	482205120008	0R Jumper 0805	
4726	482205120008	0R Jumper 0805	
4727	482205120008	0R Jumper 0805	
4728	482205120008	0R Jumper 0805	
4729	482205120008	0R Jumper 0805	
4730	482205120008	0R Jumper 0805	
4731	482205120008	0R Jumper 0805	
4732	482205120008	0R Jumper 0805	
4733	482205120008	0R Jumper 0805	
4734	482205120008	0R Jumper 0805	
4735	482205120008	0R Jumper 0805	
4736	482205120008	0R Jumper 0805	
4737	482205120008	0R Jumper 0805	
4738	482205120008	0R Jumper 0805	
4739	482205120008	0R Jumper 0805	
4740	482205120008	0R Jumper 0805	
4741	482205120008	0R Jumper 0805	
4742	482205120008	0R Jumper 0805	
4744	482205120008	0R Jumper 0805	
4745	482205120008	0R Jumper 0805	
4746	482205120008	0R Jumper 0805	
4748	482205120008	0R Jumper 0805	
4785	482205120008	0R Jumper 0805	only for Ferro
4790	482205120008	0R Jumper 0805	
4794	482205120008	0R Jumper 0805	
4795	482205120008	0R Jumper 0805	

COILS & FILTERS

5701	482215711477	Coil 2,2µH 5%
5703	482215620946	Osc Coil 100kHz

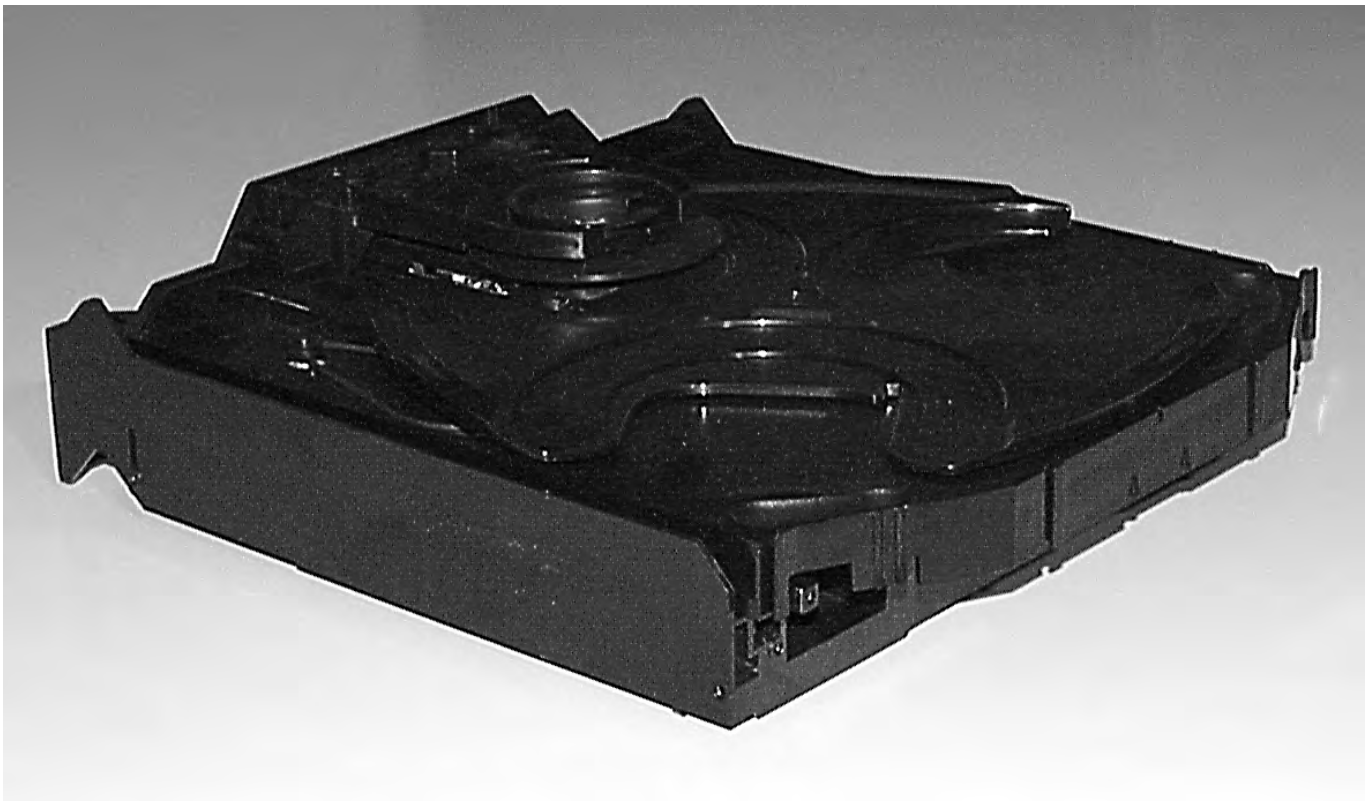
DIODES

6611	482213031878	1N4003G
6612	482213031878	1N4003G
6614	482213030621	1N4148 Autoreverse
6770	482213030621	1N4148
6771	482213030621	1N4148
6772	482213030621	1N4148
6773	482213030621	1N4148
6774	482213030621	1N4148
6775	482213030621	1N4148
6776	482213030621	1N4148
6777	482213034382	BZX79-F8V2
6778	482213030621	1N4148
6782	482213030621	1N4148
6785	482213030621	1N4148
6786	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT	
7612	532213060845	BC807-25	
7613	532213060845	BC807-25	
7614	532213060845	BC807-25	
7616	482213060373	BC857B	Autoreverse
7618	482213060511	BC847B	
7619	482213060511	BC847B	
7620	482213060511	BC847B	
7622	482213060511	BC847B	Autoreverse
7623	482213060511	BC847B	
7624	482213060511	BC847B	
7710	482220932919	HEF4952BT	
7720	932214000668	AN7323S	
7730	482220932919	HEF4952BT	
7740	482220932919	HEF4952BT	
7780	482213060511	BC847B	
7781	482213042804	BC817-25	
7782	482213044568	BC557B	
7783	482213060511	BC847B	
7784	482213060373	BC857B	
7786	482213063494	J111	
7787	482213060511	BC847B	
7791	482213060511	BC847B	
7792	482213060511	BC847B	

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



3CDC-LC

(3 Disc Carrousel Changer)

Layout stage .2

TABLE OF CONTENTS

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

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

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

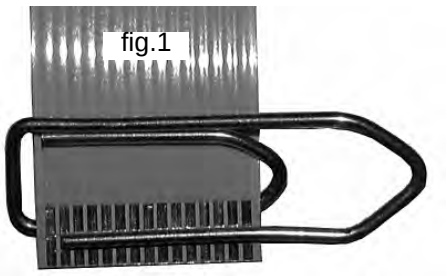
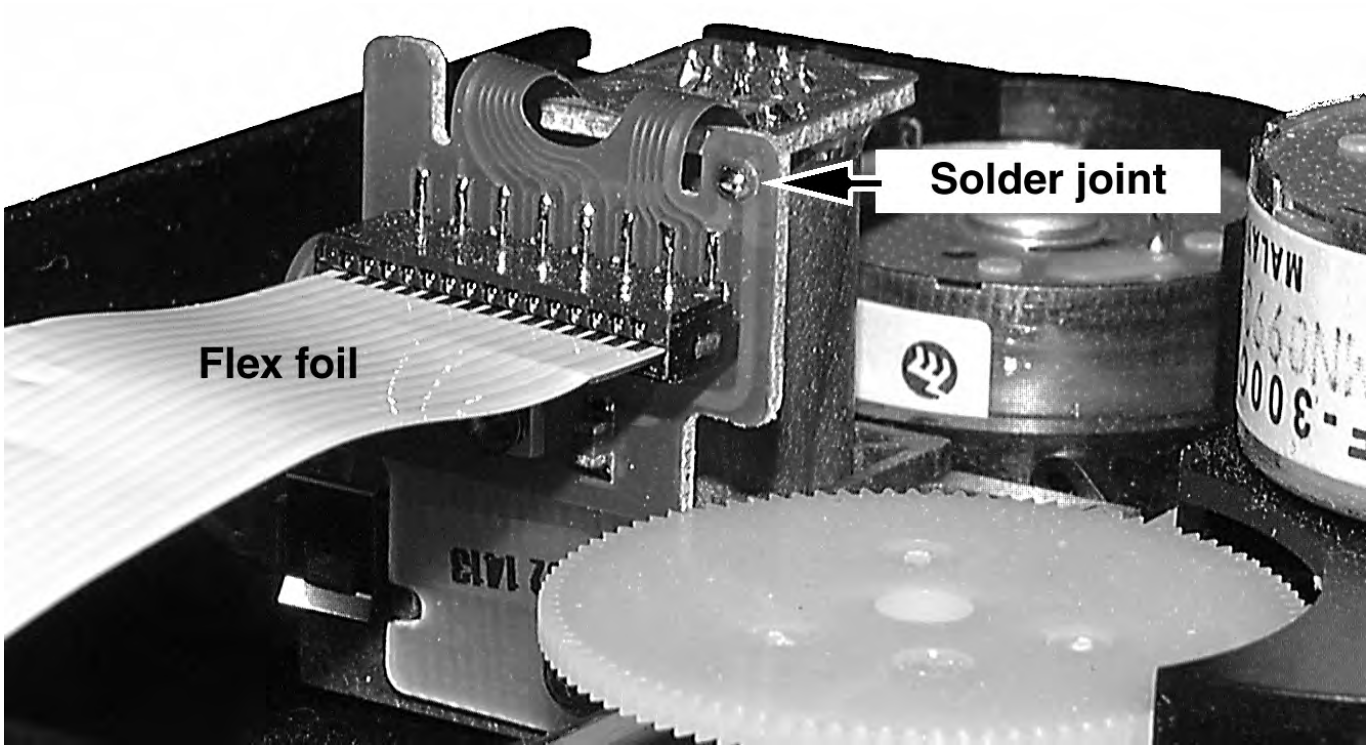
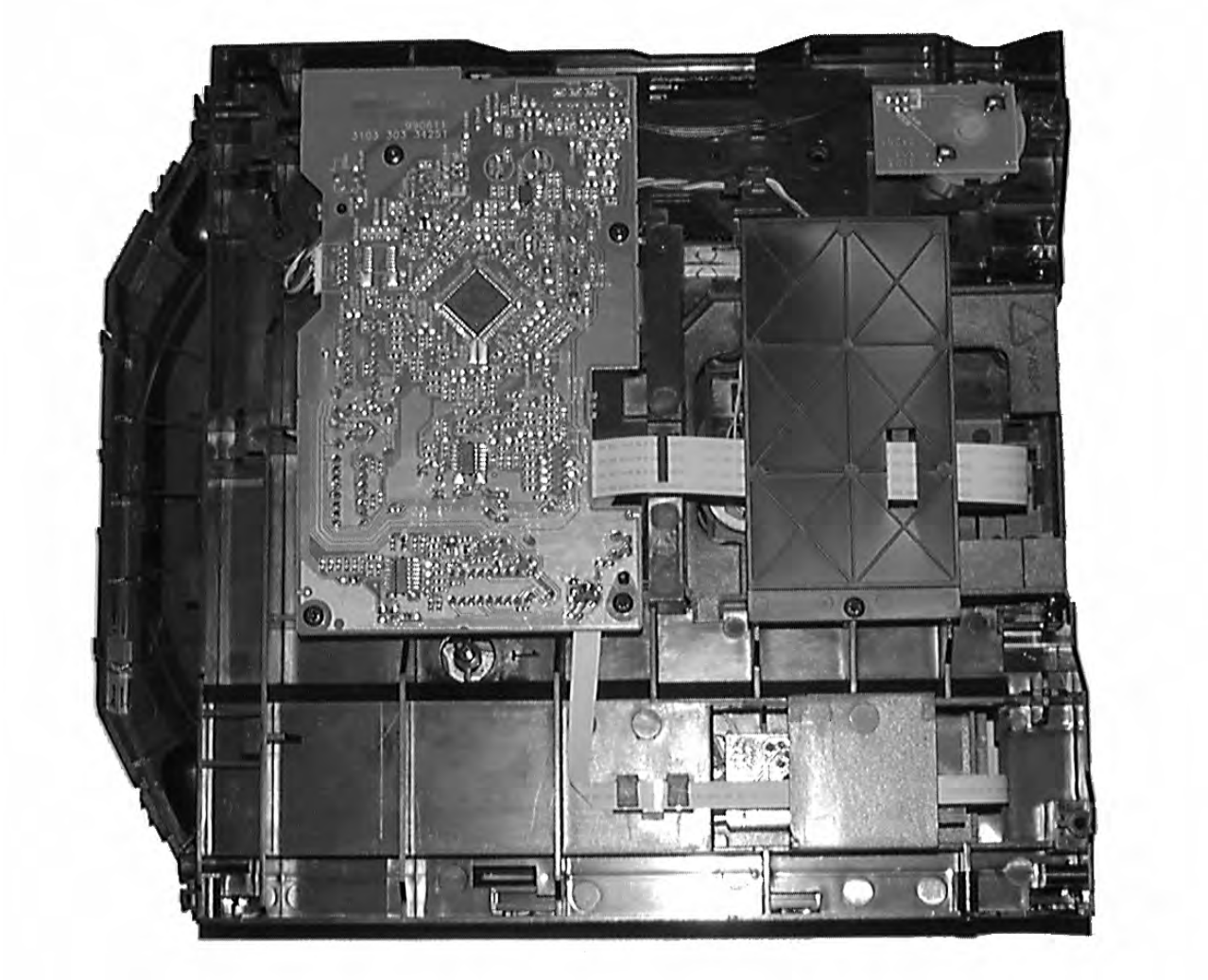


fig.1

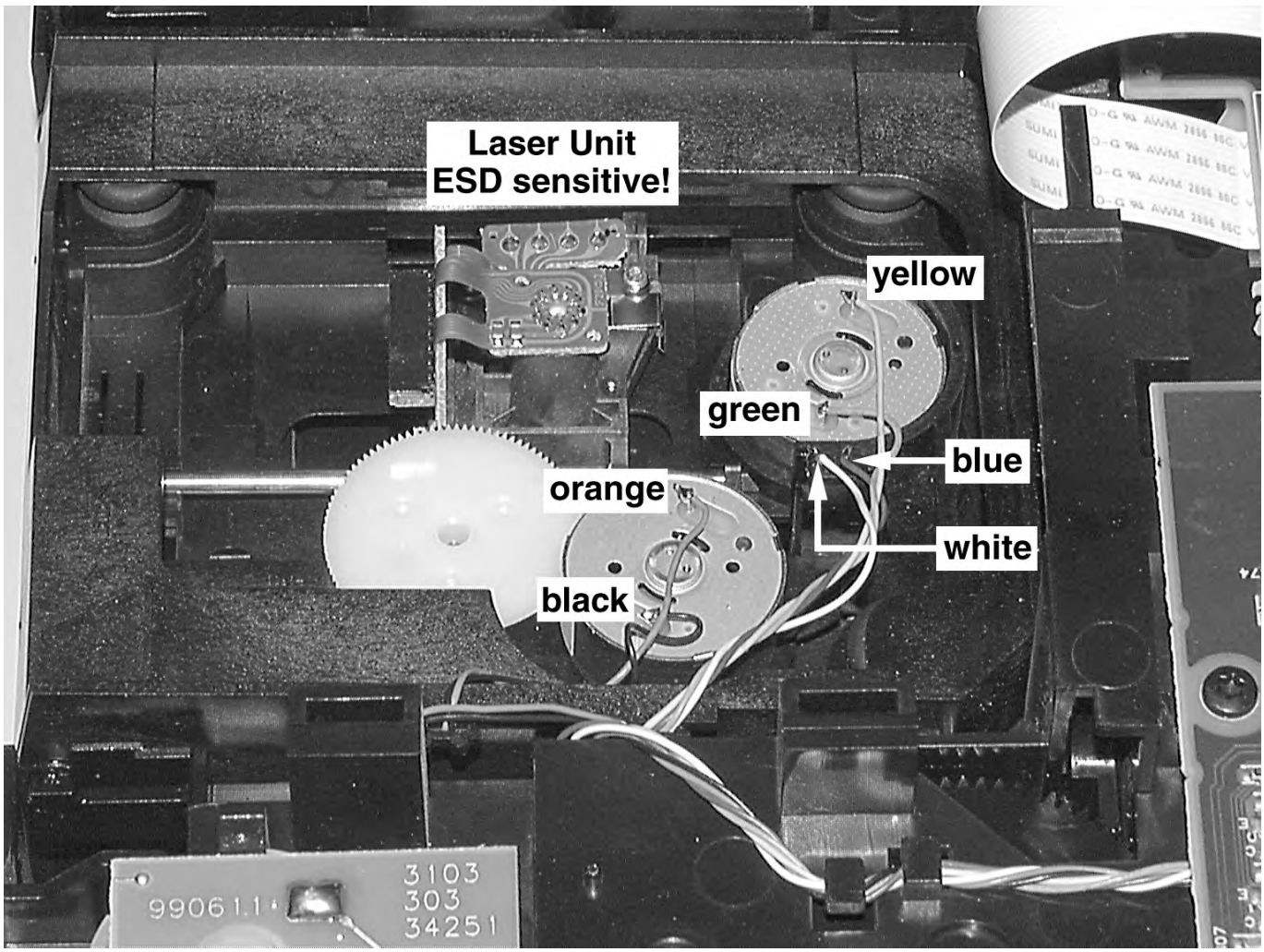
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



Service Position

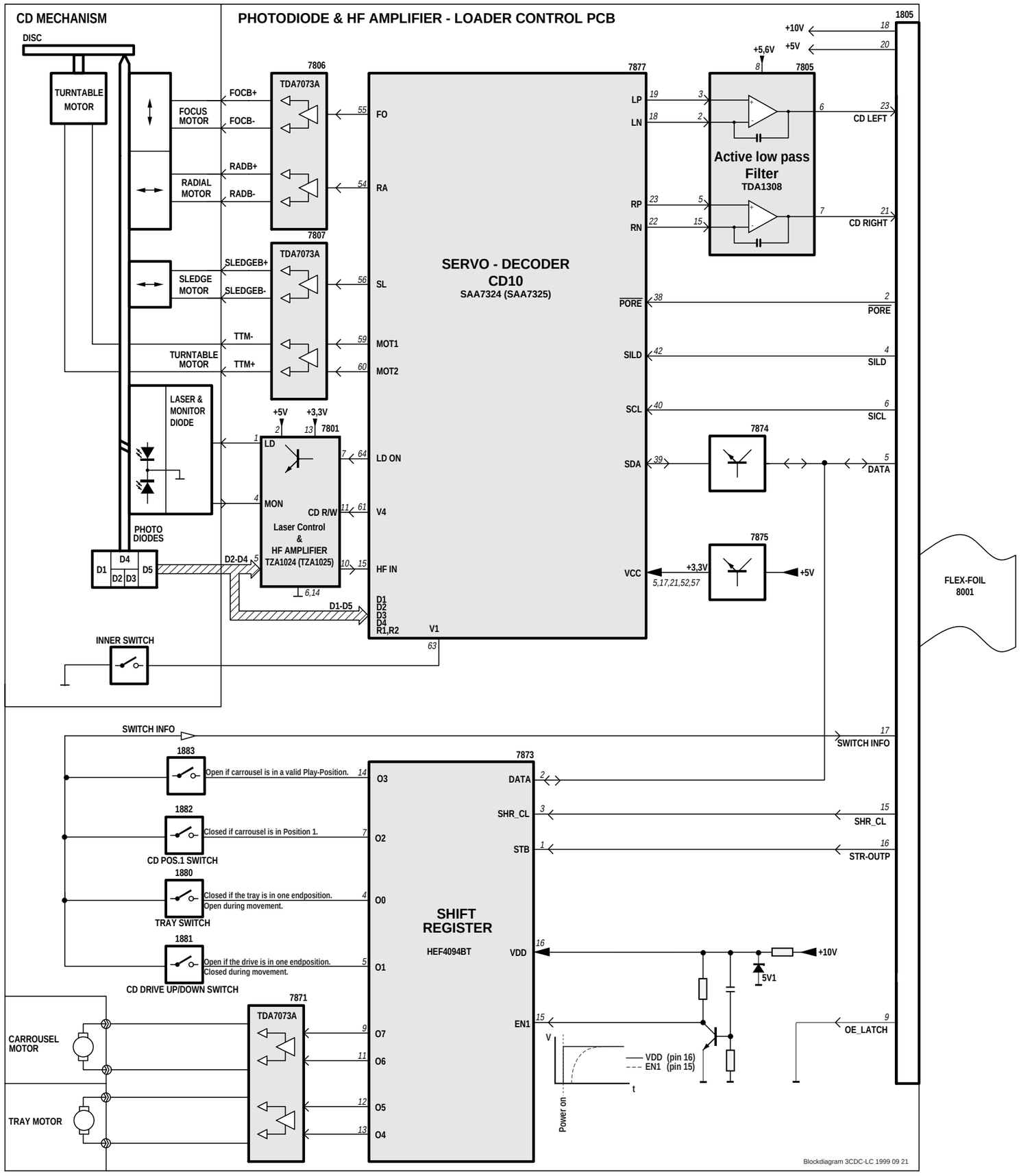


Wiring


Laser Unit
ESD sensitive!
yellow
green
blue
orange
white
black
3103
303
34251

10-5

Blockdiagram



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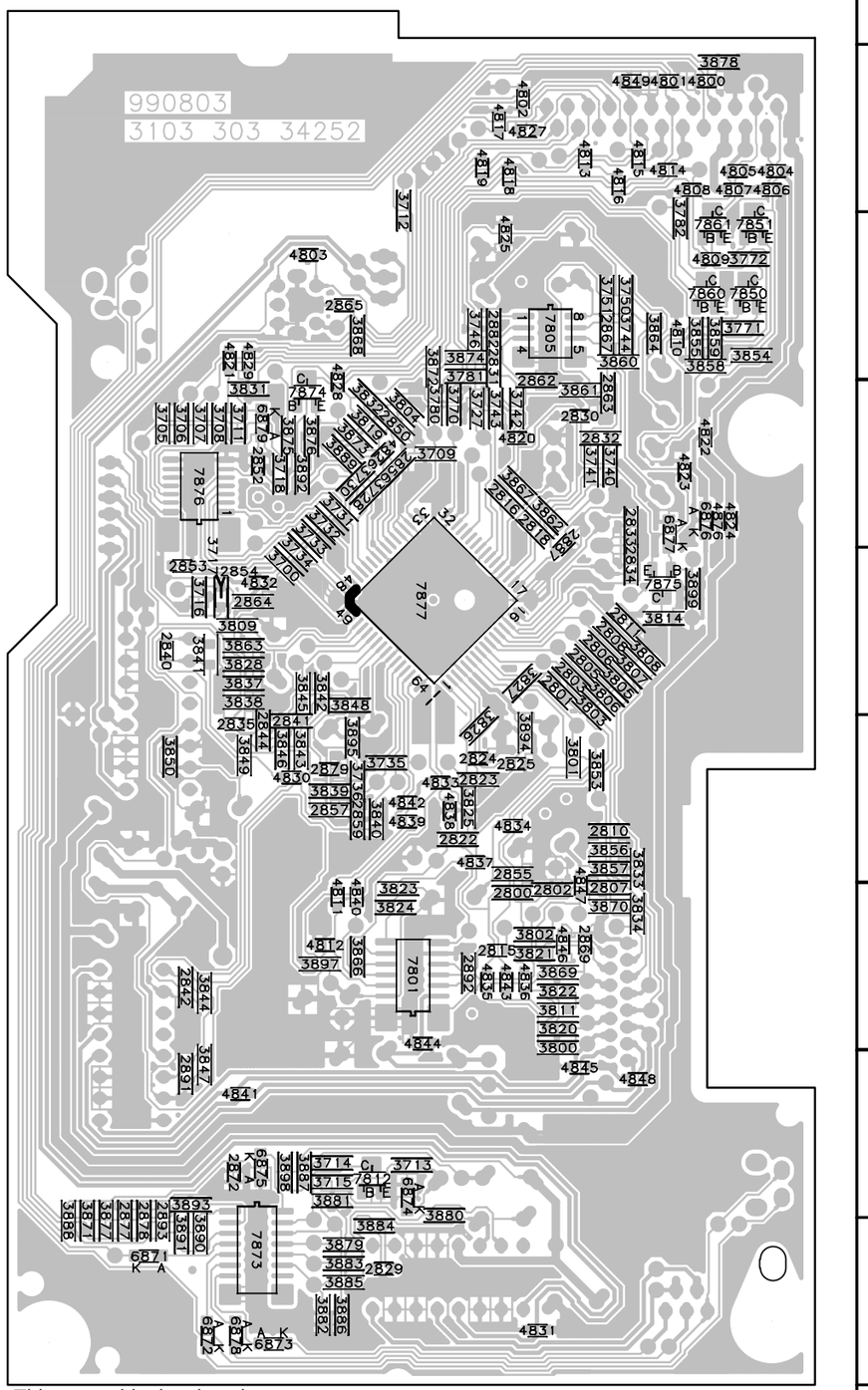
3CDC-LC Mainboard Copperside view

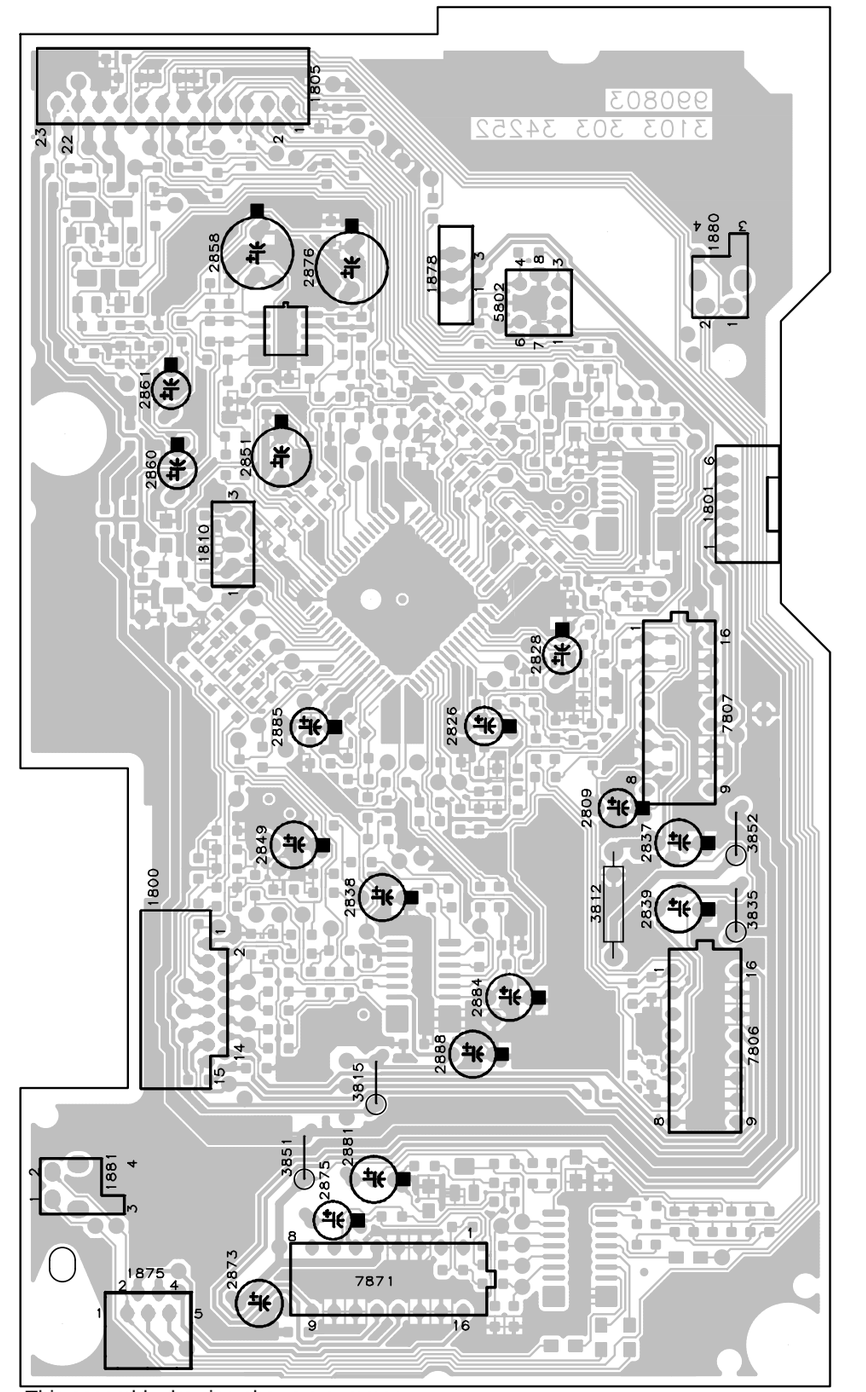


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Mapping

Copperside							Componentside	
2800	B6	3751	B2	3889	D3		1800	A6
2801	B4	3770	C3	3890	D8		1801	E3
2802	B6	3771	A2	3891	D8		1805	B1
2803	B4	3772	A2	3892	D3		1810	B3
2805	B4	3780	C3	3893	D7		1875	A8
2806	B4	3781	C2	3894	B5		1878	C2
2807	B6	3782	A2	3895	C5		1880	E2
2808	B4	3800	B6	3897	D6		1881	A7
2810	B5	3801	B5	3898	D7		2809	D5
2811	B4	3802	B6	3899	A4		2826	C5
2815	C6	3803	B4	4800	A1		2828	D4
2816	C3	3804	C3	4801	B1		2837	D5
2818	B3	3805	B4	4802	B1		2838	C6
2822	C5	3806	B4	4803	D2		2839	D6
2823	C5	3807	B4	4804	A1		2849	B5
2824	C5	3808	B4	4805	A1		2851	B3
2825	B5	3809	D4	4806	A1		2858	B2
2829	C8	3811	B6	4807	A1		2860	A3
2830	B3	3814	B4	4808	A1		2861	A3
2831	C2	3819	C3	4809	A2		2873	B8
2832	B3	3820	B6	4810	B2		2875	B7
2833	B3	3821	B6	4811	D6		2876	B2
2834	B4	3822	B6	4812	D6		2881	C7
2835	D5	3823	C6	4813	B1		2884	C6
2840	E4	3824	C6	4814	B1		2885	B5
2841	D5	3825	C5	4815	B1		2888	C7
2842	D6	3826	C5	4816	B1		3812	D6
2844	D5	3827	B4	4817	C1		3815	C7
2850	C3	3828	D4	4818	C1		3835	E6
2852	D3	3831	D3	4819	C1		3851	B7
2853	D4	3832	C3	4820	B3		3852	E5
2854	D4	3833	B5	4821	D2		5802	D2
2855	B5	3834	B6	4822	A3		7806	E6
2856	C3	3837	D4	4823	A3		7807	E5
2857	D5	3838	D4	4824	A3		7871	C8
2859	C5	3839	D5	4825	C2			
2862	B3	3840	C5	4826	C3			
2863	B3	3841	D4	4827	B1			
2864	D4	3842	D4	4828	D3			
2865	C2	3843	D5	4829	D2			
2867	B2	3844	D6	4830	D5			
2869	B6	3845	D4	4831	B8			
2872	D7	3846	D5	4832	D4			
2877	E8	3847	D7	4833	C5			
2878	E8	3848	C4	4834	B5			
2879	D5	3849	D5	4835	C6			
2882	C2	3850	E5	4836	B6			
2887	B3	3853	B5	4837	C5			
2891	D7	3854	A2	4838	C5			
2892	C6	3855	A2	4839	C5			
2893	E8	3856	B5	4840	C6			
3700	D4	3857	B5	4841	D7			
3705	E3	3858	A2	4842	C5			
3706	D3	3859	A2	4843	C6			
3707	D3	3860	B2	4844	C6			
3708	D3	3861	B3	4845	B7			
3709	C3	3862	B3	4846	B6			
3711	D3	3863	D4	4847	B6			
3712	C1	3864	B2	4848	B7			
3713	C7	3866	C6	4849	B1			
3714	D7	3867	B3	4876	A3			
3715	D7	3868	C2	6871	E8			
3716	D4	3869	B6	6872	D8			
3717	D4	3870	B6	6873	D8			
3718	D3	3871	E8	6874	C7			
3727	C3	3872	C2	6875	D7			
3728	C3	3873	C3	6876	A3			
3730	C3	3874	C2	6877	B3			
3731	D3	3875	D3	6878	D8			
3732	D3	3876	D3	6879	D3			
3733	D3	3877	E8	7801	C6			
3734	D4	3878	A1	7805	B2			
3735	C5	3879	C8	7812	C7			
3736	C5	3880	C7	7850	A2			
3740	B3	3881	D7	7851	A2			
3741	B3	3882	D8	7860	A2			
3742	B3	3883	C8	7861	A2			
3743	C3	3884	C8	7873	D8			
3744	B2	3885	C8	7874	D3			
3746	C2	3886	D8	7875	B4			
3750	B2	3887	D7	7876	D3			
		3888	E8	7877	C4			

3CDC-LC Mainboard Componentside view



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

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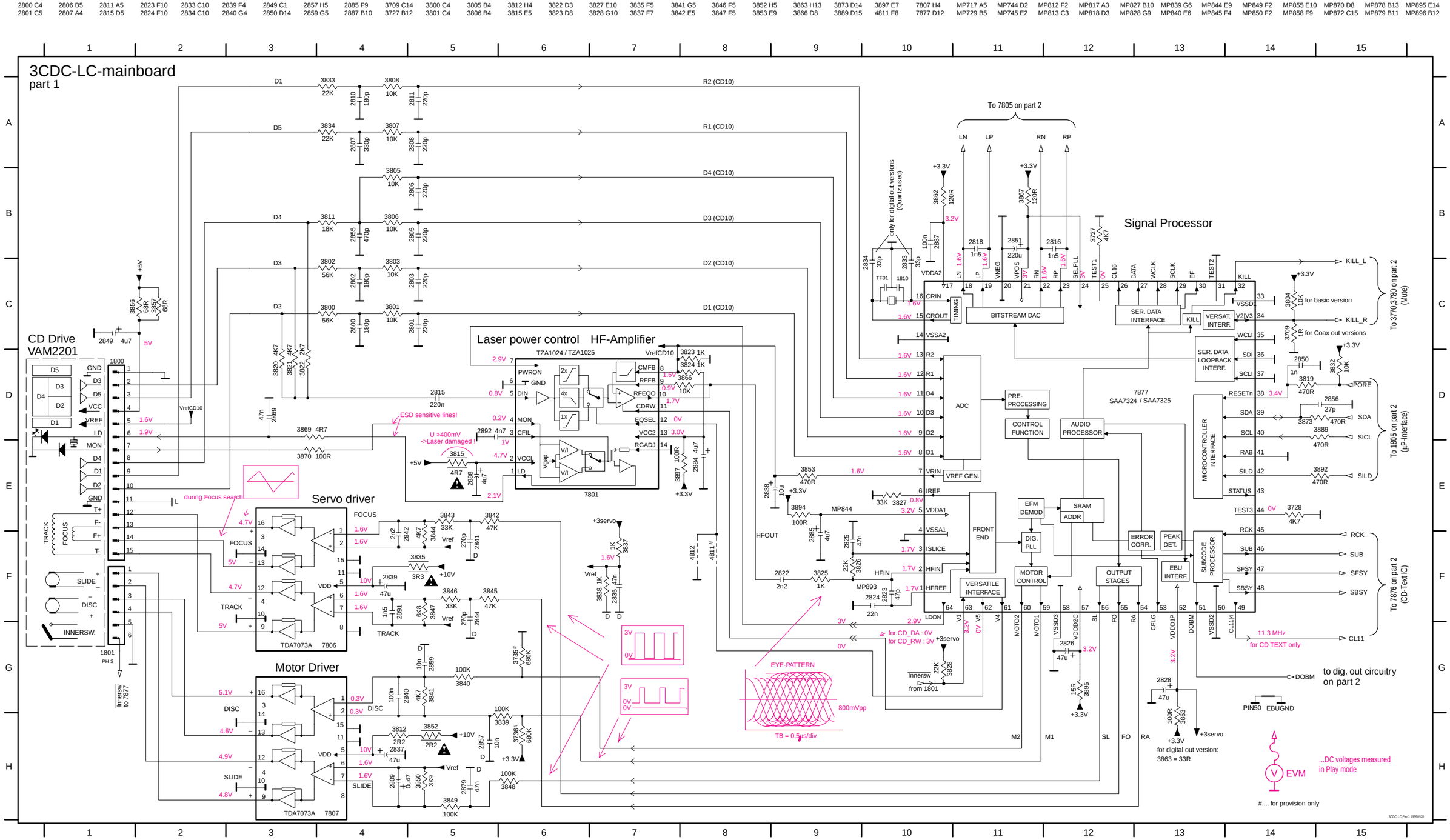
1800 D1	2802 C4	2808 A5	2816 B12	2825 F9	2835 F7	2841 F5	2851 B11	2869 D3	2888 E5	3728 E14	3802 C4	3807 A4	3819 D14	3824 D8	3832 D15	3838 F7	3843 E5	3848 H6	3856 C1	3867 B11	3892 E15	4812 F8	MP713 C5	MP730 B5	MP800 E3	MP814 F2	MP819 G9	MP829 B3	MP841 F6	MP846 G1	MP851 E2	MP859 F10	MP873 H4	MP883 E5
1801 G1	2803 C5	2809 H4	2818 B11	2826 G12	2837 H4	2842 F5	2855 B4	2879 H5	2891 F4	3735 G6	3803 C4	3808 A4	3820 D3	3825 F9	3833 A4	3839 H6	3844 F5	3849 H5	3857 C2	3869 D3	3894 E9	7801 E7	MP715 C5	MP731 B13	MP802 B15	MP815 C3	MP820 F8	MP837 E3	MP842 H6	MP847 G2	MP852 F2	MP860 C2	MP875 G13	MP884 E5
1810 C10	2805 B5	2810 A4	2822 F9	2828 G13	2838 E8	2844 F5	2856 D15	2884 E8	2892 D5	3736 H6	3804 C14	3811 B4	3821 D3	3826 F9	3834 A4	3840 G5	3845 F5	3850 H5	3862 B10	3870 E3	3895 G12	7806 G4	MP716 A5	MP743 D2	MP809 E10	MP816 A3	MP821 D15	MP838 G6	MP843 F6	MP848 E2	MP853 F2	MP861 E8	MP877 E4	MP893 F10
2800 C4	2806 B5	2811 A5	2823 F10	2833 C10	2839 F4	2849 C1	2857 H5	2885 F9	3709 C14	3800 C4	3805 B4	3812 H4	3822 D3	3827 E10	3835 F5	3841 G5	3846 F5	3852 H5	3863 H13	3873 D14	3897 E7	7807 H4	MP717 A5	MP744 D2	MP812 F2	MP817 A3	MP827 B10	MP839 G6	MP844 E9	MP849 F2	MP855 E10	MP870 D8	MP878 B13	MP895 E14
2801 C5	2807 A4	2815 D5	2824 F10	2834 C10	2840 G4	2850 D14	2859 G5	2887 B10	3727 B12	3801 C4	3806 B4	3815 E5	3823 D8	3828 G10	3837 F7	3842 E5	3847 F5	3853 E9	3866 D8	3889 D15	4811 F8	7877 D12	MP729 B5	MP745 E2	MP813 C3	MP818 D3	MP828 G9	MP840 E6	MP845 F4	MP850 F2	MP858 F9	MP872 C15	MP879 B11	MP896 B12



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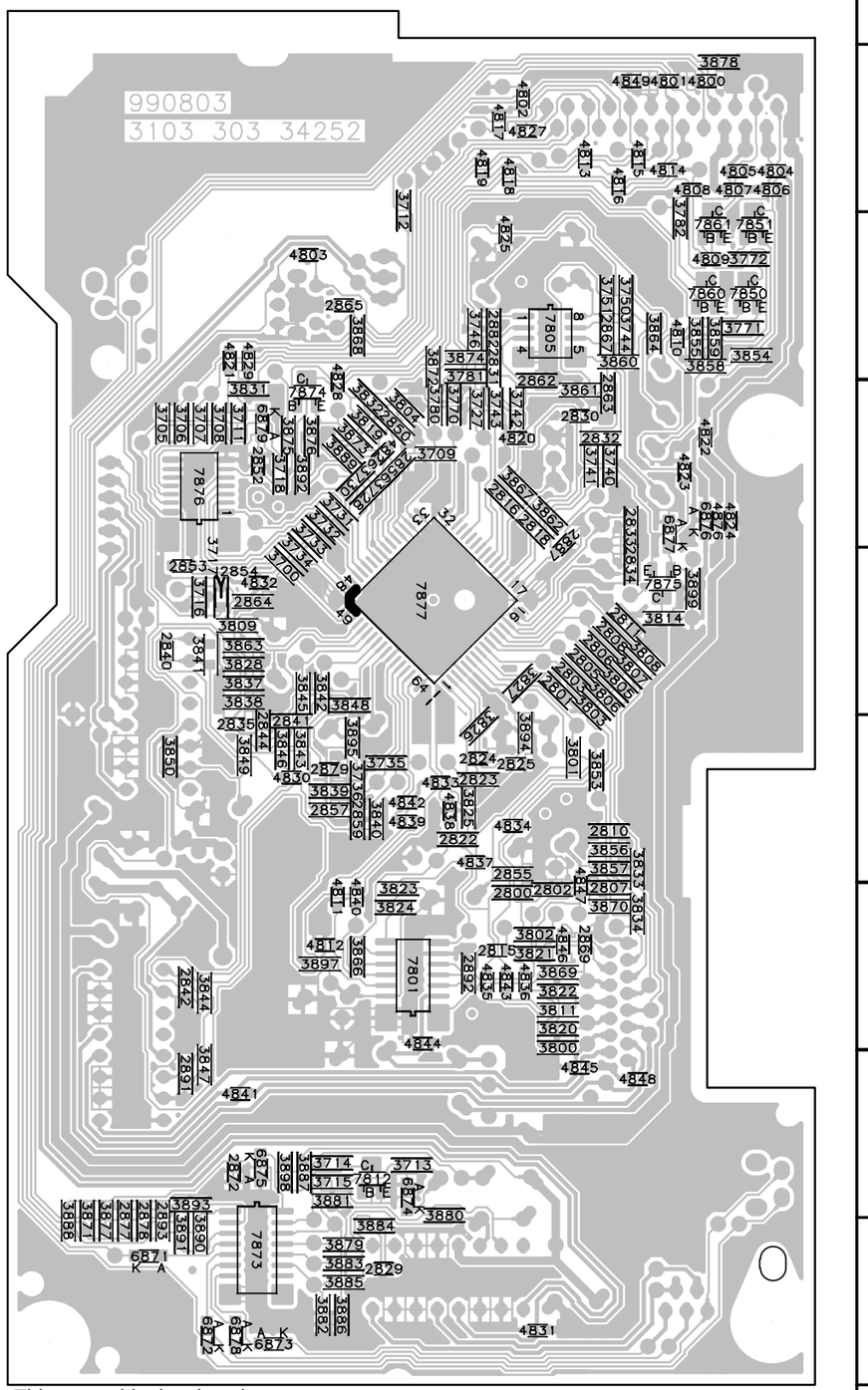
3CDC-LC Mainboard Copperside view



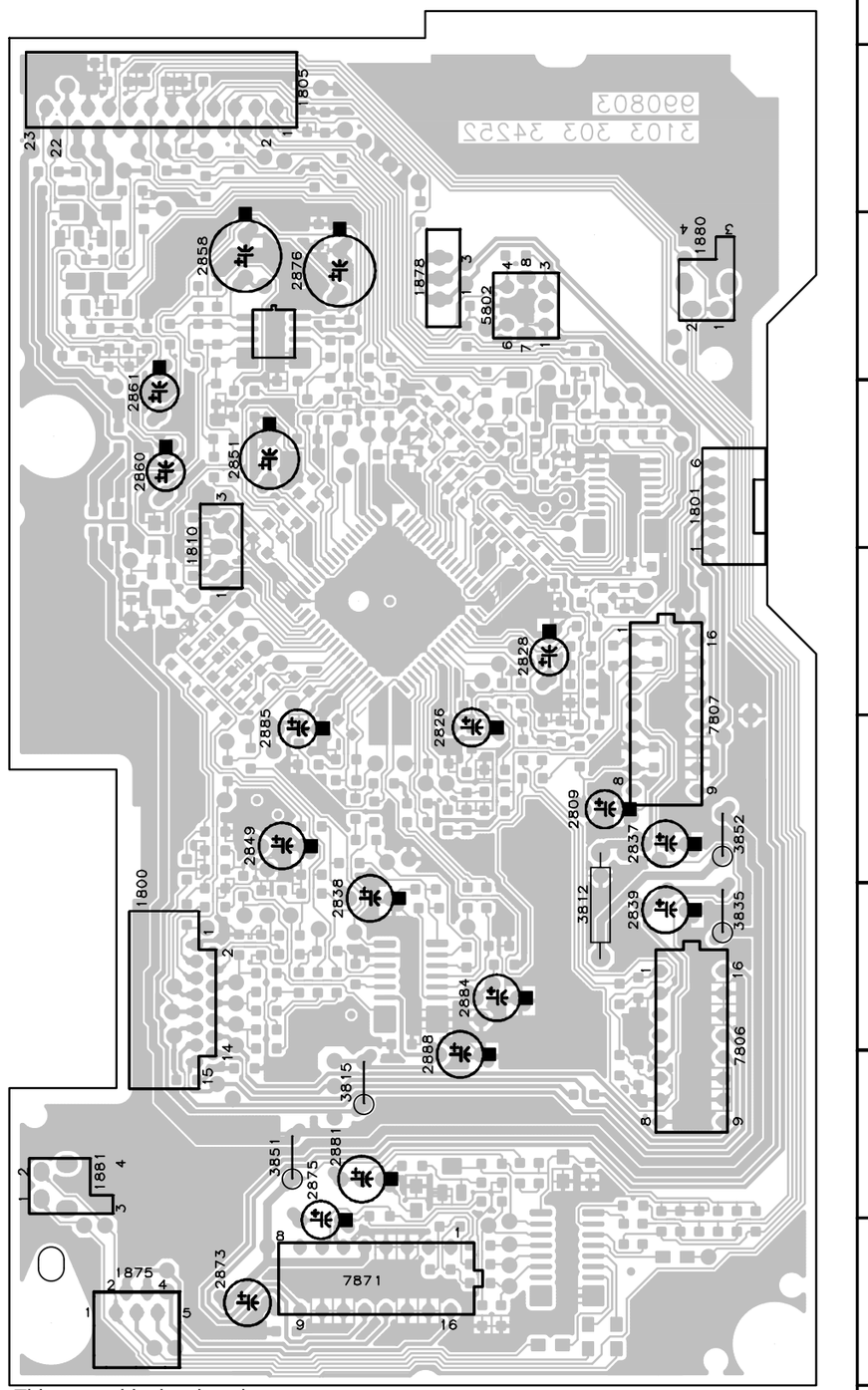
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC LC Mainboard Layout stage 2 990920

Mapping

Copperside						Componentside	
2800	B6	3751	B2	3889	D3	1800	A6
2801	B4	3770	C3	3890	D8	1801	E3
2802	B6	3771	A2	3891	D8	1805	B1
2803	B4	3772	A2	3892	D3	1810	B3
2805	B4	3780	C3	3893	D7	1875	A8
2806	B4	3781	C2	3894	B5	1878	C2
2807	B6	3782	A2	3895	C5	1880	E2
2808	B4	3800	B6	3897	D6	2809	D5
2810	B5	3801	B5	3898	D7	2826	C5
2811	B4	3802	B6	3899	A4	2828	D4
2815	C6	3803	B4	4800	A1	2837	D5
2816	C3	3804	C3	4801	B1	2838	C6
2818	B3	3805	B4	4802	B1	2839	D6
2822	C5	3806	B4	4803	D2	2849	B5
2823	C5	3807	B4	4804	A1	2851	B3
2824	C5	3808	B4	4805	A1	2858	B2
2825	B5	3809	D4	4806	A1	2860	A3
2829	C8	3811	B6	4807	A1	2861	A3
2830	B3	3814	B4	4808	A1	2873	B8
2831	C2	3819	C3	4809	A2	2875	B7
2832	B3	3820	B6	4810	B2	2876	B2
2833	B3	3821	B6	4811	D6	2881	C7
2834	B4	3822	B6	4812	D6	2884	C6
2835	D5	3823	C6	4813	B1	2885	B5
2840	E4	3824	C6	4814	B1	2888	C7
2841	D5	3825	C5	4815	B1	3812	D6
2842	D6	3826	C5	4816	B1	3815	C7
2844	D5	3827	B4	4817	C1	3835	E6
2850	C3	3828	D4	4818	C1	3851	B7
2852	D3	3831	D3	4819	C1	3852	E5
2853	D4	3832	C3	4820	B3	5802	D2
2854	D4	3833	B5	4821	D2	7806	E6
2855	B5	3834	B6	4822	A3	7807	E5
2856	C3	3837	D4	4823	A3	7871	C8
2857	D5	3838	D4	4824	A3		
2859	C5	3839	D5	4825	C2		
2862	B3	3840	C5	4826	C3		
2863	B3	3841	D4	4827	B1		
2864	D4	3842	D4	4828	D3		
2865	C2	3843	D5	4829	D2		
2867	B2	3844	D6	4830	D5		
2869	B6	3845	D4	4831	B8		
2872	D7	3846	D5	4832	D4		
2877	E8	3847	D7	4833	C5		
2878	E8	3848	C4	4834	B5		
2879	D5	3849	D5	4835	C6		
2882	C2	3850	E5	4836	B6		
2887	B3	3853	B5	4837	C5		
2891	D7	3854	A2	4838	C5		
2892	C6	3855	A2	4839	C5		
2893	E8	3856	B5	4840	C6		
3700	D4	3857	B5	4841	D7		
3705	E3	3858	A2	4842	C5		
3706	D3	3859	A2	4843	C6		
3707	D3	3860	B2	4844	C6		
3708	D3	3861	B3	4845	B7		
3709	C3	3862	B3	4846	B6		
3711	D3	3863	D4	4847	B6		
3712	C1	3864	B2	4848	B7		
3713	C7	3866	C6	4849	B1		
3714	D7	3867	B3	4876	A3		
3715	D7	3868	C2	6871	E8		
3716	D4	3869	B6	6872	D8		
3717	D4	3870	B6	6873	D8		
3718	D3	3871	E8	6874	C7		
3727	C3	3872	C2	6875	D7		
3728	C3	3873	C3	6876	A3		
3730	C3	3874	C2	6877	B3		
3731	D3	3875	D3	6878	D8		
3732	D3	3876	D3	6879	D3		
3733	D3	3877	E8	7801	C6		
3734	D4	3878	A1	7805	B2		
3735	C5	3879	C8	7812	C7		
3736	C5	3880	C7	7850	A2		
3740	B3	3881	D7	7851	A2		
3741	B3	3882	D8	7860	A2		
3742	B3	3883	C8	7861	A2		
3743	C3	3884	C8	7873	D8		
3744	B2	3885	C8	7874	D3		
3746	C2	3886	D8	7875	B4		
3750	B2	3887	D7	7876	D3		
		3888	E8	7877	C4		

3CDC-LC Mainboard Componentside view

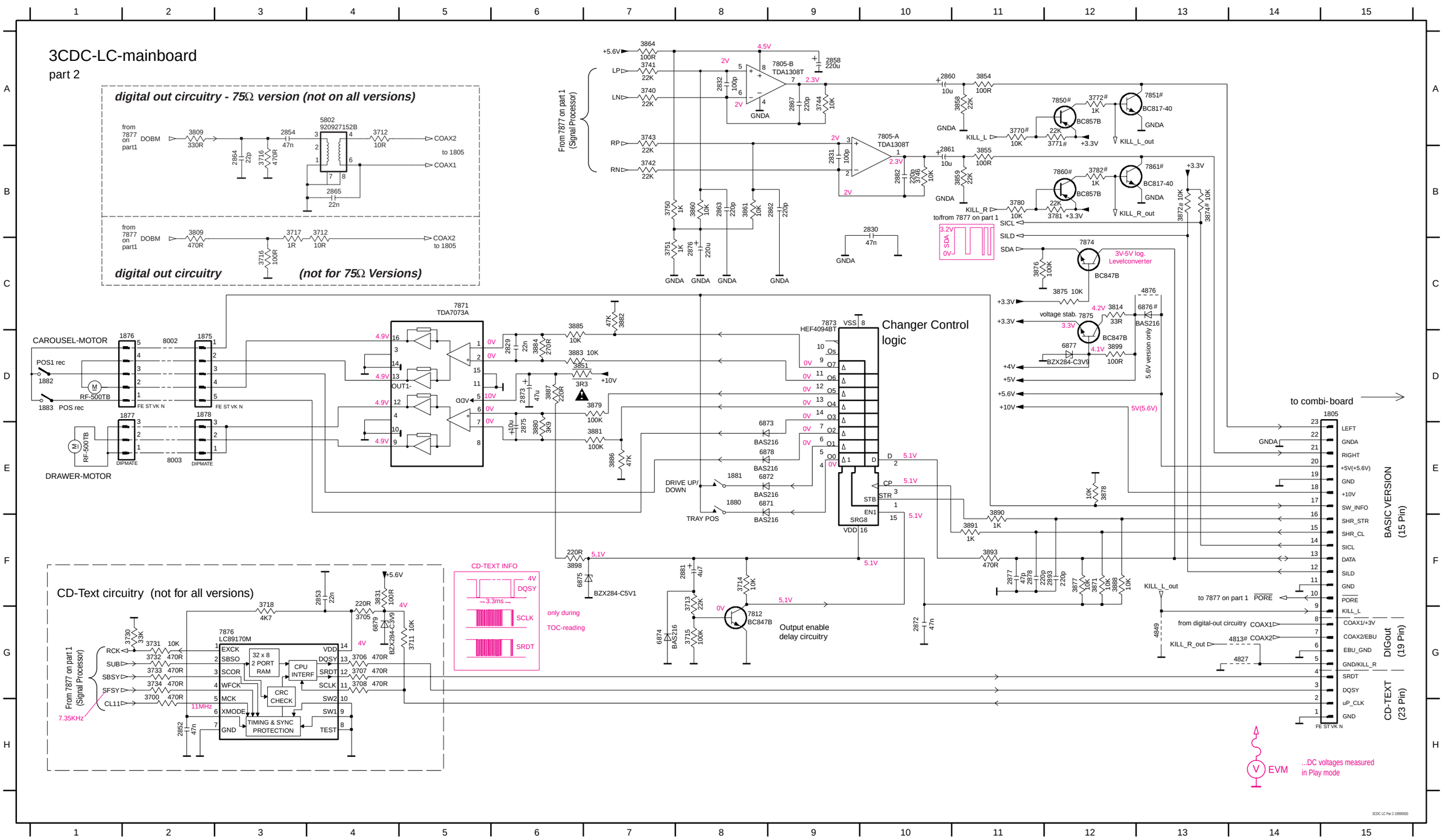


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC LC Mainboard Layout stage 2 990920

10-9

1805 D15	2830 B10	2858 A10	2865 C4	2877 F11	3705 G4	3713 F8	3730 G2	3741 A7	3751 C7	3782 B12	3855 B11	3868 C4	3877 F12	3883 D6	3890 F11	4813 G14	6872 E8	6878 E8	7851 A13	7875 C12	MP725 D8	MP803 F10	MP810 F13	MP830 A9	MP856 E14	MP867 E8	MP882 G2	MP891 B5		
1875 D2	2831 B9	2860 A10	2867 A9	2878 F11	3706 G4	3714 F8	3731 G2	3742 B7	3770 A11	3809 B2	3858 A11	3871 F12	3878 E12	3884 D6	3891 F11	4827 G14	6873 E8	6879 G4	7860 B12	7876 G3	MP726 D8	MP804 G14	MP811 F13	MP832 G9	MP857 B13	MP868 F8	MP886 G3	MP892 B5		
1878 D2	2832 A8	2861 B10	2872 G10	2881 F8	3707 G4	3715 G8	3732 G2	3743 A7	3771 A12	3814 C12	3859 B11	3872 B13	3879 D7	3885 C6	3893 F11	4849 G13	6874 G7	7805-A A10	7861 B13	MP721 C8	MP740 H14	MP805 E13	MP822 E3	MP833 F13	MP862 G13	MP869 C12	MP887 H5	MP897 D12		
1880 E8	2852 H2	2862 B9	2873 D6	2882 B10	3708 G4	3716 B3	3733 G2	3744 A9	3772 A12	3831 F4	3860 B8	3874 B13	3880 E6	3886 E7	3898 F6	4876 C13	6875 F6	7805-B A9	7871 C5	MP722 E8	MP741 G14	MP806 F13	MP823 D3	MP834 G14	MP863 C11	MP871 D6	MP888 G5	MP898 D13		
1881 E8	2853 F4	2863 B8	2875 E6	2893 F12	3711 G5	3717 B3	3734 G2	3746 B10	3780 B11	3851 D6	3861 B8	3875 C12	3881 E7	3887 D6	3899 D12	5802 B4	6876 C13	7812 G8	7873 C9	MP723 C8	MP742 G14	MP807 F14	MP824 D4	MP835 F14	MP865 D11	MP874 D12	MP889 G5	MP899 E14		
2829 D6	2854 B3	2864 B3	2876 C8	3700 H2	3712 B4	3718 G3	3740 A7	3750 B7	3781 B12	3854 A11	3864 A7	3876 C11	3882 C7	3888 F12	4803 B4	6871 E8	6877 D12	7850 A12	7874 C12	MP724 D8	MP801 D12	MP808 E13	MP825 D4	MP854 A13	MP866 E8	MP881 G2	MP890 B3			

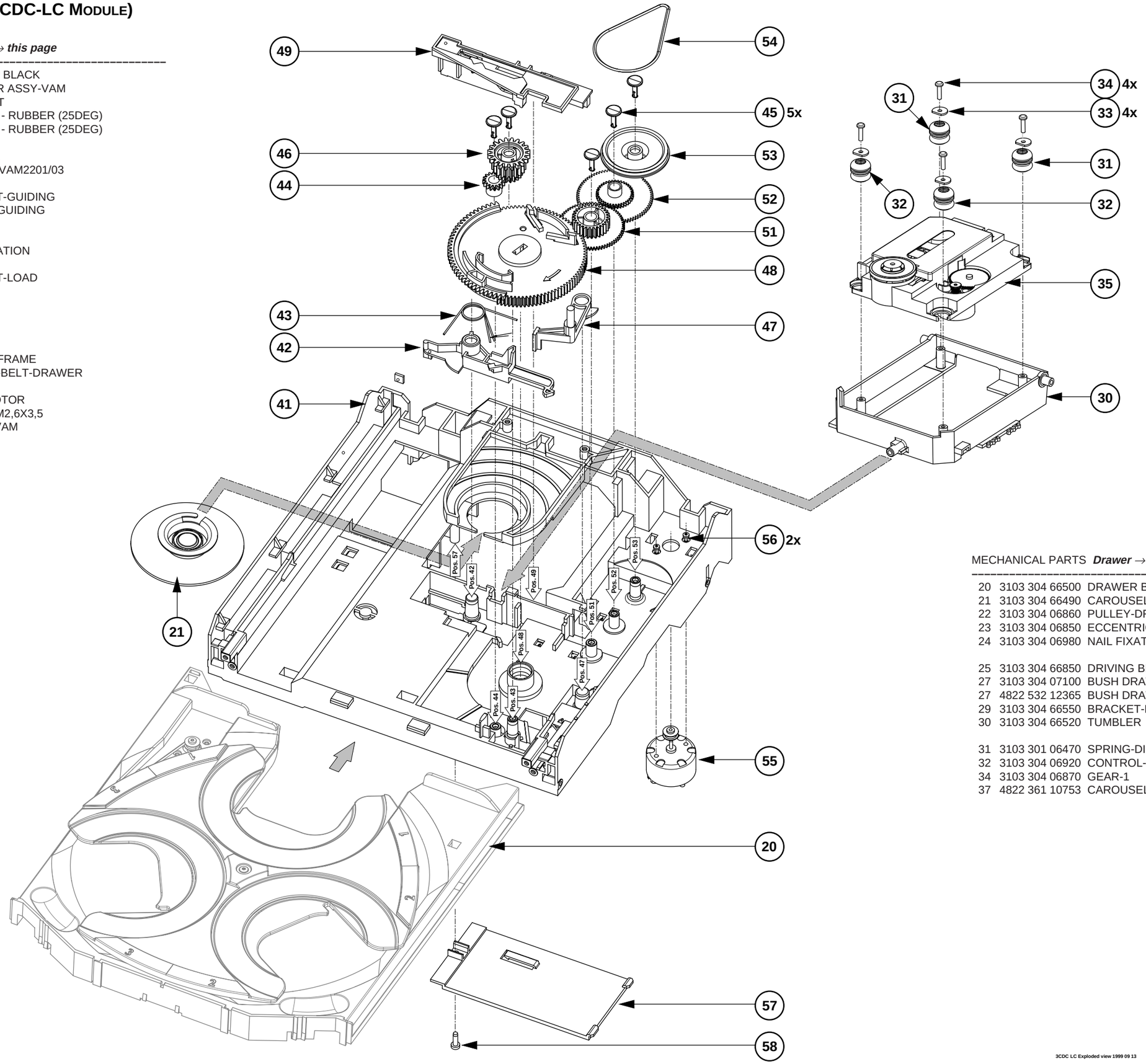


10-10

EXPLODED VIEW (3CDC-LC MODULE)

MECHANICAL PARTS ***Loader*** → ***this page***

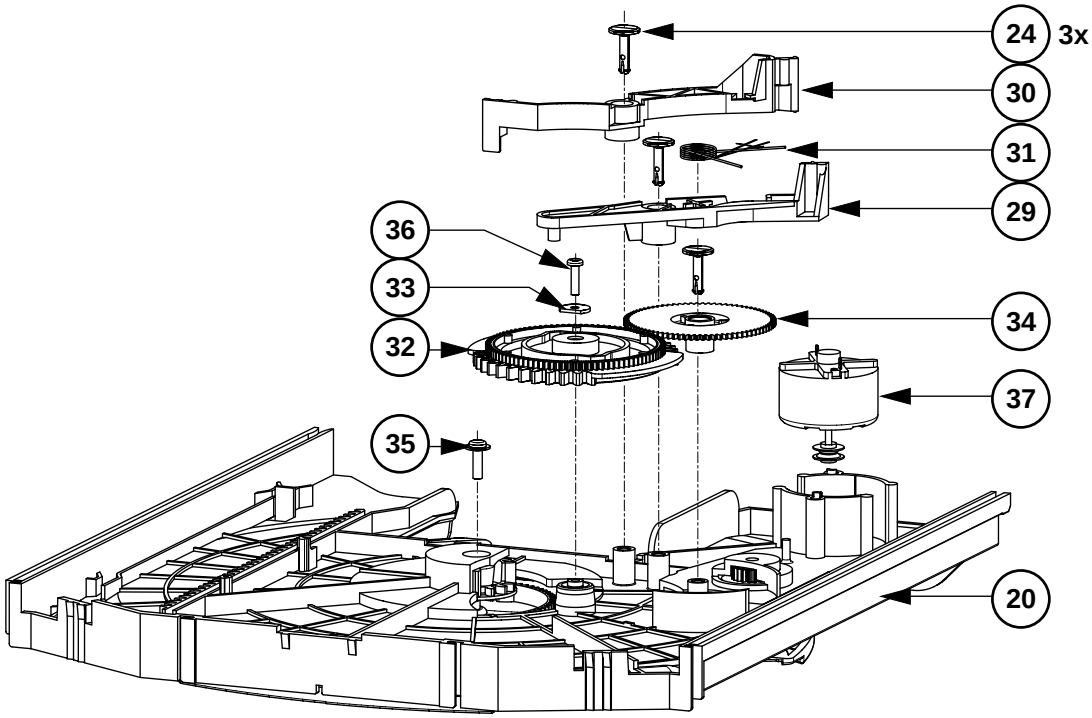
20	3103 304 66500	DRAWER BLACK
21	3140 117 58650	CLAMPER ASSY-VAM
30	3103 304 66560	SUPPORT
31	4822 529 10431	DAMPER - RUBBER (25DEG)
32	4822 529 10431	DAMPER - RUBBER (25DEG)
33	3103 304 06970	WASHER
35	9305 022 30103	CD Drive VAM2201/03
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 68890	COVER-VAM
59	4822 466 12146	RUBBER



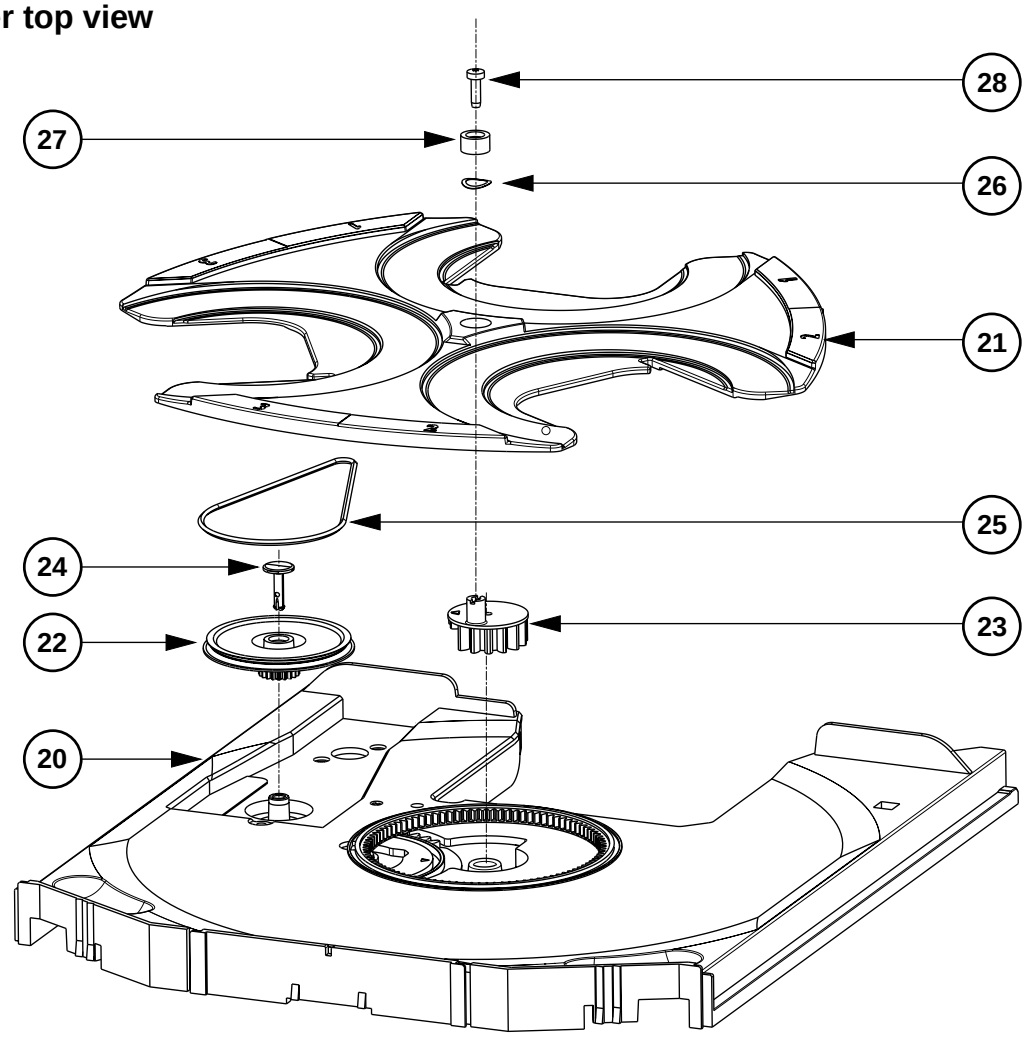
MECHANICAL PARTS ***Drawer*** → ***Chapter 10-11***

20	3103 304 66500	DRAWER BLACK
21	3103 304 66490	CAROUSEL BLACK
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

Drawer bottom view



Drawer top view



ELECTRICAL PARTSLIST 3CDC-LC MODULE

MISCELLANEOUS

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

CAPACITORS

2800 ©	4822 126 10326	180pF	5%	
2801 ©	4822 122 33575	220pF	5%	50V
2802 ©	4822 126 10326	180pF	5%	
2803 ©	4822 122 33575	220pF	5%	50V
2805 ©	4822 122 33575	220pF	5%	50V
2806 ©	4822 122 33575	220pF	5%	50V
2807 ©	5322 122 31863	330pF	5%	50V
2808 ©	4822 122 33575	220pF	5%	50V
2809	5322 124 41948	0,47µF	20%	50V
2810 ©	4822 126 10326	180pF	5%	
2811 ©	4822 122 33575	220pF	5%	50V
2815 ©	4822 126 14076	220nF	20%	25V
2816 ©	4822 126 13344	1,5nF	5%	63V
2818 ©	4822 126 13344	1,5nF	5%	63V
2822 ©	2222 861 15222	2,2nF	10%	50V
2823 ©	4822 126 13693	56pF	1%	63V
2824 ©	4822 126 13751	47nF	10%	50V
2825 ©	4822 122 33177	10nF	20%	50V
2826	4822 124 12362	47µF	20%	4V
2828	4822 124 12362	47µF	20%	4V
2829 ©	5322 122 32654	22nF	10%	63V
2830 ©	4822 126 13751	47nF	10%	50V
2831 ©	5322 122 32531	100pF	5%	50V
2832 ©	5322 122 32531	100pF	5%	50V
2833 ©	5322 122 32659	33pF	5%	50V
2834 ©	5322 122 32659	33pF	5%	50V
2835 ©	4822 126 13751	47nF	10%	50V
2837	4822 124 40433	47µF	20%	25V
2838	4822 124 40248	10µF	20%	63V
2839	4822 124 40433	47µF	20%	25V
2840 ©	4822 126 14585	100nF	10%	50V
2841 ©	4822 122 33216	270pF	5%	50V
2842 ©	4822 122 33127	2,2nF	10%	63V
2844 ©	4822 122 33216	270pF	5%	50V
2849	4822 124 40769	4,7µF	20%	100V
2850 ©	5322 122 31647	1nF	10%	63V
2851	4822 124 42383	220µF	20%	4V
2852 ©	4822 126 13751	47nF	10%	50V
2853 ©	5322 122 32654	22nF	10%	63V
2854 ©	4822 126 13751	47nF	10%	50V
2855 ©	5322 122 34099	470pF	10%	63V
2856 ©	4822 126 13691	27pF	1%	63V
2857 ©	4822 122 33177	10nF	20%	50V
2858	4822 124 12245	220µF	20%	16V
2859 ©	4822 122 33177	10nF	20%	50V
2860	4822 124 11947	10µF	20%	16V
2861	4822 124 11947	10µF	20%	16V
2862 ©	4822 122 33575	220pF	5%	50V
2863 ©	4822 122 33575	220pF	5%	50V
2864 ©	5322 122 32658	22pF	5%	50V

CAPACITORS

2865 ©	5322 122 32654	22nF	10%	63V
2867 ©	4822 122 33575	220pF	5%	50V
2869 ©	4822 126 13751	47nF	10%	50V
2872 ©	4822 126 13751	47nF	10%	50V
2873	4822 124 80231	47µF	20%	16V
2875	4822 124 11947	10µF	20%	16V
2876	4822 124 12245	220µF	20%	16V
2877 ©	4822 126 13692	47pF	1%	63V
2878 ©	4822 122 33575	220pF	5%	50V
2879 ©	4822 126 13751	47nF	10%	50V
2881	4822 124 40769	4,7µF	20%	100V
2882 ©	4822 122 33575	220pF	5%	50V
2884	4822 124 40769	4,7µF	20%	100V
2885	4822 124 40769	4,7µF	20%	100V
2887 ©	4822 126 14585	100nF	10%	50V
2888	4822 124 40769	4,7µF	20%	100V
2891 ©	5322 122 31865	1,5nF	10%	63V
2892 ©	5322 126 10223	4,7nF	10%	63V
2893 ©	4822 122 33575	220pF	5%	50V

RESISTORS

3700 ©	4822 051 20471	470Ω	5%	0,1W
3705 ©	4822 117 11503	220Ω	5%	0,1W
3706 ©	4822 051 20471	470Ω	5%	0,1W
3707 ©	4822 051 20471	470Ω	5%	0,1W
3708 ©	4822 051 20471	470Ω	5%	0,1W
3709 ©	4822 051 20108	1Ω	5%	0,1W
3711 ©	4822 117 10833	10kΩ	1%	0,1W
3712 ©	4822 051 20109	10Ω	5%	0,1W
3713 ©	4822 051 20223	22kΩ	5%	0,1W
3714 ©	4822 117 10833	10kΩ	1%	0,1W
3715 ©	4822 117 10837	100kΩ	1%	0,1W
3716 ©	4822 051 20471	470Ω	5%	0,1W
3718 ©	4822 051 20472	4,7kΩ	5%	0,1W
3727 ©	4822 051 20472	4,7kΩ	5%	0,1W
3728 ©	4822 051 20472	4,7kΩ	5%	0,1W
3730 ©	4822 051 20333	33kΩ	5%	0,1W
3731 ©	4822 117 10833	10kΩ	1%	0,1W
3732 ©	4822 051 20471	470Ω	5%	0,1W
3733 ©	4822 051 20471	470Ω	5%	0,1W
3734 ©	4822 051 20471	470Ω	5%	0,1W
3740 ©	4822 051 20223	22kΩ	5%	0,1W
3741 ©	4822 051 20223	22kΩ	5%	0,1W
3742 ©	4822 051 20223	22kΩ	5%	0,1W
3743 ©	4822 051 20223	22kΩ	5%	0,1W
3744 ©	4822 117 10833	10kΩ	1%	0,1W
3746 ©	4822 117 10833	10kΩ	1%	0,1W
3750 ©	4822 051 10102	1kΩ	2%	0,25W
3751 ©	4822 051 10102	1kΩ	2%	0,25W
3800 ©	4822 117 11148	56kΩ	1%	0,1W
3801 ©	4822 117 10833	10kΩ	1%	0,1W
3802 ©	4822 117 11148	56kΩ	1%	0,1W
3803 ©	4822 117 10833	10kΩ	1%	0,1W
3805 ©	4822 117 10833	10kΩ	1%	0,1W
3806 ©	4822 117 10833	10kΩ	1%	0,1W
3807 ©	4822 117 10833	10kΩ	1%	0,1W
3808 ©	4822 117 10833	10kΩ	1%	0,1W
3809 ©	4822 117 13577	330Ω	1%	0,1W
3811 ©	4822 051 20273	27kΩ	5%	0,1W
3812	4822 053 10228	2,2Ω	5%	1W
3814 ©	4822 051 20339	33Ω	5%	0,1W
3815	4822 052 10478	4,7Ω	5%	NFR
3819 ©	4822 051 20471	470Ω	5%	0,1W
3820 ©	4822 051 20472	4,7kΩ	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LC MODULE

RESISTORS

3821 ©	4822 051 20472	4,7kΩ	5%	0,1W
3822 ©	4822 117 12955	2,7kΩ	1%	0,1W
3823 ©	4822 051 10102	1kΩ	2%	0,25W
3824 ©	4822 051 10102	1kΩ	2%	0,25W
3825 ©	4822 051 10102	1kΩ	2%	0,25W
3826 ©	4822 051 20223	22kΩ	5%	0,1W
3827 ©	4822 051 20273	27kΩ	5%	0,1W
3828 ©	4822 051 20223	22kΩ	5%	0,1W
3831 ©	4822 051 20101	100Ω	5%	0,1W
3832 ©	4822 117 10833	10kΩ	1%	0,1W
3833 ©	4822 051 20223	22kΩ	5%	0,1W
3834 ©	4822 051 20223	22kΩ	5%	0,1W
3835	4822 052 10338	3,3Ω		NFR25
3837 ©	4822 051 10102	1kΩ	2%	0,25W
3838 ©	4822 051 10102	1kΩ	2%	0,25W
3839 ©	4822 117 10837	100kΩ	1%	0,1W
3840 ©	4822 117 10837	100kΩ	1%	0,1W
3841 ©	4822 051 20472	4,7kΩ	5%	0,1W
3842 ©	4822 117 10834	47kΩ	1%	0,1W
3843 ©	4822 051 20333	33kΩ	5%	0,1W
3844 ©	4822 051 20472	4,7kΩ	5%	0,1W
3845 ©	4822 117 10834	47kΩ	1%	0,1W
3846 ©	4822 051 20333	33kΩ	5%	0,1W
3847 ©	4822 117 11507	6,8kΩ	1%	0,1W
3848 ©	4822 117 10837	100kΩ	1%	0,1W
3849 ©	4822 117 11149	82kΩ	1%	0,1W
3850 ©	4822 051 20472	4,7kΩ	5%	0,1W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10228	2,2Ω	5%	0,33W
3853 ©	4822 051 20471	470Ω	5%	0,1W
3854 ©	4822 051 20101	100Ω	5%	0,1W
3855 ©	4822 051 20101	100Ω	5%	0,1W
3856 ©	4822 117 12521	68Ω	1%	0,1W
3857 ©	4822 117 12521	68Ω	1%	0,1W
3858 ©	4822 051 20223	22kΩ	5%	0,1W
3859 ©	4822 051 20223	22kΩ	5%	0,1W
3860 ©	4822 117 10833	10kΩ	1%	0,1W
3861 ©	4822 117 10833	10kΩ	1%	0,1W
3862 ©	4822 051 20121	120Ω	5%	0,1W
3863 ©	4822 051 20339	33Ω	5%	0,1W
3864 ©	4822 051 20101	100Ω	5%	0,1W
3866 ©	4822 117 10833	10kΩ	1%	0,1W
3867 ©	4822 051 20121	120Ω	5%	0,1W
3869 ©	4822 051 20478	4,7Ω	5%	0,1W
3870 ©	4822 051 20101	100Ω	5%	0,1W
3871 ©	4822 117 10833	10kΩ	1%	0,1W
3873 ©	4822 051 20471	470Ω	5%	0,1W
3875 ©	4822 117 10833	10kΩ	1%	0,1W
3876 ©	4822 117 10837	100kΩ	1%	0,1W
3877 ©	4822 117 10833	10kΩ	1%	0,1W
3878 ©	4822 117 10833	10kΩ	1%	0,1W
3879 ©	4822 117 10837	100kΩ	1%	0,1W
3880 ©	4822 051 20392	3,9kΩ	5%	0,1W
3881 ©	4822 117 10837	100kΩ	1%	0,1W
3882 ©	4822 117 10834	47kΩ	1%	0,1W
3883 ©	4822 117 10833	10kΩ	1%	0,1W
3884 ©	4822 117 11504	270Ω	1%	0.1W
3885 ©	4822 117 10833	10kΩ	1%	0,1W
3886 ©	4822 117 10834	47kΩ	1%	0,1W
3887 ©	4822 117 11503	220Ω	5%	0,1W
3888 ©	4822 117 10833	10kΩ	1%	0,1W
3889 ©	4822 051 20471	470Ω	5%	0,1W
3890 ©	4822 051 10102	1kΩ	2%	0,25W
3891 ©	4822 051 10102	1kΩ	2%	0,25W

RESISTORS

3892 ©	4822 051 20471	470Ω	5%	0,1W
3893 ©	4822 051 20471	470Ω	5%	0,1W
3894 ©	4822 051 20101	100Ω	5%	0,1W
3895 ©	4822 051 20159	15Ω	5%	0,1W
3897 ©	4822 051 20101	100Ω	5%	0,1W
3898 ©	4822 117 11503	220Ω	5%	0,1W
3899 ©	4822 051 20101	100Ω	5%	0,1W
4800 ©	4822 051 20008	CHIP JUMPER 0805		
4801 ©	4822 051 20008	CHIP JUMPER 0805		
4802 ©	4822 051 20008	CHIP JUMPER 0805		
4804 ©	4822 051 20008	CHIP JUMPER 0805		
4805 ©	4822 051 20008	CHIP JUMPER 0805		
4806 ©	4822 051 20008	CHIP JUMPER 0805		
4807 ©	4822 051 20008	CHIP JUMPER 0805		
4808 ©	4822 051 20008	CHIP JUMPER 0805		
4810 ©	4822 051 20008	CHIP JUMPER 0805		
4812 ©	4822 051 20008	CHIP JUMPER 0805		
4817 ©	4822 051 20008	CHIP JUMPER 0805		
4818 ©	4822 051 20008	CHIP JUMPER 0805		
4819 ©	4822 051 20008	CHIP JUMPER 0805		
4820 ©	4822 051 20008	CHIP JUMPER 0805		
4821 ©	4822 051 20008	CHIP JUMPER 0805		
4822 ©	4822 051 20008	CHIP JUMPER 0805		
4823 ©	4822 051 20008	CHIP JUMPER 0805		
4824 ©	4822 051 20008	CHIP JUMPER 0805		
4825 ©	4822 051 20008	CHIP JUMPER 0805		
4826 ©	4822 051 20008	CHIP JUMPER 0805		
4827 ©	4822 051 20008	CHIP JUMPER 0805		
4828 ©	4822 051 20008	CHIP JUMPER 0805		
4830 ©	4822 051 20008	CHIP JUMPER 0805		
4831 ©	4822 051 20008	CHIP JUMPER 0805		
4832 ©	4822 051 20008	CHIP JUMPER 0805		
4833 ©	4822 051 20008	CHIP JUMPER 0805		
4834 ©	4822 051 20008	CHIP JUMPER 0805		
4835 ©	4822 051 20008	CHIP JUMPER 0805		
4836 ©	4822 051 20008	CHIP JUMPER 0805		
4837 ©	4822 051 20008	CHIP JUMPER 0805		
4838 ©	4822 051 20008	CHIP JUMPER 0805		
4839 ©	4822 051 20008	CHIP JUMPER 0805		
4840 ©	4822 051 20008	CHIP JUMPER 0805		
4841 ©	4822 051 20008	CHIP JUMPER 0805		
4842 ©	4822 051 20008	CHIP JUMPER 0805		
4843 ©	4822 051 20008	CHIP JUMPER 0805		
4844 ©	4822 051 20008	CHIP JUMPER 0805		
4845 ©	4822 051 20008	CHIP JUMPER 0805		
4846 ©	4822 051 20008	CHIP JUMPER 0805		
4847 ©	4822 051 20008	CHIP JUMPER 0805		
4848 ©	4822 051 20008	CHIP JUMPER 0805		
4849 ©	4822 051 20008	CHIP JUMPER 0805		
4876 ©	4822 051 20008	CHIP JUMPER 0805		

COILS

1810	2422 543 01068	RESONATOR 8MHZ
5802	4822 157 70601	100µH

DIODES

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

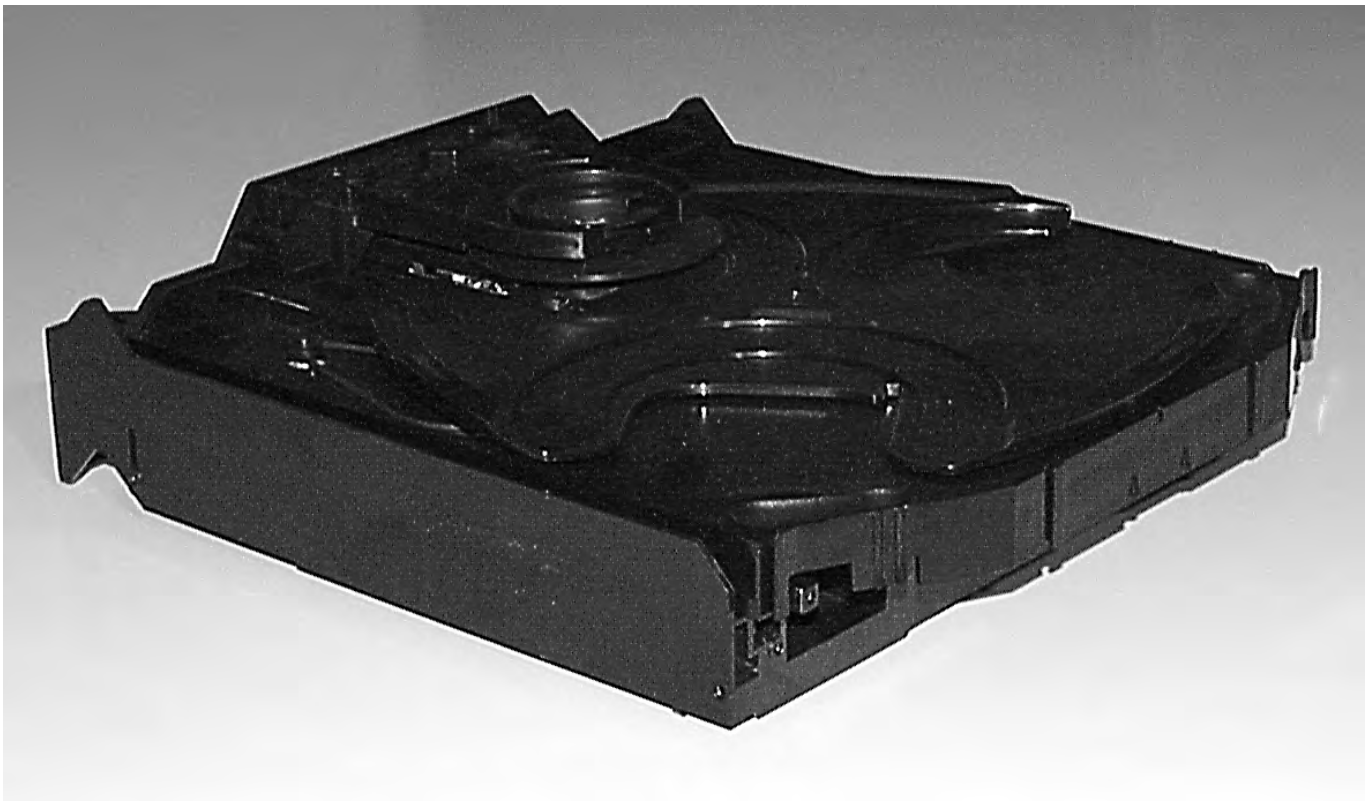
ELECTRICAL PARTSLIST 3CDC-LC MODULE

TRANSISTORS

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

INTEGRATED CIRCUITS

7801 ©	9352 622 36118	TZA1025T/V2 HF-Amplifier
7805 ©	4822 209 33165	TDA1308T/N1, OPAMP
7806	4822 209 32852	TDA7073A/N2, Motor driver
7807	4822 209 32852	TDA7073A/N2, Motor driver
7871	4822 209 32852	TDA7073A/N2, Motor driver
7873	5322 209 11306	HEF4094BT, Shift register
7876	4822 209 16143	LC89170M, CD TEXT IC
7877 ©	9352 642 17557	SAA7325H/M2B CD10/M2



3CDC-LC-MB Module

(3 Disc Carousel Changer)

Layout stage .2

TABLE OF CONTENTS

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
• SWITCH OFF POWER SUPPLY
• ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

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

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

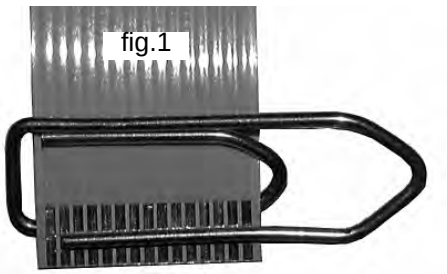
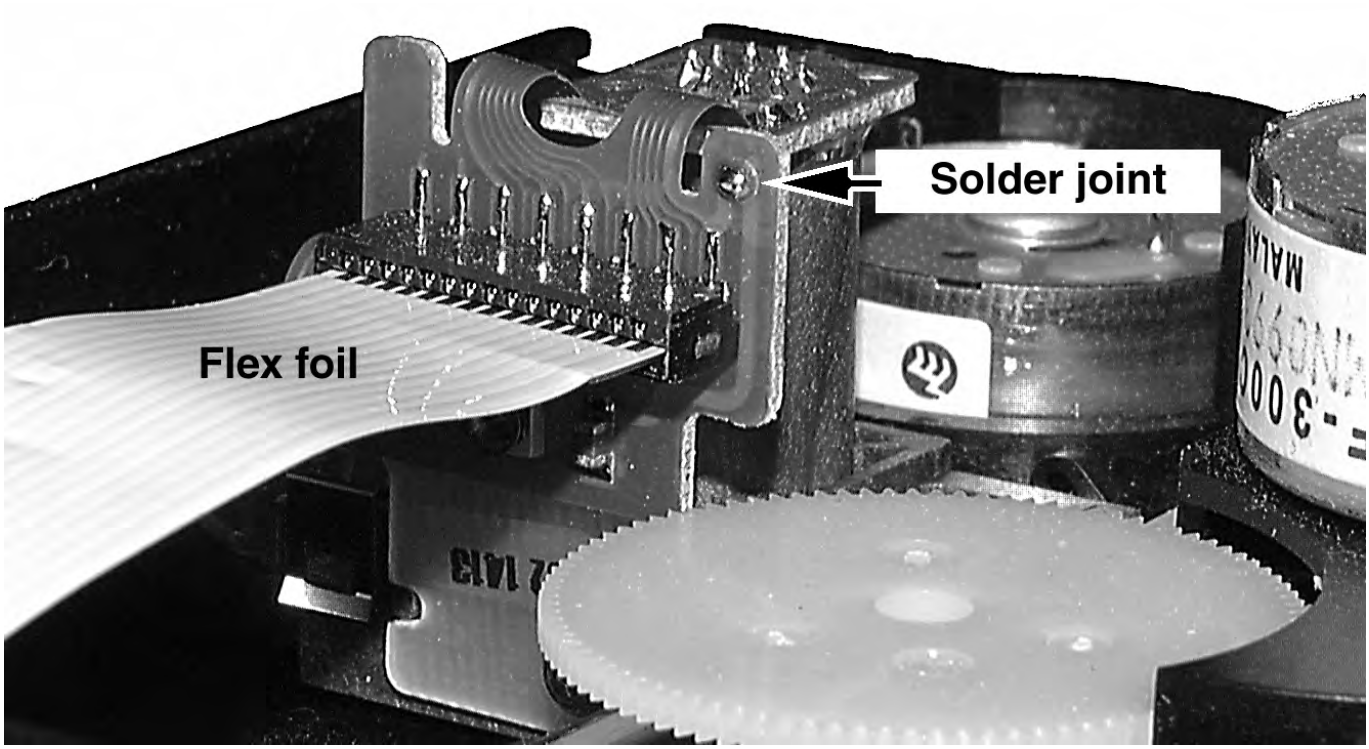
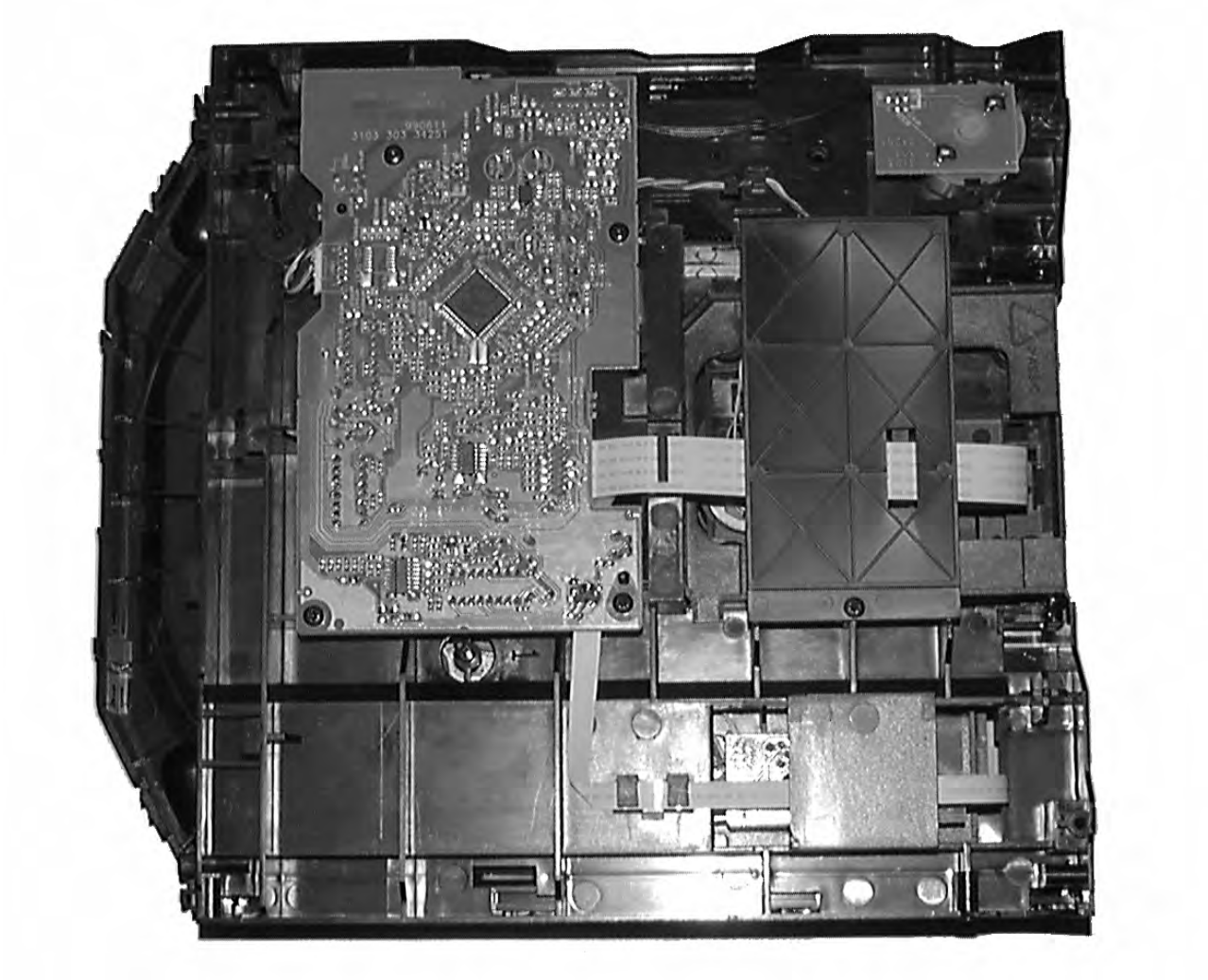


fig.1

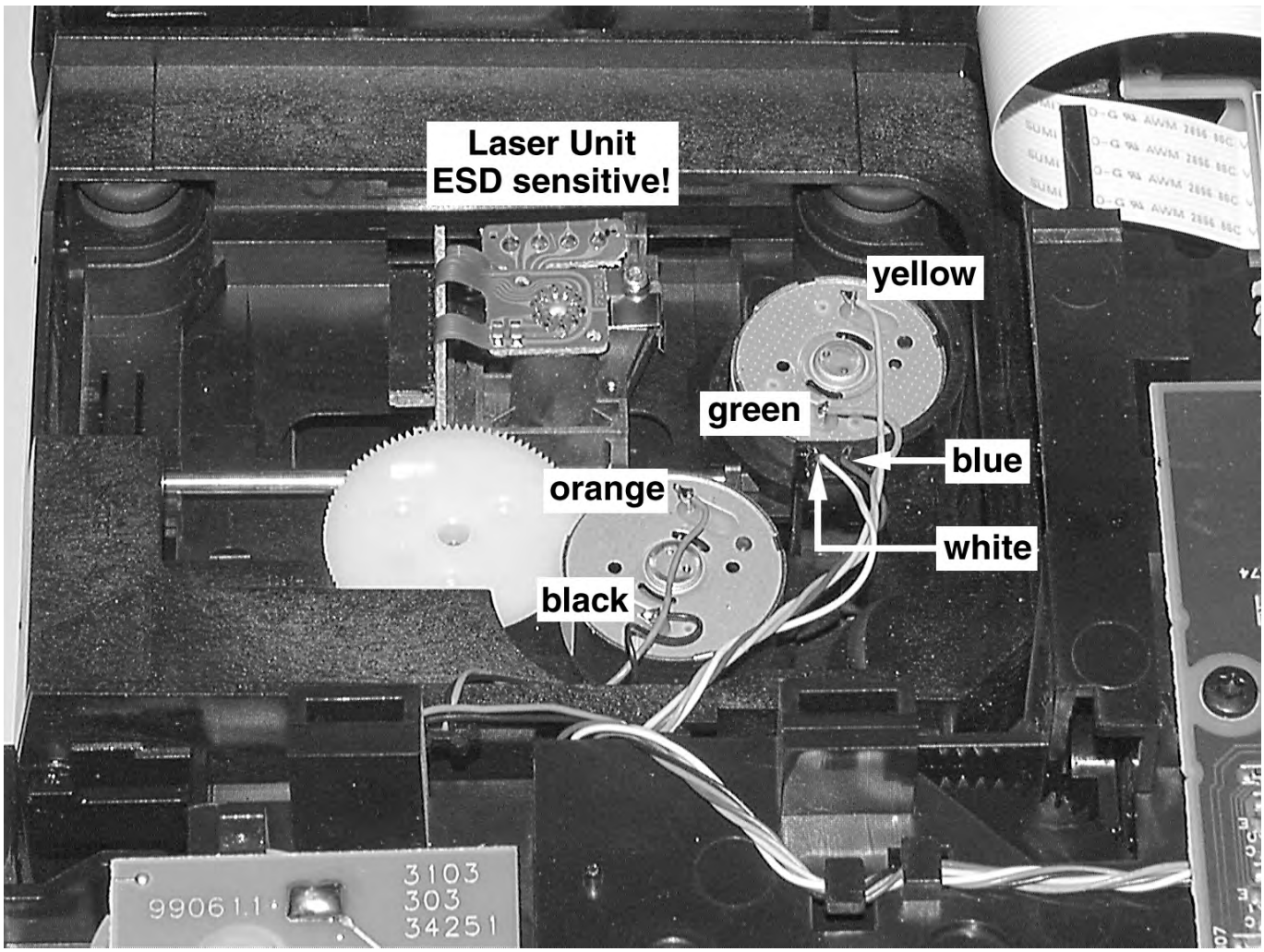
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



Service Position



Wiring


Laser Unit
ESD sensitive!
yellow
green
blue
orange
white
black
3103
303
34251

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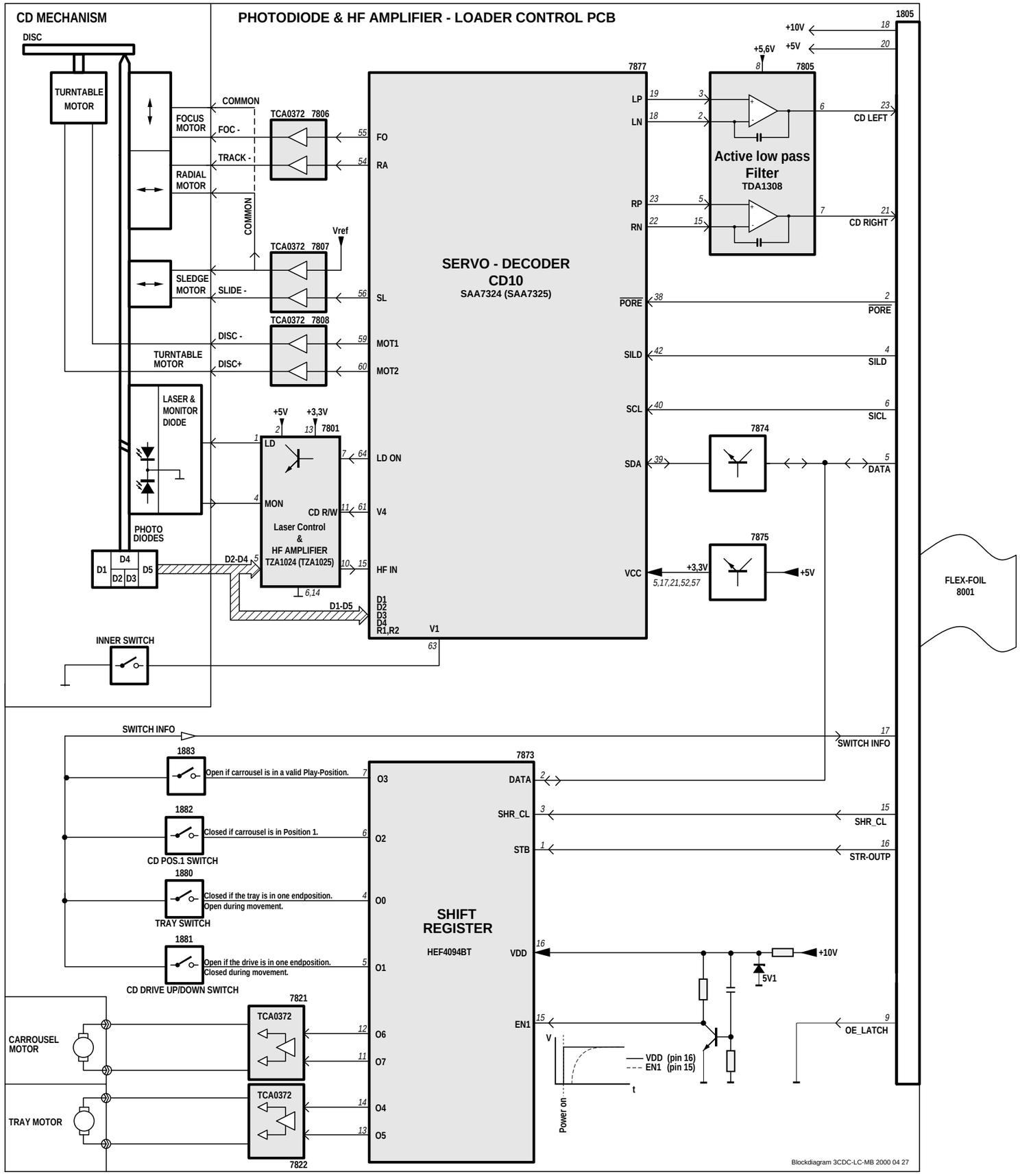
Blockdiagram



Blockdiagram 3CDC-LC-MB 2000 04 27

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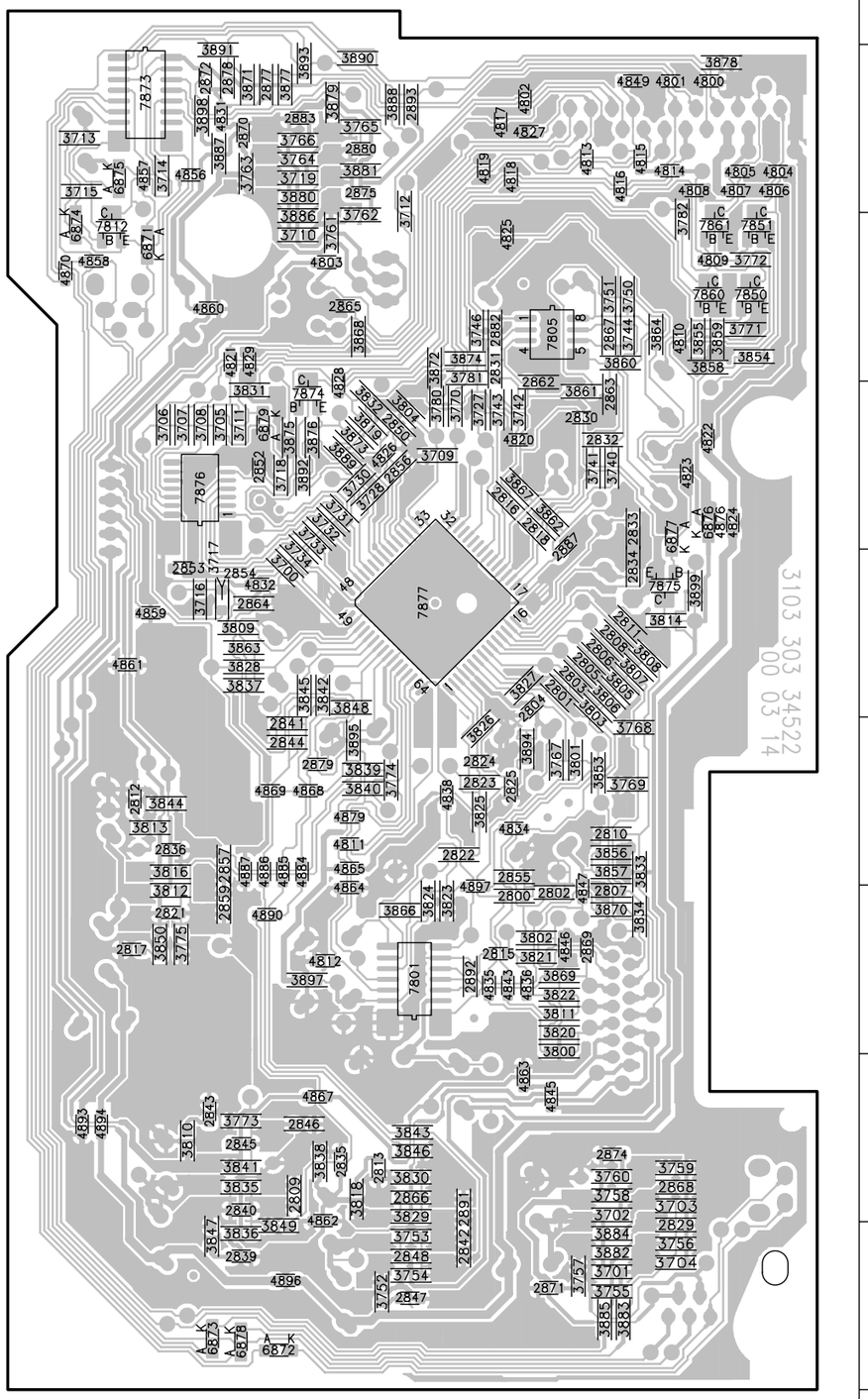
3CDC-LC-MB Copperside view



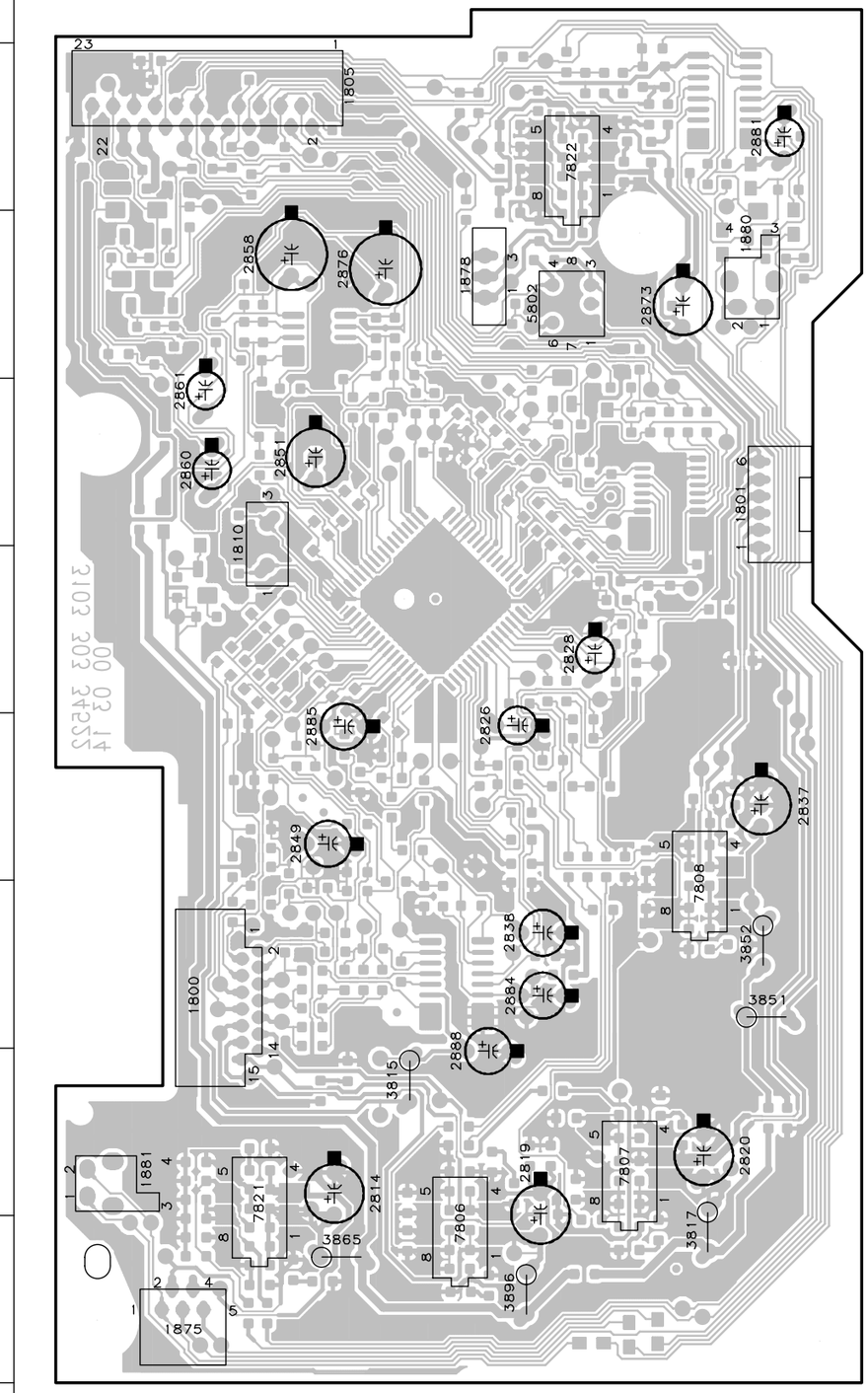
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC LC MB Layout stage 2 2000 05 02

Mapping

Copperside						Componentside	
2800	F4	3750	B4	3881	A3	1800	F1
2801	D4	3751	B4	3882	H4	1801	C5
2802	F4	3752	H3	3883	H4	1805	A2
2803	D4	3753	H3	3884	H4	1810	C2
2804	D4	3754	H3	3885	H4	1875	H1
2805	D4	3755	H4	3886	B2	1878	B3
2806	D4	3756	H4	3887	A2	1880	B5
2807	F4	3757	H4	3888	A3	1881	G1
2808	D4	3758	G4	3889	C2	2814	G3
2809	G2	3759	G4	3890	A3	2819	G3
2810	E4	3760	G4	3891	A2	2820	G5
2811	D4	3761	B2	3892	C2	2826	E3
2812	E1	3762	B3	3893	A2	2828	D4
2813	G3	3763	A2	3894	E4	2837	E5
2815	F3	3764	A2	3895	E3	2838	F3
2816	C3	3765	A3	3897	F2	2849	E2
2817	F1	3766	A2	3898	A2	2851	C2
2818	C4	3767	E4	3899	D5	2858	B2
2821	F1	3768	E4	4800	A5	2860	C1
2822	E3	3769	E4	4801	A4	2861	C1
2823	E3	3770	C3	4802	A4	2873	B4
2824	E3	3771	B5	4803	B2	2876	B2
2825	E3	3772	B5	4804	A5	2881	A5
2829	H4	3773	G2	4805	A5	2884	F3
2830	C4	3774	E3	4806	A5	2885	E2
2831	B3	3775	F2	4807	A5	2888	G3
2832	C4	3780	C3	4808	A5	3815	G3
2833	C4	3781	B3	4809	B5	3817	H4
2834	D4	3782	B5	4810	B4	3851	F5
2835	G2	3800	F4	4811	E3	3852	F5
2836	E1	3801	E4	4812	F2	3865	H2
2839	H2	3802	F4	4813	A4	3896	H3
2840	G2	3803	D4	4814	A4	5802	B4
2841	E2	3804	C3	4815	A4	7806	H3
2842	H3	3805	D4	4816	A4	7807	G4
2843	G2	3806	D4	4817	A3	7808	E4
2844	E2	3807	D4	4818	A3	7821	G2
2845	G2	3808	D4	4819	A3	7822	A3
2846	G2	3809	D2	4820	C4		
2847	H3	3810	G2	4821	B2		
2848	H3	3811	F4	4822	C5		
2850	C3	3812	F1	4823	C5		
2852	C2	3813	E1	4824	C5		
2853	D2	3814	D4	4825	B3		
2854	D2	3816	E1	4826	C3		
2855	E4	3818	G3	4827	A4		
2856	C3	3819	C3	4828	C2		
2857	E2	3820	F4	4829	B2		
2859	F2	3821	F4	4831	A2		
2862	C4	3822	F4	4832	D2		
2863	C4	3823	F3	4834	E4		
2864	D2	3824	F3	4835	F3		
2865	B3	3825	E3	4836	F4		
2866	G3	3826	E3	4838	E3		
2867	B4	3827	D4	4843	F3		
2868	G4	3828	D2	4845	G4		
2869	F4	3829	G3	4846	F4		
2870	A2	3830	G3	4847	F4		
2871	H4	3831	C2	4849	A4		
2872	A2	3832	C3	4856	A2		
2874	G4	3833	E4	4857	A1		
2875	A3	3834	F4	4858	B1		
2877	A2	3835	G2	4859	D1		
2878	A2	3836	H2	4860	B2		
2879	E2	3837	D2	4861	D1		
2880	A3	3838	G2	4862	G2		
2882	B3	3839	E3	4863	G4		
2883	A2	3840	E3	4864	F3		
2887	C4	3841	G2	4865	E3		
2891	G3	3842	D2	4867	G2		
2892	F3	3843	G3	4868	E2		
2893	A3	3844	E1	4869	E2		
3700	D2	3845	D2	4870	B1		
3701	H4	3846	G3	4876	C5		
3702	G4	3847	H2	4879	E3		
3703	G4	3848	D3	4884	E2		
3704	H4	3849	H2	4885	E2		
3705	C2	3850	F1	4886	E2		
3706	C1	3853	E4	4887	E2		
3707	C2	3854	B5	4890	F2		
3708	C2	3855	B5	4893	G1		
3709	C3	3856	E4	4894	G1		
3710	B2	3857	E4	4896	H2		
3711	C2	3858	B5	4897	F3		
3712	A3	3859	B5	6871	B1		
3713	A1	3860	B4	6872	H2		
3714	A1	3861	C4	6873	H2		
3715	A1	3862	C4	6874	B1		
3716	D2	3863	D2	6875	A1		
3717	D2	3864	B4	6876	C5		
3718	C2	3866	F3	6877	C4		
3719	A2	3867	C4	6878	H2		
3727	C3	3868	B3	6879	C2		
3728	C3	3869	F4	7801	F3		
3730	C3	3870	F4	7805	B4		
3731	C2	3871	A2	7812	B1		
3732	C2	3872	B3	7850	B5		
3733	C2	3873	C3	7851	B5		
3734	D2	3874	B3	7860	B5		
3740	C4	3875	C2	7861	B5		
3741	C4	3876	C2	7873	A1		
3742	C4	3877	A2	7874	C2		
3743	C3	3878	A5	7875	D4		
3744	B4	3879	A2	7876	C2		
3746	B3	3880	A2	7877	D3		

3CDC-LC-MB Componentside view



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3CDC LC MB Layout stage 2 2000 05 02

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1800 D1 1801 G1 1810 C10 2800 C4 | 2801 C5 2802 C4 2803 C5 2804 E10 | 2805 B5 2806 B5 2807 A4 2808 A5 | 2809 H4 2810 A4 2811 A5 2812 I3 | 2813 G3 2815 D5 2816 B12 2817 I3 | 2818 B11 2819 A13 2820 A13 2821 I4 | 2822 F9 2823 F10 2824 F10 2825 F10 | 2826 G12 2828 B14 2833 C10 2834 C10 | 2835 B13 2836 I4 2837 A13 2838 E8 | 2839 H3 2840 H4 2841 F5 2842 E4 | 2843 G3 2844 F5 2845 G4 2846 G4 | 2847 F3 2848 F4 2849 C2 2850 D14 | 2851 B11 2855 B4 2856 D14 2857 H4 | 2859 I4 2866 F4 2869 E4 2879 H5 | 2884 E7 2885 F9 2887 B10 2888 E5 | 2891 F4 2892 D5 3709 C14 3727 B12 | 3728 E14 3752 F3 3753 F3 3754 F3 | 3767 E9 3768 A4 3769 A4 3773 G3 | 3774 G12 3775 I3 3800 C4 3801 C4 | 3802 C4 3803 C4 3804 C14 3805 B4 | 3806 B4 3807 A4 3808 A4 3810 G3 | 3811 B4 3812 I3 3813 I3 3815 E5 | 3816 I3 3817 A14 3818 F3 3819 D14 | 3820 D3 3821 D3 3822 D3 3823 E8 | 3824 E8 3825 F10 3826 F9 3827 E10 | 3828 G10 3829 F3 3830 G3 3832 D15 | 3833 A3 3834 A3 3835 H3 3836 H3 | 3837 B14 3838 B14 3839 I5 3840 I5 | 3841 G3 3842 E5 3843 I5 3844 I3 | 3845 F5 3846 F5 3847 H3 3848 H5 | 3849 H5 3850 I3 3852 A14 3853 E9 | 3856 C2 3857 C2 3862 B10 3863 B14 | 3866 D8 3867 B11 3869 D4 3870 E3 | 3873 D14 3889 D14 3892 E14 3894 E9 | 3895 G12 3896 A14 3897 E7 4811 F8 | 4812 F8 7801 E7 7806 E4 7807 G4 | 7808 H4 7877 D12

3CDC-LC
part 1

CD Drive VAM2201

Laser power control / HF-Amplifier
7801
TZA1024 / TZA1025

Signal Processor
7877
SAA7324 / SAA7325

ESD sensitive lines!

U >400mV ->Laser damaged !

Focus search Service step 2

EYE-PATTERN

TB = 0,5µs/div

800mVpp

only for digital out versions (in combination with Quartz)

to part 2 7805

from part 2

to part 2 3770, 3780

for basic version

for Coax out versions

33R for digital out version

to/from part 2 1805/7874 (µP-interface)

to/from part 2 7876 (CD-TEXT IC)

for CD TEXT only

to dig. out circuitry on part 2

FOCUS

TRACK

SLIDE

DISC MOTOR 1

DISC MOTOR 2

Innersw to 7877/63

Innersw from 1801

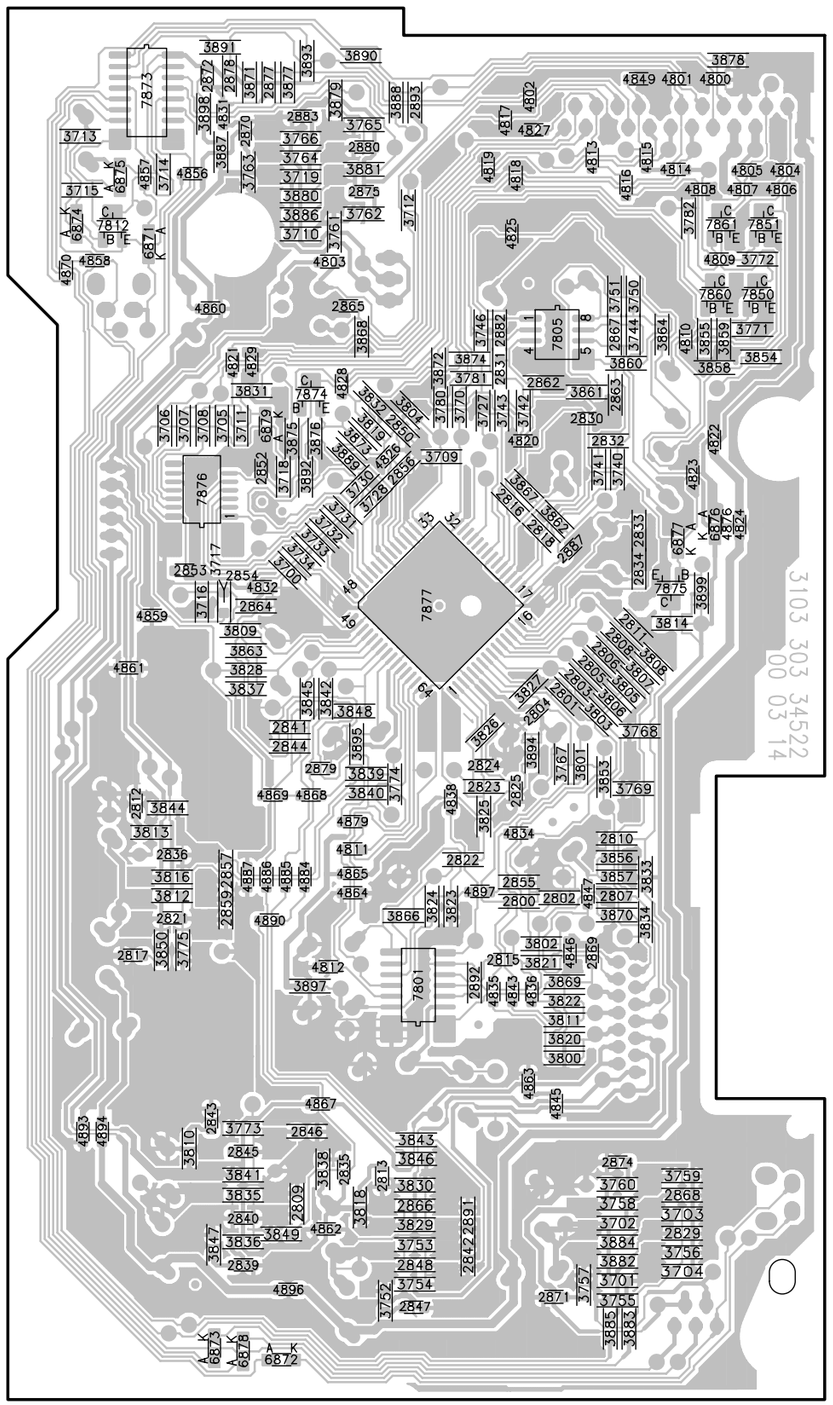
PIN50 EBUGND

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

#.... for provision only

3CDC LC-MB sh1, 260400

3CDC-LC-MB Copperside view



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2803	D4	3753	H3	3884	H4	1810	C2
2804	D4	3754	H3	3885	H4	1875	H1
2805	D4	3755	H4	3886	B2	1878	B3
2806	D4	3756	H4	3887	A2	1880	B5
2807	F4	3757	H4	3888	A3	1881	G1
2808	D4	3758	G4	3889	C2	2814	G3
2809	G2	3759	G4	3890	A3	2819	G3
2810	E4	3760	G4	3891	A2	2820	G5
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2812	E1	3762	B3	3893	A2	2828	D4
2813	G3	3763	A2	3894	E4	2837	E5
2815	F3	3764	A2	3895	E3	2838	F3
2816	C3	3765	A3	3897	F2	2849	E2
2817	F1	3766	A2	3898	A2	2851	C2
2818	C4	3767	E4	3899	D5	2858	B2
2821	F1	3768	E4	4800	A5	2860	C1
2822	E3	3769	E4	4801	A4	2861	C1
2823	E3	3770	C3	4802	A4	2873	B4
2824	E3	3771	B5	4803	B2	2876	B2
2825	E3	3772	B5	4804	A5	2881	A5
2829	H4	3773	G2	4805	A5	2884	F3
2830	C4	3774	E3	4806	A5	2885	E2
2831	B3	3775	F2	4807	A5	2888	G3
2832	C4	3780	C3	4808	A5	3815	G3
2833	C4	3781	B3	4809	B5	3817	H4
2834	D4	3782	B5	4810	B4	3851	F5
2835	G2	3800	F4	4811	E3	3852	F5
2836	E1	3801	E4	4812	F2	3865	H2
2839	H2	3802	F4	4813	A4	3896	H3
2840	G2	3803	D4	4814	A4	5802	B4
2841	E2	3804	C3	4815	A4	7806	H3
2842	H3	3805	D4	4816	A4	7807	G4
2843	G2	3806	D4	4817	A3	7808	E4
2844	E2	3807	D4	4818	A3	7821	G2
2845	G2	3808	D4	4819	A3	7822	A3
2846	G2	3809	D2	4820	C4		
2847	H3	3810	G2	4821	B2		
2848	H3	3811	F4	4822	C5		
2850	C3	3812	F1	4823	C5		
2852	C2	3813	E1	4824	C5		
2853	D2	3814	D4	4825	B3		
2854	D2	3816	E1	4826	C3		
2855	E4	3818	G3	4827	A4		
2856	C3	3819	C3	4828	C2		
2857	E2	3820	F4	4829	B2		
2859	F2	3821	F4	4831	A2		
2862	C4	3822	F4	4832	D2		
2863	C4	3823	F3	4834	E4		
2864	D2	3824	F3	4835	F3		
2865	B3	3825	E3	4836	F4		
2866	G3	3826	E3	4838	E3		
2867	B4	3827	D4	4843	F3		
2868	G4	3828	D2	4845	G4		
2869	F4	3829	G3	4846	F4		
2870	A2	3830	G3	4847	F4		
2871	H4	3831	C2	4849	A4		
2872	A2	3832	C3	4856	A2		
2874	G4	3833	E4	4857	A1		
2875	A3	3834	F4	4858	B1		
2877	A2	3835	G2	4859	D1		
2878	A2	3836	H2	4860	B2		
2879	E2	3837	D2	4861	D1		
2880	A3	3838	G2	4862	G2		
2882	B3	3839	E3	4863	G4		
2883	A2	3840	E3	4864	F3		
2887	C4	3841	G2	4865	E3		
2891	G3	3842	D2	4867	G2		
2892	F3	3843	G3	4868	E2		
2893	A3	3844	E1	4869	E2		
3700	D2	3845	D2	4870	B1		
3701	H4	3846	G3	4876	C5		
3702	G4	3847	H2	4879	E3		
3703	G4	3848	D3	4884	E2		
3704	H4	3849	H2	4885	E2		
3705	C2	3850	F1	4886	E2		
3706	C1	3853	E4	4887	E2		
3707	C2	3854	B5	4890	F2		
3708	C2	3855	B5	4893	G1		
3709	C3	3856	E4	4894	G1		
3710	B2	3857	E4	4896	H2		
3711	C2	3858	B5	4897	F3		
3712	A3	3859	B5	6871	B1		
3713	A1	3860	B4	6872	H2		
3714	A1	3861	C4	6873	H2		
3715	A1	3862	C4	6874	B1		
3716	D2	3863	D2	6875	A1		
3717	D2	3864	B4	6876	C5		
3718	C2	3866	F3	6877	C4		
3719	A2	3867	C4	6878	H2		
3727	C3	3868	B3	6879	C2		
3728	C3	3869	F4	7801	F3		
3730	C3	3870	F4	7805	B4		
3731	C2	3871	A2	7812	B1		
3732	C2	3872	B3	7850	B5		
3733	C2	3873	C3	7851	B5		
3734	D2	3874	B3	7860	B5		
3740	C4	3875	C2	7861	B5		
3741	C4	3876	C2	7873	A1		
3742	C4	3877	A2	7874	C2		
3743	C3	3878	A5	7875	D4		
3744	B4	3879	A2	7876	C2		
3746	B3	3880	A2	7877	D3		

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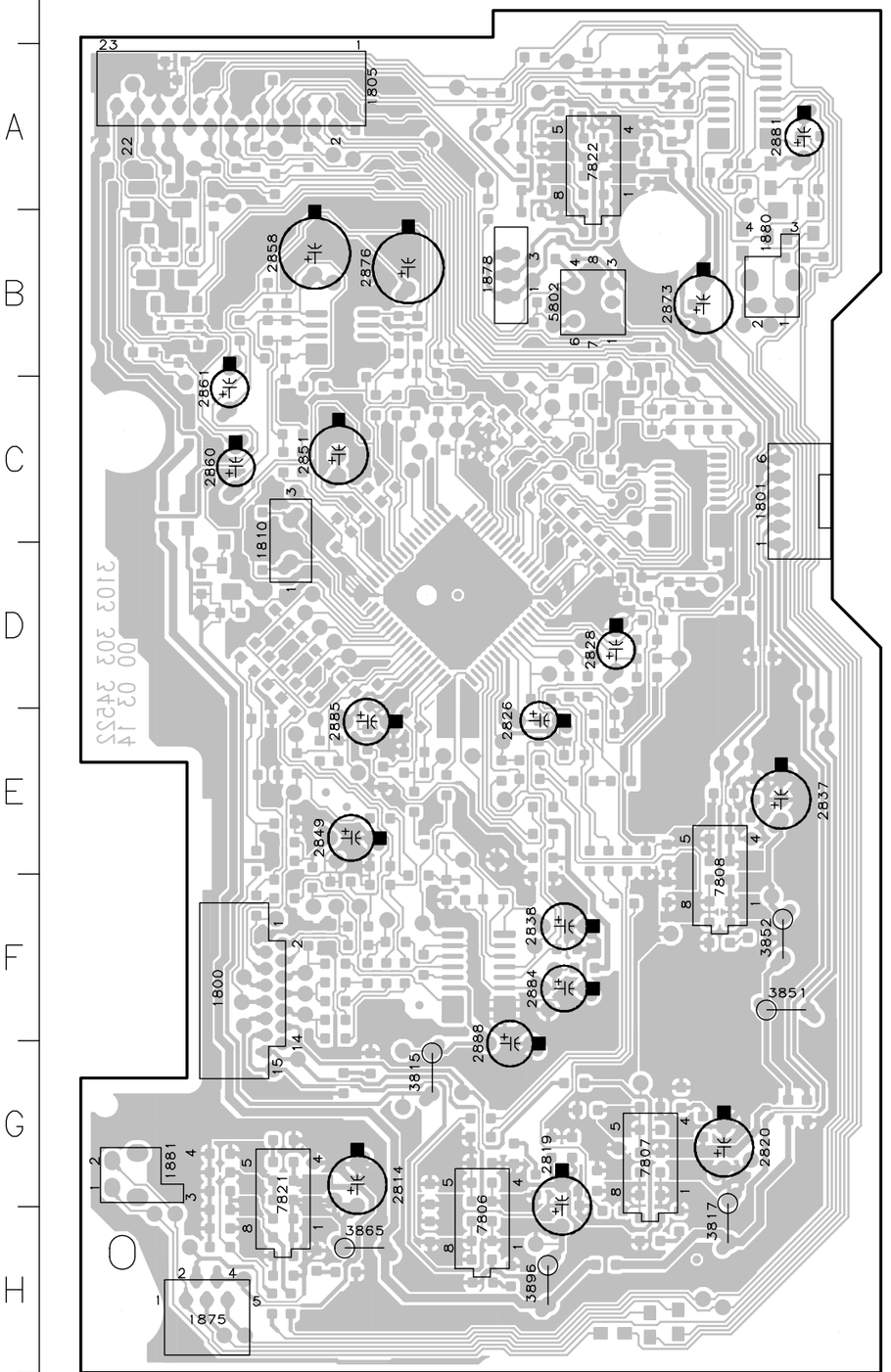
3CDC-LC-MB Componentside view



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3CDC LC MB Layout stage 2 2000 05 02

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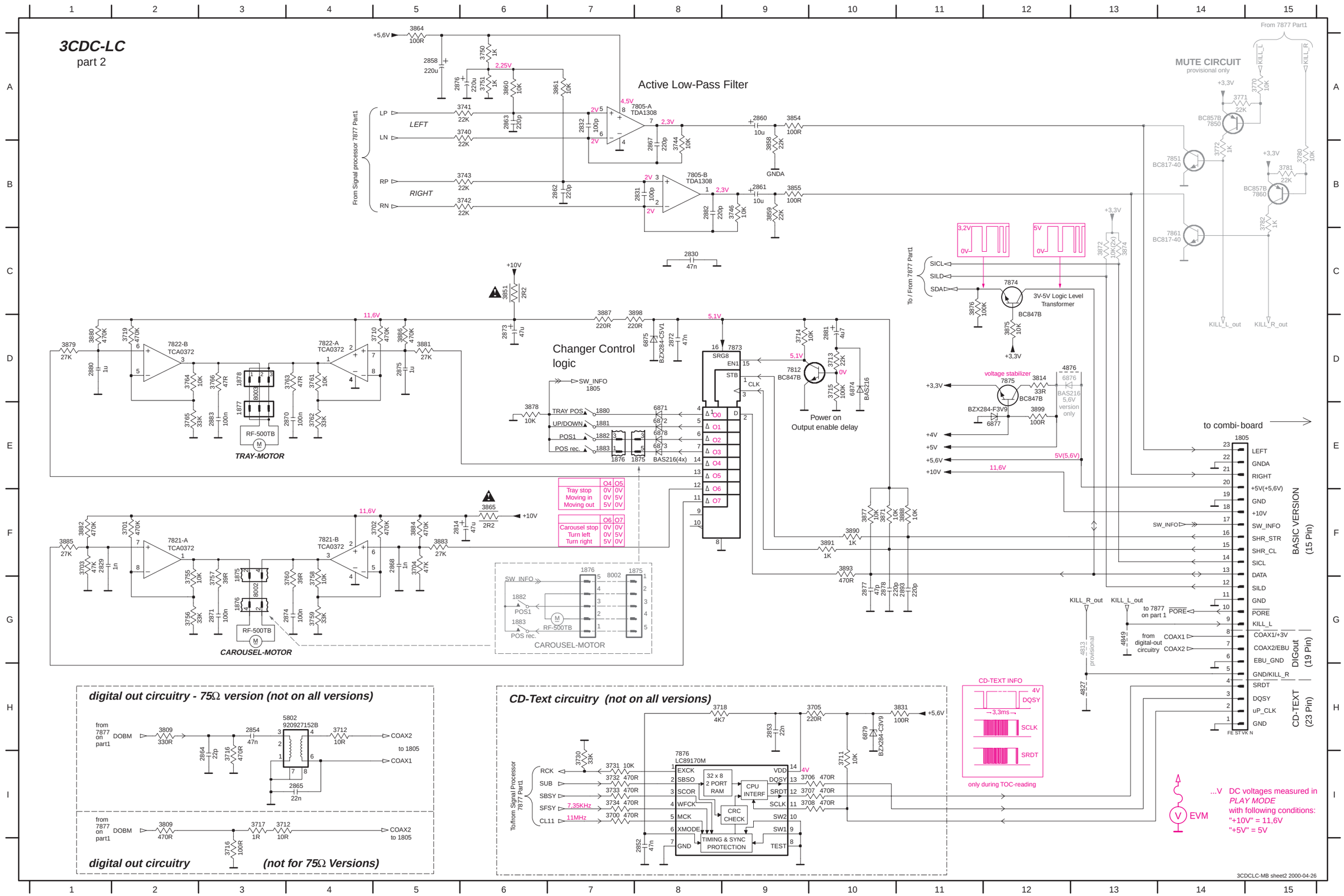
1805	E14	1880	E7	2831	B8	2861	B9	2870	E4	2877	G10	3372	C13	3705	H10	3713	D10	3730	I7	3743	B6	3757	G3	3764	D2	3781	B15	3855	B9	3871	F10	3881	D5	3888	F11	4827	H13	6874	D10	7805-B	B8	7851	B14
1850	G3	1881	E7	2832	A7	2862	B7	2871	G3	2878	G10	3374	C13	3706	I10	3714	D9	3732	I7	3744	B8	3758	G4	3765	E2	3782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

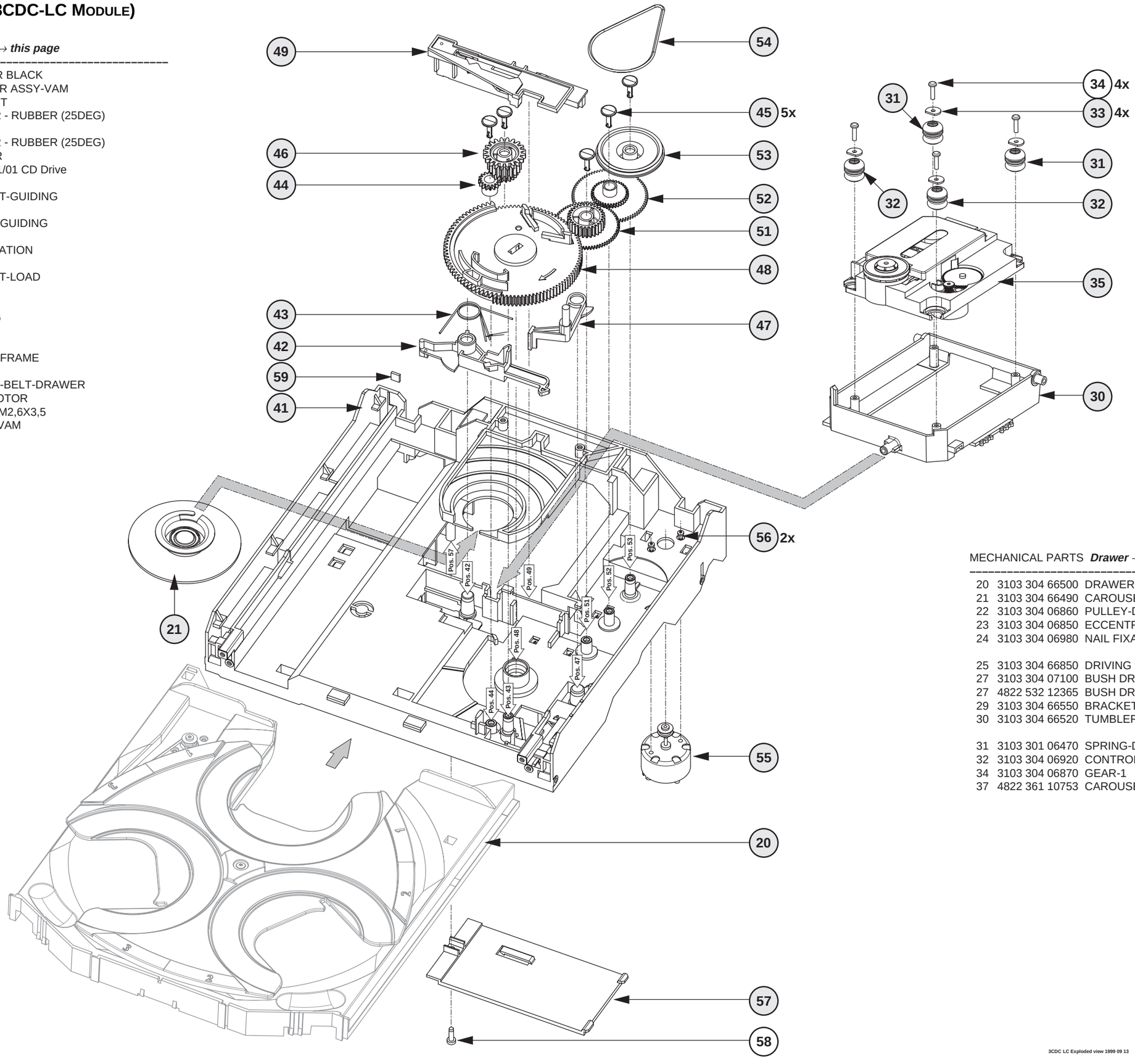


10A-10

EXPLODED VIEW (3CDC-LC MODULE)

MECHANICAL PARTS ***Loader → this page***

20	3103 304 66500	DRAWER BLACK
21	3140 117 58650	CLAMPER ASSY-VAM
30	3103 304 66560	SUPPORT
31	4822 529 10431	DAMPER - RUBBER (25DEG)
32	4822 529 10431	DAMPER - RUBBER (25DEG)
33	3103 304 06970	WASHER
35	4822 691 10772	VAM2201/01 CD Drive
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 68890	COVER-VAM
59	4822 466 12146	RUBBER



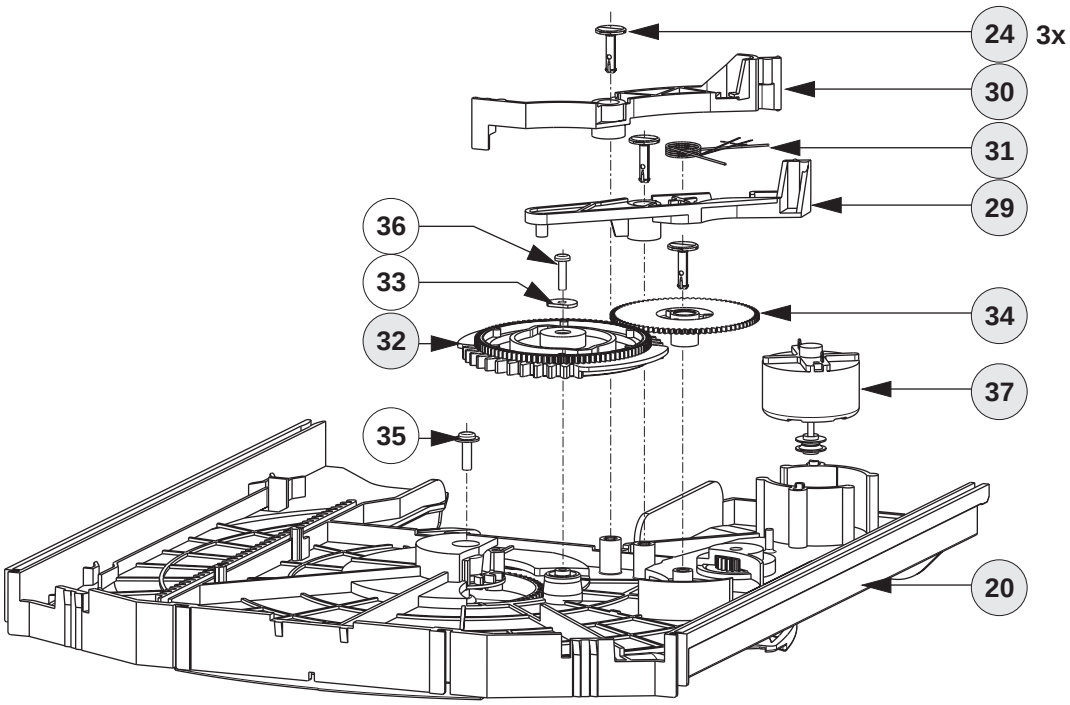
MECHANICAL PARTS ***Drawer → Chapter 10A-11***

20	3103 304 66500	DRAWER BLACK
21	3103 304 66490	CAROUSEL BLACK
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

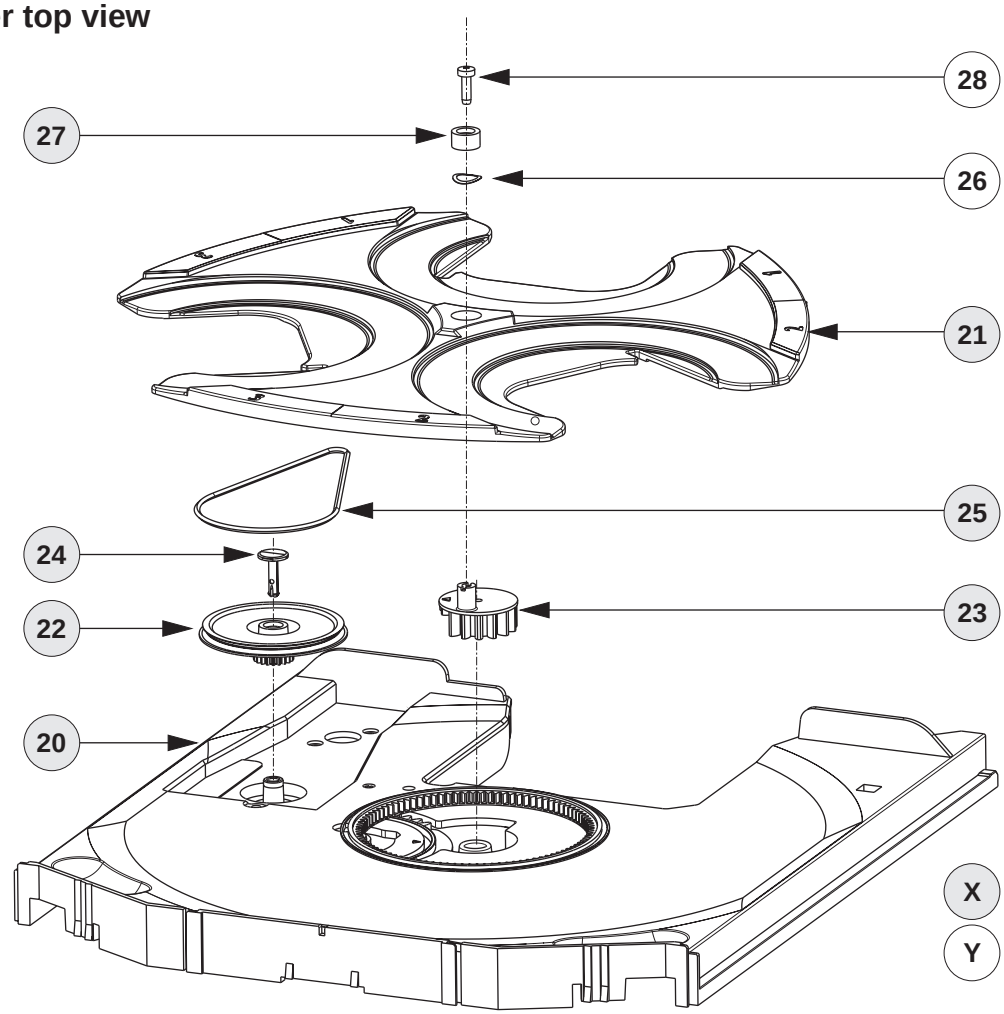
X spare part

Y non spare part

Drawer bottom view



Drawer top view



X spare part

Y non spare part

3CDC LC Drawer assy 1999 09 13

ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE

MISCELLANEOUS

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

CAPACITORS

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

CAPACITORS

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

RESISTORS

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

ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE

RESISTORS

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

RESISTORS

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

ELECTRICAL PARTSLIST 3CDC-LC-MB MODULE

RESISTORS

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

COILS

1810	2422 543 01068	RESONATOR 8MHZ
1810	4822 242 73557	CERAMIC RES. 8,46MHz
5802	4822 156 31058	FILTER DIGITAL OUT

DIODES

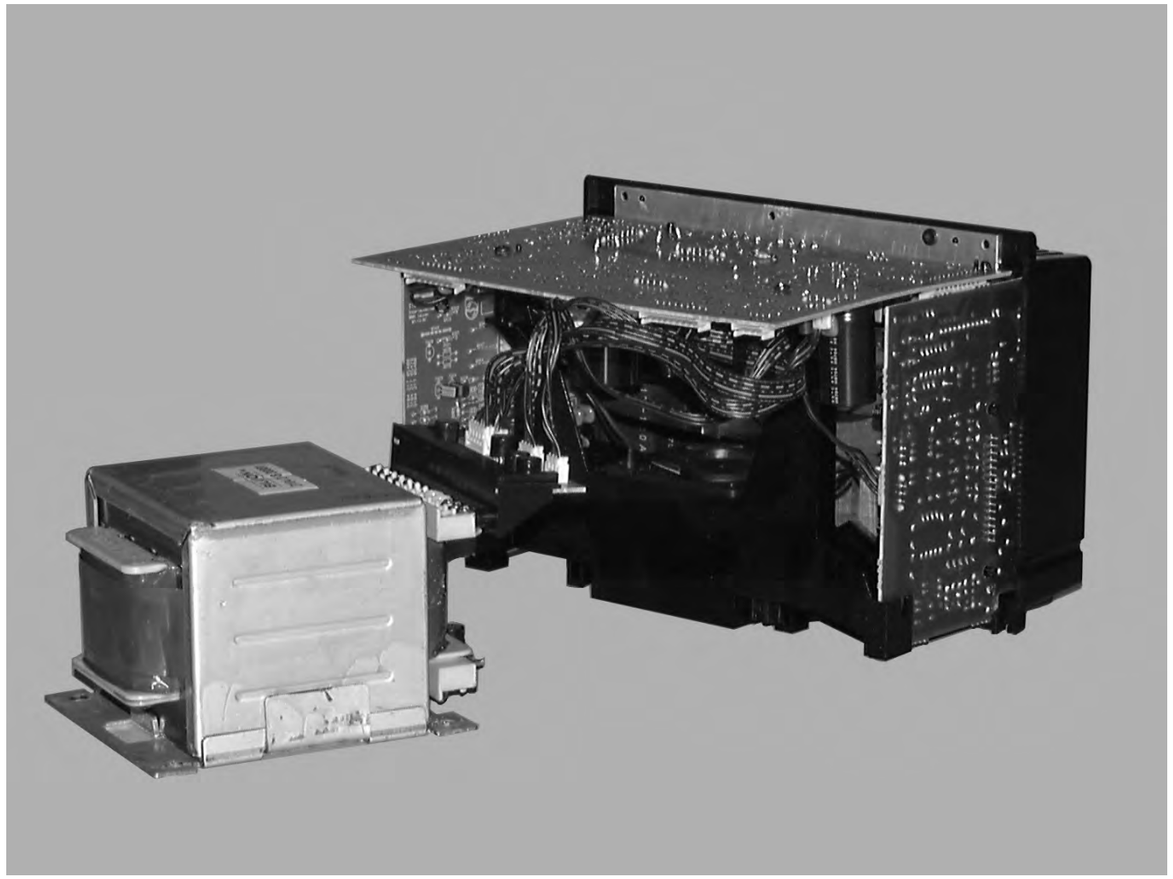
6871 ©	4822 130 11397	BAS316
6872 ©	4822 130 11397	BAS316
6873 ©	4822 130 11397	BAS316
6874 ©	4822 130 11397	BAS316
6875 ©	9340 548 52115	BZX284-C5V1
6877 ©	9322 129 34685	BZX284-C3V9
6878 ©	4822 130 11397	BAS316
6879 ©	9322 129 34685	BZX284-C3V9

TRANSISTORS

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

INTEGRATED CIRCUITS

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



POWER 5-VA Module

(120 / 130W Version)

Stage .7

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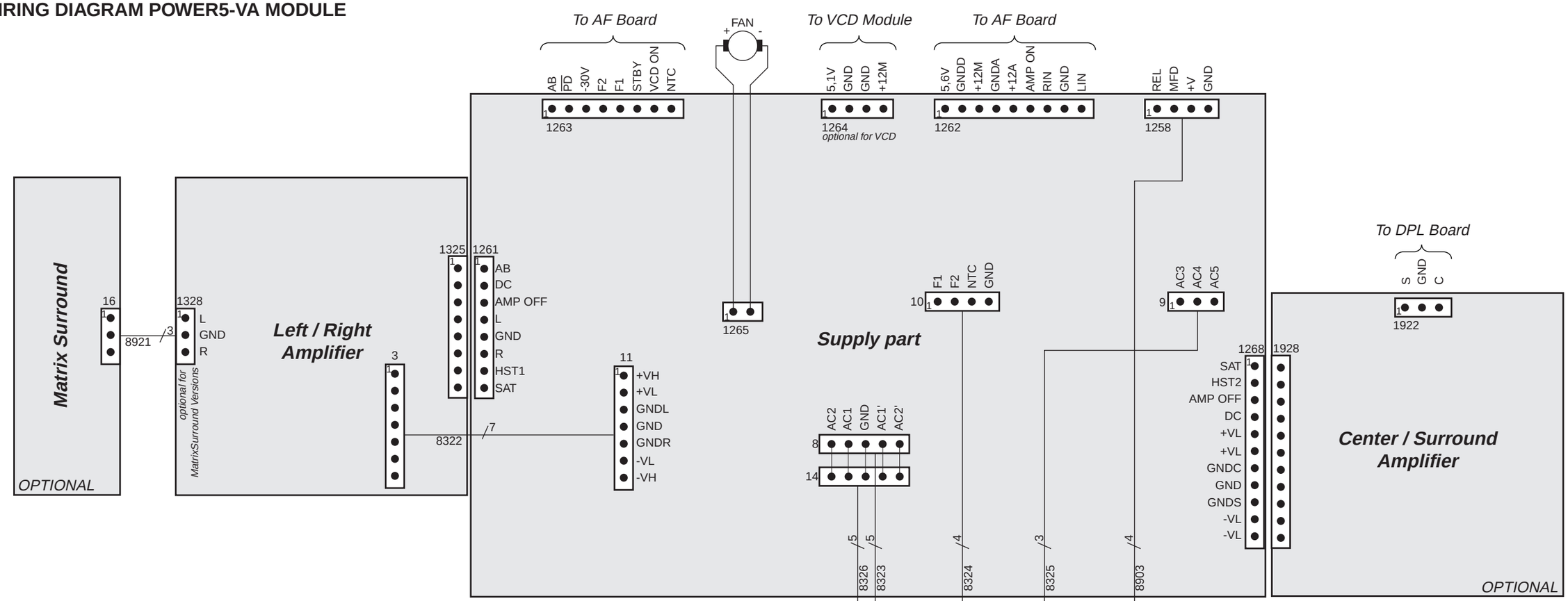
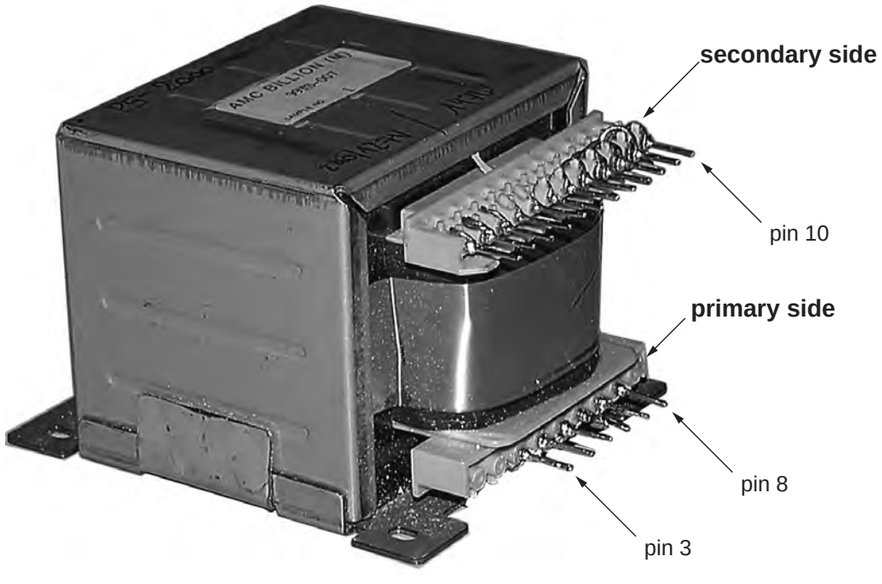
WIRING DIAGRAM POWER5-VA MODULE



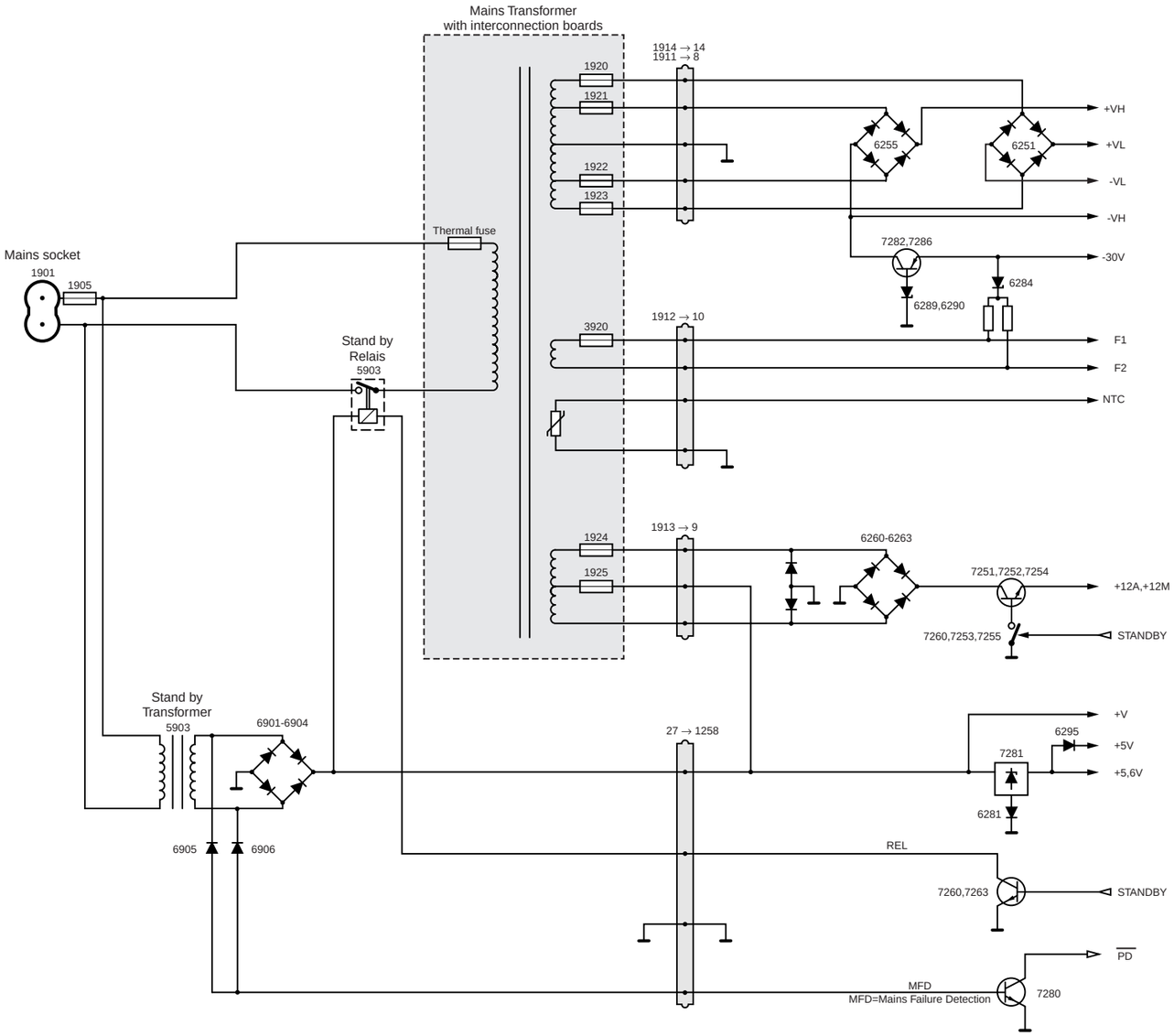
Mains Transformer /21



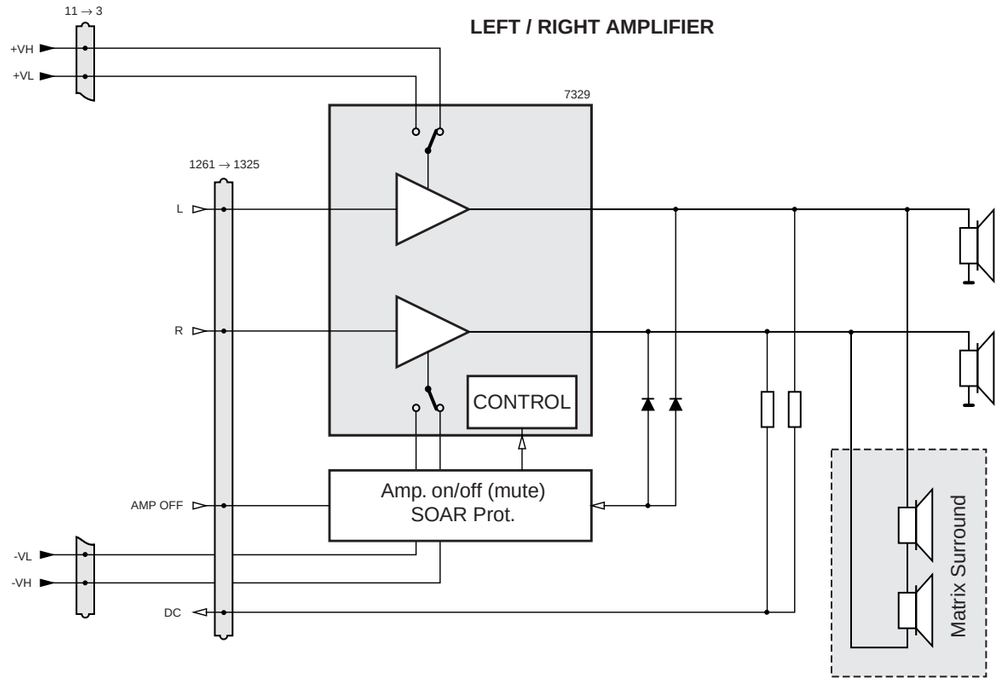
11-3

BLOCK DIAGRAM 120/130W VERSION

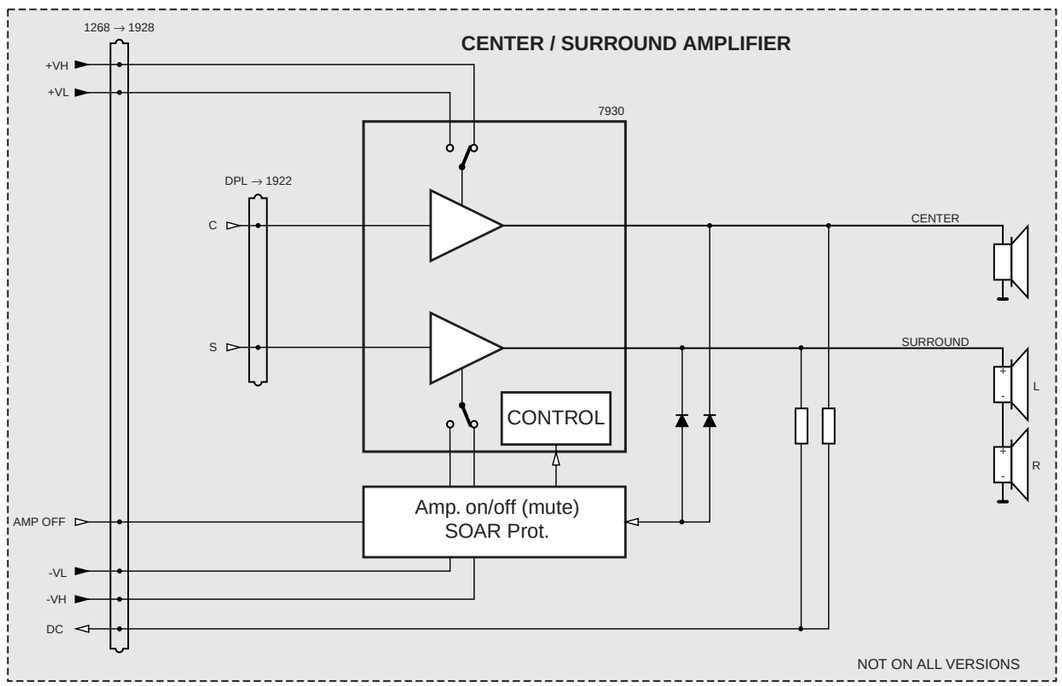
SUPPLY PART



LEFT / RIGHT AMPLIFIER

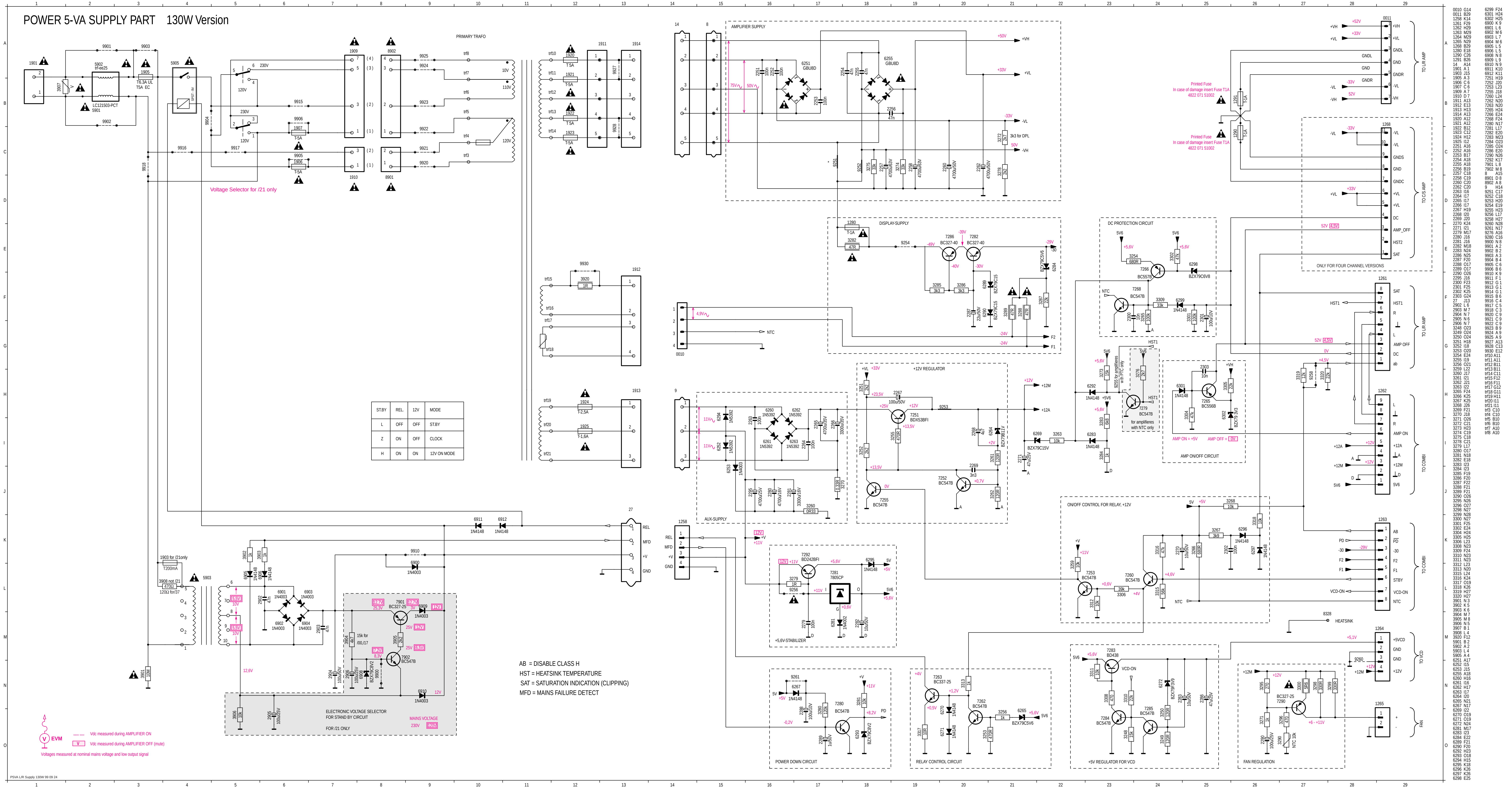


CENTER / SURROUND AMPLIFIER



11-4

COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART


POWER 5-VA SUPPLY PART 130W Version
PRIMARY TRAFO
Voltage Selector for /21 only
AMPLIFIER SUPPLY
DISPLAY-SUPPLY
DC PROTECTION CIRCUIT
ONLY FOR FOUR CHANNEL VERSIONS
+12V REGULATOR
AUX-SUPPLY
AMP ON/OFF CIRCUIT
ON/OFF CONTROL FOR RELAY, +12V
+5,6V-STABILIZER
ELECTRONIC VOLTAGE SELECTOR FOR STAND BY CIRCUIT
FOR /21 ONLY
MAINS VOLTAGE
POWER DOWN CIRCUIT
RELAY CONTROL CIRCUIT
+5V REGULATOR FOR VCD
FAN REGULATION
TO L/R AMP
TO C/S AMP
TO COMBI
TO VCD
FAN
ST.BY | REL | 12V | MODE
L | OFF | OFF | ST.BY
Z | ON | OFF | CLOCK
H | ON | ON | 12V ON MODE
AB = DISABLE CLASS H
HST = HEATSINK TEMPERATURE
SAT = SATURATION INDICATION (CLIPPING)
MFD = MAINS FAILURE DETECT
EVM
Vdc measured during AMPLIFIER ON
Vdc measured during AMPLIFIER OFF (mute)
Voltages measured at nominal mains voltage and low output signal
Printed Fuse
In case of damage insert Fuse T1A
4822 071 51002
PSVA L/R Supply 130W 99 09 24

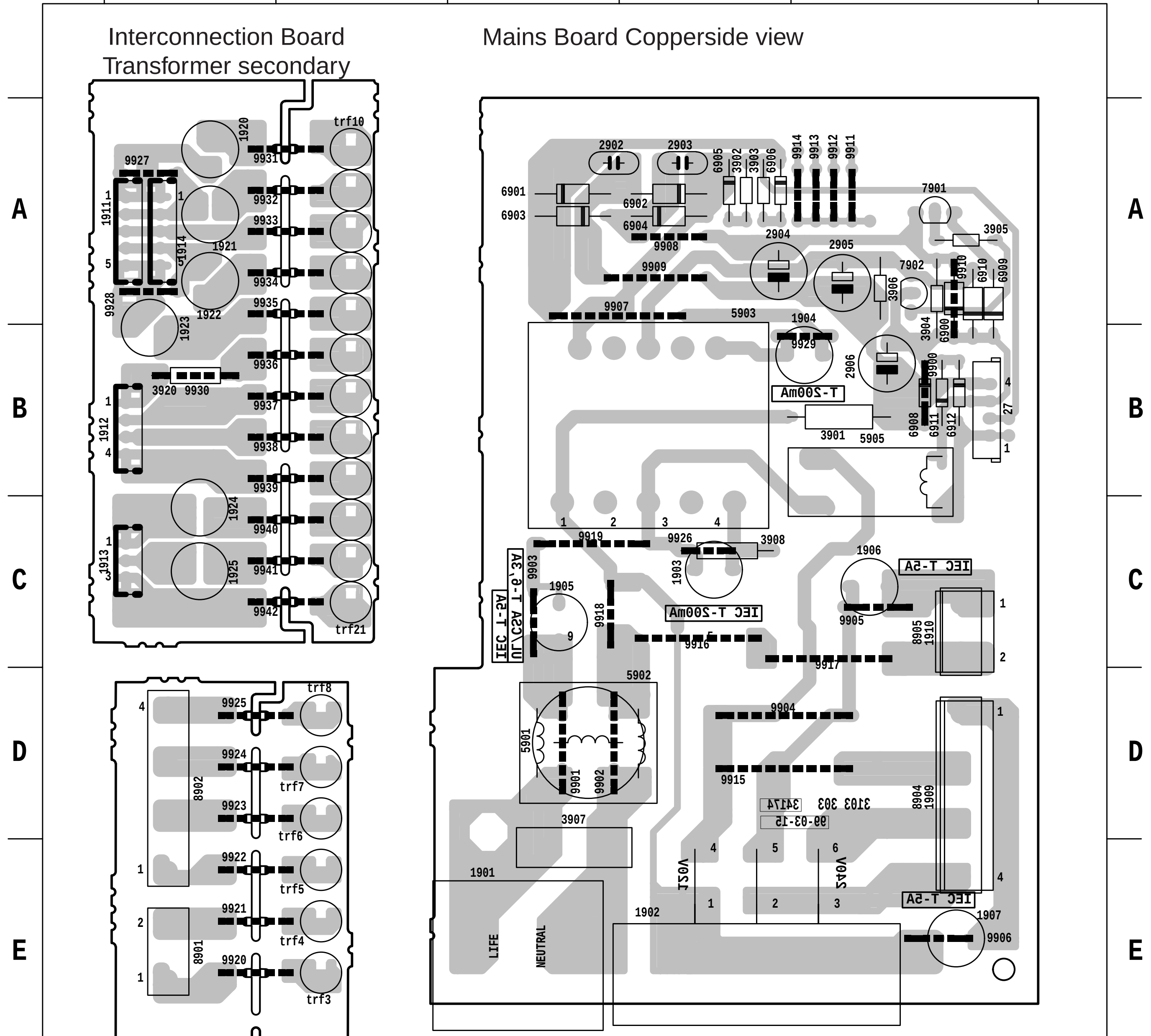
COMPONENT LAYOUT MAINS BOARD

Interconnection Board

primary side	secondary side		
8901 E 5	1911 A 5	9930 B 4	trf10 A 3
8902 D 5	1912 B 5	9931 A 4	trf11 A 3
9920 E 4	1913 C 5	9932 A 4	trf12 A 3
9921 E 4	1914 A 5	9933 A 4	trf13 A 3
9922 E 4	1920 A 4	9934 A 4	trf14 B 3
9923 D 4	1921 A 4	9935 B 4	trf15 B 3
9924 D 4	1922 A 4	9936 B 4	trf16 B 3
9925 D 4	1923 B 5	9937 B 4	trf17 B 3
trf3 E 4	1924 C 4	9938 B 4	trf18 C 3
trf4 E 4	1925 C 4	9939 C 4	trf19 C 3
trf5 E 4	3920 B 4	9940 C 4	trf20 C 3
trf6 D 4	9927 A 5	9941 C 4	trf21 C 3
trf7 D 4	9928 A 5	9942 C 4	
trf8 D 4			

Mains Board

27 B 1	2905 A 1	5905 C 1	7901 A 1	9909 A 2
1901 E 3	2906 B 1	6900 B 1	7902 B 1	9910 B 1
1902 E 2	3901 B 1	6901 A 3	8904 D 1	9911 A 1
1903 C 2	3902 A 2	6902 A 2	8905 C 1	9912 A 1
1904 B 2	3903 A 2	6903 A 3	9900 B 1	9913 A 2
1905 C 3	3904 B 1	6904 A 2	9901 D 3	9914 A 2
1906 C 1	3905 A 1	6905 A 2	9902 D 3	9915 D 2
1907 E 1	3906 A 1	6906 A 2	9903 C 3	9916 D 2
1909 D 1	3907 E 3	6908 B 1	9904 D 2	9917 D 1
1910 C 1	3908 C 2	6909 B 1	9905 C 1	9918 C 3
2902 A 3	5901 D 3	6910 B 1	9906 E 1	9919 C 3
2903 A 2	5902 D 3	6911 B 1	9907 B 3	9926 C 2
2904 A 2	5903 B 2	6912 B 1	9908 A 2	9929 B 2



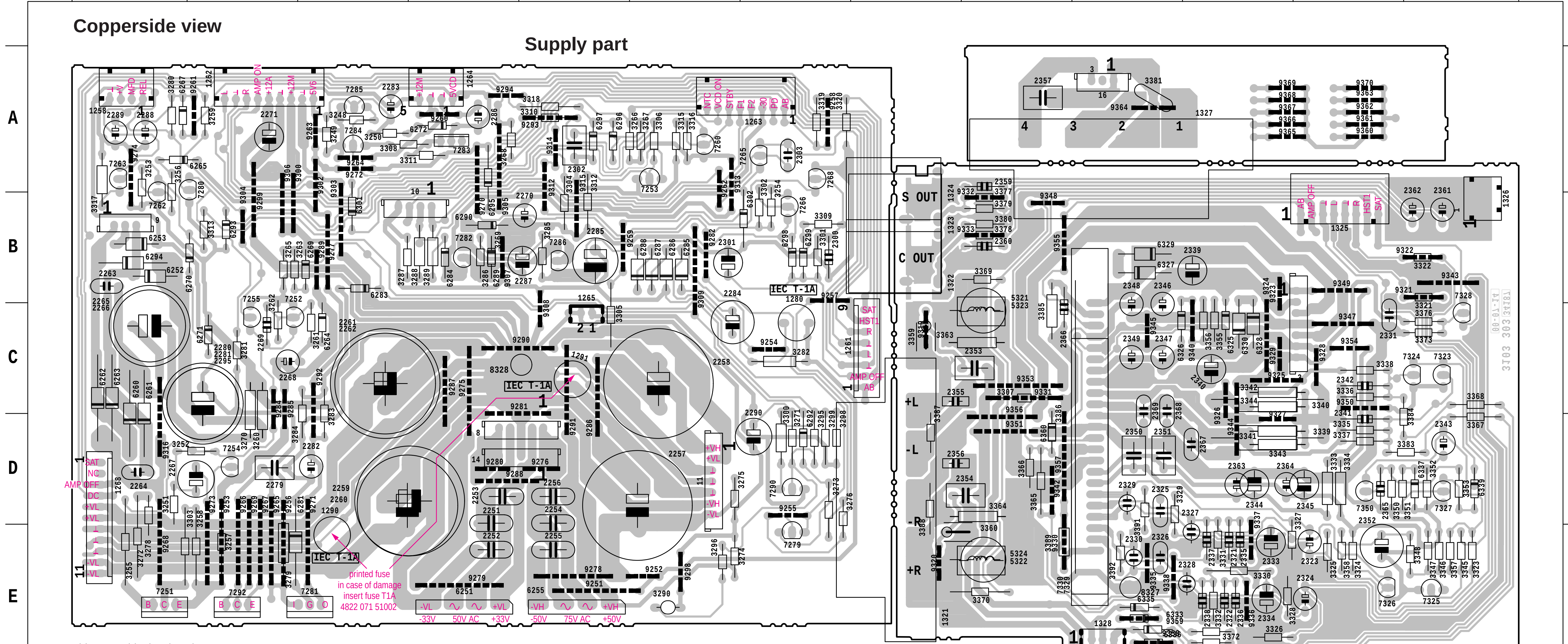
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Transistor pinning
C B E

COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

9360 A 2	9314 A 9	9291 C 9	9272 A 11	9254 C 7	7263 A 13	6292 D 7	6263 C 13	3310 A 9	3287 B 11	3268 A 10	3250 A 11	2281 C 12
9361 A 2	9315 B 9	9292 C 11	9273 E 12	9255 D 7	7265 A 7	6293 B 12	6264 C 11	3311 A 10	3288 B 10	3269 B 10	3251 D 13	2282 D 11
9362 A 2	9316 D 13	9293 A 9	9274 A 13	9256 E 12	7266 B 7	6294 B 13	6265 A 13	3312 B 9	3289 B 10	3270 C 12	3252 D 12	2283 A 11
9363 A 2	T256 C 13	9294 A 10	9275 C 10	9258 A 7	7268 A 7	6295 A 10	6267 A 13	3313 B 12	3290 E 8	3271 D 7	3253 A 13	2284 C 8
9364 A 4	T257 C 12	9298 E 8	9276 D 9	9259 B 9	7280 A 12	6296 A 9	6269 B 11	3315 A 8	3295 D 7	3272 E 13	3254 B 7	2285 B 9
9365 A 3	T258 D 13	9299 B 12	9277 B 11	9260 A 10	7281 E 11	6297 A 9	6270 B 12	3316 A 8	3296 E 8	3273 D 7	3255 E 13	2286 A 10
9366 A 3	T265 B 10	9300 B 12	9278 E 9	9261 A 12	7282 B 10	6298 B 7	6271 C 12	3317 A 13	3298 D 7	3274 E 8	3256 B 13	2287 B 9
9367 A 3	T305 A 11	9302 A 11	9279 E 10	9262 A 8	7283 A 10	6299 B 7	6272 A 10	3318 A 9	3299 D 7	3275 D 8	3257 E 12	2288 A 13
9368 A 3	T312 A 7	9303 B 11	9280 D 10	9263 A 11	7284 A 11	6301 B 11	6281 E 12	3319 A 7	3300 D 7	3278 D 13	3258 E 12	2289 A 13
9369 A 3	T314 A 10	9304 B 12	9281 D 10	9264 A 11	7285 A 11	6302 B 7	6283 B 11	3320 A 7	3301 B 7	3279 E 12	3259 A 12	2290 D 7
9370 A 2	T315 B 9	9305 A 10	9284 C 12	9265 E 12	7286 B 9	7251 E 13	6284 B 10	6251 E 10	3302 B 7	3280 A 13	3260 C 12	2295 C 12
	T316 A 10	9306 B 12	9285 C 12	9266 E 12	7290 D 7	7252 C 12	6285 B 8	6252 B 13	3303 E 13	3281 C 12	3261 C 11	2300 B 7
ADD	----	9307 B 10	9286 C 9	9267 E 12	7292 E 12	7253 A 8	6286 B 8	6253 B 13	3304 B 9	3282 C 7	3262 C 12	2301 B 8
3276 D 6	16 A 4	9308 C 9	9287 C 10	9268 E 13	8328 C 9	7254 D 12	6287 B 8	6255 E 9	3305 C 9	3283 D 11	3263 B 12	2302 A 9
7279 D 7	1327 A 4	9309 B 8	9288 D 10	9269 E 12	9251 E 9	7255 C 12	6288 B 8	6260 D 13	3306 A 8	3284 D 11	3265 B 12	2303 A 7
9257 B 7	2357 A 5	9312 A 9	9289 B 11	9270 A 10	9252 E 8	7260 A 8	6289 B 10	6261 D 13	3308 A 10	3285 B 9	3266 A 8	3248 A 11
9282 B 8	3381 A 4	9313 A 8	9290 C 10	9271 E 11	9253 E 12	7262 B 13	6290 B 10	6262 C 13	3309 B 7	3286 B 10	3267 A 8	3249 A 11

2257 D 8	14 D 9	9348 B 5	9327 D 3	7324 C 1	5322 E 5	3372 E 3	3352 D 1	3334 D 2	2367 D 3	2348 C 4	2330 E 4	3 C 2
2258 C 8	1258 A 13	9349 B 2	9328 C 2	7325 E 1	5323 C 5	3373 C 1	3353 D 1	3335 D 2	2368 C 4	2349 C 4	2331 C 2	1321 D 6
2259 D 10	1261 C 6	9350 C 2	9329 C 3	7326 E 2	5324 E 5	3376 C 1	3355 C 3	3336 C 2	2369 C 4	2350 D 4	2333 E 3	1322 B 6
2260 D 11	1262 A 12	9351 D 5	9330 E 5	7327 D 1	6325 C 3	3377 B 5	3356 C 3	3337 D 2	3307 C 5	2351 D 4	2334 E 3	1323 B 6
2261 C 11	1263 A 7	9353 C 5	9331 C 5	7328 C 1	6326 C 4	3378 B 5	3357 E 1	3338 C 2	3321 B 1	2352 E 2	2335 E 3	1324 B 6
2262 C 11	1264 A 10	9354 C 2	9332 B 5	7329 D 4	6327 B 4	3379 B 5	3358 E 2	3339 D 2	3322 B 1	2353 C 5	2336 E 3	1325 B 2
2263 B 13	1265 C 9	9355 B 5	9333 B 5	7330 C 4	6328 C 3	3380 B 5	3359 C 6	3340 C 2	3323 E 1	2354 D 5	2337 E 3	1326 B 1
2264 D 13	1268 D 13	9356 D 5	9335 E 4	7350 D 2	6329 B 4	3383 D 1	3360 E 6	3341 D 3	3324 E 2	2355 C 6	2338 E 3	1328 E 4
2265 C 13	1280 C 7	9357 D 5	9336 E 3	8327 E 4	6330 C 3	3384 D 1	3363 C 5	3342 C 3	3325 E 2	2356 D 6	2339 B 3	2321 E 3
2266 C 13	1290 E 11	9358 E 4	9337 E 3	9319 C 6	6333 E 4	3385 C 5	3364 D 5	3343 D 3	3326 E 3	2359 A 5	2340 C 3	2322 E 3
2267 D 12	1291 C 9	9359 E 4	9338 E 4	9320 E 6	6334 E 4	3386 D 5	3365 D 5	3344 C 3	3327 E 3	2360 B 5	2341 D 2	2323 E 2
2268 C 12	2251 D 10	T321 A 1	9340 C 3	9321 B 1	6335 E 4	3387 D 6	3366 D 5	3345 E 1	3328 E 3	2361 B 1	2342 C 2	2324 E 2
2269 C 12	2252 E 10	----	9342 D 5	9322 B 1	6336 E 4	3388 D 6	3367 D 1	3346 E 1	3329 D 4	2362 B 1	2343 D 1	2325 D 4
2270 B 9	2253 D 10	8 D 9	9343 B 1	9323 B 3	6337 D 1	3389 E 5	3368 C 1	3347 E 1	3330 E 3	2363 D 3	2344 D 3	2326 E 4
2271 A 12	2254 D 9	9 B 13	9344 D 3	9324 C 3	6339 D 1	3391 D 4	3369 B 5	3348 E 1	3331 E 3	2364 D 3	2345 D 2	2327 E 3
2279 D 12	2255 E 9	10 B 10	9345 C 4	9325 C 3	6360 D 5	3392 E 4	3370 E 5	3350 D 2	3332 E 3	2365 D 2	2346 C 4	2328 E 3
2280 C 12	2256 D 9	11 D 8	9347 C 2	9326 C 3	7323 C 1	5321 C 5	3371 E 3	3351 D 2	3333 D 2	2366 C 5	2347 C 4	2329 D 4



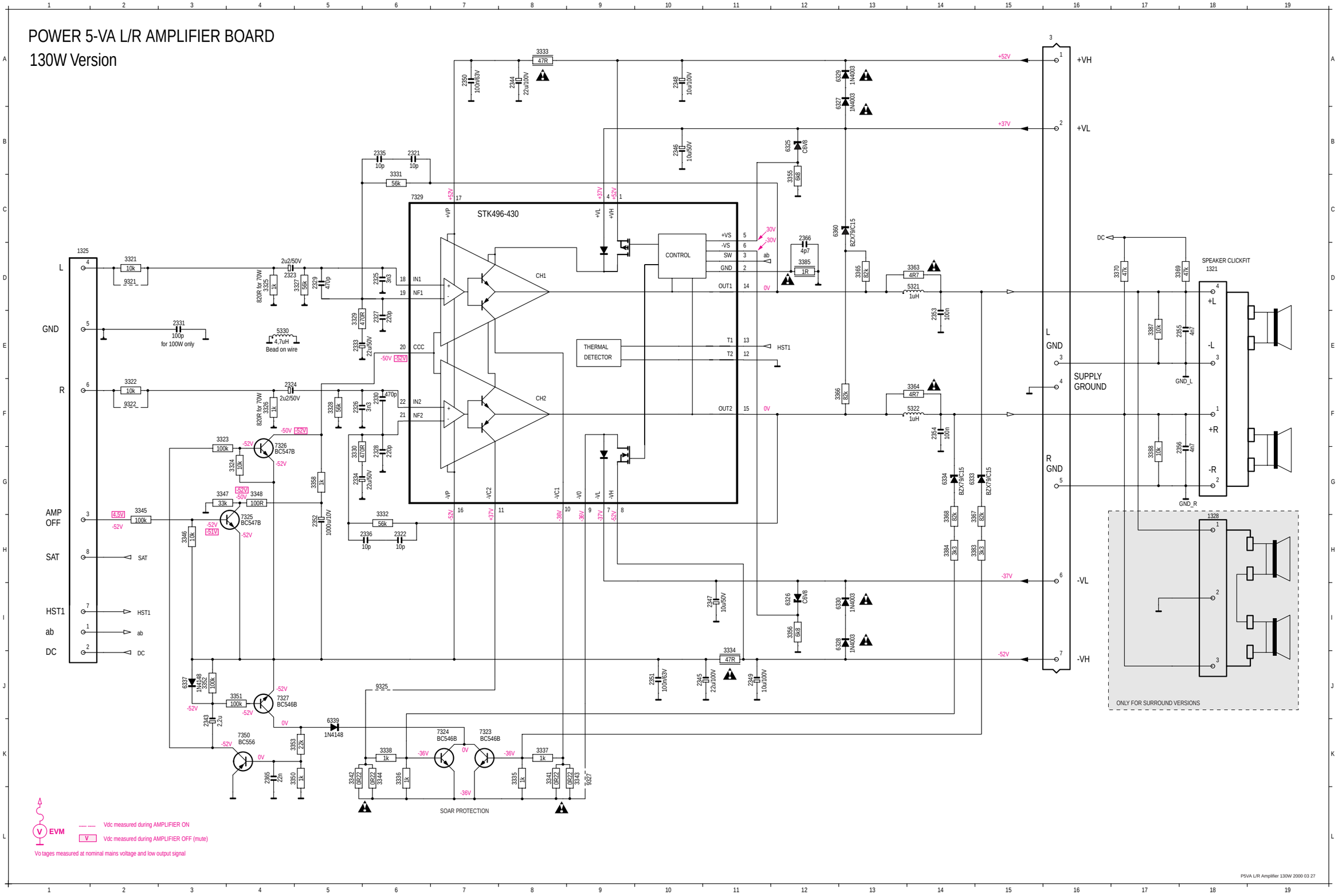
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Transistor pinning
C B E

11-7

POWER 5-VA L/R AMPLIFIER BOARD

130W Version



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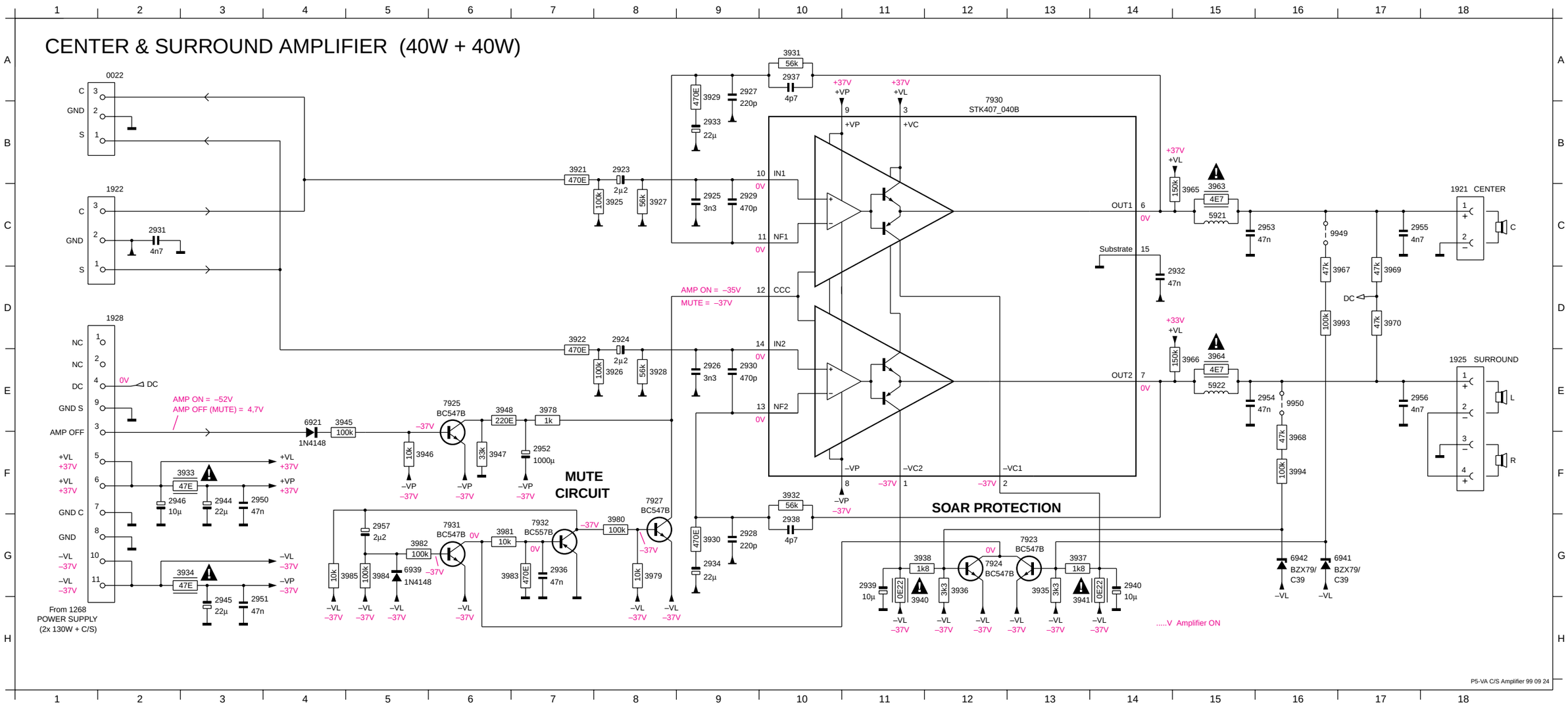
0022	A2	2924	D8	2930	E9	2937	A10	2946	F2	2955	C17	3926	E8	3932	F10	3938	G11	3948	E6	3968	F16	3981	G6	3994	F16	6942	G16	7931	G5
1921	C18	2925	C9	2931	C2	2938	G10	2950	F3	2956	E17	3927	C8	3933	F2	3940	H11	3963	C15	3969	D17	3982	G5	5921	C15	7923	G13	7932	G7
1922	C2	2926	E9	2932	D14	2939	G11	2951	H3	2957	G5	3928	E8	3934	G2	3941	H14	3964	E15	3970	D17	3983	G6	5922	E15	7924	G12	9949	C16
1925	E18	2927	A9	2933	B9	2940	H14	2952	F6	3921	B7	3929	A9	3935	H13	3945	E4	3965	C15	3978	E7	3984	G5	6921	E4	7925	E6	9950	E16
1928	D2	2928	G9	2934	G9	2944	F3	2953	C15	3922	D7	3930	G9	3936	H12	3946	F5	3966	E15	3979	G8	3985	G4	6939	G5	7927	G8		
2923	B8	2929	C9	2936	G7	2945	H3	2954	E15	3925	C8	3931	A10	3937	G13	3947	F6	3967	D16	3980	G8	3993	D16	6941	G16	7930	B12		



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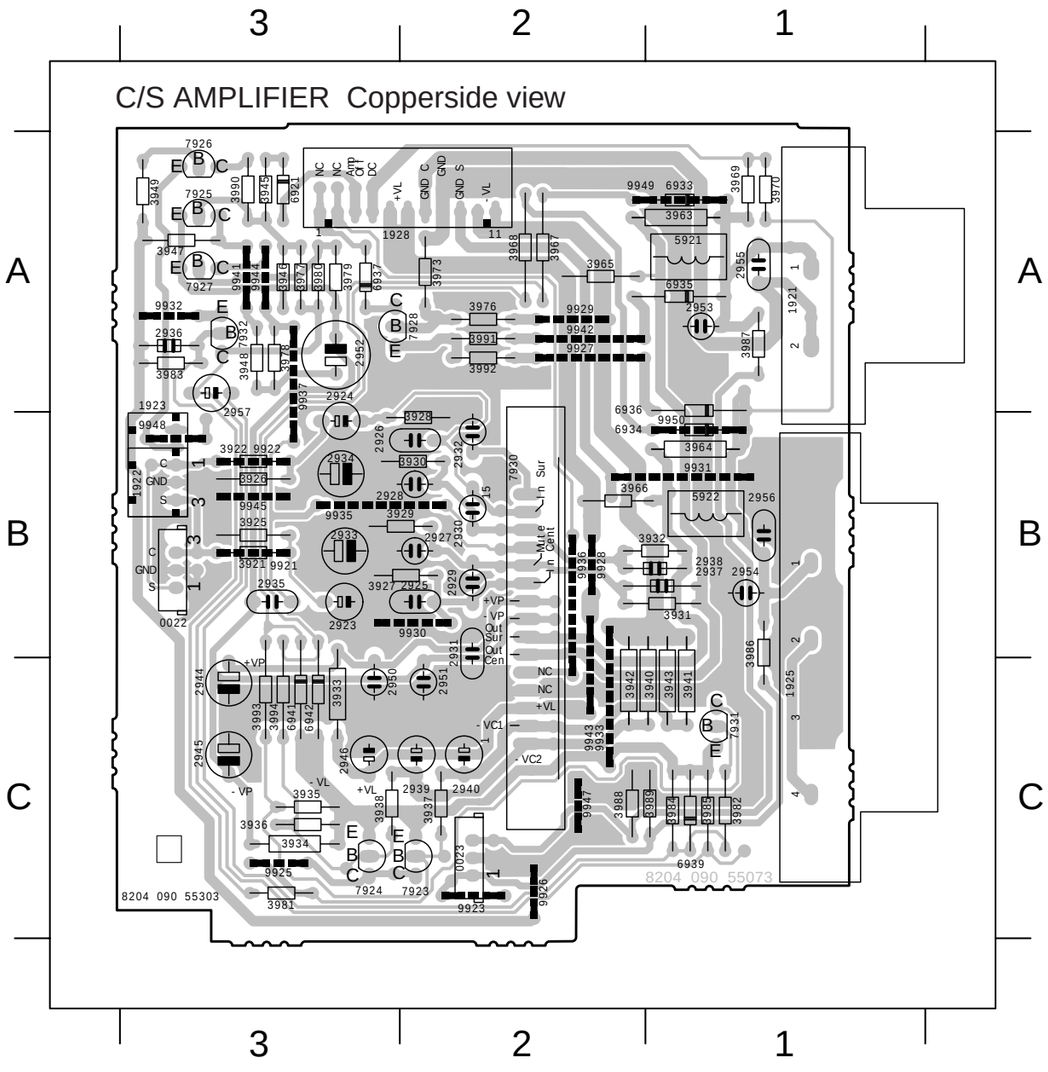
COMPONENT LAYOUT C/S AMPLIFIER PART



0022 B 3
0023 C 2
1921 A 1
1922 B 3
1923 B 3
1925 C 1
1928 A 2
2923 B 3
2924 B 3
2925 B 2
2926 B 2
2927 B 2
2928 B 2
2929 B 2
2930 B 2
2931 B 2
2932 B 2
2933 B 3
2934 B 3
2935 B 3
2936 A 3
2937 B 1
2938 B 1
2939 C 2
2940 C 2
2944 C 3
2945 C 3
2946 C 3
2950 C 3
2951 C 2
2952 A 3
2953 A 1
2954 B 1
2955 A 1
2956 B 1
2957 A 3
3921 B 3
3922 B 3
3925 B 3
3926 B 3
3927 B 2
3928 B 2
3929 B 2
3930 B 2
3931 B 1
3932 B 1
3933 C 3
3934 C 3
3935 C 3
3936 C 3
3937 C 2
3938 C 3
3940 C 1
3941 C 1
3942 C 2
3943 C 1
3945 A 3
3946 A 3
3947 A 3
3948 A 3
3949 A 3
3963 A 1
3964 B 1
3965 A 2
3966 B 2
3967 A 2
3968 A 2
3969 A 1
3970 A 1
3973 A 2
3976 A 2
3977 A 3
3978 A 3
3979 A 3
3980 A 3
3981 C 3
3982 C 1
3983 A 3
3984 C 1
3985 C 1
3986 B 1
3987 A 1
3988 C 2
3990 A 3
3991 A 2
3992 A 2
3993 C 3
3994 C 3
5921 A 1
5922 B 1
6921 A 3
6933 A 1
6934 B 1
6935 A 1
6936 A 1
6937 A 3
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6941 C 3
6942 C 3
7923 C 2
7924 C 3
7925 A 3
7926 A 3
7927 A 3
7928 A 3
7930 C 2
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9925 C 3
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9931 B 1
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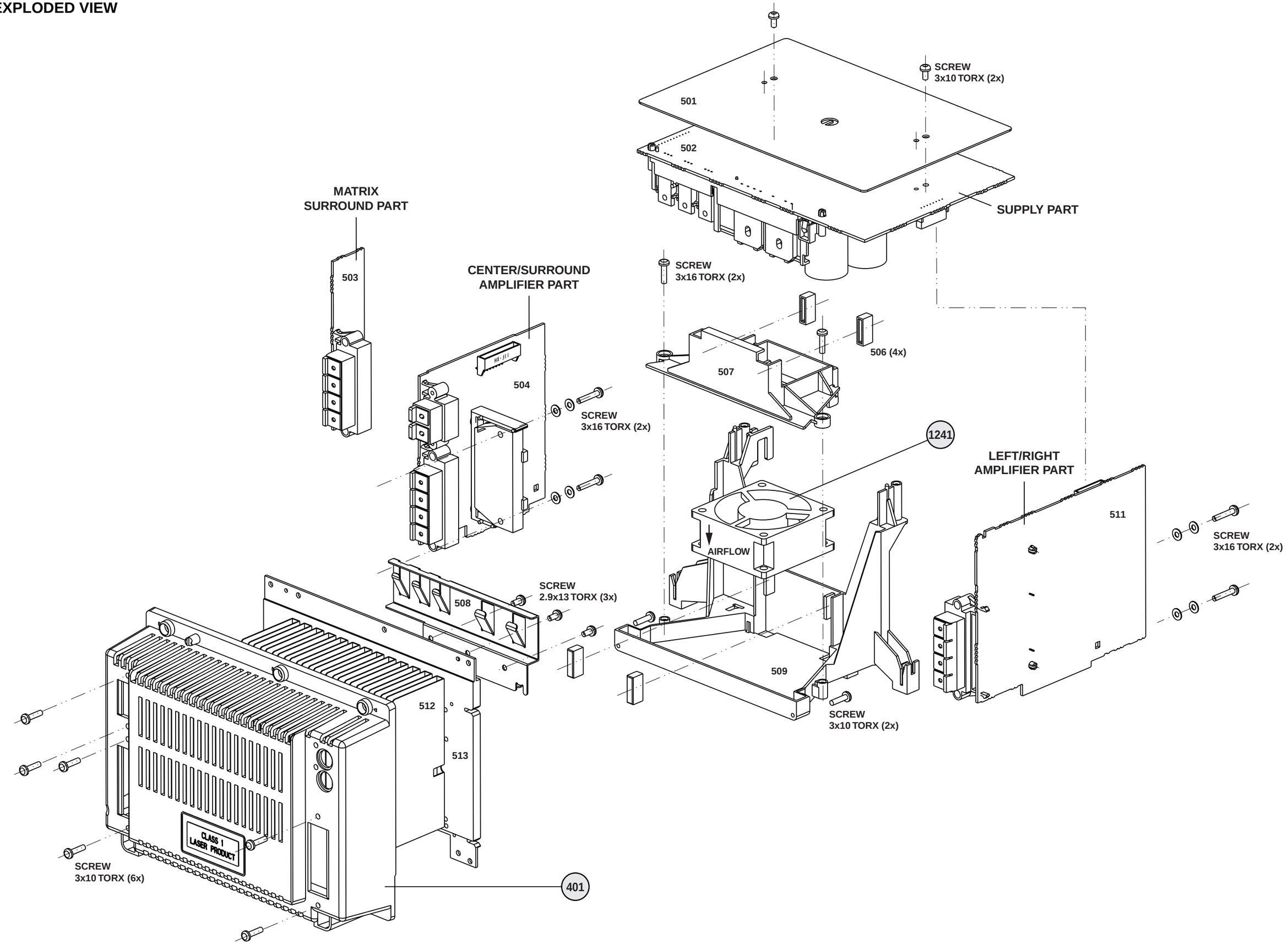
9935 B 3
9936 B 2
9937 A 3
9941 A 3
9942 A 2
9943 C 2
9944 A 3
9945 B 3
9947 C 2
9948 B 3
9949 A 1
9950 B 1

11-10

EXPLODED VIEW



ELECTRICAL PARTSLIST POWER BOARD

MECHANICAL PARTS

	4822 466 93148	SPACER
401	4822 256 10555	RUCKSACK P5 (L/R-MTX)
401	4822 256 10557	RUCKSACK P5 (L/R-C/S)
401	4822 256 10558	RUCKSACK P5 (L/R)
1241	4822 361 11161	KD1206PTS3, FAN

MISCELLANEOUS

1321	4822 267 31176	SPEAKER TERMINAL
1901	4822 265 31015⚠	MAINS SOCKET, IEC
1901	4822 265 31016⚠	MAINS SOCKET, UL
1902	4822 272 10269⚠	VOLTAGE SELECTOR
1903	4822 071 52001⚠	FUSE 200mA/T
1905	4822 071 55002⚠	FUSE T5A
1905	4822 252 51123⚠	FUSE T6,3A
1906	4822 071 55002⚠	FUSE T5A
1907	4822 071 55002⚠	FUSE T5A
1920	4822 071 55002⚠	FUSE T5A
1921	4822 071 55002⚠	FUSE T5A
1922	4822 071 55002⚠	FUSE T5A
1923	4822 071 55002⚠	FUSE T5A
1924	4822 071 52502⚠	FUSE T 2,5A
1925	4822 071 51602⚠	FUSE 1,6A
5903	4822 146 11142⚠	STBY TRANSFORMER, USA
5903	4822 146 11143⚠	STBY TRANSFORMER, EUROPE
5903	4822 146 11144⚠	STBY TRANSFORMER, OVERSEA
5905	4822 280 10382⚠	STAND BY RELAIS, SDT-SS-109DM

CAPACITORS

2251	5322 121 42578	100nF	10%	100V
2252	5322 121 42578	100nF	10%	100V
2253	5322 121 42578	100nF	10%	100V
2254	4822 121 43526	47nF	5%	100V
2255	4822 121 43526	47nF	5%	100V
2256	4822 121 43526	47nF	5%	100V
2257	4822 124 12423	4700µF	20%	63V
2258	4822 124 12423	4700µF	20%	63V
2260	4822 124 80415	4700µF	20%	50V
2262	4822 124 80415	4700µF	20%	50V
2263	5322 121 42386	100nF	5%	63V
2264	5322 121 42386	100nF	5%	63V
2265	4822 124 80563	4700µF	20%	35V
2267	4822 124 40255	100µF	20%	50V
2268	4822 124 40769	4,7µF	20%	100V
2269	4822 121 51387	10nF	20%	16V
2269	4822 122 10577	3,3nF	10%	16V
2269	4822 122 33197	1nF	10%	50V
2270	4822 124 40248	10µF	20%	63V
2270	4822 124 41579	10µF	20%	50V
2271	4822 124 40433	47µF	20%	25V
2279	5322 121 42386	100nF	5%	63V
2280	4822 124 12328	6800µF	20%	16V
2282	4822 124 40248	10µF	20%	63V
2282	4822 124 41579	10µF	20%	50V
2289	4822 124 21913	1µF	20%	63V
2289	4822 124 40242	1µF	20%	63V
2290	4822 124 40207	100µF	20%	25V
2300	4822 121 51387	10nF	20%	16V
2301	4822 124 41584	100µF	20%	10V
2303	4822 121 41857	10nF	5%	250V
2321	4822 122 33847	10pF	5%	50V
2322	4822 122 33847	10pF	5%	50V
2323	4822 124 22652	2,2µF	20%	50V
2323	4822 124 41576	2,2µF	20%	50V

CAPACITORS

2324	4822 124 22652	2,2µF	20%	50V
2324	4822 124 41576	2,2µF	20%	50V
2325	4822 122 33532	3,3nF	5%	50V
2326	4822 122 33532	3,3nF	5%	50V
2327	5322 122 32334	220pF	10%	100V
2328	5322 122 32334	220pF	10%	100V
2329	5322 122 32311	470pF	10%	100V
2330	5322 122 32311	470pF	10%	100V
2331	5322 122 32261	4,7nF	10%	100V
2333	4822 124 81151	22µF	20%	50V
2334	4822 124 81151	22µF	20%	50V
2335	4822 122 33847	10pF	5%	50V
2336	4822 122 33847	10pF	5%	50V
2341	4822 126 11585	22nF	20%	50V
2342	4822 126 11585	22nF	20%	50V
2343	4822 124 22652	2,2µF	20%	50V
2343	4822 124 41579	10µF	20%	50V
2344	4822 124 40764	22µF	20%	100V
2345	4822 124 40764	22µF	20%	100V
2346	4822 124 40248	10µF	20%	63V
2346	4822 124 41579	10µF	20%	50V
2347	4822 124 40248	10µF	20%	63V
2347	4822 124 41579	10µF	20%	50V
2348	4822 124 81043	10µF	20%	100V
2349	4822 124 81043	10µF	20%	100V
2350	5322 121 42386	100nF	5%	63V
2351	5322 121 42386	100nF	5%	63V
2352	4822 124 40181	220µF	20%	10V
2353	5322 121 42386	100nF	5%	63V
2354	5322 121 42386	100nF	5%	63V
2355	5322 122 32261	4,7nF	10%	100V
2356	5322 122 32261	4,7nF	10%	100V
2365	4822 126 12785	47nF	20%	50V
2902	4822 121 43526	47nF	5%	100V
2903	4822 121 43526	47nF	5%	100V
2904	4822 124 40255	100µF	20%	50V
2905	4822 124 40207	100µF	20%	25V

RESISTORS

3251	4822 116 52256	2,2kΩ	5%	0,16W
3252	4822 116 52256	2,2kΩ	5%	0,16W
3254	4822 116 52228	680Ω	5%	0,5W
3255	4822 116 83883	470Ω	5%	0,16W
3259	4822 050 21003	10kΩ	2%	0,25W
3259	4822 116 83864	10kΩ	5%	0,5W
3260	4822 117 11342	0,33Ω	5%	2W
3261	4822 116 52206	120Ω	5%	0,5W
3261	4822 116 83876	270Ω	5%	0.16W
3262	4822 116 52206	120Ω	5%	0,5W
3263	4822 050 21003	10kΩ	2%	0,25W
3264	4822 116 83864	10kΩ	5%	0,5W
3265	4822 116 52234	100kΩ	5%	0,5W
3266	4822 116 52228	680Ω	5%	0,5W
3267	4822 116 52276	3,9kΩ	5%	0,5W
3268	4822 050 21003	10kΩ	2%	0,25W
3269	4822 116 83864	10kΩ	5%	0,5W
3270	4822 117 11342	0,33Ω	5%	2W
3271	4822 050 11002	1kΩ	5%	0,2W
3272	4822 116 52263	2,7kΩ	5%	0,5W
3272	4822 116 52269	3,3kΩ	5%	0,5W
3273	4822 116 52244	15kΩ	5%	0,5W
3274	4822 050 23303	33kΩ	1%	0,6W
3275	4822 050 23303	33kΩ	1%	0,6W

ELECTRICAL PARTSLIST POWER BOARD

RESISTORS

3278	4822 116 52256	2,2kΩ	5%	0,16W
3280	4822 116 52239	120kΩ	5%	0,5W
3281	4822 116 83864	10kΩ	5%	0,5W
3282	4822 052 10479	47Ω	5%	0,3W
3285	4822 116 52269	3,3kΩ	5%	0,5W
3286	4822 116 52269	3,3kΩ	5%	0,5W
3287	4822 116 52257	22kΩ	5%	0,5W
3288	4822 052 10479	47Ω	5%	0,3W
3289	4822 052 10479	47Ω	5%	0,3W
3290	4822 117 12063	10kΩ NTC		
3295	4822 116 83876	270Ω	5%	0.16W
3296	4822 116 83883	470Ω	5%	0,16W
3298	4822 116 52219	330Ω	5%	0,5W
3299	4822 116 52219	330Ω	5%	0,5W
3300	4822 052 10568	5,6Ω	5%	0,33W
3302	4822 116 83884	47kΩ	5%	0,16W
3304	4822 116 83884	47kΩ	5%	0,16W
3305	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 83882	39kΩ	5%	0,5W
3307	4822 116 52256	2,2kΩ	5%	0,16W
3309	4822 050 23303	33kΩ	1%	0,6W
3312	4822 116 83864	10kΩ	5%	0,5W
3313	4822 050 11002	1kΩ	5%	0,2W
3315	4822 116 52291	56kΩ	5%	0,5W
3315	4822 116 83884	47kΩ	5%	0,16W
3316	4822 116 83884	47kΩ	5%	0,16W
3317	4822 052 10109	10Ω	5%	NFR
3321	4822 116 83864	10kΩ	5%	0,5W
3322	4822 116 83864	10kΩ	5%	0,5W
3323	4822 116 52234	100kΩ	5%	0,5W
3324	4822 116 83864	10kΩ	5%	0,5W
3325	4822 050 11002	1kΩ	5%	0,2W
3325	4822 116 52207	1,2kΩ	5%	0,5W
3326	4822 050 11002	1kΩ	5%	0,2W
3326	4822 116 52207	1,2kΩ	5%	0,5W
3327	4822 116 52291	56kΩ	5%	0,5W
3328	4822 116 52291	56kΩ	5%	0,5W
3329	4822 116 52226	560Ω	5%	0,5W
3329	4822 116 83883	470Ω	5%	0,16W
3330	4822 116 52226	560Ω	5%	0,5W
3330	4822 116 83883	470Ω	5%	0,16W
3331	4822 116 52291	56kΩ	5%	0,5W
3332	4822 116 52291	56kΩ	5%	0,5W
3333	4822 052 10479	47Ω	5%	0,3W
3334	4822 052 10479	47Ω	5%	0,3W
3335	4822 050 11002	1kΩ	5%	0,2W
3335	4822 116 52207	1,2kΩ	5%	0,5W
3336	4822 050 11002	1kΩ	5%	0,2W
3336	4822 116 52207	1,2kΩ	5%	0,5W
3337	4822 050 11002	1kΩ	5%	0,2W
3338	4822 050 11002	1kΩ	5%	0,2W
3339	4822 113 80633	0,1Ω	5%	3W
3340	4822 113 80633	0,1Ω	5%	3W
3341	4822 117 11744	0,22Ω	5%	1W
3342	4822 117 11744	0,22Ω	5%	1W
3343	4822 117 11744	0,22Ω	5%	1W
3344	4822 117 11744	0,22Ω	5%	1W
3345	4822 116 52234	100kΩ	5%	0,5W
3346	4822 116 83864	10kΩ	5%	0,5W

RESISTORS

3347	4822 050 23303	33kΩ	1%	0,6W
3348	4822 116 83872	220Ω	5%	0,5W
3350	4822 050 11002	1kΩ	5%	0,2W
3351	4822 116 52234	100kΩ	5%	0,5W
3352	4822 116 52234	100kΩ	5%	0,5W
3353	4822 116 52257	22kΩ	5%	0,5W
3355	4822 116 83961	6,8kΩ	5%	0,16W
3356	4822 116 83961	6,8kΩ	5%	0,16W
3357	4822 116 52234	100kΩ	5%	0,5W
3358	4822 050 11002	1kΩ	5%	0,2W
3363	4822 053 10478	4,7Ω	5%	1W
3364	4822 053 10478	4,7Ω	5%	1W
3365	4822 116 52234	100kΩ	5%	0,5W
3365	4822 116 52304	82kΩ	5%	0,5W
3366	4822 116 52234	100kΩ	5%	0,5W
3366	4822 116 52304	82kΩ	5%	0,5W
3367	4822 116 52304	82kΩ	5%	0,5W
3368	4822 116 52304	82kΩ	5%	0,5W
3369	4822 116 83884	47kΩ	5%	0,16W
3370	4822 116 83884	47kΩ	5%	0,16W
3383	4822 050 21003	10kΩ	2%	0,25W
3383	4822 116 52269	3,3kΩ	5%	0,5W
3383	4822 116 83864	10kΩ	5%	0,5W
3384	4822 050 21003	10kΩ	2%	0,25W
3384	4822 116 52269	3,3kΩ	5%	0,5W
3385	4822 052 10108	1Ω	5%	0,33W
3387	4822 050 21003	10kΩ	2%	0,25W
3388	4822 050 21003	10kΩ	2%	0,25W
3391	4822 116 52176	10Ω	5%	0,5W
3392	4822 116 52176	10Ω	5%	0,5W
3901	4822 053 21106	10MΩ	5%	0,5W
3902	4822 050 11002	1kΩ	5%	0,2W
3903	4822 050 11002	1kΩ	5%	0,2W
3904	4822 116 52244	15kΩ	5%	0,5W
3904	4822 116 52283	4,7kΩ	5%	0,5W
3905	4822 116 52256	2,2kΩ	5%	0,16W
3906	4822 050 21003	10kΩ	2%	0,25W
3908	4822 053 10471	470Ω	5%	1W
3920	4822 052 10108	1Ω	5%	0,33W

COILS

5321	4822 157 70599	1µH
5322	4822 157 70599	1µH
5901	4822 157 11832	400µH
5902	4822 157 11628	MAINS CHOKE

DIODES

6251	4822 130 11139	BRIDGE RECTIFIER GBU8D
6251	4822 130 83302	BRIDGE RECTIFIER GBU4D
6252	4822 130 31878	1N4003G
6252	5322 130 80686	1N5392
6253	4822 130 31878	1N4003G
6255	4822 130 11139	GBU8D
6260	4822 130 31878	1N4003G
6260	5322 130 80686	1N5392
6261	4822 130 31878	1N4003G
6261	5322 130 80686	1N5392
6262	4822 130 31878	1N4003G
6262	5322 130 80686	1N5392
6263	4822 130 31878	1N4003G
6263	5322 130 80686	1N5392
6264	4822 130 61219	BZX79-C10

ELECTRICAL PARTSLIST POWER BOARD

DIODES

6264	9331 668 80133	DIO REG BZX79-B11
6269	4822 130 34281	BZX79-C15
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148
6281	4822 130 31878	1N4003G
6284	4822 130 34173	BZX79-B5V6
6289	4822 130 34281	BZX79-C15
6290	4822 130 34281	BZX79-C15
6292	4822 130 30621	1N4148
6293	4822 130 34382	BZX79-B8V2
6294	4822 130 31878	1N4003G
6294	5322 130 80686	1N5392
6295	4822 130 30621	1N4148
6298	4822 130 34278	BZX79-C6V8
6299	4822 130 30621	1N4148
6301	4822 130 30621	1N4148
6302	5322 130 31504	BZX79-B3V3
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
6900	4822 130 31878	1N4003G
6901	4822 130 31878	1N4003G
6902	4822 130 31878	1N4003G
6903	4822 130 31878	1N4003G
6904	4822 130 31878	1N4003G
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6908	4822 130 34382	BZX79-B8V2
6909	4822 130 32245	BYV10-40
6910	4822 130 31878	1N4003G
6911	4822 130 30621	1N4148
6912	4822 130 30621	1N4148

TRANSISTORS

7251	4822 130 10812	BDX53BFI
7251	9322 139 23687	BDX53BFP
7252	4822 130 40959	BC547B
7253	4822 130 40959	BC547B
7253	4822 130 44568	BC557B
7255	4822 130 40959	BC547B
7260	4822 130 40959	BC547B
7263	4822 130 40959	BC547B
7263	4822 130 40981	BC337-25
7265	4822 130 41691	BC556B
7266	4822 130 44568	BC557B
7268	4822 130 40959	BC547B
7280	4822 130 40959	BC547B
7282	4822 130 41246	BC327-25
7282	4822 130 41327	BC327-40
7286	4822 130 41246	BC327-25
7286	4822 130 41327	BC327-40
7290	4822 130 41246	BC327-25
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
7350	4822 130 41691	BC556B
7901	4822 130 41246	BC327-25
7902	4822 130 40959	BC547B

INTEGRATED CIRCUITS

7281	4822 209 31841	L7805CP
7329	4822 209 17384	POWER AMPLIFIER STK496-430

ELECTRICAL PARTSLIST CENTER/SURROUND BOARD

MISCELLANEOUS

1921	4822 265 10464	SPEAKER TERMINAL 2P
1925	4822 265 10912	SPEAKER TERMINAL 4P

CAPACITORS

2923	4822 124 22652	2,2µF	20%	50V
2924	4822 124 22652	2,2µF	20%	50V
2925	4822 122 33532	3,3nF	5%	50V
2926	4822 122 33532	3,3nF	5%	50V
2927	5322 122 32334	220pF	10%	100V
2928	5322 122 32334	220pF	10%	100V
2929	5322 122 32311	470pF	10%	100V
2930	5322 122 32311	470pF	10%	100V
2931	5322 122 32261	4,7nF	10%	100V
2932	4822 122 33449	47nF	30%	50V
2933	4822 124 81151	22µF	20%	50V
2934	4822 124 81151	22µF	20%	50V
2936	4822 126 12882	100nF	20%	50V
2937	4822 122 10465	4,7pF	10%	50V
2938	4822 122 10465	4,7pF	10%	50V
2939	4822 124 40248	10µF	20%	63V
2940	4822 124 40248	10µF	20%	63V
2944	4822 124 81151	22µF	20%	50V
2945	4822 124 81151	22µF	20%	50V
2946	4822 124 40248	10µF	20%	63V
2950	4822 122 33449	47nF	30%	50V
2951	4822 122 33449	47nF	30%	50V
2952	4822 124 40184	1000µF	20%	10V
2953	4822 122 33449	47nF	30%	50V
2954	4822 122 33449	47nF	30%	50V
2955	5322 122 32261	4,7nF	10%	100V
2956	5322 122 32261	4,7nF	10%	100V
2957	4822 124 22652	2,2µF	20%	50V

RESISTORS

3921	4822 116 83883	470Ω	5%	0,16W
3922	4822 116 83883	470Ω	5%	0,16W
3925	4822 116 52234	100kΩ	5%	0,5W
3926	4822 116 52234	100kΩ	5%	0,5W
3927	4822 116 52291	56kΩ	5%	0,5W
3928	4822 116 52291	56kΩ	5%	0,5W
3929	4822 116 83883	470Ω	5%	0,16W
3930	4822 116 83883	470Ω	5%	0,16W
3931	4822 116 52291	56kΩ	5%	0,5W
3932	4822 116 52291	56kΩ	5%	0,5W
3933	4822 052 10479	47Ω	5%	0,3W
3934	4822 052 10479	47Ω	5%	0,3W
3935	4822 116 52256	2,2kΩ	5%	0,16W
3936	4822 116 52256	2,2kΩ	5%	0,16W
3937	4822 116 52249	1,8kΩ	5%	0,16W
3938	4822 116 52249	1,8kΩ	5%	0,16W
3940	4822 117 11744	0,22Ω	5%	1W
3941	4822 117 11744	0,22Ω	5%	1W
3945	4822 116 52234	100kΩ	5%	0,5W
3946	4822 050 21003	10kΩ	2%	0,25W
3947	4822 050 23303	33kΩ	1%	0,6W
3948	4822 116 83872	220Ω	5%	0,5W
3963	4822 053 10478	4,7Ω	5%	1W
3964	4822 053 10478	4,7Ω	5%	1W
3965	4822 116 52245	150kΩ	5%	0,16W

RESISTORS

3966	4822 116 52245	150kΩ	5%	0,16W
3967	4822 116 83884	47kΩ	5%	0,16W
3968	4822 116 83884	47kΩ	5%	0,16W
3969	4822 116 83884	47kΩ	5%	0,16W
3970	4822 116 83884	47kΩ	5%	0,16W
3978	4822 050 11002	1kΩ	5%	0,2W
3979	4822 050 21003	10kΩ	2%	0,25W
3980	4822 116 52234	100kΩ	5%	0,5W
3981	4822 050 21003	10kΩ	2%	0,25W
3982	4822 116 52234	100kΩ	5%	0,5W
3983	4822 116 83883	470Ω	5%	0,16W
3984	4822 116 52234	100kΩ	5%	0,5W
3985	4822 050 21003	10kΩ	2%	0,25W
3993	4822 116 52234	100kΩ	5%	0,5W
3994	4822 116 52234	100kΩ	5%	0,5W

COILS

5921	4822 157 62255	COIL 18,5 TURNS
5922	4822 157 62255	COIL 18,5 TURNS

DIODES

6921	4822 130 30621	1N4148
6939	4822 130 30621	1N4148
6941	4822 130 34145	BZX79-B39
6942	4822 130 34145	BZX79-B39

TRANSISTORS

7923	4822 130 40959	BC547B
7924	4822 130 40959	BC547B
7925	4822 130 40959	BC547B
7927	4822 130 40959	BC547B
7931	4822 130 40959	BC547B
7932	4822 130 44568	BC557B

INTEGRATED CIRCUITS

7930	4822 209 17385	POWER AMPLIFIER STK496-070

AF8 BOARD

TABLE OF CONTENTS

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BRIEF INTRODUCTION OF THE AF8 BOARD

The AF8 Board consists of the following features :

a. TDA7437 IC
TDA7437 (7511) audio processor IC includes functions such as source selection, loudness, dynamic bass control, treble control, front/rear volume control and muting function. Sound features such as DBB, DSC and IS are controllable via I^2C bus. All input sources are used namely CD, TUNER, TAPE, AUX and Differential input. Mono input is unused and terminated to ground via a capacitor.

b. MIC. MIXING
The AF8 Board can provide simple karaoke (without echo) which caters for mic. mixing with additional mic. amplifier board.

c. LINE OUT
Line out cinch is included for connection to external devices such as amplifier, recorders etc.

d. SUB-WOOFER OUT
Sub-woofer out cinch is included for connection to active sub-woofer speaker.

e. INCREDIBLE SURROUND
Incredible surround effect using transistor circuit to create phase shifting and spatial effect.

f. HEADPHONE AMPLIFIER
A headphone can be driven by Op-amp NJM4556AM.

g. CD STANDBY CONTROL
Control circuit that switches on the supply to CD servo control IC, HF circuit and the laser light pen in CD mode only.

h. HEADPHONE SENSING
Headphone sense circuit is for switching off DPL modes when headphone is plugged in.

i. ATTENUATION NETWORK
This is provided at the output of the AF8 Board for interfacing with power modules.

j. BASS AUTOMATIC LEVEL CONTROL (ALC)
This circuit will defeat the bass effect if it sense that there is excessive amount of bass frequencies present in the left and right audio channel. This will prevent the excessive speaker excursions under high volume condition.

k. SURROUND OUT
Surround out cinch is included for Dolby Pro Logic versions when AF8 Board is used together with DPL PCB.

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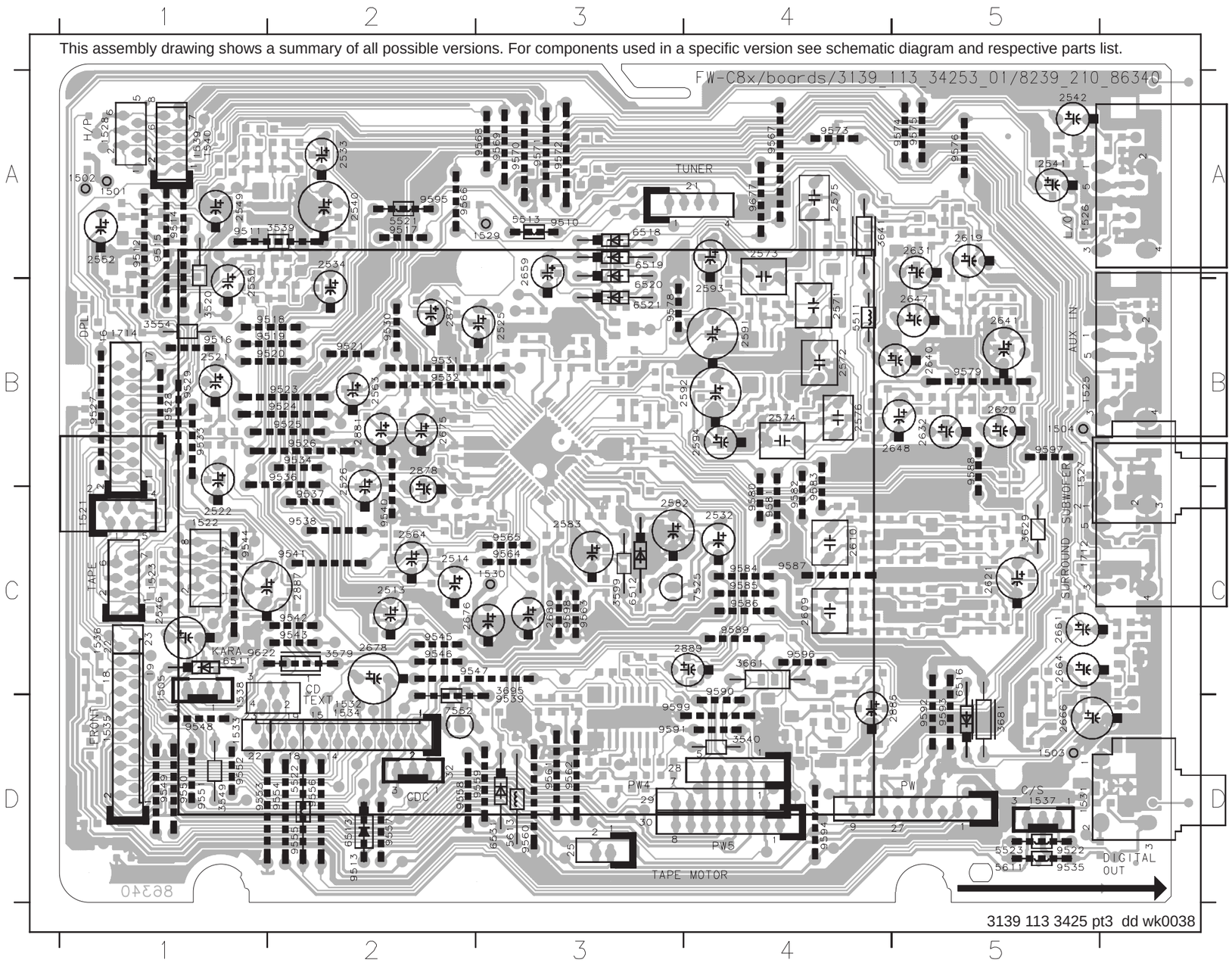
AF8 BOARD - COMPONENT LAYOUT



21	A4	2632	B5	9530	B2	9622	C1
25	D3	2640	B5	9531	B2	9677	A4
27	D5	2641	B5	9532	B2		
28	D3	2647	B5	9533	B1		
29	D3	2648	B5	9534	B2		
30	D3	2659	A3	9535	D5		
32	D2	2661	C5	9536	B2		
1501	A1	2664	C5	9537	C2		
1502	A1	2666	D5	9538	C2		
1503	D5	2675	B2	9539	D3		
1504	B5	2676	C2	9540	C2		
1505	C1	2678	C2	9541	C2		
1521	C1	2680	C3	9542	C2		
1522	C1	2877	B2	9543	C2		
1523	C1	2878	B2	9544	C1		
1525	B5	2881	B2	9545	C2		
1526	A5	2885	D5	9546	C2		
1527	B5	2887	C2	9547	C2		
1528	A1	2889	C4	9548	D1		
1529	A3	3520	B1	9549	D1		
1530	C3	3539	A2	9550	D1		
1531	D5	3540	D4	9551	D1		
1532	D2	3549	D1	9552	D1		
1533	D1	3554	B1	9553	D1		
1534	D2	3579	C2	9554	D2		
1535	D1	3599	C3	9555	D2		
1536	C1	3629	C5	9556	D2		
1537	D5	3641	A4	9557	D2		
1538	D1	3661	C4	9558	D2		
1539	A1	3681	D5	9559	D3		
1540	A1	3695	C3	9560	D3		
1712	C5	5511	B4	9561	D3		
1714	B1	5513	A3	9562	D3		
2513	C2	5521	A2	9563	C3		
2514	C2	5522	D2	9564	C3		
2521	B1	5523	D5	9565	C3		
2522	C1	5611	D5	9566	A2		
2525	B3	5613	D3	9567	A4		
2526	B2	6511	C1	9568	A3		
2532	C4	6512	C3	9569	A3		
2533	A2	6513	D2	9570	A3		
2534	A2	6516	C5	9571	A3		
2540	A2	6518	A3	9572	A3		
2541	A5	6519	A3	9573	A4		
2542	A5	6520	B3	9574	A5		
2546	C1	6521	B3	9575	A5		
2549	A1	6531	D3	9576	A5		
2550	B1	7525	C4	9578	B3		
2552	A1	7552	D2	9579	B5		
2563	B2	9510	A3	9580	C4		
2564	C2	9511	A1	9581	C4		
2571	B4	9512	A1	9582	C4		
2572	B4	9513	D2	9583	C4		
2573	A4	9514	A1	9584	C4		
2574	B4	9515	A1	9585	C4		
2575	A4	9516	B1	9586	C4		
2576	B4	9517	A2	9587	C4		
2582	C3	9518	B2	9588	B5		
2583	C3	9519	B2	9589	C4		
2591	B4	9520	B2	9590	C4		
2592	B3	9521	B2	9591	D3		
2593	B4	9522	D5	9592	D5		
2594	B4	9523	B2	9593	D5		
2609	C4	9524	B2	9594	D4		
2610	C4	9525	B2	9595	A2		
2619	A5	9526	B2	9596	C4		
2620	B5	9527	B1	9597	B5		
2621	C5	9528	B1	9598	C3		
2631	A5	9529	B1	9599	D3		

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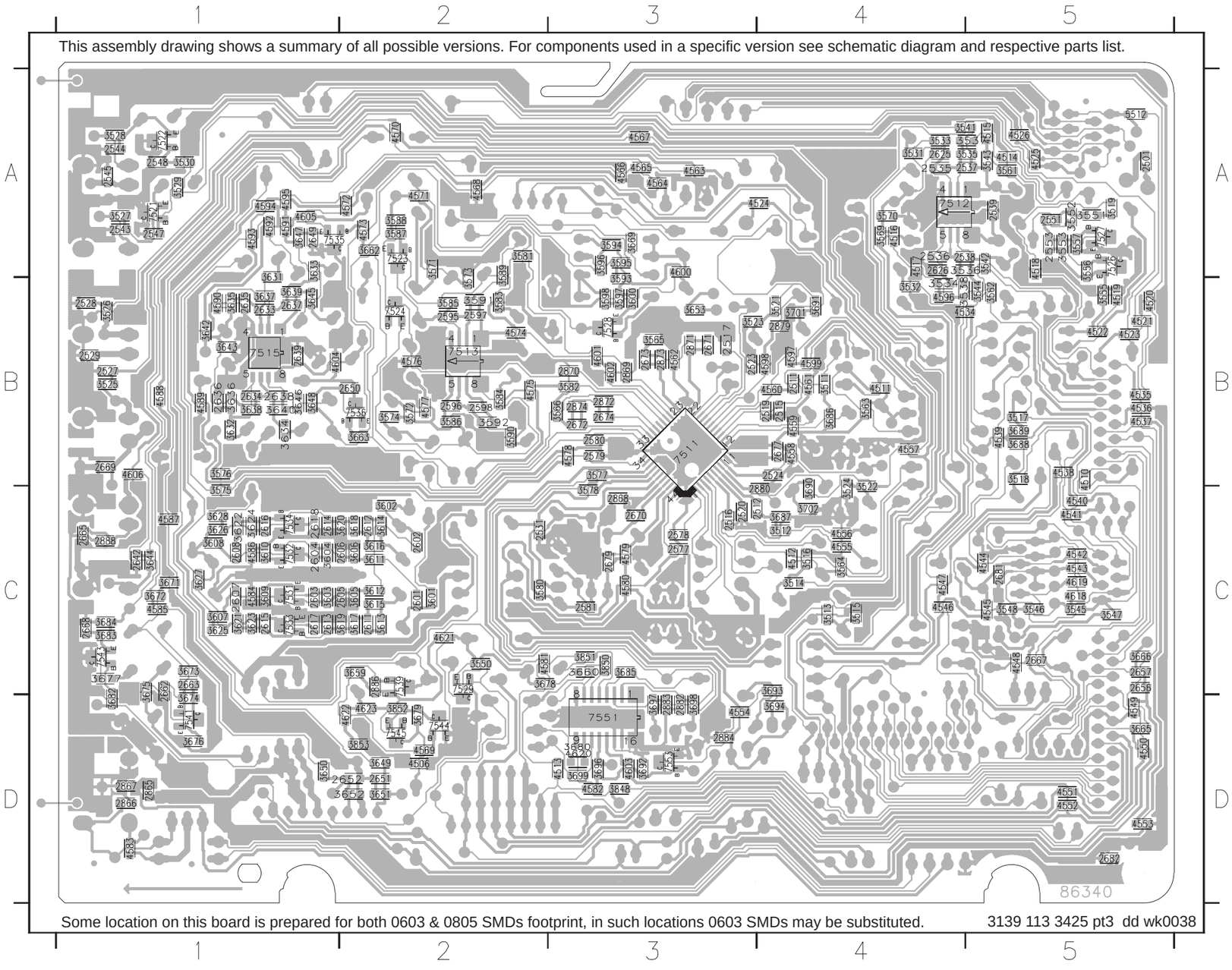
AF8 BOARD - CHIP LAYOUT

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



Some location on this board is prepared for both 0603 & 0805 SMDs footprint, in such locations 0603 SMDs may be substituted.

3139 113 3425 pt3 dd wk0038

2501	A5	2665	C1	3555	B5	3633	A1	4517	A4	4593	A1
2511	B4	2667	C5	3556	A5	3634	B1	4518	A5	4594	A1
2512	C3	2668	C1	3557	A5	3635	B1	4519	B5	4595	A1
2515	B4	2669	B1	3561	A5	3636	B1	4520	B5	4596	B4
2516	C3	2670	C3	3562	B5	3637	B1	4521	B5	4597	B4
2517	B3	2671	B3	3563	B4	3638	B1	4522	B5	4598	B4
2519	B4	2672	B3	3564	C4	3639	B1	4523	B5	4599	B4
2520	C3	2673	B3	3565	B3	3640	B1	4524	A4	4600	A3
2523	B3	2674	B3	3566	B3	3642	B1	4525	A5	4601	B3
2524	B4	2677	B4	3569	A4	3643	B1	4526	A5	4602	B3
2527	B1	2679	C3	3570	A4	3644	C1	4534	B4	4603	D3
2528	B1	2681	C5	3571	A2	3645	B1	4535	B5	4604	B1
2529	B1	2682	D5	3572	B2	3646	B1	4536	B5	4605	A1
2531	C2	2865	D1	3573	B2	3647	A1	4537	B5	4606	B1
2535	A4	2866	D1	3574	B2	3648	B1	4538	B5	4618	C5
2536	A4	2867	D1	3575	C1	3649	D2	4539	B5	4619	C5
2537	A5	2868	C3	3576	B1	3650	D1	4540	C5	4620	D3
2538	A4	2869	B3	3577	B3	3651	D2	4541	C5	4621	C2
2539	A5	2870	B3	3578	C3	3652	D2	4542	C5	4622	D2
2543	A1	2871	B3	3580	C2	3653	B3	4543	C5	4623	D2
2544	A1	2872	B3	3581	A2	3659	C2	4544	C5	5512	A5
2545	A1	2873	B3	3582	B3	3660	C3	4545	C5	7511	B3
2547	A1	2874	B3	3583	B2	3662	A2	4546	C4	7512	A4
2548	A1	2879	B4	3584	B2	3663	B2	4547	C4	7513	B2
2551	A5	2880	C4	3585	B2	3665	D5	4548	C5	7515	B1
2553	A5	2882	D3	3586	B2	3666	C5	4549	D5	7521	A1
2577	C3	2883	D3	3587	A2	3669	A3	4550	D5	7522	A1
2578	C3	2884	D3	3588	A2	3671	C1	4551	D5	7523	A2
2579	B3	2886	C2	3589	A2	3672	C1	4552	D5	7524	B2
2580	B3	2888	C1	3590	B2	3673	C1	4553	D5	7526	A5
2581	C3	3511	B4	3591	B2	3674	D1	4554	D3	7527	A5
2595	B2	3512	C4	3592	B2	3675	C1	4555	C4	7528	B3
2596	B2	3513	C4	3593	B3	3676	D1	4556	C4	7529	C2
2597	B2	3514	C4	3594	A3	3677	C1	4557	B4	7531	C1
2598	B2	3515	C4	3595	A3	3678	C2	4558	B4	7532	C1
2601	C2	3516	C4	3596	A3	3679	D2	4559	B4	7533	C1
2602	C2	3517	B5	3597	B3	3680	D3	4560	B4	7534	C1
2603	C1	3518	B5	3598	B3	3682	D1	4561	B4	7535	A1
2604	C1	3519	A5	3600	B3	3683	C1	4562	B3	7536	B2
2605	C2	3521	B4	3601	C2	3684	C1	4563	A3	7539	C2
2606	C2	3522	C4	3602	C2	3685	C3	4564	A3	7541	D1
2607	C1	3523	B3	3603	C1	3686	B4	4565	A3	7543	C1
2608	C1	3524	C4	3604	C1	3687	C4	4566	A3	7544	D2
2611	C2	3525	B1	3605	C2	3688	B5	4567	A3	7545	D2
2612	C2	3526	B1	3606	C2	3689	B5	4568	A2	7551	D3
2613	C1	3527	A1	3607	C1	3690	C4	4569	D2	7553	D3
2614	C1	3528	A1	3608	C1	3691	B4	4570	A2		
2615	C1	3529	A1	3609	C1	3692	D3	4571	A2		
2616	C1	3530	A1	3610	C1	3693	C4	4572	A2		
2617	C1	3531	A4	3611	C2	3694	D4	4573	A2		
2618	C1	3532	B4	3612	C2	3696	D3	4574	B2		
2625	A4	3533	A4	3613	C2	3697	D3	4575	B2		
2626	A4	3534	B4	3614	C2	3698	D3	4576	B2		
2633	B1	3535	A5	3615	C2	3699	D3	4577	B2		
2634	B1	3536	A4	3616	C2	3701	B4	4578	B3		
2635	B1	3537	A5	3617	C2	3702	C4	4579	C3		
2636	B1	3538	B4	3618	C2	3848	D3	4580	C3		
2637	B1	3541	A4	3619	C2	3850	C3	4581	C2		
2638	B1	3542	A5	3620	C2	3851	C3	4582	D3		
2639	B1	3543	A5	3621	C1	3852	D2	4583	D1		
2642	C1	3544	B5	3622	C1	3853	D2	4584	C1		
2649	A1	3545	C5	3623	C1	4506	D2	4585	C1		
2650	B2	3546	C5	3624	C1	4510	B5	4586	C1		
2651	D2	3547	C5	3625	C1	4511	B4	4587	C1		
2652	D2	3548	C5	3626	C1	4512	C4	4588	B1		
2656	C5	3550	C2	3627	C1	4513	D3	4589	B1		
2657	C5	3551	A5	3628	C1	4514	A5	4590	B1		
2662	C1	3552	A5	3631	A1	4515	A5	4591	A1		
2663	C1	3553	A5	3632	B1	4516	A4	4592	A1		

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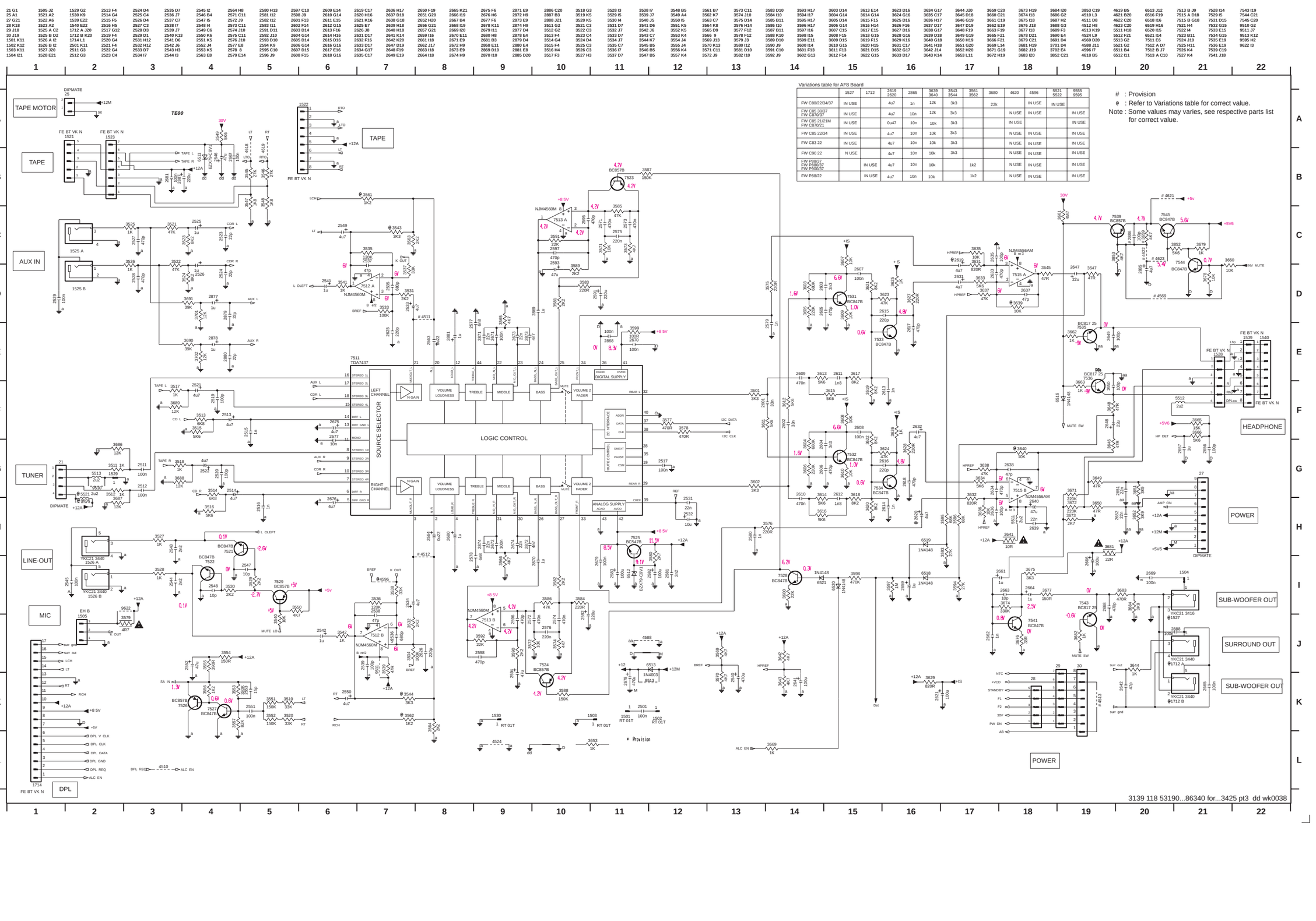
AF8 BOARD - CIRCUIT DIAGRAM (PART 1)



Variations table for AF8 Board											
	1527	1712	2619 2620	2865	3639 3640	3543 3544	3561 3562	3680	4620	4596	5521 5522	9555 9595
FW C80/22/34/37	IN USE		4u7	1n	12k	3k3		22k		IN USE	IN USE	
FW C85 30/37 FW C870/37	IN USE		4u7	10n	12k	3k3			N USE	IN USE		IN USE
FW C85 21/21M FW C870/21	IN USE		0u47	10n	10k	3k3			IN USE			IN USE
FW C85 22/34	IN USE		4u7	10n	10k	3k3			N USE	IN USE		IN USE
FW C83 22	IN USE		4u7	10n	10k	3k3			N USE	IN USE		IN USE
FW C90 22	N USE		4u7	10n	10k	3k3			N USE	IN USE		IN USE
FW P88/37 FW P880/37 FW P900/37		IN USE	4u7	10n	10k		1k2		N USE	IN USE		IN USE
FW P88/22		IN USE	4u7	10n	10k		1k2		N USE	IN USE		IN USE

\# : Provision
@ : Refer to Variations table for correct value.
Note : Some values may varies, see respective parts list for correct value.

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AF8 BOARD - CIRCUIT DIAGRAM (PART 2)

DIGITAL OUT

1531
YKC21-3416

2866
47n

5523
2u2

9522

COAX1

5611
2u2

@ 9555

COAX2

2867
47n

@ 5522
2u2

9535

SHIELD

@ 2865
10n

1537
EH-B

CDC TEXT

1538
FE-BT-VK-N

GND_TXT
up_CLK
DQSY
SRDT
GND_COAX
SHIELD
COAX2
COAX1
OE_LATCH
PORE
GND_CD
SILD
CDSHDATA
SICL
CDSHCLK
STR
SW_INFO
+12
⊥M
+CD
CD_R
⊥a
CD_L

2682
10n

DPL_GND
DPL_DATA
DPL_CLK
DPL_V_CLK
HP_DET
SA_IN
NTC
PW_DN
I2C_DATA
I2C_CLK
+5V6
-30V
F1
F2
GND_CD
SILD
CDSHDATA
SICL
CDSHCLK
STR
SW_INFO

TO CDR

32
EH-B

1532
FE-BT-VK-N
TO CDC-LC
BASIC

1533
FE-BT-VK-N
TO CDC-LC
FOR CD TEXT

1534
FE-BT-VK-N
TO CDC-LC
FOR DIGITAL OUT

1536
FE-BT-VK-N
TO FRONT
FOR DPL SETS

1535
FE-BT-VK-N
TO FRONT
FOR NON-DPL SETS

7551
M62320FP

CS0 CS1 CS2
CHIP SELECT

I²C BUS TRANSCEIVER
SHIFT REG
PWR RES
OUT I/O IN DATA LATCHES
I/O PORT

SCL
SDA
VDD
GND
SO

D7 D6 D5 D4 D3 D2 D1 D0

2882 10p
2883 10p

I2C_CLK 3698 470R
I2C_DATA 3697 470R

7552
BC327-25

+CD 3695 2R2 # 9539
+5V6
3694 5K6
3693 5K6

7553
BC847B

+VCD
3696 2K2
3692 10K

5613 2u2

3699 1K
3848 10R
3850 10R
3851 10R
10u
2889
3685 10R

MUTE_LO
DPL_REQ
INV_MUTE
AB
STANDBY
PORE

+5V6 6531 +5V
1N4148

2884 100n

@3680 22K
@4620
AMP_ON

: Provision

@ : Refer to Variations table for correct value.

Note : Some values may varies, see respective parts list for correct value.

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ELECTRICAL PARTS LIST - AF8 BOARD

ELECTRICAL PARTS LIST - AF8 BOARD

MISCELLANEOUS

1523	4822 267 10953	Flex Connector 7P
1525	4822 267 20452	Cinch Socket - Aux in
1526	4822 267 20452	Cinch Socket - Line-out
1527	4822 267 31729	Cinch Socket - Subwoofer out
1528	4822 267 10731	Flex Connector 6P
1531	4822 267 31729	Cinch Socket - Digital out
1534	4822 265 11553	Flex Connector 19P
1535	4822 265 11553	Flex Connector 19P
1536	4822 267 10757	Flex Connector 23P
1712	4822 267 31448	Cinch Socket - Surround out & Subwoofer out
1714	4822 267 10871	Flex Connector 17P

CAPACITORS

2501	4822 126 13838	100nF +80/-20% 50V
2511	4822 126 13838	100nF +80/-20% 50V
2512	4822 126 13838	100nF +80/-20% 50V
2513	4822 124 40769	4,7µF 20% 100V
2514	4822 124 40769	4,7µF 20% 100V
2515	5322 122 31647	1nF 10% 63V
2516	5322 122 31647	1nF 10% 63V
2517	4822 126 14585	100nF 10% 50V
2519	5322 122 32531	100pF 5% 50V
2520	5322 122 32531	100pF 5% 50V
2521	4822 124 40769	4,7µF 20% 100V
2522	4822 124 40769	4,7µF 20% 100V
2523	5322 122 32658	22pF 5% 50V
2524	5322 122 32658	22pF 5% 50V
2525	4822 124 21913	1µF 20% 63V
2526	4822 124 21913	1µF 20% 63V
2527	5322 122 34099	470pF 10% 63V
2528	5322 122 34099	470pF 10% 63V
2529	4822 126 14585	100nF 10% 50V
2531	5322 122 32654	22nF 10% 63V
2532	4822 124 40248	10µF 20% 63V
2533	4822 124 40769	4,7µF 20% 100V
2534	4822 124 40769	4,7µF 20% 100V
2535	4822 122 32535	680pF 10% 63V
2536	4822 122 32535	680pF 10% 63V
2537	4822 126 13692	47pF 1% 63V
2538	4822 126 13692	47pF 1% 63V
2539	5322 122 32531	100pF 5% 50V
2540	4822 124 80195	470µF 20% 10V
2541	4822 124 21913	1µF 20% 63V
2542	4822 124 21913	1µF 20% 63V
2543	4822 122 33127	2,2nF 10% 63V
2544	4822 122 33127	2,2nF 10% 63V
2545	4822 126 14585	100nF 10% 50V
2546	4822 124 41751	47µF 20% 50V
2547	5322 122 32448	10pF 5% 63V
2548	5322 122 32448	10pF 5% 63V
2549	4822 124 40769	4,7µF 20% 100V
2550	4822 124 40769	4,7µF 20% 100V
2551	4822 126 14585	100nF 10% 50V
2552	4822 124 40433	47µF 20% 25V
2553	4822 126 13486	15pF 2% 63V
2563	4822 124 40746	0,22µF 20% 63V
2564	4822 124 40746	0,22µF 20% 63V
2571	4822 121 51252	470nF 5% 63V
2572	4822 121 51252	470nF 5% 63V
2573	4822 121 51252	470nF 5% 63V
2574	4822 121 51252	470nF 5% 63V
2575	4822 121 42408	220nF 5% 63V
2576	4822 121 42408	220nF 5% 63V
2577	5322 122 31866	6,8nF 10% 63V
2578	5322 122 31866	6,8nF 10% 63V
2579	5322 122 31647	1nF 10% 63V
2580	5322 122 31647	1nF 10% 63V
2581	4822 122 33127	2,2nF 10% 63V
2582	4822 124 40207	100µF 20% 25V
2583	4822 124 40207	100µF 20% 25V
2591	4822 124 80144	220µF 20% 25V
2592	4822 124 80144	220µF 20% 25V
2593	4822 124 40433	47µF 20% 25V
2594	4822 124 40433	47µF 20% 25V
2595	5322 122 34099	470pF 10% 63V
2596	5322 122 34099	470pF 10% 63V
2597	5322 122 32268	470pF 10% 50V
2598	5322 122 32268	470pF 10% 50V
2601	4822 126 12105	33nF 5% 50V
2602	4822 126 12105	33nF 5% 50V
2603	4822 122 33891	3,3nF 10% 63V
2604	4822 122 33891	3,3nF 10% 63V
2605	5322 122 34099	470pF 10% 63V
2606	5322 122 34099	470pF 10% 63V
2607	4822 126 14585	100nF 10% 50V
2608	4822 126 14585	100nF 10% 50V
2609	4822 121 51252	470nF 5% 63V
2610	4822 121 51252	470nF 5% 63V
2611	4822 126 10847	1,8nF 10% 63V
2612	4822 126 10847	1,8nF 10% 63V
2613	5322 122 31647	1nF 10% 63V
2614	5322 122 31647	1nF 10% 63V
2615	4822 122 33575	220pF 5% 63V
2616	4822 122 33575	220pF 5% 63V
2617	5322 122 34099	470pF 10% 63V
2618	5322 122 34099	470pF 10% 63V
2619	4822 124 40769	4,7µF 20% 100V
2619	4822 124 41407	0,47µF 20% 63V /FW-C870/21
2620	4822 124 40769	4,7µF 20% 100V
2620	4822 124 41407	0,47µF 20% 63V /FW-C870/21
2621	4822 124 40207	100µF 20% 25V
2625	4822 122 33575	220pF 5% 63V
2626	4822 122 33575	220pF 5% 63V
2631	4822 124 40769	4,7µF 20% 100V
2632	4822 124 40769	4,7µF 20% 100V
2633	5322 122 34099	470pF 10% 63V
2634	5322 122 34099	470pF 10% 63V
2635	5322 122 32531	100pF 5% 50V
2636	5322 122 32531	100pF 5% 50V
2637	4822 126 13692	47pF 1% 63V
2638	4822 126 13692	47pF 1% 63V
2639	5322 122 32654	22nF 10% 63V
2640	4822 124 40433	47µF 20% 25V
2641	4822 124 40207	100µF 20% 25V
2642	4822 126 13692	47pF 1% 63V
2647	4822 124 81151	22µF 50V
2648	4822 124 81151	22µF 50V
2649	5322 122 32531	100pF 5% 50V
2650	5322 122 32531	100pF 5% 50V
2651	5322 122 32654	22nF 10% 63V
2652	5322 122 32654	22nF 10% 63V
2656	5322 122 32531	100pF 5% 50V
2657	4822 126 14043	1µF +80/-20% 16V
2659	4822 124 40756	1µF 20% 100V
2661	4822 124 21913	1µF 20% 63V
2662	5322 122 31647	1nF 10% 63V
2663	5322 122 32448	10pF 5% 63V
2664	4822 124 21913	1µF 20% 63V
2665	4822 126 14585	100nF 10% 50V
2666	4822 124 40207	100µF 20% 25V
2667	4822 126 14585	100nF 10% 50V
2668	5322 122 34099	470pF 10% 63V
2669	4822 126 14585	100nF 10% 50V
2670	4822 126 13838	100nF +80/-20% 50V
2671	4822 126 13838	100nF +80/-20% 50V
2672	4822 126 13838	100nF +80/-20% 50V
2673	5322 122 32654	22nF 10% 63V
2674	5322 122 32654	22nF 10% 63V
2675	4822 124 12032	4,7µF 20% 50V
2676	4822 124 12032	4,7µF 20% 50V
2677	4822 122 33177	10nF 20% 50V
2678	4822 124 80791	470µF 20% 16V
2679	4822 126 14585	100nF 10% 50V
2680	4822 124 40756	1µF 20% 100V
2681	4822 126 14585	100nF 10% 50V
2682	5322 122 34098	10nF 10% 63V
2865	4822 122 33177	10nF 20% 50V
2866	4822 126 13751	47nF 10% 63V
2867	4822 126 13751	47nF 10% 63V
2868	4822 126 14585	100nF 10% 50V
2869	4822 126 14043	1µF +80/-20% 16V
2870	4822 126 14043	1µF +80/-20% 16V
2871	5322 122 32654	22nF 10% 63V
2872	5322 126 10223	4,7nF 10% 63V
2873	5322 126 10223	4,7nF 10% 63V
2874	5322 122 32654	22nF 10% 63V
2877	4822 124 22651	1µF 20% 50V
2878	4822 124 22651	1µF 20% 50V
2879	5322 122 32658	22pF 5% 50V
2880	5322 122 32658	22pF 5% 50V
2881	4822 124 40756	1µF 20% 100V
2882	5322 122 32448	10pF 5% 63V
2883	5322 122 32448	10pF 5% 63V
2884	4822 126 14585	100nF 10% 50V
2885	4822 124 40769	4,7µF 20% 100V
2887	4822 124 80144	220µF 20% 25V
2888	4822 126 14585	100nF 10% 50V
2889	4822 124 40248	10µF 20% 63V

RESISTORS

3511	4822 051 10102	1k 2% 0,25W
3512	4822 051 10102	1k 2% 0,25W
3513	4822 117 10833	10k 1% 0,1W
3514	4822 117 10833	10k 1% 0,1W
3515	4822 051 20472	4k7 5% 0,1W
3516	4822 051 20472	4k7 5% 0,1W
3517	4822 051 10102	1k 2% 0,25W
3518	4822 051 10102	1k 2% 0,25W
3519	4822 051 20333	33k 5% 0,1W
3520	4822 050 23303	33k 1% 0,6W
3521	4822 117 10834	47k 1% 0,1W
3522	4822 117 10834	47k 1% 0,1W
3523	4822 051 20822	8k2 5% 0,1W
3524	4822 051 20822	8k2 5% 0,1W
3525	4822 051 10102	1k 2% 0,25W
3526	4822 051 10102	1k 2% 0,25W
3527	4822 051 10102	1k 2% 0,25W
3528	4822 051 10102	1k 2% 0,25W
3529	4822 117 11449	2k2 5% 0,1W
3530	4822 117 11449	2k2 5% 0,1W
3531	4822 117 11449	2k2 5% 0,1W
3532	4822 117 11449	2k2 5% 0,1W
3533	4822 117 10837	100k 1% 0,1W
3534	4822 117 10837	100k 1% 0,1W
3535	4822 051 20124	120k 5% 0,1W
3536	4822 051 20124	120k 5% 0,1W
3537	4822 051 20333	33k 5% 0,1W
3538	4822 051 20333	33k 5% 0,1W
3539	4822 116 52195	47R 5% 0,5W
3540	4822 050 21003	10k 1% 0,6W
3541	4822 051 10102	1k 2% 0,25W
3542	4822 051 10102	1k 2% 0,25W
3543	4822 051 20332	3k3 5% 0,1W
3544	4822 051 20332	3k3 5% 0,1W
3545	4822 051 20273	27k 5% 0,1W
3546	4822 051 20273	27k 5% 0,1W
3547	4822 051 20182	1k8 5% 0,1W

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ELECTRICAL PARTS LIST - AF8 BOARD

ELECTRICAL PARTS LIST - AF8 BOARD

RESISTORS

3548	4822 051 20182	1k8 5% 0,1W	3605	4822 117 13579	220k 1% 0,1W	3662	4822 051 10102	1k 2% 0,25W	4524	4822 051 20008	0R Jumper 0805
3549	4822 116 52289	5k6 5% 0,5W	3606	4822 117 13579	220k 1% 0,1W	3663	4822 051 10102	1k 2% 0,25W	4525	4822 051 20008	0R Jumper 0805
3550	4822 051 20472	4k7 5% 0,1W	3607	4822 117 10833	10k 1% 0,1W	3665	4822 116 83933	15k 1% 0,1W	4526	4822 051 20008	0R Jumper 0805
3551	4822 051 20154	150k 5% 0,1W	3608	4822 117 10833	10k 1% 0,1W	3666	4822 051 20562	5k6 5% 0,1W	4534	4822 051 20008	0R Jumper 0805
3552	4822 051 20154	150k 5% 0,1W	3609	4822 117 10833	10k 1% 0,1W	3669	4822 051 10102	1k 2% 0,25W	4535	4822 051 20008	0R Jumper 0805
3553	4822 051 20334	330k 5% 0,1W	3610	4822 117 10833	10k 1% 0,1W	3671	4822 117 13579	220k 1% 0,1W	4536	4822 051 20008	0R Jumper 0805
3554	4822 116 83868	150R 5% 0,5W	3611	4822 051 20562	5k6 5% 0,1W	3672	4822 117 13579	220k 1% 0,1W	4537	4822 051 20008	0R Jumper 0805
3555	4822 051 20391	390R 5% 0,1W	3612	4822 051 20562	5k6 5% 0,1W	3673	4822 117 12955	2k7 1% 0,1W	4538	4822 051 20008	0R Jumper 0805
3556	4822 051 20122	1k2 5% 0,1W	3613	4822 051 20562	5k6 5% 0,1W	3674	4822 051 20334	330k 5% 0,1W	4539	4822 051 20008	0R Jumper 0805
3557	4822 117 11149	82k 1% 0,1W	3614	4822 051 20562	5k6 5% 0,1W	3675	4822 051 20332	3k3 5% 0,1W	4540	4822 051 20008	0R Jumper 0805
3561	4822 051 20122	1k2 5% 0,1W	3615	4822 051 20562	5k6 5% 0,1W	3676	4822 051 20339	33R 5% 0,1W	4541	4822 051 20008	0R Jumper 0805
3562	4822 051 20122	1k2 5% 0,1W	3616	4822 051 20562	5k6 5% 0,1W	3677	4822 117 10353	150R 1% 0,1W	4542	4822 051 20008	0R Jumper 0805
3563	4822 117 11449	2k2 5% 0,1W	3617	4822 051 20822	8k2 5% 0,1W	3678	4822 117 10833	10k 1% 0,1W	4543	4822 051 20008	0R Jumper 0805
3564	4822 117 11449	2k2 5% 0,1W	3618	4822 051 20822	8k2 5% 0,1W	3679	4822 051 10102	1k 2% 0,25W	4544	4822 051 20008	0R Jumper 0805
3565	4822 051 20472	4k7 5% 0,1W	3619	4822 051 20822	8k2 5% 0,1W	3681	4822 052 10229	⚠ 22R 5% 0,33W	4545	4822 051 20008	0R Jumper 0805
3566	4822 051 20472	4k7 5% 0,1W	3620	4822 051 20822	8k2 5% 0,1W	3682	4822 051 10102	1k 2% 0,25W	4546	4822 051 20008	0R Jumper 0805
3569	4822 051 20472	4k7 5% 0,1W	3621	4822 051 20822	8k2 5% 0,1W	3683	4822 051 20471	470R 5% 0,1W	4547	4822 051 20008	0R Jumper 0805
3570	4822 051 20472	4k7 5% 0,1W	3622	4822 051 20822	8k2 5% 0,1W	3684	4822 051 20392	3k9 5% 0,1W	4548	4822 051 20008	0R Jumper 0805
3571	4822 117 10833	10k 1% 0,1W	3623	4822 117 10834	47k 1% 0,1W	3685	4822 051 20109	10R 5% 0,1W	4549	4822 051 20008	0R Jumper 0805
3572	4822 117 10833	10k 1% 0,1W	3624	4822 117 10834	47k 1% 0,1W	3686	4822 117 11383	12k 1% 0,1W	4550	4822 051 20008	0R Jumper 0805
3573	4822 051 20472	4k7 5% 0,1W	3625	4822 051 10102	1k 2% 0,25W	3687	4822 117 11383	12k 1% 0,1W	4551	4822 051 20008	0R Jumper 0805
3574	4822 051 20472	4k7 5% 0,1W	3626	4822 051 10102	1k 2% 0,25W	3688	4822 117 11383	12k 1% 0,1W	4552	4822 051 20008	0R Jumper 0805
3575	4822 117 11503	220R 1% 0,1W	3627	4822 117 11503	220R 1% 0,1W	3689	4822 117 11383	12k 1% 0,1W	4553	4822 051 20008	0R Jumper 0805
3576	4822 117 11503	220R 1% 0,1W	3628	4822 117 11503	220R 1% 0,1W	3690	4822 051 20393	39k 5% 0,1W	4554	4822 051 20008	0R Jumper 0805
3577	4822 051 20471	470R 5% 0,1W	3629	4822 116 52231	820R 5% 0,5W	3691	4822 051 20393	39k 5% 0,1W	4555	4822 051 20008	0R Jumper 0805
3578	4822 051 20471	470R 5% 0,1W	3631	4822 117 11454	820R 1% 0,1W	3692	4822 117 10833	10k 1% 0,1W	4556	4822 051 20008	0R Jumper 0805
3579	4822 052 10478	⚠ 4R7 5% 0,33W	3632	4822 117 11454	820R 1% 0,1W	3693	4822 051 20562	5k6 5% 0,1W	4557	4822 051 20008	0R Jumper 0805
3580	4822 117 12955	2k7 1% 0,1W	3633	4822 051 20562	5k6 5% 0,1W	3694	4822 051 20562	5k6 5% 0,1W	4558	4822 051 20008	0R Jumper 0805
3581	4822 117 11449	2k2 5% 0,1W	3634	4822 051 20562	5k6 5% 0,1W	3695	4822 116 81154	2R2 5% 0,5W	4559	4822 051 20008	0R Jumper 0805
3582	4822 117 11449	2k2 5% 0,1W	3635	4822 117 10833	10k 1% 0,1W	3696	4822 117 11449	2k2 5% 0,1W	4560	4822 051 20008	0R Jumper 0805
3583	4822 117 11503	220R 1% 0,1W	3636	4822 117 10833	10k 1% 0,1W	3697	4822 051 20471	470R 5% 0,1W	4561	4822 051 20008	0R Jumper 0805
3584	4822 117 11503	220R 1% 0,1W	3637	4822 117 10834	47k 1% 0,1W	3698	4822 051 20471	470R 5% 0,1W	4562	4822 051 20008	0R Jumper 0805
3585	4822 117 10834	47k 1% 0,1W	3638	4822 117 10834	47k 1% 0,1W	3699	4822 051 10102	1k 2% 0,25W	4563	4822 051 20008	0R Jumper 0805
3586	4822 117 10834	47k 1% 0,1W	3639	4822 117 10833	10k 1% 0,1W	3701	4822 117 11383	12k 1% 0,1W	4564	4822 051 20008	0R Jumper 0805
3587	4822 051 20154	150k 5% 0,1W	3639	4822 117 11383	12k 1% 0,1W /FW-C870/37	3702	4822 117 11383	12k 1% 0,1W	4565	4822 051 20008	0R Jumper 0805
3588	4822 051 20154	150k 5% 0,1W	3640	4822 117 10833	10k 1% 0,1W	3848	4822 051 20109	10R 5% 0,1W	4566	4822 051 20008	0R Jumper 0805
3589	4822 117 11449	2k2 5% 0,1W	3640	4822 117 11383	12k 1% 0,1W /FW-C870/37	3850	4822 051 20109	10R 5% 0,1W	4567	4822 051 20008	0R Jumper 0805
3590	4822 117 11449	2k2 5% 0,1W	3641	4822 052 10109	⚠ 10R 5% 0,33W	3851	4822 051 20109	10R 5% 0,1W	4568	4822 051 20008	0R Jumper 0805
3591	4822 051 20223	22k 5% 0,1W	3642	4822 051 20472	4k7 5% 0,1W	3852	4822 051 20562	5k6 5% 0,1W	4570	4822 051 20008	0R Jumper 0805
3592	4822 051 20223	22k 5% 0,1W	3643	4822 051 20472	4k7 5% 0,1W	3853	4822 051 20472	4k7 5% 0,1W	4571	4822 051 20008	0R Jumper 0805
3593	4822 051 20273	27k 5% 0,1W	3644	4822 051 10102	1k 2% 0,25W	4506	4822 051 20008	0R Jumper 0805	4572	4822 051 20008	0R Jumper 0805
3594	4822 051 20273	27k 5% 0,1W	3645	4822 051 20479	47R 5% 0,1W	4510	4822 051 20008	0R Jumper 0805	4573	4822 051 20008	0R Jumper 0805
3595	4822 051 20683	68k 5% 0,1W	3646	4822 051 20479	47R 5% 0,1W	4514	4822 051 20008	0R Jumper 0805	4574	4822 051 20008	0R Jumper 0805
3596	4822 051 20683	68k 5% 0,1W	3647	4822 051 20479	47R 5% 0,1W	4515	4822 051 20008	0R Jumper 0805	4575	4822 051 20008	0R Jumper 0805
3597	4822 051 20105	1M 5% 0,1W	3648	4822 051 20479	47R 5% 0,1W	4516	4822 051 20008	0R Jumper 0805	4576	4822 051 20008	0R Jumper 0805
3598	4822 051 20474	470k 5% 0,1W	3649	4822 051 20479	47R 5% 0,1W	4517	4822 051 20008	0R Jumper 0805	4577	4822 051 20008	0R Jumper 0805
3599	4822 116 52175	100R 5% 0,5W	3650	4822 051 20479	47R 5% 0,1W	4518	4822 051 20008	0R Jumper 0805	4578	4822 051 20008	0R Jumper 0805
3600	4822 051 20223	22k 5% 0,1W	3651	4822 051 20392	3k9 5% 0,1W	4519	4822 051 20008	0R Jumper 0805	4579	4822 051 20008	0R Jumper 0805
3601	4822 051 20332	3k3 5% 0,1W	3652	4822 051 20392	3k9 5% 0,1W	4520	4822 051 20008	0R Jumper 0805	4580	4822 051 20008	0R Jumper 0805
3602	4822 051 20332	3k3 5% 0,1W	3653	4822 051 10102	1k 2% 0,25W	4521	4822 051 20008	0R Jumper 0805	4581	4822 051 20008	0R Jumper 0805
3603	4822 051 20684	680k 5% 0,1W	3660	4822 117 10833	10k 1% 0,1W	4522	4822 051 20008	0R Jumper 0805	4582	4822 051 20008	0R Jumper 0805
3604	4822 051 20684	680k 5% 0,1W	3661	4822 053 20475	4M7 5% 0,25W	4523	4822 051 20008	0R Jumper 0805	4583	4822 051 20008	0R Jumper 0805

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ELECTRICAL PARTS LIST - AF8 BOARD

RESISTORS

4584	4822 051 20008	0R Jumper 0805
4585	4822 051 20008	0R Jumper 0805
4586	4822 051 20008	0R Jumper 0805
4587	4822 051 20008	0R Jumper 0805
4588	4822 051 20008	0R Jumper 0805
4589	4822 051 20008	0R Jumper 0805
4590	4822 051 20008	0R Jumper 0805
4591	4822 051 20008	0R Jumper 0805
4592	4822 051 20008	0R Jumper 0805
4593	4822 051 20008	0R Jumper 0805
4594	4822 051 20008	0R Jumper 0805
4595	4822 051 20008	0R Jumper 0805
4596	4822 051 20008	0R Jumper 0805
4597	4822 051 20008	0R Jumper 0805
4598	4822 051 20008	0R Jumper 0805
4599	4822 051 20008	0R Jumper 0805
4600	4822 051 20008	0R Jumper 0805
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
4618	4822 051 20008	0R Jumper 0805
4619	4822 051 20008	0R Jumper 0805
4620	4822 051 20008	0R Jumper 0805
4623	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5511	4822 157 62552	Coil 2,2µH 5%
5512	4822 157 10586	Coil 2,2µH 10%
5513	4822 157 62552	Coil 2,2µH 5%
5611	4822 157 62552	Coil 2,2µH 5%
5613	4822 157 62552	Coil 2,2µH 5%

DIODES

6511	4822 130 30862	BZX79-C9V1
6512	4822 130 30862	BZX79-C9V1
6513	4822 130 31878	1N4003G
6516	4822 130 30621	1N4148
6518	4822 130 30621	1N4148
6519	4822 130 30621	1N4148
6520	4822 130 30621	1N4148
6521	4822 130 30621	1N4148
6531	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7511	4822 209 17386	TDA7437T
7512	4822 209 83357	NJM4560M
7513	4822 209 83357	NJM4560M
7515	4822 209 31378	NJM4556AM
7521	5322 130 60159	BC847B
7522	5322 130 60159	BC847B
7523	4822 130 60373	BC857B
7524	4822 130 60373	BC857B
7525	4822 130 40959	BC547B
7526	4822 130 60373	BC857B
7527	5322 130 60159	BC847B
7528	5322 130 60159	BC847B
7529	4822 130 60373	BC857B
7531	5322 130 60159	BC847B
7532	5322 130 60159	BC847B
7533	5322 130 60159	BC847B
7534	5322 130 60159	BC847B
7535	4822 130 42804	BC817-25
7536	4822 130 42804	BC817-25
7539	4822 130 60373	BC857B
7541	5322 130 60159	BC847B
7543	4822 130 42804	BC817-25
7544	5322 130 60159	BC847B
7545	5322 130 60159	BC847B
7551	4822 209 17345	M62320FP
7552	4822 130 41246	BC327-25
7553	5322 130 60159	BC847B

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

DPL BOARD

(Dolby Pro Logic)

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BRIEF INTRODUCTION OF THE DOLBY PRO LOGIC (DPL) BOARD

The DPL Board consists of the following features :

a. Dolby Pro Logic (DPL)
Dolby Pro Logic function is provided by IC M62460FP (7711). Delay circuit is also integrated into the same IC.

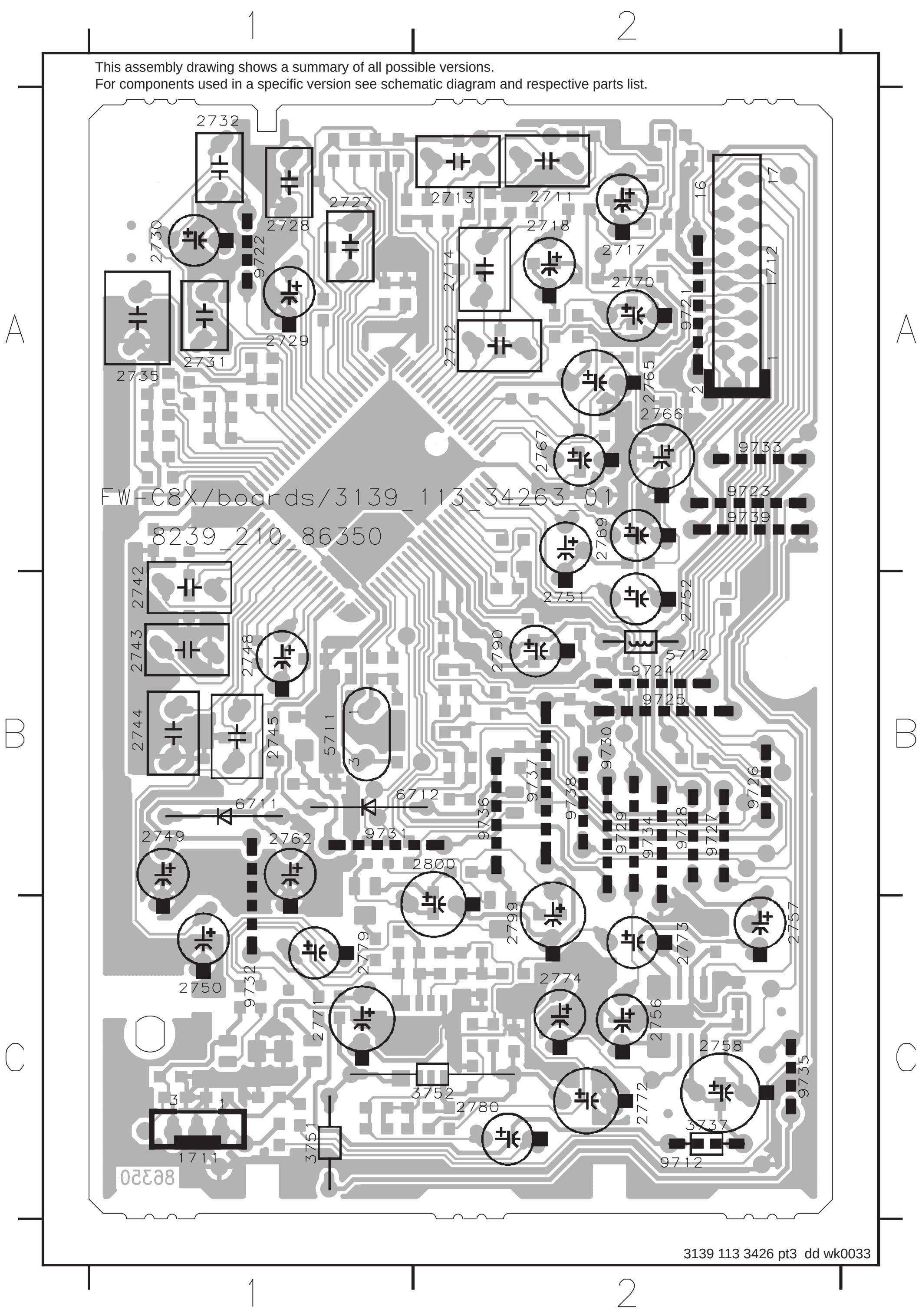
b. Volume Control for Centre and Surround Channel
Volume control and trim for both centre and surround channel is implemented using IC M62429FP (7712).

c. MCU Control
Separate muting control is available on both the centre and surround channel. MCU interface which is available on pins 19 and 20 of IC M62460FP (7711) are used to send mute control signals.

Bass ALC enable (ALC_EN) is controlled via pin 18 of MCU interface.

d. Software Control
Commands sent on DPL_CLK, DPL_DATA, DPL_V_CLK and DPL_REQ are used for switching in all DPL modes and leveling changes.

DPL BOARD - COMPONENT LAYOUT



1711	C1
1712	A2
2711	A2
2712	A2
2713	A2
2714	A2
2717	A2
2718	A2
2727	A1
2728	A1
2729	A1
2730	A1
2731	A1
2732	A1
2735	A1
2742	B1
2743	B1
2744	B1
2745	B1
2748	B1
2749	B1
2750	C1
2751	B2
2752	B2
2756	C2
2757	C2
2758	C2
2762	B1
2765	A2
2766	A2
2767	A2
2769	A2
2770	A2
2771	C1
2772	C2
2773	C2
2774	C2
2779	C1
2780	C2
2790	B2
2799	C2
2800	B2
3737	C2
3751	C1
3752	C2
5711	B1
5712	B2
6711	B1
6712	B2
9712	C2
9721	A2
9722	A1
9723	A2
9724	B2
9725	B2
9726	B2
9727	B2
9728	B2
9729	B2
9730	B2
9731	B1
9732	C1
9733	A2
9734	B2
9735	C2
9736	B2
9737	B2
9738	B2
9739	A2

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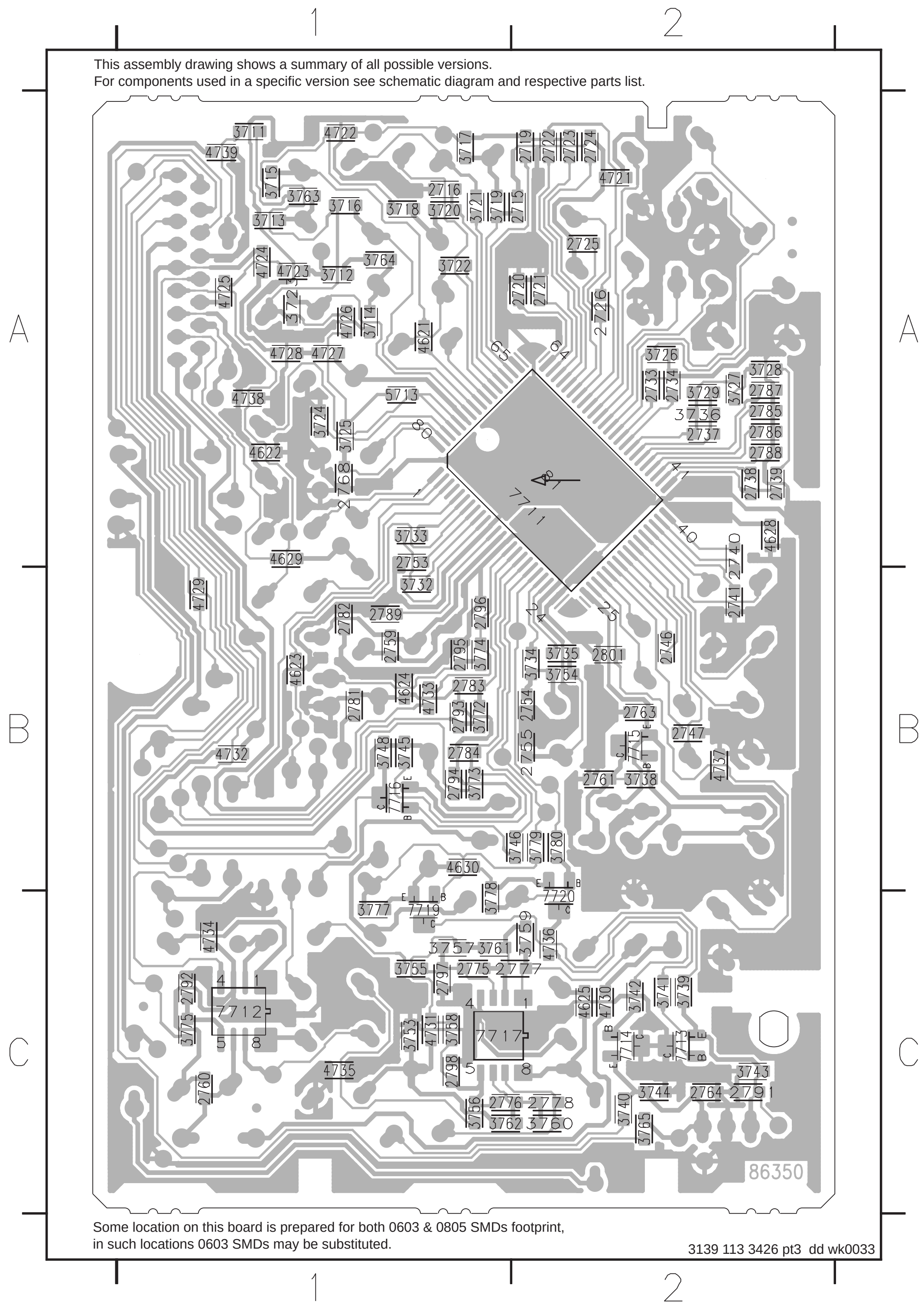
DPL BOARD - CHIP LAYOUT

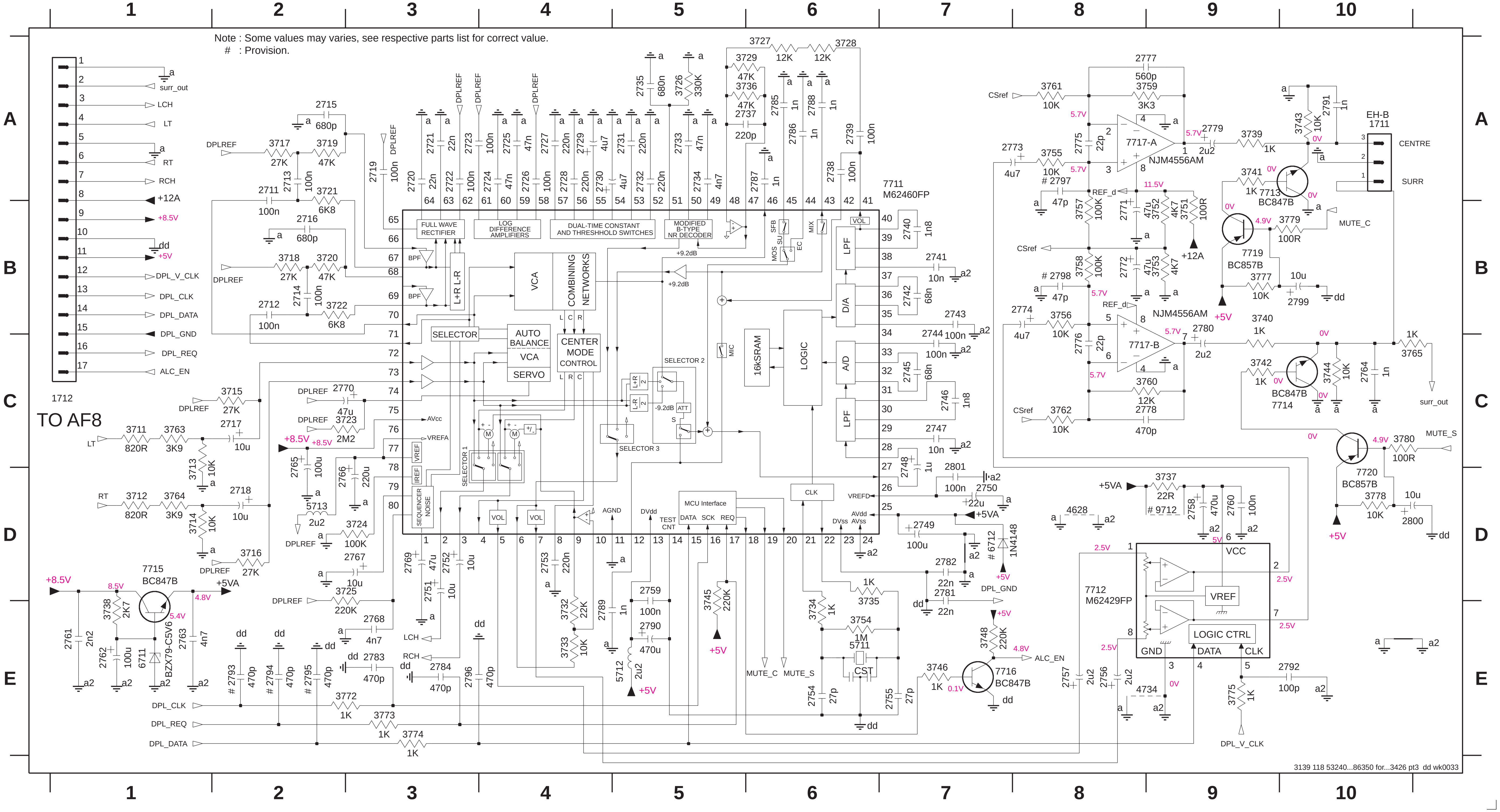


2715	A2	3734	B2
2716	A1	3735	B2
2719	A2	3736	A2
2720	A2	3738	B2
2721	A2	3739	C2
2722	A2	3740	C2
2723	A2	3741	C2
2724	A2	3742	C2
2725	A2	3743	C2
2726	A2	3744	C2
2733	A2	3745	B1
2734	A2	3746	B2
2737	A2	3748	B1
2738	A2	3753	C1
2739	A2	3754	B2
2740	A2	3755	C1
2741	B2	3756	C1
2746	B2	3757	C1
2747	B2	3758	C1
2753	A1	3759	C2
2754	B2	3760	C2
2755	B2	3761	C1
2759	B1	3762	C1
2760	C1	3763	A1
2761	B2	3764	A1
2763	B2	3765	C2
2764	C2	3772	B1
2768	A1	3773	B1
2775	C1	3774	B1
2776	C1	3775	C1
2777	C2	3777	C1
2778	C2	3778	C1
2781	B1	3779	B2
2782	B1	3780	B2
2783	B1	4621	A1
2784	B1	4622	A1
2785	A2	4623	B1
2786	A2	4624	B1
2787	A2	4625	C2
2788	A2	4628	A2
2789	B1	4629	A1
2791	C2	4630	B1
2792	C1	4721	A2
2793	B1	4722	A1
2794	B1	4723	A1
2795	B1	4724	A1
2796	B1	4725	A1
2797	C1	4726	A1
2798	C1	4727	A1
2801	B2	4728	A1
3711	A1	4729	B1
3712	A1	4730	C2
3713	A1	4731	C1
3714	A1	4732	B1
3715	A1	4733	B1
3716	A1	4734	C1
3717	A1	4735	C1
3718	A1	4736	C2
3719	A1	4737	B2
3720	A1	4738	A1
3721	A1	4739	A1
3722	A1	5713	A1
3723	A1	7711	A2
3724	A1	7712	C1
3725	A1	7713	C2
3726	A2	7714	C2
3727	A2	7715	B2
3728	A2	7716	B1
3729	A2	7717	C1
3732	B1	7719	C1
3733	A1	7720	C2

13-3

DPL CIRCUIT DIAGRAM

1711 A10	2718 D2	2727 A4	2737 A5	2746 C7	2755 E7	2764 C10	2773 A7	2782 D7	2791 A10	2800 D10	3718 B2	3727 A6	3738 E1	3748 E7	3759 A9	3774 E3	5712 E5	7716 E7
1712 C1	2719 A3	2728 A4	2738 A6	2747 C7	2756 E8	2765 C2	2774 B8	2783 E3	2792 E10	2801 D7	3719 A2	3728 A6	3739 A9	3751 B9	3760 C9	3775 E9	5713 D2	7717-A A8
2711 A2	2720 A3	2729 A4	2739 A6	2748 C7	2757 E8	2766 D2	2775 A8	2784 E3	2793 E2	3711 C1	3720 B2	3729 A6	3740 B9	3752 B9	3761 A8	3777 B9	6711 E1	7717-B C8
2712 B2	2721 A3	2730 A4	2740 B7	2749 D7	2758 D9	2767 D3	2776 C8	2785 A6	2794 E2	3712 D1	3721 A2	3732 E4	3741 A9	3753 B9	3762 C8	3778 D10	6712 D7	7719 B9
2713 A2	2722 A3	2731 A5	2741 B7	2750 D7	2759 D5	2768 E3	2777 A8	2786 A6	2795 E2	3713 D1	3722 B2	3733 E4	3742 C9	3754 E6	3763 C1	3779 B10	7711 A7	7720 D10
2714 B2	2723 A3	2732 A5	2742 B7	2751 D3	2760 D9	2769 D3	2778 C8	2787 A6	2796 E3	3714 D1	3723 C3	3734 E6	3743 A10	3755 A8	3764 D1	3780 C10	7712 D8	9712 D9
2715 A2	2724 A4	2733 A5	2743 B7	2752 D3	2761 E1	2770 C2	2779 A9	2788 A6	2797 A8	3715 C2	3724 D3	3735 D6	3744 C10	3756 B8	3765 C10	4628 D8	7713 A9	
2716 B2	2725 A4	2734 A5	2744 C7	2753 D4	2762 E1	2771 B8	2780 B9	2789 A6	2798 B8	3716 D2	3725 D3	3736 A6	3745 D5	3757 B8	3772 E3	4734 E9	7714 C9	
2717 C2	2726 A4	2735 A5	2745 C7	2754 E6	2763 E1	2772 B8	2781 D7	2790 E5	2799 B10	3717 A2	3726 A5	3737 D9	3746 E7	3758 B8	3773 E3	5711 E6	7715 D1	



13-4

ELECTRICAL PARTS LIST - DPL BOARD

ELECTRICAL PARTS LIST - DPL BOARD

MISCELLANEOUS

1712	4822 267 10871	Flex Connector 17P

CAPACITORS

2711	5322 121 42386	100nF 5% 63V
2712	5322 121 42386	100nF 5% 63V
2713	5322 121 42386	100nF 5% 63V
2714	5322 121 42386	100nF 5% 63V
2715	4822 122 32535	680pF 10% 63V
2716	4822 122 32535	680pF 10% 63V
2717	4822 124 40248	10µF 20% 63V
2718	4822 124 40248	10µF 20% 63V
2719	4822 126 14585	100nF 10% 50V
2720	5322 122 32654	22nF 10% 63V
2721	5322 122 32654	22nF 10% 63V
2722	4822 126 14585	100nF 10% 50V
2723	4822 126 14585	100nF 10% 50V
2724	4822 126 13751	47nF 10% 63V
2725	4822 126 13751	47nF 10% 63V
2726	4822 126 14585	100nF 10% 50V
2727	4822 121 42408	220nF 5% 63V
2728	4822 121 42408	220nF 5% 63V
2729	4822 124 40769	4,7µF 20% 100V
2730	4822 124 40769	4,7µF 20% 100V
2731	4822 121 42408	220nF 5% 63V
2732	4822 121 42408	220nF 5% 63V
2733	4822 126 13751	47nF 10% 63V
2734	5322 126 10223	4,7nF 10% 63V
2735	5322 121 42498	680nF 5% 63V
2737	4822 122 33575	220pF 5% 63V
2738	4822 126 14585	100nF 10% 50V
2739	4822 126 14585	100nF 10% 50V
2740	4822 126 10847	1,8nF10% 63V
2741	5322 122 34098	10nF 10% 63V
2742	5322 121 42465	68nF 5% 63V
2743	5322 121 42386	100nF 5% 63V
2744	5322 121 42386	100nF 5% 63V
2745	5322 121 42465	68nF 5% 63V
2746	4822 126 10847	1,8nF 10% 63V
2747	5322 122 34098	10nF 10% 63V
2748	4822 124 21913	1µF 20% 63V
2749	4822 124 41584	100µF 20% 10V
2750	4822 124 81151	22µF 50V
2751	4822 124 40248	10µF 20% 63V
2752	4822 124 40248	10µF 20% 63V
2753	4822 126 13561	220nF 10% 16V
2754	4822 126 13691	27pF 1% 63V
2755	4822 126 13691	27pF 1% 63V
2756	4822 124 22652	2,2µF 20% 50V
2757	4822 124 22652	2,2µF 20% 50V
2758	4822 124 80195	470µF 20% 10V
2759	4822 126 14585	100nF 10% 50V
2760	4822 126 14585	100nF 10% 50V
2761	4822 122 33127	2,2nF 10% 63V
2762	4822 124 41584	100µF 20% 10V
2763	5322 126 10223	4,7nF 10% 63V
2764	5322 126 10511	1nF 5% 50V
2765	4822 124 40207	100µF 20% 25V
2766	4822 124 40196	220µF 20% 16V
2767	4822 124 40248	10µF 20% 63V
2768	5322 126 10223	4,7nF 10% 63V
2769	4822 124 40433	47µF 20% 25V
2770	4822 124 40433	47µF 20% 25V
2771	4822 124 41751	47µF 20% 50V
2772	4822 124 41751	47µF 20% 50V
2773	4822 124 40769	4,7µF 20% 100V
2774	4822 124 40769	4,7µF 20% 100V
2775	5322 122 32658	22pF 5% 50V
2776	5322 122 32658	22pF 5% 50V
2777	4822 122 33173	560pF 10% 50V
2778	5322 122 34099	470pF 10% 63V
2779	4822 124 22652	2,2µF 20% 50V
2780	4822 124 22652	2,2µF 20% 50V
2781	5322 122 32654	22nF 10% 63V
2782	5322 122 32654	22nF 10% 63V
2783	5322 122 34099	470pF 10% 63V
2784	5322 122 34099	470pF 10% 63V
2785	5322 126 10511	1nF 5% 50V
2786	5322 126 10511	1nF 5% 50V
2787	5322 126 10511	1nF 5% 50V
2788	5322 126 10511	1nF 5% 50V
2789	5322 126 10511	1nF 5% 50V
2790	4822 124 81044	470µF 20% 6,3V
2791	5322 122 31866	6,8nF 10% 63V
2792	5322 122 32531	100pF 5% 50V
2796	5322 122 34099	470pF 10% 63V
2799	4822 124 40248	10µF 20% 63V
2800	4822 124 40248	10µF 20% 63V
2801	4822 126 14585	100nF 10% 50V

RESISTORS

3711	4822 117 11454	820R 1% 0,1W
3712	4822 117 11454	820R 1% 0,1W
3713	4822 117 10833	10k 1% 0,1W
3714	4822 117 10833	10k 1% 0,1W
3715	4822 051 20273	27k 5% 0,1W
3716	4822 051 20273	27k 5% 0,1W
3717	4822 116 83933	15k 1% 0,1W
3718	4822 116 83933	15k 1% 0,1W
3719	4822 117 10834	47k 1% 0,1W
3720	4822 117 10834	47k 1% 0,1W
3721	4822 117 11507	6k8 1% 0,1W
3722	4822 117 11507	6k8 1% 0,1W
3723	4822 051 20225	2M2 5% 0,1W
3724	4822 117 10837	100k 1% 0,1W
3725	4822 117 13579	220k 1% 0,1W
3726	4822 051 20334	330k 5% 0,1W
3727	4822 117 11383	12k 1% 0,1W
3728	4822 117 11383	12k 1% 0,1W
3729	4822 117 10834	47k 1% 0,1W
3732	4822 051 20223	22k 5% 0,1W
3733	4822 117 10833	10k 1% 0,1W
3734	4822 051 10102	1k 2% 0,25W
3735	4822 051 10102	1k 2% 0,25W
3736	4822 117 10834	47k 1% 0,1W
3737	4822 116 52186	22R 5% 0,5W
3738	4822 117 12955	2k7 1% 0,1W
3739	4822 051 10102	1k 2% 0,25W
3740	4822 051 10102	1k 2% 0,25W
3741	4822 051 10102	1k 2% 0,25W
3742	4822 051 10102	1k 2% 0,25W
3743	4822 117 10833	10k 1% 0,1W
3744	4822 117 10833	10k 1% 0,1W
3745	4822 117 13579	220k 1% 0,1W
3746	4822 051 10102	1k 2% 0,25W
3748	4822 117 13579	220k 1% 0,1W
3751	4822 116 52175	100R 5% 0,5W
3752	4822 116 52283	4k7 5% 0,5W
3753	4822 051 20472	4k7 5% 0,1W
3754	4822 051 20105	1M 5% 0,1W
3755	4822 117 10833	10k 1% 0,1W
3756	4822 117 10833	10k 1% 0,1W
3757	4822 117 10837	100k 1% 0,1W
3758	4822 117 10837	100k 1% 0,1W
3759	4822 051 20472	4k7 5% 0,1W
3760	4822 117 11383	12k 1% 0,1W
3761	4822 117 10833	10k 1% 0,1W
3762	4822 117 10833	10k 1% 0,1W
3763	4822 051 20392	3k9 5% 0,1W
3764	4822 051 20392	3k9 5% 0,1W
3765	4822 051 10102	1k 2% 0,25W
3772	4822 051 10102	1k 2% 0,25W
3773	4822 051 10102	1k 2% 0,25W
3774	4822 051 10102	1k 2% 0,25W
3775	4822 051 10102	1k 2% 0,25W
3777	4822 117 10833	10k 1% 0,1W
3778	4822 117 10833	10k 1% 0,1W
3779	4822 051 20101	100R 5% 0,1W
3780	4822 051 20101	100R 5% 0,1W
4621	4822 051 20008	0R Jumper 0805
4622	4822 051 20008	0R Jumper 0805
4623	4822 051 20008	0R Jumper 0805
4624	4822 051 20008	0R Jumper 0805
4625	4822 051 20008	0R Jumper 0805
4628	4822 051 20008	0R Jumper 0805
4629	4822 051 20008	0R Jumper 0805
4630	4822 051 20008	0R Jumper 0805
4721	4822 051 20008	0R Jumper 0805
4722	4822 051 20008	0R Jumper 0805
4723	4822 051 20008	0R Jumper 0805
4724	4822 051 20008	0R Jumper 0805
4725	4822 051 20008	0R Jumper 0805
4726	4822 051 20008	0R Jumper 0805
4727	4822 051 20008	0R Jumper 0805
4728	4822 051 20008	0R Jumper 0805
4729	4822 051 20008	0R Jumper 0805
4730	4822 051 20008	0R Jumper 0805
4731	4822 051 20008	0R Jumper 0805
4732	4822 051 20008	0R Jumper 0805
4733	4822 051 20008	0R Jumper 0805
4734	4822 051 20008	0R Jumper 0805
4735	4822 051 20008	0R Jumper 0805
4736	4822 051 20008	0R Jumper 0805
4737	4822 051 20008	0R Jumper 0805
4738	4822 051 20008	0R Jumper 0805
4739	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5711	4822 242 72527	RES CER 4MHz
5712	4822 157 62552	Coil 2,2µH 5%
5713	4822 157 10586	Coil 2,2µH 10%

DIODES

6711	4822 130 34173	BZX79-C5V6

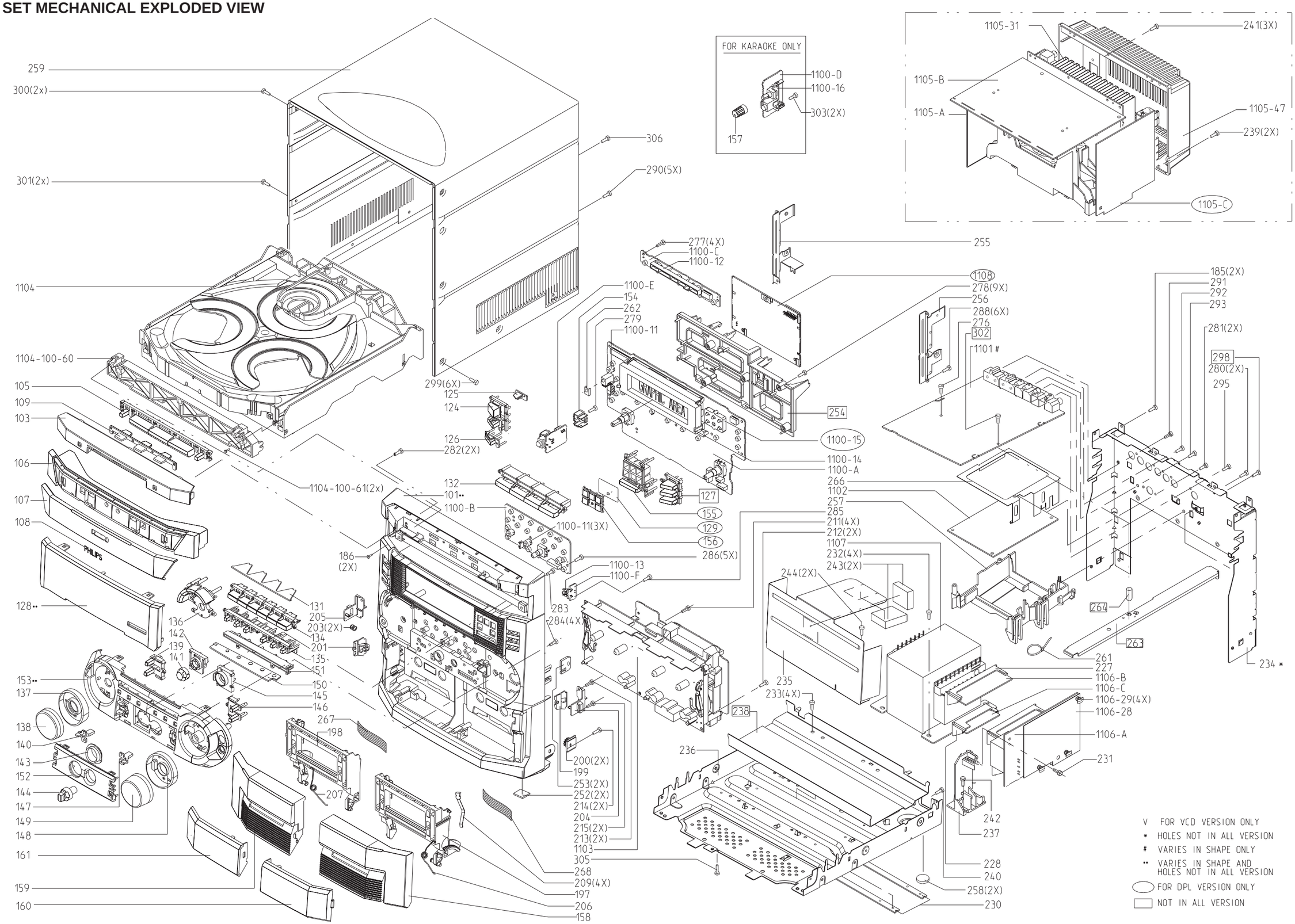
TRANSISTORS & INTEGRATED CIRCUITS

7711	4822 209 17347	M62460FP
7712	4822 209 17349	M62429FP
7713	4822 130 60511	BC847B
7714	4822 130 60511	BC847B
7715	4822 130 60511	BC847B
7716	4822 130 60511	BC847B
7717	4822 209 31378	NJM4556AM
7719	4822 130 60373	BC857B
7720	4822 130 60373	BC857B

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

14-1

SET MECHANICAL EXPLODED VIEW



V FOR VCD VERSION ONLY
* HOLES NOT IN ALL VERSION
\# VARIES IN SHAPE ONLY
•• VARIES IN SHAPE AND HOLES NOT IN ALL VERSION
(oval) FOR DPL VERSION ONLY
(rectangle) NOT IN ALL VERSION

14-2

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

0101 *^	3139 118 14180	Cabinet Front	0207	3139 111 01390		Spring Torsion Left
0101 #	3139 118 14190	Cabinet Front	0209	4822 492 42787		Spring Cassette
0103	3139 118 14020	Cover Orn CDC	0252	4822 462 40683		Foot Rubber (SQ)
0105	3139 118 11060	Button Set CDC Sel	0254 #	3139 114 69140		Plate Front
0106	3139 118 11070	Cover Tray CDC	0258	4822 462 40683		Plate (Foot)
0107	3139 118 14050	Cover Orn CDC Tray	0259	3139 114 69230		Cabinet Rear
0108	4822 454 13408	Badge Philips	0350 *	3139 118 78220		L/R Loudspeaker Box
0124	3139 118 11090	Button Power/Standby	0350 ^	3139 118 78230		L/R Loudspeaker Box
0126	3139 114 69060	Window IR	0350 #	3139 118 78240		L/R Loudspeaker Box
0128 *	3139 118 14200	Window Display	0351 *	4822 303 50063		FM Aerial
0128 ^	3139 118 14210	Window Display	0351 ^#	4822 320 11094		FM Antenna Wire
0128 #	3139 118 14220	Window Display	0352 #	3139 118 78190		Center & Surr. Speaker Box
0132	3139 118 11130	Button Set Source	0356 *^	3139 228 84370		Remote Control
0134	3139 118 11140	Button Set Control	0356 #	3139 228 84360		Remote Control
0135	3139 118 11150	Button Tape/Mode	0384	4822 303 50082		AM Frame Aerial
0136	3139 118 11160	Button BT/VEC/DSC/Personal	0385*	4822 321 10249	⚠	Mains Cord
0137	3139 118 11170	Ring Orn Jog Rotary	0385 ^#	4822 321 11466	⚠	Mains Cord
0138	3139 118 11110	Knob Jog Rotary	0386 *	4822 263 21092	⚠	Adaptor Plug 6A 250V
0139	3139 118 11180	Button Set Bass	0387 *	3139 115 20400		Instruction For Use
0141	3139 118 11190	Button WOOX	0387 ^	3139 115 20390		Instruction For Use
0142	3139 114 68900	Frame Button Set WOOX	0387 #	3139 115 20420		Instruction For Use
0144	3139 118 11200	Knob Rotary WOOX	1107 *	3103 308 30460	⚠	Mains Transformer
0145	3139 114 69890	Guide Rotary WOOX	1107 ^#	3103 308 30470	⚠	Mains Transformer
0146	3139 118 11210	Button Set Treble	1200 *^	3139 110 34560		FFC Foil 19P/280/19P BD
0148	3139 118 11220	Ring Orn Volume Rotary	1200 #	3139 110 34570		FFC Foil 23P/280/23P BD
0149	3139 118 11230	Knob Volume Rotary	1201	3139 110 34560		FFC Foil 19P/280/19P BD
0151	3139 114 69070	Holder Lightguide Bar	1202	3139 110 34330		FFC Foil 06P/180/06P BD
0152	3139 118 14230	Cover Orn WOOX	1204	3139 110 34680		FFC Foil 06P/340/06P BD
0153 *	3139 118 14250	Cover Control Karaoke	1205	4822 320 12752		FFC Foil 07P/180/07P AD
0153 ^#	3139 118 14260	Cover Orn Control	1206	3139 110 34600		FFC Foil 07P/280/07P AD
0155 #	3139 118 14170	Button Set DPL	1207 #	3139 110 34550		FFC Foil 17P/140/17P BD
0157 *	3139 118 11240	Knob Karaoke	1208	3139 110 34630		FFC Foil 10P/180/10P AD
0158	3139 118 14150	Cover Cassette Right				
0159	3139 118 14160	Cover Cassette Left Estar				
0160	3139 114 69120	Lens Cassette Right				
0161	3139 114 69130	Lens Cassette Left				
0197	3139 114 68630	Door Cassette Right				
0198	3139 114 68620	Door Cassette Left				
0199	4822 402 10621	Push-Catch				
0200	4822 529 10322	Damper Assembly				
0201	3139 114 68640	Push Catch Left				
0203	4822 492 11344	Spring Compression				
0204	4822 402 11246	Bracket Right				
0205	4822 402 11245	Bracket Left				
0206	3139 111 01380	Spring Torsion Right				

*	For FW-C870/21 only
^	For FW-C870/37 only
#	For FW-P880/37 only
*^	For FW-C870/21 & FW-C870/37 only
^#	For FW-C870/37 & FW-P880/37 only

CENTER SPEAKER BOX BREAKDOWN

9965 000 06660	Center Speaker Box	
9965 000 06661	Speaker 4" 12R 50W	(For FW-P880/37 only)

SURROUND SPEAKER BOX BREAKDOWN

9965 000 06662	Surround Speaker Box	
9965 000 06663	Speaker 4" 6R 25W	(For FW-P880/37 only)

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

SCREW LISTS - MAIN UNIT

185	D3 x 10
186	D3 x 25
211	D3 x 12
212	D3 x 12
213	D3 x 12
214	M3 x 12
215	M3 x 12
231	D3 x 10
232	M3 x 10
233	M3 x 6
239	M3 x 10
240	D3 x 12
241	M3 x 10
242	M3 x 10
244	M3 x 6
276	D3 x 12
277	D3 x 12
278	D3 x 12
279	D3 x 12
280	D3 x 12
281	D3 x 12
282	D3 x 12
283	D3 x 20
284	D3 x 12
285	M3 x 12
286	D3 x 12
288	D3 x 12
290	M3 x 10
291	D3 x 12
292	D3 x 12
293	D3 x 12
295	D3 x 12
299	M3 x 10
300	M3 x 10
301	M3 x 10
303	D3 x 12
305	M3 x 6
306	M3 x 10