Service
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Service Manual

COMPACT disc DIGITAL AUDIO

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CLASS 1
LASER PRODUCT

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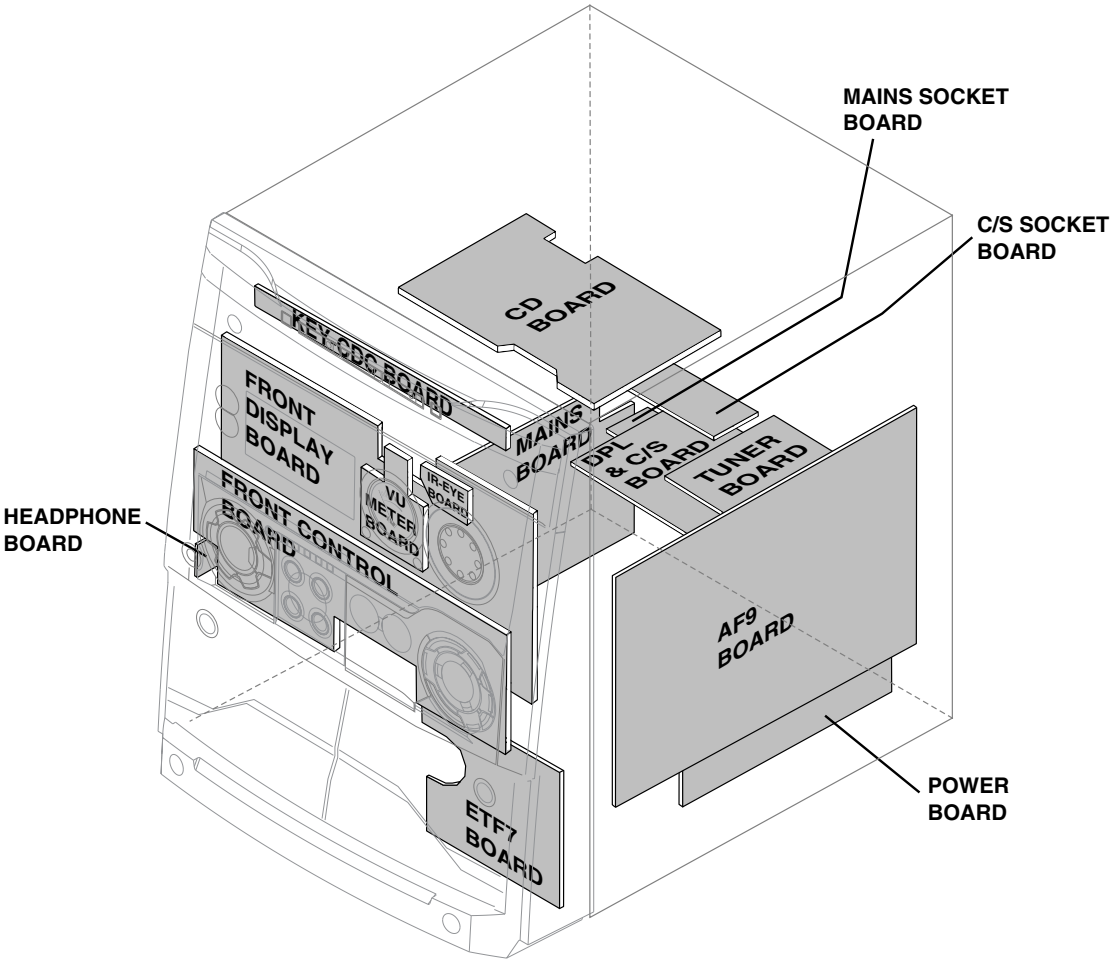
PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

Type /Versions: / Features & Board in used:	FW-P750									
	/22	/37								
Aux in /CDR in	x	x								
Line Out										
Surround Out										
Subwoofer Out	x	x								
Digital Out										
Matrix Surround										
CD Text										
Dolby B										
RDS	x									
News	x									
Dolby Pro Logic (DPL)	x	x								
Incredible Surround										
Karaoke Features										
Voltage Selector										
ECO Power Standby (Clock Display Off)	x									
ECO6 Tuner Board - Systems Non-Cenelec		x								
ECO6 Tuner Board - Systems Cenelec	x									
Center/Surround Channel	x	x								

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 : < 1W at ECO Power Standby
: 15W at Standby
: 85W 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
Distortion at RF=1mV, dev. 75kHz : < 3% [<5%]
-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 /22
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 : [> 30dB]
Image rejection : [> 30dB]
Distortion at RF=50mV, m=80% : [< 5%]

AMPLIFIER:

Output power (6Ω, 1kHz, 10% THD)
L & R : 2 x 50W RMS /22
Center : 25W /22
Surround : 2 x 12.5W /22

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

Frequency response within -3dB : 40Hz-20kHz
Digital Sound Control (DSC) : Digital, Rock, Pop, Newage, Classic, Electric
Virtual Ambience Control (VAC) : Hall, Concert, Cinema, Disco, Arcade, Cyber
Dynamic Bass Boost (DBB) : BEAT, PUNCH, BLAST, DBB OFF
Dolby Pro Logic (DPL) : Dolby Surround
Dolby Center Phantom
Dolby 3 Stereo
Normal Stereo

Input sensitivity
Aux in : 500mV ± 3dB at 1kHz
CDR in : 1V ± 3dB at 1kHz
Output sensitivity
Subwoofer out (50Hz-8kHz) : 1.5V ± 3dB at 22kΩ
Headphone output at 32Ω : 15mW ± 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 (Type I) : > 48dBA

COMPACT DISC:

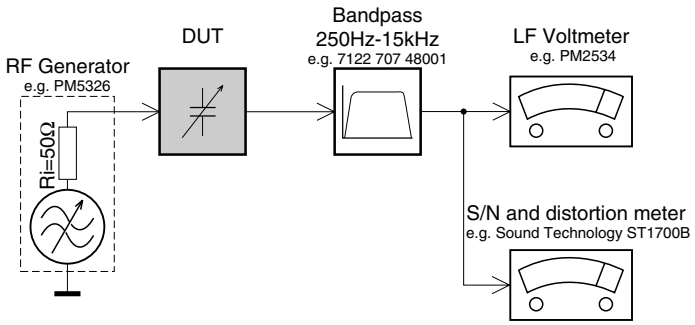
Measurement done at output conn. of the CDC module.
Frequency response : < ±1.5dB for 20Hz-20kHz
Output Voltage (in Vrms) : 550mV ± 2dB unloaded
Signal to Noise Ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.003%
Channel Unbalance : < ±1dB
Channel Separation (1kHz) : >60dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

[....] Values indicated are for "ECO6 Cenelec Board" only.

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

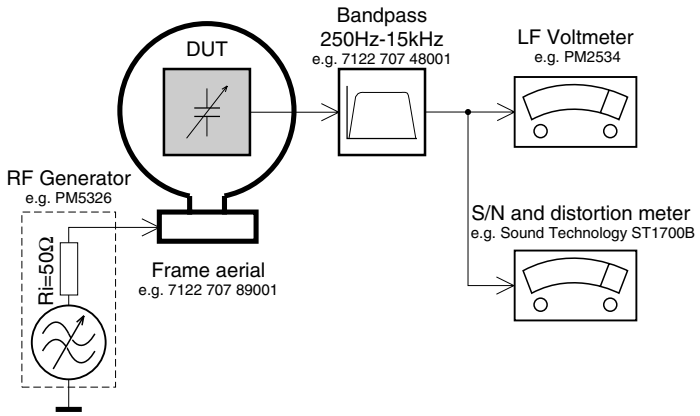
MEASUREMENT SETUP

Tuner FM



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

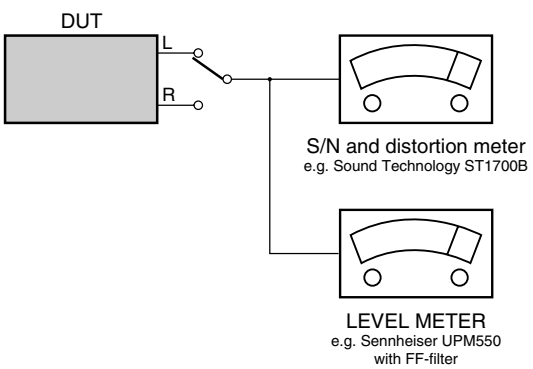
Tuner AM (MW,LW)



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).

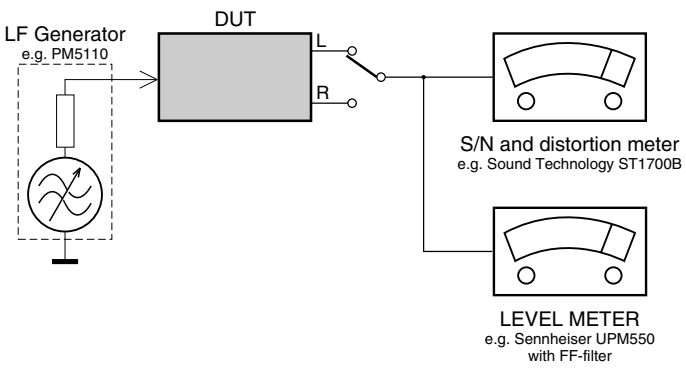
CD

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

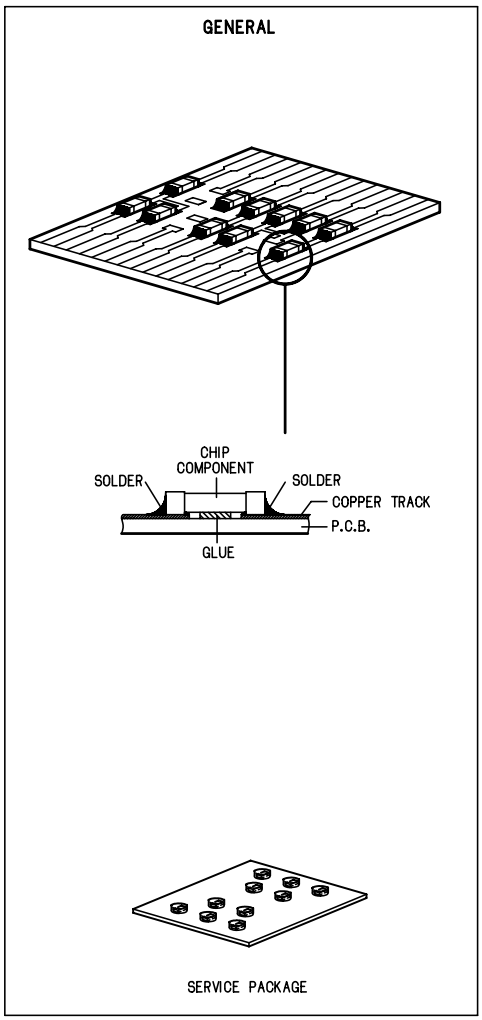
Compact Disc:

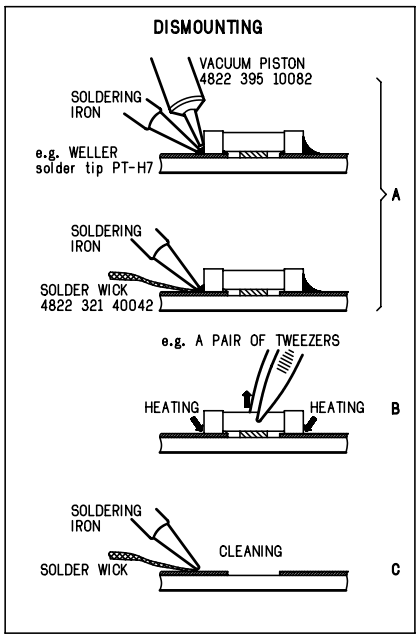
SBC426/426A Test disc 5 + 5A 4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz 4822 397 30155
SBC429 Audio Signals disc 4822 397 30184
Dolby Pro-logic Test Disc 4822 395 10216

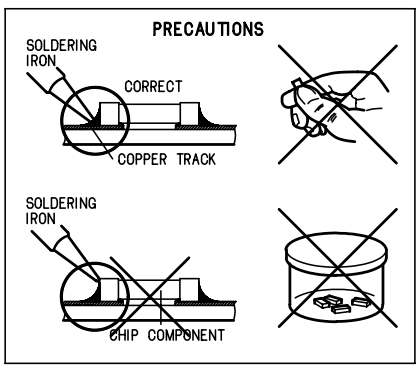
ESD Equipment:

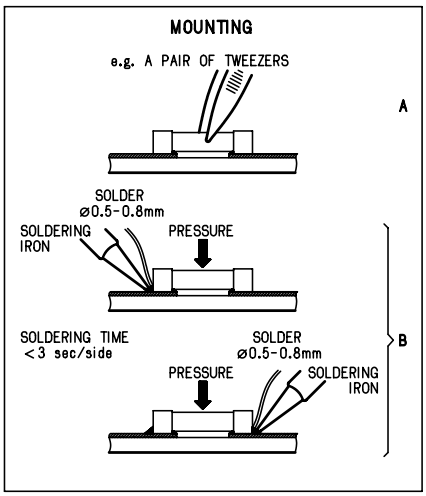
Anti-static table mat - large 1200x650x1.25mm ... 4822 466 10953
Anti-static table mat - small 600x650x1.25mm 4822 466 10958
Anti-static wristband 4822 395 10223
Connector box (1MΩ) 4822 320 11307
Extension cable
(to connect wristband to conn. box) 4822 320 11305
Connecting cable
(to connect table mat 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

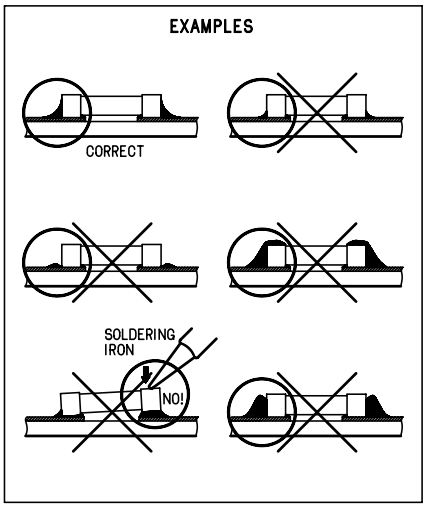
HANDLING CHIP COMPONENTS











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 !

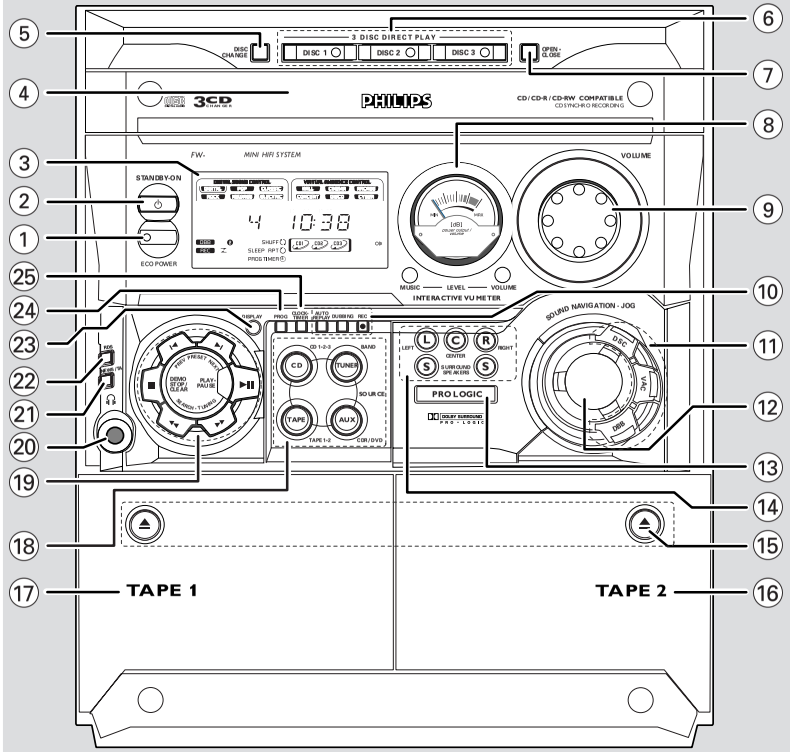
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

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

General Information

This product complies with the radio interference requirements of the European Community.

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.

Dolby
Manufactured under license from Dolby Laboratories. "PRO-LOGIC" and the double-D symbol ⧫⧫ are trademarks of Dolby Laboratories. Confidential unpublished works. © 1992-1997 Dolby Laboratories. All rights reserved.

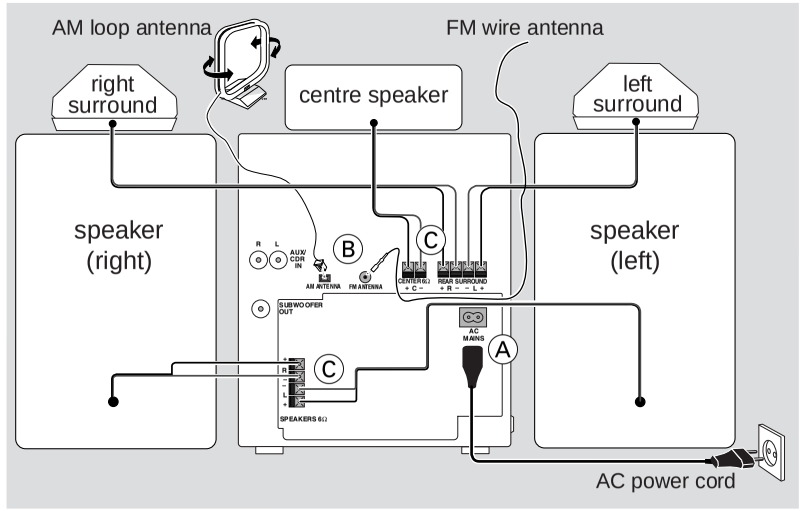
Supplied accessories

- Remote control
- Batteries (two AA size) for remote control
- AM loop antenna
- FM wire antenna
- AC power cord
- CS-750 speaker package (includes one pair of surround speakers and one centre speaker)

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.**

Preparations



Rear Connections

The type plate is located at the rear of the system.
For users in the U.K.: please follow the instructions on page 2.

Ⓐ Power

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

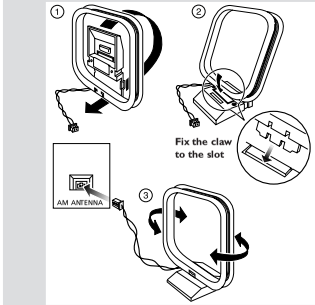
WARNING!
– For optimal performance, use only the original power cable.
– Never make or change connections with the power switched on.

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.

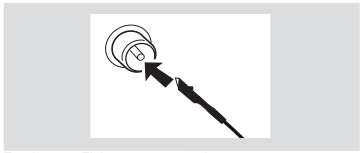
AM Antenna



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

English

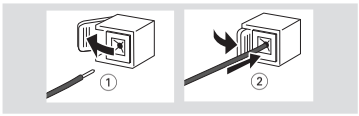
FM Antenna



- 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**", coloured (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**", coloured (marked) wire to "+" and black (unmarked) wire to "−".

Centre Speaker
Connect the speaker wires to the CENTER terminal, coloured (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.

Optional Connections

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

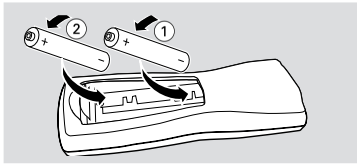
Connecting other equipment to your system
Connect the audio left and right OUT terminals of a TV,VCR, Laser Disc player, DVD player or CD Recorder to the **AUX/CDR IN** terminals.

Note:
– 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).

Inserting batteries into the Remote Control

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



CAUTION!
– Remove batteries if they are exhausted or not to be used for a long time.
– Do not use old and new or different types of batteries in combination.
– Batteries contain chemical substances, so they should be disposed off properly.

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 centre speaker "steers" dialogue/ vocal sound and centre 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, centre, and rear channels.

IMPORTANT!
– Dolby Pro Logic Surround sound can only be reproduced if the programme is broadcast in Dolby Surround Sound.
– For the best Dolby Pro Logic sound, switch on DPL with DSC set to "CLASSIC" and with VAC off.
– Dolby Pro Logic mode will automatically switch to normal stereo mode when headphones is connected.
– When recording, it is advisable to switch the Dolby Pro Logic to normal stereo mode.

Setting up the Dolby Pro Logic system

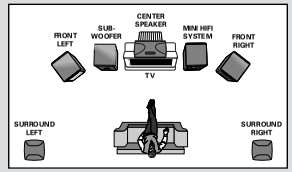
You must set up the system properly in order to experience and enjoy a Home Cinema sound ambience.

Connecting the Speakers

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

- ***Front speakers:*** Connect the front speakers.
- ***Centre speaker:*** Connect the centre 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.

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

Test Tone

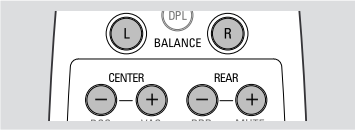
This feature enables you to adjust the Front Left, Front Right, Centre and Surround Sound levels of the respective speakers in Dolby Pro Logic mode.

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, Centre, Right, and Surround speakers.

➜ "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.

Centre 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** and then **DPL** on the remote control.

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

Switching the Dolby Pro Logic

- Press **PRO LOGIC (DPL)** 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 centre speaker. It redistributes the centre 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 centre speakers.
➜ "DOLBY 3 STEREO" will be displayed.

Normal Stereo

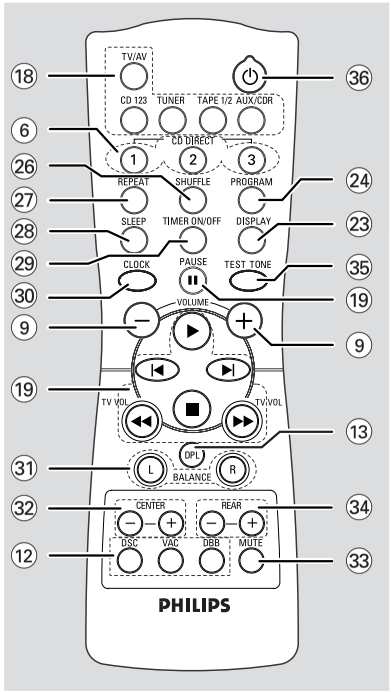
This setting is for normal stereo sound without Dolby Pro Logic. It requires only the left and right speakers.
➜ "STEREO" will be displayed.

Controls on the system and remote control

① **ECO POWER**
– to switch the system on or to Eco Power Standby mode.
② **STANDBY ON ⏻**
– to switch the system on or to Standby mode.
③ **DISPLAY SCREEN**
– to view the current status of the system.
④ **DISC TRAY**
⑤ **DISC CHANGE**
– to change disc(s).
⑥ **DISC 1 / DISC 2 / DISC 3 (CD DIRECT)**
– to select a disc tray for playback.
⑦ **OPEN•CLOSE**
– to open or close the disc tray.
⑧ **INTERACTIVE VU METER**
– to show the VU (volume unit) meter in music or volume mode depending on the display mode selected.
⑨ **VOLUME**
– to increase or decrease the volume.
⑩ **Tape Deck Operation**
AUTO REPLAY
– to select continuous playback in either AUTO PLAY or ONCE mode only.
DUBBING
– to dub a tape.
REC
– to start recording on tape deck 2.
⑪ **SOUND NAVIGATION**
– to select the desired sound feature : DSC, VAC or DBB.
⑫ **JOG CONTROL**
– to select the desired sound effect for the selected sound feature.
DSC ..... DIGITAL, ROCK, POP, NEWAGE, CLASSIC or ELECTRIC.
VAC ..... HALL, CONCERT, CINEMA, DISCO, ARCADE or CYBER.
DBB ..... BEAT, PUNCH or BLAST.
⑬ **PRO LOGIC (DPL)**
– to select Dolby Surround, Dolby Center Phantom, Dolby 3 Stereo or Stereo mode.
⑭ **DPL DISPLAY PANEL**
– to view the selected Dolby Pro Logic setting.
⑮ ⏏
– to open the tape deck door.
⑯ **TAPE DECK 2**
⑰ **TAPE DECK 1**
⑱ **SOURCE** – to select the following:
CD / (CD 1•2•3)
– to select disc tray 1, 2 or 3.
TUNER / (BAND)
– to select waveband : FM, MW or LW.
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.
TV/AV *(on the remote control only)*
– to select TV or Video mode.
⑲ **Mode Selection**
PLAY PAUSE ▶II
for CD ..... to start or interrupt playback.
for TAPE ..... to start playback.
for PLUG & PLAY… *(on the system only)* to initiate and start plug & play mode.
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.
for TV VOL. ..... to adjust the TV volume (if the remote operates your TV).
DEMO STOP/CLEAR ■
for CD ..... to stop playback or to clear a programme.
for TUNER ..... to stop programming.
..... *(on the system only)* to delete the preset radio station.
for TAPE ..... to stop playback or recording.
..... to reset tape counter number.
for DEMO ..... *(on the system only)* to activate/ deactivate the demonstration.
for CLOCK ..... *(on the system only)* to exit clock setting or cancel timer.
for PLUG & PLAY… *(on the system only)* to exit plug & play mode.
PREV / PRESET / NEXT ⏮ ⏭
for CD ..... to skip to the beginning of the current, previous, or next track.
for TUNER ..... to select a preset radio station.
for CLOCK ..... *(on the system only)* to set the minute.

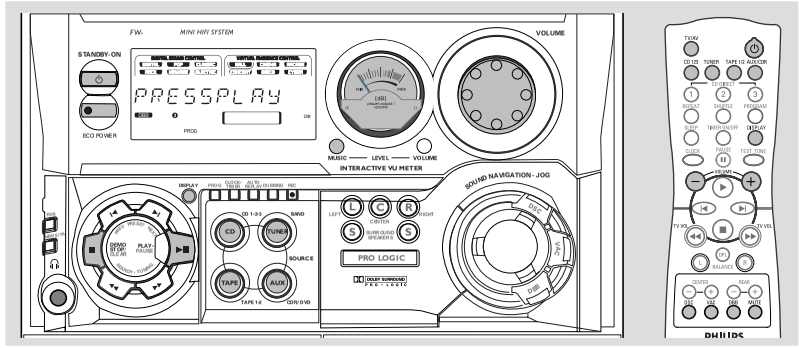
Controls

⑳ 🎧
– to connect headphones.
㉑ **NEWS/TA**
– to hear News or Traffic Announcement automatically.
㉒ **RDS**
– to select RDS information.
㉓ **DISPLAY**
– to select different screen display mode : NORMAL, MODE 1, MODE 2, or MODE 3.
㉔ **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.
㉕ **CLOCK•TIMER**
– to view the clock, set the clock or set the timer.
㉖ **SHUFFLE**
– to playback all available discs and their tracks/ programme in random order.
㉗ **REPEAT**
– to playback track(s)/disc(s)/programme repeatedly.
㉘ **SLEEP**
– to activate, deactivate or set the sleep timer.
㉙ **TIMER ON/OFF**
– to activate or deactivate the timer.
㉚ **CLOCK**
– to view the clock display.
㉛ **BALANCE L/R**
– to balance the sound level of the front left and right speakers.
㉜ **CENTER +/–**
– to adjust the sound level of the centre speaker.
㉝ **MUTE**
– to interrupt or resume sound reproduction.
㉞ **REAR +/–**
– to adjust the sound level of the surround speakers.
㉟ **TEST TONE**
– to check the sound level of the Front Left, Front Right, Centre and Surround speakers.
㊱ ⏻
– to switch the system to Standby mode.
– to switch the system to 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.

Plug and Play

Plug and Play allows you to store all available RDS stations and radio stations automatically.

If Plug and Play has not been installed

1 When you turn on the system, "AUTO INSTALL - PRESS PLAY" will be displayed.
2 Press **PLAY** ▶ on the system to start installation.
➜ "INSTALL" will be displayed and followed by "TUNER" and then "AUTO".
➜ **PROG** will start flashing.
➜ The system will search for all RDS stations and then continue with radio stations on FM, MW and LW band respectively. Weak RDS stations may be stored in later presets.
➜ All available RDS and 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 or the first available RDS station will play when Plug and Play is completed.
3 The system will proceed to set the RDS time automatically with the stored RDS preset station.

- If no RDS station is found in the first preset station;
➜ The programme will exit automatically.
- If RDS radio station is found;
➜ "INSTALL" will be displayed and followed by "TIME".
- When searching RDS time;
➜ "SEARCH RDS TIME" will be displayed.
➜ When RDS time is read, "RDS TIME" will be displayed. The current time will be displayed for 2 seconds and stored automatically.
➜ If RDS station does not transmit RDS time within 90 seconds, the programme will exit automatically and the display will show "NO RDS TIME".

To reinstall Plug and Play

1 In Standby or Demonstration mode, press and hold **PLAY** ▶ on the system until "AUTO INSTALL - PRESS PLAY" is displayed.
2 Press **PLAY** ▶ again to start installation.
➜ All previously stored radio stations will be replaced.

To exit without storing the Plug and Play

- Press ■ on the system.

Notes:
– When the power is turned on, the disc tray may open and close to initialise the system.
– If you do not complete Plug and Play installation, Plug and Play will be reinitiated the next time you turn on the power.
– If no stereo frequency is detected during Plug and Play, "CHECK ANTENNA" will be displayed.
– During Plug and Play, if no button is pressed within 15 seconds, the system will exit Plug and Play mode automatically.

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.

Note:

– 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.

Switching the system on

In Standby/Demonstration mode

- Press **STANDBY ON**.
  ➜ The system will switch to the last selected source.
- Press **CD**, **TUNER**, **TAPE**, **AUX** (or **CD 123**, **TUNER**, **TAPE 1/2** or **AUX/CDR** on the remote control).
  ➜ The system will switch to 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 **ECO POWER**.
  ➜ The system will switch to last selected source.
- 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 any other source mode (except Eco Power Standby 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 (< 1 Watt)

- Press **ECO POWER** (or press and hold ⏻ on the remote control).
  ➜ "ECO POWER" 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.

Display mode

There are four different display modes for selection.

- Press **DISPLAY** repeatedly to select NORMAL, MODE 1, MODE 2, or MODE 3.

NORMAL ..... All available LEDs will light up and the display screen will have full brightness. The VU meter will be in music mode.

MODE 1 ..... All available LEDs will light up and the display screen will have full brightness. The VU meter will be in volume mode.

MODE 2 ..... All available LEDs will light up and the display screen will be at half brightness. The VU meter will be in music mode.

MODE 3 ..... The display screen will be at half brightness. The VU meter and all LEDs will be off.

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.

Sound Navigation

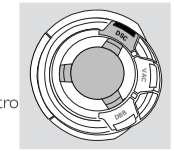
For optimal sound listening, select only one of the following navigation sound controls at a time : DSC, VAC or DBB.

DSC (Digital Sound Control)

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

1 Press **DSC**.
➜ DSC button lights up

2 Adjust the **JOG CONTROL** (or press **DSC** on the remote control repeatedly) to select the desired Digital Sound Control effect : DIGITAL, ROCK, POP, NEWAGE, CLASSIC or ELECTRIC.
➜ The selected DSC will be highlighted.



Note:

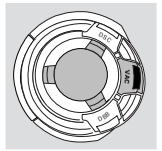
– For a neutral sound effect, select CLASSIC.

VAC (Virtual Ambience Control)

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

1 Press **VAC**.
➜ VAC button lights up.

2 Adjust the **JOG CONTROL** (or press **VAC** on the remote control repeatedly) to select the desired Virtual Ambience Control effect : HALL, CONCERT, CINEMA, DISCO, ARCADE or CYBER.
➜ The selected VAC will be highlighted.



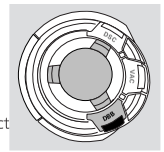
Note:

– When you select VAC, the Dolby Pro Logic setting will automatically switch to Dolby Center Phantom mode.

English

DBB (Dynamic Bass Boost)

There are three DBB settings to enhance the bass response.



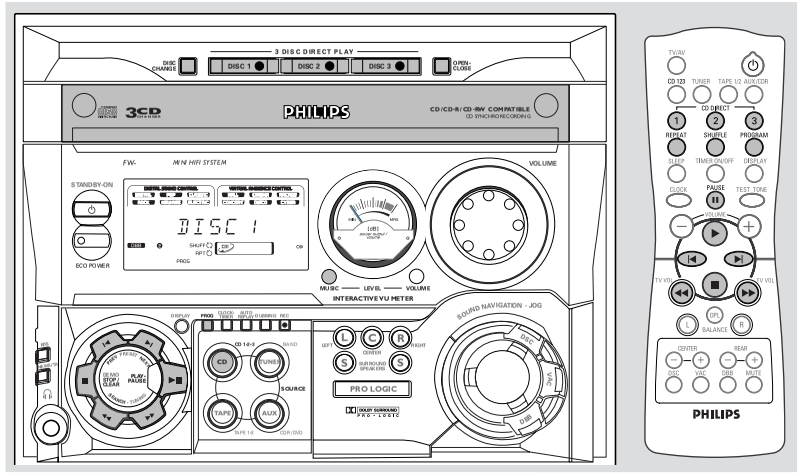
1 Press **DBB**.
➜ DBB button lights up.
2 Adjust the **JOG CONTROL** (or press **DBB** on the remote control repeatedly) to select the desired Dynamic Bass Boost level : BEAT, PUNCH, BLAST or DBB OFF.
➜ If "BEAT" is selected, DBB ❶ will appear on the display.
➜ If "PUNCH" is selected, DBB ❷ will appear on the display.
➜ If "BLAST" is selected, DBB ❸ will appear on the display.
➜ If "DBB OFF" is selected, DBB will be deactivated.

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

Automatic DSC-DBB / VAC-DBB selection

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

English



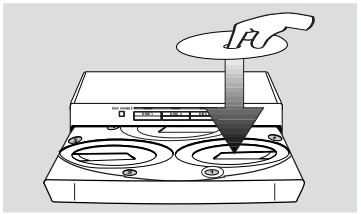
IMPORTANT!
– This system is designed for regular discs. Therefore, do not use any accessories such as disc stabiliser rings or disc treatment sheets, etc., as offered on the market, because they may jam the changer mechanism.
– Do not load more than one disc into each tray.

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.

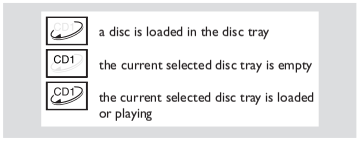


4 Press **OPEN•CLOSE** to close the disc tray.
➜ "READING" will be displayed. The selected disc tray, total number of tracks and the playing time will appear on the display.
➜ A lighted button indicates that a disc is loaded in the disc tray.

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** ▶.
  ➜ 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** ▶ 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 until the desired track appears on the display.
- If playback is stopped, press **PLAY** ▶ 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.
➜ **PROG** 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 repeatedly 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** ▶ 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 PROG 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.

To review the programme

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

English

To erase the entire programme

- Press ■ **once** when playback is stopped or **twice** during playback.
  ➜ "PROGRAM CLEARED" will be displayed.
  ➜ **PROG** 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.
  ➜ **RPT** ↻ appears on the display.
- **In programme playback**
  ➜ "TRACK" – to repeat the current programmed track.
  "PROGRAM" – to repeat all programmed tracks.
  ➜ **RPT** ↻ and **PROG** 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.
➜ **RPT** ↻ 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 **SHUFF** ↻ will appear on the display.
- The discs and the tracks will be played in random order until you press ■.

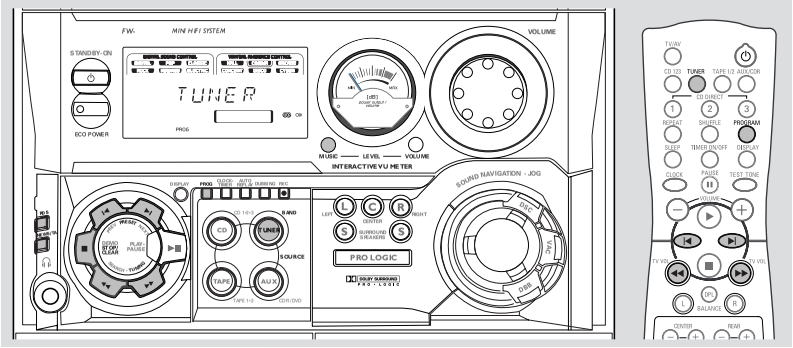
2 To resume normal playback, press **SHUFFLE** again.
➜ **SHUFF** ↻ will disappear from the display.

When select REPEAT mode during shuffling

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

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

English



Storing Preset Radio Stations

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

Automatic Preset Programming

- Plug and Play setting (refer to "Basic Functions - Plug and Play").

OR

1 Press **TUNER** (BAND) to select TUNER mode.
➜ "TUNER" will be displayed. A few seconds later, the current radio frequency will appear on the display.
➜ If a FM station is received in stereo, ∞ will appear on the display.

To begin automatic preset from a desired preset number

- Press ⏮ or ⏭ 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.
➜ **PROG** will start flashing.
➜ The system will search for all RDS stations and then continue with radio stations on FM, MW and LW band respectively.
➜ 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 or the first available RDS 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, MW or LW.
2 Press **PROG**.
➜ **PROG** 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 ⏭ to select the desired preset number.

4 Press **PROG** again to store the radio station.
➜ **PROG** 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.

English

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

- Once you've preset the radio stations, press ⏮ or ⏭ to select the desired preset number.
➜ The preset number, radio frequency, and waveband will appear on the display.

Erasing a Preset Radio Station

1 Press ⏮ or ⏭ to select the preset radio station to be erased.
2 Press and hold ■ on the system until "PRESET DELETED" appears on the display.
➜ The radio frequency remain on the display.
➜ The preset numbers of all other preset radio stations in the band with higher numbers are also decreased by one.

- Repeat ***steps 1–2*** to erase other preset radio stations.

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

RDS

RDS (Radio Data System) is a broadcasting service that allows FM stations to send additional information along with the regular FM radio signal. This additional information can contain:

STATION NAME: The radio station name is displayed.
PROGRAMME TYPE: The following programme types exist and can be received by your tuner: News, Affairs, Info, Sport, Educate, Drama, Culture, Science, Varied, Pop M, Rock M, M.O.R. (middle of the road music), Light M, Classics, Other M, No type.
RADIO TEXT (RT): text messages appear on the display.

Receiving RDS Radio Station

- Tuned to a radio station from FM band.
➜ If the radio station transmitting RDS signal, the RDS logo (∞) and the radio station name will appear on the display.

To check the RDS information

- Press **RDS** repeatedly to scroll through the following information (if available) : STATION NAME ➞ PROGRAMME TYPE ➞ RADIO TEXT ➞ TUNED FREQUENCY ➞ STATION NAME ....

Notes:
– If the tuned radio station does not transmit RDS signal or is a non RDS station, "NO RDS" will be displayed.
– If the RDS text message is not available at the RDS station, "NO RDS TEXT" will be displayed.

RDS Time

Some RDS station may be transmitting a real clock time at an interval of every minute.

Setting the RDS time

1 Press **CLOCK•TIMER twice**.
➜ "00:00" or current time starts flashing.
2 Press **RDS**.
➜ "SEARCH RDS TIME" will be displayed.
➜ When RDS time is read, "RDS TIME" will be displayed. The current time will be displayed for 2 seconds and stored automatically.
➜ If the RDS station does not transmit RDS time within 90 seconds, "NO RDS TIME" will be displayed.

English

Note:
– Some RDS station may be transmitting a real time clock at a minute interval. The accuracy of the transmitted time depends on the transmitting RDS station.

NEWS/TA (traffic announcement)

(only available in RDS radio station)
Once the News PTY (Programme Type) or TA (Traffic Announcement) data is detected in a RDS station, it will switch to TUNER mode automatically.

IMPORTANT!
You can activate NEWS/TA function in Standby, Demonstration or any source mode except Tuner and Eco Power Standby mode.

To start NEWS/TA function

1 Press **NEWS/TA** to select NEWS or TA function.
➜ If NEWS is selected, "NEWS" and **NEWS** will appear on the display.
➜ If TA is selected, "TA" and **TA** will appear on the display.
➜ It will scan the radio stations stored in the first 5 preset and wait for the News Programme Type/Traffic Announcement data to be available in any of these RDS radio stations.

- If no RDS station is detected in the first 5 presets, the system will exit NEWS/TA function.
  ➜ "NO RDS NEWS" or "NO RDS TA" will be displayed and **NEWS** or **TA** will disappear from the display.

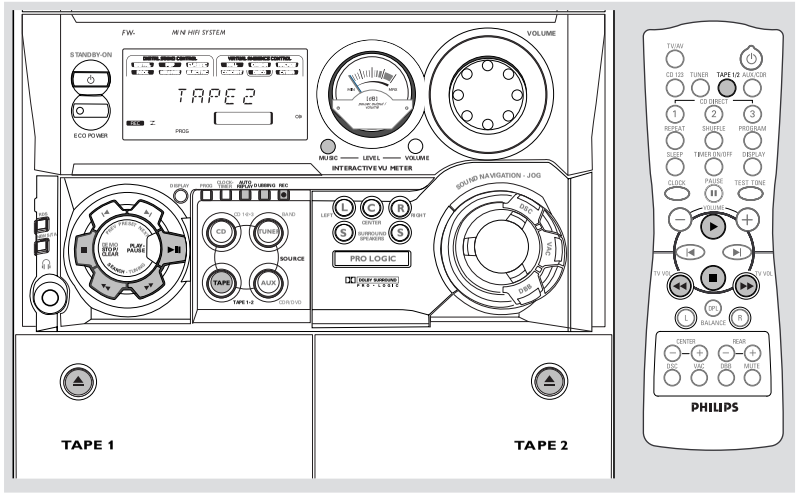
2 When NEWS or TA transmission is detected, the system will switch to Tuner mode automatically.
➜ **NEWS** or **TA** will start flashing.

Notes:
– You have to exit Tuner mode before selecting NEWS/TA function.
– While searching NEWS/TA in progress, the current source activity will remain uninterrupted.
– Before you activate the NEWS/TA feature, ensure that the first 5 presets have RDS stations.
– The NEWS/TA works only once for each activation.
– The NEWS/TA will not start if a recording is in progress.

To cancel NEWS/TA function

- Press **NEWS/TA** again or press **TUNER** to select tuner mode.
- During news bulletin or traffic announcement, press any other available source keys to execute the relevant source mode.

English

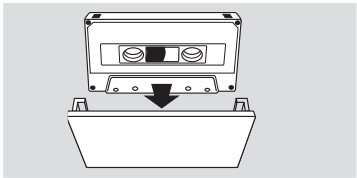


IMPORTANT!
– Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.
– C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.
– Store the tapes at room temperature and do not put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

Tape Playback

1 Press ⏏ 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** ▶ to start playback.

To stop playback

- Press ■.

To change the playback mode

- Press **AUTO REPLAY** repeatedly to select the different playback modes.
  ➜ "AUTO REPLAY" (⇄) or "ONCE" will appear on the display.

  AUTO REPLAY …the tape will rewind automatically at the end of playback and replay again. It will replay up to a maximum of 20 times until you press ■.
  ONCE .....the tape will playback the selected side once and then stop.

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.

English

To rewind or fast forward when playback is stopped

1 Press ◀◀ or ▶▶.
2 Press ■ when you reached the desired passage.

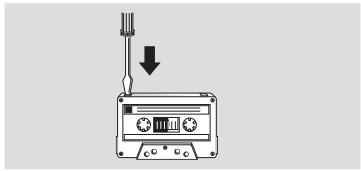
To reset tape counter number

- When in stop mode, press ■.
  ➜ "TP 1 000" or "TP2 000" will be displayed.

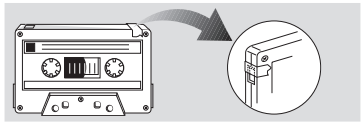
Notes:
– During rewinding or fast forwarding of a tape, it is also possible to select another source (CD, TUNER or AUX, for example).
– The tape counter will automatically set to zero after detecting end of tape.

General Information on Recording

- 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, VAC, 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.
– Switch off Dolby Pro Logic when recording.

Preparation for Recording

1 Press **TAPE** (TAPE 1•2) to select TAPE 2.
2 Load a recordable tape into tape deck 2 with full spool to the left.
3 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 listen to another source except for dubbing tapes.
- It is not possible to activate the timer function.

One Touch Recording

1 Press **CD**, **TUNER** or **AUX** to select the source.
2 Start playback of the selected source.
3 Press **REC** to start recording.

To stop recording

- Press ■ on the system.

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 ⏭ 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 **REC** to start recording.
➜ The disc will start playback automatically.

English

To select another track during recording

1 Press **PAUSE II** to interrupt recording.
2 Press ⏮ or ⏭ to select the desired track.
3 Press **PLAY** ▶ 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 **DUBBING**.
➜ Playing and recording will start simultaneously.
➜ "DUB 000" will be displayed.

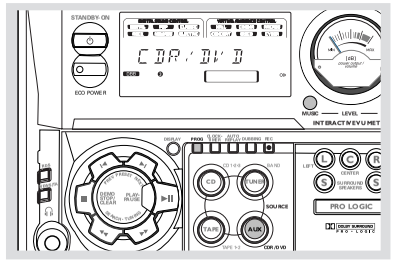
- Dubbing of tapes is possible on one side of the tape only. To continue record on the reverse side, at the end of side A, flip the tapes to side B and repeat the procedure.

To stop dubbing

- Press ■.

Notes:
– 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.

External Sources



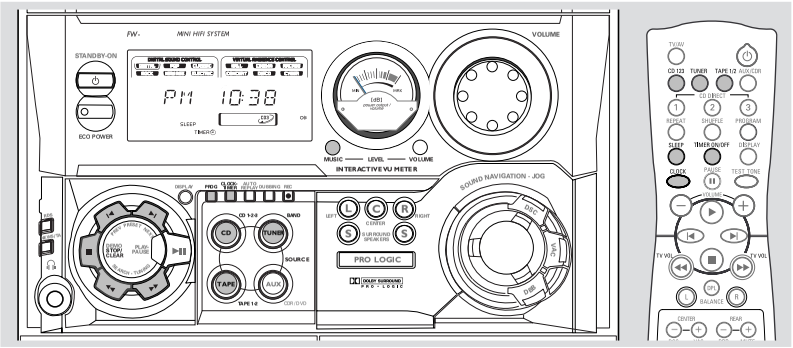
Listening to External Sources

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 mode or normal AUX mode.
➜ "CDR/DVD" or "AUX" will be displayed.

- 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 navigation sound control features (DSC or VAC 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".



IMPORTANT!
When in Eco Power Standby mode, it is not possible to operate clock or timer function.

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** (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.

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.
– During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.
– To set the clock automatically through the time information in the RDS signal, refer to "Radio Reception - RDS Time".

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.

2. Press **CD**, **TUNER** or **TAPE** to select the desired source.
   - Before setting timer, 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.
   ➜ "TIMER ON" will be displayed and followed by the set timer "xx:xx" and then the selected source.
   ➜ **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) 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. Press **SLEEP** on the remote control repeatedly to select a preset time.
   ➜ The selections are as follows (time in minutes):
   15 ➜ 30 ➜ 45 ➜ 60 ➜ OFF ➜ 15 ...
   ➜ "SLEEP xx" or "OFF" will be displayed. "xx" is the time in minutes.
2. When you reach the desired length of time, stop pressing the **SLEEP** button.
   ➜ **SLEEP** will appear on the display, except for "OFF" mode.
   ➜ The Sleep Timer is now set. Before the system switches to standby mode, a countdown of 10 seconds will be displayed.
   "SLEEP 10" ➜ "SLEEP 9".... ➜ "SLEEP 1" ➜ "SLEEP"

While SLEEP mode is activated

To check the remaining length of time

- Press **SLEEP once**.

To change the preset sleep timer

- Press **SLEEP twice**.
  ➜ The display will show the remaining time followed by the sequence of sleep timer options.

To deactivate the Sleep Timer

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

English

Maintenance

Cleaning the Cabinet

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

Cleaning Discs

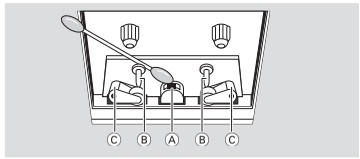
- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out. Do not wipe in a circular motion.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analogue records.

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 the 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 circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

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

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

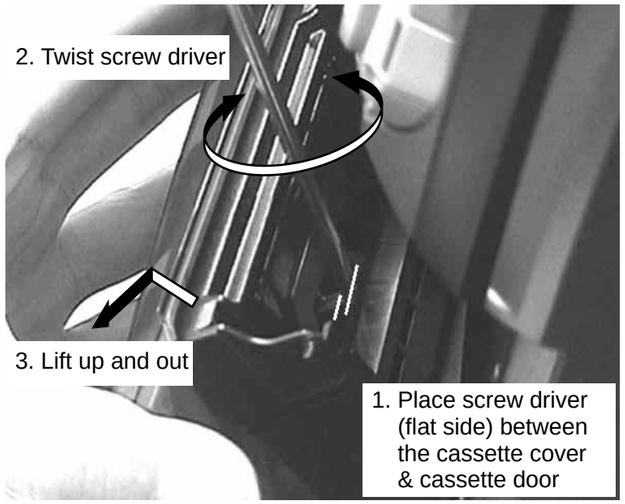
English

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.
Recorded material sounds strange.	– Switch off Dolby Pro Logic mode when recording.
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 DISPLAY to select NORMAL or MODE 1 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.

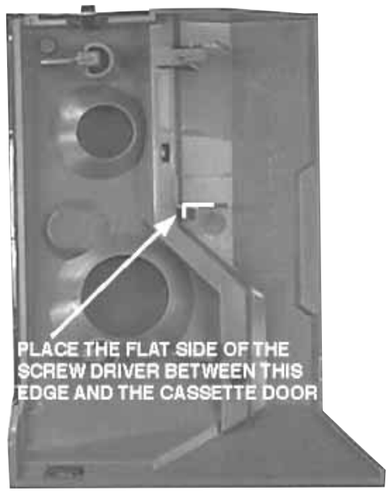
2-13

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



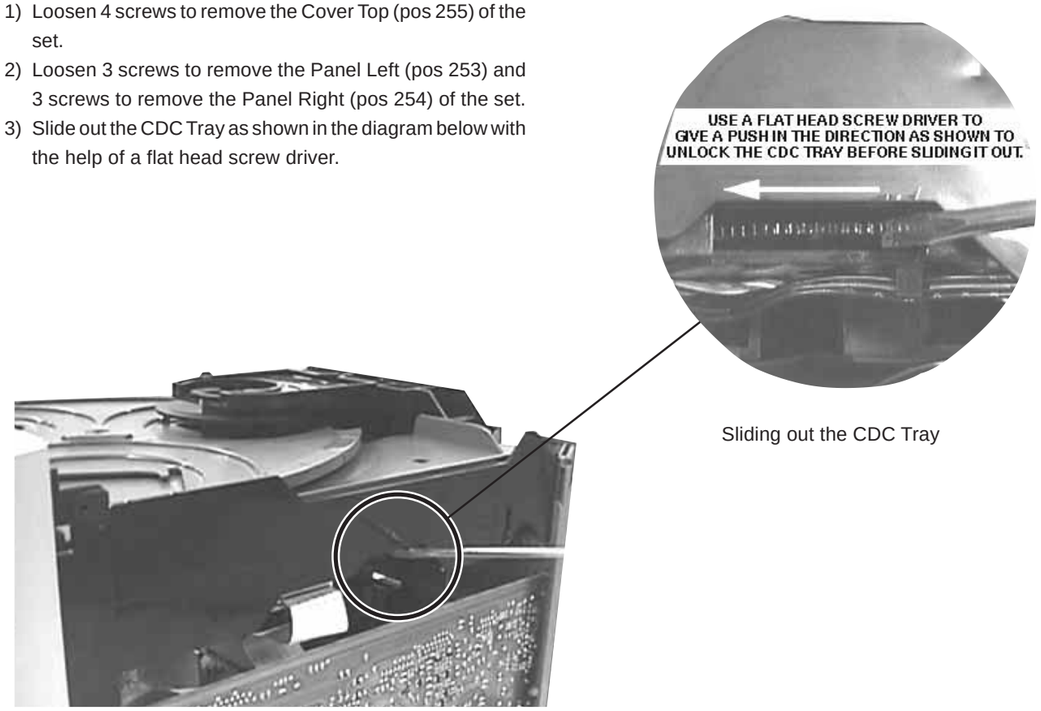
Remove Cassette Cover



Cassette Cover

Dismantling of the CDC Module and Front Panel

1) Loosen 4 screws to remove the Cover Top (pos 255) of the set.
2) Loosen 3 screws to remove the Panel Left (pos 253) and 3 screws to remove the Panel Right (pos 254) of the set.
3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.

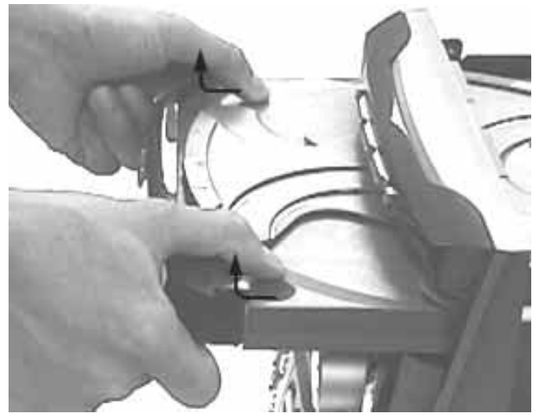


Sliding out the CDC Tray

3-1

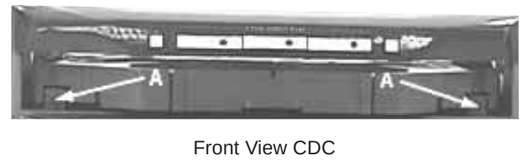
Dismantling of the CDC Module and Front Panel

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

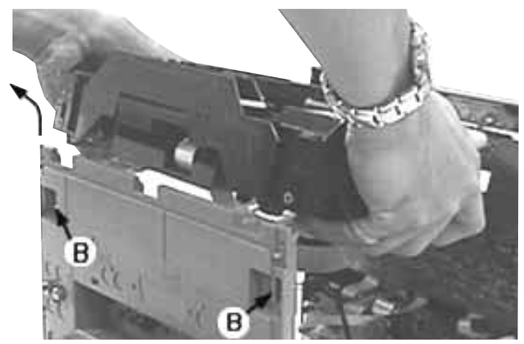


Remove Cover Tray CDC

5) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1105) as indicated.
6) Remove 2 screws (pos 226) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 265).



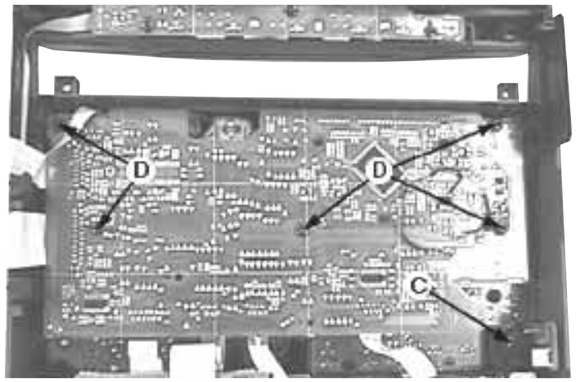
Front View CDC



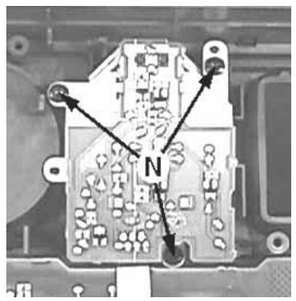
Remove CDC Module

Dismantling of the Front Display Board and Front Control Board

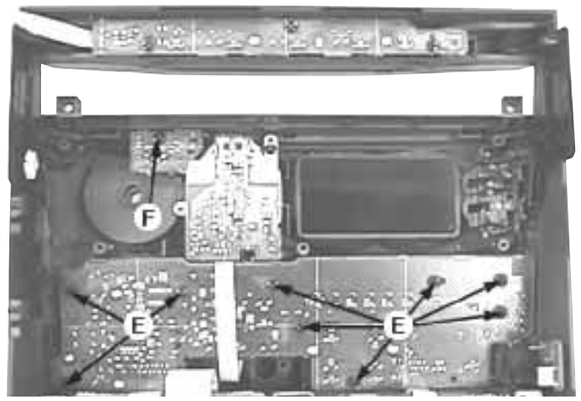
1) Remove 1 screw C as indicated to loosen the Headphone Board (pos 1101-B).
2) Remove 5 screws D as indicated to loosen the Front Display Board (pos 1101-A).
3) Remove 9 screws E as indicated to loosen the Front Control Board (pos 1107-A).
4) Remove 1 screw F as indicated to loosen the IR-Eye Board (pos 1107-D).
5) Remove 3 screws N as indicated to loosen the VU Meter Board (pos 1107-C).



Remove Front Display Board and Headphone Board



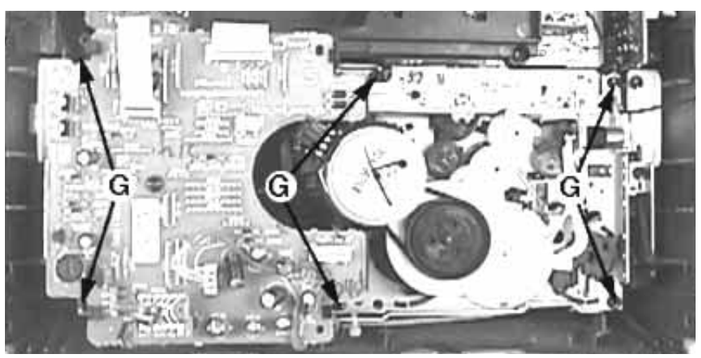
Remove VU Meter Board



Remove Front Control Board and IR-Eye Board

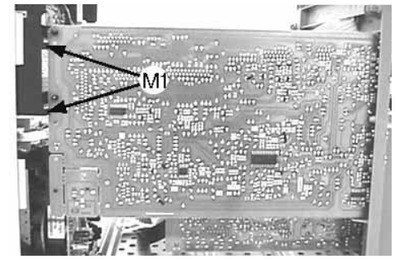
Dismantling of the ETF Tape Module

1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1104).

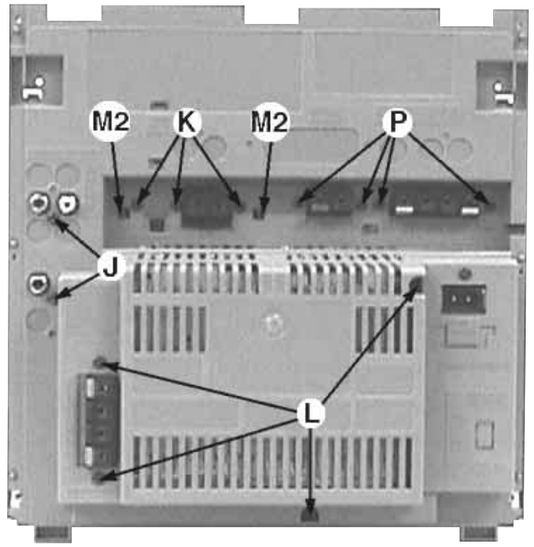


Dismantling of Rear Portion

1) Remove 2 screws J and uncatch M1 as indicated to loosen the AF Board (pos 1102-A).
2) Remove 3 screws K and uncatch M2 as indicated to loosen the Tuner Board (pos 1103).
3) Remove 4 screws P as indicated to loosen the Center/ Surround Socket Board (pos 1108).
4) Remove 4 screws L as indicated to loosen the Panel Rear (pos 256).



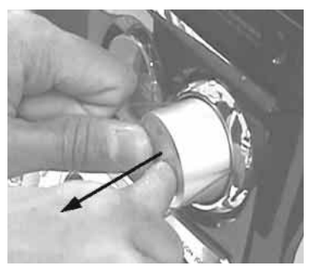
Remove AF Board



Repair Hints

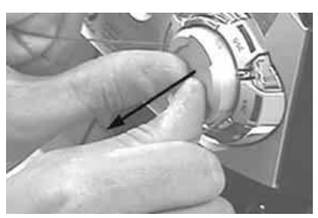
1) The Knob Volume Rotary (pos 117) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 1.

Picture 1



2) The Knob Jog Rotary (pos 140) 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



3-3

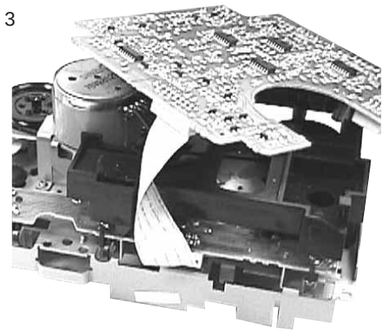
Repair Hints

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.

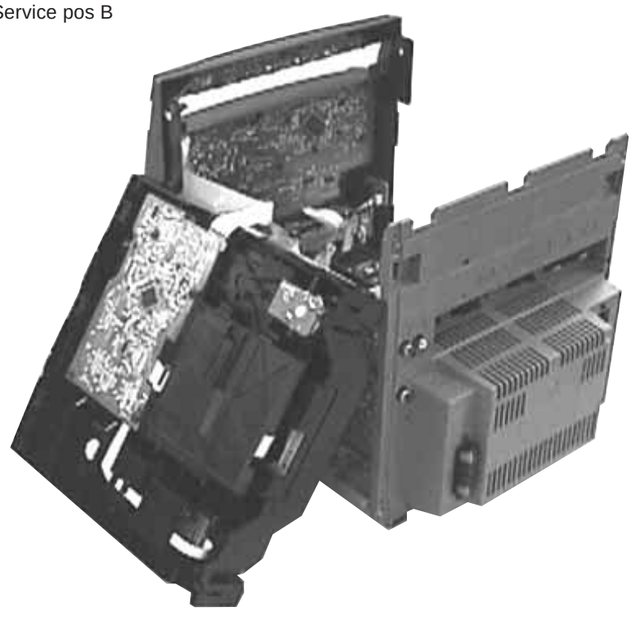
Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

Picture 3

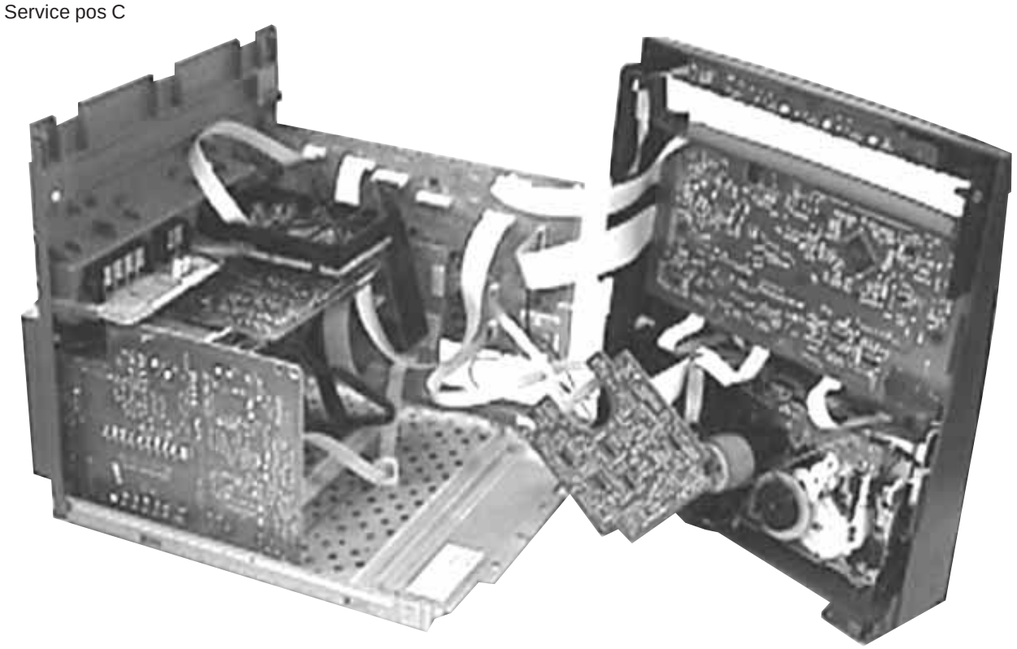


Service pos A

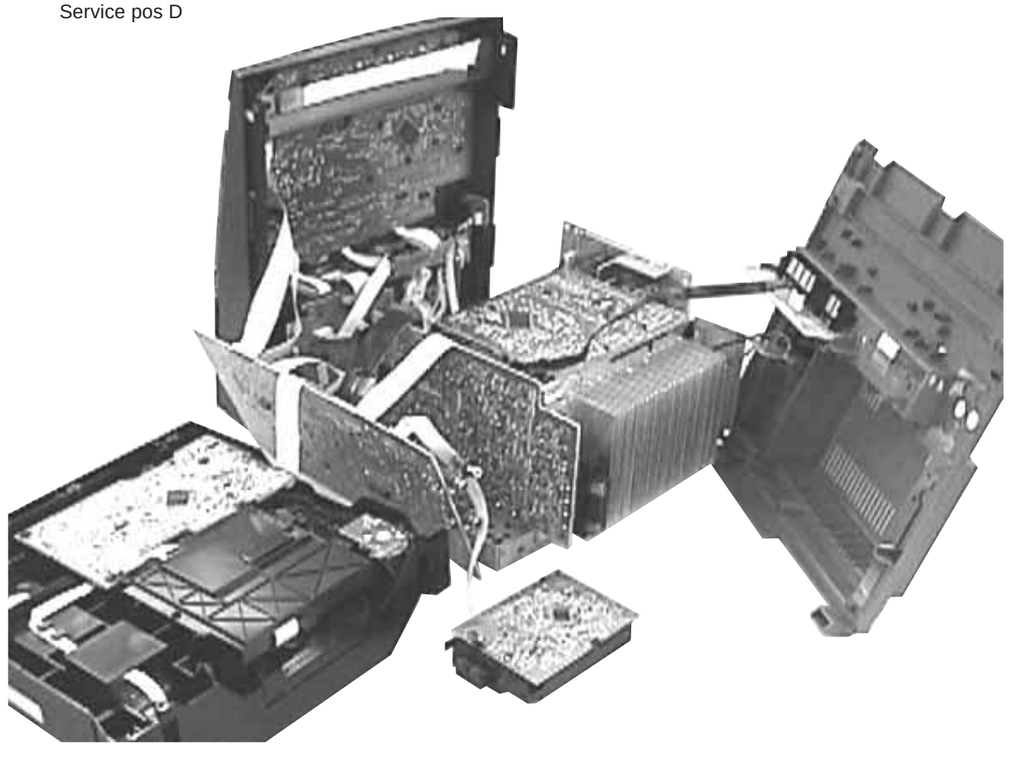
Service pos B



Service pos C



Service pos D



3-4

SERVICE TEST PROGRAM

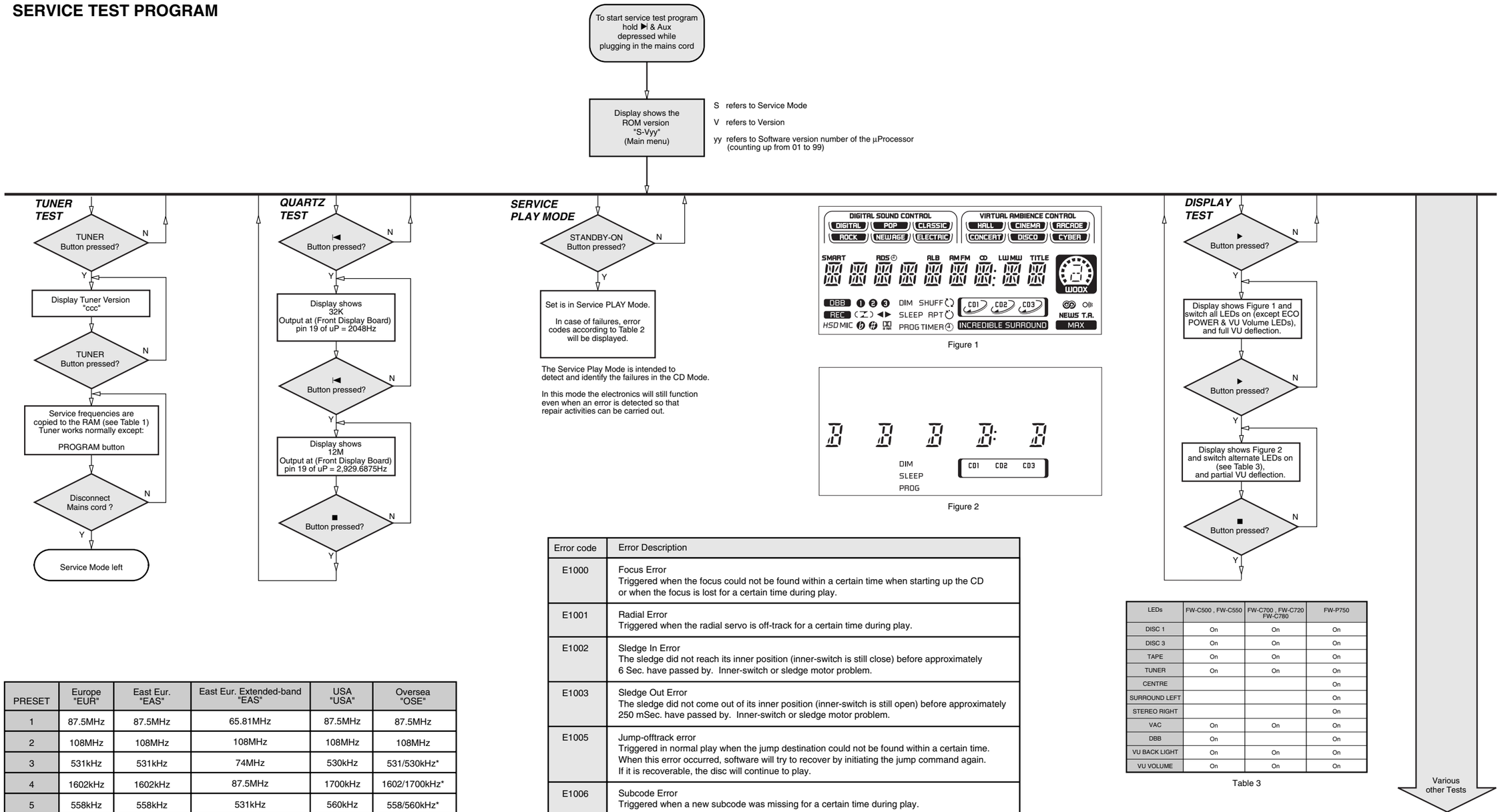


Figure 1

Figure 2

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

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.

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

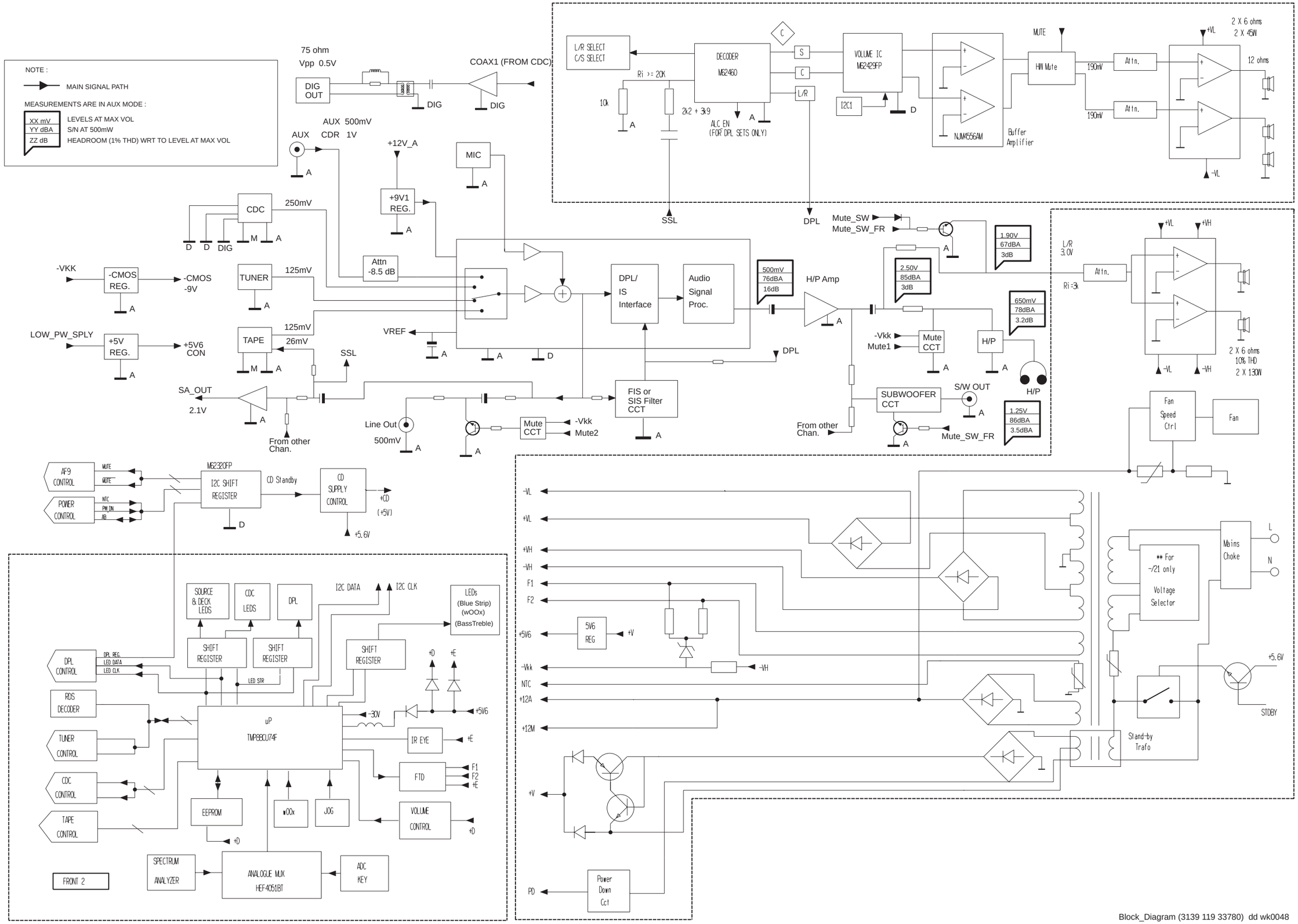
LEDs	FW-C500 , FW-C550	FW-C700 , FW-C720 FW-C780	FW-P750
DISC 1	On	On	On
DISC 3	On	On	On
TAPE	On	On	On
TUNER	On	On	On
CENTRE			On
SURROUND LEFT			On
STEREO RIGHT			On
VAC	On	On	On
DBB	On		On
VU BACK LIGHT	On	On	On
VU VOLUME	On	On	On

Table 3

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 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

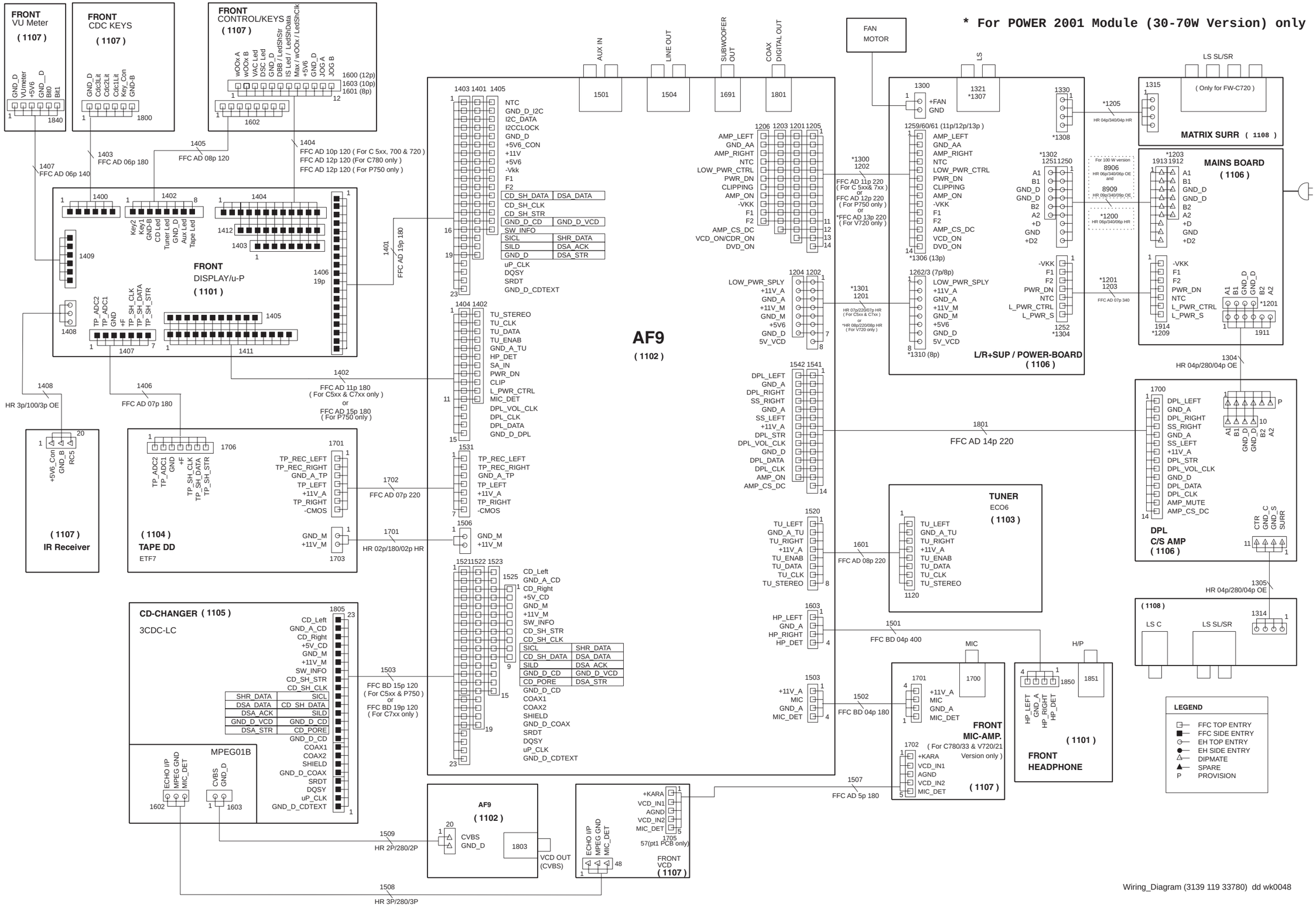
SET BLOCK DIAGRAM



Block_Diagram (3139 119 33780) dd wk0048

4-2

SET WIRING DIAGRAM



Wiring_Diagram (3139 119 33780) dd wk0048

5-1

REMARKS :

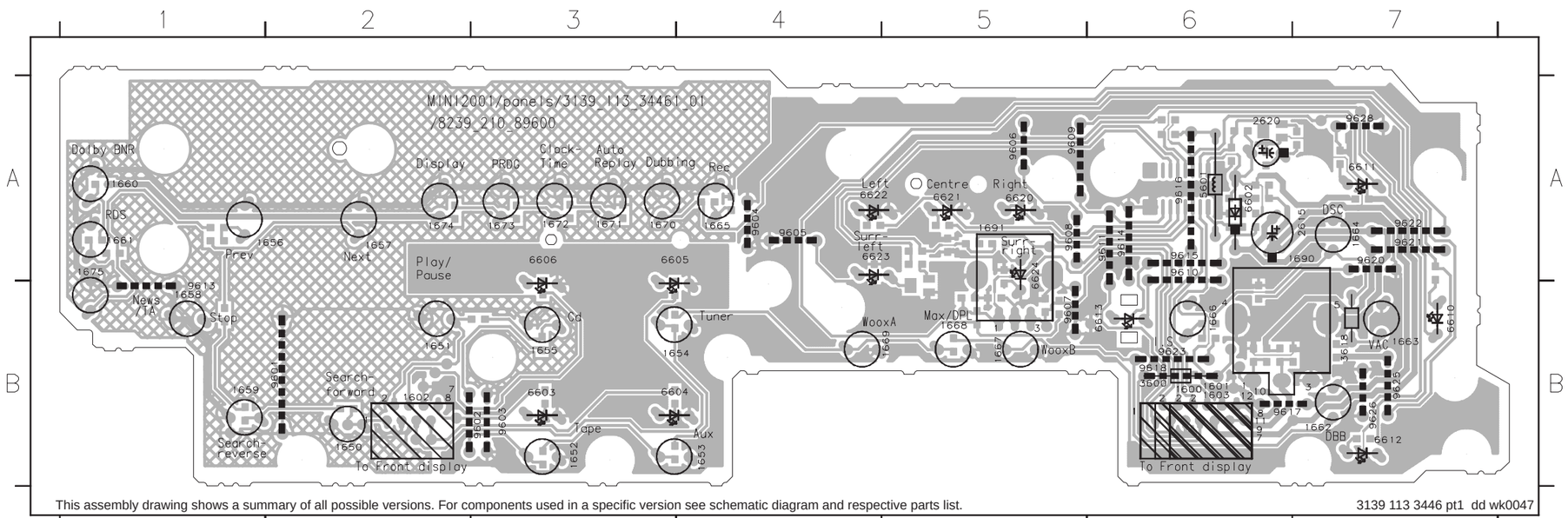
FRONT CONTROL BOARD

TABLE OF CONTENTS

5-2

FRONT CONTROL BOARD - COMPONENT LAYOUT

1600 B6 1650 B2 1654 B3 1658 B1 1662 B7 1666 B6 1670 A3 1674 A2 2615 A7 5601 A6 6605 A3 6612 B7 6622 A4 9602 B3 9606 A5 9610 A6 9615 A6 9620 A7 9625 B7
1601 B6 1651 B2 1655 B3 1659 B1 1663 B7 1667 B5 1671 A3 1675 A1 2620 A6 6602 A6 6606 A3 6613 B6 6623 A4 9603 B3 9607 B5 9611 A6 9616 A6 9621 A7 9626 B7
1602 B2 1652 B3 1656 A2 1660 A1 1664 A7 1668 B5 1672 A3 1690 A7 3600 B6 6603 B3 6610 B7 6620 A5 6624 A5 9604 A4 9608 A5 9613 B1 9617 B6 9622 A7 9628 A7
1603 B6 1653 B4 1657 A2 1661 A1 1665 A4 1669 B5 1673 A3 1691 A5 3618 B7 6604 B3 6611 A7 6621 A5 9601 B2 9605 A4 9609 A5 9614 A6 9618 B6 9623 B6

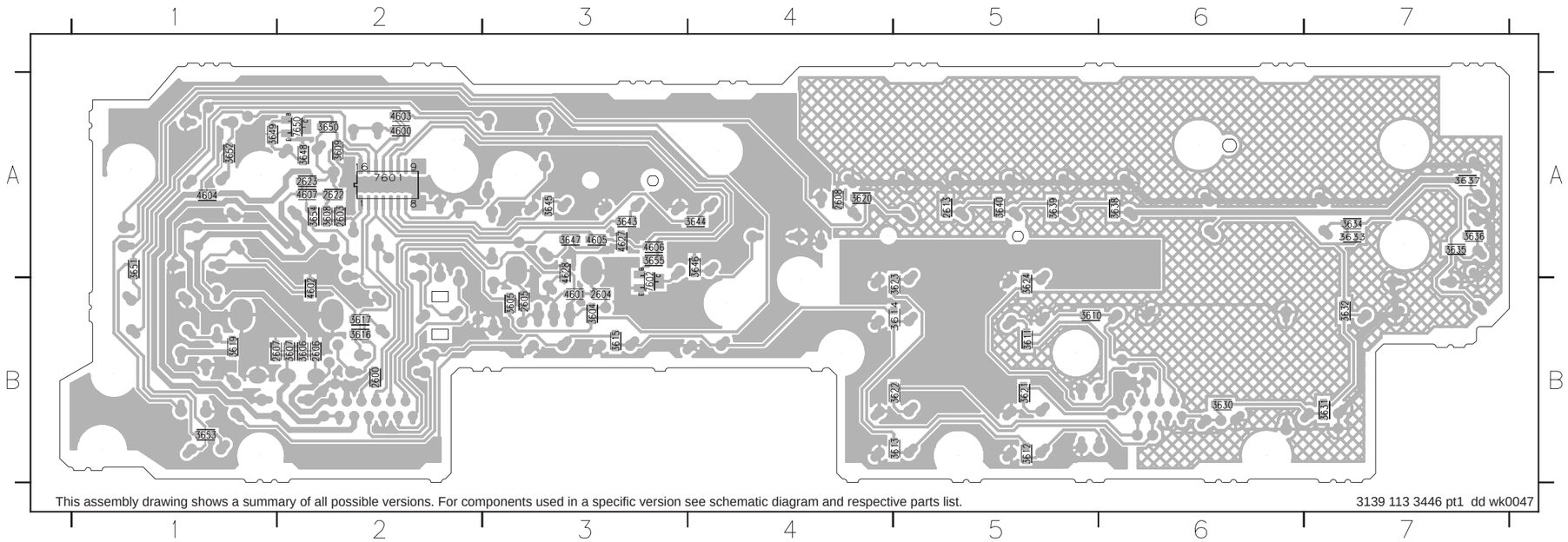


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3446 pt1 dd wk0047

FRONT CONTROL BOARD - CHIP LAYOUT

2600 B2 2605 B3 2608 A4 2623 A2 3606 B2 3609 A2 3612 B5 3615 B3 3619 B1 3622 B5 3630 B6 3633 A7 3636 A7 3639 A5 3644 A4 3647 A3 3650 A2 3653 B1 4600 A2 4603 A2 4606 A3 4628 A3 7650 A2
2603 A2 2606 B2 2613 A5 3604 B3 3607 B2 3610 B5 3613 B5 3616 B2 3620 A4 3623 B5 3631 B7 3634 A7 3637 A7 3640 A5 3645 A3 3648 A2 3651 A1 3654 A2 4601 B3 4604 A1 4607 A2 7601 A2
2604 B3 2607 B1 2622 A2 3605 B3 3608 A2 3611 B5 3614 B5 3617 B2 3621 B5 3624 B5 3632 B7 3635 A7 3638 A6 3643 A3 3646 A4 3649 A1 3652 A1 3655 A3 4602 B2 4605 A3 4627 A3 7602 B3

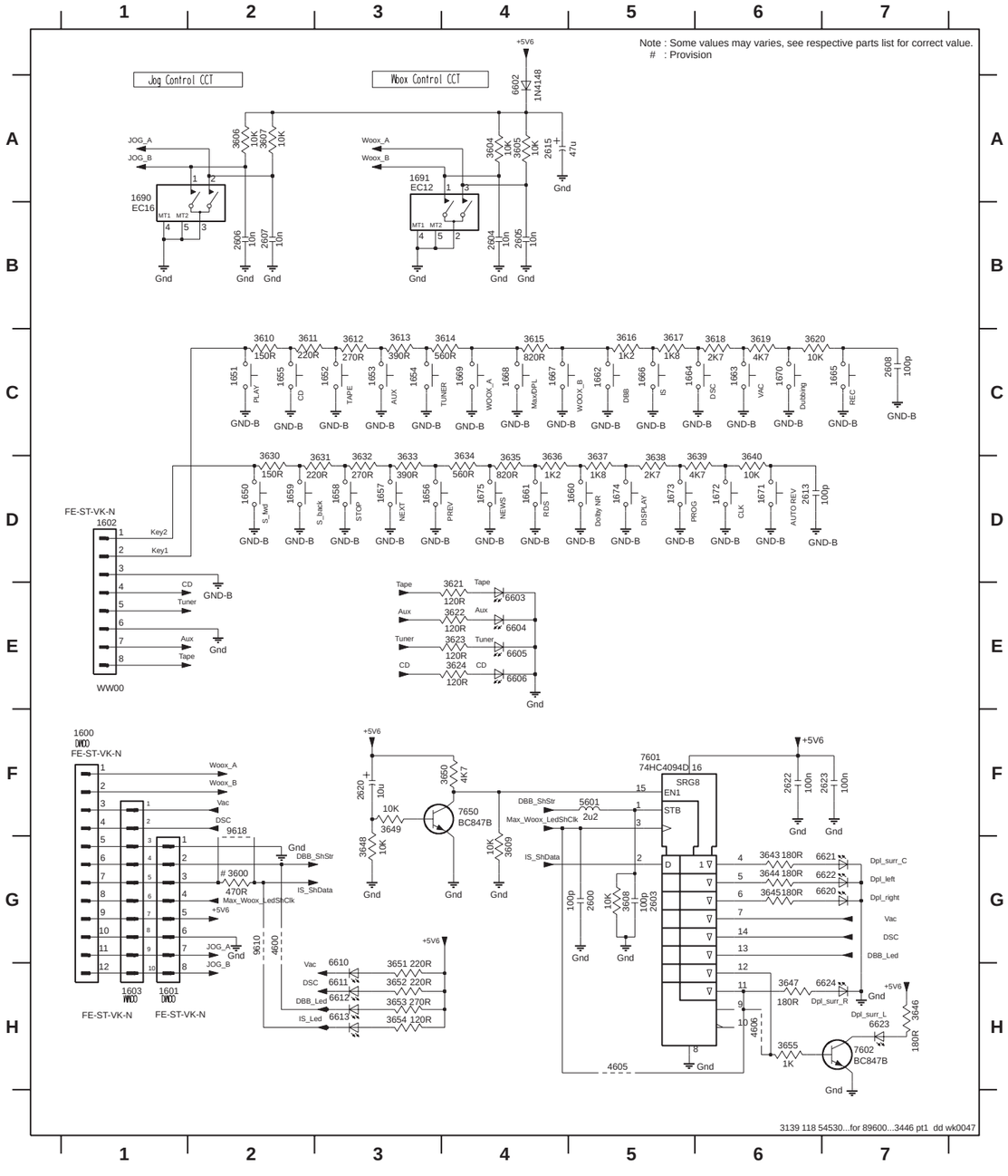


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3446 pt1 dd wk0047

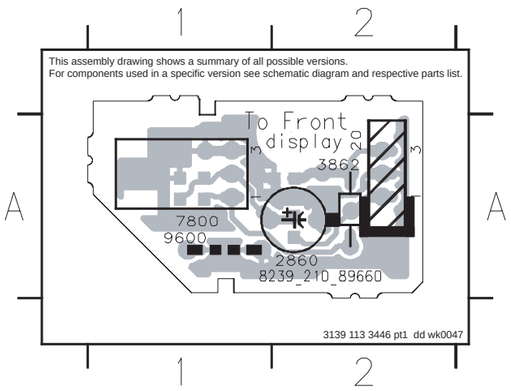
FRONT CONTROL BOARD - CIRCUIT DIAGRAM

1600 F1	1652 C3	1658 D3	1664 C5	1670 C6	1690 A1	2606 B2	2622 F6	3607 A2	3613 C3	3619 C6	3630 C2	3636 D4	3644 G6	3650 F4	4600 G2	6604 E4	6613 H3	7601 F5
1601 H1	1653 C3	1659 D2	1665 C7	1671 D6	1691 A3	2607 B2	2623 F7	3608 G5	3614 C4	3620 C6	3631 D3	3637 D5	3645 G6	3651 G3	4605 H5	6605 E4	6620 G7	7602 H7
1602 D1	1654 C3	1660 D4	1666 C5	1672 D6	2600 G5	2608 C7	3600 G2	3609 G4	3615 C4	3621 E4	3632 D3	3638 D5	3646 H7	3652 H3	4606 H6	6606 E4	6621 G7	7650 F4
1603 H1	1655 C2	1661 D4	1667 C4	1673 D5	2603 G5	2613 D6	3604 A4	3610 C2	3616 C5	3622 E4	3633 D3	3639 D6	3647 H6	3653 H3	5601 F5	6610 G3	6622 G7	9610 G2
1650 D2	1656 D3	1662 C5	1668 C4	1674 D5	2604 B4	2615 A4	3605 A4	3611 C2	3617 C5	3623 E4	3634 C4	3640 D6	3648 G3	3654 H3	6602 A4	6611 H3	6623 H7	9618 F2
1651 C2	1657 D3	1663 C6	1669 C4	1675 D4	2605 B4	2620 F3	3606 A2	3612 C3	3618 C6	3624 E4	3635 D4	3643 G6	3649 F3	3655 H6	6603 E4	6612 H3	6624 H7	



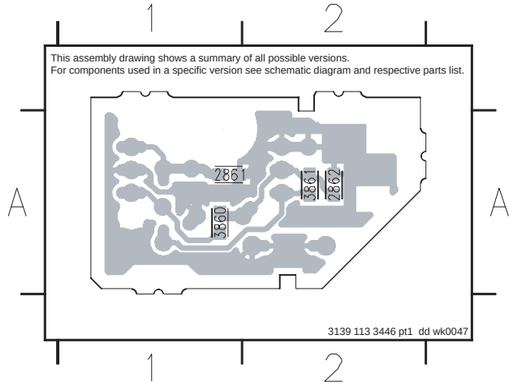
IR-EYE BOARD - COMPONENT LAYOUT

20 A2 3862 A2 9600 A1
2860 A2 7800 A1



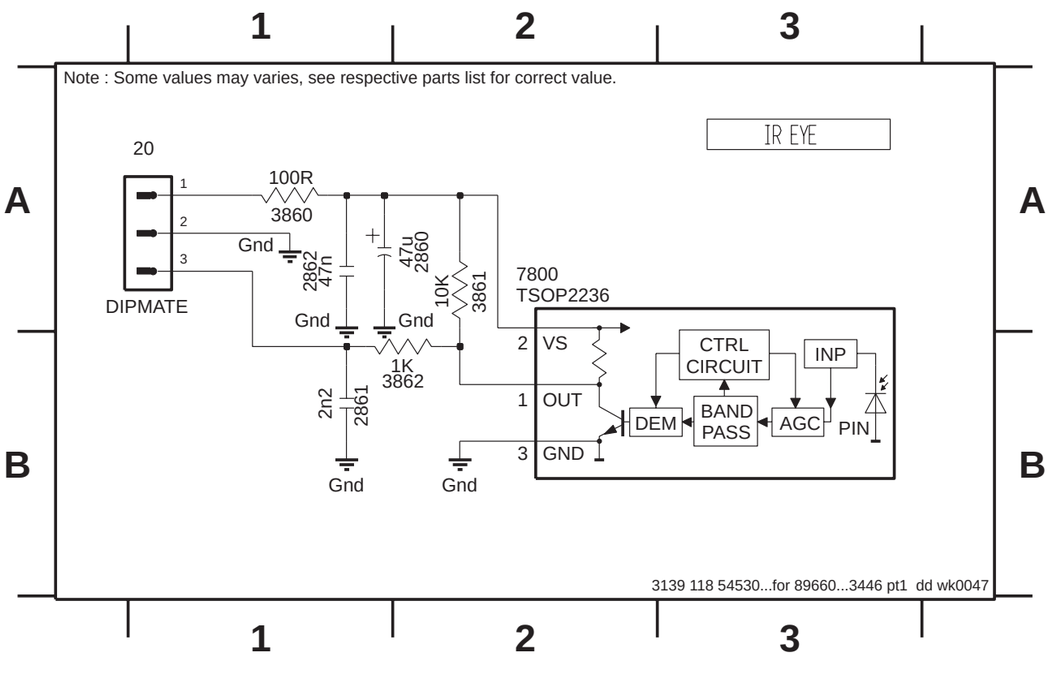
IR-EYE BOARD - CHIP LAYOUT

2861 A1 2862 A2 3860 A1 3861 A2

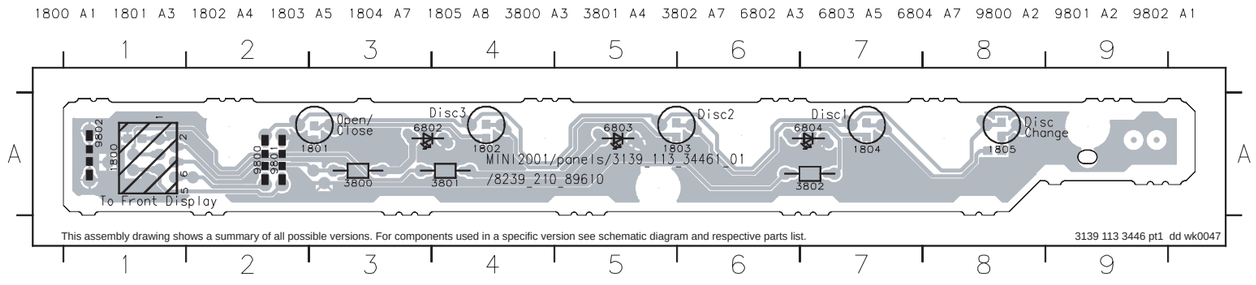


IR-EYE BOARD - CIRCUIT DIAGRAM

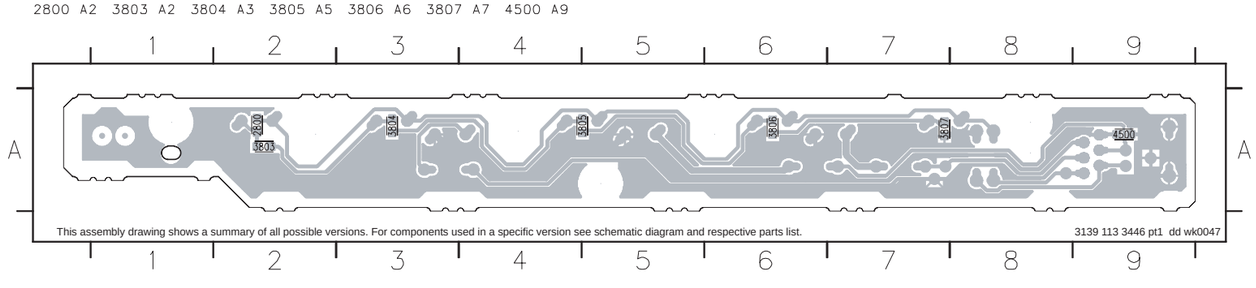
20 A1	2860 A2	2861 B1	2862 A1	3860 A1	3861 A2	3862 B2	7800 A2



KEY-CDC BOARD - COMPONENT LAYOUT

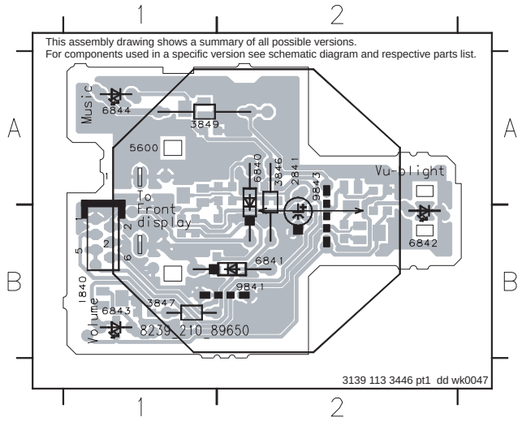


KEY-CDC BOARD - CHIP LAYOUT



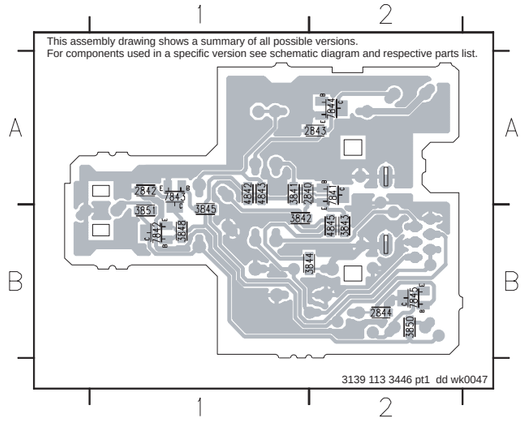
VU METER BOARD - COMPONENT LAYOUT

1840 B1 3846 A2 3849 A1 6840 A2 6842 B2 6844 A1 9843 A2
2841 A2 3847 B1 5600 A1 6841 B2 6843 B1 9841 B2



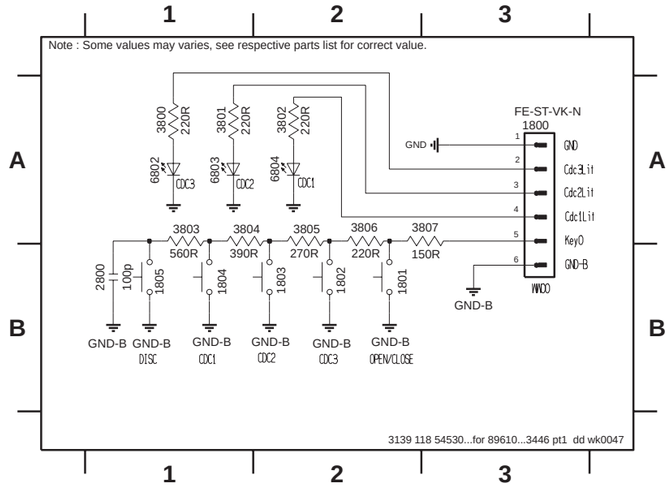
VU METER BOARD - CHIP LAYOUT

2840 A1 2844 B2 3843 B2 3848 B1 4842 A1 7841 A2 7844 A2
2842 A1 3841 A1 3844 B1 3850 B2 4843 A1 7842 B1 7845 B2
2843 A2 3842 B1 3845 B1 3851 B1 4845 B2 7843 A1



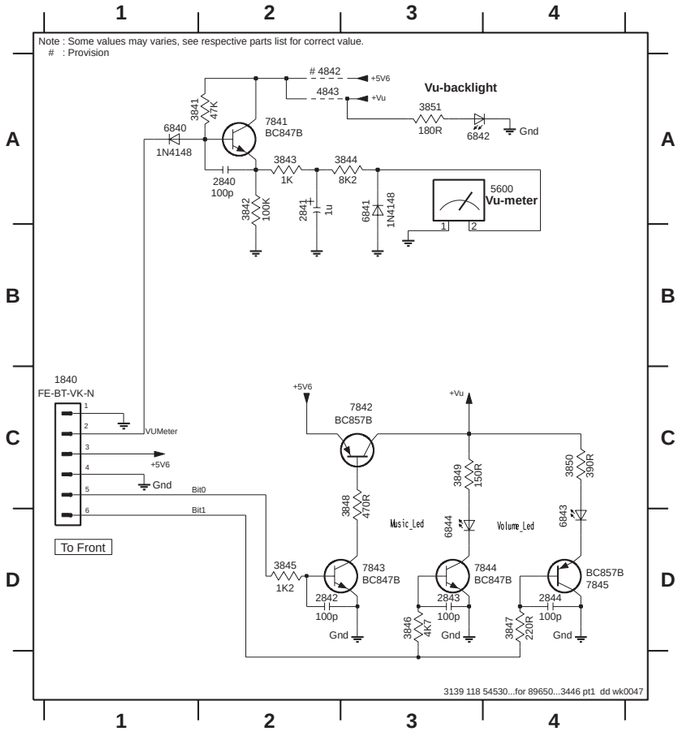
KEY-CDC BOARD - CIRCUIT DIAGRAM

1800 A3 1802 B2 1804 B1 2800 B1 3801 A1 3803 A1 3805 A2 3807 A3 6803 A1
1801 B2 1803 B2 1805 B1 3800 A1 3802 A2 3804 A1 3806 A2 6802 A1 6804 A2



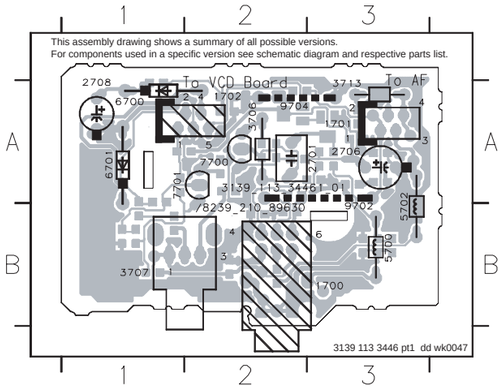
VU METER BOARD - CIRCUIT DIAGRAM

1840 C1 2842 D2 3841 A1 3844 A3 3847 D4 3850 C4 4843 A2 6841 A3 6844 D3 7843 D3
2840 A2 2843 D3 3842 A2 3845 D2 3848 C3 3851 A3 5600 A4 6842 A3 7841 A2 7844 D3
2841 A2 2844 D4 3843 A2 3846 D3 3849 C3 4842 A2 6840 A1 6843 D4 7842 C3 7845 D4



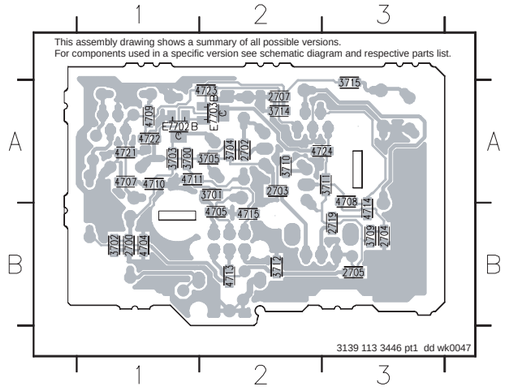
KARAOKE BOARD - COMPONENT LAYOUT

1700 B3 2701 A3 3706 A2 5700 B3 6701 A1 9702 B3
1701 A3 2706 A3 3707 B1 5702 B3 7700 A2 9704 A2
1702 A2 2708 A1 3713 A3 6700 A1 7701 A1



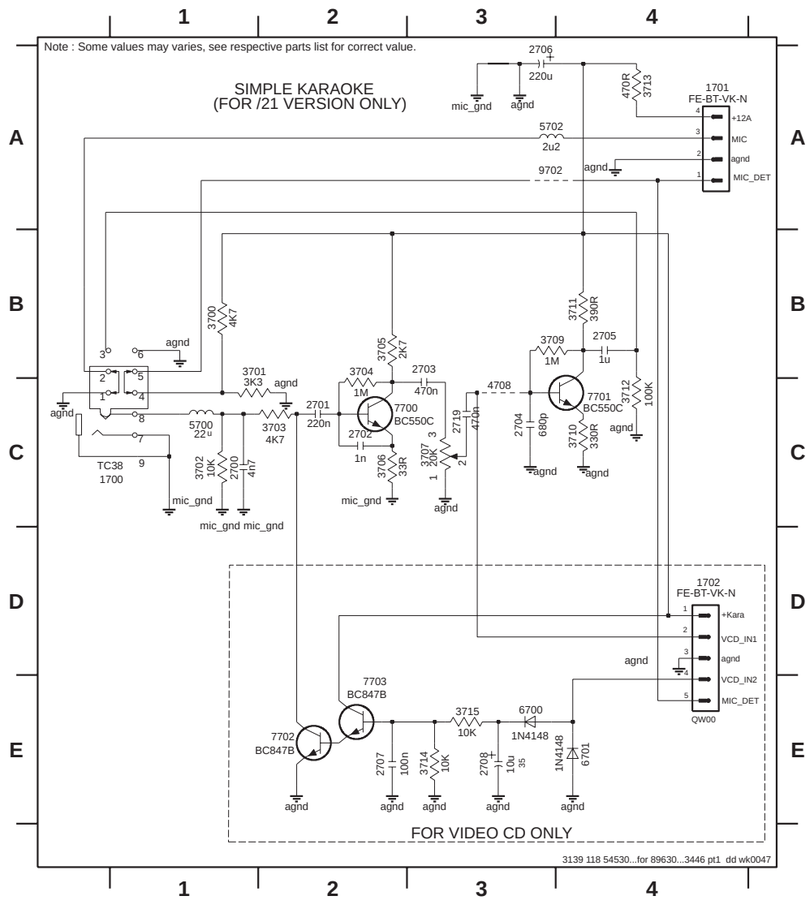
KARAOKE BOARD - CHIP LAYOUT

2700 B1 2707 A2 3703 A1 3711 A3 4705 B2 4711 A1 4722 A1
2702 A2 2719 B3 3704 A2 3712 B2 4707 A1 4713 B2 4723 A2
2703 A2 3700 A1 3705 A2 3714 A2 4708 A3 4714 B3 4724 A2
2704 B3 3701 A2 3709 B3 3715 A3 4709 A1 4715 B2 7702 A1
2705 B3 3702 B1 3710 A2 4704 B1 4710 A1 4721 A1 7703 A2



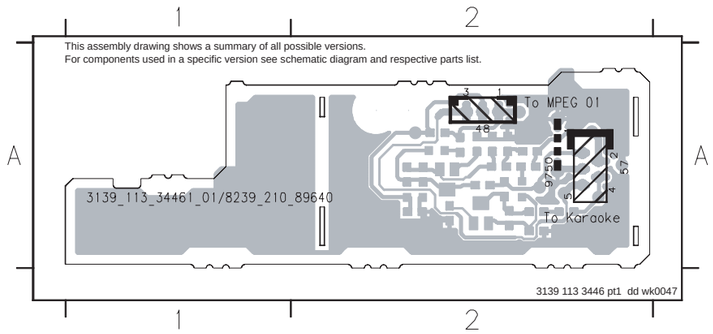
KARAOKE BOARD - CIRCUIT DIAGRAM

1700 C1 2700 C1 2703 B3 2706 A3 2719 C3 3702 C1 3705 B2 3709 B3 3712 C4 3715 E3 5702 A3 7700 C2 7703 E2
1701 A4 2701 C2 2704 C3 2707 E2 3700 B1 3703 C2 3706 C2 3710 C4 3713 A4 4708 C3 6700 E3 7701 C4 9702 A3
1702 D4 2702 C2 2705 B4 2708 E3 3701 B1 3704 B2 3707 C3 3711 B4 3714 E3 5700 C1 6701 E4 7702 E2



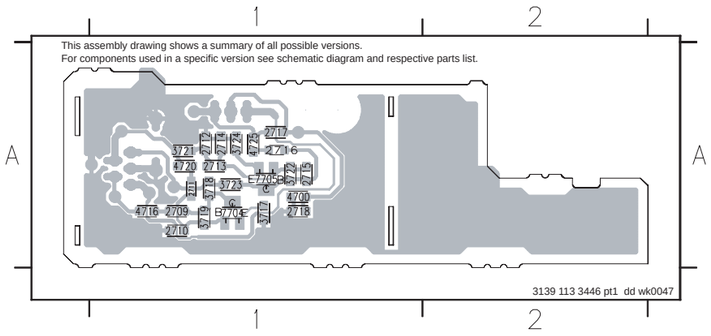
VCD INTERFACE BOARD - COMPONENT LAYOUT

48 A2 57 A2 9750 A2



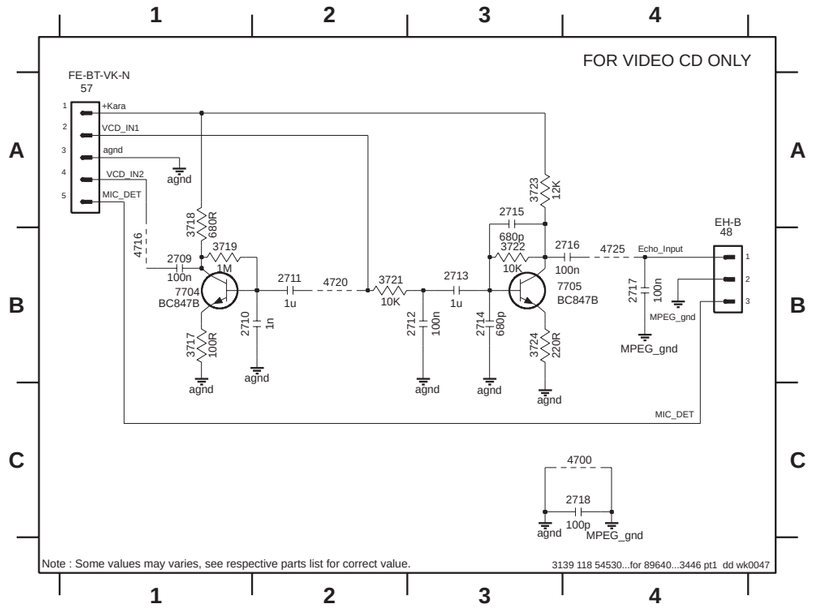
VCD INTERFACE BOARD - CHIP LAYOUT

2709 A1 2713 A1 2717 A1 3719 A1 3724 A1 4725 A1
2710 A1 2714 A1 2718 A1 3721 A1 4700 A1 7704 A1
2711 A1 2715 A1 3717 A1 3722 A1 4716 A1 7705 A1
2712 A1 2716 A1 3718 A1 3723 A1 4720 A1



VCD INTERFACE BOARD - CIRCUIT DIAGRAM

48 B4 2709 B1 2711 B2 2713 B3 2715 A3 2717 B4 3717 B1 3719 B1 3722 B3 3724 B3 4716 B1 4725 B4 7705 B3
57 A1 2710 B1 2712 B3 2714 B3 2716 B4 2718 C4 3718 A1 3721 B2 3723 A3 4700 C4 4720 B2 7704 B1



5-6

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD

MISCELLANEOUS

1601	4822 265 11535	Flex Connector 8P
1602	4822 265 11535	Flex Connector 8P
1650	4822 276 13775	Tact Switch
1651	4822 276 13775	Tact Switch
1652	4822 276 13775	Tact Switch
1653	4822 276 13775	Tact Switch
1654	4822 276 13775	Tact Switch
1655	4822 276 13775	Tact Switch
1656	4822 276 13775	Tact Switch
1657	4822 276 13775	Tact Switch
1658	4822 276 13775	Tact Switch
1659	4822 276 13775	Tact Switch
1661	4822 276 13775	Tact Switch /22
1662	4822 276 13775	Tact Switch
1663	4822 276 13775	Tact Switch
1664	4822 276 13775	Tact Switch
1665	4822 276 13775	Tact Switch
1668	4822 276 13775	Tact Switch
1670	4822 276 13775	Tact Switch
1671	4822 276 13775	Tact Switch
1672	4822 276 13775	Tact Switch
1673	4822 276 13775	Tact Switch
1674	4822 276 13775	Tact Switch
1675	4822 276 13775	Tact Switch /22
1690	2422 129 16385	Rotary Encoder 12P
1800	4822 265 11207	Flex Connector 6P
1801	4822 276 13775	Tact Switch
1802	4822 276 13775	Tact Switch
1803	4822 276 13775	Tact Switch
1804	4822 276 13775	Tact Switch
1805	4822 276 13775	Tact Switch
1840	4822 267 10731	Flex Connector 6P

CAPACITORS

2606	5322 126 11583	10nF 10% 50V
2607	5322 126 11583	10nF 10% 50V
2608	4822 122 31765	100pF 2% 63V
2613	4822 122 31765	100pF 2% 63V
2615	4822 124 12233	47µF 20% 25V
2620	4822 124 11947	10µF 20% 16V
2622	4822 126 14305	100nF 10% 16V
2623	4822 126 14305	100nF 10% 16V
2800	4822 122 31765	100pF 2% 63V
2840	4822 122 31765	100pF 2% 63V
2841	4822 124 22651	1µF 20% 50V
2842	4822 122 31765	100pF 2% 63V
2843	4822 122 31765	100pF 2% 63V
2844	4822 122 31765	100pF 2% 63V
2860	4822 124 81286	47µF 20% 16V
2861	4822 126 14238	2,2nF 50V
2862	3198 017 34730	47nF 16V

RESISTORS

3600	4822 116 83883	470R 5% 0,5W
3606	4822 051 30103	10k 5% 0,062W
3607	4822 051 30103	10k 5% 0,062W
3610	4822 051 30151	150R 5% 0,062W
3611	4822 051 30221	220R 5% 0,062W
3612	4822 051 30271	270R 5% 0,062W
3613	4822 051 30391	390R 5% 0,062W
3614	4822 051 30561	560R 5% 0,062W
3615	4822 117 12968	820R 5% 0,62W
3616	4822 117 11817	1k2 1% 1/16W
3617	4822 117 12903	1k8 1% 0,063W
3618	4822 116 52263	2k7 5% 0,5W
3619	4822 051 30472	4k7 5% 0,062W
3620	4822 051 30103	10k 5% 0,062W
3621	4822 051 30121	120R 5% 0,062W
3622	4822 051 30121	120R 5% 0,062W
3623	4822 051 30121	120R 5% 0,062W
3624	4822 051 30121	120R 5% 0,062W
3630	4822 051 30151	150R 5% 0,062W
3631	4822 051 30221	220R 5% 0,062W
3632	4822 051 30271	270R 5% 0,062W
3633	4822 051 30391	390R 5% 0,062W
3634	4822 051 30561	560R 5% 0,062W
3635	4822 117 12968	820R 5% 0,62W
3636	4822 117 11817	1k2 1% 1/16W
3637	4822 117 12903	1k8 1% 0,063W
3638	4822 051 30272	2k7 5% 0,062W
3639	4822 051 30472	4k7 5% 0,062W
3640	4822 051 30103	10k 5% 0,062W
3643	4822 051 30181	180R 5% 0,062W
3644	4822 051 30181	180R 5% 0,062W
3645	4822 051 30181	180R 5% 0,062W
3646	4822 051 30181	180R 5% 0,062W
3647	4822 051 30181	180R 5% 0,062W
3648	4822 051 30103	10k 5% 0,062W
3649	4822 051 30103	10k 5% 0,062W
3650	4822 051 30472	4k7 5% 0,062W
3651	4822 051 30221	220R 5% 0,062W
3652	4822 051 30221	220R 5% 0,062W
3653	4822 051 30271	270R 5% 0,062W
3655	4822 051 30102	1k 5% 0,062W
3800	4822 116 83872	220R 5% 0,5W
3801	4822 116 83872	220R 5% 0,5W
3802	4822 116 83872	220R 5% 0,5W
3803	4822 051 30561	560R 5% 0,062W
3804	4822 051 30391	390R 5% 0,062W
3805	4822 051 30271	270R 5% 0,062W
3806	4822 051 30221	220R 5% 0,062W
3807	4822 051 30151	150R 5% 0,062W
3841	4822 117 12925	47k 1% 0,063W
3842	4822 117 13632	100k 1% 0,62W
3843	4822 051 30102	1k 5% 0,062W
3844	4822 117 12902	8k2 1% 0,063W
3845	4822 117 11817	1k2 1% 1/16W
3846	4822 116 52283	4k7 5% 0,5W
3847	4822 116 83872	220R 5% 0,5W
3848	4822 051 30471	470R 5% 0,062W
3849	4822 116 83868	150R 5% 0,5W
3850	4822 051 30391	390R 5% 0,062W
3851	4822 051 30181	180R 5% 0,062W
3860	4822 051 30101	100R 5% 0,062W
3861	4822 051 30103	10k 5% 0,062W
3862	4822 050 11002	1k 1% 0,4W
4500	4822 051 30008	0R Jumper 0603
4601	4822 051 30008	0R Jumper 0603
4602	4822 051 30008	0R Jumper 0603
4603	4822 051 30008	0R Jumper 0603
4604	4822 051 30008	0R Jumper 0603
4627	4822 051 30008	0R Jumper 0603
4628	4822 051 30008	0R Jumper 0603
4843	4822 051 30008	0R Jumper 0603
4845	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5600	3139 110 52710	METER VU P-47SI-A AMBER
5601	4822 157 62552	Coil 2,2µH 5%

DIODES

6602	4822 130 30621	1N4148
6603	4822 130 10791	LTL-1CHGE
6604	4822 130 10791	LTL-1CHGE
6605	4822 130 10791	LTL-1CHGE
6606	4822 130 10791	LTL-1CHGE
6610	4822 130 10791	LTL-1CHGE
6611	4822 130 10791	LTL-1CHGE
6612	4822 130 82978	LTL-1CHPE
6613	4822 130 10791	LTL-1CHGE
6620	4822 130 11589	LTL-1CHAE
6621	4822 130 11589	LTL-1CHAE
6622	4822 130 11589	LTL-1CHAE
6623	4822 130 11589	LTL-1CHAE
6624	4822 130 11589	LTL-1CHAE
6802	4822 130 10791	LTL-1CHGE
6803	4822 130 10791	LTL-1CHGE
6804	4822 130 10791	LTL-1CHGE
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	9322 153 38676	LO3336UV-E7898
6843	4822 130 82978	LTL-1CHPE
6844	4822 130 11589	LTL-1CHAE

TRANSISTORS & INTEGRATED CIRCUITS

7601	4822 209 15449	74HC4094D
7602	4822 130 60511	BC847B
7650	4822 130 60511	BC847B
7800	9322 155 22667	TSOP2236ZC1
7841	4822 130 60511	BC847B
7842	4822 130 60373	BC857B
7843	4822 130 60511	BC847B
7844	4822 130 60511	BC847B
7845	4822 130 60373	BC857B

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

FRONT DISPLAY BOARD

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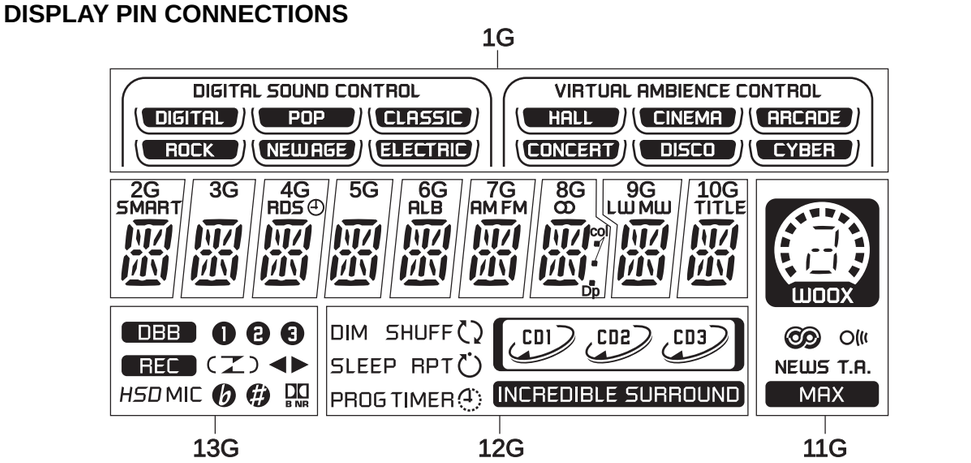
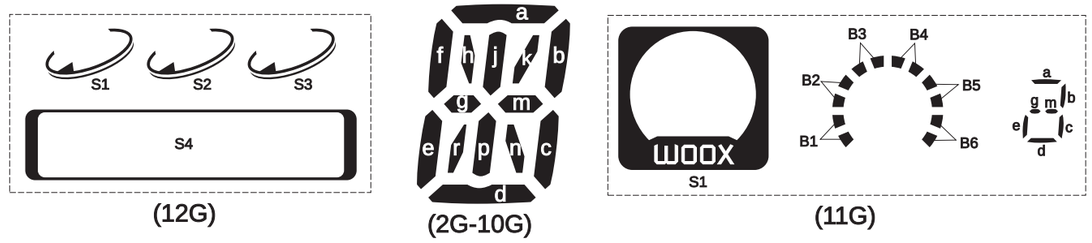
FTD DISPLAY PIN CONNECTIONS





	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	S1	a	a	a	a	a	a	a	a	a	S1	DIM	DBB
P2	S2	h	h	h	h	h	h	h	h	h	B1	SHUFF	1
P3	(CLASSIC)	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	B2	SLEEP	2
P4	(POP)	k	k	k	k	k	k	k	k	k	B3	RPT	3
P5	(DIGITAL)	b	b	b	b	b	b	b	b	b	B4	PROG	REC
P6	(ELECTRIC)	f	f	f	f	f	f	f	f	f	B5	TIMER	☾
P7	(NEWAGE)	m	m	m	m	m	m	m	m	m	B6	CD1	⧗
P8	(ROCK)	g	g	g	g	g	g	g	g	g	a,g,m,d	S1	☽
P9	S3	c	c	c	c	c	c	c	c	c	b	CD2	◀
P10	S4	e	e	e	e	e	e	e	e	e	c	S2	▶
P11	(ARCADE)	r	r	r	r	r	r	r	r	r	e	CD3	HSD
P12	(CINEMA)	n	n	n	n	n	n	n	n	n		S3	MIC
P13	(HALL)	d	d	d	d	d	d	d	d	d		S4	
P14	(CYBER)	SMART	-	RDS	-	ALB	AM		LW	TITLE	NEWS	INCREDIBLE SURROUND	
P15	(DISCO)	-	-	-	-	-	FM	col	MW	-	T.A.	-	B NR
P16	(CONCERT)	-	-	-	-	-	-	Dp	-	-	MAX	-	-

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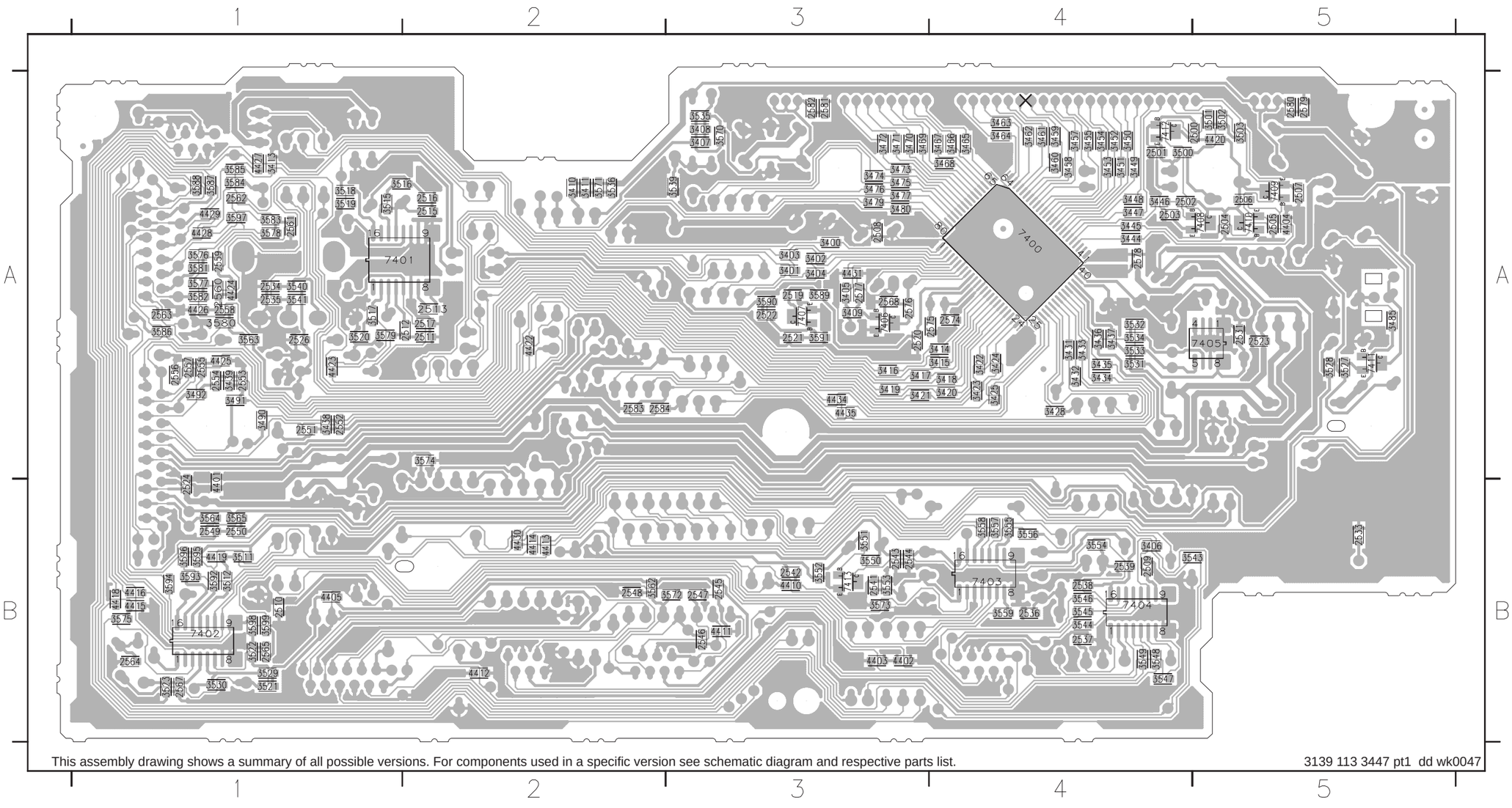
FRONT DISPLAY BOARD - CHIP LAYOUT

2500	A5	2512	A2	2531	A5	2545	B3	2557	A1	2575	A4	3402	A3	3415	A4	3431	A4	3447	A4	3460	A4	3472	A3	3500	A4	3521	B1	3536	A2	3551	B3	3565	B1	3581	A1	3593	B1	4410	B3	4424	A1	7402	B1
2501	A4	2513	A2	2533	B5	2546	B3	2558	A1	2576	A3	3403	A3	3416	A3	3432	A4	3448	A4	3461	A4	3473	A3	3501	A5	3522	B1	3539	A3	3552	B3	3570	A3	3582	A1	3594	B1	4411	B3	4425	A1	7403	B4
2502	A4	2515	A2	2534	A1	2547	B3	2559	A1	2577	A3	3404	A3	3417	A3	3433	A4	3449	A4	3462	A4	3474	A3	3502	A5	3523	B1	3540	A1	3553	B3	3571	A2	3583	A1	3595	B1	4412	B2	4426	A1	7404	B4
2503	A4	2516	A2	2535	A1	2548	B2	2560	A1	2578	A4	3405	A3	3418	A4	3434	A4	3450	A4	3463	A4	3475	A3	3503	A5	3527	A5	3541	A1	3554	B4	3572	B3	3584	A1	3596	B1	4413	B2	4427	A1	7405	A5
2504	A5	2517	A2	2536	B4	2549	B1	2561	A1	2579	A5	3406	B4	3419	A3	3435	A4	3451	A4	3464	A4	3476	A3	3511	B1	3528	A5	3543	B4	3555	B4	3573	B3	3585	A1	3597	A1	4414	B2	4428	A1	7406	A3
2505	A5	2519	A3	2537	B4	2550	B1	2562	A1	2580	A5	3407	A3	3420	A4	3436	A4	3452	A4	3465	A4	3477	A3	3512	B1	3529	B1	3544	B4	3556	B4	3574	A2	3586	A1	3598	B1	4415	B1	4429	A1	7407	A3
2506	A5	2520	A3	2538	B4	2551	A1	2563	A1	2581	A3	3408	A3	3421	A3	3437	A4	3453	A4	3466	A4	3479	A3	3515	A1	3530	B1	3545	B4	3557	B4	3575	B1	3587	A1	3599	B1	4416	B1	4430	B2	7408	A5
2507	A5	2521	A3	2539	B4	2552	A1	2564	B1	2582	A3	3409	A3	3422	A4	3438	A1	3454	A4	3467	A4	3480	A3	3516	A1	3531	A4	3546	B4	3558	B4	3576	A1	3588	A1	4401	B1	4418	B1	4431	A3	7409	A5
2508	A3	2522	A3	2541	B3	2553	A1	2565	B1	2583	A2	3410	A2	3423	A4	3439	A1	3455	A4	3468	A4	3485	A5	3517	A1	3532	A4	3547	B4	3559	B4	3577	A1	3589	A3	4402	B3	4419	B1	4434	A3	7410	A5
2509	B4	2523	A5	2542	B3	2554	A1	2567	B1	2584	A2	3411	A2	3424	A4	3444	A4	3457	A4	3469	A3	3490	A1	3518	A1	3533	A4	3548	B4	3562	B2	3578	A1	3590	A3	4403	B3	4420	A5	4435	A3	7411	A5
2510	B1	2524	B1	2543	B3	2555	A1	2568	A3	3400	A3	3413	A1	3425	A4	3445	A4	3458	A4	3470	A3	3491	A1	3519	A1	3534	A4	3549	B4	3563	A1	3579	A1	3591	A3	4404	A5	4422	A2	7400	A4	7412	A4
2511	A2	2526	A1	2544	B3	2556	A1	2574	A4	3401	A3	3414	A4	3428	A4	3446	A4	3459	A4	3471	A3	3492	A1	3520	A1	3535	A3	3550	B3	3564	B1	3580	A1	3592	B1	4405	B1	4423	A1	7401	A1	7413	B3



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

3139 113 3447 pt1 dd wk0047

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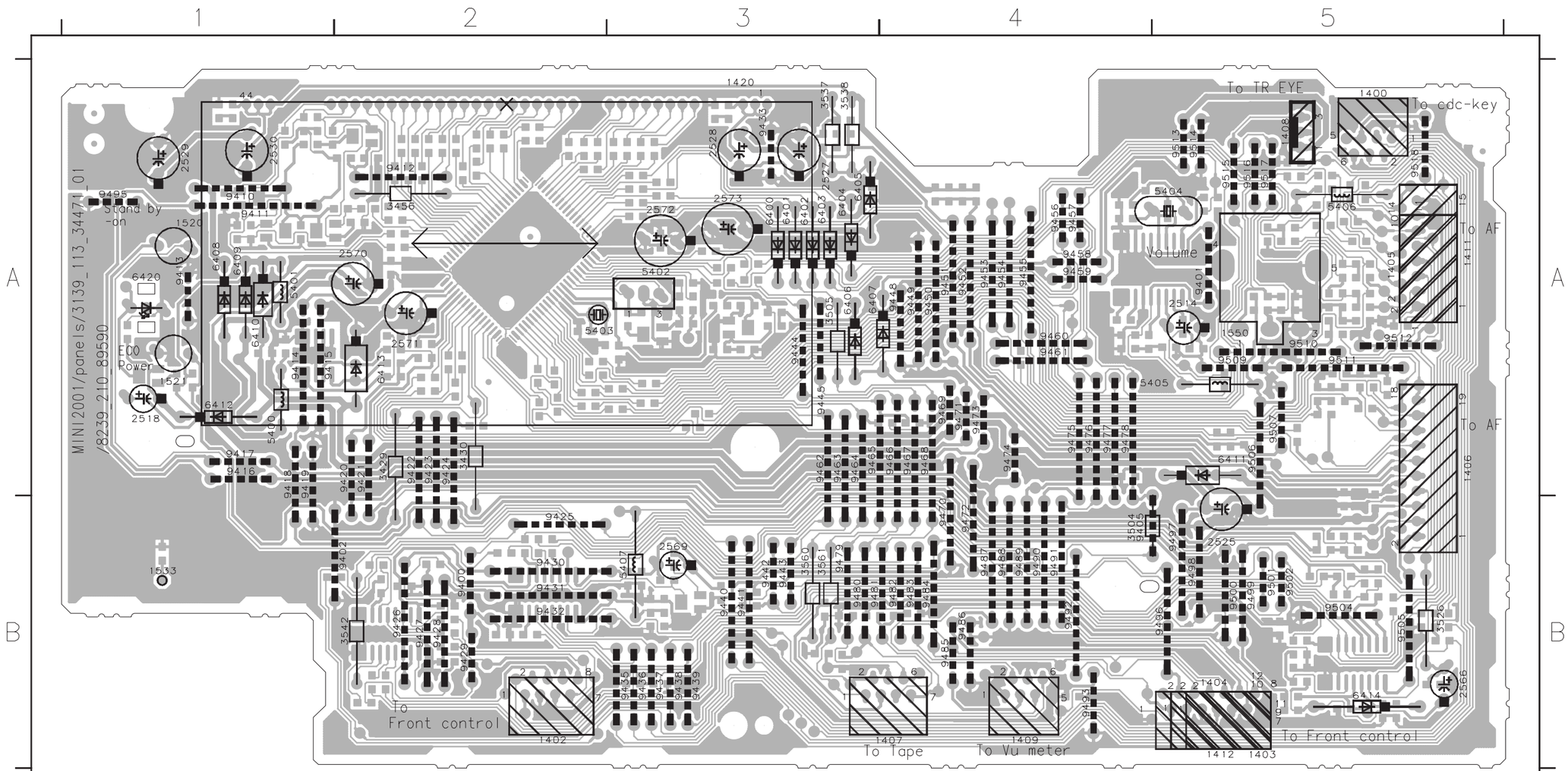
FRONT DISPLAY BOARD - COMPONENT LAYOUT

1400 A5 1409 B4 2514 A5 2569 B3 3504 B4 5400 A1 6400 A3 6408 A1 9400 B2 9414 A1 9422 A2 9430 B2 9439 B3 9449 A4 9457 A4 9465 A3 9473 A4 9481 B3 9489 B4 9498 B5 9507 A5 9516 A5
1402 B2 1411 A5 2518 A1 2570 A2 3505 A3 5401 A1 6401 A3 6409 A1 9401 A5 9415 A1 9423 A2 9431 B2 9440 B3 9450 A4 9458 A4 9466 A4 9474 A4 9482 B4 9490 B4 9499 B5 9509 A5 9517 A5
1403 B5 1412 B5 2525 B5 2571 A2 3526 B5 5402 A3 6402 A3 6410 A1 9402 B2 9416 A1 9424 A2 9432 B2 9441 B3 9451 A4 9459 A4 9467 A4 9475 A4 9483 B4 9491 B4 9500 B5 9510 A5 9518 A5
1404 B5 1420 A3 2527 A3 2572 A3 3537 A3 5403 A2 6403 A3 6411 A5 9405 B4 9417 A1 9425 B2 9433 A3 9442 B3 9452 A4 9460 A4 9468 A4 9476 A4 9484 B4 9492 B4 9501 B5 9511 A5
1405 A5 1520 A1 2528 A3 2573 A3 3538 A3 5404 A5 6404 A3 6412 A1 9410 A1 9418 A1 9426 B2 9435 B3 9443 B3 9453 A4 9461 A4 9469 A4 9477 A4 9485 B4 9493 B4 9502 B5 9512 A5
1406 A5 1521 A1 2529 A1 3429 A2 3542 B2 5405 A5 6405 A3 6413 A2 9411 A1 9419 A1 9427 B2 9436 B3 9444 A3 9454 A4 9462 A3 9470 B4 9478 A4 9486 B4 9495 A1 9504 B5 9513 A5
1407 B4 1533 B1 2530 A1 3430 A2 3560 B3 5406 A5 6406 A3 6414 B5 9412 A2 9420 A2 9428 B2 9437 B3 9445 A3 9455 A4 9463 A3 9471 A4 9479 B3 9487 B4 9496 B5 9505 B5 9514 A5
1408 A5 1550 A5 2566 B5 3456 A2 3561 B3 5407 B3 6407 A3 6420 A1 9413 A1 9421 A2 9429 B2 9438 B3 9448 A4 9456 A4 9464 A3 9472 B4 9480 B3 9488 B4 9497 B5 9506 A5 9515 A5



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

3139 113 3447 pt1 dd wk0047

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FRONT DISPLAY BOARD - CIRCUIT DIAGRAM

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

@ : For DPL only

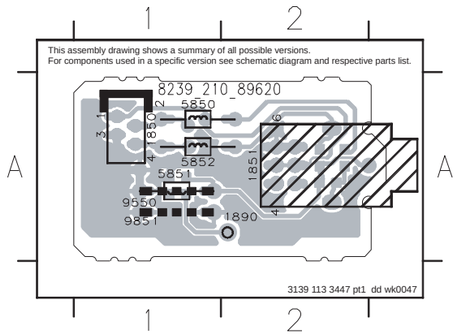
∗ : For RDS only

: Provision

Model	Option_R Ohms (3530)
FW-C500/37	180
FW-C550/37	470
FW-C700/37	820
FW-C700/34	1K2
FW-C700/22	1K8
FW-C720/21	820
FW-C720/19	820
FW-C720/18	820
FW-P750/37	2K7
FW-P750/34	3K9
FW-P750/22	3K9
FW-C780/37	5K6
FW-C780/34	8K2
FW-C780/33	12K
FW-C780/30	5K6
FW-C780/22	5K6

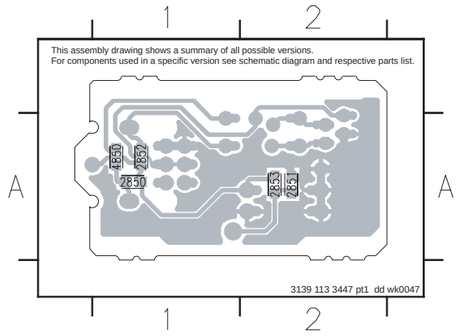
HEADPHONE BOARD - COMPONENT LAYOUT

1850 A1 1890 A2 5851 A1 9550 A1
1851 A2 5850 A1 5852 A1 9851 A1



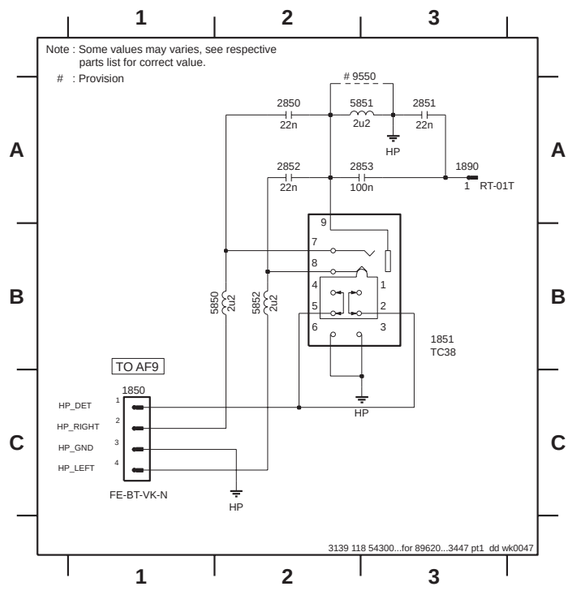
HEADPHONE BOARD - CHIP LAYOUT

2850 A1 2852 A1 4850 A1
2851 A2 2853 A2



HEADPHONE BOARD - CIRCUIT DIAGRAM

1850 C1 1890 A3 2851 A3 2853 A3 5851 A3 9550 A3
1851 B3 2850 A2 2852 A2 5850 B2 5852 B2



ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

MISCELLANEOUS

1400	4822 265 11207	Flex Connector 6P
1402	4822 265 11535	Flex Connector 8P
1403	4822 265 11535	Flex Connector 8P
1406	4822 265 11545	Flex Connector 19P
1407	4822 267 10956	Flex Connector 7P
1409	4822 265 11207	Flex Connector 6P
1411	4822 265 10979	Flex Connector 15P
1420	3139 110 52550	FTD Display
1520	4822 276 13775	Tact Switch
1521	4822 276 13775	Tact Switch
1550	4822 273 10365	Rotary Encoder 24P
1850	4822 267 10733	Flex Connector 4P
1851	4822 265 11529	Headphone Socket

CAPACITORS

2500	4822 122 31765	100pF 2% 63V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 122 31765	100pF 2% 63V
2504	4822 122 31765	100pF 2% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 122 31765	100pF 2% 63V
2509	4822 122 31765	100pF 2% 63V

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ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

2510	4822 126 14305	100nF 10% 16V
2511	4822 122 33777	47pF 5% 63V
2512	4822 126 14249	560pF 10% 50V
2513	4822 126 14249	560pF 10% 50V
2514	4822 124 22652	2,2µF 20% 50V
2515	4822 126 14226	82pF 5% 50V
2516	4822 122 33777	47pF 5% 63V
2517	4822 126 14305	100nF 10% 16V
2518	4822 124 22726	4,7µF 35V
2519	5322 126 11583	10nF 10% 50V
2520	5322 126 11583	10nF 10% 50V
2521	5322 126 11583	10nF 10% 50V
2522	4822 126 14305	100nF 10% 16V
2523	4822 126 14305	100nF 10% 16V
2524	4822 126 14305	100nF 10% 16V
2525	4822 124 12233	47µF 20% 25V
2526	4822 126 14305	100nF 10% 16V
2527	4822 124 22726	4,7µF 35V
2528	4822 124 22726	4,7µF 35V
2529	4822 124 22726	4,7µF 35V
2530	4822 124 22726	4,7µF 35V
2531	3198 017 41050	1µF 10V
2533	4822 126 14305	100nF 10% 16V
2534	5322 126 11583	10nF 10% 50V
2535	5322 126 11583	10nF 10% 50V
2536	3198 016 36810	680pF 25V
2537	4822 126 13883	220pF 5% 50V
2538	4822 126 14305	100nF 10% 16V
2539	4822 126 14305	100nF 10% 16V
2541	4822 126 13883	220pF 5% 50V
2542	4822 126 13883	220pF 5% 50V
2543	4822 126 14305	100nF 10% 16V
2544	4822 126 14305	100nF 10% 16V
2545	4822 126 13879	220nF +80/-20% 16V
2546	4822 126 13883	220pF 5% 50V
2547	4822 126 13883	220pF 5% 50V
2548	4822 126 13883	220pF 5% 50V
2549	4822 122 33741	10pF 10% 50V
2550	4822 122 33741	10pF 10% 50V
2551	4822 122 33777	47pF 5% 63V
2552	4822 122 33777	47pF 5% 63V
2553	4822 122 33777	47pF 5% 63V
2554	4822 122 33741	10pF 10% 50V
2555	4822 126 14305	100nF 10% 16V
2556	4822 122 33741	10pF 10% 50V
2557	4822 122 33741	10pF 10% 50V
2558	4822 122 31765	100pF 2% 63V
2559	4822 122 31765	100pF 2% 63V
2560	4822 122 31765	100pF 2% 63V
2561	4822 122 31765	100pF 2% 63V
2562	3198 016 31020	1nF 25V
2563	4822 122 31765	100pF 2% 63V
2564	5322 126 11578	1nF 10% 50V
2565	4822 122 33777	47pF 5% 63V
2566	4822 124 22651	1,0µF 20% 50V
2567	4822 126 13879	220nF +80/-20% 16V
2568	4822 126 14223	2,2pF 50V
2569	4822 124 11947	10µF 20% 16V
2570	4822 124 12233	47µF 20% 25V
2571	4822 124 12233	47µF 20% 25V
2572	3198 028 44790	47µF 20% 35V
2573	3198 028 44790	47µF 20% 35V
2574	4822 122 33761	22pF 5% 50V
2575	4822 122 33761	22pF 5% 50V
2576	4822 122 33761	22pF 5% 50V
2577	4822 126 11671	33pF
2578	4822 126 14305	100nF 10% 16V
2579	4822 126 13883	220pF 5% 50V
2580	4822 126 13883	220pF 5% 50V
2581	4822 126 13883	220pF 5% 50V
2582	4822 126 13883	220pF 5% 50V
2583	4822 122 31765	100pF 2% 63V
2584	4822 122 31765	100pF 2% 63V
2850	4822 126 14494	22nF 10% 25V
2851	4822 126 14494	22nF 10% 25V
2852	4822 126 14494	22nF 10% 25V
2853	4822 126 14305	100nF 10% 16V

RESISTORS

3400	4822 051 30471	470R 5% 0,062W
3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 051 30471	470R 5% 0,062W
3404	4822 051 30471	470R 5% 0,062W
3405	4822 051 30471	470R 5% 0,062W
3406	4822 051 30471	470R 5% 0,062W
3407	4822 051 20109	10R 5% 0,1W
3408	4822 051 20109	10R 5% 0,1W
3409	4822 051 30472	4k7 5% 0,062W
3410	4822 051 20109	10R 5% 0,1W
3411	4822 051 20109	10R 5% 0,1W
3413	4822 051 30105	1M 5% 0,062W
3414	4822 051 30471	470R 5% 0,062W
3415	4822 051 30471	470R 5% 0,062W
3416	4822 051 30471	470R 5% 0,062W
3417	4822 051 30471	470R 5% 0,062W
3418	4822 051 30471	470R 5% 0,062W
3419	4822 051 30471	470R 5% 0,062W
3420	4822 051 30471	470R 5% 0,062W
3421	4822 051 30471	470R 5% 0,062W
3422	4822 051 30471	470R 5% 0,062W
3423	4822 051 30471	470R 5% 0,062W
3424	4822 051 30471	470R 5% 0,062W
3425	4822 051 30471	470R 5% 0,062W
3428	4822 051 30471	470R 5% 0,062W
3429	4822 116 83883	470R 5% 0,5W

6-6

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

RESISTORS

3430	4822 116 83883	470R 5% 0,5W
3431	4822 051 30471	470R 5% 0,062W
3432	4822 051 30471	470R 5% 0,062W
3433	4822 051 30471	470R 5% 0,062W
3434	4822 051 30102	1k 5% 0,062W
3435	4822 051 30471	470R 5% 0,062W
3436	4822 051 30471	470R 5% 0,062W
3437	4822 051 30471	470R 5% 0,062W
3438	4822 051 30222	2k2 5% 0,062W
3439	4822 051 30222	2k2 5% 0,062W
3444	4822 051 30471	470R 5% 0,062W
3445	4822 051 30471	470R 5% 0,062W
3446	4822 051 30471	470R 5% 0,062W
3447	4822 051 30471	470R 5% 0,062W
3448	4822 051 30471	470R 5% 0,062W
3449	4822 051 30471	470R 5% 0,062W
3450	4822 051 30471	470R 5% 0,062W
3451	4822 051 30471	470R 5% 0,062W
3452	4822 051 30471	470R 5% 0,062W
3453	4822 051 30471	470R 5% 0,062W
3454	4822 051 30471	470R 5% 0,062W
3455	4822 051 30471	470R 5% 0,062W
3456	4822 116 83883	470R 5% 0,5W
3457	4822 051 30471	470R 5% 0,062W
3458	4822 051 30471	470R 5% 0,062W
3459	4822 051 30471	470R 5% 0,062W
3460	4822 051 30471	470R 5% 0,062W
3461	4822 051 30471	470R 5% 0,062W
3462	4822 051 30471	470R 5% 0,062W
3463	4822 051 30471	470R 5% 0,062W
3464	4822 051 30471	470R 5% 0,062W
3465	4822 051 30471	470R 5% 0,062W
3466	4822 051 30471	470R 5% 0,062W
3467	4822 051 30471	470R 5% 0,062W
3468	4822 051 30471	470R 5% 0,062W
3469	4822 051 30471	470R 5% 0,062W
3470	4822 051 30471	470R 5% 0,062W
3471	4822 051 30471	470R 5% 0,062W
3472	4822 051 30471	470R 5% 0,062W
3473	4822 051 30471	470R 5% 0,062W
3474	4822 051 30221	220R 5% 0,062W
3475	4822 051 30221	220R 5% 0,062W
3476	4822 051 30471	470R 5% 0,062W
3477	4822 051 30471	470R 5% 0,062W
3479	4822 051 30471	470R 5% 0,062W
3480	4822 051 30471	470R 5% 0,062W
3485	4822 117 12925	47k 1% 0,063W
3490	4822 051 30471	470R 5% 0,062W
3491	4822 051 30471	470R 5% 0,062W
3492	4822 051 30471	470R 5% 0,062W
3500	4822 117 12864	82k 5% 0,6W
3501	4822 117 12864	82k 5% 0,6W
3502	4822 117 12864	82k 5% 0,6W
3503	4822 117 12864	82k 5% 0,6W
3504	4822 116 83883	470R 5% 0,5W
3505	4822 116 83883	470R 5% 0,5W
3511	4822 051 30272	2k7 5% 0,062W
3512	4822 051 30102	1k 5% 0,062W
3515	4822 117 12891	220k 1%
3516	4822 051 30222	2k2 5% 0,062W
3517	4822 051 30103	10k 5% 0,062W
3518	4822 051 30103	10k 5% 0,062W
3519	4822 051 30103	10k 5% 0,062W
3520	4822 051 30103	10k 5% 0,062W
3521	4822 051 30684	680k 5% 0,062W
3522	4822 117 12925	47k 1% 0,063W
3523	4822 051 30474	470k 5% 0,062W
3526	4822 116 52244	15k 5% 0,5W
3527	4822 117 12968	820R 5% 0,62W
3528	4822 051 30103	10k 5% 0,062W
3529	4822 051 30272	2k7 5% 0,062W
3530	4822 051 30392	3k9 5% 0,063W /22
3530	4822 051 30272	2k7 5% 0,062W /37
3531	4822 051 30103	10k 5% 0,062W
3532	4822 051 30103	10k 5% 0,062W
3533	4822 051 30102	1k 5% 0,062W
3534	4822 051 30102	1k 5% 0,062W
3535	4822 051 20109	10R 5% 0,1W
3536	4822 051 20109	10R 5% 0,1W
3537	4822 116 52206	120R 5% 0,5W
3538	4822 116 52206	120R 5% 0,5W
3539	4822 051 30223	22k 5% 0,062W
3540	4822 051 30103	10k 5% 0,062W
3541	4822 051 30103	10k 5% 0,062W
3542	4822 116 83872	220R 5% 0,5W
3543	4822 051 30221	220R 5% 0,062W
3544	4822 051 30121	120R 5% 0,062W
3545	4822 051 30121	120R 5% 0,062W
3546	4822 051 30121	120R 5% 0,062W
3547	4822 051 30121	120R 5% 0,062W
3548	4822 051 30221	220R 5% 0,062W
3549	4822 051 30221	220R 5% 0,062W
3550	4822 051 30472	4k7 5% 0,062W
3551	4822 051 30103	10k 5% 0,062W
3552	4822 051 30103	10k 5% 0,062W
3553	4822 051 30103	10k 5% 0,062W
3554	4822 051 30103	10k 5% 0,062W
3560	4822 116 52175	100R 5% 0,5W
3561	4822 116 52175	100R 5% 0,5W
3562	4822 051 30103	10k 5% 0,062W
3563	4822 051 30103	10k 5% 0,062W
3564	4822 051 30221	220R 5% 0,062W
3565	4822 051 30221	220R 5% 0,062W
3570	4822 051 20109	10R 5% 0,1W
3571	4822 051 20109	10R 5% 0,1W
3572	4822 051 30222	2k2 5% 0,062W
3573	4822 051 30103	10k 5% 0,062W
3574	4822 051 30103	10k 5% 0,062W
3576	4822 051 30103	10k 5% 0,062W
3577	4822 051 30103	10k 5% 0,062W
3578	4822 051 30103	10k 5% 0,062W
3579	4822 051 30103	10k 5% 0,062W
3580	4822 051 30102	1k 5% 0,062W
3581	4822 051 30102	1k 5% 0,062W
3582	4822 051 30102	1k 5% 0,062W
3583	4822 051 30223	22k 5% 0,062W
3584	4822 051 30102	1k 5% 0,062W
3585	4822 051 30334	330k 5% 0,062W
3586	4822 051 30102	1k 5% 0,062W
3587	4822 051 30102	1k 5% 0,062W
3588	4822 051 30102	1k 5% 0,062W
3589	4822 051 30102	1k 5% 0,062W
3590	4822 117 13632	100k 1% 0,62W
3591	4822 117 13632	100k 1% 0,62W
3592	4822 051 30102	1k 5% 0,062W
3593	4822 051 30102	1k 5% 0,062W
3594	4822 051 30102	1k 5% 0,062W
3595	4822 051 30272	2k7 5% 0,062W
3596	4822 051 30272	2k7 5% 0,062W
3598	4822 051 30103	10k 5% 0,062W
3599	4822 051 30471	470R 5% 0,062W
4400	4822 051 30008	0R Jumper 0603
4401	4822 051 30008	0R Jumper 0603
4402	4822 051 30008	0R Jumper 0603
4403	4822 051 30008	0R Jumper 0603
4404	4822 051 30008	0R Jumper 0603
4405	4822 051 30008	0R Jumper 0603
4410	4822 051 30008	0R Jumper 0603
4411	4822 051 30008	0R Jumper 0603
4412	4822 051 30008	0R Jumper 0603
4413	4822 051 30008	0R Jumper 0603
4414	4822 051 30008	0R Jumper 0603
4415	4822 051 30008	0R Jumper 0603
4416	4822 051 30008	0R Jumper 0603
4418	4822 051 30008	0R Jumper 0603
4419	4822 051 30008	0R Jumper 0603
4420	4822 051 30008	0R Jumper 0603
4422	4822 051 30008	0R Jumper 0603
4423	4822 051 30008	0R Jumper 0603
4424	4822 051 30008	0R Jumper 0603
4425	4822 051 30008	0R Jumper 0603
4426	4822 051 30008	0R Jumper 0603
4427	4822 051 30008	0R Jumper 0603
4428	4822 051 30008	0R Jumper 0603
4429	4822 051 30008	0R Jumper 0603
4430	4822 051 30008	0R Jumper 0603
4431	4822 051 30008	0R Jumper 0603
4434	4822 051 30008	0R Jumper 0603
4435	4822 051 30008	0R Jumper 0603
4850	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5400	4822 157 62552	Coil 2,2µH 5%
5401	4822 157 62552	Coil 2,2µH 5%
5402	5322 242 73686	RES CER 12MHz
5403	4822 242 70938	RES XTL 32,768kHz
5404	4822 242 72195	QUARZ 4,332MHz
5405	4822 157 62552	Coil 2,2µH 5%
5406	4822 157 62552	Coil 2,2µH 5%
5407	4822 157 62552	Coil 2,2µH 5%
5850	4822 157 62552	Coil 2,2µH 5%
5851	4822 157 62552	Coil 2,2µH 5%
5852	4822 157 62552	Coil 2,2µH 5%

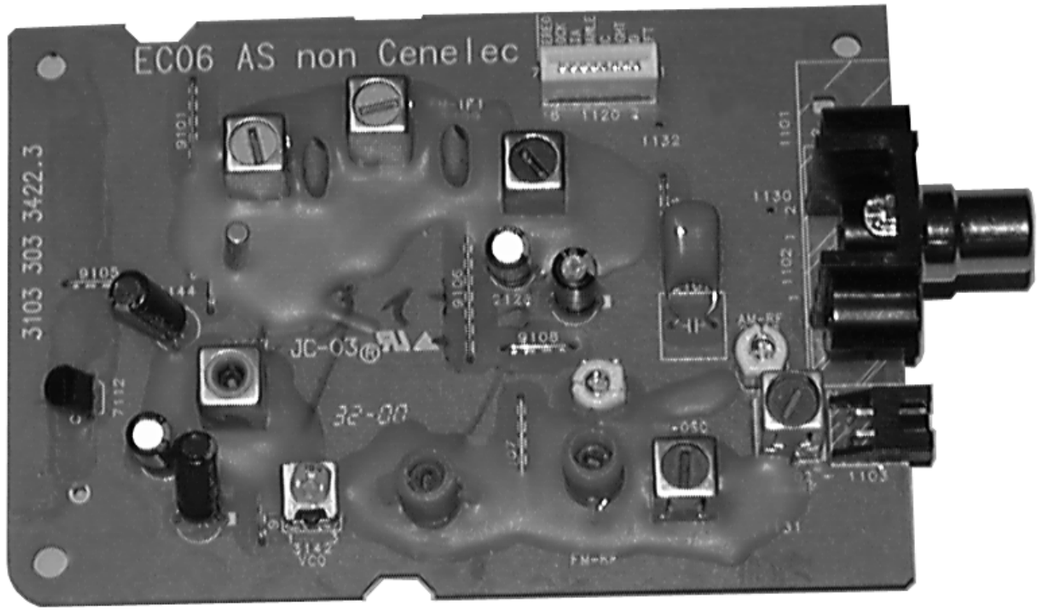
DIODES

6400	4822 130 30621	1N4148
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	4822 130 34174	BZX79-B4V7
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 31878	1N4003G
6411	4822 130 31878	1N4003G
6412	4822 130 30621	1N4148
6413	4822 130 31878	1N4003G
6414	4822 130 30621	1N4148
6420	9322 160 65676	LED VS LTL-4221NLC-VA

TRANSISTORS & INTEGRATED CIRCUITS

7400	3139 110 52600	TMP88CU74YF-‘C55S52601’
7401	9352 679 67118	SAA6579T/V1/M4
7402	5322 209 11446	HEF4051BT
7403	4822 209 15449	74HC4094D
7404	4822 209 15449	74HC4094D
7405	9322 145 26668	M24C02-WMN6
7406	4822 130 60511	BC847B
7407	4822 130 60511	BC847B
7408	4822 130 60511	BC847B
7409	4822 130 60511	BC847B
7410	4822 130 60511	BC847B
7411	4822 130 60373	BC857B
7412	4822 130 60511	BC847B
7413	4822 130 60511	BC847B

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



ECO6 Tuner Board

version: ***SYSTEMS non-CENELEC***

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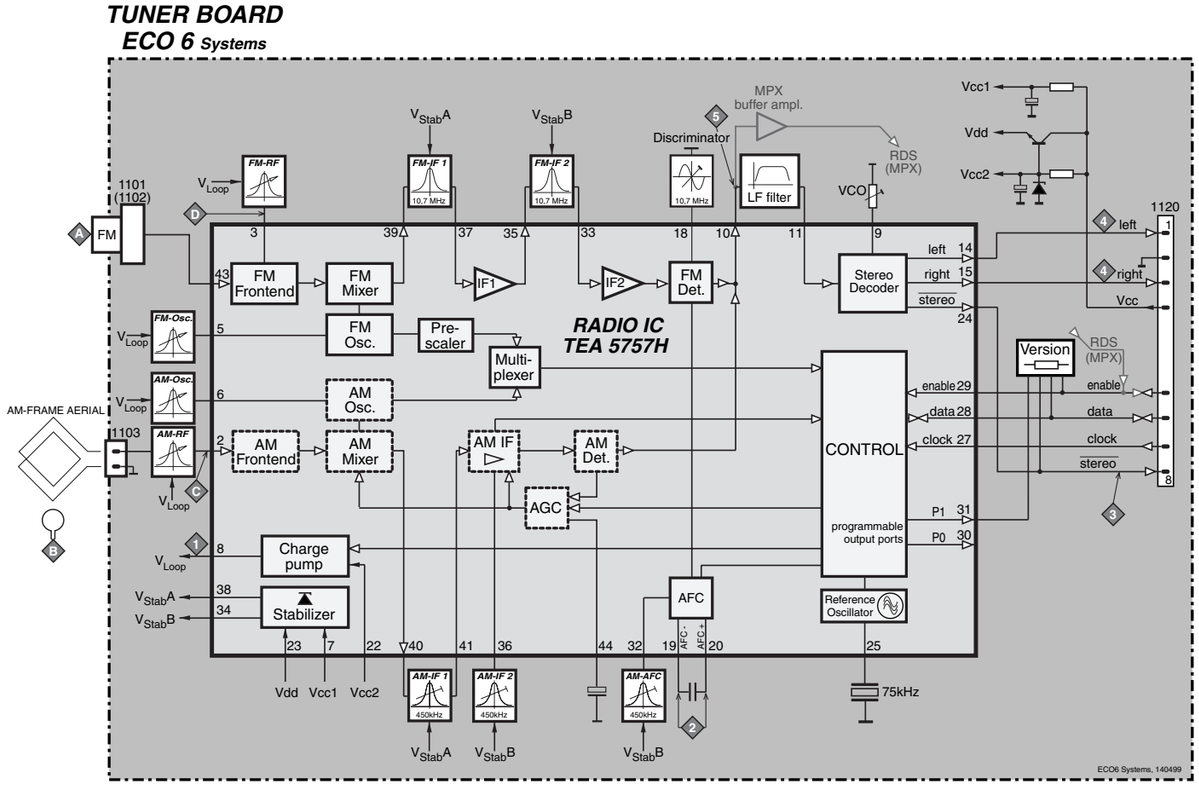
BLOCK DIAGRAM



7A-2

TUNER BOARD ECO6 / SYSTEMS NON CENELEC

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	X				
/00 /02 FM/MW		X	X		X
/01 FM/MW		X		X	X
/14 FM-OIRT/MW		X	X		X
/17 FM/AM	X			X	X
/06 FM-Japan/AM				X	X

X component mounted

VERSION DETECTION

LEGEND

(p)...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

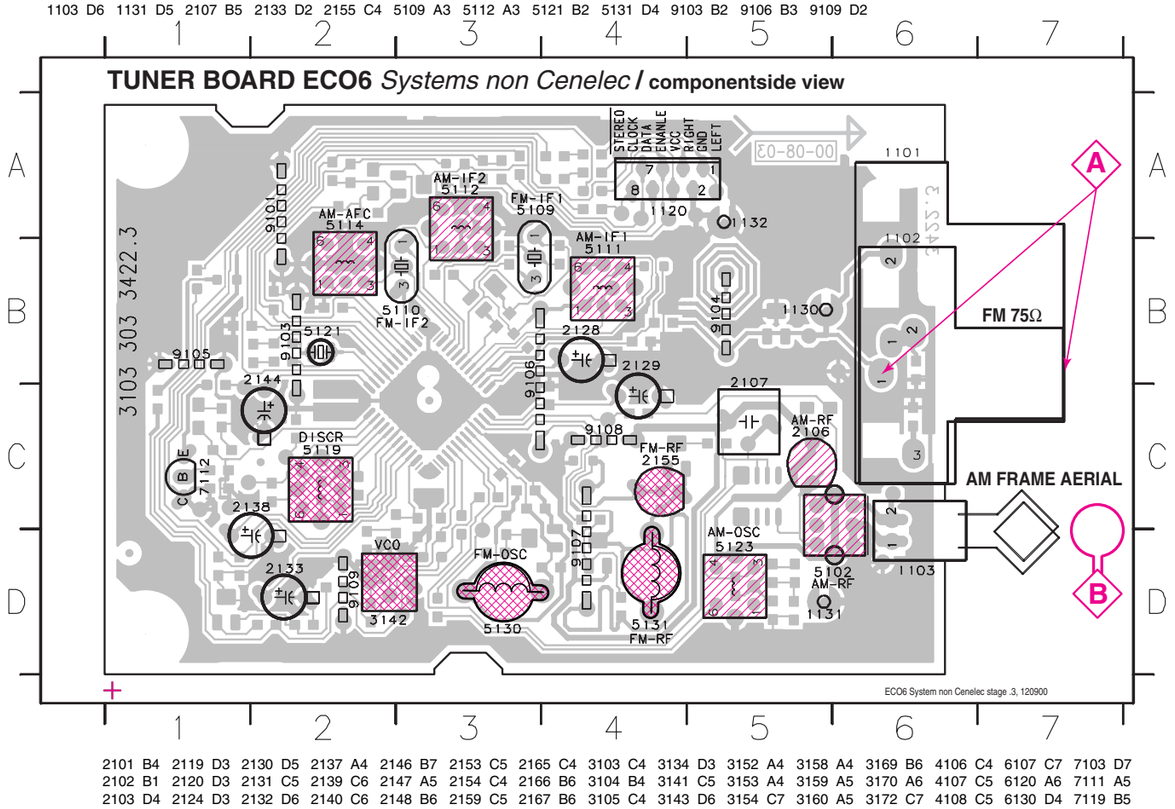
...V FM mode stereo
...V MW mode
(V) EVM ...V LW mode
voltages measured while set is tuned to a strong transmitter

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

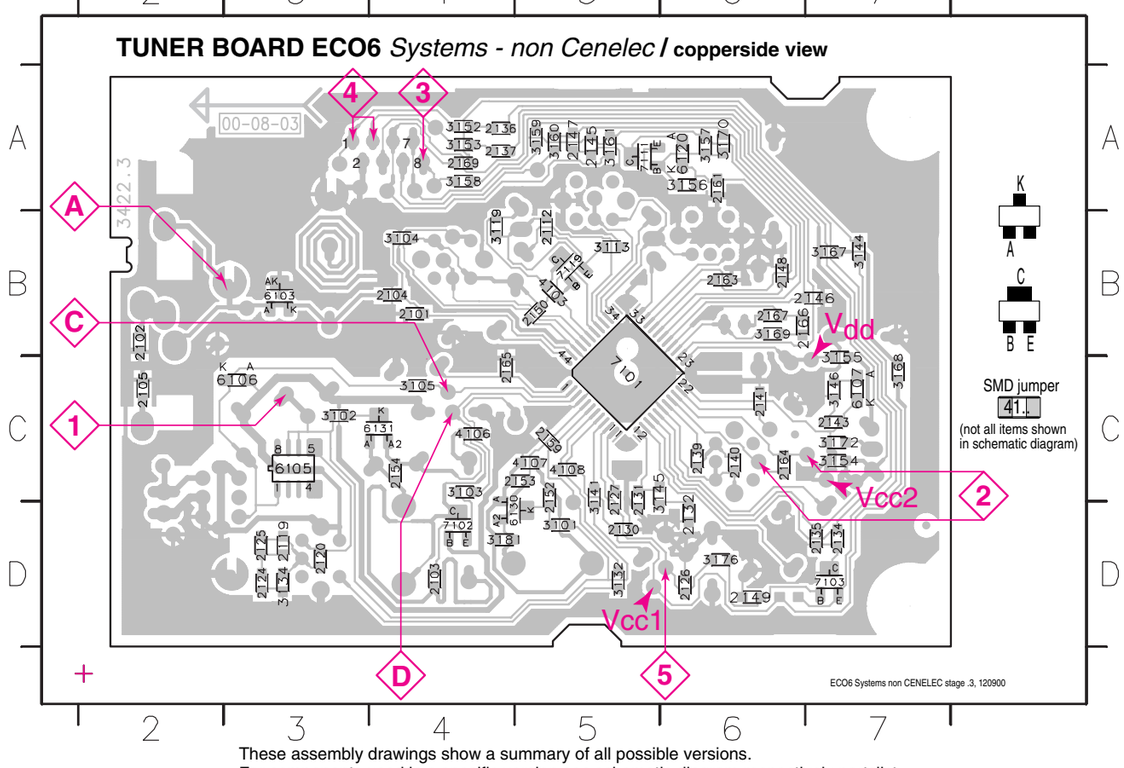
ECO6 Sys-non Cenelec, 000911

7A-3

1101 A6 1120 A4 1132 A5 2128 C4 2138 C2 3142 D2 5110 B3 5114 A2 5123 D5 7112 C1 9104 B5 9107 D4
1102 B6 1130 B5 2106 C5 2129 B4 2144 B2 5102 D6 5111 B4 5119 C2 5130 D3 9101 A2 9105 B1 9108 C4
1103 D6 1131 D5 2107 B5 2133 D2 2155 C4 5109 A3 5112 A3 5121 B2 5131 D4 9103 B2 9106 B3 9109 D2



2101 B4 2119 D3 2130 D5 2137 A4 2146 B7 2153 C5 2165 C4 3103 C4 3134 D3 3152 A4 3158 A4 3169 B6 4106 C4 6107 C7 7103 D7
2102 B1 2120 D3 2131 C5 2139 C6 2147 A5 2154 C4 2166 B6 3104 B4 3141 C5 3153 A4 3159 A5 3170 A6 4107 C5 6120 A6 7111 A5
2103 D4 2124 D3 2132 D6 2140 C6 2148 B6 2159 C5 2167 B6 3105 C4 3143 D6 3154 C7 3160 A5 3172 C7 4108 C5 6130 D4 7119 B5
2104 B4 2125 D3 2134 D7 2141 C6 2149 D6 2161 A6 2169 A4 3113 B5 3144 B7 3155 C7 3161 A5 3176 D6 6103 B3 6131 C4
2105 C1 2126 D6 2135 D7 2143 C7 2150 B5 2163 B6 3101 D5 3119 B5 3145 C5 3156 A6 3167 B7 3181 D4 6105 C3 7101 C5
2112 B5 2127 C5 2136 A4 2145 A5 2152 C5 2164 C6 3102 C3 3132 D5 3146 C7 3157 A6 3168 C7 4103 B5 6106 C3 7102 D4



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

TUNER ADJUSTMENT TABLE (ECO6 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	◇1	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		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, 45mV continuous wave	◇D	IC 7101 21 shortcircuit to block AFC 2141	5119	◇2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	◇C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 100nF 220R	5111	◇5	max. f_o symmetric
			see remark [2] IC 7101 40 100nF 220R	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 2mV		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	◇5	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		

ECO6, Sys + PA with frame aerial, 070799

Use Service Testprogram. 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

Electrical Partslist *ECO6* *SYSTEMS NON-CENELEC*

7A-4

MISCELLANEOUS

1101	2422 015 19376	SOCKET 2P CLICKFIT	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR 2 POLE	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2101 ©	4822 126 13692	47pF	1%	63V	
2102 ©	4822 126 13838	100nF	10%	50V	not USA
2103 ©	5322 122 31647	1nF	10%	63V	
2104 ©	5322 122 32531	100pF	5%	50V	
2105 ©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP.,N450			
2107	4822 121 51319	1µF	20%	50V	
2120 ©	4822 126 13689	18pF	1%	63V	
2124 ©	5322 122 32654	22nF	10%	63V	
2125 ©	2020 552 96199	560pF	1%	50V	
2126 ©	5322 122 31863	330pF	5%	50V	
2127 ©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130 ©	5322 122 32654	22nF	10%	63V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134 ©	4822 126 13188	15nF	5%	63V	not USA
2134 ©	5322 122 32654	22nF	10%	63V	USA only
2135 ©	4822 126 13188	15nF	5%	63V	not USA
2135 ©	5322 122 32654	22nF	10%	63V	USA only
2136 ©	4822 126 14076	220nF	20%	25V	
2137 ©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139 ©	4822 126 14236	15pF	5%	50V	
2140 ©	4822 126 13695	82pF	1%	63V	
2141 ©	4822 126 13838	100nF	10%	50V	
2143 ©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	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 122 33127	2,2nF	10%	63V	
2149 ©	5322 122 32659	33pF	5%	50V	RDS only
2150 ©	4822 126 13838	100nF	10%	50V	
2152 ©	4822 126 12105	33nF	5%	63V	not for East Europe
2152 ©	5322 116 80853	560pF	5%	63V	for East Europe only
2153 ©	4822 126 13486	15pF	2%	63V	not for East Europe
2153 ©	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159 ©	5322 122 32659	33pF	5%	50V	
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 13838	100nF	10%	50V	
2166 ©	5322 122 31647	1nF	10%	63V	
2167 ©	4822 122 33926	12pF	5%	50V	
2169 ©	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101 ©	4822 051 20333	33kΩ	5%	0,1W	
3102 ©	4822 117 10837	100kΩ	1%	0,1W	
3103 ©	4822 051 20822	8,2kΩ	5%	0,1W	
3104 ©	4822 117 13577	330Ω	1%	0,1W	
3105 ©	4822 117 11503	220Ω	5%	0,1W	
3132 ©	4822 051 20479	47Ω	5%	0,1W	
3134 ©	4822 051 20223	22kΩ	5%	0,1W	
3141 ©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			

RESISTORS

3143 ©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144 ©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3152 ©	4822 051 20471	470Ω	5%	0,1W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154 ©	4822 117 13577	330Ω	1%	0,1W	
3155 ©	4822 117 11503	220Ω	5%	0,1W	
3156 ©	4822 117 10837	100kΩ	1%	0,1W	
3157 ©	4822 117 10837	100kΩ	1%	0,1W	
3158 ©	4822 051 20471	470Ω	5%	0,1W	
3159 ©	4822 051 20471	470Ω	5%	0,1W	
3160 ©	4822 051 20471	470Ω	5%	0,1W	
3161 ©	4822 051 20223	22kΩ	5%	0,1W	
3167 ©	4822 051 20121	120Ω	5%	0,1W	
3168 ©	4822 051 20121	120Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170 ©	4822 117 10837	100kΩ	1%	0,1W	
3172 ©	4822 051 20562	5,6kΩ	5%	0,1W	
3176 ©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181 ©	4822 051 10102	1kΩ	2%	0,25W	
4103 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4107 ©	4822 051 20008	CHIP JUMPER 0805			
4108 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	FM-IF FILTER 10,7MHz
5110	4822 242 70665	FM-IF FILTER 10,7MHz
5111	2422 549 44023	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 COIL
5121	4822 242 10261	QUARTZ 75kHz
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR
5130	4822 157 11843	RF COIL 1,5 TURNS
5131	4822 157 11843	RF COIL 1,5 TURNS

DIODES

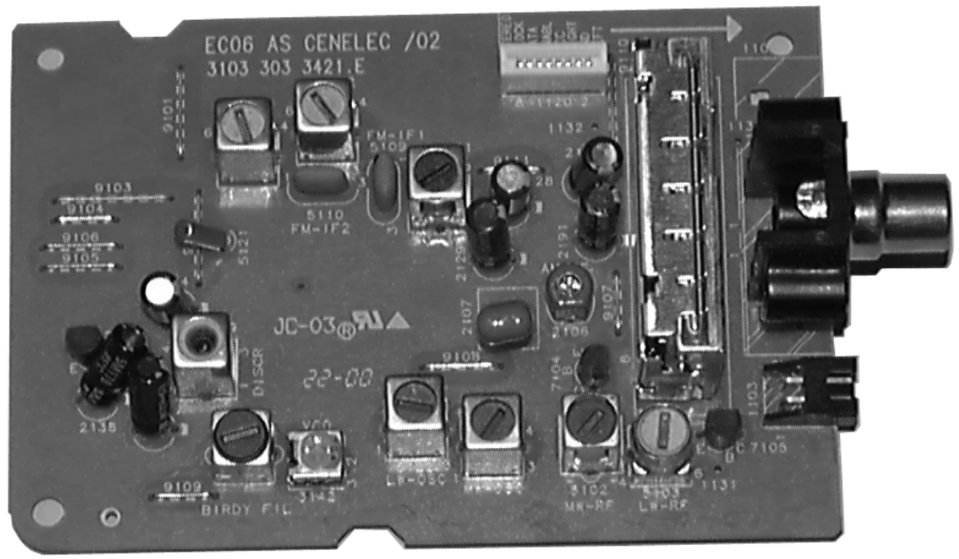
6103 ©	5322 130 34337	BAV99
6105 ©	4822 130 83075	HN1V02H
6106 ©	4822 130 83757	BAS216
6107 ©	9340 386 90115	BZX284-C11
6120 ©	4822 130 83757	BAS216
6130 ©	4822 130 82833	1SV228
6131 ©	4822 130 82833	1SV228

TRANSISTORS

7102	4822 130 42131	BF550	
7103 ©	5322 130 42756	BC857C	RDS only
7111 ©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	

INTEGRATED CIRCUITS

7101 ©	9351 740 80557	TEA5757H/V1, RADIO IC



ECO6 Tuner Board

version: ***SYSTEMS CENELEC***

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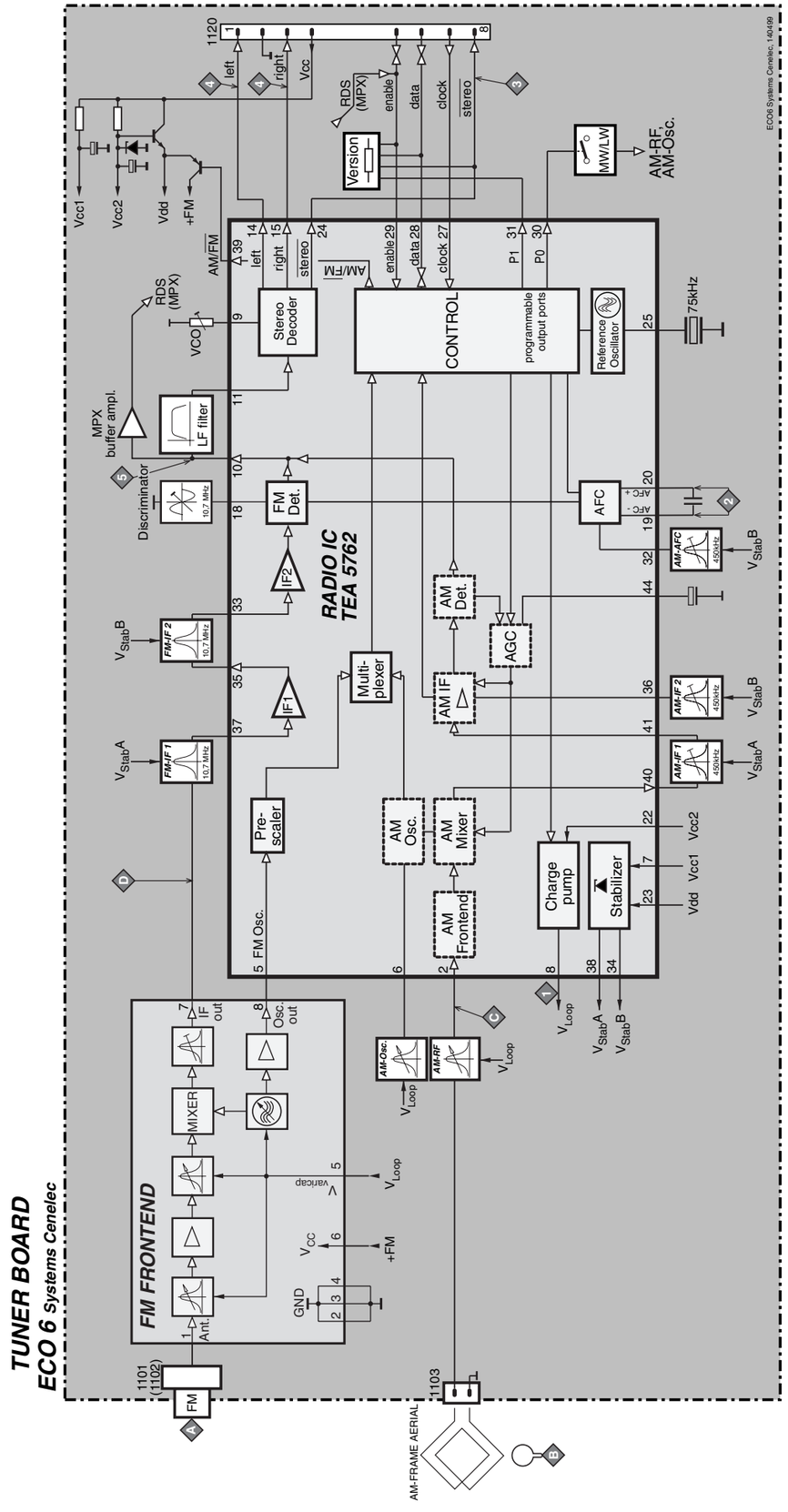
BLOCK DIAGRAM



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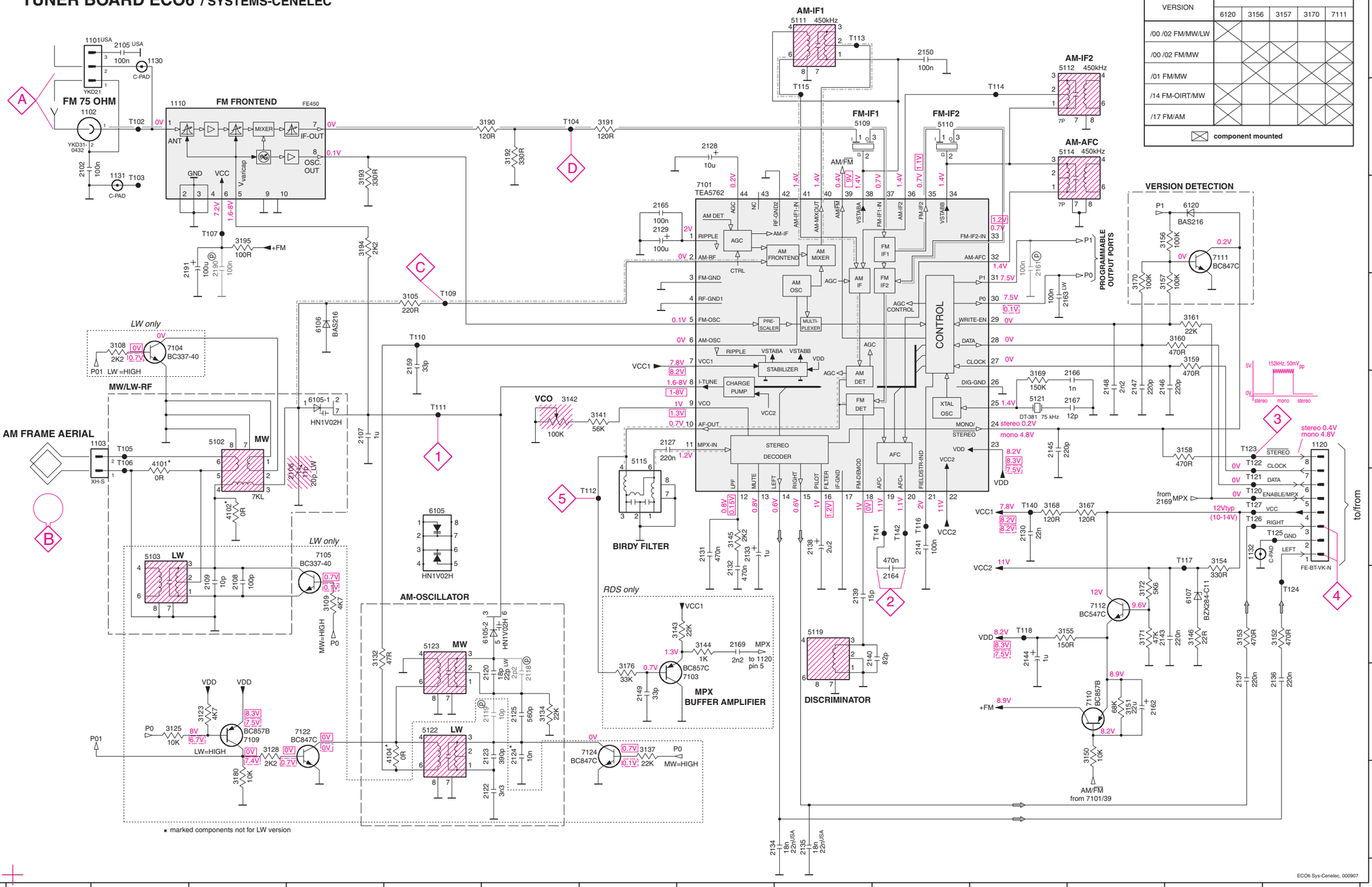
TUNER BOARD ECO6 / SYSTEMS-CENELEC

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒	☒	☒	☒
/01 FM/MW		☒	☒	☒	☒
/14 FM-OIRT/MW	☒				
/17 FM/AM	☒				

☒ component mounted



× marked components not for LW version

ECO6 Sys-Cenelec, 000907

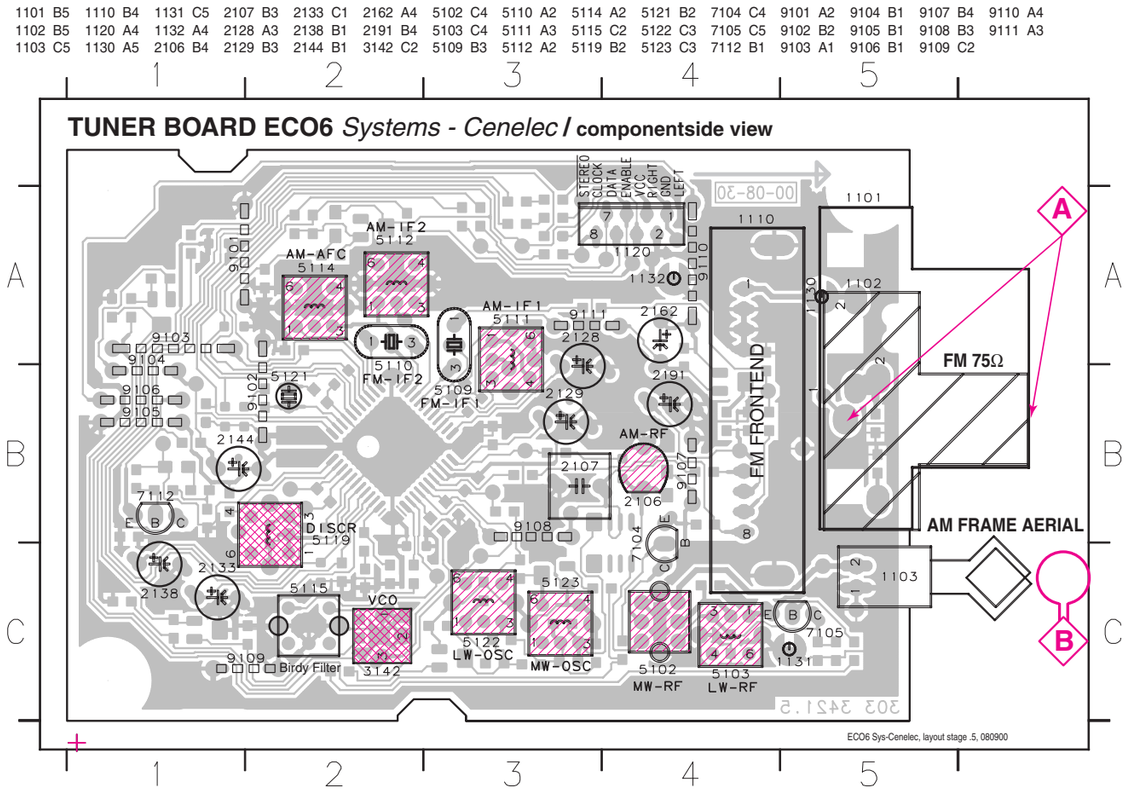
LEGEND

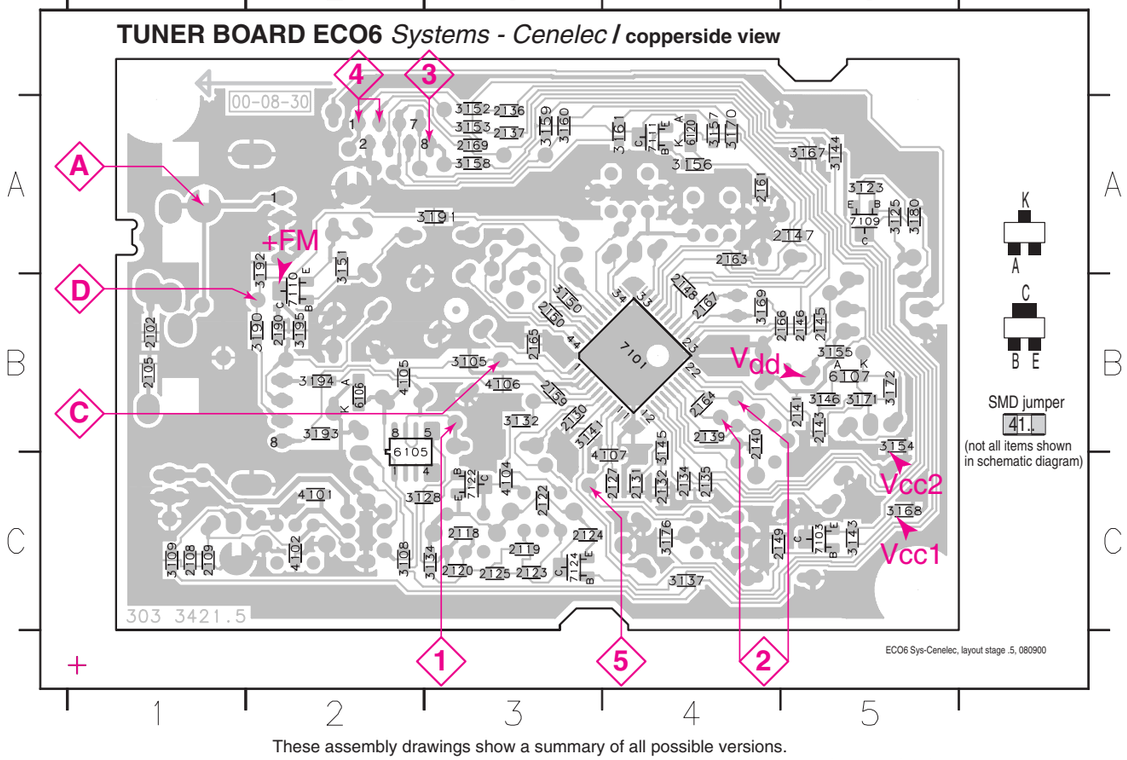
* ... only assembled in FM/AM-version
Ⓟ ...for provision only
USA ... for USA version only
LW ... for LW version only

SMD jumper
41xx
0R

Ⓥ EVM
...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

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





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

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TUNER ADJUSTMENT TABLE (**ECO6 Cenelec** 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 (50kHz grid)			108MHz	check	◇1	8V ±1.2V
			87.5MHz	check		1.6V ±0.5V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8V ±0.2V 3-band 6.9V ±0.2V 2-band
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
FM - IF						
FM	10.7MHz, 45mV continuous wave	◇D	IC 7101 pin 21 shortcircuit to block AFC 2141	5119	◇2	0mV ±3mV
FM - VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
FM RF (channel separation)	Note: The FM-frontend unit has already been adjusted by the factory and needs therefore no further adjustments for service purposes.					
FM	98MHz, 1mV 90% Left + 9% pilot mod=1kHz	◇A	98MHz	IF coil inside FM frontend 1110	◇4	right channel min.
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	◇C Δf = ±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 pin 36 — 220R — 100nF	5111	◇5	max. / f_o / symmetric
			IC 7101 pin 40 — 220R — 100nF (see remark [2])	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 2mV		5114	◇2	0mV ±2mV
AM RF [3]						
MW	1494kHz	◇B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	◇5	max. / f_o / symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		

ECO6 Sys Cenelec, 190599

Use Service Testprogram. 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!
MW has to be aligned before LW.

‡ Repeat

Electrical Partslist *ECO6* SYSTEMS-CENELEC

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MISCELLANEOUS

1101	2422 015 19376	SOCKET CLICKFIT 2P	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR, 2 POLE	
1110	2422 542 90071	FM FRONTEND	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2102 ©	4822 126 13838	100nF	10%	50V	not USA
2105 ©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00204	TRIMCAP. 4,2 - 20pF, N750			LW only
2106	2020 800 00191	TRIMCAP. 3 - 11pF, N450			FM/AM only
2107	4822 121 51319	1µF	20%	50V	
2108 ©	5322 122 32531	100pF	5%	50V	LW only
2109 ©	5322 122 32448	10pF	5%	50V	LW only
2120 ©	4822 126 13689	18pF	1%	63V	FM/AM only
2120 ©	5322 122 32658	22pF	5%	50V	LW only
2122 ©	4822 122 33891	3,3nF	10%	63V	LW only
2123 ©	2020 552 93494	390pF	1%	50V	LW only
2124 ©	4822 122 33177	10nF	20%	50V	FM/AM only
2125 ©	2020 552 96199	560pF	1%	50V	
2127 ©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130 ©	5322 122 32654	22nF	10%	63V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134 ©	4822 122 33893	18nF	5%	63V	not USA
2134 ©	5322 122 32654	22nF	10%	63V	USA only
2135 ©	4822 122 33893	18nF	5%	63V	not USA
2135 ©	5322 122 32654	22nF	10%	63V	USA only
2136 ©	4822 126 14076	220nF	20%	25V	
2137 ©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139 ©	4822 126 14236	15pF	5%	50V	
2140 ©	4822 126 13695	82pF	1%	63V	
2141 ©	4822 126 13838	100nF	10%	50V	
2143 ©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	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 122 33127	2,2nF	10%	63V	
2149 ©	5322 122 32659	33pF	5%	50V	RDS only
2150 ©	4822 126 13838	100nF	10%	50V	
2159 ©	5322 122 32659	33pF	5%	50V	
2162	4822 124 81151	22µF	20%	50V	
2163 ©	4822 126 13838	100nF	10%	50V	LW only
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 13838	100nF	10%	50V	
2166 ©	5322 122 31647	1nF	10%	63V	
2167 ©	4822 122 33926	12pF	5%	50V	
2169 ©	4822 122 33127	2,2nF	10%	63V	RDS only
2190 ©	4822 126 13838	100nF	10%	50V	
2191	4822 124 40178	100µF	20%	10V	

RESISTORS

3105 ©	4822 117 11503	220Ω	5%	0,1W	
3108 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3109 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3123 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3125 ©	4822 117 10833	10kΩ	1%	0,1W	LW only
3128 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only

RESISTORS

3132 ©	4822 051 20479	47Ω	5%	0,1W	
3134 ©	4822 051 20223	22kΩ	5%	0,1W	
3137 ©	4822 051 20223	22kΩ	5%	0,1W	LW only
3141 ©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143 ©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144 ©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3150 ©	4822 117 10833	10kΩ	1%	0,1W	
3151 ©	4822 051 20683	68kΩ	5%	0,1W	
3152 ©	4822 051 20471	470Ω	5%	0,1W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154 ©	4822 117 13577	330Ω	1%	0,1W	
3155 ©	4822 117 10353	150Ω	5%	0,1W	
3156 ©	4822 117 10837	100kΩ	1%	0,1W	
3157 ©	4822 117 10837	100kΩ	1%	0,1W	
3158 ©	4822 051 20471	470Ω	5%	0,1W	
3159 ©	4822 051 20471	470Ω	5%	0,1W	
3160 ©	4822 051 20471	470Ω	5%	0,1W	
3161 ©	4822 051 20223	22kΩ	5%	0,1W	
3167 ©	4822 051 20121	120Ω	5%	0,1W	
3168 ©	4822 051 20121	120Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170 ©	4822 117 10837	100kΩ	1%	0,1W	
3171 ©	4822 117 10834	47kΩ	1%	0,1W	
3172 ©	4822 051 20562	5,6kΩ	5%	0,1W	
3176 ©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3180 ©	4822 117 10833	10kΩ	1%	0,1W	LW only
3190 ©	4822 051 20121	120Ω	5%	0,1W	
3191 ©	4822 051 20121	120Ω	5%	0,1W	
3192 ©	4822 117 13577	330Ω	1%	0,1W	
3193 ©	4822 117 13577	330Ω	1%	0,1W	
3194 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3195 ©	4822 051 20101	100Ω	5%	0,1W	
4101 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4102 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4104 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4105 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4107 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW	
5103	2422 549 44107	RF-COIL LW	LW only
5109	4822 157 71639	FM-IF FILTER 10,7MHz	
5110	4822 242 70665	FM-IF FILTER 10,7MHz	
5111	2422 549 44023	AM-IF FILTER 450kHz	
5112	4822 157 70302	AM-IF FILTER 450kHz	
5114	4822 157 70302	AM-IF FILTER 450kHz	
5115	4822 157 71636	ANTI BIRDY FILTER	
5119	4822 157 11443	DISCRIMINATOR COIL	
5121	4822 242 10261	QUARTZ 75kHz	
5122	2422 549 44108	RF-COIL, LW-OSCILLATOR	LW only
5123	2422 549 44108	RF-COIL, MW-OSCILLATOR	

DIODES

6105 ©	4822 130 83075	HN1V02H	
6106 ©	4822 130 83757	BAS216	
6107 ©	9340 386 90115	BZX284-C11	
6120 ©	4822 130 83757	BAS216	

TRANSISTORS

7103 ©	5322 130 42756	BC857C	RDS only
7104	9322 003 64676	TBC337-40	LW only
7105	9322 003 64676	TBC337-40	LW only
7109 ©	4822 130 60373	BC856B	LW only
7110 ©	4822 130 60373	BC856B	
7111 ©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	
7122 ©	5322 130 42755	BC847C	LW only
7124 ©	5322 130 42755	BC847C	LW only

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1, RADIO IC

ETF7 TAPE MODULE

(Non-Dolby Version)

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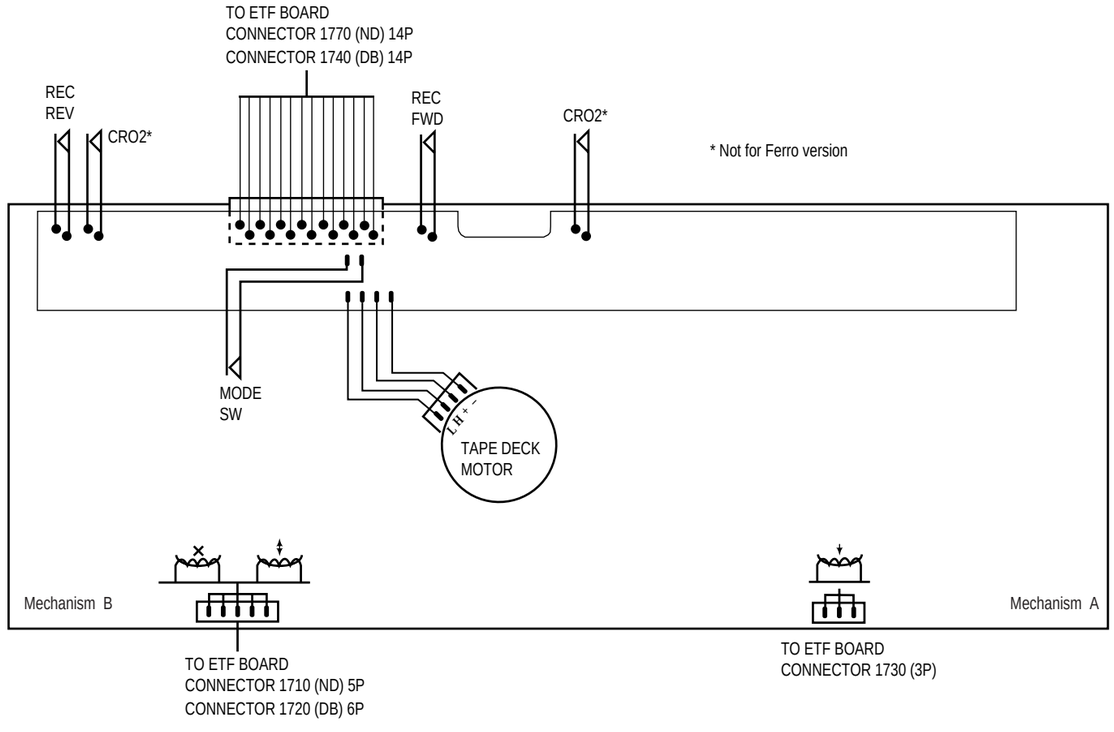
Tapedeck wiring (Double deck)



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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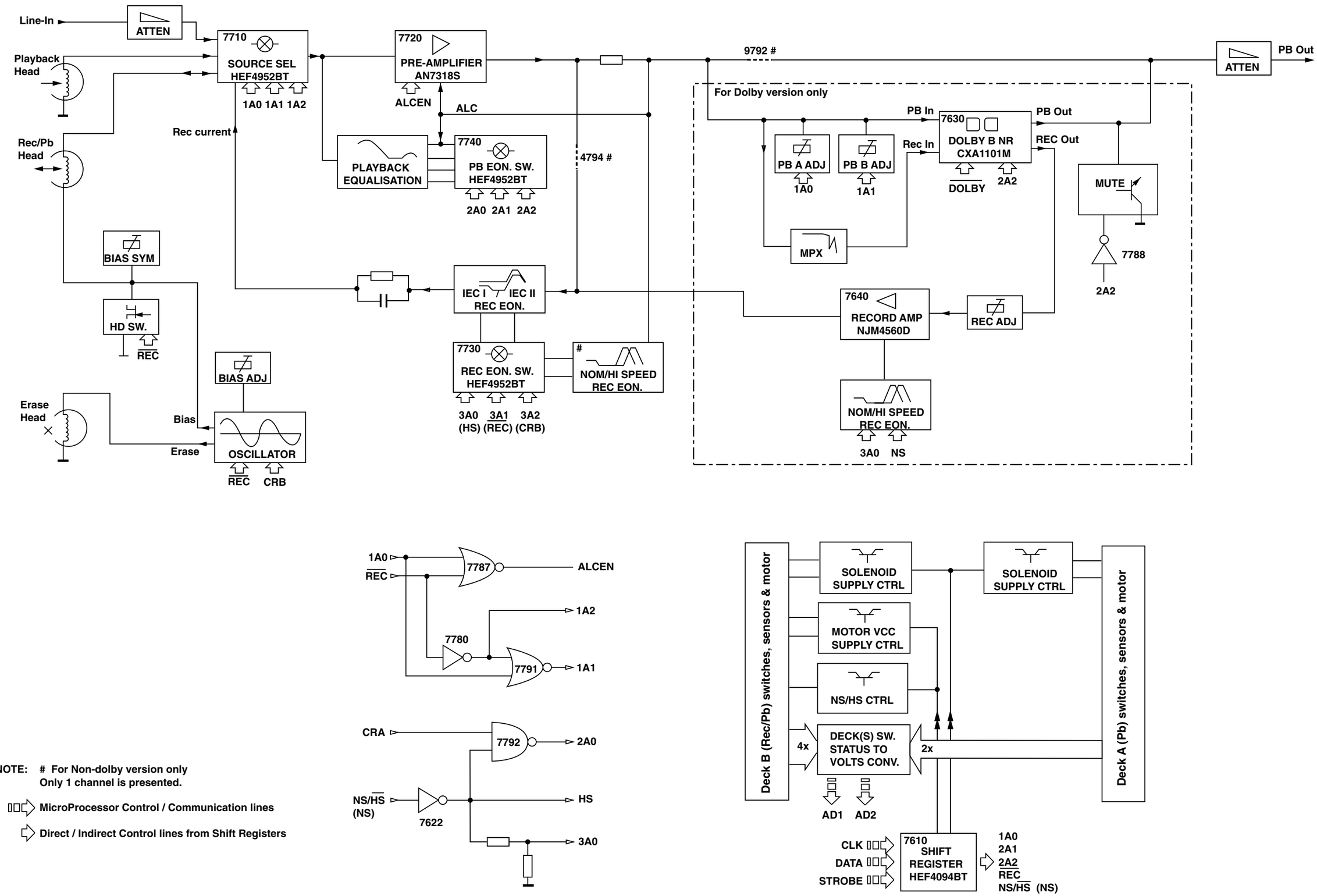
BLOCK DIAGRAM



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

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers

9-3

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

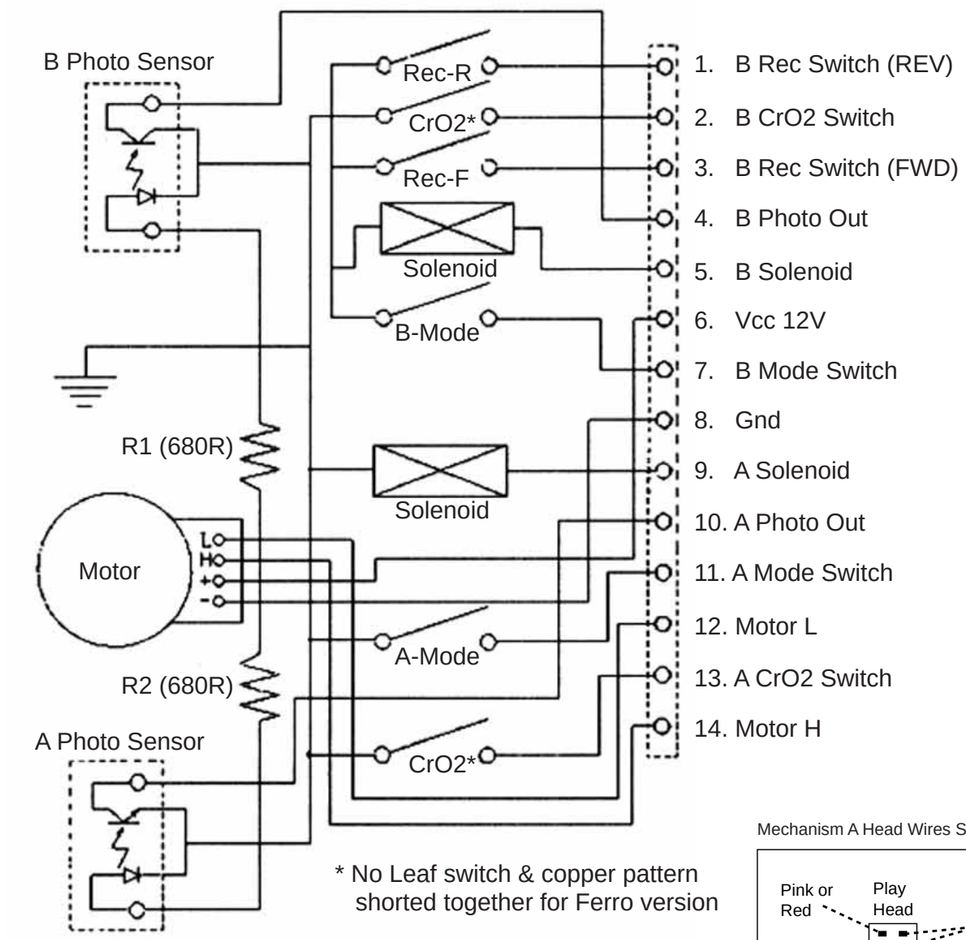
CONNECTOR 1740 — DECK A & B CONTROL INTERFACE ***(For Dolby B NR version only)***

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)***

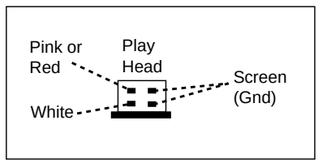
1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
4	PHOTO B	Photo sensor output (tape movement indication)	
5	SOL B	Solenoid supply 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

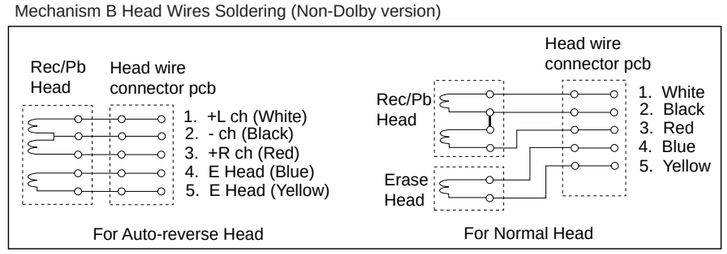


* No Leaf switch & copper pattern shorted together for Ferro version

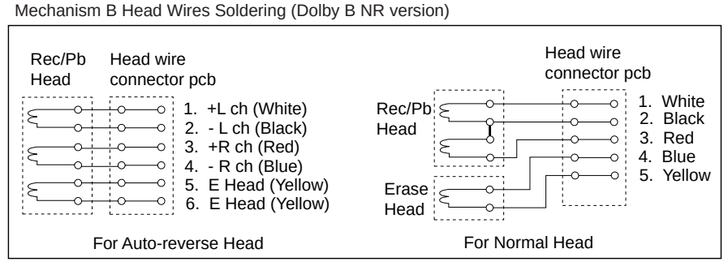
Mechanism A Head Wires Soldering



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

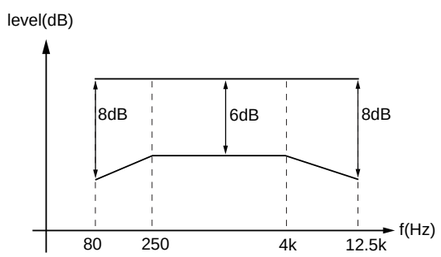


figure. 1

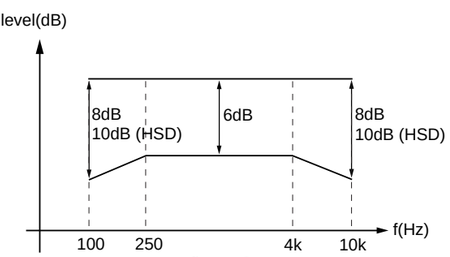
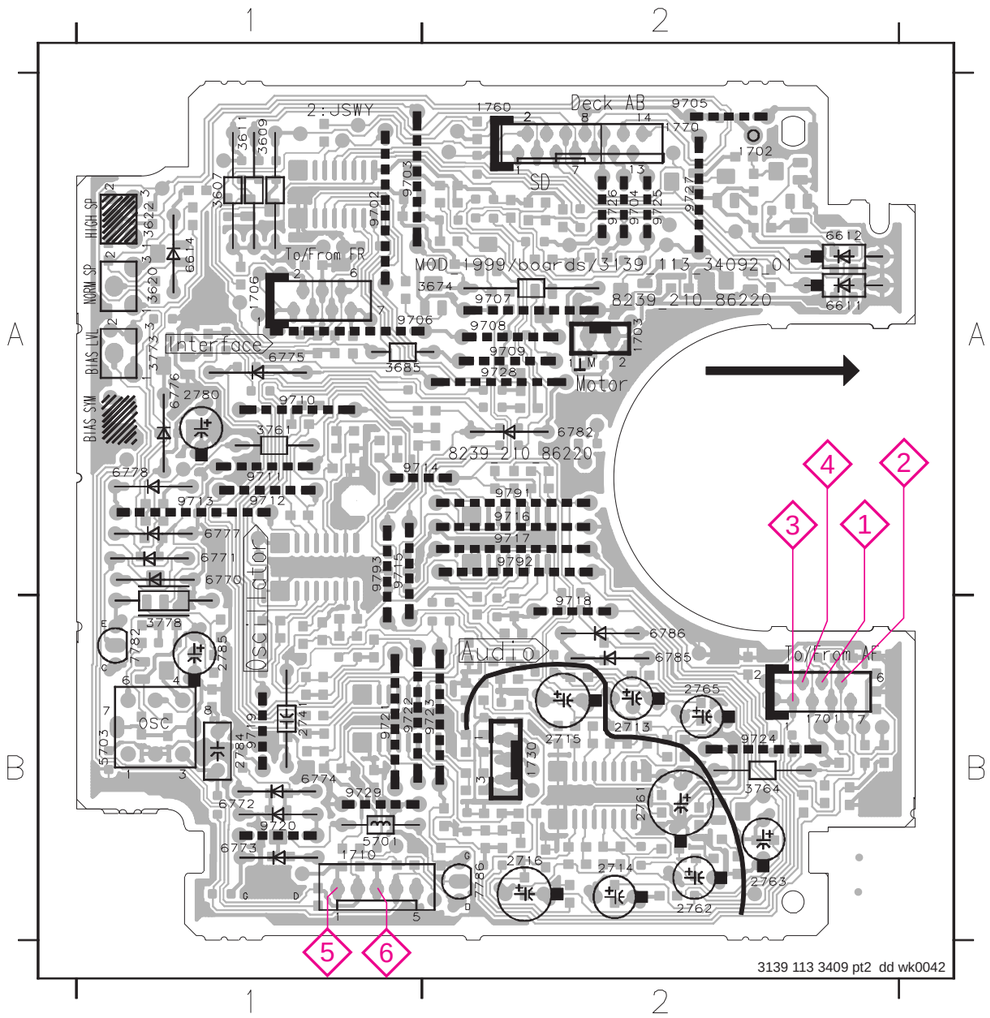


figure. 2

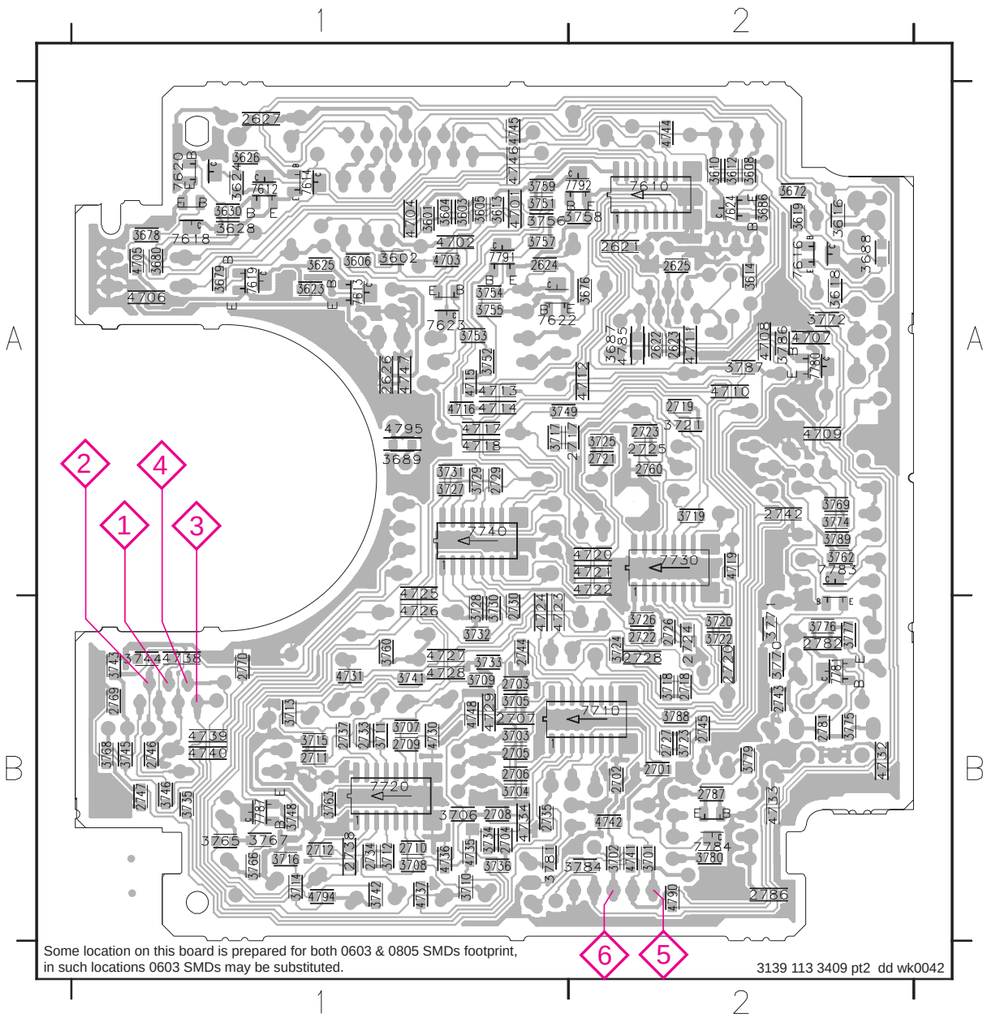
COMPONENT LAYOUT

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

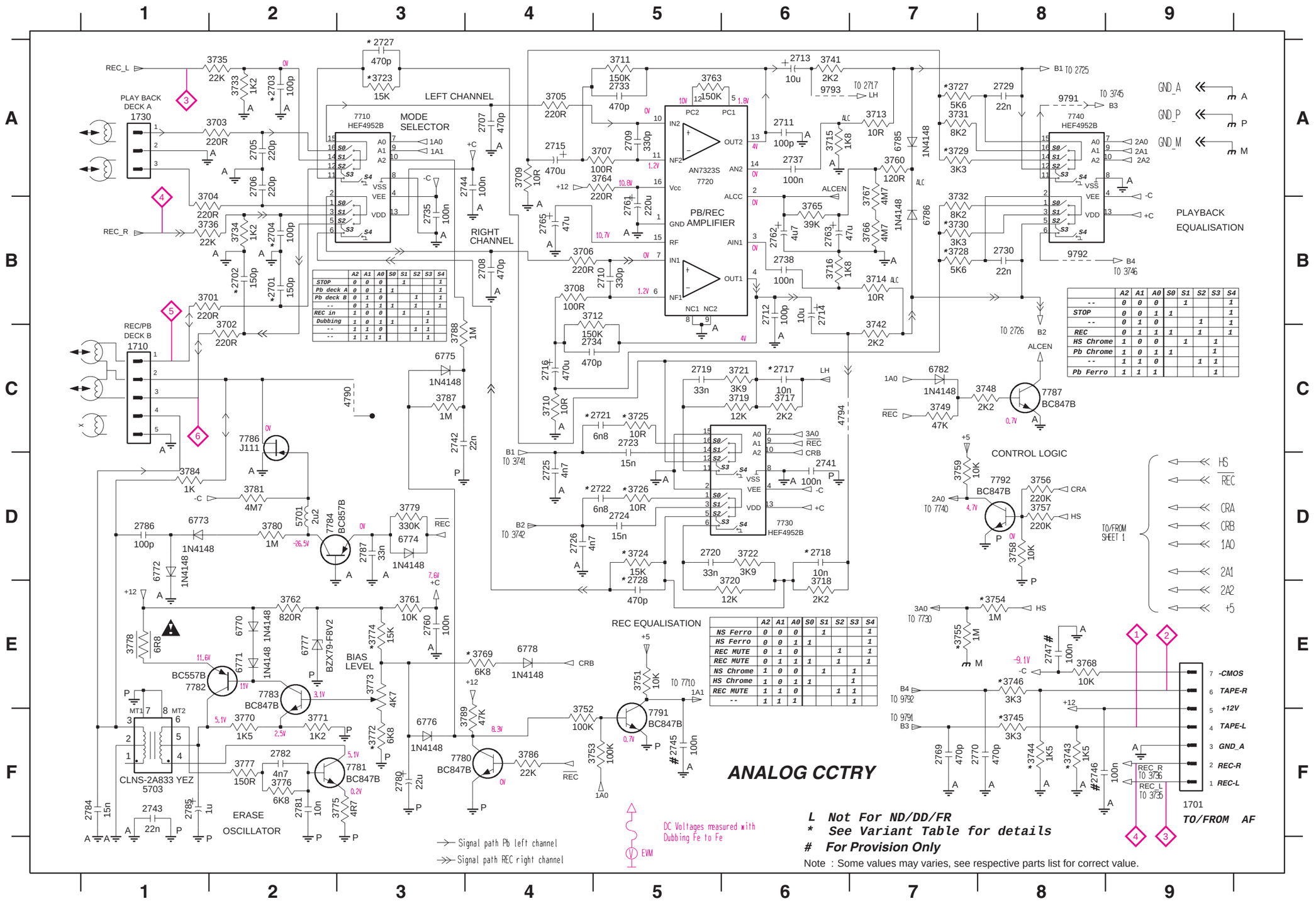
2621 A2	2724 B2	3602 A1	3688 A2	3725 A2	3757 A1	4701 A1	4727 B1	7612 A1
2622 A2	2725 A2	3603 A1	3689 A1	3726 B2	3758 A2	4702 A1	4728 B1	7613 A1
2623 A2	2726 B2	3604 A1	3701 B2	3727 A1	3759 A1	4703 A1	4729 B1	7614 A1
2624 A1	2727 B2	3605 A1	3702 B2	3728 B1	3760 B1	4704 A1	4730 B1	7616 A2
2625 A2	2728 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

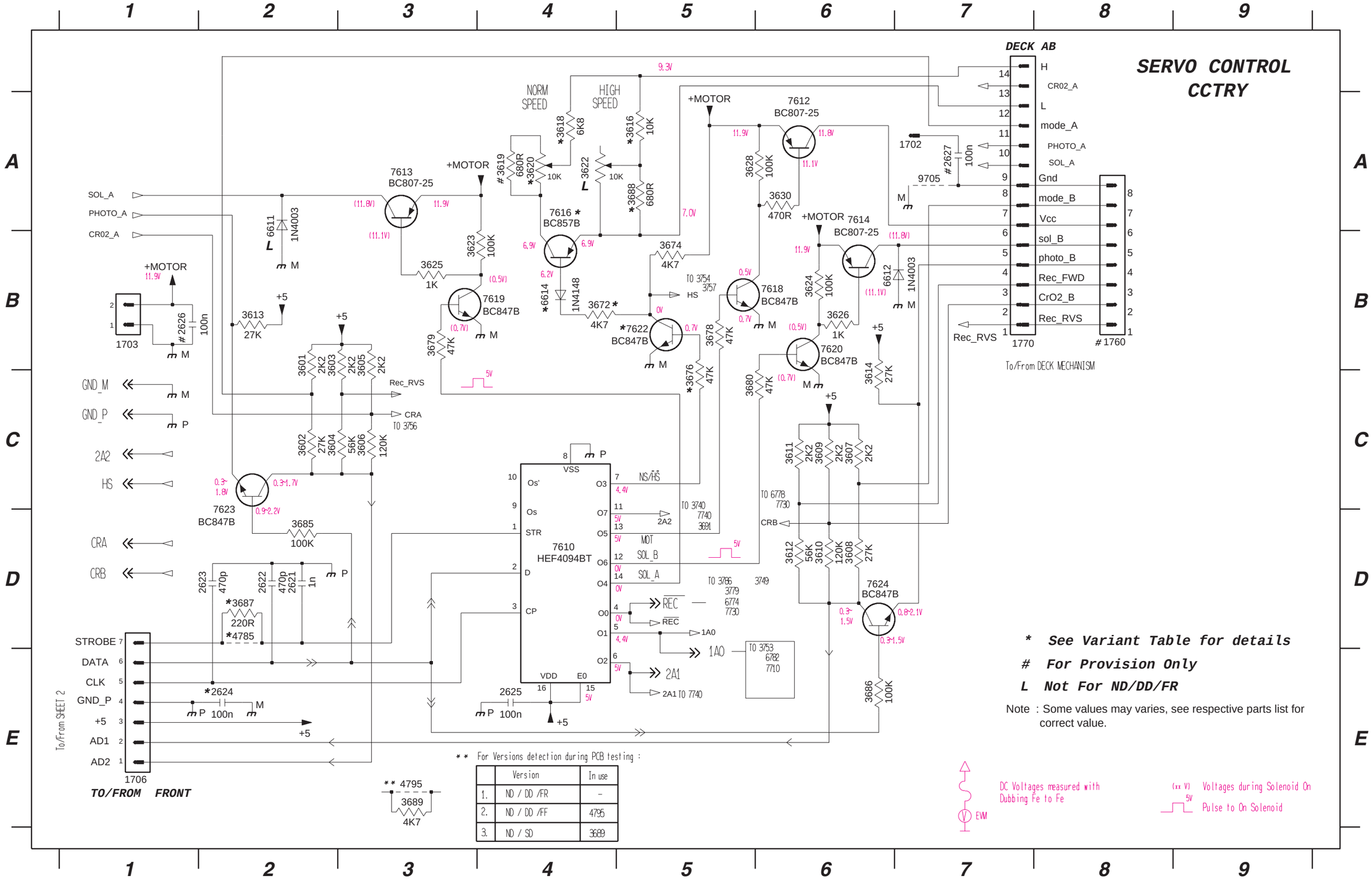
1701 F9	2705 A2	2712 B6	2719 C5	2726 D4	2735 B3	2745 F5	2765 B4	2785 F1	3705 A4	3712 B4	3719 C6	3726 D5	3733 A2	3744 F8	3753 F5	3760 A7	3767 A7	3774 E3	3781 D2	4794 C6	6774 D3	6786 B7	7782 E1	9791 A8
1710 C1	2706 A2	2713 A6	2720 D5	2727 A3	2737 A6	2746 F8	2769 F7	2786 D1	3706 B4	3713 A7	3720 E6	3727 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	

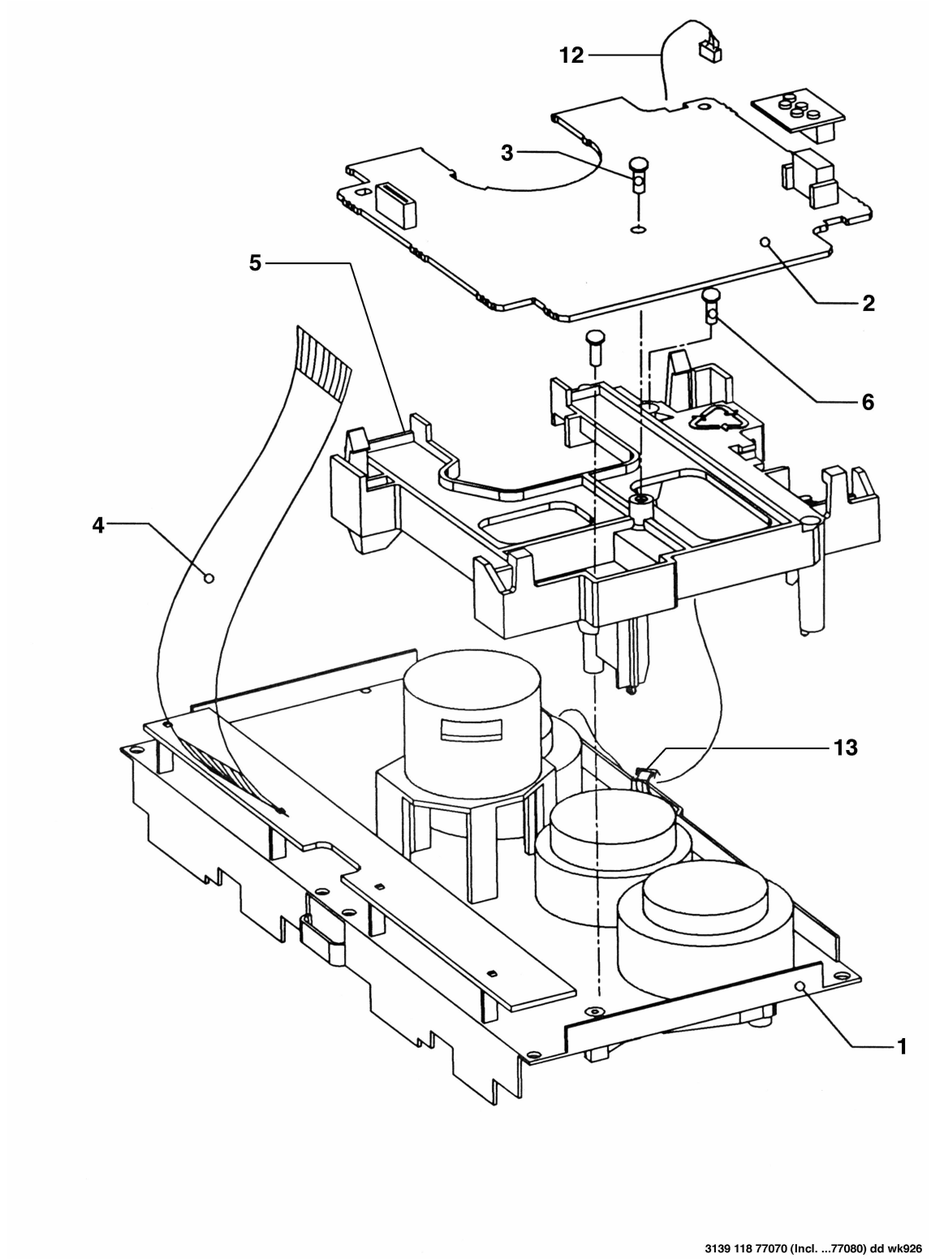


9-8

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 3602 C2 3605 B3 3608 D6 3611 C6 3614 C6 3617 A5 3620 A4 3623 B3 3626 B6 3672 B4 3674 B5 3679 B3 3685 E6 3688 A5 4795 E3 6611 A2 6614 B4 7610 D4 7614 A6 7618 B4 7622 B5 9705 A7
1706 E1 2621 D2 2624 E2 2627 A7 3603 B2 3606 C3 3609 C6 3612 D6 3616 A5 3619 A4 3624 B6 3628 A5 3674 B5 3679 B3 3686 E6 3689 E3 6611 A2 6615 D4 7612 A6 7615 A3 7618 B6 7623 B5





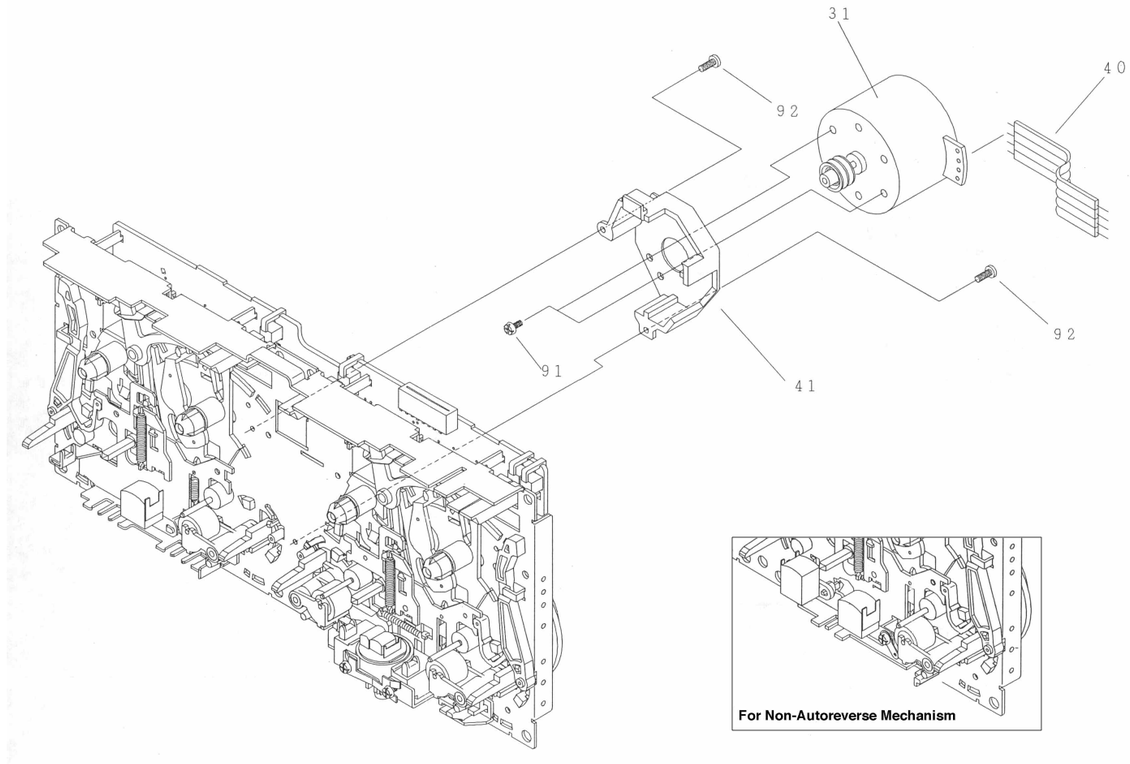
3139 118 77070 (Incl. ...77080) dd wk926

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.

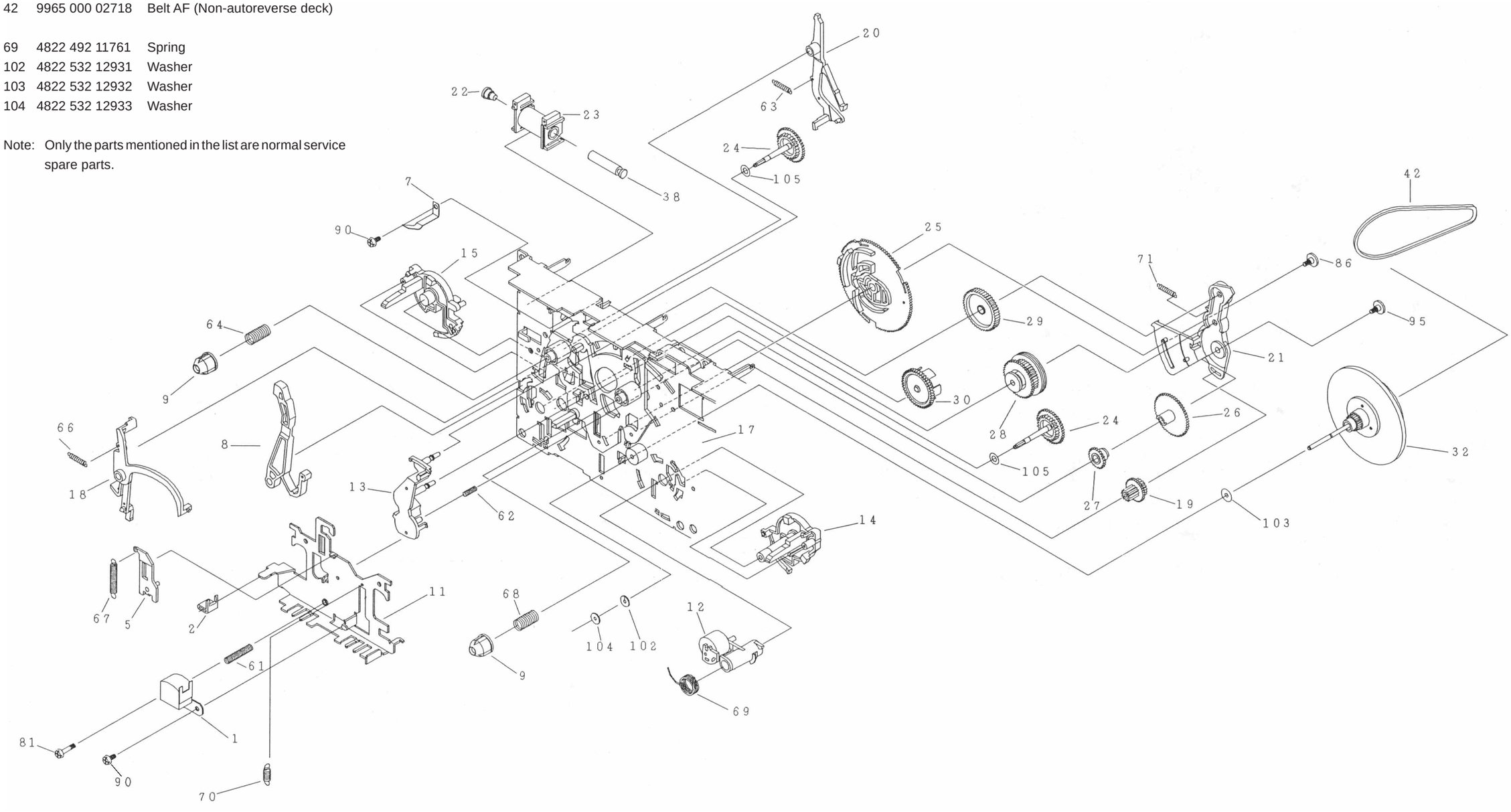
9-10

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.



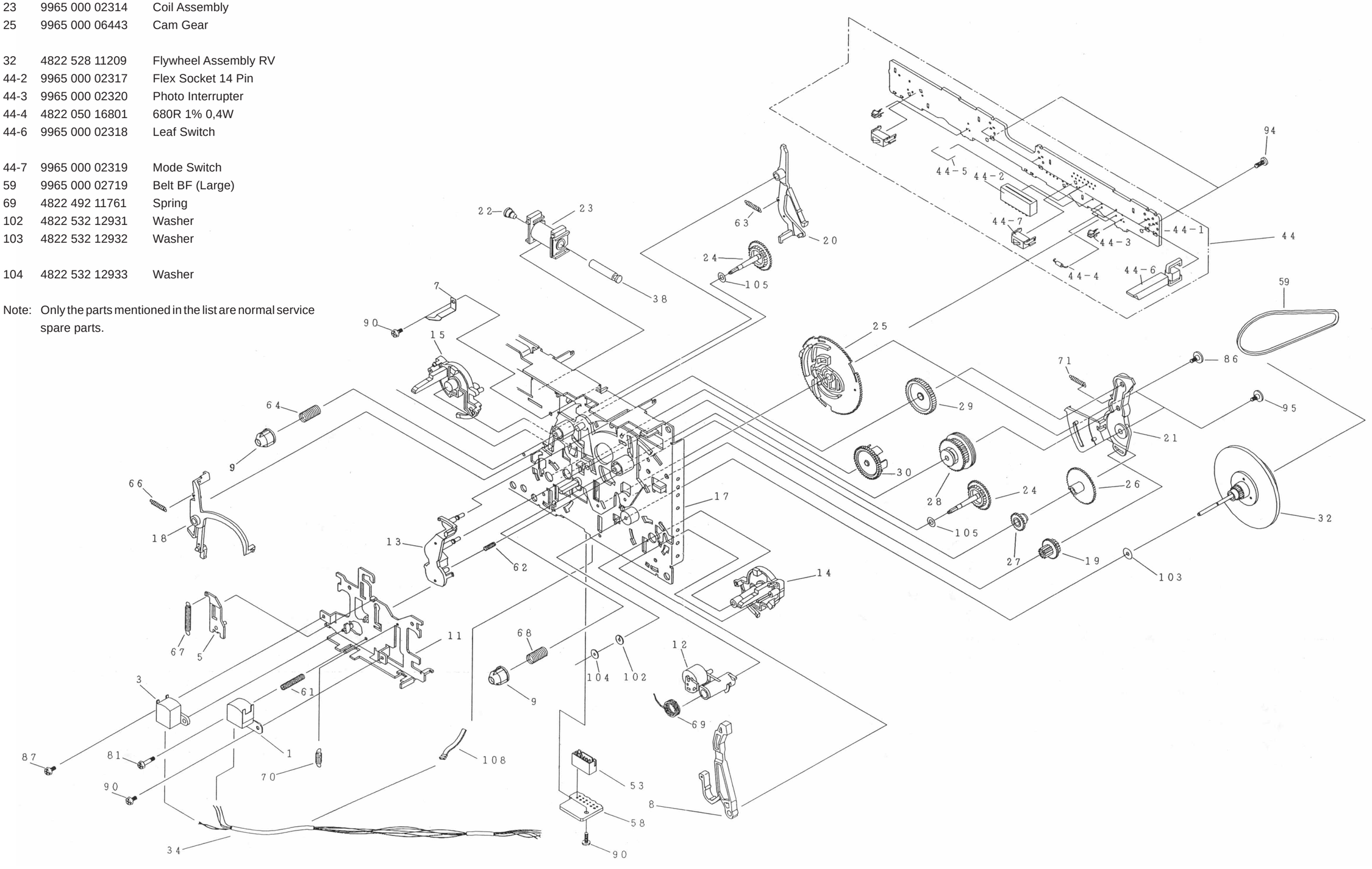
9-11

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.



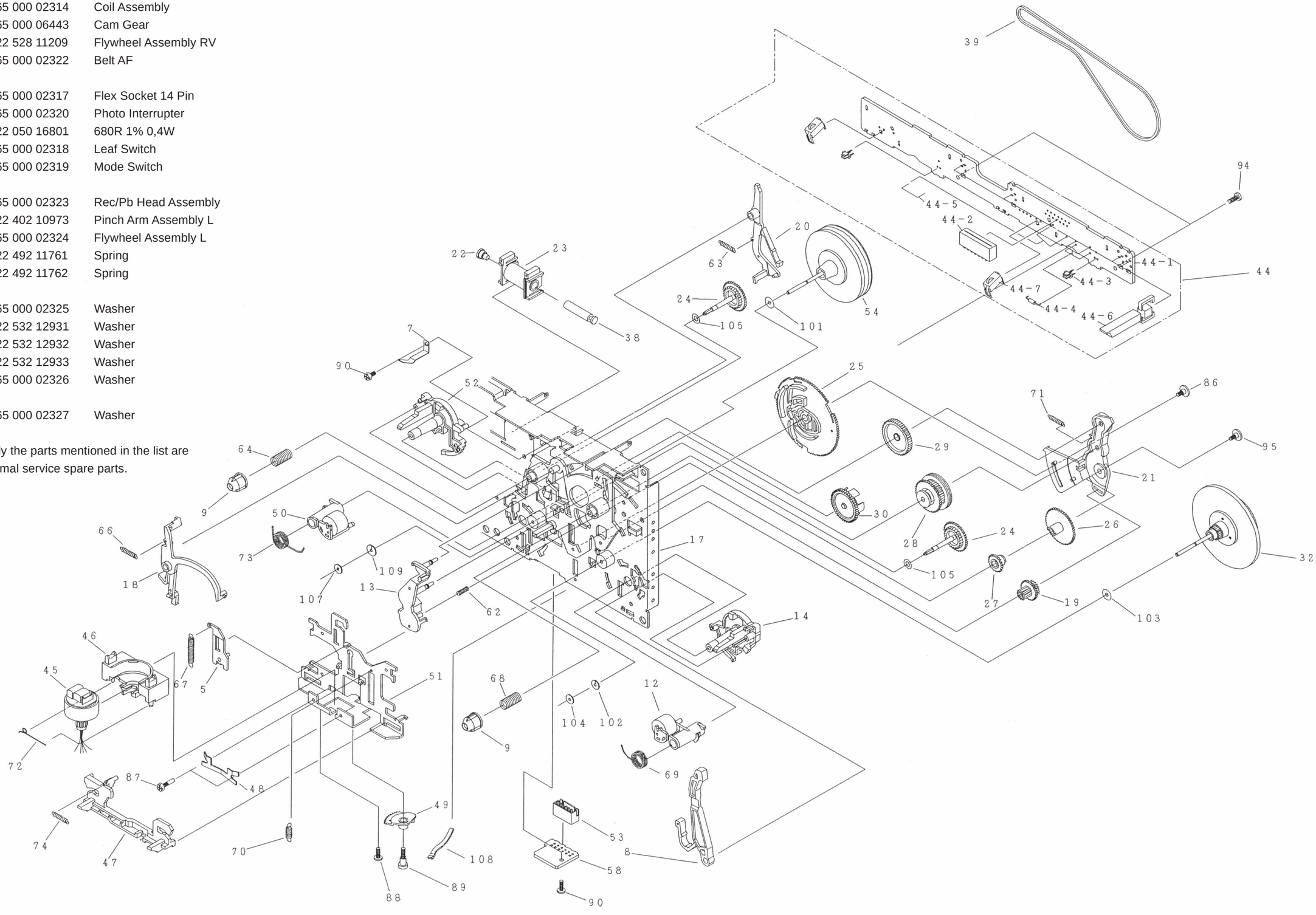
9-12

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

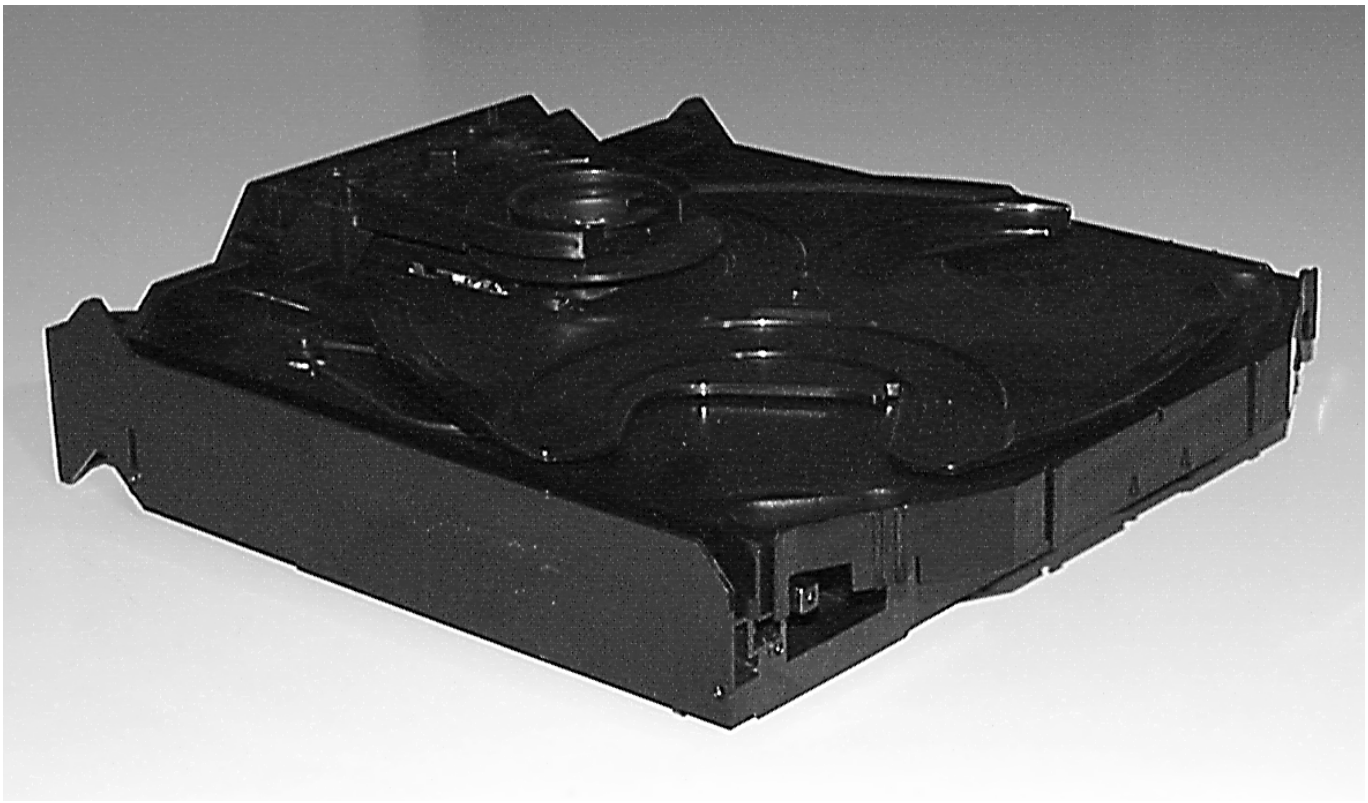
DIODES

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-MB-DA11 Module

(3 Disc Carousel Changer)

Layout stage .3

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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

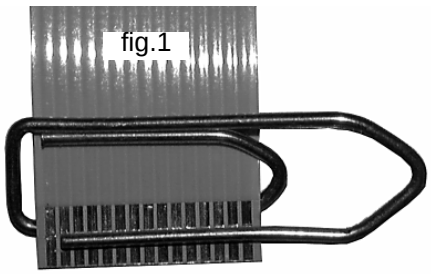
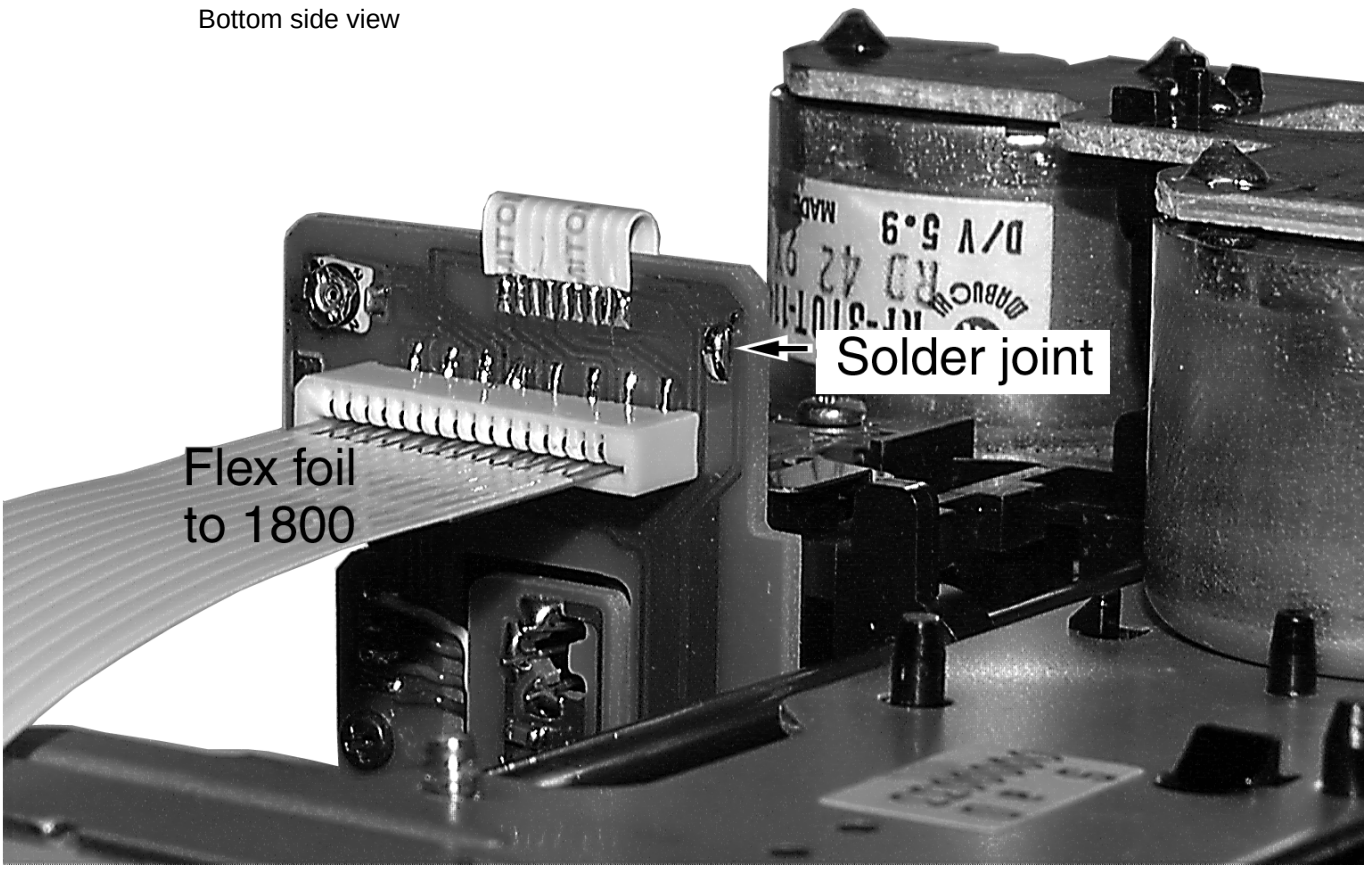


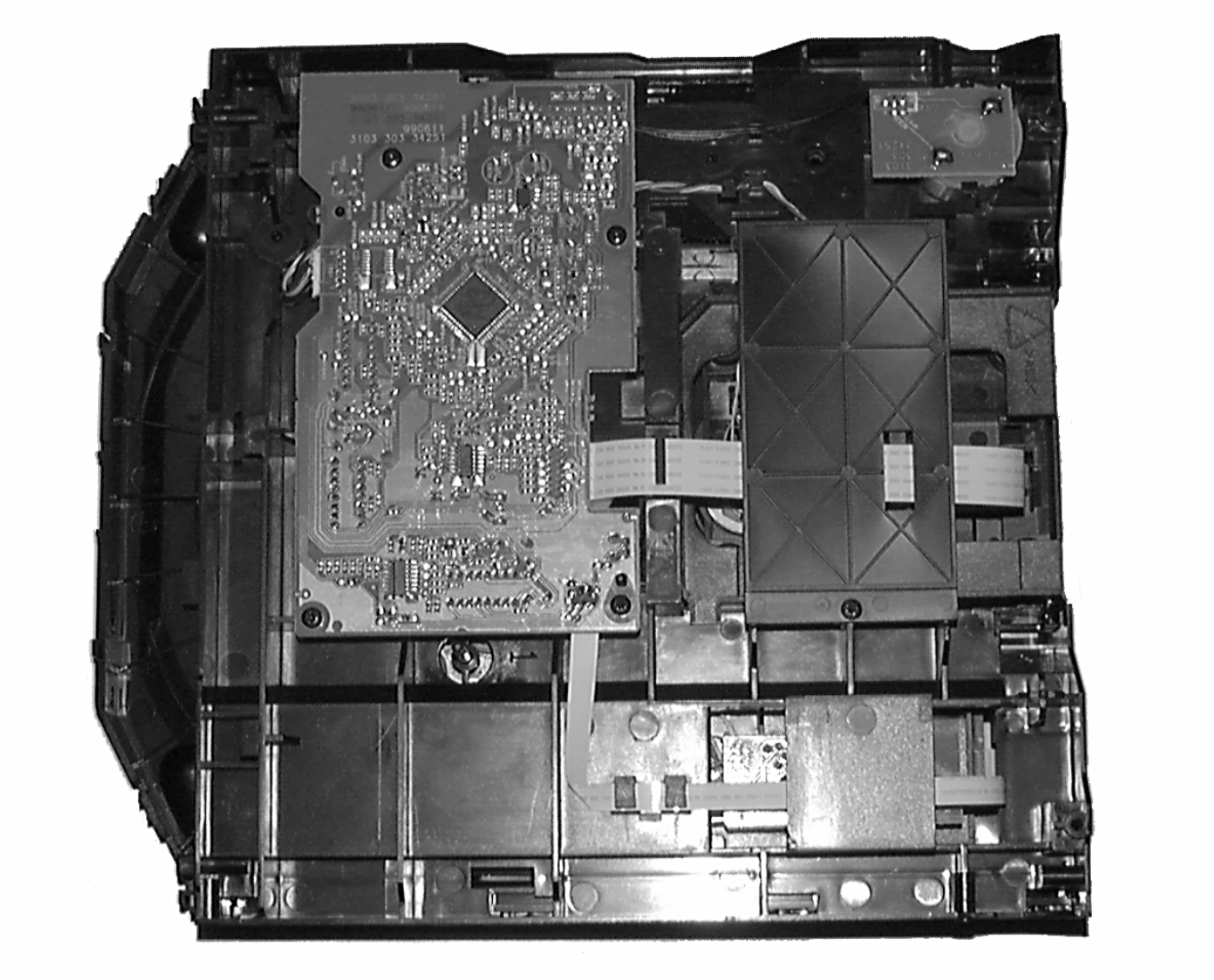
fig.1

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.

CD Drive
Bottom side view



Service Position



Technical Remarks

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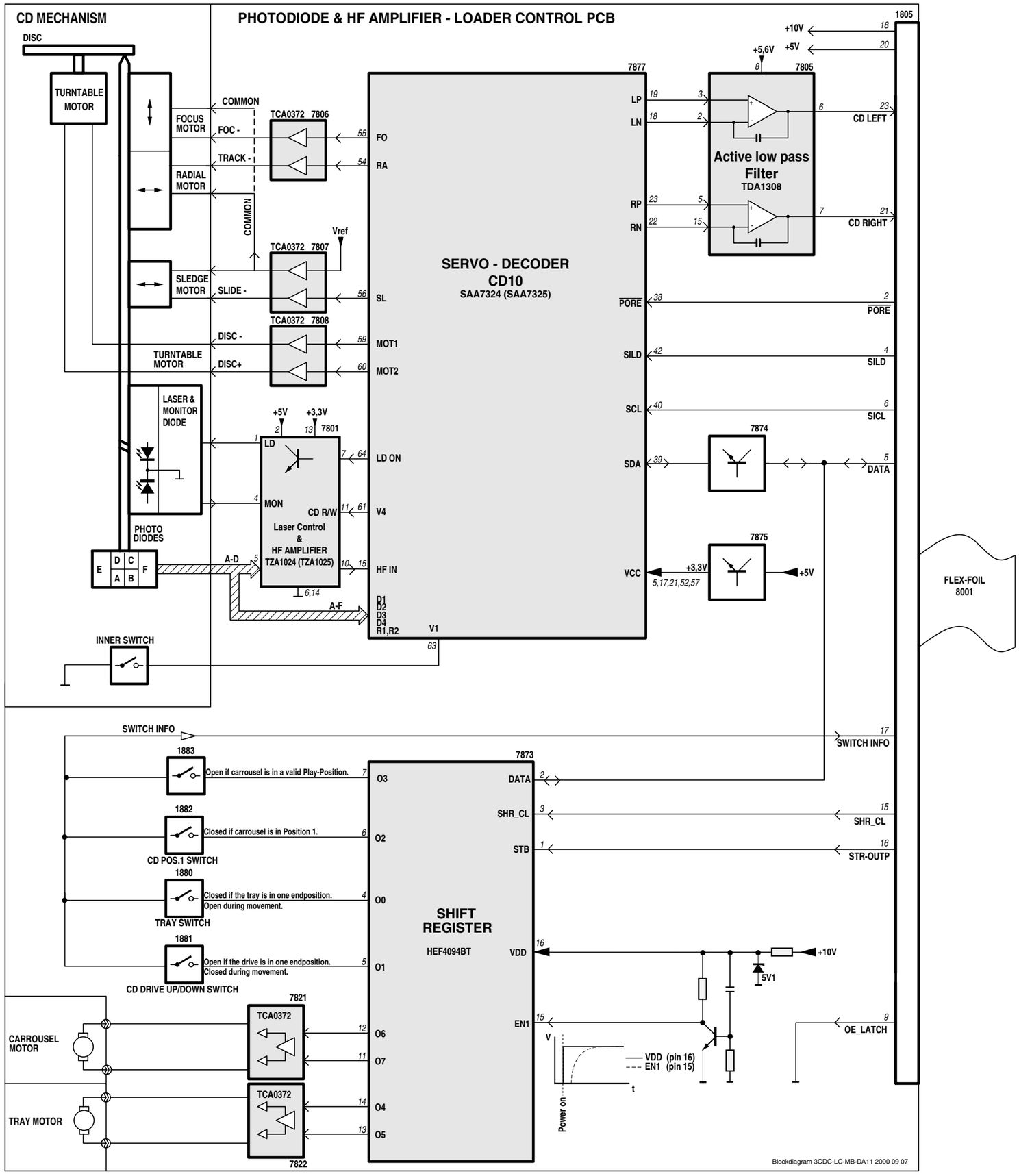
Blockdiagram



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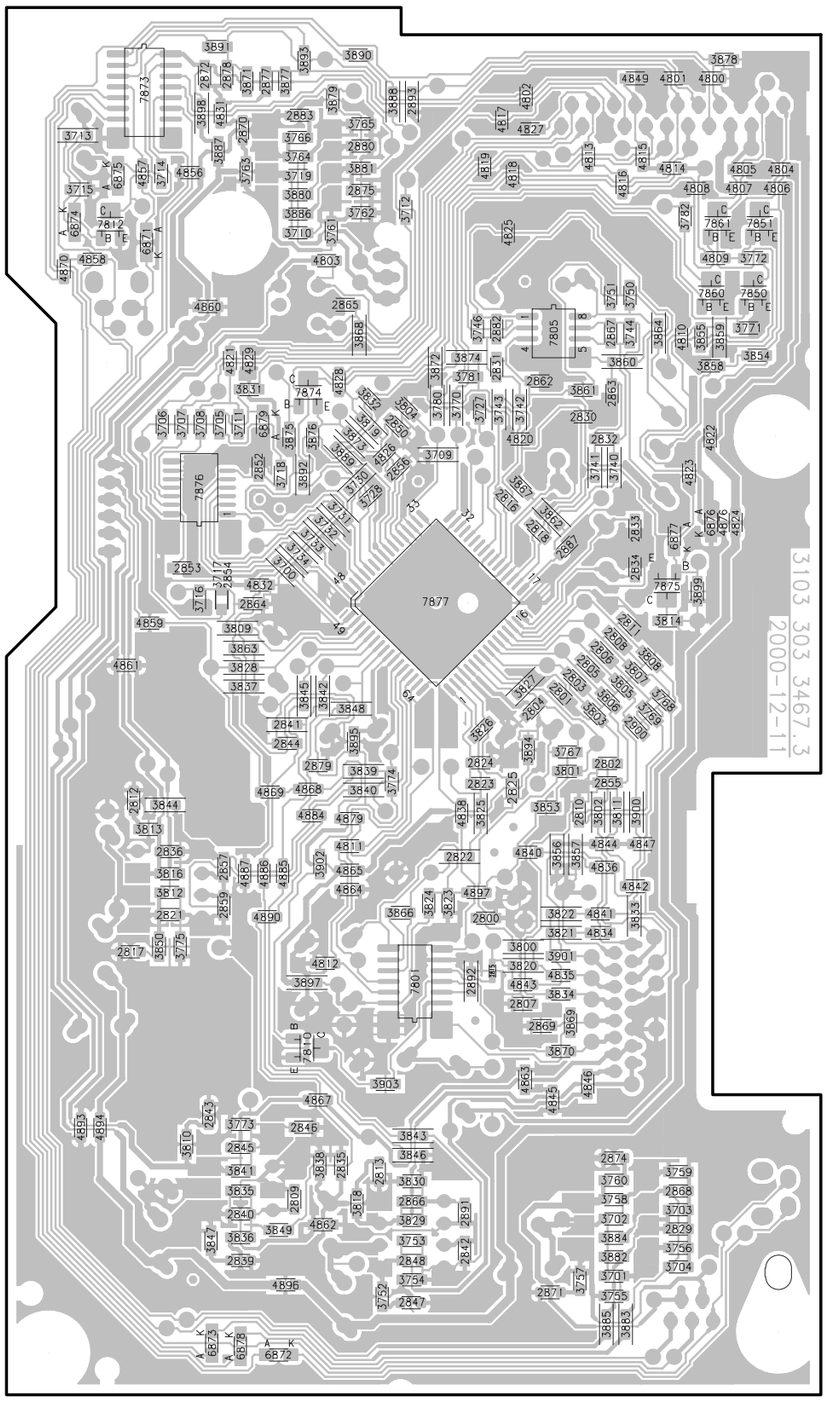
Mapping

3CDC-LC-MB Copperside view

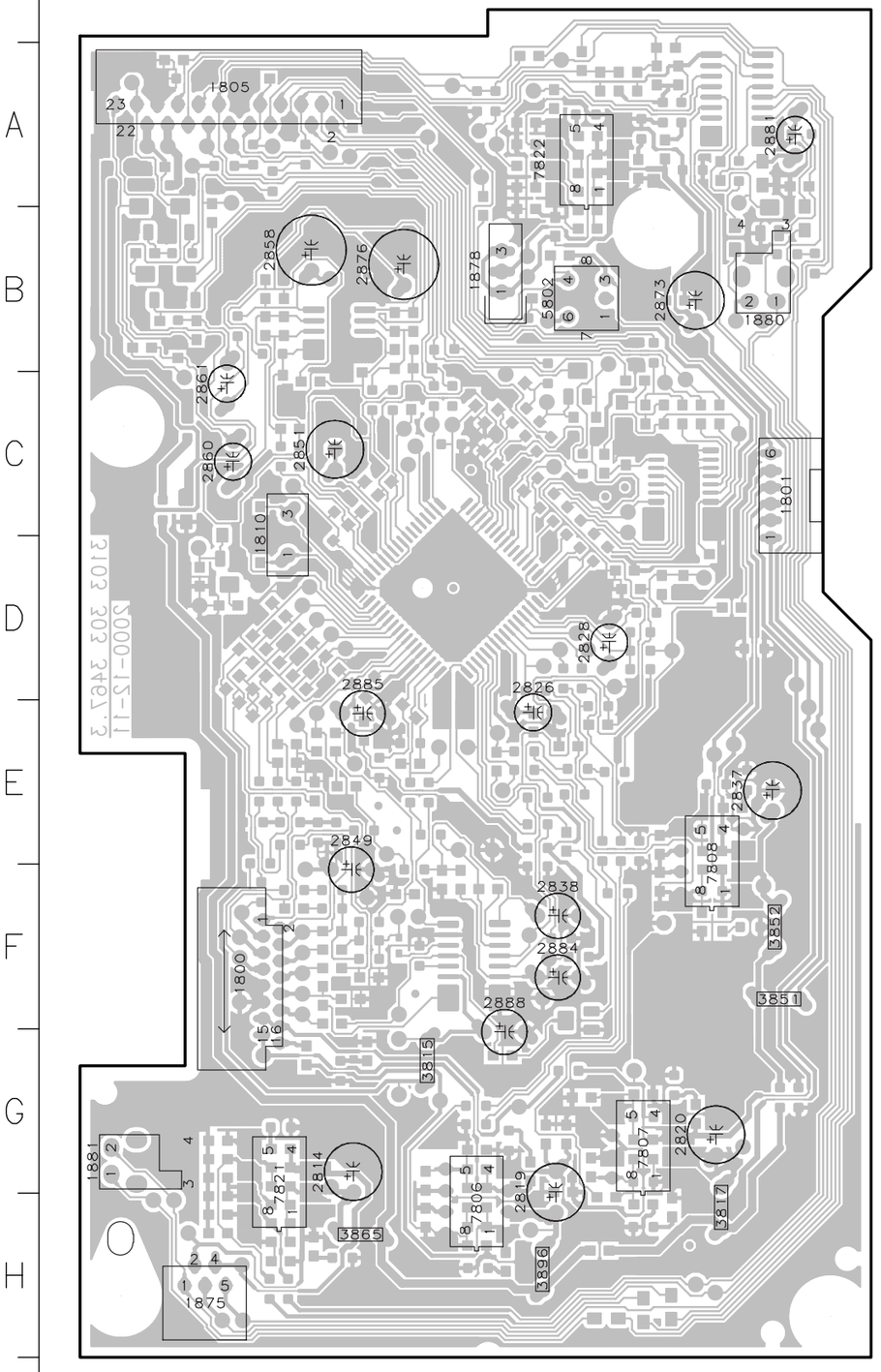


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

Copperside								Componentside	
2800	F3	3746	B3	3880	A2	7812	B1	1800	F2
2801	D4	3750	B4	3881	A3	7850	B5	1801	C5
2802	E4	3751	B4	3882	H4	7851	B5	1805	A2
2803	D4	3752	H3	3883	H4	7860	B5	1810	C2
2804	D4	3753	H3	3884	H4	7861	B5	1875	H1
2805	D4	3754	H3	3885	H4	7873	A1	1878	B3
2806	D4	3755	H4	3886	B2	7874	C2	1880	B5
2807	F4	3756	H4	3887	A2	7875	D4	1881	G1
2808	D4	3757	H4	3888	A3	7876	C2	2814	G2
2809	G2	3758	G4	3889	C2	7877	D3	2819	G3
2810	E4	3759	G4	3890	A3			2820	G4
2811	D4	3760	G4	3891	A2			2826	D3
2812	E1	3761	B2	3892	C2			2828	D4
2813	G3	3762	B3	3893	A2			2837	E5
2815	F3	3763	A2	3894	E4			2838	F4
2816	C3	3764	A2	3895	E3			2849	E2
2817	F1	3765	A3	3897	F2			2851	C2
2818	C4	3766	A2	3898	A2			2858	B2
2821	F1	3767	E4	3899	D5			2860	C1
2822	E3	3768	D4	3900	E4			2861	C1
2823	E3	3769	D4	3901	F4			2873	B4
2824	E3	3770	C3	3902	E2			2876	B2
2825	E3	3771	B5	3903	G3			2881	A5
2829	H4	3772	B5	4800	A5			2884	F4
2830	C4	3773	G2	4801	A4			2885	D2
2831	B3	3774	E3	4802	A4			2888	F3
2832	C4	3775	F2	4803	B2			3815	G3
2833	C4	3780	C3	4804	A5			3817	H5
2834	D4	3781	B3	4805	A5			3851	F5
2835	G2	3782	B5	4806	A5			3852	F5
2836	E1	3800	F4	4807	A5			3865	H2
2839	H2	3801	E4	4808	A5			3896	H3
2840	G2	3802	E4	4809	B5			5802	B4
2841	E2	3803	D4	4810	B4			7806	H3
2842	H3	3804	C3	4811	E3			7807	G4
2843	G2	3805	D4	4812	F2			7808	E5
2844	E2	3806	D4	4813	A4			7821	G2
2845	G2	3807	D4	4814	A4			7822	A3
2846	G2	3808	D4	4815	A4				
2847	H3	3809	D2	4816	A4				
2848	H3	3810	G2	4817	A3				
2850	C3	3811	E4	4818	A3				
2852	C2	3812	F1	4819	A3				
2853	D2	3813	E1	4820	C4				
2854	D2	3814	D4	4821	B2				
2855	E4	3816	E1	4822	C5				
2856	C3	3818	G3	4823	C5				
2857	E2	3819	C3	4824	C5				
2859	F2	3820	F4	4825	B3				
2862	C4	3821	F4	4826	C3				
2863	C4	3822	F4	4827	A4				
2864	D2	3823	F3	4828	C2				
2865	B3	3824	F3	4829	B2				
2866	G3	3825	E3	4831	A2				
2867	B4	3826	E3	4832	D2				
2868	G4	3827	D4	4834	F4				
2869	F4	3828	D2	4835	F4				
2870	A2	3829	G3	4836	E4				
2871	H4	3830	G3	4838	E3				
2872	A2	3831	C2	4840	E4				
2874	G4	3832	C3	4841	F4				
2875	A3	3833	F4	4842	E4				
2877	A2	3834	F4	4843	F4				
2878	A2	3835	G2	4844	E4				
2879	E2	3836	H2	4845	G4				
2880	A3	3837	D2	4846	G4				
2882	B3	3838	G2	4847	E4				
2883	A2	3839	E3	4849	A4				
2887	C4	3840	E3	4856	A2				
2891	G3	3841	G2	4857	A1				
2892	F3	3842	D2	4858	B1				
2893	A3	3843	G3	4859	D1				
2900	E4	3844	E1	4860	B2				
3700	D2	3845	D2	4861	D1				
3701	H4	3846	G3	4862	G2				
3702	G4	3847	H2	4863	G4				
3703	G4	3848	D3	4864	F3				
3704	H4	3849	H2	4865	E3				
3705	C2	3850	F1	4867	G2				
3706	C1	3853	E4	4868	E2				
3707	C2	3854	B5	4869	E2				
3708	C2	3855	B5	4870	B1				
3709	C3	3856	E4	4876	C5				
3710	B2	3857	E4	4879	E3				
3711	C2	3858	B5	4884	E2				
3712	A3	3859	B5	4885	E2				
3713	A1	3860	B4	4886	E2				
3714	A1	3861	C4	4887	E2				
3715	A1	3862	C4	4890	F2				
3716	D2	3863	D2	4893	G1				
3717	D2	3864	B4	4894	G1				
3718	C2	3866	F3	4896	H2				
3719	A2	3867	C4	4897	F3				
3727	C3	3868	B3	6871	B1				
3728	C3	3869	F4	6872	H2				
3730	C3	3870	F4	6873	H2				
3731	C2	3871	A2	6874	B1				
3732	C2	3872	B3	6875	A1				
3733	C2	3873	C3	6876	C5				
3734	D2	3874	B3	6877	C4				
3740	C4	3875	C2	6878	H2				
3741	C4	3876	C2	6879	C2				
3742	C4	3877	A2	7801	F3				
3743	C3	3878	A5	7805	B4				
3744	B4	3879	A2	7810	F2				

3CDC-LC-MB Componentside view



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

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

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3CDC-LC-MB-DA11

part 1

CD Drive DA11T3C

Laser power control / HF-Amplifier

7801 TZA1024 / TZA1025

Signal Processor

7877 SAA7324 / SAA7325

to part 2 7805

from part 2

to part 2 3770, 3780

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

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

to dig. out circuitry on part 2

FOCUS

TRACK

SLIDE

DISC MOTOR 1

DISC MOTOR 2

EYE-PATTERN

800mVpp

TB = 0,5µs/div

Focus search Service step 2

± 2V

1s

ESD sensitive lines!

U >400mV ->Laser damaged !

for CD_DA : 0V
for CD_RW : 0,7V
For provision only

for CD_DA : 0V
for CD_RW : 3V
0V

only for digital out versions (in combination with Quartz)

for basic version

for Coax out versions

33R for digital out version

11,3 MHz
for CD TEXT only

Innersw from 1801

Innersw to 7877/63

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

#.... for provision only

3CDC LC-MB-DA11 sh1, 2000-01-11

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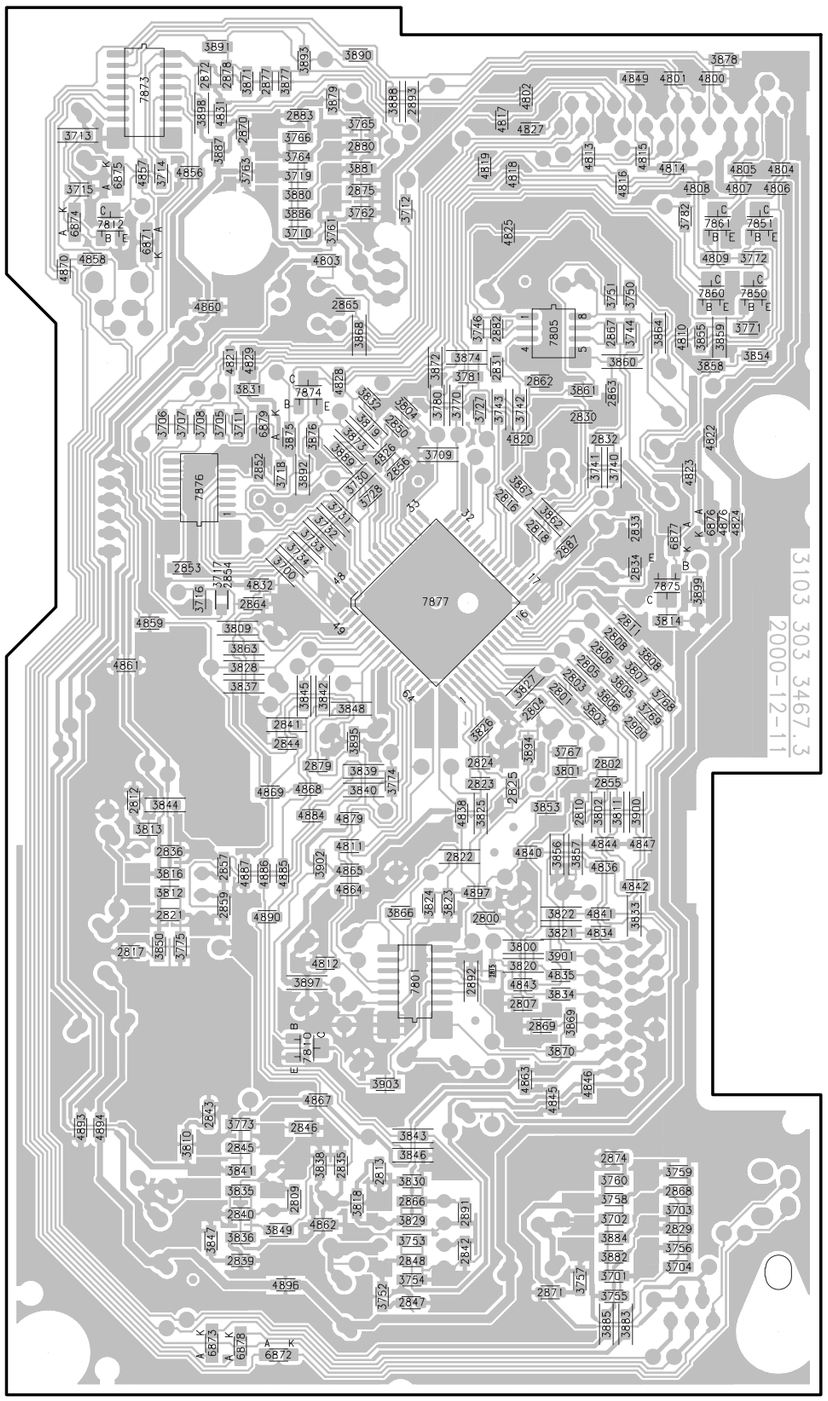
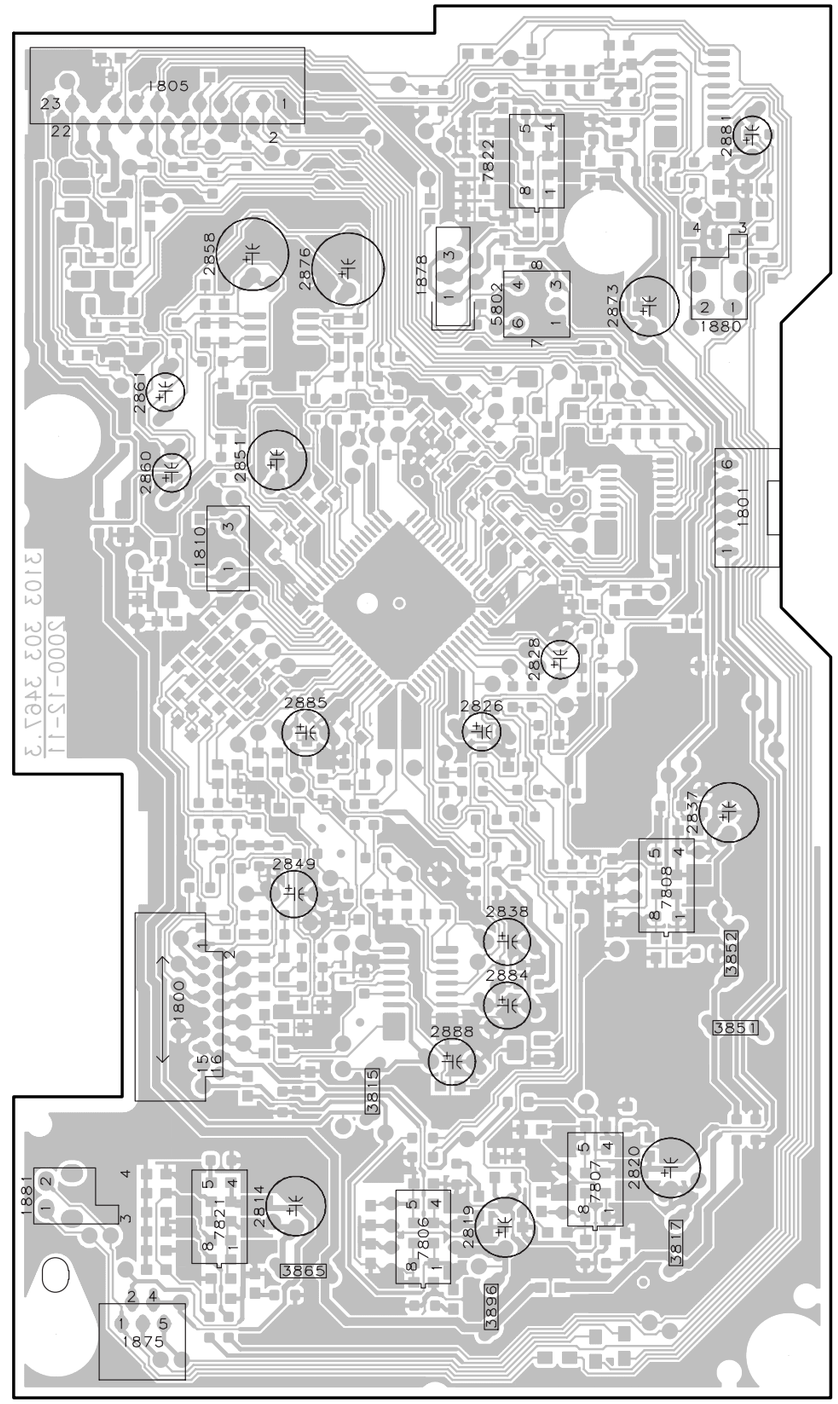
3CDC-LC-MB Copperside view



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-DA11 Layout stage .3 2001-01-11

3CDC-LC-MB Componentside view



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

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

Mapping

Copperside								Componentside	
2800	F3	3746	B3	3880	A2	7812	B1	1800	F2
2801	D4	3750	B4	3881	A3	7850	B5	1801	C5
2802	E4	3751	B4	3882	H4	7851	B5	1805	A2
2803	D4	3752	H3	3883	H4	7860	B5	1810	C2
2804	D4	3753	H3	3884	H4	7861	B5	1875	H1
2805	D4	3754	H3	3885	H4	7873	A1	1878	B3
2806	D4	3755	H4	3886	B2	7874	C2	1880	B5
2807	F4	3756	H4	3887	A2	7875	D4	1881	G1
2808	D4	3757	H4	3888	A3	7876	C2	2814	G2
2809	G2	3758	G4	3889	C2	7877	D3	2819	G3
2810	E4	3759	G4	3890	A3			2820	G4
2811	D4	3760	G4	3891	A2			2826	D3
2812	E1	3761	B2	3892	C2			2828	D4
2813	G3	3762	B3	3893	A2			2837	E5
2815	F3	3763	A2	3894	E4			2838	F4
2816	C3	3764	A2	3895	E3			2849	E2
2817	F1	3765	A3	3897	F2			2851	C2
2818	C4	3766	A2	3898	A2			2858	B2
2821	F1	3767	E4	3899	D5			2860	C1
2822	E3	3768	D4	3900	E4			2861	C1
2823	E3	3769	D4	3901	F4			2873	B4
2824	E3	3770	C3	3902	E2			2876	B2
2825	E3	3771	B5	3903	G3			2881	A5
2829	H4	3772	B5	4800	A5			2884	F4
2830	C4	3773	G2	4801	A4			2885	D2
2831	B3	3774	E3	4802	A4			2888	F3
2832	C4	3775	F2	4803	B2			3815	G3
2833	C4	3780	C3	4804	A5			3817	H5
2834	D4	3781	B3	4805	A5			3851	F5
2835	G2	3782	B5	4806	A5			3852	F5
2836	E1	3800	F4	4807	A5			3865	H2
2839	H2	3801	E4	4808	A5			3896	H3
2840	G2	3802	E4	4809	B5			5802	B4
2841	E2	3803	D4	4810	B4			7806	H3
2842	H3	3804	C3	4811	E3			7807	G4
2843	G2	3805	D4	4812	F2			7808	E5
2844	E2	3806	D4	4813	A4			7821	G2
2845	G2	3807	D4	4814	A4			7822	A3
2846	G2	3808	D4	4815	A4				
2847	H3	3809	D2	4816	A4				
2848	H3	3810	G2	4817	A3				
2850	C3	3811	E4	4818	A3				
2852	C2	3812	F1	4819	A3				
2853	D2	3813	E1	4820	C4				
2854	D2	3814	D4	4821	B2				
2855	E4	3816	E1	4822	C5				
2856	C3	3818	G3	4823	C5				
2857	E2	3819	C3	4824	C5				
2859	F2	3820	F4	4825	B3				
2862	C4	3821	F4	4826	C3				
2863	C4	3822	F4	4827	A4				
2864	D2	3823	F3	4828	C2				
2865	B3	3824	F3	4829	B2				
2866	G3	3825	E3	4831	A2				
2867	B4	3826	E3	4832	D2				
2868	G4	3827	D4	4834	F4				
2869	F4	3828	D2	4835	F4				
2870	A2	3829	G3	4836	E4				
2871	H4	3830	G3	4838	E3				
2872	A2	3831	C2	4840	E4				
2874	G4	3832	C3	4841	F4				
2875	A3	3833	F4	4842	E4				
2877	A2	3834	F4	4843	F4				
2878	A2	3835	G2	4844	E4				
2879	E2	3836	H2	4845	G4				
2880	A3	3837	D2	4846	G4				
2882	B3	3838	G2	4847	E4				
2883	A2	3839	E3	4849	A4				
2887	C4	3840	E3	4856	A2				
2891	G3	3841	G2	4857	A1				
2892	F3	3842	D2	4858	B1				
2893	A3	3843	G3	4859	D1				
2900	E4	3844	E1	4860	B2				
3700	D2	3845	D2	4861	D1				
3701	H4	3846	G3	4862	G2				
3702	G4	3847	H2	4863	G4				
3703	G4	3848	D3	4864	F3				
3704	H4	3849	H2	4865	E3				
3705	C2	3850	F1	4867	G2				
3706	C1	3853	E4	4868	E2				
3707	C2	3854	B5	4869	E2				
3708	C2	3855	B5	4870	B1				
3709	C3	3856	E4	4876	C5				
3710	B2	3857	E4	4879	E3				
3711	C2	3858	B5	4884	E2				
3712	A3	3859	B5	4885	E2				
3713	A1	3860	B4	4886	E2				
3714	A1	3861	C4	4887	E2				
3715	A1	3862	C4	4890	F2				
3716	D2	3863	D2	4893	G1				
3717	D2	3864	B4	4894	G1				
3718	C2	3866	F3	4896	H2				
3719	A2	3867	C4	4897	F3				
3727	C3	3868	B3	6871	B1				
3728	C3	3869	F4	6872	H2				
3730	C3	3870	F4	6873	H2				
3731	C2	3871	A2	6874	B1				
3732	C2	3872	B3	6875	A1				
3733	C2	3873	C3	6876	C5				
3734	D2	3874	B3	6877	C4				
3740	C4	3875	C2	6878	H2				
3741	C4	3876	C2	6879	C2				
3742	C4	3877	A2	7801	F3				
3743	C3	3878	A5	7805	B4				
3744	B4	3879	A2	7810	F2				

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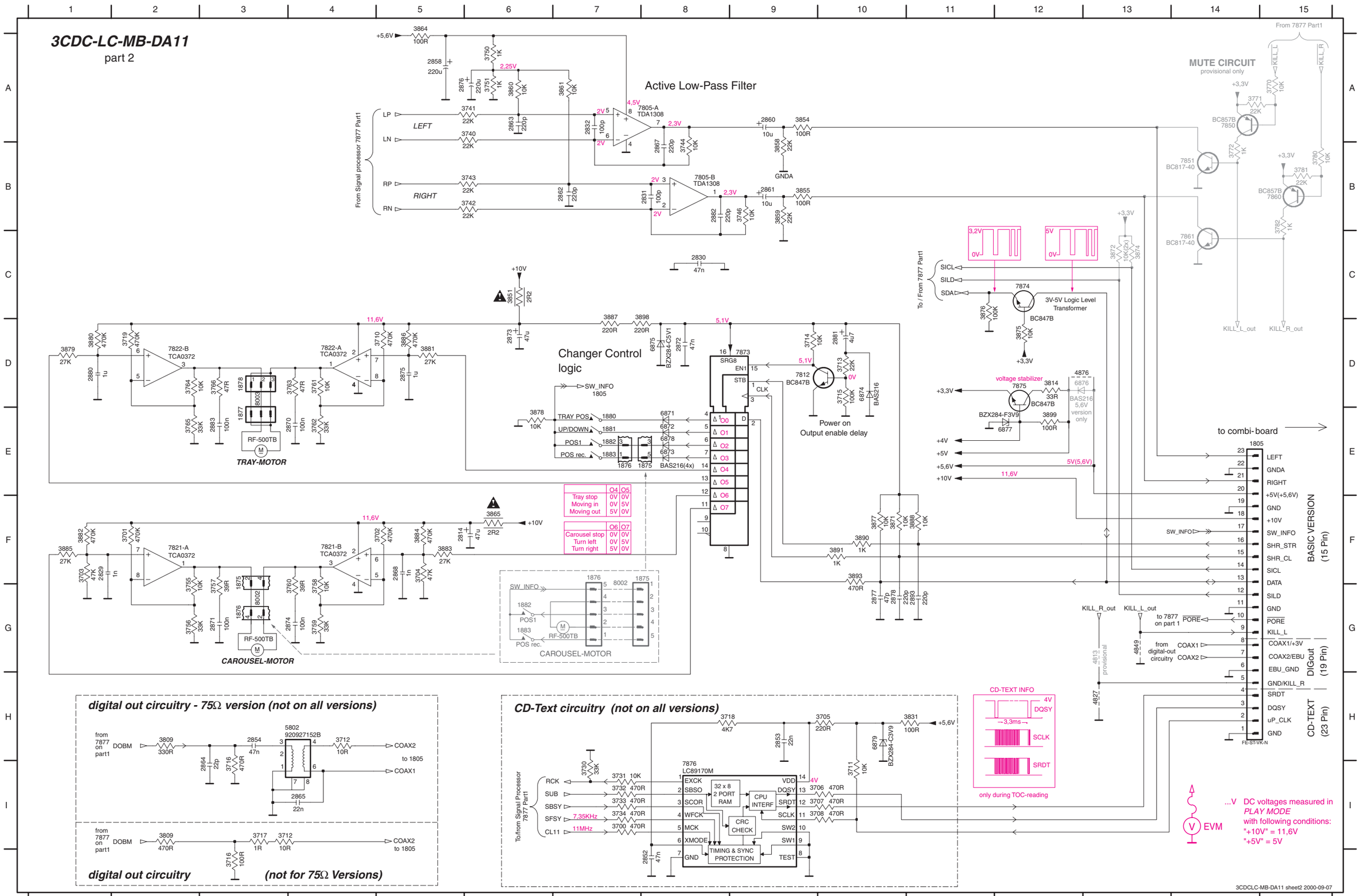
1805	E14	1880	E7	2831	B8	2861	B9	2870	E4	2877	G10	3372	C13	3705	H10	3713	D10	3730	I7	3743	B6	3757	G3	3764	D2	3781	B15	3855	B9	3871	F10	3881	D5	3888	F11	4827	H13	6874	D10	7805-B	B8	7851	B14
1850	G3	1881	E7	2832	A7	2862	B7	2871	G3	2878	G10	3374	C13	3706	I10	3714	D9	3732	I7	3744	B8	3758	G4	3765	E2	3782	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	F5	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



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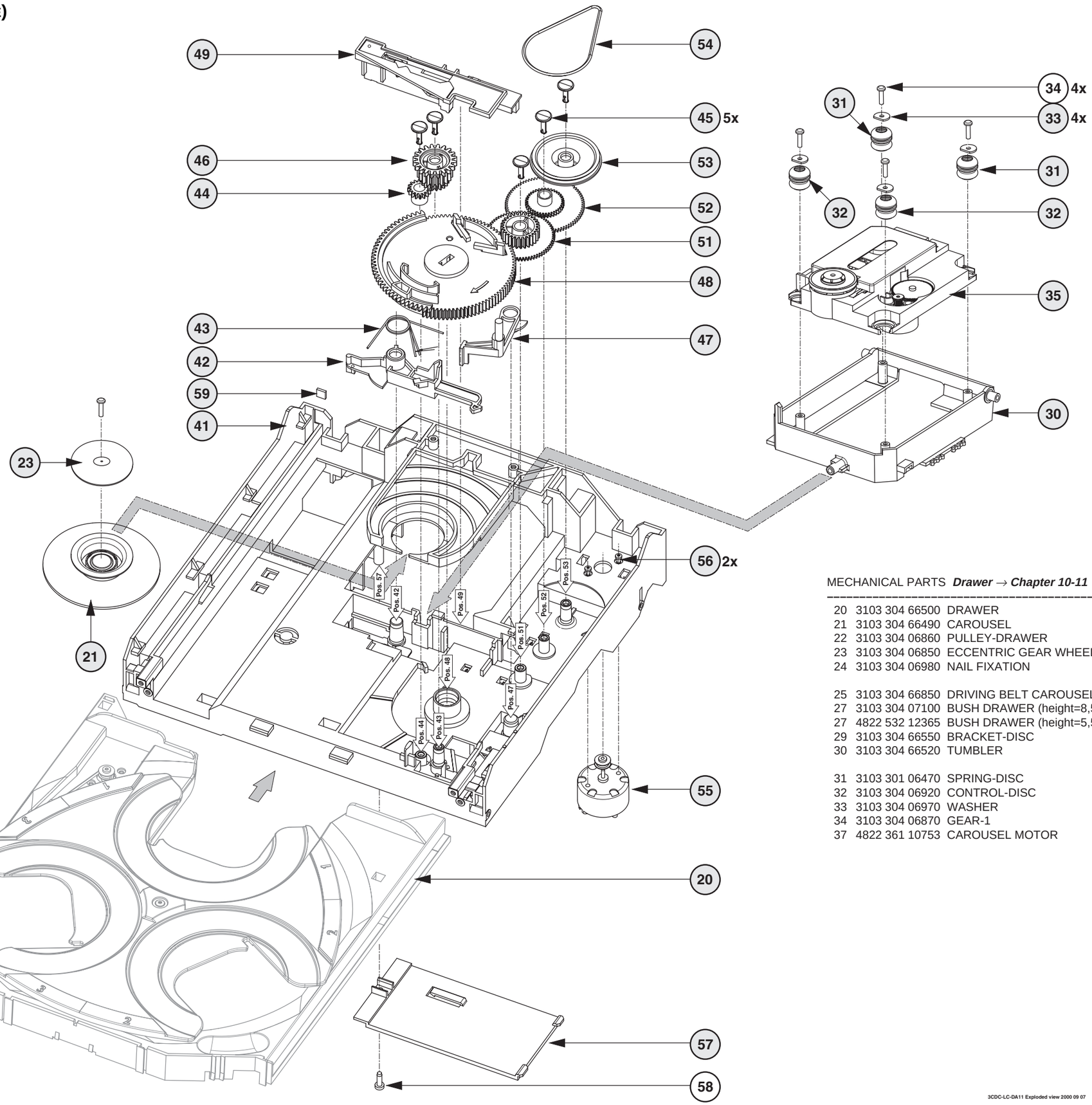
EXPLODED VIEW (3CDC-LC-DA11 MODULE)

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

20	3103 304 66500	DRAWER
21	3140 114 29070	PRESSURE RING-DA11
23	3140 111 21270	METAL RING-DA11
30	3103 304 66560	SUPPORT
31	4822 529 10386	DAMPER - RUBBER (Rear)
32	4822 529 10387	DAMPER - RUBBER (Front)
33	3103 304 06970	WASHER
35	3103 309 05310	CD DRIVE DA11T3C
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 69880	COVER-DA11
59	4822 466 12146	RUBBER



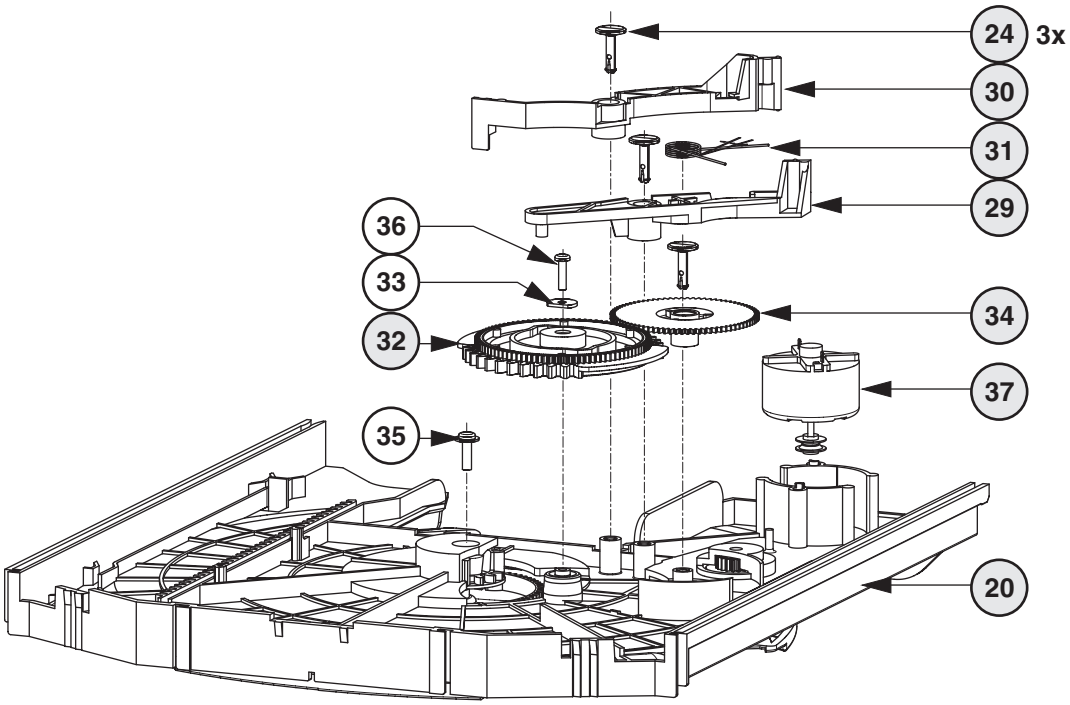
MECHANICAL PARTS ***Drawer*** → ***Chapter 10-11***

20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
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
33	3103 304 06970	WASHER
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

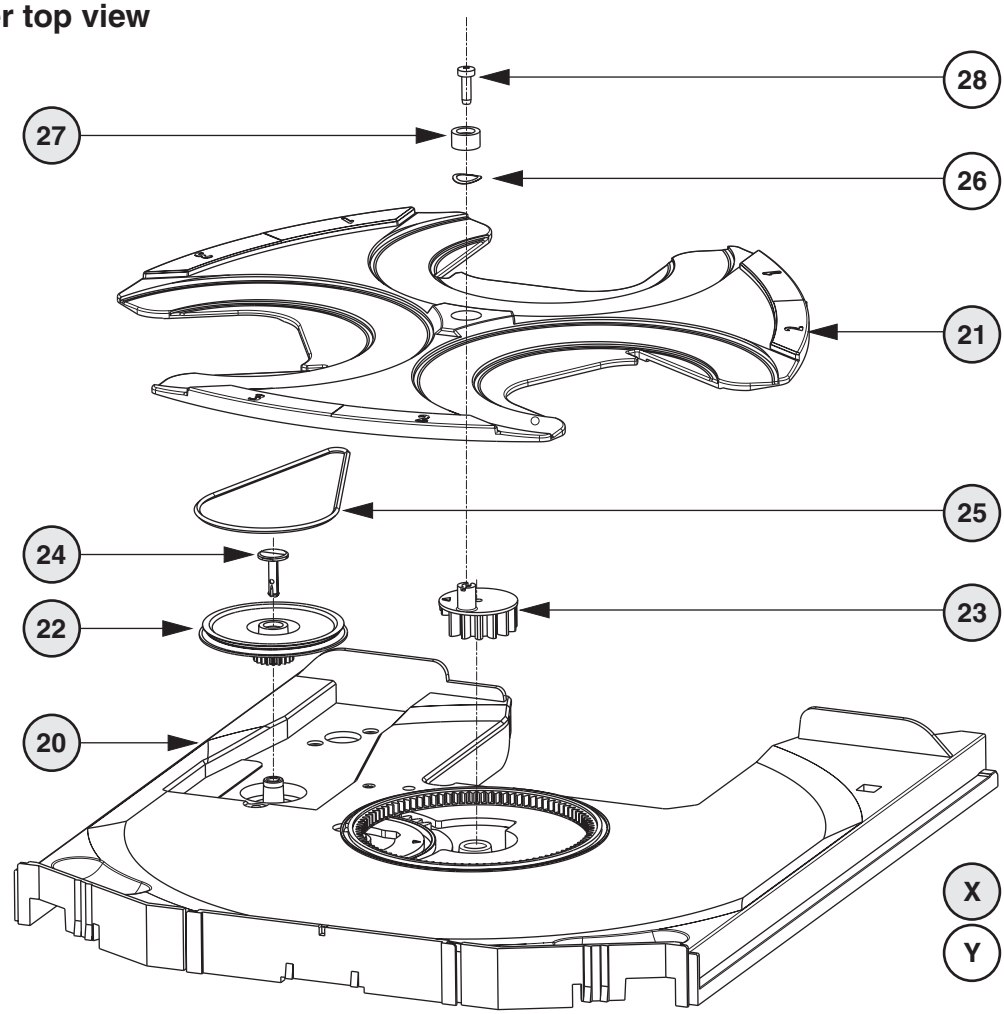
(X) spare part

(Y) non spare part

Drawer bottom view



Drawer top view



3CDC-LC Drawer assy 1999 09 13

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

MISCELLANEOUS

37	4822 361 10753	CARROUSEL MOTOR
55	4822 361 10753	CARROUSEL MOTOR
1800	2422 025 12133	FLEX FOIL CONNECTOR 16PIN
1805	4822 265 10979	FLEX FOIL CONNECTOR 15PIN
1805	4822 265 11545	FLEX FOIL CONNECTOR 19PIN
1875	4822 267 10958	FLEX FOIL CONNECTOR 5P
1876	2422 025 08332	FLEX FOIL CONNECTOR 5P
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 recogiced
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 92620	FLEX FOIL CABLE 16P, 170mm
8005	3103 308 91980	FLEX FOIL CABLE 15P, 170mm

CAPACITORS

2800 ©	4822 126 14508	180pF	5%	50V
2801 ©	4822 126 13883	220pF	5%	50V
2802 ©	4822 126 14508	180pF	5%	50V
2803 ©	4822 126 13883	220pF	5%	50V
2804 ©	3198 024 44730	47nF	5%	50V
2805 ©	4822 126 13883	220pF	5%	50V
2806 ©	4822 126 13883	220pF	5%	50V
2807 ©	4822 126 14508	180pF	5%	50V
2808 ©	4822 126 13883	220pF	5%	50V
2809 ©	4822 126 13883	220pF	5%	50V
2810 ©	4822 122 31765	100pF	5%	50V
2811 ©	4822 126 13883	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 13879	220nF	20%	16V
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 14225	56pF	5%	50V
2824 ©	4822 126 13751	47nF	10%	50V
2825 ©	5322 126 11583	10nF	10%	63V
2826	4822 124 12362	47µF	20%	4V
2828	4822 124 12362	47µF	20%	4V
2829 ©	5322 126 11578	1nF	10%	63V
2830 ©	4822 126 13751	47nF	10%	50V
2831 ©	4822 122 31765	100pF	5%	50V
2832 ©	4822 122 31765	100pF	5%	50V
2833 ©	4822 126 11671	33pF	5%	50V
2834 ©	4822 126 11671	33pF	5%	50V
2835 ©	3198 024 44730	47nF	5%	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 ©	4822 126 13883	220pF	5%	50V
2843 ©	4822 126 14585	100nF	10%	50V
2844 ©	5322 122 34099	470pF	10%	63V
2845 ©	4822 126 14585	100nF	10%	50V

CAPACITORS

2846©	4822 126 13883	220pF	5%	50V
2847 ©	4822 126 14585	100nF	10%	50V
2848 ©	4822 122 33753	150pF	5%	50V
2849	4822 124 40769	4,7µF	20%	100V
2850 ©	5322 126 11578	1nF	10%	63V
2851	4822 124 42383	220µF	20%	4V
2854 ©	4822 126 13751	47nF	10%	50V
2855 ©	4822 126 14508	180pF	5%	50V
2856 ©	4822 126 11669	27pF	10%	50V
2857 ©	4822 126 13883	220pF	5%	50V
2858	4822 124 12245	220µF	20%	16V
2859 ©	4822 126 13883	220pF	5%	50V
2860	4822 124 11947	10µF	20%	16V
2861	4822 124 11947	10µF	20%	16V
2862 ©	4822 126 13883	220pF	5%	50V
2863 ©	4822 126 13883	220pF	5%	50V
2864 ©	4822 122 33761	22pF	5%	50V
2865 ©	4822 126 14494	22nF	10%	25V
2866 ©	4822 122 33753	150pF	5%	50V
2867 ©	4822 126 13883	220pF	5%	50V
2868 ©	5322 126 11578	1nF	10%	63V
2869 ©	3198 024 44730	47nF	5%	50V
2870 ©	4822 126 14585	100nF	10%	50V
2871 ©	4822 126 14585	100nF	10%	50V
2872 ©	3198 024 44730	47nF	5%	50V
2873	4822 124 40433	47µF	20%	25V
2874 ©	4822 126 14585	100nF	10%	50V
2875 ©	3198 017 41050	1µF	20%	10V
2876	4822 124 12245	220µF	20%	16V
2877 ©	4822 122 33777	47pF	5%	63V
2878 ©	4822 126 13883	220pF	5%	50V
2879 ©	4822 126 14585	100nF	10%	50V
2880 ©	3198 017 41050	1µF	20%	10V
2881	4822 124 40769	4,7µF	20%	100V
2882 ©	4822 126 13883	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 126 13883	220pF	5%	50V
2892 ©	5322 126 10223	4,7nF	10%	63V
2893 ©	4822 122 33575	220pF	5%	50V
2900 ©	4822 126 14508	180pF	5%	50V

RESISTORS

3701 ©	4822 051 30474	470kΩ	5%	0,06W
3702 ©	4822 051 30474	470kΩ	5%	0,06W
3703 ©	4822 117 12925	47kΩ	1%	0,06W
3704 ©	4822 117 12925	47kΩ	1%	0,06W
3709 ©	4822 117 10833	10kΩ	1%	0,1W
3710 ©	4822 051 30474	470kΩ	5%	0,06W
3712 ©	4822 051 30109	10Ω	5%	0,06W
3713 ©	4822 051 20223	22kΩ	5%	0,1W
3714 ©	4822 051 30103	10kΩ	5%	0,06W
3715 ©	4822 117 13632	100kΩ	1%	0,06W
3716 ©	4822 051 30471	470Ω	5%	0,06W
3719 ©	4822 051 30474	470kΩ	5%	0,06W
3727 ©	4822 051 30472	4,7kΩ	5%	0,06W
3728 ©	4822 051 30472	4,7kΩ	5%	0,06W
3730 ©	4822 051 20333	33kΩ	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

RESISTORS

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 051 30103	10kΩ	5%	0,06W
3746©	4822 051 30103	10kΩ	5%	0,06W
3750©	4822 051 30102	1kΩ	5%	0,06W
3751©	4822 051 30102	1kΩ	5%	0,06W
3752©	4822 051 20399	39Ω	5%	0,1W
3753©	4822 117 12925	47kΩ	1%	0,06W
3754©	4822 051 30273	27kΩ	5%	0,06W
3755©	4822 051 30103	10kΩ	5%	0,06W
3756©	4822 051 30333	33kΩ	5%	0,06W
3757©	4822 051 20399	39Ω	5%	0,1W
3758©	4822 051 30103	10kΩ	5%	0,06W
3759©	4822 051 30333	33kΩ	5%	0,06W
3760©	4822 051 20399	39Ω	5%	0,1W
3761©	4822 051 30103	10kΩ	5%	0,06W
3762©	4822 051 30333	33kΩ	5%	0,06W
3763©	4822 051 30479	47Ω	5%	0,06W
3764©	4822 051 30103	10kΩ	5%	0,06W
3765©	4822 051 30333	33kΩ	5%	0,06W
3766©	4822 051 30479	47Ω	5%	0,06W
3773©	4822 051 30273	27kΩ	5%	0,06W
3775©	4822 051 30273	27kΩ	5%	0,06W
3800©	4822 051 30563	56kΩ	5%	0,06W
3801©	4822 051 30103	10kΩ	5%	0,06W
3802©	4822 117 11148	56kΩ	1%	0,1W
3803©	4822 051 30103	10kΩ	5%	0,06W
3804©	4822 051 30103	10kΩ	5%	0,06W
3805©	4822 051 30103	10kΩ	5%	0,06W
3806©	4822 051 30103	10kΩ	5%	0,06W
3807©	4822 051 30103	10kΩ	5%	0,06W
3808©	4822 051 30103	10kΩ	5%	0,06W
3809©	4822 117 13577	330Ω	1%	0,1W
3810©	4822 051 20399	39Ω	5%	0,1W
3811©	4822 117 11148	56kΩ	1%	0,1W
3812©	4822 117 12925	47kΩ	1%	0,06W
3813©	4822 051 20399	39Ω	5%	0,1W
3814©	4822 051 30339	33Ω	5%	0,06W
3815	4822 052 10478	4,7Ω	5%	NFR
3816©	4822 117 12925	47kΩ	1%	0,06W
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 30682	6,8kΩ	5%	0,06W
3821©	4822 117 11507	6,8kΩ	1%	0,1W
3822©	4822 051 30682	6,8kΩ	5%	0,06W
3823©	4822 051 30102	1kΩ	5%	0,06W
3824©	4822 051 30102	1kΩ	5%	0,06W
3825©	4822 051 10102	1kΩ	2%	0,25W
3826©	4822 051 30223	22kΩ	5%	0,06W
3827©	4822 051 20273	27kΩ	5%	0,1W
3828©	4822 051 20223	22kΩ	5%	0,1W
3829©	4822 117 12925	47kΩ	1%	0,06W
3830©	4822 051 30273	27kΩ	5%	0,06W
3831©	4822 051 30101	100Ω	5%	0,06W
3832©	4822 051 30103	10kΩ	5%	0,06W
3833©	4822 051 30393	39kΩ	5%	0,06W
3834©	4822 051 20393	39kΩ	5%	0,1W

RESISTORS

3835©	4822 117 12925	47kΩ	1%	0,06W
3836©	4822 051 30273	27kΩ	5%	0,06W
3837©	4822 051 10102	1kΩ	2%	0,25W
3838©	4822 051 30102	1kΩ	5%	0,06W
3839©	4822 051 20273	27kΩ	5%	0,1W
3840©	4822 051 20273	27kΩ	5%	0,1W
3841©	4822 117 12925	47kΩ	1%	0,06W
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 051 30183	18kΩ	5%	0,06W
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 30471	470Ω	5%	0,06W
3854©	4822 051 30101	100Ω	5%	0,06W
3855©	4822 051 30101	100Ω	5%	0,06W
3856©	4822 117 12521	68Ω	1%	0,1W
3857©	4822 117 12521	68Ω	1%	0,1W
3858©	4822 051 30223	22kΩ	5%	0,06W
3859©	4822 051 20223	22kΩ	5%	0,1W
3860©	4822 117 10833	10kΩ	1%	0,1W
3861©	4822 051 30103	10kΩ	5%	0,06W
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 051 30103	10kΩ	5%	0,06W
3867©	4822 051 30121	120Ω	5%	0,06W
3869©	4822 117 13608	4,7Ω	5%	0,06W
3870©	4822 051 30101	100Ω	5%	0,06W
3871©	4822 051 30103	10kΩ	5%	0,06W
3873©	4822 051 20471	470Ω	5%	0,1W
3875©	4822 051 30103	10kΩ	5%	0,06W
3876©	4822 117 13632	100kΩ	1%	0,06W
3877©	4822 051 30103	10kΩ	5%	0,06W
3878©	4822 051 30103	10kΩ	5%	0,06W
3879©	4822 051 30273	27kΩ	5%	0,06W
3880©	4822 051 30474	470kΩ	5%	0,06W
3881©	4822 051 30273	27kΩ	5%	0,06W
3882©	4822 051 30474	470kΩ	5%	0,06W
3883©	4822 051 20273	27kΩ	5%	0,1W
3884©	4822 051 30474	470kΩ	5%	0,06W
3885©	4822 051 20273	27kΩ	5%	0,1W
3886©	4822 051 30474	470kΩ	5%	0,06W
3887©	4822 051 30221	220Ω	5%	0,06W
3888©	4822 117 10833	10kΩ	1%	0,1W
3889©	4822 051 20471	470Ω	5%	0,1W
3890©	4822 051 30102	1kΩ	5%	0,06W
3891©	4822 051 30102	1kΩ	5%	0,06W
3892©	4822 051 20471	470Ω	5%	0,1W
3893©	4822 051 30471	470Ω	5%	0,06W
3894©	4822 051 30101	100Ω	5%	0,06W
3895©	4822 117 12971	15Ω	5%	0,06W
3896	4822 052 10228	2,2Ω	5%	0,33W

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

RESISTORS

3897 ©	4822 051 20101	100Ω	5%	0,1W	
3898 ©	4822 117 11503	220Ω	5%	0,1W	
3899 ©	4822 051 30101	100Ω	5%	0,06W	
3900 ©	4822 117 11148	56kΩ	1%	0,1W	
3901 ©	4822 051 30682	6,8kΩ	5%	0,06W	
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 30008	CHIP JUMPER 0603			
4806 ©	4822 051 20008	CHIP JUMPER 0805			
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 30008	CHIP JUMPER 0603			
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 30008	CHIP JUMPER 0603			
4826 ©	4822 051 20008	CHIP JUMPER 0805			
4827 ©	4822 051 30008	CHIP JUMPER 0603			
4828 ©	4822 051 20008	CHIP JUMPER 0805			
4831 ©	4822 051 20008	CHIP JUMPER 0805			
4832 ©	4822 051 30008	CHIP JUMPER 0603			
4834 ©	4822 051 30008	CHIP JUMPER 0603			
4835 ©	4822 051 30008	CHIP JUMPER 0603			
4836 ©	4822 051 20008	CHIP JUMPER 0805			
4838 ©	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 30008	CHIP JUMPER 0603			
4847 ©	4822 051 20008	CHIP JUMPER 0805			
4849 ©	4822 051 30008	CHIP JUMPER 0603			
4856 ©	4822 051 20008	CHIP JUMPER 0805			
4857 ©	4822 051 20008	CHIP JUMPER 0805			
4858 ©	4822 051 20008	CHIP JUMPER 0805			
4859 ©	4822 051 30008	CHIP JUMPER 0603			
4860 ©	4822 051 30008	CHIP JUMPER 0603			
4861 ©	4822 051 20008	CHIP JUMPER 0805			
4862 ©	4822 051 30008	CHIP JUMPER 0603			
4863 ©	4822 051 30008	CHIP JUMPER 0603			
4864 ©	4822 051 20008	CHIP JUMPER 0805			
4865 ©	4822 051 20008	CHIP JUMPER 0805			
4867 ©	4822 051 20008	CHIP JUMPER 0805			
4868 ©	4822 051 20008	CHIP JUMPER 0805			
4869 ©	4822 051 20008	CHIP JUMPER 0805			
4870 ©	4822 051 20008	CHIP JUMPER 0805			

RESISTORS

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 30008	CHIP JUMPER 0603
4897 ©	4822 051 20008	CHIP JUMPER 0805

COILS

1810	2422 543 01068	RESONATOR 8MHZ
1810	4822 242 73557	CERAMIC RES. 8,46MHz
5802	4822 157 70601	100µH

DIODES

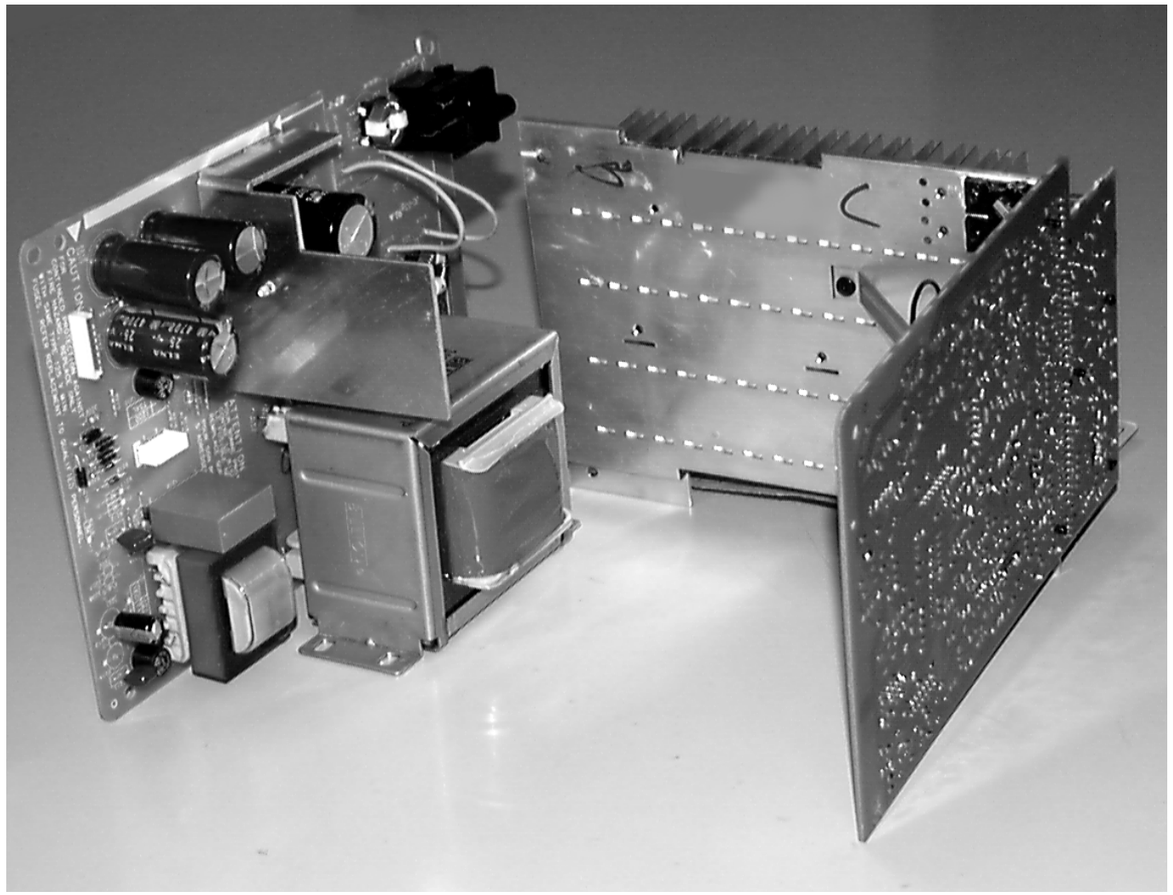
6871 ©	4822 130 11397	BAS316
6872 ©	4822 130 11397	BAS316
6873 ©	4822 130 11397	BAS316
6874 ©	4822 130 11397	BAS316
6875 ©	9340 548 52115	BZX284-C5V1
6877 ©	9322 129 34685	BZX284-C3V9
6878 ©	4822 130 11397	BAS316
6879 ©	9322 129 34685	BZX284-C3V9

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
7877 ©	9352 642 17557	SAA7325H/M2B Signal processor CD10



POWER 2001 Module

(30 - 70W 4 Channel Version) **stage .7**

TABLE OF CONTENTS

11-1

Circuit details:

Amplifier:

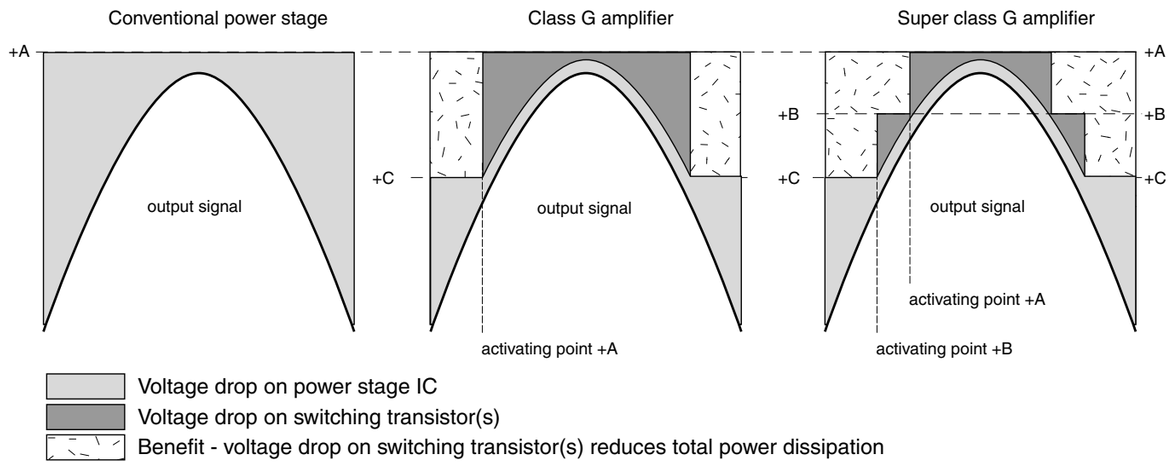
Attention: In the POWER 2001 module the power amplifier IC AN7591 is used as a bridge-amplifier.
Any connection from output to ground will destroy the outpout stages!

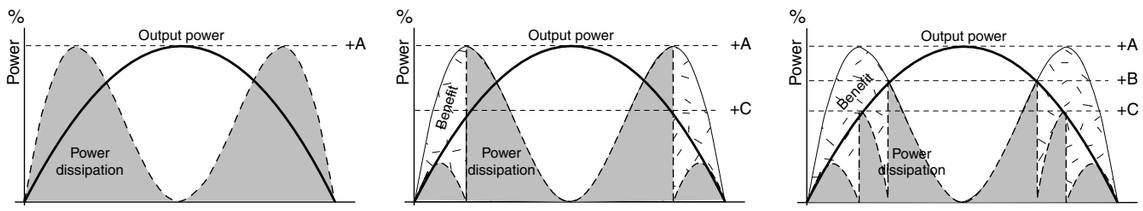
- Via the AMP_ON control line, connected to pins 6 (Stby), the power amplifiers are switched on/off by the µP.
  High level (approx. 4,5V): power amplifiers switched on
  Low level (approx. 0V): power amplifiers switched off

- Super class G - operation

  The power amplifiers operate as so-called super class G - amplifiers:
  The supply pins 12 (Vcc) are not just connected to one fixed DC-supply as in conventional amplifiers.
  Dependent on the output power there are three different DC-voltages supplied to the power amplifiers:
  ⇒ +C1 (+20V) for low output power
  ⇒ +B1 (+29V) for medium output power
  ⇒ +A1 (+41V for high output power

Principle / benefit of Super Class G





Circuit details continued:

- **Low power standby feature**

An additional small standby transformer, reduces power consumption in standby-mode.
In case power is switched on, the control line ECO is low → relay 1210 is activated → contacts 1 and 2 are closed → transformer 5001is connected to mains.
When the set is switched off (standby) the control line ECO is high → relay 1210 is not activated → mainstransformer is disconnected. Via standby transformer and rectifiers 6210-6214 the supply voltage LOW_PWR_SUP is substituted. This voltage is always available and so the microprocessor is kept running.

- **DC voltages +A1, +B1, +C1**

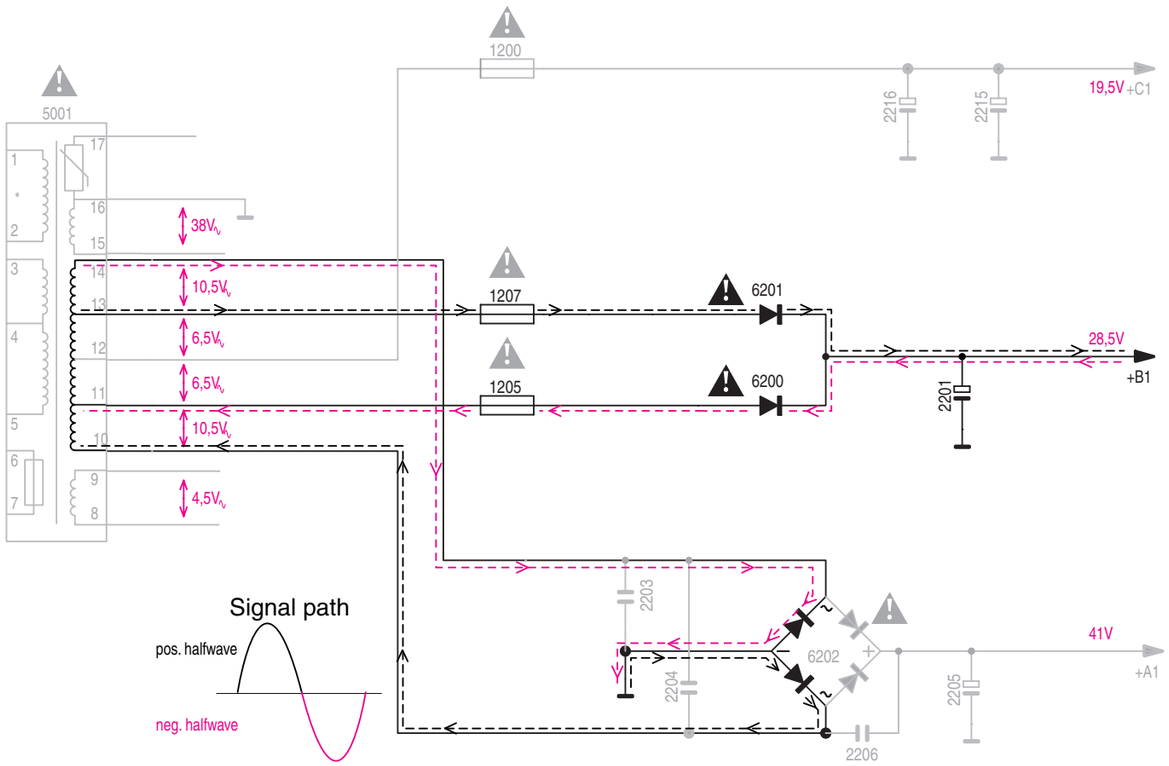
These voltages supply the Super Class G amplifier, described on previous page.
The whole power supply is optimized for the special characteristic of this type of amplifier. For that reason several “tricky” details have been applied to ensure optimal efficiency and symmetrical load to the mains transformer.

Generation of +A1

Common full wave rectifying with bridge rectifier 6202, using 100% secondary winding of mains transformer (pin 10-14).

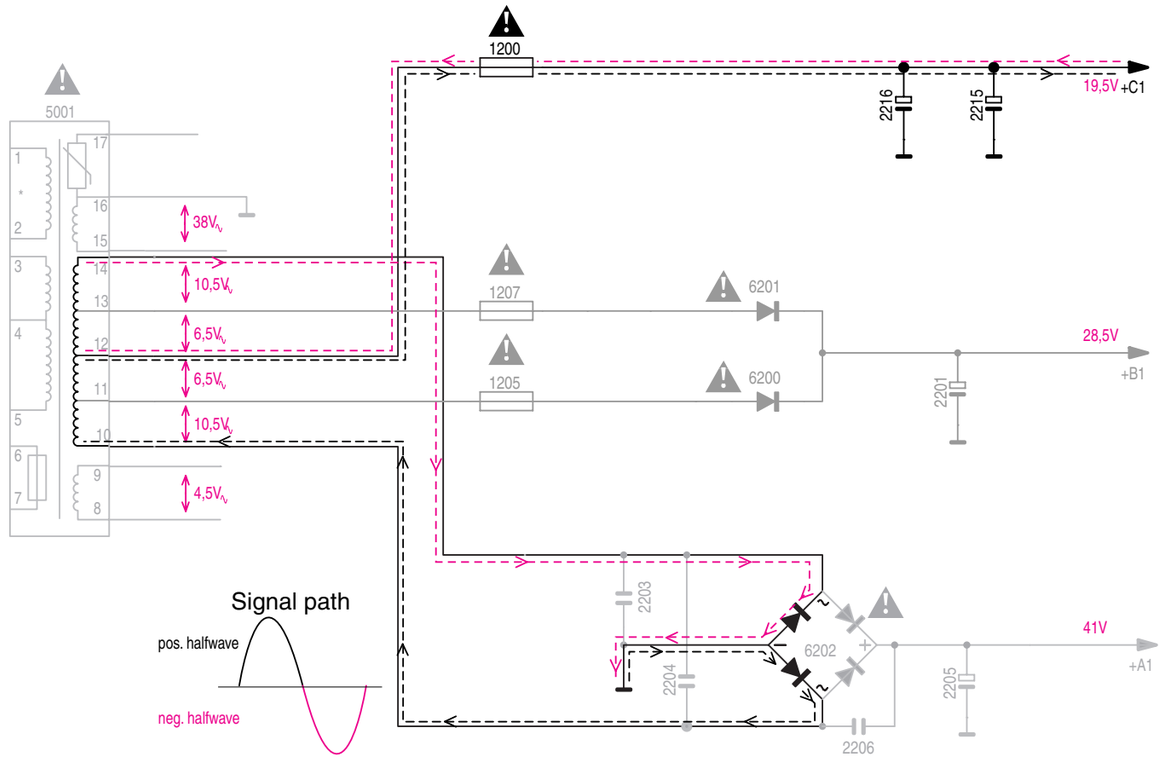
Generation of +B1

The supply for +B1 consists of one full wave rectifier:
– 2 diodes of bridge rectifier 6202, with 6200(6220 in parallel) 6201(6221 in parallel) for generation of +B1using approx. 70% secondary winding of mains transformer (pin 10-13 respectively pin 11-14).
As example for generation of +B1 see picture 1.

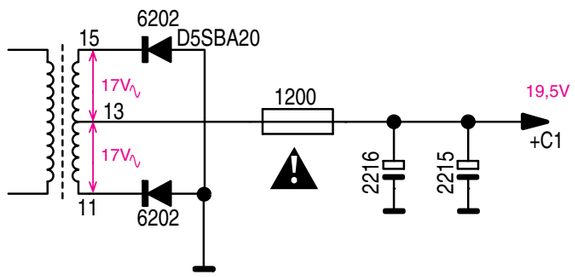


picture 1

Generation of +C1
Full wave rectifying with 2 diodes of bridge rectifier 6202, using 50% secondary winding of mains transformer (pin 13-15/13-11).
See picture 2 below.



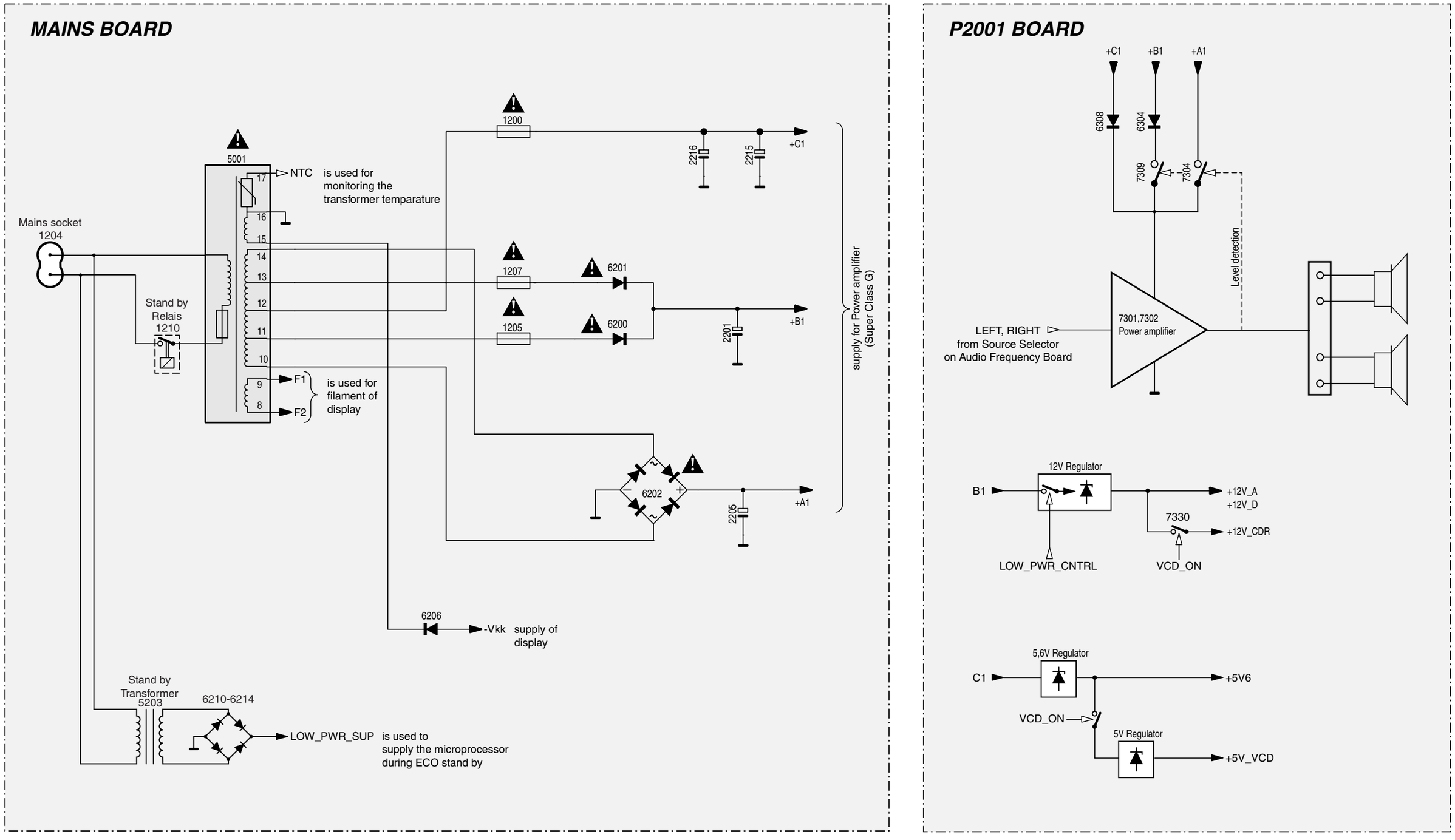
simplified:



picture 2

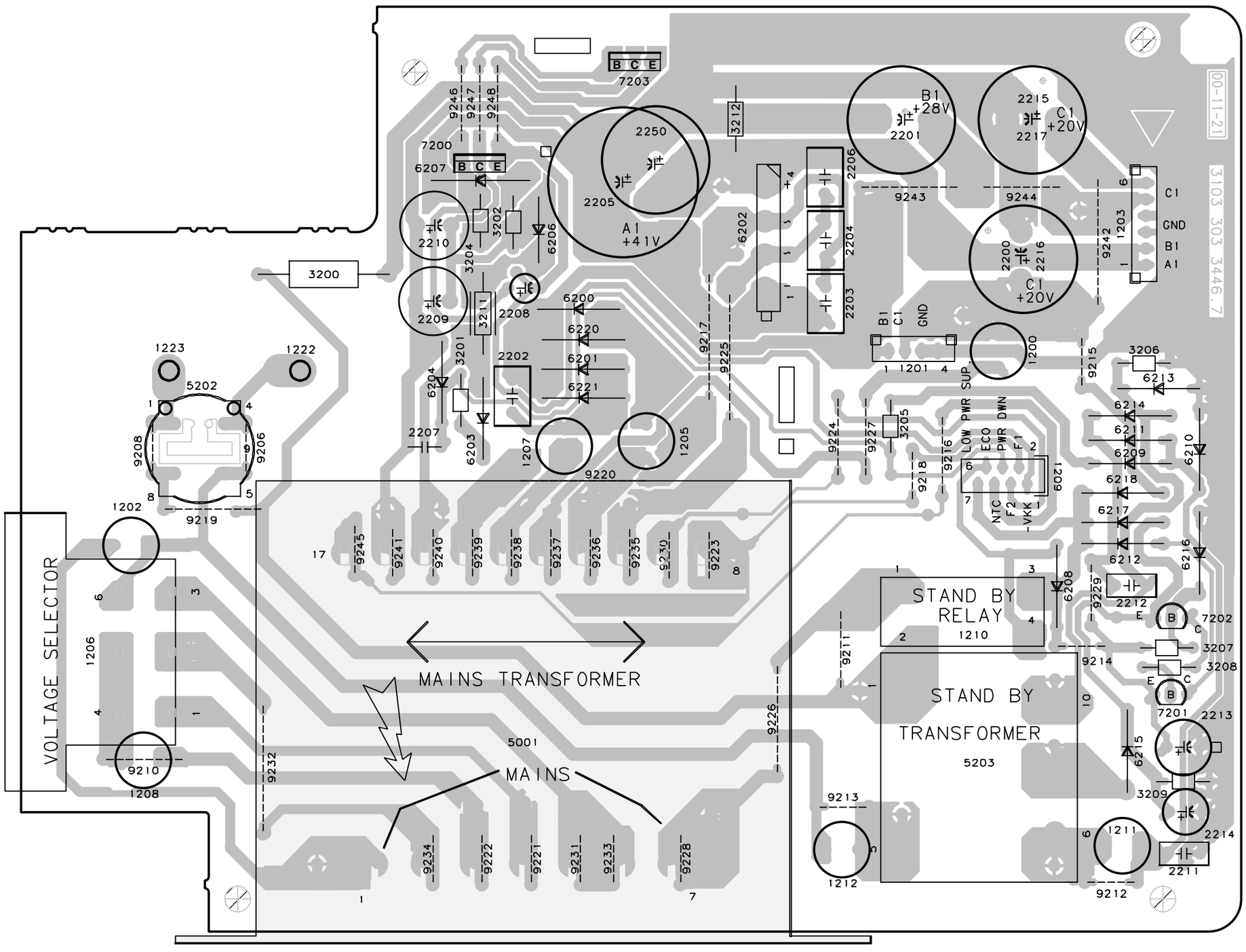
11-3

Block Diagram



11-4

Mains Board Copperside view

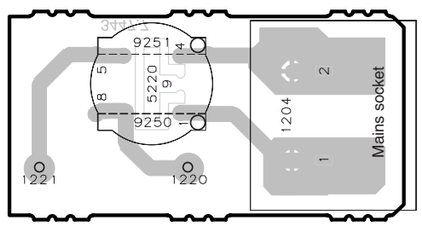


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Mainsboard Layout stage .7 2000-11-28

1200	B5	6210	C5
1201	B4	6211	B5
1202	C1	6212	C5
1203	A5	6213	B5
1205	B3	6214	B5
1206	C1	6215	D5
1207	C3	6216	C5
1208	D1	6217	C5
1209	C5	6218	C5
1210	C5	6220	B3
1211	D5	6221	B3
1212	D4	7200	A2
1222	B2	7201	D5
1223	B1	7202	C5
2200	B5	7203	A3
2201	A4	9206	B2
2202	B3	9208	B1
2203	B4	9210	D1
2204	B4	9211	D4
2205	B3	9212	D5
2206	A4	9213	D4
2207	B2	9214	C5
2208	B3	9215	B5
2209	B2	9216	B4
2210	B2	9217	B3
2211	D5	9218	C4
2212	C5	9219	C1
2213	D5	9220	C3
2214	D5	9221	D3
2215	A5	9222	D3
2216	B5	9223	C4
2217	A5	9224	B4
2250	A3	9225	B4
3200	B2	9226	D4
3201	B2	9227	B4
3202	B3	9228	D3
3204	A3	9229	C5
3205	B4	9230	C3
3206	B5	9231	D3
3207	C5	9232	D2
3208	C5	9233	D3
3209	D5	9234	D2
3211	B3	9235	C3
3212	A4	9236	C3
5001	C2	9237	C3
5202	B1	9238	C3
5203	D5	9239	C3
6200	B3	9240	C2
6201	B3	9241	C2
6202	B4	9242	B5
6203	B2	9243	A4
6204	B2	9244	A5
6206	B3	9245	C2
6207	A2	9246	A2
6208	C5	9247	A2
6209	C5	9248	A3

Mains Socket



11-5

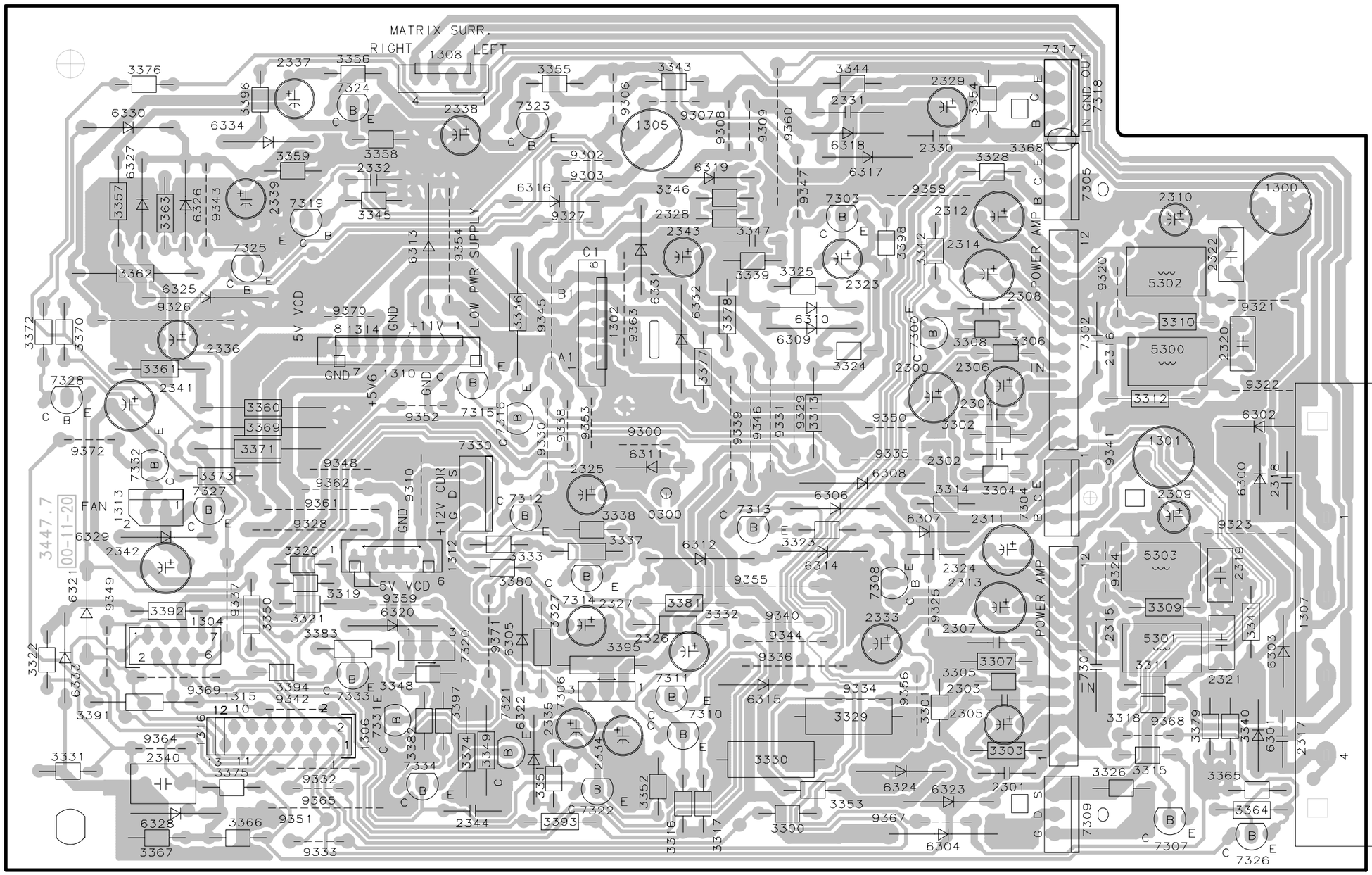
P2001 30-70W MAINS

1204 not on all versions 5201 1220 1222 not on all versions 5202
1221 1223
97TS 97TS
1202 T1,6A T1,25A T4A
1206 SDKGA /21 ONLY Voltage Selector
NOT /21 9210 1208 T1,6A /21 ONLY
5001 Mains Transformer
NTC
T.F.
F2 F1
3200 10M /37 ONLY
9211 SDT
Stand by Relay 1210
LOW_PWR_SUP 6208 1N4148 ECO 13.5V 2,5V
1200 T5A 19372
1205 T4A
1207 T4A
C1 19.5V
2216 6m8 2200 4m7 optional
2215 6m8 2217 4m7 optional
CDR ONLY
6200 1N5392
6220 1N5392
6201 1N5392
6221 1N5392
2202 100n
28.5V
2201 3m3
GBU8D
2203 100n
6202
2204 100n
2206 100n
41V
2205 or 2250 4m7 only for /37 3m3 not for /37
3212 33K
1201 GND GND C1 B1 19.5V 28.5V EH-B TO C/S BOARD
1203 19.5V C1 28.5V B1 GND GND 41V A1 41V A1 EH-B TO POWER BOARD
6203 1N4148
3201 4K7
6209 1N4148
3205 4K7
7.8V
2207 47n
BZX79-F8V2 6204
7200 or 7203 BD238 -45V -33V -33.5V
3211 4R7
3202 3K9
2208 0u47
6206 1N4003
3204 680R
6207 BZX79-C33
-Vkk regulator
1209 -Vkk F1 F2 Power Down NTC ECO LOW_PWR_SUP Low Power Supply
FE-BT-VK-N TO POWER BOARD
NOT /21 9213 1212 T100mA /21 ONLY
5203 Stand by Transformer
ONLY /21 9212 1211 T160mA NOT /21
2211 47n 6210 1N4003 6211 1N4003
3206 10K 6213 1N4003 6214 1N4003 2212 47n 2213 100u
9214 NOT /21
7201 BC327-25 28V 14V 0V 14V 6212 1N4003
3207 4K7 28V 13.4V
3208 4K7 8.4V 8.5V 28V 12.9V
6215 1N4003
6216 BZX79-C8V2
7202 BC547B 14V 7.5V
3209 100K 2214 100u
6217 1N4003
6218 1N4148
9215 C1
13.5V 13.5V LOW_PWR_SUP
V EVM .....V DC-voltages measured with low output power
V... at 120V AC
V... at 240V AC
ONLY /21 version
Low Power supply regulator for /21 version only

Power2001 Mainsboard, 15 12 2000

11-6

Power Board Copperside view



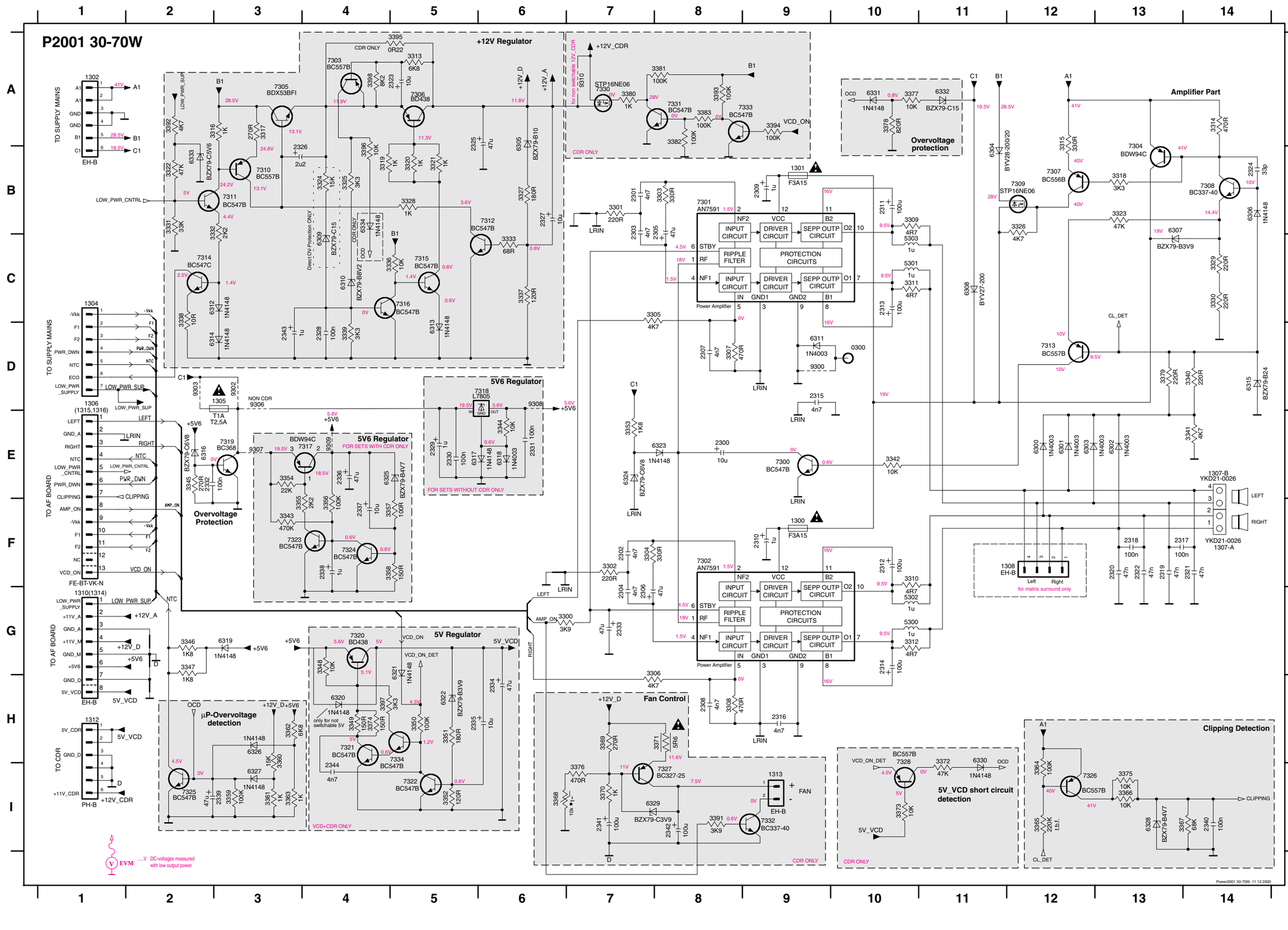
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Powerboard Layout stage .7 2000-11-28

0300 B3
1300 A5
1301 B5
1302 A3
1304 C1
1305 A3
1306 C2
1307 B5
1308 A2
1310 A2
1312 B2
1313 B1
1314 A2
1315 C1
1316 C1
2300 B4
2301 C4
2302 B4
2303 C4
2304 B4
2305 C4
2306 A4
2307 C4
2308 A4
2309 B5
2310 A5
2311 B4
2312 A4
2313 B4
2314 A4
2315 C4
2316 A4
2317 C5
2318 B5
2319 B5
2320 A5
2321 C5
2322 A5
2323 A3
2324 B4
2325 B2
2326 C3
2327 B3
2328 A3
2329 A4
2330 A4
2331 A3
2332 A2
2333 B4
2334 C3
2335 C2
2336 A1
2337 A1
2338 A2
2339 A1
2340 C1
2341 B1
2342 B1
2343 C1
2344 C2
3300 C3
3301 C4
3302 B4
3303 C4
3304 B4
3305 C4
3306 A4
3307 C4
3308 A4
3309 B5
3310 A5
3311 B5
3312 A5
3313 B3
3314 B4
3315 C5
3316 C3
3317 C3
3318 B5
3319 B1
3320 B1
3321 B1
3322 A4
3323 B1
3324 A3
3325 A3
3326 C5
3327 B2
3328 A4
3329 C3
3330 C3
3331 C1
3332 B3
3333 B2
3334 A4
3336 A1
3337 A1
3338 A2
3339 A1
3340 C5
3341 B5
3342 A4
3343 C2
3344 A3
3345 A2
3346 A3
3347 A3
3348 C2
3349 A2
3350 B1
3351 C2
3352 C3
3353 C3
3354 A4
3355 A2
3356 A1
3357 A1
3358 A2
3359 A1
3360 B1
3361 A1
3362 A1
3363 A1
3364 C5
3365 C5
3366 C1
3367 C1
3368 A4
3369 B1
3370 A1
3371 B1
3372 A1
3373 B1
3374 C2
3375 C1
3376 A1
3377 B3
3378 A3
3379 C5
3380 B2
3381 B3
3382 C2
3383 C1
3391 C1
3392 B2
3393 C2
3394 C1
3395 C2
3396 A1
3397 C2
3398 A4
5300 A5
5301 B5
5302 A5
5303 B5
6300 B5
6301 C5
6302 B5
6303 C5
6304 C4
6305 C2
6306 B3
6307 B4
6308 B3
6309 A3
6310 A4
6311 B3
6312 B3
6313 A2
6314 B3
6315 C3
6316 A2
6317 A4
6318 A3
6319 A3
6320 B2
6321 B1
6322 C2
6323 C4
6324 C4
6325 A1
6326 A1
6327 A1
6328 C1
6329 B1
6330 A1
6331 A3
6332 A3
6333 C1
6334 A1
7300 A4
7301 C4
7302 A4
7303 A3
7304 B4
7305 A4
7306 C2
7307 C5
7308 B4
7309 A4
7310 C3
7311 C2
7312 B4
7313 B3
7314 C2
7315 B1
7316 B1
7317 A2
7318 A2
7319 A1
7320 C2
7321 C2
7322 B2
7323 B3
7324 A1
7325 A1
7326 C5
7327 B1
7328 B1
7329 B2
7330 B2
7331 C2
7332 B1
7333 C1
7334 C2
9300 B3
9302 A2
9303 A2
9306 A3
9307 A3
9308 A3
9309 A3
9310 B2
9320 A4
9321 A5
9322 B5
9323 B5
9324 B4
9325 B4
9326 A1
9327 A2
9328 B1
9329 B3
9330 B2
9331 B3
9332 C1
9333 C1
9334 C3
9335 B4
9336 C3
9337 B1
9338 B2
9339 B3
9340 B3
9341 B4
9342 C1
9343 A1
9344 C3
9345 A2
9346 B3
9347 A3
9348 B1
9349 C1
9350 B4
9351 C1
9352 B2
9353 B2
9354 A2
9355 B3
9356 C4
9358 A4
9359 B2
9360 A3
9361 B1
9362 B1
9363 A3
9364 C1
9365 C1
9367 C4
9368 C5
9369 C1
9370 A1
9371 C2
9372 B1

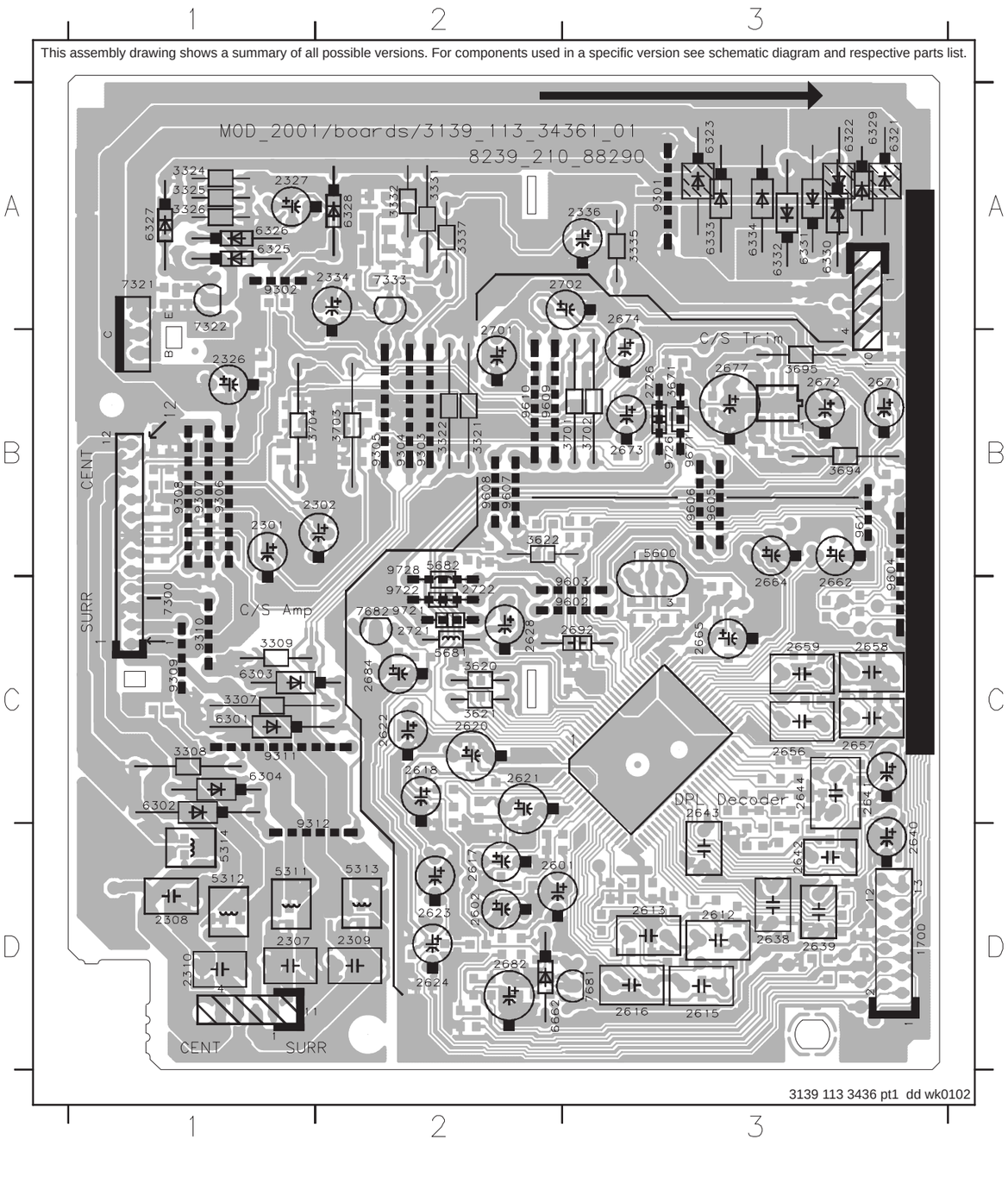
11-7

0300 D10 1307-a F14 1315 D1 2305 B8 2312 F10 2319 F13 2326 B3 2333 G7 2340 I14 3303 B8 3310 F10 3317 A3 3324 B4 3331 B2 3340 D14 3347 G2 3354 E3 3361 I3 3368 I6 3375 I13 3382 A8 6300 E12 6307 B13 6314 D2 6321 H5 6328 I13 7302 F8 7309 B12 7316 C5 7323 F3 7331 A8 9308 D4
1300 F9 1307-b E14 1316 D1 2306 G7 2313 C10 2320 F13 2327 B6 2334 H6 2341 I7 3304 F7 3311 C10 3318 B13 3325 B4 3332 B3 3341 E14 3348 G4 3355 F3 3362 H3 3369 H7 3376 I7 3383 A8 6301 E12 6308 C11 6315 D14 6322 H5 6329 I7 7303 A4 7310 B3 7317 E3 7324 F4 7332 I9 9309 D4
1301 B9 1308 F12 2300 E8 2307 D8 2314 G10 2321 F14 2328 D4 2335 H5 2342 I8 3305 C7 3312 G10 3319 B4 3326 B12 3333 C6 3340 E10 3349 H4 3356 F4 3363 I3 3370 I7 3377 A10 3391 I8 6302 E13 6309 C4 6316 F5 6323 E8 6330 H11 7304 A13 7311 B3 7318 D6 7325 I2 9300 D9 9310 A5
1302 A1 1310 G1 2301 B7 2308 H8 2315 D9 2322 F13 2329 E5 2336 E4 2343 D3 3306 H7 3313 A5 3320 B5 3327 B6 3334 C5 3343 F3 3350 H5 3357 F5 3364 I12 3371 H8 3378 A10 5300 G10 6303 E12 6310 C4 6317 E6 6324 E7 6331 A10 7305 A3 7312 B6 7319 F6 7326 I12 9302 D3
1304 C1 1312 H1 2302 F7 2309 B9 2316 H9 2323 A4 2330 E5 2337 F4 3300 G6 3307 D8 3314 A14 3321 B5 3328 B3 3337 C6 3344 E6 3351 H5 3358 F5 3365 I12 3372 I11 3379 D13 5301 C10 6304 B11 6311 D9 6318 E6 6325 E5 6332 A11 7306 A5 7313 D12 7320 G4 7327 I8 9303 D2
1305 D3 1313 I9 2303 B7 2310 F9 2317 F13 2324 B14 2331 E6 2338 F4 3301 B7 3308 H8 3315 A12 3322 B2 3329 C14 3338 C2 3345 F5 3352 I5 3359 I3 3366 I13 3373 I10 3380 A7 5302 G10 6305 A6 6312 C2 6319 G3 6326 H2 7300 E9 7307 B12 7314 C2 7321 H4 7328 H10 9306 D3
1306 E1 1314 G1 2304 G7 2311 B10 2318 F13 2325 A5 2332 F5 2339 I2 3302 F7 3309 B10 3316 A3 3323 B13 3330 C14 3339 D4 3346 G2 3353 E7 3360 H3 3367 I14 3374 H4 3381 A8 5303 C10 6306 B14 6313 D5 6320 H4 6327 H3 7301 B8 7308 B14 7315 C5 7322 I5 7330 A7 9307 E3



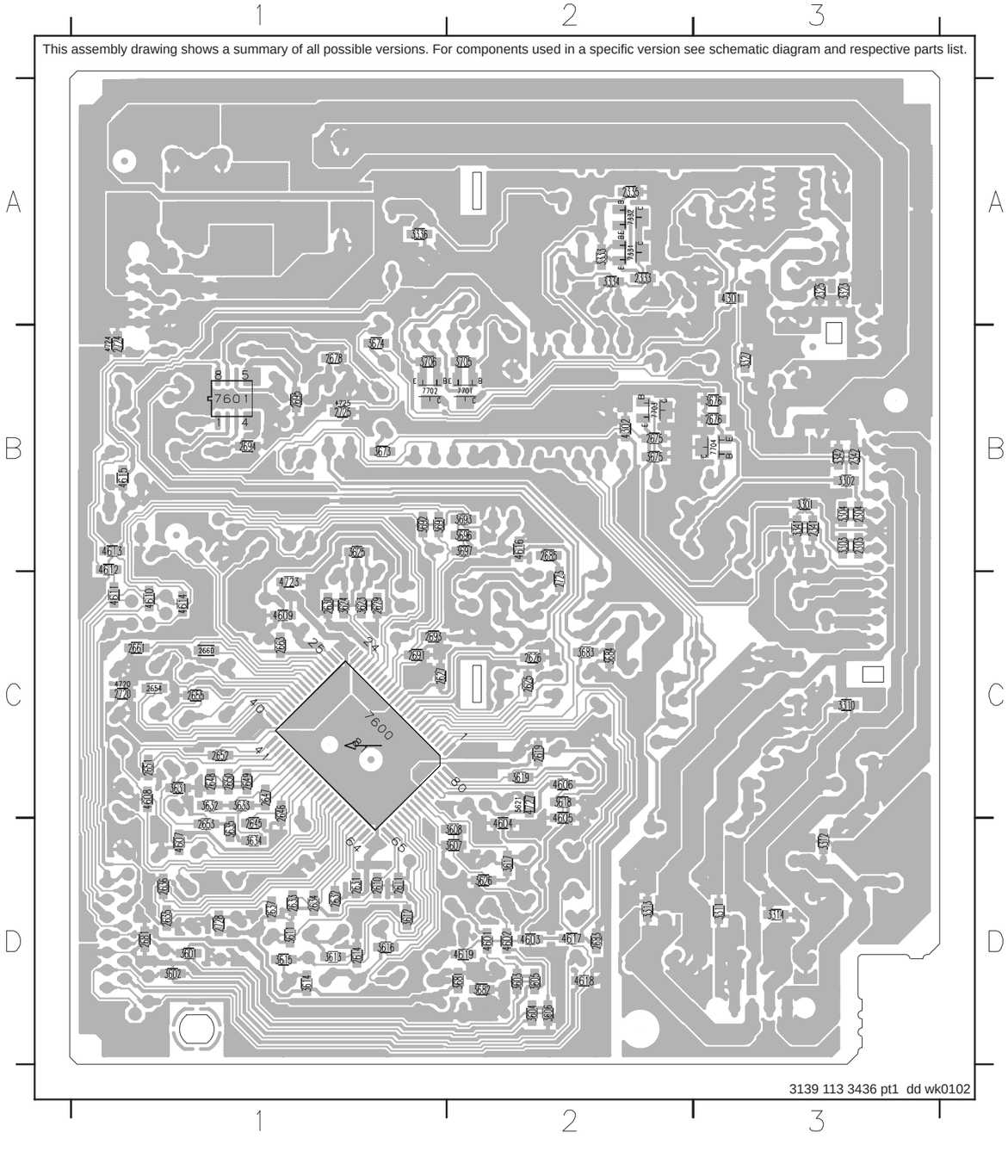
Dolby Pro Logic Board & C/S Amp. Componentside view

1700 D3	2612 D3	2639 D3	2671 B3	3307 C1	3621 C2	5600 B3	6331 A3	9303 B2	9605 B3	
2301 B1	2613 D3	2640 D3	2672 B3	3308 C1	3622 B2	5681 C2	6332 A3	9304 B2	9606 B3	
2302 B2	2615 D3	2641 C3	2673 B3	3309 C1	3671 B3	5682 B2	6333 A3	9305 B2	9607 B2	
2307 D1	2616 D3	2642 D3	2674 A3	3321 B2	3694 B3	6301 C1	6334 A3	9306 B1	9608 B2	
2308 D1	2617 D2	2643 C3	2677 B3	3322 B2	3695 B3	6302 C1	6662 D2	9307 B1	9609 B2	
2309 D2	2618 C2	2644 C3	2682 D2	3324 A1	3701 B3	6303 C1	7300 C1	9308 B1	9610 B2	
2310 D1	2620 C2	2656 C3	2684 C2	3325 A1	3702 B3	6304 C1	7321 A1	9309 C1	9611 B3	
2326 B1	2621 C2	2657 C3	2692 C3	3326 A1	3703 B2	6325 A1	7322 A1	9310 C1	9671 B3	
2327 A1	2622 C2	2658 C3	2701 B2	3331 A2	3704 B1	6326 A1	7333 A2	9311 C1	9721 C2	
2334 A2	2623 D2	2659 C3	2702 A3	3332 A2	5311 D1	6327 A1	7681 D3	9312 D1	9722 C2	
2336 A3	2624 D2	2662 C3	2721 C2	3335 A3	5312 D1	6328 A2	7682 C2	9602 C3	9726 B3	
2601 D2	2628 C2	2664 C3	2722 C2	3337 A2	5313 D2	6329 A3	9301 A3	9603 C3	9728 B2	
2602 D2	2638 D3	2665 C3	2726 B3	3620 C2	5314 D1	6330 A3	9302 A1	9604 B3		



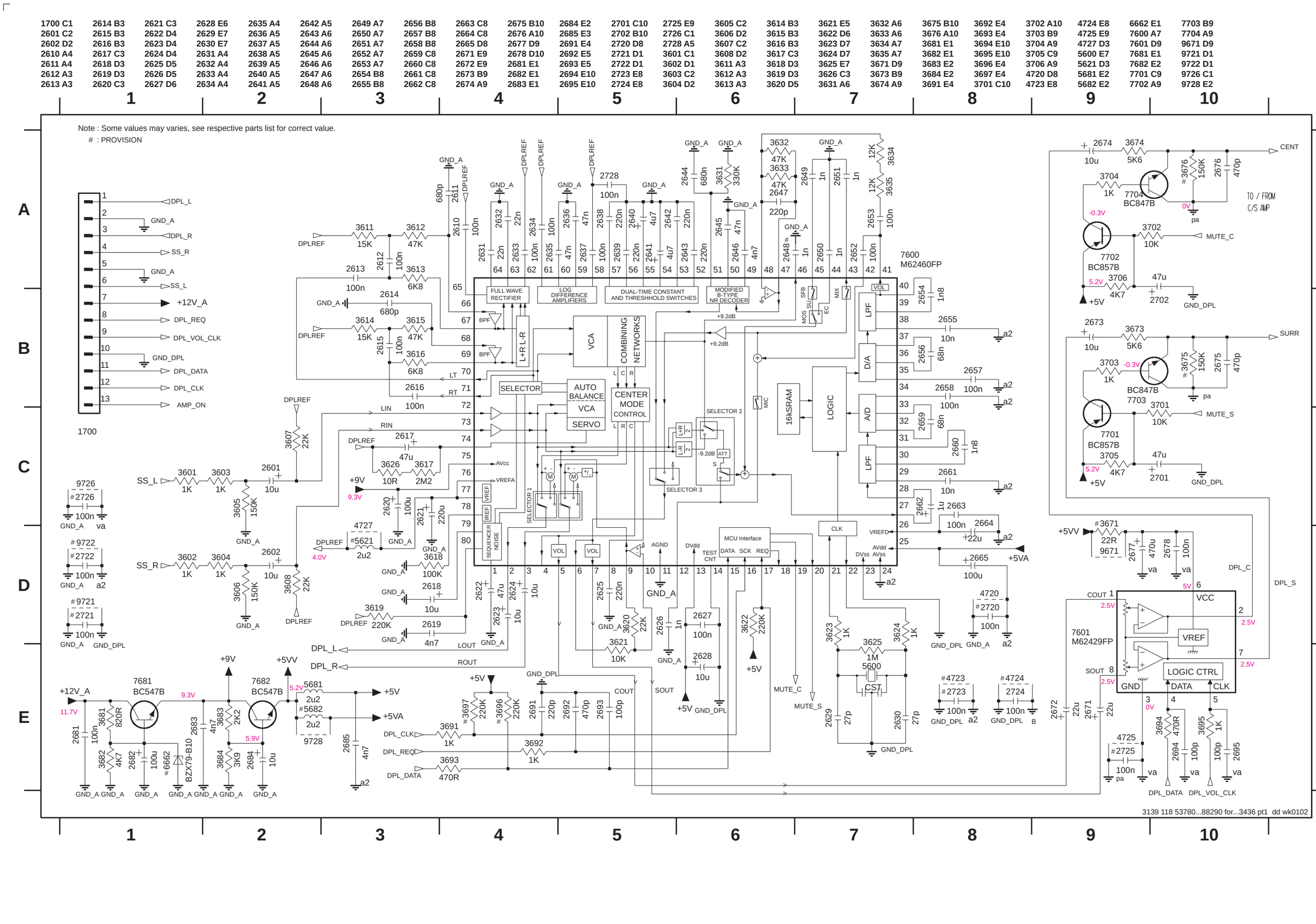
Dolby Pro Logic Board & C/S Amp. Copperside view

2303 B3	2630 C1	2652 C1	2694 B1	3314 D3	3608 D2	3632 C1	3696 B2	4610 C1	5621 C2	
2304 B3	2631 D1	2653 D1	2695 B1	3323 A3	3611 D1	3633 C1	3697 B2	4611 C1	7331 A2	
2325 A3	2632 D1	2654 C1	2720 C1	3327 B3	3612 D1	3634 D1	3705 B2	4612 B1	7332 A2	
2333 A2	2633 D1	2655 C1	2723 C2	3333 A2	3613 D1	3635 D1	3706 B1	4613 B1	7600 C1	
2335 A2	2634 D1	2660 C1	2724 B1	3334 A2	3614 D1	3673 B1	4301 A3	4614 C1	7601 B1	
2341 B3	2635 D1	2661 C1	2725 B1	3336 A1	3615 D1	3674 B1	4302 B2	4615 B1	7701 B2	
2342 B3	2636 D1	2663 C1	2728 D1	3341 B3	3616 D1	3675 B2	4601 D2	4616 B2	7702 B1	
2610 D1	2637 D1	2675 B2	3301 B3	3342 B3	3617 D2	3676 B3	4602 D2	4617 D2	7703 B2	
2611 D1	2645 D1	2676 B3	3302 B3	3601 D1	3618 C2	3681 D2	4603 D2	4618 D2	7704 B3	
2614 D1	2646 C1	2678 B1	3303 B3	3602 D1	3619 C2	3682 D2	4604 D2	4619 D2		
2619 C2	2647 C1	2681 D1	3304 B3	3603 D2	3623 C1	3683 C2	4605 C2	4720 C1		
2625 C2	2648 C1	2683 D2	3310 C3	3604 D2	3624 C1	3684 C2	4606 C2	4723 C1		
2626 C2	2649 C1	2685 B2	3311 D3	3605 D2	3625 B1	3691 B1	4607 D1	4724 B1		
2627 C1	2650 C1	2691 C1	3312 D3	3606 D2	3626 D2	3692 B1	4608 C1	4725 B1		
2629 C1	2651 C1	2693 C1	3313 D2	3607 D2	3631 C1	3693 B2	4609 C1	4727 C2		



11-9

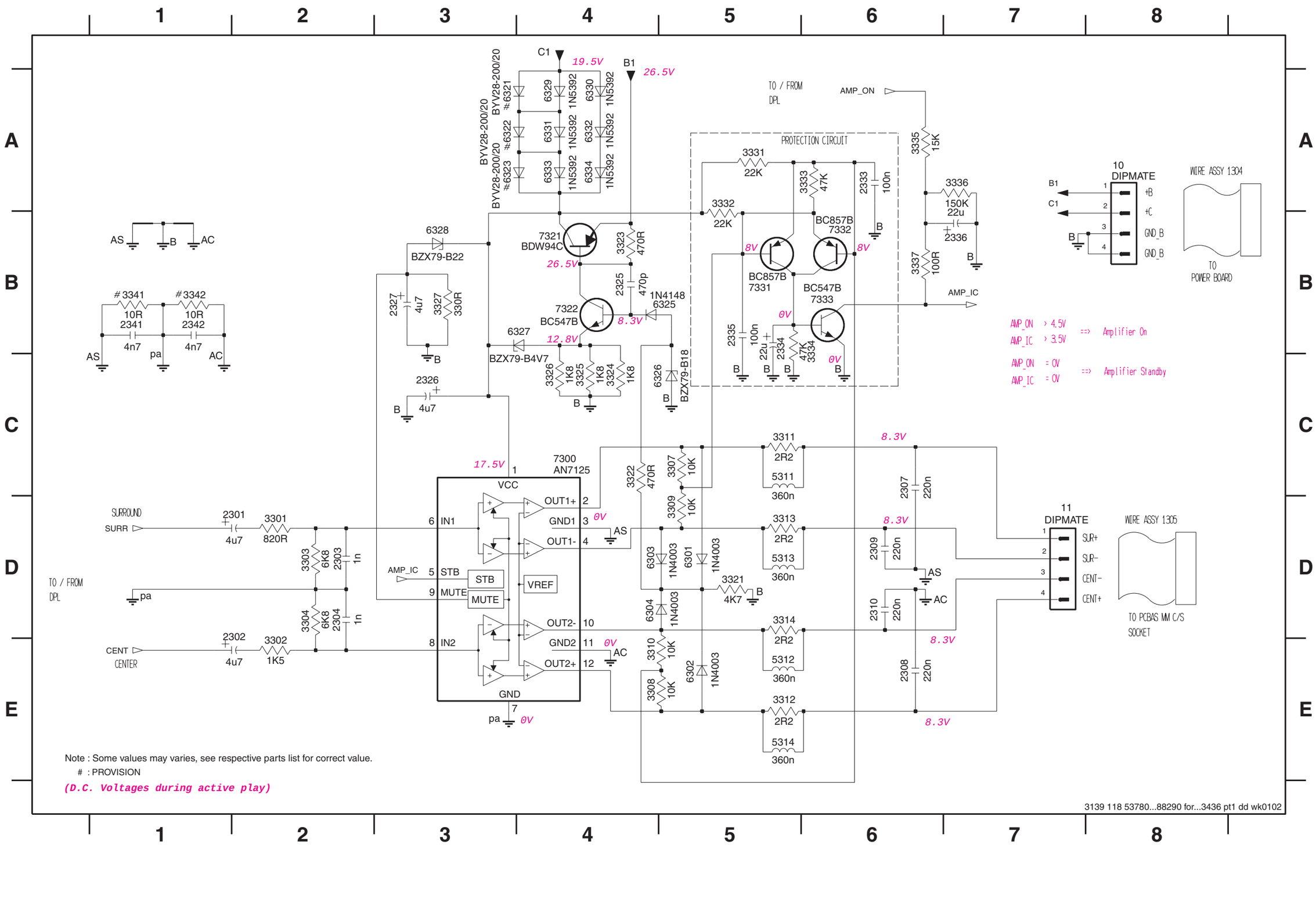
Circuit Diagram Dolby Pro Logic Part



11-10

Circuit Diagram Center/Surround Amplifier Part

10 A8	2303 D2	2309 D6	2327 B3	2336 B7	3302 E2	3308 E4	3312 E5	3322 C4	3326 C4	3333 A6	3337 B6	5312 E5	6302 E5	6322 A3	6327 B4	6331 A4	7300 C4	7332 B6
11 D7	2304 D2	2310 D6	2333 A6	2341 B1	3303 D2	3309 D5	3313 D5	3323 B4	3327 B3	3334 B6	3341 B1	5313 D5	6303 D4	6323 A3	6328 B3	6332 A4	7321 B4	7333 B6
2301 D2	2307 C6	2325 B4	2334 B5	2342 B1	3304 D2	3310 E4	3314 D5	3324 C4	3331 A5	3335 A6	3342 B1	5314 E5	6304 D4	6325 B5	6329 A4	6333 A4	7322 B4	
2302 E2	2308 E6	2326 C3	2335 B5	3301 D2	3307 C5	3311 C5	3321 D5	3325 C4	3332 A5	3336 A7	5311 C5	6301 D5	6321 A3	6326 C5	6330 A4	6334 A4	7331 B5	



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

: PROVISION

(D.C. Voltages during active play)

11-11

ELECTRICAL PARTSLIST POWER2001 MODULE (Mains & Power Part)

MISCELLANEOUS

1200 ⚠	2422 086 10963	FUSE RAD 5A 250V IEC	
1202 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1202 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1202 ⚠	4822 253 10126	FUSE T4A	
1204 ⚠	2422 030 00328	MAINS SOCKET /37	
1204 ⚠	4822 265 31015	MAINS SOCKET /21, /22	
1205 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1206 ⚠	2422 129 16478	VOLTAGE SELECTOR	
1207 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1208 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1208 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1209	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1210 ⚠	2422 132 07402	RELAY 1P 12V	
1211 ⚠	2422 086 10771	FUSE RAD 160mA 250V IEC	
1212 ⚠	4822 071 51001	FUSE 100mA	
1300 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1301 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1304	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1305 ⚠	4822 071 51002	FUSE T1A	for sets without 5203
1305 ⚠	4822 071 52502	FUSE T2,5A	for sets with 5203
1306	4822 267 10738	FFC-CONNECTOR 13P	
1307	4822 267 31176	SPEAKER TERMINAL	
5203 ⚠	3103 308 30600	STANDBY TRANSFORMER /21	
5203 ⚠	3103 308 30610	STANDBY TRANSFORMER /22	
5203 ⚠	3103 308 30800	STANDBY TRANSFORMER /37	
8010	3139 110 34600	FLEX FOIL CABLE 7Pin, 280mm	
	4822 492 11735	SPRING FIXATION TRANSISTOR	

CAPACITORS

2200	4822 124 12012	4700µF	20%	25V	
2201	4822 124 42367	3300µF	20%	35V	
2202	5322 121 42386	100nF	5%	63V	
2203	5322 121 42386	100nF	5%	63V	
2204	5322 121 42386	100nF	5%	63V	
2205	4822 124 80415	4700µF	20%	50V	only for /37
2205	8203 303 85640	3300µF	20%	50V	not for /37
2206	5322 121 42386	100nF	5%	63V	
2207	4822 122 33449	47nF	30%	50V	
2208	5322 124 41948	0,47µF	20%	50V	
2209	2020 012 93547	100µF	20%	63V	
2211	4822 121 43526	47nF	5%	100V	
2212	4822 121 43526	47nF	5%	100V	
2213	4822 124 40255	100µF	20%	50V	
2214	4822 124 40207	100µF	20%	25V	
2217	4822 124 12012	4700µF	20%	25V	
2300	4822 124 40248	10µF	20%	63V	
2301	4822 126 11714	4,7nF	20%	16V	
2302	4822 126 11714	4,7nF	20%	16V	
2303	4822 126 11714	4,7nF	20%	16V	
2304	4822 126 11714	4,7nF	20%	16V	
2305	4822 124 40433	47µF	20%	25V	
2306	4822 124 40433	47µF	20%	25V	
2307	4822 126 11714	4,7nF	20%	16V	
2308	4822 126 11714	4,7nF	20%	16V	
2309	4822 124 21913	1µF	20%	63V	
2310	4822 124 21913	1µF	20%	63V	
2311	4822 124 40207	100µF	20%	25V	
2312	4822 124 40207	100µF	20%	25V	
2313	4822 124 40207	100µF	20%	25V	
2314	4822 124 40207	100µF	20%	25V	
2315	4822 126 11714	4,7nF	20%	16V	
2316	4822 126 11714	4,7nF	20%	16V	
2317	4822 126 12882	100nF	20%	50V	
2318	4822 126 12882	100nF	20%	50V	
2319	4822 121 43526	47nF	5%	100V	
2320	4822 121 43526	47nF	5%	100V	
2321	4822 121 43526	47nF	5%	100V	
2322	4822 121 43526	47nF	5%	100V	
2323	4822 124 40248	10µF	20%	63V	
2324	4822 122 33069	33pF	5%	50V	
2325	4822 124 40433	47µF	20%	25V	

CAPACITORS

2326	4822 124 22652	2,2µF	20%	50V
2327	4822 124 40248	10µF	20%	63V
2328	4822 126 12882	100nF	20%	50V
2329	4822 124 21913	1µF	20%	63V
2330	4822 126 12882	100nF	20%	50V
2331	4822 126 12882	100nF	20%	50V
2332	4822 126 12882	100nF	20%	50V
2333	4822 124 40433	47µF	20%	25V
2334	4822 124 40433	47µF	20%	25V
2335	4822 124 40248	10µF	20%	63V
2336	4822 124 40433	47µF	20%	25V
2337	4822 124 40248	10µF	20%	63V
2338	4822 124 21913	1µF	20%	63V
2339	4822 124 40433	47µF	20%	25V
2341	4822 124 23052	100µF	20%	16V
2342	4822 124 23052	100µF	20%	16V
2343	4822 124 21913	1µF	20%	63V

RESISTORS

3200	4822 053 21106	10MΩ	5%	0,5W
3201	4822 116 52283	4,7kΩ	5%	0,5W
3202	4822 116 52276	3,9kΩ	5%	0,5W
3204	4822 116 52228	680Ω	5%	0,5W
3205	4822 116 52283	4,7kΩ	5%	0,5W
3206	4822 050 21003	10kΩ	2%	0,25W
3207	4822 116 52283	4,7kΩ	5%	0,5W
3208	4822 116 52283	4,7kΩ	5%	0,5W
3209	4822 116 52234	100kΩ	5%	0,5W
3211	4822 052 10478	4,7Ω	5%	NFR
3212	4822 050 23303	33kΩ	1%	0,6W
3300	4822 116 52276	3,9kΩ	5%	0,5W
3301	4822 116 83872	220Ω	5%	0,5W
3302	4822 116 83872	220Ω	5%	0,5W
3303	4822 116 52219	330Ω	5%	0,5W
3304	4822 116 52219	330Ω	5%	0,5W
3305	4822 116 52283	4,7kΩ	5%	0,5W
3306	4822 116 52283	4,7kΩ	5%	0,5W
3307	4822 116 83883	470Ω	5%	0,16W
3308	4822 116 83883	470Ω	5%	0,16W
3309	4822 050 24708	4,7Ω	1%	0,6W
3310	4822 050 24708	4,7Ω	1%	0,6W
3311	4822 050 24708	4,7Ω	1%	0,6W
3312	4822 050 24708	4,7Ω	1%	0,6W
3313	4822 116 83961	6,8kΩ	5%	0,16W
3314	4822 116 83883	470Ω	5%	0,16W
3315	4822 116 52219	330Ω	5%	0,5W
3316	4822 050 11002	1kΩ	5%	0,2W
3317	4822 116 83876	270Ω	5%	0,16W
3318	4822 116 52269	3,3kΩ	5%	0,5W
3319	4822 050 11002	1kΩ	5%	0,2W
3320	4822 050 11002	1kΩ	5%	0,2W
3321	4822 050 11002	1kΩ	5%	0,2W
3322	4822 116 83884	47kΩ	5%	0,16W
3323	4822 116 83884	47kΩ	5%	0,16W
3324	4822 116 52244	15kΩ	5%	0,5W
3325	4822 116 52269	3,3kΩ	5%	0,5W
3326	4822 116 52283	4,7kΩ	5%	0,5W
3327	4822 116 52213	180Ω	5%	0,5W
3328	4822 050 11002	1kΩ	5%	0,2W
3329	4822 053 11221	220Ω	5%	2W
3330	4822 053 11221	220Ω	5%	2W
3331	4822 050 23303	33kΩ	1%	0,6W
3332	4822 116 52256	2,2kΩ	5%	0,16W
3333	4822 116 52199	68Ω	5%	0,16W
3336	4822 050 21003	10kΩ	2%	0,25W
3337	4822 116 52206	120Ω	5%	0,5W
3338	4822 116 52176	10Ω	5%	0,5W
3339	4822 116 52269	3,3kΩ	5%	0,5W
3340	4822 116 83872	220Ω	5%	0,5W
3341	4822 116 52283	4,7kΩ	5%	0,5W
3342	4822 050 21003	10kΩ	2%	0,25W

ELECTRICAL PARTSLIST POWER2001 MODULE (Mains & Power Part)

RESISTORS

3343	4822 116 52285	470kΩ	5%	0,5W
3344	4822 050 21003	10kΩ	2%	0,25W
3345	4822 116 83876	270Ω	5%	0,16W
3346	4822 116 52249	1,8kΩ	5%	0,16W
3347	4822 116 52249	1,8kΩ	5%	0,16W
3348	4822 050 21003	10kΩ	2%	0,25W
3349	4822 116 52213	180Ω	5%	0,5W
3350	4822 050 21003	10kΩ	2%	0,25W
3351	4822 116 83868	150Ω	5%	0,5W
3352	4822 116 52206	120Ω	5%	0,5W
3353	4822 116 52249	1,8kΩ	5%	0,16W
3354	4822 116 52257	22kΩ	5%	0,5W
3355	4822 116 52256	2,2kΩ	5%	0,16W
3356	4822 116 52234	100kΩ	5%	0,5W
3357	4822 116 52175	100Ω	5%	0,5W
3358	4822 116 83868	150Ω	5%	0,5W
3359	4822 116 52234	100kΩ	5%	0,5W
3360	4822 116 52244	15kΩ	5%	0,5W
3361	4822 050 11002	1kΩ	5%	0,2W
3362	4822 116 83961	6,8kΩ	5%	0,16W
3363	4822 050 11002	1kΩ	5%	0,2W
3368	2322 640 63103	10kΩ	NTC	
3369	4822 116 83876	270Ω	5%	0,16W
3370	4822 050 11002	1kΩ	5%	0,2W
3371	4822 052 10568	5,6Ω	5%	0,33W
3372	4822 116 83884	47kΩ	5%	0,16W
3373	4822 050 21003	10kΩ	2%	0,25W
3374	4822 116 52213	180Ω	5%	0,5W
3376	4822 116 83883	470Ω	5%	0,16W
3377	4822 050 21003	10kΩ	2%	0,25W
3378	4822 116 52231	820Ω	5%	0,5W
3379	4822 116 83872	220Ω	5%	0,5W
3380	4822 050 11002	1kΩ	5%	0,2W
3381	4822 116 52234	100kΩ	5%	0,5W
3382	4822 116 52234	100kΩ	5%	0,5W
3383	4822 116 52234	100kΩ	5%	0,5W
3391	4822 116 52276	3,9kΩ	5%	0,5W
3392	4822 116 52283	4,7kΩ	5%	0,5W

COILS

5202	4822 157 11832	400µH
5220	4822 157 11832	400µH
5300	4822 157 62255	COIL 18,5 TURNS
5301	4822 157 62255	COIL 18,5 TURNS
5302	4822 157 62255	COIL 18,5 TURNS
5303	4822 157 62255	COIL 18,5 TURNS

DIODES

6200 ⚠	4822 130 31878	1N4003G
6201 ⚠	4822 130 31878	1N4003G
6202	4822 130 11139	GBU8D
6203	4822 130 30621	1N4148
6204	3198 010 58280	BZX79-B8V2
6206	4822 130 31878	1N4003G
6207	4822 130 34142	BZX79-B33
6208	4822 130 30621	1N4148
6209	4822 130 30621	1N4148
6210	4822 130 31878	1N4003G
6211	4822 130 31878	1N4003G
6212	4822 130 31878	1N4003G
6213	4822 130 31878	1N4003G
6214	4822 130 31878	1N4003G
6215	4822 130 31878	1N4003G
6216	4822 130 34382	BZX79-B8V2
6217	4822 130 31878	1N4003G
6218	4822 130 30621	1N4148
6220 ⚠	4822 130 31878	1N4003G
6221 ⚠	4822 130 31878	1N4003G
6300	4822 130 31878	1N4003G
6301	4822 130 31878	1N4003G
6302	4822 130 31878	1N4003G

DIODES

6303	4822 130 31878	1N4003G
6304	9340 550 66112	BYV28-200/24
6305	4822 130 61219	BZX79-C10
6306	4822 130 30621	1N4148
6307	3198 010 53980	BZX79-B3V9
6308	5322 130 31938	BYV27-200
6309	4822 130 34281	BZX79-C15
6310	3198 010 58280	BZX79-B8V2
6311	4822 130 31878	1N4003G
6312	4822 130 30621	1N4148
6313	4822 130 30621	1N4148
6314	4822 130 30621	1N4148
6315	4822 130 34398	BZX79-C24
6316	4822 130 34278	BZX79-C6V8
6317	4822 130 30621	1N4148
6318	4822 130 31878	1N4003G
6319	4822 130 30621	1N4148
6321	4822 130 30621	1N4148
6322	3198 010 53980	BZX79-B3V9
6323	4822 130 30621	1N4148
6324	4822 130 34278	BZX79-C6V8
6325	4822 130 34174	BZX79-B4V7
6326	4822 130 30621	1N4148
6327	4822 130 30621	1N4148
6329	4822 130 31981	BZX79-B3V9
6330	4822 130 30621	1N4148
6331	4822 130 30621	1N4148
6332	4822 130 34281	BZX79-C15
6333	4822 130 34173	BZX79-B5V6

TRANSISTORS

7200	4822 130 40917	BD238
7201	4822 130 41246	BC327-25
7202	4822 130 40959	BC547B
7300	4822 130 40959	BC547B
7303	4822 130 44568	BC557B
7304	4822 130 10847	BDW94C
7305	9322 139 23687	BDX53BFP
7306	4822 130 40995	BD438
7307	4822 130 41691	BC556B
7308	4822 130 40855	BC337-40
7309	4822 130 11336	STP16NE06FP
7310	4822 130 44568	BC557B
7311	4822 130 40959	BC547B
7312	4822 130 40959	BC547B
7313	4822 130 44568	BC557B
7314	4822 130 44503	BC547C
7315	4822 130 40959	BC547B
7316	4822 130 40959	BC547B
7317	4822 130 10847	BDW94C
7319	5322 130 44647	BC368
7320	4822 130 40995	BD438
7321	4822 130 40959	BC547B
7322	4822 130 40959	BC547B
7323	4822 130 40959	BC547B
7324	4822 130 40959	BC547B
7325	4822 130 40959	BC547B
7327	4822 130 41246	BC327-25
7328	4822 130 44568	BC557B
7330	4822 130 11336	STP16NE06FP
7331	4822 130 40959	BC547B
7332	4822 130 40855	BC337-40

INTEGRATED CIRCUITS

7301	9322 161 89682	AN7591, Power amplifier
7302	9322 161 89682	AN7591, Power amplifier
7318	4822 209 31841	L7805CP, Stabilizer 5V

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ELECTRICAL PARTSLIST POWER2001 MODULE (Dolby Pro Logic & C/S Amp. Part)

ELECTRICAL PARTSLIST POWER2001 MODULE (Dolby Pro Logic & C/S Amp. Part)

1MISCELLANEOUS

1700		4822 267 10738	FFC-CONNECTOR 13P			

CAPACITORS

2301		4822 124 40769	4,7µF	20%	100V	
2302		4822 124 40769	4,7µF	20%	100V	
2303	©	5322 126 11578	1nF	10%	63V	
2304	©	5322 126 11578	1nF	10%	63V	
2307		4822 121 42408	220nF	5%	63V	
2308		4822 121 42408	220nF	5%	63V	
2309		4822 121 42408	220nF	5%	63V	
2310		4822 121 42408	220nF	5%	63V	
2325	©	4822 126 13881	470pF	5%	50V	
2326		4822 124 40769	4,7µF	20%	100V	
2327		4822 124 40769	4,7µF	20%	100V	
2333	©	4822 126 14305	100nF	10%	16V	
2334		4822 124 81151	22µF	20%	50V	
2335	©	4822 126 14305	100nF	10%	16V	
2336		4822 124 81151	22µF	20%	50V	
2341	©	4822 126 13193	4,7nF	10%	63V	
2342	©	4822 126 13193	4,7nF	10%	63V	
2601		4822 124 40248	10µF	20%	63V	
2602		4822 124 40248	10µF	20%	63V	
2610	©	4822 126 14305	100nF	10%	16V	
2611	©	3198 016 36810	680pF	5%	25V	
2612		5322 121 42386	100nF	5%	63V	
2613		5322 121 42386	100nF	5%	63V	
2614	©	3198 016 36810	680pF	5%	25V	
2615		5322 121 42386	100nF	5%	63V	
2616		5322 121 42386	100nF	5%	63V	
2617		4822 124 40433	47µF	20%	25V	
2618		4822 124 40248	10µF	20%	63V	
2619	©	4822 126 13193	4,7nF	10%	63V	
2620		4822 124 40207	100µF	20%	25V	
2621		4822 124 40196	220µF	20%	16V	
2622		4822 124 40433	47µF	20%	25V	
2623		4822 124 40248	10µF	20%	63V	
2624		4822 124 40248	10µF	20%	63V	
2625	©	4822 126 13879	220nF	20%	16V	
2626	©	5322 126 11578	1nF	10%	63V	
2627	©	4822 126 14305	100nF	10%	16V	
2628		4822 124 40248	10µF	20%	63V	
2629	©	4822 126 11669	27pF	10%	50V	
2630	©	4822 126 11669	27pF	10%	50V	
2631	©	4822 126 14494	22nF	10%	25V	
2632	©	4822 126 14494	22nF	10%	25V	
2633	©	4822 126 14305	100nF	10%	16V	
2634	©	4822 126 14305	100nF	10%	16V	
2635	©	3198 017 34730	47nF	10%	16V	X7R
2636	©	3198 017 34730	47nF	10%	16V	X7R
2637	©	4822 126 14305	100nF	10%	16V	
2638		4822 121 42408	220nF	5%	63V	
2639		4822 121 42408	220nF	5%	63V	
2640		4822 124 40769	4,7µF	20%	100V	
2641		4822 124 40769	4,7µF	20%	100V	
2642		4822 121 42408	220nF	5%	63V	
2643		4822 121 42408	220nF	5%	63V	
2644		5322 121 42498	680nF	5%	63V	
2645	©	3198 017 34730	47nF	10%	16V	X7R
2646	©	4822 126 13193	4,7nF	10%	63V	
2647	©	4822 126 13883	220pF	5%	50V	
2649	©	5322 126 11578	1nF	10%	63V	
2650	©	5322 126 11578	1nF	10%	63V	
2651	©	5322 126 11578	1nF	10%	63V	

CAPACITORS

2652	©	4822 126 14305	100nF	10%	16V	
2653	©	4822 126 14305	100nF	10%	16V	
2654	©	4822 126 10847	1,8nF	10%	50V	
2655	©	5322 126 11583	10nF	10%	63V	
2656		5322 121 42465	68nF	10%	63V	
2657		5322 121 42386	100nF	5%	63V	
2658		5322 121 42386	100nF	5%	63V	
2659		5322 121 42465	68nF	10%	63V	
2660	©	4822 126 10847	1,8nF	10%	50V	
2661	©	5322 126 11583	10nF	10%	63V	
2662		4822 124 21913	1µF	20%	63V	
2663	©	4822 126 14305	100nF	10%	16V	
2664		4822 124 81151	22µF	20%	50V	
2665		4822 124 41584	100µF	20%	10V	
2671		4822 124 81151	22µF	20%	50V	
2672		4822 124 81151	22µF	20%	50V	
2673		4822 124 40248	10µF	20%	63V	
2674		4822 124 40248	10µF	20%	63V	
2675	©	4822 126 13881	470pF	5%	50V	
2676	©	4822 126 13881	470pF	5%	50V	
2677		4822 124 80195	470µ	20%	10V	
2678	©	4822 126 14305	100nF	10%	16V	
2681	©	4822 126 14305	100nF	10%	16V	
2682		4822 124 40207	100µF	20%	25V	
2683	©	4822 126 13193	4,7nF	10%	63V	
2684		4822 124 40248	10µF	20%	63V	
2685	©	4822 126 13193	4,7nF	10%	63V	
2691	©	4822 126 13883	220pF	5%	50V	
2692		4822 122 33519	470pF	10%	50V	
2693	©	4822 122 31765	100pF	5%	50V	
2694	©	4822 122 31765	100pF	5%	50V	
2695	©	4822 122 31765	100pF	5%	50V	
2701		4822 124 40433	47µF	20%	25V	
2702		4822 124 40433	47µF	20%	25V	
2724	©	4822 126 14305	100nF	10%	16V	
2728	©	4822 126 14305	100nF	10%	16V	

RESISTORS

3301	©	4822 117 12968	820Ω	5%	0,06W	
3302	©	4822 051 30152	1,5kΩ	5%	0,06W	
3303	©	4822 051 30682	6,8kΩ	5%	0,06W	
3304	©	4822 051 30682	6,8kΩ	5%	0,06W	
3307		4822 050 21003	10kΩ	2%	0,25W	
3308		4822 050 21003	10kΩ	2%	0,25W	
3309		4822 050 21003	10kΩ	2%	0,25W	
3310	©	4822 117 10833	10kΩ	1%	0,1W	
3311	©	4822 117 13613	2,2Ω	5%	0,06W	
3312	©	4822 117 13613	2,2Ω	5%	0,06W	
3313	©	4822 117 13613	2,2Ω	5%	0,06W	
3314	©	4822 117 13613	2,2Ω	5%	0,06W	
3321		4822 116 52283	4,7kΩ	5%	0,5W	
3322		4822 116 83883	470Ω	5%	0,16W	
3323	©	4822 051 30471	470Ω	5%	0,06W	
3324		4822 116 52249	1,8kΩ	5%	0,16W	
3325		4822 116 52249	1,8kΩ	5%	0,16W	
3326		4822 116 52249	1,8kΩ	5%	0,16W	
3327	©	4822 051 30331	330Ω	5%	0,06W	
3331		4822 116 52257	22kΩ	5%	0,5W	
3332		4822 116 52257	22kΩ	5%	0,5W	
3333	©	4822 117 12925	47kΩ	1%	0,06W	
3334	©	4822 117 12925	47kΩ	1%	0,06W	
3335		4822 116 52244	15kΩ	5%	0,5W	
3336	©	4822 051 30154	150kΩ	5%	0,06W	

RESISTORS

3337		4822 116 52175	100Ω	5%	0,5W	
3601	©	4822 051 30102	1kΩ	5%	0,06W	
3602	©	4822 051 30102	1kΩ	5%	0,06W	
3603	©	4822 051 30102	1kΩ	5%	0,06W	
3604	©	4822 051 30102	1kΩ	5%	0,06W	
3605	©	4822 051 30154	150kΩ	5%	0,06W	
3606	©	4822 051 30154	150kΩ	5%	0,06W	
3607	©	4822 051 30223	22kΩ	5%	0,06W	
3608	©	4822 051 30223	22kΩ	5%	0,06W	
3611	©	4822 051 30153	15kΩ	5%	0,06W	
3612	©	4822 117 12925	47kΩ	1%	0,06W	
3613	©	4822 051 30682	6,8kΩ	5%	0,06W	
3614	©	4822 051 30153	15kΩ	5%	0,06W	
3615	©	4822 117 12925	47kΩ	1%	0,06W	
3616	©	4822 051 30682	6,8kΩ	5%	0,06W	
3617	©	3198 021 32250	2,2MΩ	5%	0,06W	
3618	©	4822 117 13632	100kΩ	1%	0,06W	
3619	©	4822 117 12891	220kΩ	1%	0,06W	
3620		4822 116 52257	22kΩ	5%	0,5W	
3621		4822 050 21003	10kΩ	2%	0,25W	
3622		4822 116 83874	220kΩ	5%	0,5W	
3623	©	4822 051 30102	1kΩ	5%	0,06W	
3624	©	4822 051 30102	1kΩ	5%	0,06W	
3625	©	4822 051 30105	1MΩ	5%	0,06W	
3626	©	4822 051 30109	10Ω	5%	0,06W	
3631	©	4822 051 30334	330kΩ	5%	0,06W	
3632	©	4822 117 12925	47kΩ	1%	0,06W	
3633	©	4822 117 12925	47kΩ	1%	0,06W	
3634	©	4822 051 30123	12kΩ	5%	0,06W	
3635	©	4822 051 30123	12kΩ	5%	0,06W	
3673	©	4822 051 30562	5,6kΩ	5%	0,06W	
3674	©	4822 051 30562	5,6kΩ	5%	0,06W	
3681	©	4822 117 12968	820Ω	5%	0,06W	
3682	©	4822 051 30472	4,7kΩ	5%	0,06W	
3683	©	4822 051 30222	2,2kΩ	5%	0,06W	
3684	©	4822 051 30392	3,9kΩ	5%	0,06W	
3691	©	4822 051 30102	1kΩ	5%	0,06W	
3692	©	4822 051 30102	1kΩ	5%	0,06W	
3693	©	4822 051 30471	470Ω	5%	0,06W	
3694		4822 116 83883	470Ω	5%	0,16W	
3695		4822 050 11002	1kΩ	5%	0,2W	
3701		4822 050 21003	10kΩ	2%	0,25W	
3702		4822 050 21003	10kΩ	2%	0,25W	
3703		4822 050 11002	1kΩ	5%	0,2W	
3704		4822 050 11002	1kΩ	5%	0,2W	
3705	©	4822 051 30472	4,7kΩ	5%	0,06W	
3706	©	4822 051 30472	4,7kΩ	5%	0,06W	
4301	©	4822 051 30008	CHIP JUMPER 0603			
4302	©	4822 051 30008	CHIP JUMPER 0603			
4601	©	4822 051 30008	CHIP JUMPER 0603			
4602	©	4822 051 30008	CHIP JUMPER 0603			
4603	©	4822 051 30008	CHIP JUMPER 0603			
4604	©	4822 051 30008	CHIP JUMPER 0603			
4605	©	4822 051 30008	CHIP JUMPER 0603			
4606	©	4822 051 30008	CHIP JUMPER 0603			
4607	©	4822 051 30008	CHIP JUMPER 0603			
4608	©	4822 051 30008	CHIP JUMPER 0603			
4609	©	4822 051 30008	CHIP JUMPER 0603			
4610	©	4822 051 30008	CHIP JUMPER 0603			
4611	©	4822 051 30008	CHIP JUMPER 0603			
4612	©	4822 051 30008	CHIP JUMPER 0603			
4613	©	4822 051 30008	CHIP JUMPER 0603			
4614	©	4822 051 30008	CHIP JUMPER 0603			
4616	©	4822 051 30008	CHIP JUMPER 0603			

RESISTORS

4617	©	4822 051 30008	CHIP JUMPER 0603
4618	©	4822 051 30008	CHIP JUMPER 0603
4619	©	4822 051 30008	CHIP JUMPER 0603
4720	©	4822 051 30008	CHIP JUMPER 0603
4725	©	4822 051 30008	CHIP JUMPER 0603
4727	©	4822 051 30008	CHIP JUMPER 0603

COILS

5311		4822 157 11837	0,36µH 10%
5312		4822 157 11837	0,36µH 10%
5313		4822 157 11837	0,36µH 10%
5314		4822 157 11837	0,36µH 10%
5600		4822 242 72527	CER. RES. 4,0MHz
5681		4822 157 62552	2,2µH

DIODES

6301		4822 130 31878	1N4003G
6302		4822 130 31878	1N4003G
6303		4822 130 31878	1N4003G
6304		4822 130 31878	1N4003G
6325		4822 130 30621	1N4148
6326		4822 130 31024	BZX79-C18
6327		4822 130 34174	BZX79-B4V7
6328		3198 010 52290	BZX79-B22
6329		4822 130 31878	1N4003G
6330		4822 130 31878	1N4003G
6331		4822 130 31878	1N4003G
6332		4822 130 31878	1N4003G
6333		4822 130 31878	1N4003G
6334		4822 130 31878	1N4003G

TRANSISTORS

7321		4822 130 10847	BDW94C
7322		4822 130 40959	BC547B
7331	©	4822 130 60373	BC856B
7332	©	4822 130 60373	BC856B
7333		4822 130 40959	BC547B
7681		4822 130 40959	BC547B
7682		4822 130 40959	BC547B
7701	©	4822 130 60373	BC856B
7702	©	4822 130 60373	BC856B
7703	©	4822 130 60511	BC847B
7704	©	4822 130 60511	BC847B

INTEGRATED CIRCUITS

7300		9322 133 18682	AN7125P
7600	©	4822 209 17347	M62460FP
7601	©	4822 209 17349	M62429FP

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REMARKS :

CENTER/SURROUND & MATRIX SURROUND SOCKET BOARD

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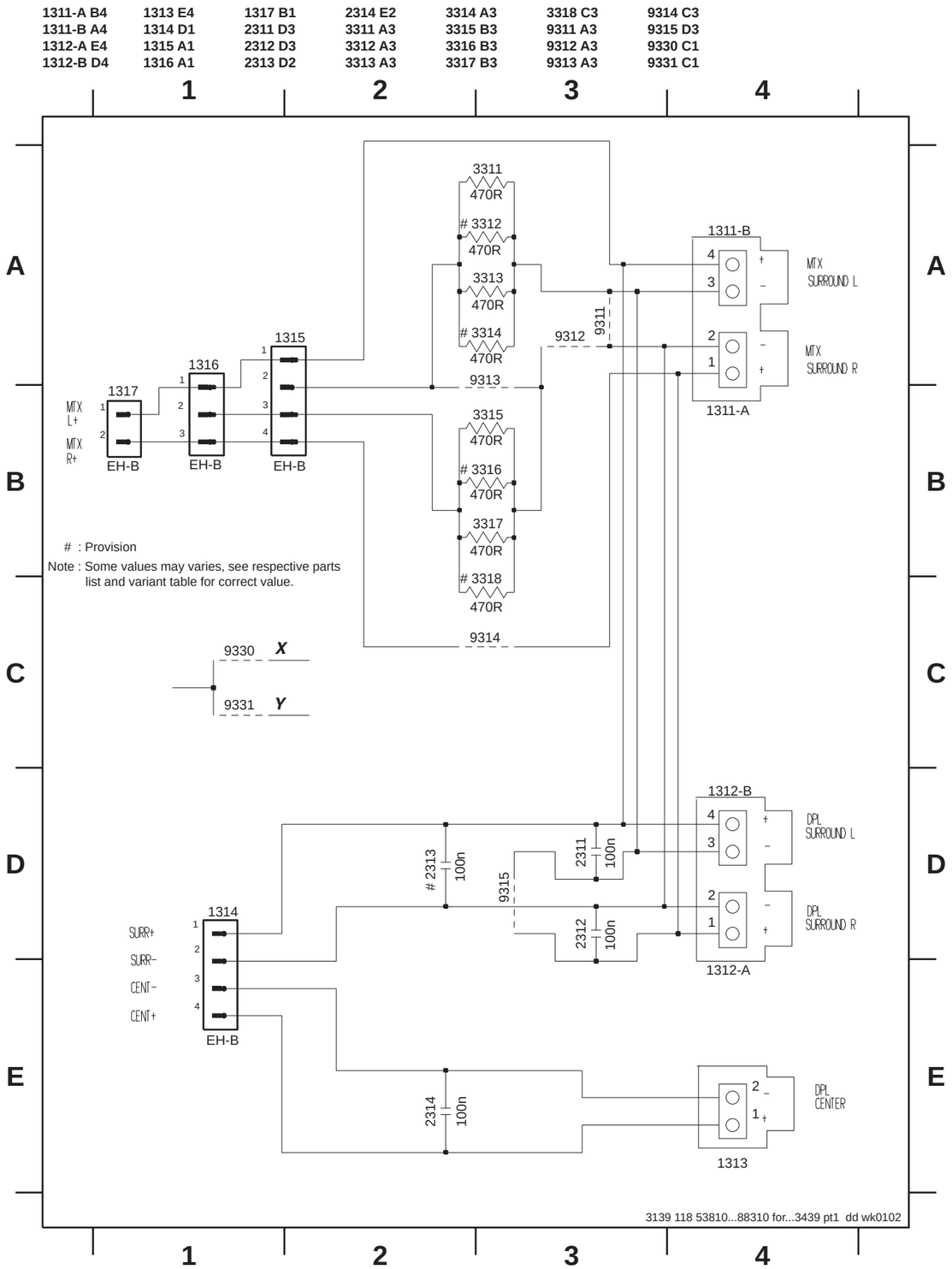
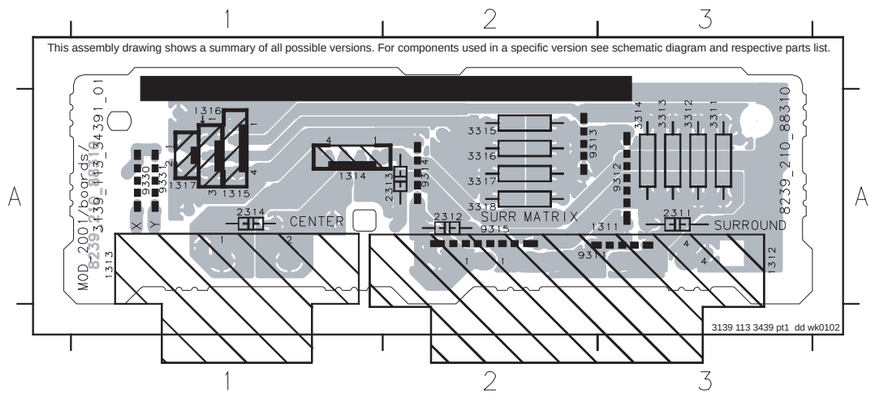
CENTER/SURROUND & MATRIX SURROUND SOCKET - CIRCUIT DIAGRAM



CENTER/SURROUD & MATRIX SURROUND SOCKET BOARD - COMPONENT LAYOUT

1311 A3 1314 A1 1317 A1 2313 A2 3312 A3 3315 A2 3318 A2 9313 A2 9330 A1
1312 A3 1315 A1 2311 A3 2314 A1 3313 A3 3316 A2 9311 A2 9314 A2 9331 A1
1313 A1 1316 A1 2312 A2 3311 A3 3314 A3 3317 A2 9312 A3 9315 A2



VARIANT TABLE

	FW-P750/22 FW-P750/34 FW-P750/37	FW-C720/21
1311	-	4P
1312	4P	-
1313	2P	-
1314	X	-
1315	-	X
1316 , 1317	-	-
2311 , 2312	100nF CerTub	-
2314	100nF CerTub	-
3311 , 3313	-	470R PR01
3315 , 3317	-	470R PR01
9311 , 9312	-	X
9313	-	-
9314	-	X
9315	X	-
X 9330	-	-
Y 9331	-	X

X - Item in use.

ELECTRICAL PARTS LIST - CENTER/SURROUND & MATRIX SURROUND SOCKET BOARD

MISCELLANEOUS

1312	4822 265 10912	Surround Speaker Terminal 4P	2312	4822 126 12882	100nF +80/-20% 50V
1313	4822 265 10464	Center Speaker Terminal 2P	2314	4822 126 12882	100nF +80/-20% 50V

CAPACITORS

2311	4822 126 12882	100nF +80/-20% 50V

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

AF9 BOARD

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BRIEF INTRODUCTION OF THE AF9 BOARD

The AF9 Board consists of the following features :

a. TDA7468D IC
TDA7468D IC (7501) which includes functions such as source selection, loudness control, dynamic bass control, treble control, volume control and muting function. Sound features such as ALC, DBB, DSC and IS are controllable via I^2C Bus from the microprocessor.

The TDA7468D IC caters for 4 input sources namely TUNER, TAPE, CD and AUX. It also has a Mic mix input. In our application, software will switch the input source to previous source MUTE during STANDBY mode and some other occasions where noise from other input source is undesirable.

Note that the input to the TDA7468D IC must be ac coupled to prevent 'polp' noise.
Input networks are included to provide appropriate attenuation for various sources.

b. SIMPLE MIC MIXING
The AF9 Board has provisions which can be configured to cater for one of the following:
MM : which caters for Mic mixing with additional Mic amplifier board.
NM : non Mic mixing.

c. DOLBY PRO LOGIC (DPL) INTERFACE
The AF9 Board has provisions which can be configured to cater for DPL.

d. LINE OUT
Line out cinch socket for connection to external amplifier.

e. SUB-WOOFER OUT
Sub-woofer out cinch socket for connection to active sub-woofer speaker.

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

g. HEADPHONE AMPLIFIER
Headphone amplifier to drive 32 ohm to 1kohm headphone.

h. CD STANDBY CONTROL
CD Standby Control circuit which switches on the supply to CD servo control IC, digital out buffer IC, HF circuit and the laser light pen in CD mode only.

i. ATTENUATION NETWORK
Attenuation network is provided at the output of the AF9 Board for interfacing with power board of different output power.

j. CD DIGITAL OUT
CD Digital out cinch socket for connection to external digital audio decoders.

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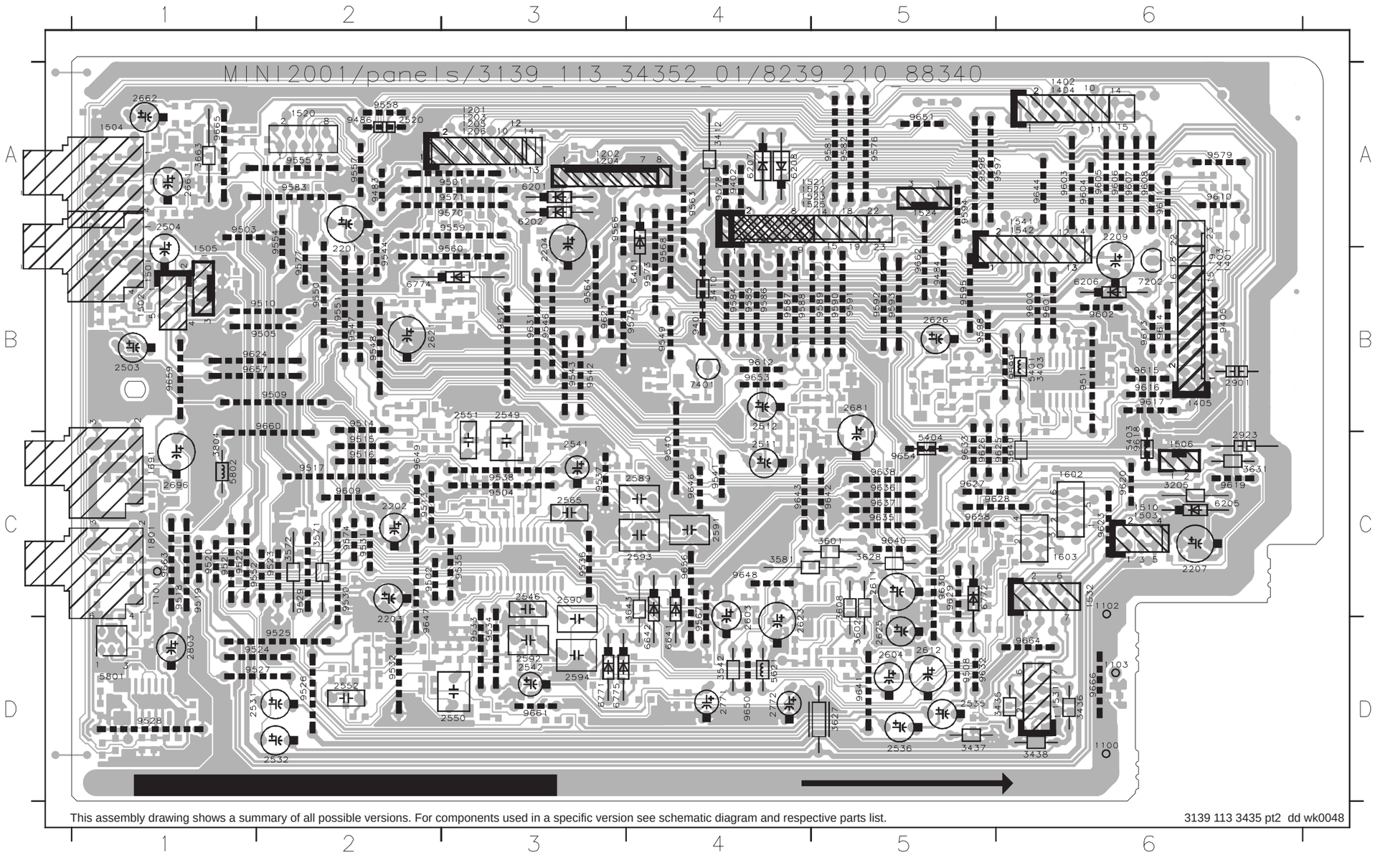
AF9 BOARD - COMPONENT LAYOUT

1100 D6	1502 B1	1602 C6	2532 D2	2594 D3	2901 B6	3608 C5	6205 C6	9483 A2	9516 C2	9532 D2	9550 B2	9573 B4	9590 B5	9606 A6	9623 C6	9641 D5	9660 B2
1101 C1	1503 C6	1603 C6	2535 D5	2603 D4	2923 C6	3627 D5	6206 B6	9484 B5	9517 C2	9533 D3	9551 B2	9574 C2	9591 B5	9607 A6	9624 B1	9642 C5	9661 D3
1102 C6	1504 A1	1691 C1	2536 D5	2604 D5	3205 C6	3628 C5	6207 A4	9486 A2	9518 C1	9534 D3	9552 C1	9575 B4	9592 B5	9608 A6	9625 C6	9643 C4	9662 B5
1103 D6	1505 B1	1801 C1	2541 C3	2611 C5	3403 B6	3631 C6	6208 A4	9501 A3	9519 C1	9535 C3	9554 A2	9576 A5	9593 B5	9609 C2	9626 C5	9644 A6	9663 C1
1201 A3	1506 C6	2201 B2	2542 D3	2612 D5	3410 B4	3640 C6	6401 B4	9502 C2	9520 C1	9536 C3	9555 A2	9577 B2	9594 A5	9610 A6	9627 C5	9646 C4	9664 D6
1202 A3	1510 C6	2202 C2	2546 C3	2621 B2	3412 A4	3643 C4	6641 D4	9503 A1	9521 C1	9537 C3	9557 A2	9578 A4	9595 B5	9611 A6	9628 C6	9647 D2	9665 A1
1203 A3	1520 A2	2203 D2	2549 B3	2623 D4	3435 D6	3663 A1	6642 D4	9504 C3	9522 C1	9538 C3	9558 A2	9579 A6	9596 A5	9612 B4	9629 C5	9648 C4	9666 D6
1204 A3	1521 A5	2204 B3	2550 D3	2625 D5	3436 D6	3804 C1	6771 D3	9505 B2	9523 C2	9540 C4	9559 A3	9581 A5	9597 A6	9613 B6	9630 C5	9649 C2	
1205 A3	1522 A5	2207 C6	2551 B3	2626 B5	3437 D5	5401 B6	6772 C5	9508 D5	9524 D2	9541 C4	9560 B3	9582 A5	9598 B5	9614 B6	9631 B3	9650 D4	
1206 A3	1523 A5	2209 A6	2552 D2	2661 A1	3438 D6	5403 C6	6774 B2	9509 B2	9525 D2	9542 B3	9563 A4	9583 A2	9599 B6	9615 B6	9632 D5	9651 A5	
1401 B6	1524 A5	2503 B1	2565 C3	2662 A1	3542 D4	5404 C5	6775 D3	9510 B2	9526 D2	9543 B3	9564 B3	9584 B4	9600 B6	9616 B6	9633 C5	9653 B4	
1402 A6	1525 A5	2504 A1	2589 C4	2681 B5	3571 C2	5621 D4	7202 B6	9511 B6	9527 D2	9544 B2	9566 A3	9585 B4	9601 B6	9617 B6	9635 C5	9654 C5	
1403 B6	1531 D6	2511 C4	2590 C3	2696 C1	3572 C2	5801 D1	7401 B4	9512 B3	9528 D1	9546 B3	9567 D4	9586 B4	9602 B6	9618 C6	9636 C5	9656 C4	
1404 A6	1532 C6	2512 B4	2591 C4	2771 D4	3581 C4	5802 C1	9401 B4	9513 C2	9529 C2	9547 B2	9568 B4	9587 B4	9603 A6	9619 C6	9637 C5	9657 B1	
1405 B6	1541 A6	2520 A2	2592 D3	2772 D4	3601 C5	6201 A3	9402 A4	9514 B2	9530 C2	9548 B2	9570 A3	9588 B4	9604 A6	9620 C6	9638 C5	9658 C5	
1501 B1	1542 A6	2531 D1	2593 C4	2803 D1	3602 D5	6202 A3	9405 B6	9515 C2	9531 C2	9549 B4	9571 A3	9589 B5	9605 A6	9621 B3	9640 C5	9659 B1	



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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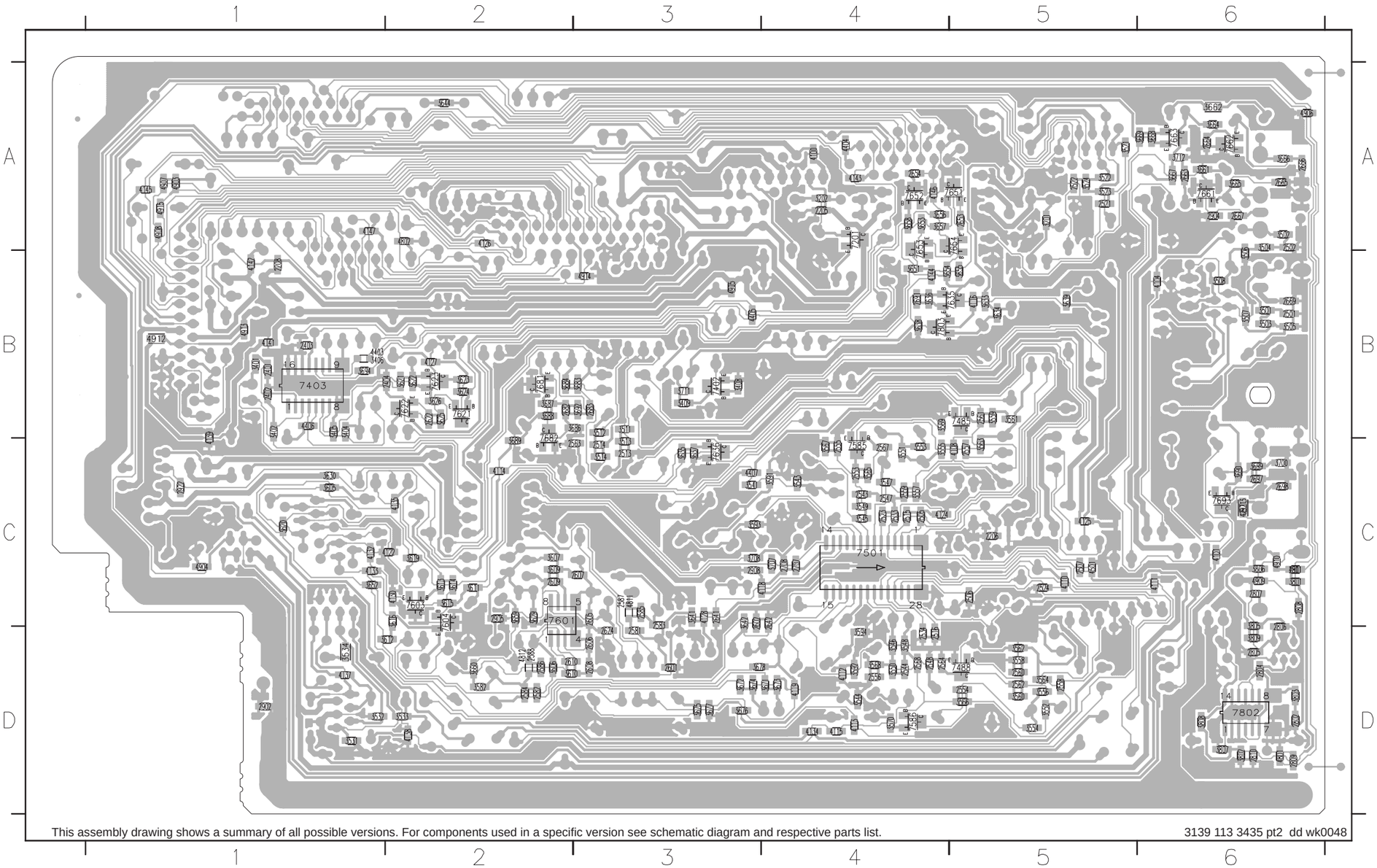
AF9 BOARD - CHIP LAYOUT

2205 A4	2523 C4	2563 C3	2609 C2	2698 C6	3201 A5	3512 B3	3549 C4	3567 C4	3615 C2	3639 B5	3666 A6	3690 C6	4101 C6	4130 C2	4406 B1	4913 B1	7636 C3
2206 C5	2524 C5	2564 D4	2610 D2	2707 C4	3202 A4	3513 C3	3550 D4	3568 D4	3616 C2	3641 C3	3667 A6	3692 B3	4104 B6	4132 C1	4407 C3	4914 B3	7651 A5
2208 B1	2533 C4	2567 C4	2622 B2	2708 C4	3401 B1	3514 C3	3551 C4	3569 B4	3619 C2	3642 C3	3668 A6	3694 B1	4108 C5	4133 C1	4501 C5	4915 A1	7652 A4
2401 B1	2534 D4	2568 D4	2624 D3	2801 C6	3402 B1	3521 A5	3552 D5	3570 D4	3620 C1	3644 A2	3669 A6	3699 C6	4110 C5	4134 D4	4801 D6	7201 A4	7653 A4
2402 B1	2543 C4	2581 D3	2641 C3	2802 D6	3404 B1	3522 A5	3553 C4	3582 D2	3621 B2	3651 B4	3671 D4	3700 C6	4111 C6	4135 C2	4802 A2	7402 B3	7654 A5
2403 B1	2544 D4	2582 D2	2642 C4	2804 D6	3405 B1	3523 A5	3554 D5	3591 C4	3622 B2	3652 C1	3672 D3	3707 C4	4112 D4	4137 D1	4811 C3	7403 B1	7661 A6
2404 B2	2547 C4	2583 C3	2653 A5	2805 D6	3406 B1	3524 A5	3555 C4	3592 D4	3623 B2	3653 A4	3673 D4	3708 C3	4113 D4	4138 D2	4812 D2	7485 B5	7662 A6
2501 B6	2548 D4	2584 D2	2654 A4	2806 D6	3408 B3	3531 D1	3556 D5	3593 C3	3624 B2	3654 B4	3674 D3	3711 B3	4114 C2	4139 B1	4813 C6	7488 D5	7663 A6
2502 A6	2553 C4	2585 C3	2663 A6	2807 C6	3409 B3	3532 D1	3557 C4	3594 D4	3625 B2	3655 B5	3675 D3	3712 A6	4115 D4	4141 B1	4903 A1	7501 C4	7681 B2
2505 C4	2554 D5	2586 D2	2664 A6	2808 C6	3501 B6	3533 D2	3558 D5	3605 C1	3626 B2	3656 A4	3676 D3	3801 C6	4116 B5	4142 B1	4904 C1	7585 C4	7682 B2
2506 C5	2555 C4	2587 C3	2665 A6	2809 D6	3502 A6	3534 D1	3559 B5	3606 D2	3629 C2	3657 A4	3677 D3	3802 D6	4118 C4	4143 A4	4905 B3	7586 D4	7693 C6
2507 C5	2556 D4	2588 D2	2666 A6	2810 D6	3503 B6	3541 C3	3560 D5	3607 C2	3630 C1	3658 A4	3678 D3	3803 D6	4119 D4	4144 B4	4906 A6	7601 C2	7802 D6
2513 C3	2557 C5	2601 D3	2667 A6	2902 D1	3504 A6	3543 C4	3561 B5	3609 C2	3633 B5	3659 C2	3683 B3	3805 C6	4122 C2	4145 A1	4907 A1	7603 C2	7803 B4
2514 C3	2558 D5	2602 C3	2669 B6	2904 A6	3505 B6	3544 D4	3562 D5	3610 D2	3634 B5	3660 D2	3684 B2	3806 C6	4124 C4	4146 A4	4908 A1	7604 C2	
2515 C4	2559 C4	2605 C3	2682 B2	2905 C2	3506 B6	3545 C4	3563 C5	3611 C2	3635 C3	3661 A6	3686 B3	3807 D6	4125 C5	4147 A1	4909 C6	7621 B2	
2516 D4	2560 D5	2606 D3	2683 B3	2908 C3	3507 B6	3546 D4	3564 D5	3612 D2	3636 B4	3662 A6	3687 B2	3808 D6	4126 A2	4403 B1	4910 C6	7622 B2	
2521 A5	2561 B5	2607 C3	2691 B4	2921 C6	3508 B6	3547 C4	3565 C4	3613 C2	3637 C3	3664 A6	3688 B2	3809 D6	4127 B2	4404 A4	4911 C6	7623 B2	
2522 A5	2562 D5	2608 D3	2697 C6	2922 C1	3511 B3	3548 D4	3566 D5	3614 C2	3638 B4	3665 A6	3689 C2	4100 A4	4128 C3	4405 B3	4912 B1	7635 B5	



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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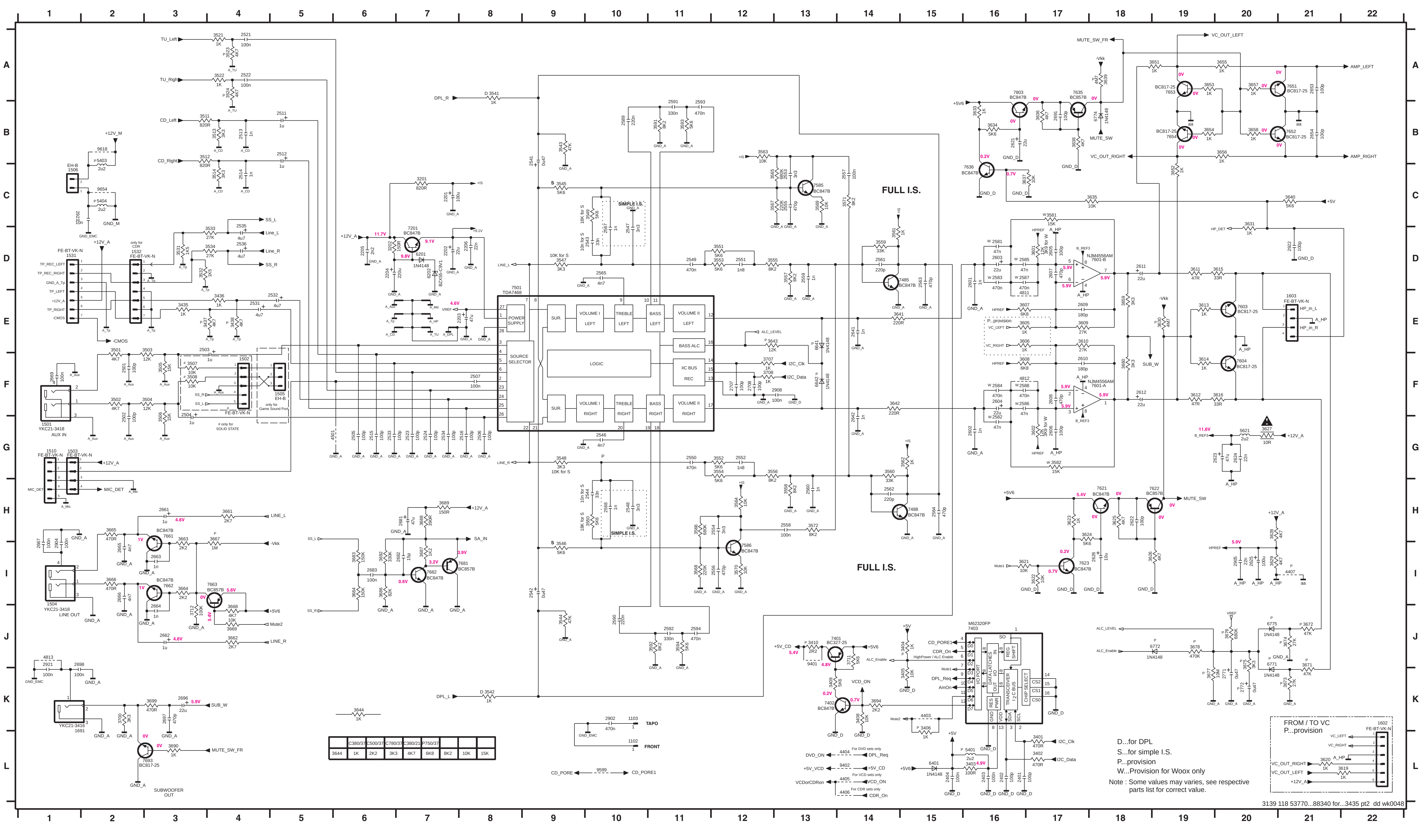
AF9 BOARD - CIRCUIT DIAGRAM (PART 1)

1102 L10	1531 D1	2205 D6	2504 G3	2516 G8	2535 D4	2549 D11	2558 H13	2568 H10	2589 B10	2604 F16	2621 B16	2654 B21	2681 H7	2771 K20	3201 C7	3409 K13	3504 F3	3521 A4	3542 K8	3551 D12	3560 G14	3569 C13	3594 J11	3611 D19	3622 I17	3631 C20	3641 E14	3656 B20	3665 H2	3675 J20	3689 H7	3712 J3	4813 J1	6642 F13	7485 D14	7621 H18	7661 H3	9599 L10
1103 K10	1532 D2	2206 D8	2505 G6	2521 A4	2536 D4	2550 G11	2559 D13	2581 D16	2590 J10	2605 D17	2622 H18	2661 H3	2682 I7	2772 K20	3202 D6	3410 J13	3505 F3	3522 A4	3543 B9	3552 G12	3561 D14	3570 I12	3601 D17	3612 F19	3623 H17	3633 B16	3642 F14	3657 A20	3666 I2	3676 J20	3690 L3	4403 K15	5401 L16	6771 J20	7488 H15	7622 H18	7662 I3	9618 B2
1501 G1	1602 K22	2401 L16	2506 G8	2522 A4	2541 B9	2551 D12	2560 H13	2582 G16	2591 A11	2606 G17	2623 G20	2662 J3	2683 I6	2902 K10	3401 L17	3435 E3	3506 G3	3523 A4	3544 J9	3553 D12	3562 G15	3571 C14	3602 G17	3613 E19	3624 H17	3634 B16	3643 E12	3658 B20	3667 H4	3677 K19	3692 I6	4404 L14	5403 B2	6772 J19	7501 D8	7623 I17	7663 I4	9654 C2
1502 F4	1603 E21	2402 L16	2507 F8	2523 G7	2542 I9	2552 G12	2561 D14	2583 D16	2592 J11	2607 D17	2624 G20	2663 I3	2691 B17	2904 I1	3402 L17	3436 E4	3507 F3	3524 A4	3545 C9	3554 G12	3563 B12	3572 H13	3605 E16	3614 F19	3625 H18	3635 C18	3644 K6	3659 E18	3668 J4	3678 J19	3694 K14	4405 L14	5404 C2	6774 B18	7585 C13	7635 A17	7681 I7	
1503 G1	1691 K2	2403 L16	2511 B5	2524 G7	2543 D10	2553 C13	2562 H14	2584 F16	2593 A11	2608 F17	2625 I20	2664 J3	2696 K3	2905 I20	3403 L16	3437 E3	3508 F3	3531 D3	3546 I9	3555 D12	3564 H12	3581 C17	3606 E16	3615 D20	3626 I18	3636 B17	3651 A19	3660 F18	3669 J4	3683 I6	3699 K3	4406 L14	5621 G20	6775 J20	7586 I12	7636 C16	7682 I7	
1504 I1	2201 C7	2404 L15	2512 B5	2531 E4	2544 H10	2554 H12	2563 D15	2585 D16	2594 J11	2609 E17	2626 I18	2665 I2	2697 K3	2908 F13	3404 J15	3438 E4	3511 B3	3532 D3	3547 D9	3556 G12	3565 C12	3582 G17	3607 E16	3616 F20	3627 G20	3637 C16	3652 C19	3661 H4	3671 J21	3684 I6	3700 K2	4407 I21	6201 D7	7201 C7	7601-A F18	7651 A21	7693 L3	
1505 F5	2202 D7	2501 F2	2513 B4	2532 E5	2546 G10	2555 C13	2564 H15	2586 F16	2601 D16	2610 F17	2641 E14	2666 I2	2698 J1	2921 J1	3405 K15	3501 E2	3512 B3	3533 D4	3548 G9	3557 D13	3566 H11	3591 B11	3608 F16	3619 L22	3628 H20	3638 B17	3653 A19	3662 J4	3672 J21	3686 I6	3707 F12	4501 G6	6202 D7	7401 J14	7601-B D18	7652 B21	7803 A16	
1506 C1	2203 E8	2502 G2	2514 C4	2533 G6	2547 D10	2556 I12	2565 D10	2587 D16	2602 G16	2611 D18	2642 G14	2667 I1	2707 F12	2922 D21	3406 K15	3502 F2	3513 B4	3534 D4	3549 C10	3558 H13	3567 C12	3592 J11	3609 E17	3620 L21	3629 I20	3639 A18	3654 B19	3663 H3	3673 K21	3687 I7	3708 F12	4811 E16	6401 L15	7402 K13	7603 E20	7653 A19	9401 J13	
1510 G1	2204 D6	2503 E3	2515 G6	2534 G7	2548 H10	2557 C14	2567 D10	2588 F16	2603 D16	2612 F18	2653 A21	2669 F1	2708 F12	2923 C1	3408 K14	3503 E3	3514 C4	3541 A8	3550 H10	3559 D14	3568 I11	3593 B11	3610 E17	3621 I16	3630 E19	3640 C21	3655 A20	3664 I3	3674 J21	3688 H7	3711 J14	4812 F16	6641 E13	7403 J16	7604 F20	7654 B19	9402 L14	



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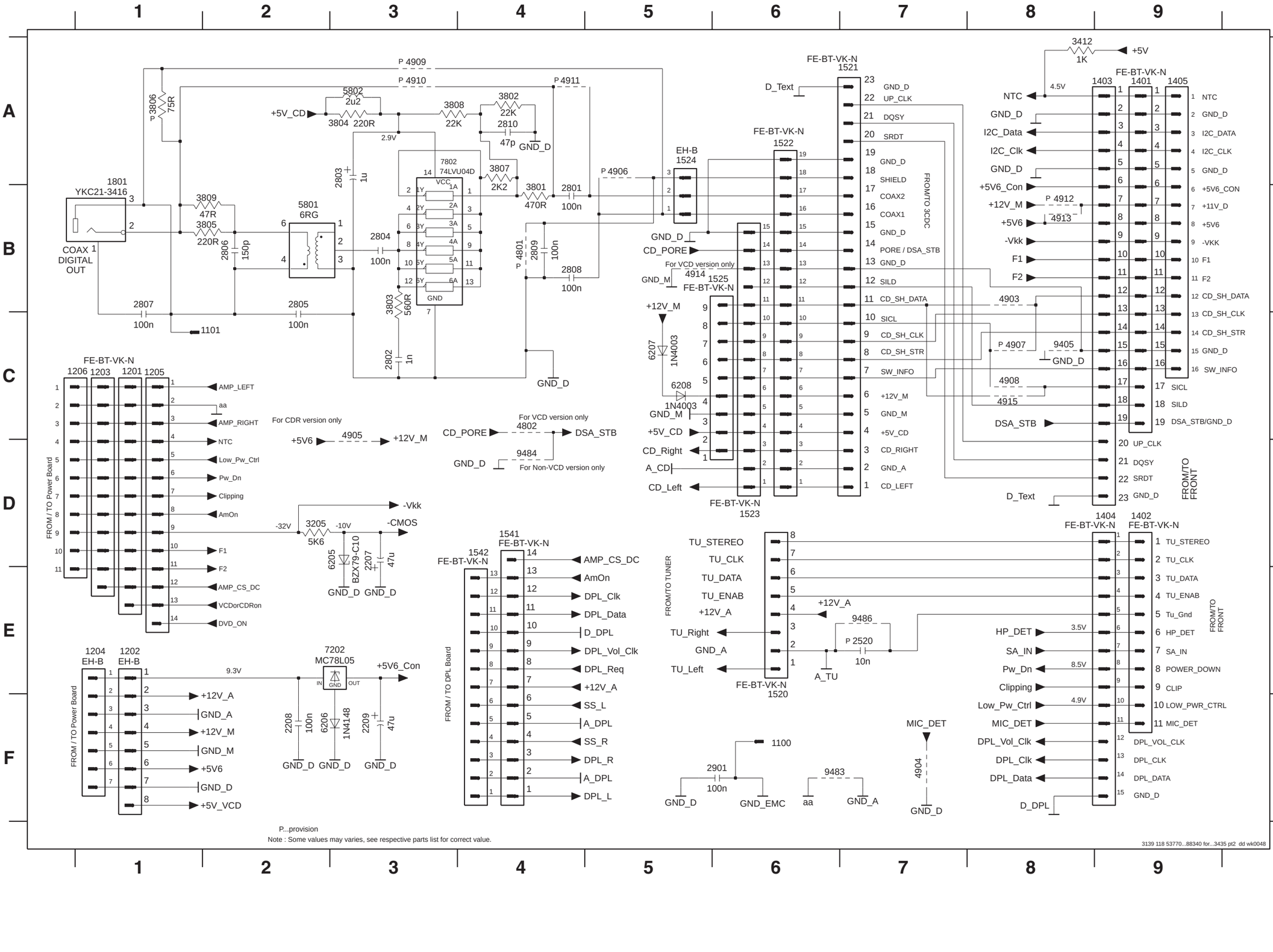
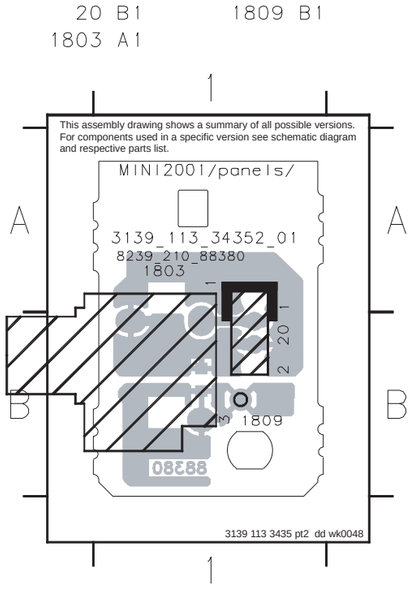
AF9 BOARD - CIRCUIT DIAGRAM (PART 2)

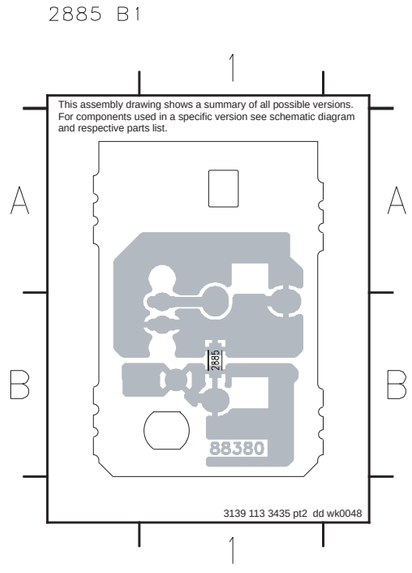


1100 F6
1101 C2
1201 C1
1202 E1
1203 C1
1204 E1
1205 C1
1206 C1
1401 A9
1402 D9
1403 A9
1404 D9
1405 A9
1520 E6
1521 A7
1522 A6
1523 D6
1524 A5
1525 B5
1541 D4
1542 D4
1801 A1
2207 D3
2208 F2
2209 F3
2520 E7
2801 B4
2802 C3
2803 A3
2804 B3
2805 B2
2806 B2
2807 B1
2808 B4
2809 B4
2810 A4
2901 F6
3205 D2
3412 A8
3801 B4
3802 A4
3803 B3
3804 A3
3805 B2
3806 A1
3807 A4
3808 A3
3809 B2
4801 B4
4802 C4
4903 B8
4904 F7
4905 C3
4906 A5
4907 C8
4908 C8
4909 A3
4910 A3
4911 A4
4912 B8
4913 B8
4914 B5
4915 C8
5801 B2
5802 A3
6205 D3
6206 F2
6207 C5
6208 C5
7202 E3
7802 A3
9405 C8
9483 F6
9484 D4
9486 E7

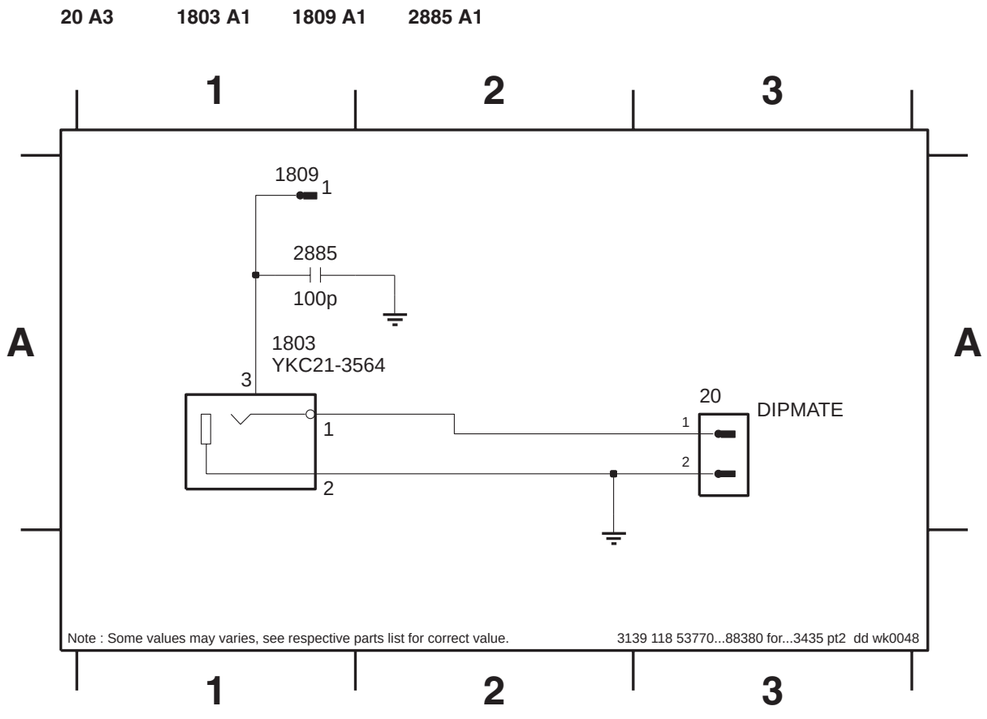
VIDEO OUT CINCH BOARD - COMPONENT LAYOUT



VIDEO OUT CINCH BOARD - CHIP LAYOUT



VIDEO OUT CINCH PART - CIRCUIT DIAGRAM



12-6

ELECTRICAL PARTS LIST - AF9 BOARD

MISCELLANEOUS

1203	4822 267 10732	Flex Connector 12P
1401	4822 265 11553	Flex Connector 19P
1404	4822 265 10981	Flex Connector 15P
1501	4822 265 20553	Cinch Socket - Aux in
1520	4822 265 11515	Flex Connector 8P
1523	4822 265 10981	Flex Connector 15P
1531	4822 267 10953	Flex Connector 7P
1542	4822 267 10738	Flex Connector 13P
1603	4822 267 10733	Flex Connector 4P
1691	4822 267 31729	Cinch Socket - Subwoofer out

CAPACITORS

2201	4822 124 40207	100µF 20% 25V
2202	4822 124 81151	22µF 50V
2203	4822 124 40433	47µF 20% 25V
2204	4822 124 40196	220µF 20% 16V
2205	4822 126 14238	2,2nF 50V
2206	4822 126 14494	22nF 10% 25V
2207	4822 124 40433	47µF 20% 25V
2208	4822 126 14305	100nF 10% 16V
2209	4822 124 41751	47µF 20% 50V
2401	4822 122 31765	100pF 2% 63V
2402	4822 122 31765	100pF 2% 63V
2403	4822 126 14305	100nF 10% 16V
2404	4822 126 14305	100nF 10% 16V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 124 21913	1µF 20% 63V
2504	4822 124 21913	1µF 20% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 126 14305	100nF 10% 16V
2511	4822 124 21913	1µF 20% 63V
2512	4822 124 21913	1µF 20% 63V
2513	3198 016 31020	1nF 25V
2514	3198 016 31020	1nF 25V
2515	4822 122 31765	100pF 2% 63V
2516	4822 122 31765	100pF 2% 63V
2521	4822 126 14305	100nF 10% 16V
2522	4822 126 14305	100nF 10% 16V
2523	4822 122 31765	100pF 2% 63V
2524	4822 122 31765	100pF 2% 63V
2531	4822 124 40769	4,7µF 20% 100V
2532	4822 124 40769	4,7µF 20% 100V
2533	4822 122 31765	100pF 2% 63V
2534	4822 122 31765	100pF 2% 63V
2535	4822 124 40769	4,7µF 20% 100V
2536	4822 124 40769	4,7µF 20% 100V
2541	4822 124 41407	0,47µF 20% 63V
2542	4822 124 41407	0,47µF 20% 63V
2546	4822 121 43856	4,7nF 5% 250V
2565	4822 121 43856	4,7nF 5% 250V
2589	4822 121 42408	220nF 5% 63V
2590	4822 121 42408	220nF 5% 63V
2591	5322 121 42661	330nF 5% 63V
2592	5322 121 42661	330nF 5% 63V
2593	4822 121 51252	470nF 5% 63V
2594	4822 121 51252	470nF 5% 63V
2601	3198 016 31020	1nF 25V
2602	3198 016 31020	1nF 25V
2603	4822 124 81151	22µF 50V
2604	4822 124 81151	22µF 50V
2605	4822 122 31765	100pF 2% 63V
2606	4822 122 31765	100pF 2% 63V
2607	4822 126 13881	470pF 5% 50V
2608	4822 126 13881	470pF 5% 50V
2609	4822 126 14508	180pF 5% 50V
2610	4822 126 14508	180pF 5% 50V
2611	4822 124 81151	22µF 50V
2612	4822 124 81151	22µF 50V
2621	4822 124 81151	22µF 50V
2622	4822 122 31765	100pF 2% 63V
2623	4822 124 40433	47µF 20% 25V
2624	3198 017 42230	22nF 50V
2625	4822 124 40207	100µF 20% 25V
2626	4822 124 40769	4,7µF 20% 100V
2641	3198 016 31020	1nF 25V
2642	3198 016 31020	1nF 25V
2653	4822 122 31765	100pF 2% 63V
2654	4822 122 31765	100pF 2% 63V
2669	4822 126 14305	100nF 10% 16V
2681	4822 124 40433	47µF 20% 25V
2682	4822 122 33752	15pF 5% 50V
2683	4822 126 14305	100nF 10% 16V
2691	4822 122 31765	100pF 2% 63V
2696	4822 124 81151	22µF 50V
2697	4822 126 13881	470pF 5% 50V
2698	4822 126 14305	100nF 10% 16V
2707	4822 122 31765	100pF 2% 63V
2708	4822 122 31765	100pF 2% 63V
2771	4822 124 41407	0,47µF 20% 63V
2901	4822 126 12882	100nF +80/-20% 50V
2902	3198 017 44740	470nF 10V
2905	3198 017 42230	22nF 50V
2908	4822 126 14305	100nF 10% 16V

RESISTORS

3201	4822 117 12968	820R 5% 0,62W
3202	4822 051 30151	150R 5% 0,062W
3205	4822 116 52289	5k6 5% 0,5W
3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 116 52175	100R 5% 0,5W
3405	4822 051 30103	10k 5% 0,062W

ELECTRICAL PARTS LIST - AF9 BOARD

RESISTORS

3408	4822 051 30103	10k 5% 0,062W
3409	4822 051 30562	5k6 5% 0,063W
3412	4822 050 11002	1k 1% 0,4W
3435	4822 050 11002	1k 1% 0,4W
3436	4822 050 11002	1k 1% 0,4W
3501	4822 051 30472	4k7 5% 0,062W
3502	4822 051 30472	4k7 5% 0,062W
3503	4822 051 30123	12k 5% 0,062W
3504	4822 051 30123	12k 5% 0,062W
3505	4822 051 30153	15k 5% 0,062W
3506	4822 051 30153	15k 5% 0,062W
3511	4822 117 12968	820R 5% 0,62W
3512	4822 117 12968	820R 5% 0,62W
3513	4822 051 30332	3k3 5% 0,062W
3514	4822 051 30332	3k3 5% 0,062W
3521	4822 051 30102	1k 5% 0,062W
3522	4822 051 30102	1k 5% 0,062W
3531	4822 051 30152	1k5 5% 0,062W
3532	4822 051 30152	1k5 5% 0,062W
3533	4822 051 30273	27k 5% 0,062W
3534	4822 051 30273	27k 5% 0,062W
3541	4822 051 30102	1k 5% 0,062W
3542	4822 050 11002	1k 1% 0,4W
3543	4822 117 12925	47k 1% 0,063W
3544	4822 117 12925	47k 1% 0,063W
3591	4822 117 12902	8k2 1% 0,063W
3592	4822 117 12902	8k2 1% 0,063W
3593	4822 051 30562	5k6 5% 0,063W
3594	4822 051 30562	5k6 5% 0,063W
3601	4822 116 52238	12k 5% 0,5W
3602	4822 116 52238	12k 5% 0,5W
3607	4822 051 30682	6k8 5% 0,062W
3608	4822 116 83961	6k8 5%
3609	4822 051 30273	27k 5% 0,062W
3610	4822 051 30273	27k 5% 0,062W
3611	4822 051 30479	47R 5% 0,062W
3612	4822 051 30479	47R 5% 0,062W
3613	4822 051 30102	1k 5% 0,062W
3614	4822 051 30102	1k 5% 0,062W
3615	4822 051 30339	33R 5% 0,062W
3616	4822 051 30339	33R 5% 0,062W
3621	4822 051 30103	10k 5% 0,062W
3622	4822 051 30103	10k 5% 0,062W
3623	4822 051 30102	1k 5% 0,062W
3624	4822 051 30562	5k6 5% 0,063W
3625	4822 051 30472	4k7 5% 0,062W
3626	4822 051 30472	4k7 5% 0,062W
3627	4822 052 10109	⚠ 10R 5% 0,33W
3628	4822 116 52283	4k7 5% 0,5W
3629	4822 051 30472	4k7 5% 0,062W
3631	4822 050 11002	1k 1% 0,4W
3633	4822 051 30102	1k 5% 0,062W
3634	4822 051 30562	5k6 5% 0,063W
3635	4822 051 30103	10k 5% 0,062W
3636	4822 051 30472	4k7 5% 0,062W
3637	4822 051 30103	10k 5% 0,062W
3638	4822 051 30472	4k7 5% 0,062W
3640	4822 116 52289	5k6 5% 0,5W
3641	4822 051 30221	220R 5% 0,062W
3642	4822 051 30221	220R 5% 0,062W
3644	4822 051 30103	10k 5% 0,062W /22
3644	4822 051 30682	6k8 5% 0,062W /37
3651	4822 051 30102	1k 5% 0,062W
3652	4822 051 30102	1k 5% 0,062W
3653	4822 051 30102	1k 5% 0,062W
3654	4822 051 30102	1k 5% 0,062W
3655	4822 051 30102	1k 5% 0,062W
3656	4822 051 30102	1k 5% 0,062W
3657	4822 051 30102	1k 5% 0,062W
3658	4822 051 30102	1k 5% 0,062W
3659	4822 051 30332	3k3 5% 0,062W
3660	4822 051 30332	3k3 5% 0,062W
3683	4822 051 30154	150k 5% 0,062W
3684	4822 051 30154	150k 5% 0,062W
3686	4822 117 12864	82k 5% 0,6W
3687	4822 117 11817	1k2 1% 1/16W
3688	4822 051 30391	390R 5% 0,062W
3689	4822 051 30151	150R 5% 0,062W
3690	4822 051 30102	1k 5% 0,062W
3692	4822 051 30334	330k 5% 0,062W
3694	4822 051 30222	2k2 5% 0,062W
3699	4822 051 30471	470R 5% 0,062W
3700	4822 051 30332	3k3 5% 0,062W
3707	4822 051 30102	1k 5% 0,062W
3708	4822 051 30102	1k 5% 0,062W
3711	4822 051 30562	5k6 5% 0,063W
4100	4822 051 30008	0R Jumper 0603
4101	4822 051 30008	0R Jumper 0603
4102	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603
4110	4822 051 30008	0R Jumper 0603
4111	4822 051 30008	0R Jumper 0603
4112	4822 051 30008	0R Jumper 0603
4113	4822 051 30008	0R Jumper 0603
4114	4822 051 30008	0R Jumper 0603
4115	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4118	4822 051 30008	0R Jumper 0603
4119	4822 051 30008	0R Jumper 0603
4122	4822 051 30008	0R Jumper 0603
4124	4822 051 30008	0R Jumper 0603
4125	4822 051 30008	0R Jumper 0603
4126	4822 051 30008	0R Jumper 0603

ELECTRICAL PARTS LIST - AF9 BOARD

RESISTORS

4127	4822 051 30008	0R Jumper 0603
4128	4822 051 30008	0R Jumper 0603
4130	4822 051 30008	0R Jumper 0603
4132	4822 051 30008	0R Jumper 0603
4133	4822 051 30008	0R Jumper 0603
4134	4822 051 30008	0R Jumper 0603
4135	4822 051 30008	0R Jumper 0603
4137	4822 051 30008	0R Jumper 0603
4138	4822 051 30008	0R Jumper 0603
4139	4822 051 30008	0R Jumper 0603
4141	4822 051 30008	0R Jumper 0603
4142	4822 051 30008	0R Jumper 0603
4143	4822 051 30008	0R Jumper 0603
4144	4822 051 30008	0R Jumper 0603
4145	4822 051 30008	0R Jumper 0603
4146	4822 051 30008	0R Jumper 0603
4147	4822 051 30008	0R Jumper 0603
4403	4822 051 30008	0R Jumper 0603
4501	4822 051 30008	0R Jumper 0603
4811	4822 051 30008	0R Jumper 0603
4812	4822 051 30008	0R Jumper 0603
4903	4822 051 30008	0R Jumper 0603
4904	4822 051 30008	0R Jumper 0603
4908	4822 051 30008	0R Jumper 0603
4913	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5621	4822 157 62552	Coil 2,2µH 5%

DIODES

6201	4822 130 30621	1N4148
6202	4822 130 30862	BZX55-C9V1
6205	4822 130 61219	BZX79-C10
6206	4822 130 30621	1N4148
6207	4822 130 31878	1N4003G
6208	4822 130 31878	1N4003G
6401	4822 130 30621	1N4148
6774	4822 130 30621	1N4148

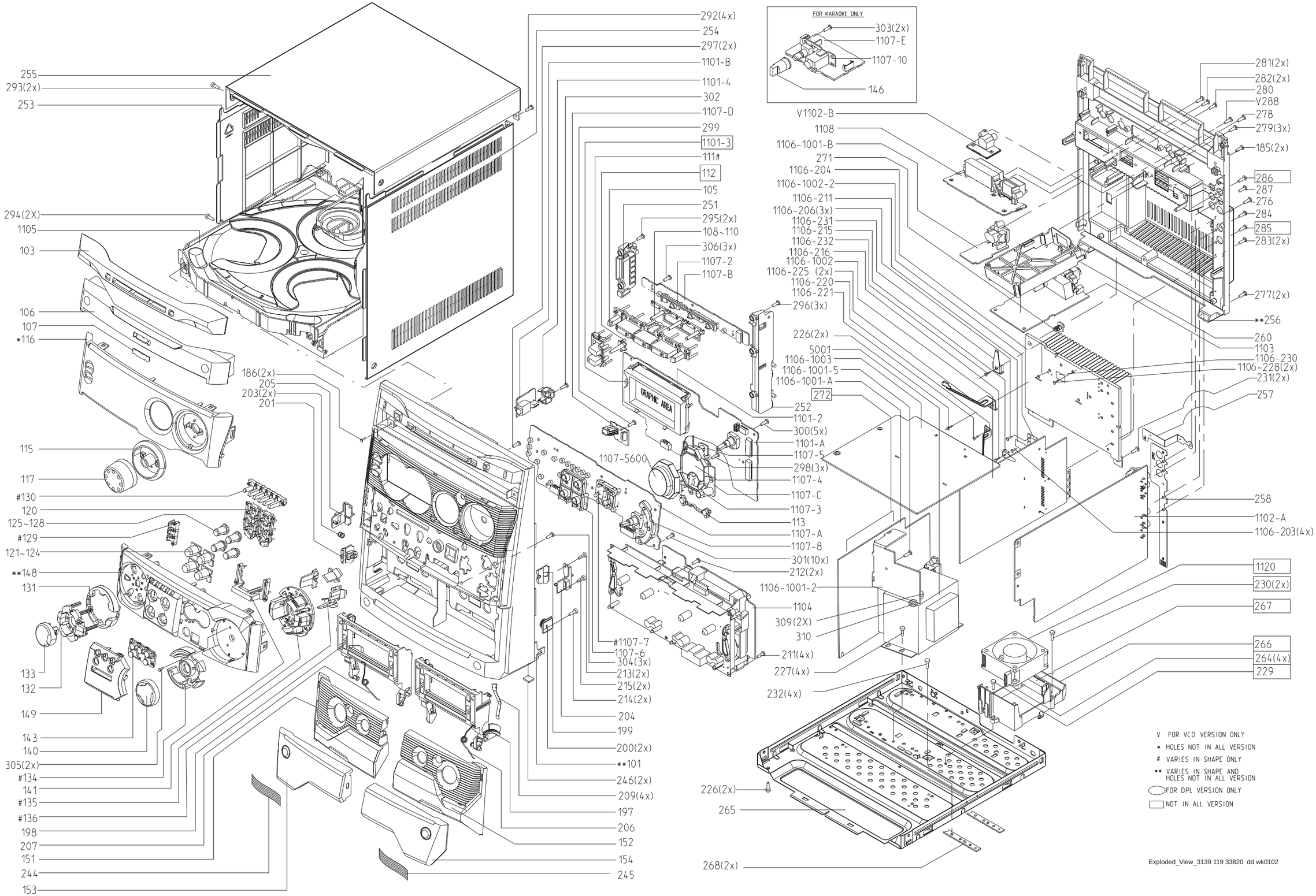
TRANSISTORS & INTEGRATED CIRCUITS

7201	4822 130 60511	BC847B
7202	4822 209 72042	MC78L05ACP
7401	4822 130 41246	BC327-25
7402	4822 130 60511	BC847B
7403	4822 209 17345	M62320FP
7501	9322 150 74668	TDA7468D
7601	4822 209 31378	NJM4556AM
7603	4822 130 42804	BC817-25
7604	4822 130 42804	BC817-25
7621	4822 130 60511	BC847B
7622	4822 130 60373	BC857B
7623	4822 130 60511	BC847B
7635	4822 130 60373	BC857B
7636	4822 130 60511	BC847B
7651	4822 130 42804	BC817-25
7652	4822 130 42804	BC817-25
7653	4822 130 42804	BC817-25
7654	4822 130 42804	BC817-25
7681	4822 130 60373	BC857B
7682	4822 130 60511	BC847B
7693	4822 130 42804	BC817-25
7803	4822 130 60511	BC847B

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

13-1

SET MECHANICAL EXPLODED VIEW



13-2

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

0101	3139 118 15180	Cabinet Front /22	0206	3139 111 01380	Spring Torsion Right	185	D3 x 12
0101	3139 118 15070	Cabinet Front /37	0207	3139 111 01390	Spring Torsion Left	186	D3 x 12
0103	3139 118 14320	Window CDC	0209	4822 492 42787	Spring Cassette	211	D3 x 12
0105	3139 118 14330	Button Set CDC Select	0246	4822 462 40683	Foot Rubber (SQ)	212	D3 x 12
0106	3139 118 14340	Cover Tray CDC	0251	3139 114 72750	Bracket CDC Left	213	D3 x 12
0107	4822 454 13408	Badge Philips	0252	3139 114 72760	Bracket CDC Right	214	M3 x 12
0111	3139 118 14350	Button Standby/ECO Power /22	0253	3139 114 73570	Panel Left	215	M3 x 12
0111	3139 118 14870	Button Power /37	0254	3139 114 73580	Panel Right	226	M3 x 6
0115	3139 118 14370	Cover Ring Volume/VU Chrome	0255	3139 114 73590	Cover Top	227	M3 x 6
0116	3139 118 15190	Window Display DPL ECO /22	0256	3139 114 72770	Panel Rear	231	M3 x 6
0116	3139 118 15080	Window Display /37	0271	3139 114 71010	Stopper Heatsink	232	M3 x 6
0117	3139 118 14380	Knob Volume Rotary	0309	4822 462 40683	Plate (Foot)	276	M3 x 6
0120	3139 114 72360	Frame Button Set Source Select	0310	4822 462 40683	Plate (Foot)	277	M3 x 10
0121	3139 118 14390	Button Cap Source-CD	0350	3139 118 78300	L/R Loudspeaker Box /22	278	D3 x 16
0122	3139 118 14400	Button Cap Source-Tuner	0350	3139 118 78290	L/R Loudspeaker Box /37	279	D3 x 12
0123	3139 118 14410	Button Cap Source-Tape	0351	4822 303 50063	FM Aerial /22	280	D3 x 12
0124	3139 118 14420	Button Cap Source-Aux	0351	4822 320 11094	FM Antenna Wire /37	281	D3 x 12
0125	3139 114 72410	Lightguide Source-CD	0352	3139 118 78490	Center & Surr. Speaker Box /22	282	D3 x 12
0126	3139 114 72420	Lightguide Source-Tuner	0352	3139 118 78480	Center & Surr. Speaker Box /37	283	D3 x 12
0127	3139 114 72430	Lightguide Source-Tape	0356	3139 118 78270	Remote Control	284	D3 x 12
0128	3139 114 72440	Lightguide Source-Aux	0384	4822 303 50082	AM Frame Aerial	287	D3 x 12
0129	3139 118 14720	Button Set RDS/NEWS /22	0385	4822 321 10249	⚠ Mains Cord /22	292	M3 x 12
0130	3139 118 14440	Button Prog/Time-Disp	0385	4822 321 11466	⚠ Mains Cord /37	293	M3 x 12
0131	3139 118 14450	Cover Ring Func Control	0387	3139 115 20610	Instruction For Use /22	294	M3 x 6
0132	3139 118 14460	Button Set Func Control	0387	3139 115 20620	Instruction For Use /37	295	D3 x 12
0133	3139 118 14470	Cap Function Control	1202	3139 110 34940	FFC Foil 12P/220/12P AD	296	D3 x 12
0134	3139 118 15120	Cover Ring DSC/VAC/DBB	1204	3139 110 34600	FFC Foil 07P/280/07P AD	297	D2 x 8
0135	3139 118 15130	Button DSC/VAC/DBB	1401	3139 110 34970	FFC Foil 19P/180/19P AD	298	D3 x 10
0140	3139 118 14500	Knob Jog Rotary	1402	3139 110 34980	FFC Foil 15P/180/15P AD	299	D3 x 10
0141	3139 118 15090	Button DPL	1403	3139 110 35130	FFC Foil 06P/180/06P AD	300	D3 x 12
0148	3139 118 15200	Cover Orn Control /22	1404	3139 110 35000	FFC Foil 08P/120/08P AD	301	D3 x 12
0148	3139 118 15520	Cover Orn Control /37	1405	3139 110 35000	FFC Foil 08P/120/08P AD	302	D3 x 12
0149	3139 118 15110	Cover Control DPL	1406	4822 320 12752	FFC Foil 07P/180/07P AD	304	D3 x 12
0151	3139 118 14540	Cover Cassette Left	1407	3139 110 34010	FFC Foil 06P/140/06P AD	305	D2 x 8
0152	3139 118 14550	Cover Cassette Right	1501	3139 110 35120	FFC Foil 04P/400/04P BD	306	D3 x 12
0153	3139 118 14560	Lens Cassette Left	1503	3139 110 34900	FFC Foil 15P/120/15P BD		
0154	3139 118 14570	Lens Cassette Right	1601	3139 110 35050	FFC Foil 08P/220/08P AD		
0197	3139 114 68630	Door Cassette Right	1702	3139 110 34950	FFC Foil 07P/120/07P AD		
0198	3139 114 68620	Door Cassette Left	1801	3139 110 34960	FFC Foil 14P/220/14P AD		
0199	4822 402 10621	Push-Catch	5001	3103 308 30780	⚠ Mains Transformer /22		
0200	4822 529 10322	Damper Assembly	5001	3103 308 30770	⚠ Mains Transformer /37		
0201	3139 114 68640	Push Catch Left					
0203	4822 492 11344	Spring Compression	Note :	Only the parts mentioned in this list are normal service spare parts.			
0204	4822 402 11246	Bracket Right					
0205	4822 402 11245	Bracket Left					

SCREW LISTS - MAIN UNIT