

Service
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Service Manual

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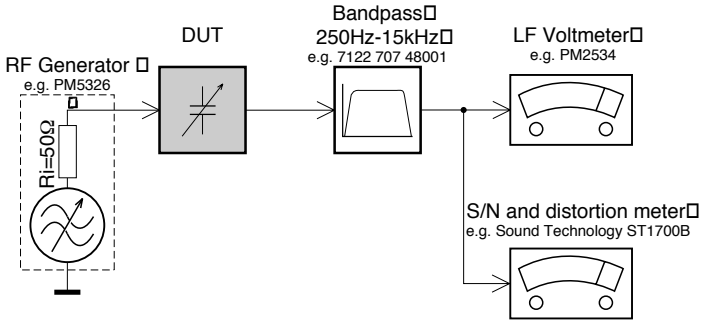
Version 1.1



PHILIPS

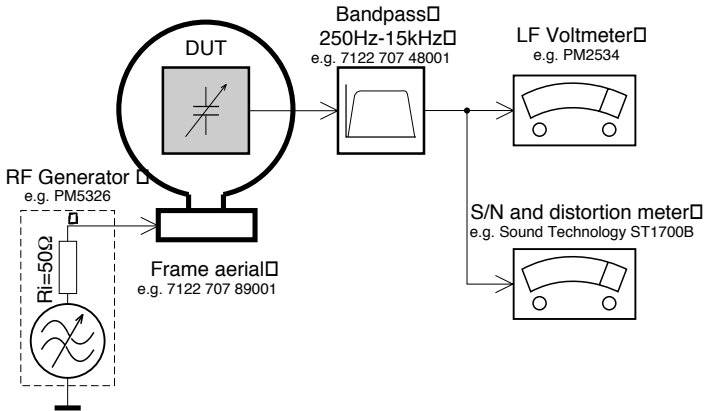
MEASUREMENT SETUP

Tuner FM



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

Tuner AM (MW,LW)

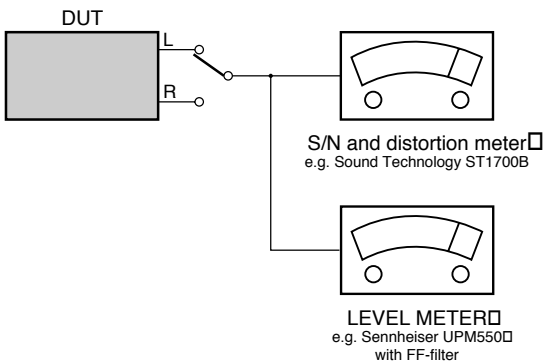


To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

CD

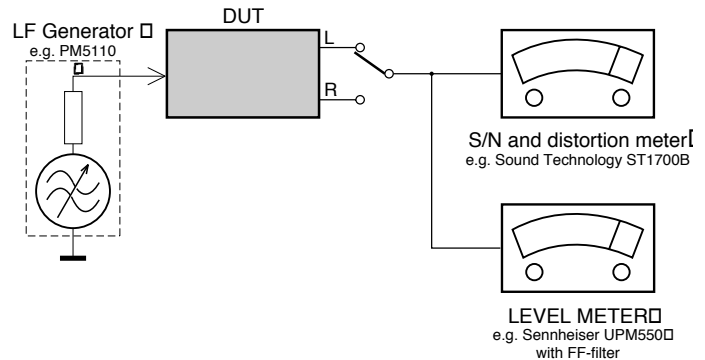
Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)

□



Recorder

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



SERVICE AIDS

Service Tools:

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

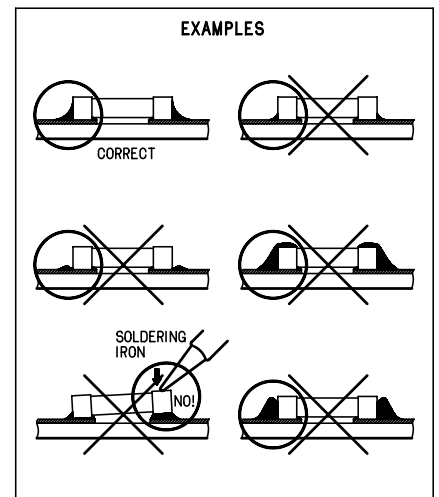
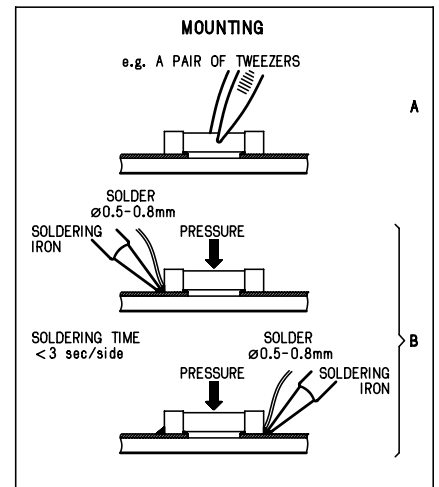
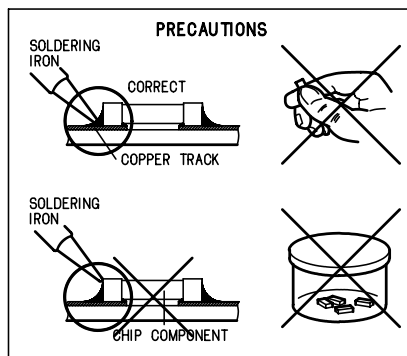
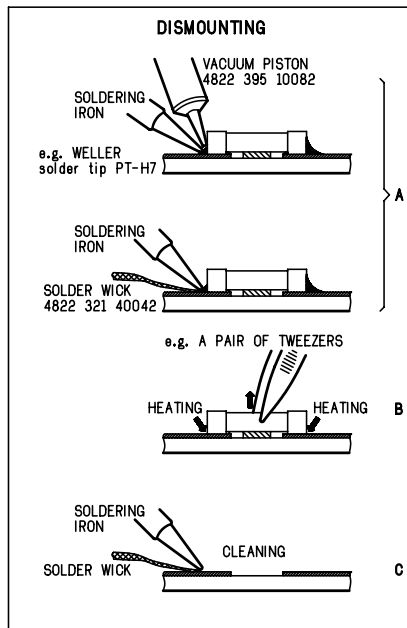
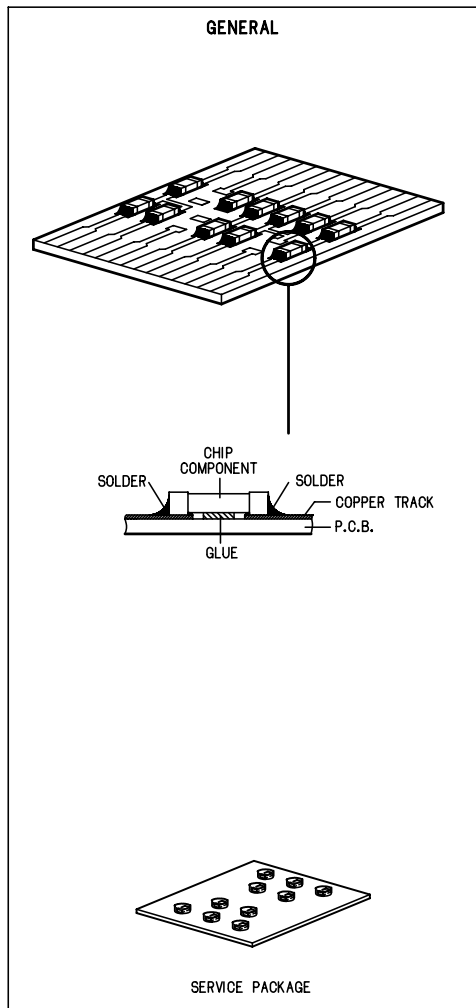
Compact Disc:

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
Connectorbox (1M Ω)	4822 395 11307
Extension cable (to connect wristband to conn.box)	4822 320 11305
Connecting cable (to connect table mat to conn.box)	4822 320 11306
Earth cable (to Connect product to mat or box) --	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



(GB) WARNING

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

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

(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.

(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 utilisés les pièces de rechange identiques à celles spécifiées.

(D)

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

(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."

ESD**(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(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 ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

"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 suojaletituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

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

INFORMATION ABOUT LEAD-FREE SOLDERING

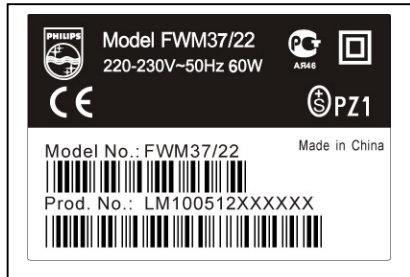
Philips CE is producing lead-free sets from 1.1.2005 onwards.

IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 2005 wk12

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- **Special information for BGA-ICs:**
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'drypackaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
 - Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.atyourservice.ce.Philips.com you find more information to:
 - BGA-de-/soldering (+ baking instructions)
 - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the 'imagazine', chapter 'workshop news'.

For additional questions please contact your local repair-helpdesk.

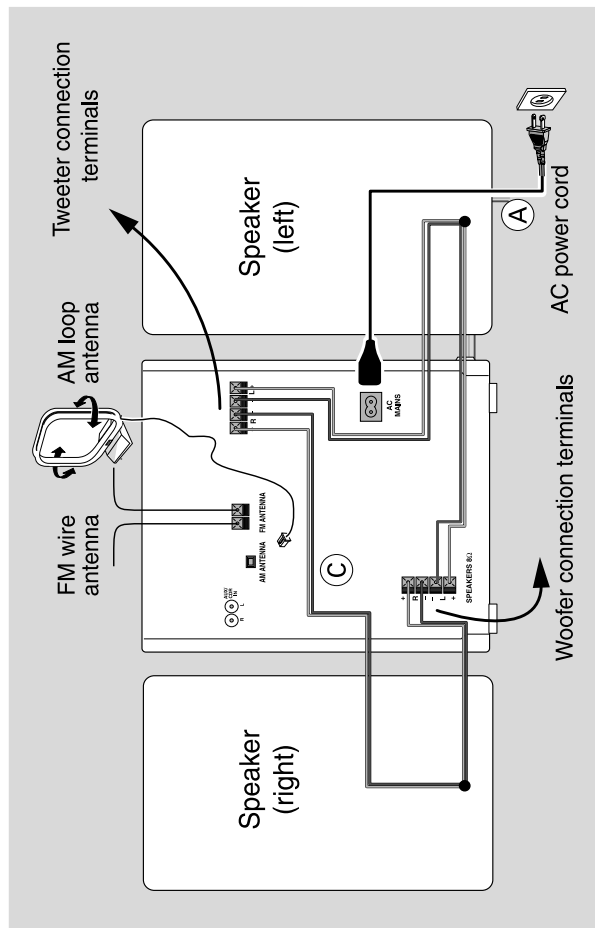
SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
 1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
 2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
 3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
 4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

PREPARATIONS AND CONTROLS

Preparations



Rear connections

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

A Power

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

WARNING!

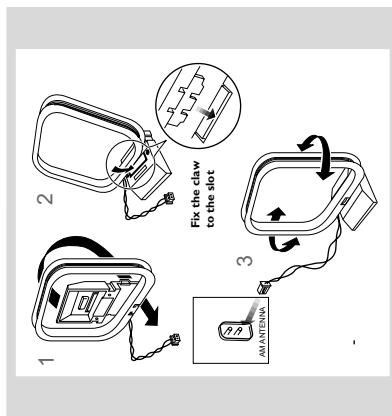
- For optimal performance, use only the original power cable.
- Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety 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).

B 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.

Preparations

Insert the USB device's USB plug into the socket on the set.

for the devices with USB cables:

- Insert one plug of the USB cable (not supplied) to the socket on the set.
- Insert the other plug of the USB cable to the USB output terminal of the USB device.

for the memory card:

- Insert the memory card into a card reader (not supplied).
- Use a USB cable (not supplied) to connect the card reader into the socket on the set.

Connecting a non-USB device

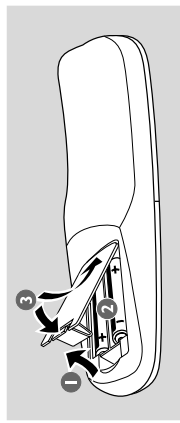
Use a cinch cable to connect **AUX IN** to the analogue audio out terminals of an external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder).

Note:

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

Inserting batteries into the remote control

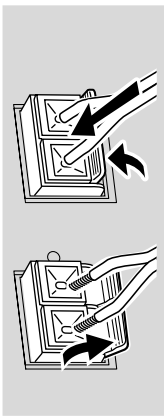
Insert two batteries (Type R06 or AA) into the remote control with the correct polarity as indicated by the "+" and "-" symbols inside the battery compartment.



CAUTION!

- Remove batteries if they are exhausted or will not 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 of properly.

FM Antenna

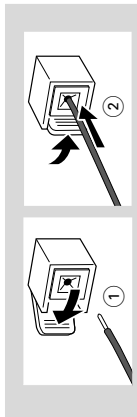


For better FM stereo reception, connect an outdoor FM antenna to the **FM ANTENNA** terminal.

C Speakers Connection

Front Speakers

Connect the speaker wires to the **SPEAKERS** terminals, right speaker to "R" and left speaker to "L"; red wires to "+" and black wires to "-" of the woofer connection terminals, gray wires to "+" and blue wires to "-" of the tweeter connection terminals.



Fully insert the stripped portion of the speaker wire into the terminal as shown.

Notes:

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

Optional connection

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

Connecting a USB device or memory card

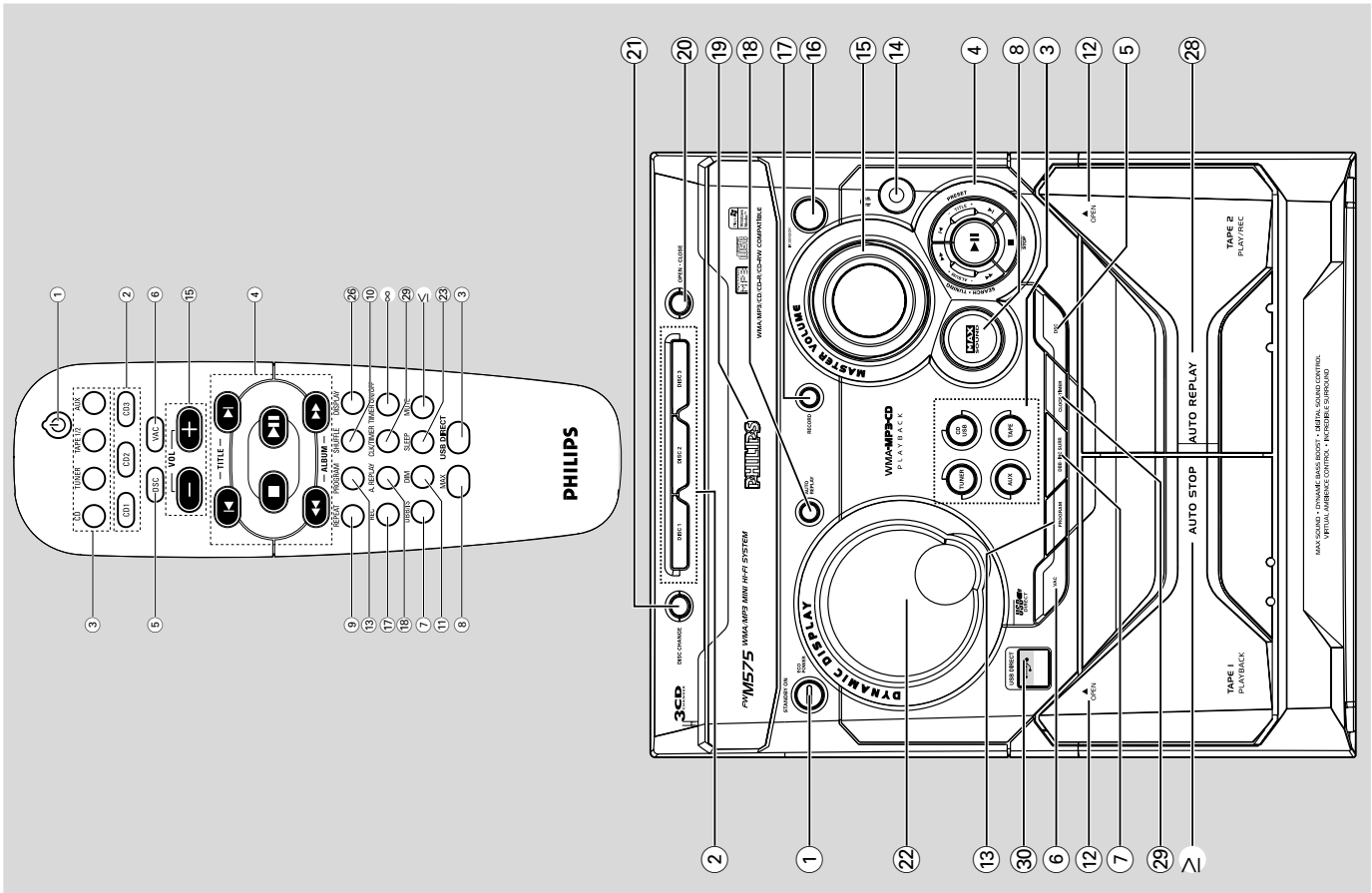
By connecting a USB mass storage device (including USB flash memory, USB flash players or memory cards) to the Hi-Fi system, you can enjoy the device's stored music through the powerful speakers of Hi-Fi system.

PREPARATIONS AND CONTROLS

Controls

Controls on the system and remote control

- 1 **STANDBY-ON/ ECO POWER (⏻)**
 - switches the system on or to Eco Power standby/normal standby with clock display.
- 2 **DISC 1/2/3 (CD 1/2/3)**
 - to select a disc tray for playback.
- 3 **Source selection** – to select the following:
 - CD/USB** (on the system only) to switch between disc or USB source.
 - CD** (on the remote only) to select disc source.
 - press repeatedly to select a disc tray for playback.
- TUNER**
 - to select waveband : FM or AM.
- TAPE (TAPE 1/2)**
 - to select tape deck 1 or 2.
- AUX**
 - to select the input for an additional appliance : AUX.
- USB DIRECT** (on the remote only)
 - to select USB source directly.
- 4 **Mode Selection**
 - ALBUM – / + ◀▶** for MP3-CD/USB .. to select previous/next album.
 - for CD to search backward/forward.
 - for Tuner to tune to a lower or higher radio frequency.
 - for Tape to rewind or fast forward.
 - for Clock (on the system only) to set the hour.
- STOP ■**
 - for CD/ MP3-CD/USB to stop playback or to clear a programme.
 - for Tuner (on the system only) to stop programming.
 - for Tape to stop playback or recording.
 - for Demo (on the system only) to activate/deactivate the demonstration.
- 5 **DSC**
 - selects different type of preset sound equaliser settings. (OPTIMAL, JAZZ, ROCK or TECHNO)
- 6 **VAC**
 - selects different type of ambience-based equaliser settings. (HALL, CONCERT or CINEMA)
- 7 **DBB/INC. SURR (DBB/IS)**
 - to select the desired bass boost level. (DBB 1, DBB 2, DBB 3 or DBB OFF)
 - to activate or deactivate the surround sound effect.
- 8 **MAX SOUND (MAX)**
 - to activate or deactivate the optimal mix of various sound features.
- 9 **REPEAT**
 - to playback track(s)/disc(s)/programme repeatedly.
- 10 **SHUFFLE**
 - Turns on/off the random play mode.



PREPARATIONS AND CONTROLS

Controls

- (11) DIM**
– to select different brightness for the display screen : DIM 1, DIM 2, DIM 3 or DIM OFF.
- (12) OPEN \blacktriangle**
– to open the tape deck door.
- (13) PROGRAM**
for CD/MP3-CD/USB to programme disc tracks.
for Tuner to programme preset radio stations.
for Clock to select 12- or 24-hour clock mode.
- (14) H**
– to connect headphones.
- (15) MASTER VOLUME (VOL $-/+$)**
– to increase or decrease the volume.
- (16) IR SENSOR**
– sensor for the infrared remote control.
- (17) RECORD (REC)**
– to start recording on tape deck 1 or 2.
- (18) AUTO REPLAY (A. REPLAY)**
– to select continuous playback in either AUTO REPLAY or ONCE MODE only.
- (19) Disc tray**
- (20) OPEN•CLOSE**
– to open or close the disc tray.
- (21) DISC CHANGE**
– to change disc(s).
- (22) Display screen**
– to view the current status of the system.
- (23) SLEEP**
– to activate/deactivate or set the sleep timer.
- \leq MUTE**
– mutes or restores the volume.
- ∞ TIMER ON/OFF**
– activates/deactivates the timer function.
- (26) DISPLAY**
– to display the album and title name for MP3 disc.
- \geq Tape deck 1**
- (28) Tape deck 2**
- (29) CLOCK•TIMER (CLK/TIMER)**
– to view the clock.
- (30) USB DIRECT \rightarrow**
– jack for the external USB mass storage device.

Notes for remote control:

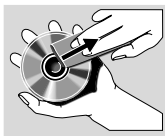
- First, select the source you wish to control by pressing one of the source select keys on the remote control (CD or TUNER, for example).
- Then select the desired function ($-/+$, H , \leq , ∞ , for example).

MAINTENANCE AND TROUBLESHOOTING

Maintenance

Cleaning the Cabinet

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



Cleaning Discs

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

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

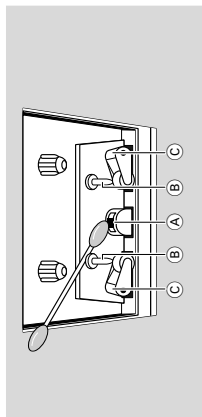
Cleaning the disc lens

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

Cleaning the Heads and the Tape Paths

To ensure good recording and playback quality, clean the heads (A), the capstan(s) (B), and pressure roller(s) (C) 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 Philips for help.

Problem

“NO DISC” is displayed.

Solution

Insert a disc.
Check if the disc is inserted upside down.
Wait until the moisture condensation at the lens has cleared.
Replace or clean the disc, see “Maintenance”.
Use a finalized CD-RW or a correct MP3-CD format disc.
Use a finalised CD-RW or CD-R.
Check if the number of folders exceeds 99 or the number of titles exceeds 999.
Remove the USB mass storage device or select another source..

“DISC NOT FINALIZED” is displayed.

Some files on the USB device are not displayed.

“DEVICE NOT SUPPORTED” scrolls on the display.

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.

Clean deck parts, see “Maintenance”.
Use only NORMAL (IEC I) tape.

Apply a piece of adhesive tape over the missing tab space.

Remove and reconnect the AC power plug and switch on the system again.

Remove and reconnect the AC power plug and switch on the system again.

Adjust the volume.

Disconnect the headphones.

Check that the speakers are connected correctly.

Check if the stripped speaker wire is clamped.
Make sure the MP3-CD was recorded within 32-256 kbps bit rate with sampling frequencies at 48 kHz, 44.1 kHz or 32 kHz.

Check the speaker connections and location.

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 directly towards the IR sensor.

Set the clock correctly.

Press and hold CLOCK•TIMER to switch on the timer.

If recording or tape dubbing is in progress, stop recording.

Press DIM to select DIM OFF display mode.

Power has been interrupted or the power cord has been disconnected. Reset the clock/timer.

Press and hold ■ on the system to switch off the demonstration.

Recording or playback cannot be made.

The tape deck door cannot open.

The system does not react when buttons are pressed.

Sound cannot be heard or is of poor quality.

The left and right sound outputs are reversed.

The remote control does not function properly.

The time is not working.

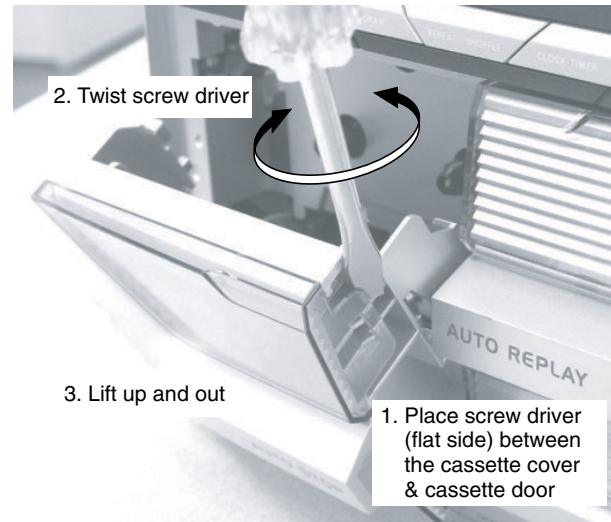
Not all lighted buttons are showing light.

The Clock/Timer setting is erased.

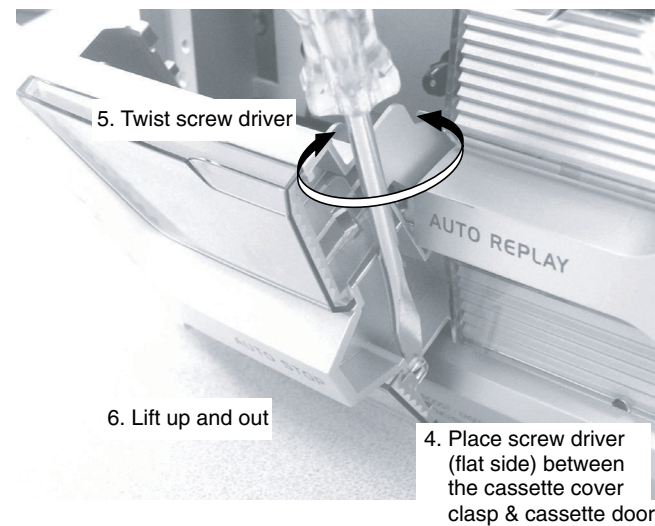
The system displays features automatically and buttons start flashing.

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



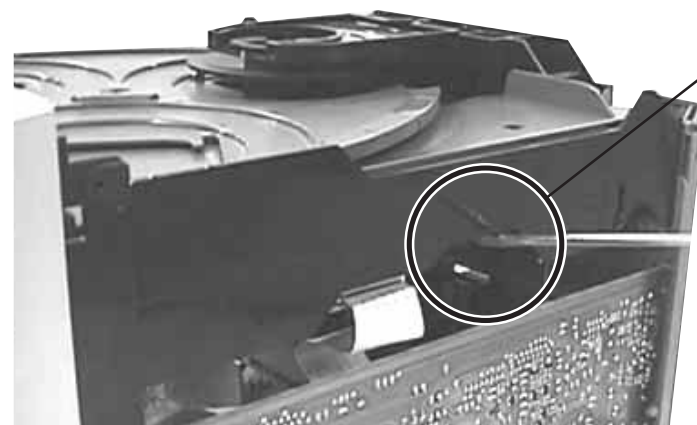
Remove Cassette Upper Cover



Remove Cassette Nether Cover

Dismantling of the CDC Module and Front Panel

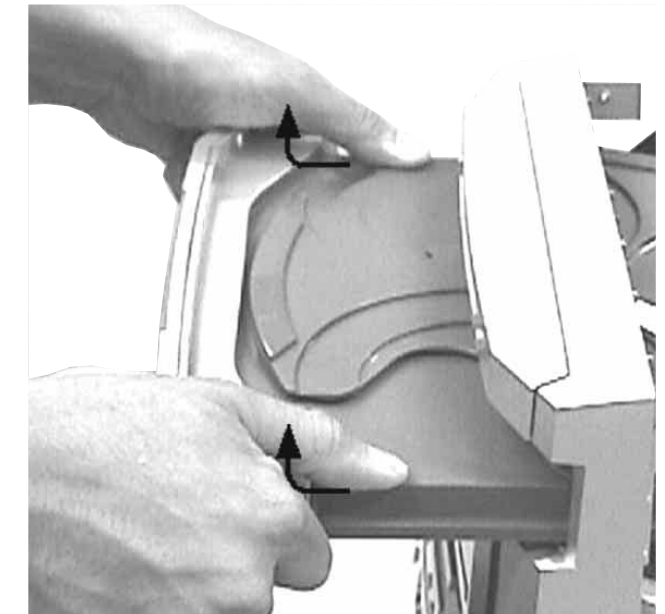
- 1) Loosen 4 screws to remove the Cover Top of the set.
- 2) Loosen 2 screws to remove the Panel Left and 2 screws to remove the Panel Right of the set.
- 3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.



Sliding Out The CDC Tray

Dismantling of the CDC Module and Front Panel

- 4) Remove the Cover Tray CDC as indicated.

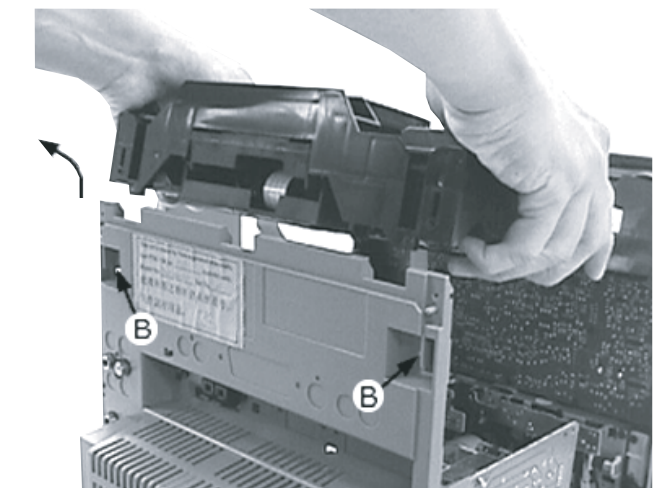


Remove Cover Tray CDC

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



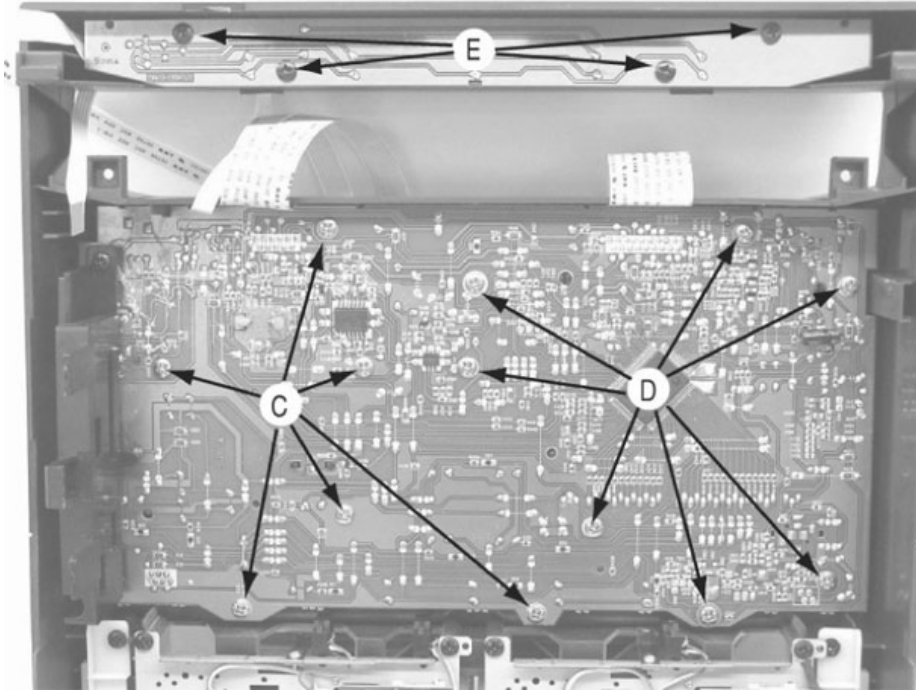
Front View CDC



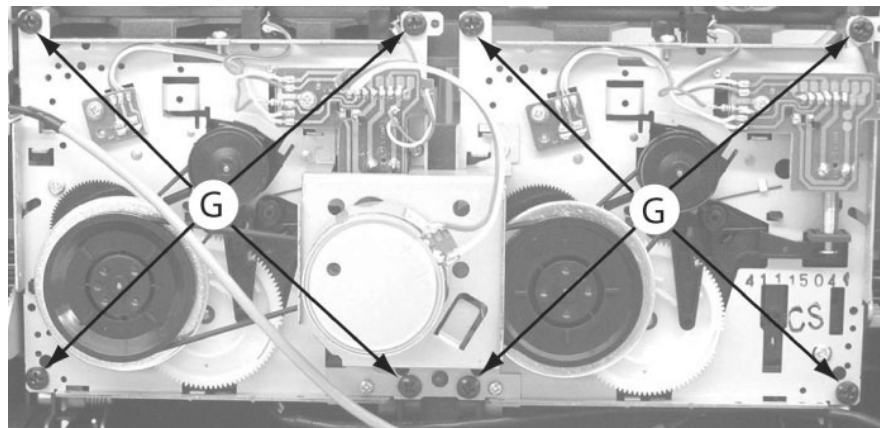
Remove CDC Module

Dismantling of the Front Board

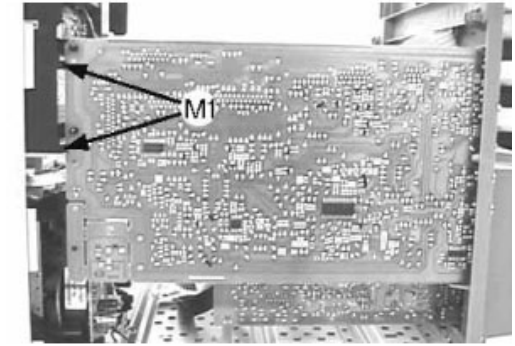
- 1) Remove 6 screws C and 7 screws D as indicated to loosen the Front Board.
- 2) Remove 4 screws E as indicated to loosen the Front Board.

**Dismantling of the ETF Tape Module**

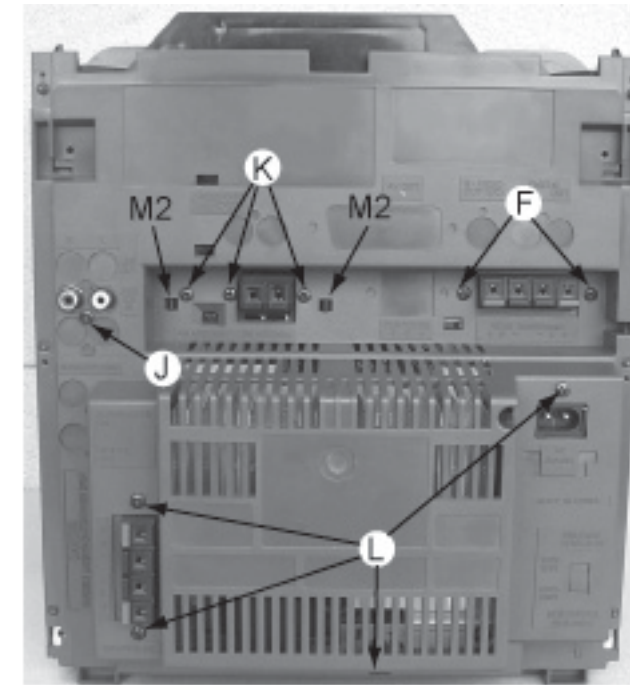
- 1) Remove 8 screws G as indicated to loosen the ETF Tape Module.

**Dismantling of Rear Portion**

- 1) Remove 2 screws F as indicated to loosen the Speaker Board.
- 2) Remove 1 screws J and uncatch M1 as indicated to loosen the AF Board.
- 3) Remove 3 screws K and uncatch M2 as indicated to loosen the Tuner Board.
- 4) Remove 4 screws L as indicated to loosen the Panel Rear .



Remove Main Board

**Repair Hints**

- 1) The Knob Volume can be remove pull it out in the direction as indicated. See picture 1.

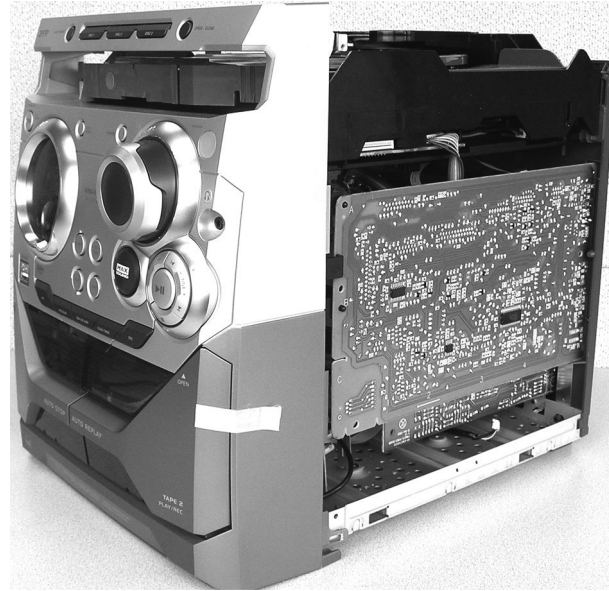


Repair Hints

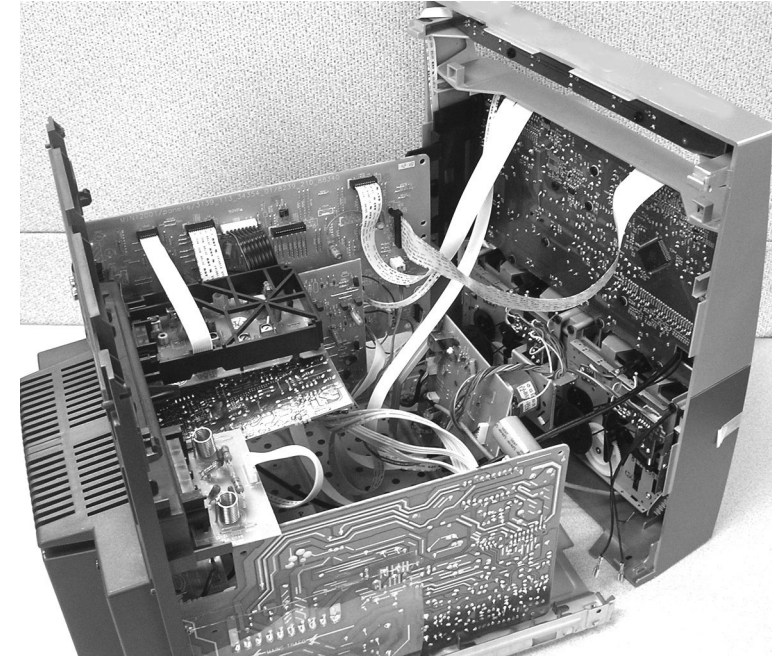
- 3) During repair it is possible to disconnect the Tape board and CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

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 occur.

Service pos A



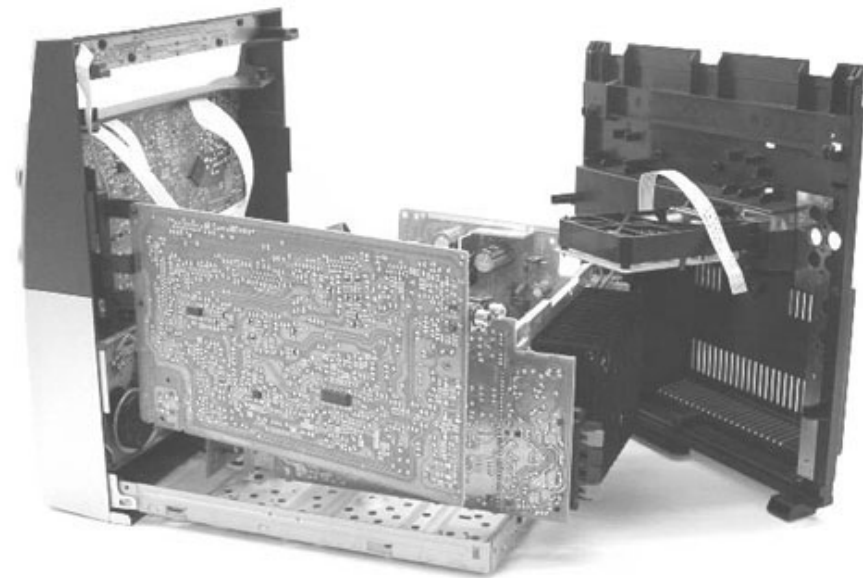
Service pos C



Service pos B



Service pos D



SERVICE TEST PROGRAM

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

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

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

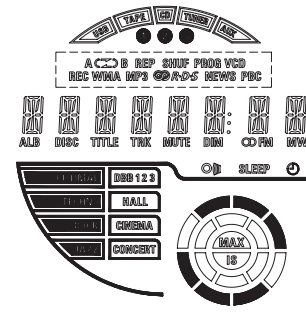
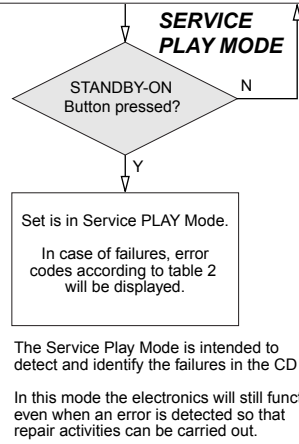
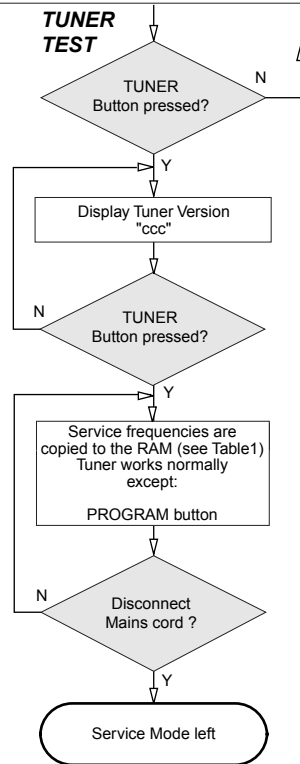


Figure 1

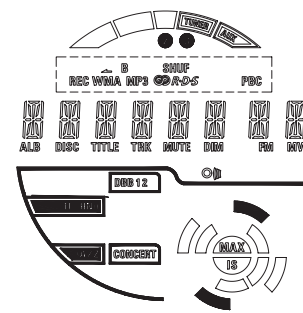


Figure 2

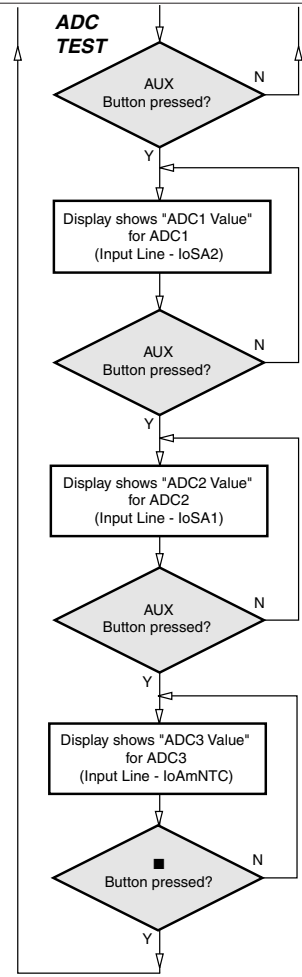
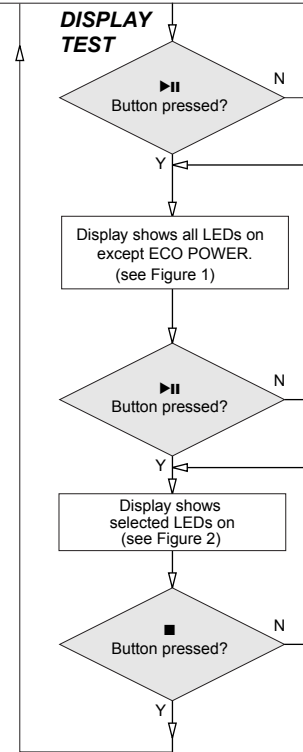
PRESET	Europe "EUR"	East Eur. Extended-band "EAS"	East Eur. "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	74MHz	531kHz	530kHz	530/531kHz*
4	1602kHz	87.5MHz	1602kHz	1700kHz	1700/1602kHz*
5	558kHz	531kHz	558kHz	560kHz	560/558kHz*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

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	This happens when the carousel switch is defective and closed all the time, or when the carousel is blocked when it is located exactly at a disc position.
E1071	This happens when the carousel switch is defective and does not closed electrically, or when the carousel is blocked in between two disc positions. The time-out is approximately 5 Sec.
E1079	The drawer could not open or enter the inside position and is opening again. This happen when the drawer is blocked and cannot go fully inside or when the drawer switch is defective and does not close.

Table 2

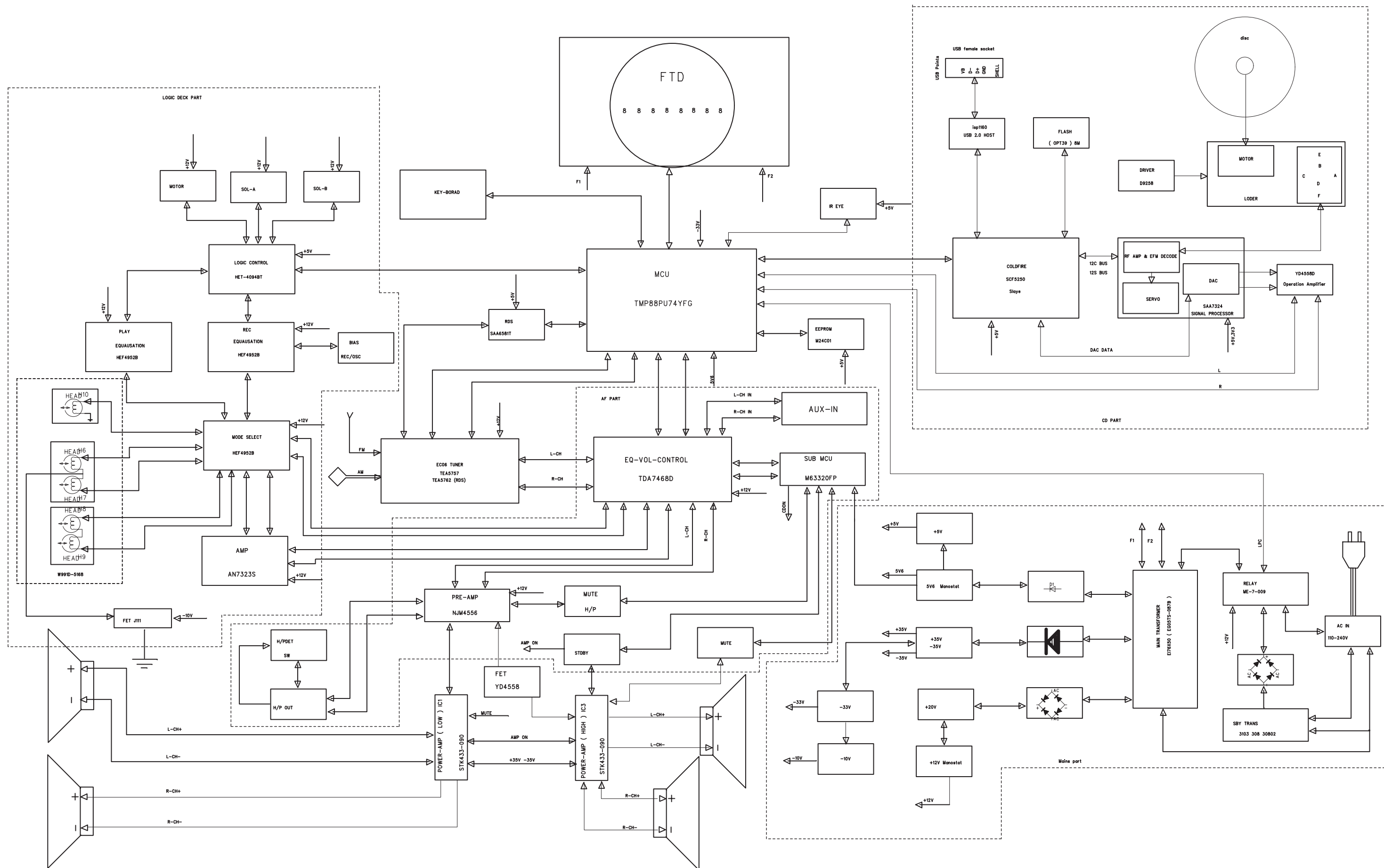


ADC Test is used for checking the ADC inputs to the microprocessor.
The display shows an ADC value between 0 and 255 for an input signal between 0 and 5V

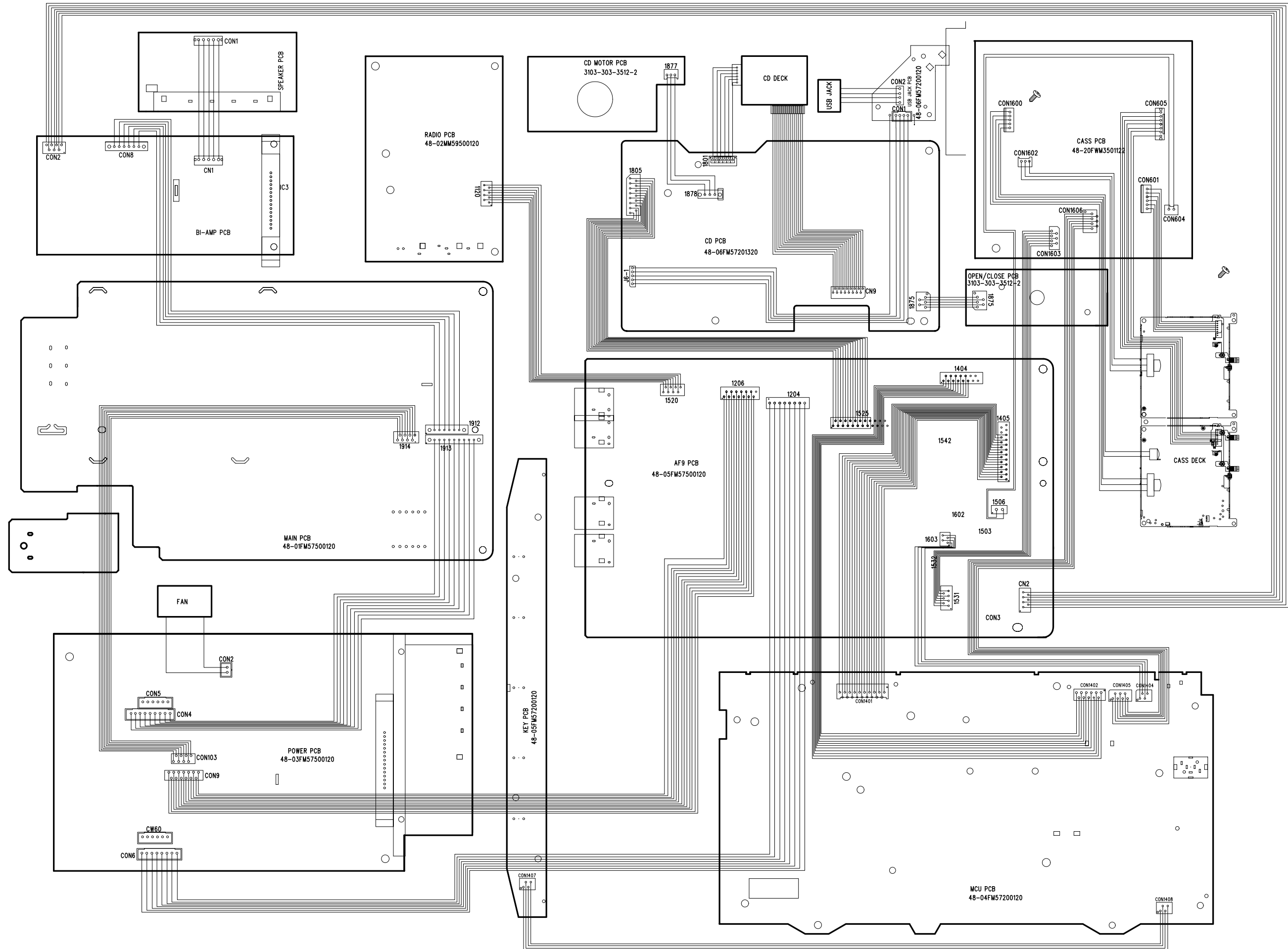
Various other Tests

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 "FAIL" will be displayed.
EEPROM FORMAT	◄◄	Load default data. Display shows "NEW" for 1 second. Caution! All presets from the customer will be lost!!
ROTARY ENCODER TEST	Volume Knob or Jog Shuttle knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

SET BLOCK DIAGRAM



SET WIRING DIAGRAM



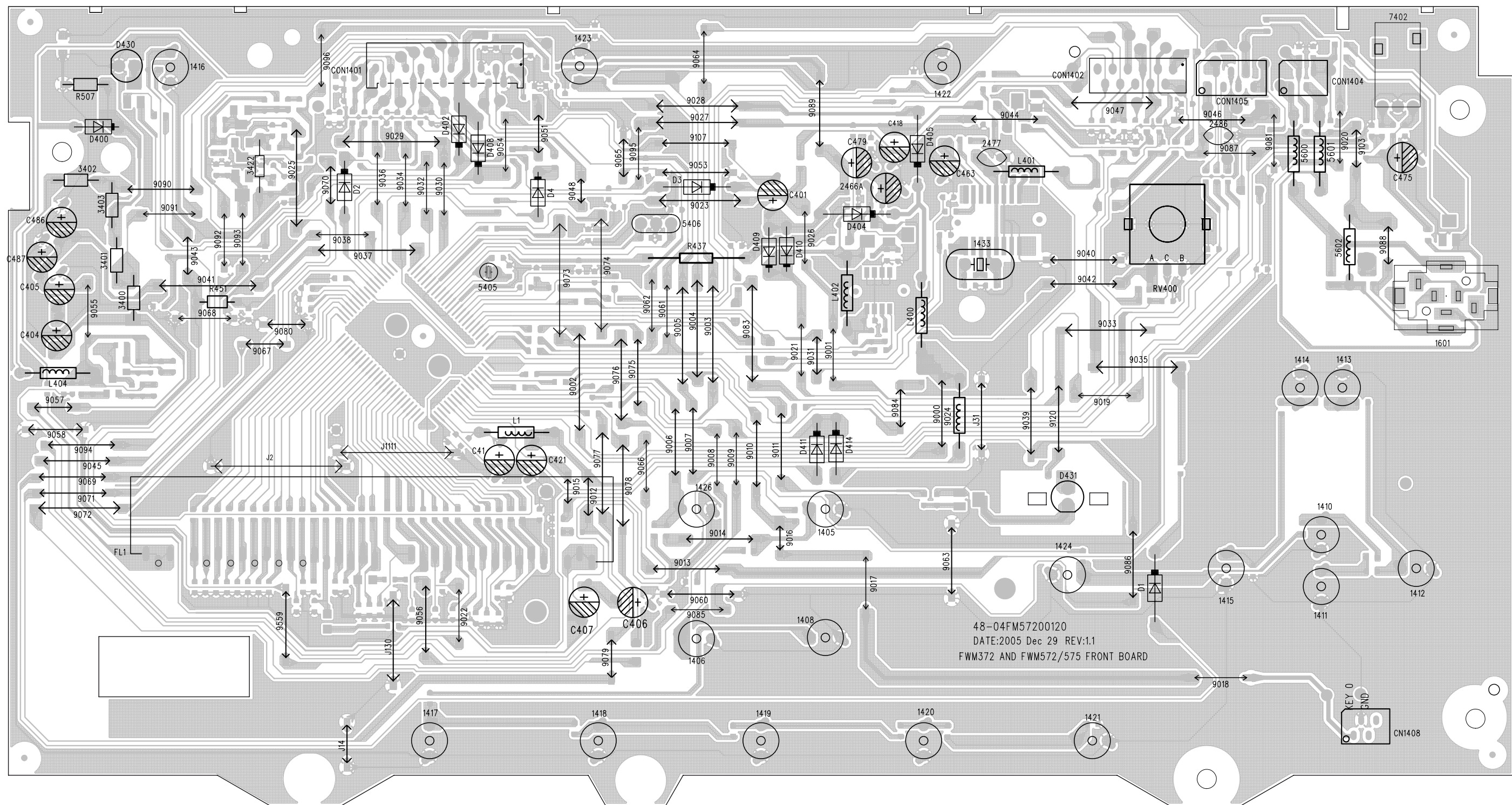
FRONT & KEY & USB BOARD

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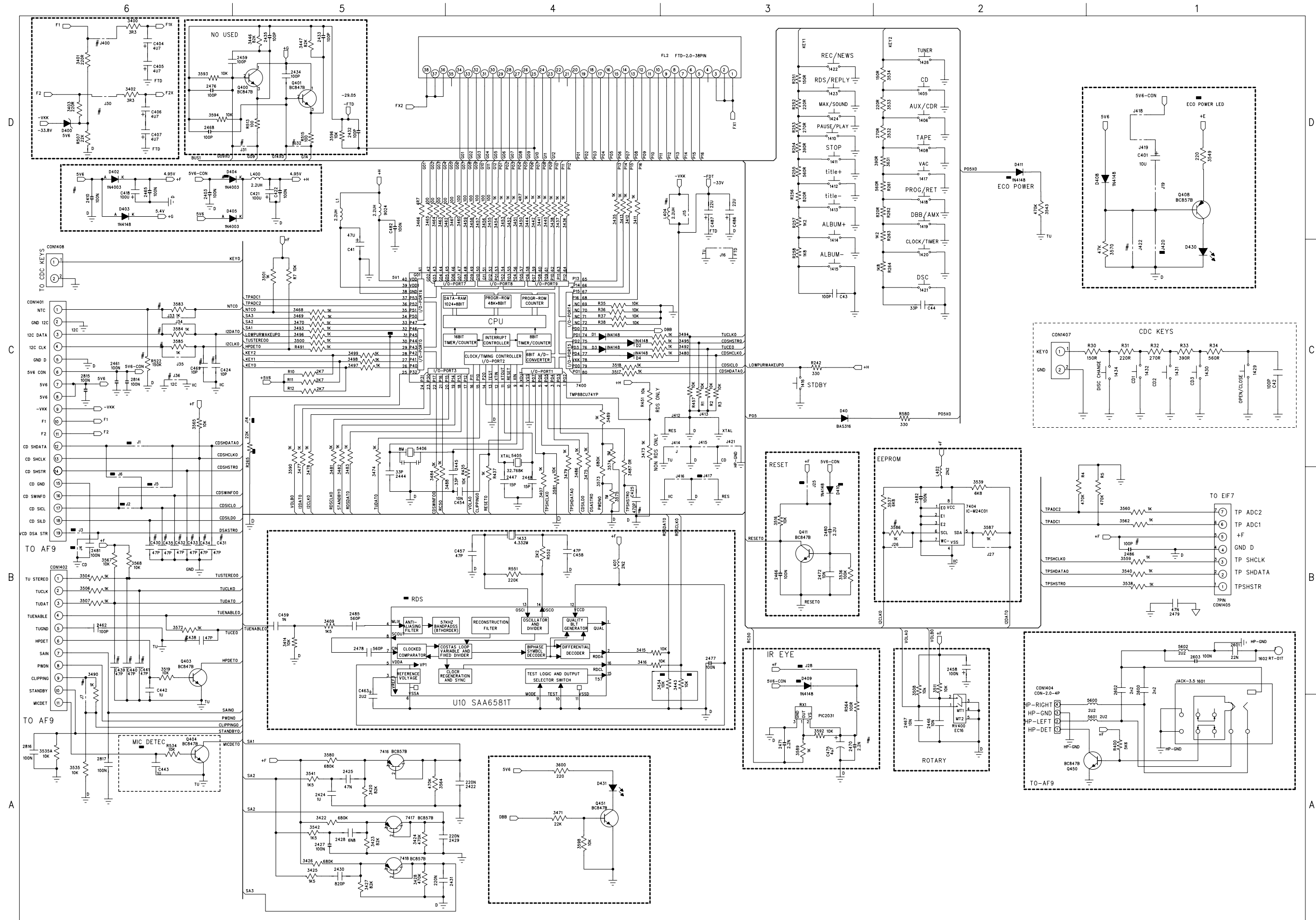
Front PCB Layout Top View	6-2
Front PCB Layout Bottom View	6-3
Circuit Diagram	6-4
PCB Layout (CDC Key & USB Jack Part)	6-5

Remark: This chapter is only for reference. For Ver. 37, the whole Front Board Ass'y and Key Board Ass'y and USB Jack Board Ass'y can be orderd with 12nc: 9940 000 04756 & 9940 000 04757 & 9940 000 04484.

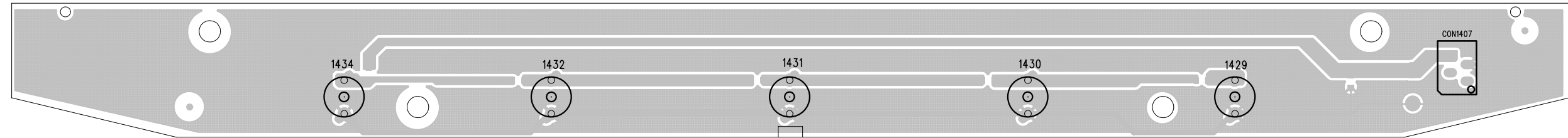
PCB LAYOUT - FRONT BOARD (TOP VIEW)



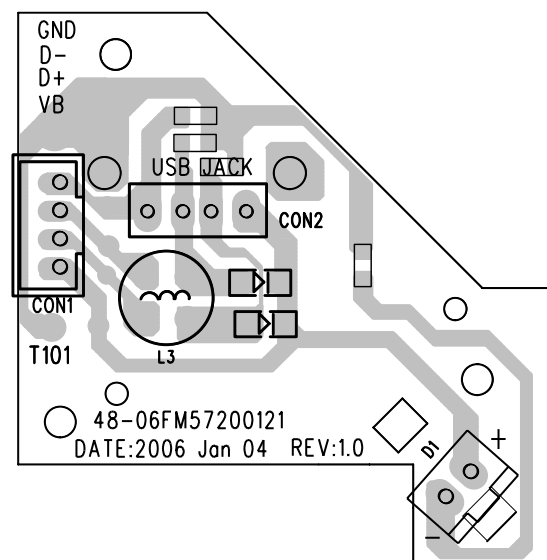
CIRCUIT DIAGRAM - FRONT & KEY BOARD



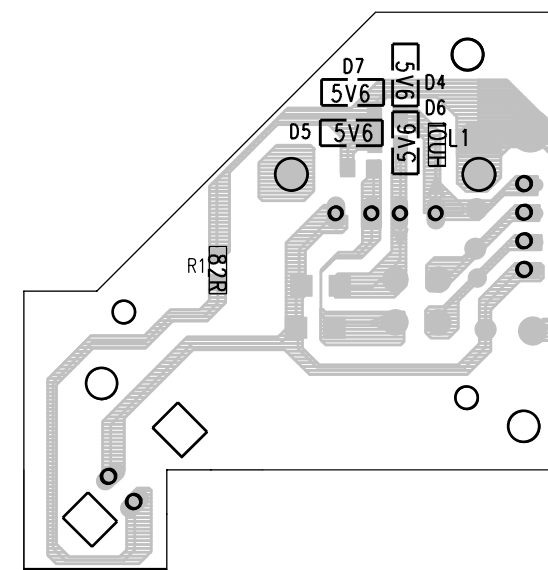
PCB LAYOUT - CDC KEY BOARD

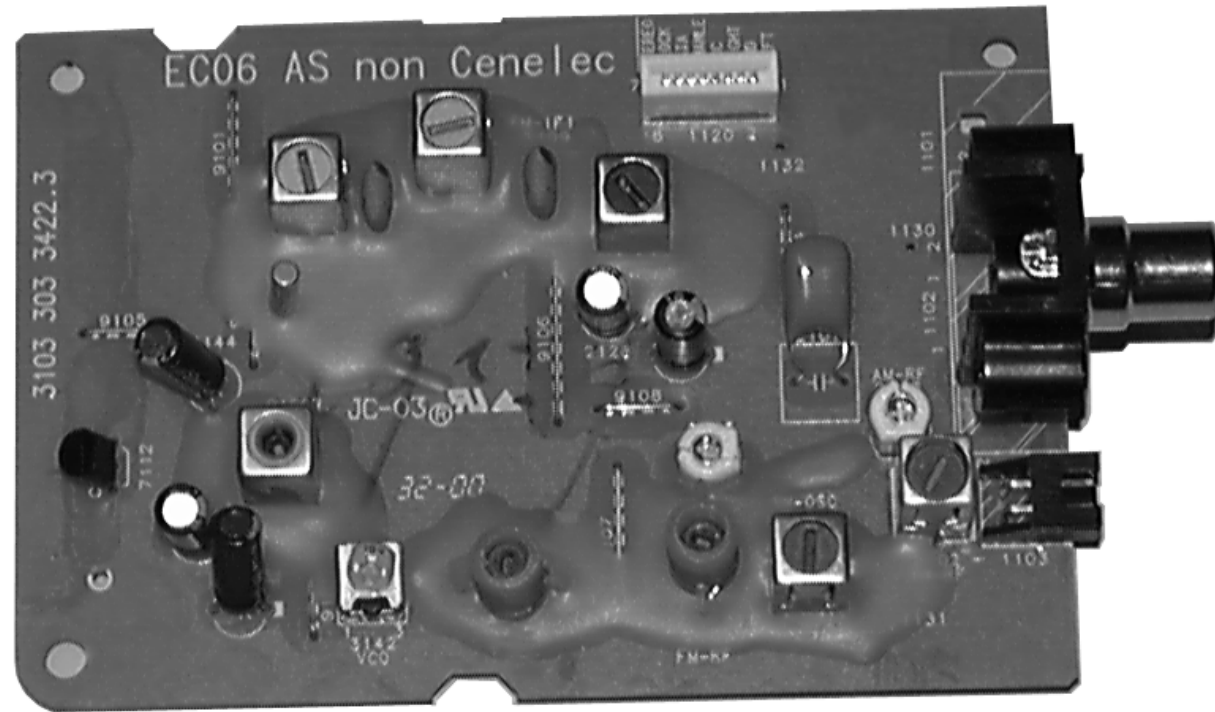


PCB LAYOUT - USB JACK BOARD (TOP VIEW)

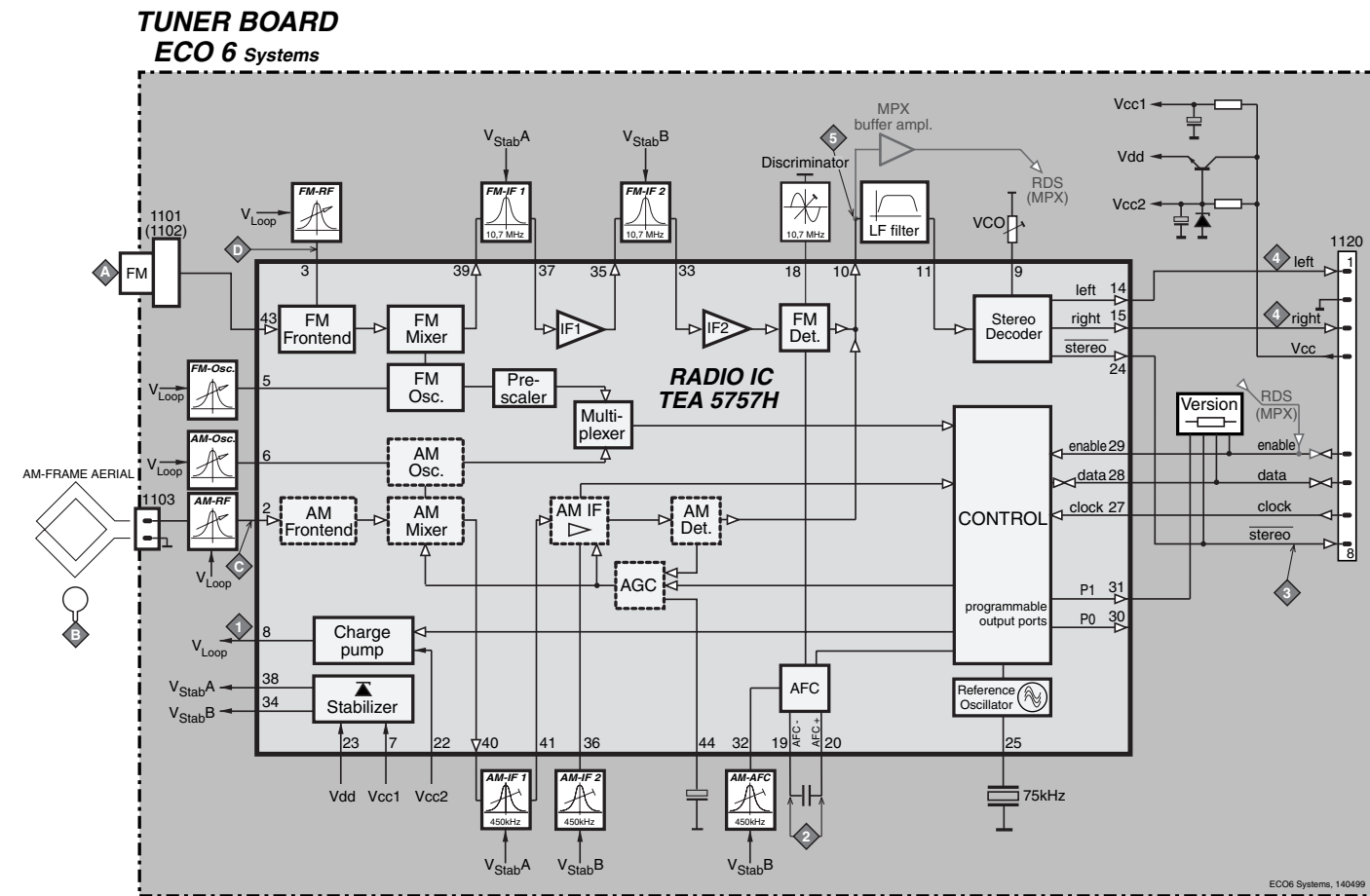


PCB LAYOUT - USB JACK BOARD (BOTTOM VIEW)





BLOCK DIAGRAM

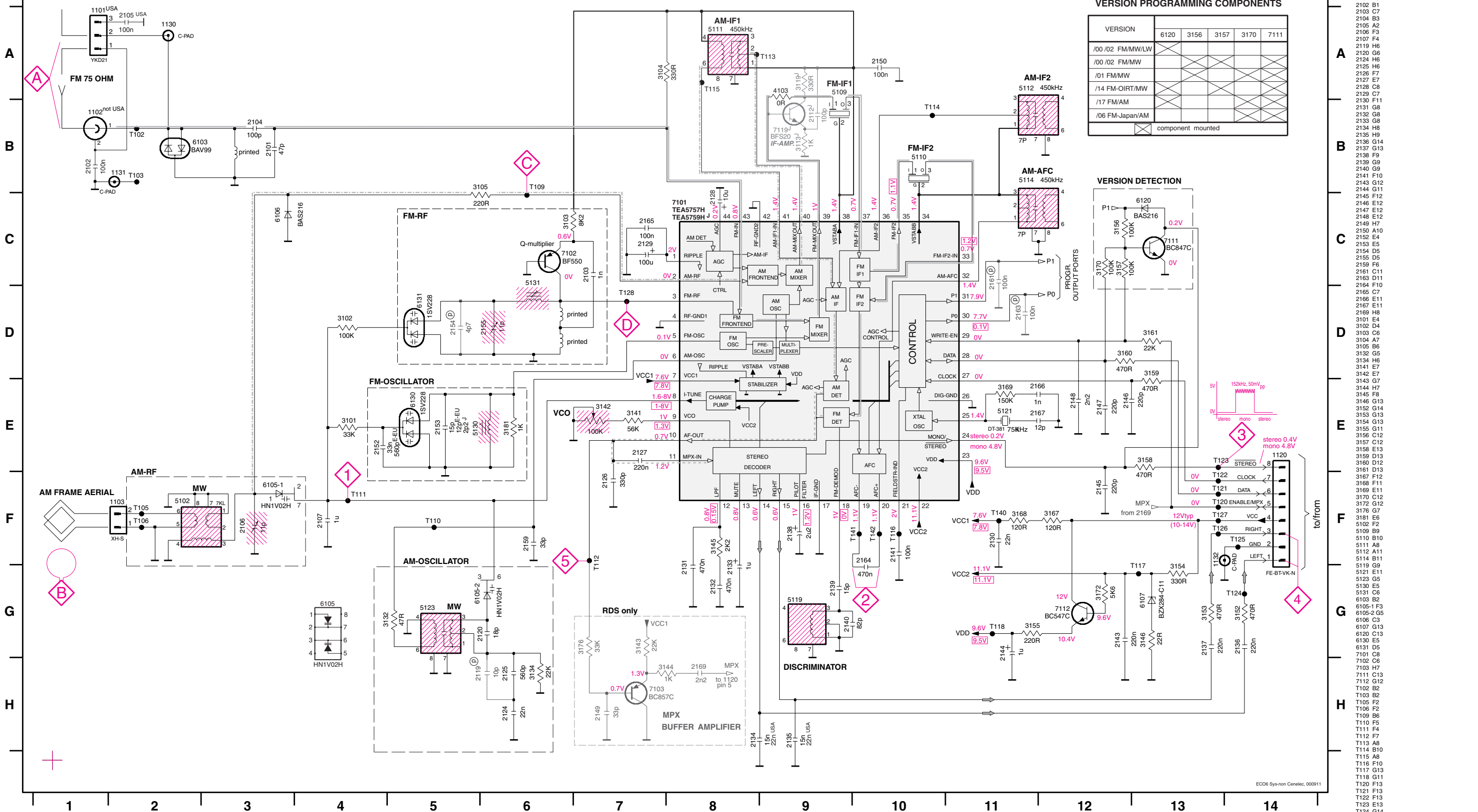


ECO6 Tuner Board
version: *SYSTEMS non-CENELEC*

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Blockdiagram7A-1
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 Component Layout.....7A-3
 Adjustment table7A-3
 Electrical Partslist.....7A-4

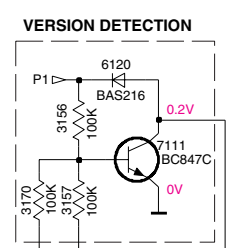
TUNER BOARD ECO6 / SYSTEMS NON CENELEC



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					
/06 FM-Japan/AM					

component mounted



- 1101 A1
- 1102 B1
- 1103 F2
- 1120 E14
- 1130 A2
- 1131 B2
- 1132 G13
- 2101 B3
- 2102 B1
- 2103 C7
- 2104 B3
- 2105 A2
- 2106 F3
- 2107 F4
- 2119 H6
- 2120 G6
- 2124 H6
- 2125 H6
- 2126 F7
- 2127 E7
- 2128 C8
- 2129 C7
- 2130 F11
- 2131 G8
- 2132 G8
- 2133 G8
- 2134 H8
- 2135 H9
- 2136 G14
- 2137 G13
- 2138 F9
- 2139 G9
- 2140 G9
- 2141 F10
- 2143 G12
- 2144 G11
- 2145 F12
- 2146 E12
- 2147 E12
- 2148 H7
- 2149 H7
- 2150 A10
- 2152 E4
- 2153 E5
- 2154 D5
- 2155 D5
- 2159 F6
- 2161 C11
- 2163 D11
- 2164 F10
- 2165 C7
- 2166 E11
- 2167 E11
- 2169 H8
- 3101 E4
- 3102 D4
- 3103 C6
- 3104 A7
- 3105 B6
- 3132 G5
- 3134 H6
- 3141 E7
- 3142 E7
- 3143 G7
- 3144 H7
- 3145 F8
- 3146 G13
- 3152 G14
- 3153 G13
- 3154 G13
- 3155 G11
- 3156 C12
- 3157 D12
- 3158 E13
- 3159 D13
- 3160 D13
- 3161 D13
- 3167 F12
- 3168 F11
- 3169 E11
- 3170 C12
- 3172 G12
- 3176 G7
- 3181 E6
- 5102 F2
- 5109 B9
- 5110 B10
- 5111 A8
- 5112 A11
- 5114 B11
- 5119 G9
- 5121 E11
- 5123 G5
- 5130 E5
- 5131 C6
- 5132 B2
- 6105-1 F3
- 6105-2 G5
- 6106 C3
- 6107 G13
- 6120 G13
- 6130 E5
- 6131 D5
- 7101 C8
- 7102 C6
- 7103 H7
- 7111 C13
- 7112 F13
- T102 B2
- T103 B2
- T105 F2
- T106 F2
- T109 B6
- T110 F5
- T111 F4
- T112 F7
- T113 A8
- T114 B10
- T115 A8
- T116 F10
- T117 G13
- T118 G11
- T120 F13
- T122 F13
- T123 F13
- T124 F13
- T127 F13
- T128 D7
- T140 F11
- T141 F10
- T142 F10

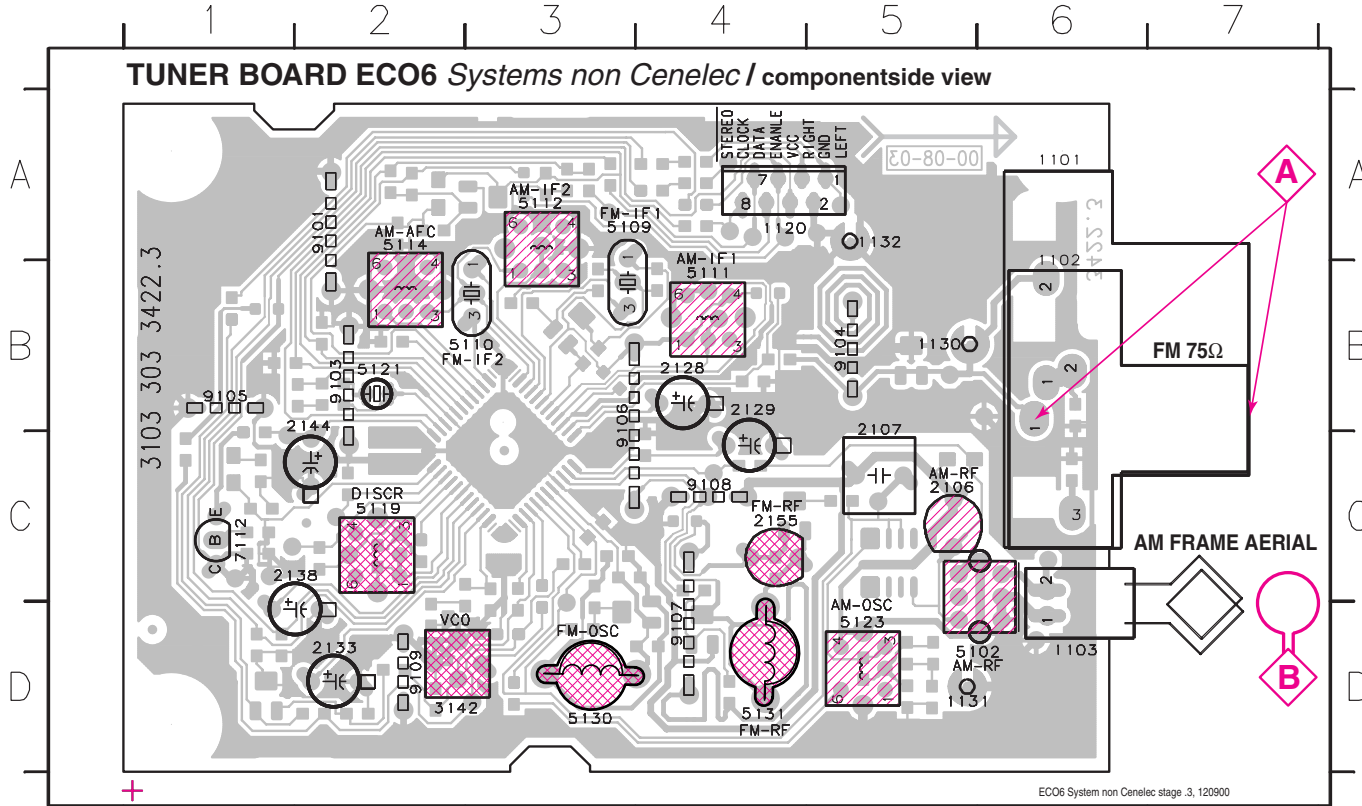
LEGEND

- Ⓟ...for provision only
- USA ... for USA version only
- E-EU ... for East European version only
- J ... for Japanese version only

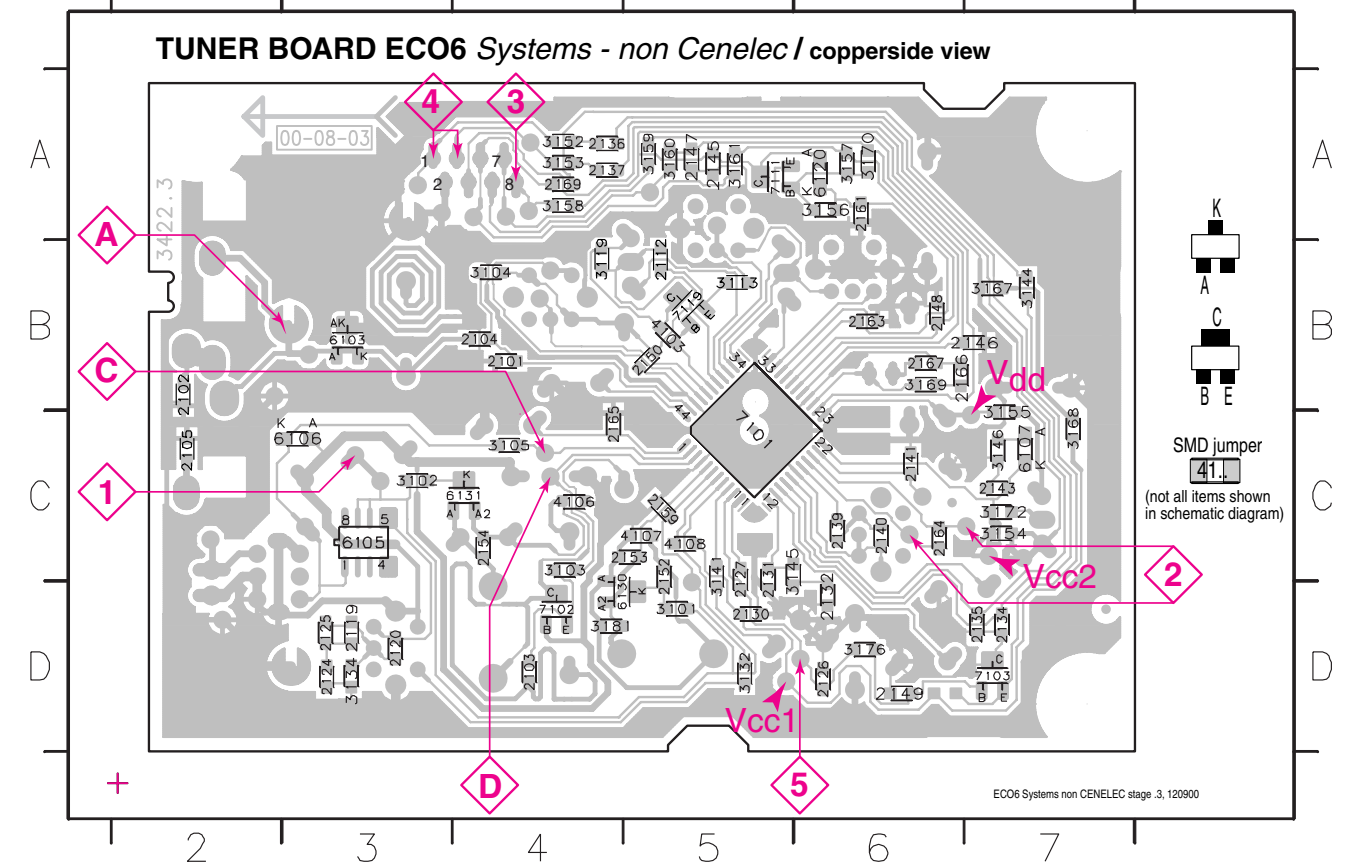
- ⋯ V FM mode stereo
- ⋯ V MW mode
- ⋯ V LW mode
- ⋯ V voltages measured while set is tuned to a strong transmitter
- ⋯ V EVM

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

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 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 partlist.

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		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D		5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz ¹⁾
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C		5111	5	
		C		5112		
AM AFC MW		C		5114	2	0 ± 2 mV DC
AM RF³⁾						
MW⁴⁾ FM/MW/LW- and FM/MW-version (9kHz grid)	1494kHz	B	1494kHz	2106	5	
	531 - 1602kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	B	1500kHz	2106	5	
	560kHz		560kHz	5102		

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

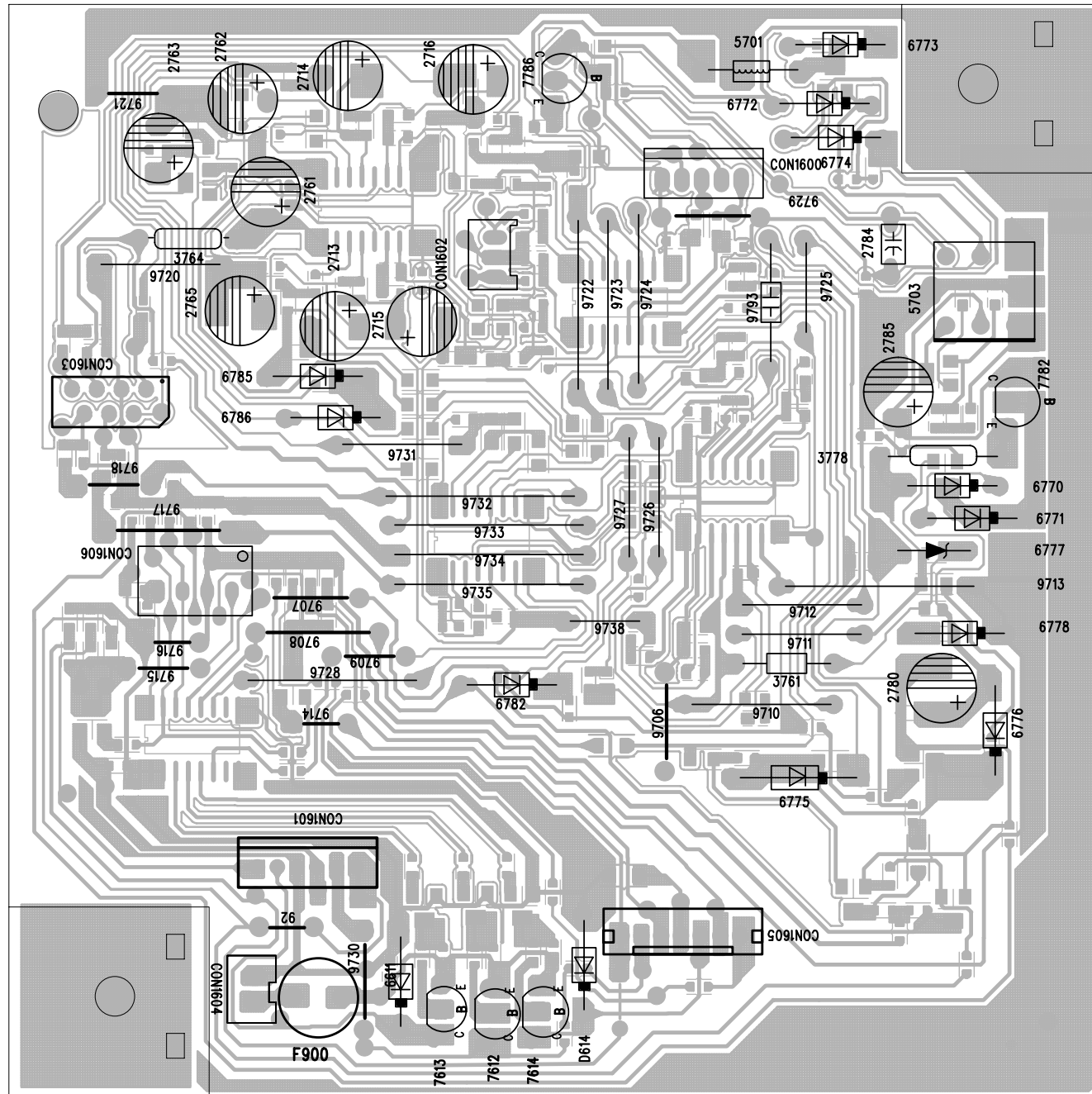
TAPE BOARD

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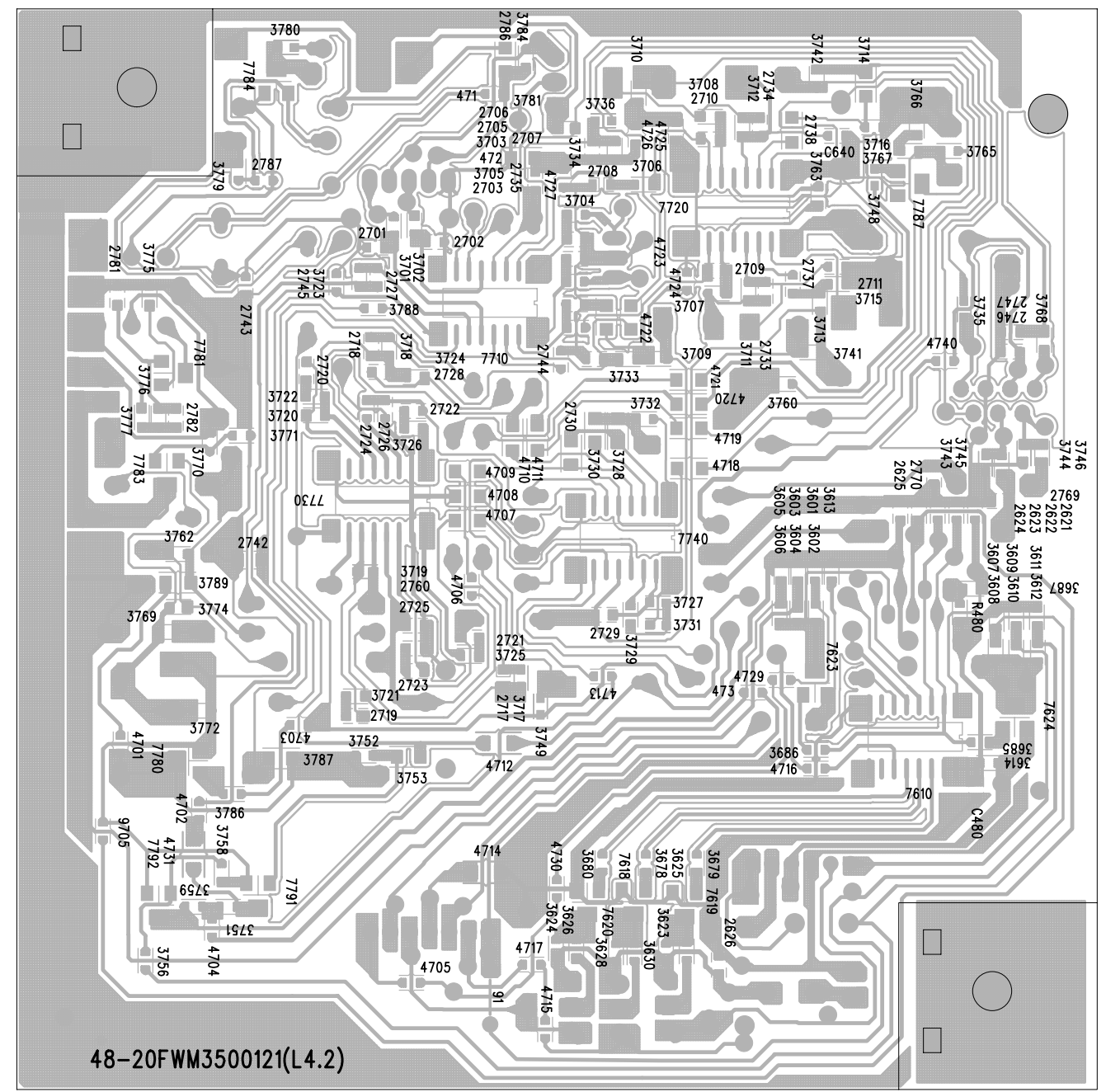
PCB Layout Top View	8-2
PCB Layout Bottom View	8-2
Circuit Diagram	8-3
Electrical Parts List	8-4

Remark: For Ver /37 & /55, the whole Tape Board Ass'y can be orderd with 12nc: 9940 000 04469

PCB LAYOUT - TAPE BOARD (TOP VIEW)

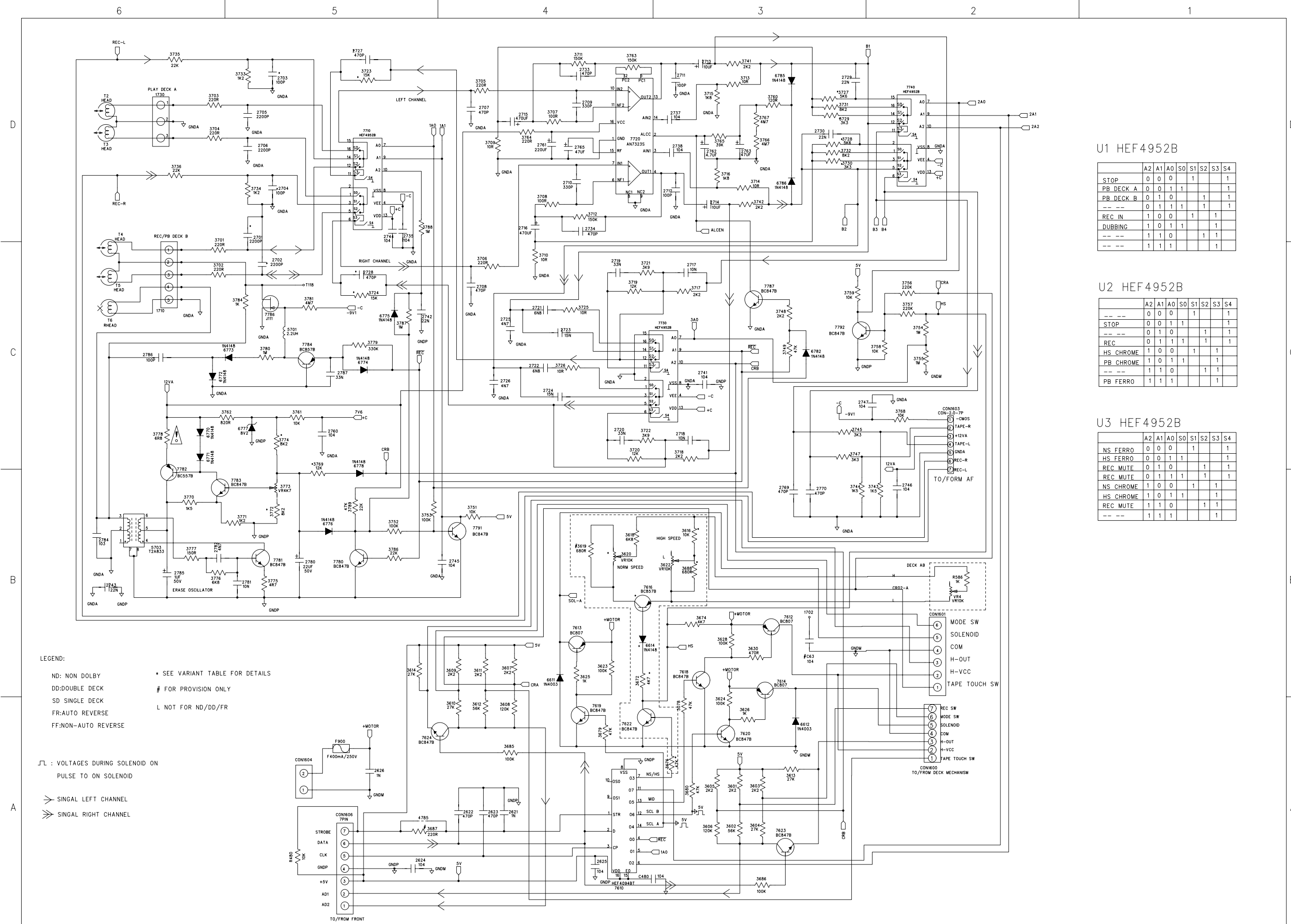


PCB LAYOUT - TAPE BOARD (BOTTOM VIEW)



48-20FWM3500121(L4.2)

CIRCUIT DIAGRAM - TAPE BOARD



U1 HEF4952B

	A2	A1	A0	S0	S1	S2	S3	S4
STOP	0	0	0	1	1	1	1	1
PB DECK A	0	0	1	1	1	1	1	1
PB DECK B	0	1	0	1	1	1	1	1
---	0	1	1	1	1	1	1	1
REC IN	1	0	1	1	1	1	1	1
DUBBING	1	0	1	1	1	1	1	1
---	1	1	0	1	1	1	1	1
---	1	1	1	1	1	1	1	1

U2 HEF4952B

	A2	A1	A0	S0	S1	S2	S3	S4
---	0	0	0	1	1	1	1	1
STOP	0	0	1	1	1	1	1	1
---	0	1	0	1	1	1	1	1
REC	0	1	1	1	1	1	1	1
HS CHROME	1	0	0	1	1	1	1	1
PB CHROME	1	0	1	1	1	1	1	1
---	1	1	0	1	1	1	1	1
PB FERRO	1	1	1	1	1	1	1	1

U3 HEF4952B

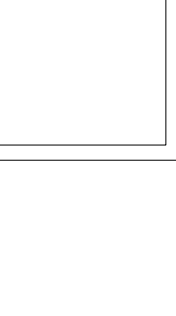
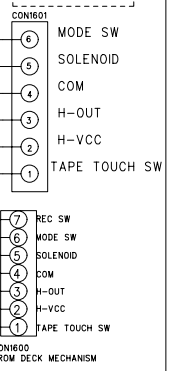
	A2	A1	A0	S0	S1	S2	S3	S4
NS FERRO	0	0	0	1	1	1	1	1
HS FERRO	0	0	1	1	1	1	1	1
REC MUTE	0	1	0	1	1	1	1	1
REC MUTE	0	1	1	1	1	1	1	1
NS CHROME	1	0	0	1	1	1	1	1
HS CHROME	1	0	1	1	1	1	1	1
---	1	1	0	1	1	1	1	1
---	1	1	1	1	1	1	1	1

LEGEND:

- ND: NON DOLBY
- DD: DOUBLE DECK
- SD: SINGLE DECK
- FR: AUTO REVERSE
- FF: NON-AUTO REVERSE
- * SEE VARIANT TABLE FOR DETAILS
- # FOR PROVISION ONLY
- L NOT FOR ND/DD/FR

⌋ : VOLTAGES DURING SOLENOID ON PULSE TO ON SOLENOID

- SINGAL LEFT CHANNEL
- SINGAL RIGHT CHANNEL



ELECTRICAL PARTS - CASS DECK BOARD

3778 △ 9940 000 01249 FUSE RES. 6.8Ω 1/4W +/-5%
5703 9940 000 01251 IFT OSC COIL 100KHZ
7610 5322 209 11306 HEF4094BT
7710 9940 000 01248 IC HF4952
7720 9322 140 00668 IC SM AN7323S (MATJ)

7730 9940 000 01248 IC HF4952
7740 9940 000 01248 IC HF4952
7786 4822 130 63494 FET J111
F900 △ 9940 000 01252 FUSE RADIAL F400MA/250V

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

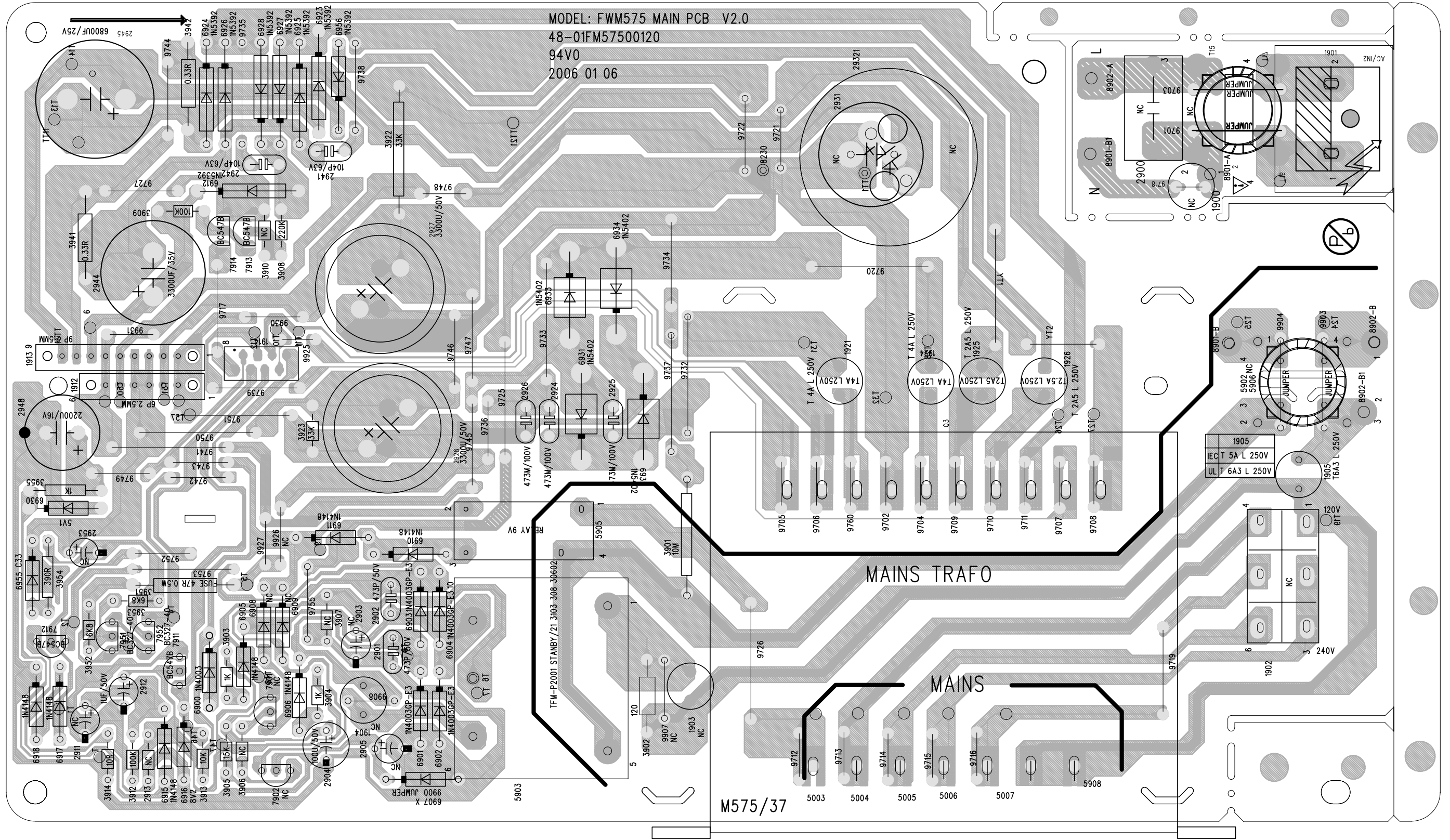
MAINS BOARD

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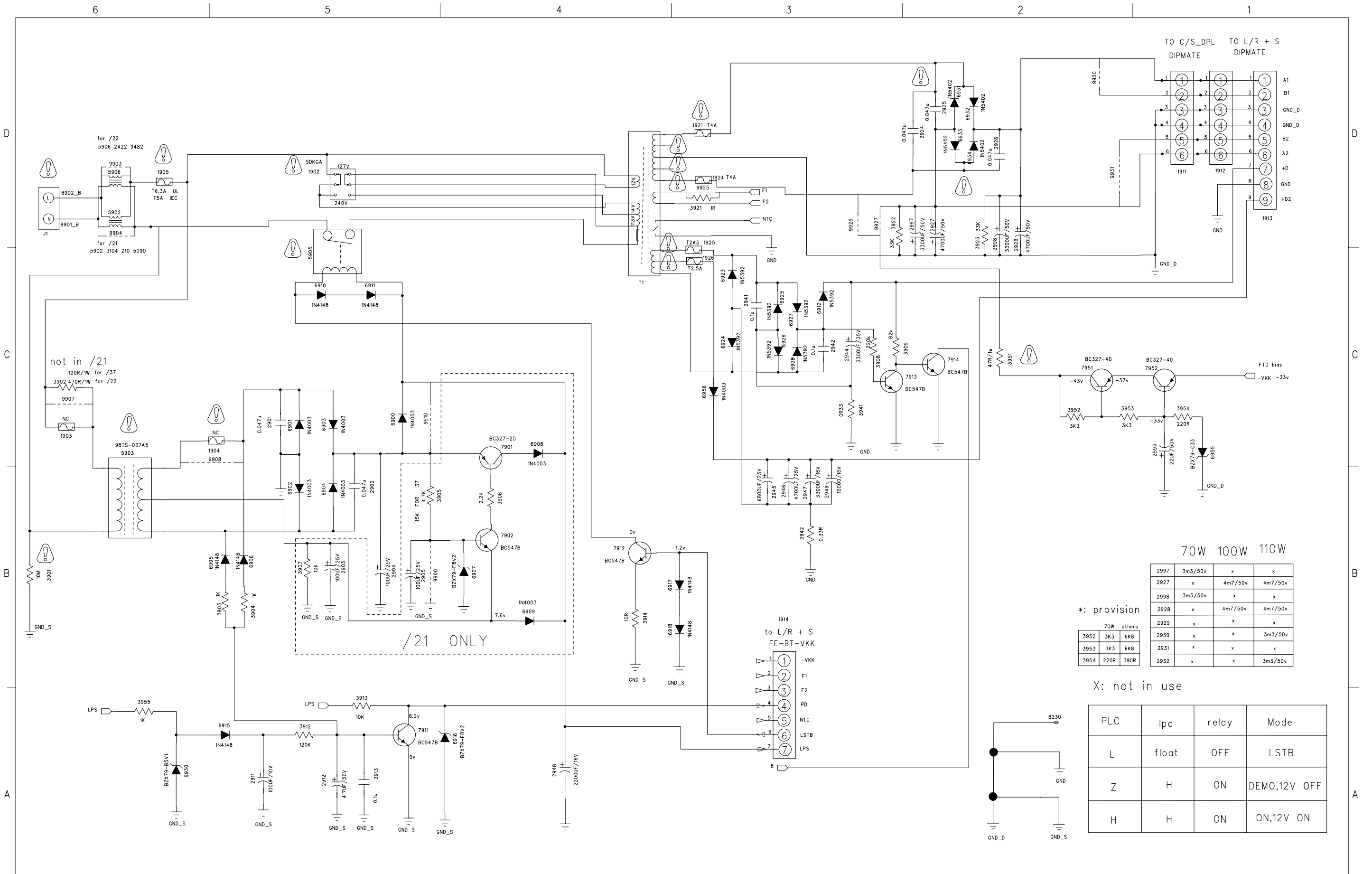
PCB Layout	9-2
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Remark: For Ver. /37, this chapter is only for reference, the whole Mains Board Ass'y can be orderd with
12nc: 9940 000 04772

LAYOUT DIAGRAM - MAINS BOARD (TOP VIEW)



CIRCUIT DIAGRAM - MAINS BOARD



70W 100W 110W

*: provision

	70W	others		
3952	3K3	6K8		
3953	3K3	6K8		
3954	220R	390R		

	70W	100W	110W
2997	3m3/50v	x	x
2927	x	4m7/50v	4m7/50v
2998	3m3/50v	x	x
2928	x	4m7/50v	4m7/50v
2929	x	x	x
2930	x	x	3m3/50v
2931	x	x	x
2932	x	x	3m3/50v

X: not in use

PLC	lpc	relay	Mode
L	float	OFF	LSTB
Z	H	ON	DEMO,12V OFF
H	H	ON	ON,12V ON

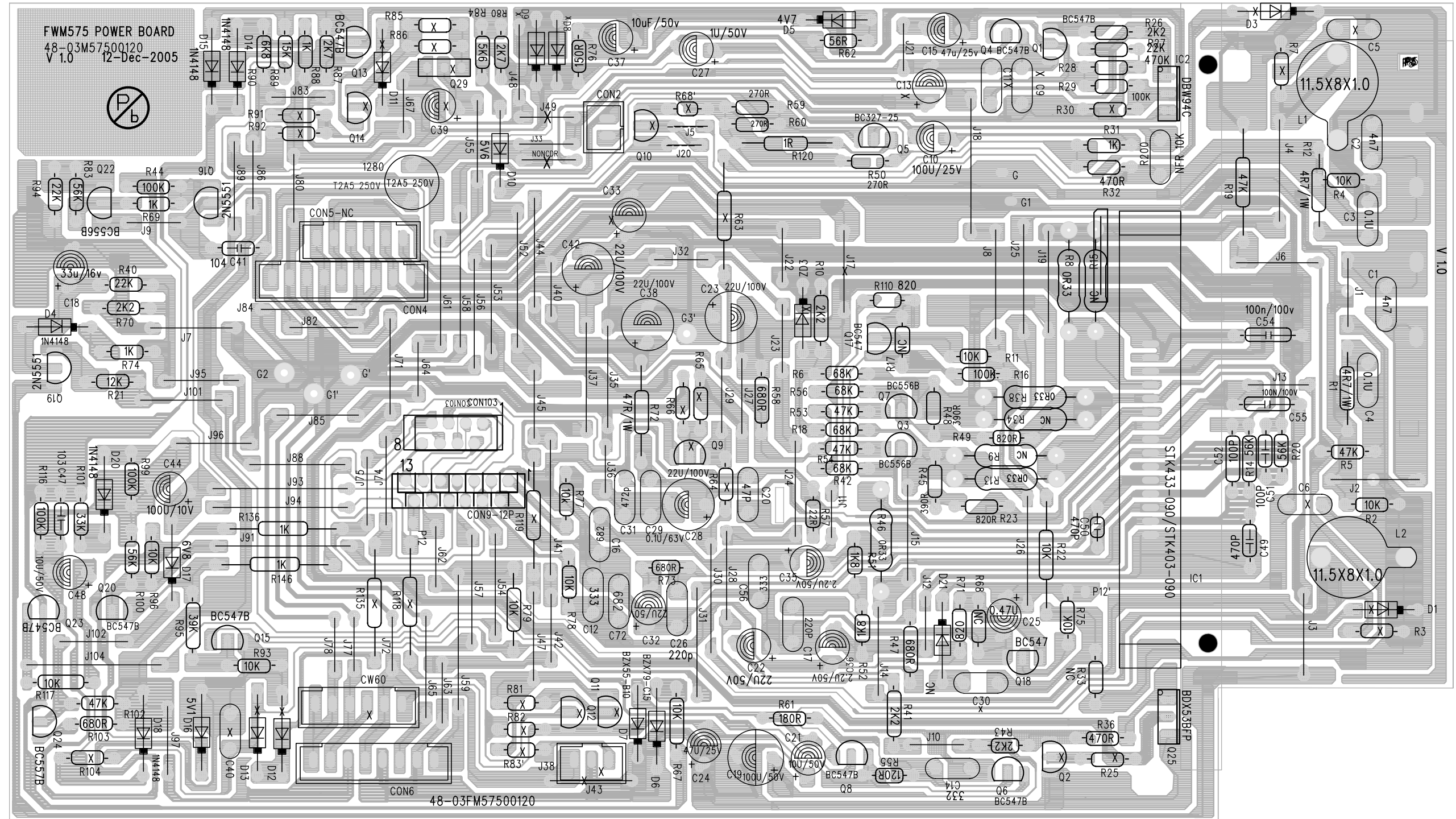
POWER & BI-AMP & SPEAKER BOARD

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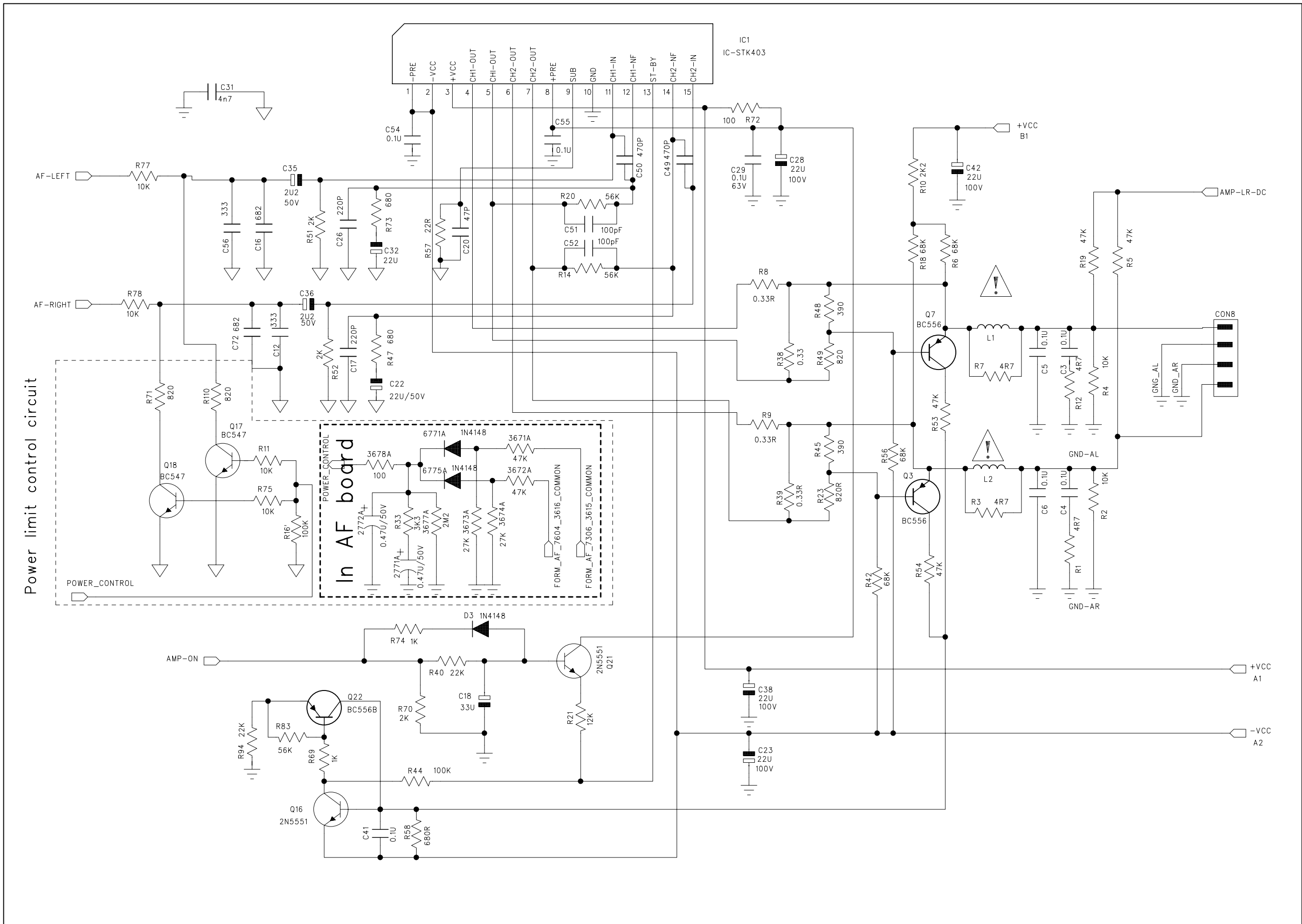
Power Board Layout Diagram	10-2
Power Board Circuit Diagram Part1	10-3
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BI-AMP Board Layout Diagram	10-5
Speaker Board Layout Diagram	10-5
BI-AMP & Speaker Board Circuit Diagram	10-6

Remark: For Ver./37, this chapter is only for reference, the whole Power Board Ass'y and BI-AMP Board Ass'y and Speaker Board Ass'y can be orderd with 12nc: 9940 000 04755 and 9940 000 04759 and 9940 000 04761.

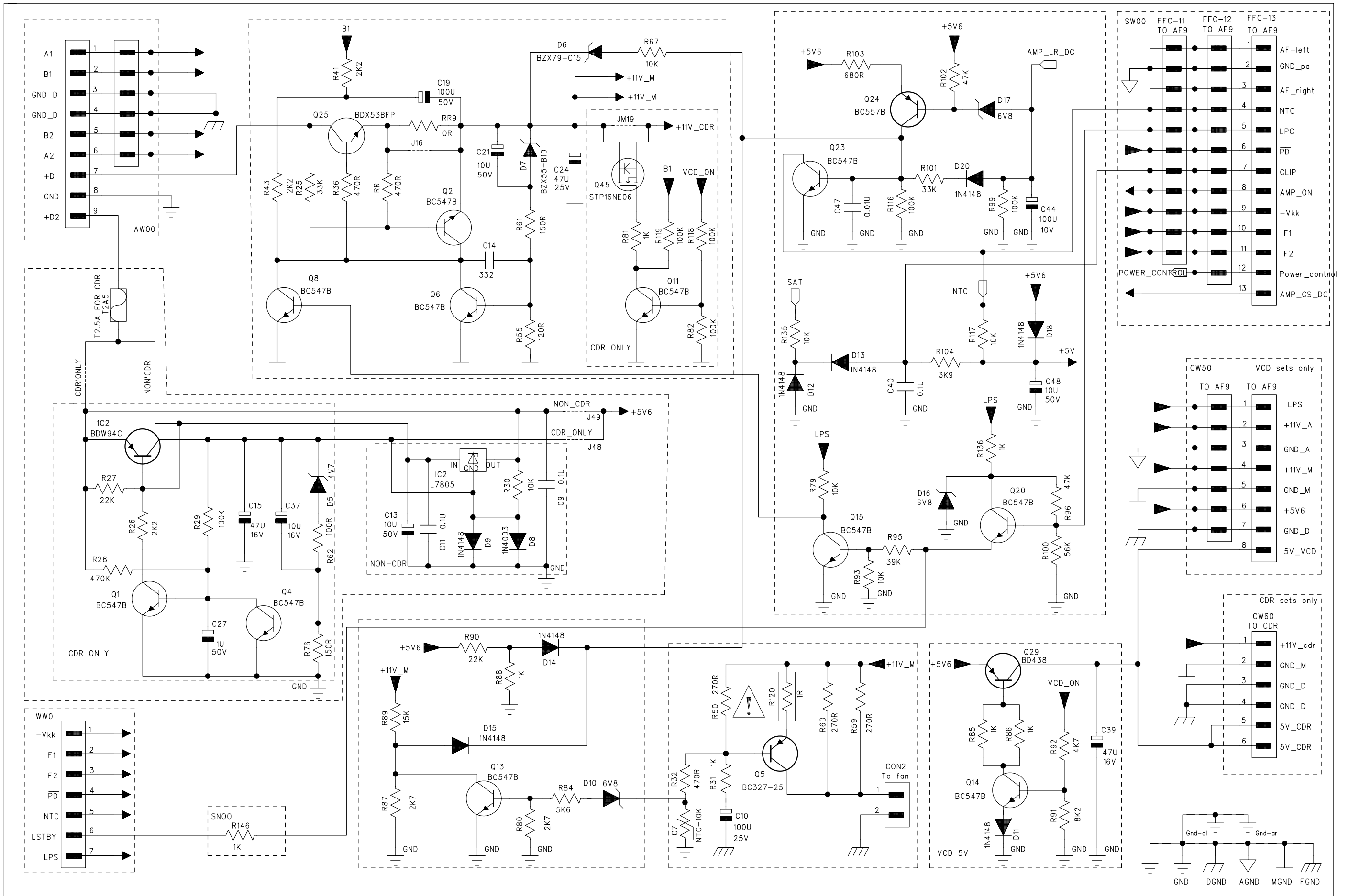
LAYOUT DIAGRAM - POWER BOARD



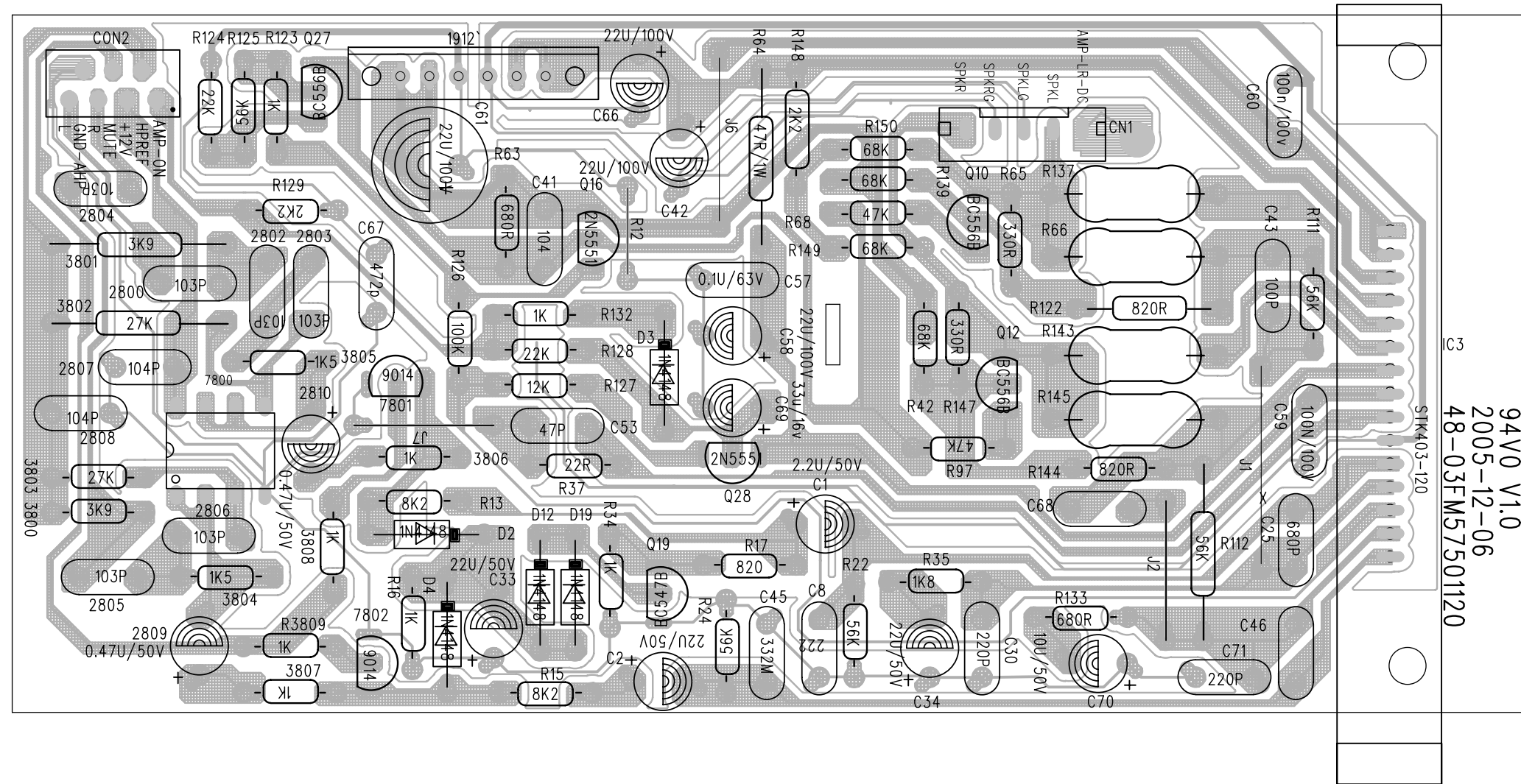
CIRCUIT DIAGRAM - POWER BOARD PART 1



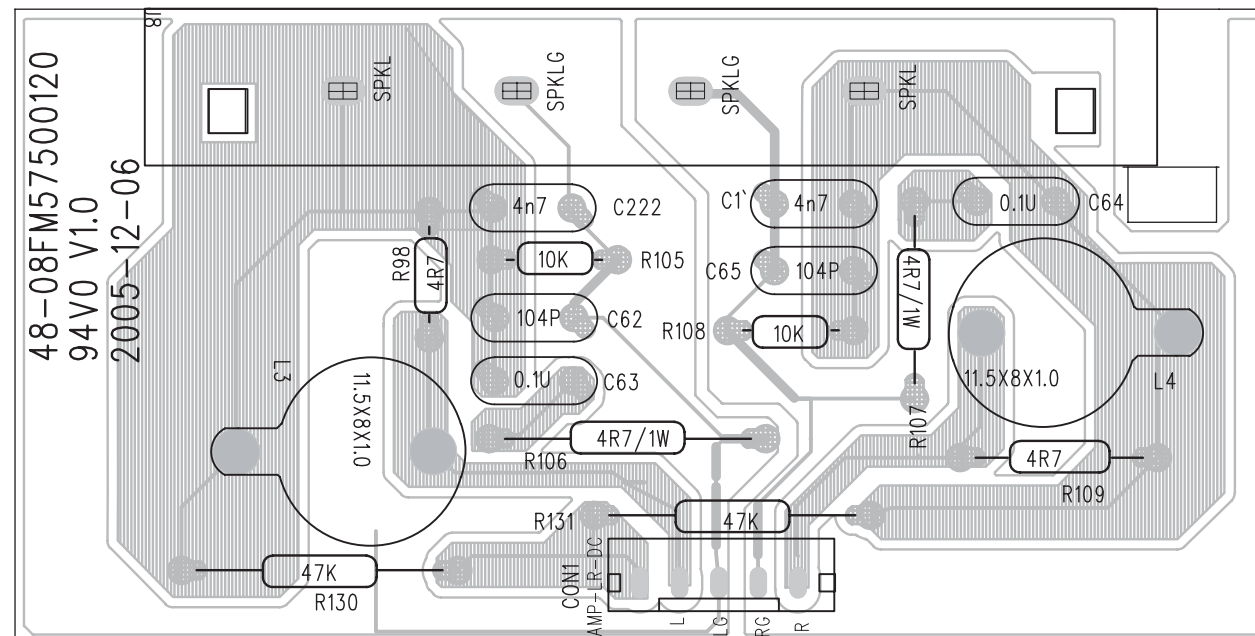
CIRCUIT DIAGRAM - POWER BOARD PART 2



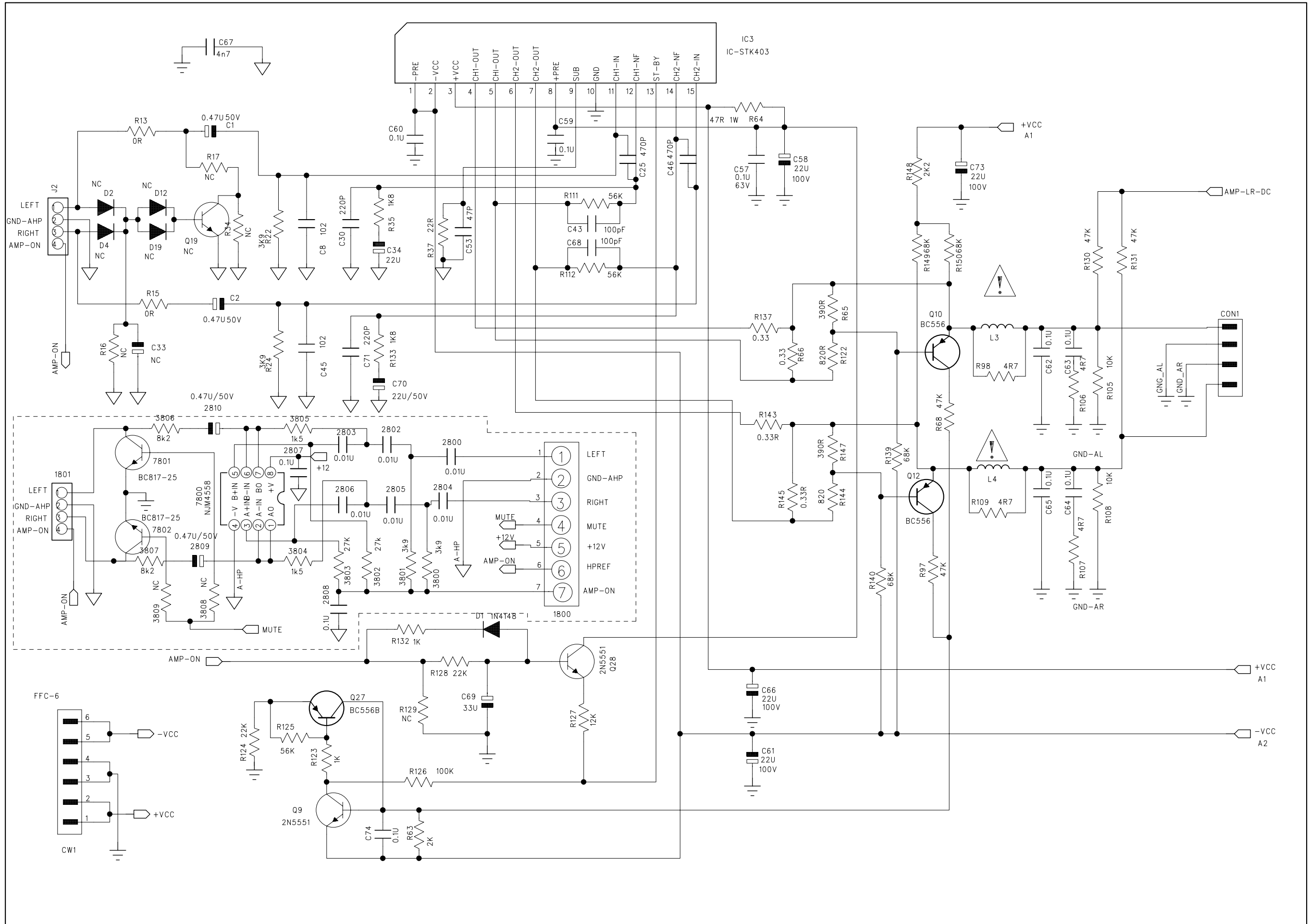
LAYOUT DIAGRAM - BI-AMP BOARD



LAYOUT DIAGRAM - SPEAKER BOARD



CIRCUIT DIAGRAM - BI-AMP BOARD & SPEAKER BOARD



AF9 BOARD

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Brief Introduction of the AF9 Board	12-1
AF9 Board - Component layout	12-2
AF9 Board - Chip layout	12-3
AF9 Board - Circuit Diagram (Part 1)	12-4
AF9 Board - Circuit Diagram (Part 2)	12-5

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 I²C 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 'pop' 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.

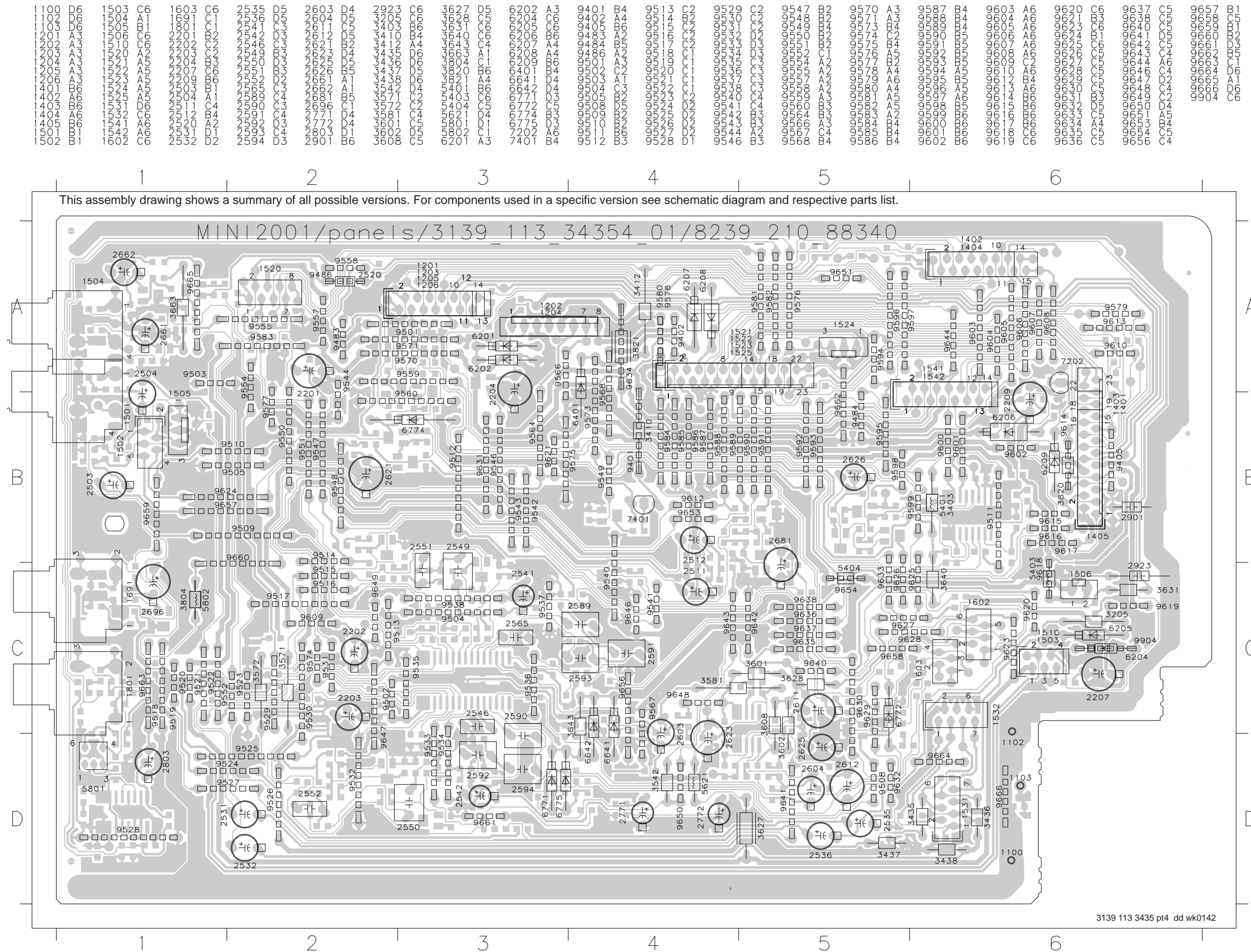
i. ATTENUATION NETWORK

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

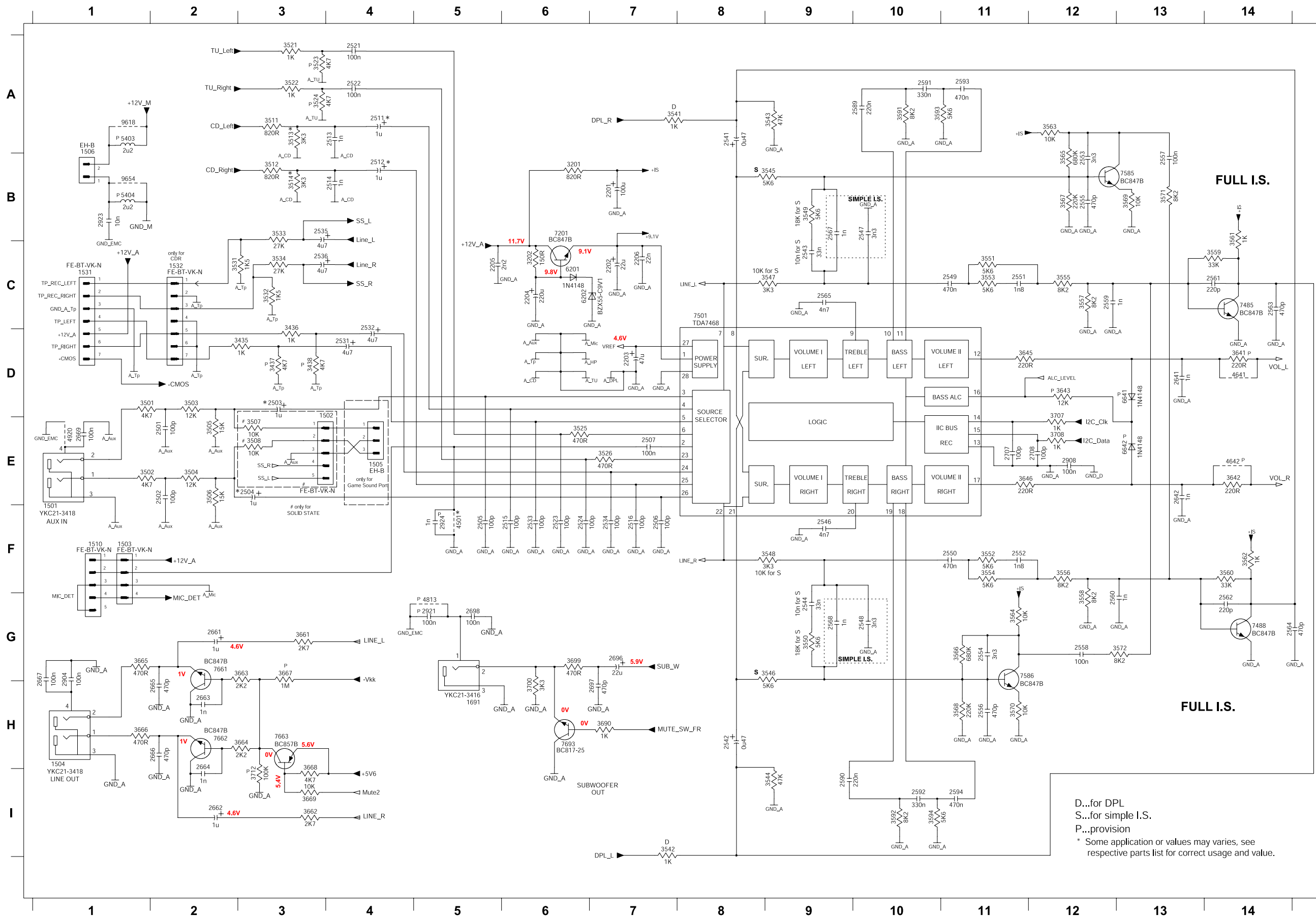
j. CD DIGITAL OUT

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

COMPONENT LAYOUT



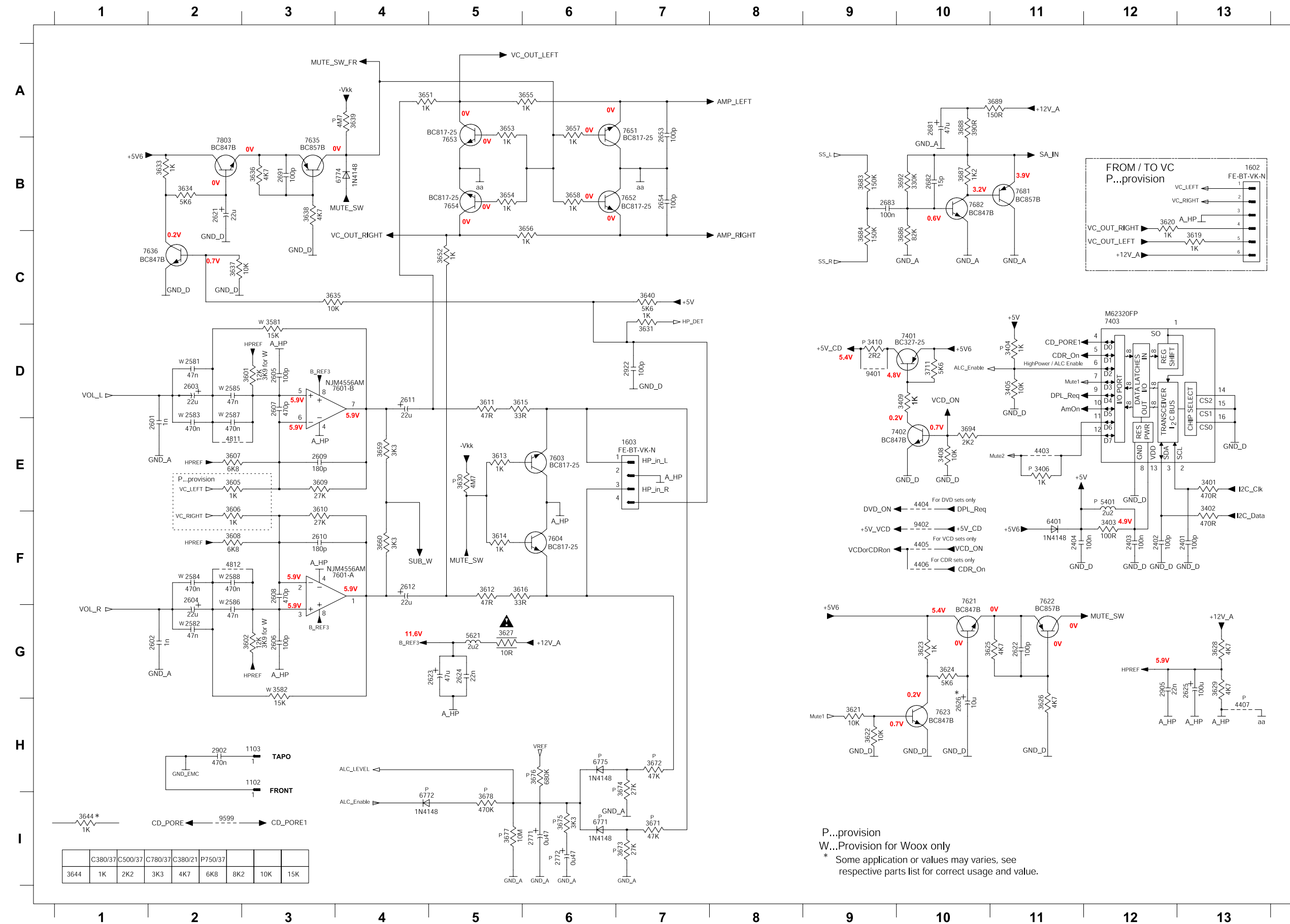
SOURCE SELECTION & SOUND PROCESSING CIRCUIT



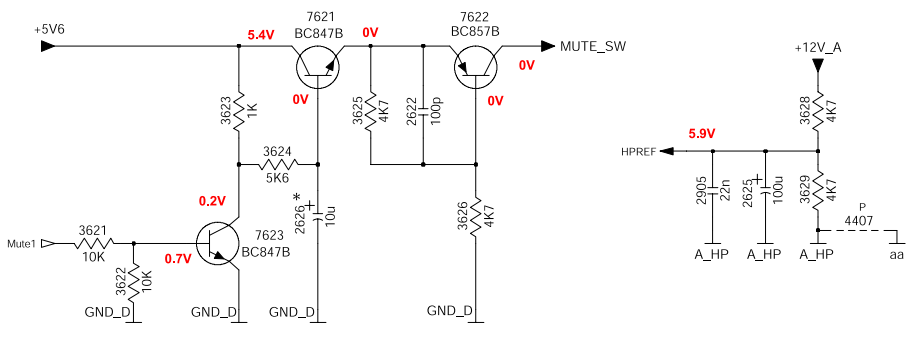
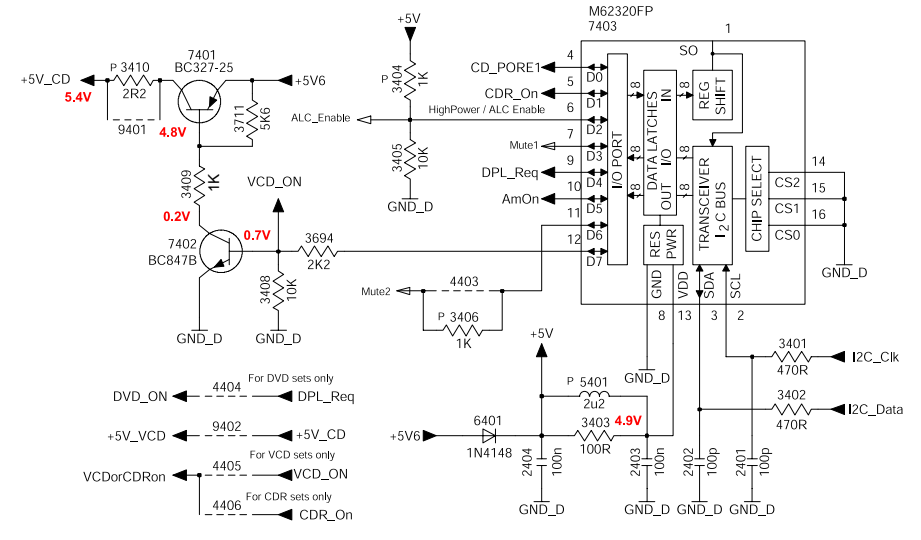
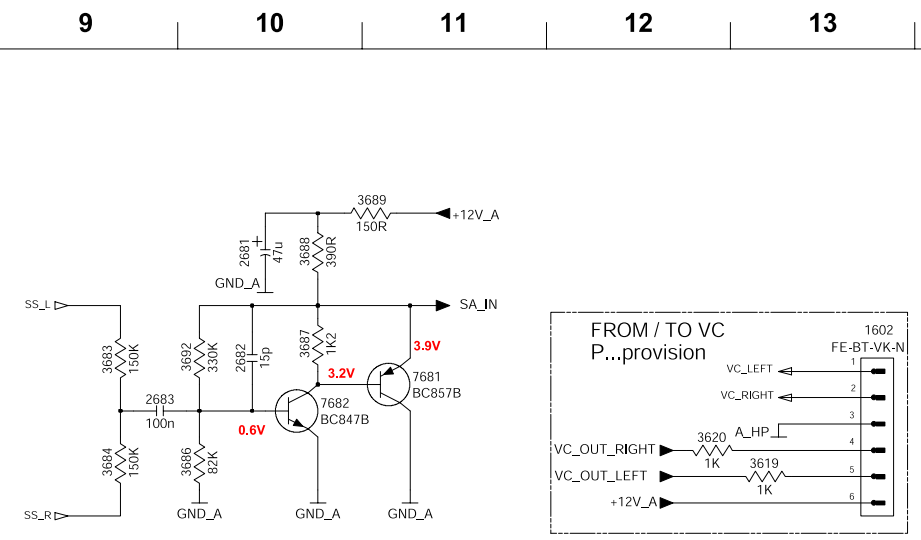
D...for DPL
 S...for simple I.S.
 P...provision
 * Some application or values may varies, see respective parts list for correct usage and value.

- 1501 E1
- 1502 E3
- 1503 F1
- 1504 H1
- 1505 E4
- 1506 A1
- 1510 F1
- 1532 C2
- 1531 C1
- 1691 H5
- 2201 B7
- 2202 C7
- 2203 D7
- 2204 C6
- 2205 C5
- 2206 C7
- 2501 E2
- 2502 E2
- 2503 D3
- 2504 E3
- 2505 F5
- 2506 F7
- 2507 E7
- 2511 A4
- 2512 B4
- 2513 A4
- 2514 B4
- 2515 F6
- 2516 F7
- 2521 A4
- 2522 A4
- 2523 F6
- 2524 F6
- 2531 D4
- 2532 C4
- 2533 F6
- 2534 F7
- 2535 B3
- 2536 C3
- 2541 A8
- 2542 H8
- 2543 C9
- 2544 F9
- 2546 B10
- 2548 G10
- 2549 C11
- 2550 F11
- 2551 C11
- 2552 F11
- 2553 B12
- 2554 G12
- 2555 B12
- 2556 H11
- 2557 B13
- 2558 G13
- 2559 C12
- 2560 G12
- 2561 C14
- 2562 G14
- 2563 C14
- 2564 G14
- 2565 C9
- 2567 B9
- 2568 G9
- 2590 I9
- 2591 A10
- 2592 I10
- 2593 A11
- 2594 I11
- 2641 D13
- 2642 E13
- 2661 G2
- 2662 I2
- 2663 H2
- 2664 I2
- 2665 H2
- 2666 H2
- 2667 G1
- 2669 E1
- 2696 G7
- 2697 H7
- 2698 G5
- 2707 E11
- 2708 E12
- 2904 G1
- 2908 E12
- 2921 G5
- 2923 B1
- 2924 F5
- 3201 B6
- 3202 C6
- 3435 D3
- 3436 D3
- 3437 D3
- 3501 D1
- 3502 E1
- 3503 D2
- 3504 E2
- 3505 E2
- 3506 E2
- 3507 E3
- 3508 E3
- 3511 A3
- 3512 B3
- 3513 A3
- 3514 B3
- 3521 A3
- 3522 A3
- 3523 A3
- 3524 A3
- 3525 E6
- 3526 E7
- 3531 C2
- 3532 C3
- 3533 B3
- 3534 C3
- 3541 A7
- 3542 I7
- 3543 A9
- 3544 I9
- 3545 B9
- 3546 G9
- 3547 C9
- 3548 F9
- 3549 B9
- 3550 G9
- 3551 C11
- 3552 F11
- 3553 C11
- 3554 F11
- 3555 C12
- 3556 F12
- 3557 C12
- 3558 G12
- 3559 C14
- 3560 F14
- 3561 B14
- 3562 F14
- 3563 A12
- 3564 G11
- 3565 B12
- 3566 G11
- 3567 B12
- 3568 H11
- 3569 B13
- 3570 H11
- 3571 G13
- 3572 G13
- 3591 A10
- 3592 H10
- 3593 A10
- 3594 H10
- 3641 D14
- 3642 E14
- 3643 D12
- 3644 G11
- 3645 E13
- 3646 E11
- 3661 G3
- 3662 G3
- 3663 G3
- 3664 H3
- 3665 G1
- 3666 H3
- 3667 H3
- 3668 I3
- 3699 H7
- 3700 H6
- 3707 E12
- 3708 E12
- 3712 I3
- 4501 F5
- 4641 D14
- 4642 E14
- 4643 G5
- 4920 E1
- 5403 A1
- 5404 B1
- 6201 C6
- 6641 D13
- 7201 B6
- 7485 C14
- 7488 G14
- 7501 C8
- 7585 B13
- 7661 G2
- 7662 H2
- 7663 H3
- 7693 H6
- 9618 A1
- 9654 B1

HEADPHONE AMPLIFIER & I²C EXPANDER CIRCUIT



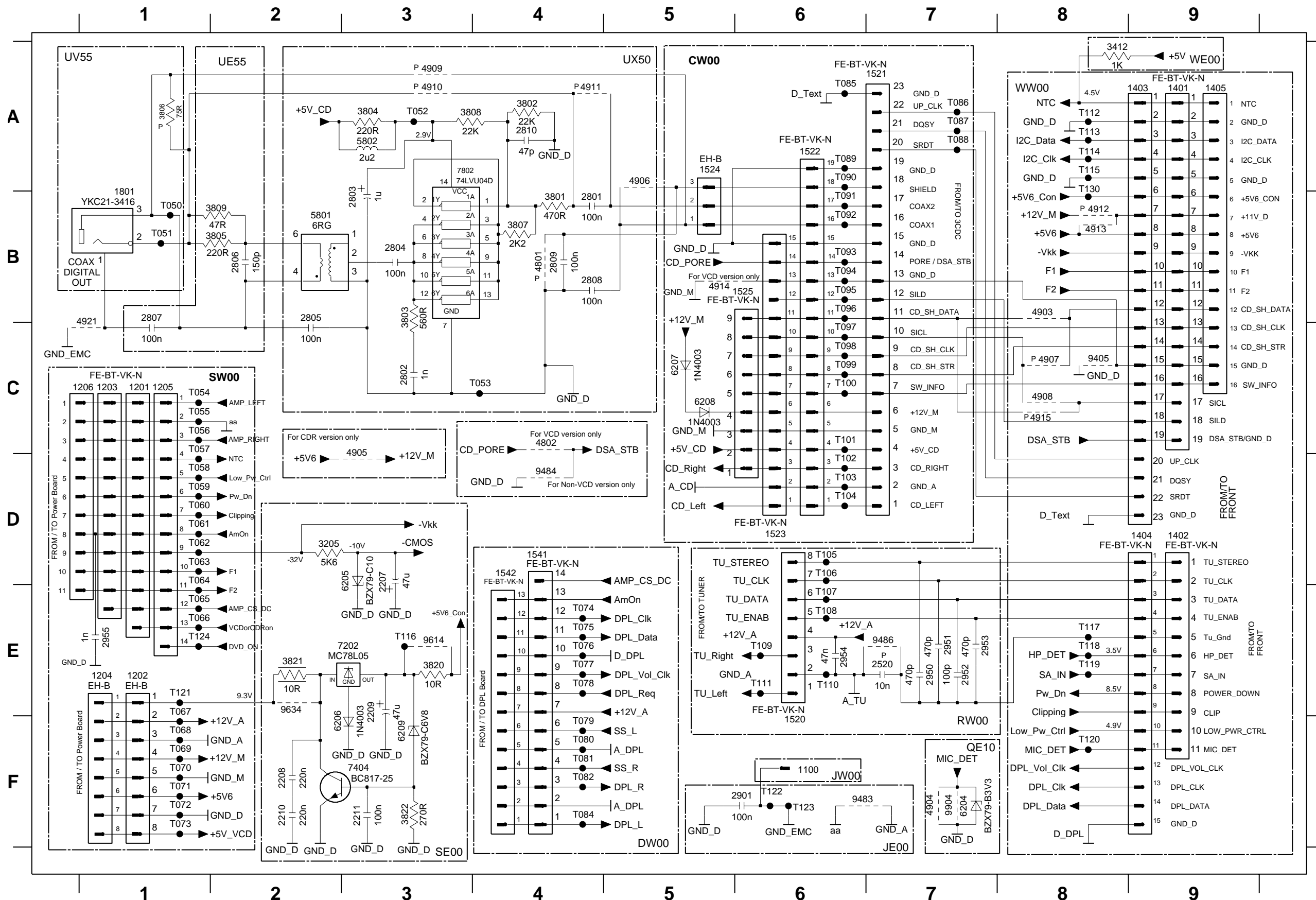
	C380/37	C500/37	C780/37	C380/21	P750/37
3644	1K	2K2	3K3	4K7	6K8
					8K2
					10K
					15K



P...provision
W...Provision for Woox only
* Some application or values may varies, see respective parts list for correct usage and value.

- 1102 H3
- 1103 H3
- 1602 B13
- 1603 E7
- 2401 F13
- 2402 F12
- 2403 F12
- 2404 F11
- 2581 D2
- 2582 G2
- 2583 D2
- 2584 F2
- 2585 D2
- 2586 F2
- 2587 D2
- 2588 F2
- 2601 E2
- 2602 G2
- 2603 D2
- 2604 F2
- 2605 D3
- 2606 G3
- 2607 D3
- 2608 F3
- 2609 E3
- 2610 F3
- 2611 D4
- 2612 F4
- 2621 B2
- 2622 G11
- 2623 G5
- 2624 G5
- 2625 G13
- 2626 H10
- 2653 A7
- 2654 B7
- 2681 A10
- 2682 B10
- 2683 B9
- 2691 B3
- 2771 I6
- 2772 I6
- 2902 H2
- 2905 G12
- 2922 D7
- 3401 E13
- 3402 E13
- 3403 F12
- 3404 D11
- 3405 D11
- 3406 E11
- 3408 E10
- 3409 D10
- 3410 D9
- 3581 D3
- 3582 G3
- 3601 D3
- 3602 G3
- 3605 E2
- 3606 F2
- 3607 E2
- 3608 F2
- 3609 E3
- 3610 F3
- 3611 D5
- 3612 F5
- 3613 E5
- 3614 F5
- 3615 D5
- 3616 F5
- 3619 C13
- 3620 B12
- 3621 H9
- 3622 H9
- 3623 G10
- 3624 G10
- 3625 G10
- 3626 H11
- 3627 G5
- 3628 G13
- 3629 G13
- 3630 E5
- 3631 D7
- 3633 B2
- 3634 B2
- 3635 C3
- 3636 B3
- 3637 C2
- 3638 B3
- 3639 A4
- 3640 C7
- 3644 I1
- 3651 A4
- 3652 C5
- 3653 A5
- 3654 B5
- 3655 A6
- 3656 C6
- 3657 A6
- 3658 B6
- 3659 E4
- 3660 F4
- 3671 I7
- 3672 H7
- 3673 I7
- 3674 H7
- 3675 I6
- 3676 H6
- 3677 I5
- 3678 I5
- 3683 B9
- 3684 C9
- 3686 C10
- 3687 B10
- 3688 A10
- 3689 A11
- 3692 B10
- 3694 E10
- 3711 D10
- 4403 E11
- 4404 E10
- 4405 F10
- 4406 F10
- 4407 H13
- 4811 E2
- 4812 F2
- 5401 E12
- 5621 G5
- 6401 F11
- 6771 I6
- 6772 I4
- 6774 B4
- 6775 H6
- 7401 D10
- 7402 E10
- 7403 C12
- 7601-A G3
- 7601-B D3
- 7603 E6
- 7604 F6
- 7621 F10
- 7622 F11
- 7623 H10
- 7635 B3
- 7636 C2
- 7651 A7
- 7652 B7
- 7653 B5
- 7654 B5
- 7681 B11
- 7682 B10
- 7803 B2
- 9401 D9
- 9402 F10
- 9599 I2

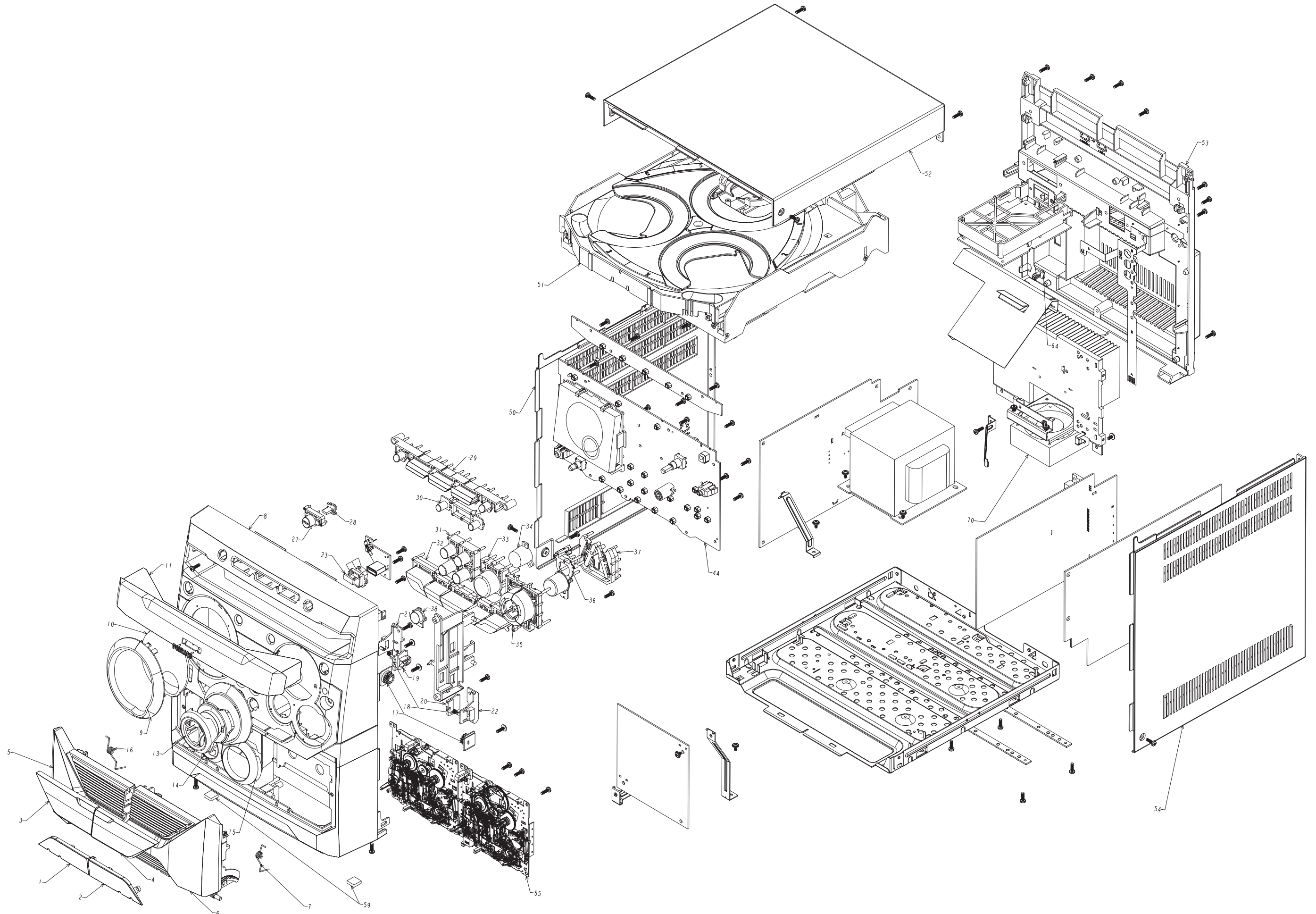
DIGITAL OUT & INTERCONNECTION CIRCUIT



- 1100 F6
- 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 B1
- 2207 D3
- 2208 F2
- 2209 E3
- 2210 F2
- 2211 F3
- 2520 E7
- 2801 B4
- 2802 C3
- 2803 B3
- 2804 B3
- 2805 B2
- 2806 B2
- 2807 B1
- 2808 B4
- 2809 B4
- 2810 A4
- 2901 F6
- 2950 E7
- 2951 E7
- 2952 E7
- 2953 E7
- 2954 E6
- 2955 E1
- 3205 D2
- 3412 A8
- 3801 B4
- 3802 A4
- 3803 B3
- 3804 A3
- 3805 B2
- 3806 A1
- 3807 B4
- 3808 A3
- 3809 B2
- 3820 E3
- 3821 E2
- 3822 F3
- 4801 B4
- 4802 C4
- 4903 B8
- 4904 F7
- 4905 D3
- 4906 A5
- 4907 C8
- 4908 C8
- 4909 A3
- 4910 A3
- 4911 B8
- 4912 B8
- 4913 B8
- 4914 B5
- 4915 C8
- 4921 C1
- 5801 B2
- 5802 A3
- 6204 F7
- 6205 D3
- 6206 F2
- 6207 C5
- 6208 C5
- 6209 F3
- 7202 E3
- 7404 F3
- 7802 A3
- 9405 C8
- 9483 F6
- 9484 D4
- 9486 E7
- 9614 E3
- 9634 E2
- 9904 F7
- T050 B1
- T051 B1
- T052 C4
- T054 C1
- T055 C1
- T056 C1
- T057 C1
- T058 D1
- T059 D1
- T060 D1
- T061 D1
- T062 D1
- T063 D1
- T064 D1
- T065 E1
- T066 E1
- T067 E1
- T068 F1
- T069 F1
- T070 F1
- T071 F1
- T072 F1
- T073 F1
- T074 E4
- T075 E4
- T076 E4
- T077 E4
- T078 E4
- T079 F4
- T080 F4
- T081 F4
- T082 F4
- T083 F4
- T084 F4
- T085 A6
- T086 A7
- T087 A7
- T088 A7
- T089 A6
- T090 A6
- T091 B6
- T092 B6
- T093 B6
- T094 B6
- T095 B6
- T096 B6
- T097 C6
- T098 C6
- T099 C6
- T100 C6
- T101 C6
- T102 C6
- T103 C6
- T104 C6
- T105 D6
- T106 D6
- T107 E6
- T108 E6
- T109 E6
- T110 E6
- T111 E6
- T112 A8
- T113 A8
- T114 A8
- T115 A8
- T116 E3
- T117 E8
- T118 E8
- T119 E8
- T120 F8
- T121 E1
- T122 F6
- T123 F6
- T124 E1
- T130 B8

Updated on 15 SEPT 2003

MECHANICAL EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST

1	9940 000 04503	CASS LENS BOTTOM L
2	9940 000 04502	CASS LENS BOTTOM R
3	9940 000 04501	CASS LEFT TOP LENS
4	9940 000 04499	CASS RIGHT TOP LENS
5	9940 000 04771	CASS BOX LEFT /37
5	9965 000 41820	CASS BOX LEFT /55
6	9940 000 04769	CASS BOX RIGHT /37
6	9965 000 41819	CASS BOX RIGHT /55
7	9940 000 01267	SPRING -RIGHT
8	9940 000 04766	FRONT CAB. /37
8	9965 000 41810	FRONT CAB. /55
9	9940 000 01282	DISPLAY RING
10	9940 000 01308	DISPLAY LENS
11	9940 000 04763	CDC TRAY DOOR /37
11	9965 000 41808	CDC TRAY DOOR /55
13	9940 000 01297	VOL KNOB GRIP
14	9940 000 04505	VOL KNOB RING
15	9940 000 01281	COSMETIC RING
16	9940 000 01266	SPRING -LEFT
17	9940 000 01295	DAMPER GEAR ASS'Y
18	9940 000 01268	SPRING COMPRESSION
19	9940 000 01294	PUSH CATCH LEFT
20	9940 000 01293	PUSH CATCH
21	9940 000 01284	LEFT-BRACKET
22	9940 000 01283	RIGHT-BRACKET
23	9940 000 04495	USB DIRECT
27	9940 000 04509	STANDBY KEY
28	9940 000 01307	STANDBY LENS
29	9940 000 04511	CD DISC KEYS
30	9940 000 04508	AUTO KEYS
31	9940 000 04504	SOURCE KEYS
32	9940 000 04513	MODEL KEY
33	9940 000 04512	MAX KNOB
35	9940 000 04507	CD CONTROL KEY
36	9940 000 04506	CD PLAY KEY
50	9940 000 04764	PANEL LEFT
51	9940 000 04455	3CD MECHA CASING ASS'Y /37
51	9940 000 04486	3CD MECHA CASING ASS'Y /55
52	9940 000 04768	TOP COVER
53	9940 000 04767	REAR PANEL /37
53	9965 000 41812	REAR PANEL /55
54	9940 000 04765	PANEL RIGHT
55	9940 000 04458	LOGIC DECK W991D-5168B
59	9940 000 01264	FOOT RUBBER 4MM
64	9940 000 04465	STOPPER HEATSINK
70	9940 000 02001	FAN 12VDV 0.8W 3100RPM /37
70	9965 000 41822	FAN DC12V 0.17A 4500RPM /55

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

ELECTRICAL PARTS LIST - MISCELLANEOUS

9940 000 01192	AM LOOP ANTENNA LAN-031
△ 9940 000 01688	AC CORD SET CUL APP 6FT /37
△ 9940 000 03633	AC CORD SET VDE APP 6FT /55
9940 000 02828	FM ANT 300R CABLE 2.6M
9940 000 04437	REMOTE CONTROL
9940 000 04752	SPK BOX ASS'Y 130W/125W
9965 000 41805	SPEAKER BOX LEFT /55
9965 000 41807	SPEAKER BOX RIGHT /55
9940 000 01257	11P FFC 1.25MM L=260MM
9940 000 01262	19P FFC 1.25MM L=280MM
9940 000 01362	8P FFC1.25MM L=160MM
9940 000 01363	7P FFC1.25MM L=180MM
9940 000 01364	15P FFC1.25MM L=180MM
9940 000 01366	4P FFC1.25MM L=240MM
9940 000 01367	7P FFC1.25MM L=240MM
9940 000 01368	7P FFC1.25MM L=370MM
9940 000 01369	2P FLAT CABLE L=4 72 4MM
9940 000 03669	CD MECHANISM (SANYO) DA11VF
9940 000 04454	CD USB BOARD ASS'Y
9940 000 04457	5P FFC CABLE L=200MM
9940 000 04461	12P FFC 1.25MM L=220MM
9940 000 04462	4P FFC 1.25MM L=270MM
9940 000 04484	USB JACK BOARD ASS'Y
9940 000 04485	CASS BOARD PART
9940 000 04487	16P FFC CABLE L=170MM
△ 9940 000 04753	STDBY TRASFO. 120V /37
9940 000 04754	TUNER BOARD ASS'Y /37
9940 000 01964	TUNER BOARD ASS'Y /55
9940 000 04755	POWER BOARD ASS'Y /37
9940 000 04756	FRONT BOARD ASS'Y /37
9940 000 04757	KEY BOARD ASS'Y
9940 000 04758	AF9 BOARD ASS'Y /37
9940 000 04759	BI-AMP BOARD ASS'Y /37
9940 000 04761	SPEAKER BOARD ASS'Y
△ 9940 000 04762	TRANSFORMER EI76 120V /37
△ 9940 000 04515	TRANSFORMER EI86 127/240V /55
9940 000 04772	MAINS BOARD ASS'Y /37
9940 000 02448	SPEAKER JACK WP4-19
9940 000 04483	FM COIL 8X11.5T (1MM)

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

ELECTRICAL PARTS LIST - FRONT BOARD

1405 9940 000 01243 TACT SWITCH
 1406 9940 000 01243 TACT SWITCH
 1408 9940 000 01243 TACT SWITCH
 1410 9940 000 01243 TACT SWITCH
 1411 9940 000 01243 TACT SWITCH

1412 9940 000 01243 TACT SWITCH
 1413 9940 000 01243 TACT SWITCH
 1414 9940 000 01243 TACT SWITCH
 1415 9940 000 01243 TACT SWITCH
 1416 9940 000 01243 TACT SWITCH

1417 9940 000 01243 TACT SWITCH
 1418 9940 000 01243 TACT SWITCH
 1419 9940 000 01243 TACT SWITCH
 1420 9940 000 01243 TACT SWITCH
 1421 9940 000 01243 TACT SWITCH

1422 9940 000 01243 TACT SWITCH
 1423 9940 000 01243 TACT SWITCH
 1424 9940 000 01243 TACT SWITCH
 1426 9940 000 01243 TACT SWITCH
 1601 9940 000 01244 V/PHONE JACK 3.5MM

5405 9940 000 04615 CRYSTAL 32.768KHZ 12.5PF
 5406 9965 000 38613 CRYSTAL 7.99968MHZ
 7400 9965 000 41828 IC TMP88CU74YFG-6JC3 (MASKED)
 7404 9322 131 04668 IC SM M24C01-WMN6 (ST00) R
 D431 9940 000 01234 LED LAMP 3MM (RED)

FL1 9940 000 04447 FTD DISPLAY
 RV400 9940 000 01241 ROTARY ENCODER
 9940 000 00325 OPTIC SENSER (OPTO..)

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

ELECTRICAL PARTS LIST - KEY BOARD

1429 9940 000 01243 TACT SWITCH
 1430 9940 000 01243 TACT SWITCH
 1431 9940 000 01243 TACT SWITCH
 1432 9940 000 01243 TACT SWITCH
 1434 9940 000 01243 TACT SWITCH

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

ELECTRICAL PARTS LIST - MAINS BOARD

1902 9940 000 01323 SWITCH
 1905 Δ 9940 000 01223 FUSE RADIAL T5A 250V
 1921 Δ 9940 000 01223 FUSE RADIAL T5A 250V
 1924 Δ 9940 000 01223 FUSE RADIAL T5A 250V
 1925 Δ 9940 000 01356 FUSE RADIAL T2.5A/250V

1926 Δ 9940 000 01349 FUSE RADIAL T1.6A 250V
 2927 9965 000 41823 E.CAP 6800UF 63V -20%
 2928 9965 000 41823 E.CAP 6800UF 63V -20%
 2944 9965 000 41824 E.CAP 3300UF 35V -20%
 2945 9940 000 04474 E.CAP 6800UF 35V -20%

3941 Δ 9940 000 04473 RES. METAL 0.33R 1W -1%
 3942 Δ 9940 000 04473 RES. METAL 0.33R 1W -1%
 3951 Δ 9940 000 04472 RES. FUSIBLE 47R 1W -1%
 5900 9940 000 01226 AC LINE FILTER IND. 400UH 3A
 C1 Δ 9940 000 01225 SAFETY CAP 275V 0.22UF -20%

J1 Δ 9940 000 03673 AC SOCKET TC08-115-02

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

ELECTRICAL PARTS LIST - POWER BOARD

1280 Δ 9940 000 01356 FUSE RADIAL T2.5A/250V
 CON8 9940 000 01219 SPK JACK (RD/BLK/BLK/RD)
 IC1 9940 000 04477 IC STK403-120
 L1 9940 000 04483 FM COIL 8X11.5T (1MM)
 L2 9940 000 04483 FM COIL 8X11.5T (1MM)

Q16 9965 000 41825 TRANSISTORS 2N5551
 Q21 9965 000 41825 TRANSISTORS 2N5551
 Q25 9940 000 04444 TRANSISTOR BDX53BFP
 Q26 9940 000 04443 TRANSISTOR BDW94C
 R120 Δ 9940 000 04478 FUSE RES. 1R 1W -5%

R13 9940 000 04473 RES. METAL 0.33R 1W -1%
 R15 9940 000 04473 RES. METAL 0.33R 1W -1%
 R200 Δ 9965 000 41826 RESISTOR NTC 10K -10% 5X6MM
 R34 9940 000 04473 RES. METAL 0.33R 1W -1%
 R38 9940 000 04473 RES. METAL 0.33R 1W -1%

R39 9940 000 04473 RES. METAL 0.33R 1W -1%
 R46 9940 000 04473 RES. METAL 0.33R 1W -1%
 R72 Δ 9940 000 04472 RES. FUSIBLE 47R 1W -1%
 R8 9940 000 04473 RES. METAL 0.33R 1W -1%
 R9 9940 000 04473 RES. METAL 0.33R 1W -1%

9965 000 41827 FAN KD1206PTS3

ELECTRICAL PARTS - BI-AMP BOARD

7801 9940 000 04143 NPN TRANSISTORS 9014C
 7802 9940 000 04143 NPN TRANSISTORS 9014C
 7800 9965 000 41829 IC YD4558
 IC3 9940 000 04477 IC STK403-120
 Q28 9965 000 41825 TRANSISTORS 2N5551

Q9 9965 000 41825 TRANSISTORS 2N5551
 R137 9940 000 04473 RES. METAL 0.33R 1W -1%
 R143 9940 000 04473 RES. METAL 0.33R 1W -1%
 R145 9940 000 04473 RES. METAL 0.33R 1W -1%
 R64 Δ 9940 000 04472 RES. FUSIBLE 47R 1W -1%

R66 Δ 9940 000 04473 RES. METAL 0.33R 1W -1%

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

ELECTRICAL PARTS LIST - AF9 BOARD

1501 9940 000 01221 V/RCA JACK 2P
 3627 Δ 9940 000 01358 FUSE RES. 10R 1/4W -5%
 3821 Δ 9940 000 01358 FUSE RES. 10R 1/4W -5%
 7202 9940 000 01357 IC LM78L05-AC
 7403 4822 209 17345 IC M62320FP

7501 9322 150 74668 IC SM TDA7468D (ST00) R
 7601 5322 209 15853 NJM4556AM

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