

Service
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Service Manual

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DVD + ReWritable



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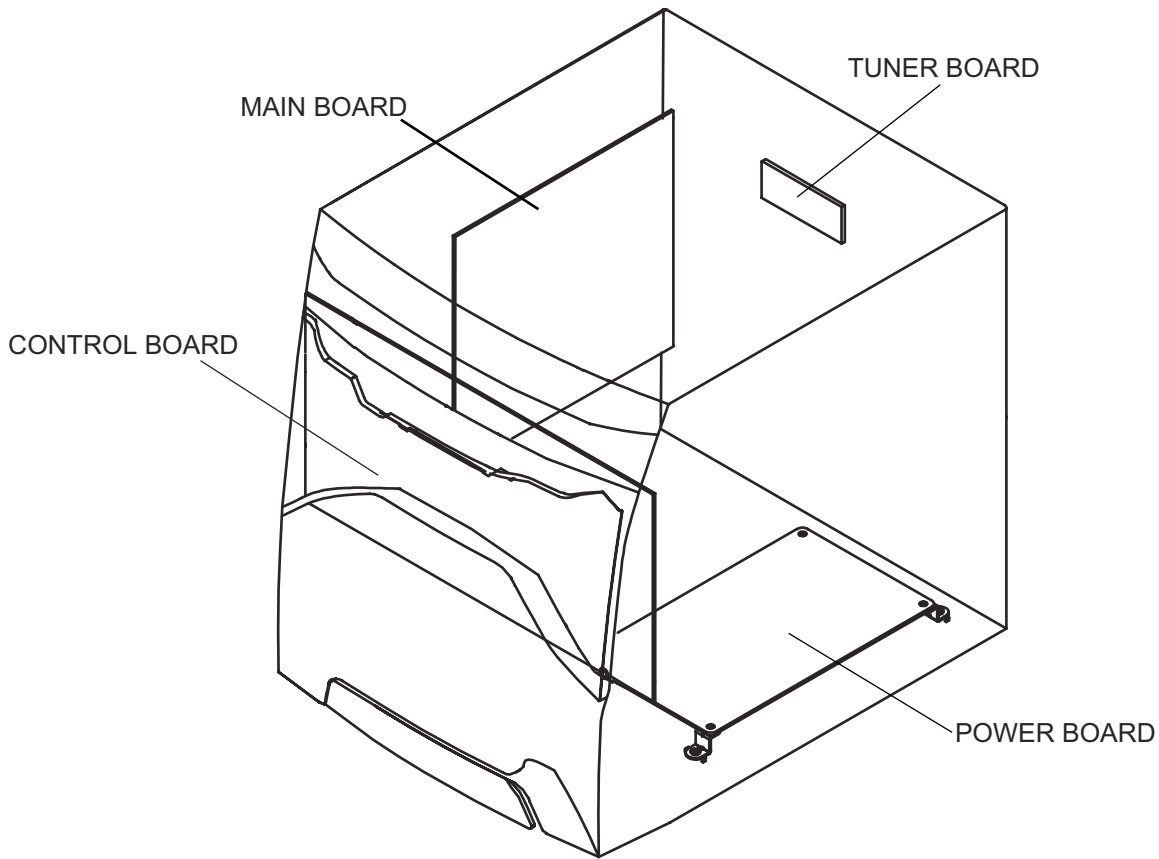
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Version 1.0



PHILIPS

LOCATION OF PC BOARDS



VERSION VARIATIONS:

Features & Board in used:	FWD186		
	/98	/55	/51
Karaoke	x	x	x
RDS			
Rotary Encoder (volume control)	x	x	x
Jog Shuttle	x	x	x
Voltage Selector	x	x	
Aux Input	x	x	x
Digital Output	x	x	x
Headphone Socket	x	x	x
Line Output	x	x	x
Standby - FTD Clock Display	x	x	x
Tuner board - ECO6 System	x	x	x

SPECIFICATIONS

AMPLIFIER SECTION

Output power	1200 W PMPO
Stereo mode	30 W + 30 W RMS
Frequency Response	150 Hz - 18 kHz / ± 3 dB
Signal-to-Noise Ratio	> 60dB (A-weighted)
Input Sensitivity	
AUX/TV In	500 mV
Output Sensitivity	
Headphone	1000 mV ± 2 dB
Line Out	450 mV – 550 mV

TUNER SECTION

Tuning Range	FM 87.5 – 108 MHz (50 kHz steps)
.....	MW 531 – 1602 kHz (9 kHz steps)
.....	MW 530 – 1710 kHz (10 kHz steps)
26 dB Quieting Sensitivity	FM 20 dB
26 dB Quieting Sensitivity	MW 3162 mV/m
Image Rejection Radio	FM 25dB
.....	MW 28 dB
IF Rejection Ratio	FM 60 dB
.....	MW 24 dB
Signal-to-Noise Ratio	FM ≥ 55 dB
.....	MW ≥ 35 dB
MW Suppression Ratio	FM 30 dB
Harmonic Distortion	FM Mono 3 %
.....	FM Stereo 3 %
.....	MW 5 %
Frequency Response	
.....	FM 180 Hz – 10 kHz / ± 6 dB
Stereo Separation	FM 26 dB (1 kHz)
Stereo Threshold	FM 23.5 dB

TAPE SECTION

Frequency Response	
Normal tape (type 1)	80 – 12500 Hz (8 dB)
Signal-to-Noise Ratio	
Normal tape (type 1)	≥ 45 dBA
Wow and flutter	$\leq 0.3\%$ DIN

DVD SECTION

Laser Type	Semiconductor
Disc Diameter	12cm / 8cm
Video Decoding	MPEG-2 / MPEG-1
Video DAC	10 Bits
Signal System	PAL / NTSC
Video Format	4:3 / 16:9
Video S/N	56 dB (minimum)
Composite Video Output	1.0 Vp-p, 75 Ω
S-Video Output	Y - 1.0 Vp-p, 75 Ω
.....	C - 0.286 Vp-p, 75 Ω
Audio DAC	24 Bits / 96 kHz
Frequency Response	4 Hz - 20 kHz (44.1kHz)
.....	4 Hz - 22 kHz (48kHz)
.....	4 Hz - 44 kHz (96kHz)

Digital Output	
.....	SPDIF (Sony Philips digital interface) Coaxial
PCM	IEC 60958
Dolby Digital/DTS	IEC 60958, IEC 61937

MAIN UNIT

Power Supply Rating	110 - 127 / 220 - 240 V
.....	50/60HZ Switchable
Power Consumption	
Active	50 W
ECO Power Standby	<10 W
Dimensions (W x H x D)	265 \times 310 \times 335 (mm)
Weight	3.9 kg

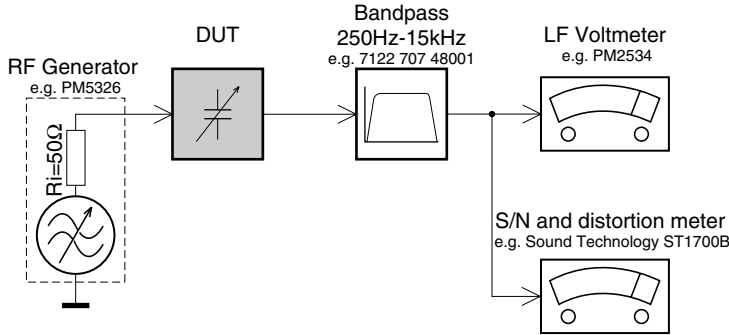
SPEAKERS

Front speakers	
System	3-way, Bass reflex
Impedance	4 Ω
Speaker drivers	16.5cm woofer,
.....	5cm tweeter
Frequency response	50 Hz – 20 kHz
Dimensions (W x H x D)	
.....	190 \times 310 \times 207 (mm)
Weight	4.8 kg/each

Specifications and external appearance are subject to change without notice.

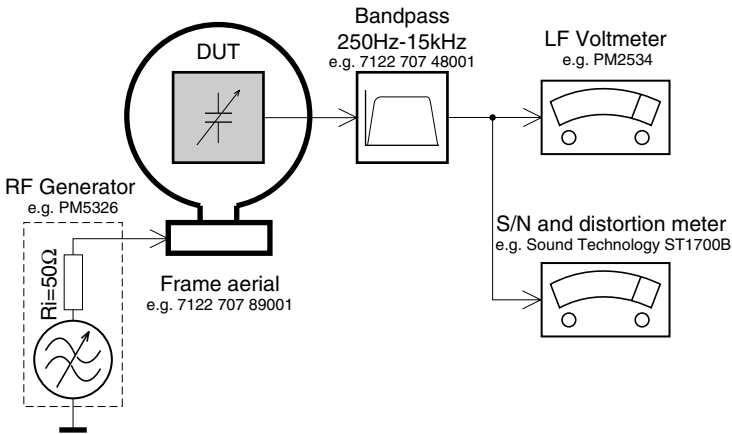
MEASUREMENT SETUP

Tuner FM



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

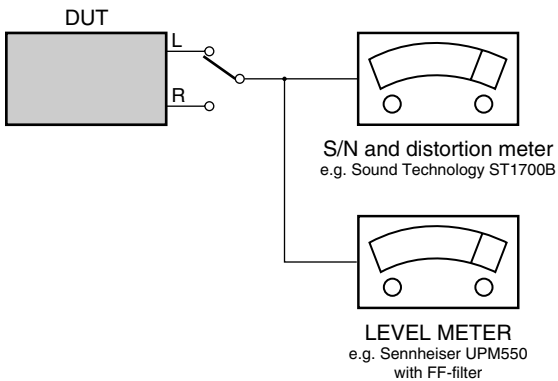
Tuner AM (MW,LW)



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).

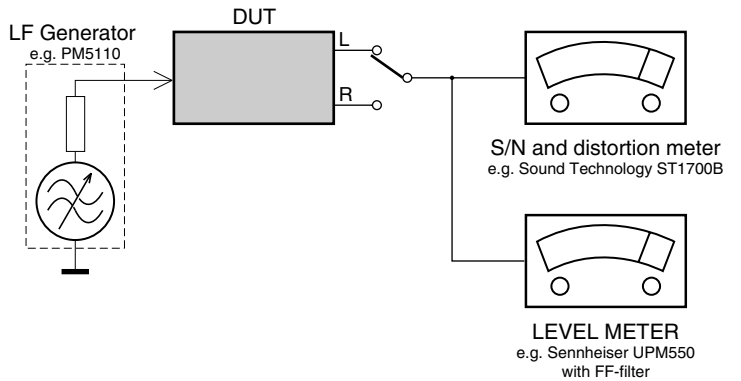
CD

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

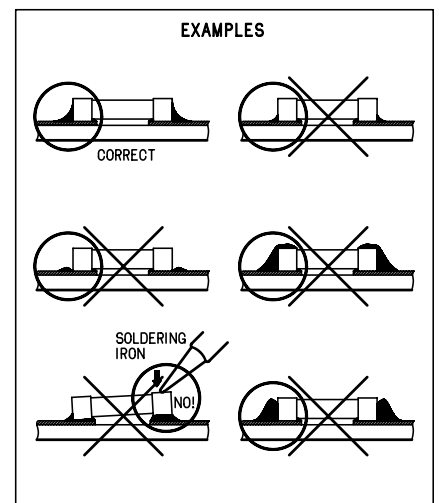
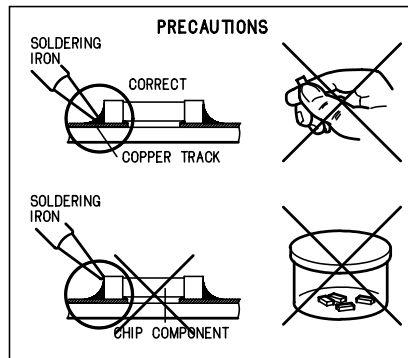
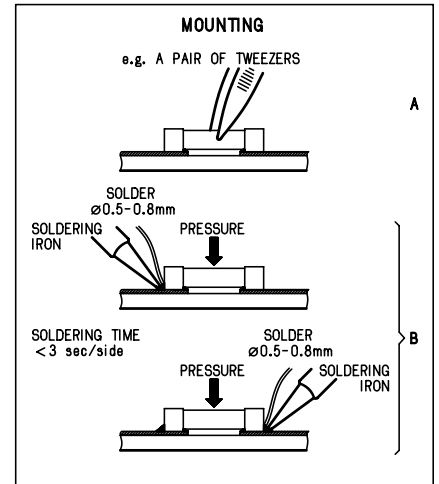
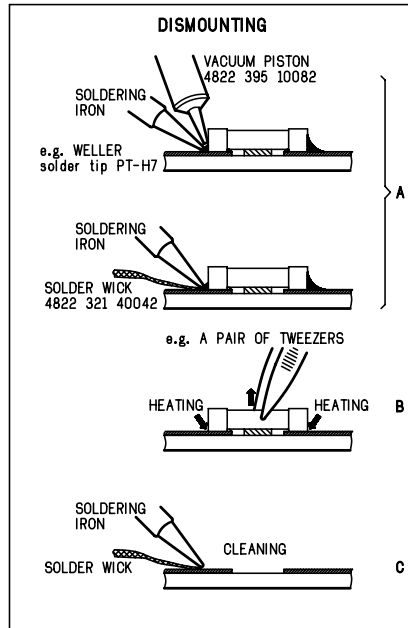
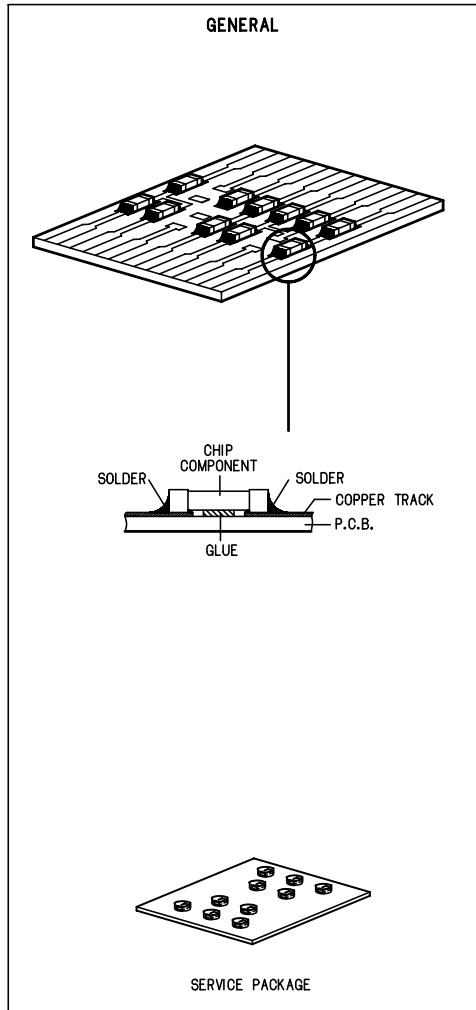
Compact Disc:

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.

ESD**(NL) WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez 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).

Unvorsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

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

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

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

(GB)

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

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

(NL)

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

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées 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."

**(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 suoalukituksen ohitettaessa olet alltiina 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 (leaded/ 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 – 380°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 'dry-packaging' (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 "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

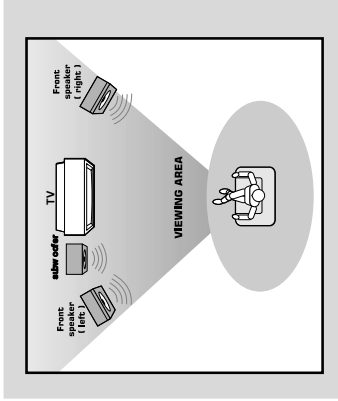
SERVICE INSTRUCTION

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.

Connections

Step 1: Placing speakers and subwoofer

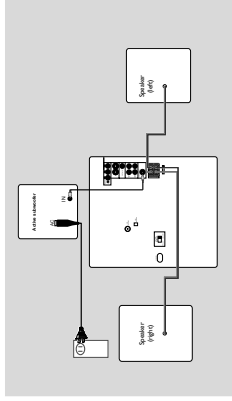


Place the front left and right speakers at equal distances from the TV set and at an angle of approximately 45 degrees from the listening position.

Notes:

- To avoid magnetic interference, do not position the front speakers too close to your TV set.
- Allow adequate ventilation around the DVD Mini Hi-Fi System.

Step 2: Connecting speakers and subwoofer



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

Connect the subwoofer using subwoofer cable to the SUBWOOFER OUT jack on the DVD Mini Hi-Fi System to active input jack.

Notes:

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

Speakers	⊖	⊕
Front Left (L)	Black	White
Front Right (R)	Black	Red

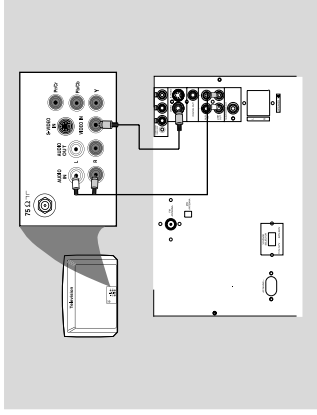
IMPORTANT!

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

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.

Connections

Step 3: Connecting TV set



IMPORTANT!

- You only need to make one video connection from the following options, according to the capabilities of your TV system.
 - S-Video or Component Video connection provides higher picture quality. These options must be available on your TV set.
 - Connect the system directly to the TV set.

Using Video In jack (CVBS)

Use the composite video cable (yellow) to connect the system's VIDEO jack to the video input jack (or labeled as AV In, Video In, Composite or Baseband) on the TV set.

Using LINE OUT jack (L/R)

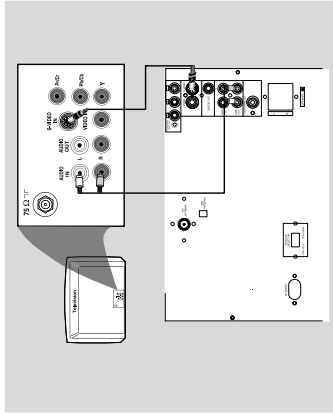
To listen this system channels through TV, use the audio cables (white/red) to connect LINE OUT (L/R) jacks to the corresponding AUDIO IN jacks on the TV set.

Using component Video In jack (Pr PbY)

Use the component video cables (red/blue/green) to connect the system's Pr PbY jacks to the corresponding Component video input jacks (or labeled as Pr, Pb, Y or YUV) on the TV set.

To listen this system channels through TV, use the audio cables (white/red) to connect LINE OUT (L/R) jacks to the corresponding AUDIO IN jacks on the TV set.

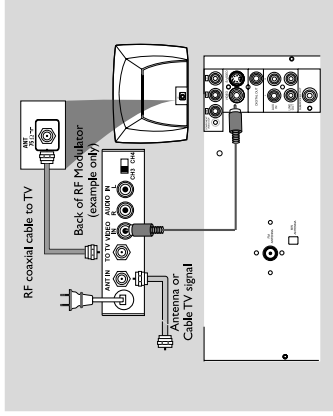
Connections



Using S-Video In jack

Use the S-Video cable (not supplied) to connect the system's **S-VIDEO** jack to the S-Video input jack (or labeled as Y/C or S-VHS) on the TV set.

To listen this system channels through TV, use the audio cables (white/red) to connect **LINE OUT (L/R)** jacks to the corresponding **AUDIO IN** jacks on the TV set.



Using an accessory RF modulator

Use the composite cable (yellow) to connect the system's **VIDEO** jack to the video input jack on the RF modulator.

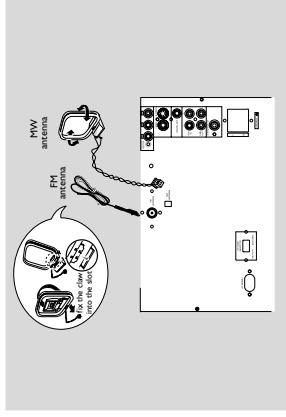
Use the RF coaxial cable (not supplied) to connect the RF modulator to your TV's RF jack.

IMPORTANT!

- If your TV set only has a **single Antenna In jack** (or labeled as **75 ohm or RF In**), you will need a **RF modulator in order to view the DVD playback via TV**. See your electronics retailer or contact **Philips** for details on **RF modulator availability and operations**.

Connections

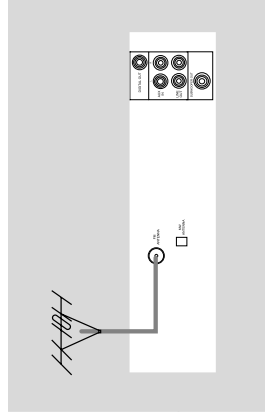
Step 4: Connecting FM/MW antennas



Connect the supplied MW loop antenna to the **MW** jack. Place the MW loop antenna on a shelf or attach it to a stand or wall.

Connect the supplied FM antenna to the **FM** jack. Extend the FM antenna and fix its end to the wall.

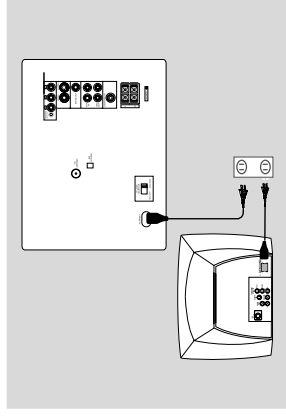
For better FM stereo reception, connect an outdoor FM antenna to the **FM ANTENNA**



Notes:

- Adjust the position of the antennas for optimal reception.
- Position the antennas as far as possible from your TV set, VCR or other radiation sources to prevent unwanted interference.

Step 5: Connecting the power cord



After everything is connected properly, plug in the AC power cord to the power outlet.

Never make or change any connection with the power switched on.

On the DVD Mini Hi-Fi System

"AUTO TUNING TRACK PRESET PLAY" may appear on the display panel. Press **▶||** on the front panel to search and store all available radio stations or press **■** to exit.

If your system is equipped with a Voltage Selector, set the **VOLTAGE SELECTOR** to the local power line voltage.



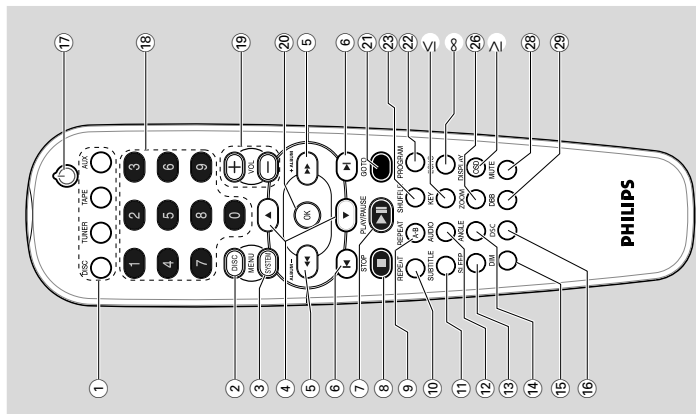
Functional Overview

- to change the tone level to suit your vocal range.
 - to adjust the echo level in karaoke mode.
 - to access the Zoom function.
 - to view the time, title or chapter information.
 - to interrupt or resume sound reproduction.
 - to settings to enhance the bass response.
- KEY**
- 11 **◀ / ▶** for TUNER.....to program favorite stations.
 - 12 **STOP ■** for DISCto skip to the previous/next chapter/track.
 - 13 **SENSOR** for TUNER.....to select a preset radio station.
 - 14 **VOLUME** for DISCto stop playback or to clear a programme.
 - 15 **DBB** point the remote control towards this sensor.
 - 16 **SUBTITLE** to settings to enhance the bass response.(Dynamic Bass Boost)
 - 17 **🔊** to select the preferred language for subtitle.
 - 18 **AUDIO** to connect headphones.
 - 19 **TAPE DECK ▶ OPEN** to select the audio channel.
 - 20 **DISCTRAY** to open the tape deck door.
 - 21 **CASSETTE KEY** to control cassette play.

Functional Overview

- in Disc mode, press to fast reverse/forward the disc.
 - in Disc mode, press to skip to the previous/next chapter/track.
 - in Tuner mode, to select a preset radio station number
 - to start or interrupt disc playback.
 - to resume playback from last stop point.
 - to stop playing the disc.
 - to repeat a specific section on a disc.
 - to select variations of continuous playback.
 - to select desired subtitle.
 - to select the audio channel.
 - to set the sleep timer function.
 - to select the angles cyclically.
 - to select different brightness for VFD.
 - to select various sound effect.
 - to switch to standby mode.
 - to enter a track/title number of the disc.
 - to enter a number of preset radio stations.
 - adjust the volume level.
 - adjust key control/ ECHO level in karaoke mode.
 - adjust speakers level in speaker setting mode.
 - to exit or confirm the selection.
 - to go direct to desired title, chapter or time.
 - in disc mode, to program favorite tracks.
 - in tuner mode, to program favorite stations.
 - to playback in random mode.
- KEY**
- 28 **MUTE** to interrupt or resume sound reproduction.
 - 29 **DBB** to settings to enhance the bass response.
- Controls on the system**
- 1 **STANDBY ON** to switch the system on or Standby mode.
 - 2 **DISPLAY SCREEN** to view the current status of the system.
 - 3 **DSC** to select various sound effect:
 - 4 **SOURCE** to select disc tray.
 - 5 **▶ II (PLAY/PAUSE)** for DISCto start or interrupt playback.
 - 6 **◀◀ / ▶▶** for DISCpress to search backward/forward.
 - 7 **MICVOL.** for TUNER ----- to tune to a lower or higher radio frequency.
 - 8 **OPEN,CLOSE** to adjust the mixing level for karaoke or microphone recording.
 - 9 **MIC IN** to open or close the disc tray.
 - 10 **PROGRAM** to connect microphone jack.
 - 11 **PROGRAM** for DISC.....to program favorite tracks.

Remote control



Notes:

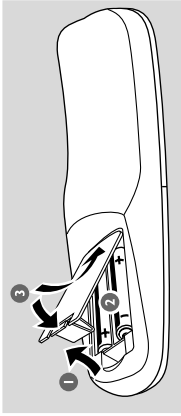
- First, select the source you wish to control by pressing one of the source select keys on the remote control (DISC or TUNER, for example).
 - Then select the desired function (▶▶, ◀◀ or ▶ for example).
- 1 **SOURCE** to select the relevant active mode: DISC, TUNER, TAPE or AUX.
 - 2 **DISC MENU (disc mode only)** to enter or exit the disc contents menu.
 - 3 **SYSTEM MENU (disc mode only)** to enter or exit the system menu bar.
 - 4 **▲ / ▼** to select movement direction in disc contents menu/system menu bar.
 - 5 **◀◀ / ▶▶** to tuner mode, to tune to lower or higher radio frequency. (◀◀ / ▶▶)

Preparations

IMPORTANT!

- Make sure to complete the preparation procedures before operating the system.

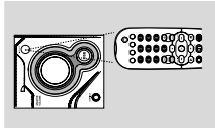
Step 1: Inserting batteries into the remote control



- 1 Open the battery compartment.
- 2 Place two batteries (Type R06 or AA) in the compartment with the correct polarity as indicated by "+" and "-" symbols.
- 3 Close the cover.

Using the remote control to operate the system

- 1 Point the remote control directly at the remote sensor (IR) on the front panel.
- 2 Select the source you wish to control by pressing one of the source select buttons on the remote control (for example TAPE, TUNER).
- 3 Then select the desired function (for example ►II◀ or ►▶).



- **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.

Preparations

- 1 In disc mode, stop playback and press **SYSTEM MENU**.

- 2 Select **16** icon and press **▼**.

- 3 Press **◀◀ / ▶▶** / **▲** / **▼** keys on the remote control to toggle through the functions and select your preferred option.

Move to **6** and press **▶▶**.
Move to "TV System" and press **▶▶**.

AUTO

- Select this if the connected TV set is compatible with both NTSC and PAL (multi system). The output format will be consistent with the video signal of the disc.

NTSC

- Select this if the connected TV set is NTSC system. It will change the video signal of a PAL video disc and output to NTSC system.

PAL

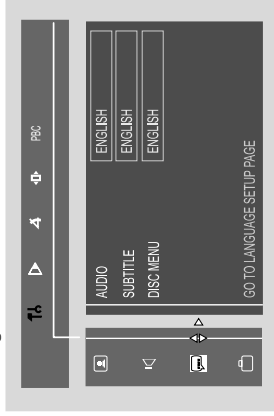
- Select this if the connected TV set is PAL system. It will change the video signal of an NTSC disc and output to PAL format.

- 4 Select an item and press **OK**.

To remove the menu
Press **SYSTEM MENU**.

Step 3: Setting language preference

You can select your preferred language settings so that this DVD Mini Hi-Fi System will automatically switch to the language for you whenever you load a disc. If the language selected is not available on the disc, the language set by default will be used instead. But the menu language of the DVD Mini Hi-Fi System cannot be changed once selected.



- 1 In disc mode, stop playback and press **SYSTEM MENU**.

- 2 Select **16** icon and press **▼**.

- 3 Press **◀◀ / ▶▶** / **▲** / **▼** keys on the remote control to select your preferred option.

Move to **6** and press **▶▶**.

Move to one of the following and press **▶▶**.

- Audio (disc's soundtrack)
- Subtitle (disc's subtitles)
- Disc Menu (on screen menu)

- 4 Press **▲** / **▼** to select a language and press **OK**.

- 5 Repeat **steps 3~4** for other settings.

To remove the menu
Press **SYSTEM MENU**.

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.

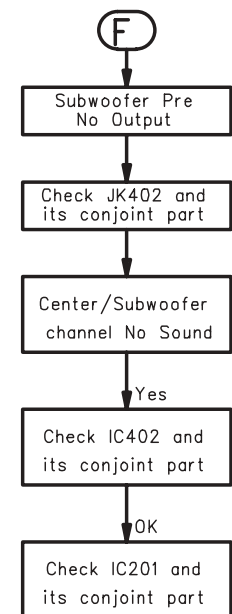
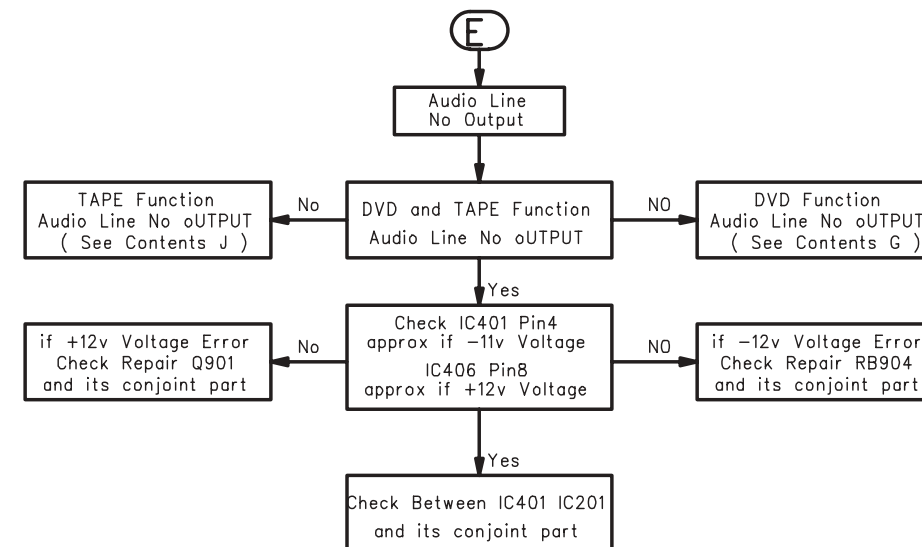
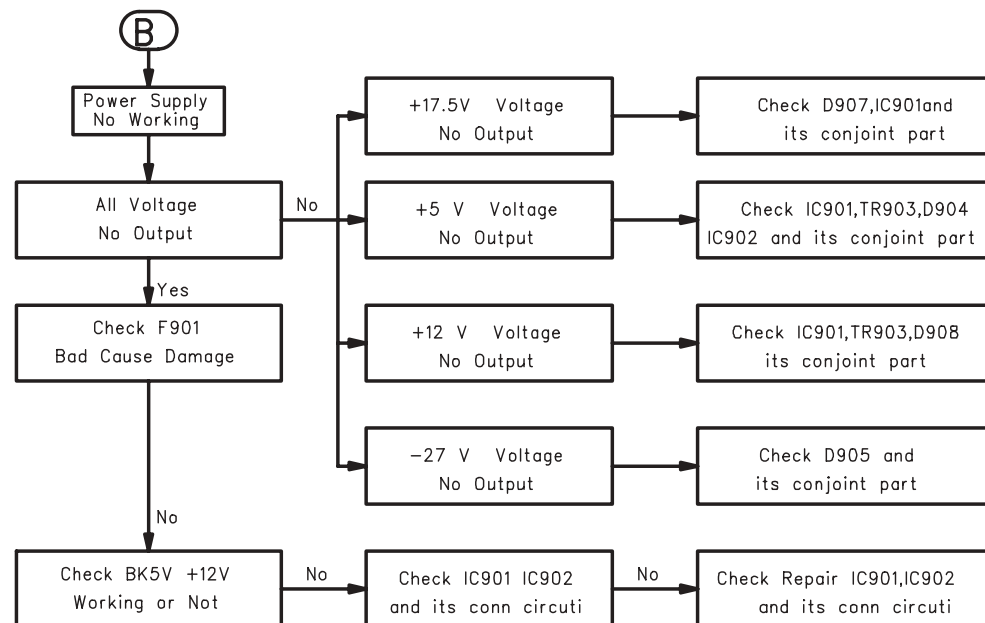
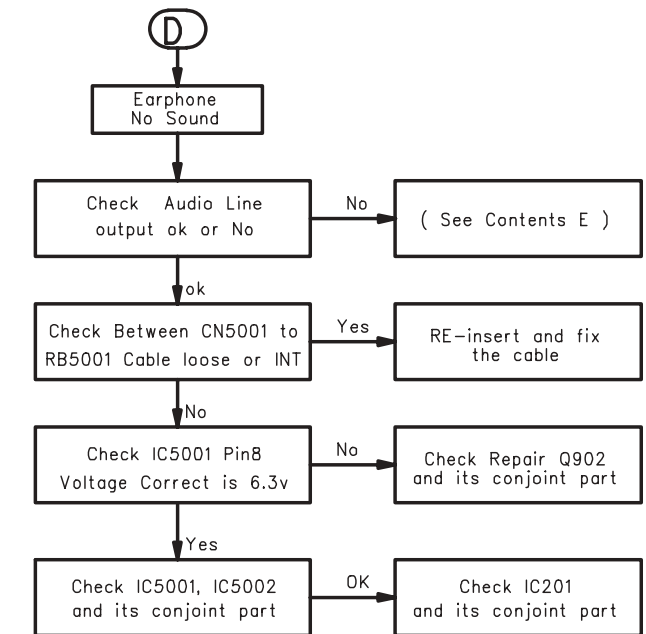
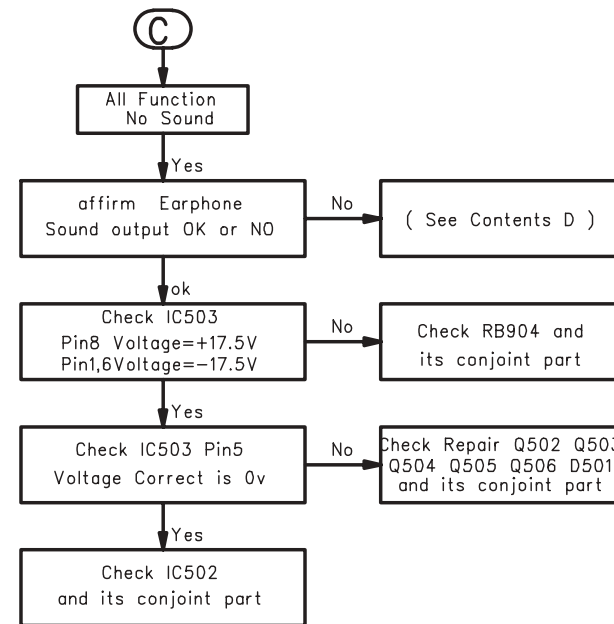
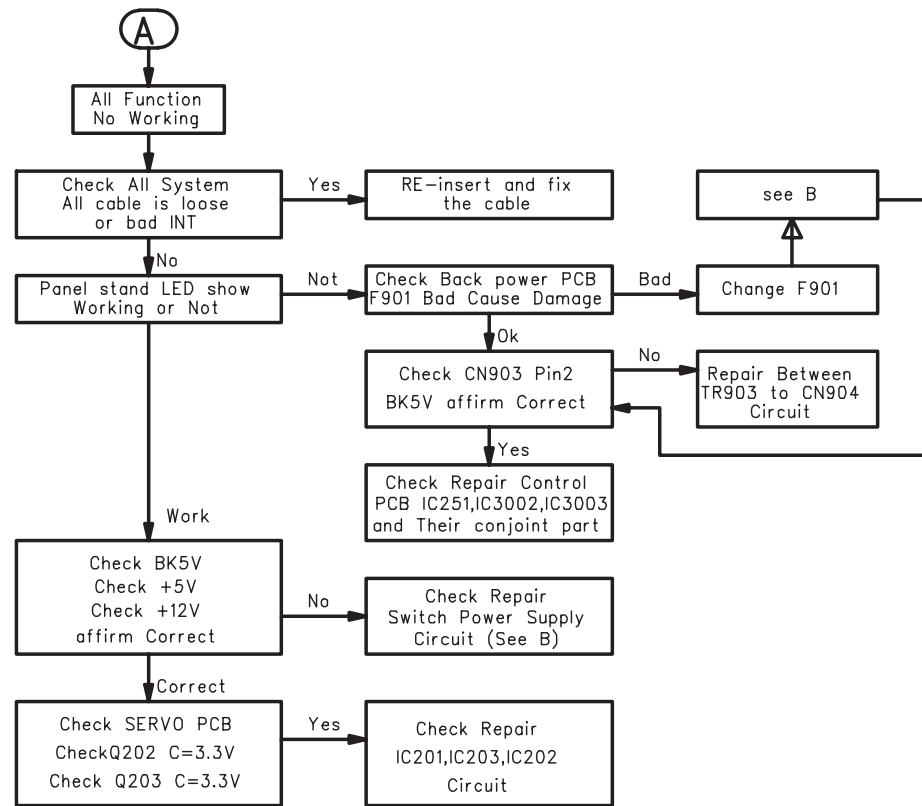
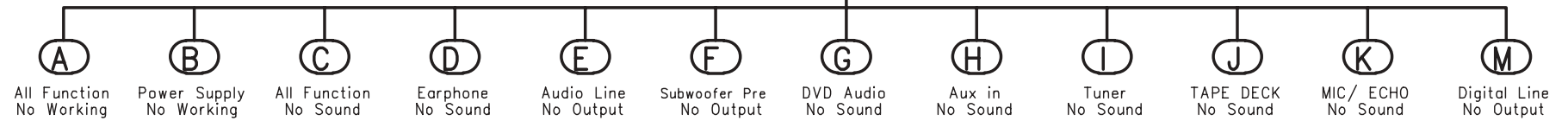
Problem	Solution
No power. "UNRECOVERABLE DISC" is displayed.	<ul style="list-style-type: none">Check if the AC power cord is properly connected.Check if the disc is inserted upside down.Wait until the moisture condensed at the lens has cleared.Replace or clean the disc, see "Maintenance".Use a readable disc or correctly recorded format MP3-CD.
No picture.	<ul style="list-style-type: none">Select the appropriate video input mode on the TV set.Check if the TV set is switched on.Check the video connection.Check if the system is securely connected.Sometimes a slight picture distortion may appear. This is not a malfunction.Clean the disc.Connect the system to the S-video input of your TV set.
Distorted or poor picture.	<ul style="list-style-type: none">The aspect ratio is fixed on the DVD disc.The aspect ratio may not be changed for some TV systems.Insert a readable disc.Check the disc type, color system and region code.Clean the disc.Place the disc with the playback side down.Press SYSTEM MENU to turn off the setup menu.Cancel the parental control rating function or change the rating level.Moisture has condensed inside the system.Remove the disc and leave the system turned on for about an hour.Disconnect the power plug from the jack, and insert again.
The aspect ratio of the screen cannot be changed even though you have set the TV shape. The DVD player does not start playback.	
The system does not respond when the buttons are pressed.	

Troubleshooting

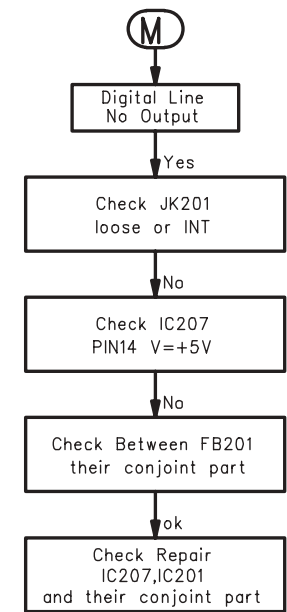
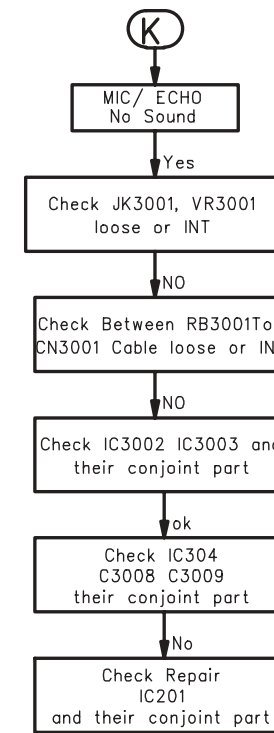
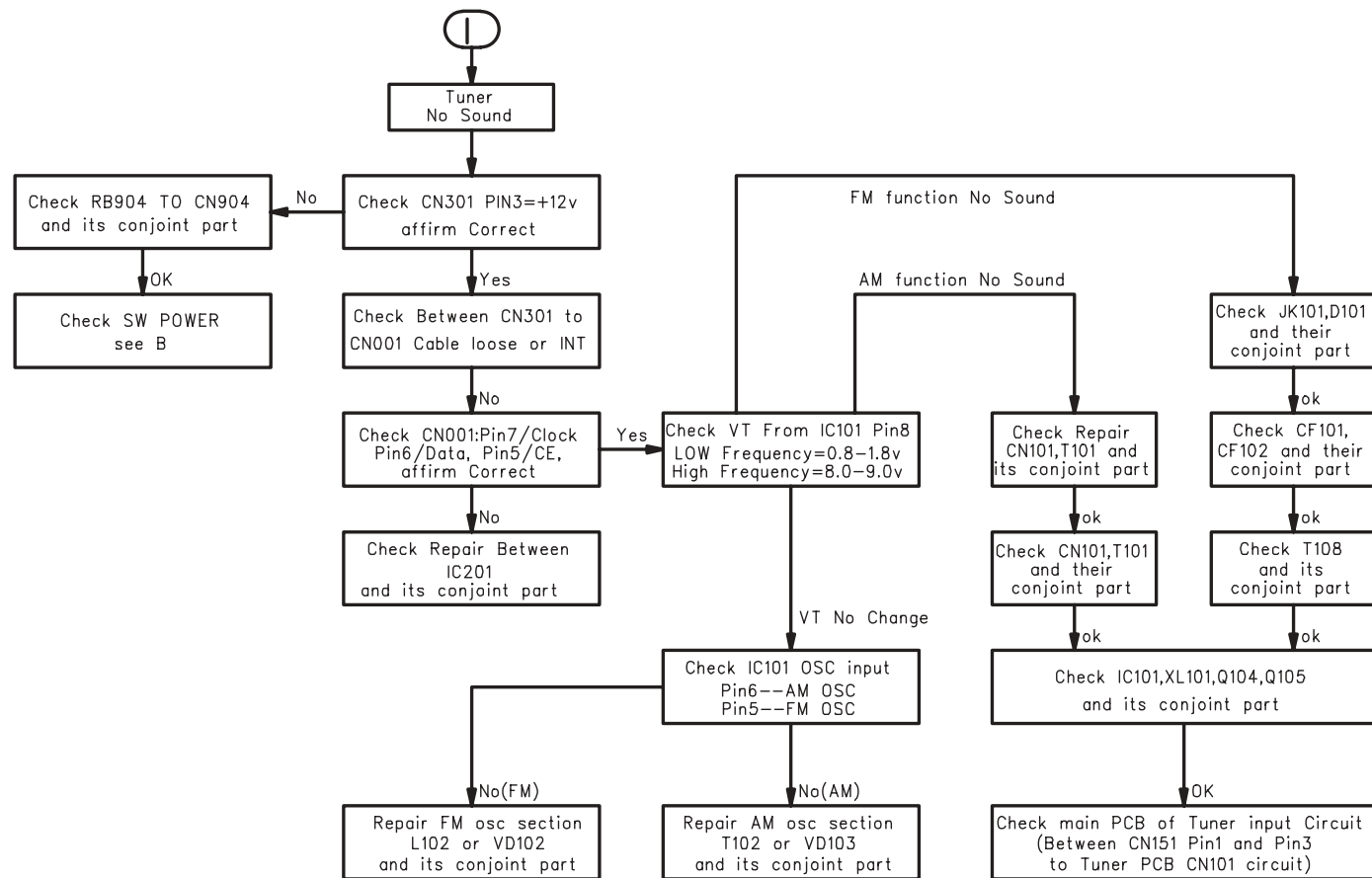
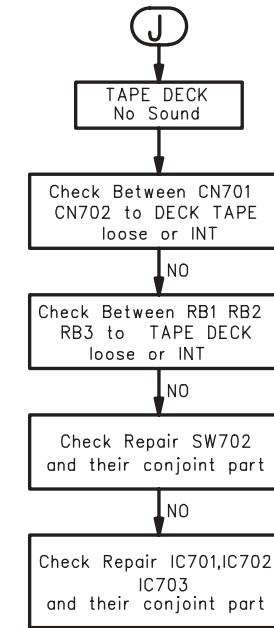
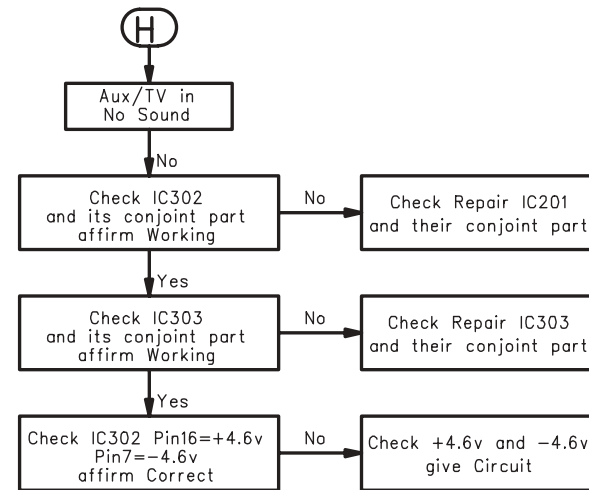
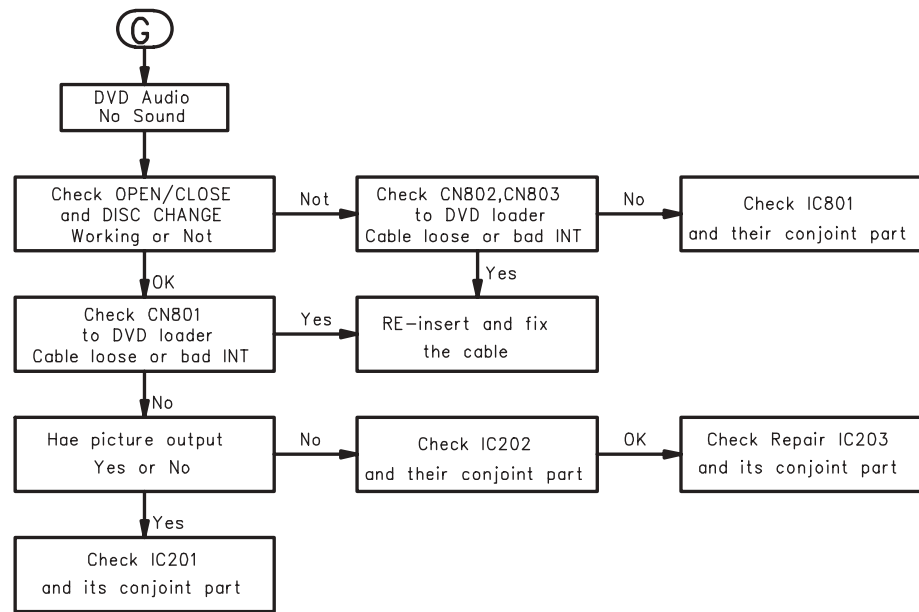
Problem	Solution
The language for the sound or subtitle cannot be changed when playing a DVD.	<ul style="list-style-type: none">Multi-language sound or subtitle is not recorded on the DVD.Changing the language for the sound or subtitle is prohibited on the DVD.
No image is output when a function is selected.	<ul style="list-style-type: none">Make sure the component is connected correctly.Press the correct function button for the input source.
Sound cannot be heard or is of poor quality	<ul style="list-style-type: none">Adjust the volume.Disconnect the headphones.Check that the speakers are connected correctly.Check if the stripped speaker wire is clamped.If the system is in pause, slow motion or fast forward/reverse mode, press ► to resume the normal play mode.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.
Poor radio reception.	<ul style="list-style-type: none">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 set or VCR.
Recording or playback cannot be made	<ul style="list-style-type: none">Clean deck parts, see "Maintenance".Use only NORMAL tape.Apply a piece of adhesive tape over the missing tab space.
The tape deck door cannot open	<ul style="list-style-type: none">Remove and reconnect the AC power plug and switch on the system again.
Left and right sound outputs are reversed.	<ul style="list-style-type: none">Check the speaker connections and location.
The remote control does not function.	<ul style="list-style-type: none">Point the remote control at the remote control sensor of the unit.Reduce the distance to the player.Remove any possible obstacles.Replace the batteries with new ones.Check that the batteries are loaded correctly.
The display is dark.	<ul style="list-style-type: none">Press DIM again.

REPAIR INSTRUCTIONS (1 of 2)

MAIN UNIT REPAIR CHART



REPAIR INSTRUCTIONS (2 of 2)



DISMANTLING INSTRUCTIONS

Dismantling the DVD Module

- 1) Loosen the 4 screws at top cover , 2 screws at slide Cover and 4 screws at back panel as Figure 1 & 2.
- 2) Loosen the 4 screws at DVD loader bracket as Figure 3.
- 3) Loosen the 4 screws at DVD loader as Figure 4.

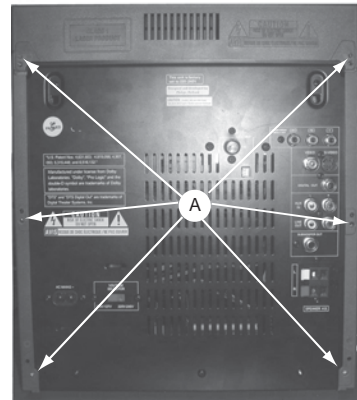


Figure 1

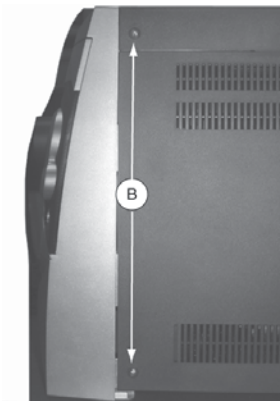


Figure 2

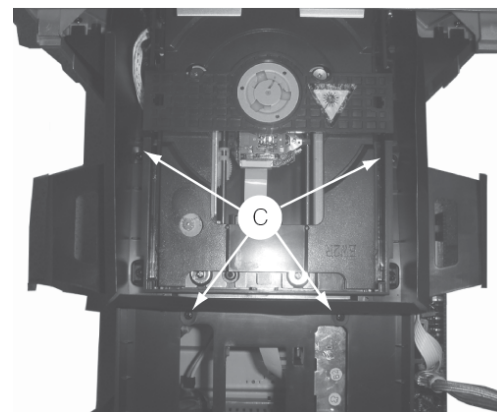


Figure 3

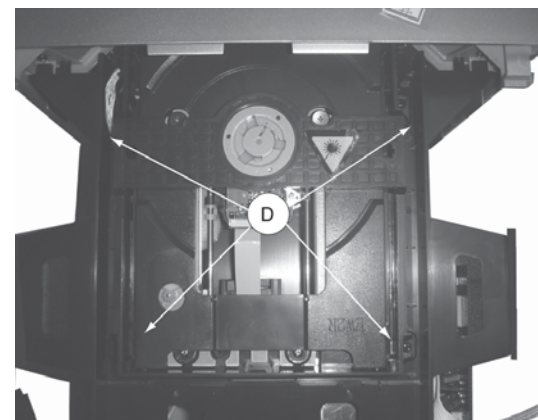


Figure 4

- 4) Push the gear slowly towards the front as shown in figure 5 until the CDC tray starts to move out of the Front Cabinet. The CDC tray is now disengaged and can be pulled out completely.

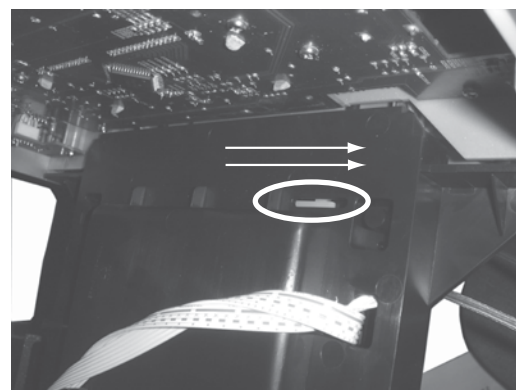


Figure 5

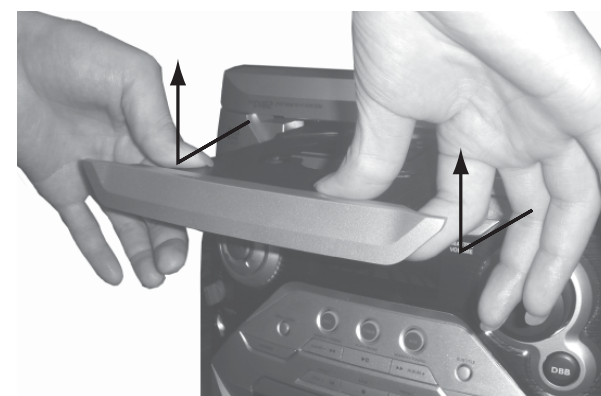


Figure 6

- 5) Remove the Cover Tray as shown in figure 6.

Dismantling of the Cover Front Display

- 1) Remove the Volume knobs & Mic knob as stated in Dismantling the Cover Front Display in Figure 7 & 8.

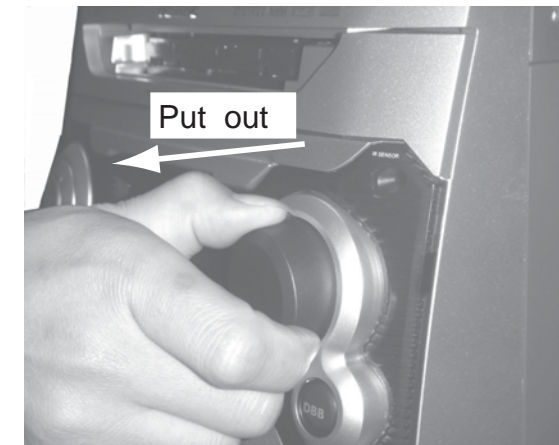


Figure 7

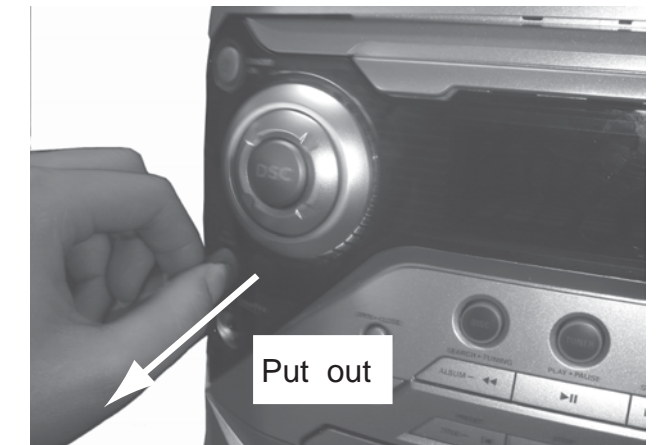


Figure 8

Dismantling the Main board

- 1) Release 7 screws 'E' to free the Main board from the back panel Assembly as shown in Figure 9.
- 2) Loosen 1 screw 'G' at the side of the set as shown in Figure 10.
- 3) Release 2 screws 'F' on bottom of the cover as shown in Figure 11.

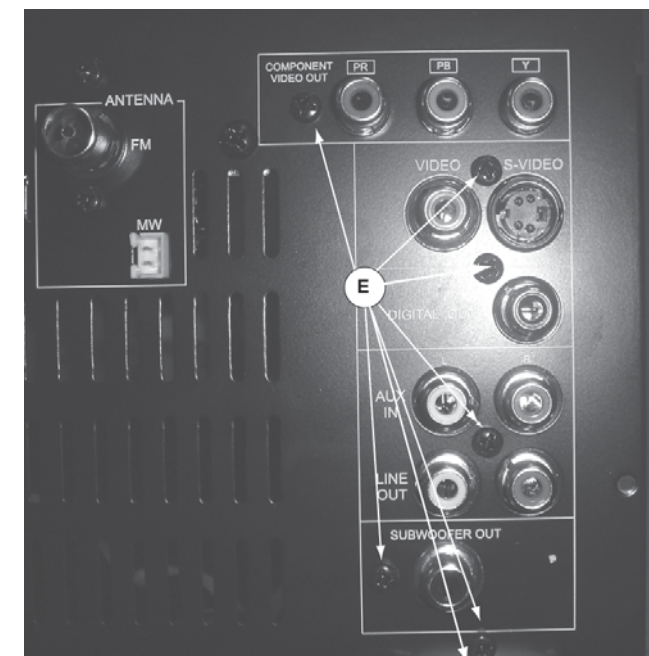


Figure 9

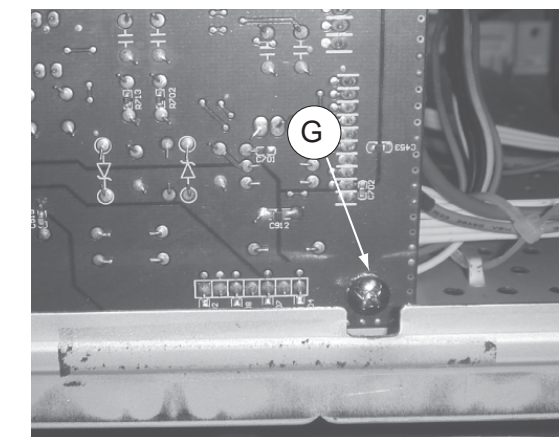


Figure 10

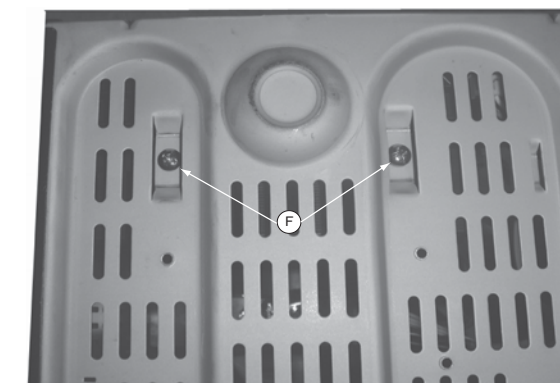


Figure 11

Dismantling of the Key Board and Cassette module

1) Loosen 13 screws 'H' to remove the KEY board figure 12.

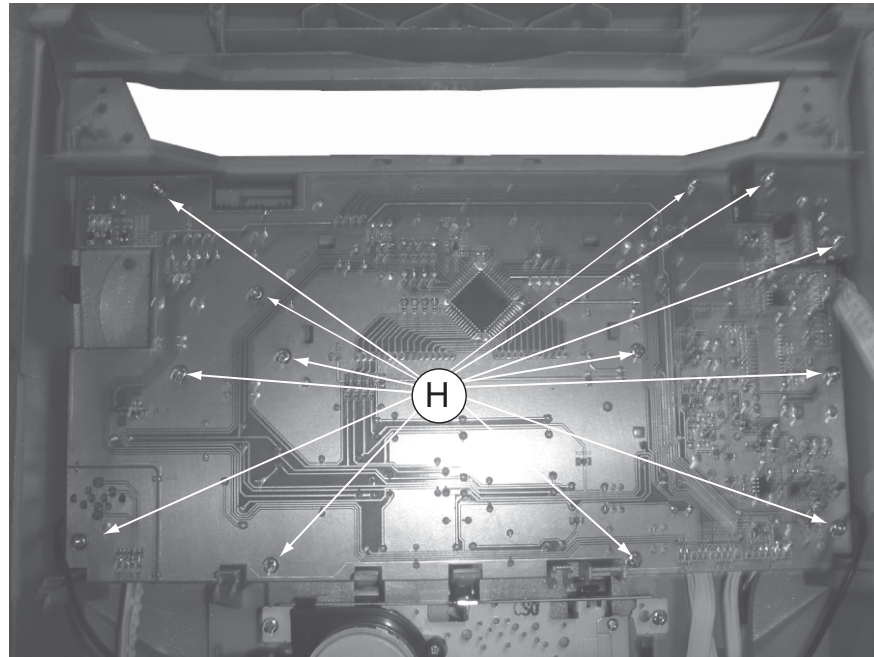


Figure 12

4) Loosen 4 screws 'I' to remove the Cassette Module figure 13.

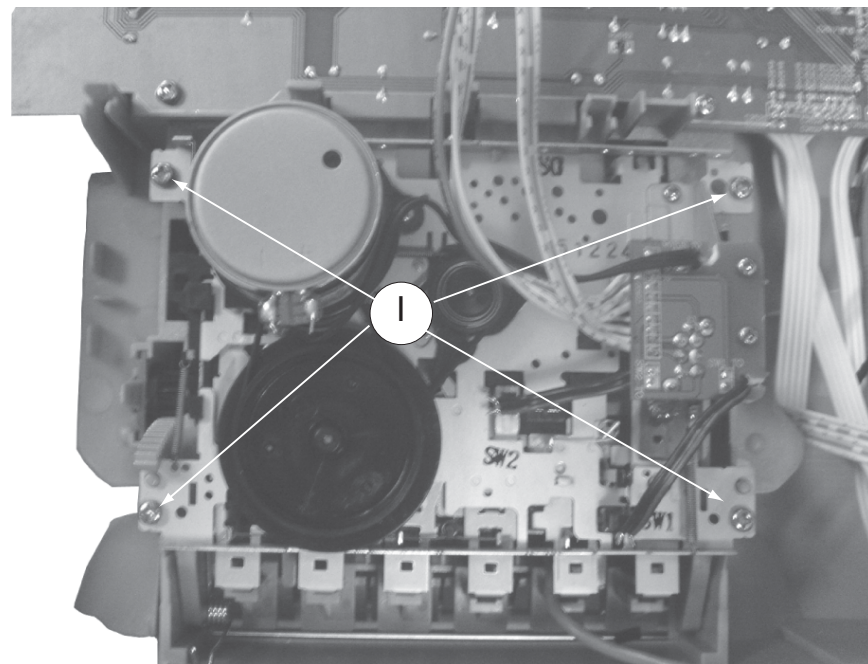


Figure 13

Dismantling of the Power Board

1) Loosen 4 screws 'J' to remove the Power Board figure 14.

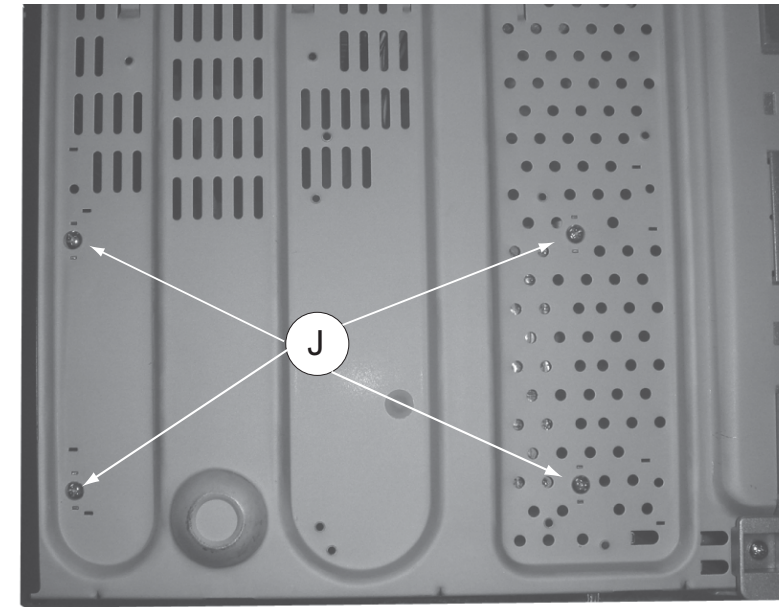


Figure 14

2) Remove the catch 'K' using cutter as shown in figure 15.

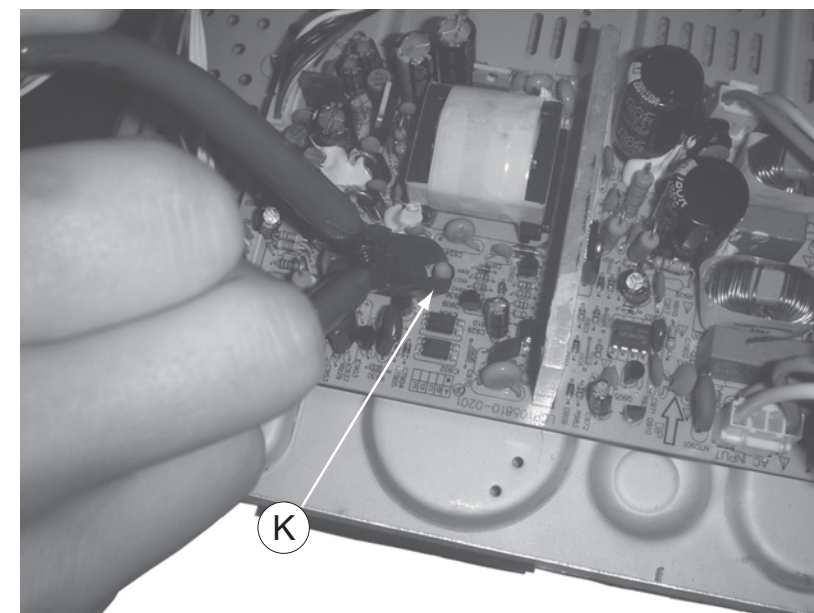


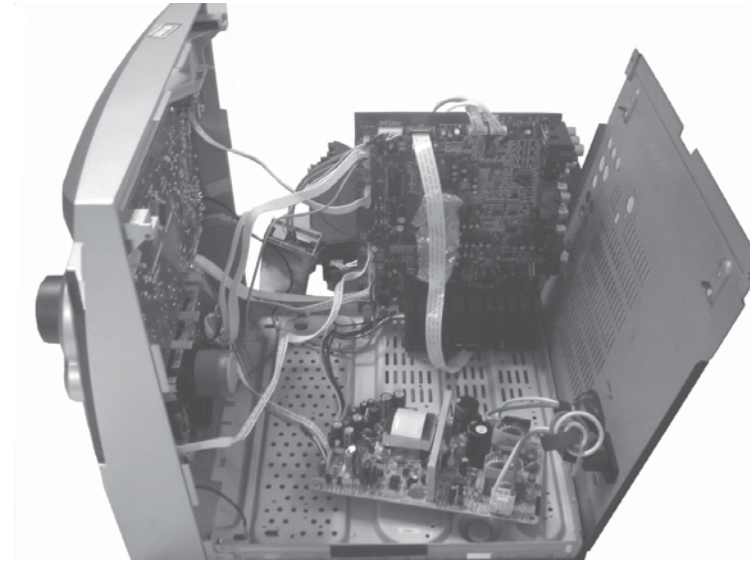
Figure 15

Service positions

Service position A

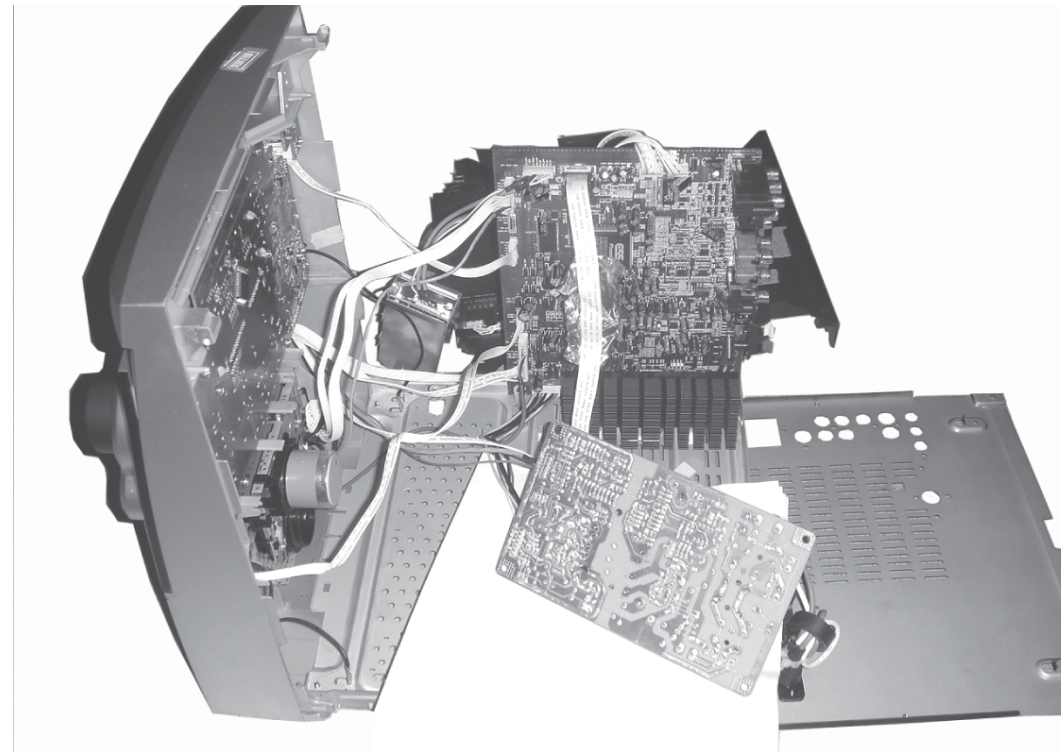


Service position B

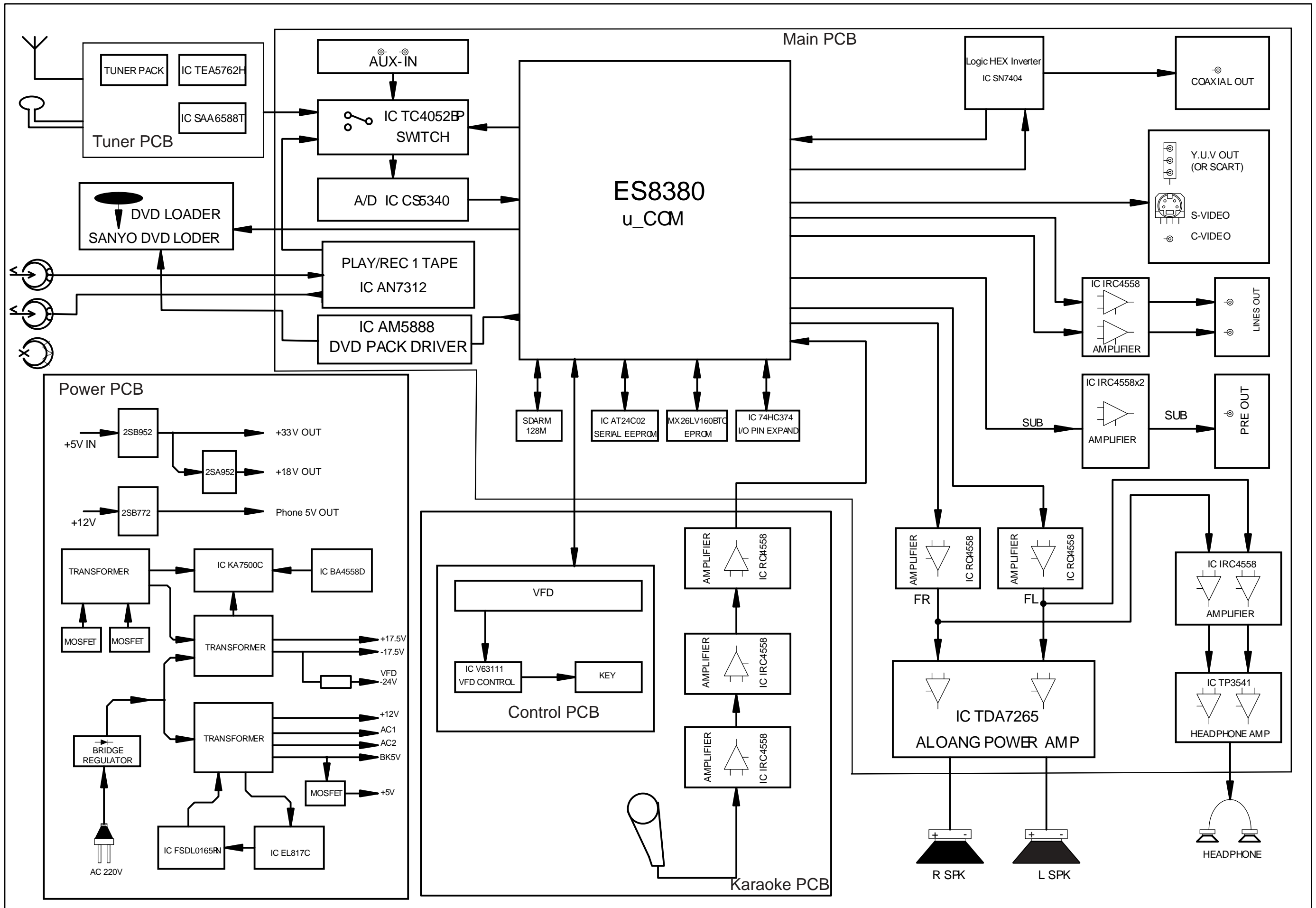


Note: After re-assembly, it is very important to ensure the wires are properly inserted into their respective sockets and routed not to touch or obstruct any moving parts.

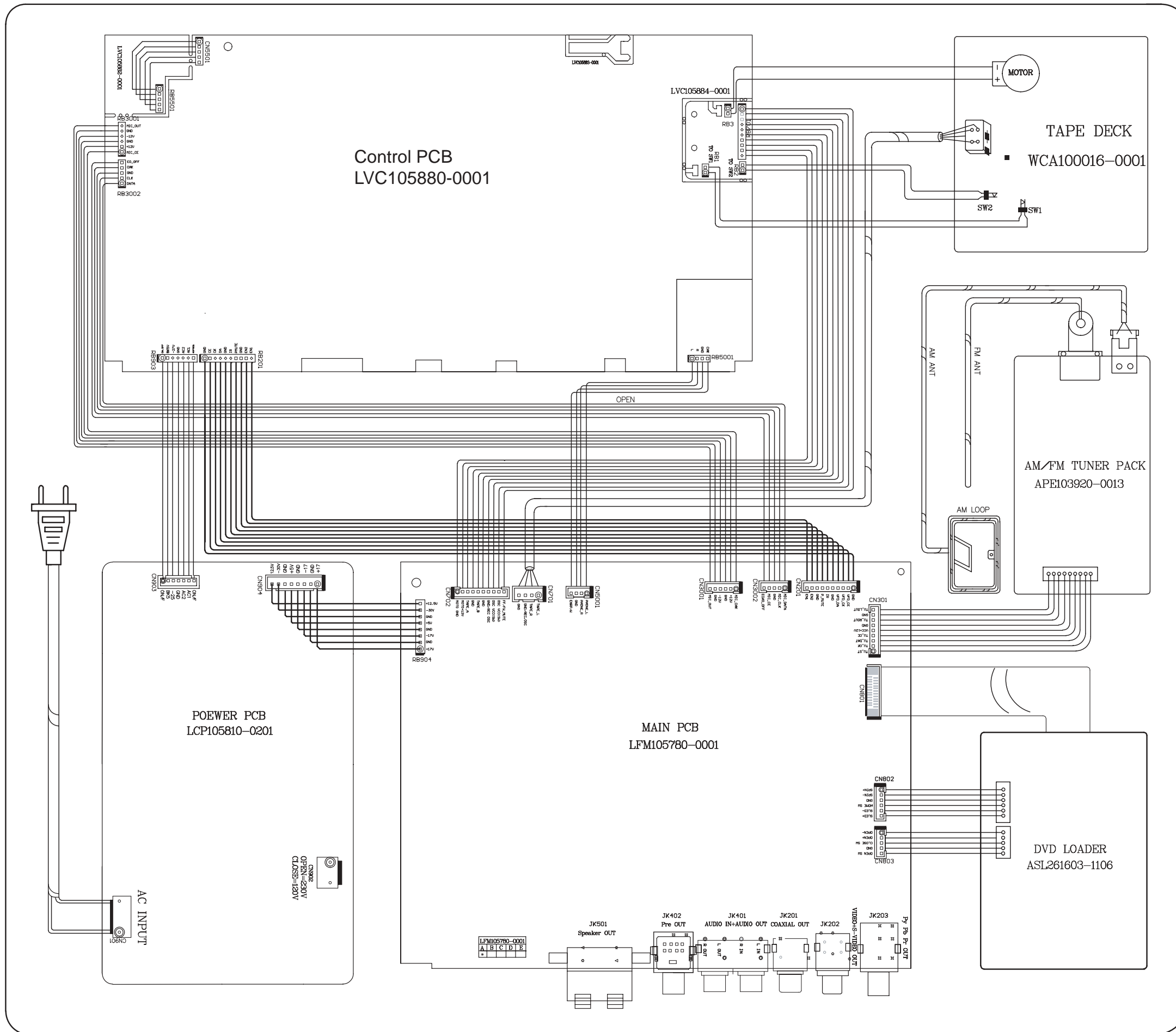
Service position C



SET BLOCK DIAGRAM



WIRING DIRGRAM

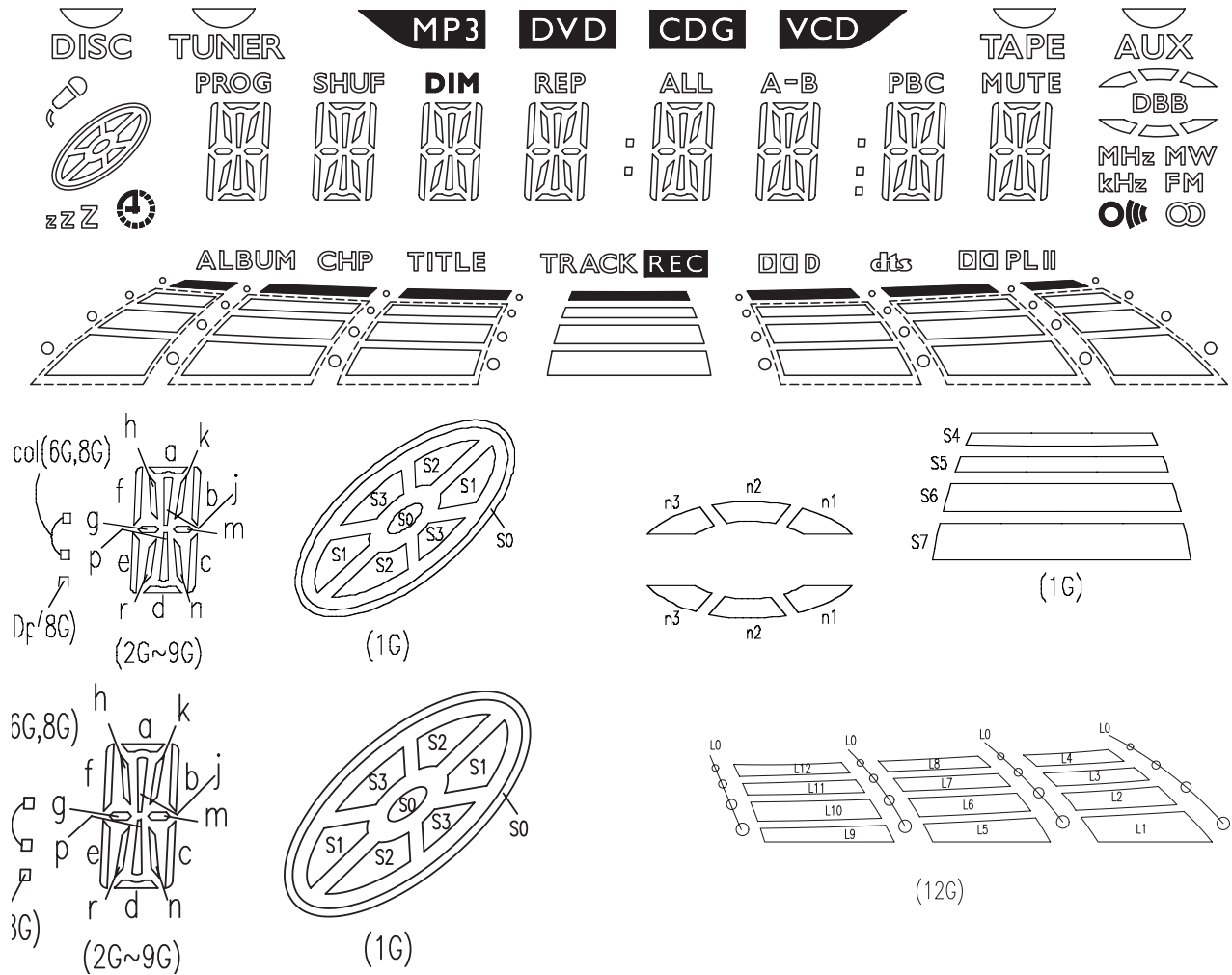


CONTROL BOARD

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 Electrical Parts List & Voltages 5-6

FTD DISPLAY PIN ASSIGNMENT



	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G
P1	DISC	TUNER		MP3	DVD	CDG	VCD	Dp	TAPE	AUX	L0	L0
P2	φ					col	A	col		DBB	L1	L1
P3	S1	PROG	SHUF	DIM	REP	ALL	-B	PBC	MUTE	n1	L2	L2
P4	S2	a	a	a	a	a	a	a	a	n2	L3	L3
P5	S3	h	h	h	h	h	h	h	h	n3	L4	L4
P6	S0	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	MW	L5	L5
P7	zzZ	k	k	k	k	k	k	k	k	FM	L6	L6
P8	⌚	b	b	b	b	b	b	b	b	MHz	L7	L7
P9	S4	f	f	f	f	f	f	f	f	kHz	L8	L8
P10	S5	m	m	m	m	m	m	m	m	Ⓚ	L9	L9
P11	S6	g	g	g	g	g	g	g	g	Ⓚ	L10	L10
P12	S7	c	c	c	c	c	c	c	c		L11	L11
P13	REC	e	e	e	e	e	e	e	e		L12	L12
P14	TRACK	r	r	r	r	r	r	r	r		ALBUM	DDD PL II
P15		n	n	n	n	n	n	n	n		CHP	dts
P16		d	d	d	d	d	d	d	d		TITLE	DDD

PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CONNECTION	F	F	NP	NP	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NX	NX	NX	NX	NX
PIN NO.	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
CONNECTION	NX	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NP	NP	F	F

Note

1. F : Filament

2. G :Grid

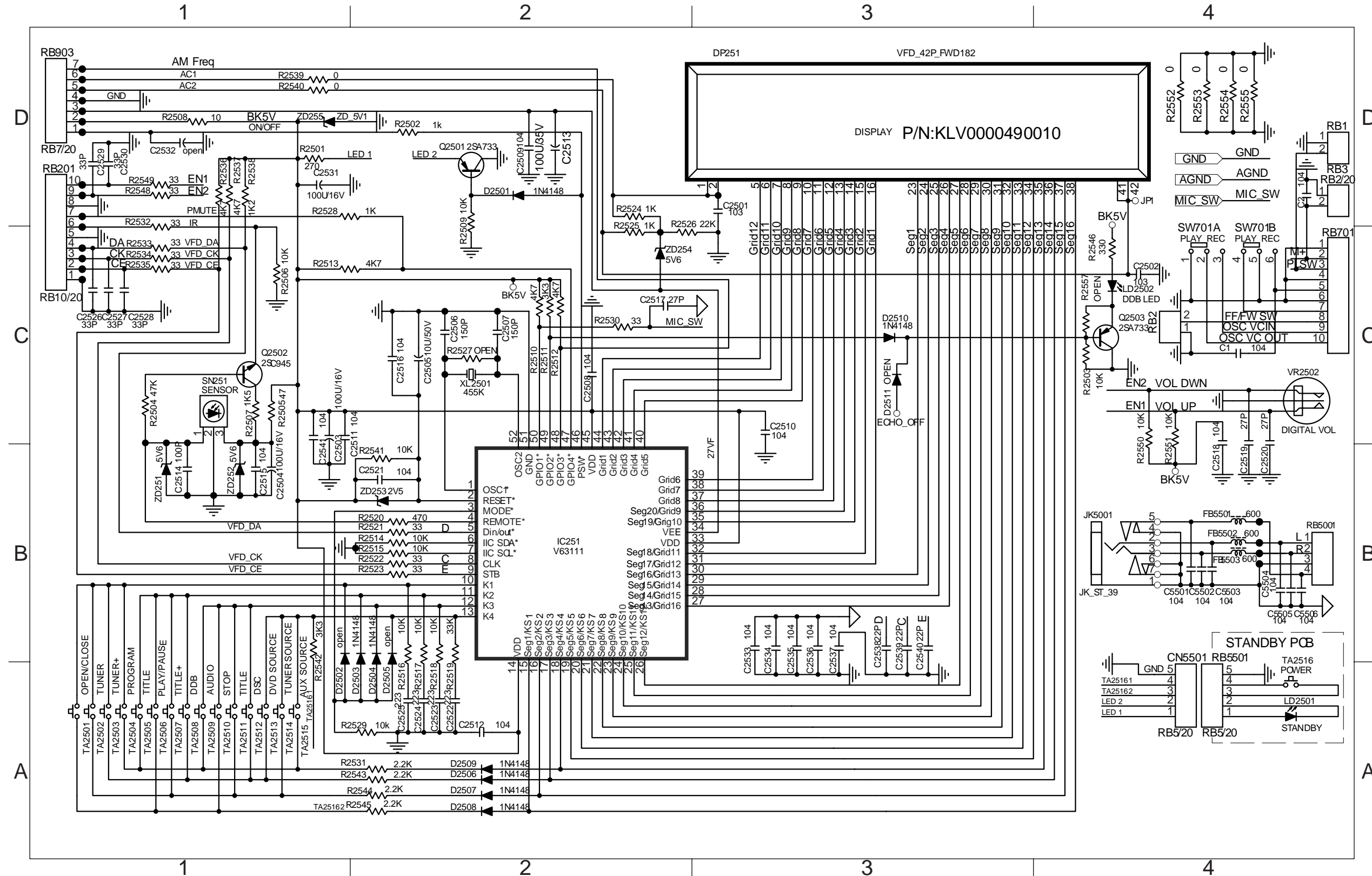
3. P :Anode

4. NP :No Pin

5. Nx :No extended

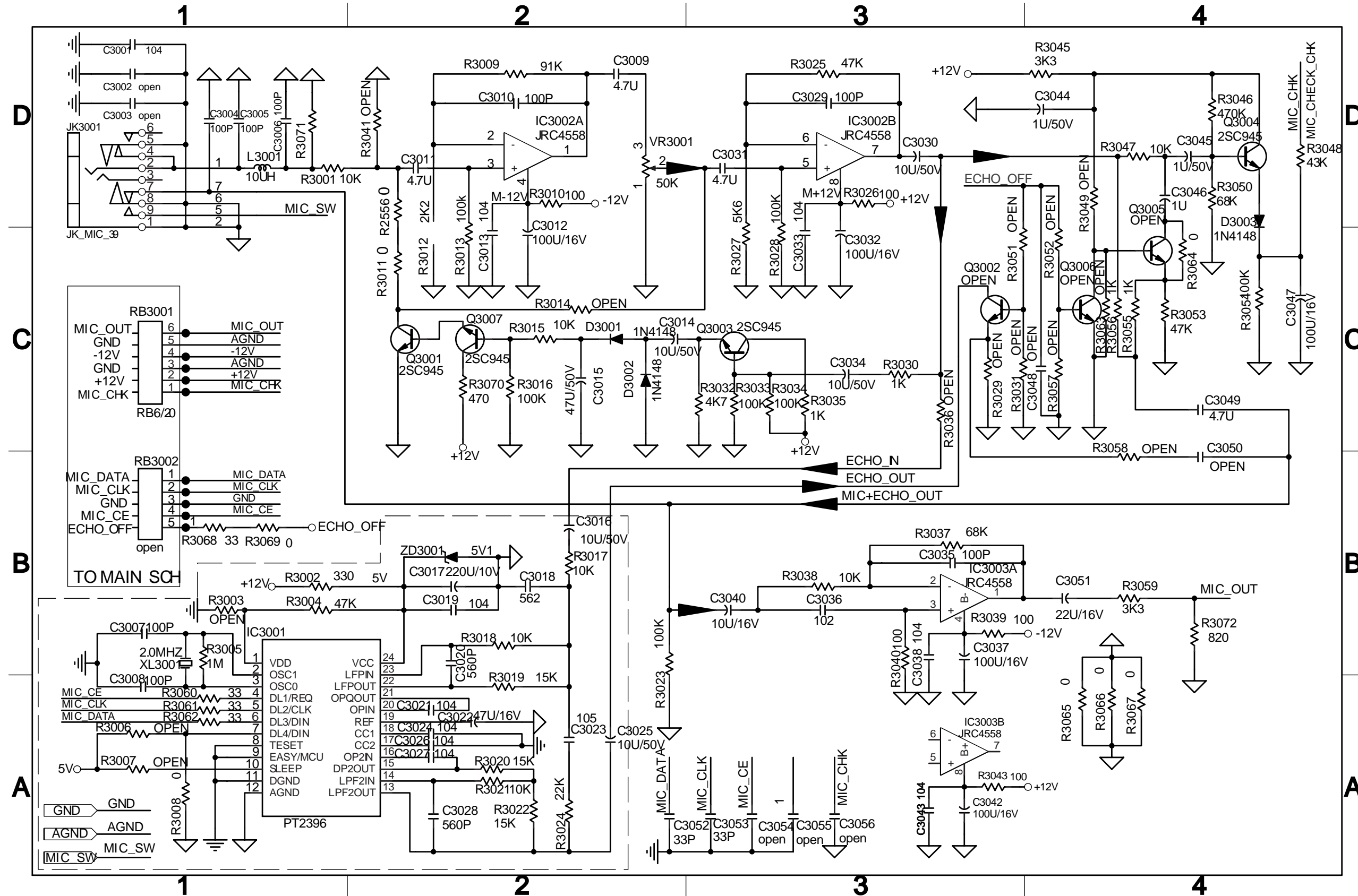
CIRCUIT DIAGRAM: KEY PCB

C1	C4	C2511	B2	C2523	A2	C2535	B3	D2501	D2	IC251	B2	R2506	C1	R2519	A2	R2532	D1	R2544	A2	RB2	C4	TA2505	A1	XL2501	C2
C2	D4	C2512	A2	C2524	A2	C2536	B3	D2503	A2	JK5001	B4	R2507	C1	R2520	B2	R2533	C1	R2545	A2	RB201	D1	TA2506	A1	ZD251	B1
C2501	D3	C2513	D2	C2525	A2	C2538	B3	D2504	A2	LD2501	A4	R2508	D1	R2521	B2	R2534	C1	R2546	C4	RB3	D4	TA2507	A1	ZD252	B1
C2502	C4	C2514	B1	C2526	C1	C2539	B3	D2506	A2	LD2502	C4	R2509	D2	R2522	B2	R2535	C1	R2548	D1	RB5001	B4	TA2508	A1	ZD253	B2
C2503	B1	C2515	B1	C2527	C1	C2540	B3	D2507	A2	Q2501	D2	R2510	C2	R2523	B2	R2536	D1	R2549	D1	RB5501	A4	TA2509	A1	ZD254	C2
C2504	B1	C2516	C2	C2528	C1	C2541	B1	D2508	A2	Q2502	C1	R2511	C2	R2524	D2	R2537	D1	R2550	C4	RB701	C4	TA2510	A1	ZD255	D1
C2505	C2	C2517	C2	C2529	D1	C5501	B4	D2509	A2	Q2503	C4	R2512	C2	R2525	D2	R2538	D1	R2551	C4	SN251	C1	TA2511	A1		
C2506	C2	C2518	B4	C2530	D1	C5502	B4	D2510	C3	R2501	D1	R2514	B2	R2526	D2	R2539	D1	R2552	D4	SW701	C4	TA2512	A1		
C2507	C2	C2519	B4	C2531	D1	C5503	B4	DP251	D3	R2502	D2	R2515	B2	R2528	D1	R2540	D1	R2553	D4	TA2501	A1	TA2513	A1		
C2508	C2	C2520	B4	C2532	D1	C5504	B4	FB5501	B4	R2503	C4	R2516	A2	R2529	A1	R2541	B2	R2554	D4	TA2502	A1	TA2514	A1		
C2509	D2	C2521	B2	C2533	B3	C5505	B4	FB5502	B4	R2504	C1	R2517	A2	R2530	A2	R2542	B1	R2555	D4	TA2503	A1	TA2515	A1		
C2510	C3	C2522	A2	C2534	B3	C5506	B4	FB5503	B4	R2505	C1	R2518	A2	R2531	A2	R2543	A2	RB1	D4	TA2504	A1	TA2516	A1		



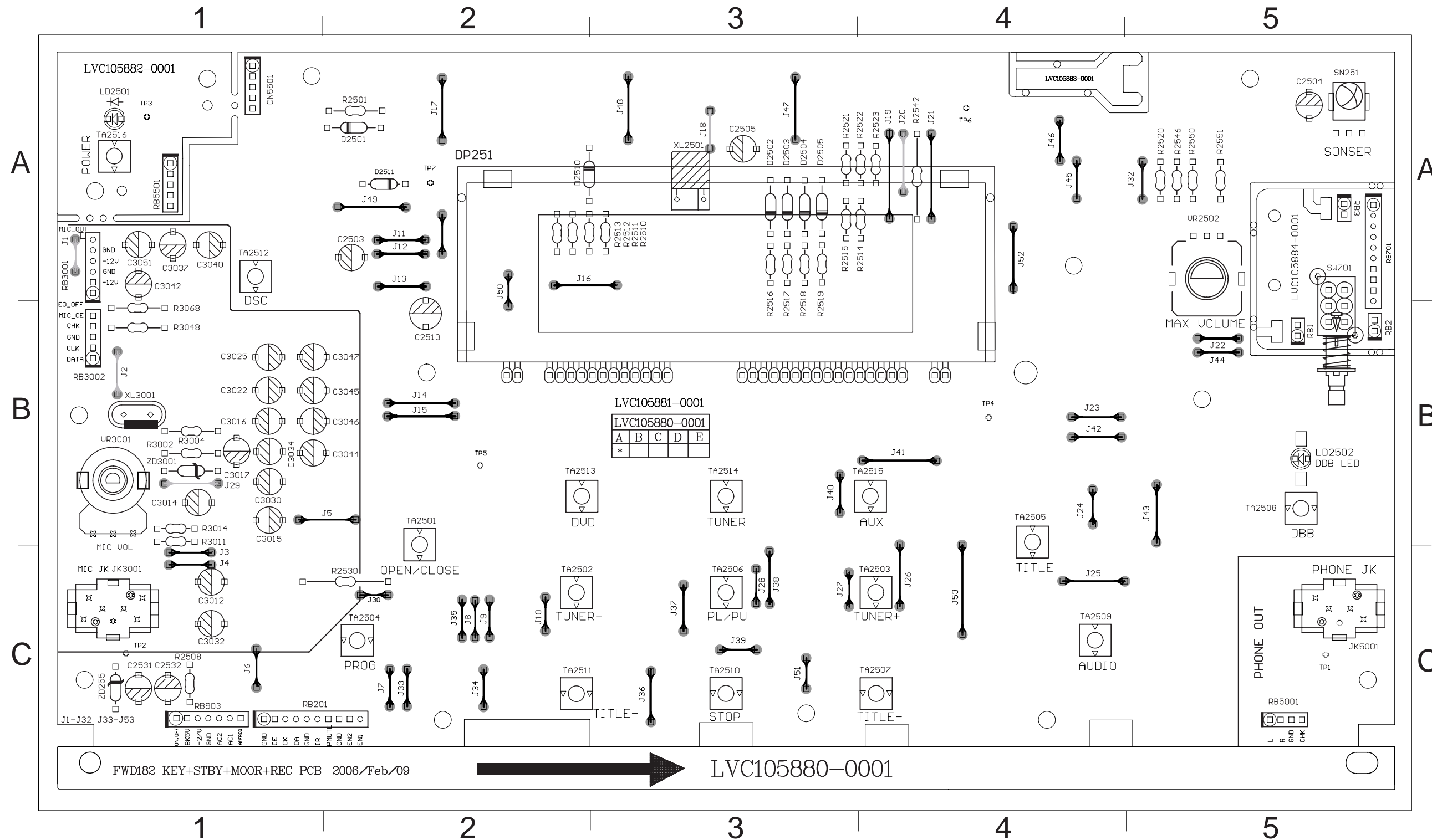
CIRCUIT DIAGRAM : KARAOKE PCB

C2	C3036	B3	C3046	D4	IC3002	D2	Q3007	C2	R3015	C2	R3032	C3	R3043	A3	R3055	C4	R3071	D1
C2	C3037	B3	C3047	C4	IC3003	B3	R2556	D2	R3016	C2	R3033	C3	R3045	D4	R3056	C4	R3072	B4
D3	C3038	B3	C3049	C4	JK3001	D1	R3001	D1	R3023	A2	R3034	C3	R3046	D4	R3059	B4		
D3	C3040	B3	C3051	B4	L3001	D1	R3009	D2	R3025	D3	R3035	C3	R3047	D4	R3064	C4		
D3	C3042	A3	C3056	A3	PT2396	A1	R3010	D2	R3026	D3	R3037	B3	R3048	D4	R3065	A4		
C3	C3043	A3	D3001	C2	Q3001	C2	R3011	C2	R3027	C3	R3038	B3	R3050	D4	R3066	A4		
C3	C3044	D4	D3002	C2	Q3003	C3	R3012	C2	R3028	C3	R3039	B3	R3053	C4	R3067	A4		
B3	C3045	D4	D3003	D4	Q3004	D4	R3013	C2	R3030	C3	R3040	B3	R3054	C4	R3070	C2		



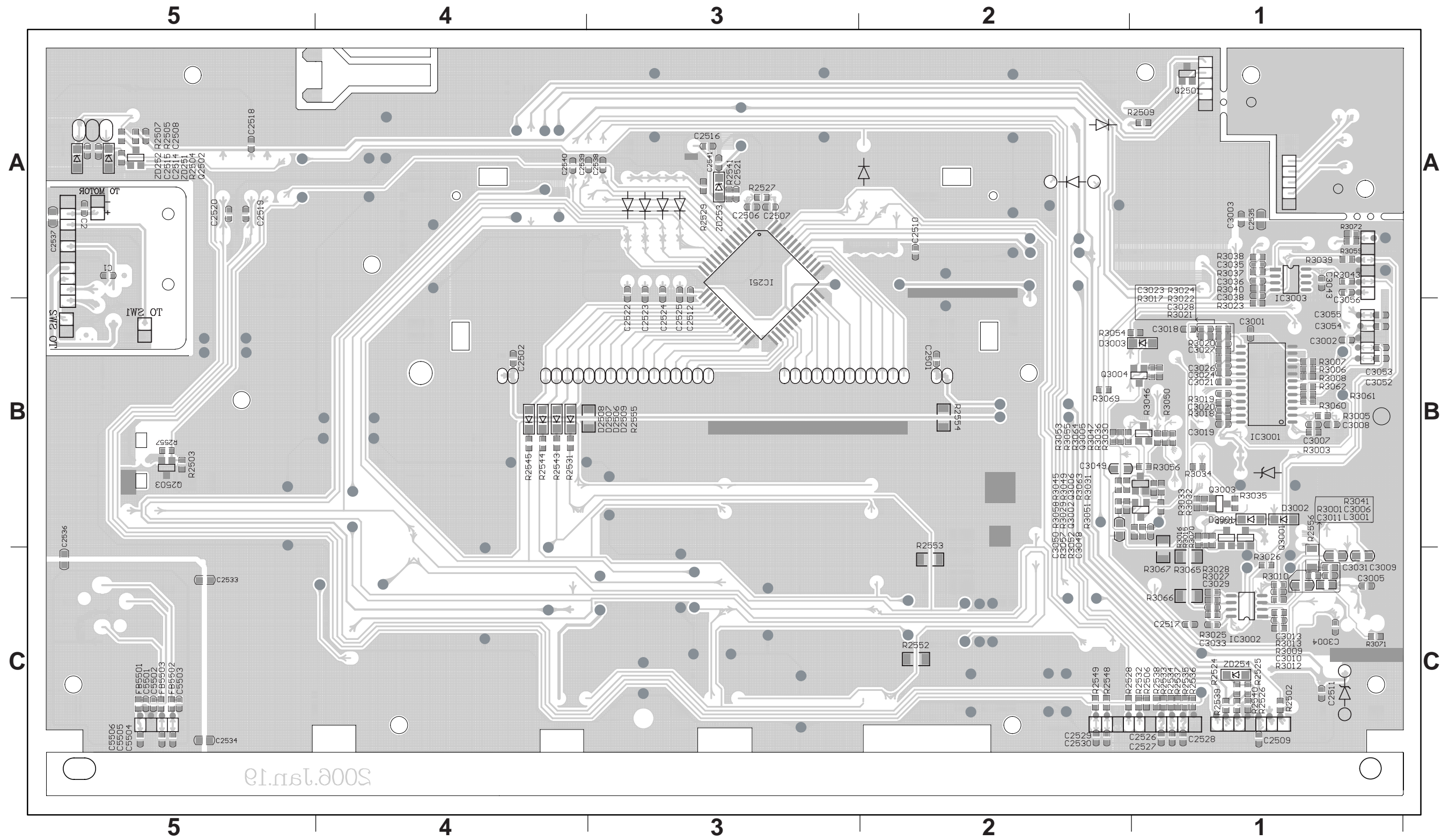
PCB LAYOUT - KEY & KARAOKE (TOP VIEW)

C2503	A2	C3044	B1	J11	A2	J22	B5	J34	C2	J45	A4	J8	C2	R2514	A4	R2546	A5	TA2505	B4	TP1	C5
C2504	A5	C3045	B1	J12	A2	J23	B4	J35	C2	J46	A4	J9	C2	R2515	A3	R2550	A5	TA2506	C3	TP2	C1
C2505	A3	C3046	B1	J13	A2	J24	B4	J36	C3	J47	A3	JK3001	C1	R2516	A3	R2551	A5	TA2507	C4	VR2502	A5
C2513	B2	C3047	B1	J14	B2	J25	C4	J37	C3	J48	A3	JK5001	C5	R2517	A3	R3011	B1	TA2508	B5	VR3001	B1
C2531	C1	C3051	A1	J15	B2	J26	C4	J38	C3	J49	A2	LD2501	A1	R2518	A3	R3048	B1	TA2509	C4	VR3001	B1
C3014	B1	D2501	A2	J16	A2	J27	C3	J39	C3	J5	B1	LD2502	B5	R2519	A3	RB3	A5	TA2510	C3	XL2501	A3
C3015	B1	D2503	A3	J17	A2	J28	C3	J4	C1	J50	A2	R2501	A2	R2520	A5	RB5001	C5	TA2511	C2	XL2501	A3
C3030	B1	D2504	A3	J18	A3	J29	B1	J40	B3	J51	C3	R2508	C1	R2521	A3	RB5501	A1	TA2512	A1	XL3001	B1
C3034	B1	D2510	A2	J19	A4	J3	C1	J41	B4	J52	A4	R2510	A3	R2522	A4	RB701	A5	TA2513	B2	ZD255	C1
C3037	A1	DP251	A2	J2	B1	J30	C2	J42	B4	J53	C4	R2511	A2	R2523	A4	TA2502	C2	TA2514	B3	ZD255	C1
C3040	A1	J1	A1	J20	A4	J32	A5	J43	B5	J6	C1	R2512	A2	R2530	C2	TA2503	C4	TA2515	B4	ZD3001	B1
C3042	A1	J10	C2	J21	A4	J33	C2	J44	B5	J7	C2	R2513	A2	R2542	A4	TA2504	C2	TA2516	A1		



PCB LAYOUT - KEY & KARAOKE (BOTTOM VIEW)

C1	A5	C2518	A5	C2535	A1	C3035	A1	C5504	C5	IC3003	A1	R2509	A1	R2540	C1	R3013	C1	R3038	A1	R3065	C1
C2	A5	C2519	A5	C2536	C5	C3036	A1	C5505	C5	L3001	B1	R2524	C1	R2541	A3	R3015	B1	R3039	A1	R3066	C1
C2501	B2	C2520	A5	C2538	A3	C3038	A1	C5506	C5	Q2501	A1	R2525	C1	R2543	B4	R3016	B1	R3040	A1	R3067	C1
C2502	B4	C2521	A3	C2539	A4	C3043	A1	D2506	B3	Q2502	A5	R2526	C1	R2544	B4	R3023	B1	R3043	A1	R3070	B1
C2506	A3	C2522	A3	C2540	A4	C3048	B2	D2507	B3	Q2503	B5	R2528	C2	R2545	B4	R3025	C1	R3045	B2	R3071	C1
C2507	A3	C2523	A3	C2541	A3	C3049	B2	D2508	B3	Q3001	B1	R2529	A3	R2548	C2	R3026	C1	R3046	B1	R3072	A1
C2508	A5	C2524	A3	C3001	B1	C3050	B2	D2509	B3	Q3003	B1	R2531	B4	R2549	C2	R3027	C1	R3047	B2	ZD251	A5
C2509	C1	C2525	A3	C3004	C1	C3052	B1	D3001	B1	Q3004	B2	R2532	C1	R2552	C2	R3028	C1	R3049	B2	ZD252	A5
C2510	A2	C2526	C1	C3005	C1	C3053	B1	D3002	B1	Q3007	B1	R2533	C1	R2553	C2	R3029	B2	R3050	B1	ZD253	A3
C2511	C1	C2527	C1	C3006	B1	C3054	B1	D3003	B2	R2502	C1	R2534	C1	R2554	B2	R3030	B2	R3053	B2	ZD254	C1
C2512	A3	C2528	C1	C3009	C1	C3055	B1	FB5501	C5	R2503	B5	R2535	C1	R2555	B3	R3032	B1	R3054	B2		
C2514	A5	C2529	C2	C3013	C1	C3056	A1	FB5502	C5	R2504	A5	R2536	C1	R3001	B1	R3033	B1	R3055	B2		
C2515	A5	C2530	C2	C3029	C1	C5501	C5	FB5503	C5	R2505	A5	R2537	C1	R3009	C1	R3034	B1	R3056	B1		
C2516	A3	C2533	C5	C3031	C1	C5502	C5	IC251	A3	R2506	C1	R2538	C1	R3010	C1	R3035	B1	R3059	A1		
C2517	C1	C2534	C5	C3033	C1	C5503	C5	IC3002	C1	R2507	A5	R2539	C1	R3012	C1	R3037	A1	R3064	B2		



ELECTRICAL PARTS LIST - CONTROL BOARD

D2506	4822 130 83338	LL4148
D2507	4822 130 83338	LL4148
D2508	4822 130 83338	LL4148
D2509	4822 130 83338	LL4148
D3001	4822 130 83338	LL4148
D3002	4822 130 83338	LL4148
D3003	4822 130 83338	LL4148
DP251	9940 000 05263	VFD 42P 70X22MM
IC251	9940 000 05266	IC 52P V63111 QFP
IC3002	9965 000 29611	IC 8P CO4558A SO8 CERAMATE
IC3003	9965 000 29611	IC 8P CO4558A SO8 CERAMATE
JK3001	9940 000 05256	KARAOKE JACK D3.5MM 9P
JK5001	9940 000 05257	PHONE JACK D3.5
LD2501	9940 000 05258	LED D3 RED ROUND
LD2502	9940 000 01561	LED 3DIA SUPER RED LENS
Q2501	9940 000 00915	XISTR NPN 2SC1623
Q2501	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
SN251	9940 000 05259	IRT RECEIV. IRM-2638F4
SW701	9940 000 05261	SW PUSH PS-22F03-BNL-80
TA2501	9940 000 00872	TACT SW 50MA 12V
TA2502	9940 000 00872	TACT SW 50MA 12V
TA2503	9940 000 00872	TACT SW 50MA 12V
TA2504	9940 000 00872	TACT SW 50MA 12V
TA2505	9940 000 00872	TACT SW 50MA 12V
TA2506	9940 000 00872	TACT SW 50MA 12V
TA2507	9940 000 00872	TACT SW 50MA 12V
TA2508	9940 000 00872	TACT SW 50MA 12V
TA2509	9940 000 00872	TACT SW 50MA 12V
TA2510	9940 000 00872	TACT SW 50MA 12V
TA2511	9940 000 00872	TACT SW 50MA 12V
TA2512	9940 000 00872	TACT SW 50MA 12V
TA2513	9940 000 00872	TACT SW 50MA 12V
TA2514	9940 000 00872	TACT SW 50MA 12V
TA2515	9940 000 00872	TACT SW 50MA 12V
TA2516	9940 000 00872	TACT SW 50MA 12V
VR2502	9965 000 23589	ENCODER L20 A=12
VR3001	9940 000 01563	CNTL ROTARY 50KΩ
XL2501	9940 000 05262	RESONATOR CSB 455EB
ZD251	9965 000 26930	CHIP ZENER 5.6V 0.05 0.5W (E2)
ZD252	9965 000 26930	CHIP ZENER 5.6V 0.05 0.5W (E2)
ZD253	9940 000 05264	CHIP ZENER 3.0V 5% 0.5W
ZD254	9940 000 05265	CHIP ZENER 3.9V 5% 0.5W
ZD255	9965 000 26942	DIODE ZENR 5.0-5.2V 0.5W

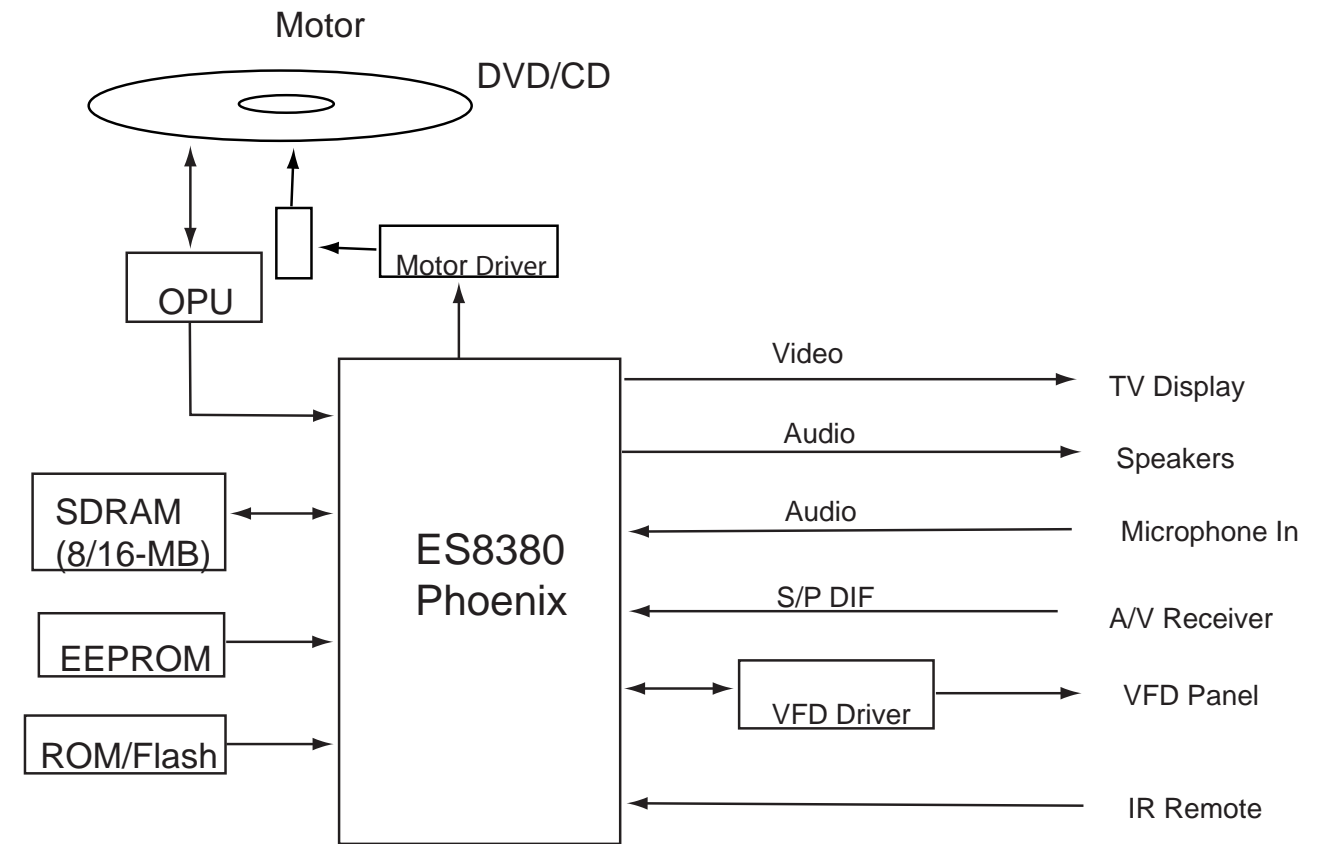
Note: Only these parts mentioned in the list are normal service parts.

MAIN BOARD

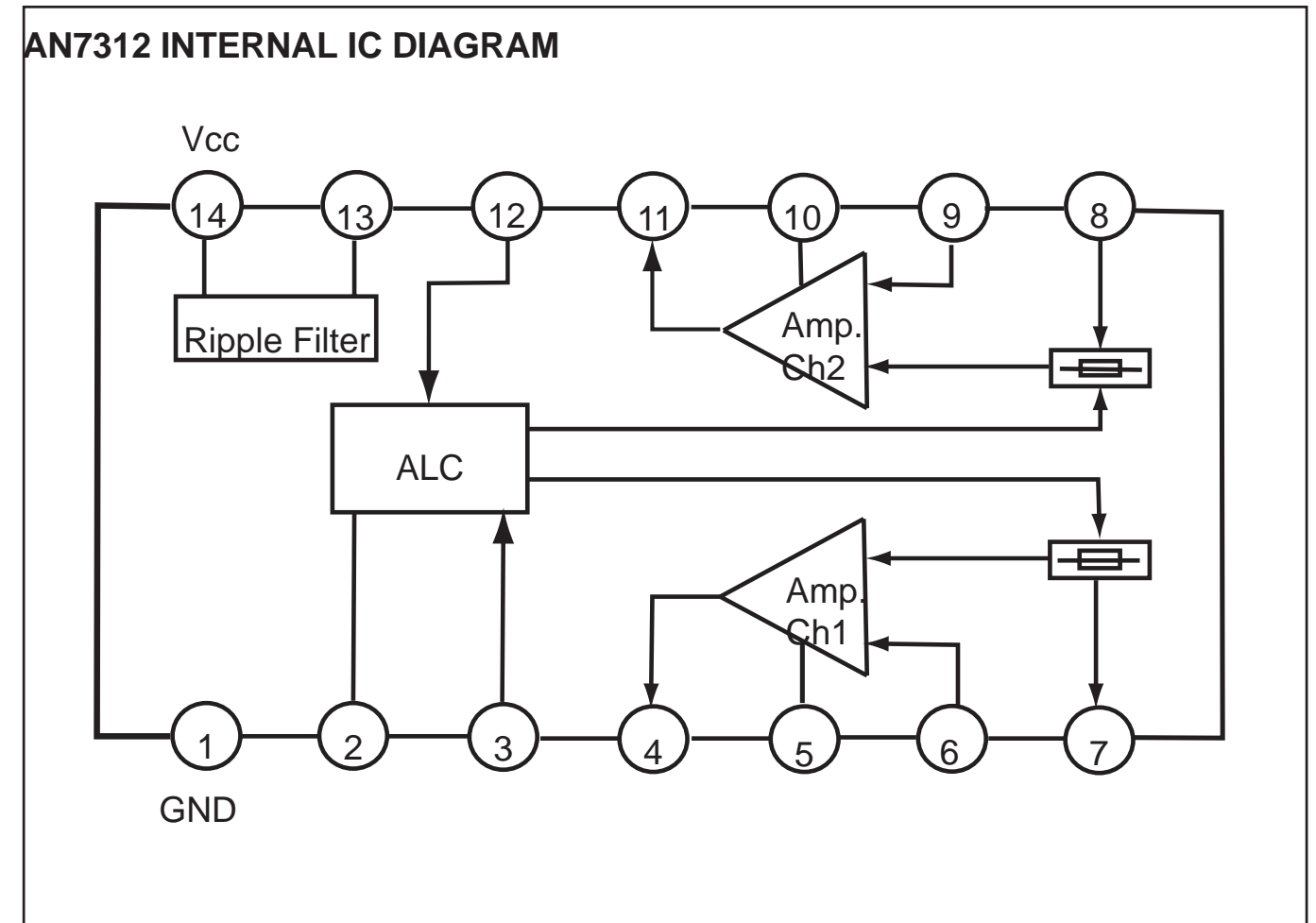
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ES8380 PHOENIX INTERNAL IC DIAGRAM

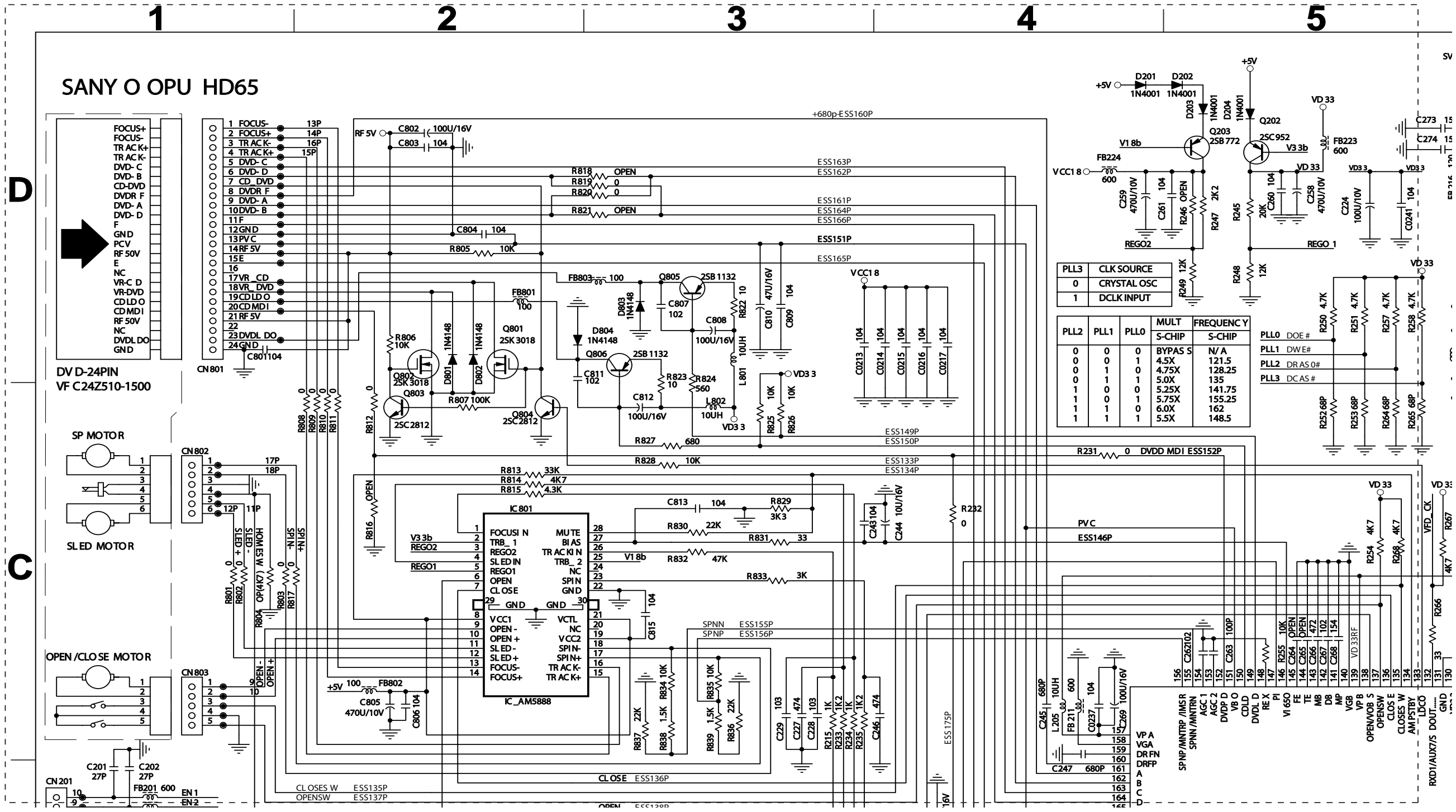


AN7312 INTERNAL IC DIAGRAM



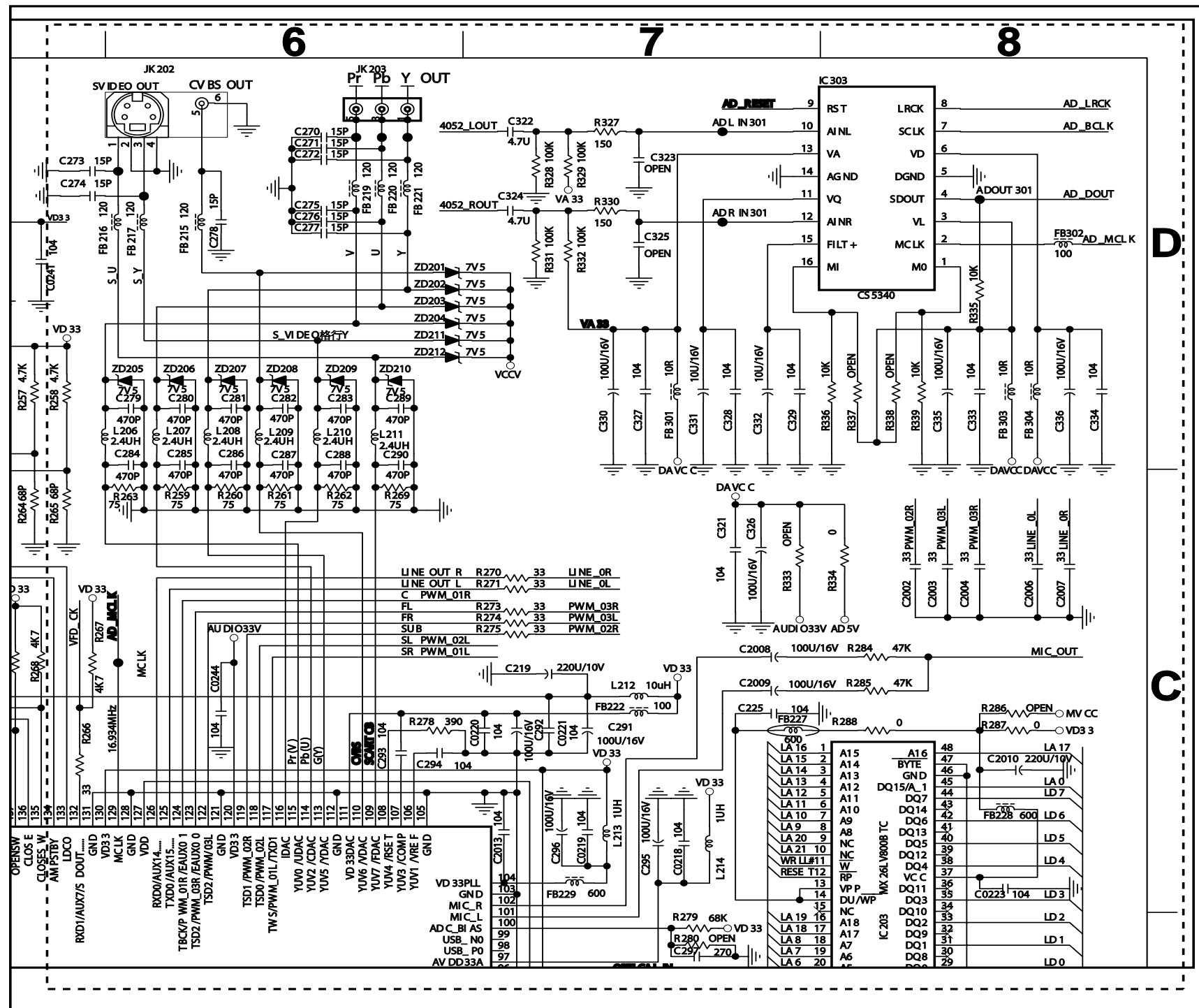
CIRCUIT DIAGRAM MAIN SERVO (TOP LEFT)

C0201	A1	C0216	D4	C0232	A7	C2003	C8	C206	B1	C223	B2	C238	B3	C253	B4	C269	C4	C285	D6	C322	D7	C803	D2	CE4	A1	D802	D2	FB214	B3
C0202	A1	C0217	D4	C0233	A3	C2004	C8	C207	B1	C224	D5	C239	B3	C254	B4	C270	D6	C286	D6	C324	D7	C804	D2	CE5	A1	D803	D3	FB215	D6
C0203	A1	C0218	C7	C0234	A4	C2006	C8	C208	A2	C225	C7	C240	B3	C255	A4	C271	D6	C287	D6	C326	C7	C805	C2	CE6	A1	D804	D3	FB216	D5
C0204	A1	C0219	C7	C0235	B4	C2007	C8	C209	A2	C226	A2	C241	B3	C256	A4	C272	D6	C288	D6	C327	D7	C806	C2	CE7	A2	FB201	B1	FB217	D6
C0205	A1	C0220	C7	C0236	B4	C2008	C7	C210	A3	C227	C3	C242	B2	C258	D5	C273	D5	C289	D6	C328	D7	C807	D3	CE8	A2	FB202	B1	FB218	A5
C0206	A1	C0222	B4	C0237	C4	C2009	C7	C211	A3	C228	C3	C243	C4	C259	D4	C274	D5	C290	D6	C329	D7	C808	D3	CE9	A2	FB203	B1	FB219	D6
C0207	A2	C0223	C8	C0238	B1	C201	B1	C212	B1	C229	C3	C244	C4	C260	D5	C275	D6	C291	C7	C330	D7	C809	D3	CN201	B1	FB204	B1	FB220	D6
C0208	A2	C0224	B8	C0239	B2	C2010	C8	C213	B1	C230	B3	C245	C4	C261	D4	C276	D6	C292	C7	C331	D7	C810	D3	CN801	D1	FB205	B1	FB221	D6
C0209	A2	C0225	A8	C0240	B2	C2011	A8	C214	B1	C231	B3	C246	C4	C262	C5	C277	D6	C293	C6	C332	D7	C811	D3	CN802	C1	FB206	B1	FB222	C7
C0210	A2	C0226	A8	C0241	D5	C2012	B8	C215	B1	C232	B3	C247	C4	C263	C5	C279	D6	C294	C6	C333	D8	C812	C3	CN803	C1	FB207	B1	FB223	D5
C0211	A2	C0227	A8	C0243	A2	C2013	C7	C216	B1	C233	B3	C248	B4	C264	C5	C280	D6	C295	C7	C334	D8	C813	C3	D201	D4	FB208	B1	FB224	D4
C0212	A2	C0228	A8	C0244	C6	C202	B1	C217	B2	C234	B3	C249	B4	C265	C5	C281	D6	C296	C7	C335	D8	C815	C3	D202	D5	FB209	B1	FB225	A8
C0213	D3	C0229	A8	C0245	A3	C203	B1	C218	B1	C235	B3	C250	B4	C266	C5	C282	D6	C297	B7	C336	D8	CE1	A1	D203	D5	FB210	A2	FB226	A8
C0214	D4	C0230	A8	C0246	A3	C204	B1	C219	C7	C236	B3	C251	B4	C267	C5	C283	D6	C298	A6	C801	D1	CE2	A1	D204	D5	FB211	C4	FB227	C7
C0215	D4	C0231	A8	C2002	C8	C205	B1	C222	B2	C237	B3	C252	B4	C268	C5	C284	D6	C321	C7	C802	D2	CE3	A1	D801	D2	FB213	B4	FB228	C8

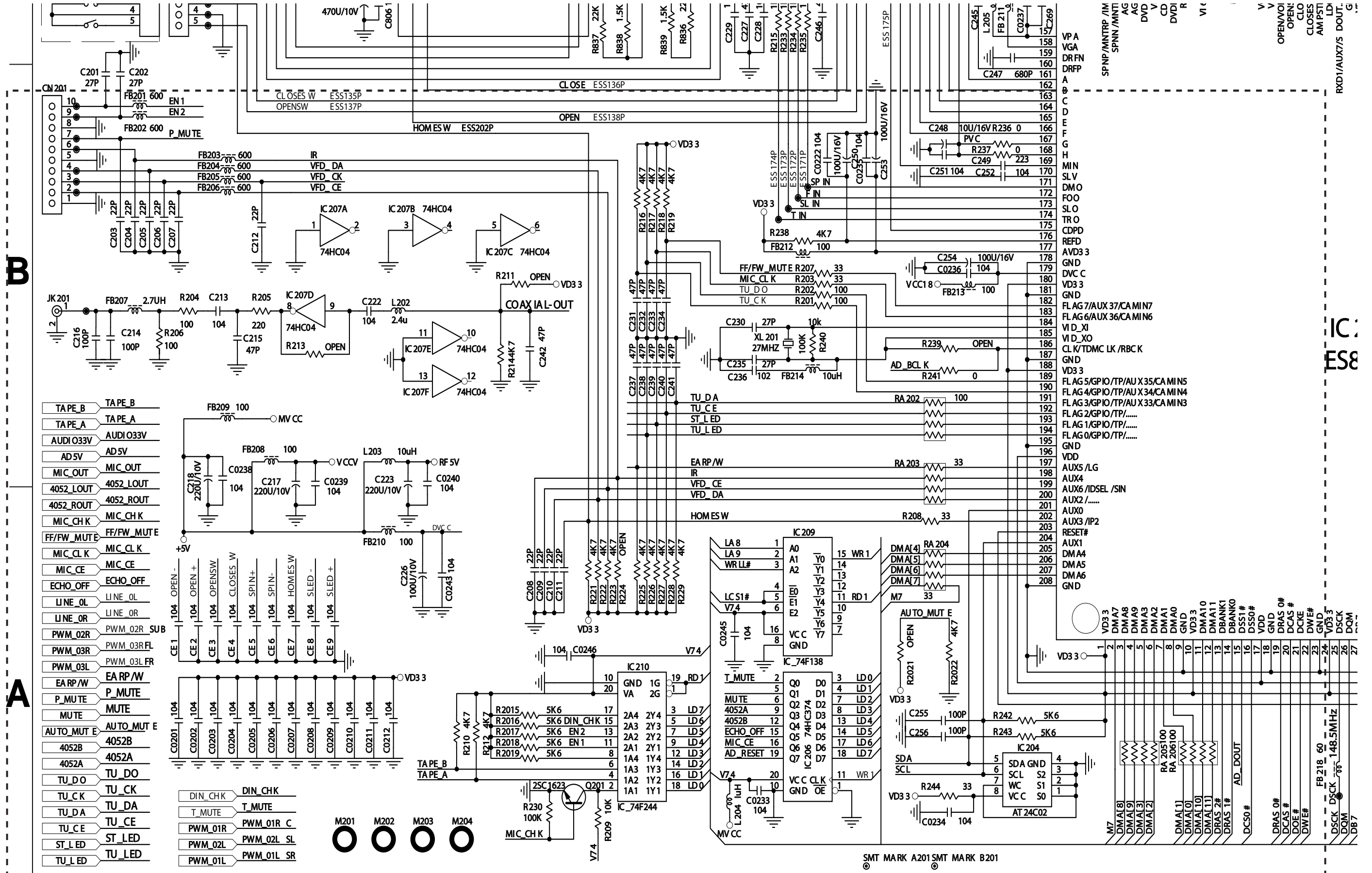


CIRCUIT DIAGRAM MAIN SERVO (TOP RIGHT)

FB229	C7	IC209	A3	L210	D6	Q805	D3	R208	A4	R226	A3	R243	A4	R260	C6	R278	C6	R329	D7	R809	C2	R827	C3	RA204	A4	ZD211	D6
FB301	D7	IC210	A3	L211	D6	Q806	D3	R209	A3	R227	A3	R244	A4	R261	C6	R279	B7	R330	D7	R810	C2	R828	C3	RA205	A5	ZD212	D6
FB302	D8	IC303	D8	L212	C7	R201	B4	R210	A2	R228	A3	R245	D5	R262	C6	R281	B7	R331	D7	R811	C2	R829	C3	RA206	A5		
FB303	D8	IC801	C2	L213	C7	R2015	A2	R212	A2	R230	A2	R247	D5	R263	C6	R282	B7	R332	D7	R812	C2	R830	C3	RA207	A8		
FB304	D8	JK201	B1	L214	C7	R2016	A2	R214	B2	R231	C4	R248	D5	R264	C5	R283	A7	R334	C8	R813	C2	R831	C3	XL201	B3		
FB801	D2	JK202	D6	L215	A8	R2017	A2	R215	C3	R232	C4	R249	D5	R265	C5	R284	C8	R335	D8	R814	C2	R832	C3	ZD201	D6		
FB802	C2	JK203	D6	L801	C3	R2018	A2	R216	B3	R233	C3	R250	D5	R266	C5	R285	C8	R336	D8	R815	C2	R833	C3	ZD202	D6		
FB803	D3	L202	B2	L802	C3	R2019	A2	R217	B3	R234	C3	R251	D5	R267	C5	R287	C8	R339	D8	R817	C1	R834	C3	ZD203	D6		
IC201	B6	L203	B2	Q201	A3	R202	B4	R218	B3	R235	C3	R252	C5	R268	C5	R288	C8	R801	C1	R819	D3	R835	C3	ZD204	D6		
IC202	A7	L204	A3	Q202	D5	R2022	A4	R219	B3	R236	B4	R253	C5	R269	C6	R289	A8	R802	C1	R820	D3	R836	C3	ZD205	D6		
IC203	B8	L205	C4	Q203	D5	R203	B4	R220	A8	R237	B4	R254	C5	R270	C7	R290	A8	R803	C1	R822	D3	R837	C3	ZD206	D6		
IC204	A4	L206	D6	Q801	D2	R204	B1	R221	A3	R239	B4	R255	C5	R271	C7	R291	A8	R805	D2	R823	D3	R838	C3	ZD207	D6		
IC205	A7	L207	D6	Q802	D2	R205	B1	R222	A3	R240	B3	R257	C5	R273	C7	R292	A8	R806	D2	R824	D3	R839	C3	ZD208	D6		
IC206	A3	L208	D6	Q803	C2	R206	B1	R223	A3	R241	B4	R258	C5	R274	C7	R327	D7	R807	C2	R825	C3	RA202	B4	ZD209	D6		
IC207	B2	L209	D6	Q804	C2	R207	B4	R225	A3	R242	A4	R259	C6	R275	C7	R328	D7	R808	C2	R826	C3	RA203	A4	ZD210	D6		



CIRCUIT DIAGRAM MAIN SERVO (BOTTOM LEFT)



B

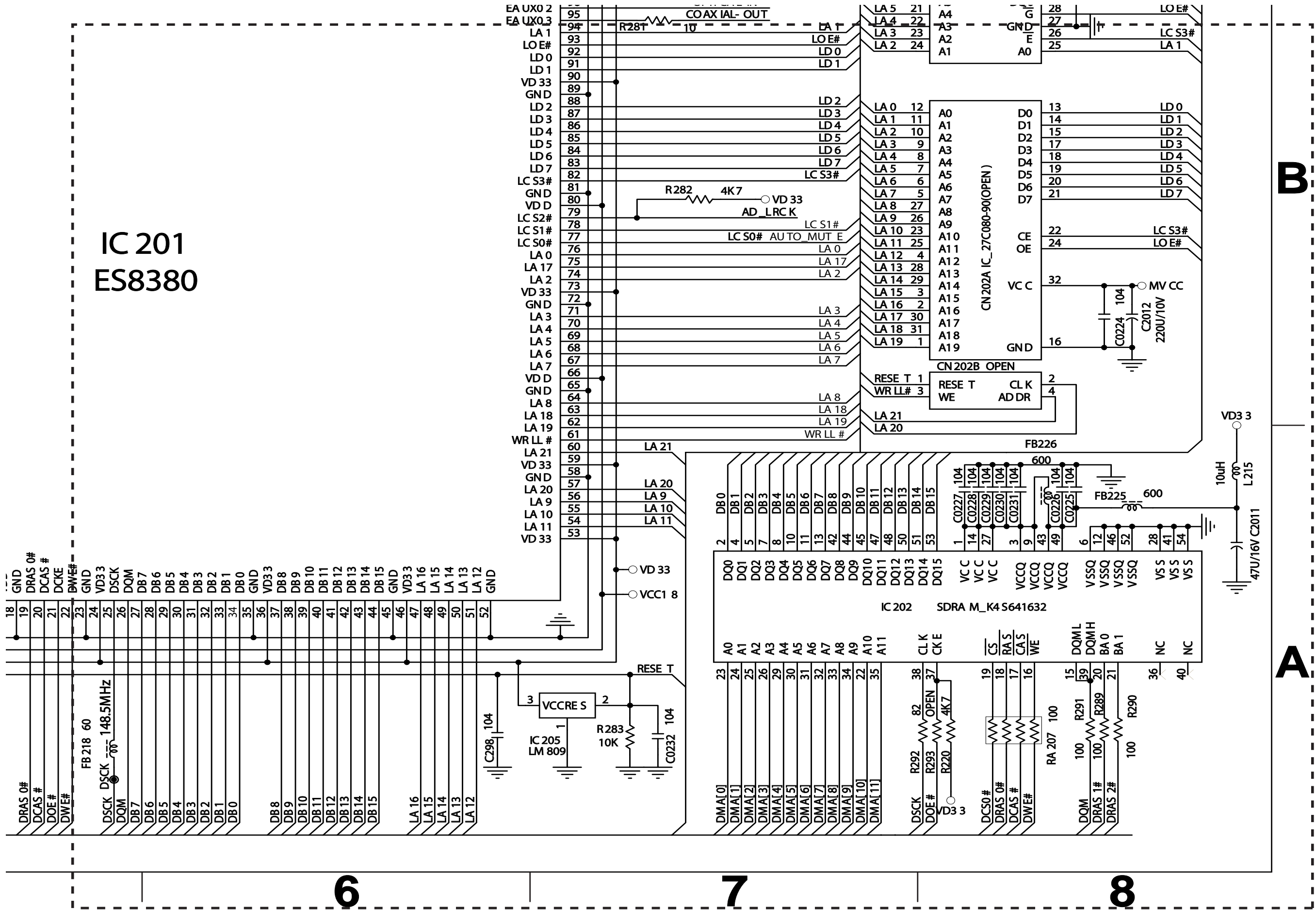
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IC: ES8

1 2 3 4 5

SMT MARK A201 SMT MARK B201

CIRCUIT DIAGRAM MAIN SERVO (BOTTOM RIGHT)



6

7

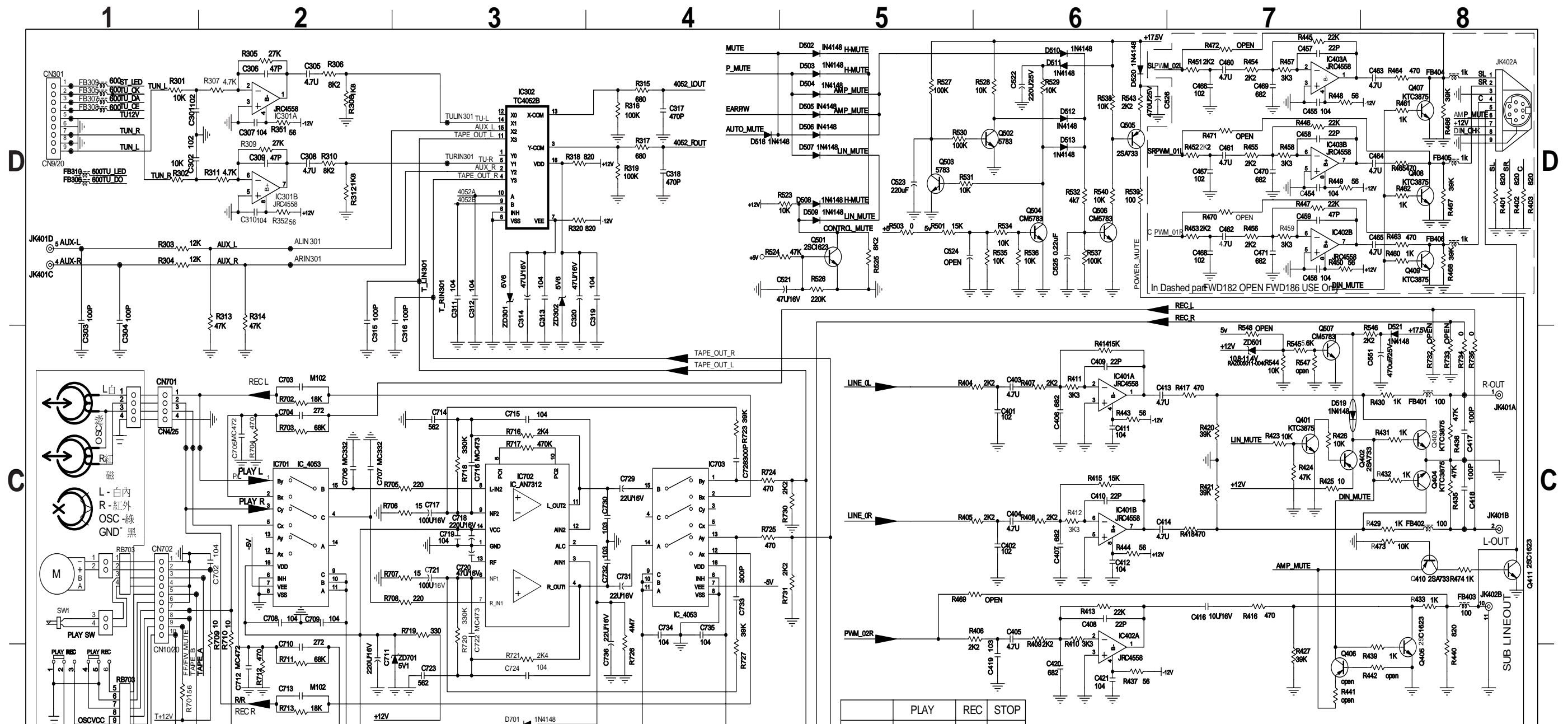
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B

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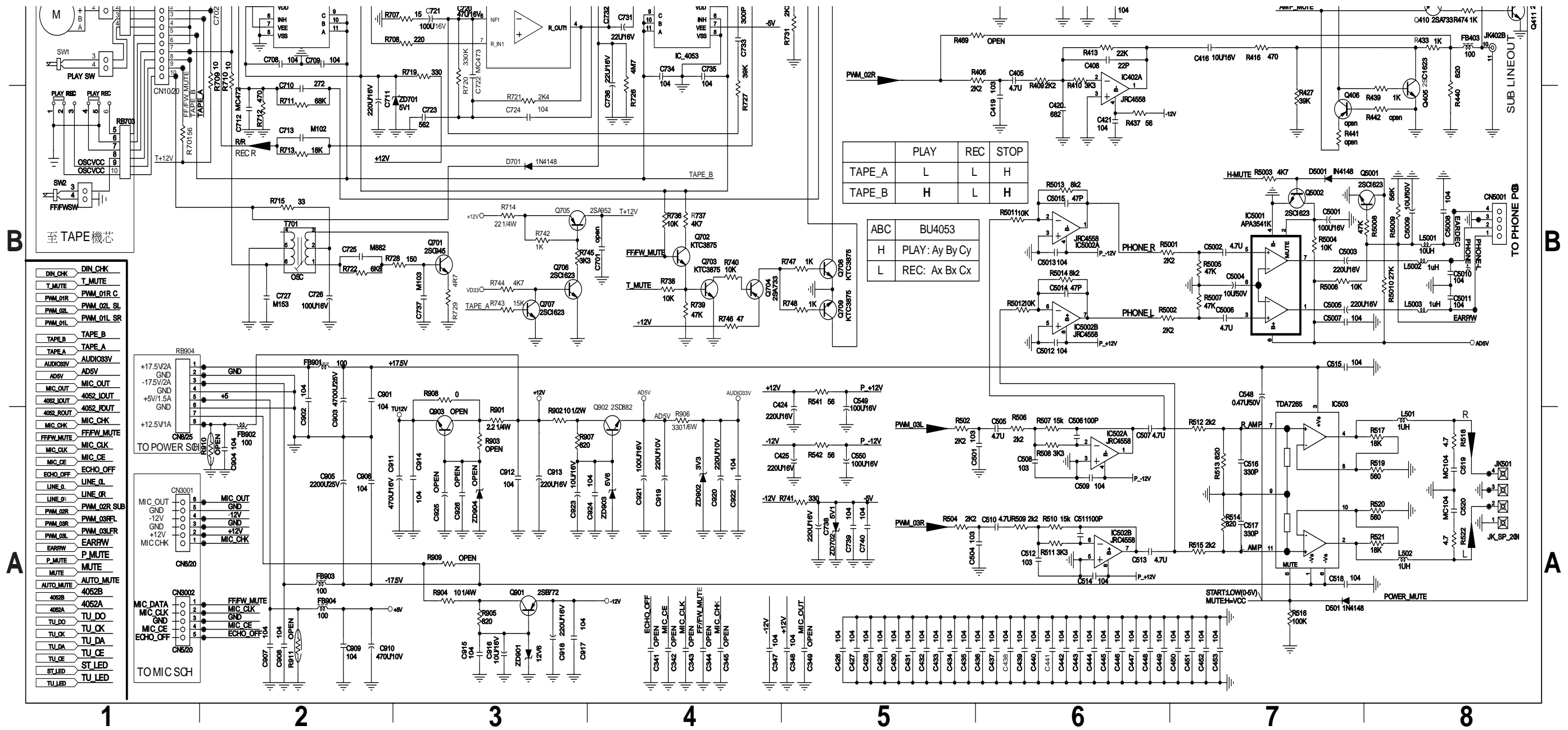
CIRCUIT DIAGRAM MAIN AMPLIFIER (TOP)

C301	D1	C316	D3	C409	C6	C427	A5	C442	A6	C5003	B7	C505	A6	C520	A6	C707	C2	C723	B3	C901	B2	C916	A3	D501	A7	D521	C8	IC302	D3	L501	A6
C302	D1	C317	D4	C410	C6	C428	A5	C443	A6	C5004	B7	C506	A6	C521	D5	C708	C2	C724	B3	C902	B2	C917	A3	D502	D5	D701	B3	IC401	C6	L502	A6
C303	C1	C318	D4	C411	C6	C429	A5	C444	A6	C5005	B7	C507	A6	C522	D6	C709	C2	C725	B2	C903	B2	C918	A3	D503	D5	FB305	D1	IC402	C6	Q401	C7
C304	C1	C319	D4	C412	C6	C430	A5	C445	A6	C5006	B7	C508	A6	C523	D5	C710	B2	C726	B2	C904	A2	C919	A4	D504	D5	FB306	D1	IC5001	B7	Q402	C7
C305	D2	C320	D3	C413	C6	C431	A5	C446	A6	C5007	B7	C509	A6	C525	D6	C711	B2	C727	B2	C905	A2	C920	A4	D505	D5	FB307	D1	IC5002	B6	Q403	C8
C306	D2	C347	A4	C414	C6	C432	A5	C447	A6	C5008	B8	C510	A6	C526	D6	C712	B2	C729	C4	C906	A2	C921	A4	D506	D5	FB308	D1	IC502	A6	Q404	C8
C307	D2	C348	A5	C416	C7	C433	A5	C448	A6	C5009	B8	C511	A6	C548	B7	C713	B2	C731	C4	C907	A2	C922	A4	D507	D5	FB309	D1	IC503	A7	Q405	B8
C308	D2	C401	C6	C417	C8	C434	A5	C449	A6	C5010	B8	C512	A6	C549	A5	C714	C3	C733	C4	C908	A2	C923	A3	D508	D5	FB401	C8	IC701	C2	Q410	C8
C309	D2	C402	C6	C418	C8	C435	A5	C450	A7	C5010	B8	C513	A6	C550	A5	C715	C3	C734	C4	C909	A2	C924	A4	D509	D5	FB402	C8	IC703	C4	Q5001	B8
C310	D2	C403	C6	C419	B6	C436	A6	C451	A7	C5011	B8	C514	A6	C551	C8	C717	C3	C735	C4	C910	A2	CN3001	A1	D510	D6	FB403	C8	JK401	D1	Q5002	B7
C311	D3	C404	C6	C420	B6	C437	A6	C452	A7	C5012	B6	C515	B7	C702	C2	C718	C3	C736	C4	C911	A3	CN301	D1	D511	D6	FB901	B2	JK402	D8	Q501	D5
C312	D3	C405	C6	C421	B6	C438	A6	C453	A7	C5013	B6	C516	A7	C703	C2	C719	C3	C737	B3	C912	A3	CN5001	B8	D512	D6	FB902	A2	JK501	A6	Q502	D6
C313	D3	C406	C6	C424	A5	C439	A6	C456	D7	C5014	B6	C517	A7	C704	C2	C720	C3	C738	A5	C913	A3	CN701	C1	D513	D6	FB903	A2	L5001	B8	Q503	D5
C314	D3	C407	C6	C425	A5	C440	A6	C5001	B7	C5015	B6	C518	A7	C705	C2	C721	C3	C739	A5	C914	A3	CN702	C1	D519	C7	FB904	A2	L5002	B8	Q504	D6
C315	D2	C408	C6	C426	A5	C441	A6	C5002	B7	C504	A6	C519	A6	C706	C2	C722	C3	C740	A5	C915	A3	D5001	B7	D520	D6	IC301	D2	L5003	B8	Q505	D6



CIRCUIT DIAGRAM MAIN AMPLIFIER (BOTTOM)

Q506	D6	R303	D1	R320	D3	R417	C7	R436	C8	R5006	B7	R509	A6	R524	D5	R540	D6	R709	C2	R727	B4	R744	B3	ZD302	D3
Q507	C7	R304	D1	R351	D2	R418	C7	R437	B6	R5007	B7	R510	A6	R525	D5	R541	A5	R710	C2	R728	B3	R746	B4	ZD501	C7
Q701	B3	R305	D2	R352	D2	R420	C7	R439	B8	R5008	B8	R511	A6	R526	D5	R542	A5	R711	B2	R729	B3	R747	B5	ZD701	B3
Q702	B4	R306	D2	R404	C6	R421	C7	R440	B8	R5009	B8	R512	A7	R527	D5	R543	D6	R712	B2	R730	C5	R748	B5	ZD702	A5
Q704	B4	R310	D2	R406	C6	R424	C7	R443	C6	R5010	B8	R514	A7	R529	D6	R545	C7	R714	B3	R734	C8	R902	A3	ZD902	A4
Q705	B3	R311	D2	R407	C6	R425	C7	R444	C6	R5011	B6	R515	A7	R530	D5	R546	C8	R716	C3	R735	C8	R904	A3	ZD903	A4
Q706	B3	R312	D2	R408	C6	R426	C7	R450	D7	R5013	B6	R516	A7	R531	D5	R701	B1	R717	C3	R736	B4	R905	A3		
Q707	B3	R313	D2	R409	C6	R427	B7	R473	C8	R5014	B6	R517	A6	R532	D6	R702	C2	R719	C3	R737	B4	R906	A4		
Q708	B5	R314	D2	R410	C6	R429	C8	R474	C8	R502	A5	R518	A6	R534	D6	R703	C2	R720	C3	R738	B4	R907	A3		
Q709	B5	R315	D4	R411	C6	R430	C8	R5001	B6	R503	D5	R519	A6	R535	D6	R704	C2	R721	B3	R739	B4	R908	B3		
Q901	A3	R316	D4	R412	C6	R431	C8	R5002	B6	R504	A5	R520	A6	R536	D6	R705	C3	R722	B2	R740	B4	RB703	C1		
Q902	A4	R317	D4	R413	C6	R432	C8	R5003	B7	R506	A6	R521	A6	R537	D6	R706	C3	R724	C4	R741	A5	RB904	B1		
R301	D1	R318	D3	R415	C6	R433	C8	R5004	B7	R507	A6	R522	A6	R538	D6	R707	C3	R725	C4	R742	B3	T701	B2		
R302	D1	R319	D4	R416	C7	R435	C8	R5005	B7	R508	A6	R523	D5	R539	D6	R708	C3	R726	C4	R743	B3	ZD301	D3		

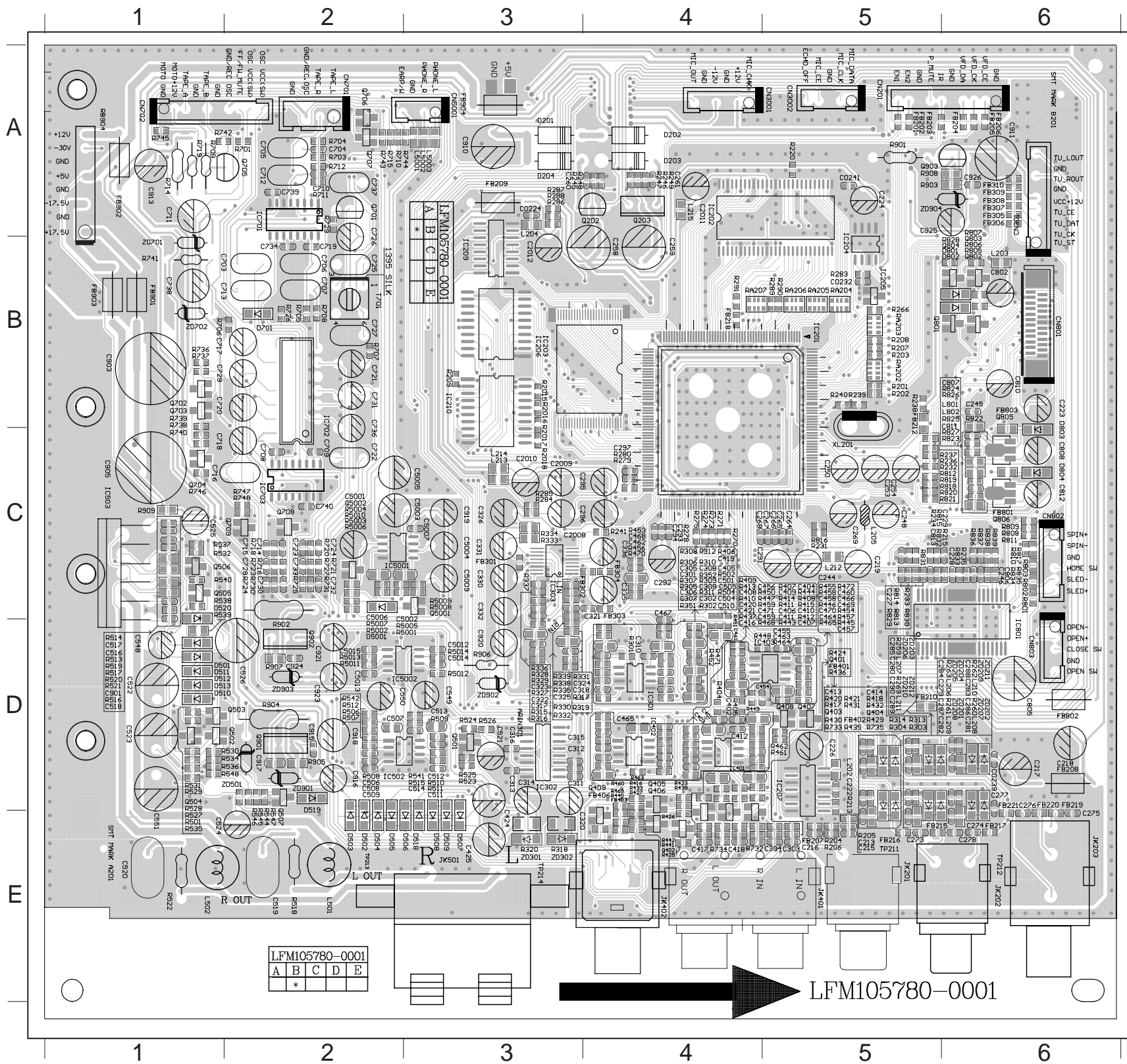


DIN_CHK	DIN_CHK
T_MUTE	T_MUTE
PWM_O1R	PWM_O1R_C
PWM_O2L	PWM_O2L_SL
PWM_O1L	PWM_O1L_SR
TAPE_B	TAPE_B
TAPE_A	TAPE_A
AUDIO33V	AUDIO33V
AD5V	AD5V
MIC_OUT	MIC_OUT
4052_IOUT	4052_IOUT
4052_ROUT	4052_ROUT
MIC_CHK	MIC_CHK
FFFW_MUTE	FFFW_MUTE
MIC_CLK	MIC_CLK
MIC_CE	MIC_CE
ECHO_OFF	ECHO_OFF
LINE_IL	LINE_IL
LINE_OR	LINE_OR
PWM_O2R_SUB	PWM_O2R_SUB
PWM_O3RFL	PWM_O3RFL
PWM_O3LFR	PWM_O3LFR
EARRW	EARRW
P_MUTE	P_MUTE
MUTE	MUTE
AUTO_MUTE	AUTO_MUTE
4052B	4052B
4052A	4052A
TU_DO	TU_DO
TU_OK	TU_OK
TU_DA	TU_DA
TU_CE	TU_CE
ST_LED	ST_LED
TU_LED	TU_LED

PLAY	REC	STOP
TAPE_A	L	L
TAPE_B	H	L

ABC	BU4053
H	PLAY: Ay By Cy
L	REC: Ax Bx Cx

PCB LAYOUT: MAIN (TOP) VIEW



C0224	A3	C318	D3	C711	A1	D519	D2	L212	C5	R271	C4	R443	D4	R726	B2	ZD702	B1
C0232	B5	C320	E3	C712	A2	D520	C1	L214	C3	R273	C4	R444	D4	R727	C2	ZD901	D2
C0239	D6	C321	C4	C713	B2	D701	B2	L215	B4	R274	C4	R450	D4	R729	A2	ZD902	D3
C0241	A5	C322	D3	C714	C2	D801	B6	L5001	A3	R275	C4	R5001	C2	R730	C2	ZD903	D2
C2008	C3	C324	D3	C715	C2	D802	B6	L5002	A3	R278	C4	R5002	C2	R731	C2		
C2009	C3	C326	C3	C716	C2	D803	C6	L5003	A3	R279	C4	R5003	C2	R734	E4		
C2010	C3	C330	C3	C717	B2	D804	C6	L501	E2	R283	B5	R5004	C2	R735	D5		
C2011	A4	C331	C3	C718	C2	FB201	A5	L502	E1	R284	C3	R5005	C2	R736	B1		
C2012	B3	C332	C3	C719	B2	FB202	A5	L801	B5	R285	C3	R5006	C2	R737	B1		
C213	E5	C335	C4	C720	B2	FB203	A6	L802	B5	R286	A3	R5007	C2	R738	C1		
C215	A4	C336	C4	C721	B2	FB204	A6	Q202	A4	R287	A3	R5008	C3	R739	C1		
C215	E5	C401	D4	C722	C2	FB205	A6	Q203	A4	R288	A3	R5009	C3	R740	C1		
C216	E5	C402	D4	C723	C2	FB206	A6	Q401	D5	R289	B5	R501	D1	R741	B1		
C217	D6	C403	D4	C724	C2	FB207	E5	Q402	E4	R290	B5	R5010	C2	R742	A1		
C218	D6	C404	D4	C725	B2	FB208	D6	Q403	D5	R291	B4	R5011	D2	R743	A2		
C219	C5	C405	D4	C726	A2	FB209	A3	Q404	D5	R301	D4	R5012	D3	R745	A1		
C222	E5	C406	D4	C727	B2	FB210	D5	Q405	D4	R302	D4	R5013	D2	R746	C1		
C223	B6	C407	D4	C728	C2	FB212	B5	Q5001	C3	R303	D5	R5014	D3	R747	C2		
C224	A5	C408	D4	C729	B2	FB215	E5	Q5002	C2	R304	D5	R502	D4	R748	C2		
C226	D5	C409	D4	C730	C2	FB216	E5	Q501	D3	R305	D4	R504	D4	R801	C6		
C227	C5	C410	D5	C731	B2	FB217	E6	Q502	D1	R306	D4	R506	D2	R802	C6		
C228	C5	C411	D4	C732	C2	FB218	B4	Q503	D1	R307	D4	R507	D2	R803	C6		
C229	C5	C412	D4	C733	C2	FB220	E6	Q504	D1	R308	D4	R508	D2	R805	B6		
C244	C5	C413	D5	C734	B2	FB221	E6	Q505	C1	R309	D4	R509	D3	R806	B6		
C245	B6	C414	D5	C736	B2	FB301	C3	Q506	C1	R310	D4	R510	D3	R807	B6		
C246	C6	C416	D4	C737	A2	FB302	C4	Q507	D2	R311	D4	R511	D3	R808	C6		
C248	C5	C417	E4	C738	B1	FB303	C4	Q701	A2	R312	D4	R512	D2	R809	C6		
C250	C5	C418	E4	C739	A2	FB304	C4	Q702	B1	R313	D5	R513	D1	R810	C6		
C253	C5	C419	D4	C740	C2	FB305	A6	Q703	B1	R314	D5	R514	D1	R811	C6		
C254	C5	C420	D4	C802	B6	FB307	A6	Q704	C1	R315	D3	R515	D3	R812	C5		
C258	B4	C421	D4	C805	D6	FB308	A6	Q705	A2	R316	D3	R516	D1	R813	C5		
C259	B4	C424	E3	C806	C6	FB309	A6	Q706	A2	R317	D3	R517	D1	R814	C5		
C260	A4	C425	E3	C807	B6	FB401	D5	Q707	A2	R318	E3	R518	E2	R815	C5		
C261	A4	C456	D4	C808	C6	FB402	D5	Q708	C2	R319	D3	R519	D1	R817	C6		
C266	C5	C5001	C2	C810	B6	FB403	D4	Q709	C2	R320	E3	R520	D1	R819	C5		
C267	C5	C5002	C2	C811	B6	FB801	C6	Q801	B6	R327	C3	R521	D1	R820	C5		
C268	C4	C5003	C2	C812	C6	FB802	D6	Q802	B6	R328	C3	R522	E1	R822	B6		
C269	C5	C5004	C3	C813	C5	FB803	B6	Q803	B6	R329	C3	R523	D3	R824	C6		
C273	E5	C5005	C2	C901	D1	FB901	B1	Q804	B6	R330	C3	R524	D3	R828	B6		
C274	E6	C5006	C2	C903	B1	FB902	A1	Q805	B6	R331	D3	R525	D3	R829	C5		
C275	E6	C5007	C3	C905	C1	FB903	B1	Q806	C6	R332	D3	R526	D3	R830	C5		
C276	E6	C5009	C3	C910	A3	FB904	A3	Q901	D2	R334	C3	R527	D1	R831	C5		
C277	D6	C501	D4	C911	A6	IC201	B5	Q902	D2	R335	C3	R528	D1	R832	C5		
C278	E6	C5012	D3	C913	A1	IC202	A4	R201	B5	R336	C3	R529	D1	R833	C6		
C279	D6	C5013	D2	C915	D2	IC203	B3	R2015	B3	R339	C3	R530	D1	R835	C6		
C280	D5	C5014	D3	C916	D2	IC204	B5	R2016	B3	R351	D4	R531	D1	R836	C6		
C281	D6	C5015	D2	C917	D2	IC205	B5	R2017	B3	R352	D4	R532	C1	R837	C6		
C282	D6	C504	D4	C918	D2	IC206	B3	R2018	C3	R404	D4	R534	D1	R838	C6		
C283	D6	C505	D4	C919	C3	IC207	D5	R202	B5	R405	D4	R535	D1	R839	C6		
C284	D6	C506	D2	C920	D3	IC209	B3	R203	B5	R406	D4	R536	D1	R901	A5		
C285	D5	C507	D2	C921	D2	IC210	B3	R204	E5	R407	D4	R537	C1	R902	C2		
C286	D6	C508	D2	C923	D2	IC301	D4	R205	E5	R408	D4	R538	C1	R904	D2		
C287	D6	C509	D2	C924	D2	IC302	D3	R206	E5	R409	D4	R539	C1	R905	D2		
C288	D6	C510	D4	CN201	A5	IC303	C3	R207	B5	R410	D4	R540	C1	R906	D3		
C289	D5	C511	D3	CN3001	A4	IC401	D4	R208	B5	R411	D4	R541	D3	R907	D2		
C290	D5	C512	D3	CN301	A6	IC402	D4	R209	B3	R412	D4	R542	D2	R908	A6		
C291	C5	C513	D3	CN5001	A3	IC5001	C2	R215	C5	R413	D4	R544	D2	RA202	B5		
C292	C4	C514	D3	CN701	A2	IC5002	D2	R220	A5	R414	D4	R545	D2	RA203	B5		
C293	C4	C516	D1	CN702	A1	IC502	D2	R231	C5	R415	D4	R546	D2	RA204	B5		
C294	C4	C517	D1	CN801	B6	IC503	C1	R232	C5	R416	D4	R547	D2	RA205	B5		
C295	C4	C518	D1	CN802	B6	IC701	A2	R233	C5	R417	D5	R703	A2	RA206	B5		
C296	C4	C519	E2	CN803	D6	IC702	B2	R234	C5	R418	D5	R704	A2	RA207	B4		
C297	C4	C520	E1	D201	A3	IC703	C2	R235	C6	R420	D5	R705	B2	T701	B2		
C301	D4	C521	D3	D202	A4	IC801	C6	R236	C5	R421	D5	R706	B2	XL201	C5		
C302	D4	C522	D1	D203	A4	JK201	E5	R237	C5	R423	D4	R707	B2	ZD201	D6		
C303	E5	C523	D1	D204	A3	JK202	E6	R238	B5	R424	D5	R708	B2	ZD202	D6		
C304	E5	C525	C1	D5001	C2	JK203	E6	R240	B5	R425	E4	R709	A1	ZD203	D5		
C305	D4	C526	D2	D501	D1	JK401	E5	R241	C4	R426	E4	R710	A2	ZD204	D6		
C306	D4	C548	D1	D502	E2	JK402	E4	R245	A4	R427	D4	R711	A2	ZD205	D6		
C307	D4	C549	D3	D503	E2	JK501	E3	R247	A4	R429	D5	R712	A2	ZD206	D5		
C308	D4	C550	D2	D504	E2	L202	E5	R248	A4	R430	D5	R714	A1	ZD207	D6		
C309	D4	C551	D1	D505	E2	L203	B6	R249	A4	R431	D5	R715	A2	ZD208	D6		
C310	D4	C703	B2	D506	E3	L204	B3	R259	D5	R432	D5	R716	C2	ZD209	D6		
C311	D3	C704	A2	D507	E3	L205	C5	R260	D6	R433	D4	R718	C1	ZD210	D5		
C312	D3	C705	A2	D508	E3	L206	D6	R261	D6	R435	D5	R719	A1	ZD211	D6		
C313	D3	C706	B2	D509	E3	L207	D5	R262	D6	R436	D5	R720	C2	ZD212	D5		
C314	D3	C707	B2	D510	D1	L208	D6	R263	D6	R437	D4	R721	C2	ZD301	E3		
C315	D3	C708	C2	D511	D1	L209	D6	R266	B5	R439	D4	R723	C2	ZD302	E3		
C316	D3	C709	C2	D512	D1	L210	D6	R269	D5	R440	D4	R724	C2	ZD501	D2		
C317	D3	C710	A2	D513	D1	L211	D5	R270	C4	R442	E4	R725	C2	ZD701	B1		

VOLTAGE

IC201 ES8380FAA																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Voltage	3.30	1.67	0.05	0.03	1.51	0.28	0.46	0.04	0.00	3.30	0.16	0.15	0.15	3.65	2.95	1.45	
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Voltage	3.30	3.19	0.00	3.30	1.78	0.97	0.97	1.09	0.97	0.97	0.97	0.97	0.97	0.00	3.30	0.97	
Pin NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
Voltage	0.97	1.00	1.11	0.97	0.00	3.30	0.00	1.86	0.07	2.20	2.20	0.00	3.30	2.15	1.07	3.48	0.00
Pin NO	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
Voltage	3.61	0.00	0.00	3.23	0.03	1.59	3.30	3.30	3.30	3.30	3.30	0.00	3.30	3.30	3.30	3.30	3.30
Pin NO	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
Voltage	0.00	3.30	0.73	0.36	0.36	0.72	0.72	0.00	3.30	0.33	0.33	0.00	3.30	3.30	3.30	3.30	3.30
Pin NO	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117
Voltage	1.10	1.10	0.00	3.30	0.00	1.50	3.30	1.34	1.34	0.00	3.30	0.00	1.50	1.50	1.30	1.50	1.50
Pin NO	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137
Voltage	0.00	1.50	1.45	1.50	1.50	1.50	1.50	0.00	3.30	0.00	3.30	0.00	3.30	0.46	3.30	0.00	3.30
Pin NO	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157
Voltage	0.23	0.00	0.00	0.00	1.28	1.00	1.00	0.00	2.63	3.30	1.29	0.23	0.24	0.23	1.59	1.34	3.30
Pin NO	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177
Voltage	1.83	0.00	0.00	1.83	0.00	1.75	0.00	2.04	1.55	3.30	1.61	1.61	1.61	1.61	0.00	2.41	3.30
Pin NO	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197
Voltage	0.00	1.38	36.30	1.87	1.91	3.30	0.00	3.30	3.30	3.30	3.30	3.30	3.30	3.30	0.00	1.40	0.00
Pin NO	201	202	203	204	205	206	207	208									
Voltage	3.30	3.30	3.30	3.30	1.28	1.45	1.31	0.00									

IC202 K4S641632H-UC60																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Voltage	3.3	0.91	3.3	0.95	1.18	0	0.98	0.95	3.3	0.98	1.1	0	0.98	3.3	0	3.3	3.3
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Voltage	0	0	0	0.66	0.33	1.51	3.3	0	1.66	1.45	1.33	1.68	0	0	0	0	3.3
Pin NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54			
Voltage	0	0.57	3.3	0.57	0.57	0	0.57	1.55	3.3	1.57	1.47	0	1.28	0			

IC203 MX26LV800BTC																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Voltage	0.00	1.81	0.07	2.16	2.08	2.07	1.03	2.25	3.30	3.30	3.30	3.30	3.30	3.30	3.30	0.00	0.00
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Voltage	1.71	1.71	1.71	1.63	1.53	0.00	0.00	0.00	0.75	0.00	0.00	0.00	1.17	0.00	0.82	0.00	3.30
Pin NO	41	42	43	44	45	46	47	48									
Voltage	0.00	1.48	0.00	1.31	1.69	0.00	0.00	0.00									

IC204 TU24C02CS2BF																	
Pin NO	1	2	3	4	5	6	7	8									
Voltage	0.00	0.00	0.00	0.00	3.30	3.30	0.00	3.30									

IC205 AZ809NSTR-E1																	
Pin NO	1	2	3														
Voltage	3.30	0.00	3.30														

IC206 74HC374																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Voltage	0.00	5.00	0.00	1.50	5.00	0.00	1.19	0.84	0.00	0.00	5.00	0.00	1.45	1.77	5.00	5.00	1.49

Q201 2SC1623			
Pin NO	1	2	3
Voltage	4.66	0.49	0.00

Q411 2SC1623			
Pin NO	1	2	3
Voltage	0.00	0.28	0.00

Q701 2SC945P			
Pin NO	1	2	3
Voltage	0.23	0.23	0.00

Q801 2SK3018			
Pin NO	1	2	
Voltage	0.00	4.69	

Q202 2SC1623			
Pin NO	1	2	3
Voltage	3.28	3.38	4.07

Q5001 2SC1623			
Pin NO	1	2	3
Voltage	1.05	0.00	0.00

Q702 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.72	0.72	1.40

Q802 2SK3018			
Pin NO	1	2	
Voltage	1.10	0.00	

Q203 2SB772P/Q			
Pin NO	1	2	3
Voltage	2.14	1.51	1.47

Q5002 2SC1623			
Pin NO	1	2	3
Voltage	0.00	0.60	0.00

Q703 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.00	0.00	0.72

Q803 2SC2812N			
Pin NO	1	2	
Voltage	0.00	0.61	

Q401 KTC3875-Y			
Pin NO	1	2	3
Voltage	12.00	0.00	0.00

Q501 2SC1623			
Pin NO	1	2	3
Voltage	0.00	0.60	0.00

Q704 2SA812			
Pin NO	1	2	3
Voltage	11.38	10.71	11.67

Q804 2SC2812N			
Pin NO	1	2	
Voltage	4.68	0.00	

Q402 2SA812			
Pin NO	1	2	3
Voltage	-0.26	12.27	12.86

Q502 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.00	0.61	0.00

Q705 2SA952			
Pin NO	1	2	3
Voltage	12.85	0.00	12.85

Q805 2SB1132RT			
Pin NO	1	2	
Voltage	0.51	3.37	

Q403 KTC3875			
Pin NO	1	2	3
Voltage	0.00	-0.23	0.00

Q503 KTC3875-Y			
Pin NO	1	2	3
Voltage	8.80	0.09	0.00

Q706 2SC1623			
Pin NO	1	2	3
Voltage	12.83	0.00	0.00

Q806 2SB1132RT			
Pin NO	1	2	
Voltage	0.51	3.37	

Q404 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.00	-0.23	0.00

Q504 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.09	0.60	0.00

Q707 2SC1623			
Pin NO	1	2	3
Voltage	0.00	0.00	0.63

Q901 2SB1132RT			
Pin NO	1	2	
Voltage	-13.35	-28.1	

Q405 2SC1623			
Pin NO	1	2	3
Voltage	0.00	0.46	0.00

Q505 2SA812			
Pin NO	1	2	3
Voltage	-0.74	19.13	18.94

Q708 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.00	0.75	0.00

Q902 2SD882P			
Pin NO	1	2	
Voltage	5.20	12.67	

Q410 2SA812			
Pin NO	1	2	3
Voltage	0.26	0.00	0.00

Q506 KTC3875			
Pin NO	1	2	3
Voltage	19.11	0.02	0.00

Q709 KTC3875-Y			
Pin NO	1	2	3
Voltage	0.00	0.76	0.00

IC207 74HCU04D																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
Voltage	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00			

IC209 N74F138D																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Voltage	1.60	2.20	3.30	3.30	3.30	5.00	5.00	0.00	4.59	4.59	4.59	4.60	4.60	4.60	4.60	5.00	

IC210 74F244																	
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Voltage	4.60	4.90	1.29	4.02	1.50	5.08	1.77	5.08	1.45	0	0.07	0.84	4.97	1.19</			

ELECTRICAL PARTS LIST - MAIN BOARD

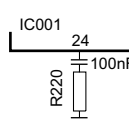
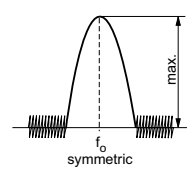
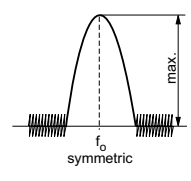
D201	9940 000 05203	DIODE UF4007	JK203	9940 000 00857	RCA JACK 3P R-B-G
D202	9940 000 05203	DIODE UF4007	JK401	9940 000 00859	RCA JACK 4P AUDIO IN
D203	9940 000 05203	DIODE UF4007	JK402	9940 000 05202	RCA JACK 1P BLK
D204	9940 000 05203	DIODE UF4007	JK501	9940 000 00862	SPK JACK 4P R-W-B-B
D5001	4822 130 83338	LL4148	L501	9965 000 20655	RF COIL 1μH
D501	4822 130 83338	LL4148	L502	9965 000 20655	RF COIL 1μH
D502	4822 130 83338	LL4148	Q201	9940 000 00915	XISTR NPN 2SC1623
D503	4822 130 83338	LL4148	Q202	9965 000 26939	XISTR PNP 2SA952
D504	4822 130 83338	LL4148	Q203	9965 000 26946	XISTR PNP 2SB772P/Q
D505	4822 130 83338	LL4148	Q401	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D506	4822 130 83338	LL4148	Q402	9940 000 00921	XISTR PNP 2SA812
D507	4822 130 83338	LL4148	Q403	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D508	4822 130 83338	LL4148	Q404	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D509	4822 130 83338	LL4148	Q405	9940 000 00915	XISTR NPN 2SC1623
D510	4822 130 83338	LL4148	Q410	9940 000 00921	XISTR PNP 2SA812
D511	4822 130 83338	LL4148	Q411	9940 000 00915	XISTR NPN 2SC1623
D512	4822 130 83338	LL4148	Q5001	9940 000 00915	XISTR NPN 2SC1623
D513	4822 130 83338	LL4148	Q5002	9940 000 00915	XISTR NPN 2SC1623
D701	4822 130 83338	LL4148	Q501	9940 000 00915	XISTR NPN 2SC1623
D801	4822 130 83338	LL4148	Q502	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D802	4822 130 83338	LL4148	Q503	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D803	4822 130 83338	LL4148	Q504	9965 000 13683	TRANSISTOR KTC3875Y-RTK
D804	4822 130 83338	LL4148	Q505	9940 000 00921	XISTR PNP 2SA812
IC201	9940 000 05207	IC 208P ES8380FAA	Q506	9965 000 13683	TRANSISTOR KTC3875Y-RTK
IC202	9940 000 00831	IC 54P K4S641632H-UC	Q701	4822 130 41198	2SC945P
IC203	9965 000 26936	IC 48P MX26LV800BTC	Q702	9965 000 13683	TRANSISTOR KTC3875Y-RTK
IC204	9940 000 05208	IC 8P TU24C02CS2BF	Q703	9965 000 13683	TRANSISTOR KTC3875Y-RTK
IC205	9940 000 05209	IC 3P AZ809NSTR-E1	Q704	9940 000 00921	XISTR PNP 2SA812
IC206	9940 000 05211	IC 20P 74HC374	Q705	9965 000 26939	XISTR PNP 2SA952
IC207	9965 000 23948	IC 14P 74HCU04D	Q706	9940 000 00915	XISTR NPN 2SC1623
IC209	9940 000 00839	IC 16PIN 74F138D	Q707	9940 000 00915	XISTR NPN 2SC1623
IC210	9940 000 00838	IC 20PIN 74F244	Q708	9965 000 13683	TRANSISTOR KTC3875Y-RTK
IC301	9965 000 29611	IC 8P CO4558A	Q709	9965 000 13683	TRANSISTOR KTC3875Y-RTK
IC302	9940 000 00841	IC 16P TC4052BFN	Q801	9940 000 05228	MOSFET 2SK3018 30V/0.1A
IC303	9940 000 05212	IC 16P CS5340-CZ	Q802	9940 000 05228	MOSFET 2SK3018 30V/0.1A
IC401	9965 000 29611	IC 8P CO4558A	Q803	9965 000 26928	XISTR NPN 2SC2812N
IC402	9965 000 29611	IC 8P CO4558A	Q804	9965 000 26928	XISTR NPN 2SC2812N
IC5001	9965 000 26923	IC 8P APA3541-TRL	Q805	9965 000 26927	XISTR PNP 2SB1132RT100
IC5002	9965 000 29611	IC 8P CO4558A	Q806	9965 000 26927	XISTR PNP 2SB1132RT100
IC502	9965 000 29611	IC 8P CO4558A	Q901	9965 000 26946	XISTR PNP 2SB772P/Q
IC503	9965 000 15892	IC TDA7265	Q902	9965 000 28742	XISTR NPN 2SD882P
IC701	9965 000 29612	IC 16PIN TC4053BFN	RA202	9940 000 05229	RES.ARRAY 100Ω 1/16W 5%
IC702	9940 000 05213	IC 14P AN7312 MEI	RA203	9940 000 05231	RES.ARRAY 33Ω 1/16W 5%
IC703	9965 000 29612	IC 16PIN TC4053BFN	RA204	9940 000 05231	RES.ARRAY 33Ω 1/16W 5%
IC801	9940 000 05214	IC 28P V5888S	RA205	9940 000 05229	RES.ARRAY 100Ω 1/16W 5%
JK201	9965 000 17363	RCA JACK 1P W/GND P	RA206	9940 000 05229	RES.ARRAY 100Ω 1/16W 5%
JK202	9965 000 23599	RCA+DIN JK 1RCA+4P DIN	RA207	9940 000 05229	RES.ARRAY 100Ω 1/16W 5%

ELECTRICAL PARTS LIST - MAIN BOARD

T701	9940 000 00866	OSC COIL REC 3MH
XL201	9940 000 05201	X'TAL 27MHZ H3.5MM
ZD201	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD202	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD203	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD204	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD205	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD206	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD207	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD208	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD209	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD210	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD211	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD212	9965 000 26931	ZENER 7.5V 0.05 0.5W (F1)
ZD301	9965 000 26930	ZENER 5.6V 0.05 0.5W (E2)
ZD302	9965 000 26930	ZENER 5.6V 0.05 0.5W (E2)
ZD701	9965 000 26942	DIODE ZENR 5.0-5.2V 0.5W
ZD702	9965 000 26942	DIODE ZENR 5.0-5.2V 0.5W
ZD901	9940 000 05204	DIODE ZENR 12.6-13.1V 0.5W
ZD902	9940 000 05205	DIODE ZENR 3.2-3.4V 0.5W
ZD903	9940 000 05206	DIODE ZENR 5.6-5.9V 0.5W

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

TUNER ADJUSTMENT TABLE

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
<i>VARICAP ALIGNMENT</i>						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check		7.5V ±1V
			87.5MHz	check		1.4V ±0.2V
MW 531-1602kHz (9kHz grid) 530-1700kHz (10kHz grid) (98/ 55/ 51)			1602KHz	check		7.2V ±1V
			531KHz	T005		1.1V ±0.2V
			1700KHz	check		7.2V ±1V
			531KHz	T005		1.1V ±0.2V
<i>FM - RF</i>						
FM	108MHz		106MHz	VC001	MAX	MAX
	87.5MHz	mod=1kHz Δf=±22.5kHz	90.1MHz	L001		
<i>AM IF</i>						
AM	450kHz	Δf = ±15kHz V _{RF} = 3mV		T001 T002	MAX	
AM AFC MW		ΔV=mV		T003		
<i>AM RF 3)</i>						
MW	1404kHz		1404kHz	VC001	MAX	
	612kHz		612kHz	T006		
	1000kHz		1000kHz	VC001		
	600kHz		600kHz	T006		

TUNER BOARD

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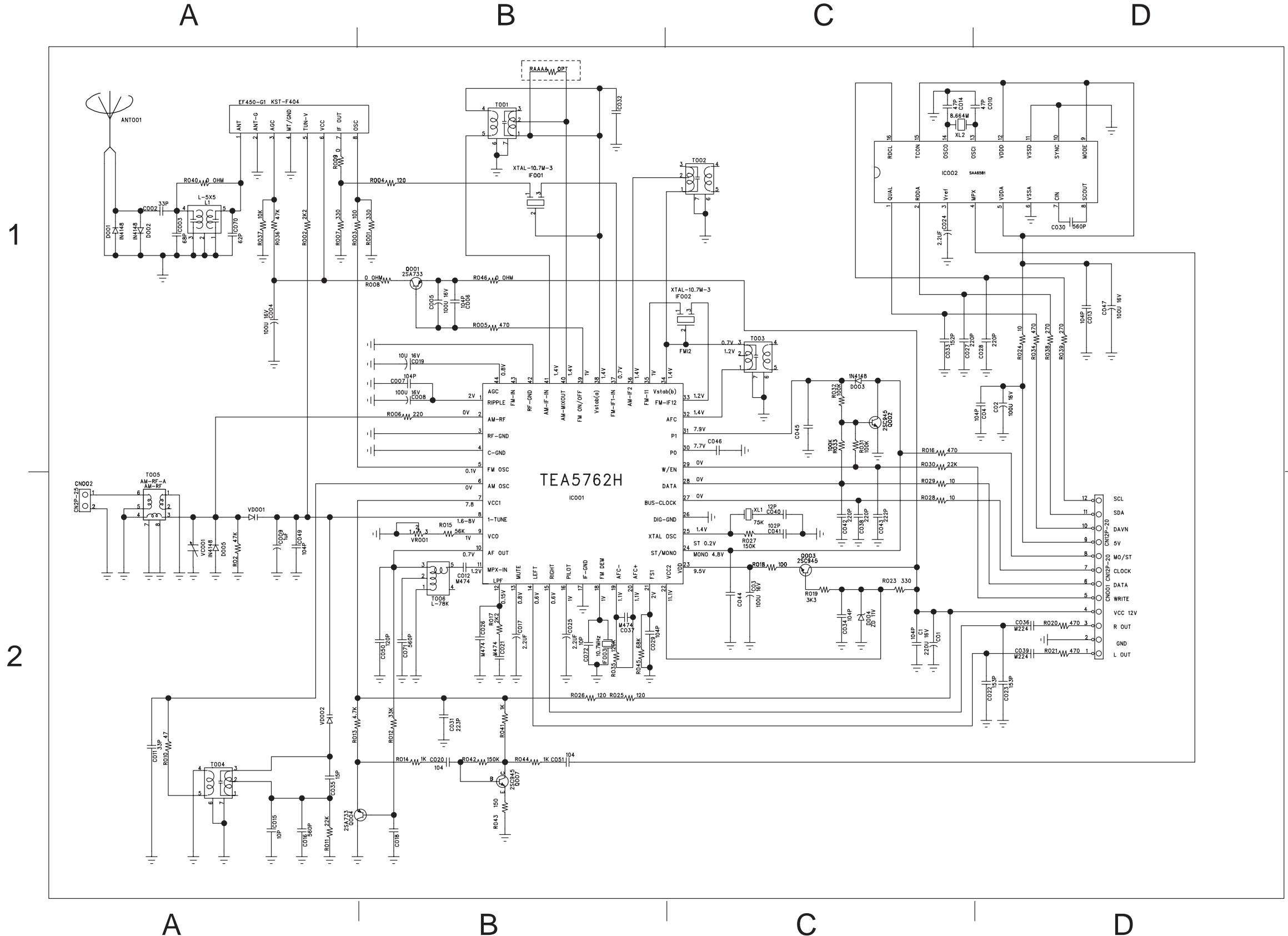
Tuner Adjustment Table 7-1
 Circuit Diagram (/51 ver.) 7-2
 Circuit Diagram (/98 & /55 ver.) 7-3
 PCB Layout (/51 ver.) 7-4
 PCB Layout (/98 & /55 ver.) 7-5

Remark: The module is not intend to be repaired on component level. Circuit Diagrams and Printed Board drawings are published for orientation only. The whole Tuner Board Ass'y can be orderd with 12nc: 9940 000 05309 for /55/98 and 9940 000 05714 for /51.

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!

CIRCUIT DIAGRAM : TUNER BOARD (/ 51 ver.)

ANT001	A1	C01	C2	C020	B2	C030	D1	C039	D2	C047	D1	D001	A1	IF002	C1	R002	A1	R010	A2	R018	C2	R028	C2	T001	B1	VD002	A2
C002	A1	C011	A2	C021	B2	C031	B2	C040	C2	C048	D1	D002	A1	IF003	B2	R003	A1	R011	A2	R019	C2	R029	C2	T002	C1	VR001	B2
C004	A1	C012	B2	C022	D2	C032	B1	C041	C2	C049	A2	D003	C1	L1	A1	R004	B1	R012	B2	R020	D2	R030	C1	T003	C1	XL1	C2
C005	B1	C015	A2	C023	D2	C034	C2	C042	C2	C050	B2	D004	C2	Q001	B1	R005	B1	R013	A2	R021	D2	R033	C1	T004	A2		
C006	B1	C016	A2	C025	B2	C035	A2	C043	C2	C071	B2	D005	A2	Q002	C1	R006	B1	R014	B2	R023	C2	R036	A1	T005	A2		
C007	B1	C017	B2	C026	B2	C036	D2	C044	C2	C1	C2	EF450-G1	A1	Q003	C2	R007	A1	R015	B2	R025	B2	R037	A1	T006	B2		
C008	B1	C018	B2	C029	B2	C037	B2	C045	C1	CN001	D2	IC001	B1	Q004	A2	R008	B1	R016	C1	R026	B2	R040	A1	VC001	A2		
C009	A2	C019	B1	C03	C2	C038	C2	C046	C1	CN002	A2	IF001	B1	R001	B1	R009	A1	R017	B2	R027	C2	R046	B1	VD001	A2		



1

2

1

2

CIRCUIT DIAGRAM : TUNER BOARD (/55 & /98 ver.)

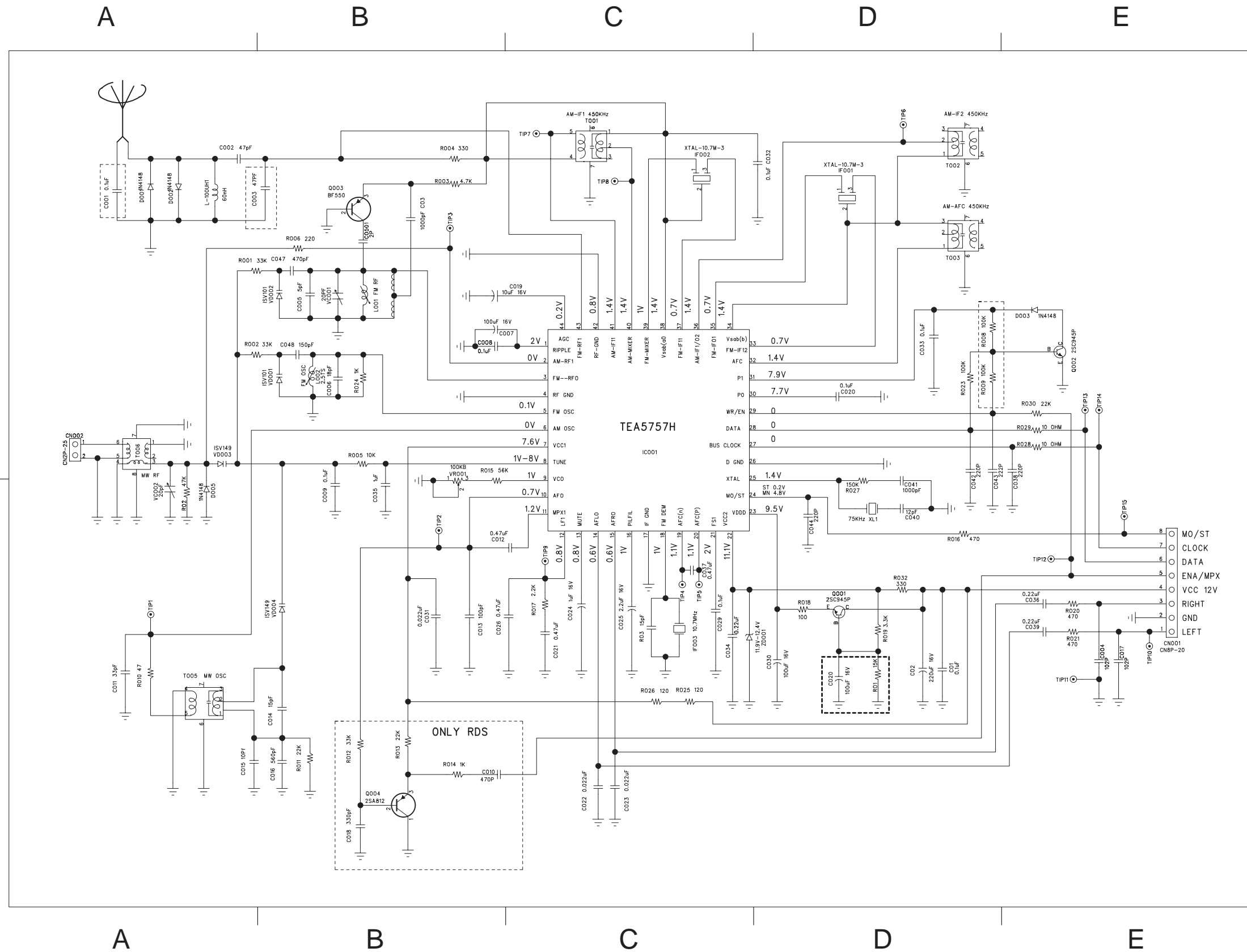
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C002	A1	C012	B2	C023	C2	C034	C2	C044	D2	D005	A2	Q004	B2	R017	C2	R028	E1	VC002	A2
C004	E2	C013	B2	C024	C2	C035	B1	C047	B1	IC001	C1	R001	B1	R018	D2	R029	E1	VD001	B1
C005	B1	C014	B2	C025	C2	C036	E2	C048	B1	IF001	D1	R002	B1	R019	D2	R030	E1	VD002	B1
C006	B1	C015	A2	C026	B2	C037	C2	C050	B1	IF002	C1	R004	B1	R020	E2	R034	E1	VD003	A1
C007	B1	C016	B2	C029	C2	C038	E1	CN001	E2	IF003	C2	R005	B1	R021	E2	T001	C1	VD004	B2
C008	B1	C019	B1	C03	B1	C039	E2	CN002	A1	L02	A1	R006	B1	R023	D1	T002	D1	VR001	B1
C009	B1	C02	D2	C030	D2	C040	D2	D001	A1	L001	B1	R010	A2	R024	B1	T003	D1	XL1	D2
C01	D2	C020	D1	C031	B2	C041	D1	D002	A1	Q001	D2	R011	B2	R025	C2	T005	A2		
C010	B2	C021	C2	C032	D1	C042	D1	D003	E1	Q002	E1	R015	B1	R026	C2	T006	A1		

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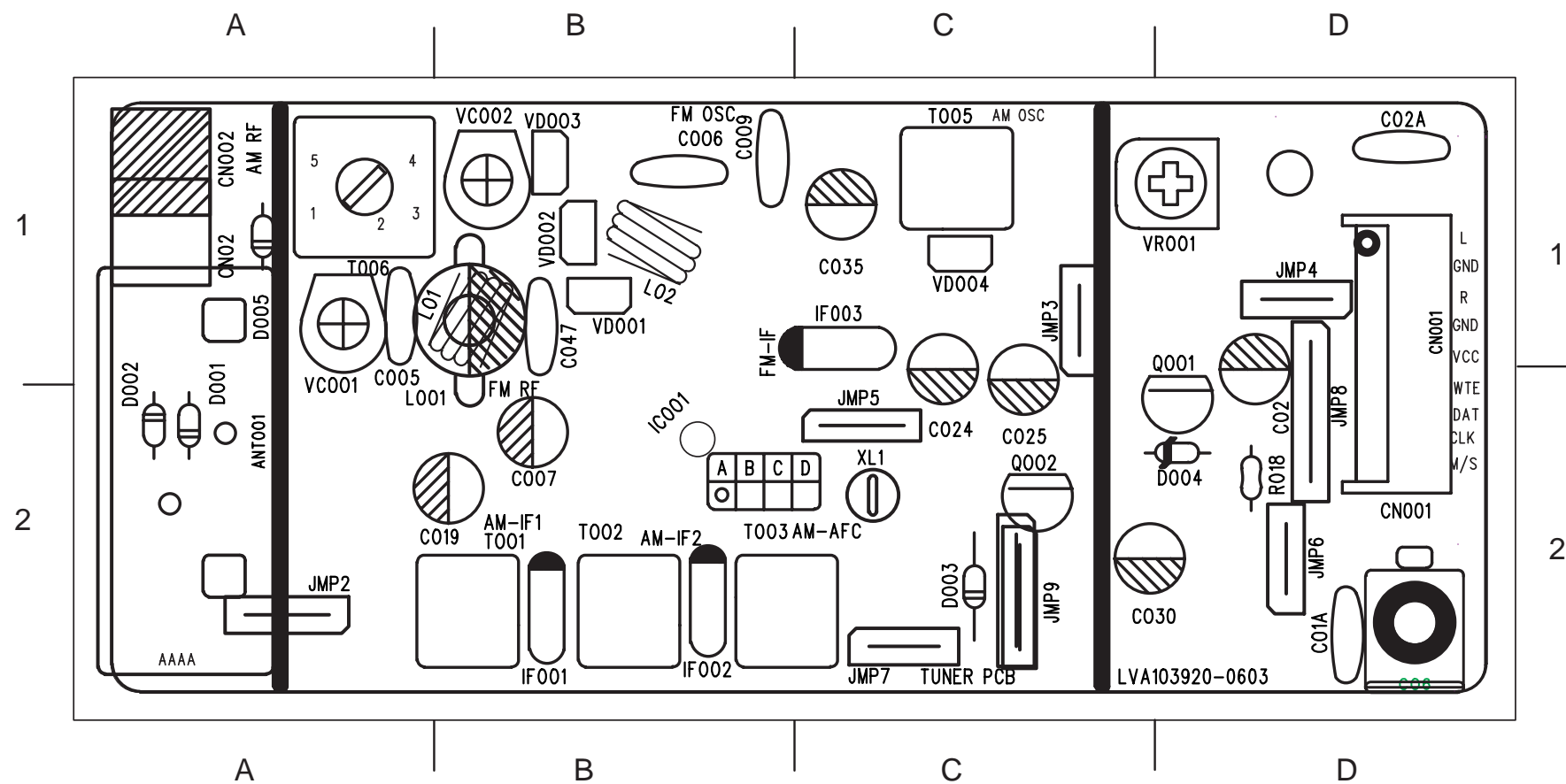
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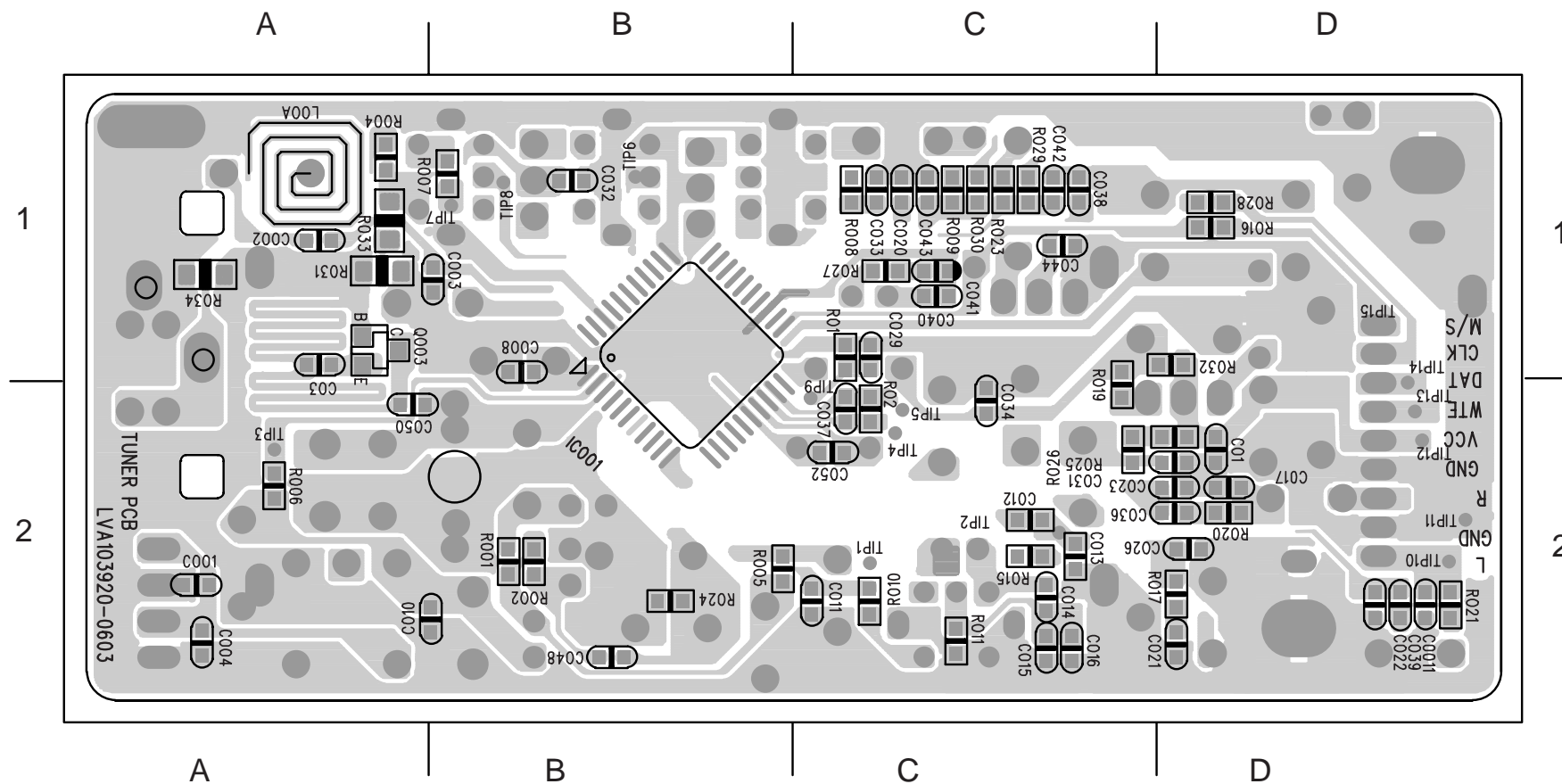


PCB LAYOUT - TUNER BOARD (TOP VIEW) - /55 & /98ver.



ANT001	A2	JMP4	D1
C005	A1	JMP5	C2
C006	B1	JMP6	D2
C007	B2	JMP7	C2
C009	B1	JMP8	D2
C01	D2	JMP9	C2
C019	B2	L001	B1
C024	C2	L02	B1
C025	C2	Q001	D2
C030	D2	Q002	C2
C035	C1	R018	D2
C047	B1	T001	B2
CN001	D1	T002	B2
CN002	A1	T003	B2
D001	A2	T005	C1
D002	A2	T006	A1
D003	C2	VC001	A1
D004	D2	VC002	B1
D005	A1	VD001	B1
IF001	B2	VD002	B1
IF002	B2	VD003	B1
IF003	C1	VD004	C1
JMP2	A2	VR001	D1
JMP3	C1	XL1	C2

PCB LAYOUT - TUNER BOARD (BOTTOM VIEW) - /55 & /98 ver.



C002	A1	C050	A2
C004	A2	C052	C2
C008	B1	IC001	B1
C010	A2	Q003	A1
C011	D2	R001	B2
C012	C2	R002	B2
C013	C2	R004	A1
C014	C2	R005	B2
C015	C2	R006	A2
C016	C2	R007	B1
C020	C1	R010	C2
C021	D2	R011	C2
C022	D2	R015	C2
C023	D2	R016	D1
C026	D2	R017	D2
C029	C1	R019	C2
C03	A1	R020	D2
C031	C2	R021	D2
C032	B1	R023	C1
C033	C1	R024	B2
C034	C2	R025	C2
C036	D2	R026	C2
C037	C2	R027	C1
C038	C1	R028	D1
C039	D2	R029	C1
C040	C1	R030	C1
C041	C1	R031	A1
C042	C1	R032	D1
C043	C1	R033	A1
C044	C1	R034	A1
C048	B2		

POWER BOARD

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VOLTAGE

IC901 UC3843AL								
Pin NO	1	2	3	4	5	6	7	8
Voltage	2.25	0.00	0.33	1.90	0.00	0.73	11.71	4.90

IC902 CTR:200-400								
Pin NO	1	2	3	4				
Voltage	4.90	2.00	0.00	3.80				

IC903 TL431 TO-92								
Pin NO	1	2	3					
Voltage	3.86	0.00	2.49					

IC904 CTR:200-400								
Pin NO	1	2	3	4				
Voltage	1.18	0.00	0.00	0.00				

Q901 FQPF7N65C			
Pin NO	1	2	3
Voltage	0.00	2.97	0.00

Q905 2SC945P			
Pin NO	1	2	3
Voltage	0.00	1.90	0.00

Q902 STP16NF06			
Pin NO	1	2	3
Voltage	11.67	5.12	5.14

Q906 2SC945P			
Pin NO	1	2	3
Voltage	0.66	0.00	0.00

Q903 2SB772P/Q			
Pin NO	1	2	3
Voltage	12.86	12.86	12.13

Q907 2SC2001L			
Pin NO	1	2	3
Voltage	0.00	5.02	0.00

Q904 2SC945P			
Pin NO	1	2	3
Voltage	0.72	0.06	0.00

Q908 2SC945P			
Pin NO	1	2	3
Voltage	0.73	0.00	0.00

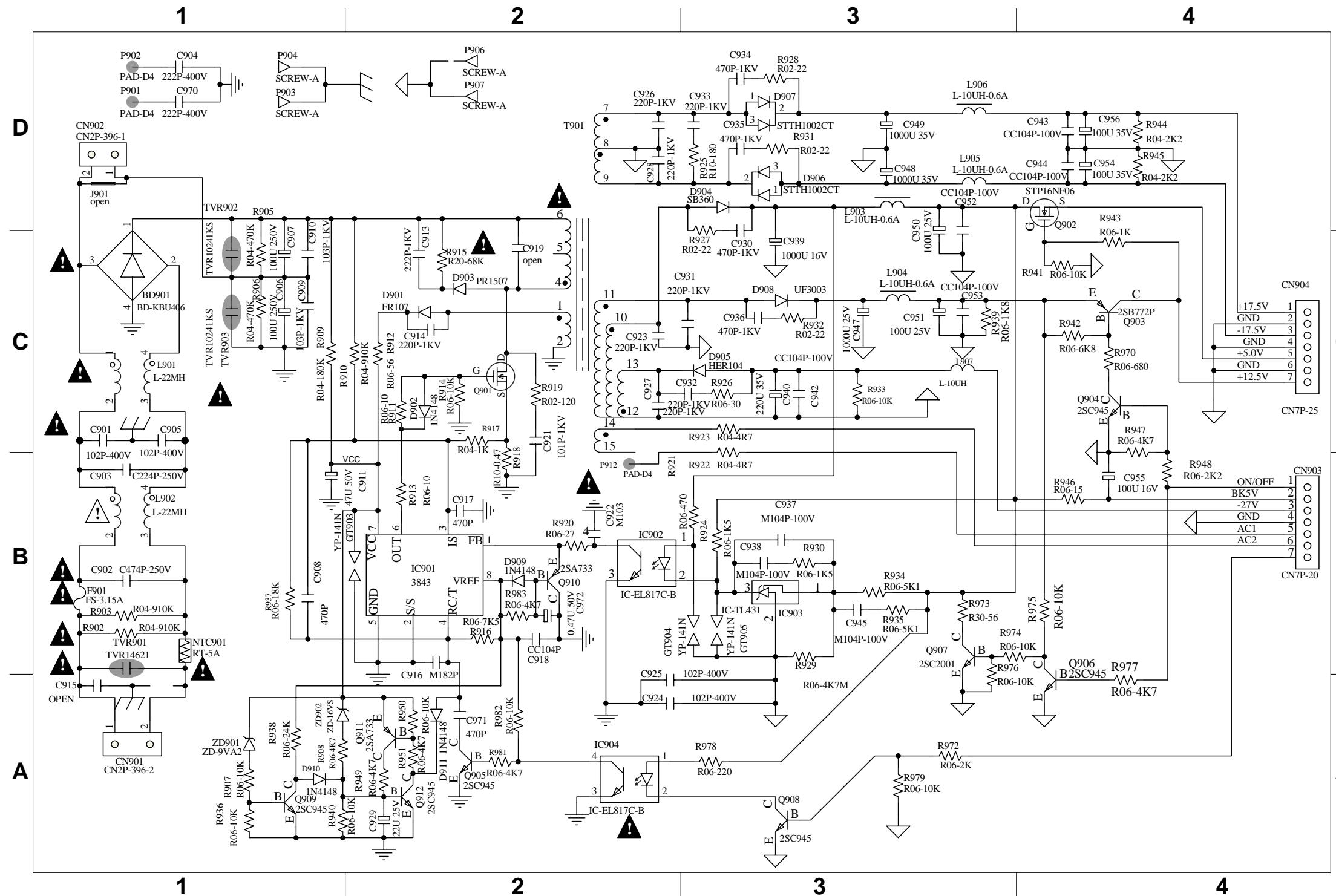
Q909 2SC945P			
Pin NO	1	2	3
Voltage	0.66	0.00	0.00

Q911 2SA733Q			
Pin NO	1	2	3
Voltage	13.30	0.00	13.30

Q910 2SA733Q			
Pin NO	1	2	3
Voltage	5.00	0.00	2.56

Q912 2SC945P			
Pin NO	1	2	3
Voltage	5.00	0.00	13.30

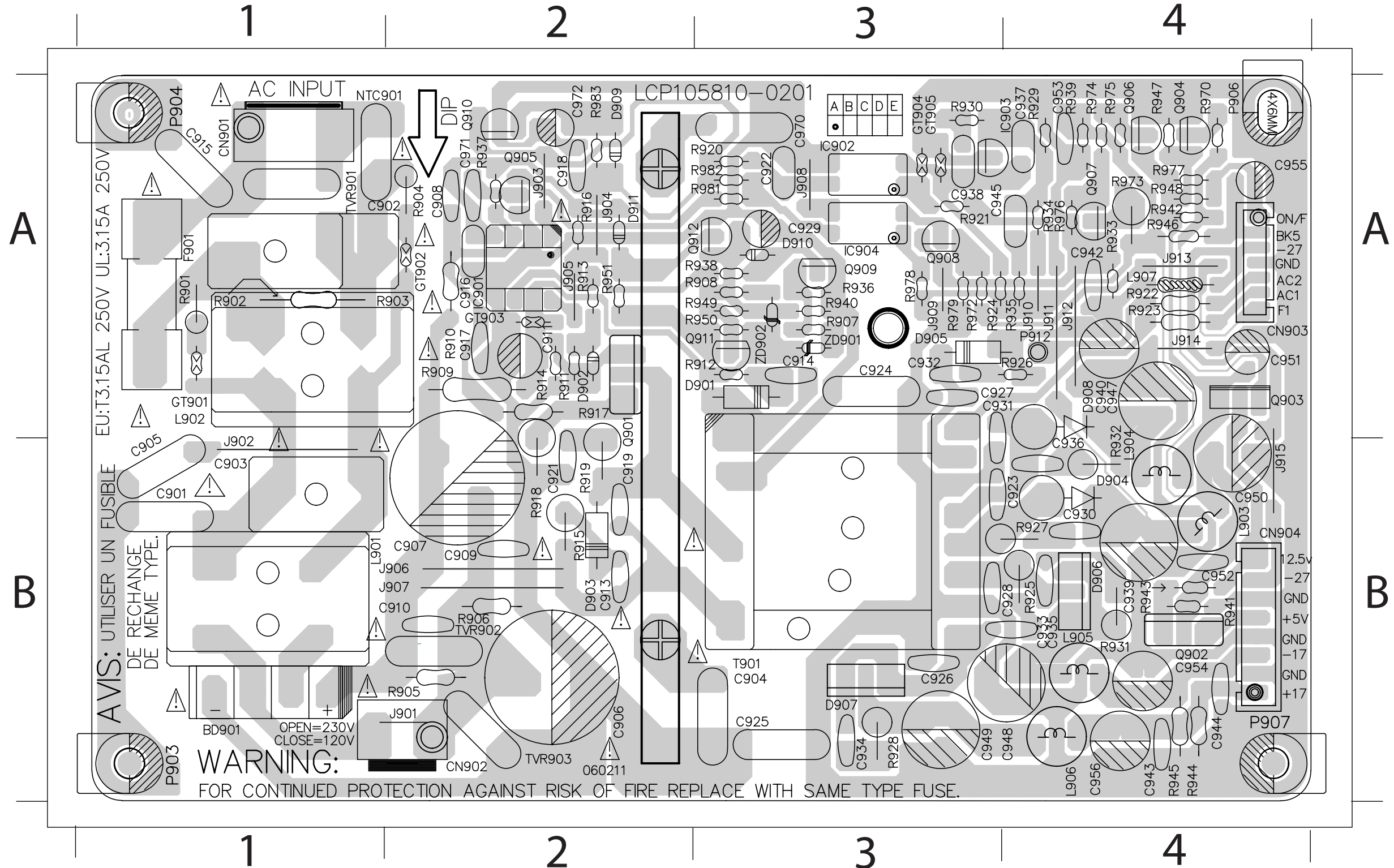
CIRCUIT DIAGRAM-POWER BOARD



BD901	C1	CN903	B4	R917	C2
C901	C1	CN904	C4	R918	B2
C902	B1	D901	C2	R919	C2
C903	B1	D902	C2	R920	B2
C904	D1	D903	C2	R921	B3
C905	C1	D904	D3	R922	B3
C906	C1	D905	C3	R923	C3
C907	C1	D906	D3	R924	B3
C908	B1	D907	D3	R925	D3
C909	C1	D908	C3	R926	C3
C910	C1	D909	B2	R927	D3
C911	B1	D910	A1	R928	D3
C913	C2	D911	A2	R929	B3
C914	C2	F901	B1	R930	B3
C916	B2	GT903	B2	R931	D3
C917	B2	GT904	B3	R932	C3
C919	C2	GT905	B3	R933	C3
C921	C2	IC901	B2	R934	B3
C922	B2	IC902	B2	R935	B3
C923	C2	IC903	B3	R936	A1
C924	A2	IC904	A2	R938	A1
C925	A2	L901	C1	R939	C3
C926	D2	L902	B1	R940	A1
C927	C2	L903	D3	R941	C4
C928	D2	L904	C3	R942	C4
C929	A2	L905	D3	R943	C4
C930	D3	L906	D3	R944	D4
C931	C3	L907	C3	R945	D4
C932	C3	NTC901	B1	R946	B4
C933	D3	Q901	C2	R947	C4
C934	D3	Q902	D4	R948	B4
C935	D3	Q903	C4	R949	A2
C936	C3	Q904	C4	R950	A2
C937	B3	Q905	A2	R951	A2
C938	B3	Q906	A4	R970	C4
C939	C3	Q907	B3	R972	A3
C940	C3	Q908	A3	R973	B3
C942	C3	Q909	A1	R974	B3
C943	D4	Q910	B2	R975	B4
C944	D4	Q911	A2	R976	B3
C945	B3	Q912	A2	R977	A4
C947	C3	R902	B1	R978	A3
C948	D3	R903	B1	R979	A3
C949	D3	R905	C1	R981	A2
C950	D3	R906	C1	R982	A2
C952	D3	R907	A1	R983	B2
C953	C3	R908	A1	T901	D2
C954	D4	R909	C1	TVR901	B1
C955	B4	R910	C2	TVR902	C1
C956	D4	R911	C2	TVR903	C1
C970	D1	R912	C2	ZD901	A1
C971	A2	R913	B2	ZD902	A1
C972	B2	R914	C2		
CN901	A1	R915	C2		
CN902	D1	R916	B2		

PCB LAYOUT-POWER BOARD

BD901	B1	C913	B2	C928	B4	C940	A4	C955	A4	D904	B4	IC901	A2	J910	A4	L907	A4	Q906	A4	R908	A3	R920	A3	R932	B4	R945	B4	R982	A3
C901	B1	C914	A3	C929	A3	C942	A4	C956	B4	D905	A3	IC902	A3	J911	A4	NTC901	A1	Q907	A4	R909	A2	R921	A3	R933	A4	R951	A2	R983	A2
C902	A1	C916	A2	C930	B4	C943	B4	C970	A3	D906	B4	IC903	A4	J912	A4	R946	A4	Q908	A3	R910	A2	R922	A4	R934	A4	R970	A4	T901	B3
C903	B1	C917	A2	C931	A3	C944	B4	C971	A2	D907	B3	IC904	A3	J913	A4	R947	A4	Q909	A3	R911	A2	R923	A4	R935	A4	R972	A3	TVR901	A1
C904	B3	C919	B2	C932	A3	C945	A4	C972	A2	D908	A4	J902	B1	J914	A4	R948	A4	Q910	A2	R912	A3	R924	A3	R936	A3	R973	A4	TVR902	B2
C905	B1	C921	B2	C933	B4	C947	A4	CN901	A1	D909	A2	J903	A2	J915	B4	R949	A3	Q911	A3	R913	A2	R925	B4	R938	A3	R974	A4	TVR903	B2
C906	B2	C922	A3	C934	B3	C948	B4	CN902	B2	D910	A3	J904	A2	L901	B1	R950	A3	Q912	A3	R914	A2	R926	A4	R939	A4	R975	A4	ZD901	A3
C907	B2	C923	B4	C935	B4	C949	B3	CN903	A4	D911	A2	J905	A2	L902	A1	Q901	B2	R902	A1	R915	B2	R927	B4	R940	A3	R976	A4	ZD902	A3
C908	A2	C924	A3	C936	A4	C950	B4	CN904	B4	F901	A1	J906	B2	L903	B4	Q902	B4	R903	A1	R916	A2	R928	B3	R941	B4	R977	A4		
C909	B2	C925	B3	C937	A4	C952	B4	D901	A3	GT903	A2	J907	B2	L904	B4	Q903	A4	R905	B2	R917	A2	R929	A4	R942	A4	R978	A3		
C910	B2	C926	B3	C938	A3	C953	A4	D902	A2	GT904	A3	J908	A3	L905	B4	Q904	A4	R906	B2	R918	B2	R930	A3	R943	B4	R979	A3		
C911	A2	C927	A3	C939	B4	C954	B4	D903	B2	GT905	A3	J909	A3	L906	B4	Q905	A2	R907	A3	R919	B2	R931	B4	R944	B4	R981	A3		



ELECTRICAL PARTS LIST - POWER BOARD

BD901	9940 000 02065	RECTIFIER GBU4J 4A 600V	L904	9965 000 16694	6μH 13.5TS 2UEW
C901	△ 9965 000 27115	CAP. SAFTY 102PF 250V 20%	L905	9965 000 16694	6μH 13.5TS 2UEW
C902	△ 9940 000 05238	CAP. SAFETY 0.47μF 300V 10%	L906	9965 000 16694	6μH 13.5TS 2UEW
C903	△ 9940 000 05237	CAP. SAFETY 0.22μF 300V 10%	L907	9965 000 15871	INDUCTOR 10μH 10%
C904	9965 000 27129	400V 0.0022μF P10MM 125' C	NTC901	9940 000 05232	THERMISTOR NTC 5Ω 5A
C905	△ 9965 000 27115	CAP. SAFTY 102PF 250V 20%	Q901	9940 000 05254	MOSFET STP6NK70Z 5A 700V
C909	9965 000 18042	COND DISC 0.01μF 1KV 20%	Q902	4822 130 11336	STP16NF06FP
C910	9965 000 18042	COND DISC 0.01μF 1KV 20%	Q903	9965 000 26946	XISTR PNP 2SB772P/Q
C913	9965 000 27125	COND DISC 0.0022μF 1KV 20%	Q904	4822 130 41198	2SC945P
C914	9940 000 05236	COND DISC 220PF 1KV 10%	Q905	4822 130 41198	2SC945P
C919	9940 000 05235	COND DISC 100PF 1KV 10%	Q906	4822 130 41198	2SC945P
C921	9940 000 05235	COND DISC 100PF 1KV 10%	Q907	4822 130 41651	2SC2001L
C923	9940 000 05236	COND DISC 220PF 1KV 10%	Q908	4822 130 41198	2SC945P
C924	△ 9965 000 27115	CAP. SAFTY 102PF 250V 20%	Q909	4822 130 41198	2SC945P
C925	△ 9965 000 27115	CAP. SAFTY 102PF 250V 20%	Q910	9965 000 28743	XISTR PNP 2SA733Q,P NEC
C926	9940 000 05236	COND DISC 220PF 1KV 10%	Q911	9965 000 28743	XISTR PNP 2SA733Q,P NEC
C927	9940 000 05236	COND DISC 220PF 1KV 10%	Q912	4822 130 41198	2SC945P
C928	9940 000 05236	COND DISC 220PF 1KV 10%	R918	9940 000 05245	RES. 0.39Ω 2W 5%
C930	9965 000 20264	COND DISC 470PF 1KV 10%	R919	9965 000 27133	RES. METAL 120Ω 3W 5%
C931	9940 000 05236	COND DISC 220PF 1KV 10%	R922	△ 9940 000 05246	FUSE RES. 2.7Ω 1/4W 5%
C932	9940 000 05236	COND DISC 220PF 1KV 10%	R923	△ 9940 000 05246	FUSE RES 2.7Ω 1/4W 5%
C933	9940 000 05236	COND DISC 220PF 1KV 10%	T901	△ 9940 000 05234	TRAFO ER-2834 6 8P 100W
C934	9965 000 20264	COND DISC 470PF 1KV 10%	TVR901	9965 000 32754	THERMIST 50A 561V
C935	9965 000 20264	COND DISC 470PF 1KV 10%	TVR902	9965 000 27114	VARISTOR TVR10
C936	9965 000 20264	COND DISC 470PF 1KV 10%	TVR903	9965 000 27114	VARISTOR TVR10
C970	9965 000 27129	400V 0.0022μF P10MM 125' C	ZD901	9940 000 05251	DIODE ZENR 7.8-8.4V 0.5W
D901	9940 000 01571	DIODE FR107 1A 1000V	ZD902	9940 000 02067	DIODE ZENR 14.5-15.1V 0.5W
D903	9940 000 00938	DIODE PR1507 1.5A 1000V			
D904	9940 000 05249	DIODE SB360 3A 60V			
D905	9940 000 00941	DIODE HER104 1A 300V 50NS			
D906	9940 000 05252	DIODE RECT. BYQ28E-200 10A			
D906	9940 000 05253	RECTIFIER UF1002CT 3P			
D907	9940 000 05252	DIODE RECT. BYQ28E-200 10A			
D907	9940 000 05253	RECTIFIER UF1002CT 3P			
D908	9940 000 00943	DIODE UF3003 3A 200V			
F901	△ 9965 000 17388	FUSE 3.15A 250V SLOW			
GT903	△ 9965 000 29310	ABSORBER 140V 500A L			
GT904	△ 9965 000 29310	ABSORBER 140V 500A L			
GT905	△ 9965 000 29310	ABSORBER 140V 500A L			
IC901	9940 000 05255	IC 8P UC3843AL			
IC902	9940 000 00946	OPTICAL SENSOR 4P			
IC903	9940 000 01572	IC 3P TL431			
IC904	9940 000 00946	OPTICAL SENSOR 4P			
L901	9940 000 05233	COMMON COIL 22MH			
L902	9940 000 05233	COMMON COIL 22MH			
L903	9965 000 16694	6μH 13.5TS 2UEW			

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

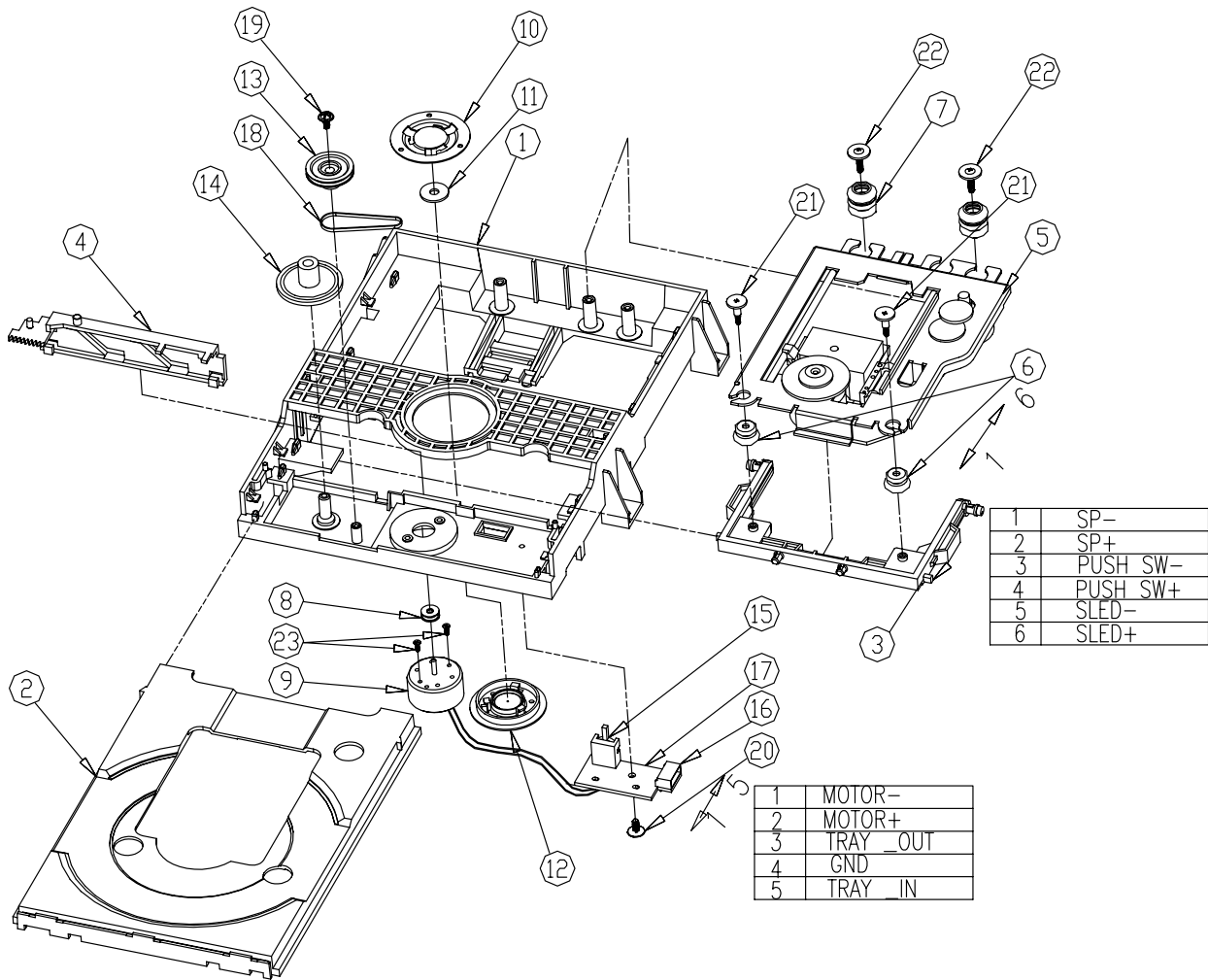
DVD LOADER

It is not recommended for component repair on this Module but to replace the whole assembly when it becomes defective. Therefore limited service parts list is only for reference.

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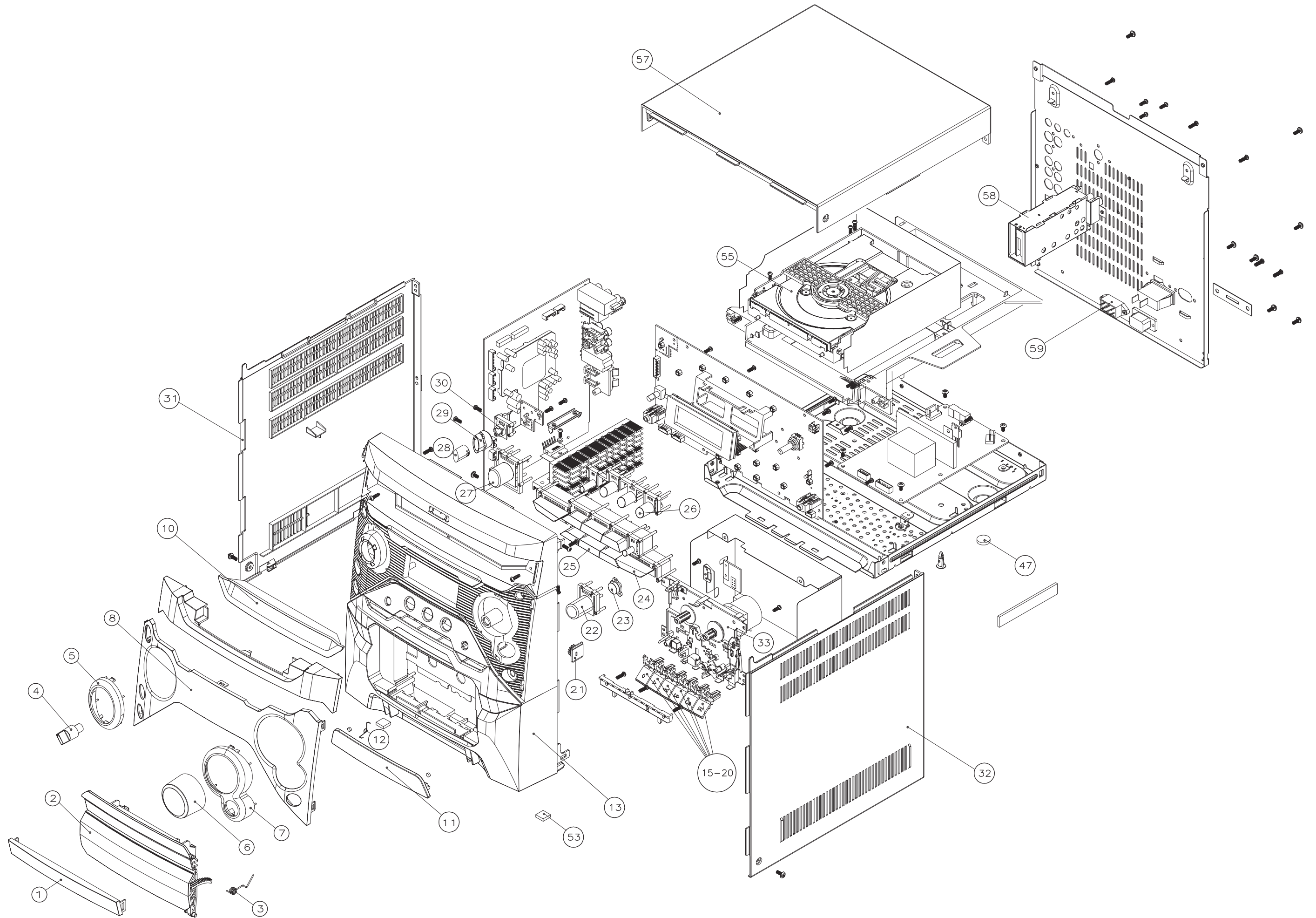
Explorer View - DVD Loader



MECHANICAL PART LIST - DVD LOADER

- 1 LOADER BASE
- 2 LOADER TRAY
- 3 FRAME
- 4 CAM
- 5 TRAVERSE
- 6 FRONT DAMPER
- 7 REAR DAMPER
- 8 GEAR-G
- 9 TRAY MOTOR
- 10 CLAMPER TOP
- 11 MAGNET
- 12 CLAMPER DOWN
- 13 GEAR PULLEY
- 14 GEAR-TRAY
- 15 LIMIT SWITCH
- 16 CONNECTOR
- 17 PCB
- 18 BELT
- 19 SCREW FOR GEAR PULLEY
- 20 SCREW FOR PCB
- 21 SCREW FOR FRONT DAMPER
- 22 SCREW FOR REAR DAMPER
- 23 SCREW FOR TRAY MOTOR

SET MECHANICAL EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

01	9940 000 05296	CASSETTE DOOR LENS	9940 000 00924	RCA CABLE 1500MM
02	9940 000 05275	CASSETTE DOOR	△ 9940 000 01054	LINE CORD 2P 2000MM
03	9940 000 05307	CASS DOOR SPRING	9940 000 02731	FM ANTENNA 1500MM
04	9940 000 05282	MIC KNOB	9940 000 05267	AM LOOP ANT 1300 5TS 2P
05	9940 000 05301	KEY DECORATIVE RING	9940 000 05268	REMOTE CONTROL 45KEY
06	9940 000 05281	VOLUME KNOB	9965 000 23267	RCA CABLE 1200MM OD2.6X5.2
07	9940 000 05302	VOLUME DECORATIVE RING	9965 000 23580	RCA CABLE 1500MM OD2.6MM
08	9940 000 05295	DISPLAY LENS	9965 000 24676	COND TRIM 3-10PF NP0
10	9940 000 05274	DVD DOOR	9965 000 27005	CNTL TRIMR 30KΩ P=5X5MM
11	9940 000 05276	CASS KEY DOOR	9965 000 38496	CENTER SPK BOX W/PACKING
12	9940 000 05306	KEY DOOR SPRING	9965 000 38494	LEFT SPK BOX W/PACKING
13	9965 000 38402	FRONT CABINET	9965 000 38495	RIGHT SPK BOX W/PACKING
15	9940 000 05279	CASS KEY RECORD	9965 000 38497	SUR L SPK ASS'Y 30W 8Ω
16	9940 000 05288	CASS KEY PLAY	9965 000 38498	SUR R SPK ASS'Y 30W 8Ω
17	9940 000 05291	CASS KEY REWIND	9965 000 38499	SUBWOOFER 60W
18	9940 000 05292	CASS KEY F.FORWARD		
19	9940 000 05293	CASS KEY STOP		
20	9940 000 05294	CASS KEY PAUSE		
21	9965 000 22120	DAMPER-ASSY-MODULE-0.8		
22	9940 000 05287	DBB BUTTON		
23	9940 000 05299	DBB LIGHT GUIDE		
24	9940 000 05284	AUDIO KEYS		
25	9940 000 05289	PROGRAM KEYS		
26	9940 000 05285	CONTROL KEYS		
27	9940 000 05286	PLAY BUTTON		
28	9940 000 05283	POWER BUTTON		
29	9940 000 05297	RING POWER LENS		
30	9940 000 05298	POWER BUTTON BASE		
31	9940 000 05304	PANEL LEFT HIPS		
32	9940 000 05303	PANEL RIGHT HIPS		
33	9940 000 05271	CASSETTE DECK ASS'Y		
47	9940 000 05305	RUBBER FOOT D14XT3.0MM		
53	9940 000 01546	FOOT RUBBER		
55	9940 000 05269	DVD LOADER ME M04S-2		
57	9940 000 05273	TOP COVER		
58	9940 000 05309	TUNER BOARD A'SSY		
59	9940 000 01059	SW SLIDE 6PIN		

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

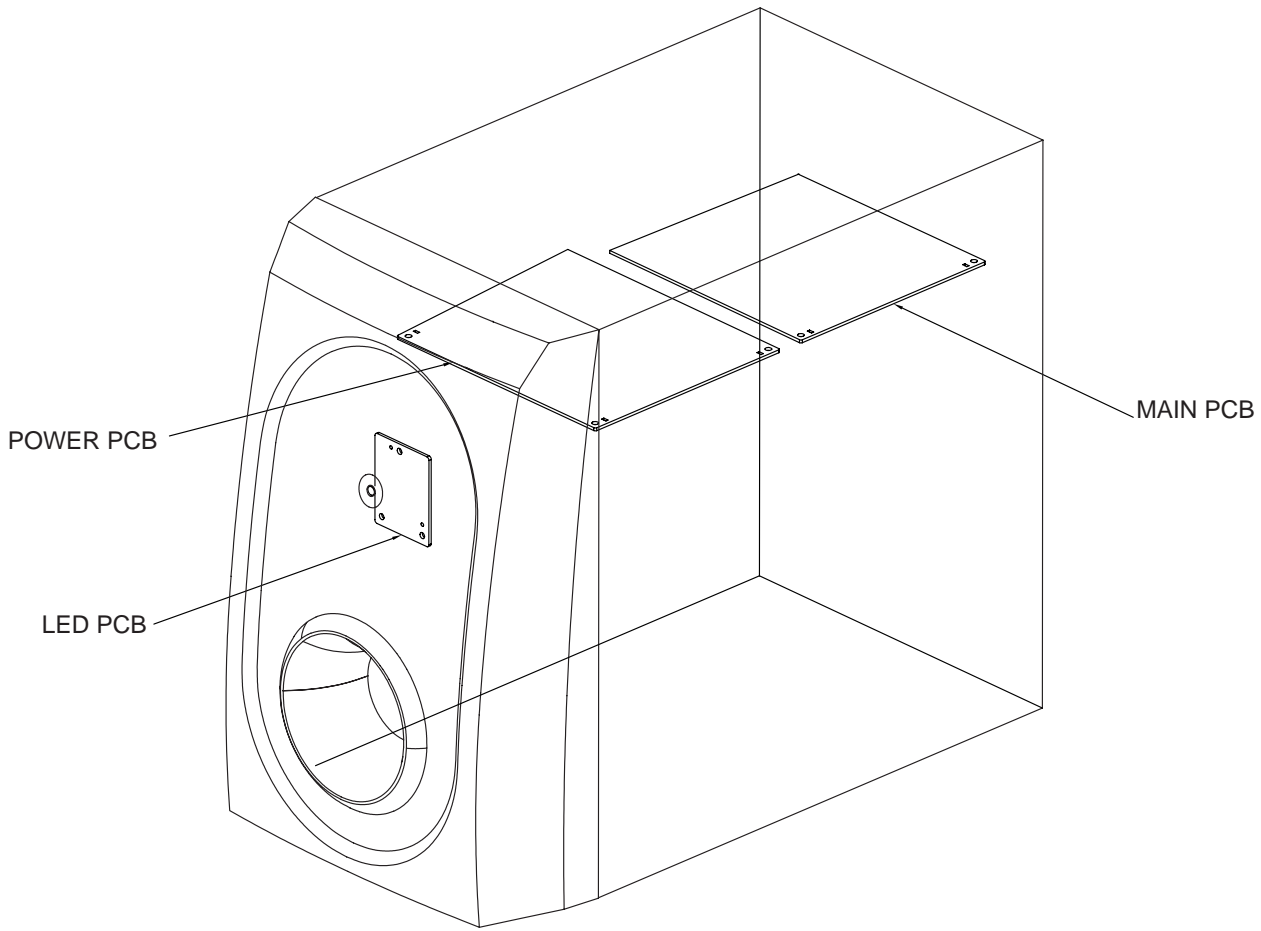
SUBWOOFER



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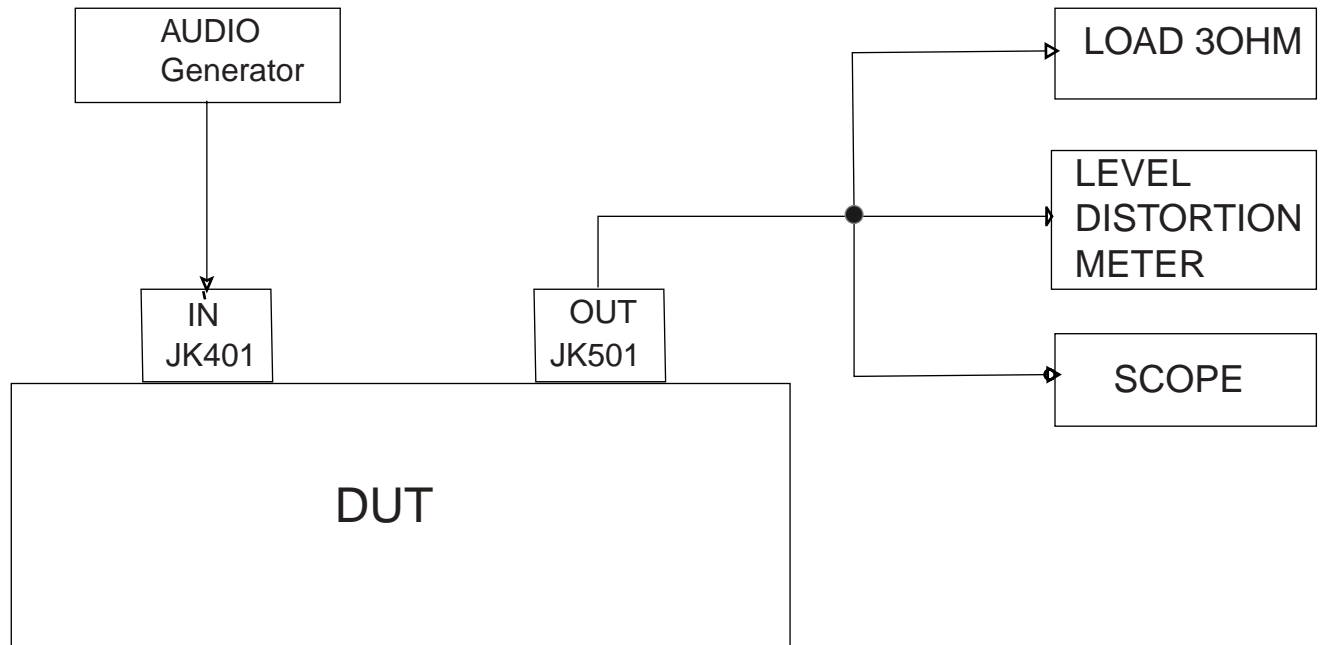
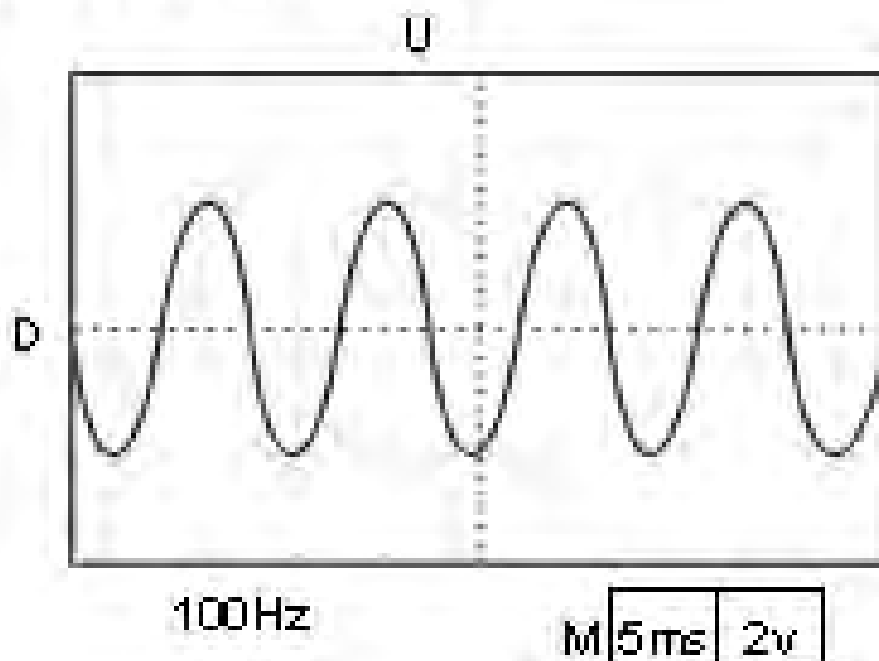
LOCATION OF PC BOARDS



SPECIFICATIONS

SUBWOOFER

Impedance	4 Ω
Speaker driver.....	6.5"
Frequency response.	30-200 HZ
Dimensions(w x h x d).....	200 x 310 x 375 (mm)
Weight	6.51kg

MEASUREMENT SETUP**Audio Test Signal**

ESD & SAFETY INSTRUCTION

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



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 hetzelfde 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".

DISASSEMBLY INSTRUCTIONS

Dismantling the Grill Base & Speaker Driver

1. Place the Subwoofer Box as shown in the Picture 1 and use a screw driver to force open the Grill Base.

Caution: Take care the surface when take out the Grill Base of Subwoofer



Picture 1

2. Place the Subwoofer Box as shown in the Picture 2 and loosen 4 screws A to remove the Speaker Driver.



Picture 2

Dismantling the Front Assembly

1. Place the Subwoofer Box as shown in the Picture 3 (Bottom view) and use a screw driver to force open the front assembly.

Caution: Do not break the bundle of wires to the front. Take care the surface when take out the front panel of subwoofer



Picture 3

Dismantling the Rear assembly

1. Loosen 8 screws B as shown in the Picture 4 (Rear View) to pull out the Printed Circuit Board assembly.

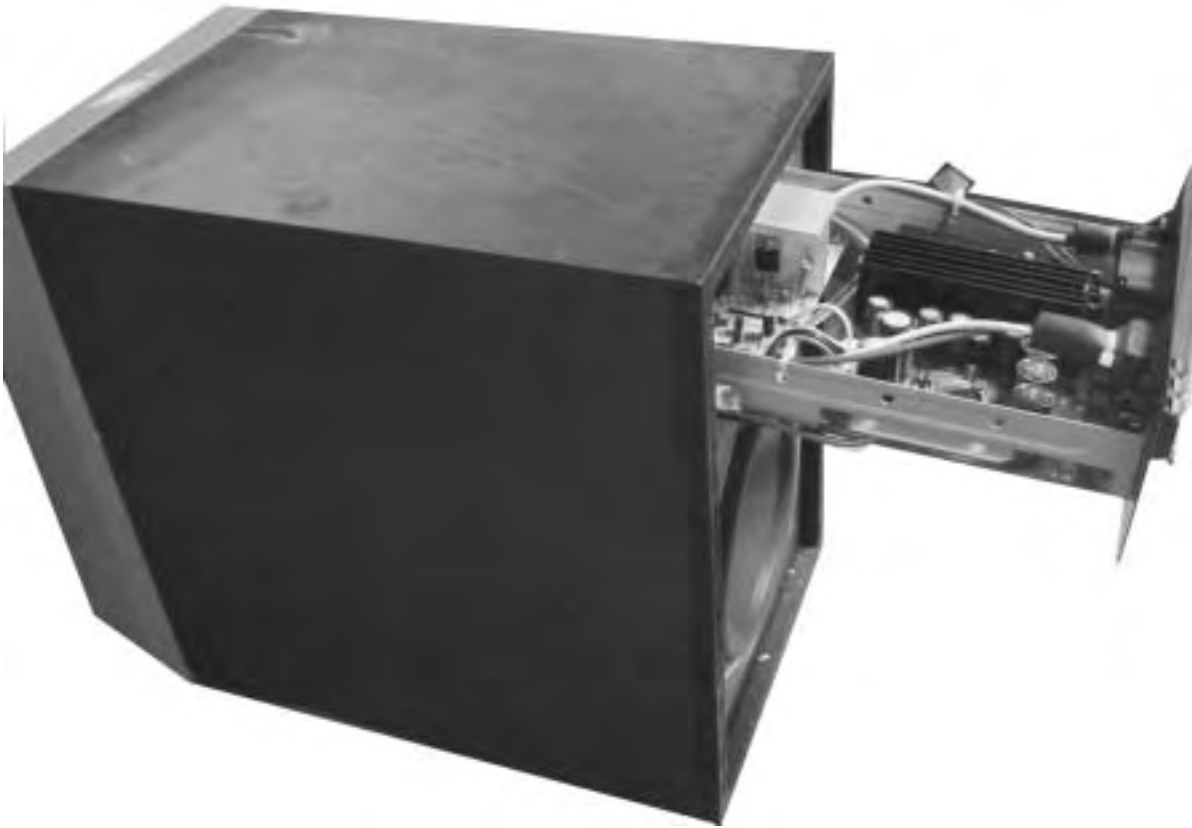
Caution: Do not break the bundle of wires to the front.



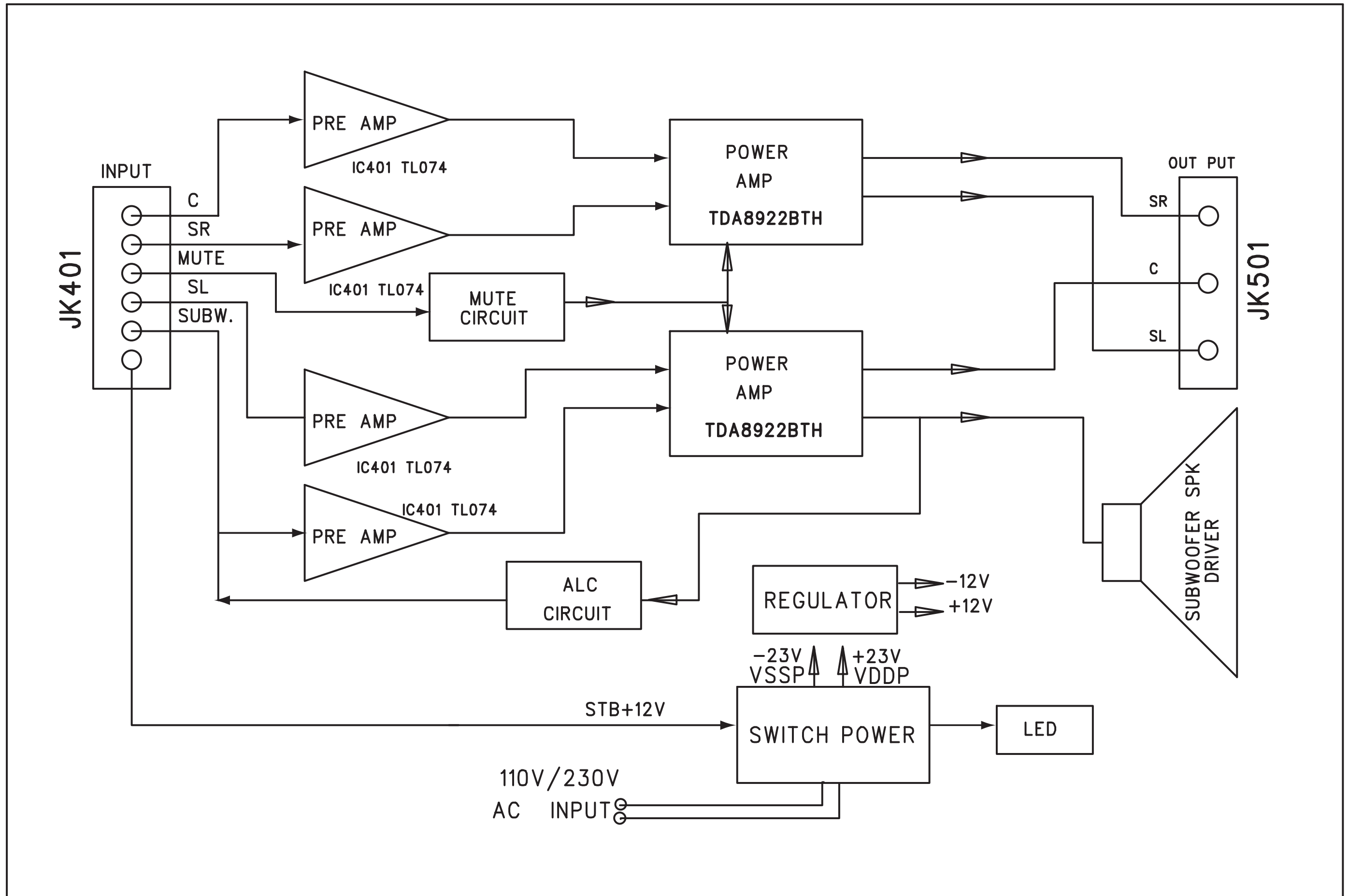
Picture 4

WARNING: THERE IS ONLY A LED BETWEEN FRONT PANEL AND WOOD BOX. IF NOT NECESSARY, PLEASE DO NOT TRY TO OPEN THE FRONT PANEL!!!

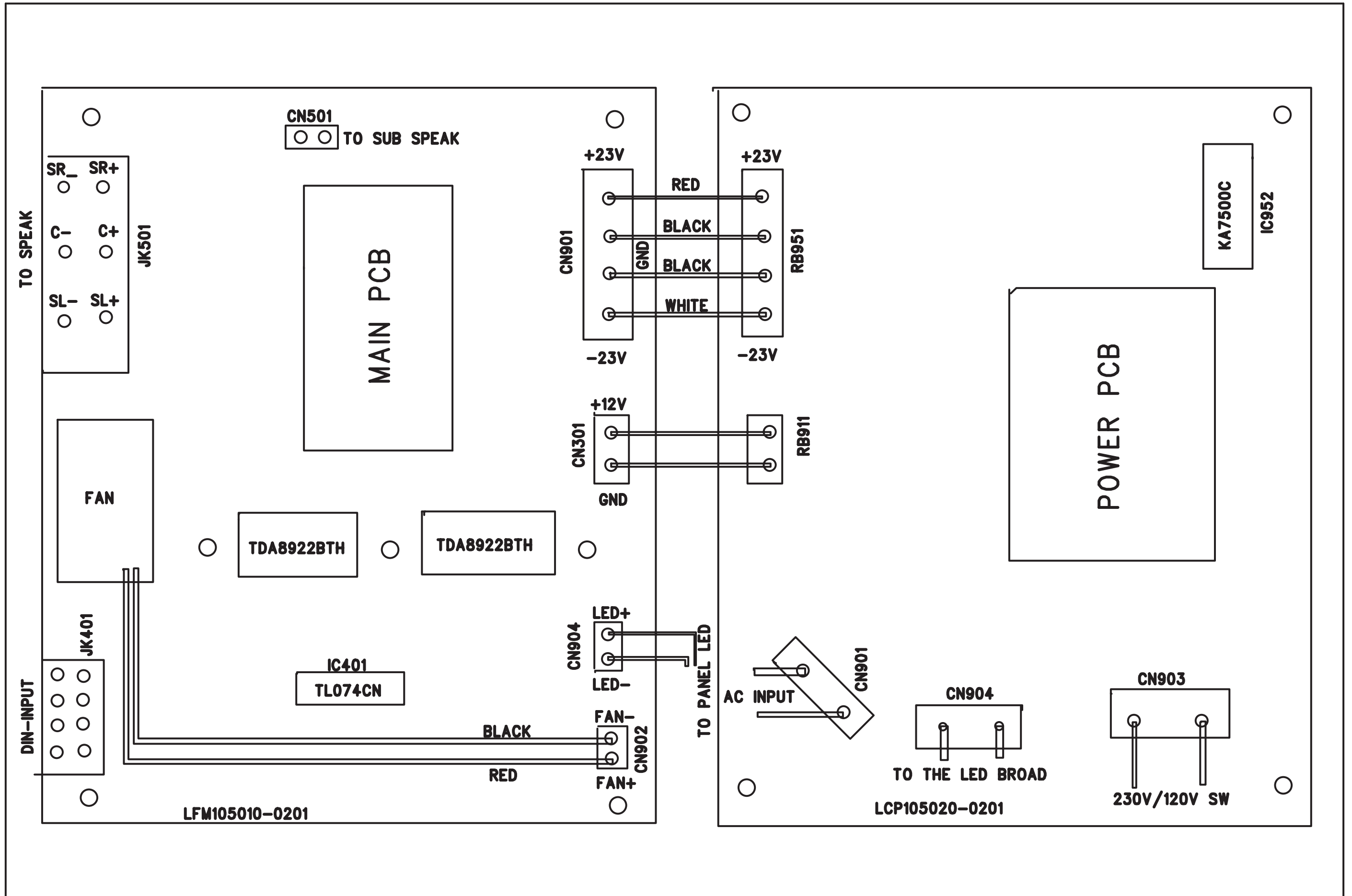
SERVICE POSITION



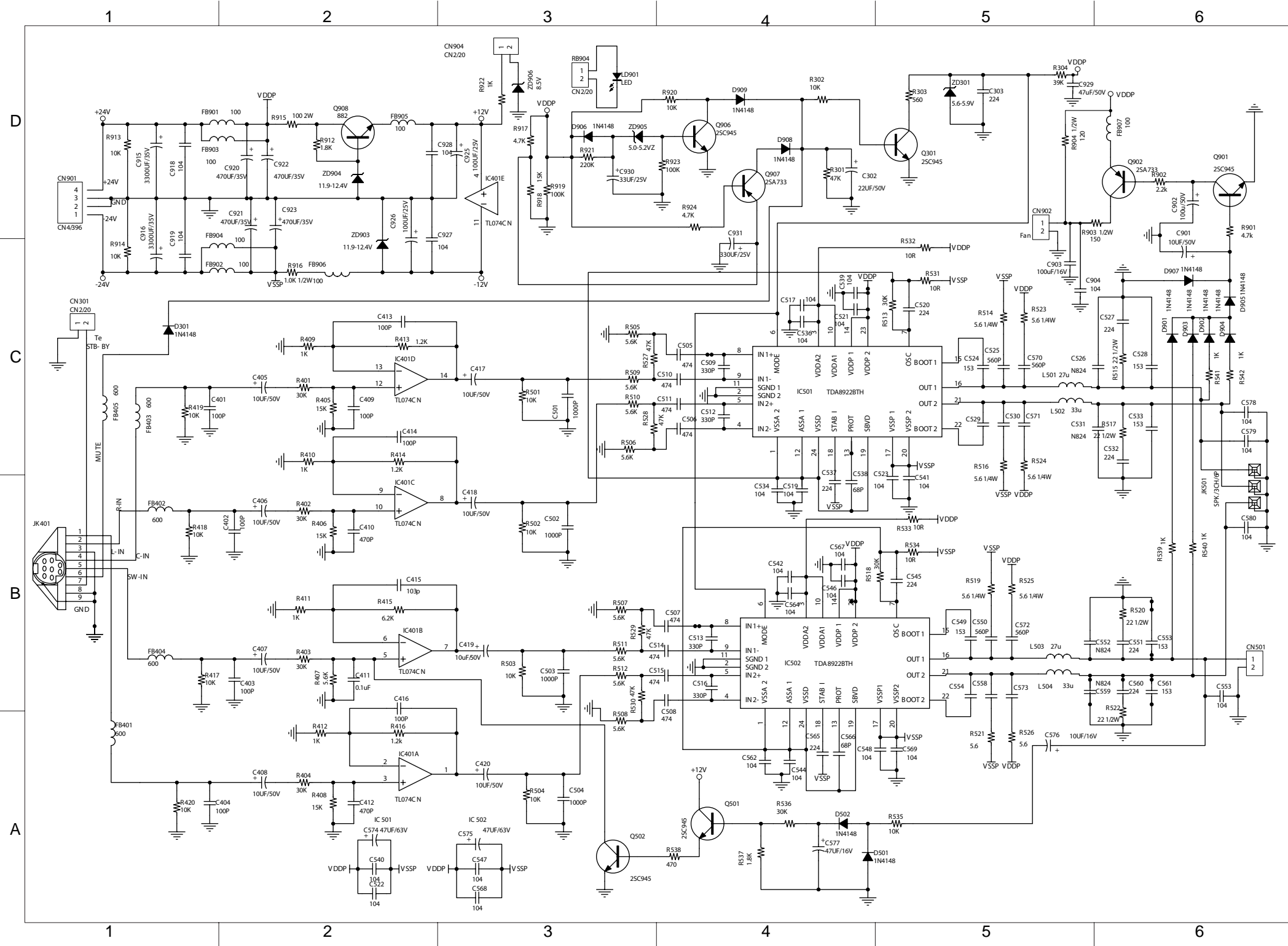
BLOCK DIAGRAM



WIRING DIRGRAM

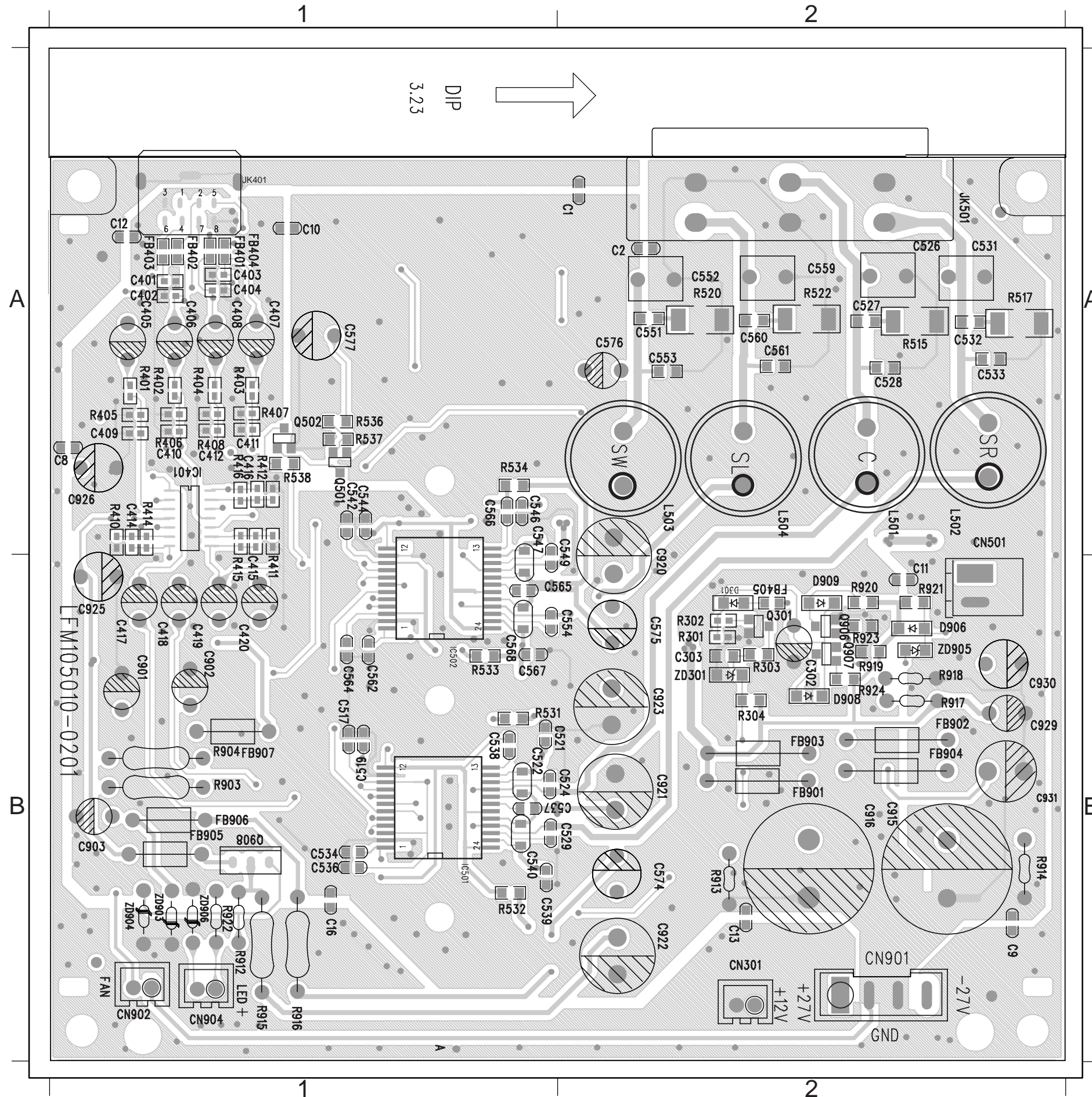


CIRCUIT DIAGRAM - MAIN BOARD



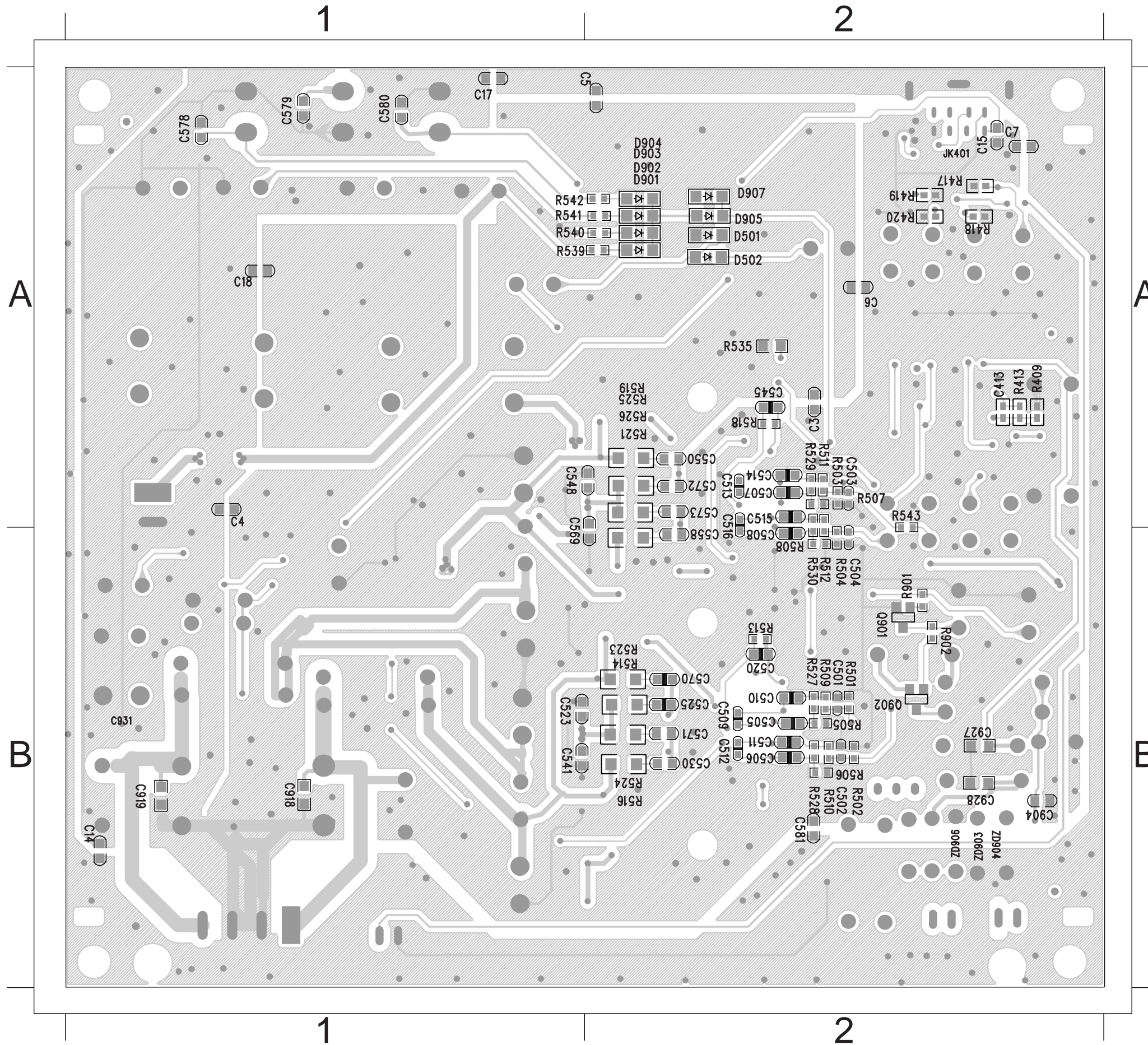
C302	D4	C562	A4	Q502	A3	R917	D3
C303	D5	C564	B4	Q901	D6	R918	D3
C401	C1	C565	A4	Q902	D6	R919	D3
C402	B2	C566	A4	Q906	D4	R920	D4
C403	B2	C567	B4	Q907	D4	R921	D3
C404	A1	C568	A3	Q908	D2	R922	D3
C405	C2	C569	A5	R301	D4	R923	D4
C406	B2	C570	C5	R302	D4	R924	D4
C407	B2	C571	C5	R303	D5	ZD301	D5
C408	A2	C572	B5	R304	D5	ZD903	C2
C409	C2	C573	B5	R401	C2	ZD904	D2
C410	B2	C574	A2	R402	B2	ZD905	D3
C411	B2	C575	A3	R403	B2	ZD906	D3
C412	A2	C576	A5	R404	A2		
C413	C2	C577	A4	R405	C2		
C414	C2	C578	C6	R406	B2		
C415	B2	C579	C6	R407	B2		
C416	B2	C580	B6	R408	A2		
C417	C3	C901	C6	R409	C2		
C418	B3	C902	D6	R410	C2		
C419	B3	C903	C5	R411	B2		
C420	A3	C904	C5	R412	A2		
C501	C3	C915	D1	R413	D2		
C502	B3	C916	C1	R414	C2		
C503	B3	C918	D1	R415	B2		
C504	A3	C919	C1	R416	A2		
C505	C4	C920	D2	R501	C3		
C506	C4	C921	D2	R502	B3		
C507	B4	C922	D2	R503	B3		
C508	B4	C923	D2	R504	A3		
C509	C4	C925	D3	R505	C3		
C510	C4	C926	D2	R506	C3		
C511	C4	C927	D2	R507	B3		
C512	C4	C928	D2	R508	A3		
C513	B4	C929	D6	R509	C3		
C514	B4	C930	D3	R510	C3		
C515	B4	C931	C4	R511	B3		
C516	B4	CN301	C1	R512	B3		
C517	C4	CN501	B6	R513	C5		
C519	B4	CN901	D1	R514	C5		
C520	C5	CN902	D5	R515	C6		
C521	C4	D301	C1	R516	C5		
C522	A2	D501	A4	R517	C6		
C523	B5	D502	A4	R518	B5		
C524	C5	D901	C6	R519	B5		
C525	C5	D902	C6	R520	B6		
C526	C5	D903	C6	R521	A5		
C527	C6	D904	C6	R522	B6		
C528	C6	D905	C6	R523	C5		
C529	C5	D906	D3	R524	C5		
C530	C5	D907	C6	R525	B5		
C531	C5	D908	D4	R526	A5		
C532	C6	D909	D4	R527	C3		
C533	C6	DZ	D3	R528	C3		
C534	B4	FB401	A1	R529	B3		
C536	C4	FB402	B1	R530	B3		
C537	B4	FB403	C1	R531	C5		
C538	B4	FB404	B1	R532	C5		
C539	C4	FB405	C1	R533	B5		
C540	A2	FB901	D1	R534	B5		
C541	B5	FB902	D1	R535	A5		
C542	B2	FB903	D1	R536	A4		
C544	A4	FB904	D1	R537	A4		
C545	B5	FB905	D2	R538	A4		
C546	B4	FB906	C2	R539	B6		
C547	A3	FB907	D6	R540	B6		
C548	A5	IC401	A2	R541	C6		
C549	B5	IC501	A2	R542	C6		
C550	B5	IC502	A3	R901	D6		
C551	B6	JK401	B1	R902	D6		
C552	B5	JK501	B6	R903	D5		
C553	B6	L501	C5	R904	D5		
C554	B5	L502	C5	R912	D2		
C558	B5	L503	B5	R913	D1		
C559	B5	L504	B5	R914	C1		
C560	B6	Q301	D5	R915	D2		
C561	B6	Q501	A4	R916	C2		

MAIN PCB LAYOUT TOP VIEW



C302	B2	C929	B2	R917	B2
C303	B2	C930	B2	R918	B2
C401	A1	C931	B2	R919	B2
C402	A1	CN301	B2	R920	B2
C403	A1	CN501	B2	R921	B2
C404	A1	CN901	B2	R922	B1
C405	A1	CN902	B1	R923	B2
C406	A1	CN904	B1	R924	B2
C407	A1	D301	B2	ZD301	B2
C408	A1	D906	B2	ZD903	B1
C409	A1	D908	B2	ZD904	B1
C410	A1	D909	B2	ZD905	B2
C411	A1	FB401	A1	ZD906	B1
C412	A1	FB402	A1		
C414	A1	FB403	A1		
C415	A1	FB404	A1		
C416	A1	FB405	B2		
C417	B1	FB901	B2		
C418	B1	FB902	B2		
C419	B1	FB903	B2		
C420	B1	FB904	B2		
C517	B1	FB905	B1		
C519	B1	FB906	B1		
C521	B1	FB907	B1		
C522	B1	IC401	A1		
C524	B1	IC501	B1		
C526	A2	IC502	B1		
C527	A2	JK501	A2		
C528	A2	L501	A2		
C529	B1	L502	A2		
C531	A2	L503	A2		
C532	A2	L504	A2		
C533	A3	Q301	B2		
C534	B1	Q501	A1		
C536	B1	Q502	A1		
C537	B1	Q906	B2		
C538	B1	Q907	B2		
C539	B1	Q908	B1		
C540	B1	R301	B2		
C542	A1	R302	B2		
C544	A1	R303	B2		
C546	A1	R304	B2		
C547	B1	R401	A1		
C549	B1	R402	A1		
C551	A2	R403	A1		
C552	A2	R404	A1		
C553	A2	R405	A1		
C554	B1	R406	A1		
C559	A2	R407	A1		
C560	A2	R408	A1		
C561	A2	R410	A1		
C562	B1	R411	A1		
C564	B1	R412	A1		
C565	B1	R414	A1		
C566	A1	R415	A1		
C567	B1	R416	A1		
C568	B1	R515	A2		
C570	B2	R517	A2		
C571	B2	R520	A2		
C574	B2	R522	A2		
C575	B2	R531	B1		
C576	A2	R532	B1		
C577	A1	R533	B1		
C901	B1	R534	A1		
C902	B1	R536	A1		
C903	B1	R537	A1		
C915	B2	R538	A1		
C916	B2	R903	B1		
C920	B2	R904	B1		
C921	B2	R912	B1		
C922	B2	R913	B2		
C923	B2	R914	B2		
C925	B1	R915	B1		
C926	A1	R916	B1		

MAIN PCB LAYOUT BOTTOM VIEW



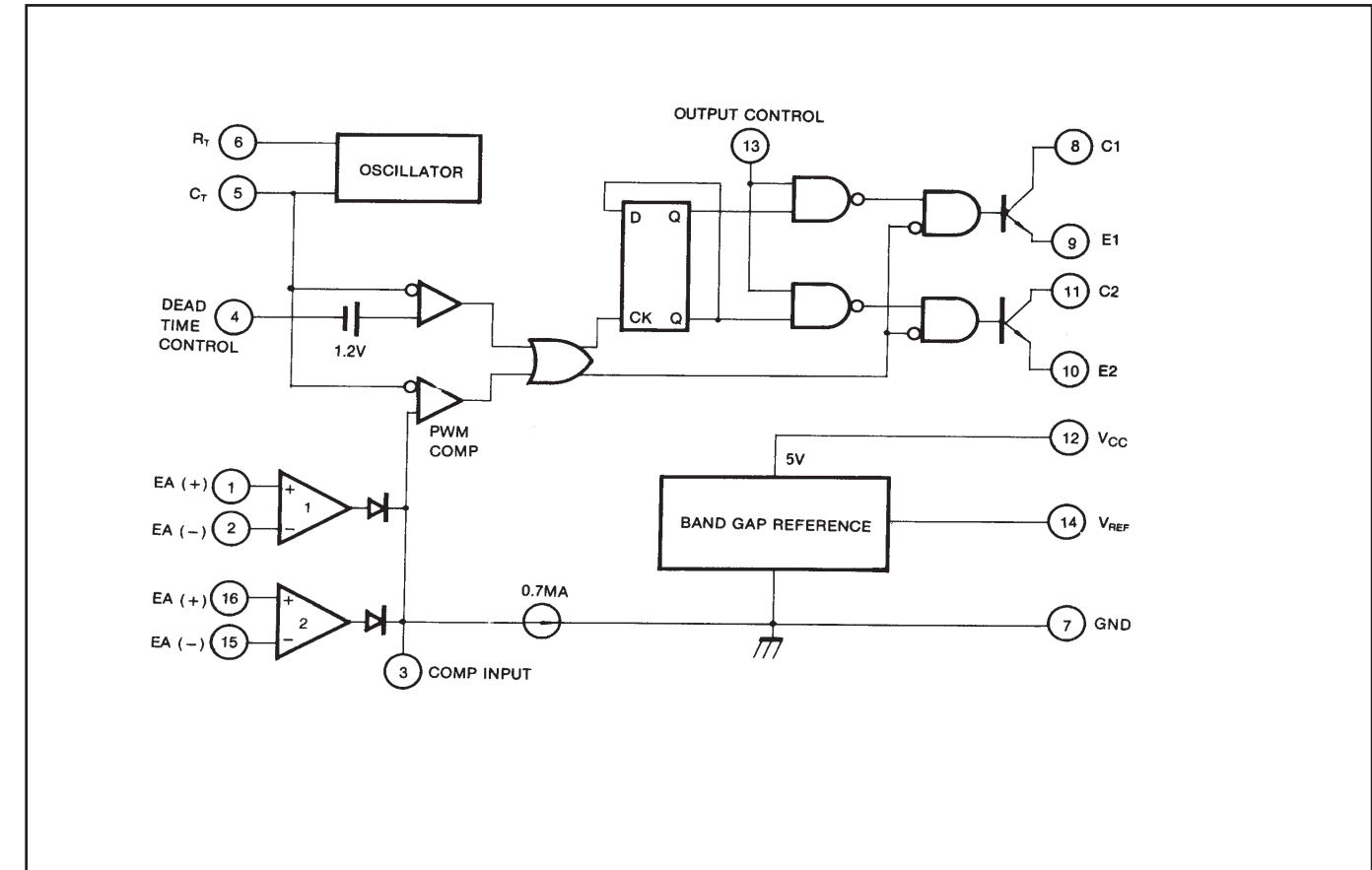
C413	A2	R526	A2
C501	B2	R527	B2
C502	B2	R528	B2
C503	A2	R529	A2
C504	B2	R530	B2
C505	B2	R535	A2
C506	B2	R539	A2
C507	A2	R540	A2
C508	A2	R541	A2
C509	B2	R542	A2
C510	B2	R901	B2
C511	B2	R902	B2
C512	B2		
C513	A2		
C514	A2		
C515	A2		
C516	A2		
C520	B2		
C523	B1		
C525	B2		
C530	B2		
C541	B1		
C545	A2		
C548	A2		
C550	A2		
C558	A2		
C569	A2		
C572	A2		
C573	A2		
C578	A1		
C579	A1		
C580	A1		
C904	B2		
C918	B1		
C919	B1		
C927	B2		
C928	B2		
D501	A2		
D502	A2		
D901	A2		
D902	A2		
D903	A2		
D904	A2		
D905	A2		
D907	A2		
JK401	A1		
Q901	B2		
Q902	B2		
R409	A2		
R413	A2		
R501	B2		
R502	B2		
R503	A2		
R504	B2		
R505	B2		
R506	B2		
R507	A2		
R508	A2		
R509	B2		
R510	B2		
R511	A2		
R512	A2		
R513	B2		
R514	B2		
R516	B2		
R518	A2		
R519	A2		
R521	A2		
R523	B2		
R524	B2		
R525	A2		

ELECTRICAL PARTS LIST- SUBWOOFER MAIN BOARD

C915	9965 000 19963	COND ELECT 3300 μ F 35V 20%
C916	9965 000 19963	COND ELECT 3300 μ F 35V 20%
D501	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D502	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D901	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D902	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D903	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D904	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D905	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D906	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D907	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D908	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D909	9965 000 19409	DIODE CHIP BAV16W/IN4148W
IC401	9940 000 02064	IC 14P TL074CDT
IC501	9940 000 01583	IC 24P TDA8922B
IC502	9940 000 01583	IC 24P TDA8922B
JK401	9965 000 22220	DIN JACK 8PIN
JK501	9940 000 02062	SPK JACK 6P G-G-B/BX3
Q301	9940 000 00915	XISTR NPN 2SC1623
Q501	9940 000 00915	XISTR NPN 2SC1623
Q502	9940 000 00915	XISTR NPN 2SC1623
Q901	9940 000 00915	XISTR NPN 2SC1623
Q902	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
Q906	9940 000 00915	XISTR NPN 2SC1623
Q907	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
Q908	9965 000 28742	XISTR NPN 2SD882P
ZD301	9965 000 26930	CHIP ZENER 5.6V 0.05 0.5W (E2)
ZD903	9965 000 26940	DIODE ZENR 11.9-12.4V 0.5W
ZD904	9965 000 26940	DIODE ZENR 11.9-12.4V 0.5W
ZD905	9965 000 15910	ZENER DIODE
ZD906	9940 000 02063	DIODE ZENER 8.5-8.9V 0.5W

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

IC-KA7500C INTERNAL IC DIAGRAM

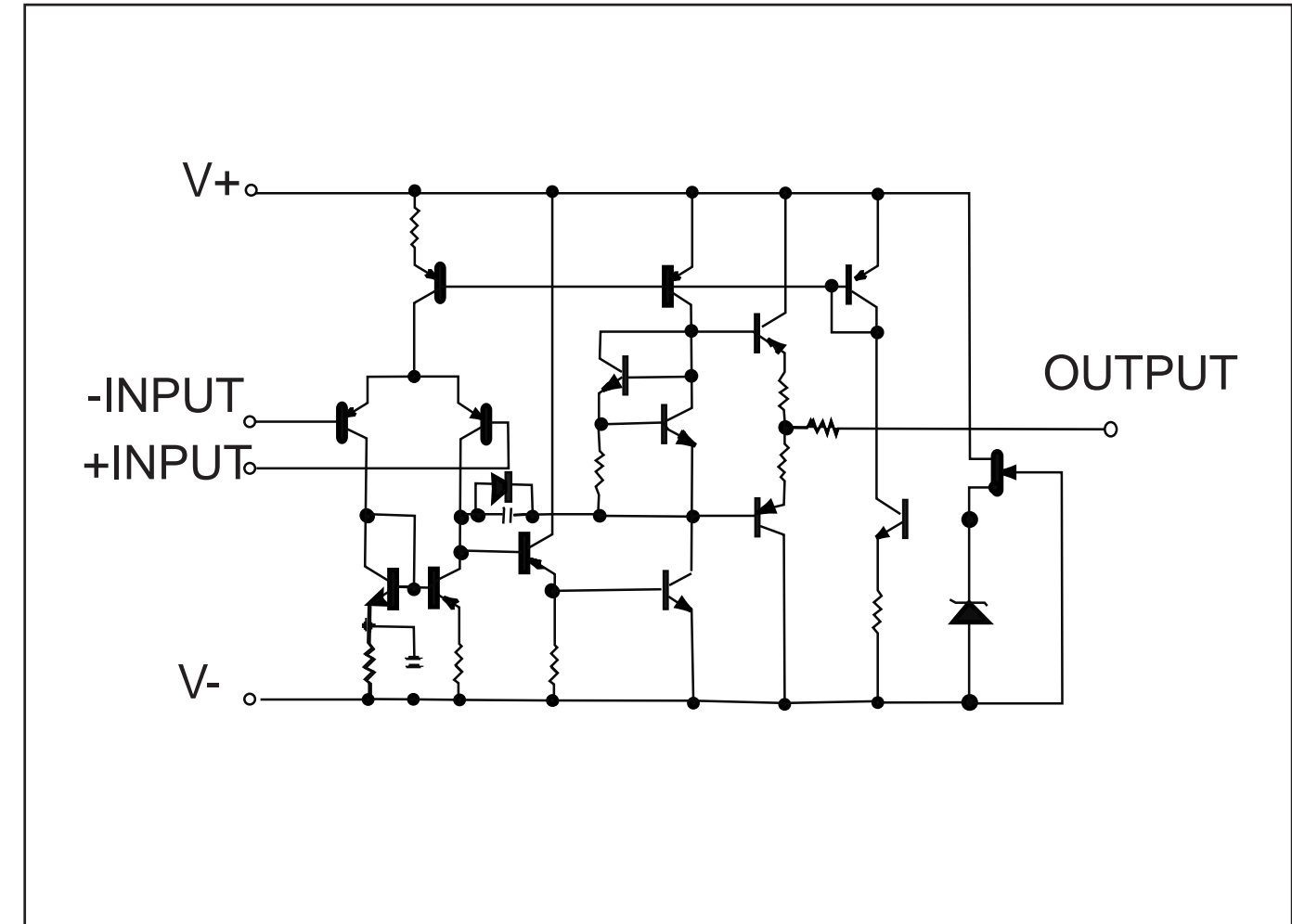


POWER + LED BOARDS

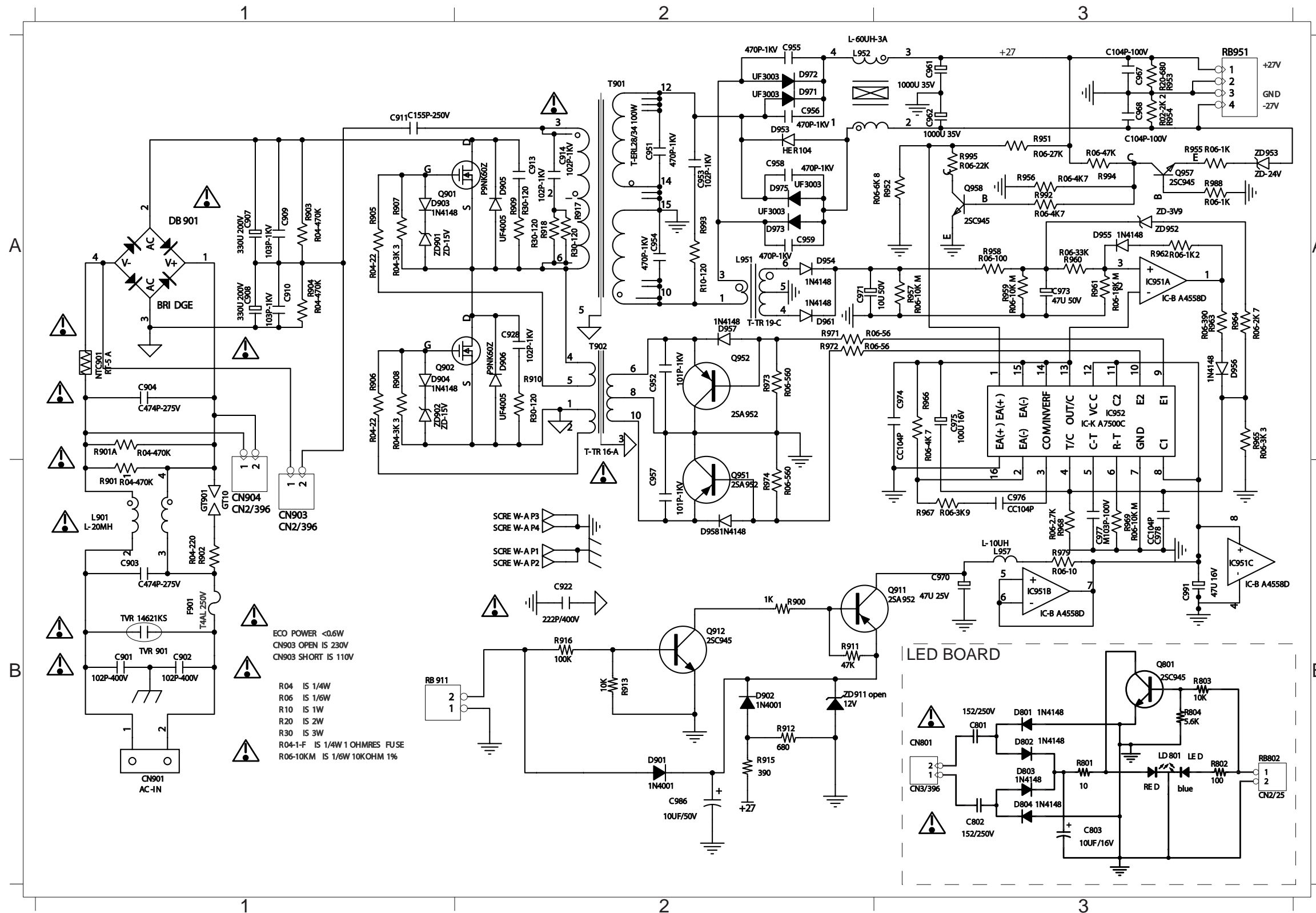
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IC-BA4558D INTERNAL IC DIAGRAM

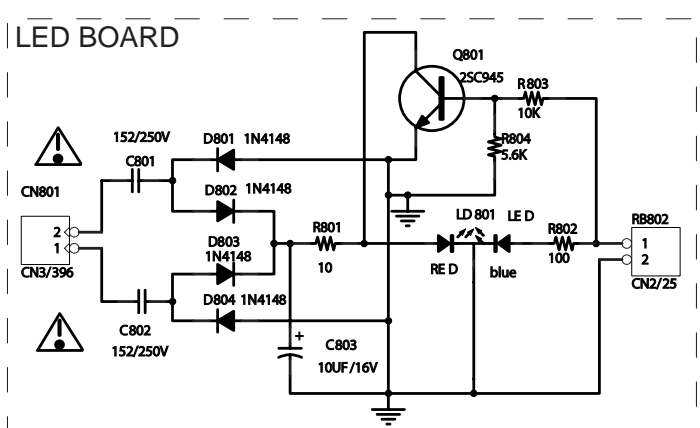


CIRCUIT DIRGRAM :-POWER & LED BOARD



ECO POWER <0.6W
 CN903 OPEN IS 230V
 CN903 SHORT IS 110V

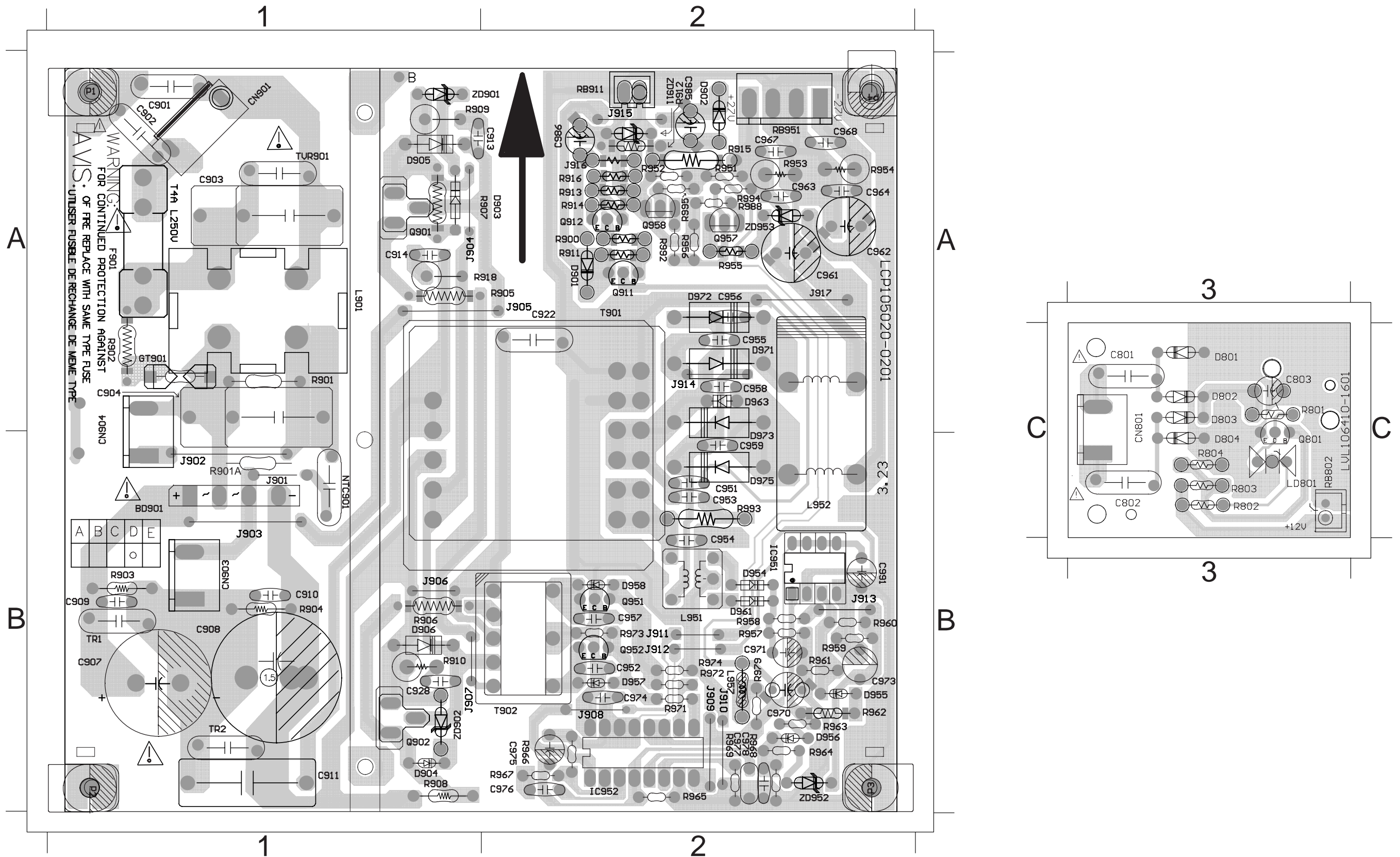
R04 IS 1/4W
 R06 IS 1/6W
 R10 IS 1W
 R20 IS 2W
 R30 IS 3W
 R04-1-F IS 1/4W 1 OHMRES FUSE
 R06-10KM IS 1/6W 10KOHM 1%



BD901	A1	Q957	A3
C801	C3	Q958	A3
C802	C3	R801	C3
C803	C3	R802	C3
C901	B1	R803	C3
C902	B1	R804	C3
C903	B1	R900	B2
C904	A1	R901	B1
C907	A1	R901A	A1
C908	A1	R902	B1
C909	A1	R903	A1
C910	A1	R904	A1
C911	A1	R905	A1
C913	A2	R906	A1
C914	A2	R907	A1
C922	B2	R908	A1
C928	A2	R909	A2
C951	A2	R910	A2
C953	A2	R911	B2
C954	A2	R912	B2
C955	A2	R913	B2
C958	A2	R915	B2
C959	A2	R916	B2
C961	A3	R918	A2
C962	A3	R951	A3
C967	A3	R952	A3
C968	A3	R953	A3
C970	B3	R954	A3
C971	A2	R955	A3
C973	A3	R956	A3
C974	A3	R957	A3
C975	A3	R958	A3
C976	B3	R959	A3
C977	B3	R960	A3
C991	B3	R961	A3
CN801	C3	R962	A3
CN901	B1	R963	A3
CN903	B1	R964	A3
CN904	B1	R965	A3
D801	C3	R966	A3
D802	C3	R967	B3
D803	C3	R968	B3
D804	C3	R969	B3
D901	B2	R971	A2
D902	B2	R972	A2
D903	A1	R973	A2
D904	A1	R974	B2
D905	A2	R979	B3
D906	A2	R988	A3
D954	A2	R992	A3
D955	A3	R993	A2
D956	A3	R994	A3
D957	A2	R995	A3
D958	B2	RB802	C3
D961	A2	RB911	B1
D971	A2	RB951	A3
D972	A2	T901	A2
D973	A2	T902	A2
D975	A2	TVR901	B1
F901	B2	ZD901	A1
IC951	A3	ZD902	A1
L901	B1	ZD952	A3
L951	A2	ZD953	A3
L952	A2		
L957	B3		
LD801	C3		
NTC901	A1		
Q801	C3		
Q901	A2		
Q902	A2		
Q911	B3		
Q912	B2		
Q951	B2		
Q952	A2		

PCB LAYOUT : POWER & LED BOARD

BD901	B1	C909	B1	C955	A2	C974	B2	D802	C3	D955	B2	IC951	B2	J909	B2	L952	B2	Q952	B2	R902	A1	R912	A2	R955	A2	R965	B2	R988	A2	TR1	B1
C801	C3	C910	B1	C958	A2	C975	B2	D803	C3	D956	B2	IC952	B2	J910	B2	L957	B2	Q957	A2	R903	B1	R913	A2	R956	A2	R966	B2	R992	A2	TR2	B1
C802	C3	C911	B1	C959	B2	C976	B2	D804	C3	D957	B2	J901	B1	J911	B2	LD801	C3	Q958	A2	R904	B1	R914	A2	R957	B2	R967	B2	R993	B2	TVR901	A1
C803	C3	C913	A1	C961	A2	C977	B2	D901	A2	D958	B2	J902	B1	J912	B2	NTC901	B1	R801	C3	R905	A1	R915	A2	R958	B2	R968	B2	R994	A2	ZD901	A1
C901	A1	C914	A1	C962	C2	C991	B2	D902	A2	D961	B2	J903	B1	J913	A2	Q801	C3	R802	C3	R906	B1	R916	A2	R959	B2	R969	B2	R995	A2	ZD902	B1
C902	A1	C922	A2	C967	A2	CN801	C3	D903	A2	D971	A2	J904	A1	J914	A2	Q901	A1	R803	C3	R907	A1	R918	A1	R960	B2	R971	B2	RB802	C3	ZD952	B2
C903	A1	C928	B1	C968	A2	CN901	A1	D904	B1	D972	A2	J905	A1	J915	A2	Q902	B1	R804	C3	R908	B1	R951	A2	R961	B2	R972	B2	RB911	A2	ZD953	A2
C904	A1	C951	B2	C970	B2	CN903	B1	D905	A1	D973	A2	J906	B1	J916	A2	Q911	A2	R900	A2	R909	A1	R952	A2	R962	B2	R973	B2	RB951	A2		
C907	B1	C953	B2	C971	B2	CN904	A1	D906	B1	D975	B2	J907	B1	J917	A1	Q912	A2	R901	A1	R910	B1	R953	A2	R963	B2	R974	B2	T901	A2		
C908	B1	C954	B2	C973	B2	D801	C3	D954	B2	F901	A1	J908	B2	L951	B2	Q951	B2	R901A	B1	R911	A2	R954	A2	R964	B2	R979	B2	T902	B2		



ELECTRICAL PARTS LIST - SUBWOOFER POWER BOARD

BD901	9965 000 38405	BRIDGE KBU808 8A 800V
C902	△ 9965 000 27115	CAP. SAFTY 102PF 250V 20%
C903	△ 9940 000 00932	COND SAFTY 0.47 μF 275V 10%
C904	△ 9940 000 00932	COND SAFTY 0.47 μF 275V 10%
C913	9965 000 20261	COND DISC 0.001μF 1KV 20%
C914	9965 000 20261	COND DISC 0.001μF 1KV 20%
C928	9965 000 20261	COND DISC 0.001μF 1KV 20%
C951	9965 000 20264	COND DISC 470PF 1KV 10%
C953	9965 000 20261	COND DISC 0.001μF 1KV 20%
C954	9965 000 20264	COND DISC 470PF 1KV 10%
C955	9965 000 20264	COND DISC 470PF 1KV 10%
C958	9965 000 20264	COND DISC 470PF 1KV 10%
C959	9965 000 20264	COND DISC 470PF 1KV 10%
D905	9965 000 38399	DIODE UF4005 1A 600V
D906	9965 000 38399	DIODE UF4005 1A 600V
D971	9940 000 00943	DIODE UF3003 3A 200V
D972	9940 000 00943	DIODE UF3003 3A 200V
D973	9940 000 00943	DIODE UF3003 3A 200V
D975	9940 000 00943	DIODE UF3003 3A 200V
F901	△ 9940 000 01567	FUSE 4A 250V
IC951	9940 000 00949	IC 8PIN JRC4558D
IC952	9940 000 00951	IC 16PIN KA7500C
L901	9940 000 02066	LINE FILTER 4P 42.0MH +/-30%
L951	9965 000 27102	TOROID COIL S1=1TS D0.65MMX2
L952	9965 000 38403	COM. COIL 60μH +/-10% 3A 1KHZ
NTC901	9940 000 00957	NTC 5Ω 5A
Q901	9940 000 01573	MOSFET STP9NK50Z
Q901	9965 000 38406	MOSFET STP10NK60Z 10A 600V
Q902	9940 000 01573	MOSFET STP9NK50Z
Q902	9965 000 38406	MOSFET STP10NK60Z 10A 600V
Q911	9965 000 26939	XISTR PNP 2SA952 NEC
Q912	4822 130 41198	2SC945P
Q951	9965 000 26939	XISTR PNP 2SA952 NEC
Q952	9965 000 26939	XISTR PNP 2SA952 NEC
Q957	4822 130 41198	2SC945P
Q958	4822 130 41198	2SC945P
T901	△ 9965 000 38397	TRASFO ERL28/34 100W
T902	△ 9940 000 01057	SW. MODEL TRANSFORMER
TR1	9965 000 27114	VARISTOR FOR SURGE VOLT. TVR10
TR2	9965 000 27114	VARISTOR FOR SURGE VOLT. TVR10
ZD901	9940 000 02067	DIODE ZENR 14.5-15.1V 0.5W
ZD902	9940 000 02067	DIODE ZENR 14.5-15.1V 0.5W
ZD952	9965 000 27138	DIODE ZENR 3.8-4.0V 0.5W
ZD953	9965 000 27139	DIODE ZENR 23.6-24.7V 0.5W

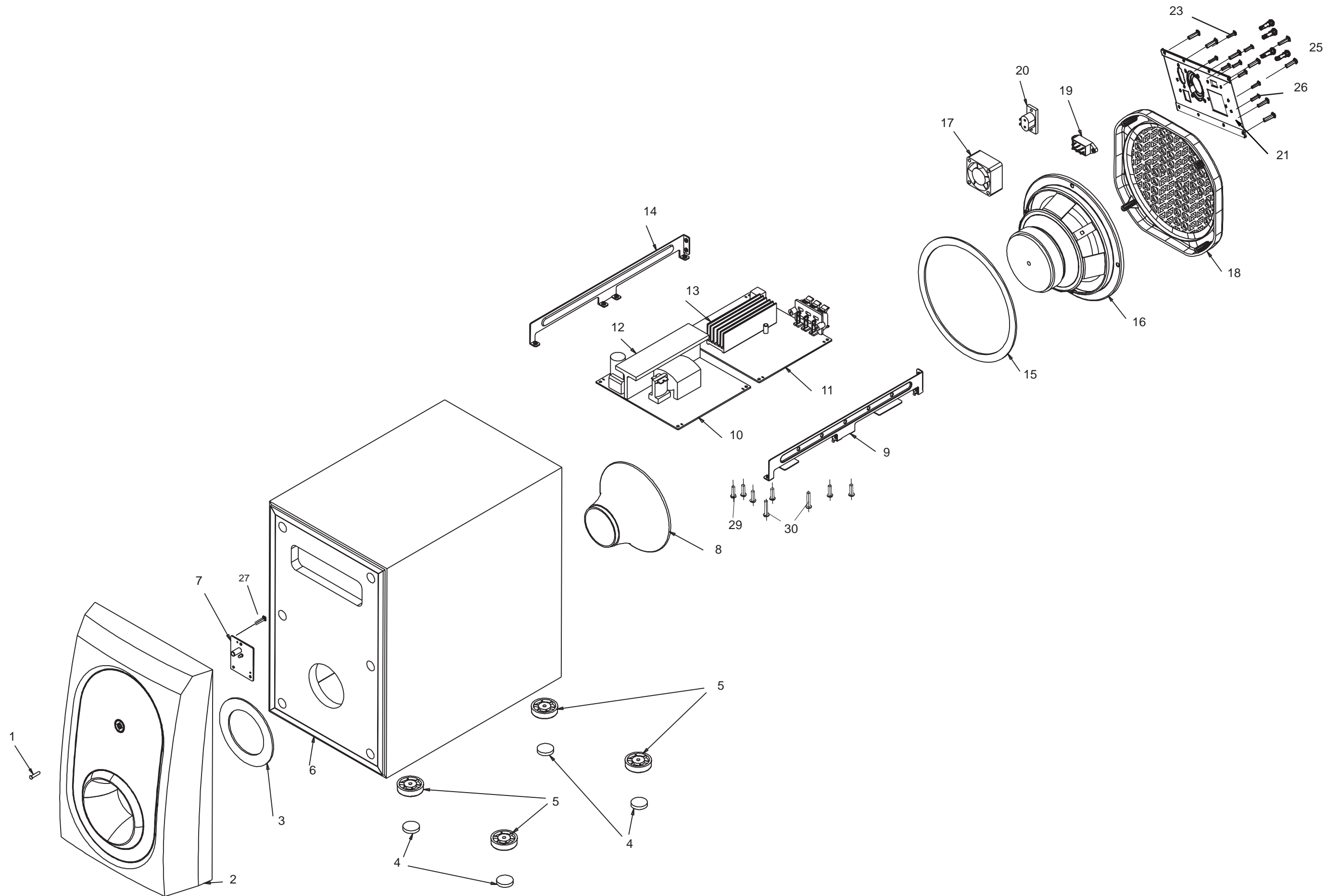
Note: Only these parts mentioned in the list are normal service parts.

ELECTRICAL PARTS LIST - SUBWOOFER LED BOARD

C801	△ 9965 000 38398	CAP. SAFTY 152PF 250V 20%
C802	△ 9965 000 38398	CAP. SAFTY 152PF 250V 20%
LD801	9965 000 38400	LED D3 RED/BLU LENS
Q801	4822 130 41198	2SC945P

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

MECHANICAL EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST - SUBWOOFER

02	9965 000 38404	FRONT CABINET
17	9940 000 02073	DC FAN 12V 70mA 0.8W
18	9965 000 15949	GRILLE
19	9940 000 01059	AC SLIDE SW
20	△ 9965 000 20576	AC SOCKET SO-222-PC-S
	9940 000 00615	DIN CABLE 8 PIN 1500MM

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