



Service
Service
Service



Service Manual

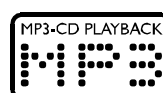
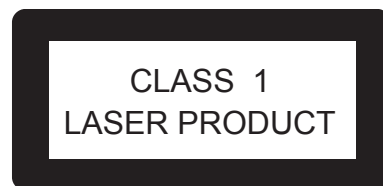


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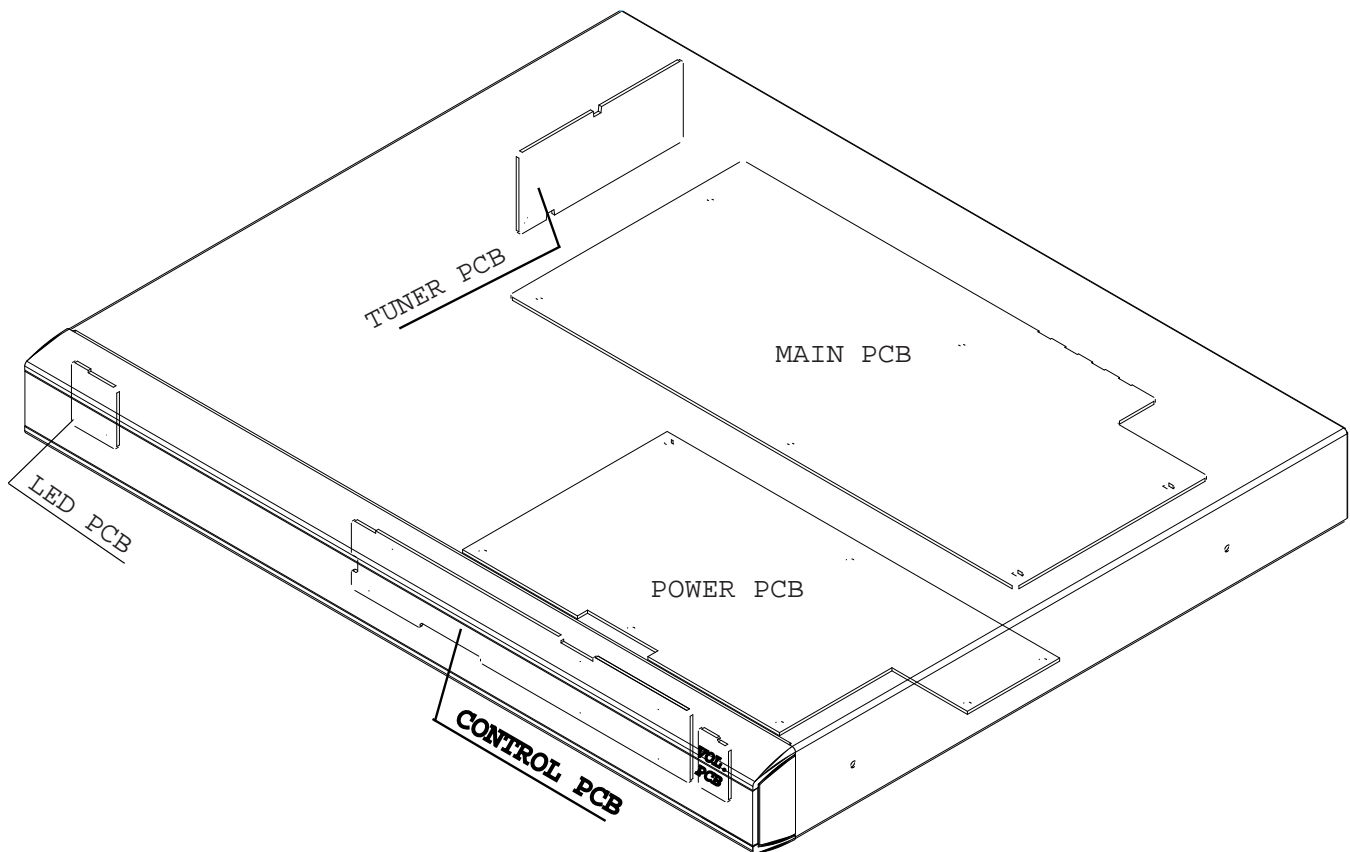
GB 3139 785 31070

Version 1.0



PHILIPS

LOCATION OF PC BOARDS



VERSION VARIATION:

Type /Versions:	HTS3400
Features & Board in used:	/ 37
RDS	
Rotary Encoder (volume control)	X
Aux Input	X
Digital Output	X
Line Output	X
Progressive scan	X
Power supply (120V)	X

SPECIFICATIONS

AMPLIFIER SECTION

Output power	500 W Total power
- Front	70 W RMS / channel
.....	60 W FTC®/channel
- Rear	70 W RMS / channel
- Center	70 W RMS
- Subwoofer	100 W RMS
Frequency Response	180 Hz - 14 kHz / ±3 dB
Signal-to-Noise Ratio	> 60 dB (A-weight)
Input Sensitivity	
AUX/TV In	400 mV

① 8ohm, 120Hz-12.5 KHz, 10% THD

TUNER SECTION

Tuning Range	FM 87.5 – 108 MHz (100 kHz steps)
.....	AM 530 – 1710 kHz (10 kHz steps)
26 dB Quieting Sensitivity	FM 20 dBf
26 dB Quieting Sensitivity	AM 5000 μV/m
Image Rejection Radio	FM 25 dB
.....	AM 28 dB
IF Rejection Ratio	FM 60 dB
.....	AM 24 dB
Signal-to-Noise Ratio	FM 55 dB
.....	AM 40 dB
AM Suppression Ratio	FM 30 dB
Harmonic Distortion	FM Mono 3 %
.....	FM Stereo 3 %
.....	AM 5 %
Frequency Response	FM 180 Hz – 10 kHz / ±6 dB
Stereo Separation	FM 26 dB (1 kHz)
Stereo Threshold	FM 23.5 dB

DISC 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	IEC 60958, IEC 61937

MAIN UNIT

Power Supply Rating	120 V / 60 Hz
Power Consumption	160W
Dimensions (w × h × d)	435 × 53 × 365 (mm)
Weight	4.35 kg

SPEAKERS

Front/Rear speakers	
System	2-way, Not magnetically shielded
Impedance	3 Ω
Speaker drivers	3" full-range woofer, 1" conical dome tweeter
Frequency response	140 Hz – 20 kHz
Dimensions (w × h × d)	93 × 169 × 65 (mm)
Weight	0.73 kg (Front speaker) 0.77 kg (Rear speaker)

CENTER SPEAKERS

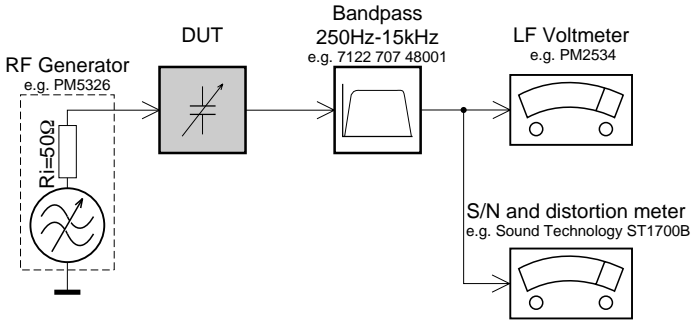
System	2-way, magnetically shielded
Impedance	3 Ω
speaker drivers	2 x 3" full-range woofer, 1" conical dome tweeter
Frequency response	140 Hz – 20 kHz
Dimensions (w × h × d)	245 × 93 × 70 (mm)
Weight	1.37 kg

PASSIVE SUBWOOFER

Impedance	3 Ω
speaker drivers	6 1/2" woofer
Frequency response	40 Hz – 120 kHz
Dimensions (w × h × d)	156 × 360 × 350 (mm)
Weight	4.3 kg

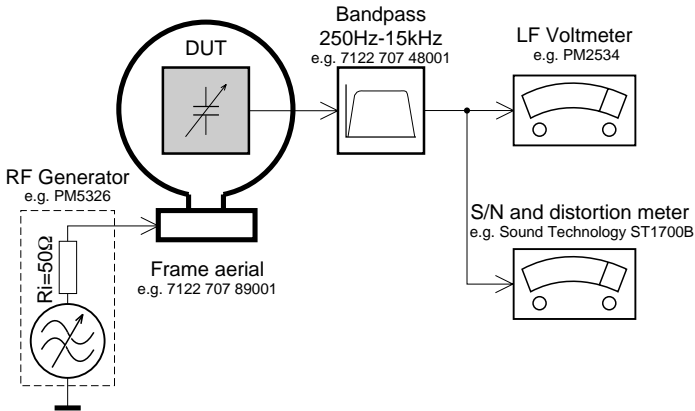
MEASUREMENT SETUP

Tuner FM



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

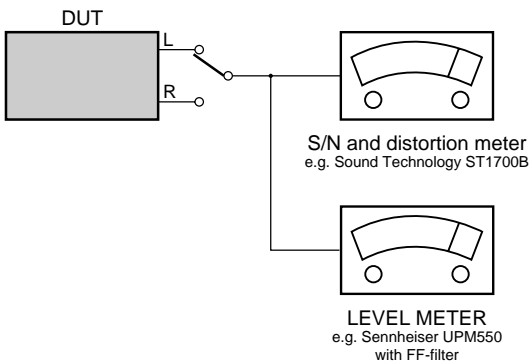
Tuner AM (MW,LW)



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).

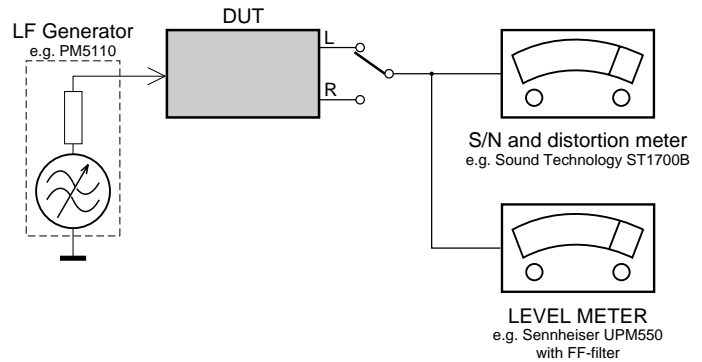
CD

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

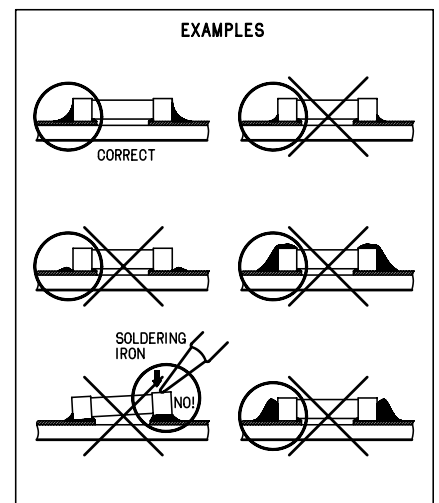
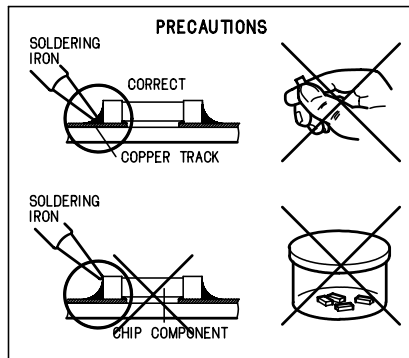
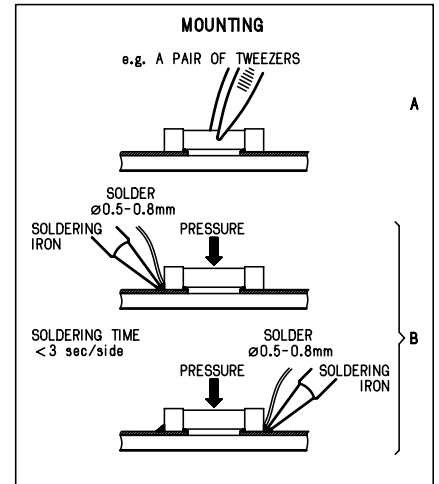
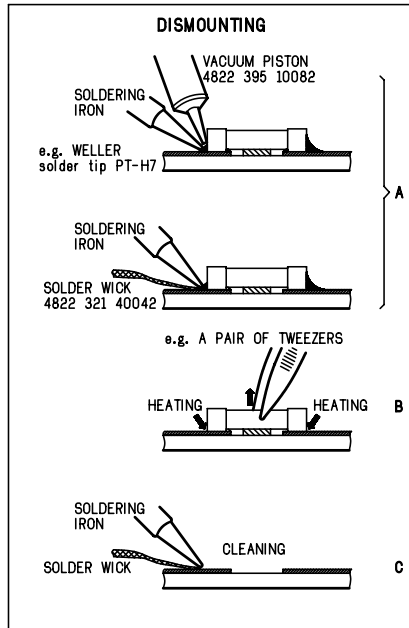
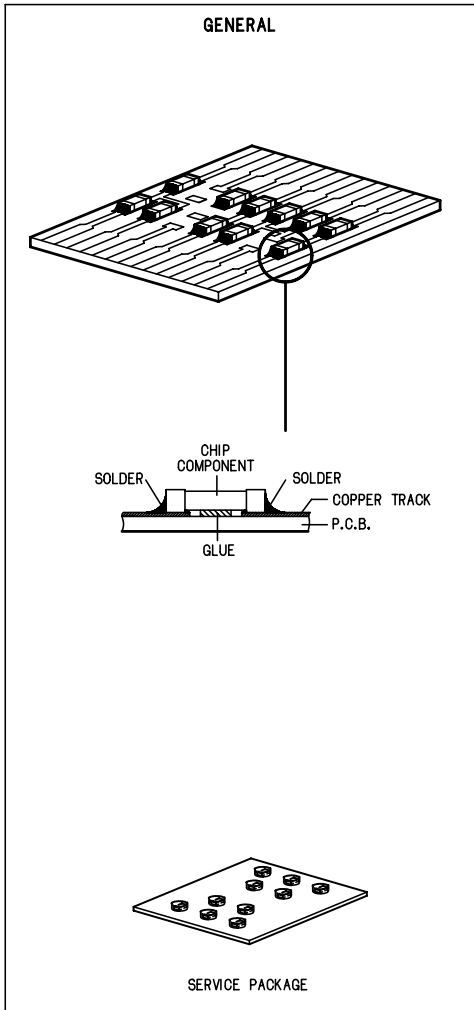
Service Tools:

- Universal Torx driver holder4822 395 91019
- Torx bit T10 150mm4822 395 50456
- Torx driver set T6-T204822 395 50145
- Torx driver T10 extended4822 395 50423

Compact Disc:

- SBC426/426A Test disc 5 + 5A4822 397 30096
- SBC442 Audio Burn-in test disc 1kHz4822 397 30155
- SBC429 Audio Signals disc4822 397 30184
- Dolby Pro-logic Test Disc4822 395 10216

HANDLING CHIP COMPONENTS



(GB) WARNING

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

(F) ATTENTION

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

(D) WARNUNG

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

(NL) WAARSCHUWING

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

(GB) ESD PROTECTION EQUIPMENT

Complete Kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable 4822 310 10671
Wristband tester 4822 344 13999

(GB)

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

Safety components are marked by the symbol \triangle .

(NL)

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

De Veiligheidsonderdelen zijn aangeduid met het symbol \triangle .

(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.

Less composants de sécurité sont marqués \triangle .

(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.

Sicherheitsbauteile sind durch das Symbol \triangle markiert.

(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.

Componenti di sicurezza sono marcati con \triangle .

(GB)

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**(GB) Warning !**

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

(S) Varning !

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

(SF) Varoitus !

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

(DK) Advarse !

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

(F)

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

Pb(Lead) Free Solder

When soldering, be sure to use the pb free solder.

IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from **1 Jan 2005** onwards, according next rules:

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

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

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 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 unused 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.

System, Region code, Tuner, etc. setting procedure

1) System Reset

- Press "SYSTEM" button on R/C. TV show "SETUP"
- Select the menu using the "▼" and "▶" button on R/C
- Go feature setup page to do system reset

2) Region Code Change

After replacement / repair of the MPEG board, the customer setting and the region code may lost. Changing the Region code will put the player back in the state which it has left the factory.

Region Code

1	USA
2	EU
3	AP
4	Australia, NZ, Latam
5	RUSSIA, INDIA
6	CHINA

TV System

1	NTSC
2	PAL
3	AUTO

Menu/ Audio Subtitle (AS) Language

1	English
2	English
3	English
4	English

AFS

001	LX3000D/LX3500D /MRD200
002	MX3600D/MX3800
003	LX3700D/LX3750W
005	MRD210
006	MX3660D
008	FW-D550
010	MRD120/MX6050/HTS3400

oem derivative

08

- region code = 1 digit
- tv system = 1 digit
- "as/menu lang" = 1 digit
- "AFS" = "architecture Feature Set" = 3 digits

This field is used to define the architecture / features sets for each product.

- "oem derivative" = 2 digit

This field is use to define the OEM set. This will affect the background display.

Hence in total, reprograming will be done by way of the remote control. It should run as below :-

- Put the player in stop mode. No disc loaded.
- Press the following key on remote control:

For HTS3400 /37 (US) :

<PLAY> <159> <111> <010> <08> <PLAY>

* After the Region Code is changed it is necessary to reset the system so that the new Region Code will be fully effective. All customer setting will be lost.

* On top of the maximum number of times allowed for changing the region code is changed to 25.

* When the counter reach 25, you will not be able to further change the code until you reset the timer by the Region Code timer reset procedure

CAUTION !

This information is confidential and may not be distributed. Only a qualified service person should reprogram the Region Code.

3) Region code change timer reset

Press below key to reset the timer :

- In DISC source, stop mode and no disc in tray.
- Press R/C "Play -159-PLAY" to reset timer to 25

4) Tuner area change

- Press the "OPEN/CLOSE" button to open the set' s door
- Press "1" "5" "9" button by using R/C.
- TV Show "TUNER AREA"
- Select the tuner area you want by using the "▼" and "▶" button on R/C, then press "OK" to confirm. TV show " TUNER AREA CHANGED"

If you didn' t press it in five seconds, the system will remain original status.

AREA	BAND	FREQUENCY (Hz)		STEP(Hz)
USA (37)	FM	87.5M	108M	50K
	AM	531K	1602K	9K
		530K	1710K	10K

Note :-

Please refer to the above different tuner area.

5. Video Out Change

- Press "SYSTEM" on R/C button
- Select the menu using the "▼" and "▶" button on R/C
- Go picture setup page select Video out item.

6. Password Change

- Press "SYSTEM" on R/C button
 - Select the menu using the "▼" and "▶" button on R/C
 - Go feature setup page select "PASSWORD". TV show "ENTER CODE". Press 4 times of "STOP" button on R/C.
 - Select "PARENTAL" "8 ADULT" on TV.
 - Enter PASSWORD to "1234".
- * "1234" is a default password supplied.

7. Checking on the Software version

- Open the CD door.
- Press "123" and "OK" on the remote control.
- TV will show the version on screen.

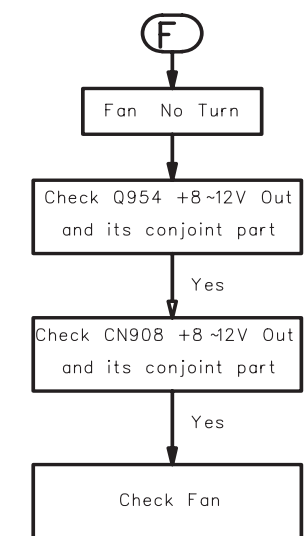
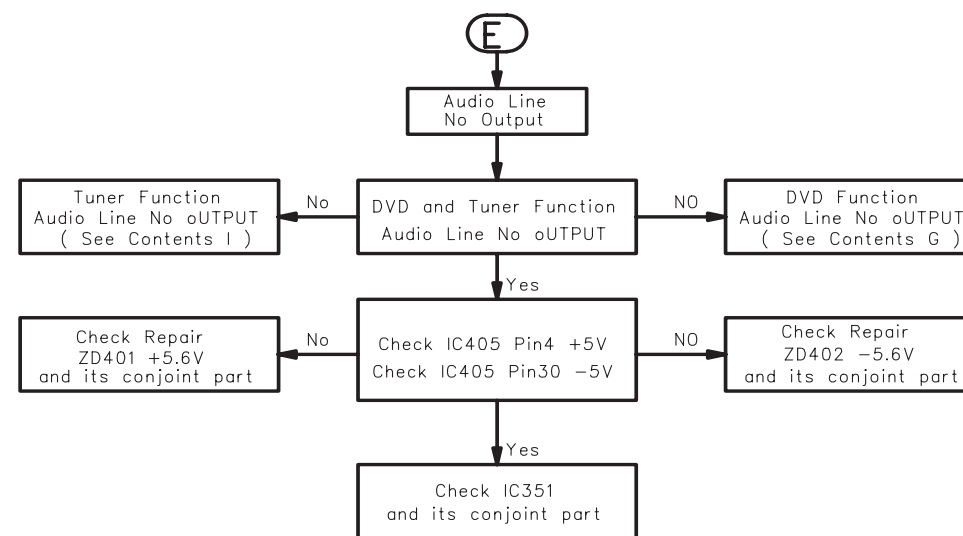
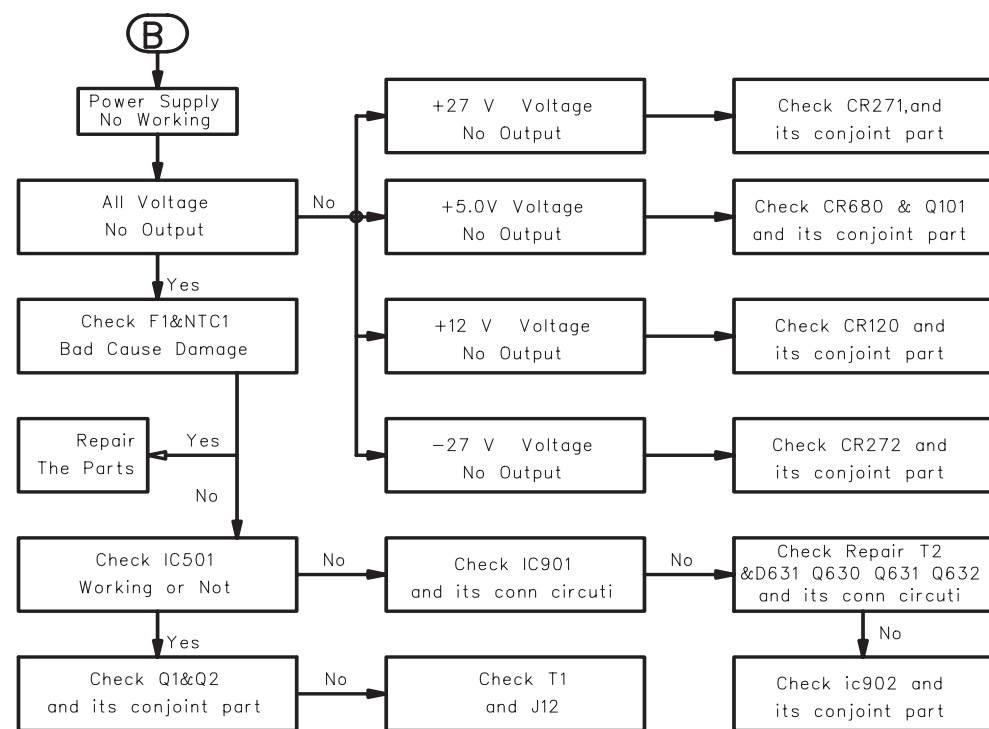
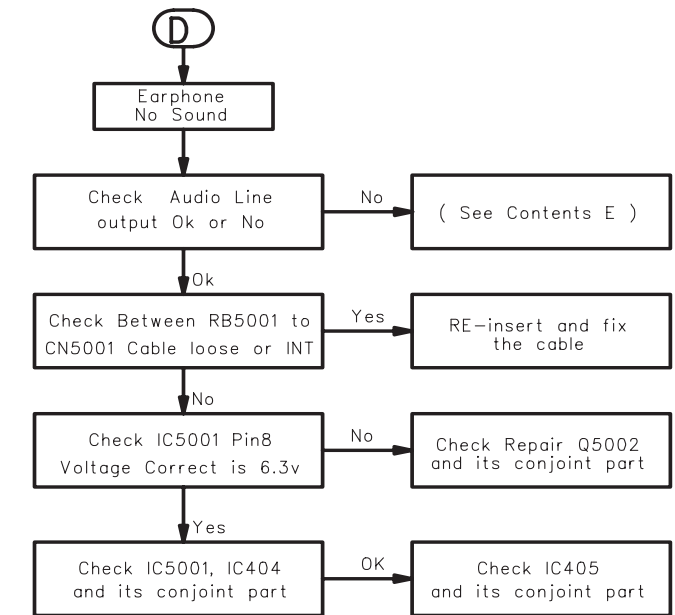
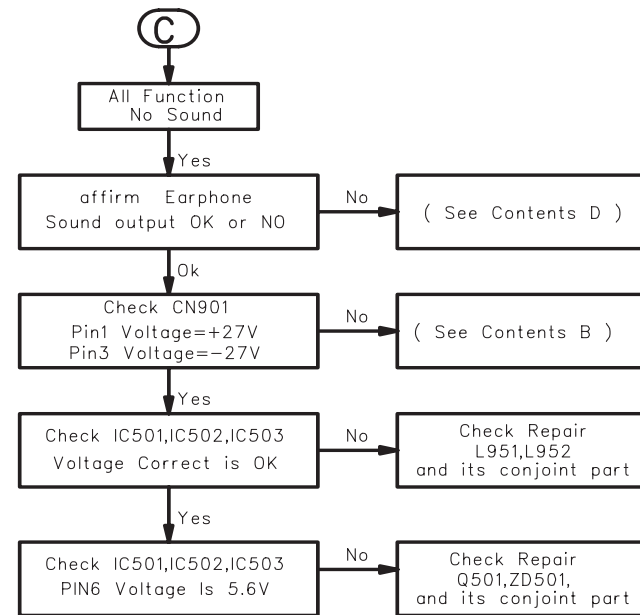
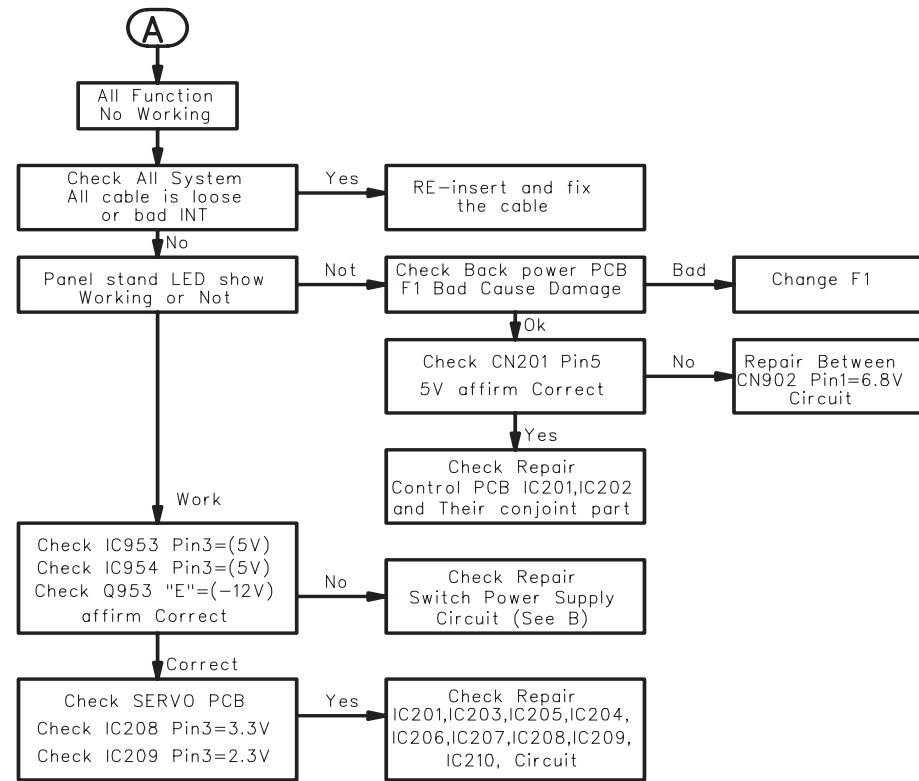
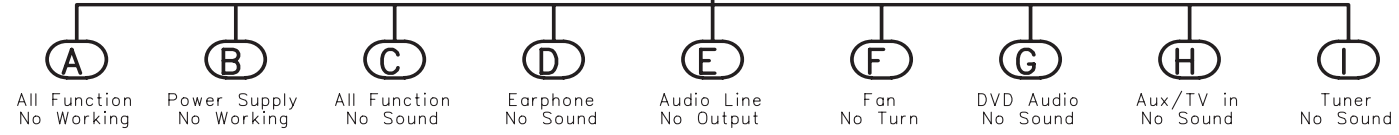
8. Upgrading new software

- Open the door, then insert the CD-R program disc.
- Close the door.
- TV will show:-
 - "disc loading"
 - "bank30.rom"
 - "writing" about 6 seconds.
 - "Done"

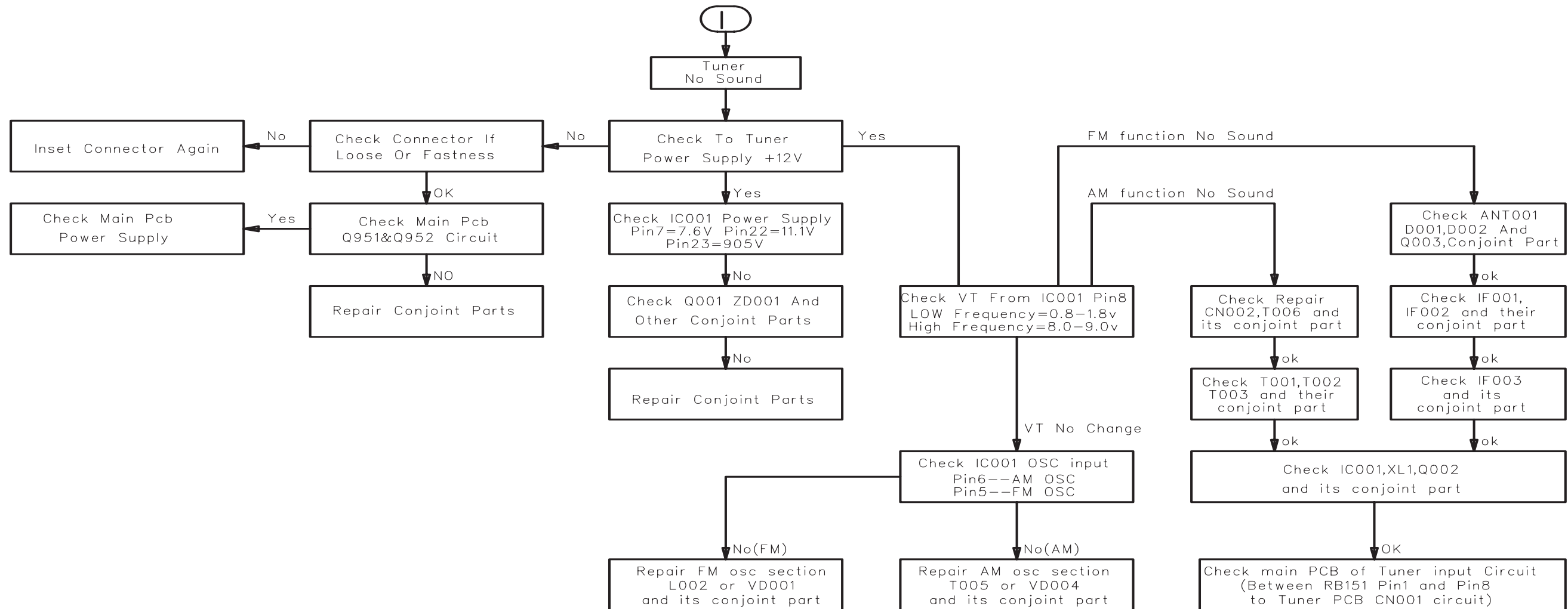
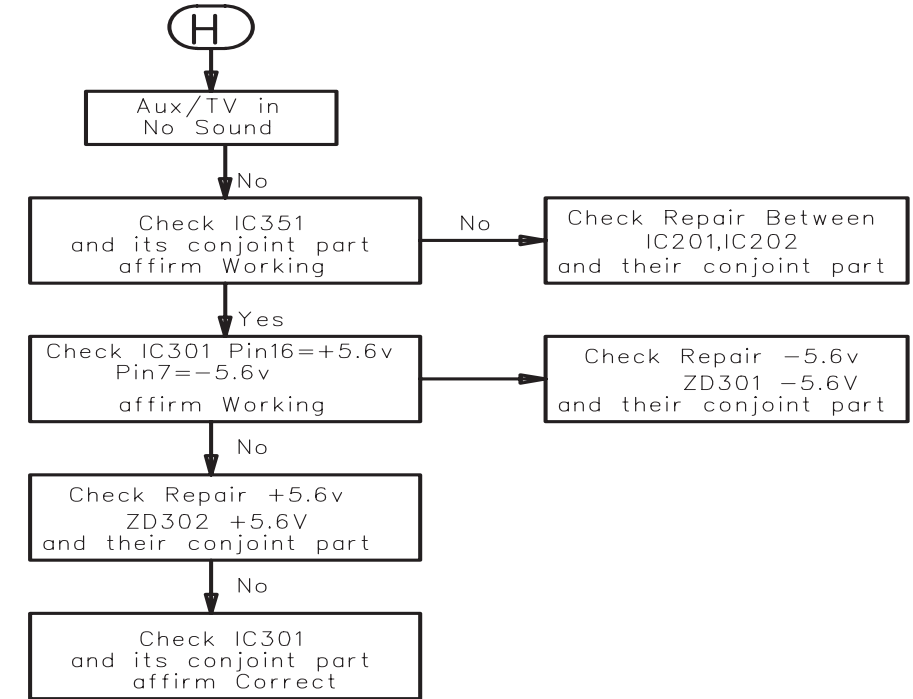
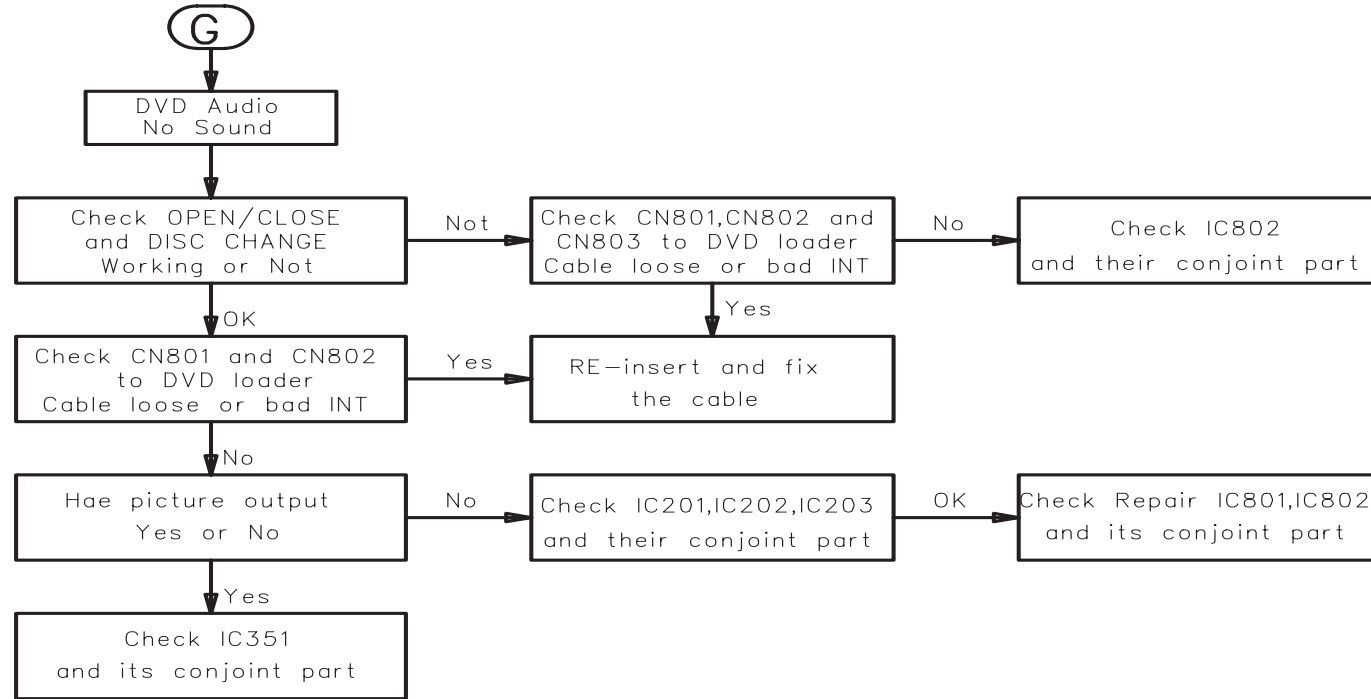
* The latest upgraded is in version VER0226.

REPAIR INSTRUCTIONS (1 of 2)

MAIN UNIT REPAIR CHART



REPAIR INSTRUCTIONS (2 of 2)



DISASSEMBLY INSTRUCTIONS

Dismantling of the Front Panel Assembly

- 1) Open the DVD Tray by using the Open/Close Button while the Set is ON and disconnect the mains supply after removing the Tray Cover.

Note: If this is not possible, the DVD Tray has to be open manually.

Take a mini screw driver about 2mm diameter and make a marking 24mm from the tip as shown in figure 2. place the set on its side, insert the mini screw driver till the marking and slide it towards the right as shown in figure 1 until the Tray moves out of the Front Panel.

- 2) Return the set to its upright position and remove the Tray Cover as shown in Figure 3 and close the tray manually by pushing it back in.

- 3) Loosen 9 screws and remove the Top Cover by lifting the rear portion upwards before sliding it out towards the rear.
 - 5 screws on the back
 - 2 screws each on the left & right side

- 4) Loosen 7 screws & lift up the top edge of Front Panel assembly to free some catches before sliding it out towards the front.
 - 4 screws on the bottom
 - 1 screw "E" on the inside as indicated in Figure 8.
 - 1 screw each on the left & right side

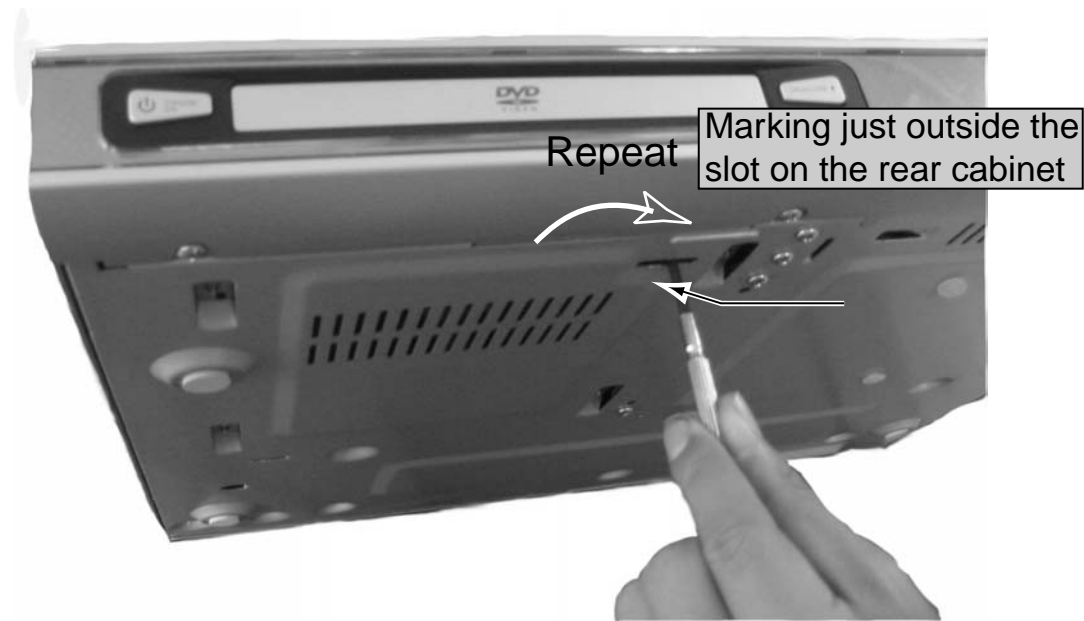


Figure 1



Figure 2

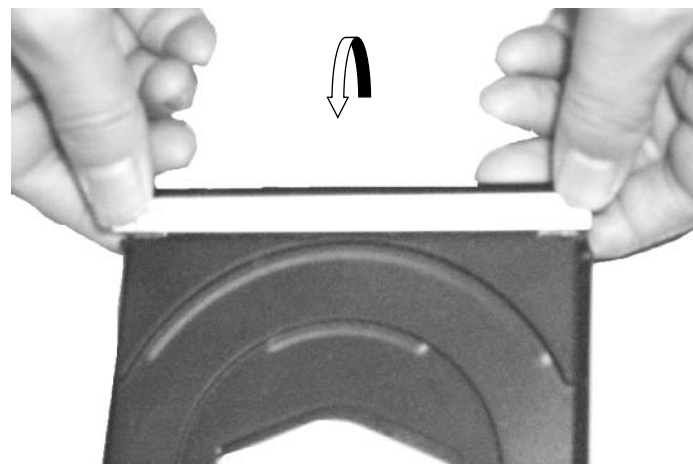


Figure 3

Dismantling of the DVD Module

- 1) Loosen 4 screws "A" to remove the DVD Module as shown in figure 4.

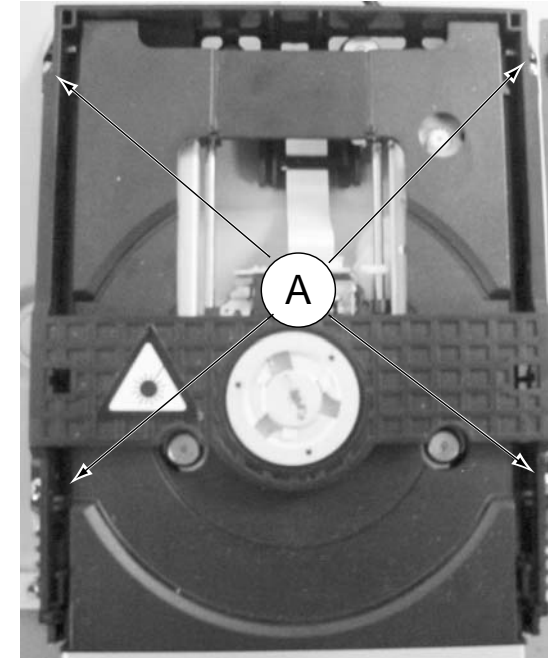


Figure 4

Dismantling of the Power Board

- 1) Loosen 2 screws "B" on the bottom cover as shown in figure 5.
- 2) Loosen 4 screws "C" at the top of the Power Board as shown in figure 6.

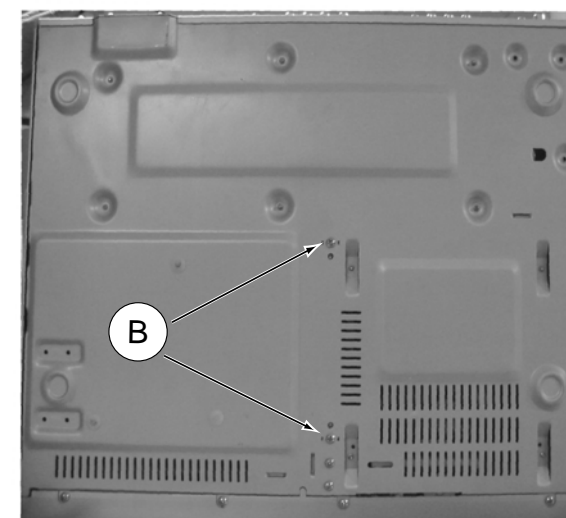


Figure 5

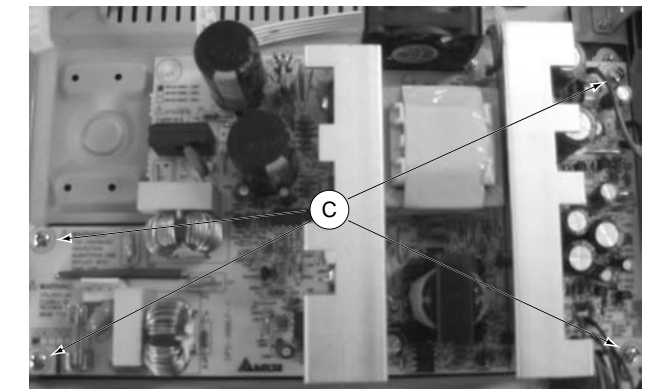


Figure 6

Dismantling of the Tuner PCB

- 1) Loosen 10 screw " D " at the back panel as shown in figure 7 .
- 2) Loosen 6 screw " E " on the top of main board as shown in figure 8.

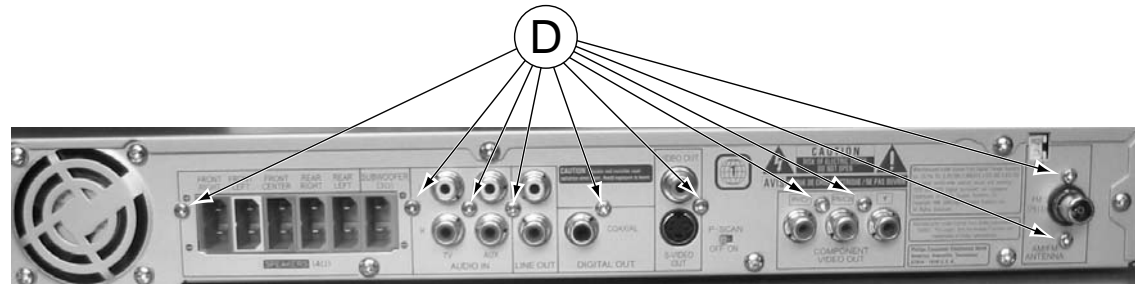


Figure 7

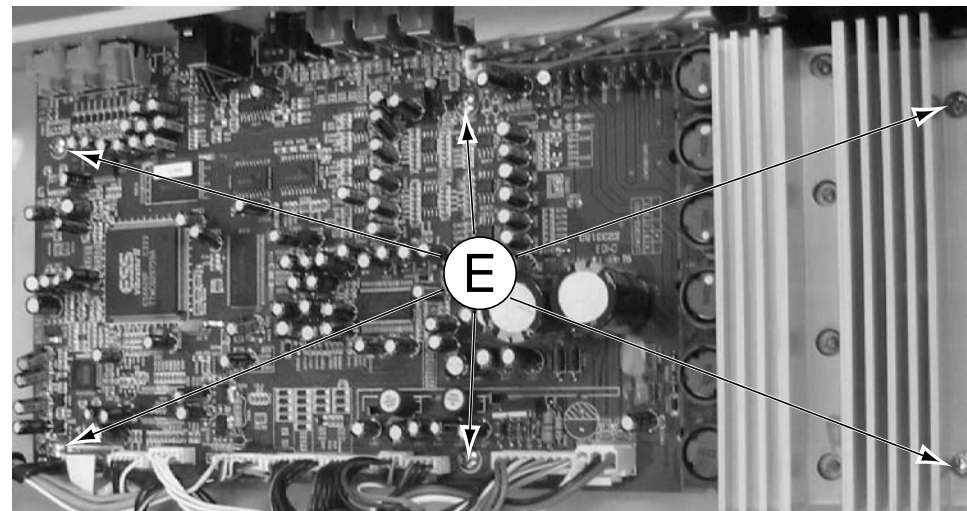


Figure 9

SERVICE POSITIONS

Service position A

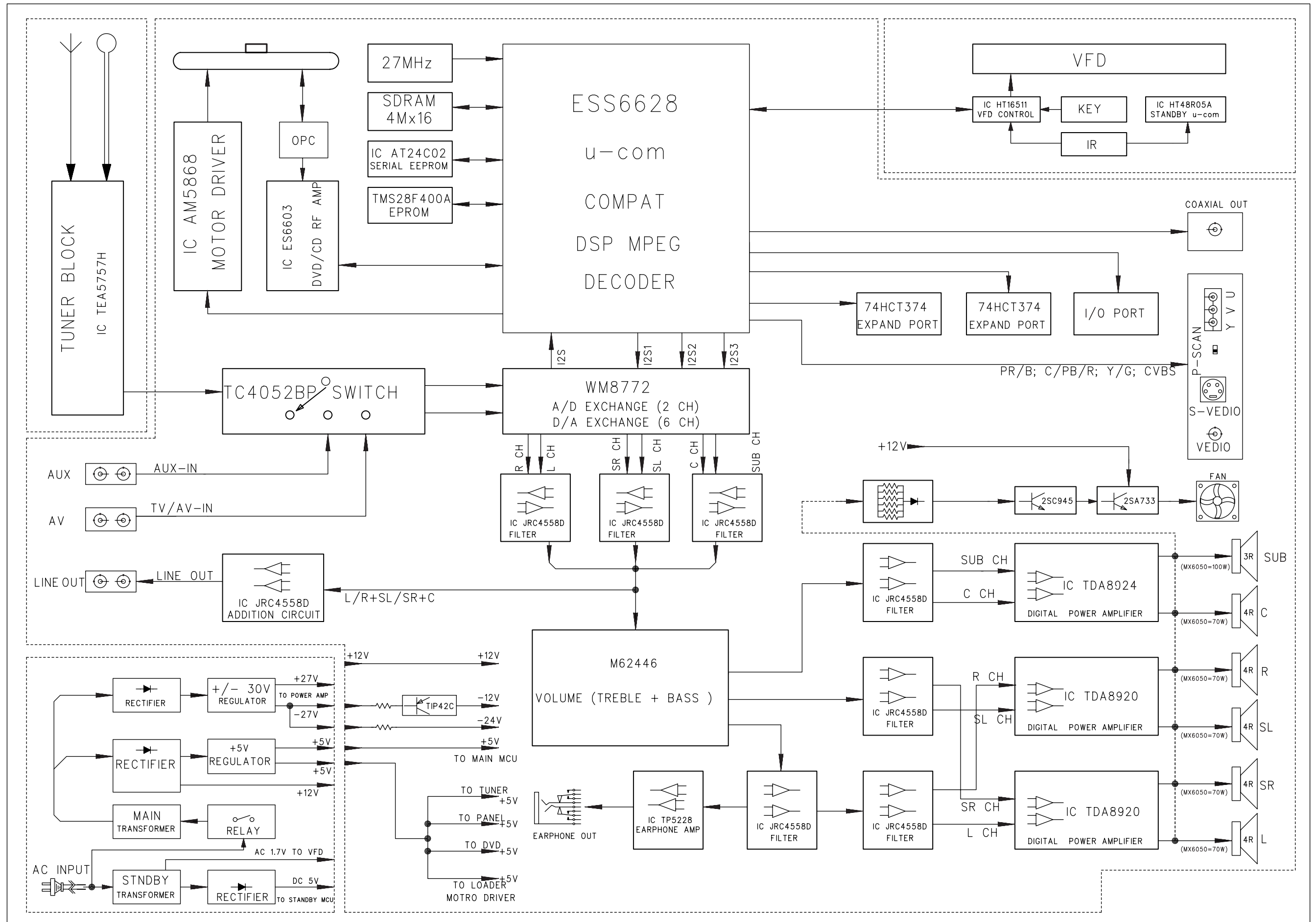


Note: In some service positions the components or copper patterns of one board may risk touching its neighbouring pc boards or metallic parts. To prevent such short-circuit use a piece of hard paper or other insulating material between them.

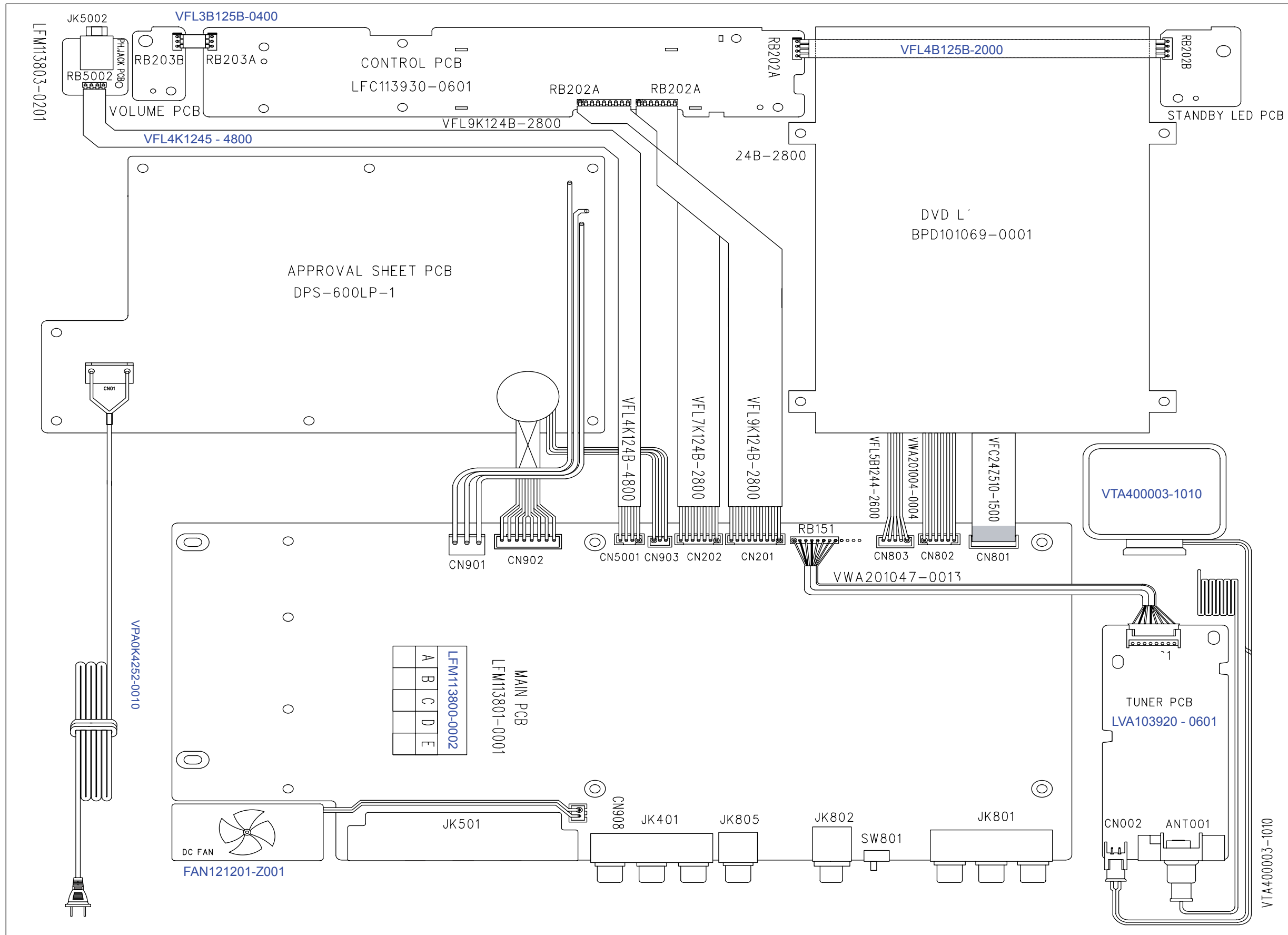
Service position B



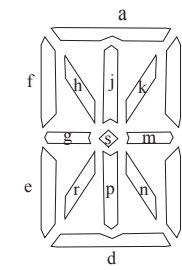
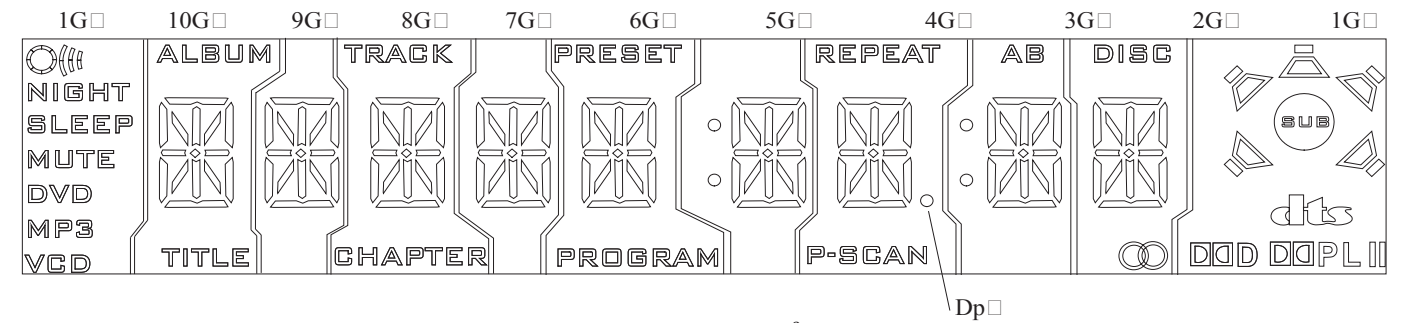
BLOCK DIAGRAM



WIRING DIAGRAM



FTD DISPLAY PIN ASSIGNMENT



(2G - 10G)

KEY (CONTROL / STANDBY / VOL) BOARD

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FTD Display Pin Assignment 5-1
 Pin Connection 5-1
 Circuit Diagram 5-2
 PCB Layout Top View 5-3
 PCB Layout Bottom View 5-3

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	a	
P2	b	b	b	b	b	b	b	b	b	
P3	f	f	f	f	f	f	f	f	f	
P4	h	h	h	h	h	h	h	h	h	
P5	j	j	j	j	j	j	j	j	j	
P6	k	k	k	k	k	k	k	k	k	
P7	m	m	m	m	m	m	m	m	m	
P8	s	s	s	s	s	s	s	s	s	
P9	g	g	g	g	g	g	g	g	g	
P10	c	c	c	c	c	c	c	c	c	
P11	e	e	e	e	e	e	e	e	e	
P12	r	r	r	r	r	r	r	r	r	NIGHT
P13	p	p	p	p	p	p	p	p	p	SLEEP
P14	n	n	n	n	n	n	n	n	n	MUTE
P15	d	d	d	d	d	d	d	d	d	DVD
P16						Col	Dp	Col		MP3
P17	ALBUM		TRACK		PRESET		REPEAT	A	DISC	V
P18	TITLE		CHAPTER		PROGRAM		P-SCAN	B		GD

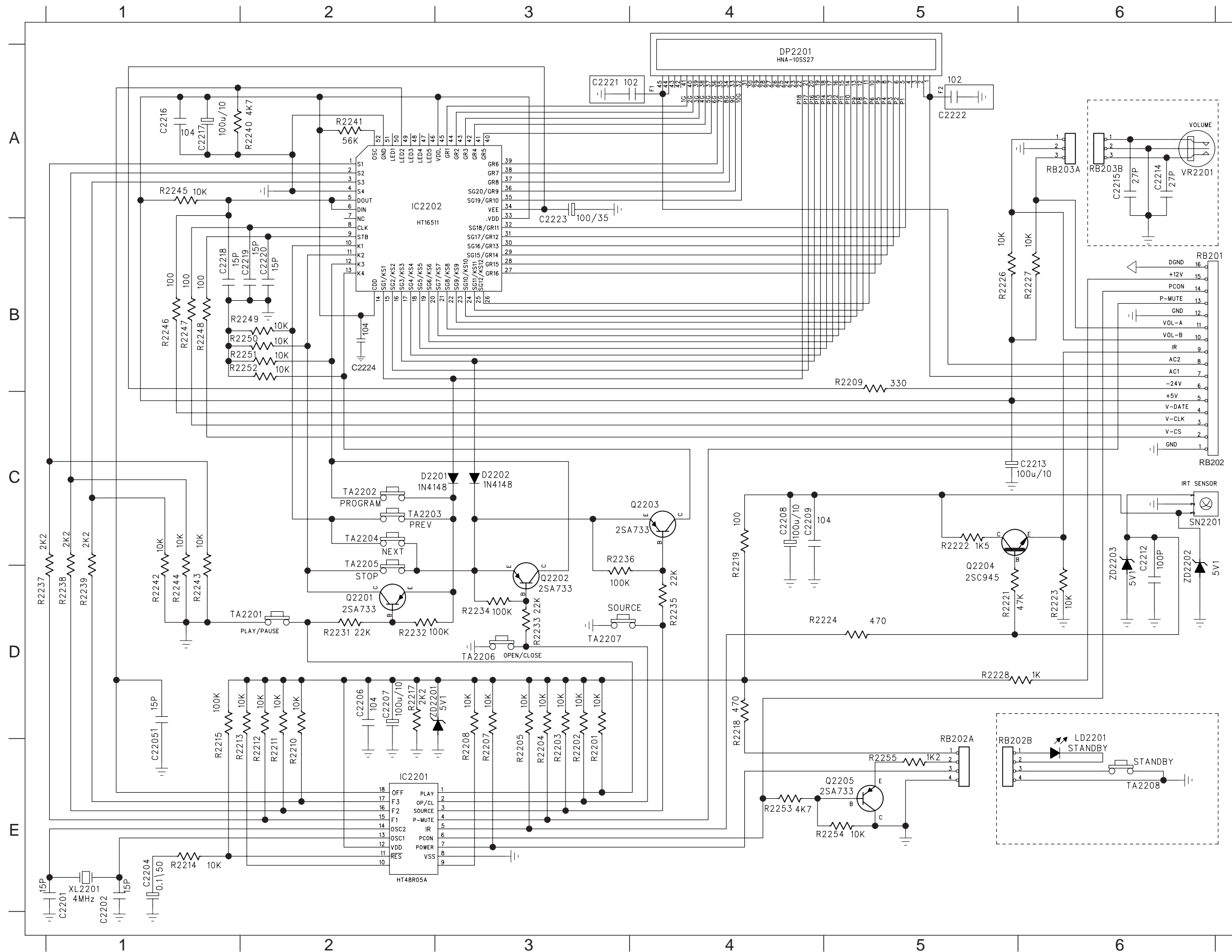
PIN CONNECTION

PIN NO.	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
CONNECTION	F2	F2	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	NX	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F1	F1

Note

- 1. Fn: Filament pin
- 2. NP: No Pin
- 3. NX: No Extended Pin
- 4. nG: Grid Pin
- 5. PN: Anode Pin

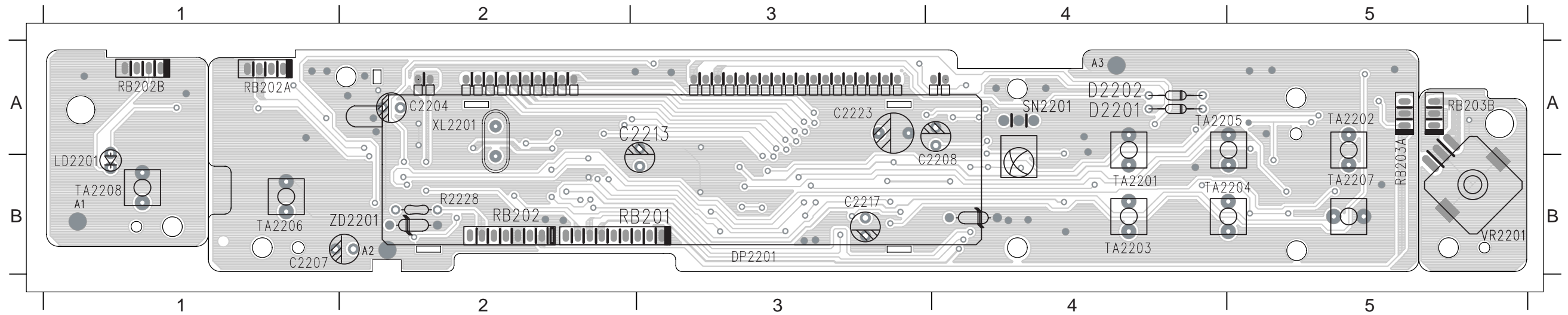
CIRCUIT DIAGRAM - KEY BOARD



C2201	E1	R2251	B2
C2202	E1	R2252	B2
C2204	E1	R2253	E4
C2206	D2	R2254	E5
C2207	D2	R2255	E5
C2208	C4	RB201	B6
C2209	C4	RB202	C6
C2212	D6	RB202A	E5
C2213	C5	RB202B	E5
C2214	A6	RB203A	A6
C2215	A6	RB203B	A6
C2216	A1	SN2201	C6
C2217	A1	TA2201	D2
C2218	B1	TA2202	C2
C2219	B2	TA2203	C2
C2220	B2	TA2204	C2
C2221	A4	TA2205	C2
C2222	A5	TA2206	D3
C2223	A3	TA2207	D3
C2224	B2	TA2208	E6
C22051	D1	VR2201	A6
D2201	C2	XL2201	E1
D2202	C3	ZD2201	D3
DP2201	A4	ZD2202	D6
IC2201	E2	ZD2203	D6
IC2202	A2		
LD2201	E6		
Q2201	D2		
Q2202	D3		
Q2203	C4		
Q2204	D5		
Q2205	E5		
R2201	D3		
R2202	D3		
R2203	D3		
R2204	D3		
R2205	D3		
R2207	D3		
R2208	D3		
R2209	B5		
R2210	D2		
R2211	D2		
R2212	D2		
R2214	E1		
R2215	D1		
R2217	D2		
R2218	D4		
R2219	C4		
R2221	D5		
R2222	C5		
R2223	D6		
R2224	D5		
R2226	B5		
R2227	B6		
R2228	D5		
R2231	D2		
R2232	D2		
R2233	D3		
R2234	D3		
R2235	D4		
R2236	D3		
R2237	D1		
R2239	D1		
R2240	A2		
R2241	A2		
R2242	D1		
R2243	D1		
R2244	D1		
R2245	A1		
R2246	B1		
R2247	B1		
R2248	B1		
R2249	B2		
R2250	B2		

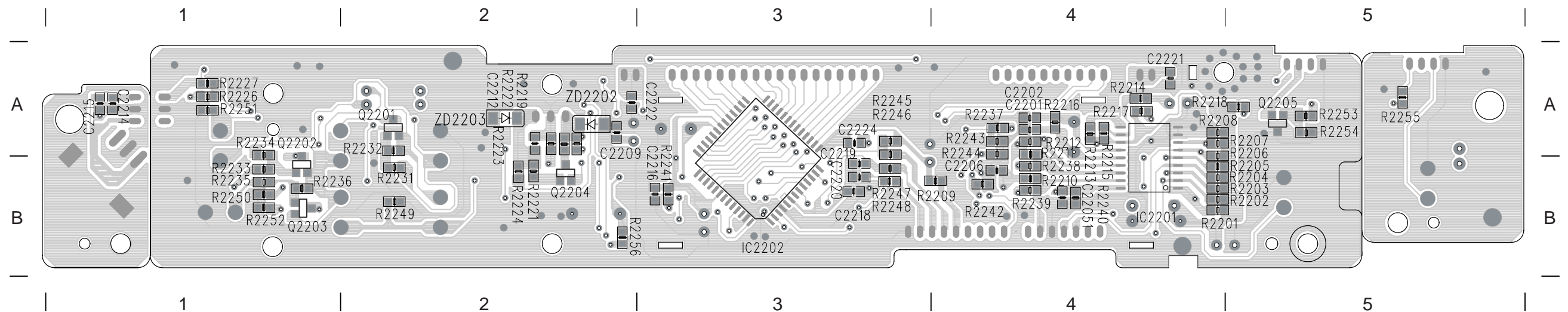
PCB LAYOUT - KEY BOARD (TOP)

C2204	A2	D2201	A4	RB202	B2	TA2201	B4	TA2207	B5	A2	B2
C2207	B1	D2202	A4	RB202A	A1	TA2202	A5	TA2208	B1	A3	A4
C2208	B4	DP2201	B3	RB202B	A1	TA2203	B4	VR2201	B5		
C2213	A3	LD2201	B1	RB203A	A5	TA2204	B4	XL2201	A2		
C2217	B3	R2228	B2	RB203B	A5	TA2205	A4	ZD2201	B2		
C2223	A3	RB201	B2	SN2201	A4	TA2206	B1		A1	B1	

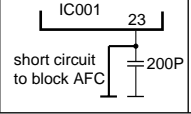
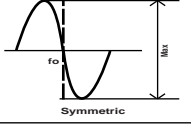
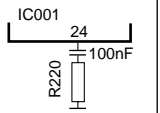
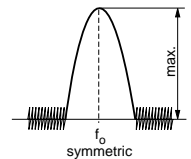
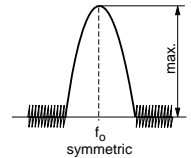


PCB LAYOUT - KEY BOARD (BOTTOM)

C2201	A4	C2219	B3	Q2202	B1	R2207	A5	R2216	A4	R2227	A1	R2239	B4	R2248	B3	ZD2202	A2
C2202	A4	C2220	B3	Q2203	B1	R2208	A4	R2217	A4	R2231	B2	R2240	B4	R2249	B2	ZD2203	A2
C2206	B4	C2221	A4	Q2204	B2	R2209	B4	R2218	A4	R2232	A2	R2241	B3	R2250	B1		
C2209	A2	C2222	A3	Q2205	A5	R2210	B4	R2219	A2	R2233	B1	R2242	B4	R2251	A1		
C2212	A2	C2224	A3	R2201	B4	R2211	A4	R2221	B2	R2234	A1	R2243	A4	R2252	B1		
C2214	A1	C22051	B4	R2202	B5	R2212	A4	R2222	A2	R2235	B1	R2244	A4	R2253	A5		
C2215	A1	IC2201	B4	R2203	B5	R2213	A4	R2223	A2	R2236	B1	R2245	A3	R2254	A5		
C2216	B3	IC2202	B3	R2204	B5	R2214	A4	R2224	B2	R2237	A4	R2246	A3	R2255	A5		
C2218	B3	Q2201	A2	R2205	B5	SR2215	A4	R2226	A1	R2238	B4	R2247	B3	R2256	B2		



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		6.5V ±0.2V
			87.5MHz	check		1.0V ±0.5V
AM 530-1710kHz (10kHz grid) (21L / 21L / 37S)			1602KHz	check		7.8V ±0.2V
			531KHz	T005		1.1V ±0.5V
			1700KHz	check		8.0V ±0.1HV
			530KHz	T005		1.1V ±0.2V
<i>FM - IF</i>						
FM	10.7MHz, 50mV continuous wave			No need to adjust		
<i>FM - RF</i>						
FM	108MHz		106MHz	VC001	MAX	MAX
	87.5MHz	mod=1kHz Δf=±0.25kHz	90.1MHz	L001		
<i>AM IF</i>						
AM	450kHz			T001 T002	MAX	
AM AFC MW	Connect pin 29 of IC001 (AM Osc.) with short wire to ground (pin 6)	Δf = ±0.5kHz V _{RF} = 3mV		T003		
		ΔV=mV				
<i>AM RF ³⁾</i>						
MW	1404kHz		1404kHz	VC001	MAX	
	576kHz		612kHz	T006		
	1400kHz	Δf = ±30kHz V _{RF} as low as possible	1400kHz	VC002		
	610kHz		610kHz	T006		

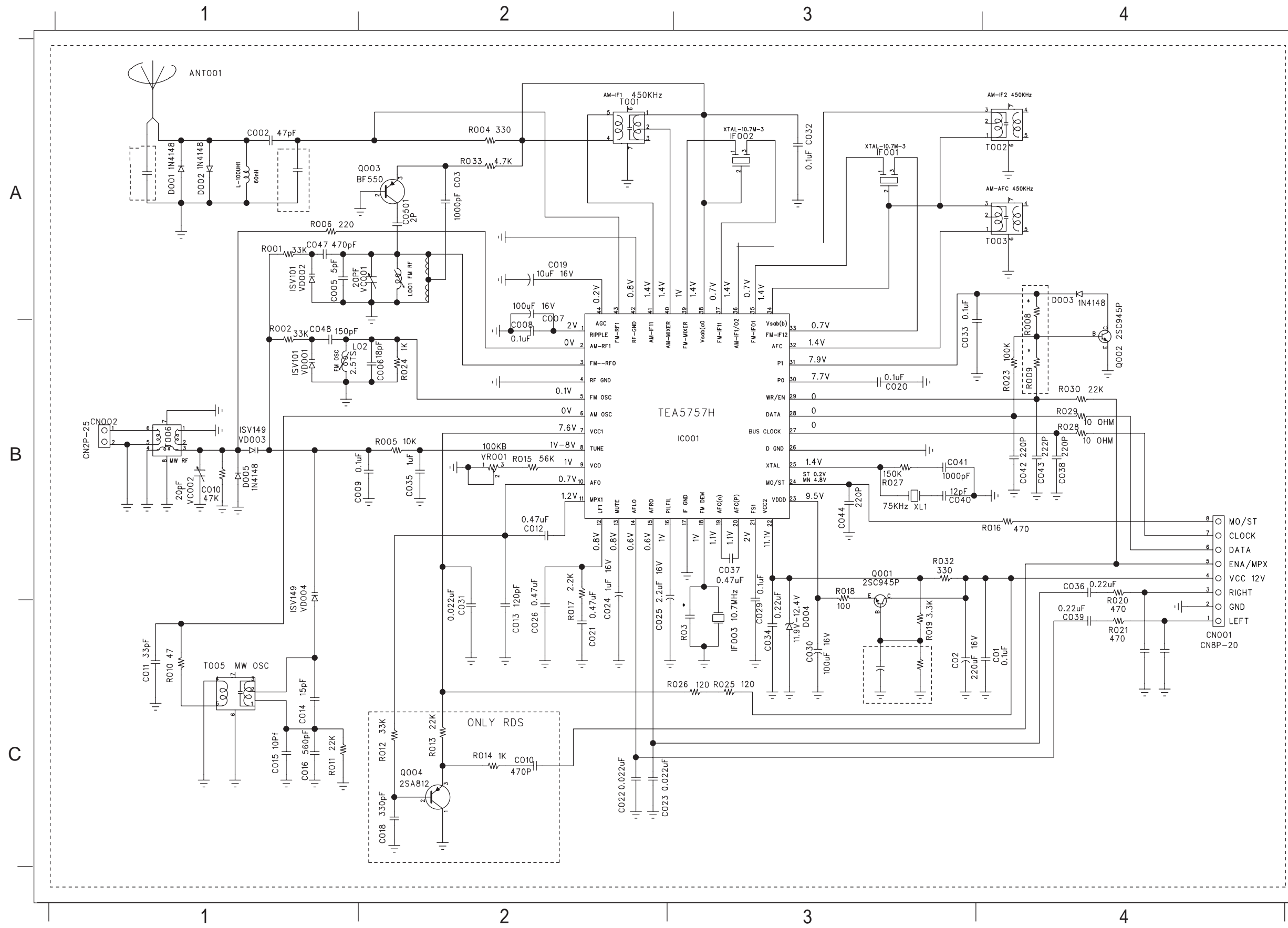
TUNER BOARD

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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!

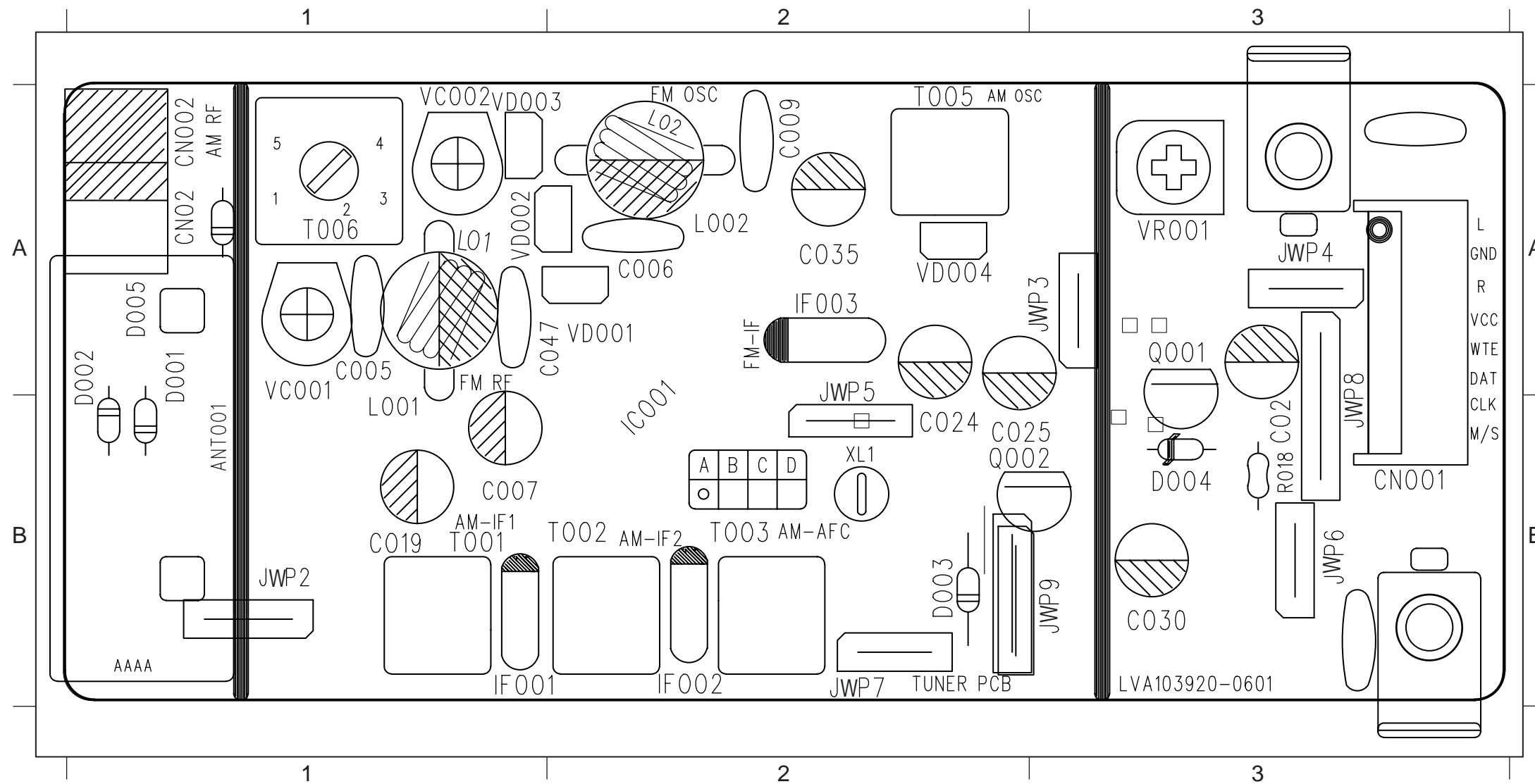
CIRCUIT DIAGRAM - TUNER BOARD



ANT001	A1	R004	A2
C002	A1	R005	B2
C005	A1	R006	A1
C007	A2	R010	C1
C006	B2	R011	C1
C008	B2	R015	B2
C009	B2	R016	B4
C01	C4	R017	C2
C02	C3	R018	B3
C03	A2	R019	C3
C010	B1	R020	B4
C011	C1	R021	C4
C012	B2	R023	B4
C013	C2	R024	B2
C014	C1	R025	C3
C015	C1	R026	C3
C016	C1	R027	B3
C019	A2	R028	B4
C020	B3	R029	B4
C021	C2	R030	B4
C022	C2	R032	B3
C023	C2	R033	A2
C024	C2	T001	A2
C025	C2	T002	A4
C026	C2	T003	A4
C029	C3	T005	C1
C030	C3	T006	B1
C031	C2	VC001	A2
C032	A3	VC002	B1
C033	B3	VD001	B1
C034	C3	VD002	A1
C035	B2	VD003	B1
C036	B4	VD004	C1
C037	B3	VR001	B2
C038	B4	XL1	B3
C039	C4		
C040	B3		
C041	B3		
C042	B4		
C043	B4		
C044	B3		
C047	A1		
C048	B1		
C0501	A2		
CN001	C4		
CN002	B1		
D001	A1		
D002	A1		
D003	A4		
D004	C3		
D005	B1		
IC001	B3		
IF001	A3		
IF002	A3		
IF003	C3		
L02	B1		
L001	A2		
Q001	B3		
Q002	B4		
Q003	A2		
R001	A1		
R002	B1		

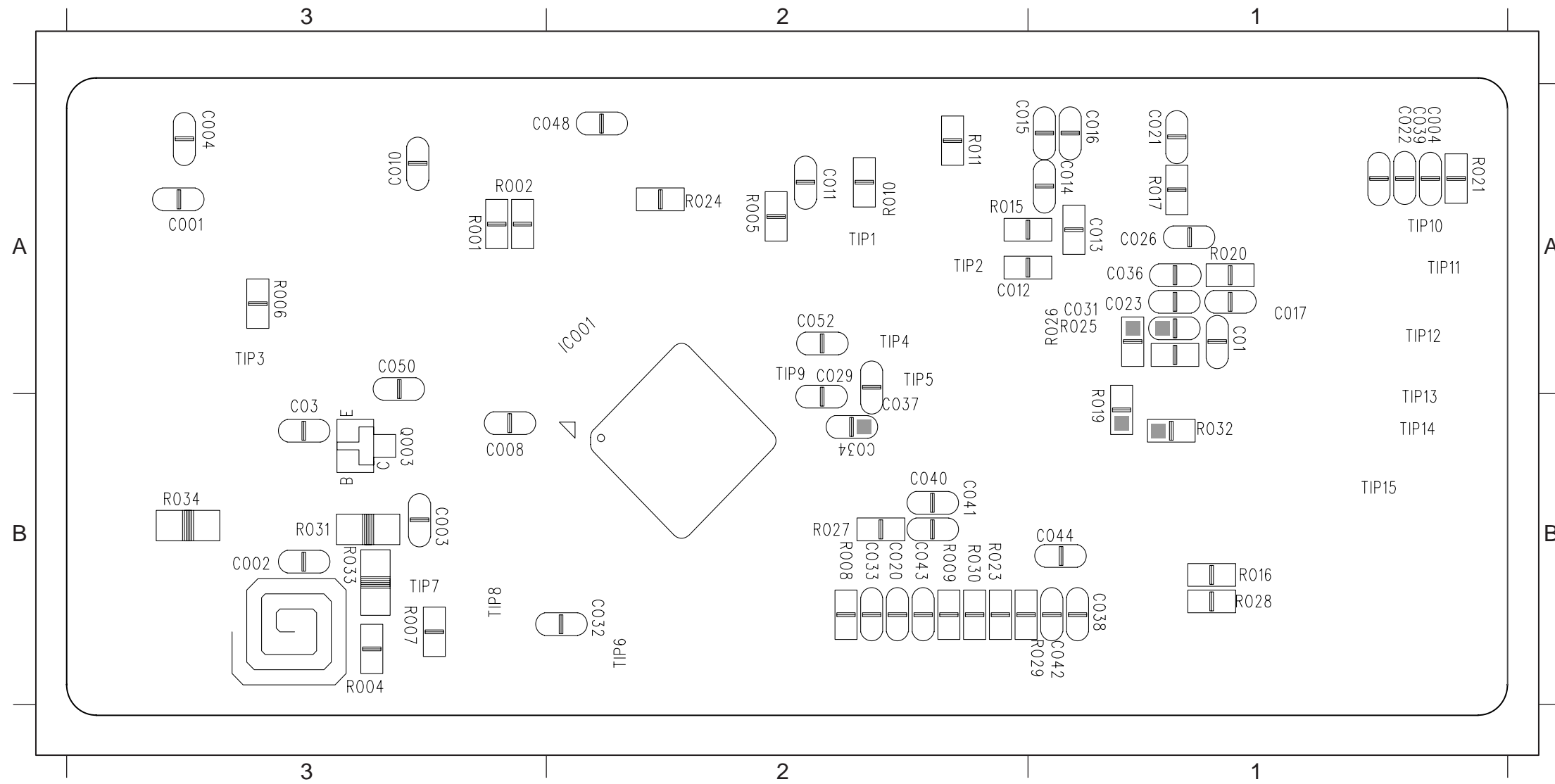
PCB LAYOUT - TUNER BOARD (TOP)

ANT001	B1	C025	B2	D002	A1	IF003	A2	JWP8	A3	T001	B1	VD001	A2
C005	A1	C030	B3	D003	B2	JWP2	B1	JWP9	B3	T002	B2	VD002	A1
C006	A2	C035	A2	D004	B3	JWP3	A3	L02	A2	T003	B2	VD003	A1
C007	B1	C047	A1	D005	A1	JWP4	A3	L001	B1	T005	A2	VD004	A2
C009	A2	CN001	B3	IC001	B2	JWP5	B2	Q001	A3	T006	A1	VR001	A3
C019	B1	CN002	A1	IF001	B1	JWP6	B3	Q002	B2	VC001	A1	XL1	B2
C024	B2	D001	A1	IF002	B2	JWP7	B2	R018	B3	VC002	A1		



PCB LAYOUT - TUNER BOARD (BOTTOM)

C01	A3	C013	A3	C023	A3	C037	A2	C048	A2	R005	A2	R019	B3	R028	B3
C03	B3	C014	A3	C026	A3	C038	B3	C050	A3	R006	A3	R020	A3	R029	B3
C001	A3	C015	A2	C029	A2	C039	A3	C052	A2	R007	B3	R021	A3	R030	B2
C002	B3	C016	A3	C031	A3	C040	B2	IC001	A2	R010	A2	R023	B2	R031	B3
C008	B3	C020	B2	C032	A2	C041	B2	Q003	B3	R011	A2	R024	A2	R032	B3
C010	A3	C021	A3	C033	B2	C042	B3	R001	A3	R015	A2	R025	A3	R033	B3
C011	A2	C022	A3	C034	B2	C043	B2	R002	A3	R016	B3	R026	A3	R034	B3
C012	A2	C023	A3	C036	A3	C044	B3	R004	B3	R017	A3	R027	B2		



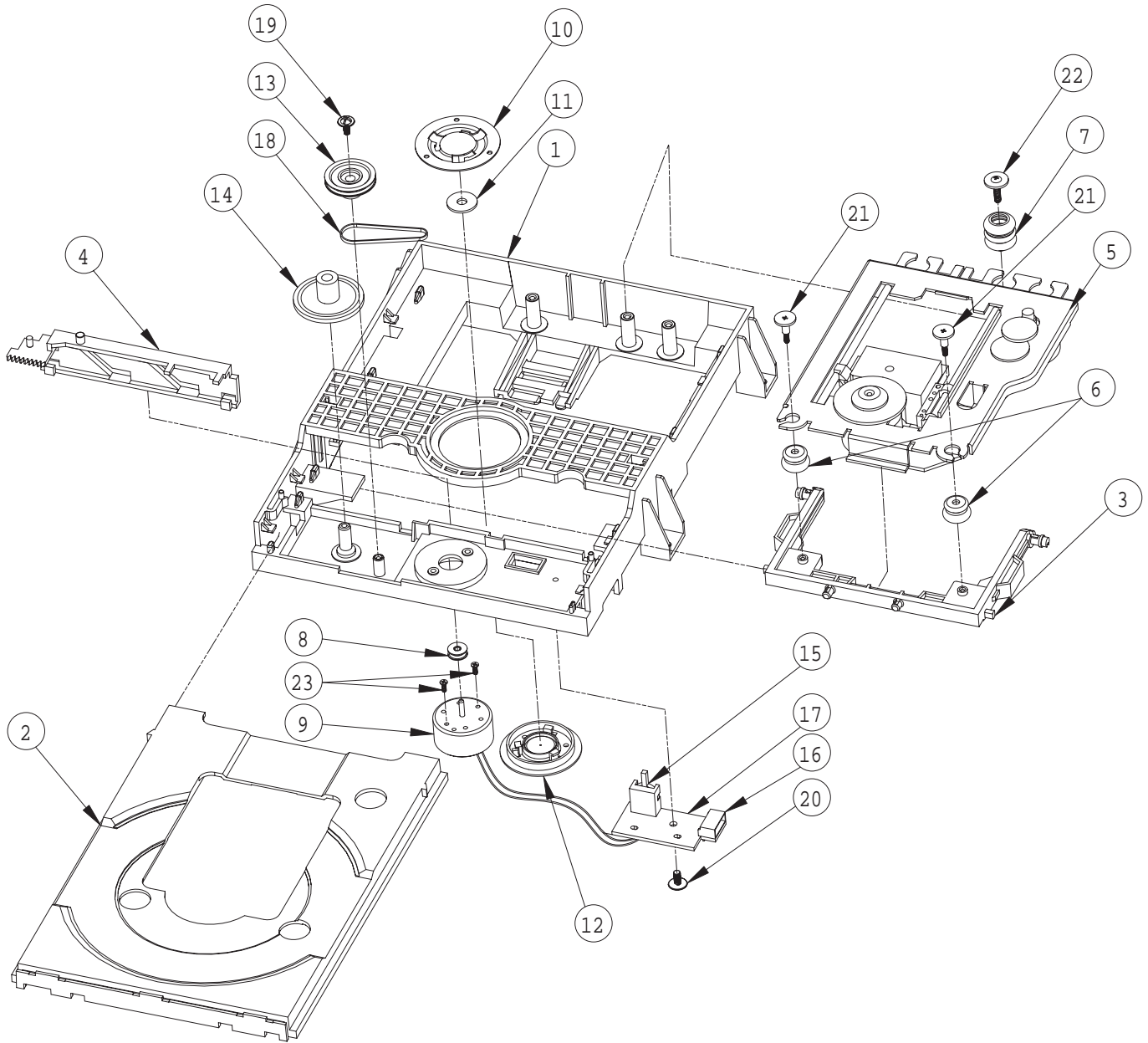
DVD LOADER

It is not recommended for component repair on this Module but to replace the major assembly when it becomes defective. Therefore limited service parts list are published in this chapter.

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Explorer View (DVD Loader)	7-2
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Explorer view

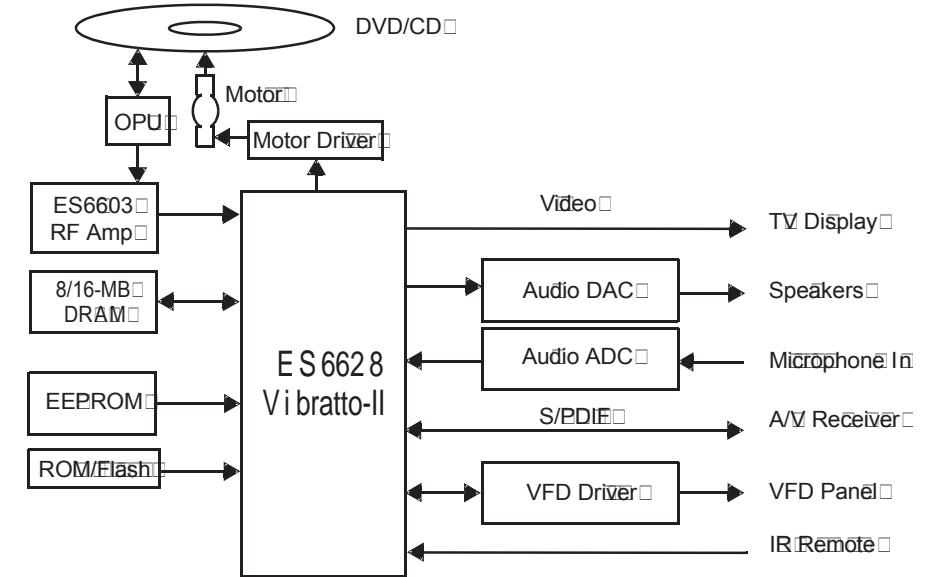


MAIN BOARD

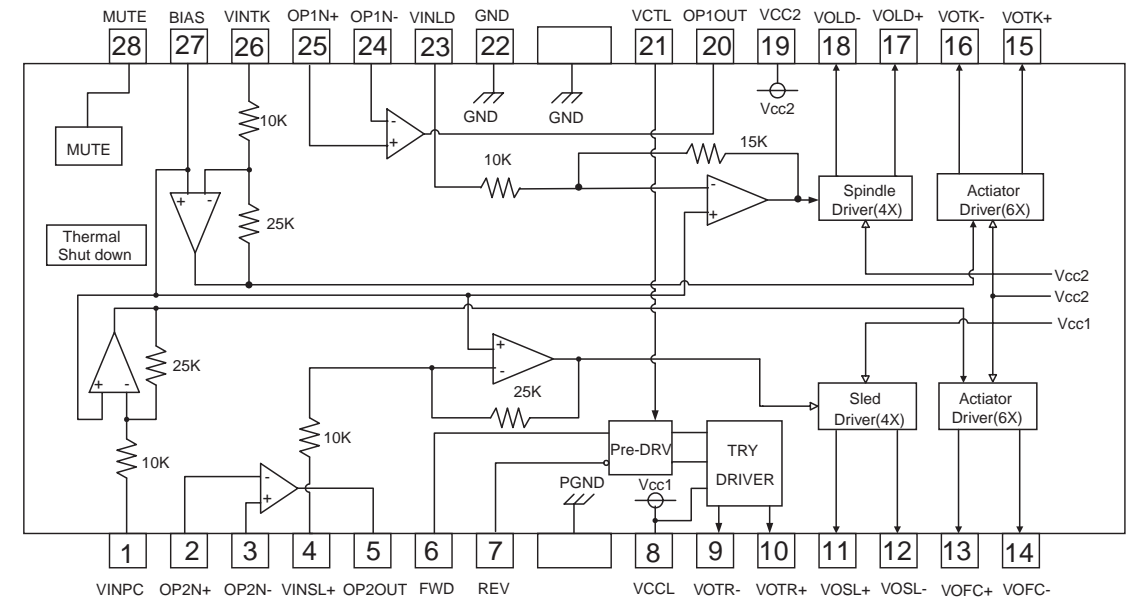
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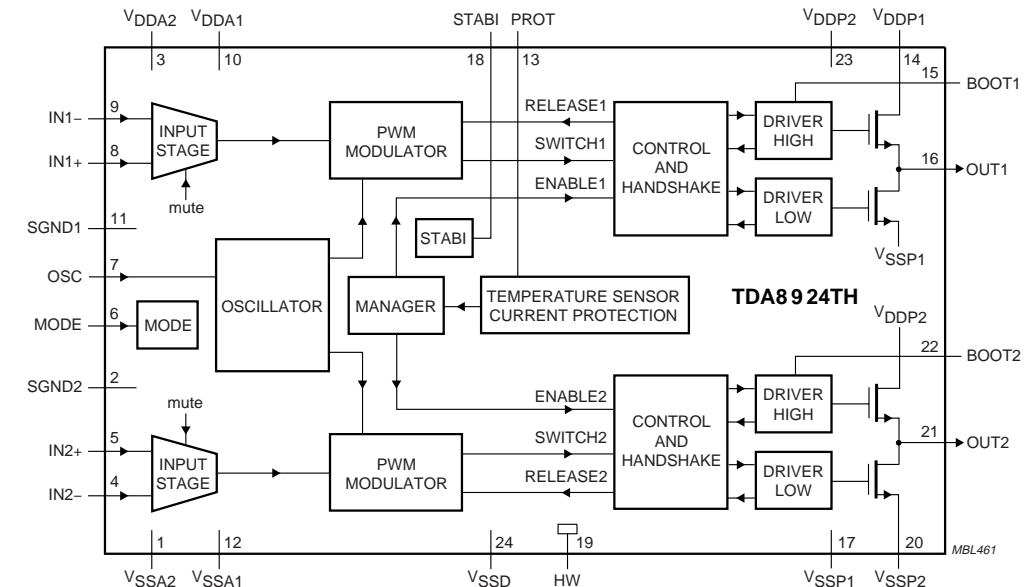
ES6628F INTERNAL IC DIAGRAM



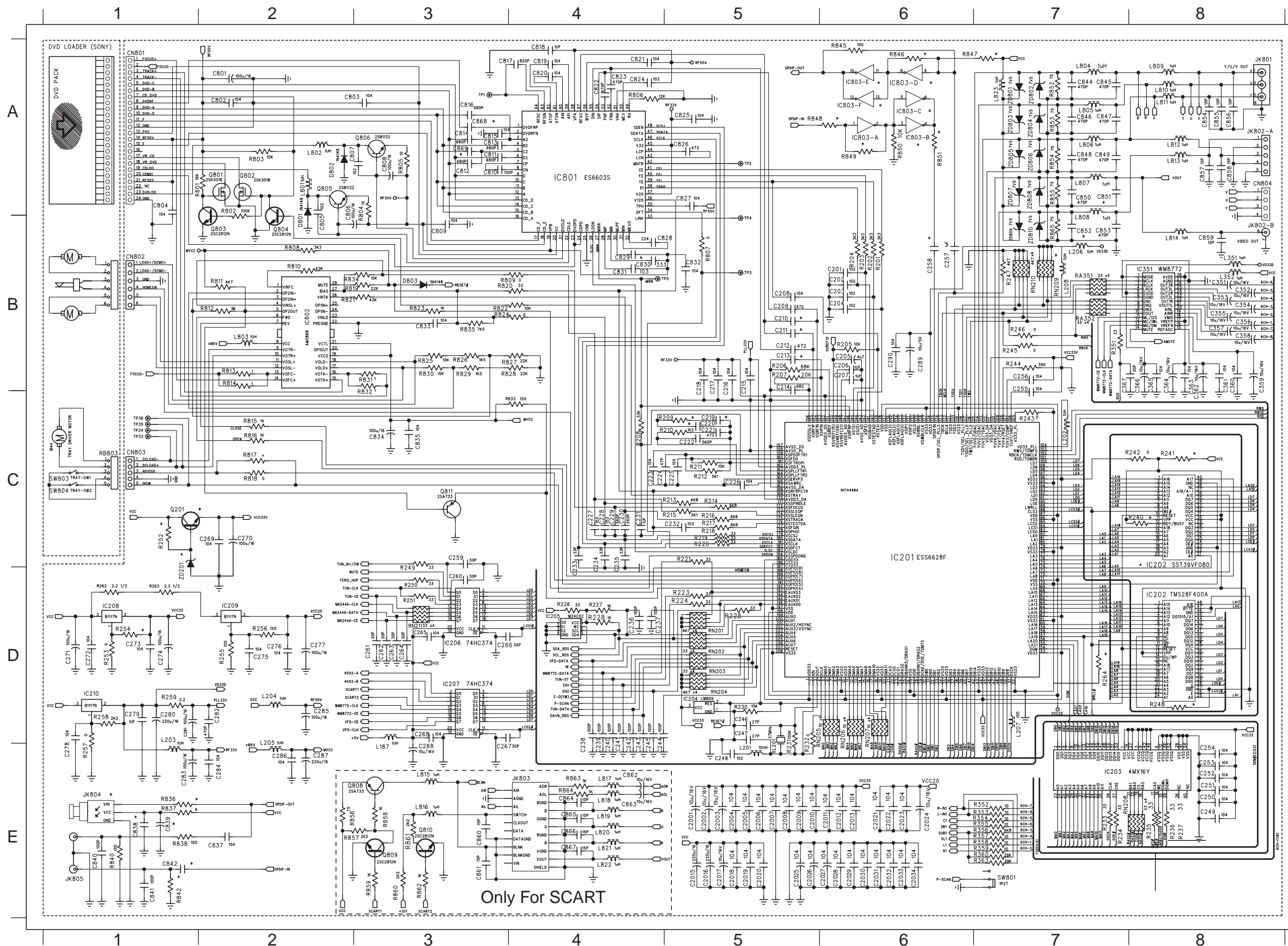
AM5868S INTERNAL IC DIAGRAM



TDA8924TH INTERNAL IC DIAGRAM



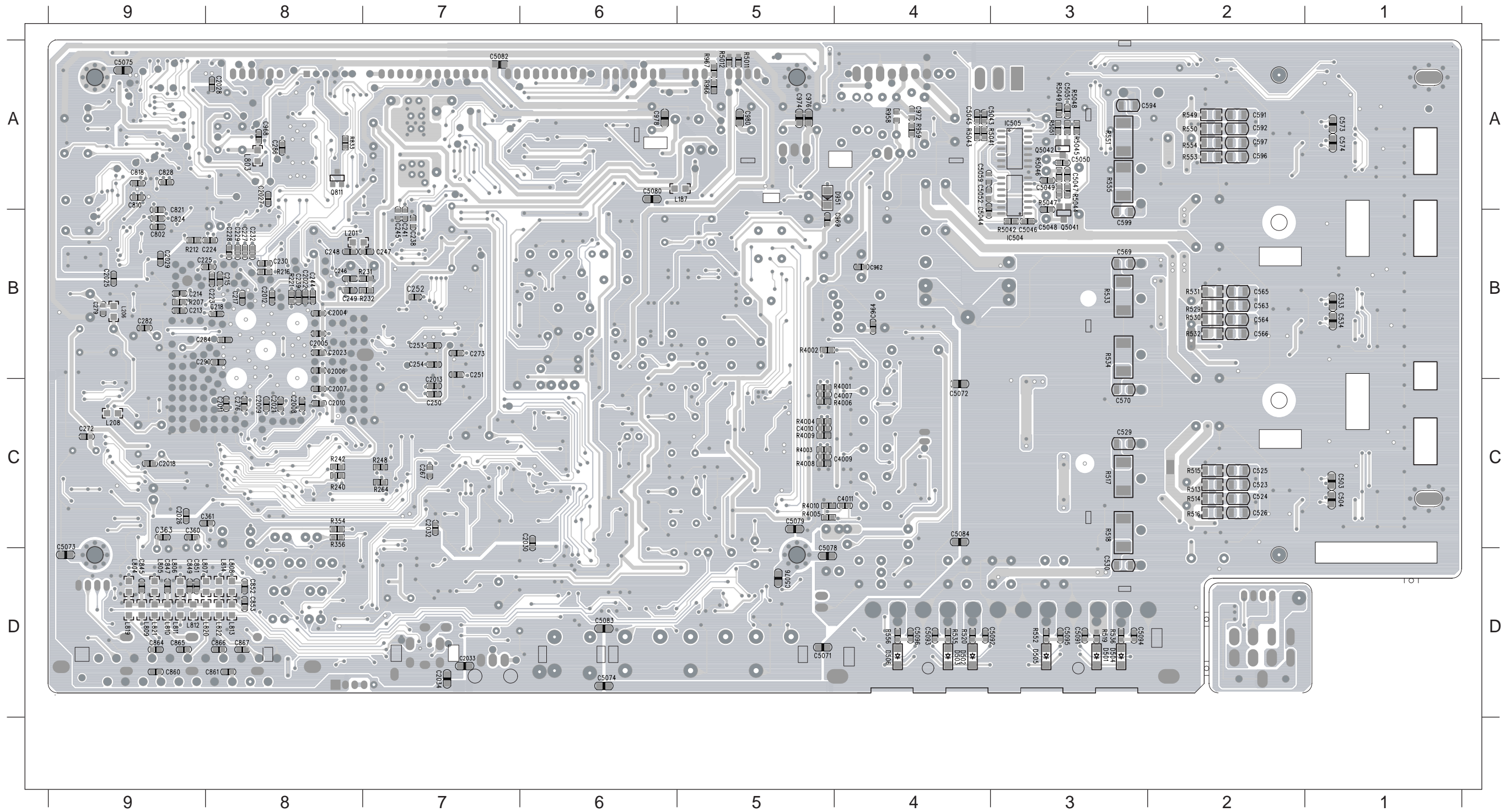
CIRCUIT DIAGRAM (1) - MAIN BOARD



C201	B6	C801	A2	IC210	D1	R360	E7
C202	B6	C802	A2	IC351	B8	R363	E7
C203	B6	C803	A3	IC801	A4	R801	A1
C204	B6	C804	A1	IC802	B2	R802	A2
C205	B6	C805	B2	JK801	A8	R803	A2
C206	B6	C806	A2	JK802-A	A8	R804	A3
C207	B6	C807	A2	JK802-B	B8	R805	A3
C208	B5	C808	A3	JK805	E1	R806	A4
C209	B5	C809	B3	L187	E3	R807	B5
C212	B5	C810	A3	L201	E5	R808	B2
C214	B5	C811	A3	L202	C7	R809	B2
C215	B5	C812	A3	L203	D1	R810	B2
C216	B5	C813	A3	L204	D2	R811	B2
C217	B5	C814	A3	L205	E2	R812	B2
C218	B5	C815	A3	L206	B7	R813	B2
C221	C5	C816	A3	L207	D7	R814	B2
C222	C5	C817	A4	L351	B8	R815	C2
C223	C4	C818	A4	L352	B8	R816	C2
C224	C4	C819	A4	L801	A2	R818	C2
C225	C5	C820	A4	L802	A2	R819	B2
C226	C5	C821	A4	L803	B2	R820	B3
C227	C4	C822	A4	L804	A7	R821	B2
C228	C4	C823	A4	L805	A7	R822	B3
C229	C4	C824	A4	L806	A7	R823	B3
C230	C4	C825	A5	L807	A7	R824	B3
C231	C4	C826	A5	L808	B7	R825	B3
C232	C5	C827	A5	L809	A8	R826	B3
C233	C4	C828	B4	L810	A8	R827	B3
C234	C4	C830	B4	L811	A8	R828	B4
C235	C4	C831	B4	L812	A8	R829	B3
C236	D4	C832	B5	L813	A8	R830	B3
C237	D4	C833	B3	L814	B8	R831	B3
C238	D4	C834	C3	L823	A7	R832	B3
C239	D4	C835	C3	Q801	A2	R833	C2
C240	D4	C837	E2	Q802	A2	R834	B2
C241	D4	C840	E1	Q803	B2	R835	B3
C242	D4	C841	E1	Q804	B2	R838	E1
C243	D4	C844	A7	Q805	A2	R840	E1
C244	D4	C845	A7	Q806	A3	R845	A6
C245	D4	C846	A7	Q811	C3	R850	A6
C246	D6	C847	A7	R201	B6	R852	A7
C247	D6	C848	A7	R202	B6	R853	A7
C248	E5	C849	A7	R203	B6	R854	A7
C249	E8	C850	A7	R204	B6	R855	A7
C250	E8	C851	A7	R205	B6	R855	B7
C251	E8	C852	B7	R206	B5	RA351	B7
C252	E8	C853	B7	R207	B5	RA352	B7
C253	E8	C854	A8	R208	C4	RN201	D6
C254	E8	C855	A8	R210	C5	RN202	D6
C255	B7	C856	A8	R211	C5	RN203	D6
C256	B7	C857	A8	R212	C5	RN204	D6
C257	B6	C858	A8	R213	C5	RN205	D6
C259	C3	C859	B8	R214	C5	RN206	D6
C260	D3	C2001	E5	R215	C5	RN207	D6
C261	D3	C2002	E5	R216	C5	RN208	E8
C262	D3	C2003	E5	R217	C5	RN210	B7
C263	D3	C2004	E5	R218	C5	RN211	D3
C264	D3	C2005	E5	R219	C5	SW804	C1
C265	D3	C2006	E5	R220	C5	XL201	E5
C266	D3	C2007	E5	R221	C5	ZD801	A7
C267	E3	C2008	E5	R222	D6	ZD802	A7
C268	D3	C2009	E6	R224	D6	ZD803	A7
C269	C2	C2010	E6	R225	D6	ZD804	A7
C270	C2	C2011	E6	R226	D4	ZD805	A7
C271	D1	C2012	E6	R227	D4	ZD806	A7
C272	D1	C2013	E6	R228	D4	ZD807	A7
C273	D1	C2015	E5	R230	D6	ZD808	A7
C274	D1	C2016	E5	R231	E5	ZD809	B7
C275	D2	C2017	E5	R232	D5	ZD810	B7
C276	D2	C2018	E5	R233	E7		
C277	D2	C2019	E5	R234	E7		
C278	E1	C2020	E5	R235	E8		
C279	D1	C2021	E6	R236	E8		
C280	D1	C2022	E6	R237	E8		
C281	D1	C2023	E6	R242	C8		
C282	D2	C2024	E6	R243	C7		
C283	E1	C2025	E5	R244	B7		
C284	E2	C2026	E5	R245	B7		
C285	D2	C2027	E6	R246	B7		
C286	E2	C2028	E6	R247	B7		
C287	E2	C2029	E6	R248	D8		
C288	E3	C2030	E6	R249	D8		
C289	B6	C2031	E6	R250	D3		
C290	B6	C2032	E6	R251	D3		
C351	B8	C2033	E6	R253	D1		
C352	B8	C2034	E6	R255	D2		
C353	B8	CN801	A1	R256	D2		
C354	B8	CN802	B1	R257	E1		
C355	B8	CN803	C1	R258	D1		
C356	B8	D801	B2	R259	D1		
C357	B8	D802	A2	R262	D1		
C358	B8	D803	B3	R263	D1		
C359	B8	IC201	C6	R351	B7		
C360	B8	IC202	C8	R352	E7		
C361	B8	IC203	E7	R353	E7		
C362	B8	IC204	D6	R354	E7		
C363	B8	IC205	D4	R355	E7		
C364	B8	IC206	D3	R356	E7		
C365	B8	IC207	D3	R357	E7		
C366	B8	IC208	D1	R358	E7		
C367	B7	IC209	D2	R359	E7		

PCB LAYOUT - MAIN BOARD (BOTTOM)

C214	B9	C239	B8	C267	C7	C504	C1	C569	B3	C821	B9	C972	A4	C2012	B8	C4010	C5	C5071	D5	C5092	D3	IC505	A3	L811	D9	R242	C8	R529	B2	R555	A3	R4009	C5
C215	B8	C241	B7	C272	C9	C523	C2	C570	C3	C824	B9	C974	A5	C2013	C7	C4011	C4	C5072	C4	C5093	D4	L187	A5	L812	D9	R248	C7	R530	B2	R556	D4	R4010	C5
C217	B8	C244	B8	C273	B7	C524	C2	C573	A1	C828	A9	C976	A5	C2018	C9	C5043	A3	C5073	D9	C5094	D3	L201	B8	L813	D8	R354	C8	R531	B2	R633	A8	R5011	A5
C218	B8	C245	B7	C276	C8	C525	C2	C574	A1	C845	D9	C978	A6	C2021	C8	C5044	B4	C5074	D6	C5095	D3	L206	B9	L814	D8	R356	D8	R532	B2	R634	A4	R5012	A5
C223	B8	C246	B8	C279	B9	C526	C2	C591	A2	C847	D9	C980	A5	C2022	B8	C5045	A4	C5075	A9	C5096	D4	L208	C9	Q5041	B3	R513	C2	R533	B3	R635	A4	R5041	A3
C224	B8	C247	B7	C282	B9	C529	C3	C592	A2	C849	D9	C2004	B8	C2023	B8	C5046	B3	C5076	D5	D501	D3	L803	A8	Q5042	A3	R514	C2	R534	B3	R637	A5	R5042	B3
C225	B9	C248	B8	C284	B8	C530	D3	C594	A2	C851	D9	C2005	B8	C2025	B9	C5047	A3	C5078	D5	D502	D4	L804	D9	Q811	A8	R515	C2	R535	D4	R4001	C4	R5043	A4
C227	B8	C249	B8	C286	A8	C533	B1	C596	A2	C852	D8	C2006	C8	C2030	D6	C5048	B3	C5079	C5	D503	D4	L805	D9	R207	B9	R516	C2	R536	D3	R4002	B5	R5044	A3
C228	B8	C250	C7	C290	B8	C534	B1	C597	A2	C853	D8	C2007	C8	C2032	C7	C5049	A3	C5080	A6	D504	D3	L806	D9	R212	B9	R517	C3	R537	A2	R4003	C5	R5045	A3
C229	B8	C251	C7	C360	D9	C563	B2	C599	B3	C962	B4	C2008	C8	C2033	D7	C5050	A3	C5082	A7	D505	D3	L807	D8	R216	B8	R518	D3	R550	A2	R4004	C5	R5046	A3
C230	B8	C252	B7	C361	C8	C564	B2	C802	B9	C964	B4	C2009	C8	C2034	D7	C5051	A3	C5083	D6	D506	D4	L808	D8	R221	B8	R519	D3	R551	A3	R4005	C5	R5047	B3
C232	B8	C253	B7	C363	D9	C565	B2	C810	B9	C968	A8	C2010	C8	C4007	C4	C5052	A4	C5084	D4	D951	A4	L809	D9	R231	B7	R520	D4	R553	A2	R4006	C4	R5048	A3
C238	B7	C254	C7	C503	C1	C566	B2	C818	A9	C969	B4	C2011	C8	C4009	C4	C5059	A4	C5091	D3	IC504	B3	L810	D9	R232	B7	R522	D3	R554	A2	R4008	C5	R5049	A3

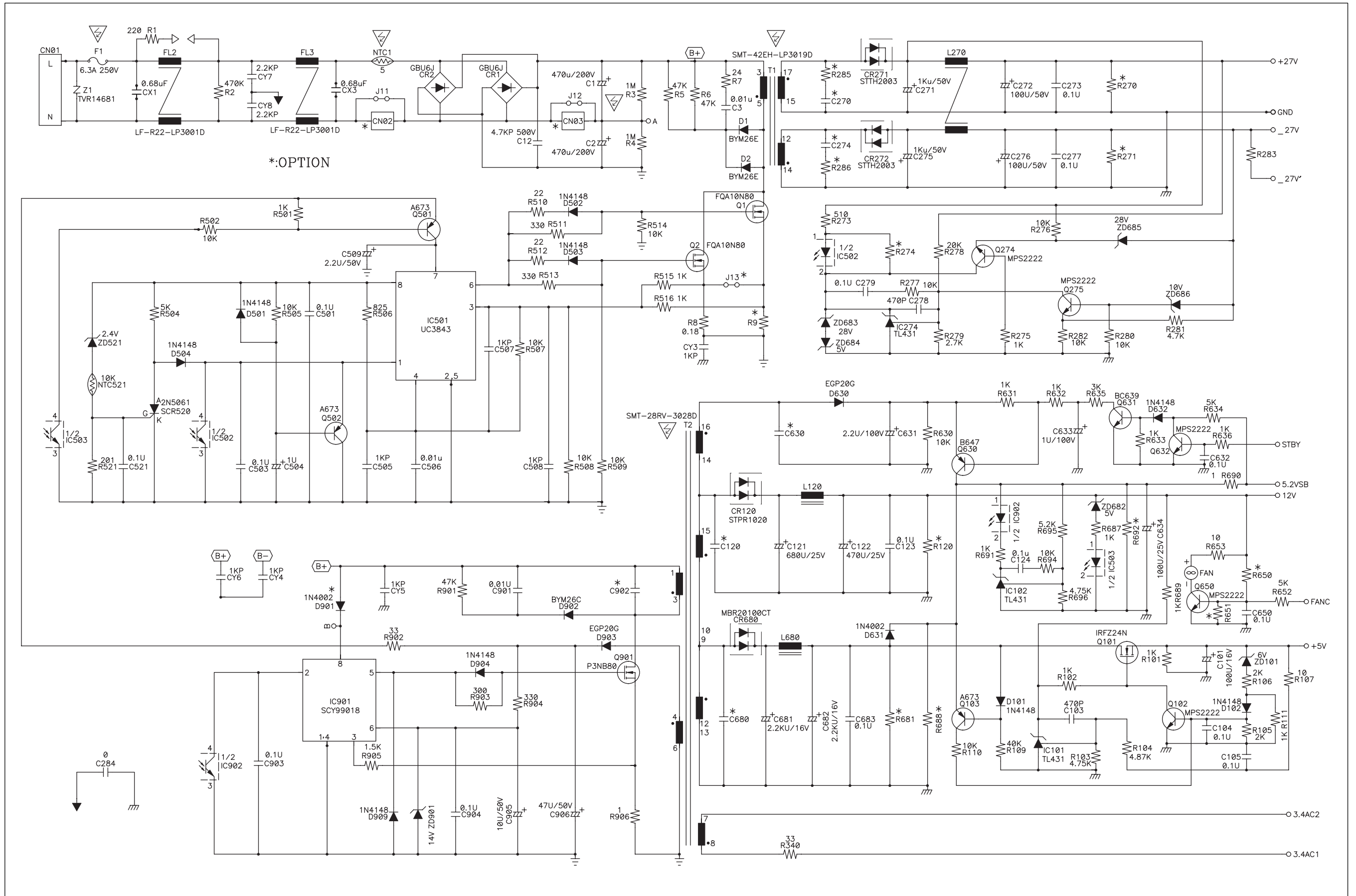


POWER BOARD

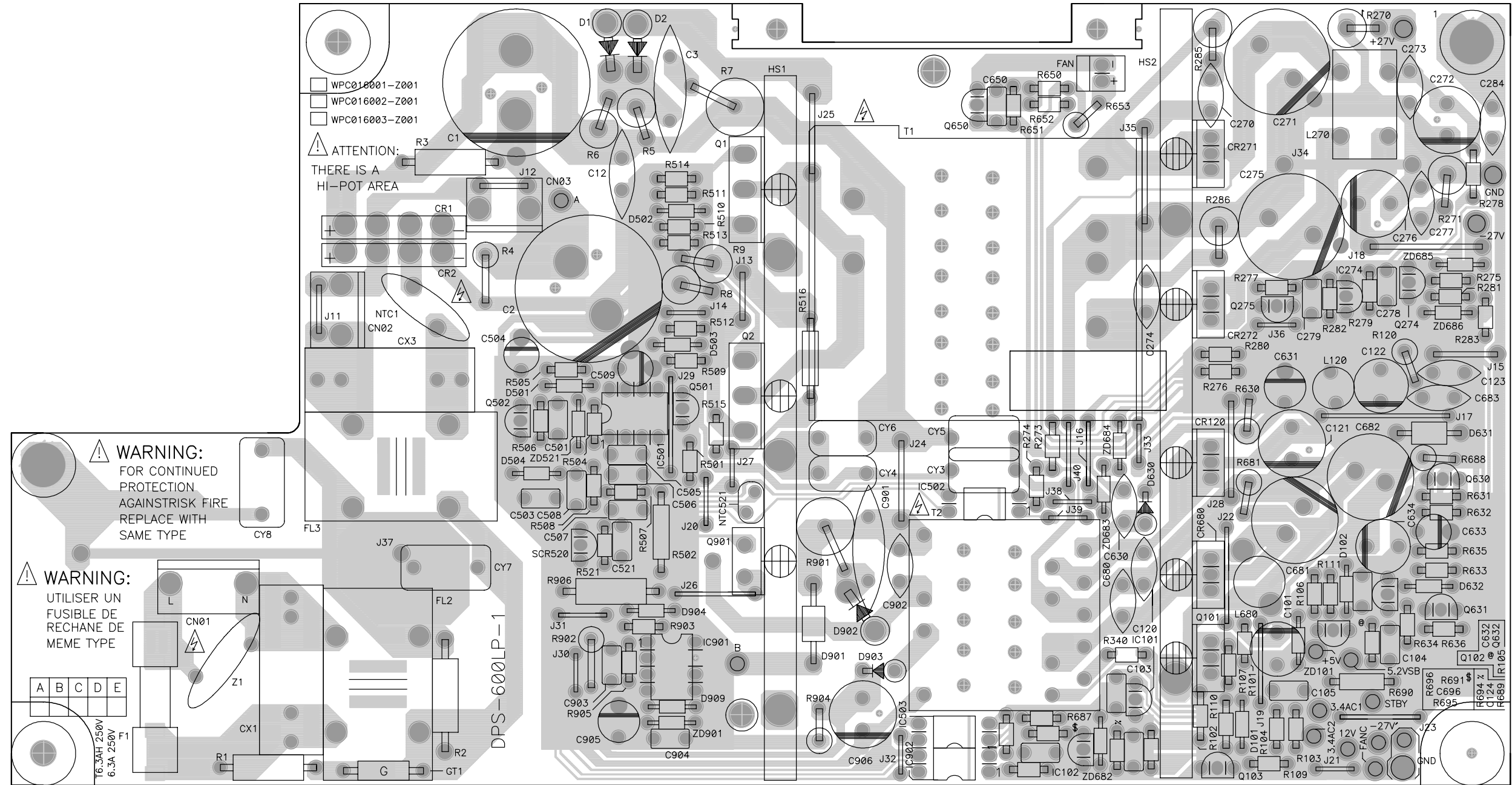
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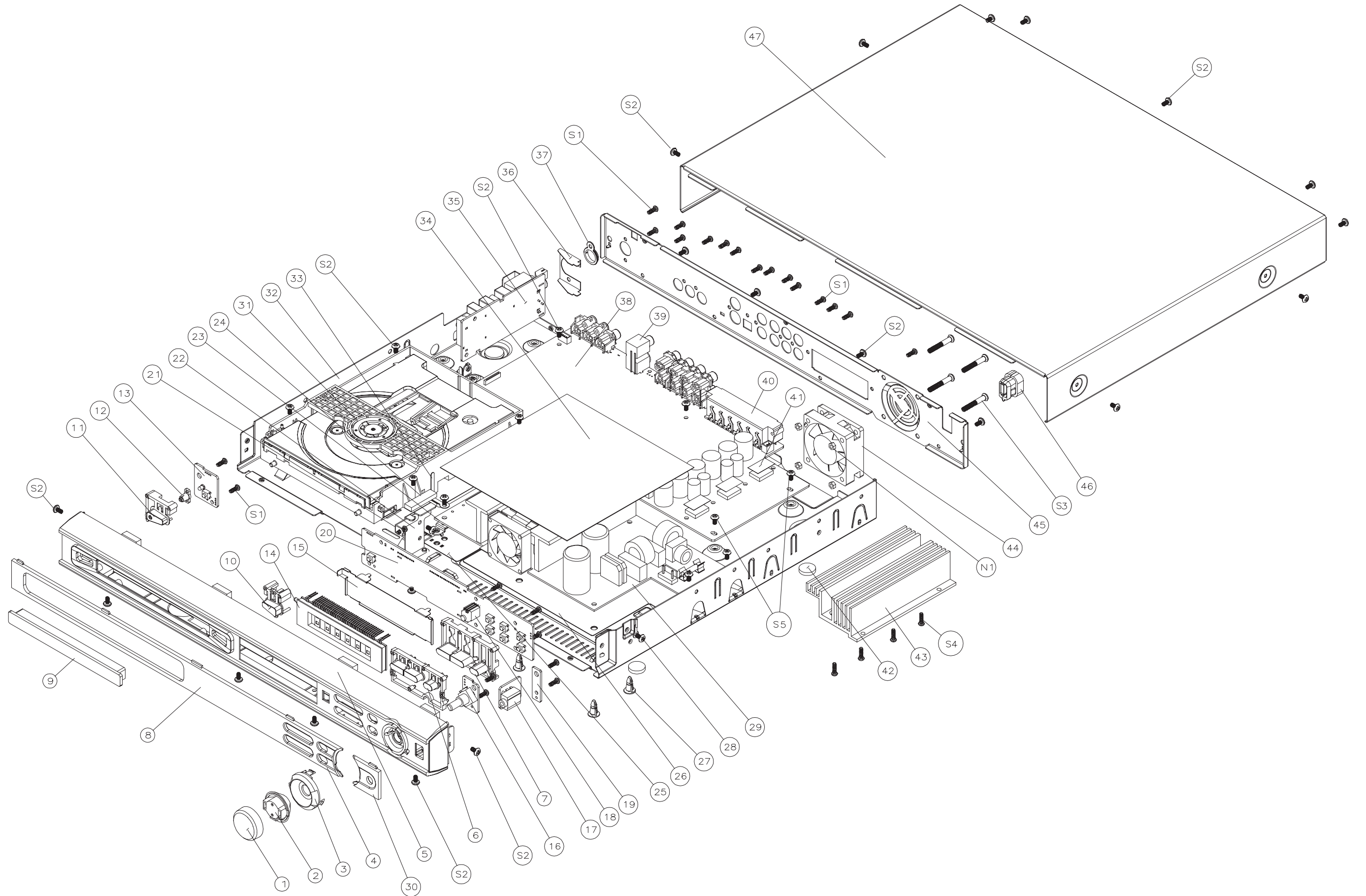
CIRCUIT DIAGRAM - POWER BOARD (/17/37)



PCB LAYOUT - POWER BOARD (/17/37)



MECHANICAL EXPLODED VIEW



MECHANICAL PARTS - MAIN UNIT (KN000XXXXXXXXX = BOM 1)**MISCELLANEOUS**

9965 000 29272	IC18 PIN HT48R05A HOLTEK WITH SW
9965 000 23573	DVD MECHANICAL-DVD LOADER ASSY
9965 000 29271	SAT SPK ASS'Y HTS3400/37
9965 000 29270	SUBWOOFER ASS'Y 100W 3 OHM
9965 000 26968	DC FAN 12V 0.09A SPEED: 4000RPM
9965 000 23580	RCA CABLE 1500MM OD2.6MM BLK
9965 000 23889	RCA CABLE 1500MM BLK
9965 000 23582	LOOP ANT 1200MM 1007#26 6TS
9965 000 23583	FM ANTENNA 1000MM 1007#24 TC
9965 000 26916	REMOTE CONTROL 45KEY
9965 000 23652	SW PWR SUPPLY ASSY INPUT 110V
9965 000 23647	DVD DOOR HIPS
9965 000 27149	FRONT PANEL HIPS 94V2 PAINT S
9965 000 23575	FM ANTENNA HOLDER
9965 000 23639	VOLUME KNOB ABS
9965 000 27150	POWER BUTTON PAINT BLACK 8019
9965 000 23644	FUNCTION BUTTON 1 ABS
9965 000 27151	OPEN/CLOSE BUTTON PAINT BLACK
9965 000 23645	FUNCTION BUTTON 2 ABS
9965 000 27152	VOLUMR LENS PMMA LF
9965 000 27153	DISPLAY LENS PMMA L389.1XW28.7
9965 000 23650	POWER LED LENS PMMA
9965 000 23641	VOLUME RING ABS
9965 000 23640	VOLUME DOCKING ABS
9965 000 23571	FOOT RUBBER DIA14XT3MM WHITE

SATELLITE SPEAKER ASSEMBLY BREAKDOWN

9965 000 27122	SPEAKER BOX-L
9965 000 27183	SPEAKER BOX-R
9965 000 27184	SPEAKER BOX SURROUND-L
9965 000 27185	SPEAKER BOX SURROUND-R
9965 000 27186	FRAME A'SSY
9965 000 27187	FRAME
9965 000 27188	CLOTH
9965 000 27189	TW BRACKET
9965 000 26663	RUBBER FOOT
9965 000 27190	SPEAKER BOX
9965 000 27191	FRAME A'SSY
9965 000 27192	FRAME
9965 000 27193	CLOTH
9965 000 27194	TW BRACKET
9965 000 24036	BRACKET & SCREW PACKING
9965 000 28778	CABLE ASS'Y L5.2M-WHITE
9965 000 28784	CABLE ASS'Y L5.2M-RED
9965 000 28786	CABLE ASS'Y L15.2M-BLUE
9965 000 28787	CABLE ASS'Y L15.2M-GRAY

SUBWOOFER ASSEMBLY BREAKDOWN

9965 000 27144	SUBWOOFER ASS'Y 100W 3OHM
9965 000 27195	FRAME A'SSY
9965 000 27196	CLOTH FRAME
9965 000 27197	CLOTH
9965 000 27198	PLASTIC FOOT
9965 000 26668	RUBBER FOOT
9965 000 28376	CABLE A'SSY 5.3M PURPLE SMK

ELECTRICAL PARTS LIST - CONTROL PCBA**MISCELLANEOUS**

DP2201	9965 000 26957	VFD 100X25MM PIN
LD2201	9965 000 26953	LED 3 DIA RED ROUND HP HLMP
SN2201	9965 000 26956	IRT RECEIVER IRM-2638F4
TA2201	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2202	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2203	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2204	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2205	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2206	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2207	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
TA2208	9965 000 26950	AI TACT SW SKHVBE3520 ALPS
VR2201	9965 000 26954	ENCODER L20 A=12 WITHOUTCC
XL2201	9965 000 23590	CRYSTAL 4MHZ HC-49US

DIODES

D2201	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
D2202	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
ZD2201	9965 000 26942	DIODE ZENR 5.0-5.2V 0.5W
ZD2202	9965 000 26930	CHIP ZENER 5.6V 0.05 0.5W (E2)
ZD2203	9965 000 26930	CHIP ZENER 5.6V 0.05 0.5W (E2)

TRANSISTOR & INTEGRATED CIRCUIT

Q2201	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
Q2202	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
Q2203	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
Q2204	9940 000 00915	XISTR NPN 2SC1623
Q2205	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
IC2201	9965 000 23592	IC 18PIN HT48R05A-1 SOP
IC2202	9940 000 00907	IC 52 PIN TP6311QH

ELECTRICAL PARTS LIST - RADIO PCB ASSY (TUNER)**MISCELLANEOUS**

ANT001	9965 000 24668	RF JACK MALE TYPE 75 OHM
CN001	9965 000 27093	CON/WIRE 8P 180MM
CN002	9965 000 25150	CONNECTOR S2B-XH-A 2 PIN
IF001	9965 000 24093	CERFILTER 3P 10.7MHZ
IF002	9965 000 24670	CER FILTER 10.7 MHZ
T001	9965 000 24672	AM IFT 450KHZ 180PF Q=80MIN
T002	9965 000 24673	AM IFT 450KHZ 180PF Q=80MIN
T003	9965 000 24673	AM IFT 450KHZ 180PF Q=80MIN
T005	9965 000 24674	OSC COIL AM 120UH (796KHZ)
T006	9965 000 26964	ANT OSC AM 4-6:10T 1-3:86T
VC001	9965 000 24676	CONDTRIM 3-10PF NP0
VC002	9965 000 24676	CONDTRIM 3-10PF NP0
VR001	9965 000 27005	CNTL TRIMR 30 K OHM
XL1	9965 000 23588	CRYSTAL 75KHZ +/-15

DIODES

D001	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
D002	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
D003	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
D004	9965 000 26940	DIODE ZENR 11.9-12.4V 0.5W
D005	9965 000 26949	DIODE SW 1N4148 PB<1000PPM
VD001	9965 000 27006	DIODE TUNG FM TOSHIBA 1SV101
VD002	9965 000 27006	DIODE TUNG FM TOSHIBA 1SV101
VD003	9965 000 26965	DIODE TUNG AM 1SV149B
VD004	9965 000 26965	DIODE TUNG AM 1SV149B

TRANSISTOR & INTEGRATED CIRCUIT

Q001	4822 130 41198	2SC945P
Q002	4822 130 41198	2SC945P
Q003	9965 000 27004	XISTR PNP BF550 SOT23 PHILIPS
Q003	9940 000 00921	XISTR PNP 2SA812 HFE:200-400
IC001	9965 000 27003	IC 44 PIN TEA5757H QFP44

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

