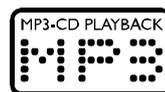


Service  
Service  
**Service**



# Service Manual



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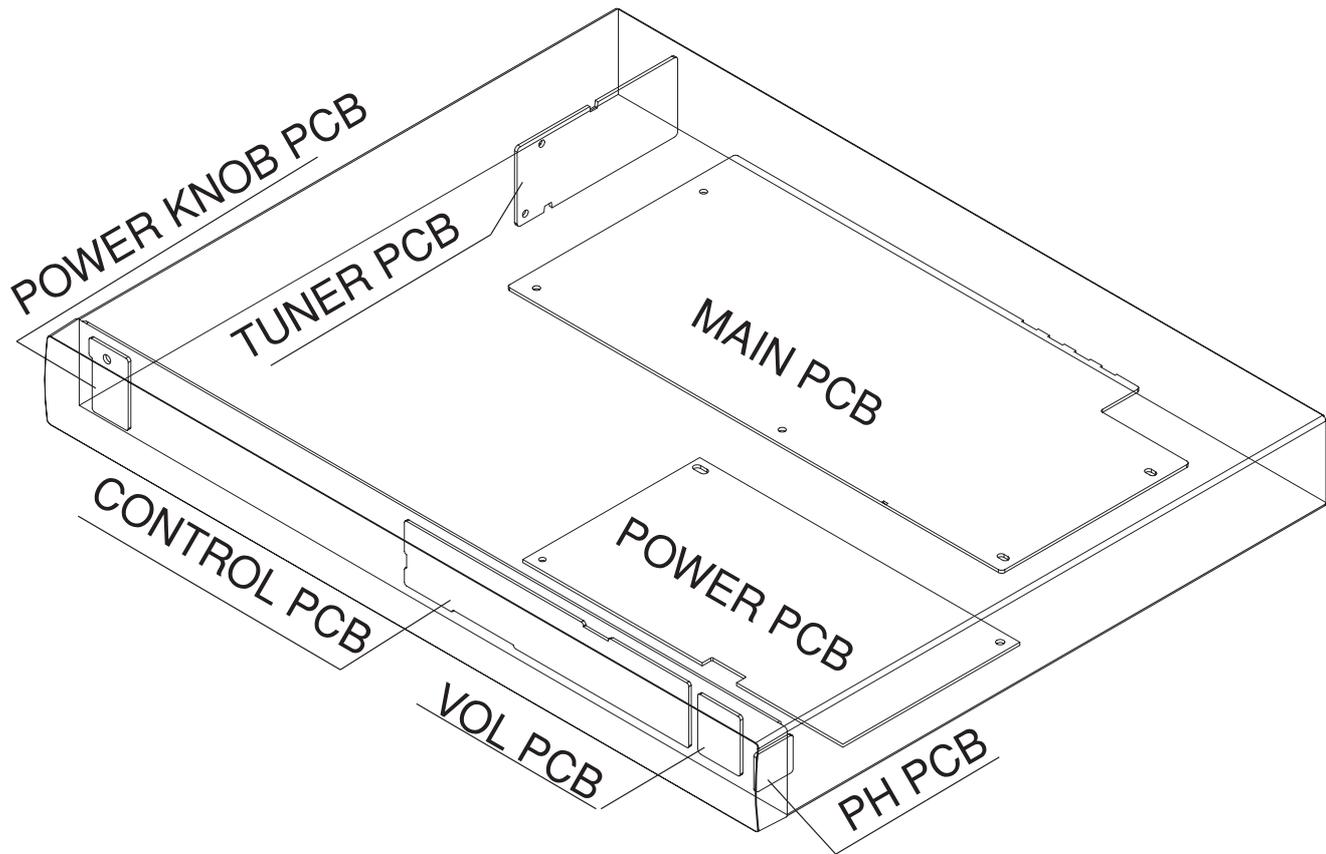
3139 785 30590

Version 1.0



# PHILIPS

## LOCATION OF PC BOARDS



## VERSION VARIATION:

Features & Board in used:	Type /Versions:	MRD120	
		/17	/78
RDS			
Rotary Encoder (volume control)		x	x
Aux Input		x	x
Digital Output		x	x
Line Output		x	x
Progressive scan		x	x
Power supply (110V/110~230V)		x	x

## SPECIFICATIONS

### AMPLIFIER SECTION

Output power .....	200 W Total power
- Front .....	30 W RMS / channel
.....	25 W FTC®/channel
- Rear .....	30 W RMS / channel
- Center .....	30 W RMS
- Subwoofer .....	50 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) (for /17)
.....	MW 530 – 1710 kHz (10 kHz) (for /78)
.....	MW 531 – 1602 kHz (9 kHz) (for /78)
26 dB Quieting Sensitivity .....	FM 20 dBf
26 dB Quieting Sensitivity .....	AM 5000 µV/m
Image Rejection Ratio .....	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 (for /17)
.....	110-127 / 220-240V(for /78)
Power Consumption .....	120W
Dimensions (w × h × d) .....	435× 48 × 360 (mm)
.....	17.13 × 1.89 × 14.17 (inch)
Weight .....	4.07 kg / 8.95 pounds

### SPEAKERS

Front/Rear speakers	
System .....	2-way, Bass Reflex system
Impedance .....	8 Ω
Frequency response .....	120 Hz – 20 kHz
Dimensions (w × h × d) .....	90 × 90 × 87 (mm)
.....	3.54 × 3.54 × 3.43 (inch)
Weight .....	0.53 kg/1.17 pounds

### CENTER SPEAKERS

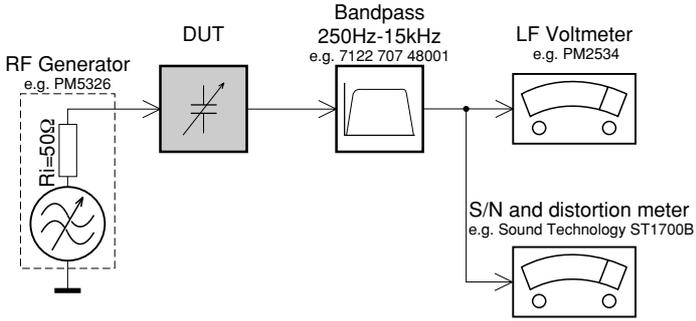
System .....	3-way, Bass Reflex system
Impedance .....	8 Ω
speaker drivers .....	2 x 3 " FR, 1 3/4" pizeo
Frequency response .....	120 Hz – 20 kHz
Dimensions (w × h × d) .....	90 × 90 × 87 (mm)
.....	3.54 × 3.54 × 3.43 (inch)
Weight .....	0.53 kg/1.17 pounds

### PASSIVE SUBWOOFER

Impedance .....	4 Ω
speaker drivers .....	6 1/2" woofer
Frequency response .....	30 Hz – 120 kHz
Dimensions (w × h × d) .....	210 × 220 × 350 (mm)
.....	8.27 × 8.66 × 13.78 (inch)
Weight .....	3.57 kg/7.85 pounds

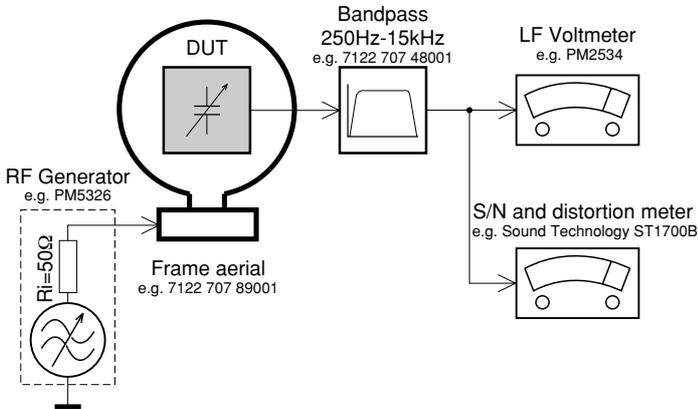
# MEASUREMENT SETUP

## Tuner FM



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

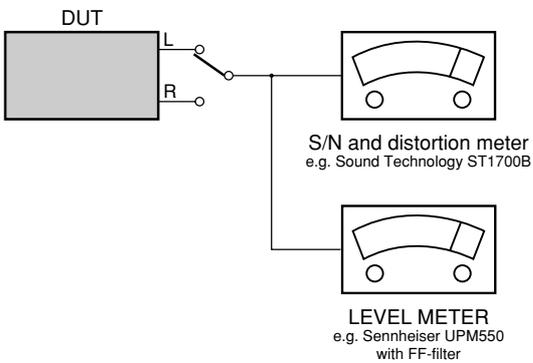
## Tuner AM (MW,LW)



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).

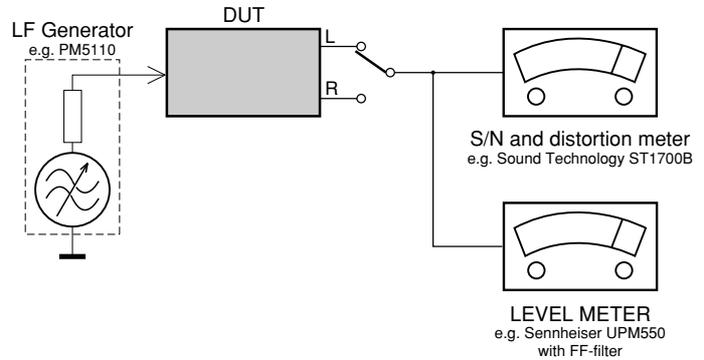
## CD

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

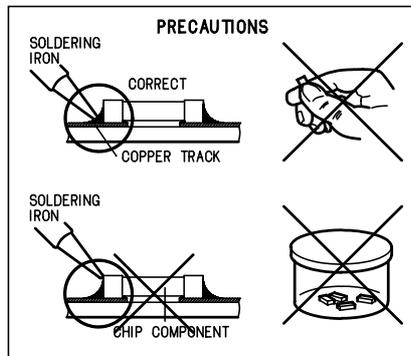
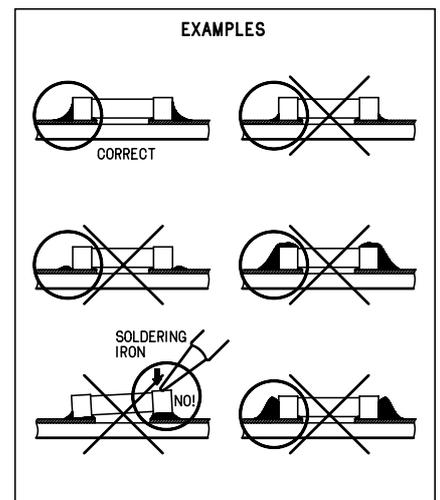
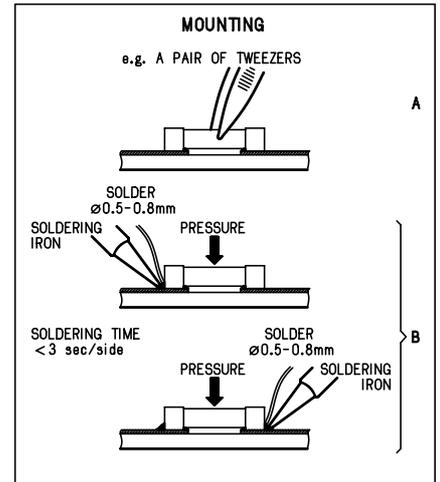
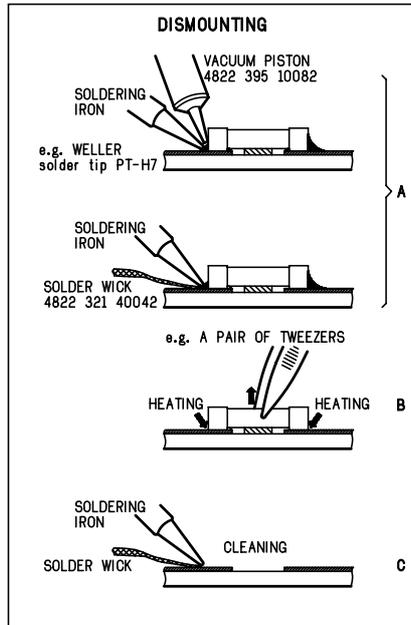
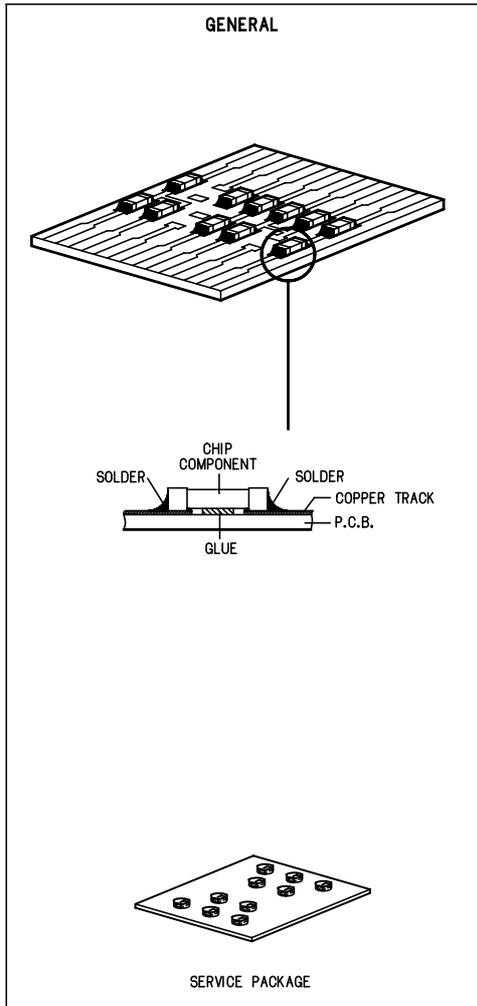
## Service Tools:

- 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

## 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 ditzelfde potentiaal.

**(I) AVVERTIMENTO**

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

**(GB) 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 .

**(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 .

**(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 .

**(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  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 .

**(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".

## 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

#### oem derivative

08

- region code = 1 digit
- tv system = 1 digit
- "as/menu lang" = 1 digit
- "AFS" = "architechture 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 MRD120 /17 (US) :

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

For MRD120 /78 (LATAM) :

<PLAY> <159> <411> <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 inf ormation is conf idencial and may not be distributed. Only a qualif ied service person sh ould 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 (17)	FM	87.5M	108M	50K
	AM	531K	1602K	9K
		530K	1710K	10K
LATAM (78)	FM	87.5M	108M	50K
	MW	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 Sof tware version

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

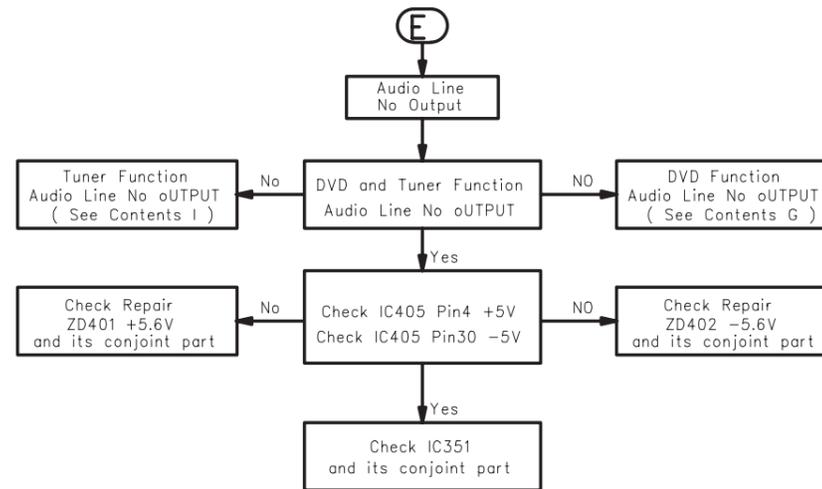
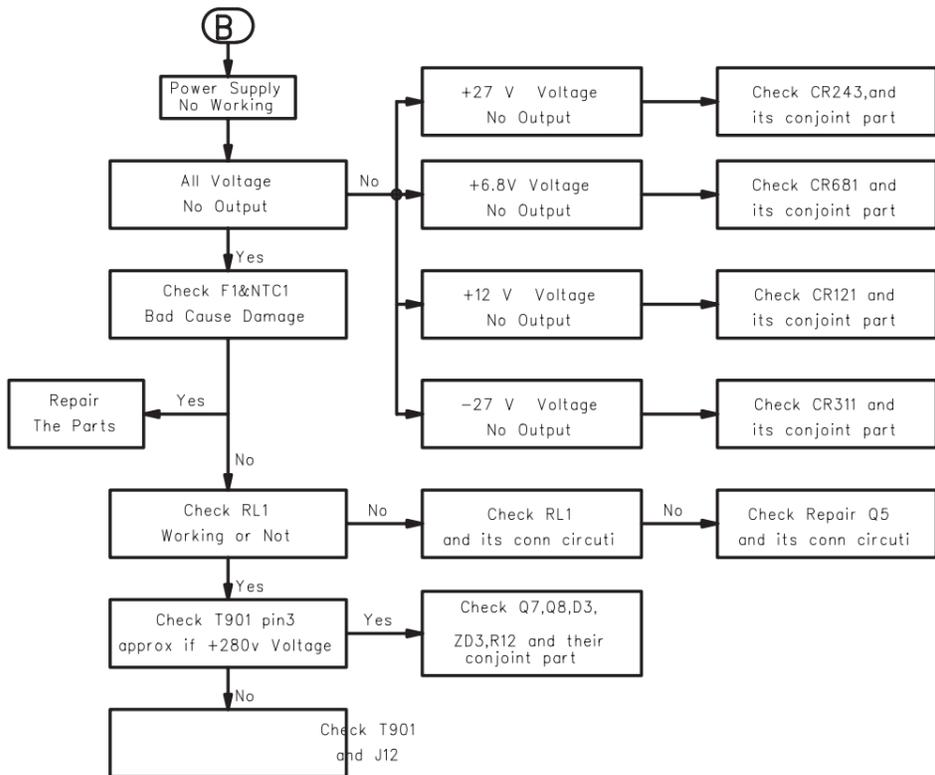
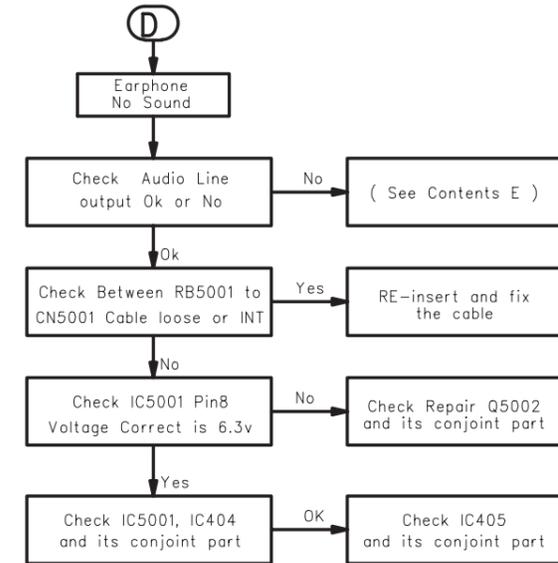
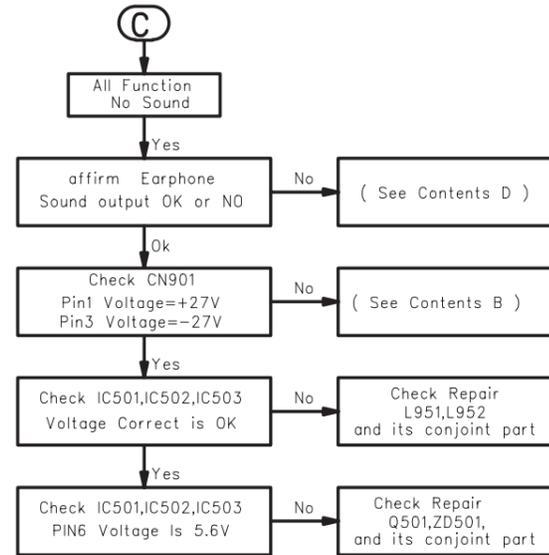
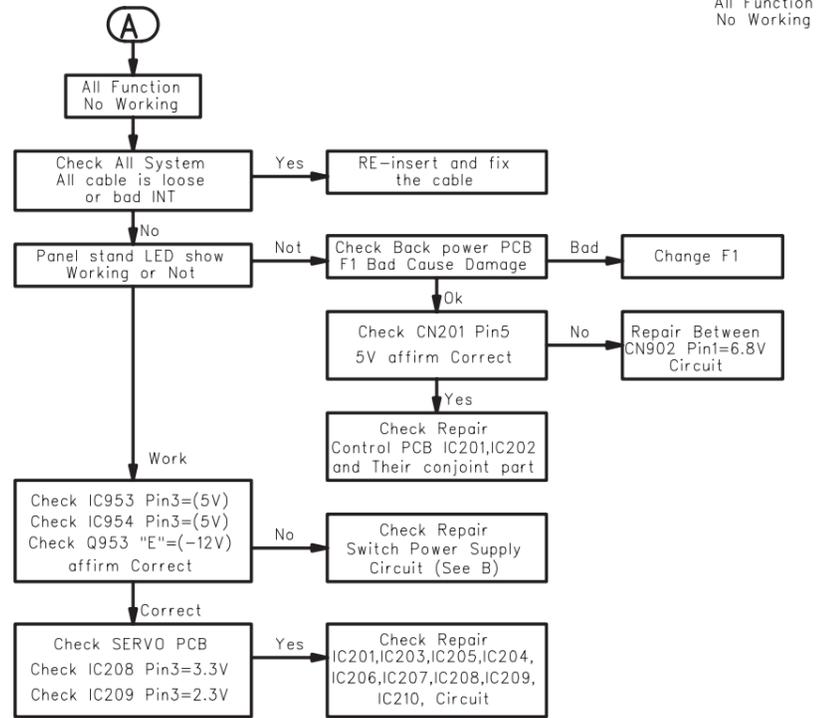
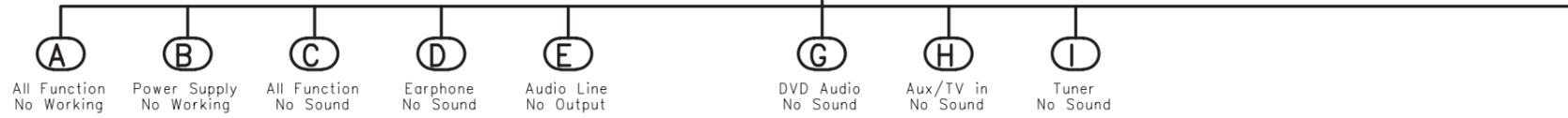
### 8. Upgrading new sof tware

- 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"

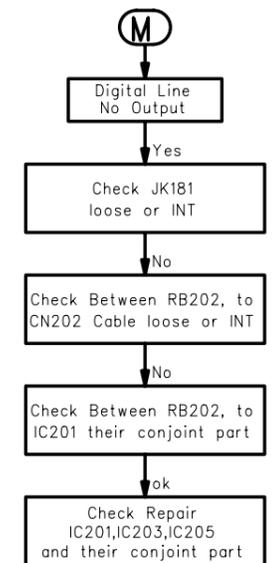
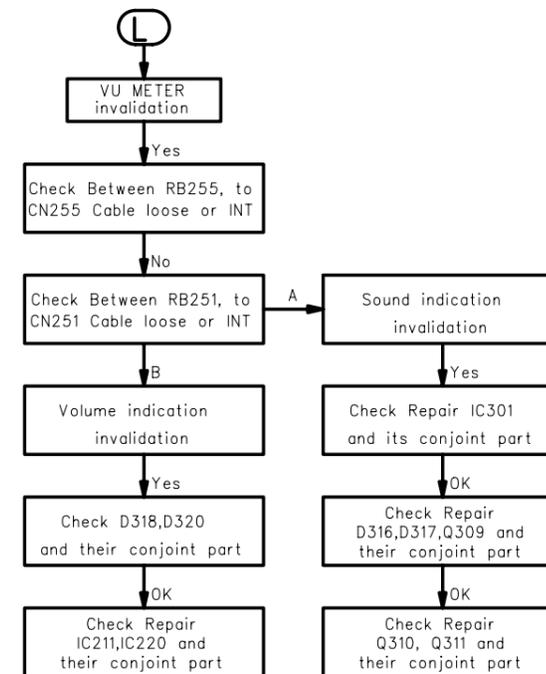
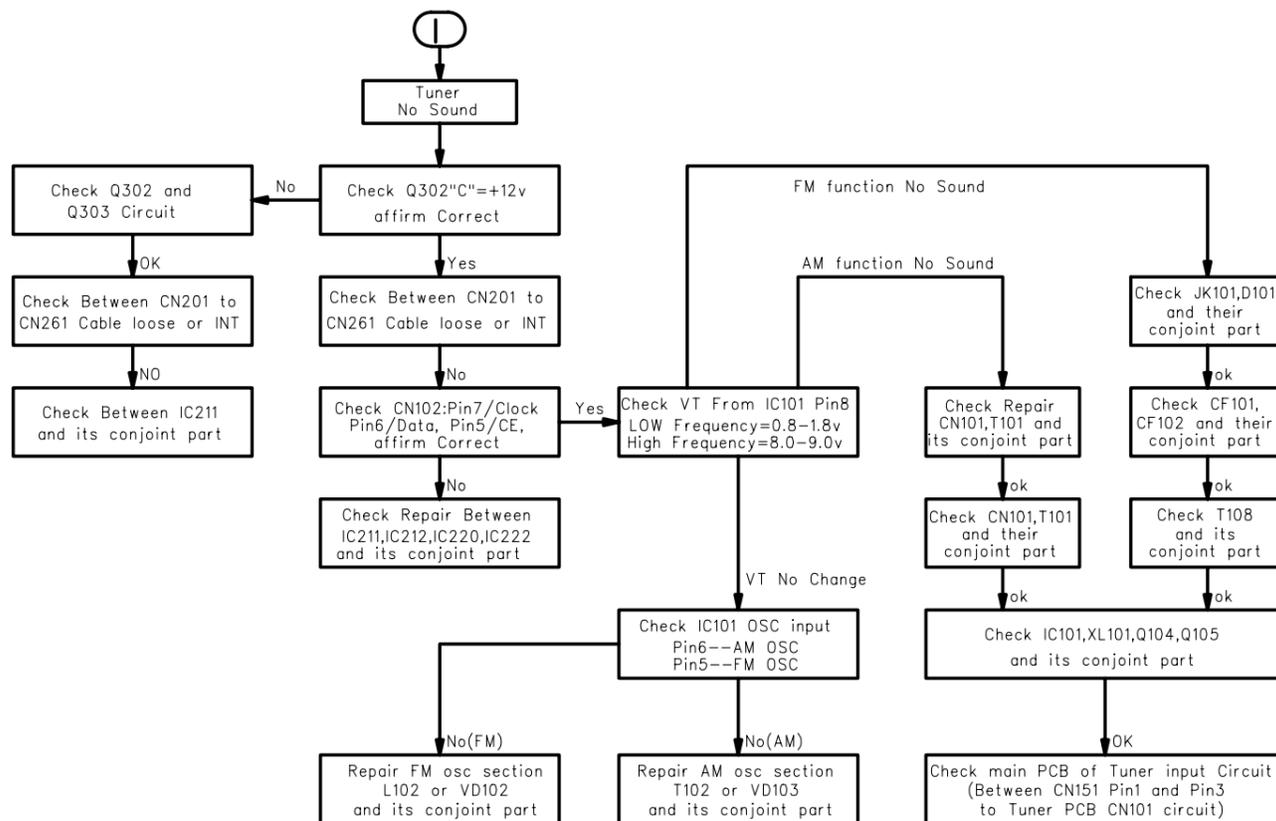
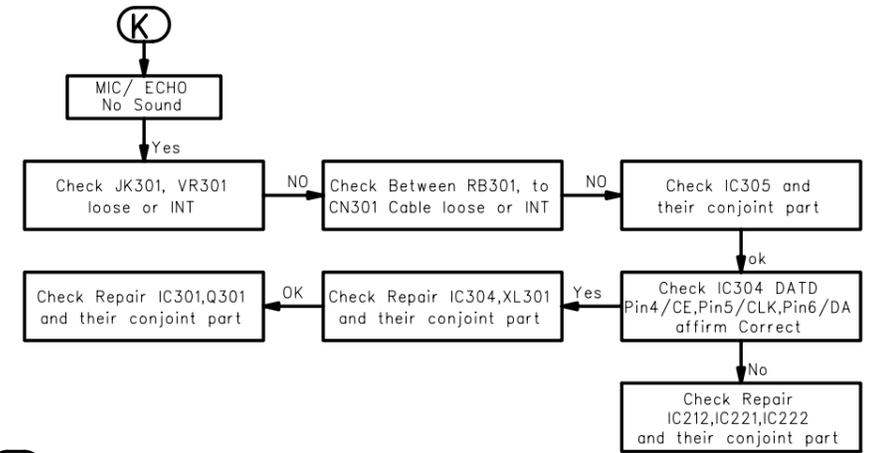
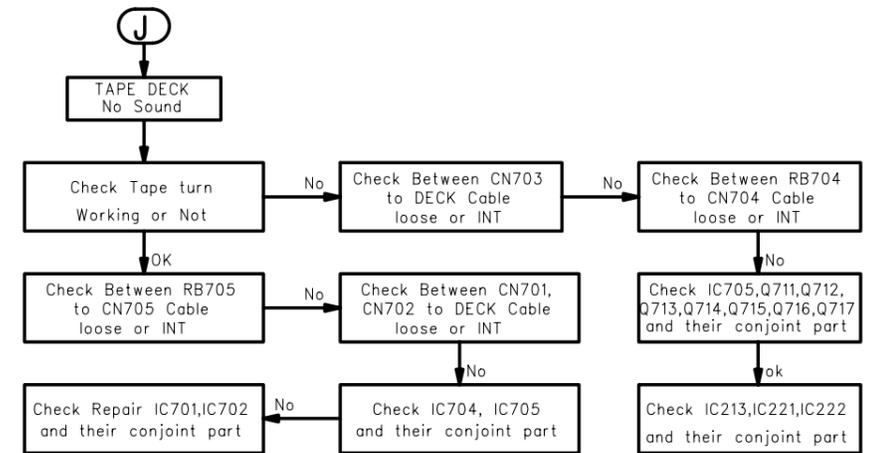
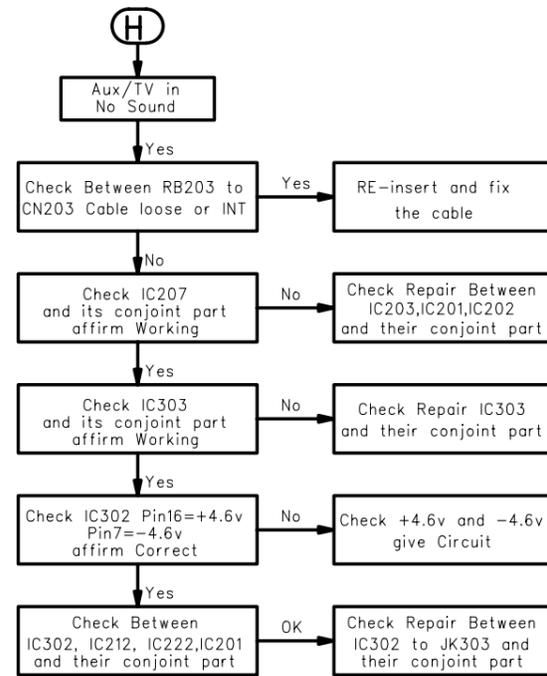
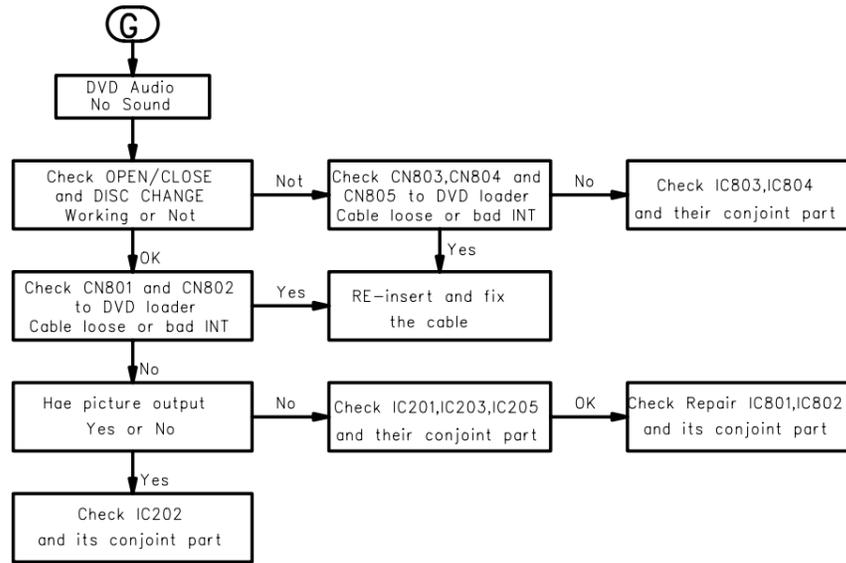
\* The latest upgraded is in version VER0226.

# 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

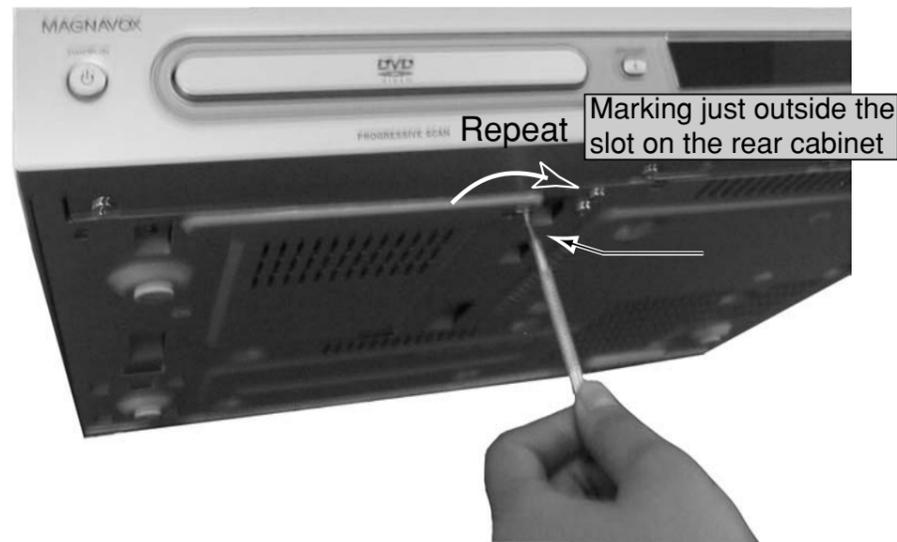


Figure 1



Figure 2

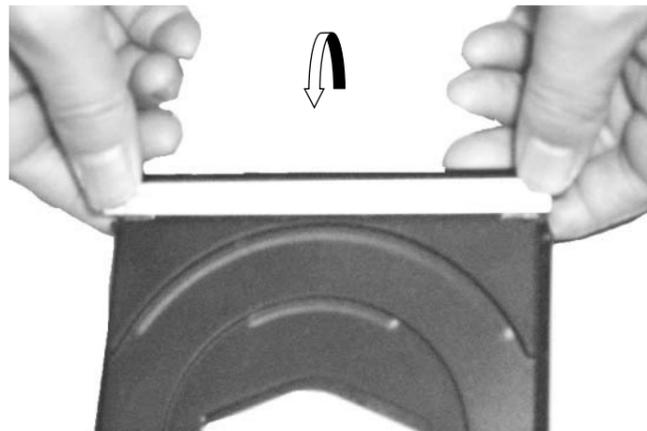


Figure 3

### Dismantling of the DVD Module

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

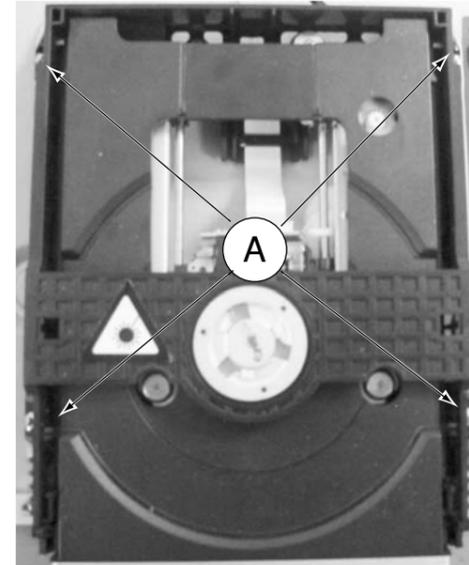


Figure 4

### Dismantling of the Power Board

- 1) Loosen 4 screws "B" at the top of the Power Board as shown in figure 5

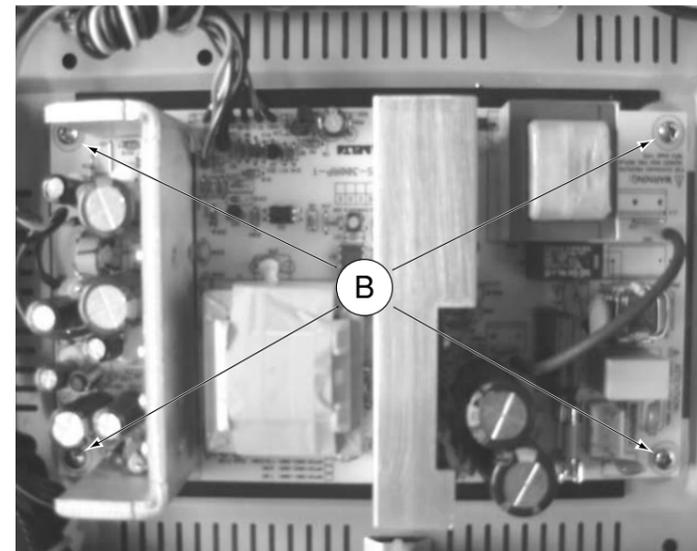


Figure 5

**Dismantling of the Tuner PCB**

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

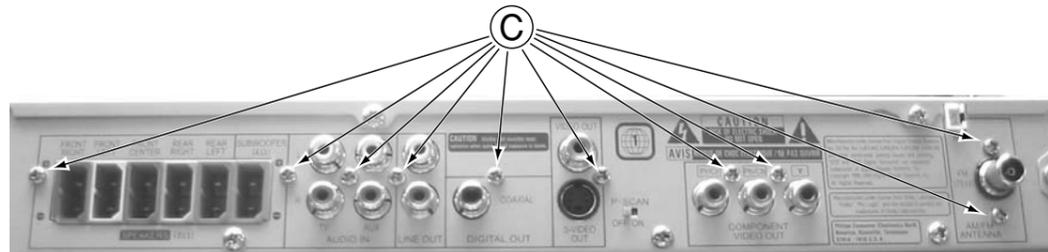


Figure 7



Figure 8

**SERVICE POSITIONS**

Service position A

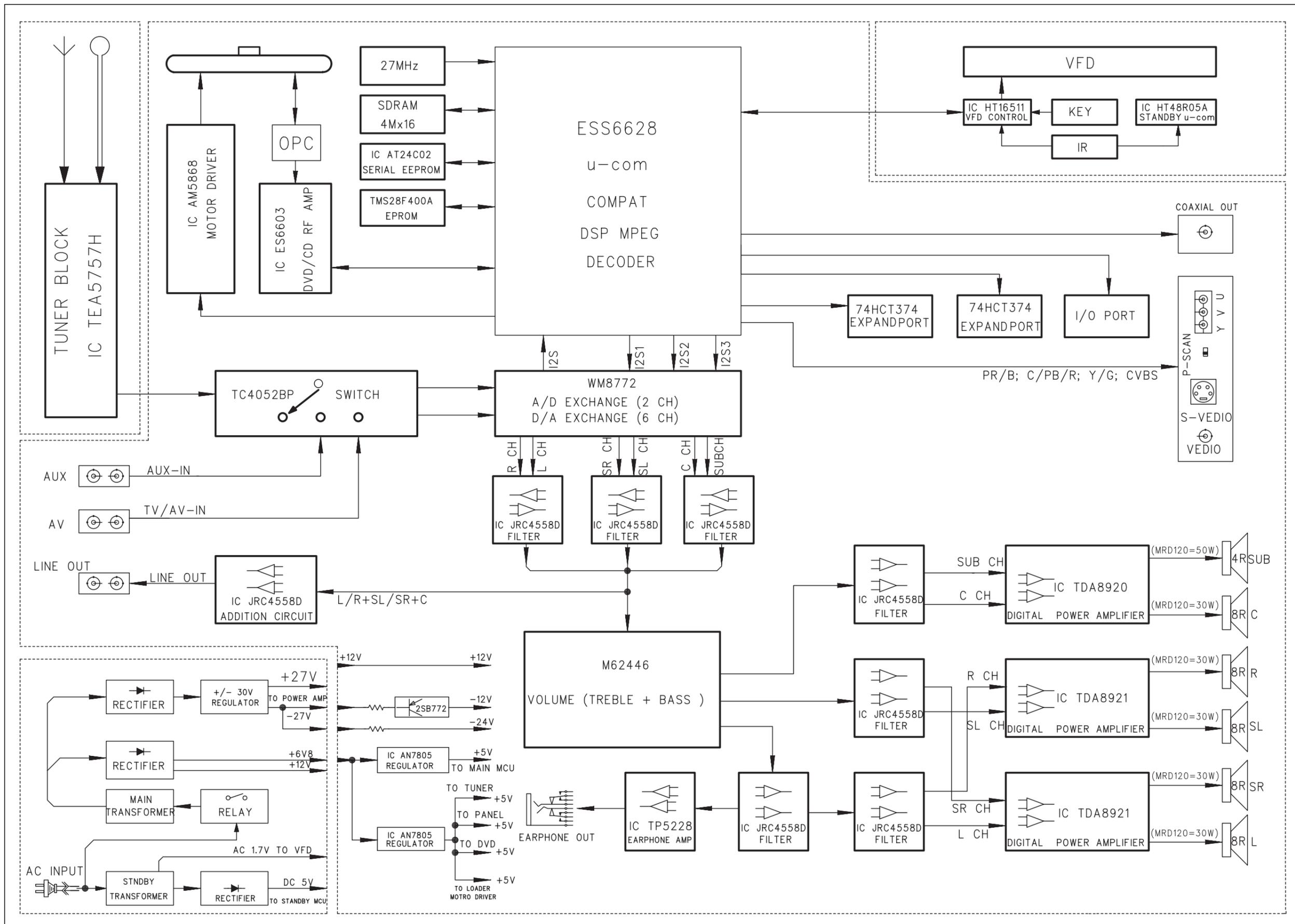


Note: In some service positions the components or copper patterns of one board may risk touching its neighbouring pc boards or metallic parts. To prevent such short-circuit use a piece of hard paper or other insulating material between them.

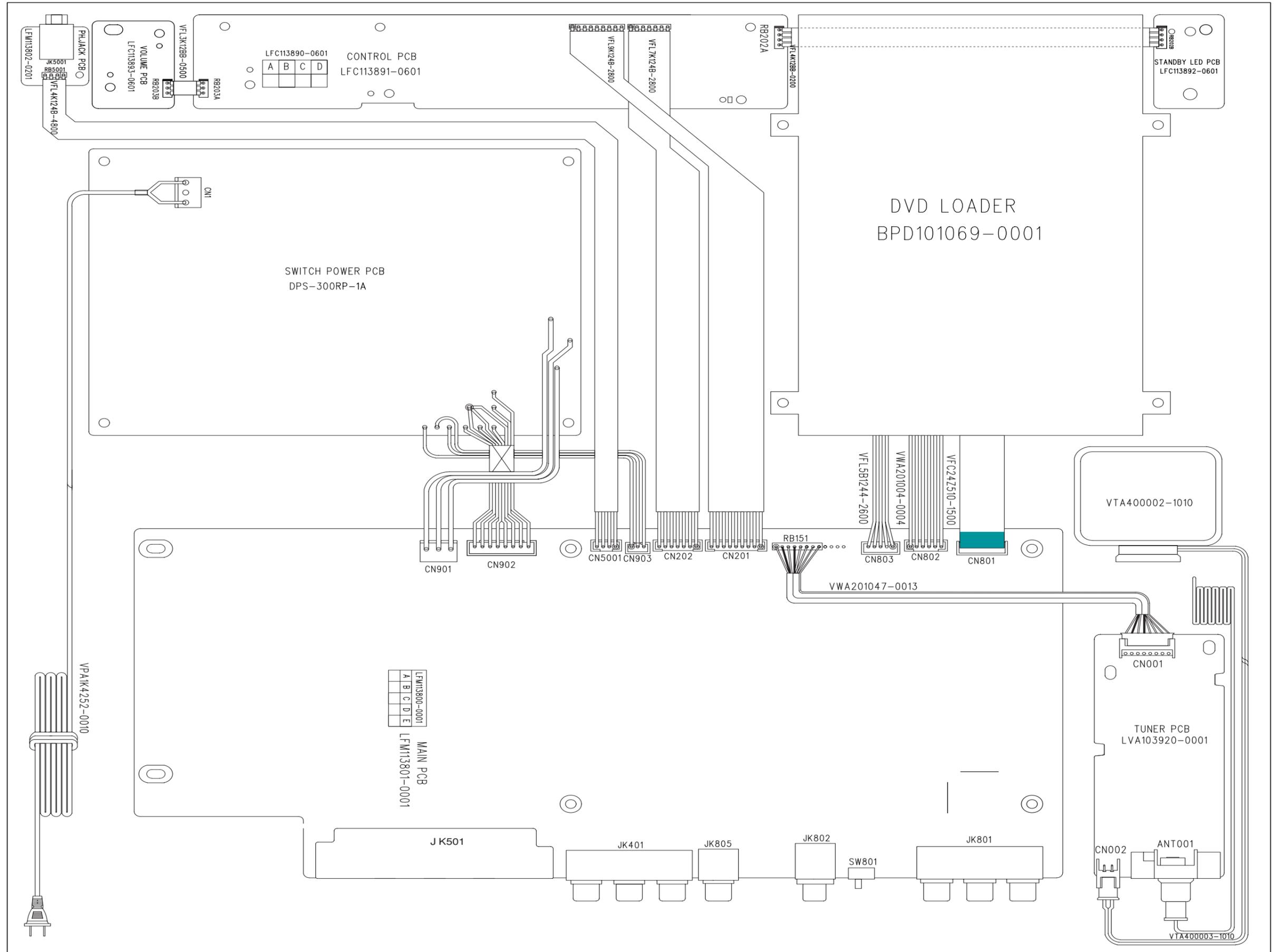
Service position B



# BLOCK DIAGRAM



# WIRING DIAGRAM

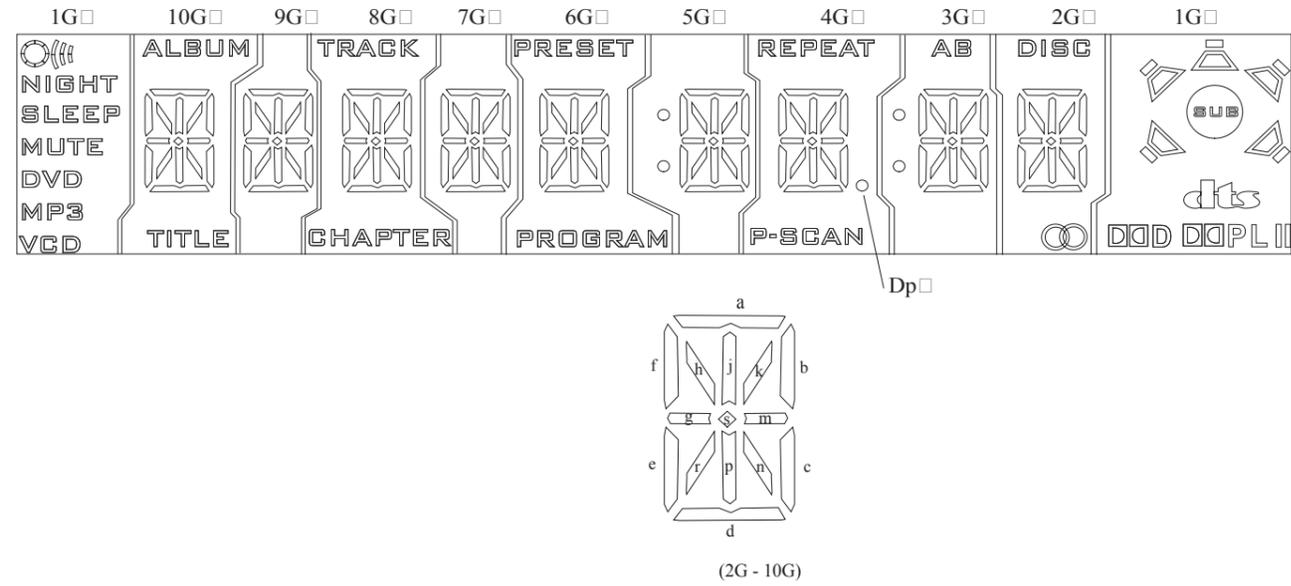


# KEY ( CONTROL / STANDBY / VOL) BOARD

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FTD Display Pin Assignment ..... 5-1  
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 Circuit Diagram ..... 5-2  
 PCB Layout Top & Bottom View ..... 5-3  
 Electrical Parts List & Voltages ..... 5-4

**FTD DISPLAY PIN ASSIGNMENT**



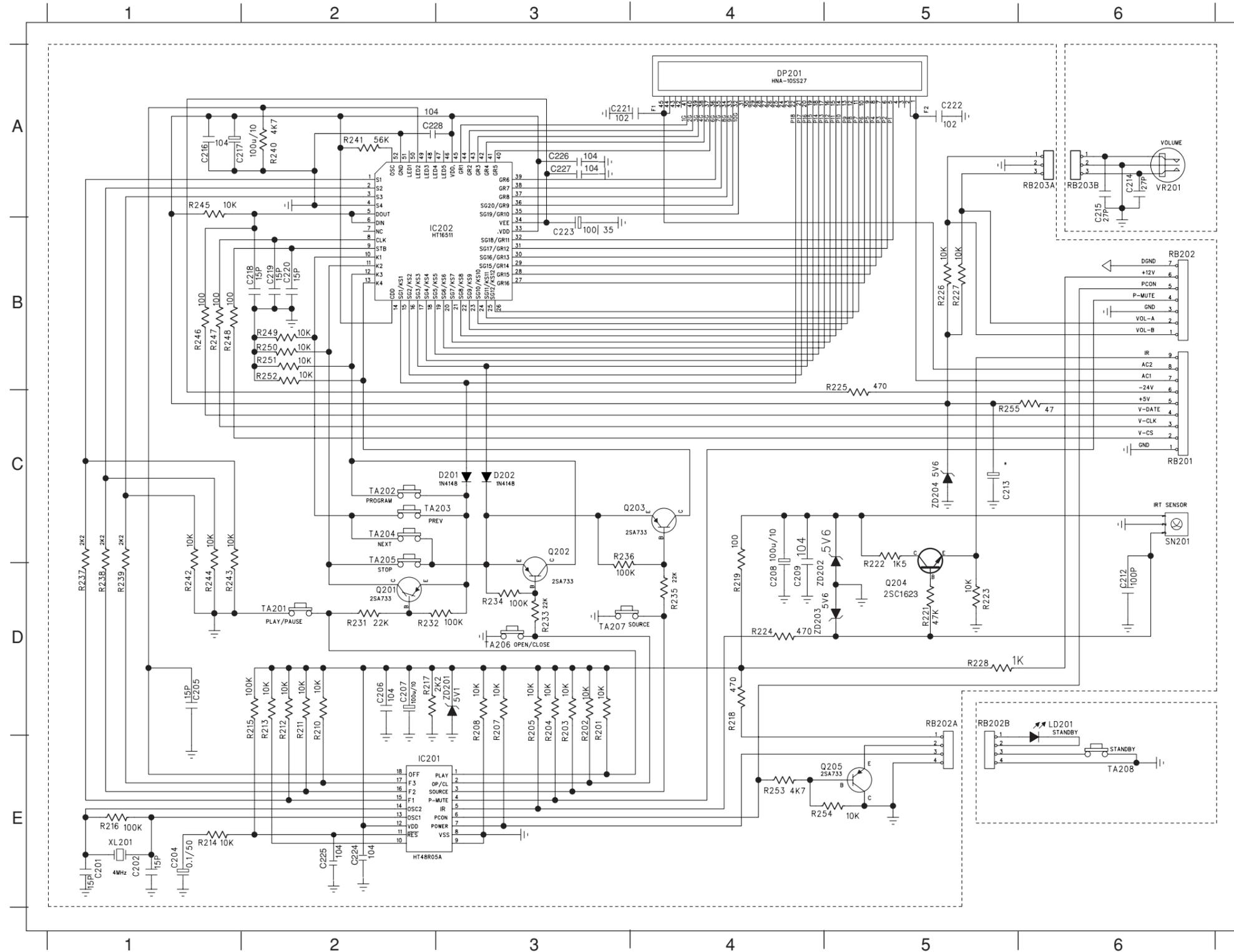
	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	a	
P2	b	b	b	b	b	b	b	b	b	
P3	f	f	f	f	f	f	f	f	f	
P4	h	h	h	h	h	h	h	h	h	
P5	j	j	j	j	j	j	j	j	j	
P6	k	k	k	k	k	k	k	k	k	
P7	m	m	m	m	m	m	m	m	m	
P8	s	s	s	s	s	s	s	s	s	
P9	g	g	g	g	g	g	g	g	g	
P10	c	c	c	c	c	c	c	c	c	
P11	e	e	e	e	e	e	e	e	e	
P12	r	r	r	r	r	r	r	r	r	NIGHT
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		CD

**PIN CONNECTION**

PIN NO.	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31-23	22	21	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

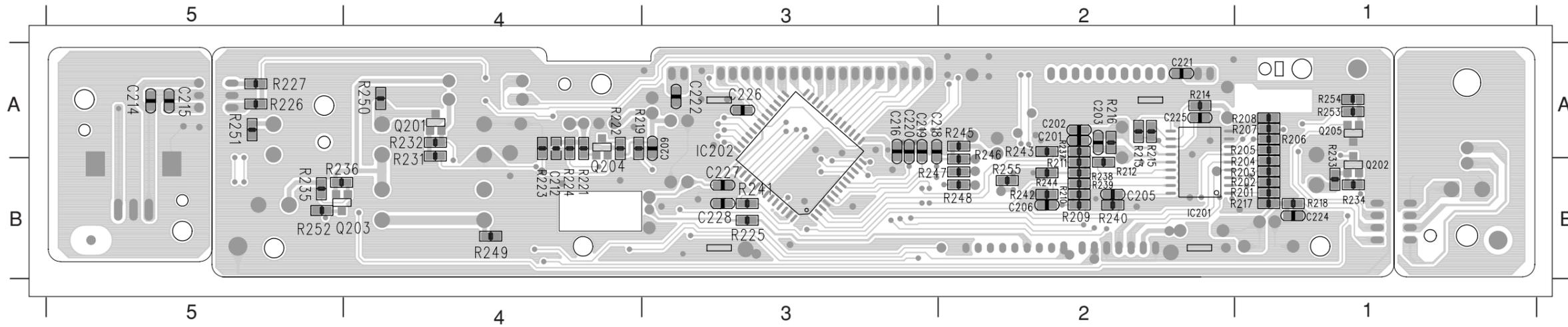
# CIRCUIT DIAGRAM - KEY BOARD



C201	E1	R232	D2
C202	E1	R233	D3
C204	E1	R234	D3
C205	D1	R235	D4
C206	D2	R236	D3
C207	D2	R237	D1
C208	D4	R238	D1
C209	D4	R239	D1
C212	D6	R240	A2
C214	A6	R241	A2
C215	A6	R242	D1
C216	A1	R243	D1
C217	A1	R244	D1
C218	B2	R245	A1
C219	B2	R246	B1
C220	B2	R247	B1
C221	A3	R248	B1
C222	A5	R249	B2
C223	B2	R250	B2
C224	E2	R251	B2
C225	E2	R252	B2
C226	A3	R253	E4
C227	A3	R254	E5
C228	A2	R255	C6
D201	C3	RB201	C6
D202	C3	RB202	B6
DP201	A4	RB202A	D5
IC201	E2	RB202B	D5
IC202	B3	RB203A	A6
LD201	D6	RB203B	A6
Q201	D2	SN201	C6
Q202	D3	TA201	D2
Q203	C4	TA202	C2
Q204	D5	TA203	C2
Q205	E5	TA204	C2
R201	D3	TA205	C2
R202	D3	TA206	D3
R203	D3	TA207	D3
R204	D3	TA208	E6
R205	D3	VR201	A6
R207	D3	XL201	E1
R208	D3	ZD201	D3
R210	D2	ZD202	D4
R211	D2	ZD203	D4
R212	D2	ZD204	C5
R213	D2		
R214	E1		
R215	D2		
R216	E1		
R217	D2		
R218	D4		
R219	D4		
R221	D5		
R222	C5		
R223	D5		
R224	D4		
R225	C5		
R226	B5		
R227	B5		
R228	D5		
R231	D2		

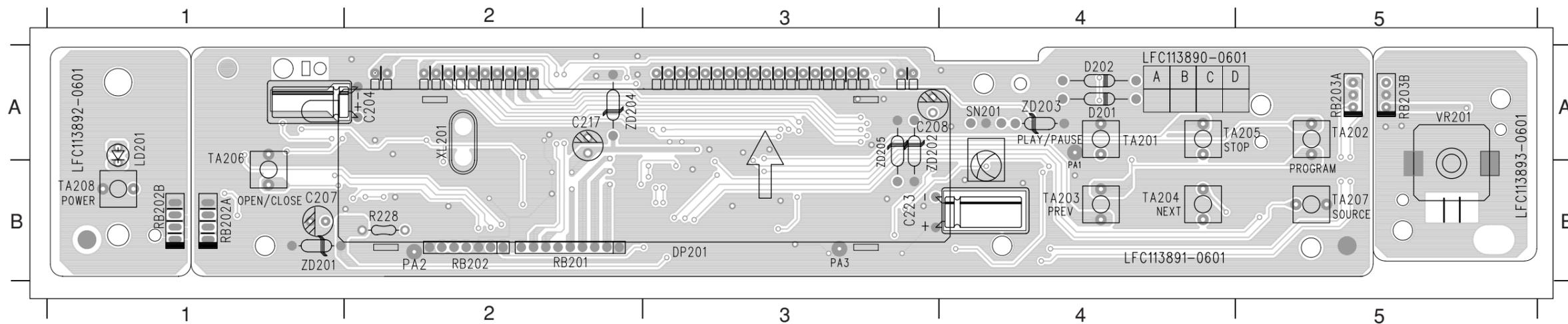
PCB LAYOUT - KEY BOARD ( TOP )

C201	A2	C214	A5	C221	A2	C228	B3	Q204	B5	R205	A1	R213	A2	R219	A4	R226	A5	R235	B5	R241	B3	R247	B2	R253	A1
C202	A2	C215	A5	C222	A3	IC201	B2	Q205	A1	R207	A1	R214	A2	R221	B4	R227	A5	R236	B5	R242	B2	R248	B2	R254	A1
C205	B2	C216	A3	C224	B1	IC202	A3	R201	B1	R208	A1	R215	A2	R222	A4	R231	A4	R237	A2	R243	A2	R249	B4	R255	B2
C206	A2	C218	A3	C225	A2	Q201	A4	R202	B1	R210	B2	R216	A2	R223	B4	R232	A4	R238	B2	R244	B2	R250	A4		
C209	A3	C219	A3	C226	A3	Q202	B1	R203	B1	R211	B2	R217	B1	R224	B4	R233	B1	R239	B2	R245	A2	R251	A5		
C212	B4	C220	A3	C227	B3	Q203	B5	R204	A1	R212	B2	R218	B1	R225	B3	R234	B1	R240	B2	R246	A2	R252	B5		



PCB LAYOUT - KEY BOARD ( BOTTOM )

C204	A2	D202	A4	RB202A	B1	TA202	A5	TA208	B1	ZD204	A2
C207	B1	DP201	B3	RB202B	B1	TA203	B4	VR201	A5		
C208	A3	LD201	A1	RB203A	A5	TA204	B4	XL201	A2		
C217	A2	R228	B2	RB203B	A5	TA205	A4	ZD201	B1		
C223	B3	RB201	B2	SN201	A4	TA206	B1	ZD202	A3		
D201	A4	RB202	B2	TA201	A4	TA207	B5	ZD203	A4		



**ELECTRICAL PARTS LIST - KEY (CONTROL/STANDBY/VOL) BOARD**

MISCELLANEOUS

DP201	9965 000 18031	VFD 100X25MM
LD201	9965 000 17400	LED 3 DIA RED ROUND
TA201	4822 276 13648	AI TACT SW
TA202	4822 276 13648	AI TACT SW
TA203	4822 276 13648	AI TACT SW
TA204	4822 276 13648	AI TACT SW
TA205	4822 276 13648	AI TACT SW
TA206	4822 276 13648	AI TACT SW
TA207	4822 276 13648	AI TACT SW
TA208	4822 276 13648	AI TACT SW
VR201	9965 000 23589	ENCODER L20 A=12 WITHOUT CC
XL201	9965 000 23590	CRYSTAL 4MHZ HC-49US +/-15PPM

DIODES

D201	4822 130 30621	1N4148
D202	4822 130 30621	1N4148
SN201	9965 000 23591	IRT RECEIV IRM-2038F4
ZD201	4822 130 34233	BZX79-B5V1
ZD202	4822 130 34233	BZX79-B5V1
ZD203	4822 130 34233	BZX79-B5V1
ZD204	4822 130 34233	BZX79-B5V1

TRANSISTORS & INTEGRATED CIRCUITS

Q201	9965 000 14175	2SA733Q,P
Q202	9965 000 14175	2SA733Q,P
Q203	9965 000 14175	2SA733Q,P
Q204	9965 000 20268	XISTR NPN SMT TYPE (2SC1623)
Q205	9965 000 14175	2SA733Q,P
IC201	9965 000 23592	IC 18PIN HT48R05A-1 SOP HOLTEK
IC202	9965 000 23593	IC 52PIN HT16511 QFP HOLTEK

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

**VOLTAGES**

IC201 (HT480051)																				
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
VOLTAGE	5.1	5.1	5.1	0	5.1	0	5.1	0	0	4.9	4.9	5.2	0	0	0	0	0	0		

IC2202 (PT16511)																				
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOLTAGE	0	0	0	0	3.8	3.8	0	3.8	3.7	0	0	0	0	0	19.7	-22.2	-22	-11.2	-19.9	-17.8
PIN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VOLTAGE	-21	-15.6	-13.4	-20	-13.4	-20	-22.4	-18	-20.3	-13.6	-15.8	-11.4	-4.6	-22.6	-20.4	-20.4	-20.4	-20.4	-20.4	-20.4
PIN	41	42	43	44	45	46	47	48	49	50	51	52								
VOLTAGE	-20.4	-20.4	-20.5	-20.4	4.6	4.6	4.6	4.6	0	4.6	0	4.6								

Q2201 (2SA733)			
PIN	1	2	3
VOLTAGE	5	0	5

Q2202 (2SA733)			
PIN	1	2	3
VOLTAGE	5	0	5

Q2203 (2SA733)			
PIN	1	2	3
VOLTAGE	5	0	5

Q2204 (2SC1623)			
PIN	1	2	3
VOLTAGE	4.6	4.2	4.2

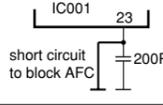
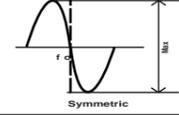
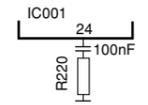
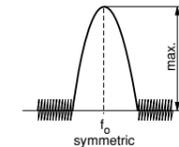
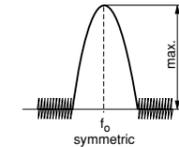
Q2205 (2SA733)			
PIN	1	2	3
VOLTAGE	5	0	5

# TUNER BOARD

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 PCB Layout View ..... 6-4  
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## TUNER ADJUSTMENT TABLE

Waverange	Input f requency	Input	Tuned to	Adj ust	Output	Scope/Voltmeter
<i>VARICAP ALIGNMENT</i>						
<b>FM</b> 87.5 - 108MHz (50kHz grid)			108MHz	check		6.5V ±1.2V
			87.5MHz	check		1.0V ±0.5V
<b>AM</b> 530-1710kHz (10kHz grid) ( 21L / 21L / 37S )			1602KHz	check		7.8V ±0.2V
			531KHz	T005		1.1V ± 0.5V
			1700KHz	check		8.0V ± 1HV
			530KHz	T005		1.1V ± 0.2V
<i>FM - IF</i>						
<b>FM</b>	10.7MHz, 50mV continuous wave			No need to adjust		
<i>FM - RF</i>						
<b>FM</b>	108MHz		106MHz	VC001	MAX	MAX
	87.5MHz	mod=1kHz Δf=±22.5kHz	90.1MHz	L001		
<i>AM IF</i>						
<b>AM</b>	450kHz			T001 T002	MAX	
<b>AM AFC</b> <b>MW</b>	Connect pin 29 of IC001 (AM Osc.) with short wire to ground (pin 6)	Δf = ±15kHz V <sub>RF</sub> = 3mV		T003		
		ΔV=mV				
<i>AM RF <sup>3)</sup></i>						
<b>MW</b>	1404kHz		1404kHz	VC001	MAX	
	576kHz		612kHz	T006		
	1400kHz	Δf = ±30kHz V <sub>RF</sub> as low as possible	1400kHz	VC002		
	610kHz		610kHz	T006		

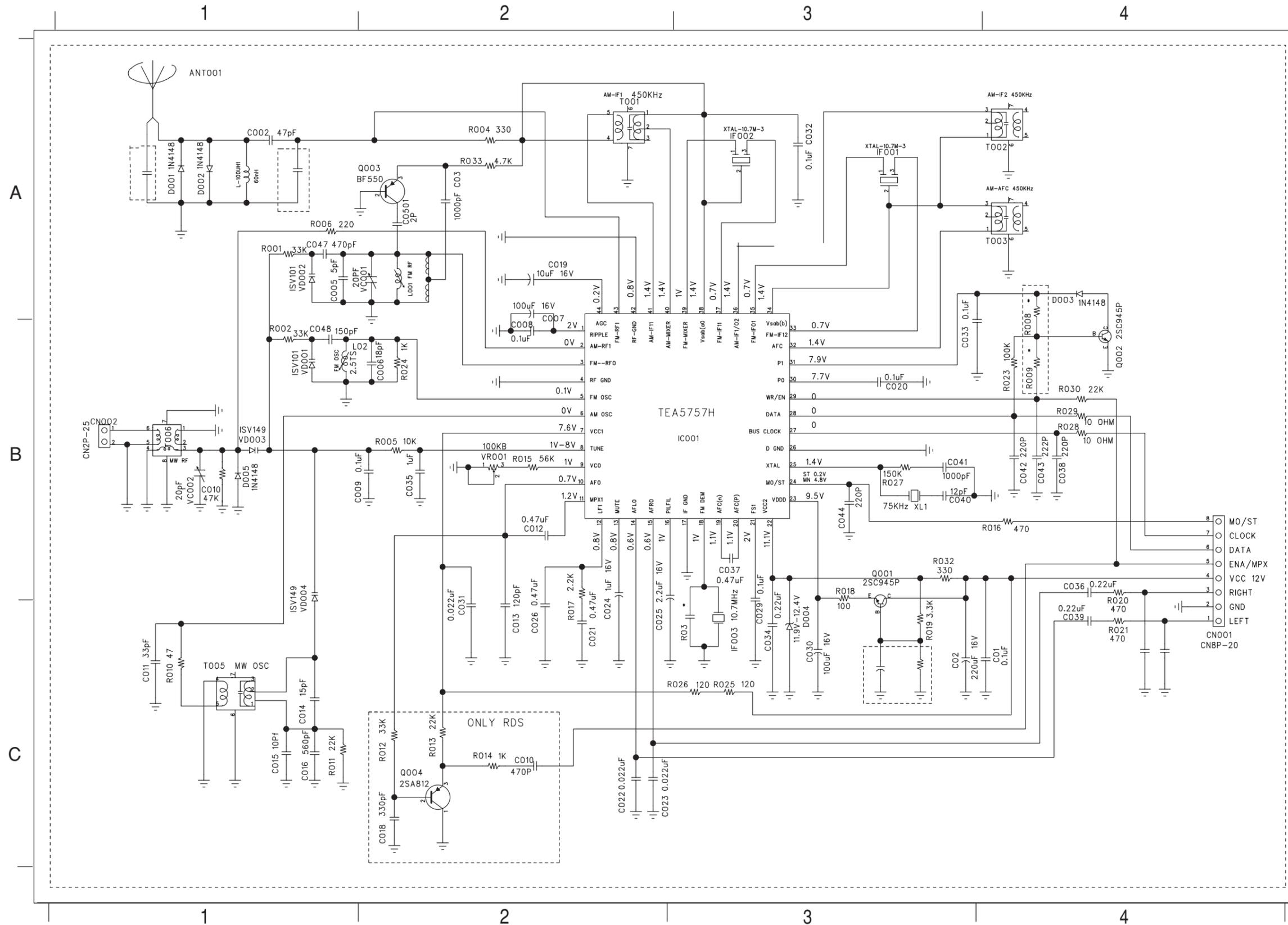
Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

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!

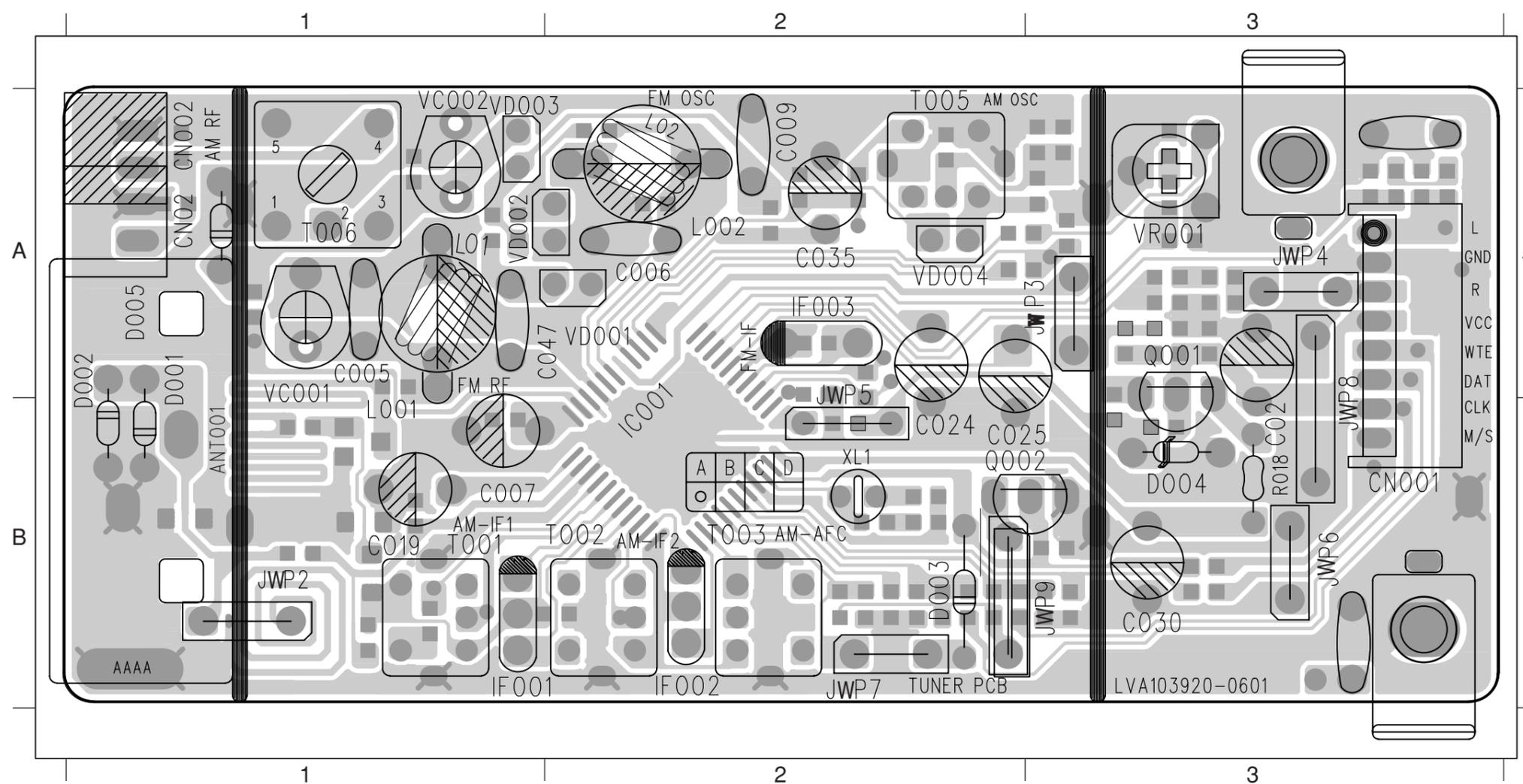
# CIRCUIT DIAGRAM - TUNER BOARD



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		

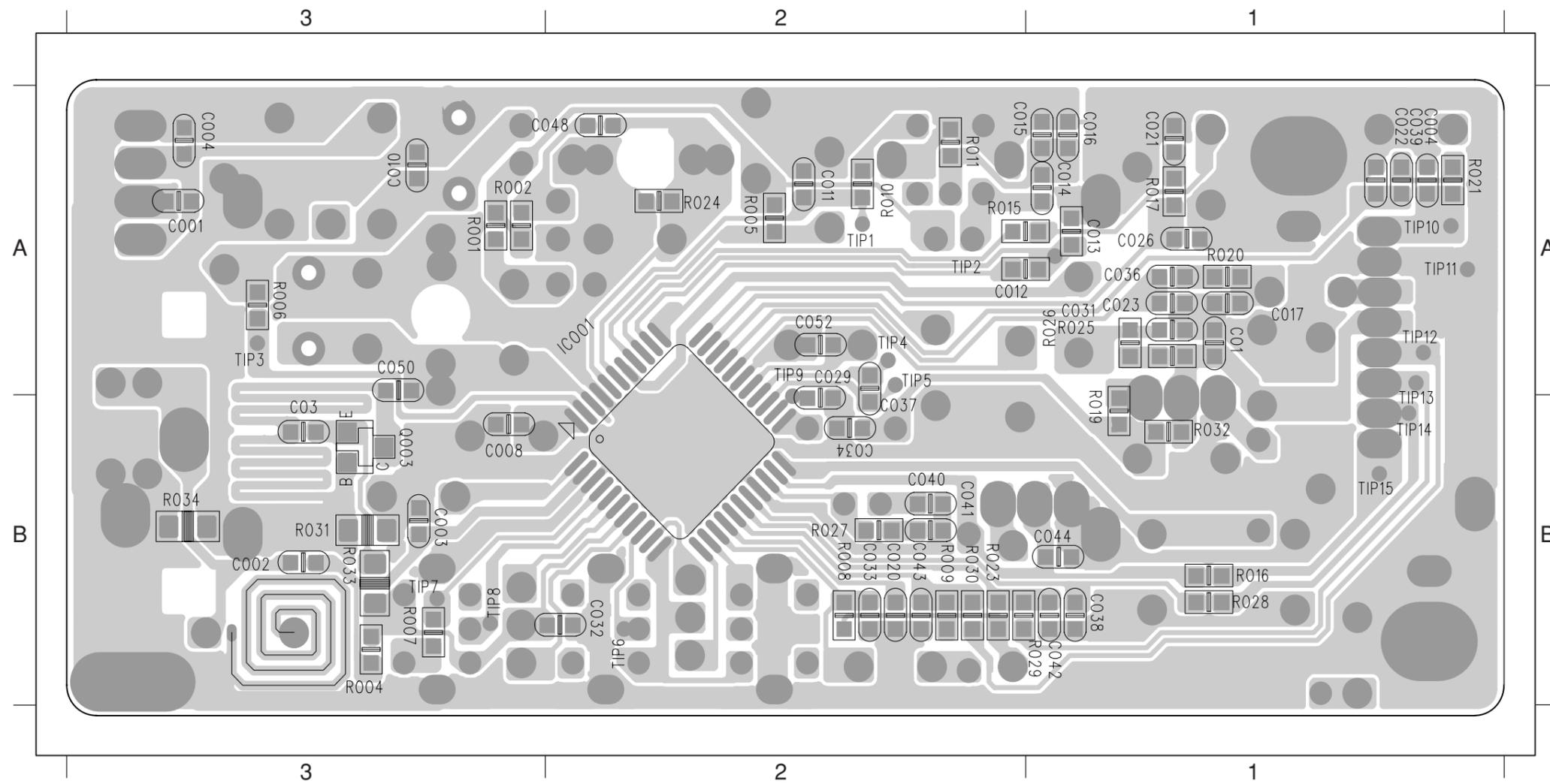
PCB LAYOUT - TUNER BOARD ( TOP)

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		



**ELECTRICAL PARTS LIST - TUNER BOARD**

**MISCELLANEOUS**

ANT001	9965 000 17361	RF JACK FEMALE TYPE ID1.44MM
CN002	9965 000 15855	CONNECTOR S2B-XH-A 2P
IF001	9965 000 17368	CER FILTER 10.7 MHZ
IF002	9965 000 15868	CER FILTER 10.7 MHZ
IF003	9965 000 23585	CER FILTER CDA10.7MG-18A
L001	9965 000 23586	SPRING COIL 0.8X4.5DX(1-2)2.5T
L02	9965 000 23587	MOULDED COIL 2.5T 57-89nH
T001	9965 000 22254	AM IFT 455KHZ 180pF
T002	9965 000 22255	AM IFT 455KHZ 180pF
T003	9965 000 22255	AM IFT 455KHZ 180pF
T005	9965 000 22253	OSC COIL AM 120uH (796 KHZ)
T006	9965 000 15874	ANT OSC AM 4-6:10T 1-3:86T
VC001	9965 000 15866	COND TRIM 4.2 - 20 pF N450
VC002	9965 000 15866	COND TRIM 4.2 - 20 pF N450
VR001	9965 000 22264	CNTL TRIMMER 100KR P=5X5MM
XL1	9965 000 23588	CRYSTAL 75KHZ +/-15 PPM COLUMN

**DIODES**

D001	4822 130 30621	1N4148
D002	4822 130 30621	1N4148
D003	4822 130 30621	1N4148
D004	9965 000 17375	11.9-12.4V 0.5W
D005	4822 130 30621	1N4148
VD001	4822 130 30621	1N4148
VD002	4822 130 30621	1N4148
VD003	4822 130 81673	1SV149
VD004	4822 130 81673	1SV149

**TRANSISTORS & INTEGRATED CIRCUITS**

Q001	4822 130 41198	2SC945P
Q002	4822 130 41198	2SC945P
Q003	9965 000 22272	XISTR PNP BF550 SOT23
IC001	9965 000 22265	IC 44PIN TEA5757H QFP44

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

**VOLTAGES**

IC101 (TEA5757H)																				
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOLTAGE(FM)	2.1	0.01	0.01	0.01	0.01	0.01	7.21	4.49	1	0.7	1.24	0.83	0.77	0.63	0.64	1.01	0.01	0	1.15	1.15
VOLTAGE(AM)	2.1	0.01	0.01	0.01	0.01	0.01	7.45	1.12	1.36	0.58	1.24	0.18	0.77	0.63	0.64	1.01	0.01	0	1.15	1.15
PIN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VOLTAGE(FM)	1.94	10.9	9.13	1.26	1.92	0.01	0.19	0.52	0.2	0.01	0.01	1.43	0.75	1.43	0.7	1.43	0.62	1.35	1.02	1.34
VOLTAGE(AM)	1.94	10.9	9.13	1.2	1.88	0.01	0.19	0.52	0.2	0.01	0.01	1.43	1.44	1.47	1.42	1.47	1.32	1.35	1.41	1.37
PIN	41	42	43	44																
VOLTAGE(FM)	1.35	0.01	0.75	0.15																
VOLTAGE(AM)	1.35	0.01	0.75	0.43																

Q101 (BF550)			
PIN	1	2	3
VOLTAGE(FM)	0.01	0.66	0.01
VOLTAGE(AM)	0.01	0.66	0.01

Q104 (2SC945)			
PIN	1	2	3
VOLTAGE(FM)	0.07	-0.03	1.3
VOLTAGE(AM)	0.08	0.01	1.24

Q105 (2SC945)			
PIN	1	2	3
VOLTAGE(FM)	10.12	11.8	10.77
VOLTAGE(AM)	10.17	11.81	10.82

---

# DVD LOADER

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## *(For Information only)*

It is not recommended for component repair on this module but to replace the module when it becomes defective.

Therefore no service parts list is published in this chapter.

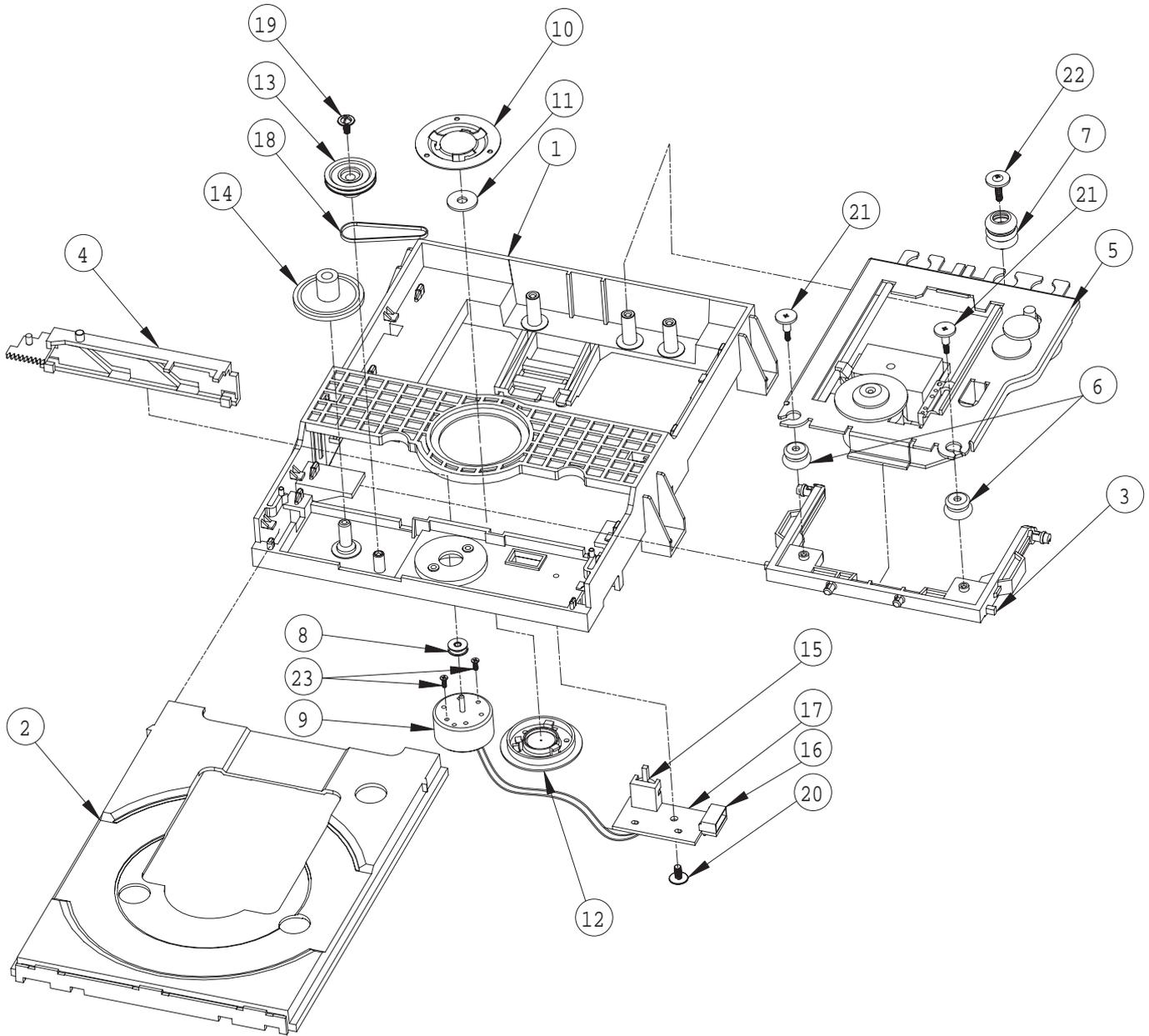
The only service part available for replacement is:

DVD MECH. LOADER ASSY ..... 9965 000 23573

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Exploded View (DVD Loader) ..... 7-2

# Exploded View (DVD Loader)

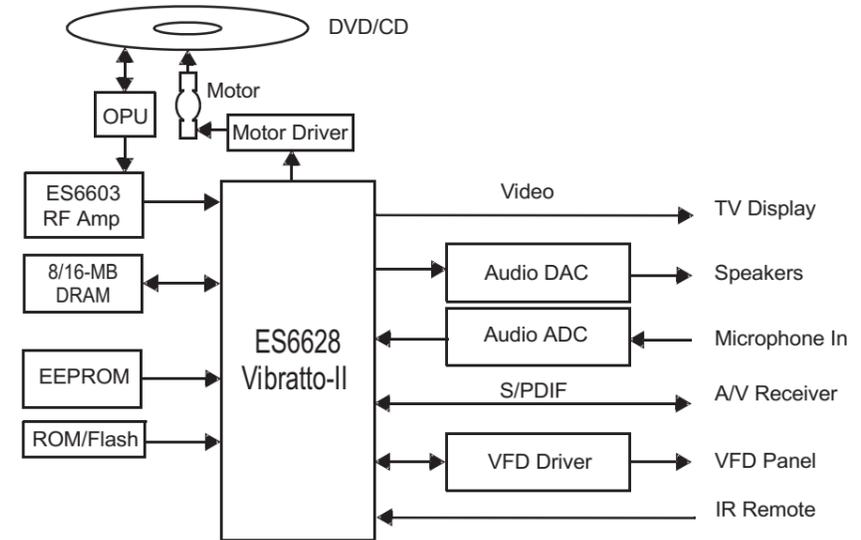


# MAIN BOARD

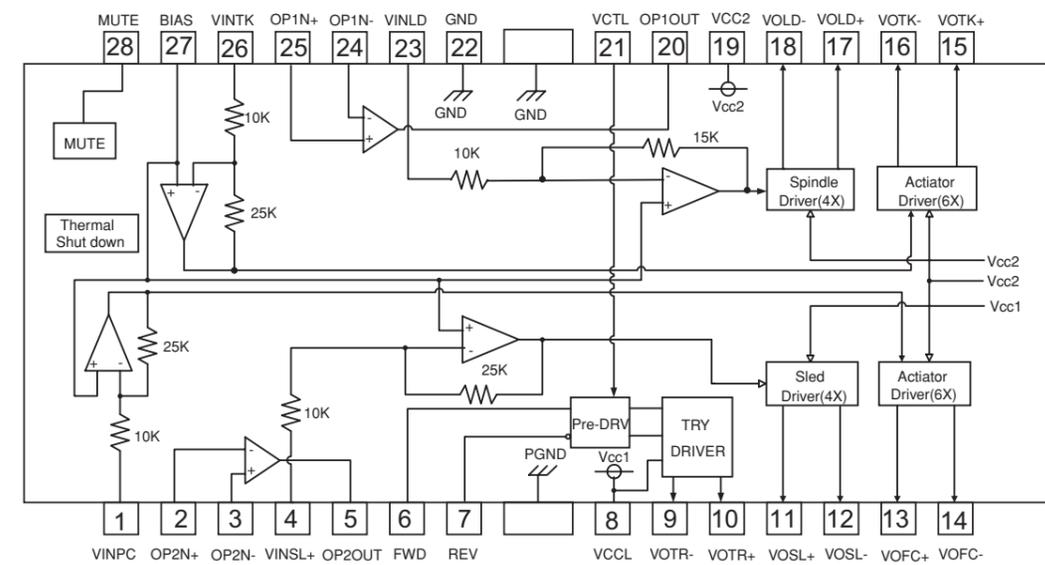
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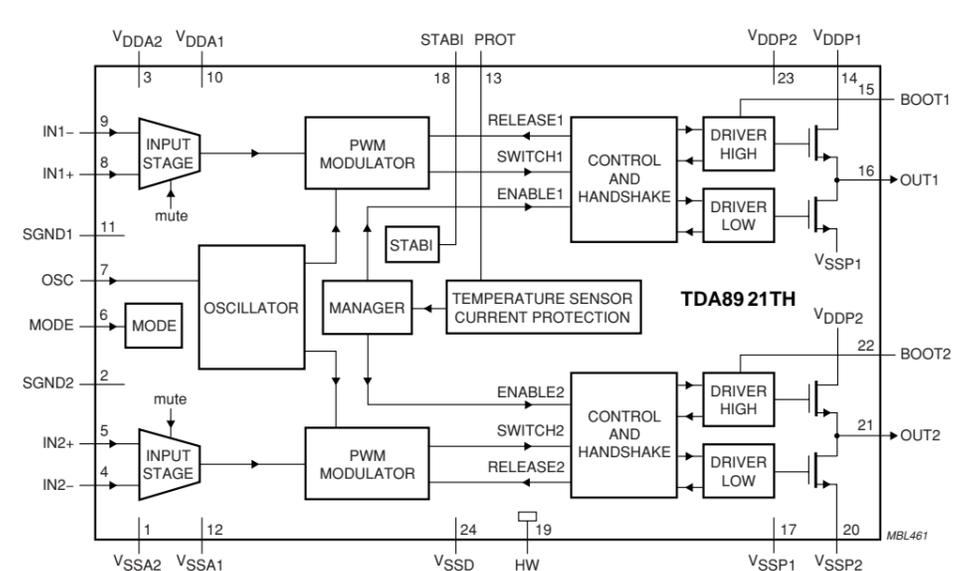
### ES6628F INTERNAL IC DIAGRAM



### AM5868S INTERNAL IC DIAGRAM



### TDA8921TH INTERNAL IC DIAGRAM

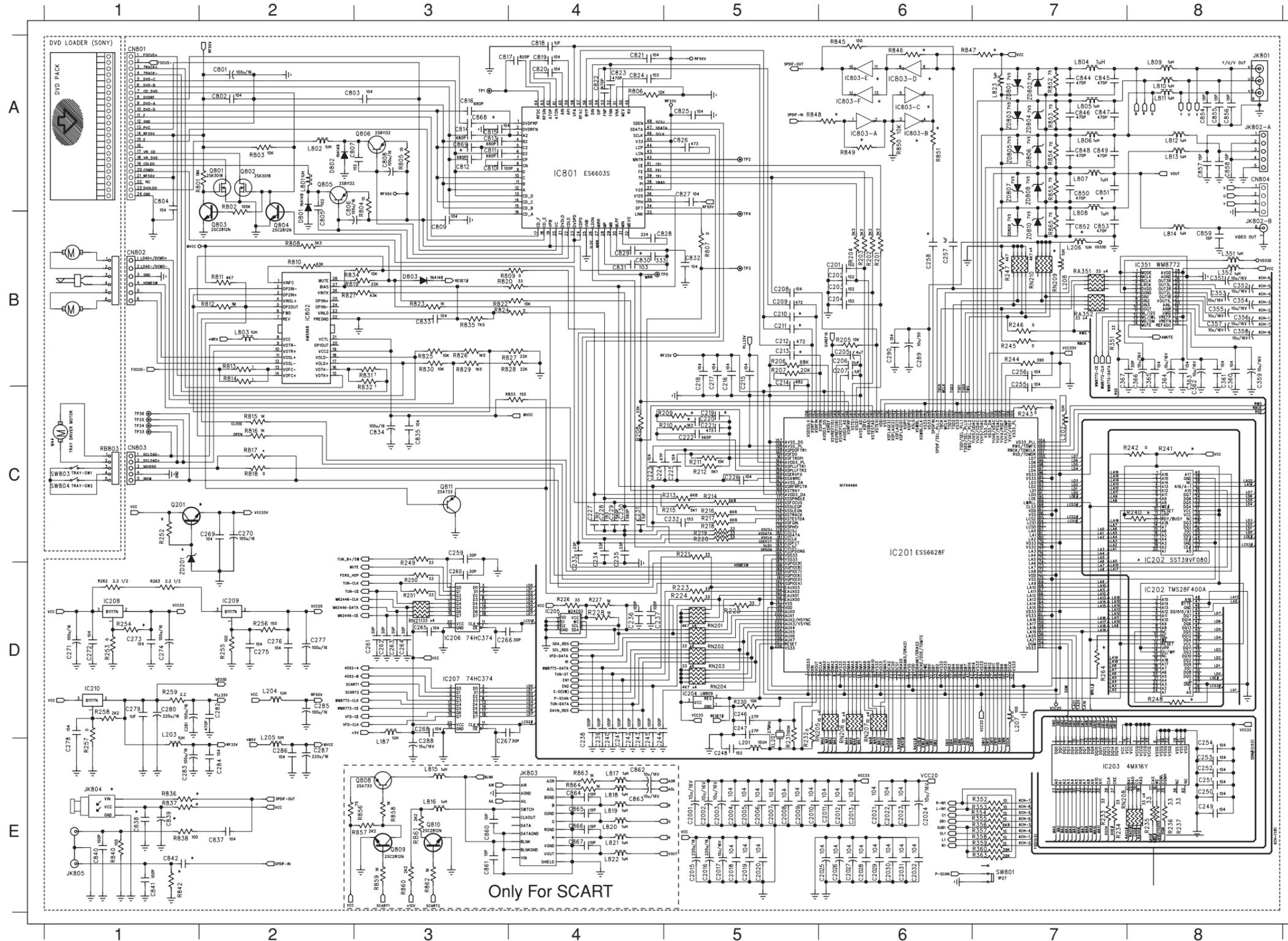


VOLTAGES

IC201 (ES6698)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.3	1.77	1.77	1.77	3.3	3.3	3.3	1.5	0	3.3	1.4	1.5	1.5	1.5	1	0	0	0	3.3	0.1
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	3.3	2.8	3.1	3	0.2	0	2	0.2	3.3	3	1.3	1.3	1.4	0	3.3	1.4	1.3	1.3	1.2	1.3
PIN NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Voltage	1.4	1.4	0	3.3	1.5	1.1	1.2	1.2	1.2	1.3	1.6	0	3.3	0.1	3.3	0	0	0	0	0
PIN NO	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	0	3.3	1.3	1.6	2.6	1.8	1.2	2.5	0.7	0	2	2	1.1	1.7	2	2.6	2	0	3.3	2
PIN NO	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Voltage	2	2	3.3	3.3	3.3	0	2	0	3.3	0	0.7	0.9	1.7	1.4	0	3.3	1.7	1.8	1.6	1
PIN NO	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Voltage	1.2	1.6	1.6	3.3	0	1.3	2.1	1.3	3.3	0.6	3.3	0	1	0.8	0.7	1.6	1	0	0	0
PIN NO	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Voltage	0	1.5	1.6	1.6	1.2	3.3	0	3.3	3	3.6	3.6	3.6	0.2	3.3	3.3	3.3	0	2	1.3	0
PIN NO	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Voltage	2	1.6	0	1.6	1.5	0	3.3	2.1	0.9	1.5	1.3	3.3	1.5	1.5	1.5	1.5	0	0	1.5	1.5
PIN NO	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Voltage	1.5	3.3	0.6	2.19	1.5	1.5	0	1.5	3	3.3	2.1	1.5	1.7	1.5	1.6	1.7	2.5	2.5	0	2.4
PIN NO	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
Voltage	3.3	0	3.3	3.3	3.3	0	0	2.4	0	2.4	0	0.7	3.3	3.3	3.3	0	0	2.1	5	5
PIN NO	201	202	203	204	205	206	207	208												
Voltage	-0.4	-0.4	-0.4	4	4	3.3	3.1	0												
IC202 (MBM29LV160)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	1.2	1.7	2.6	2	1.2	2.5	0.7	0	0	0	3.2	0	0	1.3	0	0	2.1	2.5	1.7
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	2	1.9	2.1	2.1	2.1	0	0	0	1.8	1.2	1.9	1.7	1.2	1.3	1.2	3.3	1.5	1.2	2	1.2
PIN NO	41	42	43	44	45	46	47	48												
Voltage	1.7	1.2	1.5	2	0	0	0	0												
IC203 (SD41620HGT)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.3	1.3	3.3	1.2	1.4	0	1.4	1.3	3.3	1.1	1.1	0	1.4	3.3	0.1	3	3.1	3	2.8	0.2
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	0.2	0.1	0	0	0.5	1.5	3.3	0	1.4	1.5	1.5	1.5	1	0	0.1	1.6	3.3	1.6	0.1	0
PIN NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
Voltage	0	1.2	3.3	1.2	1.2	0	1.1	1.1	3.3	1.4	1.5	0	1.4	0						
IC206 (74F374D)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	3.8	1.2	1.7	3.8	4.3	1.4	0.8	0.1	0	5	4	0.1	1.5	4	0	1.9	1.2	3.5	3.3
PIN NO	21	22																		
Voltage	4.5	0																		
IC207 (74F374D)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	3.8	1.2	1.7	3.8	4.3	1.4	0.8	0.1	0	5	4	0.1	1.5	4	0	1.9	1.2	3.5	3.3
PIN NO	21	22																		
Voltage	4.5	0																		
IC209 (B1117N)																				
PIN NO	1	2	3																	
Voltage	3.3	2.2	1.0																	
IC210 (B1117N)																				
PIN NO	1	2	3																	
Voltage	5	3.3	0																	
IC301 (CD4052BM)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Voltage	0	0	0	0	0	0	5.6	0	3.8	3.8	0	0.1	0	0	0	5.8				
IC351 (WM8772)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	1.7	1.7	3.3	0	0	0	0	0	0	0	0	0	5	5	0	5	5	0	0
PIN NO	21	22	23	24	25	26	27	28												
Voltage	0	0	0	0	0	0	0	5												
IC401 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC402 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC403 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC404 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												

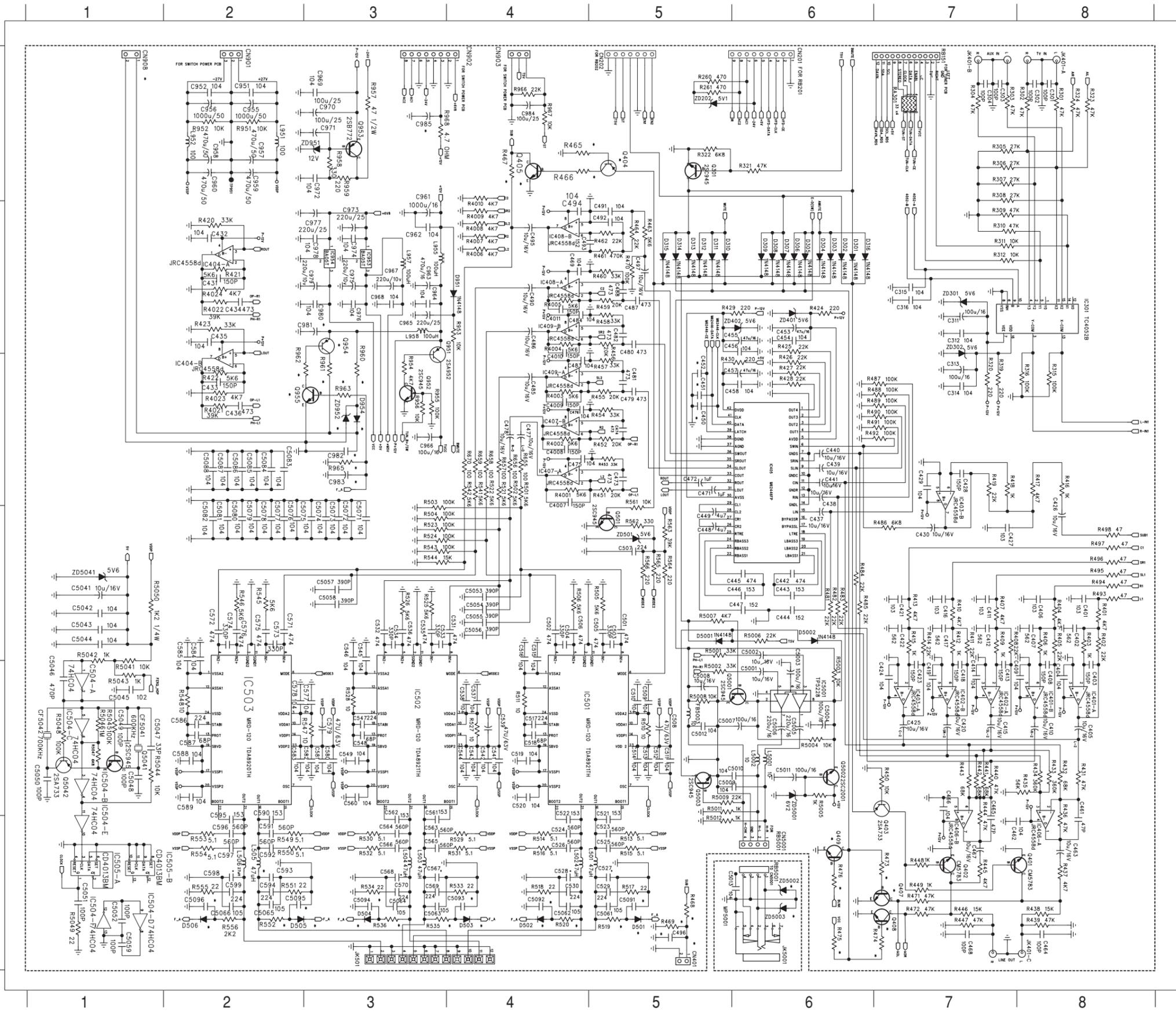
IC405 (M62446FP)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	0	0	0	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	4.5	0	0	0	0	0	0	0	0	0	-6	0	0	0	0	0	0	0	0.1	0.1
PIN NO	41	42																		
Voltage	4.6	4.9																		
IC406 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC407 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC408 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC409 (RC4558)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-12	0	0	0	12												
IC501 (TDA8921TH)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	1.5	0.7	2	1.5	4.6	0	0	4.5	0	0	2.1	2.2	2.2	1.8	2.1	2.1	1.1	3.1	4.5	0.1
PIN NO	21	22																		
Voltage	1.2	1.1																		
IC5001 (APA3541)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	2.7	0	2.7	0	2.7	2.7	2.7	5.7												
IC502 (TDA8921TH)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	1.5	0.7	2	1.5	4.6	0	0	4.5	0	0	2.1	2.2	2.2	1.8	2.1	2.1	1.1	3.1	4.5	0.1
PIN NO	21	22																		
Voltage	1.2	1.1																		
IC503 (TDA8921TH)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	1.5	0.7	2	1.5	4.6	0	0	4.5	0	0	2.1	2.2	2.2	1.8	2.1	2.1	1.1	3.1	4.5	0.1
PIN NO	21	22																		
Voltage	1.2	1.1																		
IC504 (74LVC04AD)																				
PIN NO	1	2	3	4	5	6	7	8												

# CIRCUIT DIAGRAM ( 1 ) - MAIN BOARD



C201	B6	C801	A2	IC801	A4	R801	A1
C202	B6	C802	A2	IC802	B2	R802	A2
C203	B6	C803	A3	J K801	A8	R803	A2
C204	B6	C804	A1	J K802-A	A8	R804	A3
C205	B6	C805	B2	J K802-B	B8	R805	A3
C206	B6	C806	A2	J K805	E1	R806	A4
C207	B6	C807	A2	L187	E3	R807	B5
C208	B5	C808	A3	L201	E5	R808	B2
C209	B5	C809	B3	L202	C7	R809	B2
C210	B5	C810	A3	L203	D1	R810	B2
C211	B5	C811	A3	L204	D2	R811	B2
C212	B5	C812	A3	L205	E2	R812	B2
C213	B5	C813	A3	L206	B7	R813	B2
C214	B5	C814	A3	L207	D7	R814	B2
C215	B5	C815	A3	L351	B8	R815	C2
C216	B5	C816	A3	L352	B8	R816	C2
C217	B5	C817	A4	L801	A2	R817	C2
C218	B5	C818	A4	L802	A2	R818	B2
C219	B5	C819	A4	L803	B2	R819	B2
C220	B5	C820	A4	L804	A7	R820	B3
C221	C5	C821	A4	L805	A7	R821	B3
C222	C5	C822	A4	L806	A7	R822	B3
C223	C4	C823	A4	L807	A7	R823	B3
C224	C4	C824	A4	L808	B7	R824	B3
C225	C4	C825	A5	L809	A8	R825	B3
C226	C4	C826	A5	L810	A8	R826	B3
C227	C4	C827	A5	L811	A8	R827	B3
C228	C4	C828	B4	L812	A8	R828	B4
C229	C4	C829	B4	L813	A8	R829	B3
C230	C4	C830	B4	L814	A8	R830	B3
C231	C4	C831	B4	L815	B8	R831	B3
C232	C4	C832	B5	L816	A7	R832	B3
C233	C4	C833	B3	L817	A2	R833	C3
C234	C4	C834	C3	L818	A2	R834	B2
C235	D4	C835	C3	L819	A2	R835	B2
C236	D4	C836	C3	L820	B2	R836	B2
C237	D4	C837	E2	L821	B2	R837	B2
C238	D4	C838	E1	L822	A1	R838	E1
C239	D4	C839	A3	L823	A6	R839	A6
C240	D4	C840	A7	L824	C3	R840	A6
C241	D4	C841	A7	L825	C3	R841	A6
C242	D4	C842	A7	L826	C3	R842	A7
C243	D4	C843	A7	L827	C3	R843	A7
C244	D4	C844	A7	L828	C3	R844	A7
C245	D4	C845	A7	L829	C3	R845	A7
C246	D6	C846	A7	L830	C3	R846	A7
C247	D6	C847	A7	L831	C3	R847	A7
C248	D6	C848	A7	L832	C3	R848	A7
C249	E5	C849	A7	L833	C3	R849	A7
C250	E8	C850	A7	L834	C3	R850	B7
C251	E8	C851	A7	L835	C3	R851	B7
C252	E8	C852	B7	L836	C3	R852	B7
C253	E8	C853	B7	L837	C3	R853	B7
C254	E8	C854	B7	L838	C3	R854	B7
C255	E8	C855	B7	L839	C3	R855	B7
C256	E8	C856	B7	L840	C3	R856	B7
C257	B6	C857	A8	L841	C5	R857	B7
C258	B6	C858	A8	L842	C5	R858	B7
C259	C3	C859	B8	L843	C5	R859	B7
C260	D3	C860	E5	L844	C5	R860	B7
C261	D3	C861	E5	L845	C5	R861	D3
C262	D3	C862	E5	L846	C5	R862	D3
C263	D3	C863	E5	L847	C5	R863	D3
C264	D3	C864	E5	L848	C5	R864	D3
C265	D3	C865	E5	L849	C5	R865	D3
C266	D3	C866	E5	L850	C5	R866	D3
C267	E3	C867	E5	L851	C5	R867	D3
C268	D3	C868	E5	L852	C5	R868	D3
C269	C2	C869	E6	L853	C5	R869	D3
C270	C2	C870	E6	L854	C5	R870	D3
C271	D1	C871	E6	L855	C5	R871	D3
C272	D1	C872	E6	L856	C5	R872	D3
C273	D1	C873	E6	L857	C5	R873	D3
C274	D1	C874	E6	L858	C5	R874	D3
C275	D2	C875	E6	L859	C5	R875	D3
C276	D2	C876	E6	L860	C5	R876	D3
C277	D2	C877	E6	L861	C5	R877	D3
C278	E1	C878	E5	L862	C5	R878	D3
C279	D1	C879	E6	L863	C5	R879	D3
C280	D1	C880	E6	L864	C5	R880	D3
C281	D1	C881	E6	L865	C5	R881	D3
C282	D2	C882	E6	L866	C5	R882	D3
C283	E1	C883	E6	L867	C5	R883	D3
C284	E2	C884	E6	L868	C5	R884	D3
C285	D2	C885	E6	L869	C5	R885	D3
C286	E2	C886	E6	L870	C5	R886	D3
C287	E2	C887	E6	L871	C5	R887	D3
C288	E3	C888	E6	L872	C5	R888	D3
C289	B6	C889	E6	L873	C5	R889	D3
C290	B6	C890	E6	L874	C5	R890	D3
C351	B8	CN801	A1	R256	D2	R351	B7
C352	B8	CN802	B1	R257	E1	R352	B7
C353	B8	CN803	C1	R258	D1	R353	B7
C354	B8	D801	B2	R259	D1	R354	B7
C355	B8	D802	A2	R260	D1	R355	B7
C356	B8	D803	B3	R261	D1	R356	B7
C357	B8	IC201	C6	R262	B1	R357	B7
C358	B8	IC202	C8	R263	E7	R358	B7
C359	B8	IC203	E7	R264	E7	R359	B7
C360	B8	IC204	D6	R265	E7	R360	B7
C361	B8	IC205	D4	R266	E7	R361	B7
C362	B8	IC206	D3	R267	E7	R362	B7
C363	B8	IC207	D3	R268	E7	R363	B7
C364	B8	IC208	D1	R269	E7	R364	B7
C365	B8	IC209	D2	R270	E7	R365	B7
C366	B8	IC210	D1	R271	E7	R366	B7
C367	B7	IC351	B8	R272	E7	R367	B7

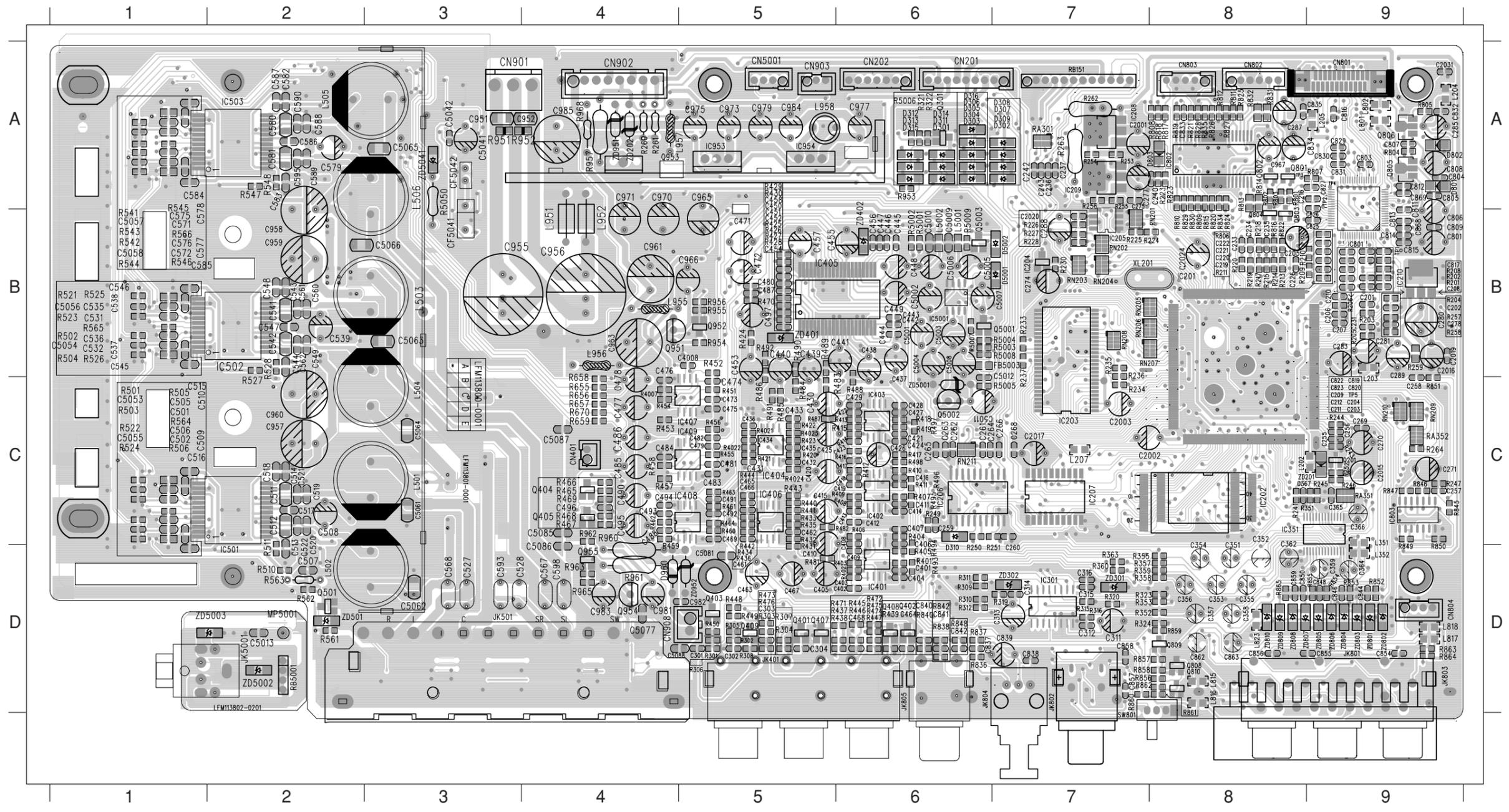
# CIRCUIT DIAGRAM ( 2 ) - MAIN BOARD



C301	A8	C515	D4	C5005	E6	L502	F4	R481	D6	R5045	D1
C302	A8	C516	D4	C5006	E6	L503	F3	R482	D6	R5046	D1
C303	A7	C517	E4	C5007	E5	L504	F3	R483	D6	R5047	E1
C304	A7	C518	E4	C5008	E5	L505	F2	R484	D6	R5048	D1
C311	A7	C519	E4	C5009	E5	L506	F2	R485	D6	R5049	F1
C312	B7	C520	E4	C5010	E6	L951	A2	R486	D7	R5050	D1
C313	C7	C521	F5	C5011	E6	L952	A2	R487	C7	RA301	A7
C314	C7	C522	E4	C5012	E5	L955	B3	R488	C7	RB151	A7
C315	B7	C523	F5	C5041	D1	L957	B3	R489	C7	RB5001	F6
C316	B7	C523	F5	C5042	D1	L958	B3	R490	C7	ZD202	A5
C402	D8	C524	F4	C5043	D1	L5001	E6	R491	C7	ZD301	B7
C403	E8	C525	F5	C5044	D1	L5002	E6	R492	C7	ZD302	B7
C404	E8	C526	F4	C5045	E1	Q301	A5	R493	D8	ZD401	B6
C405	E8	C527	F5	C5046	E1	Q401	F8	R494	D8	ZD402	B6
C406	D8	C528	F4	C5047	E1	Q402	F7	R495	D8	ZD501	D5
C407	E8	C529	F5	C5048	E1	Q403	F7	R496	D8	ZD501	A3
C408	E8	C530	F4	C5049	D1	Q501	D7	R497	D8	ZD5001	E6
C409	E8	C531	D4	C5050	E1	Q501	B4	R498	D8	ZD5041	D1
C410	E8	C532	D3	C5051	F1	Q522	C3	R501	C4		
C411	D6	C533	D3	C5052	F1	Q553	A3	R502	C4		
C412	D7	C534	D3	C5053	D4	Q5001	E5	R503	D3		
C413	E7	C535	D3	C5054	D4	Q5002	E6	R504	D3		
C414	E7	C536	D3	C5055	D4	Q5003	E5	R505	D3		
C415	E7	C537	E4	C5056	D4	Q5042	E1	R506	D4		
C416	D7	C538	E4	C5057	D3	Q260	A5	R510	E5		
C417	D7	C539	E4	C5058	D3	Q261	A5	R511	E4		
C418	E7	C541	E4	C5059	F1	Q301	A8	R513	F5		
C419	E7	C542	E4	C5061	F5	Q302	A8	R514	F4		
C420	E7	C543	E4	C5062	F4	Q303	A7	R515	F5		
C421	D7	C544	E4	C5063	F3	Q304	A7	R516	F4		
C422	D7	C545	D3	C5064	F3	Q305	A7	R517	F5		
C423	E7	C546	D3	C5065	F2	Q306	A7	R518	F4		
C424	E7	C547	E3	C5066	F2	Q307	A7	R521	C4		
C425	E7	C548	E3	C5071	D3	Q308	A7	R522	C4		
C426	C8	C549	E3	C5072	D3	Q309	B7	R523	D3		
C427	D7	C560	E3	C5073	D3	Q310	B7	R524	D3		
C428	C7	C561	F3	C5074	D3	Q311	B7	R525	D3		
C429	C7	C562	F3	C5075	D3	Q312	B7	R526	D3		
C430	D7	C563	F3	C5076	D2	Q315	C8	R527	E4		
C431	B2	C564	F3	C5077	D2	Q316	C8	R528	E3		
C432	B2	C565	F3	C5078	D2	Q319	C7	R529	F4		
C433	C2	C566	F3	C5079	D2	Q320	C7	R530	F3		
C434	B2	C567	F3	C5080	D2	Q321	A6	R531	F4		
C435	B2	C568	F3	C5081	D2	Q322	A5	R532	F3		
C436	C2	C569	F3	C5082	D2	Q323	A8	R533	F4		
C437	D6	C570	F3	C5083	C2	Q324	A8	R534	F3		
C438	C6	C571	D2	C5084	C2	Q401	D8	R541	C4		
C439	C6	C572	D2	C5085	C2	Q402	D8	R542	C4		
C440	C6	C573	D2	C5086	C2	Q403	D8	R543	D3		
C441	C6	C574	D2	C5087	C2	Q404	D8	R544	D3		
C442	D6	C575	D2	CF5041	D1	Q405	D8	R545	D2		
C443	D6	C576	D2	CF5042	E1	Q406	D8	R546	D2		
C444	D6	C577	E3	CN201	A6	Q407	D7	R547	E3		
C445	D6	C578	E2	CN202	A5	Q408	D7	R548	E2		
C446	D6	C579	E3	CN501	A2	Q409	D7	R549	E2		
C447	D6	C580	E3	CN502	A4	Q410	D7	R550	F2		
C448	D5	C581	E3	CN503	A4	Q411	D7	R551	F2		
C449	D5	C582	E3	CN5001	F6	Q412	D7	R552	F2		
C453	B6	C583	E2	D301	B6	Q413	D7	R554	F2		
C454	B6	C584	D2	D302	B6	Q414	D7	R555	F2		
C455	B6	C585	D2	D303	B6	Q415	D7	R561	D5		
C456	B6	C586	E2	D304	B6	Q416	C8	R562	D5		
C457	C6	C587	E2	D305	B6						

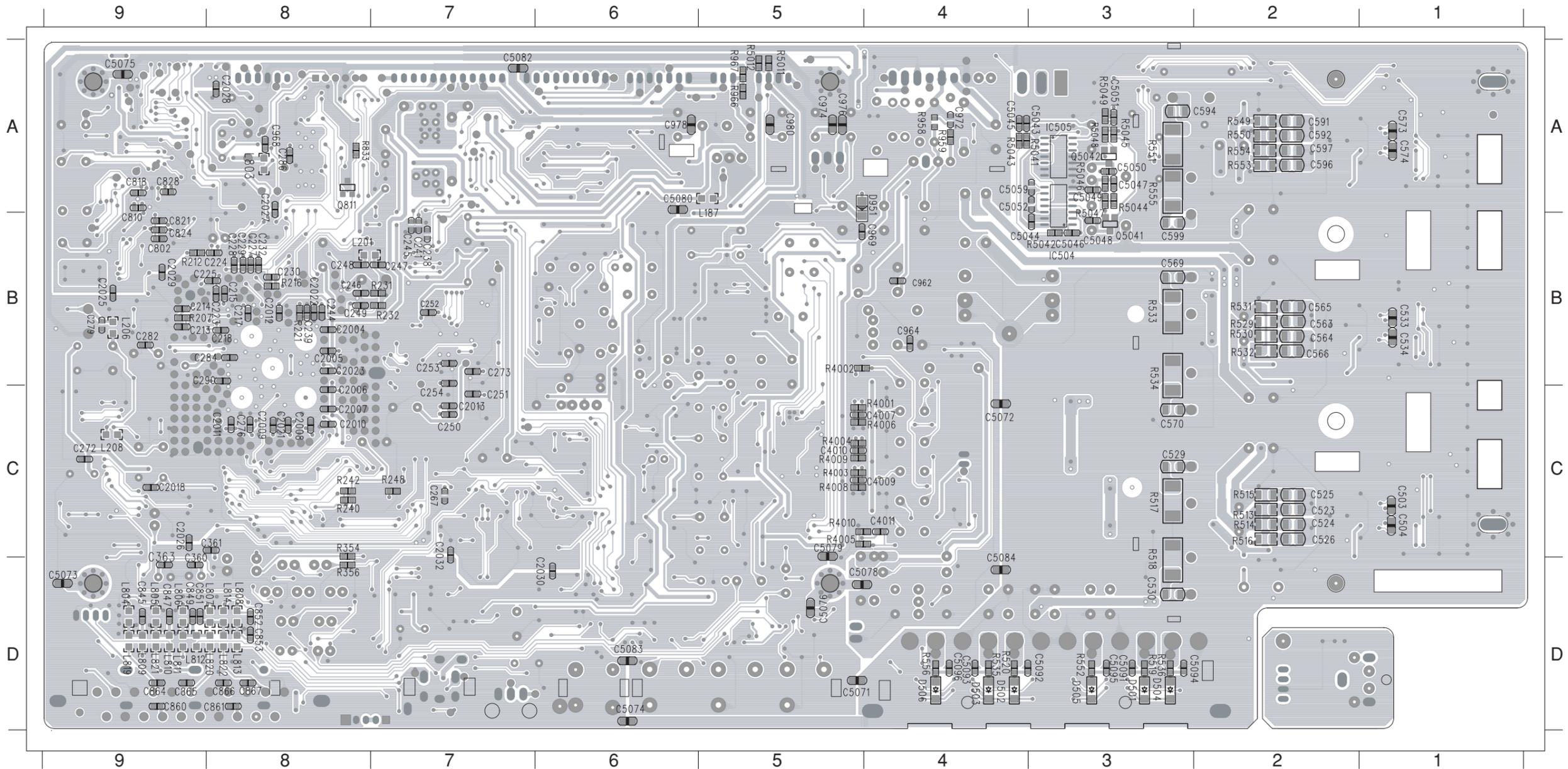
# PCB LAYOUT - MAIN BOARD ( TOP )

C201	B9	C261	C6	C314	D7	C412	C6	C440	B5	C474	C5	C509	C1	C546	B1	C595	A2	C834	A9	C970	A4	C5011	C6	CN801	A9	IC201	B8	IC953	A5	L957	A4	R208	B9	R249	C6	R320	D7	R411	C6	R439	D6	R472	D6	R522	C1	R802	A8	R831	A8	R5007	B6	ZD802	D9		
C202	B9	C262	C6	C315	D7	C413	C6	C441	B6	C475	C5	C510	C1	C547	B2	C598	D4	C835	A9	C971	A4	C5012	B7	CN802	A8	IC202	C8	IC954	A5	L958	A5	R210	B8	R250	D6	R321	A6	R412	C6	R440	C5	R481	D5	R523	B1	R803	A8	R832	A8	R5008	B7	ZD803	D9		
C203	C9	C263	C6	C316	D7	C414	C6	C442	B6	C476	B4	C511	C2	C548	B2	C801	B9	C837	D6	C972	A5	C5013	D2	CN803	A8	IC203	C7	IC955	B6	L5002	B6	R211	B8	R251	D7	R322	A6	R413	C6	R441	C5	R482	C6	R524	C1	R804	A9	R834	B8	R5009	B6	ZD804	D9		
C204	C9	C264	C6	C351	D8	C415	C5	C443	B6	C477	C4	C512	C2	C549	B2	C803	A9	C840	D6	C973	A5	C5014	A3	CN901	A3	IC204	B7	JK401	D5	L5001	B6	R212	B8	R252	D7	R323	D7	R414	C6	R442	D5	R483	C5	R525	B1	R805	A9	R835	A8	R5010	A3	ZD805	D9		
C205	B8	C265	C6	C352	D8	C416	C6	C444	B6	C478	C4	C513	D2	C560	B2	C804	A9	C841	D6	C974	A6	C5015	A4	CN902	A4	IC205	B7	JK501	D3	MP5001	D2	R213	B8	R253	A7	R324	D7	R415	C6	R443	C5	R484	C5	R526	B1	R806	B8	R836	D6	RA301	A7	ZD806	D9		
C206	B9	C266	C7	C353	D8	C417	C6	C445	B6	C479	C5	C514	C2	C561	B2	C805	A9	C842	D9	C975	A5	C5016	C1	CN903	A5	IC206	C6	JK801	D9	Q301	A6	R214	B8	R254	A7	R325	D7	R416	C6	R444	C5	R485	C5	R527	B2	R807	A9	R840	D6	RA351	C9	ZD807	D8		
C207	B9	C268	C7	C354	D8	C418	C6	C446	B6	C480	B5	C515	C1	C562	B2	C806	B9	C846	D9	C976	A6	C5017	B1	D301	A6	IC207	C7	JK802	D7	Q401	D5	R215	B8	R255	B9	R326	D7	R417	C6	R445	D6	R486	C5	R528	B2	R808	A8	R845	C9	RA352	C9	ZD808	D8		
C208	B9	C269	C9	C355	D8	C419	C6	C447	B6	C481	C5	C516	C1	C563	D3	C807	A9	C844	D9	C977	A5	C5018	B1	D302	A7	IC208	A7	JK805	D6	Q402	D5	R216	B8	R256	B9	R327	D7	R418	C6	R446	D6	R487	C5	R541	B1	R809	B8	R850	C9	RB151	A7	ZD809	D8		
C209	C9	C270	C9	C356	D8	C420	C5	C448	B6	C482	C5	C517	C2	C564	D3	C808	A9	C850	D8	C978	A6	C5019	B1	D303	A6	IC209	A7	JK5001	D2	Q403	D5	R217	B8	R257	B9	R328	D7	R419	C6	R447	D6	R488	C6	R542	B1	R810	A8	R852	D9	RB5001	D2	ZD810	D8		
C212	C9	C271	C9	C357	D8	C421	C6	C449	B6	C483	C5	C518	C2	C567	B1	C809	B9	C854	D9	C979	A5	C5020	C7	C5057	B1	D304	A6	IC210	A9	L202	C8	Q501	D2	R218	B8	R258	B9	R329	D7	R420	C5	R448	D5	R489	B5	R543	B1	R811	A8	R853	D9	RB151	B8	ZD811	A4
C216	A8	C274	B7	C358	D8	C422	C6	C453	B5	C484	C4	C519	C2	C572	B1	C811	A9	C855	D9	C980	A7	C5021	B1	D305	A6	IC301	D7	L203	B9	Q801	A8	R223	A8	R261	A4	R358	D7	R421	C5	R449	D5	R490	B5	R544	B1	R812	A8	R854	D9	RB202	B7	ZD5001	C6		
C221	B8	C275	A7	C359	D9	C423	C6	C454	B5	C485	C4	C520	C2	C575	B1	C812	A9	C856	D8	C981	B9	C5022	B9	D306	A6	IC351	D8	L204	A9	Q802	A8	R224	B7	R262	A7	R359	D7	R422	C5	R450	D5	R491	C5	R545	B1	R813	A8	R855	D9	RB203	B7	ZD5041	A3		
C222	B8	C277	A7	C362	D8	C424	C6	C455	B5	C486	C4	C521	C2	C576	B1	C813	B9	C857	D7	C982	C7	C5023	D3	D307	A7	IC401	D6	L205	A9	Q803	B8	R225	B7	R263	A7	R360	D7	R423	C5	R451	C5	R492	B5	R546	B1	R814	A8	R856	D8	RB204	B7				
C226	B8	C278	A9	C364	D9	C425	C6	C456	B6	C487	B5	C522	D2	C577	B1	C814	B9	C858	D7	C983	C7	C5024	B3	D308	A7	IC402	C6	L207	C7	Q804	B8	R226	B7	R264	A7	R363	D7	R424	C5	R452	B5	R493	D6	R547	A2	R815	B8	R857	A3	RB205	B7				
C231	B9	C280	B9	C365	C9	C426	C6	C457	B5	C488	C4	C523	D3	C578	B1	C815	B9	C859	D8	C984	D8	C5025	B7	C5064	C3	D309	A7	IC403	C6	L351	C9	Q805	A9	R227	B7	R302	D5	R401	D6	R425	B5	R453	C4	R494	D6	R548	A2	R816	B8	R852	A3	RB206	B7		
C233	B8	C281	B9	C366	C9	C427	C6	C458	A5	C489	C4	C524	D3	C579	A2	C816	A9	C951	A3	C2024	B8	C5065	A3	D310	D6	IC404	C5	L352	D9	Q806	A9	R228	B7	R303	D5	R402	D6	R426	B5	R454	C4	R495	C6	R561	D2	R818	A8	R853	A6	RB207	B7				
C234	B8	C283	B9	C367	C9	C428	C6	C461	D5	C491	C5	C531	B1	C580	A2	C817	B9	C952	A4	C2031	A9	C5066	B3	D311	A6	IC404	C5	L501	C3	Q951	B4	R230	B7	R304	D5	R4021	C5	R427	B5	R455	C5	R496	C6	R562	D2	R819	A8	R854	B5	RB208	B7				
C235	B8	C285	A9	C401	D6	C429	C6	C462	C5	C492	C5	C532	B1	C581	A2	C819	C9	C955	B3	C2038	B5	C5077	D4	D312	A6	IC405	B5	L502	D2	Q952	B5	R233	B7	R305	D5	R4022	C5	R428	B5	R456	C5	R497	C6	R563	D2	R820	B8	R855	B5	RB210	C9				
C236	A7	C287	A8	C402	D6	C430	C5	C463	D5	C493	C4	C535	B1	C582	A2	C820	C9	C956	B4	C5001	B6	C5081	D5	D313	A6	IC406	C5	L503	B3	Q953	A4	R234	C7	R306	D5	R4023	C5	R429	A5	R457	C4	R498	C6	R564	C1	R821	A8	R856	B5	RB211	C6				
C237	A7	C288	B7	C403	D6	C431	C5	C464	D6	C494	C4	C536	B1	C583	A2	C822	C9	C957	C2	C5002	B6	C5085	C4	D314	A6	IC407	C5	L504	C3	Q954	B7	R235	B7	R307	D5	R4024	C5	R430	A5	R458	C4	R501	C1	R565	B1	R822	B8	R857	A4	SW801	D7				
C240	A8	C289	B9	C404	D6	C432	C5	C465	C5	C495	C4	C537	B1	C584	A1	C823	C9	C958	B2	C5003	B6	C5086	D4	D315	A6	IC408	C5	L505	A2	Q9502	C6	R236	C7	R308	D5	R403	D6	R431	D5	R459	D4	R502	B1	R566	B1	R823	A8	R858	A4	XL201	B7				
C242	A7	C301	D5	C405	D5	C433	C5	C466	C5	C497	B5	C538	B1	C585	B1	C825	B9	C959	B2	C5004	B6	C5087	C4	D316	A6	IC409	C5	L506	A3	Q9503	B6	R237	C7	R309	D6	R404	C6	R432	C5	R460	C5	R503	C1	R565	C4	R824	B8	R4007	C4	ZD202	A4				
C243	A7	C302	D5	C406	D6	C434	C5	C467	D5	C501	C1	C539	B2	C586	A2	C826	B9	C960	C2	C5005	B6	C5088	D4	D801	A9	IC409	D2	L801	A9	R201	B9	R241	C8	R310	D6	R405	D6	R433	C5	R461	C5	R504	B1	R566	C4	R825	A8	R5001	B6	ZD301	D7				
C255	C9	C303	D5	C407	C6	C435	C5	C468	D6	C502	C1	C541	B2	C587	A2	C827	A9	C961	B4	C5006	B6	CF5041	B3	D802	A9	IC502	B2	L802	A9	R202	B9	R243	C9	R311	D6	R406	C6	R434	D5	R462	C4	R505	C1	R567	C4	R826	A8	R5002	B6	ZD302	D7				
C256	C9	C304	D5	C408	D6	C436	C5	C469	C5	C505	C1	C542	B2	C588	A2	C830	A9	C963	B4	C5007	B7	CF5042	A3	D803	A8	IC503	A2	L823	D8	R203	B9	R244	C9	R312	D6	R407	C6	R435	C5	R463	C5	R506	C1	R568	C4	R827	A8	R5003	B7	ZD401	B5				
C257	C9	C311	D7	C409	D6	C437	C6	C471	B5	C506	C1	C543	B2	C589	A2	C831	A9	C965	A5	C5008	B6	CN201	A6	D5001	B7	IC801	B9	L951	B4	R204	B9	R245	C9	R315	D7	R408	C6	R436	D5	R464	C5	R510	D2	R659	C4	R828	A8	R5004	B7	ZD402	B6				
C259	C6	C312	D7	C410	D5	C438	B6	C472	B5	C507	D2	C544	B2	C590	A2	C832	A9	C966	B5	C5009	B6	CN202	A6	D5002	B7	IC802	A8	L952	B4	R205	B9	R246	C9	R316	D7	R409	C6	R437	D6	R470	B5	R511	C2	R670	C4	R829	B8	R5005	C7	ZD501	D2				
C260	D7	C313	D7	C411	C6	C439	B5	C473	C5	C508	C2	C545	B1	C593	D3	C833	A8	C967	A8	C5010	B6	CN5001	A5	FB5003	B7	IC803	C9	L955	B4	R206	B9	R247	C9	R319	D7	R410	C6	R438	D6	R471	D6	R521	B1	R801	A8	R830	B8	R5006	A6	ZD801	D9				



# PCB LAYOUT - MAIN BOARD ( BOTTOM )

C214	B9	C239	B8	C267	C7	C504	C1	C569	B3	C821	B9	C972	A4	C2012	B8	C4007	C4	C5052	A4	C5084	D4	L808	D8	R221	B8	R529	B2	R958	A4	R5011	A5
C215	B8	C241	B7	C272	C9	C523	C2	C570	C3	C824	B9	C974	A5	C2013	C7	C4009	C4	C5059	A4	D951	A4	L809	D9	R231	B7	R530	B2	R959	A4	R5012	A5
C217	B8	C244	B8	C273	B7	C524	C2	C573	A1	C828	A9	C976	A5	C2018	C9	C4010	C5	C5071	D5	IC504	B3	L810	D9	R232	B7	R531	B2	R966	A5	R5041	A3
C218	B8	C245	B7	C276	C8	C525	C2	C574	A1	C845	D9	C978	A6	C2021	C8	C4011	C4	C5072	C4	IC505	A3	L811	D9	R242	C8	R532	B2	R967	A5	R5042	B3
C223	B8	C246	B8	C279	B9	C526	C2	C591	A2	C847	D9	C980	A5	C2022	B8	C5043	A1	C5073	D9	L187	A5	L812	D9	R248	C7	R533	B3	R4001	C4	R5043	A4
C224	B8	C247	B7	C282	B9	C529	C3	C592	A2	C849	D9	C2004	B8	C2023	B8	C5044	A4	C5074	D6	L201	B8	L813	D8	R354	C8	R534	B3	R4002	B5	R5044	A3
C225	B9	C248	B8	C284	B8	C530	D3	C594	A2	C851	D9	C2005	B8	C2025	B9	C5045	A4	C5075	A9	L206	B9	L814	D8	R356	D8	R549	A2	R4003	C5	R5045	A3
C227	B8	C249	B8	C286	A8	C533	B1	C596	A2	C852	D8	C2006	C8	C2026	C9	C5046	B3	C5076	D5	L208	C9	Q5041	B3	R513	C2	R550	A2	R4004	C5	R5046	A3
C228	B8	C250	C7	C290	B8	C534	B1	C597	A2	C853	D8	C2007	C8	C2027	A8	C5047	A3	C5078	D5	L803	A8	Q5042	A3	R514	C2	R551	A3	R4005	C5	R5047	B3
C229	B8	C251	C7	C360	D9	C563	B2	C599	B3	C962	B4	C2008	C8	C2028	A8	C5048	B3	C5079	C5	L804	D9	Q811	A8	R515	C2	R553	A2	R4006	C4	R5048	A3
C230	B8	C252	B7	C361	C8	C564	B2	C802	B9	C964	B4	C2009	C8	C2029	B9	C5049	A3	C5080	A6	L805	D9	R207	B9	R516	C2	R554	A2	R4008	C5	R5049	A3
C232	B8	C253	B7	C363	D9	C565	B2	C810	B9	C968	A8	C2010	C8	C2030	D6	C5050	A3	C5082	A7	L806	D9	R212	B9	R517	C3	R555	A3	R4009	C5		
C238	B7	C254	C7	C503	C1	C566	B2	C818	A9	C969	B4	C2011	C8	C2032	C7	C5051	A3	C5083	D6	L807	D8	R216	B8	R518	D3	R833	A8	R4010	C5		



## ELECTRICAL PARTS LIST - MAIN BOARD

## MISCELLANEOUS

C837	9965 000 23594	CHIP INDUCTOR 1uH 10%
CF5041	9965 000 23595	RES 2P 600KHZ
CF5042	9965 000 23596	RES 2P 700KHZ
CN801	9965 000 20271	CHIP CONNECTOR 24P
CN901	9965 000 19399	CONNECTOR 3P CL3962WVO
CN902	9965 000 17359	CONNECTOR B8B-XH-A 8P
FB5003	9965 000 19426	CHIP INDUCTOR 10uH 10%
JK401	9965 000 17364	RCA JACK 6P WHTx3/REDx3
JK5001	9965 000 12555	PHONE JACK D3.5 7P BLACK
JK501	9965 000 23597	SPK JACK 12P
JK801	9965 000 23598	RCA JACK 3P RED/BLU/GRN
JK802	9965 000 23599	RCA+DIN JK 1RCA+4P DIN YEL
JK805	9965 000 17363	RCA JACK 1P BLK W/GND PIN
L187	9965 000 23594	CHIP INDUCTOR 1uH 10%
L201	9965 000 19426	CHIP INDUCTOR 10uH 10%
L202	9965 000 23594	CHIP INDUCTOR 1uH 10%
L203	9965 000 23594	CHIP INDUCTOR 1uH 10%
L204	9965 000 23594	CHIP INDUCTOR 1uH 10%
L205	9965 000 23594	CHIP INDUCTOR 1uH 10%
L206	9965 000 23594	CHIP INDUCTOR 1uH 10%
L207	9965 000 17369	CHIP BEAD 100 OHMAT 100MHZ
L208	9965 000 23594	CHIP INDUCTOR 1uH 10%
L351	9965 000 23594	CHIP INDUCTOR 1uH 10%
L352	9965 000 23594	CHIP INDUCTOR 1uH 10%
L5001	9965 000 19426	CHIP INDUCTOR 10uH 10%
L5002	9965 000 19426	CHIP INDUCTOR 10uH 10%
L501	9965 000 23600	INDUCTOR 47uH 20% 4.3A
L502	9965 000 23600	INDUCTOR 47uH 20% 4.3A
L503	9965 000 23600	INDUCTOR 47uH 20% 4.3A
L504	9965 000 23600	INDUCTOR 47uH 20% 4.3A
L505	9965 000 23600	INDUCTOR 47uH 20% 4.3A
L506	9965 000 23601	INDUCTOR 33uH 20% 6A
L801	9965 000 23594	CHIP INDUCTOR 1uH 10%
L802	9965 000 23594	CHIP INDUCTOR 1uH 10%
L803	9965 000 23594	CHIP INDUCTOR 1uH 10%
L804	9965 000 23594	CHIP INDUCTOR 1uH 10%
L805	9965 000 23594	CHIP INDUCTOR 1uH 10%
L806	9965 000 23594	CHIP INDUCTOR 1uH 10%
L807	9965 000 23594	CHIP INDUCTOR 1uH 10%
L808	9965 000 23594	CHIP INDUCTOR 1uH 10%
L809	9965 000 23594	CHIP INDUCTOR 1uH 10%
L810	9965 000 23594	CHIP INDUCTOR 1uH 10%
L811	9965 000 23594	CHIP INDUCTOR 1uH 10%
L812	9965 000 23594	CHIP INDUCTOR 1uH 10%
L813	9965 000 23594	CHIP INDUCTOR 1uH 10%
L814	9965 000 23594	CHIP INDUCTOR 1uH 10%
L823	9965 000 23594	CHIP INDUCTOR 1uH 10%
L951	9965 000 12470	BEAD FERITE 100R/AT 100MHZ
L952	9965 000 12470	BEAD FERITE 100R/AT 100MHZ
L955	9965 000 15931	INDUCTOR 100uH 10%
L957	9965 000 15931	INDUCTOR 100uH 10%
L958	9965 000 16694	INDUCTOR 6uH 13.5TS 2UEW

SW801	9965 000 20266	SW SLIDE 1P2T 3P L=4MM
XL201	9965 000 23602	CRYSTAL 27MHZ HC-49/S
CAPACITORS		
C511	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C512	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C523	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C524	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C525	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C526	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C527	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C528	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C541	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C542	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C563	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C564	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C565	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C566	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C567	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C568	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C580	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C581	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C591	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C592	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C593	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C596	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C597	9965 000 23604	CHIP CAP 560pF 250V 5% X7R
C598	9965 000 23605	COND MYLAR 0.01uF 100V 5%
C951	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C952	9965 000 23603	CHIP CAP 0.1uF 100V 20%
C955	5322 124 22614	1000uF 20% 50V
C956	5322 124 22614	1000uF 20% 50V
C961	9965 000 23606	COND ELECT 1000uF 16V 20%

## RESISTORS

R262	9965 000 23607	RESISTOR 2.2 OHM 1/2 W 5%
R263	9965 000 23607	RESISTOR 2.2 OHM 1/2 W 5%
R513	4822 051 10518	5R1 5% 0.25W
R514	4822 051 10518	5R1 5% 0.25W
R515	4822 051 10518	5R1 5% 0.25W
R516	4822 051 10518	5R1 5% 0.25W
R517	9965 000 23608	CHIP RES 22 OHM 1/2W 5%
R518	9965 000 23608	CHIP RES 22 OHM 1/2W 5%
R529	4822 051 10518	5R1 5% 0.25W
R530	4822 051 10518	5R1 5% 0.25W
R531	4822 051 10518	5R1 5% 0.25W
R532	4822 051 10518	5R1 5% 0.25W
R533	9965 000 23608	CHIP RES 22 OHM 1/2W 5%
R534	9965 000 23608	CHIP RES 22 OHM 1/2W 5%
R549	4822 051 10518	5R1 5% 0.25W
R550	4822 051 10518	5R1 5% 0.25W
R551	9965 000 23608	CHIP RES 22 OHM 1/2W 5%

## ELECTRICAL PARTS LIST - MAIN BOARD

R553	4822 051 10518	5R1 5% 0.25W
R554	4822 051 10518	5R1 5% 0.25W
R555	9965 000 23608	CHIP RES 22 OHM 1/2W 5%
R957	9965 000 23609	RESISTOR 47 OHM 1/2 W 5%
R968	9965 000 23610	RESISTOR 1 OHM 1/4W 5%
R5050	9965 000 23611	RESISTOR 1.2K OHM 1/4W 5%
RA301	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RA351	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RA352	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RN201	9965 000 23613	CHIP ARRAY 4X4.7K 1/16W 5%
RN202	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RN203	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RN204	9965 000 23613	CHIP ARRAY 4X4.7K 1/16W 5%
RN205	9965 000 23614	CHIP ARRAY 10RX4 1/16 W 5%
RN206	9965 000 23614	CHIP ARRAY 10RX4 1/16 W 5%
RN207	9965 000 23614	CHIP ARRAY 10RX4 1/16 W 5%
RN208	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%
RN210	9965 000 23613	CHIP ARRAY 4X4.7K 1/16W 5%
RN211	9965 000 23612	CHIPARRAY 4X33RX4 1/16W 5%

## DIODES

D301	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D302	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D303	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D304	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D305	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D306	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D307	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D308	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D309	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D310	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D311	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D312	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D313	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D314	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D315	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D316	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D5001	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D5002	9965 000 19409	DIODE CHIP BAV16W/IN4148W
D801	4822 130 83338	LL4148
D802	4822 130 83338	LL4148
D803	4822 130 83338	LL4148
D951	9965 000 19409	DIODE CHIP BAV16W/IN4148W
ZD202	4822 130 34233	BZX79-B5V1
ZD301	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD302	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD401	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD402	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD5001	4822 130 34167	BZX79-B6V2
ZD501	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD5041	9965 000 19397	CHIP ZENER 5.6V 5% 0.5W
ZD801	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W

ZD802	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD803	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD804	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD805	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD806	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD807	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD808	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD809	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD810	9965 000 19431	CHIP ZENER 7.5V 5% 0.5W
ZD951	9965 000 17375	11.9-12.4V 0.5W
TRANSISTORS & INTEGRATED CIRCUITS		
Q301	9965 000 20268	XISTR NPN SMT (2SC1623)
Q401	9965 000 20286	NPN CM5783GR SOT23
Q402	9965 000 20286	NPN CM5783GR SOT23
Q403	9965 000 14175	2SA733Q,P
Q5001	9965 000 20268	XISTR NPN SMT (2SC1623)
Q5002	4822 130 41651	2SC2001L
Q5003	9965 000 20268	XISTR NPN SMT (2SC1623)
Q501	9965 000 20268	XISTR NPN SMT (2SC1623)
Q5041	9965 000 20268	XISTR NPN SMT (2SC1623)
Q5042	9965 000 14175	2SA733Q,P
Q801	3141 018 51690	TRA SM 2SK3018
Q802	3141 018 51690	TRA SM 2SK3018
Q803	9965 000 19393	XISTR NPN 2SC2812N 2204
Q804	9965 000 19393	XISTR NPN 2SC2812N 2204
Q805	9965 000 15914	2SB1132QT 100R
Q806	9965 000 15914	2SB1132QT 100R
Q811	9965 000 14175	2SA733Q,P
Q951	4822 130 10211	2SA952
Q952	9965 000 20268	XISTR NPN SMT (2SC1623)
Q953	4822 130 10358	2SB772P/Q
IC201	9965 000 21180	IC 208 PIN ES6628F PQFP ESS
IC202	9965 000 23615	IC 48 PIN M29LV1600T70 TSOP
IC203	9940 000 00029	IC SD41621HGT-6
IC204	9965 000 15890	IC IMP809 SOT23 2.93V
IC205	9965 000 23616	IC 8PIN M24C02-MN6T ST SD8
IC206	9965 000 20293	IC 20 PIN 74F374D
IC207	9965 000 20293	IC 20 PIN 74F374D
IC208	9965 000 23617	3P B1117N 3.3V BAY-LINEAR 1A
IC209	9965 000 23617	3P B1117N 3.3V BAY-LINEAR 1A
IC210	9965 000 23617	3P B1117N 3.3V BAY-LINEAR 1A
IC301	9965 000 23619	IC 16 PIN CD4052BM SOIC TI
IC351	9965 000 20295	IC 28 PIN WM8772 TSOP
IC401	9965 000 15886	IC RC4558D
IC402	9965 000 15886	IC RC4558D
IC403	9965 000 15886	IC RC4558D
IC404	9965 000 15886	IC RC4558D
IC405	9965 000 12514	M62446FP
IC406	9965 000 15886	IC RC4558D
IC407	9965 000 15886	IC RC4558D

**ELECTRICAL PARTS LIST - MAIN BOARD**

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**TRANSISTORS & INTEGRATED CIRCUITS**

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IC408	9965 000 15886	IC RC4558D
IC409	9965 000 15886	IC RC4558D
IC501	9965 000 23618	IC 24PIN TDA8921TH HSOP24
IC502	9965 000 23618	IC 24PIN TDA8921TH HSOP24
IC503	9965 000 23618	IC 24PIN TDA8921TH HSOP24
IC504	9965 000 22230	IC 14 PIN 74LVC04AD
IC505	9965 000 22229	IC14 PIN HEF4013BT
IC801	9965 000 21182	IC 64 PIN ES6603S LQFP ESS
IC802	9965 000 23620	IC 28P AM5868S HSOP AMTEK
IC953	9965 000 12512	BA05T ROHM
IC954	9965 000 12512	BA05T ROHM
IC5001	9965 000 23621	IC 8PAPA3541 SOP-8 HEADPHONE

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

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# POWER BOARD

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## *(For Information only)*

It is not recommended for component repair on this board but to replace the board when it becomes defective.

Therefore no service parts list is published in this chapter.

The only service part available for replacement is:

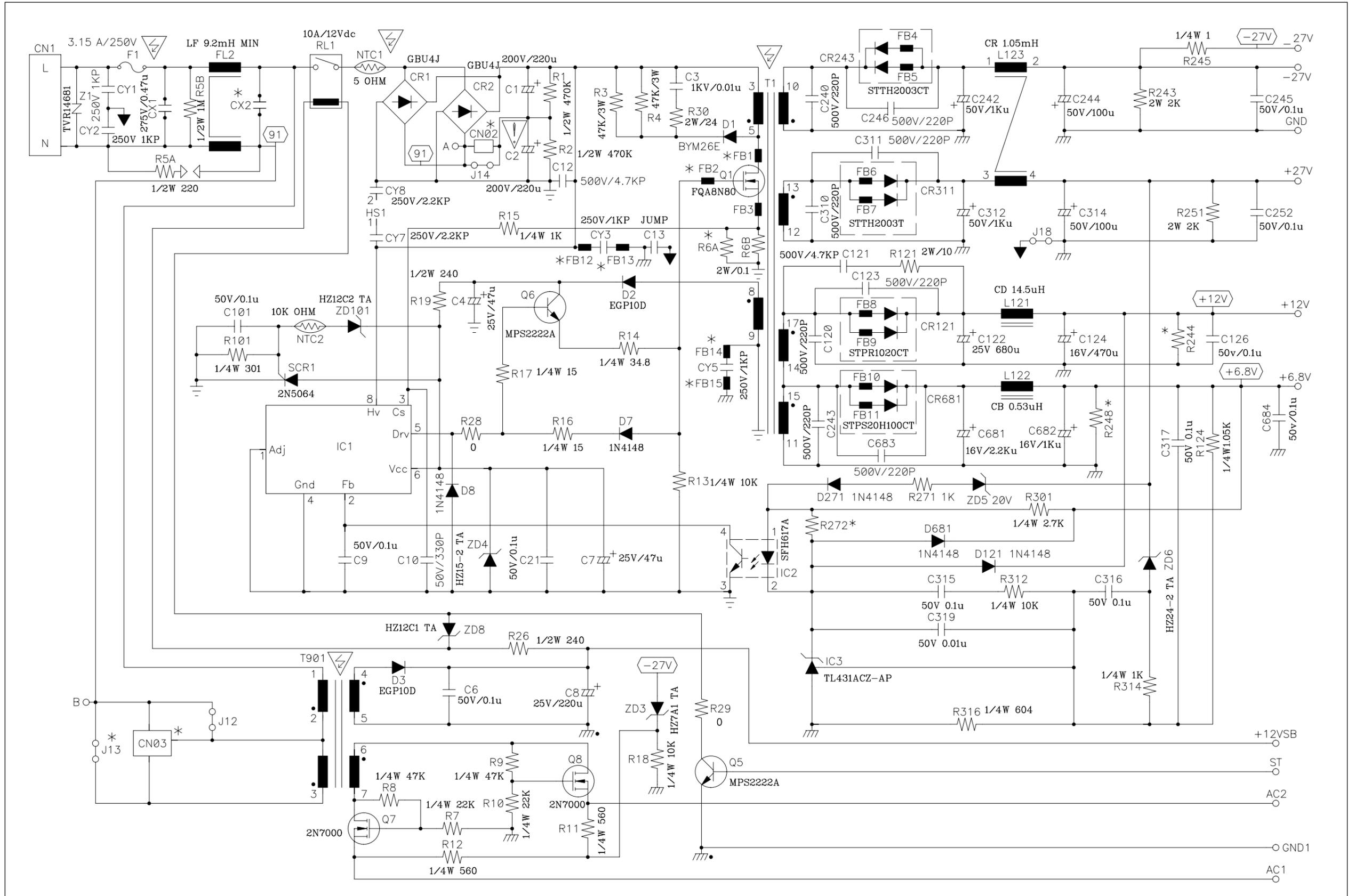
SW PWR SUP ASSY 110V (/17) ..... 9965 000 23574

SW PWR SUP ASSY 110 ~ 230V (/78) ..... 9965 000 23628

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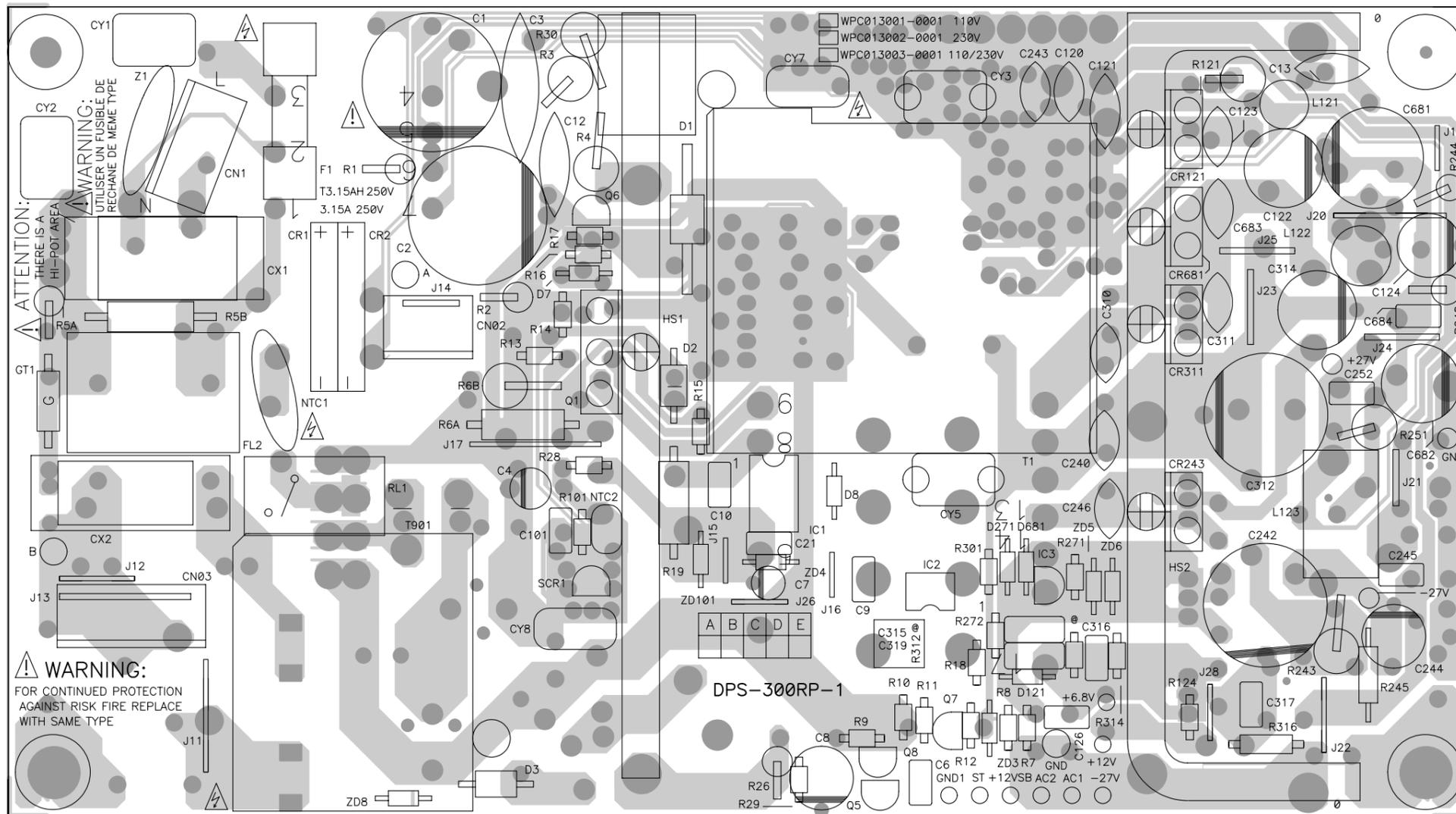
Circuit Diagram (/17) .....	9-2
Circuit Diagram (/78) .....	9-3
PCB Layout .....	9-4

# CIRCUIT DIAGRAM - POWER BOARD ( /17)

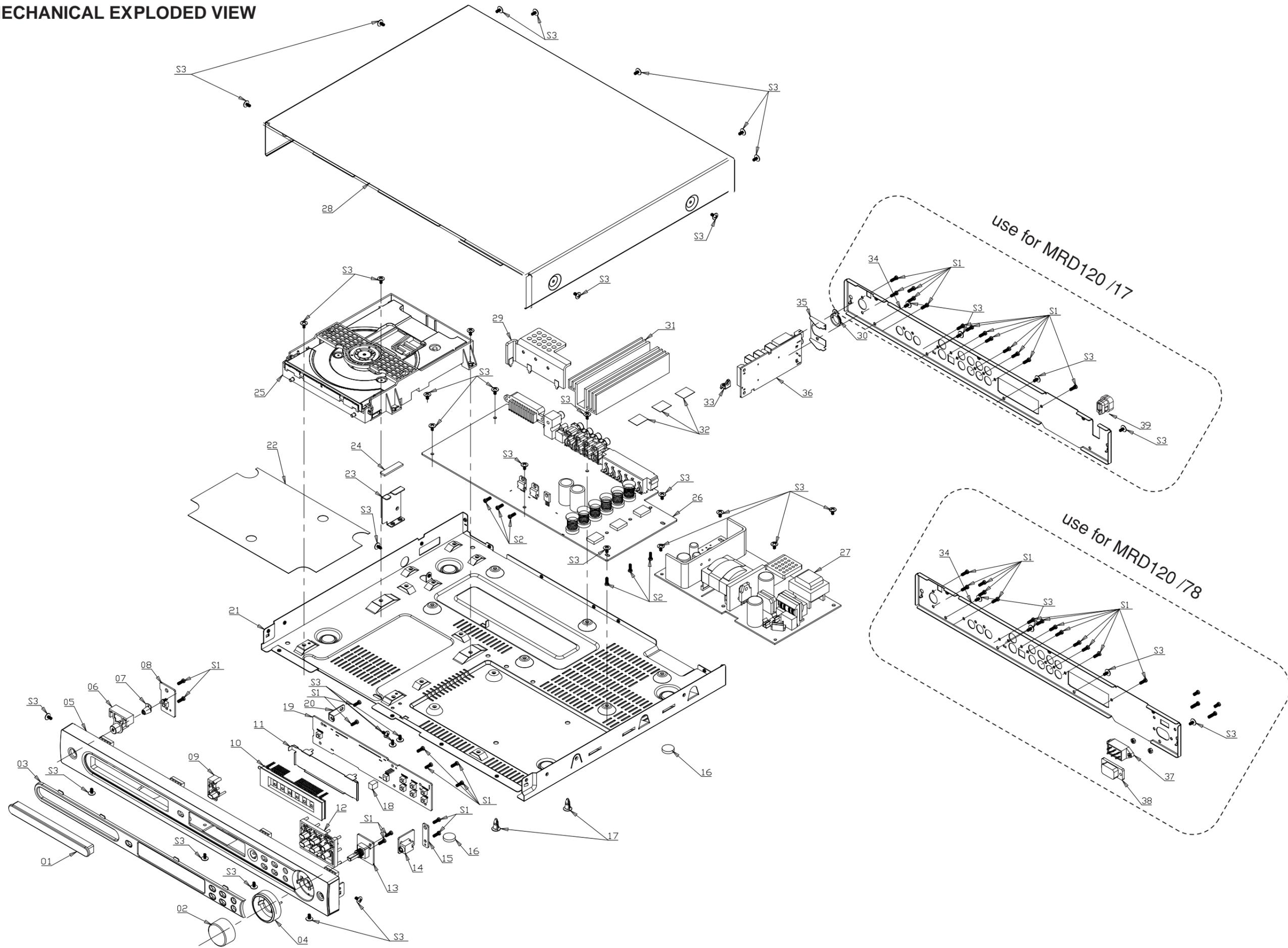




# PCB LAYOUT - POWER BOARD ( /17, /78)



# MECHANICAL EXPLODED VIEW



**MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT****SCREW LISTS - MAIN UNIT**

1	9965 000 23562	DVD DOOR	
2	9965 000 23563	VOLUME KNOB	
3	9965 000 23564	DISPLAY LENS	
4	9965 000 23565	VOLUME RING	
5	9965 000 23566	FRONT CABINET	
6	9965 000 23567	POWER BUTTON	
7	9965 000 23568	LED LENS	
9	9965 000 23569	OPEN/CLOSE BUTTON	
12	9965 000 23570	FUNCTION BUTTON	
16	9965 000 23571	FOOT RUBBER	
17	9965 000 23572	SPACER SUPPORT	
25	9965 000 23573	DVD MECH. LOADER ASSY	
27	9965 000 23574	SW PWR SUP ASSY (110V)	/17
27	9965 000 23628	SW PWR SUP ASSY (110~230V)	/78
30	9965 000 23575	FM ANTENNA HOLDER	
37	9965 000 16339	△ SW SLIDE 6P SL14-22AH	/78
38	9965 000 20576	△ AC SOCKET	/78
39	9965 000 12817	BUSHING AC LINE BUSHING	/17
	9965 000 23576	SATELLITE SPEAKER ASSY	
	9965 000 23577	SUBWOOFER ASSY	
	9965 000 23578	FFC WIRE 24P L=150MM	/17
	9965 000 23579	△ LINE CORD	/17
	9965 000 23629	△ LINE CORD	/78
	9965 000 23580	RCA CABLE 1500MM	/17
	9965 000 20577	RCA CABLE 1500MM	/78
	9965 000 23582	LOOP ANTENNA	
	9965 000 23583	FM ANTENNA	/17
	9965 000 14632	FM ANTENNA	/78
	9965 000 14635	REMOTE CONTROL	
	9965 000 23584	IFU - ENG/FRENCH/SPANISH	/17
	9965 000 23630	IFU - ENG/FRENCH/SPANISH	/78

**Satellite Speaker Assembly Breakdown**

9965 000 23622	MAIN-L SPEAKER BOX
9965 000 23623	MAIN-R SPEAKER BOX
9965 000 23624	REAR-L SPEAKER BOX
9965 000 23625	REAR-R SPEAKER BOX
9965 000 23626	CENTER SPEAKER BOX
9965 000 23627	RUBBER FOOT

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

S1	D3 x 8
S2	D3 x 10
S3	M3 x 6