DVD Receiver **MX3900D/37 & MX3910D/17/78**

MX3950D/37 & MX3960D/17

Service
Service
Service

Service Manual

MP3-CD PLAYBACK MP3

COMPACT disc DIGITAL AUDIO

DVD VIDEO

COMPACT disc DIGITAL VIDEO

TABLE OF CONTENTS

CLASS 1
LASER PRODUCT

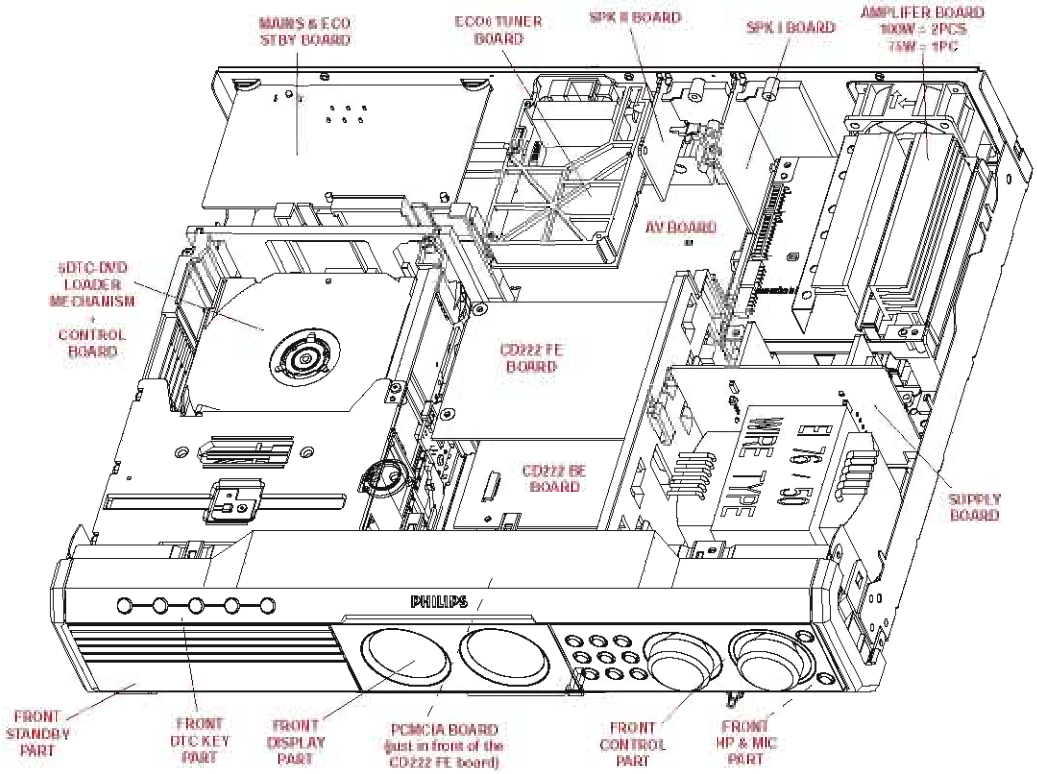
Published by KC 0311 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 30202

Version 1.2

PHILIPS

LOCATION OF PC BOARDS



VERSION VARIATIONS:

Type /Versions:	MX3900D		MX3910D		MX3950D		MX3960D	
Features & Board in used:	/37		/37	/78	/37		/17	
Karaoke	-		-	-	-		-	
News	-		-	-	-		-	
RDS	-		-	-	-		-	
Pro-Scan	x		x	x	x		x	
PCMCIA	-		-	-	-		-	
Standby - Clock Display	x		x	x	x		x	
ECO Standby - No Display	x		x	x	x		x	
Voltage Selector	-		-	x	-		-	
Digital In / Out	x		x	x	x		x	
Aux Input	x		x	x	x		x	
TV Input	x		x	x	x		x	
Line Output	x		x	x	x		x	
SCART output	-		-	-	-		-	
Pr, Pb & Y Outputs	x		x	x	x		x	
CVBS Output	x		x	x	x		x	
S-Video Output	x		x	x	x		x	
Headphone Socket	x		x	x	x		x	
Tuner board - ECO6 System non-Cenelec	x		x	x	x		x	
Tuner board - ECO6 System Cenelec	-		-	-	-		-	
Amplifier board - 1pc (75W 6-Channel)	x		x	x	x		x	
Amplifier board - 1pc (75W 7-Channel)	-		-	-	-		-	
Amplifier board - 2pc (100W 6-Channel)	-		-	-	-		-	

SPECIFICATIONS

GENERAL:

Mains voltage : 120V for /17/37
110-127V/220-240V switchable for /78
Mains frequency : 50/60Hz
Power consumption : < 0,5W at ECO Standby
< 20W Standby (clock display)
Clock accuracy : < 4 seconds per day
Dimension centre unit : 435 x 100 x 360mm

TUNER:

FM

Tuning range	: 87.5-108MHz
Grid	: 50kHz
IF frequency	: 10.7MHz ± 25kHz
Aerial input	: 75Ω coaxial
Sensitivity at 26dB S/N	: < 7µV
Selectivity at 600kHz bandwidth	: > 25dB
Image rejection	: > 25dB
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: < 8µV
Crosstalk at RF=1mV, dev. 40kHz	: > 18dB

MW

Tuning range	: 530-1700kHz
Grid	: 10kHz
IF frequency	: 450kHz ± 1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: < 4.0mV/M
Selectivity at 18kHz bandwidth	: > 18dB
IF rejection	: > 45dB
Image rejection	: > 28dB
Distortion at RF=50mV, m=80%	: < 5%

AMPLIFIER:

Output power [1] at 4Ω, 1 kHz, 10% THD

L/R	: 2 x 75W RMS
	2 x 60W FTC
Center	: 72W
Surround L/R	: 72W RMS/channel
Sub-woofer	: 72W

Frequency response ±3dB	: 20Hz-20kHz
Hum (minimum volume)	: 200nW
Residue noise (min, volume)	: 40nW
Digital Sound Control	: Stereo, 3D Sound, Multi modes [2]
Bass & Treble	: -3dB to +3dB

Input sensitivity

TV-in	: 350mV ± 3dB
Aux-in	: 880mV ± 2dB

Output sensitivity

Line out	: 600mV ± 2dB at 47kΩ
Subwoofer out [3]	: 1.85V ± 2dB at 47kΩ
Headphone (vol. max.)	: 660mV ± 2dB at 32Ω
Center out (vol. max.)	: 500mV ± 2dB at 47kΩ

COMPACT DISC/VCD/DVD:

Video Decoding	: MPEG-2
Video DAC	: 10 Bits
Signal System	: PAL / NTSC
Video Format	: 4:3 / 16:9
MP3-CD bit rate [4]	: 32-256 kbs,variable bitrates
MP3-CD sampling frequencies [4]	: 32kHz, 44.1kHz, 48kHz

CBVS out [5]

CVBS level	: $1.0 \pm 0.1V_{p-p}$
Luminance S/N ratio	: > 45dB (unweighted)

YUV out [5]

Amplitude	: 714mV ± 7mV
S/N ratio	: > 50dB (unweighted)

S-Video out [5]

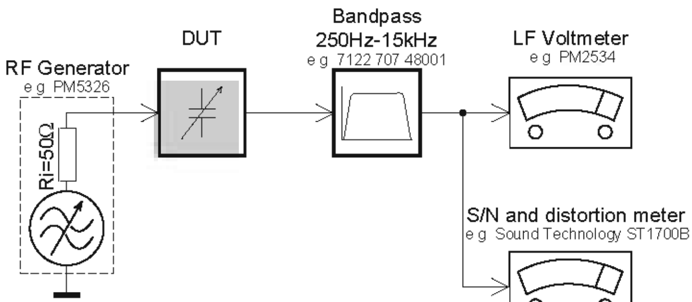
Y level	: $1.0 \pm 0.1V_{p-p}$
Y S/N ratio	: > 48dB (unweighted)
C level (burst)	: $286mV_{p-p}$ +1/-4 dB

Digital Out	: Coaxial acc IEC61937 / IEC60958
Digital In	: Coaxial acc IEC60958

1) with only channel(s) under meausrement loaded, all other channels are unloaded.
2) Frequency response in each setting is software controlled.
3) measured with 55Hz at vol. maximum.
4) Recording format: ISO9660, UDF format is not supported.
5) Output terminals terminated with 75Ω

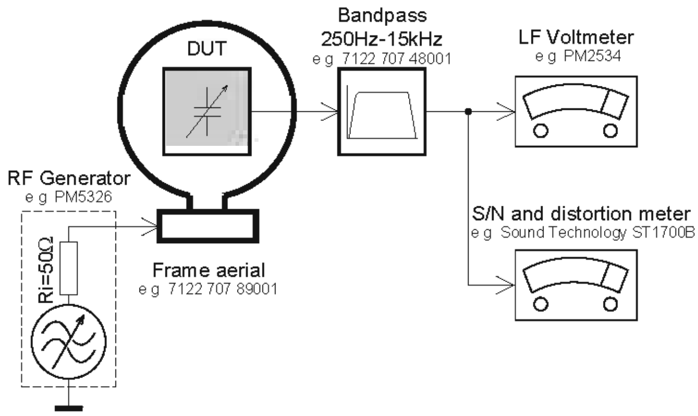
MEASUREMENT SETUP

Tuner FM



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

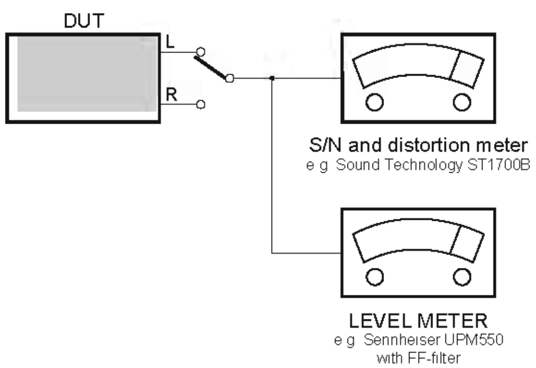
Tuner AM (MW,LW)



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

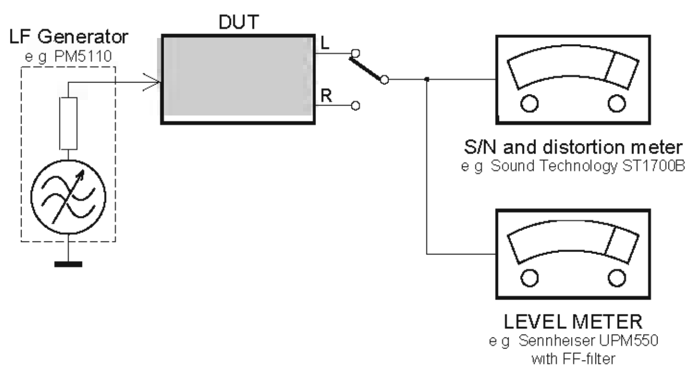
CD

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



Recorder

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



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423
Allen key set (1.5, 2, 2.5, 3, 4, 5, 6, 8mm)	5322 395 10754

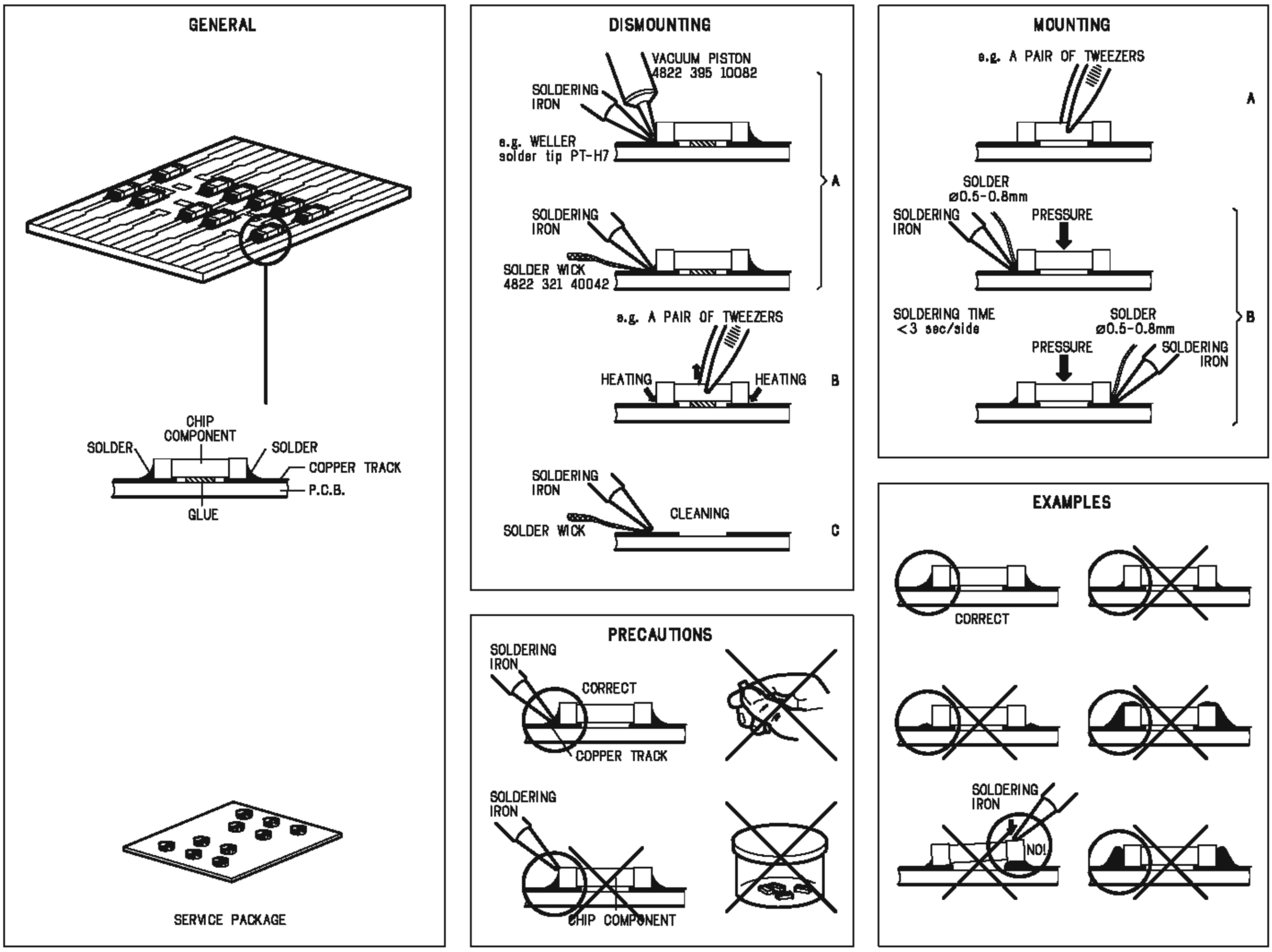
Compact Disc:

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
SBC444/444A	4822 397 30245
CD-RW Printed Audio Test Disc	7104 099 96611
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



ESD

GB WARNING

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

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.

F ATTENTION

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

D WARNUNG

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

I AVVERTIMENTO

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

GB

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

NL

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

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

D

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

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

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

CLASS 1
LASER PRODUCT
3122 110 03420

GB Warning !

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

S Varning !

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

SF Varoitus !

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

DK Advarse !

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

DISMANTLING INSTRUCTIONS

Dismantling of the Front Panel assembly

1) Loosen the 9 screws to dismantle the Top Cover (pos 252)
   - 2 screws on each side
   - 5 screws on the Rear Panel (pos 251).

2) Loosen 5 screws A and 8 catches C1 to slide the Front Panel assembly (pos 101, 102, 103, etc) as per figure 1.

   Note: To remove the Source / Volume control pc board (pos 1105B) 2 nuts hidden below the control knob assembly (pos 133, 134 and 135) must first be removed.

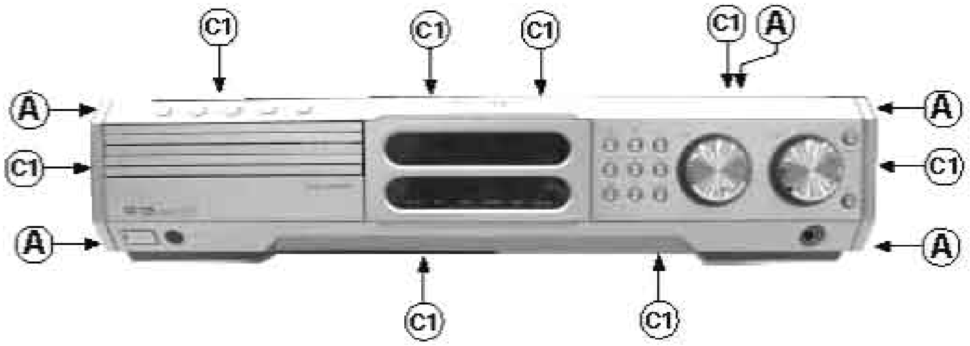


Figure 1

Hints for re-assembly of Top Cover

Due to appearance design the Top cover (pos 252) is sandwiched between the Front panel (pos 101) and the 2 side covers (pos 102 & 103), this make it necessary to remove the 2 side covers before re-assembly of Top cover.

1) To remove the side cover use a small screw driver with marking 16mm from the tip end.

2) Insert the screw driver into slot (as shown in figure 2) and push the tip outwards to release the side cover catch. The side cover can be pull outwards as soon as the top catch is released.

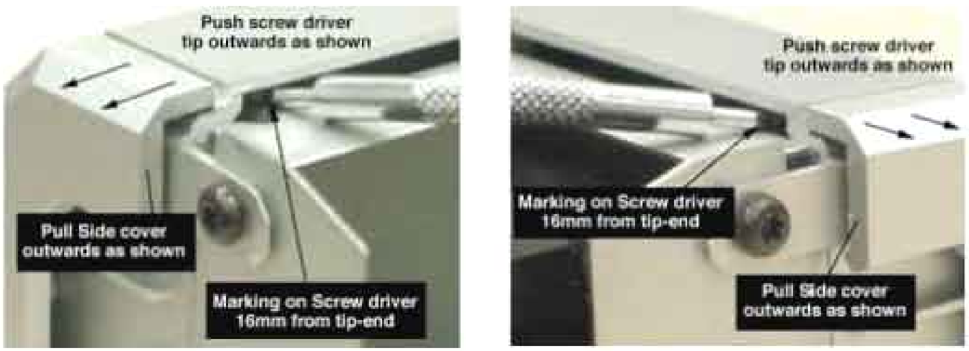


Figure 2

Dismantling the Tuner, Mains and AV boards

1) Loosen 3 screws D and 2 catches C2 on the Rear panel (pos 251) to remove the Tuner board assemby (pos 1101) as pe figure 3.

2) Loosen 1 screws E and 2 catches C3 to unslot the Mains board (pos 1102-A) out of the Rear panel as per figure 4.

3) Loosen bracket (pos 254) by turning a catch, sliding towards the outside and lifting it upwards as per figure 5.

4) Loosen 7 screws F and 2 C5 to separate Rear Plate assembly (pos 251 + 227) from the Bottom plate as per figure 3.

5) Uncatch C4 to remove the AV board (pos 1104) from the Bottom & Rear Plate assembly (pos 251 + 227) as per figure 5.

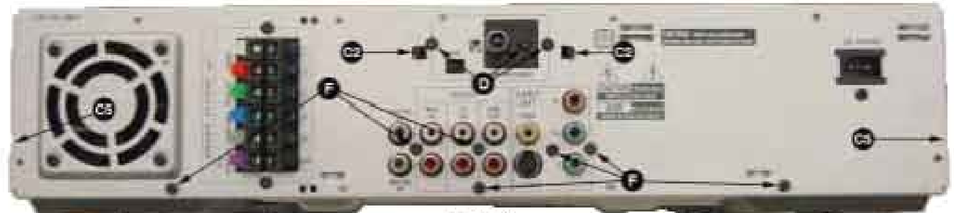


Figure 3

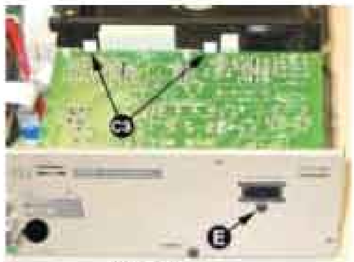


Figure 4

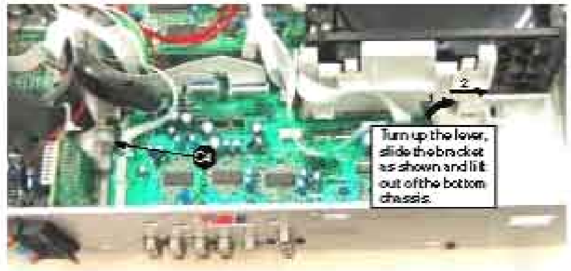


Figure 5

Dismantling the SDTC Module

1) Loosen 1 screws E and 2 catches C3 to remove the Mains board as per figure 4.

2) Loosen bracket (pos 254) by turning a catch, sliding towards the outside and lifting it upwards as per figure 5.

3) Loosen 3 screws G, lift up the SDTC Module's (pos 1103-A) rear and pull the module out towards the rear as per figure 6.


Figure 6

Dismantling the Mono FE and BE boards

1) Loosen 2 screws and 2 catches to remove the Mono BE board (pos 1103-B).

2) Loosen 2 screws and 2 catches to remove the Mono FE board (pos 1103-C).

Dismantling the Supply & Power Amplifier boards

1) Loosen 2 screws B mounting the Supply board's (pos 1102-B) heatsink to the Bottom Plate (pos 227) as per figure 7.

   Note: **During re-assembly care must be taken to ensure the Mains Transformer wires to the Supply board is routed properly below the board.**

2) Loosen 4 screws C to dismantle the Power Amplifier board (pos 1102-D) from the Bottom Plate as per figure 7.

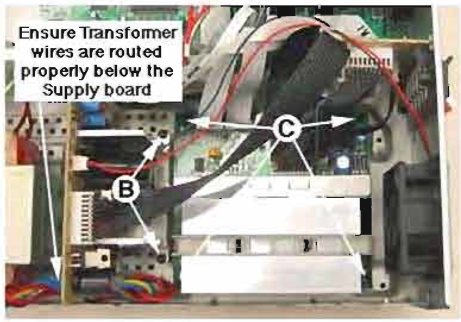


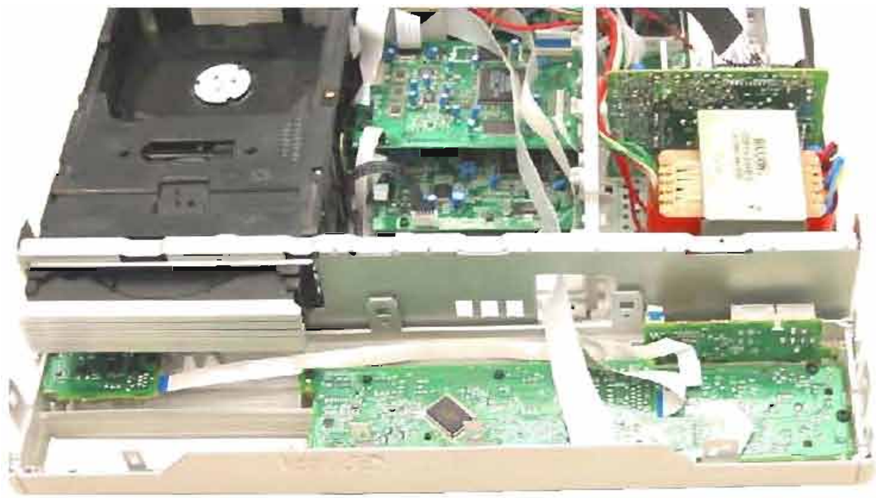
Figure 7

2-2

Service positions

Service position A (Top cover removed)

Service position B (Front Panel loosen)



Service positions

Service position C (Supply and Amplifier boards loosen)

Caution:

1) In some of the service positions the Mains supply is exposed, therefore service technicians have to exercise care to prevent electric shock.

2) The copper pattern on the Mains board should be covered with non-conductive insulation during fault-finding on other parts of the set.

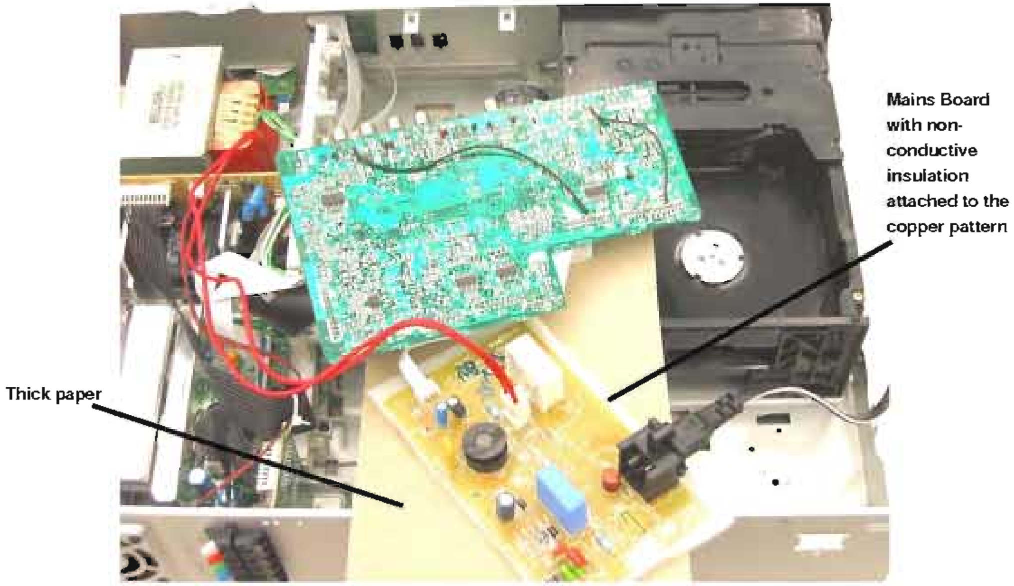
3) Insulation sheet (eg. thick paper or cardboard) should be use during fault-finding to prevent short-circuiting of copper patterns to metallic surroundings.

Note:

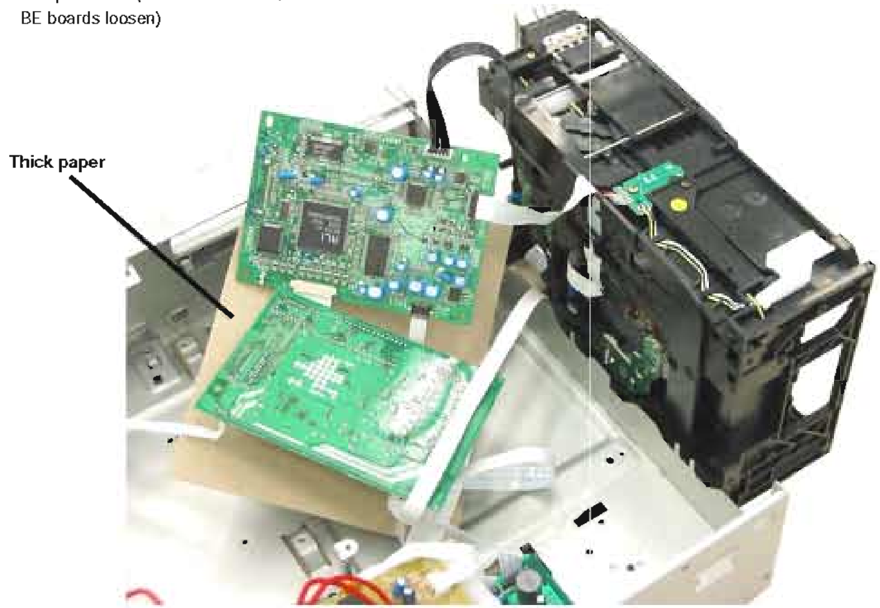
The ground connection between AV board stoko pin 1100 and Amplifier board stoko pin 1320 must be connect ed during Service pos C and D in order to have sound output at the Loudspeakers.

2-3

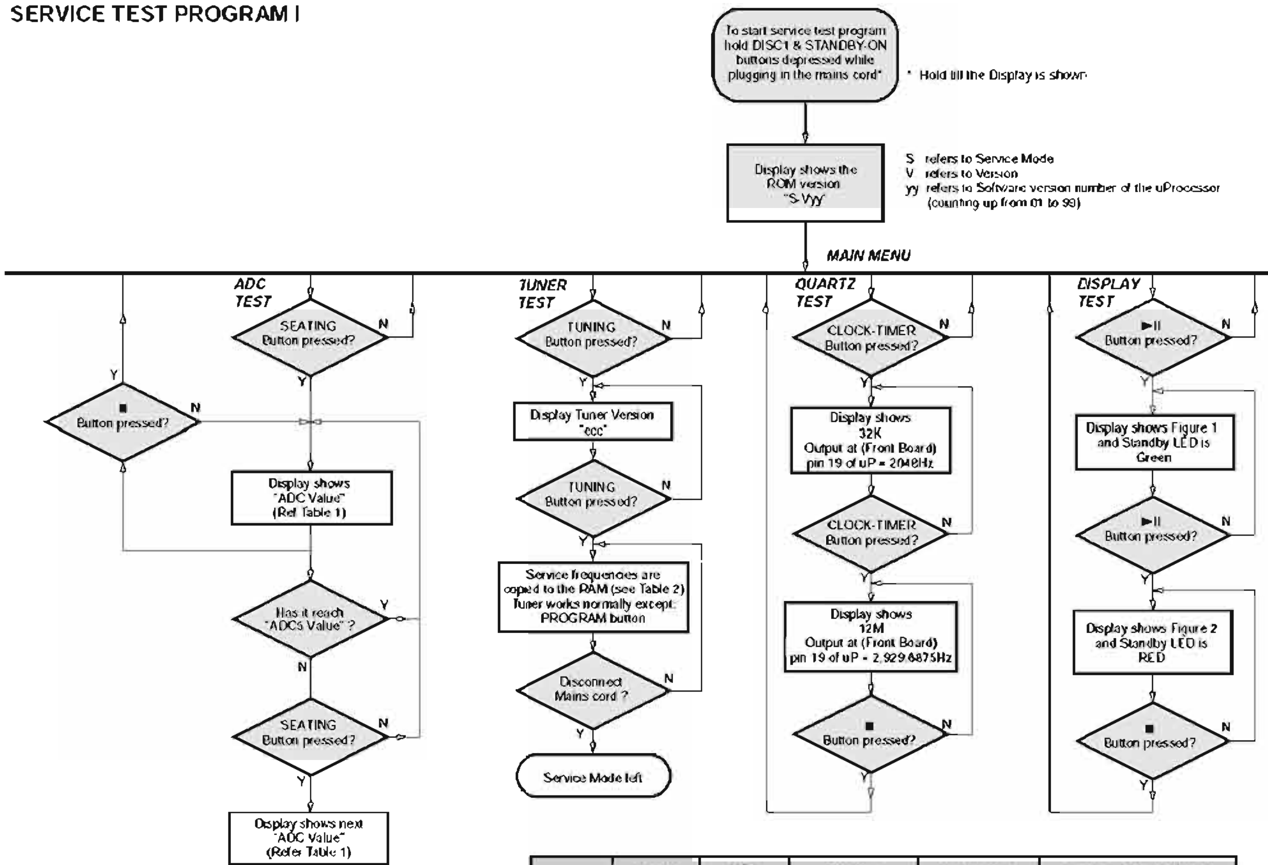
Service position D (Mains & AV boards loosen)



Service position E (5DTC Mechanism, Mono FE and Mono BE boards loosen)



SERVICE TEST PROGRAM I



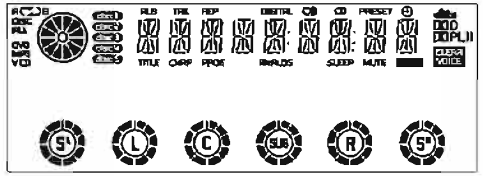


Figure 1

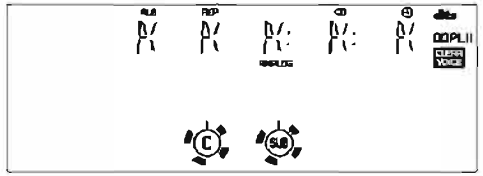


Figure 2

Name	Input line to uProcessor IC	Remarks
ADC1	Key0	Return the value assign for each key button.
ADC2	Key1	Return the value assign for each key button.
ADC3	VU_IN	Varies according to the signal dc level
ADC4	MUX_DET	The set temperature is measured via this NTC line, if lower than 69 the set goes into Standby
ADC5	Options	Return the value assign for the different possible options

Table 1

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

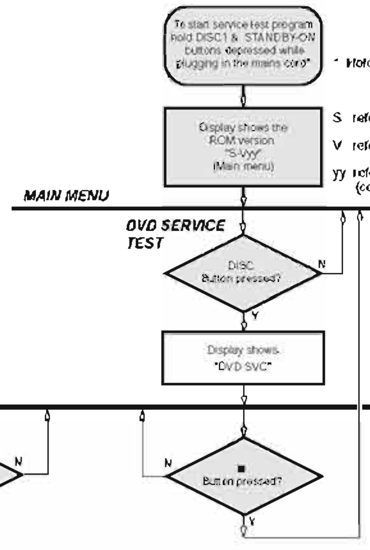
PRESET	Europe "EUR"	USA "USA"	Oversea "OSE"	East Europe "EAS"	East Eur. Extended-band "EAS"
1	87.5MHz	87.5MHz	87.5MHz	87.5MHz	65.81MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	530kHz	530/531kHz*	531kHz	74MHz
4	1602kHz	1700kHz	1700/1602kHz*	1602kHz	87.5MHz
5	558kHz	560kHz	560/558kHz*	558kHz	531kHz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

Table 2

Note: * Depending on the selected grid frequency (9 or 10kHz).
By holding the "DISCS" and "STANDBY-ON" buttons depressed while switching on the Mains supply one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.

TEST	Activated with	ACTION
EEPROM TEST	►►I ■ to Exit	Some test patterns will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test patterns correctly, otherwise "FAIL" will be displayed
EEPROM FORMAT TEST	I◄◄	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost!!***
AUTO STANDBY TOGGLE	SUBW + (Remote Control)	Pressing this button will toggle between the status "AUTO STANDBY ON" and "AUTO STANDBY OFF". The status will scroll once across the Display
ROTARY ENCODER TEST	SOURCE / VOLUME Knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached
LEAVE SERVICE TEST PROGRAM	Disconnect mains cord	

SERVICE TEST PROGRAM II



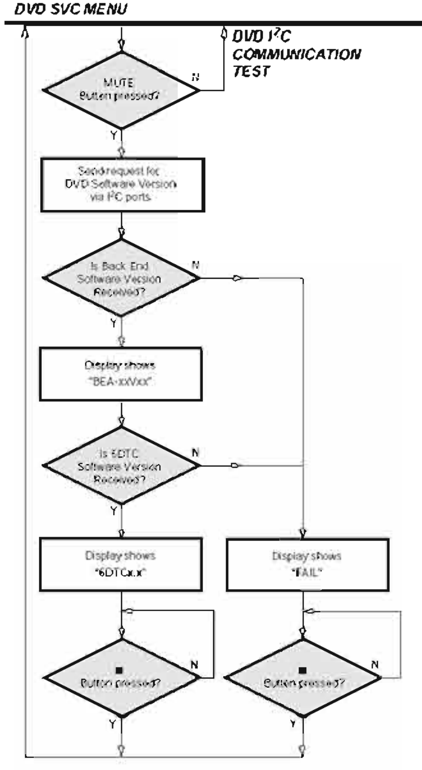
* Hold till the Display is shown

S refers to Service Mode

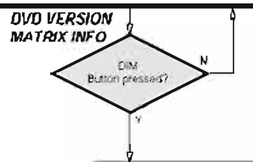
V refers to Version

yy refers to Software version number of the uProcessor (counting up from 01 to 99)

Note:
1 Remote Control must be in DVD source before start of any DVD Service Test
2 All buttons on this "DVD SVC" test refers to the buttons on the Remote control
3 Awaits for the mechanism to initialized before performing DVD test



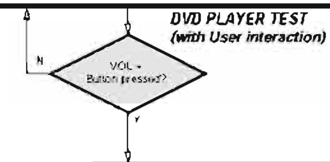
DVD I²C Communication Test is used to test the I²C communication port between the DVD module and the microprocessor of the set



Choose step by pressing ⏮ ⏭

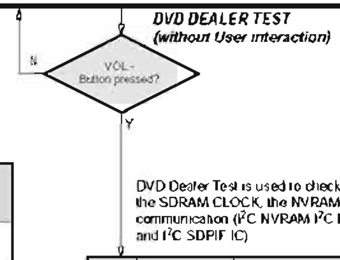
STEP	DISPLAY	REMARKS
1	SLASH 'zzz'	Slash version number
2	REGION '#'	Region code setting (Number 1 - 6)
3	KARAOKE or NON KARA	Karaoke feature
4	V/O SCART or V/O PrPbY	Video Output setting
5	TV - NTSC or TV - PAL or TV - AUTO	TV system setting
		Press ■ to exit

DVD Version Matrix Info is used to read the version matrix information that are stored/defined in the DVD module software



Choose step by pressing ⏮ ⏭

STEP	DISPLAY	ACTION
1	FEA-zzzz	Returns the Front End All Servo Processor software version.
2	TRAY	Tray 1 can be open or close with the ▶II and PROGRAM buttons repectively. Insert a CD onto Tray 1 and close before proceding to next test.
3	SLEDGE	Sledge can be move in and out with the ▶II and PROGRAM buttons respectively.
4	MOTOR	Dismotor is turn on and off by pressing ▶II and PROGRAM buttons repectively.
5	FOC-RDL	DVD Module does a Focus test follow by Radial test if focus is successful.
	FOC FAIL	Is displayed when the focus test fail.
	RDL FAIL	Is displayed when the radial test fail.
6	GROOVES	In this test the laser spot can jumps to another position. Press ▶II to jump to the next postion & PROGRAM to jump to the previous postion.
		Disconnect mains cord to exit the Service Test Program.



DVD Dealer Test is used to check the flash RAM, the SDRAM CLOCK, the NVRAM and the I²C communication (I²C NVRAM I²C DAC, I²C 6DTC and I²C SDPIF IC)

STEP	DISPLAY	ACTION
1	CHECKSUM	Check the correctness of the checksum in the flash. Display will show "PASS" or "FAIL" accordingly.
2	SDRAM CLK	Test the SDRAM clock output. Display "PASS" or "FAIL" accordingly. Pro-Scan: 114MHz +/- 25ppm Non Pro-Scan: 108MHz +/- 25ppm
3	NVRAM	Makes a write followed by a read test to the NVRAM. Display will show "PASS" or "FAIL" accordingly.
4	I²C COMM	Checks I²C bus to NVRAM, DAC, 6DTC and SDPIF IC. Display will show "PASS" or "FAIL" accordingly.
		Disconnect mains cord to exit the Service Test Program.

Reprogramming of DVD version matrix

> ***Caution:***
> ***This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono BE board.***

After replacement/repair of the Mono BE board, the customer settings and also the region code may be lost. Reprogramming will put the set back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.

Reprogramming will be done by way of the Remote Control.
Put the player in stop mode, Disc 1 with no disc loaded.

Do the following steps with the Remote Control:

1) Press ***<DISC MENU>*** followed by numerical keys ***<1> <5> <9>***
   The set display shows: ***- 0 - 0 - 0 - 0 -***

2) Press now successively the following numerical keys :

for MX3900D/37	:	***<1><1><4> <0><1><0> <0><0>***	***US***
for MX3910D/17	:	***<1><1><4> <0><1><0> <0><0>***	***US***
for MX3910D/78	:	***<4><1><4> <0><1><0> <0><0>***	***LATAM***
for MX3950D/37	:	***<1><1><4> <0><1><0> <0><0>***	***US***
for MX3960D/17	:	***<1><1><4> <0><1><0> <0><0>***	***US***

3) Press ***<DISC MENU>*** again. The set display will show: ***DONE*** .
   Caution: The set needs about 3 seconds to reset to required setting.

4) Disconnect mains to ensure proper reset.

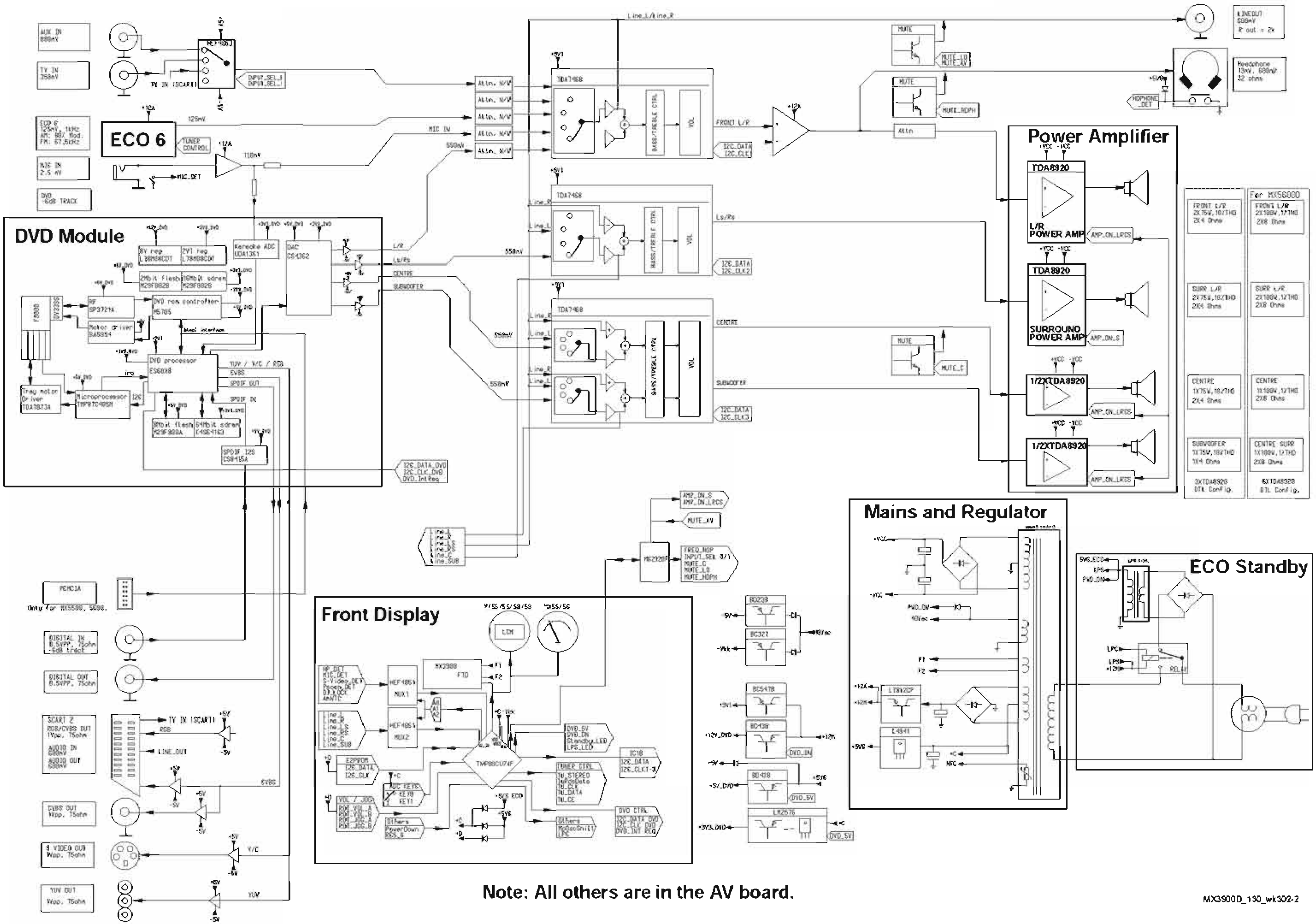
Procedure for check Software version

1) Select Disc with the Remote Control
2) Press <SYSTEM MENU>
3) Use the down key move all the way down (4x) to bottom of "Setup Menu".
4) Use the right key move to the sub-menu.
5) Use the down key move down (3x) to "Default" and down one more time to see the software version.
6) The TV screen will shows:
   R<u>1000</u> BEA31<u>31</u>P<u>V08</u> R<u>2812</u> V<u>72</u>
   where 1000 = DVD version matrix (Region, Karaoke Yes/No, Default Video O/P, Default TV system)
   31V08 = BE software version
   2812 = FE software version
   72 = 5DTC servo version
7) Press <OK> three times to exit.

Procedure to upgrade software

1) Power up the set and open tray Disc 1.
2) Place upgrade CD-ROM onto tray and close.
3) The set will display "DOWNLOAD" while the TV screen will shows:
   Reading --> Update BEA --> Writing --> Done --> Update FEA --> FEA Finish --> Unload Disc 1
4) Tray Disc 1 should then open.
5) The whole process should last for less than 2 minutes. Remove the upgrade CD-ROM and unplug the Mains supply.

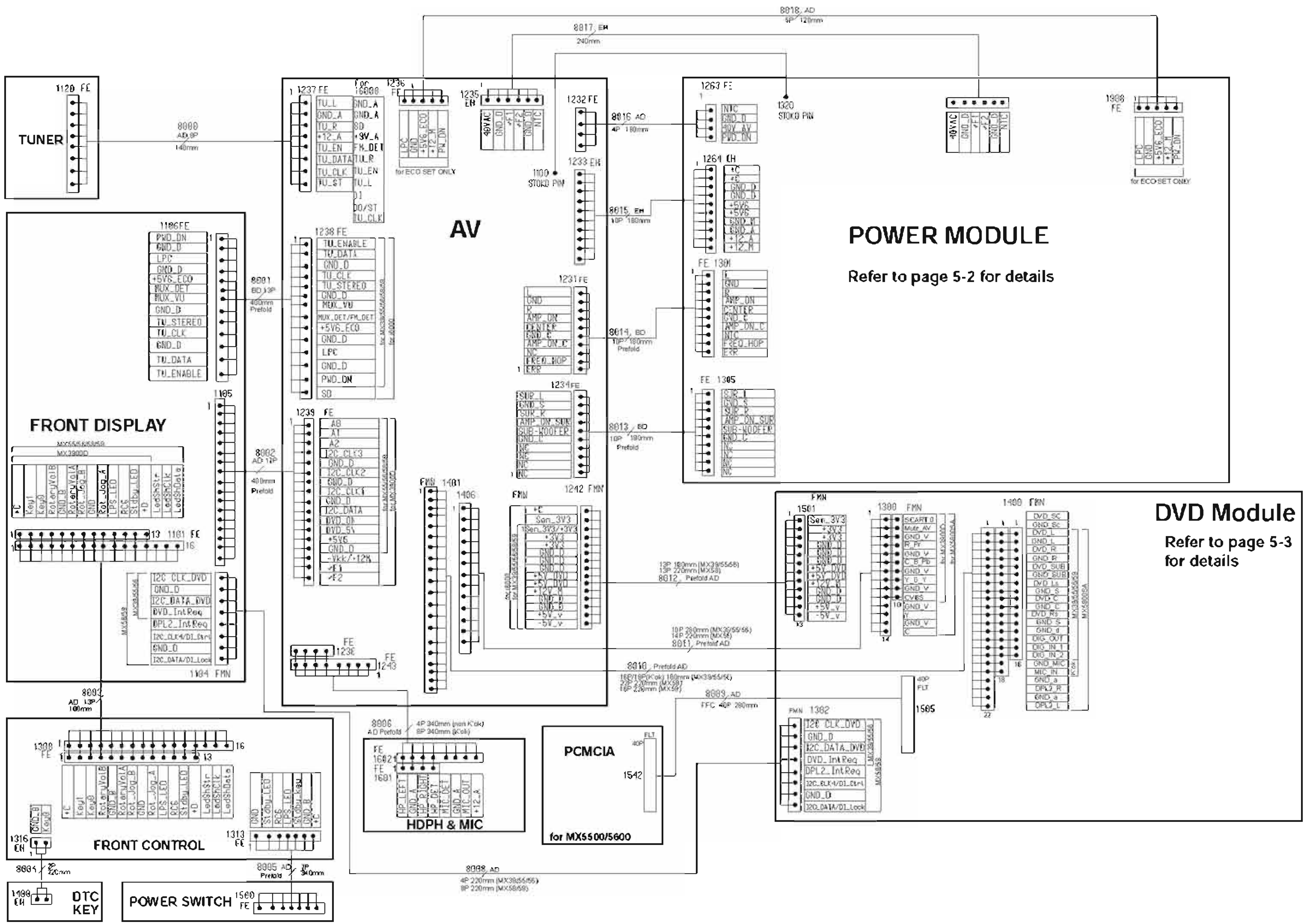
SET BLOCK DIAGRAM



Note: All others are in the AV board.

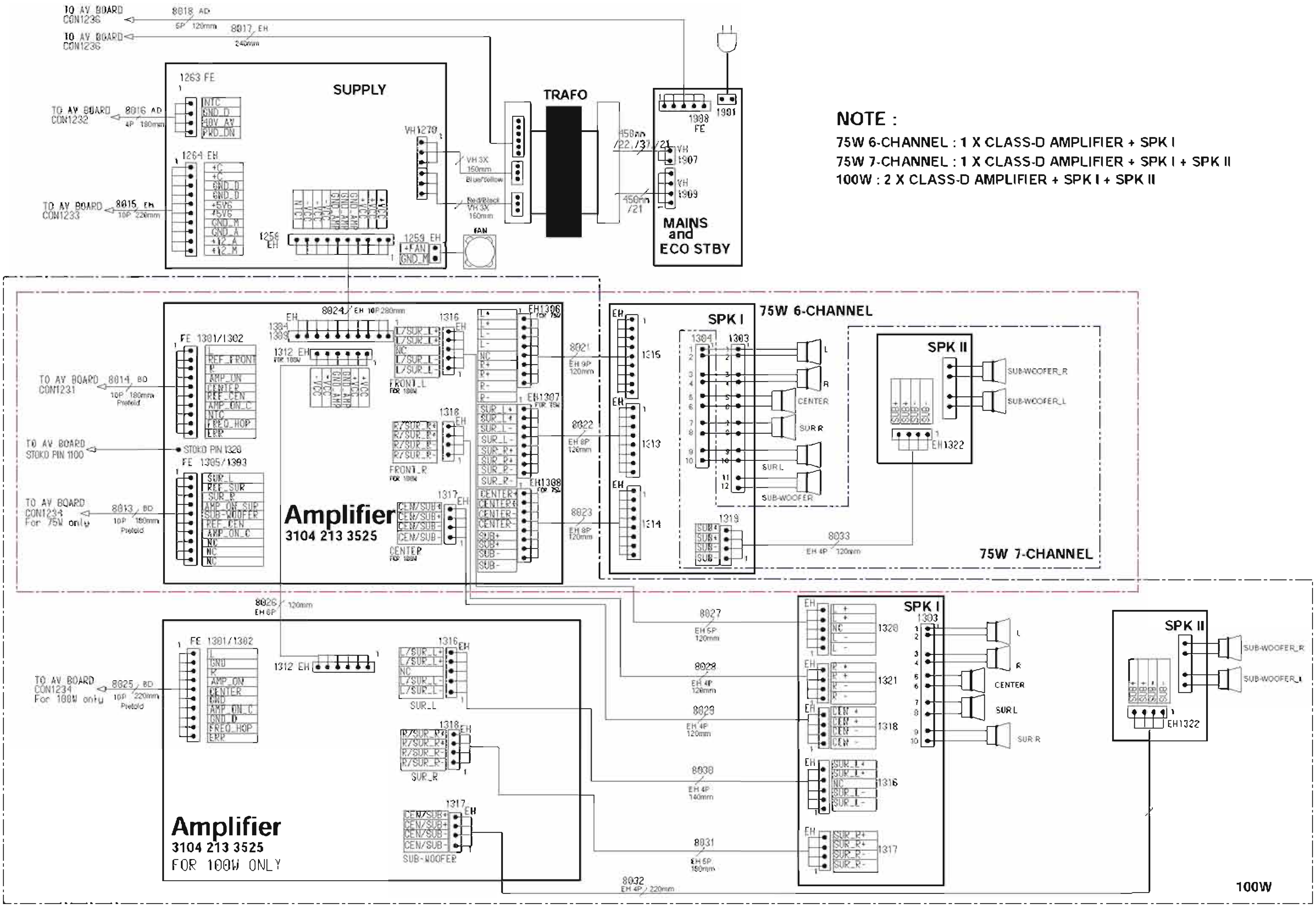
MX3900D_130_wk302-2

MAIN WIRING DIAGRAM



5-2

WIRING DIAGRAM - POWER MODULE DETAILS



NOTE :

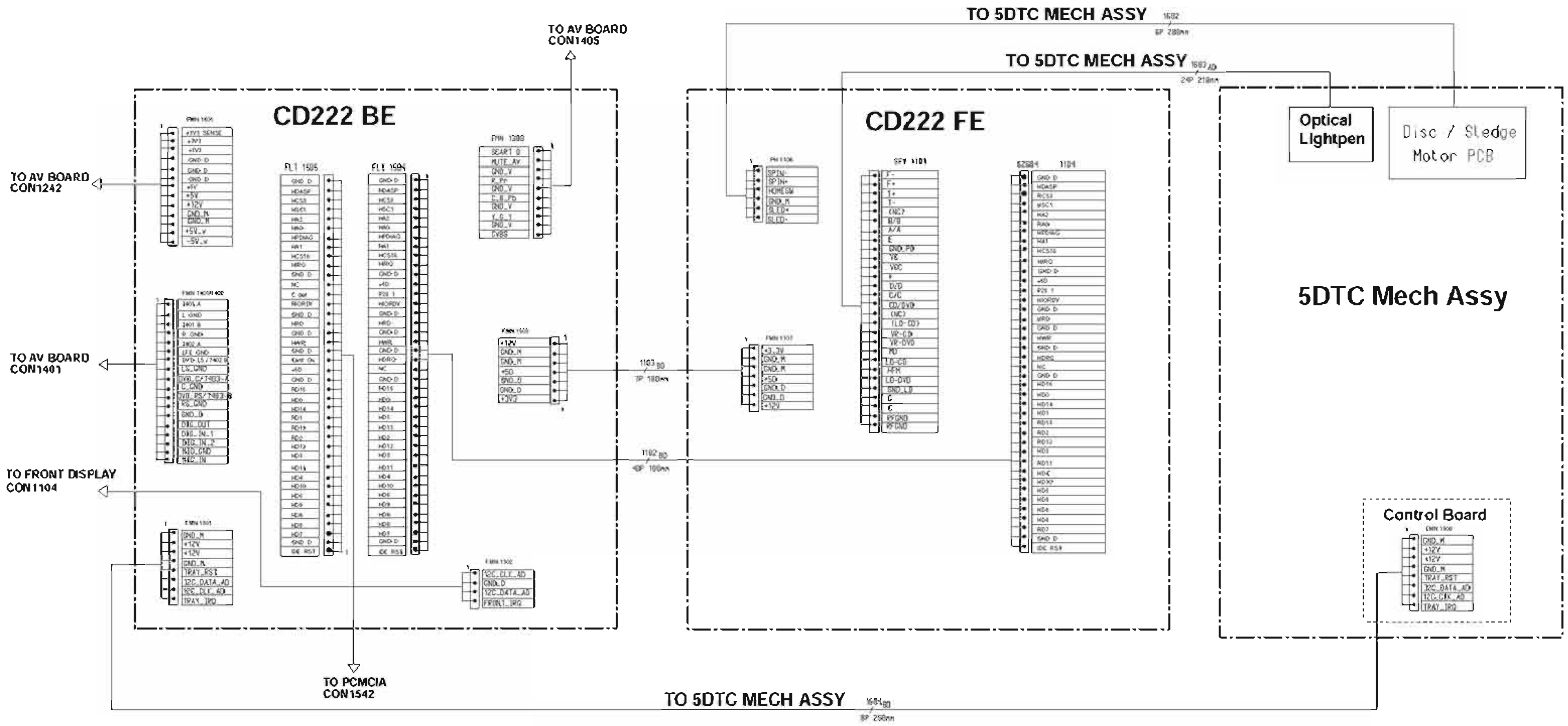
75W 6-CHANNEL : 1 X CLASS-D AMPLIFIER + SPK I

75W 7-CHANNEL : 1 X CLASS-D AMPLIFIER + SPK I + SPK II

100W : 2 X CLASS-D AMPLIFIER + SPK I + SPK II

5-3

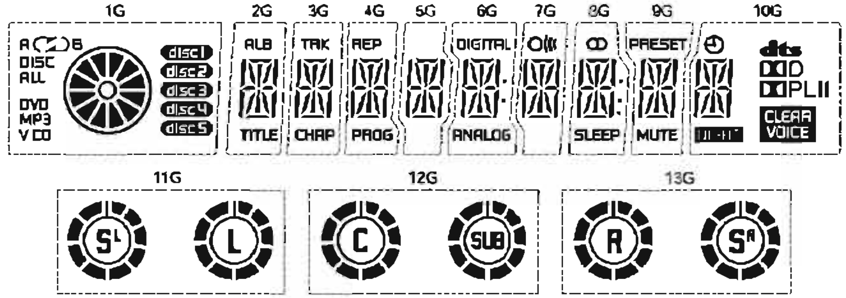
WIRING DIAGRAM - DVD MODULE DETAILS

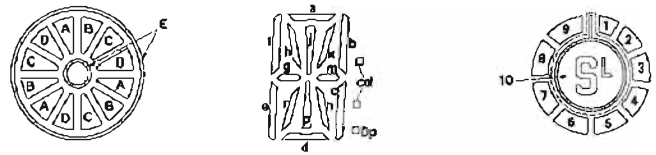


FRONT BOARDS

TABLE OF CONTENTS

FTD DISPLAY PIN CONNECTIONS





(1G) (2G - 10G) (11G - 13G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	
P1	A	a	a	a	a	a	a	a	a	a	SL1	C1	SR1	
P2		h	h	h	h	h	h	h	h	h	SL2	C2	SR2	
P3		j.p	j.p	j.p	j.p	j.p	j.p	j.p	j.p	j.p	SL3	C3	SR3	
P4	B	k	k	k	k	k	k	k	k	k	SL4	C4	SR4	
P5	DISC	b	b	b	b	b	b	b	b	b	SL5	C5	SR5	
P6	ALL	f	f	f	f	f	f	f	f	f	SL6	C6	SR6	
P7	DVD	m	m	m	m	m	m	m	m	m	SL7	C7	SR7	
P8	MP3	g	g	g	g	g	g	g	g	g	SL8	C8	SR8	
P9	V	c	c	c	c	c	c	c	c	c	SL9	C9	SR9	
P10	CD	e	e	e	e	e	e	e	e	e	SL10	C10	SR10	
P11	A	r	r	r	r	r	r	r	r	r	L1	SUB1	R1	
P12	B	n	n	n	n	n	n	n	n	n	L2	SUB2	R2	
P13	C	d	d	d	d	d	d	d	d	d	L3	SUB3	R3	
P14	D	ALB	TRK	REP	-	col	O(((	col	PRESET		L4	SUB4	R4	
P15	E	TITLE	CHAP	PROG	-	DIGITAL	-	Dp	MUTE		L5	SUB5	R5	
P16	disc1	-	-	-	-	ANALOG	-	CD	-	dts	L6	SUB6	R6	
P17	disc2	-	-	-	-	-	-	SLEEP	-	DD	L7	SUB7	R7	
P18	disc3	-	-	-	-	-	-	-	-	DPL	L8	SUB8	R8	
P19	disc4	-	-	-	-	-	-	-	-	II	L9	SUB9	R9	
P20	disc5	-	-	-	-	-	-	-	-	CLEAR VOICE	L10	SUB10	R10	

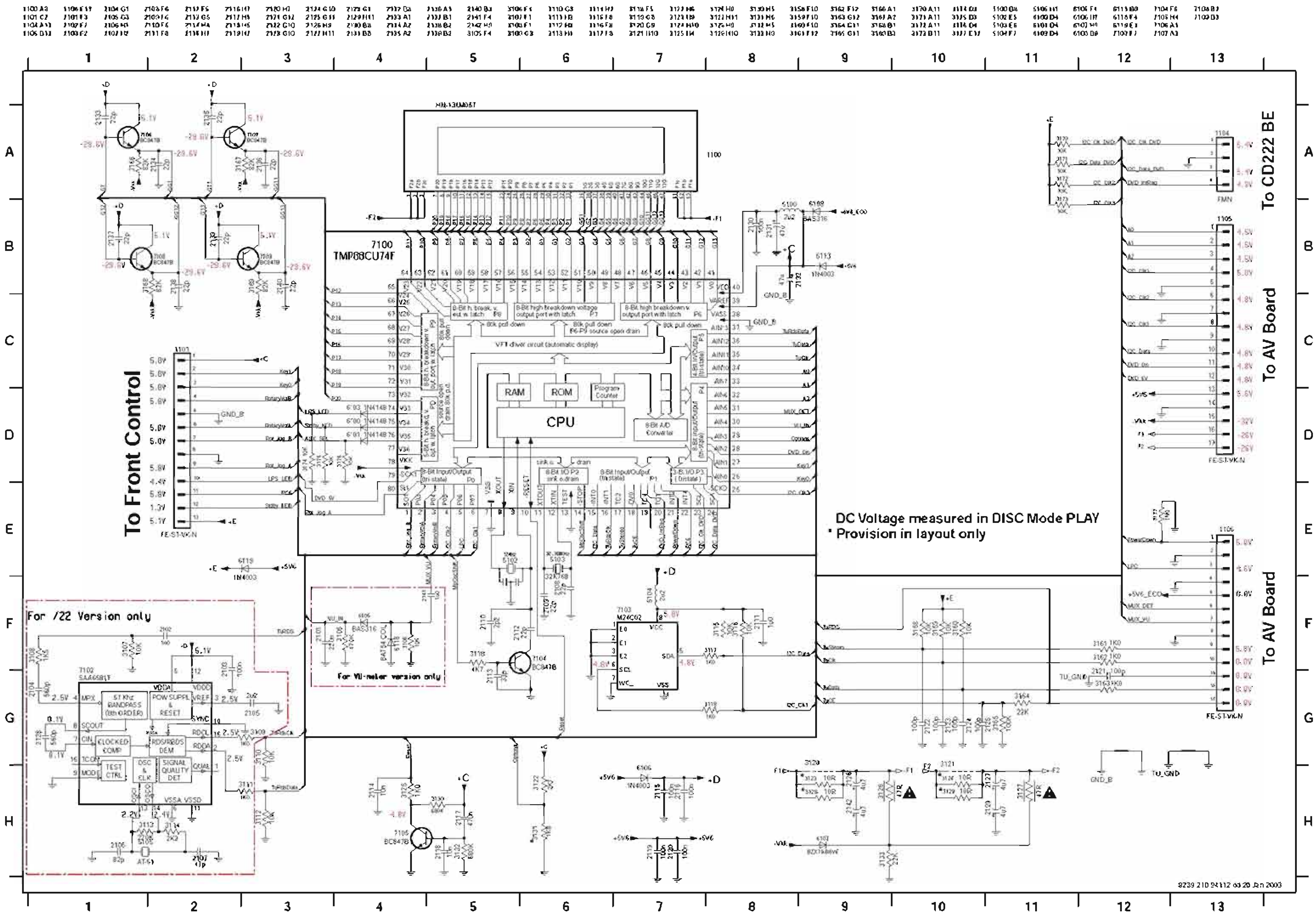
FTD DISPLAY PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
FUNCTION	F2	F2	F2	NP	NP	NX	P20	P19	P18	P17	P16	P15	P14	P13	P12	NX	NX	NX	NX	NX	NX	NX	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NX	1G	2G	3G	4G

FTD DISPLAY PIN NO.	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
FUNCTION	5G	6G	7G	8G	9G	10G	11G	12G	13G	NX	NP	NP	F1	F1	F1

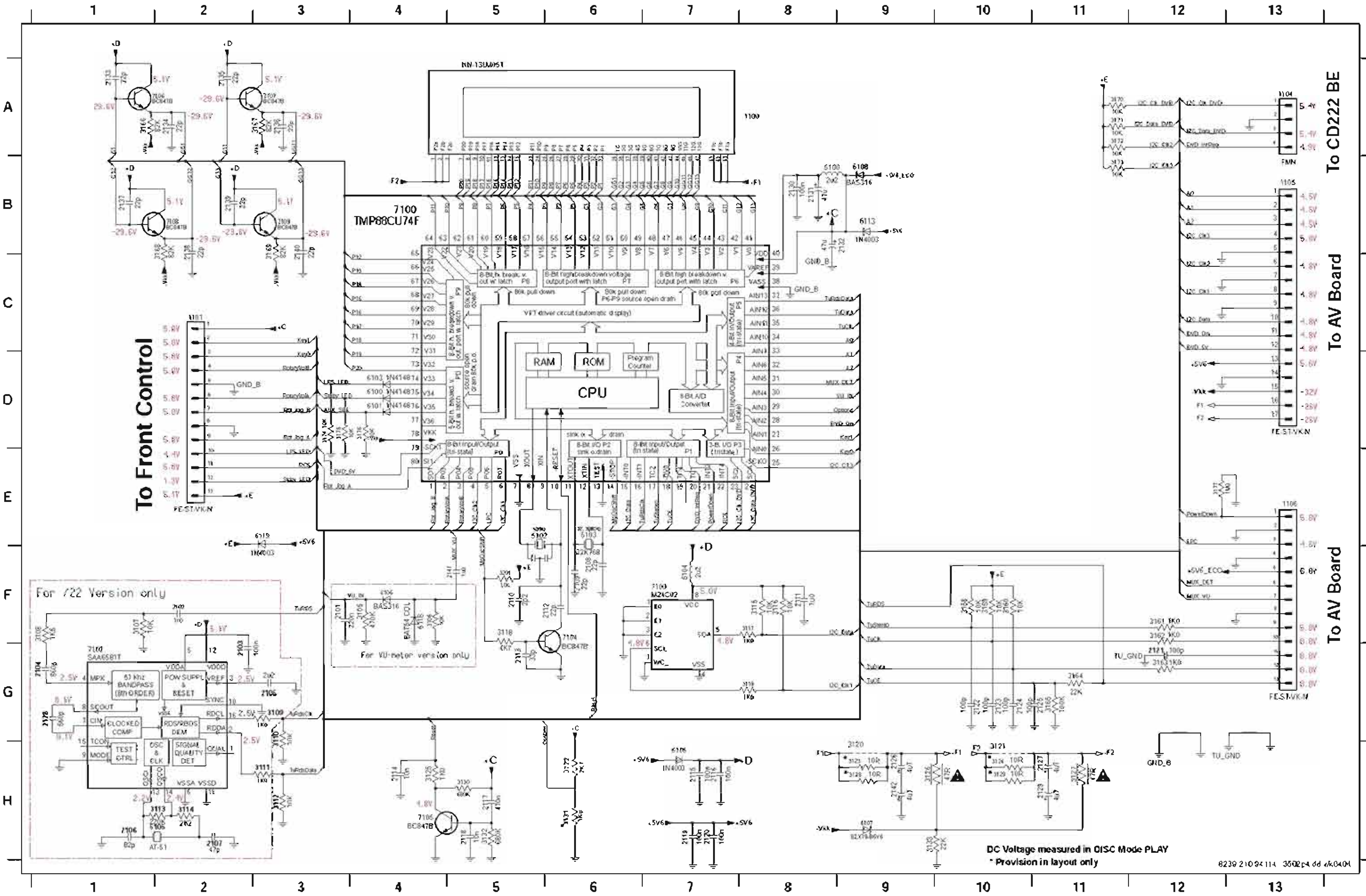
Note: Fn : Filament pin
nG Grid pin
Pn Anode pin
NP No Pin
NX No extended pin

6-2

FRONT DISPLAY PART - CIRCUIT DIAGRAM

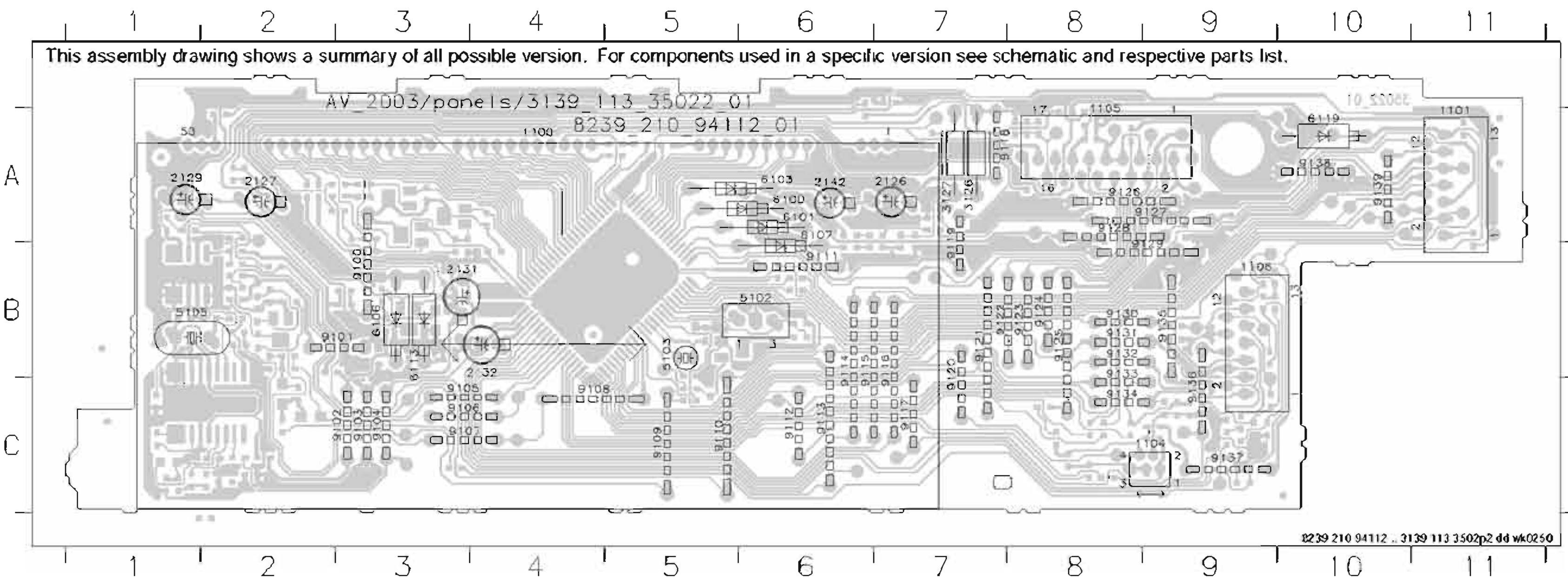


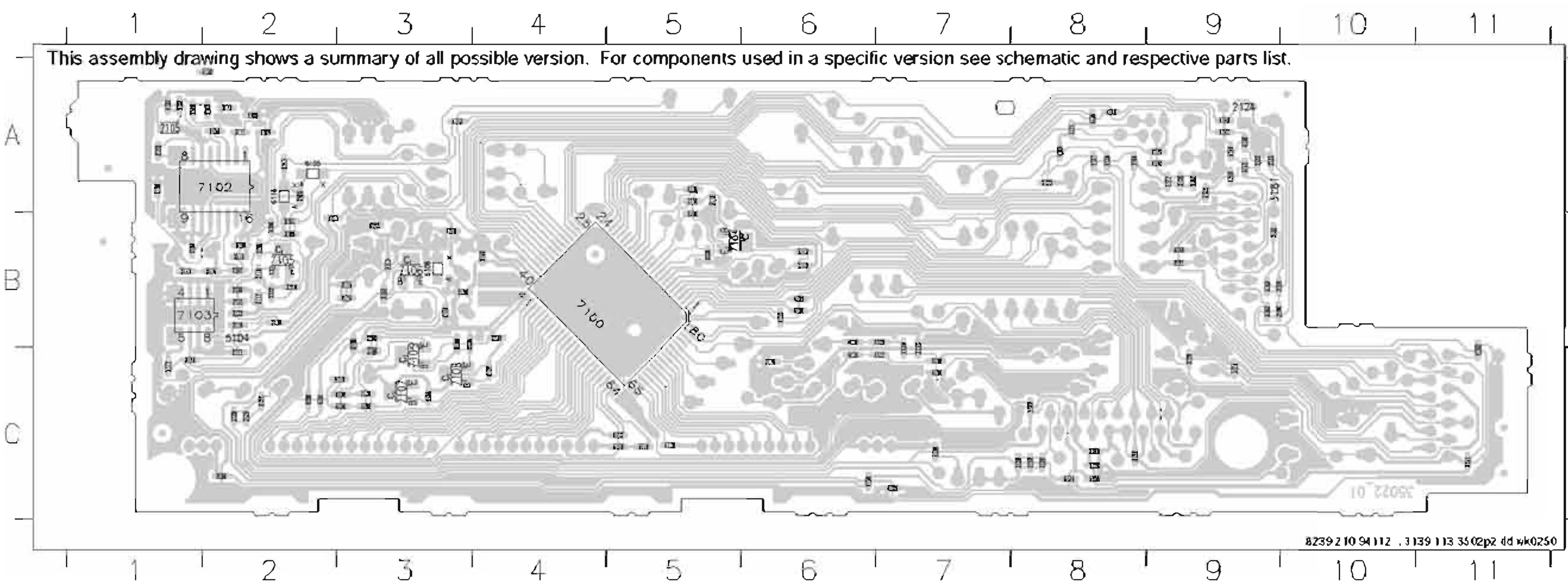
FRONT DISPLAY PART - CIRCUIT DIAGRAM (For pt 4 board)



6 3

FRONT DISPLAY PART - COMPONENT & CHIPS LAYOUT

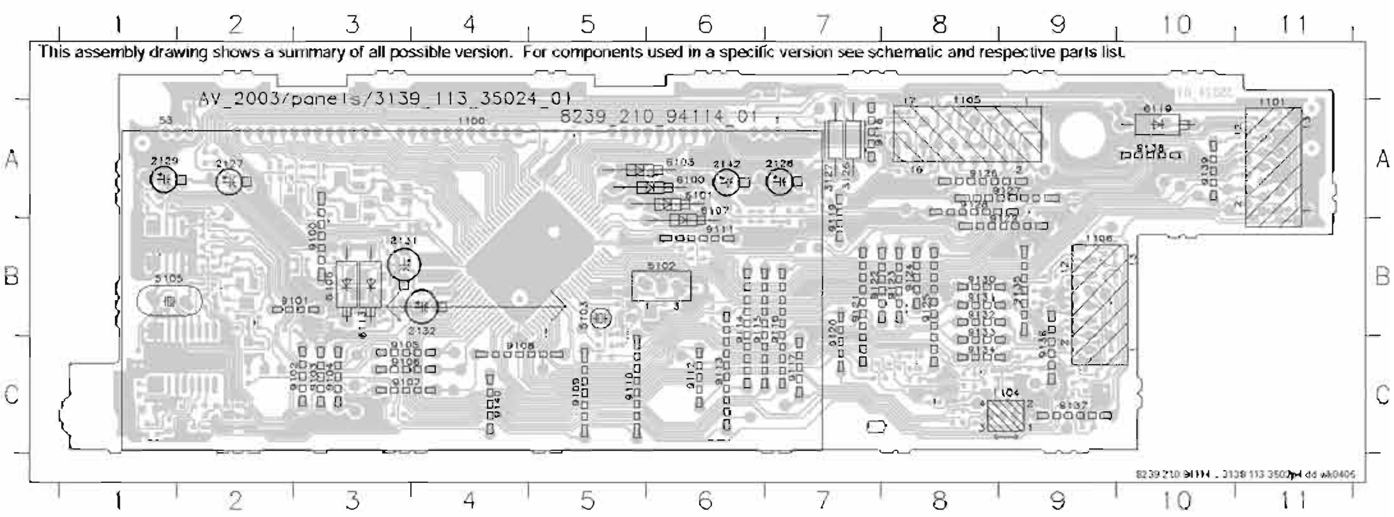




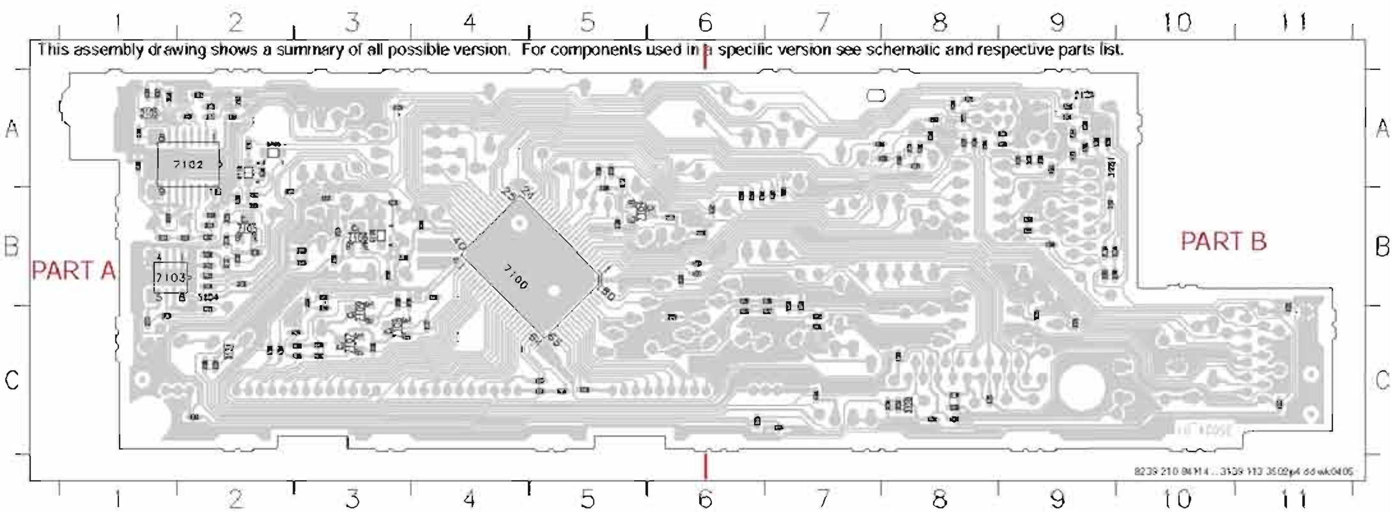
6-3a

FRONT DISPLAY PART - COMPONENT & CHIPS LAYOUT (pt 4 board)

1100	A4	2126	A7	2142	A6	5105	B1	6107	A6	9102	C3	9107	C3	9112	C6	9117	C7	9122	B7	9127	A9	9132	B8	9137	C9
1101	A11	2127	A2	3126	A7	6100	A6	6113	B3	9103	C3	9108	C4	9113	C6	9118	A7	9123	B8	9128	A8	9133	B8	9138	A10
1104	C9	2129	A1	3127	A7	6101	A6	6119	A10	9104	C3	9109	C5	9114	C6	9119	B7	9124	B8	9129	B9	9134	C8	9139	A10
1105	A8	2131	B3	5102	B6	6103	A6	9100	B3	9105	C3	9110	C5	9115	B6	9120	B7	9125	B8	9130	B8	9135	B9	9140	C4
1106	B9	2132	B3	5103	B5	6106	B3	9101	B3	9106	C3	9111	B6	9116	B7	9121	B7	9126	A8	9131	B8	9136	C9		



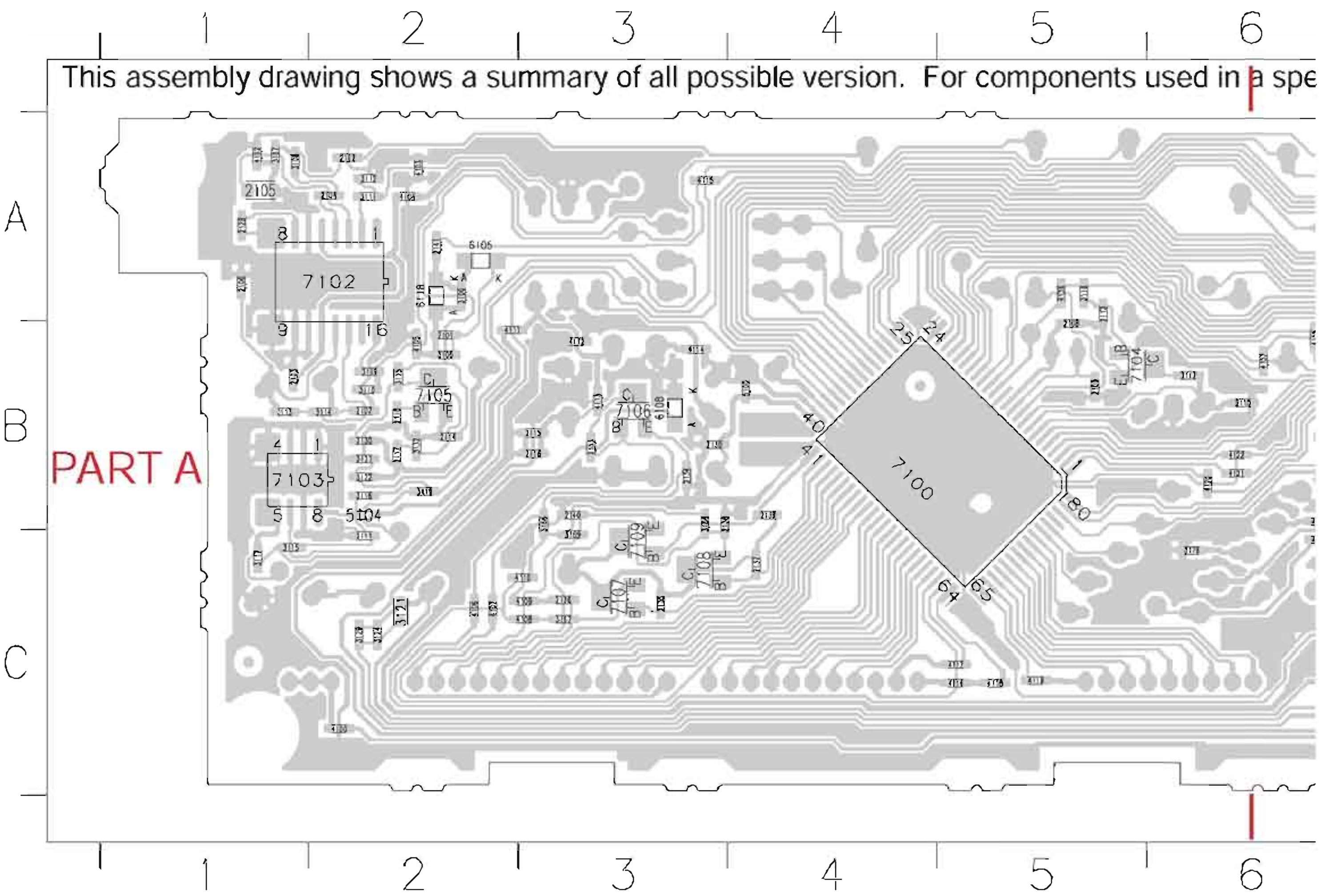
2101	B2	2112	B6	2123	A9	2139	B4	3113	B1	3124	C2	3161	A9	3172	C8	4105	B2	4116	C5	4127	C7	4138	A8	4149	B9	4160	B6	7102	A2
2102	A2	2113	A5	2124	A9	2140	B3	3114	B2	3125	B2	3162	B9	3173	A8	4106	C2	4117	C5	4128	B7	4139	A9	4150	B9	4162	B7	7103	B1
2103	B1	2114	B2	2125	A9	2141	A2	3115	C1	3128	C8	3163	B9	3174	C9	4107	C2	4118	C5	4129	C7	4140	A9	4151	C11	4163	A8	7104	B2
2104	A2	2115	B3	2128	A1	3105	B2	3116	B2	3129	C2	3164	A8	3175	C9	4108	C3	4119	C5	4130	C7	4141	A9	4152	C11	4164	A8	7105	B2
2105	A1	2116	B3	2130	B3	3106	A2	3117	C1	3130	B2	3165	B9	3176	C6	4109	C3	4120	B6	4131	C7	4142	A9	4153	A8	4165	A8	7106	B3
2106	A1	2117	B2	2133	B3	3107	A1	3118	A5	3131	B2	3166	B3	3177	B9	4110	C3	4121	B5	4132	C7	4143	A9	4154	A7	5100	B4	7107	C3
2107	B2	2118	B2	2134	B3	3108	A1	3119	B3	3132	B2	3167	B3	3201	B7	4111	B2	4122	B5	4133	C8	4144	A9	4155	A8	5104	B2	7108	C3
2108	B5	2119	C8	2135	C3	3109	B2	3120	C3	3133	C7	3168	B3	4100	C2	4112	B3	4123	C6	4134	C8	4145	A9	4156	A8	6105	A2	7109	C3
2109	B5	2120	C8	2136	C3	3110	B2	3121	C3	3158	B9	3169	C5	4102	A1	4113	B3	4124	C7	4135	C8	4146	A9	4157	B6	6108	B3		
2110	B6	2121	B9	2137	C4	3111	A2	3122	B3	3159	B9	3170	A9	4103	A2	4114	B3	4125	C6	4136	A5	4147	A9	4158	B6	6118	A2		
2111	C2	2122	A9	2138	B3	3112	A2	3123	C8	3160	B9	3171	A8	4104	A2	4115	A3	4126	B6	4137	A8	4148	A9	4159	B6	7100	B4		



6-3b

FRONT DISPLAY PART - CHIPS LAYOUT (pt 4 board) PART A

2101	B2	2112	B6	2123	A9	2139	B4	3113	B1	3124	C2	3161	A9	3172	C8
2102	A2	2113	A5	2124	A9	2140	B3	3114	B2	3125	B2	3162	B9	3173	A8
2103	B1	2114	B2	2125	A9	2141	A2	3115	C1	3128	C8	3163	B9	3174	C9
2104	A2	2115	B3	2128	A1	3105	B2	3116	B2	3129	C2	3164	A8	3175	C9
2105	A1	2116	B3	2130	B3	3106	A2	3117	C1	3130	B2	3165	A9	3176	C6
2106	A1	2117	B2	2133	B3	3107	A1	3118	A5	3131	B2	3166	B3	3177	A9
2107	B2	2118	B2	2134	B3	3108	A1	3119	B2	3132	B2	3167	C3	3201	B7
2108	B5	2119	C8	2135	C3	3109	B2	3120	C8	3133	C7	3168	B3	4100	C2
2109	B5	2120	C8	2136	C3	3110	B2	3121	C2	3158	B9	3169	C3	4102	A1
2110	B6	2121	B9	2137	C4	3111	A2	3122	B2	3159	B9	3170	A9	4103	A2
2111	C2	2122	A9	2138	B3	3112	A2	3123	C8	3160	B9	3171	A8	4104	A2



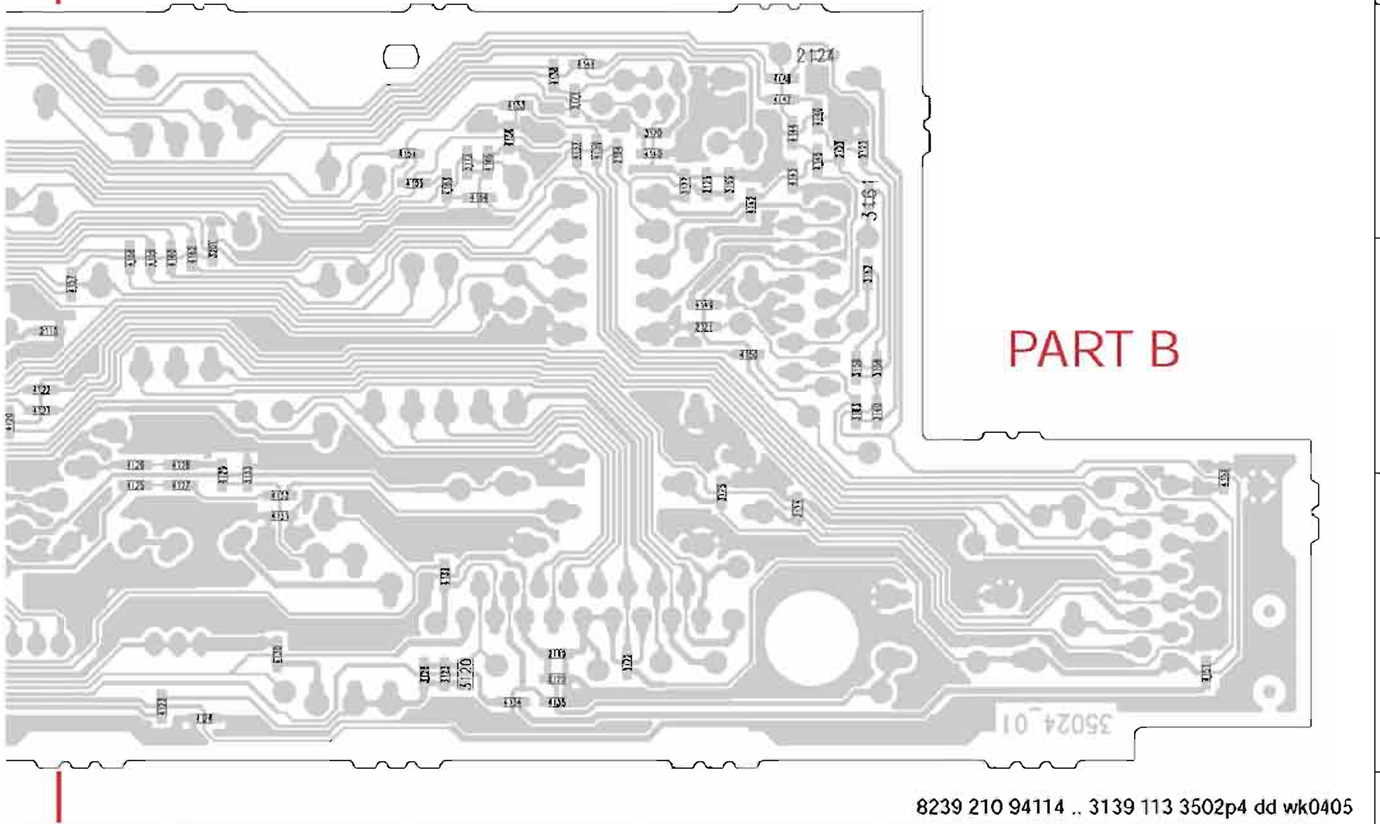
6-3c

FRONT DISPLAY PART - CHIPS LAYOUT (pt 4 board) PART B

72	C8	4105	B2	4116	C5	4127	C7	4138	A8	4149	B9	4160	B6	7102	A2
73	A8	4106	C2	4117	C5	4128	B7	4139	A8	4150	B9	4162	B7	7103	B1
74	C9	4107	C2	4118	C5	4129	C7	4140	A9	4151	C11	4163	A8	7104	B5
75	C9	4108	C3	4119	C5	4130	C7	4141	A8	4152	C11	4164	A8	7105	B2
76	C6	4109	C3	4120	B6	4131	C7	4142	A9	4153	A8	4165	A8	7106	B3
77	A9	4110	C3	4121	B6	4132	C7	4143	A9	4154	A7	5100	B4	7107	C3
01	B7	4111	B2	4122	B6	4133	C8	4144	A9	4155	A8	5104	B2	7108	C3
00	C2	4112	B3	4123	C6	4134	C8	4145	A9	4156	A8	6105	A2	7109	C3
02	A1	4113	B3	4124	C7	4135	C8	4146	A9	4157	B6	6108	B3		
03	A2	4114	B3	4125	C6	4136	A5	4147	A9	4158	B6	6118	A2		
04	A2	4115	A3	4126	B6	4137	A8	4148	A9	4159	B6	7100	B4		

6 7 8 9 10 11

l in a specific version see schematic and respective parts list.

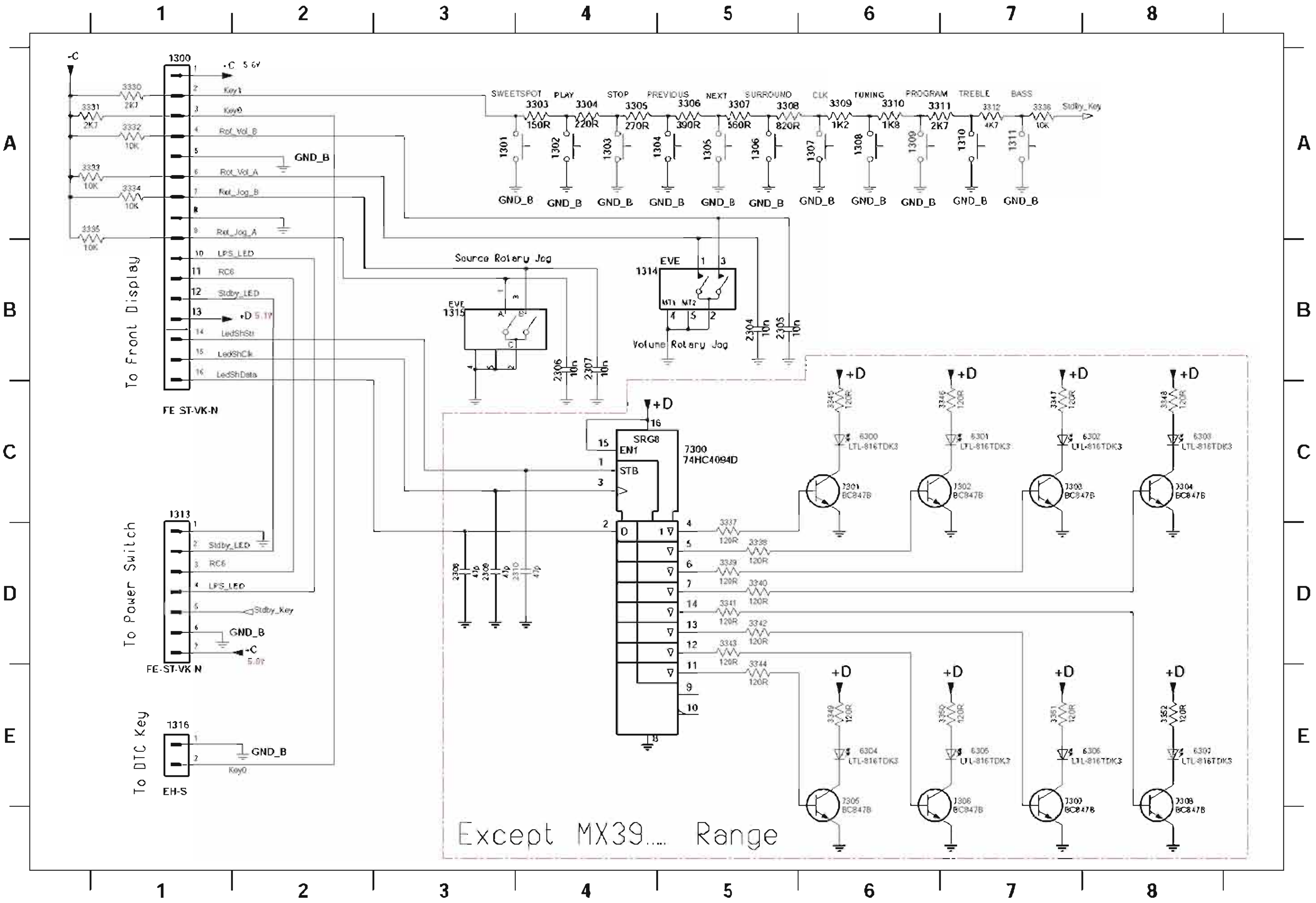


8239 210 94114 .. 3139 113 3502p4 dd wk0405

6 7 8 9 10 11

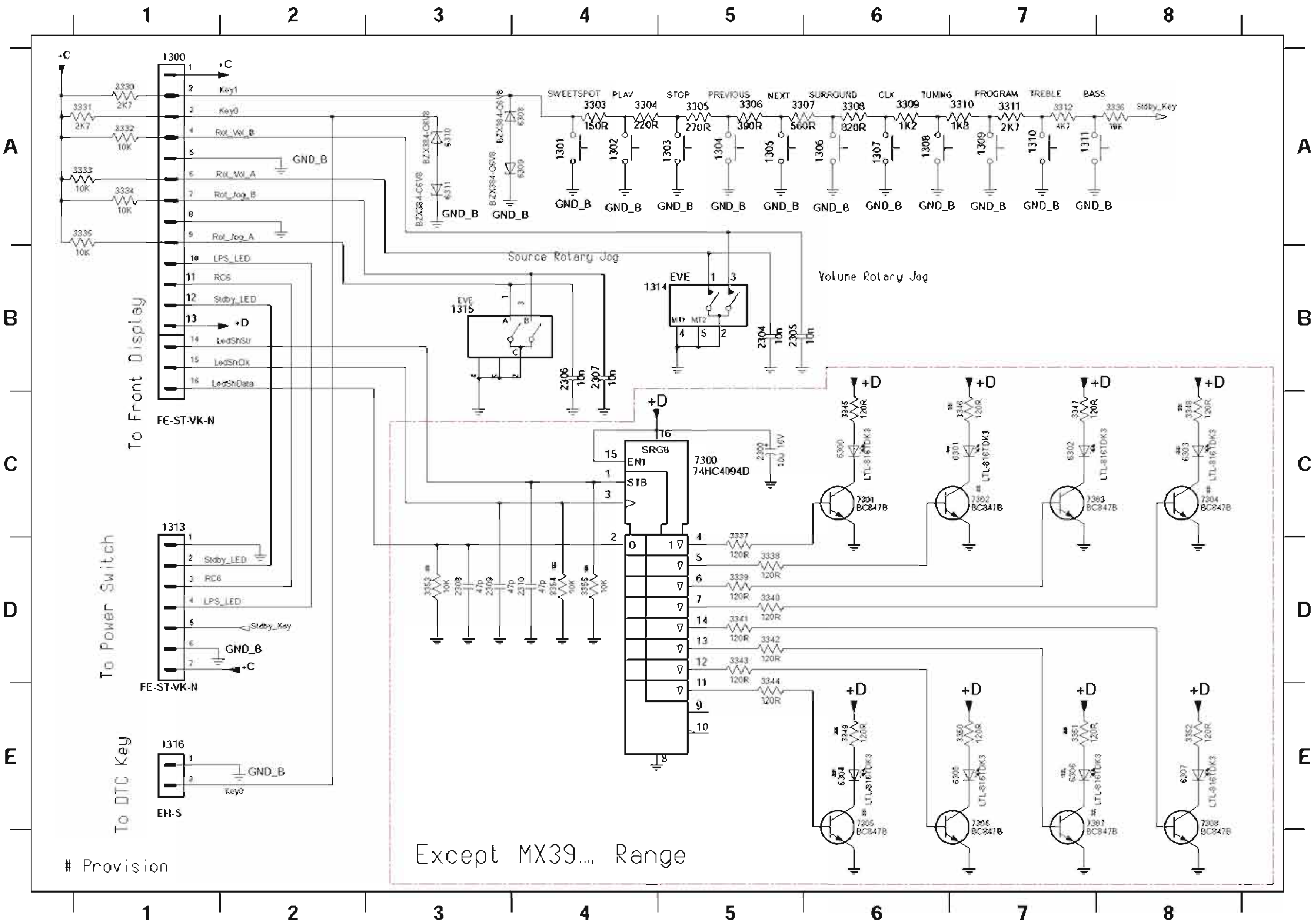
FRONT CONTROL PART - CIRCUIT DIAGRAM

1300 A1	1304 A4	1308 A6	1313 C1	2304 B5	2308 D3	3304 A4	3308 A5	3312 A7	3333 A1	3337 D5	3341 D6	3345 C6	3349 E6	6300 C6	6304 E6	7300 C6	7304 C8	7308 E8
1301 A3	1305 A5	1309 A6	1314 B4	2305 B5	2309 D3	3305 A4	3309 A6	3330 A1	3334 A1	3338 D5	3342 D5	3346 C7	3350 E7	6301 C7	6305 E7	7301 C6	7305 E6	
1302 A4	1306 A5	1310 A7	1315 B3	2306 B4	2310 D4	3306 A5	3310 A6	3331 A1	3335 A1	3339 D5	3343 D5	3347 C7	3351 E7	6302 C8	6306 E8	7302 C7	7306 E7	
1303 A4	1307 A6	1311 A7	1316 E1	2307 B4	3303 A4	3307 A5	3311 A6	3332 A1	3336 A7	3340 D5	3344 E5	3348 C8	3352 E8	6303 C8	6307 E8	7303 C7	7307 E7	



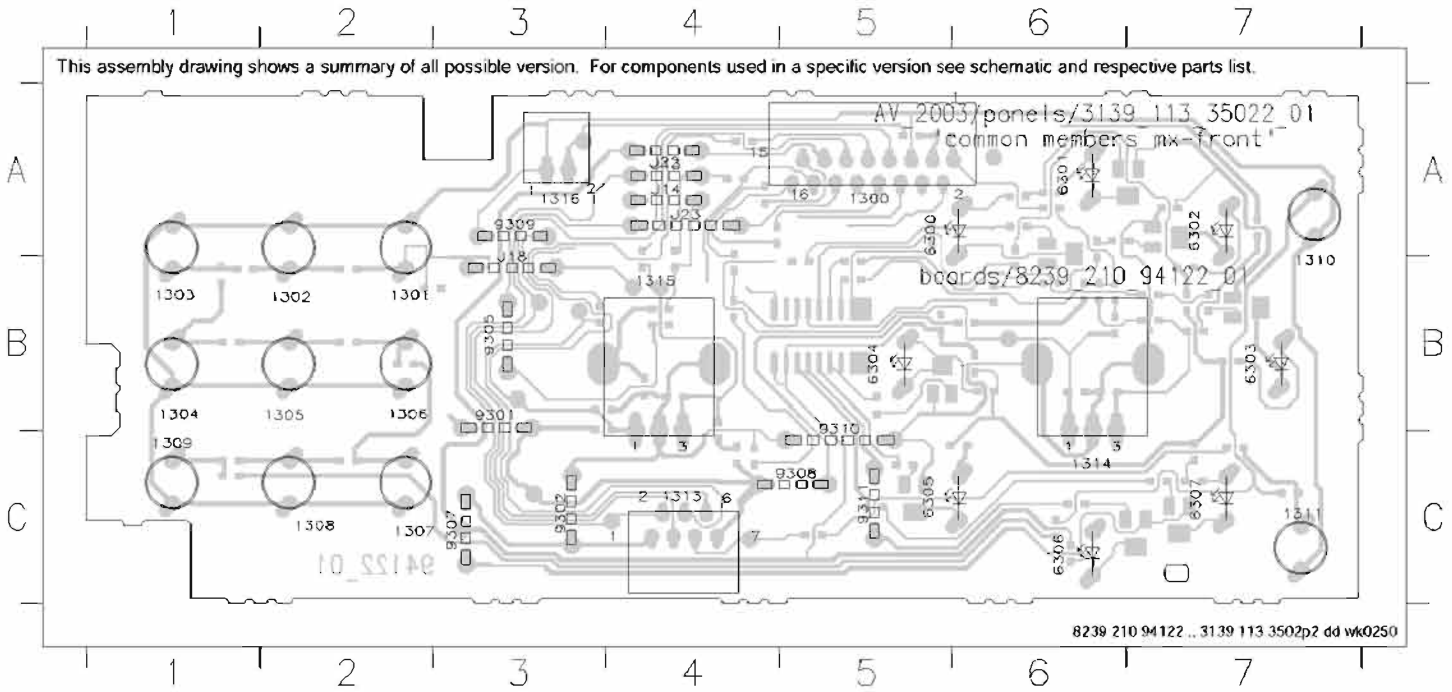
FRONT CONTROL PART - CIRCUIT DIAGRAM (For pt 4 board)

1300 A1	1304 A5	1308 A6	1313 C1	2300 C5	2307 B4	3303 A4	3307 A5	3311 A7	3332 A1	3336 A8	3340 D5	3344 E5	3348 C8	3352 E8	6300 C6	6304 E6	6308 A4	7300 C5	7304 C8	7308 E8
1301 A4	1305 A5	1309 A7	1314 B4	2304 B5	2308 D3	3304 A4	3308 A6	3312 A7	3333 A1	3337 D5	3341 D5	3345 C6	3349 E6	3353 D3	6301 C7	6305 E7	6309 A4	7301 C6	7305 E6	
1302 A4	1306 A6	1310 A7	1315 B3	2305 B5	2309 D3	3305 A5	3309 A6	3330 A1	3334 A1	3338 D5	3342 D5	3346 C7	3350 E7	3354 D4	6302 C7	6306 E7	6310 A3	7302 C7	7306 E7	
1303 A5	1307 A6	1311 A7	1316 E1	2306 B4	2310 D4	3306 A5	3310 A7	3331 A1	3335 A1	3339 D5	3343 D5	3347 C7	3351 E7	3355 D4	6303 C8	6307 E8	6311 A3	7303 C7	7307 E7	

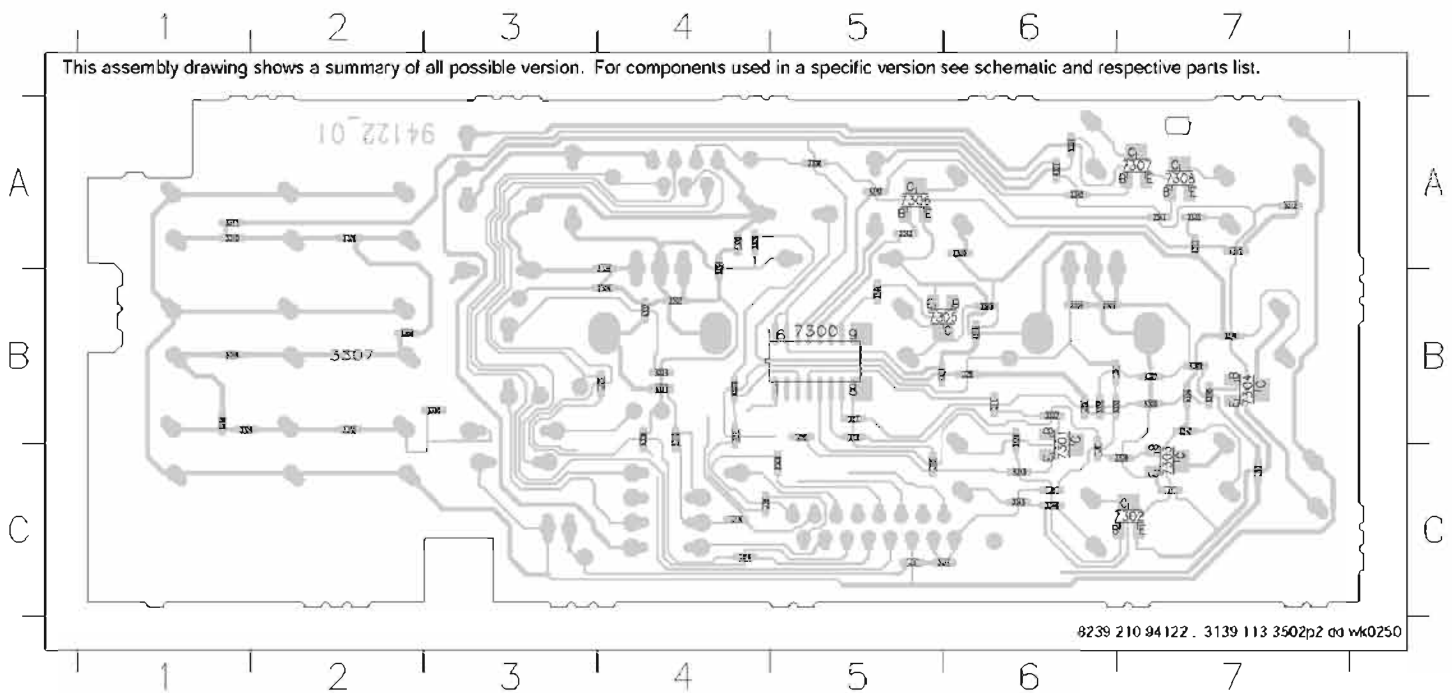


6-5

FRONT CONTROL PART - COMPONENT & CHIPS LAYOUT



J13	A4
J14	A4
J18	B3
J22	A4
J23	A4
1300	A5
1301	B2
1302	B2
1303	B1
1304	B1
1305	B2
1306	B2
1307	C2
1308	C2
1309	C1
1310	B7
1311	C7
1313	C4
1314	C6
1315	B4
1316	A3
6300	A5
6301	A6
6302	A7
6303	B7
6304	B5
6305	C5
6306	C6
6307	C7
9301	B3
9302	C3
9305	B3
9307	C3
9308	C5
9309	A3
9310	B5
9311	C5

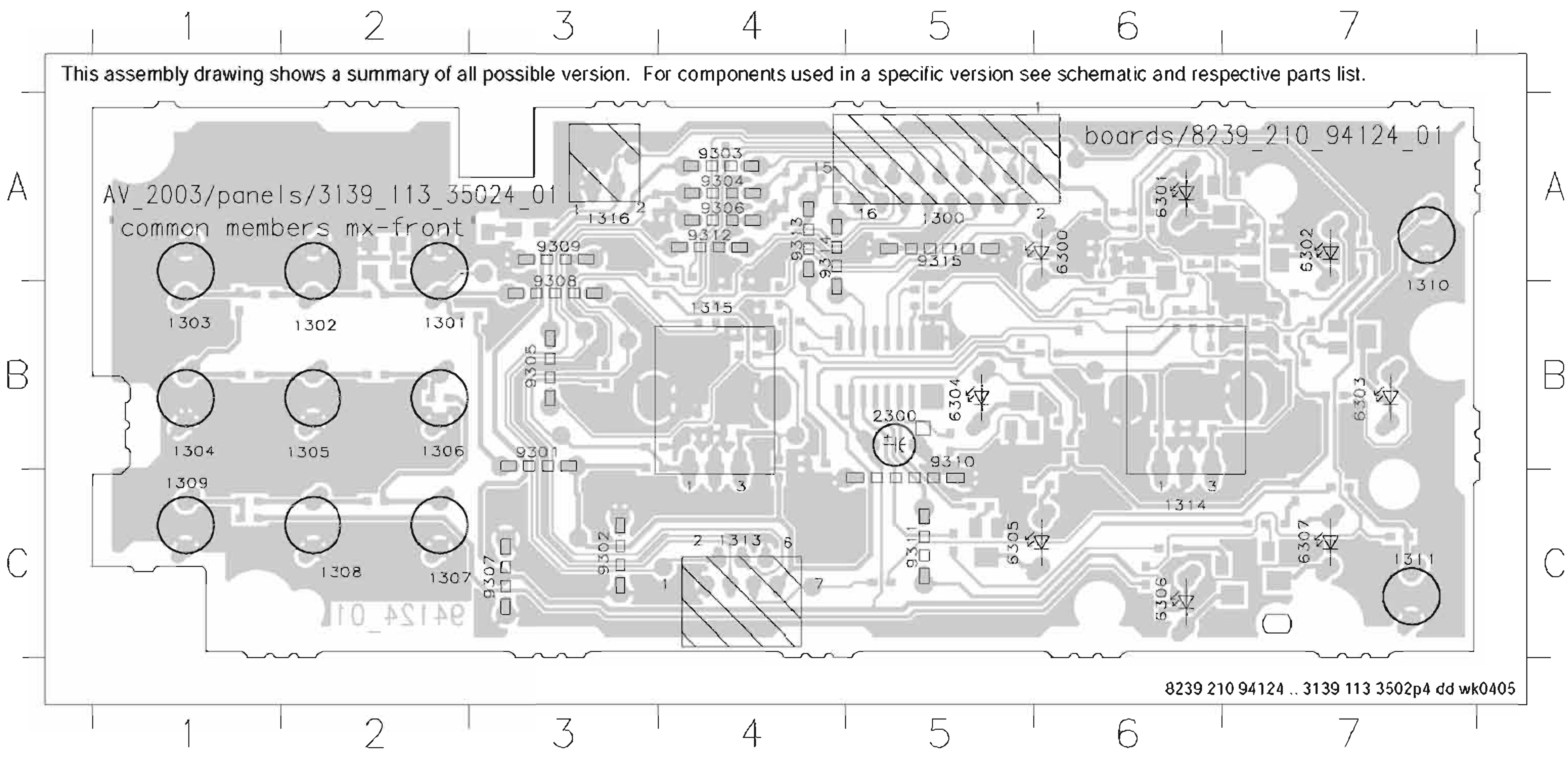


J3	C5
J5	C6
J6	C7
J8	C6
J9	B5
J10	C5
J11	B5
J12	B5
J16	C4
J17	B4
J20	B5
J24	C4
J25	C4
J26	C4
J27	B5
J28	B6
J29	B6
J30	C7
2304	B6
2305	B6
2306	B4
2307	B4
2308	C5
2309	A4
2310	B4
3303	B2
3304	B1
3305	B1
3306	B1
3307	B2
3308	B2
3309	A2
3310	A1
3311	A1
3312	A7
[illegible]	[illegible]
3334	A4
3335	B4
3336	A5
3337	B6
3338	B6
3339	C7
3340	B7
3341	A7
3342	A5
3343	A5
3344	B5
3345	C6
3346	C6
3347	B7
3348	B7
3349	B6
3350	A6
3351	A6
3352	A7

4301	A6
4304	B7
4306	B7
4307	B7
4309	B7
4311	A7
4312	A7
4317	B5
4318	B5
[illegible]	B4
[illegible]	B4
[illegible]	B4
[illegible]	B4
[illegible]	A4
[illegible]	B4
[illegible]	A5
[illegible]	C6
7300	B5
7301	C6
7302	C7
7303	C7
7304	B7
7305	B5
7306	A5
7307	A7
7308	A7

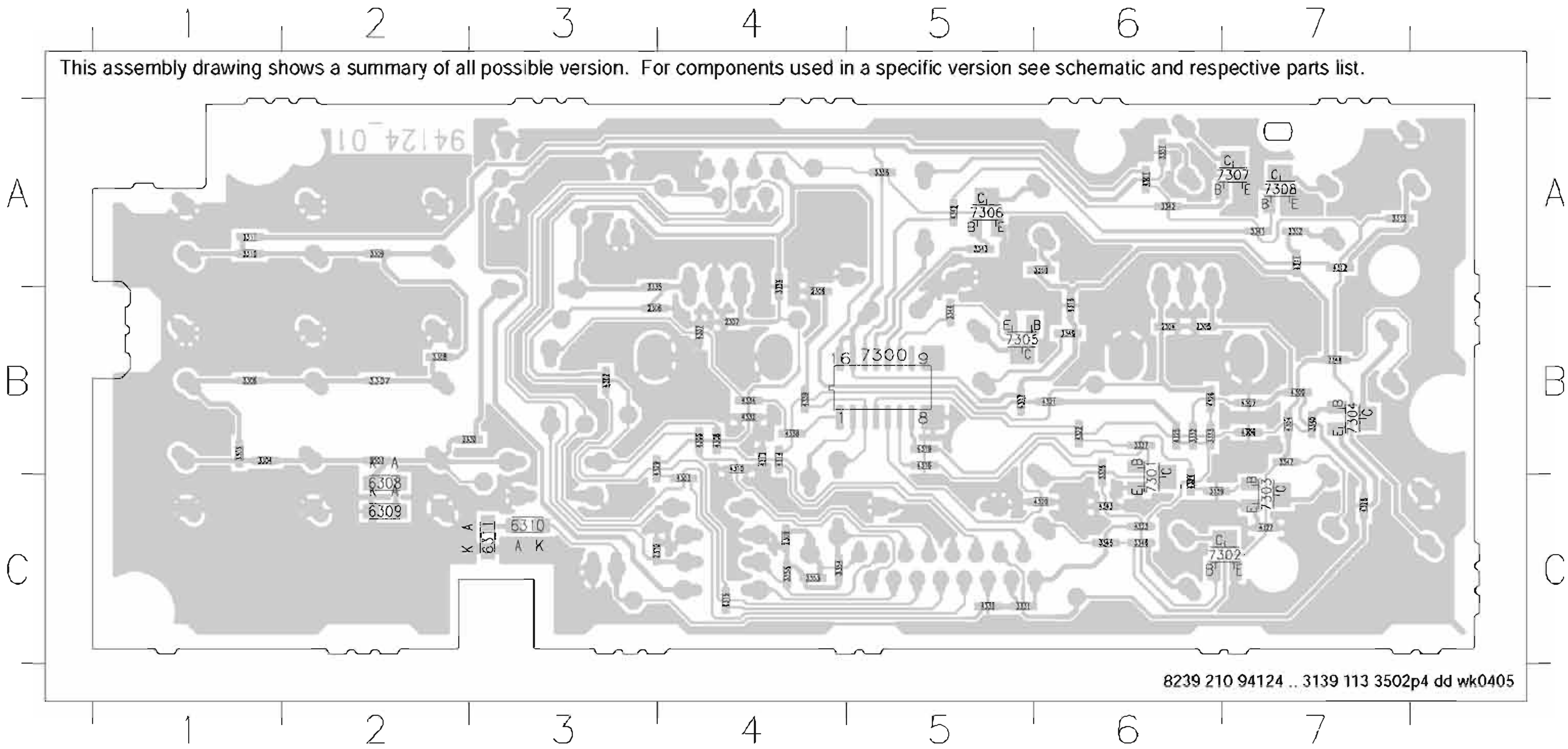
FRONT CONTROL PART - COMPONENT LAYOUT (For pt 4 board)

1300 A5	1304 B1	1308 C2	1313 C4	2300 B5	6303 B7	6307 C7	9304 A4	9308 B3	9312 A4
1301 B2	1305 B2	1309 C1	1314 C6	6300 A6	6304 B5	9301 B3	9305 B3	9309 A3	9313 A4
1302 B2	1306 B2	1310 B7	1315 B4	6301 A6	6305 C5	9302 C3	9306 A4	9310 B5	9314 A4
1303 B1	1307 C2	1311 C7	1316 A3	6302 A7	6306 C6	9303 A4	9307 C3	9311 C5	9315 A5



FRONT CONTROL PART - CHIPS LAYOUT (For pt 4 board)

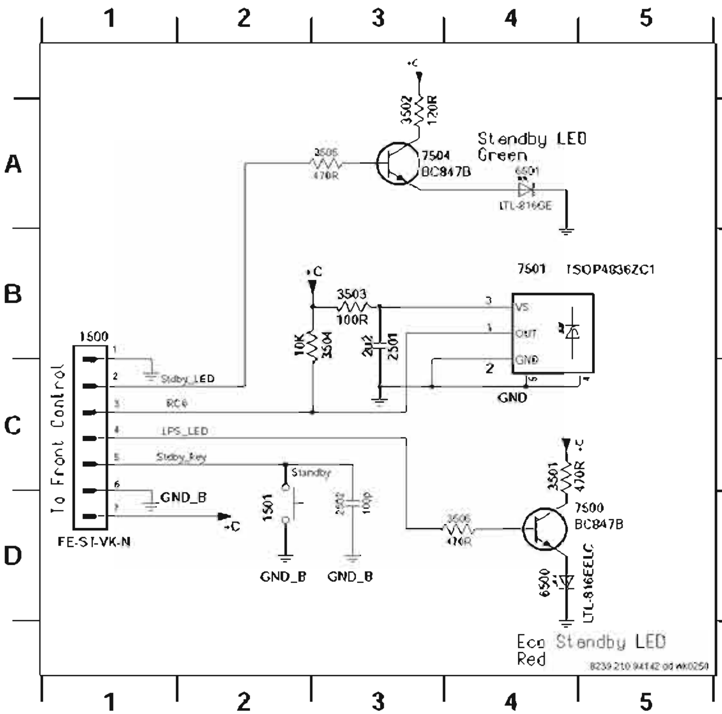
2304 B6	3305 B1	3331 C5	3340 B7	3349 B6	4303 C4	4312 A7	4321 B6	4330 C5	6309 C2	7306 A5
2305 B6	3306 B1	3332 B6	3341 A7	3350 A6	4304 B7	4313 B4	4322 B6	4332 B4	6310 C3	7307 A7
2306 B3	3307 B2	3333 B6	3342 A6	3351 A6	4305 B4	4314 B4	4323 C6	4334 B4	6311 C3	7308 A7
2307 B4	3308 B2	3334 A4	3343 A5	3352 A7	4306 B7	4315 C4	4324 C6	4337 B4	7300 B5	
2308 C4	3309 A2	3335 B3	3344 B5	3353 C4	4307 B7	4316 B5	4325 B6	4338 B4	7301 C6	
2309 B4	3310 A1	3336 A5	3345 C6	3354 C4	4308 B4	4317 B5	4326 B6	4339 B4	7302 C7	
2310 C3	3311 A1	3337 B6	3346 C6	3355 C4	4309 B7	4318 B6	4327 C7	4342 A5	7303 C7	
3303 B2	3312 A7	3338 B6	3347 B7	4301 A6	4310 B4	4319 B5	4328 C7	4343 C6	7304 B7	
3304 B1	3330 B3	3339 C6	3348 B7	4302 B3	4311 A7	4320 C6	4329 B3	6308 C2	7305 B5	



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

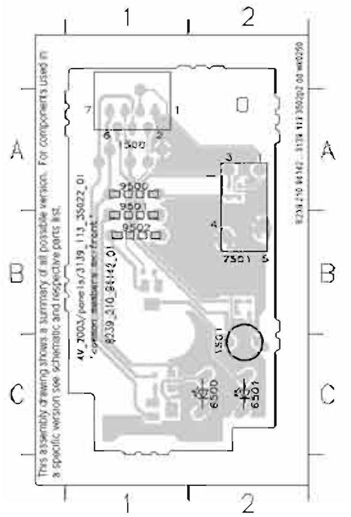
8239 210 94124 .. 3139 113 3502p4 dd wk0405

POWER SWITCH PART - CIRCUIT DIAGRAM

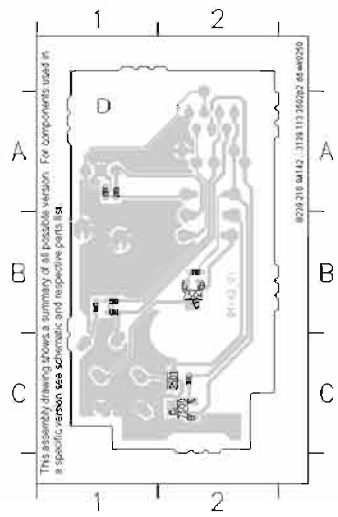


1500 B1
1501 D2
2501 B3
2502 D3
3501 C4
3502 A3
3503 B3
3504 B3
3505 A3
3506 D4
6500 D4
6501 A4
7500 D4
7501 B5
7504 A3
T500 B1
T501 C1
T502 C1
T503 C1
T504 C1
T505 D1

POWER SWITCH PART - COMPONENT & CHIP LAYOUTS

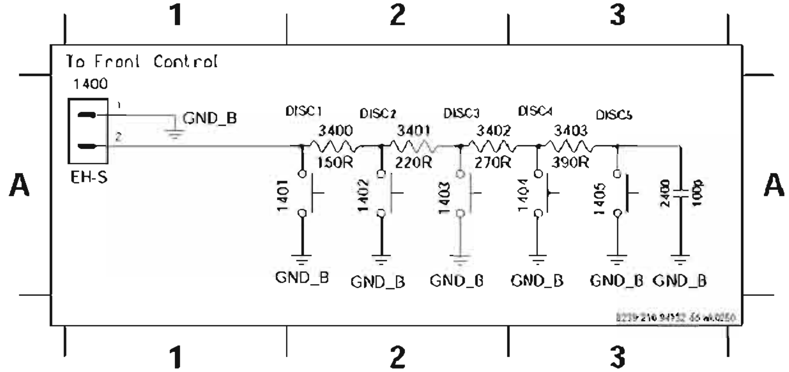


1500 A1
1501 C2
7501 B2
9500 A1
9501 A1
9502 B1

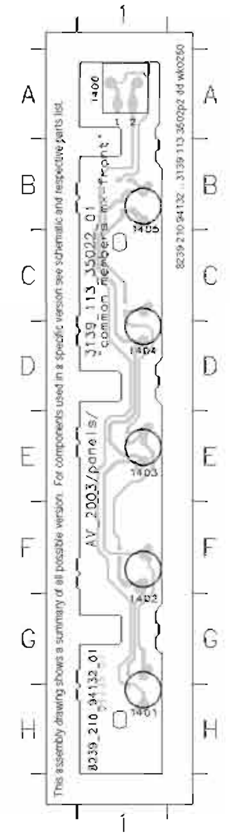


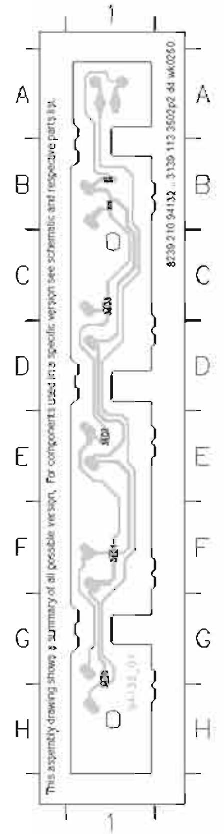
DTC KEY PART - CIRCUIT DIAGRAM

1400 A1	1402 A2	1404 A3	2400 A3	3401 A2	3403 A3
1401 A1	1403 A2	1405 A3	3400 A2	3402 A2	



DTC KEY PART - COMPONENT & CHIP LAYOUTS

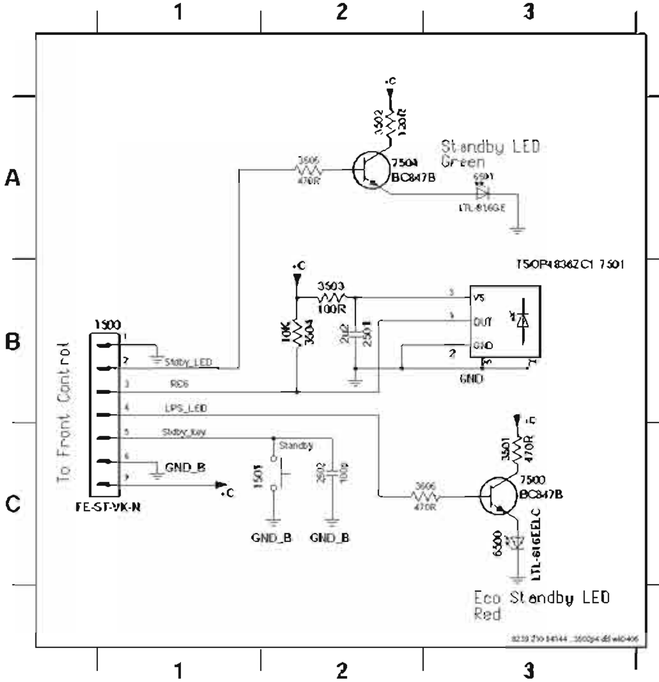




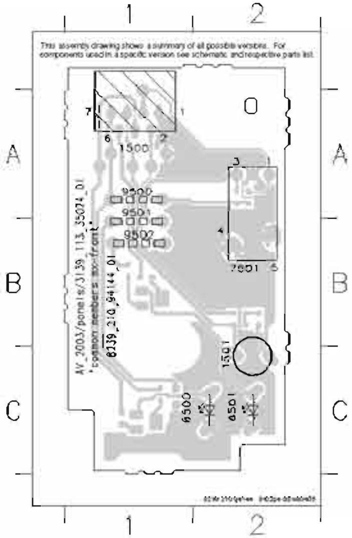
2400 B1

POWER SWITCH PART - CIRCUIT DIAGRAM (For pt 4 board)

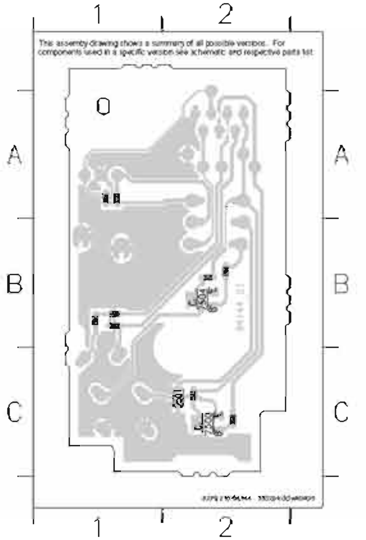
1500 B1	2501 B2	3501 C3	3503 B2	3505 A2	6500 C3	7500 C3	7504 A2
1501 C1	2502 C2	3502 A2	3504 B2	3506 C2	6501 A3	7501 B3	



POWER SWITCH PART - COMPONENT & CHIP LAYOUTS (pt 4 board)



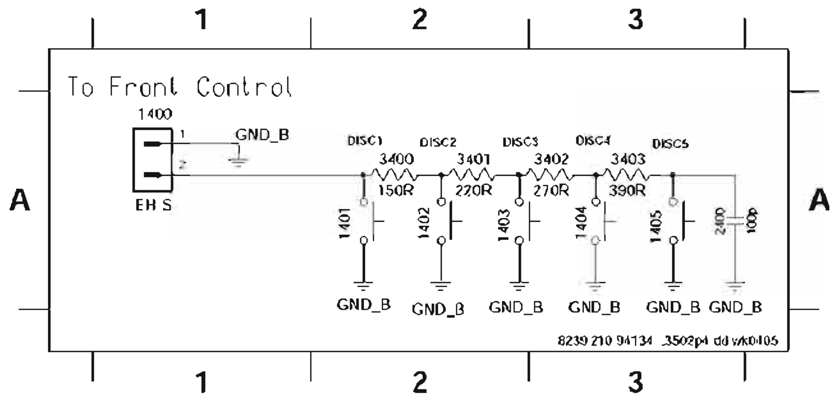
1500 A1
1501 C2
6500 C1
6501 C2
7501 B2
9500 A1
9501 A1
9502 B1



2501 C2
2502 B1
3501 B2
3502 B2
3503 A1
3504 A1
3505 B2
3506 B2
4500 B1
4501 B1
7500 C2
7504 B2

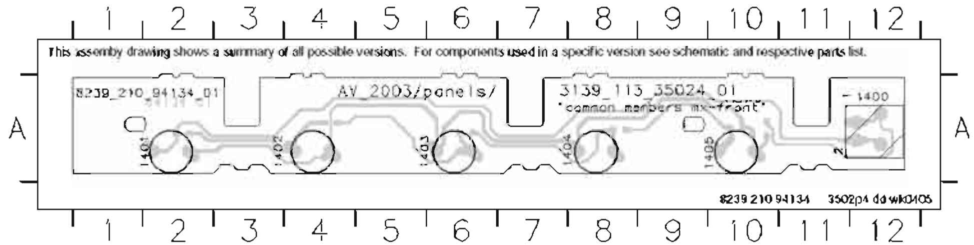
DTC KEY PART - CIRCUIT DIAGRAM (For pt 4 board)

1400 A1	1402 A2	1404 A3	2400 A3	3401 A2	3403 A3
1401 A2	1403 A2	1405 A3	3400 A2	3402 A3	

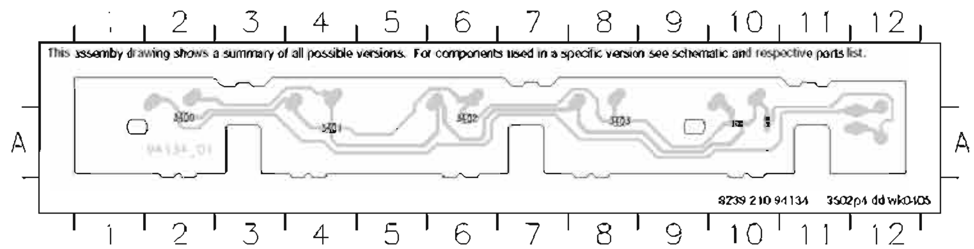


DTC KEY PART - COMPONENT & CHIP LAYOUTS (pt 4 board)

1400 A12 1401 A2 1402 A3 1403 A5 1404 A7 1405 A10

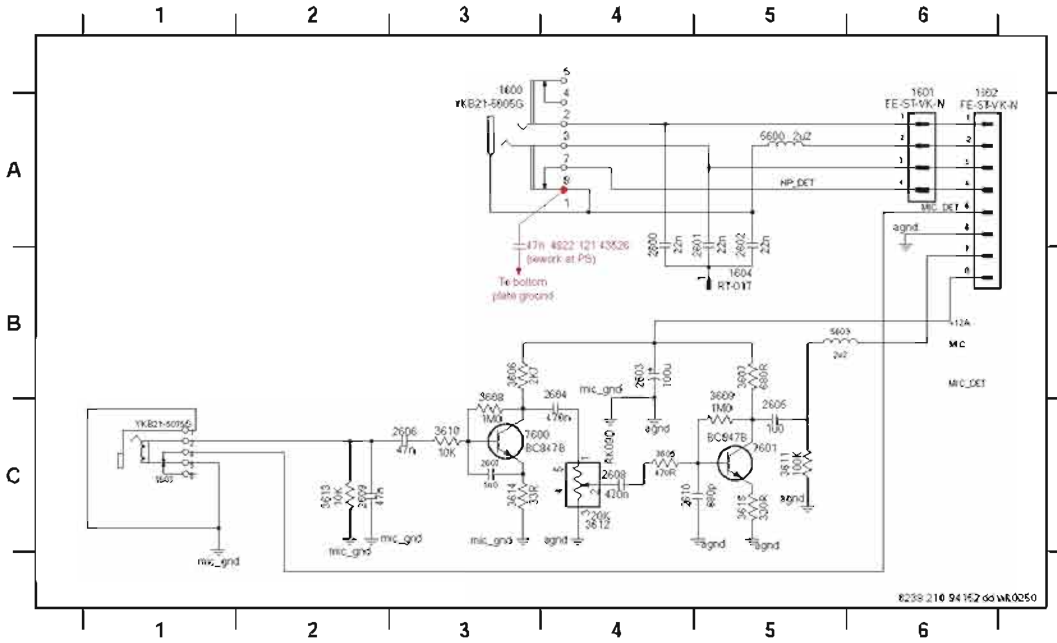


2400 A10 3400 A2 3401 A4 3402 A6 3403 A8 4400 A10



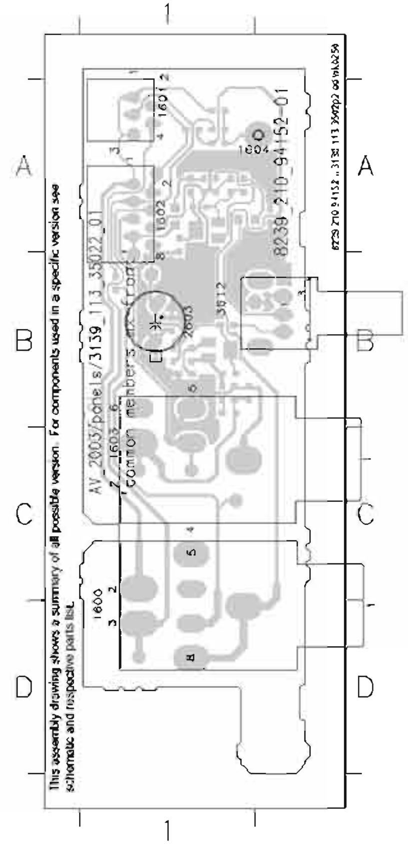
HDPH & MIC PART - CIRCUIT DIAGRAM

1600 A3	1602 A6	1604 B5	2601 A5	2603 B4	2605 C5	2607 C1	2609 C2	3605 C4	3607 B5	3609 C5	3611 C5	3613 C2	3615 C5	5603 B5	7601 C5
1601 A6	1603 C1	2600 A4	2602 A5	2604 B4	2606 C3	2608 C1	2610 C4	3606 B3	3608 C3	3610 C3	3612 C4	3614 C3	5600 A5	7600 C3	

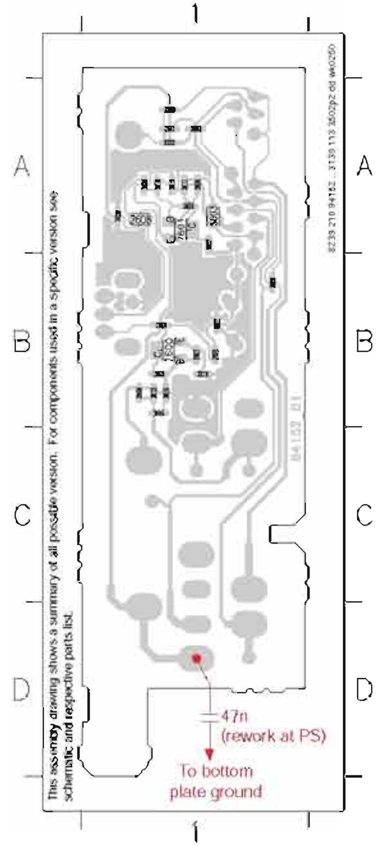


HDPH & MIC PART - COMPONENT & CHIP LAYOUTS

1600 D1	1602 A1	1604 A1	3612 B1
1601 A1	1603 C1	2603 B1	

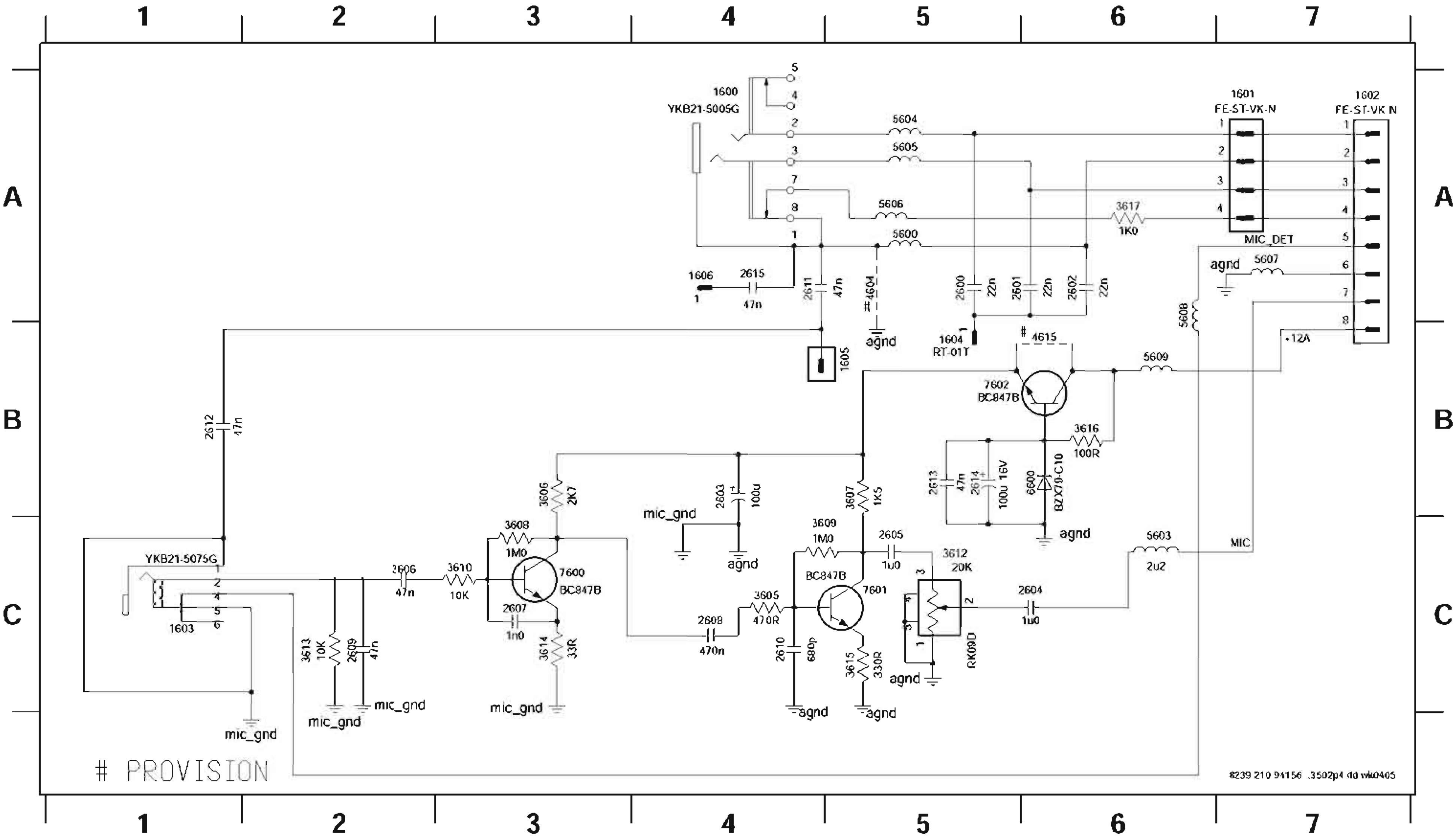


2600 A1	2607 B1	3607 A1	3614 B1	5603 A1
2601 A1	2608 A1	3608 B1	3615 A1	7600 B1
2602 A1	2609 B1	3609 A1	4600 B1	7601 A1
2604 B1	2610 A1	3610 B1	4601 B1	
2605 A1	3605 A1	3611 A1	4602 A1	
2606 B1	3606 B1	3613 B1	5600 A1	

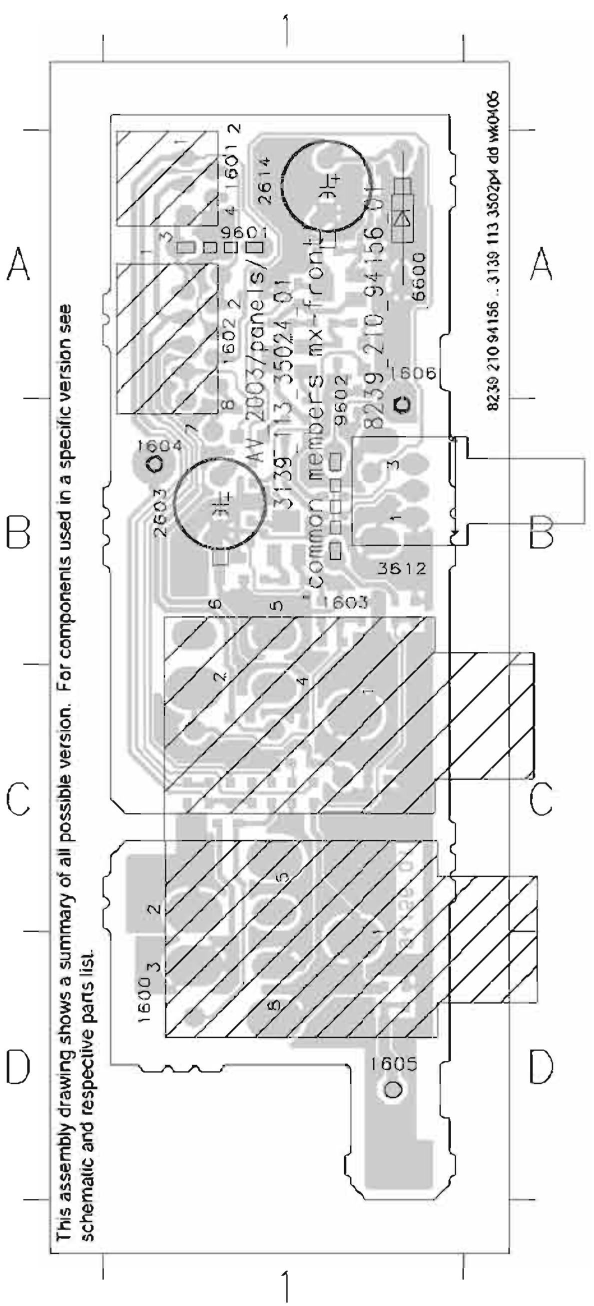


HDPH & MIC PART - CIRCUIT DIAGRAM (For pt 4 board)

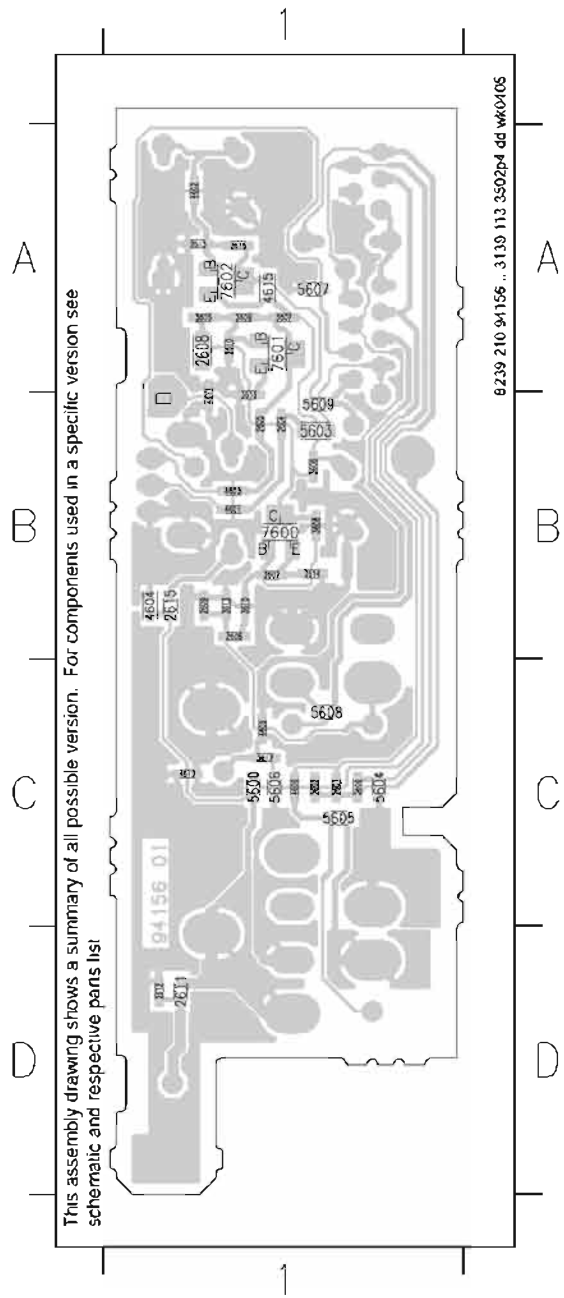
1600 A4	1603 C1	1606 A4	2602 A6	2605 C5	2608 C4	2611 A4	2614 B5	3606 B3	3609 C4	3613 C2	3616 B6	4615 B6	5604 A5	5607 A7	6600 B6	7602 B5
1601 A7	1604 B5	2600 A5	2603 B4	2606 C2	2609 C2	2612 B1	2615 A4	3607 B5	3610 C3	3614 C3	3617 A6	5600 A5	5605 A5	5608 A6	7600 C3	
1602 A7	1605 B5	2601 A5	2604 C6	2607 C3	2610 C4	2613 B5	3605 C4	3608 C3	3612 C5	3615 C5	4604 A5	5603 C6	5606 A5	5609 B6	7601 C5	



HDPH & MIC PART - COMPONENT & CHIP LAYOUTS (pt 4 board)



1600	D1
1601	A1
1602	A1
1603	B1
1604	B1
1605	D1
1606	A1
2603	B1
2614	A1
3612	B1
6600	A1
9601	A1
9602	B1



2600	C1
2601	C1
2602	C1
2604	B1
2605	B1
2606	B1
2607	B1
2608	A1
2609	B1
2610	A1
2611	D1
2612	D1
2613	A1
2615	B1
3605	A1
3606	B1
3607	A1
3608	B1
3609	A1
3610	B1
3613	B1
3614	B1
3615	B1
3616	A1
3617	C1
4600	C1
4601	B1
4602	A1
4603	B1
4604	B1
4605	C1
4611	B1
4612	C1
4615	A1
5600	C1
5603	B1
5604	C1
5605	C1
5606	C1
5607	A1
5608	C1
5609	B1
7600	B1
7601	A1
7602	A1

ELECTRICAL PARTS LIST - FRONT BOARDS

MISCELLANEOUS

1100	3139 110 53311	FTD Display HNA-13LM0ST
1101	4822 267 10756	FFC Socket 13P Hort.
1104	2422 025 16979	FFC Socket 4P Hort.
1105	2422 025 14547	FFC Socket 17P Hort.
1106	4822 267 10756	FFC Socket 13P Hort.
1300	4822 267 10756	FFC Socket 13P Hort.
1301	4822 276 13775	Tact Switch
1302	4822 276 13775	Tact Switch
1303	4822 276 13775	Tact Switch
1304	4822 276 13775	Tact Switch
1305	4822 276 13775	Tact Switch
1306	4822 276 13775	Tact Switch
1307	4822 276 13775	Tact Switch
1308	4822 276 13775	Tact Switch
1309	4822 276 13775	Tact Switch
1310	4822 276 13775	Tact Switch
1311	4822 276 13775	Tact Switch
1313	4822 267 10956	FFC Socket 7P Hort.
1314	2422 129 16975	Rotary Encoder Volume
1315	2422 129 16974	Rotary Encoder Source
1401	4822 276 13775	Tact Switch
1402	4822 276 13775	Tact Switch
1403	4822 276 13775	Tact Switch
1404	4822 276 13775	Tact Switch
1405	4822 276 13775	Tact Switch
1500	4822 267 10956	FFC Socket 7P Hort.
1501	4822 276 13775	Tact Switch
1600	2422 026 05192	Headphone Socket D6,3
1601	4822 265 11183	FFC Socket 4P Hort.

CAPACITORS

2101	4822 126 13879	220nF +80/-20% 50V
2108	4822 122 33761	22pF 5% 50V
2109	4822 122 33761	22pF 5% 50V
2110	4822 126 14223	2,2pF +/ 0,25pF 50V
2111	3198 017 41050	1uF 10V
2112	4822 122 33761	22pF 5% 50V
2113	2222 867 15339	33pF 5% 50V
2114	5322 126 11583	10nF 10% 50V
2115	2238 586 59812	100nF 10% 50V
2116	2238 586 59812	100nF 10% 50V
2117	3198 017 44740	470nF 10V
2118	5322 126 11583	10nF 10% 50V
2119	2238 586 59812	100nF 10% 50V
2120	2238 586 59812	100nF 10% 50V
2121	2020 552 94427	100pF 5% 50V
2122	2020 552 94427	100pF 5% 50V
2123	2020 552 94427	100pF 5% 50V
2124	2020 552 94427	100pF 5% 50V
2125	2020 552 94427	100pF 5% 50V
2126	4822 124 22726	4,7uF 20% 35V
2127	4822 124 22726	4,7uF 20% 35V
2129	4822 124 22726	4,7uF 20% 35V
2130	2238 586 59812	100nF 10% 50V
2131	4822 124 40433	47uF 20% 25V
2132	4822 124 40433	47uF 20% 25V
2133	4822 122 33761	22pF 5% 50V
2134	4822 122 33761	22pF 5% 50V
2135	4822 122 33761	22pF 5% 50V
2136	4822 122 33761	22pF 5% 50V
2137	4822 122 33761	22pF 5% 50V
2138	4822 122 33761	22pF 5% 50V
2139	4822 122 33761	22pF 5% 50V
2140	4822 122 33761	22pF 5% 50V
2141	3198 017 41050	1uF 10V
2142	4822 124 22726	4,7uF 20% 35V
2304	5322 126 11583	10nF 10% 50V
2305	5322 126 11583	10nF 10% 50V
2306	5322 126 11583	10nF 10% 50V
2307	5322 126 11583	10nF 10% 50V
2400	2020 552 94427	100pF 5% 50V
2501	4822 126 14491	2,2uF 10V 0805
2502	2020 552 94427	100pF 5% 50V
2600	4822 126 14494	22nF 10% 25V
2601	4822 126 14494	22nF 10% 25V
2602	4822 126 14494	22nF 10% 25V
2611	3198 017 34730	47nF 16V
2615	3198 017 34730	47nF 16V

RESISTORS

3105	4822 051 30474	470k 5% 0,062W
3110	4822 051 30103	10k 5% 0,062W
3112	4822 051 30103	10k 5% 0,062W
3115	4822 051 30103	10k 5% 0,062W
3116	4822 051 30103	10k 5% 0,062W
3117	4822 051 30102	1k 5% 0,062W
3118	4822 051 30472	4k7 5% 0,062W
3119	4822 051 30102	1k 5% 0,062W
3120	4822 051 30008	0R Jumper 0603
3121	4822 051 30008	0R Jumper 0603
3122	4822 051 30272	2k7 5% 0,062W
3125	4822 051 30102	1k 5% 0,062W
3126	4822 052 10479 △	47R 5% 0,33W
3127	4822 052 10479 △	47R 5% 0,33W
3130	4822 051 30684	680k 5% 0,062W
3132	4822 051 30684	680k 5% 0,062W
3133	4822 051 30223	22k 5% 0,062W
3158	4822 051 30103	10k 5% 0,062W
3159	4822 051 30103	10k 5% 0,062W
3160	4822 051 30103	10k 5% 0,062W
3161	4822 051 30102	1k 5% 0,062W
3162	4822 051 30102	1k 5% 0,062W
3163	4822 051 30102	1k 5% 0,062W
3164	4822 051 30223	22k 5% 0,062W

ELECTRICAL PARTS LIST - FRONT BOARDS

3165	4822 117 13632	100k 1% 0,062W
3166	4822 117 12864	82k 5% 0,062W
3167	4822 117 12864	82k 5% 0,062W
3168	4822 117 12864	82k 5% 0,062W
3169	4822 117 12864	82k 5% 0,062W
3170	4822 051 30103	10k 5% 0,062W
3171	4822 051 30103	10k 5% 0,062W
3172	4822 051 30103	10k 5% 0,062W
3173	4822 051 30103	10k 5% 0,062W
3174	4822 051 30103	10k 5% 0,062W
3175	4822 051 30103	10k 5% 0,062W
3176	4822 051 30103	10k 5% 0,062W
3177	4822 051 30105	1M 5% 0,062W
3201	4822 051 30103	10k 5% 0,062W
3303	4822 051 30151	150R 5% 0,062W
3304	4822 051 30221	220R 5% 0,062W
3305	4822 051 30271	270R 5% 0,062W
3306	4822 051 30391	390R 5% 0,062W
3307	4822 051 30561	560R 5% 0,062W
3308	4822 117 12968	820R 5% 0,62W
3309	4822 117 11817	1k2 1% 1/16W
3310	4822 117 12903	1k8 1% 0,063W
3311	4822 051 30272	2k7 5% 0,062W
3312	4822 051 30472	4k7 5% 0,062W
3330	4822 051 30272	2k7 5% 0,062W
3331	4822 051 30272	2k7 5% 0,062W
3332	4822 051 30103	10k 5% 0,062W
3333	4822 051 30103	10k 5% 0,062W
3334	4822 051 30103	10k 5% 0,062W
3335	4822 051 30103	10k 5% 0,062W
3336	4822 051 30103	10k 5% 0,062W
3400	4822 051 30151	150R 5% 0,062W
3401	4822 051 30221	220R 5% 0,062W
3402	4822 051 30271	270R 5% 0,062W
3403	4822 051 30391	390R 5% 0,062W
3501	4822 051 30471	470R 5% 0,062W
3502	4822 051 30121	120R 5% 0,062W
3503	4822 051 30101	100R 5% 0,062W
3504	4822 051 30103	10k 5% 0,062W
3505	4822 051 30471	470R 5% 0,062W
3506	4822 051 30471	470R 5% 0,062W
3617	4822 051 30102	1k 5% 0,062W
4100	4822 051 30008	0R Jumper 0603
4102	4822 051 30008	0R Jumper 0603
4103	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4105	4822 051 30008	0R Jumper 0603
4106	4822 051 30008	0R Jumper 0603
4107	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603
4109	4822 051 30008	0R Jumper 0603
4110	4822 051 30008	0R Jumper 0603
4111	4822 051 30008	0R Jumper 0603
4112	4822 051 30008	0R Jumper 0603
4113	4822 051 30008	0R Jumper 0603
4114	4822 051 30008	0R Jumper 0603
4115	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4117	4822 051 30008	0R Jumper 0603
4118	4822 051 30008	0R Jumper 0603
4119	4822 051 30008	0R Jumper 0603
4120	4822 051 30008	0R Jumper 0603
4121	4822 051 30008	0R Jumper 0603
4122	4822 051 30008	0R Jumper 0603
4123	4822 051 30008	0R Jumper 0603
4124	4822 051 30008	0R Jumper 0603
4125	4822 051 30008	0R Jumper 0603
4126	4822 051 30008	0R Jumper 0603
4127	4822 051 30008	0R Jumper 0603
4128	4822 051 30008	0R Jumper 0603
4129	4822 051 30008	0R Jumper 0603
4130	4822 051 30008	0R Jumper 0603
4131	4822 051 30008	0R Jumper 0603
4132	4822 051 30008	0R Jumper 0603
4133	4822 051 30008	0R Jumper 0603
4134	4822 051 30008	0R Jumper 0603
4135	4822 051 30008	0R Jumper 0603
4136	4822 051 30008	0R Jumper 0603
4137	4822 051 30008	0R Jumper 0603
4138	4822 051 30008	0R Jumper 0603
4139	4822 051 30008	0R Jumper 0603
4140	4822 051 30008	0R Jumper 0603
4141	4822 051 30008	0R Jumper 0603
4142	4822 051 30008	0R Jumper 0603
4143	4822 051 30008	0R Jumper 0603
4144	4822 051 30008	0R Jumper 0603
4145	4822 051 30008	0R Jumper 0603
4146	4822 051 30008	0R Jumper 0603
4147	4822 051 30008	0R Jumper 0603
4148	4822 051 30008	0R Jumper 0603
4149	4822 051 30008	0R Jumper 0603
4150	4822 051 30008	0R Jumper 0603
4151	4822 051 30008	0R Jumper 0603
4152	4822 051 30008	0R Jumper 0603
4153	4822 051 30008	0R Jumper 0603
4154	4822 051 30008	0R Jumper 0603
4155	4822 051 30008	0R Jumper 0603
4156	4822 051 30008	0R Jumper 0603
4157	4822 051 30008	0R Jumper 0603
4158	4822 051 30008	0R Jumper 0603
4159	4822 051 30008	0R Jumper 0603
4160	4822 051 30008	0R Jumper 0603
4162	4822 051 30008	0R Jumper 0603
4165	4822 051 30008	0R Jumper 0603

ELECTRICAL PARTS LIST - FRONT BOARDS

RESISTORS

4301	4822 051 30008	0R Jumper 0603
4302	4822 051 30008	0R Jumper 0603
4303	4822 051 30008	0R Jumper 0603
4304	4822 051 30008	0R Jumper 0603
4305	4822 051 30008	0R Jumper 0603
4306	4822 051 30008	0R Jumper 0603
4307	4822 051 30008	0R Jumper 0603
4308	4822 051 30008	0R Jumper 0603
4309	4822 051 30008	0R Jumper 0603
4310	4822 051 30008	0R Jumper 0603
4311	4822 051 30008	0R Jumper 0603
4312	4822 051 30008	0R Jumper 0603
4313	4822 051 30008	0R Jumper 0603
4314	4822 051 30008	0R Jumper 0603
4315	4822 051 30008	0R Jumper 0603
4316	4822 051 30008	0R Jumper 0603
4317	4822 051 30008	0R Jumper 0603
4318	4822 051 30008	0R Jumper 0603
4319	4822 051 30008	0R Jumper 0603
4320	4822 051 30008	0R Jumper 0603
4321	4822 051 30008	0R Jumper 0603
4323	4822 051 30008	0R Jumper 0603
4324	4822 051 30008	0R Jumper 0603
4325	4822 051 30008	0R Jumper 0603
4326	4822 051 30008	0R Jumper 0603
4327	4822 051 30008	0R Jumper 0603
4328	4822 051 30008	0R Jumper 0603
4329	4822 051 30008	0R Jumper 0603
4330	4822 051 30008	0R Jumper 0603
4332	4822 051 30008	0R Jumper 0603
4334	4822 051 30008	0R Jumper 0603
4337	4822 051 30008	0R Jumper 0603
4338	4822 051 30008	0R Jumper 0603
4339	4822 051 30008	0R Jumper 0603
4342	4822 051 30008	0R Jumper 0603
4343	4822 051 30008	0R Jumper 0603
4400	4822 051 30008	0R Jumper 0603
4500	4822 051 30008	0R Jumper 0603
4501	4822 051 30008	0R Jumper 0603
4600	4822 051 30008	0R Jumper 0603
4601	4822 051 30008	0R Jumper 0603
4602	4822 051 30008	0R Jumper 0603
4605	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5100	3198 018 52280	Coil 2,2uH 10% 0603
5102	5322 242 73686	Ceram Resonator 12MHz
5103	4822 242 70938	X’tal Resonator 32,768kHZ
5104	3198 018 52280	Coil 2,2uH 10% 0603
5600	2422 549 44608	Ind Fxd 100MHz 1k
5604	2422 549 44608	Ind Fxd 100MHz 1k
5605	2422 549 44608	Ind Fxd 100MHz 1k
5606	2422 549 44608	Ind Fxd 100MHz 1k

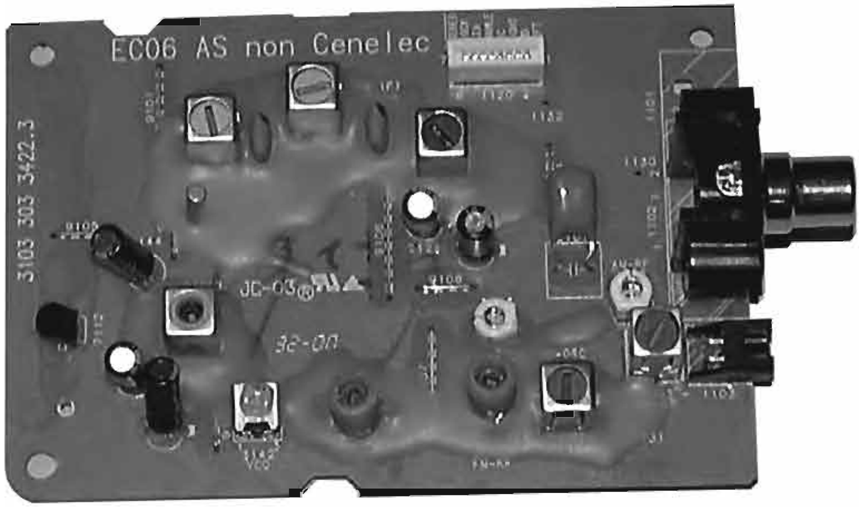
DIODES

6100	4822 130 30621	1N4148
6101	4822 130 30621	1N4148
6103	4822 130 30621	1N4148
6106	4822 130 31878	1N4003G
6105	4822 130 80622	BAT54
6107	4822 130 83206	BZX79-B5V6
6108	4822 130 11397	BAS316
6113	4822 130 31878	1N4003G
6118	4822 130 80622	BAT54
6119	4822 130 31878	1N4003G
6308	4822 130 11416	BZX384-C6V8
6309	4822 130 11416	BZX384-C6V8
6310	4822 130 11416	BZX384-C6V8
6311	4822 130 11416	BZX384-C6V8
6500	9322 179 76676	LTL-816EELC
6501	9322 183 96676	LTL-816GE

TRANSISTORS & INTEGRATED CIRCUITS

7100	3139 110 53491	TMP88CU74F with "3900S53491"
7103	9322 145 26668	M24C02-WMN6
7104	5322 130 60159	BC847B
7105	5322 130 60159	BC847B
7106	5322 130 60159	BC847B
7107	5322 130 60159	BC847B
7108	5322 130 60159	BC847B
7109	5322 130 60159	BC847B
7500	5322 130 60159	BC847B
7501	9322 185 97667	IR RECEIVER TSOP4836ZC1
7504	5322 130 60159	BC847B

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



ECO6 Tuner Board

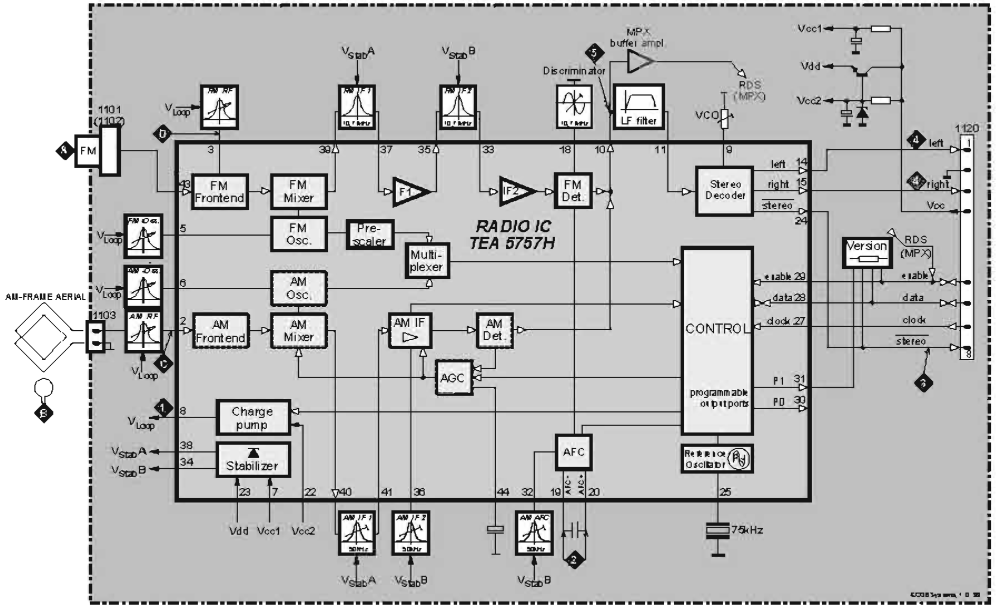
version: ***SYSTEMS non-CENELEC***

TABLE OF CONTENTS

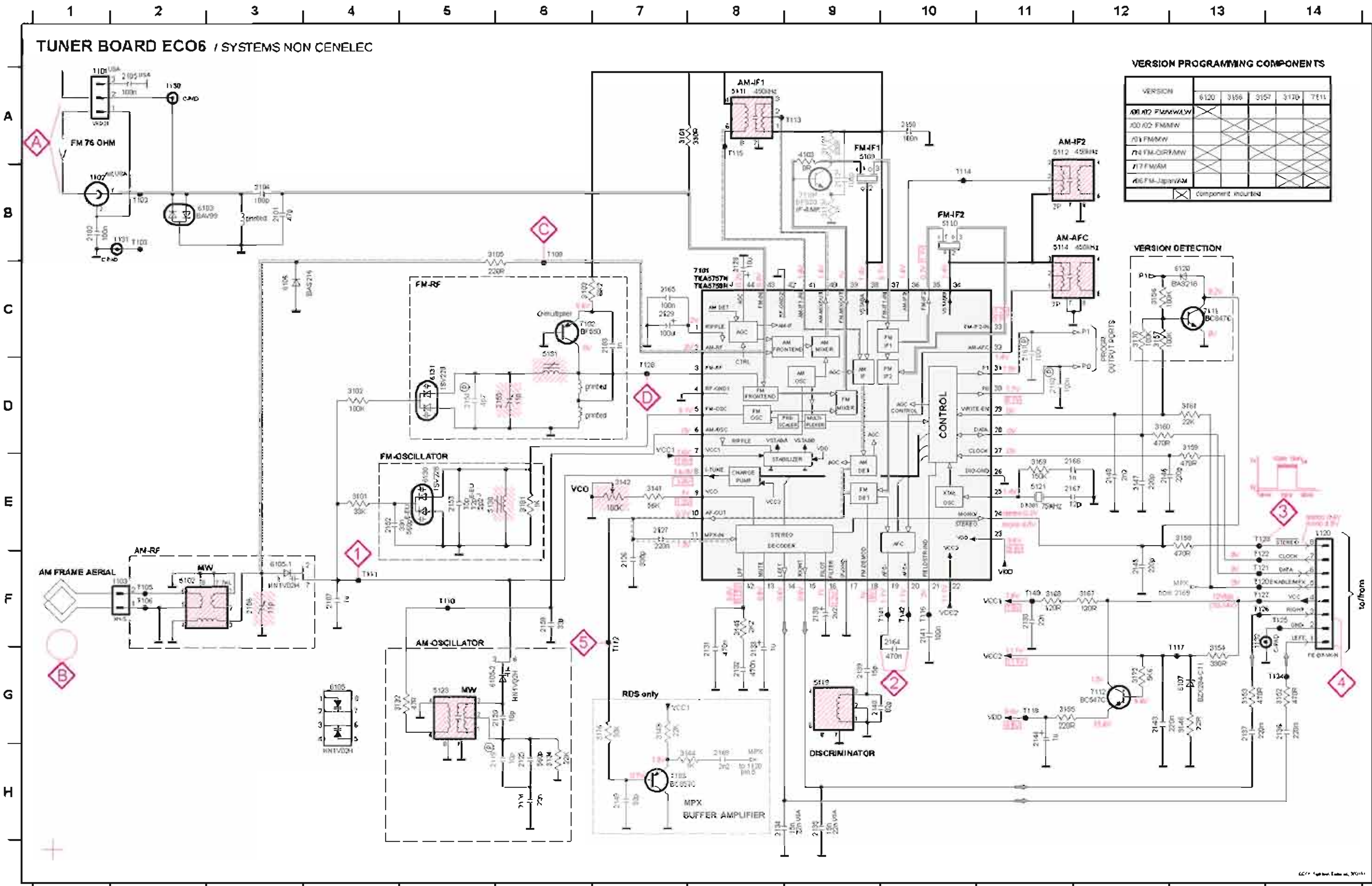
7A-1

BLOCK DIAGRAM

TUNER BOARD
ECO 6 Systems



TUNER BOARD ECO6 / SYSTEMS NON CENELEC



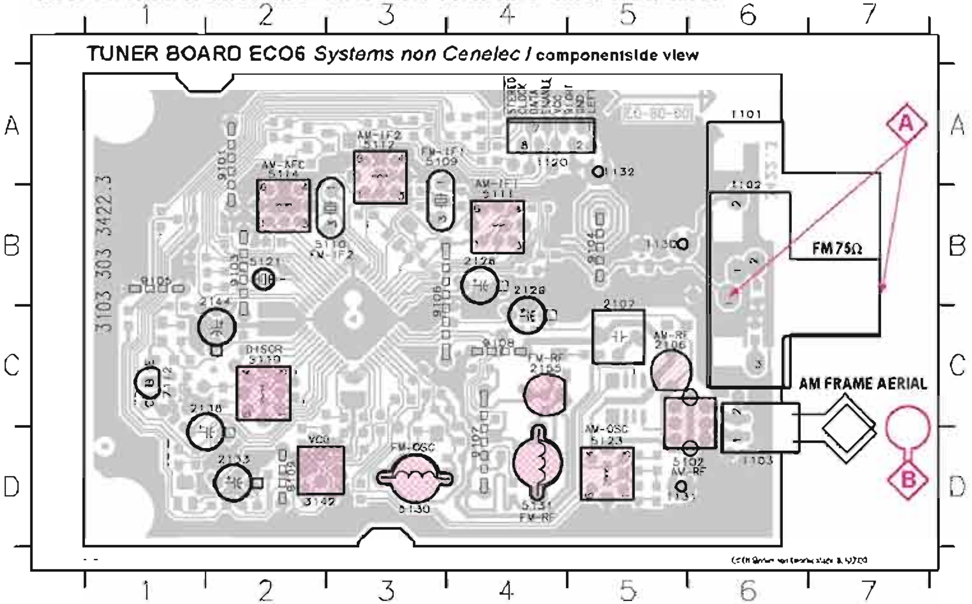
LEGEND

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

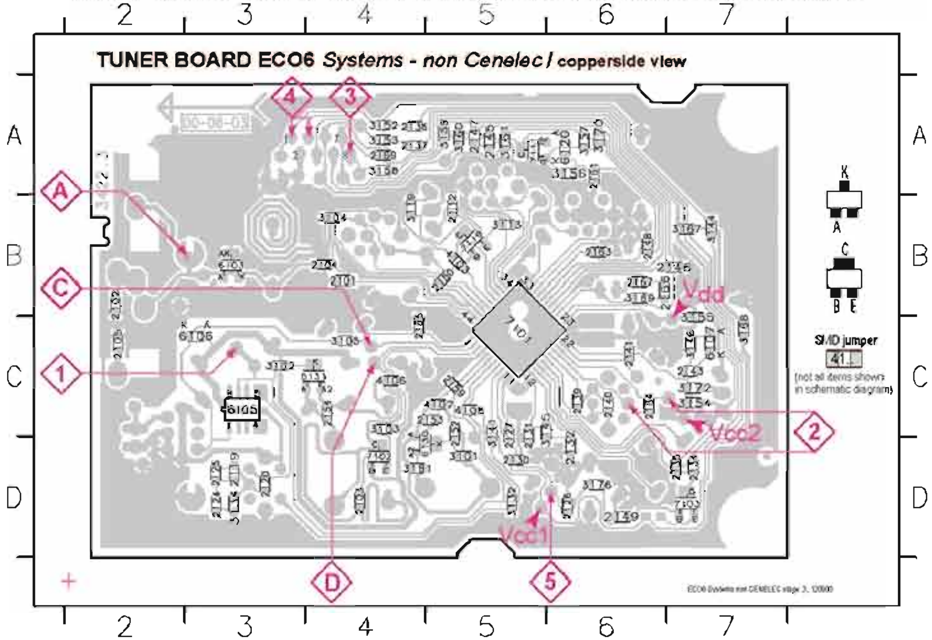
Signal path

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

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



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



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

TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D	IC 7101 21, 2141, shortcircuit to block AFC	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod= 1kHz Δf=±22.5kHz	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz [1]
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36, 220Ω, 100nF	5111	5	symmetric
			IC 7101 40, 220Ω, 100nF, see remark 2)	5112		
AM AFC MW		C continuous wave V_{RF} = 2mV		5114	2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B	1494kHz	2106	5	symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V_{RF} as low as possible	1500kHz	2106		
	560kHz		560kHz	5102		

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

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (Input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

[2] RC network serves for damping the IF-filter while adjusting the other one

[3] For AM RF adjustments the original frame antenna has to be used !

[4] MW has to be aligned before LW

} Repeat

Electrical Partslist *ECO6* SYSTEMS NON-CENELEC

MISCELLANEOUS

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

CAPACITORS

2101	4822 126 13892	47pF	1%	63V	
2102	4822 126 13838	100nF	10%	50V	not USA
2103	5322 122 31647	1nF	10%	63V	
2104	5322 122 32531	100pF	5%	50V	
2105	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP .N450			
2107	4822 121 51319	1µF	20%	50V	
2120	4822 126 13689	18pF	1%	63V	
2124	5322 122 32654	22nF	10%	63V	
2125	2020 552 96199	560pF	1%	50V	
2126	5322 122 31863	330pF	5%	50V	
2127	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130	5322 122 32654	22nF	10%	63V	
2131	4822 126 13482	470nF	20%	16V	
2132	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134	4822 126 13188	15nF	5%	63V	not USA
2134	5322 122 32654	22nF	10%	63V	USA only
2135	4822 126 13188	15nF	5%	63V	not USA
2135	5322 122 32654	22nF	10%	63V	USA only
2136	4822 126 14076	220nF	20%	25V	
2137	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139	4822 126 14236	15pF	5%	50V	
2140	4822 126 13695	82pF	1%	63V	
2141	4822 126 13838	100nF	10%	50V	
2143	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145	4822 122 33575	220pF	5%	50V	
2146	4822 122 33575	220pF	5%	50V	
2147	4822 122 33575	220pF	5%	50V	
2148	4822 122 33127	2,2nF	10%	63V	
2149	5322 122 32659	33pF	5%	50V	RDS only
2150	4822 126 13838	100nF	10%	50V	
2152	4822 126 12105	33nF	5%	63V	not for East Europe
2152	5322 116 80853	560pF	5%	63V	for East Europe only
2153	4822 126 13486	15pF	2%	63V	not for East Europe
2153	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159	5322 122 32659	33pF	5%	50V	
2164	4822 126 13482	470nF	20%	16V	
2165	4822 126 13838	100nF	10%	50V	
2166	5322 122 31647	1nF	10%	63V	
2167	4822 122 33926	12pF	5%	50V	
2169	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101	4822 051 20333	33kΩ	5%	0,1W	
3102	4822 117 10837	100kΩ	1%	0,1W	
3103	4822 051 20822	8,2kΩ	5%	0,1W	
3104	4822 117 13577	330Ω	1%	0,1W	
3105	4822 117 11503	220Ω	5%	0,1W	
3132	4822 051 20479	47Ω	5%	0,1W	
3134	4822 051 20223	22kΩ	5%	0,1W	
3141	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT 100kΩ			
3143	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145	4822 117 11449	2,2kΩ	1%	0,1W	
3146	4822 051 20229	22Ω	5%	0,1W	
3152	4822 051 20471	470Ω	5%	0,1W	
3153	4822 051 20471	470Ω	5%	0,1W	
3154	4822 117 13577	330Ω	1%	0,1W	
3155	4822 117 11503	220Ω	5%	0,1W	
3156	4822 117 10837	100kΩ	1%	0,1W	
3157	4822 117 10837	100kΩ	1%	0,1W	
3158	4822 051 20471	470Ω	5%	0,1W	
3159	4822 051 20471	470Ω	5%	0,1W	
3160	4822 051 20471	470Ω	5%	0,1W	
3161	4822 051 20223	22kΩ	5%	0,1W	
3167	4822 051 20121	120Ω	5%	0,1W	
3168	4822 051 20121	120Ω	5%	0,1W	
3169	4822 051 20154	150kΩ	5%	0,1W	
3170	4822 117 10837	100kΩ	1%	0,1W	
3172	4822 051 20562	5,6kΩ	5%	0,1W	
3176	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181	4822 051 10102	1kΩ	2%	0,25W	
4103	4822 051 20008	CHIP JUMPER 0805			
4106	4822 051 20008	CHIP JUMPER 0805			
4107	4822 051 20008	CHIP JUMPER 0805			
4108	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	FM-IF FILTER 10,7MHz
5110	4822 242 70665	FM-IF FILTER 10,7MHz
5111	2422 549 44023	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 70302	AM-IF FILTER 450kHz
5119	4822 157 11443	DISCRIMINATOR COIL
5121	4822 242 10261	QUARTZ 75kHz
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR
5130	4822 157 11843	RF COIL 1,5 TURNS
5131	4822 157 11843	RF COIL 1,5 TURNS

DIODES

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

TRANSISTORS

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

INTEGRATED CIRCUITS

7101	9351 740 80557	TEA5757H/V1, RADIO IC

POWER MODULE PWR207

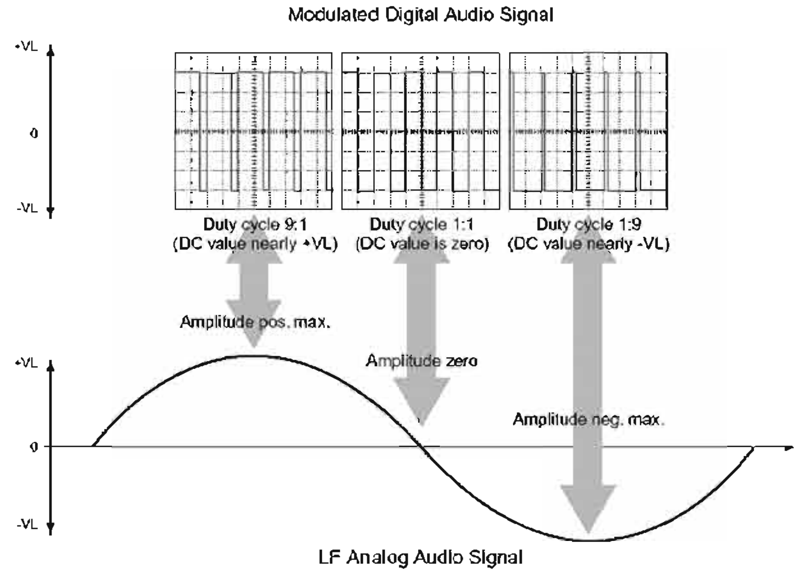
(6 x 75W / 7 x 75W)

TABLE OF CONTENTS

6-channel class-D amplifier

Basic operation of a class-D amplifier

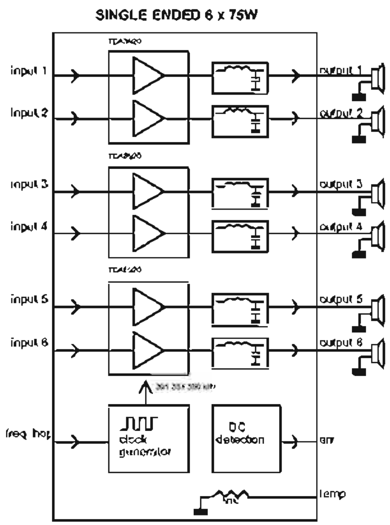
Basically, the output stage of a class-D amplifier outputs a continuous square wave swinging between positive and negative power supplies with a fixed frequency ("clock" frequency) far beyond the audible range. The duty cycle of this square wave is modulated with the audio signal. The output is followed by a low-pass filter which eliminates the clock frequency and allows only the audio signal going to the speaker. See simplified drawing below.

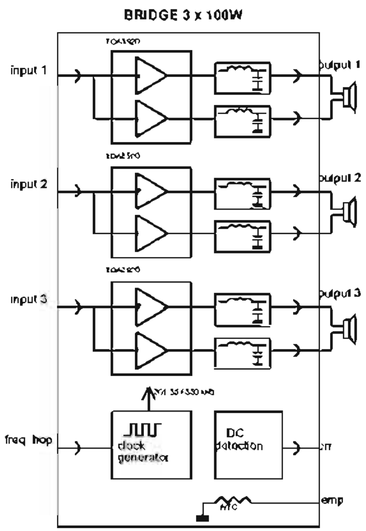


Compared to a conventional power amplifier the benefits of the Class-D amplifier are:
- higher effiency
- lower power dissipation
- smaller heatsink required
- smaller mains transformer required

The main disadvantage of this concept is:
- The amplifier is operating with a high-frequency square wave at high amplitude and currents. This requires special precautions to prevent excessive electromagnetic ratiation (EMC).

Block diagram and operation





• clock oscillator

The clock frequency is generated around IC7600. Using 2 extra transistors (7602 and 7608) and 2 ceramic resonators it can be operated at 2 frequencies: 602.7kHz and 700kHz. The frequency is selected by the signal "FREQ_HOP" coming from connector 1301 pin 9.
When FREQ_HOP is low, the output of 7600-1 will be high. This switches transistor 7602 on, and connects resonator 1600 (602.7kHz) to inverter 7600-3. Similarly, when FREQ_HOP is high, resonator 1601 is connected to 7600-3.
The output frequency is divided by two by IC7607, resulting in 301.35kHz or 350kHz.
The purpose of a selectable clock frequency is related to the disturbance of the tuner which is built-in together with this amplifier. In MW, the software of the set microprocessor will select the other clock frequency in case the amplifier clock interferes with the tuned station.

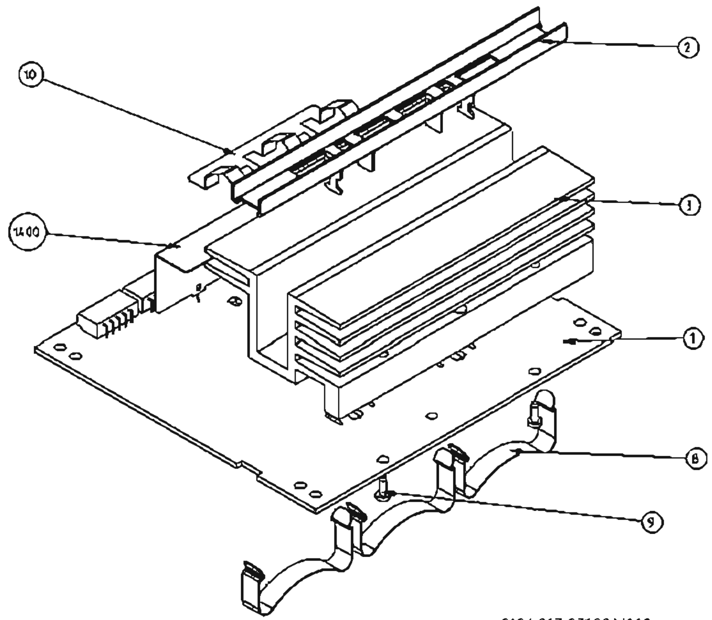
• Class-D amplifier TDA8920 and low-pass filter

The TDA8920 is a two channel audio power amplifier using class-D technology. The audio input signal is converted into a digital Pulse Width Modulated (PWM) signal via an analog input stage and PWM modulator. It is then fed to the power stage which outputs a high power PWM signal which switches between the main supply lines.
The TDA8920 is followed by a 2nd-order low-pass filter. It has a cut-off frequency around 50kHz and converts the PWM signal into analog audio signal across the loudspeaker.
The TDA8920 has a temperature protection and a current limiter built-in.
Furthermore, the IC can be put in active, mute and standby mode.
- Active mode (amplifier fully operational) with output signal
- Mute mode, the amplifiers are operational, but the audio is muted
- Standby mode, with a very low supply current, the output stage is switched off

• DC-detection

The DC-detection circuit monitors all 6 outputs for DC. Whenever one or more outputs contain DC for more than 1 second, the circuit will be activated. A positive voltage will activate transistor 7710 and pin 10 of connector 1301 will be pulled down. In case of a negative voltage, transistor 7716 will be activated, which in turn activates 7710. The set microprocessor will take further action.

MECHANICAL EXPLODED VIEW

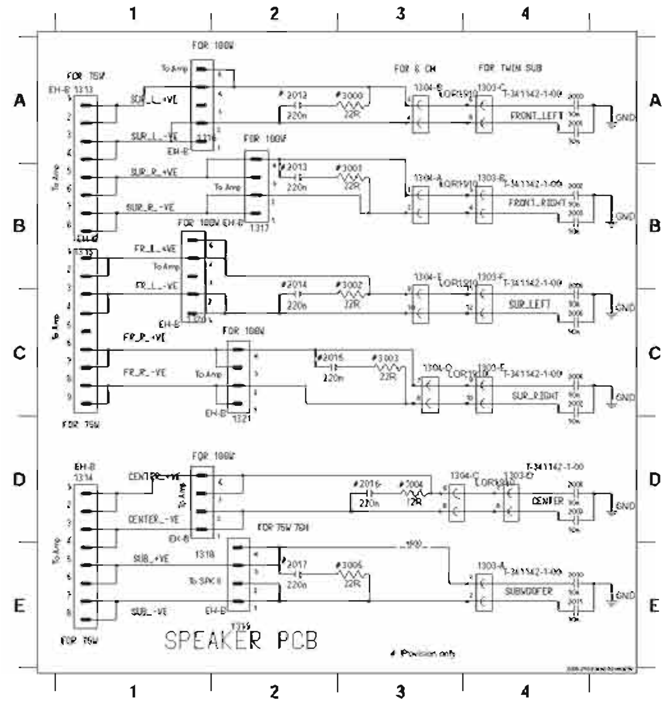


3104 217 07180 bl110

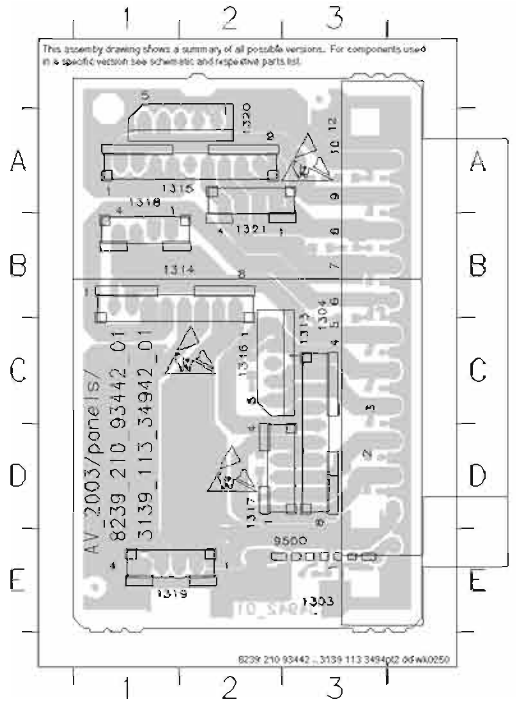
MECHANICAL PARTS LIST & SCREWS		
8	3104 211 29861	SPRING 6 CHANNEL
9	-	D2 3 x 8
10	3104 211 29881	EARTH SPRING

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

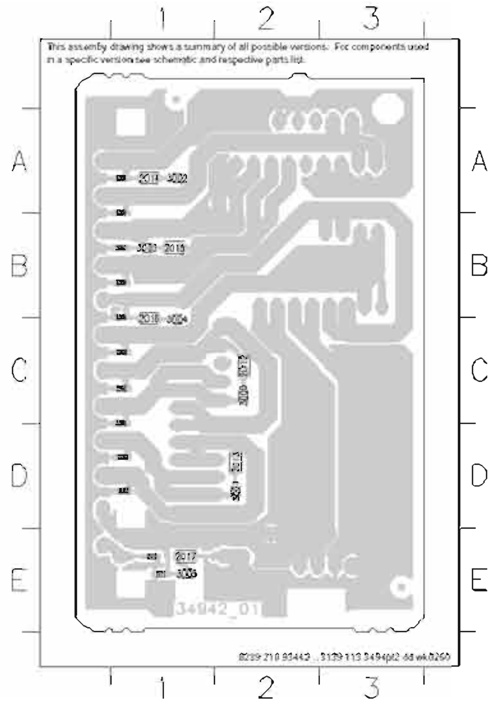
SPEAKER (SPK I) BOARD - CIRCUIT DIAGRAM



SPEAKER (SPK I) BOARD - COMPONENT & CHIP LAYOUTS

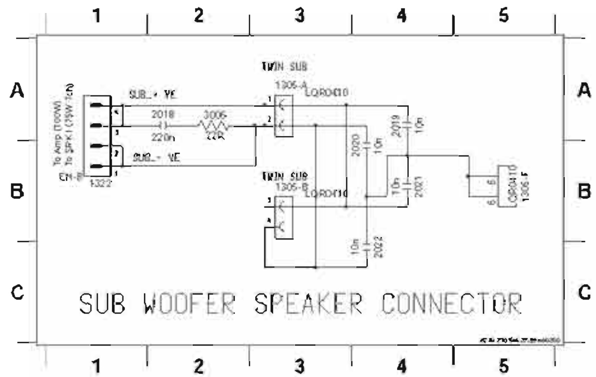


1303	E3
1304	B3
1313	C3
1314	B1
1315	A1
1316	C2
1317	D2
1318	A1
1319	E1
1320	A2
1321	B3
9500	E3

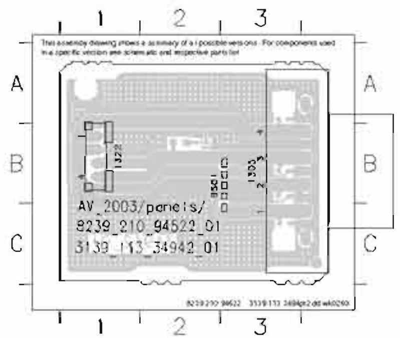


SW-OUT (SPK II) BOARD - CIRCUIT DIAGRAM

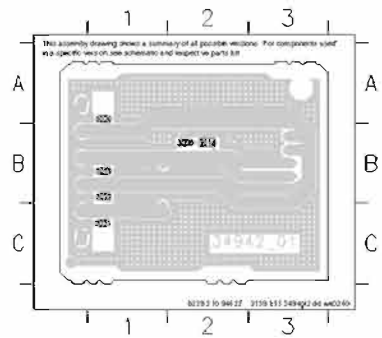
1305-A	A3	1305-F	B5	2018	A2	2020	B4	2021	C4
1306-B	B3	1322	B1	2019	A4	2021	B4	3006	A2



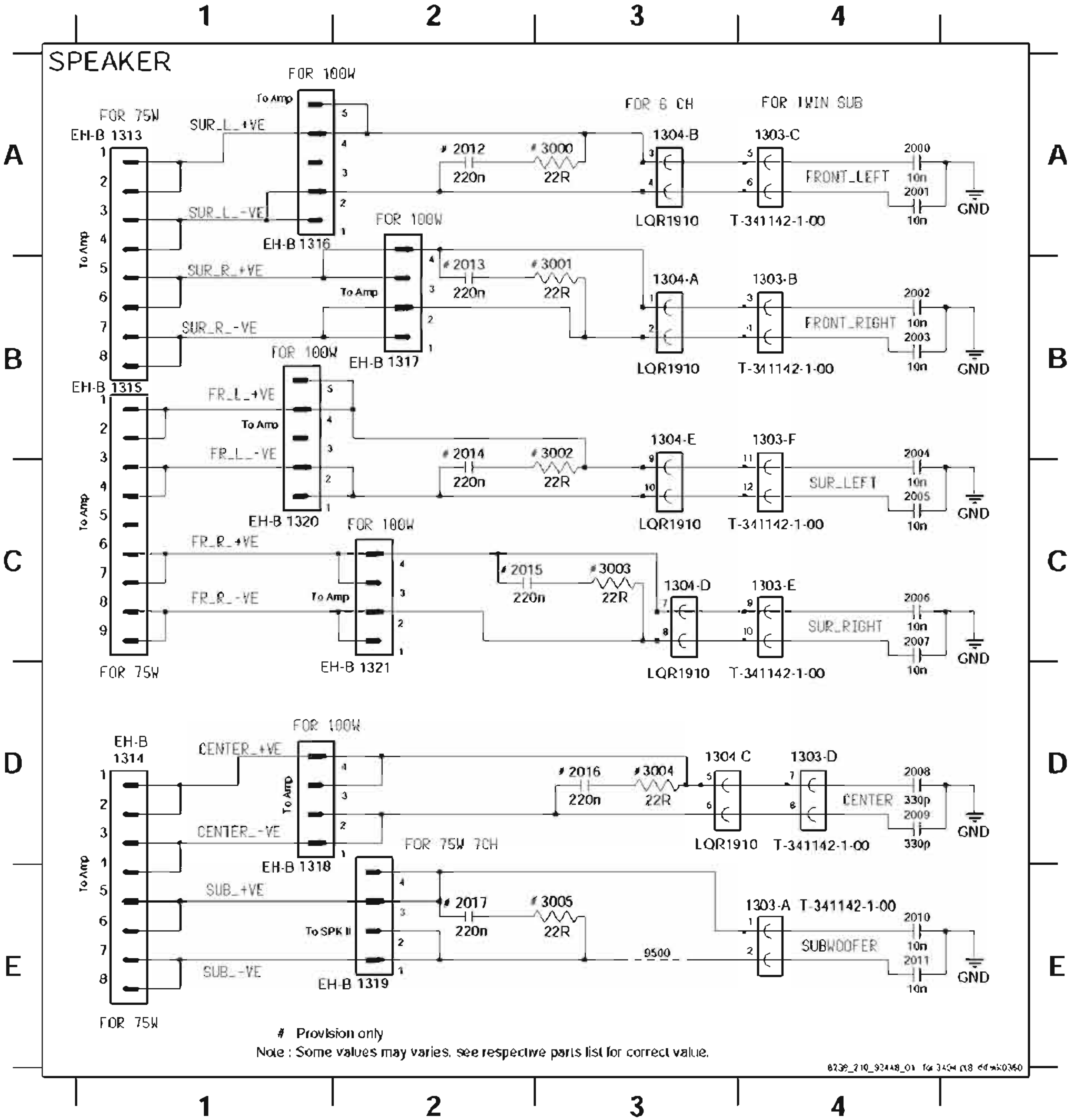
SW-OUT (SPK II) BOARD - COMPONENT & CHIP LAYOUTS



1305	B3
1322	B1
9501	B2

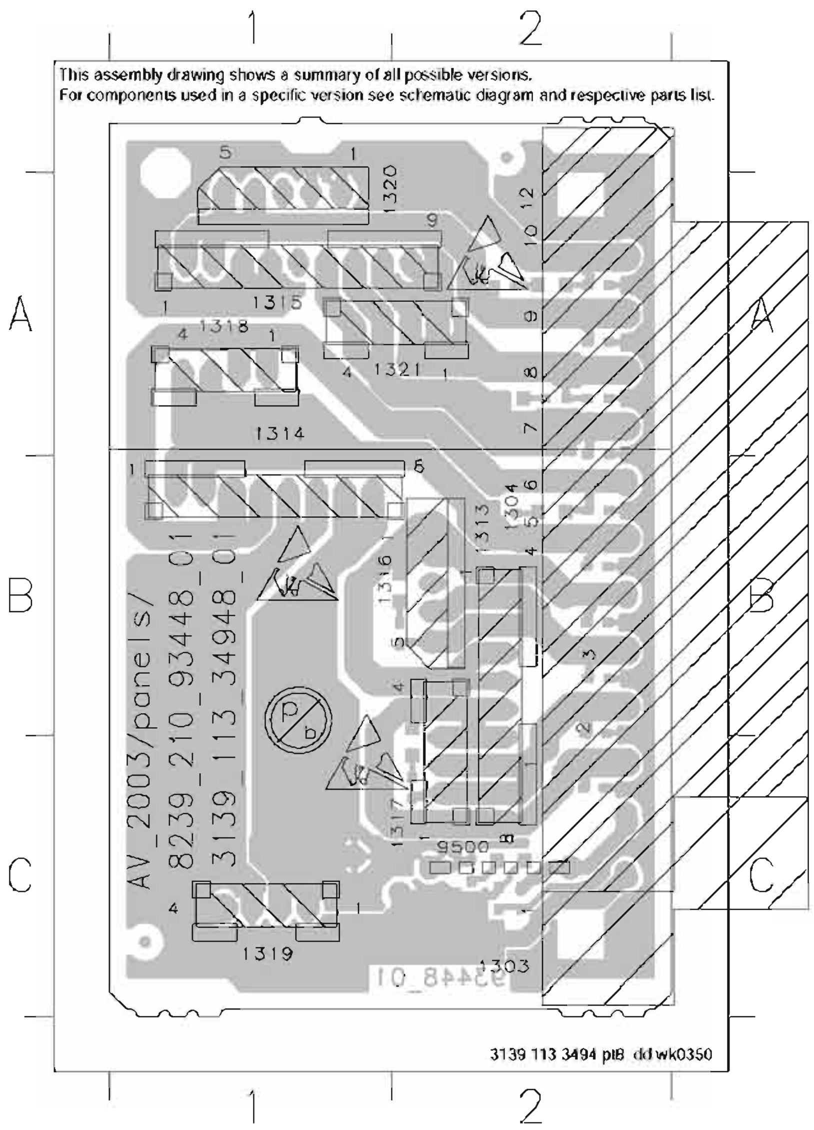


SPEAKER (SPK I) BOARD - CIRCUIT DIAGRAM (For pcb layout ...93448)



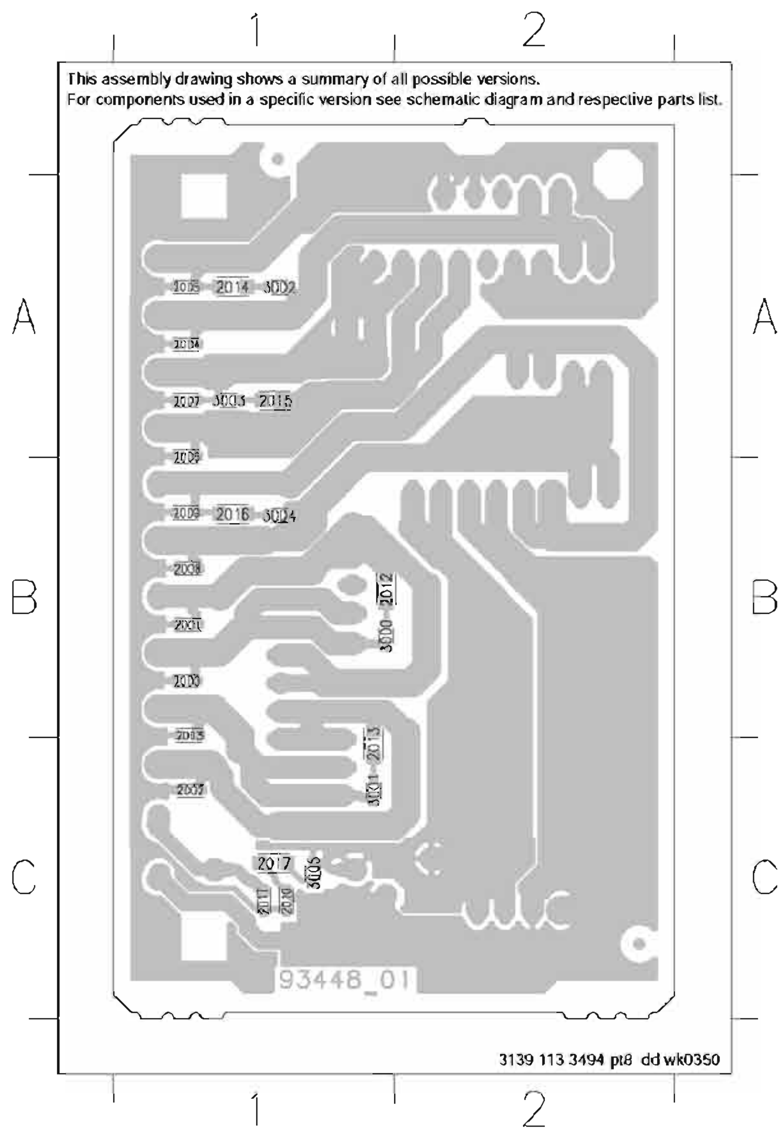
1303-A	E4
1303-B	B4
1303-C	A4
1303-D	D4
1303-E	C4
1303-F	B4
1304-A	B3
1304-B	A3
1304-C	D3
1304-D	C3
1304-E	B3
1313	A1
1314	D1
1315	B1
1316	A2
1317	B2
1318	E2
1319	E2
1320	C1
1321	C2
2000	A4
2001	A4
2002	B4
2003	B4
2004	B4
2005	C4
2006	C4
2007	C4
2008	D4
2009	D4
2010	E4
2011	E4
2012	A2
2013	B2
2014	B2
2015	C2
2016	D3
2017	E2
3000	A3
3001	B3
3002	B3
3003	C3
3004	D3
3005	E3
9500	E3

SPEAKER (SPK I) BOARD - COMPONENT & CHIP LAYOUTS (pcb layout ...93448)



1303	C2
1304	B2
1313	B2
1314	A1
1315	A1
1316	B1
1317	C2
1318	A1
1319	C1
1320	A1
1321	A2
9500	C2

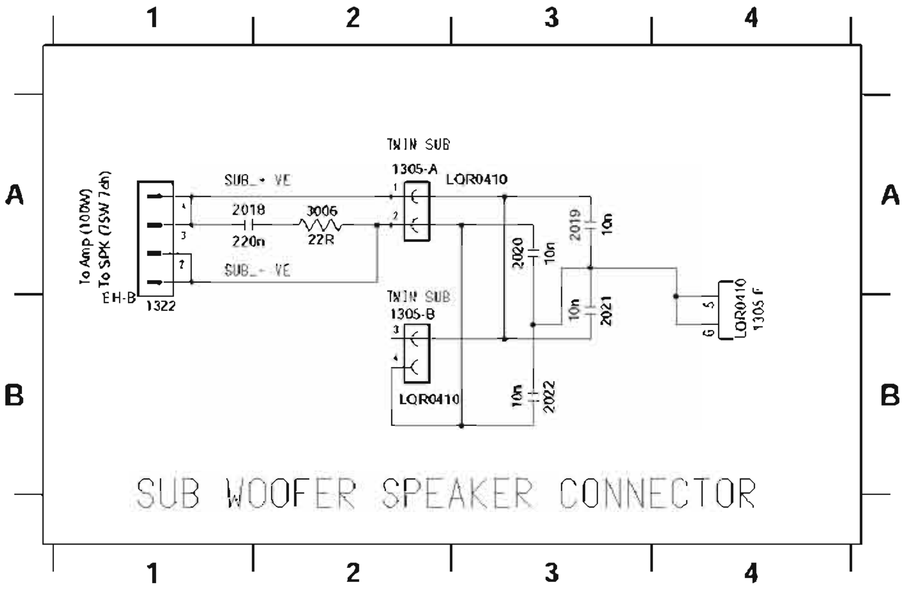
8-3b



2000	B1
2001	B1
2002	C1
2003	B1
2004	A1
2005	A1
2006	A1
2007	A1
2008	B1
2009	B1
2010	C1
2011	C1
2012	B1
2013	C1
2014	A1
2015	A1
2016	B1
2017	C1
3000	B1
3001	C1
3002	A1
3003	A1
3004	B1
3005	C1

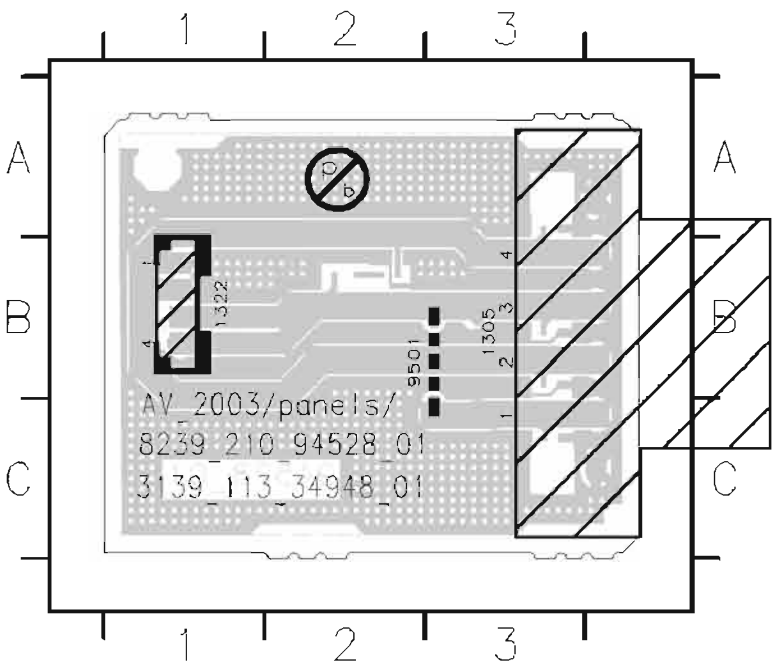
8-3c

SW-OUT (SPK II) BOARD - CIRCUIT DIAGRAM (For pcb layout ... 94528)

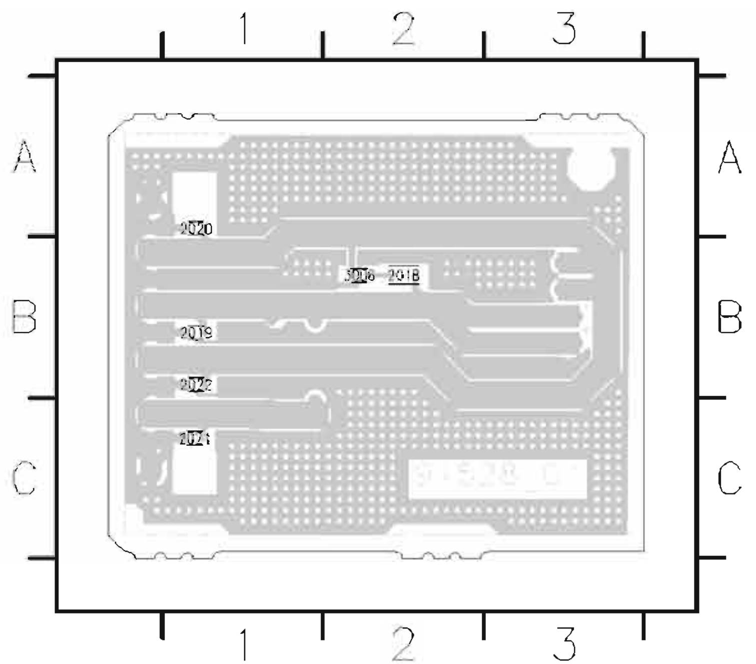


1305-A	A2
1305-B	B2
1305-F	B4
1322	B1
2018	A1
2019	A3
2020	A3
2021	B3
2022	B3
3006	A2

SW-OUT (SPK II) BOARD - COMPONENT & CHIP LAYOUTS (pcb layout... 94528)



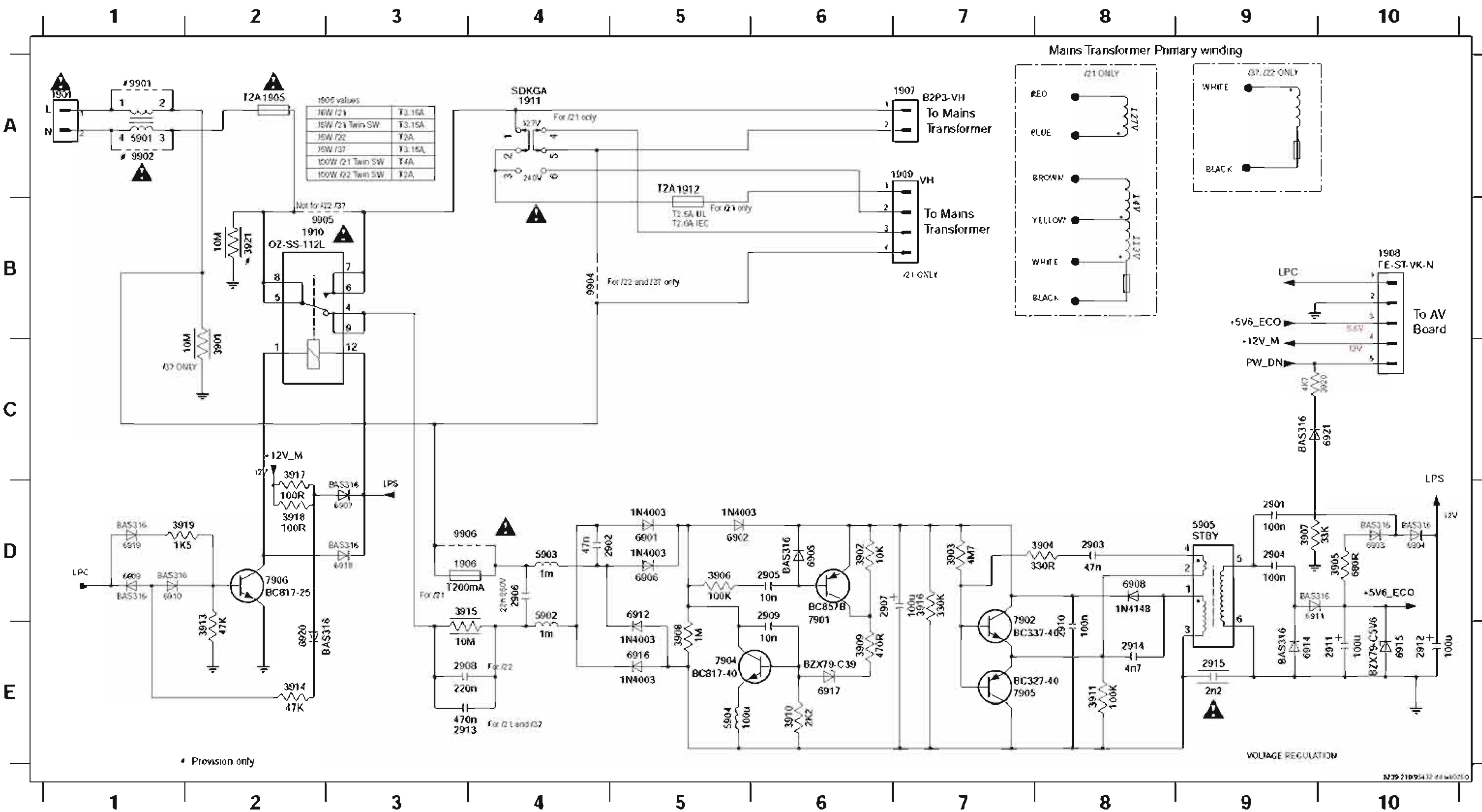
1305	B3
1322	B1
9501	B2



2018	B2
2019	B1
2020	A1
2021	C1
2022	B1
3006	B2

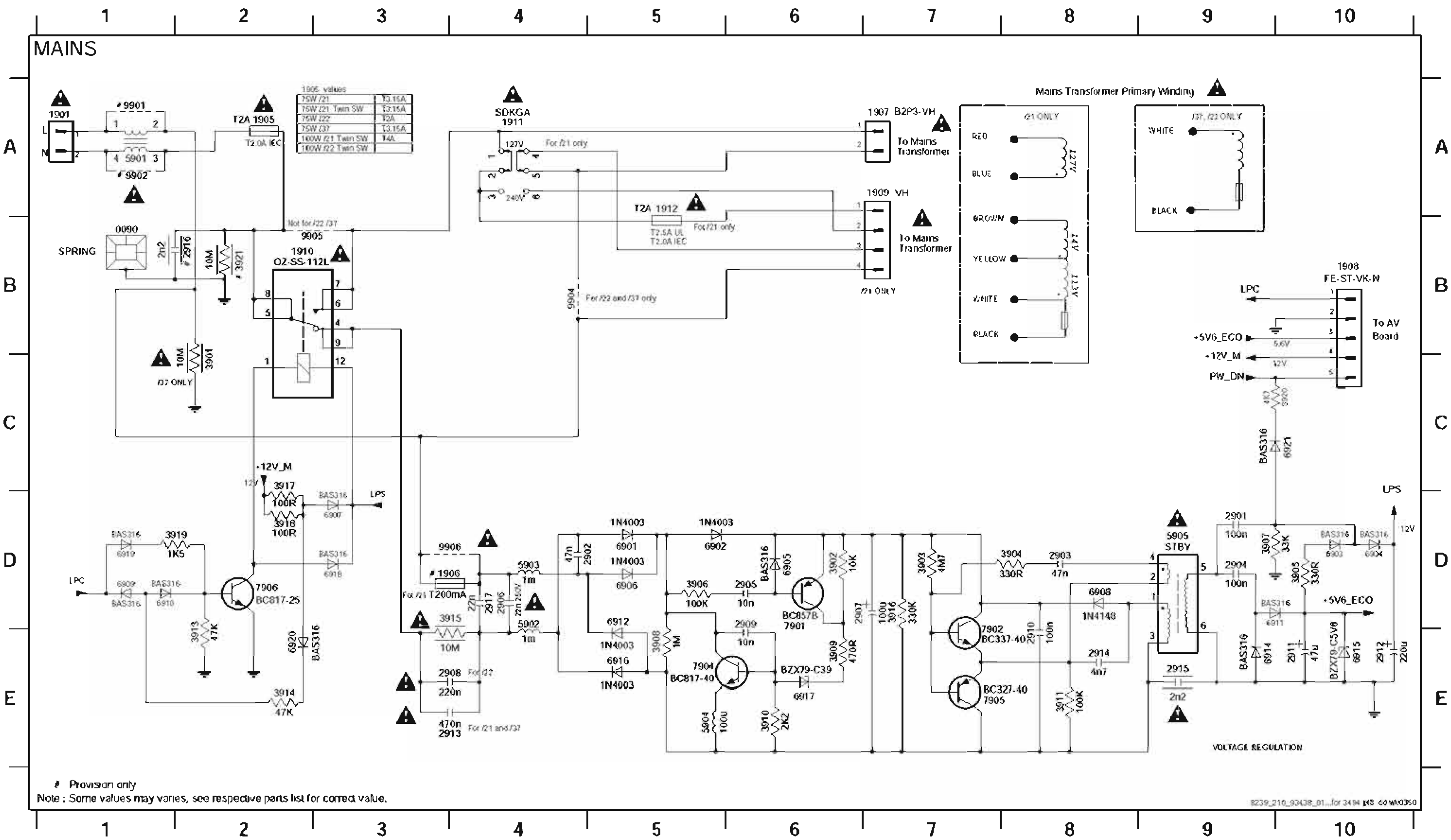
MAINS & ECO STBY BOARD - CIRCUIT DIAGRAM

1901 A1	1908 B10	1912 A5	2904 D9	2908 E3	2912 E10	3901 C2	3905 D10	3909 E6	3914 E2	3918 D2	5901 A1	5905 D9	6904 D10	6908 D8	6912 D5	6917 E6	6921 C10	7905 E7	9904 B4
1905 A2	1909 A6	2901 D9	2905 D6	2909 D6	2913 E3	3902 D6	3906 D5	3910 E6	3915 D3	3919 D1	5902 D4	6901 D5	6905 D6	6909 D1	6914 E8	6918 D3	7901 D6	7906 D2	9905 B2
1906 D3	1910 B2	2902 D4	2906 D4	2910 E8	2914 E8	3903 D7	3907 D9	3911 E8	3916 D7	3920 C10	5903 D4	6902 D5	6906 D5	6910 D1	6915 E10	6919 D1	7902 E7	9901 A1	9906 D3
1907 A7	1911 A4	2903 D8	2907 D6	2911 E10	2915 E9	3904 D8	3908 E5	3913 E2	3917 C2	3921 B2	5904 E5	6903 D10	6907 D3	6911 D9	6916 E5	6920 E2	7904 E5	9902 A1	

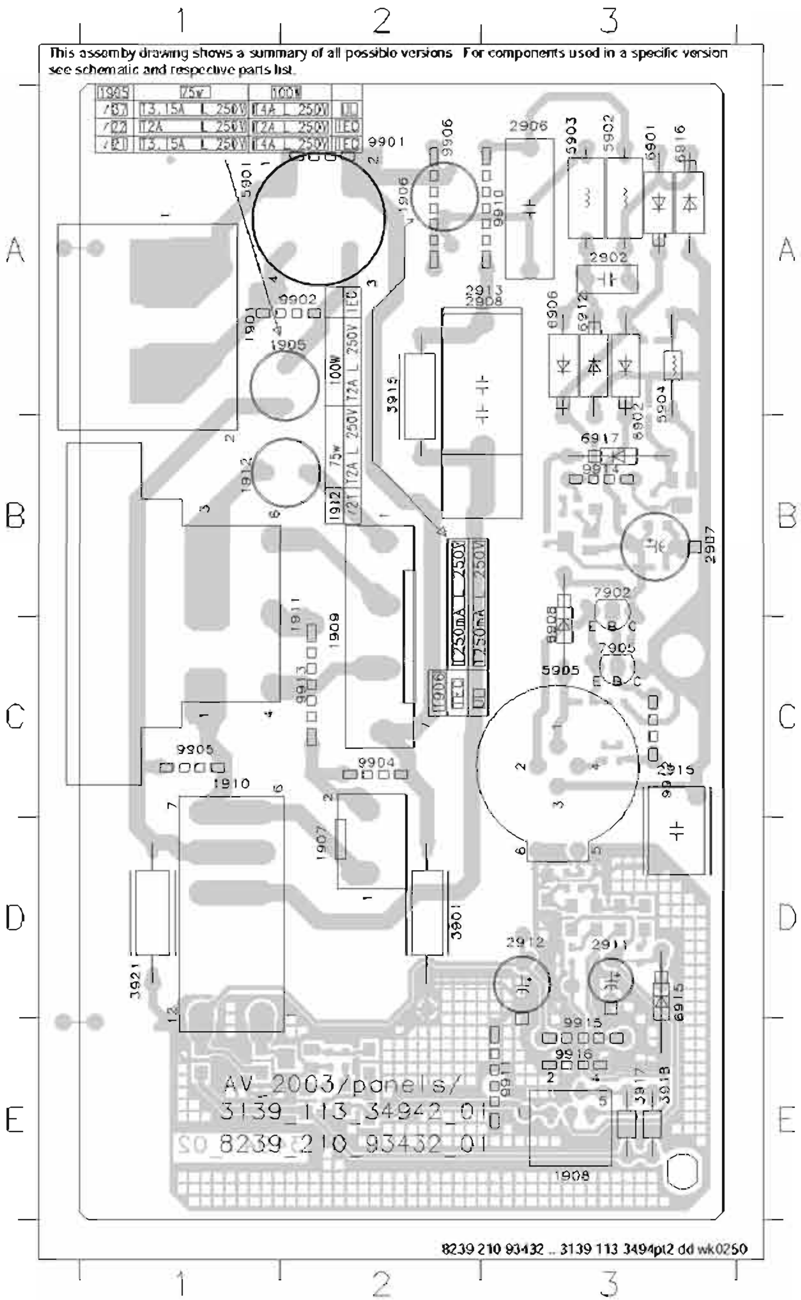


MAINS & ECO STBY BOARD - CIRCUIT DIAGRAM (For pcb layout ... 93438)

0090 B1	1907 A7	1911 A4	2903 D8	2907 D6	2911 E10	2915 E9	3902 D6	3906 D5	3910 E6	3915 D4	3919 D2	5902 D4	6901 D5	6905 D6	6909 D1	6914 E9	6918 D3	7901 D6	7906 D2	9905 B2
1901 A1	1908 B10	1912 A5	2904 D9	2908 E3	2912 E10	2916 B2	3903 D7	3907 D9	3911 E8	3916 D7	3920 C10	5903 D4	6902 D5	6906 D5	6910 D1	6915 E10	6919 D1	7902 E7	9901 A1	9906 D3
1905 A2	1909 A7	2901 D9	2905 D6	2909 D6	2913 E3	2917 D4	3904 D8	3908 E5	3913 E2	3917 C2	3921 B2	5904 E5	6903 D10	6907 D3	6911 D9	6916 E5	6920 E2	7904 E5	9902 A1	
1906 D3	1910 B2	2902 D4	2906 D4	2910 E8	2914 E8	3901 C2	3905 D10	3909 E6	3914 E2	3918 D2	5901 A1	5905 D9	6904 D10	6908 D8	6912 D5	6917 E6	6921 C10	7905 E7	9904 B4	



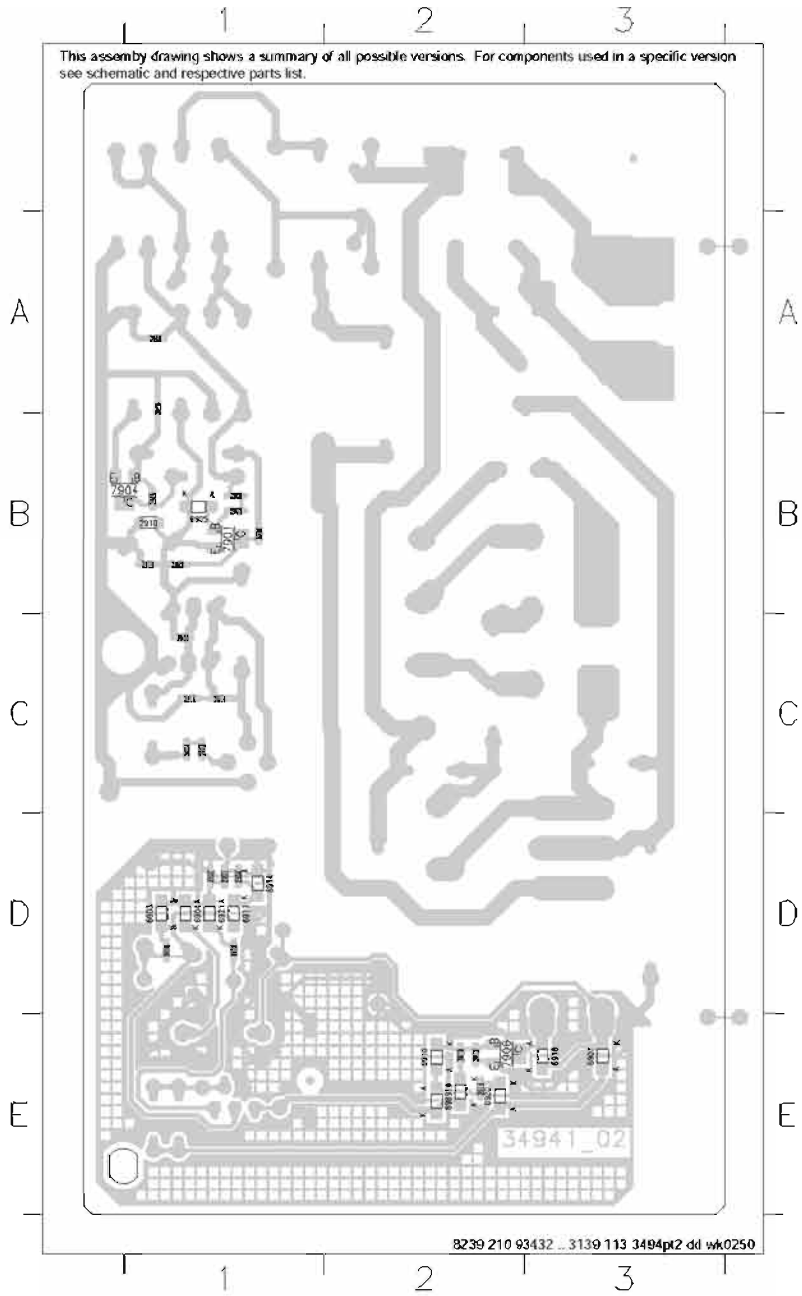
MAINS & ECO STBY BOARD - COMPONENT LAYOUT



1901	A1
1905	A2
1906	A2
1907	D2
1908	E3
1909	C2
1910	C1
1911	B2
1912	B1
2902	A3
2906	A3
2907	B3
2908	A3
2911	D3
2912	D3
2913	A3
2915	C3
3901	D2
3915	A2
3917	E3
3918	E3
3921	D1
5901	A1
5902	A3
5903	A3
5904	A3
5905	C3
6901	A3
6902	B3
6906	A3
6908	C3
6912	A3
6915	D3
6916	A3
6917	B3
7902	B3
7905	C3
9901	A2
9902	A2
9904	C2
9905	C1
9906	A2
9910	A3
9911	E3
9912	C3
9913	C2
9914	B3
9915	E3
9916	E3

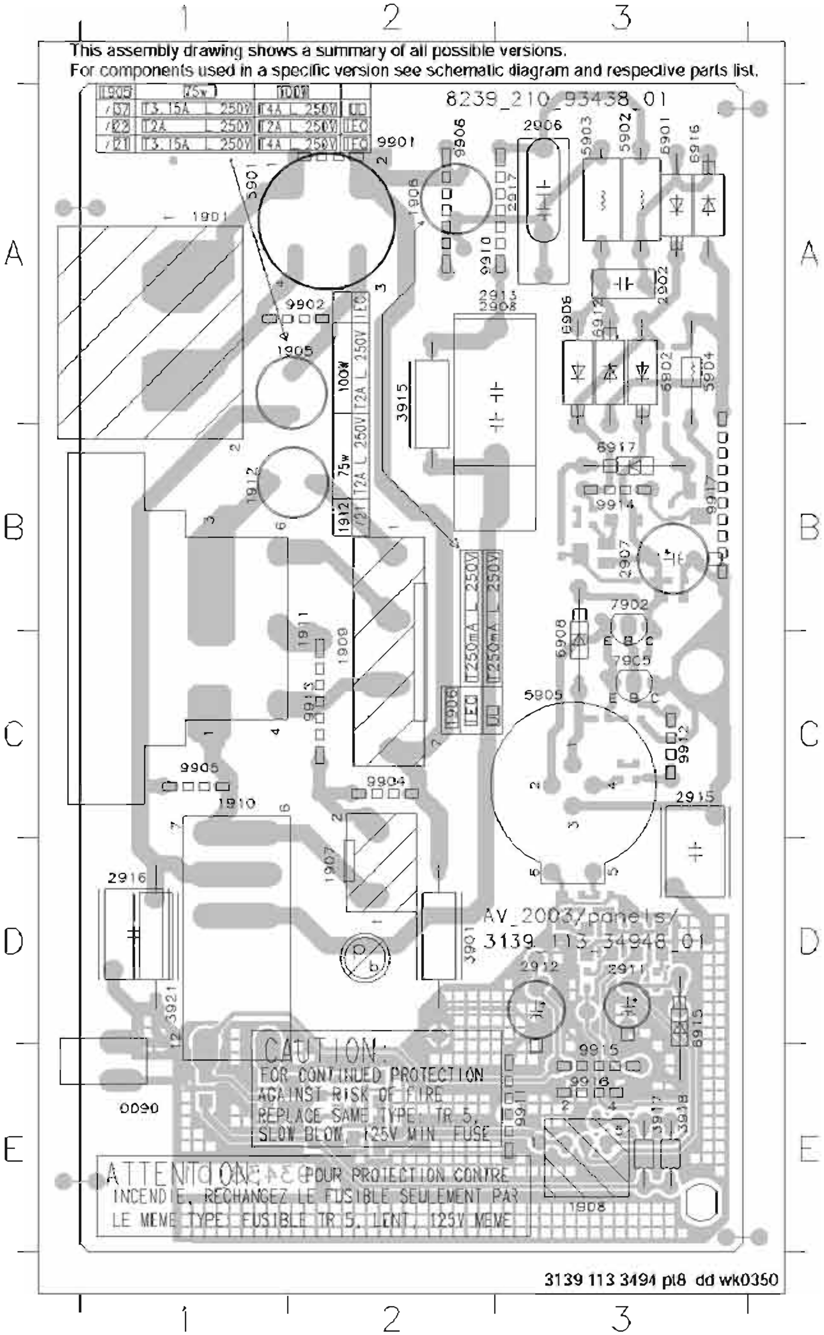
8-5

MAINS & ECO STBY BOARD - CHIP LAYOUT



2901	D1
2903	C1
2904	D1
2905	B1
2909	B1
2910	B1
2914	C1
3902	B1
3903	C1
3904	C1
3905	D1
3906	B1
3907	D1
3908	A1
3909	B1
3910	A1
3911	C1
3913	E2
3914	E2
3916	B1
3919	E2
3920	D1
6903	D1
6904	D1
6905	B1
6907	E3
6909	E2
6910	E2
6911	D1
6914	D1
6918	E3
6919	E2
6920	E2
6921	D1
7901	B1
7904	B1
7906	E2

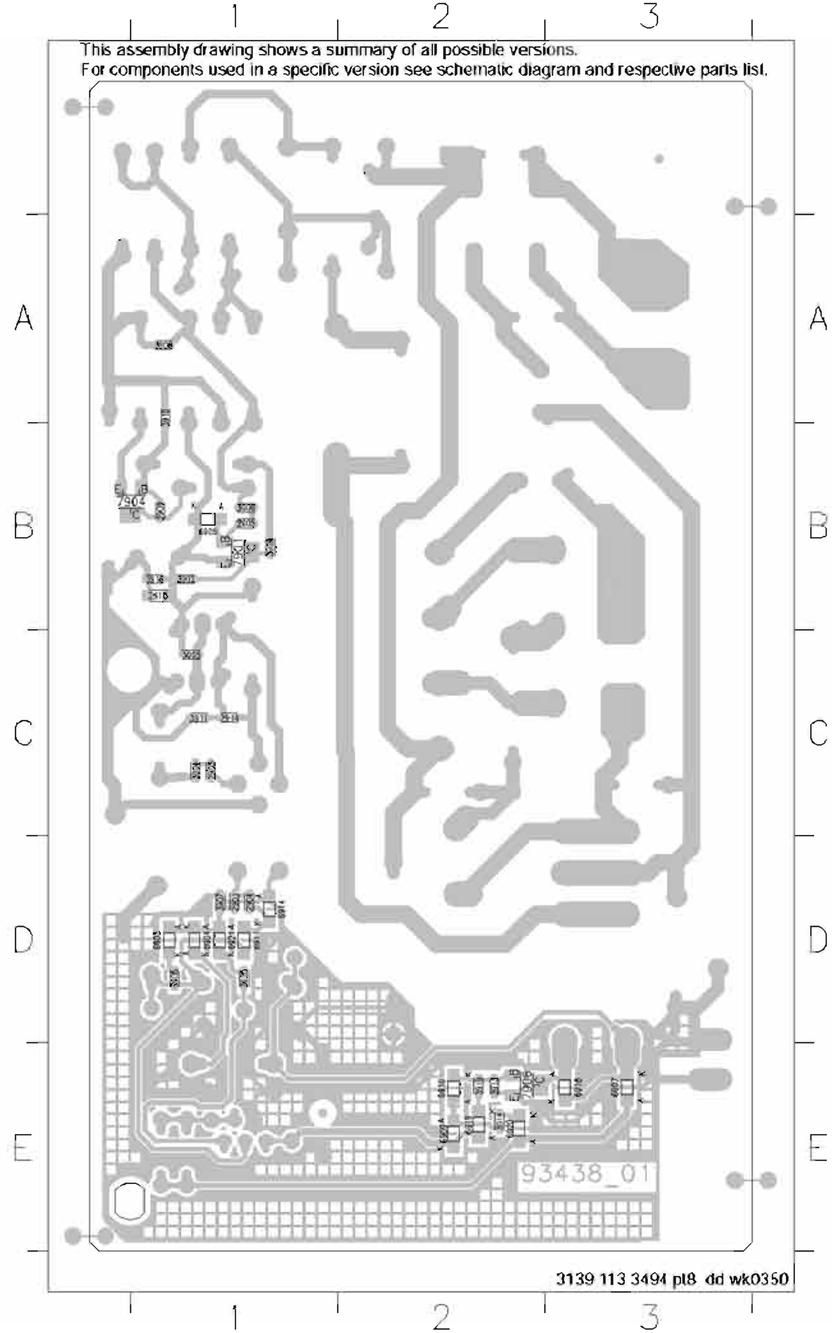
MAINS & ECO STBY BOARD - COMPONENT LAYOUT (pcb layout ... 93438)



0090	E1
1901	A1
1905	A2
1906	A2
1907	D2
1908	E3
1909	C2
1910	C1
1911	B2
1912	B1
2902	A3
2906	A3
2907	B3
2908	A3
2911	D3
2912	D3
2913	A3
2915	C3
2916	D1
2917	A3
3901	D2
3915	A2
3917	E3
3918	E3
3921	D1
5901	A1
5902	A3
5903	A3
5904	A3
5905	C3
6901	A3
6902	A3
6906	A3
6908	C3
6912	A3
6915	D3
6916	A3
6917	B3
7902	B3
7905	C3
9901	A2
9902	A2
9904	C2
9905	C1
9906	A2
9910	A2
9911	E3
9912	C3
9913	C2
9914	B3
9915	E3
9916	E3
9917	B3

8-5a

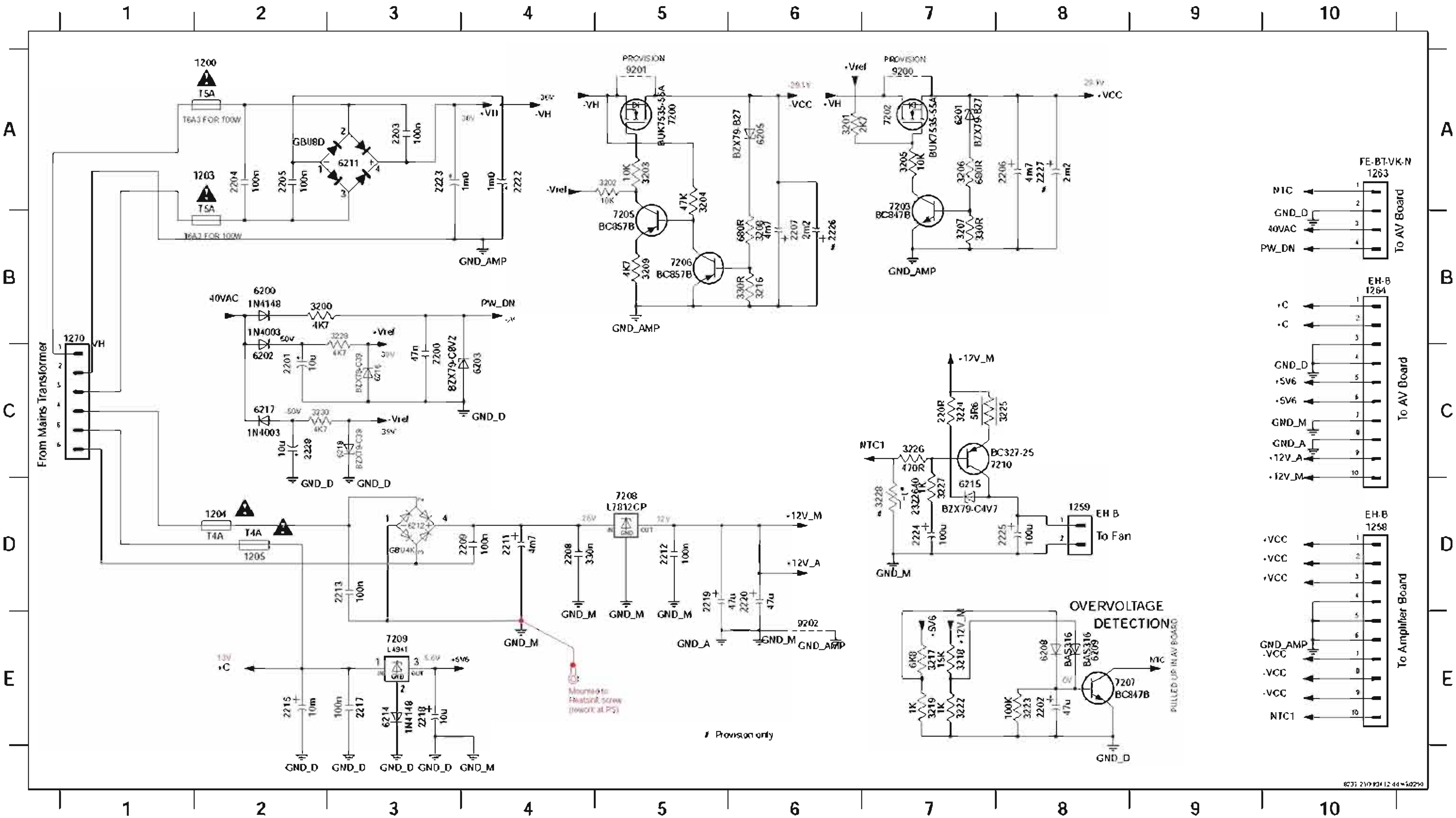
MAINS & ECO STBY BOARD - CHIP LAYOUT (pcb layout ... 93438)



2901	D1
2903	C1
2904	D1
2905	B1
2909	B1
2910	B1
2914	C1
3902	B1
3903	C1
3904	C1
3905	D1
3906	B1
3907	D1
3908	A1
3909	B1
3910	A1
3911	C1
3913	E2
3914	E2
3916	B1
3919	E2
3920	D1
6903	D1
6904	D1
6905	B1
6907	E3
6909	E2
6910	E2
6911	D1
6914	D1
6918	E3
6919	E2
6920	E2
6921	D1
7901	B1
7904	B1
7906	E2

SUPPLY BOARD - CIRCUIT DIAGRAM

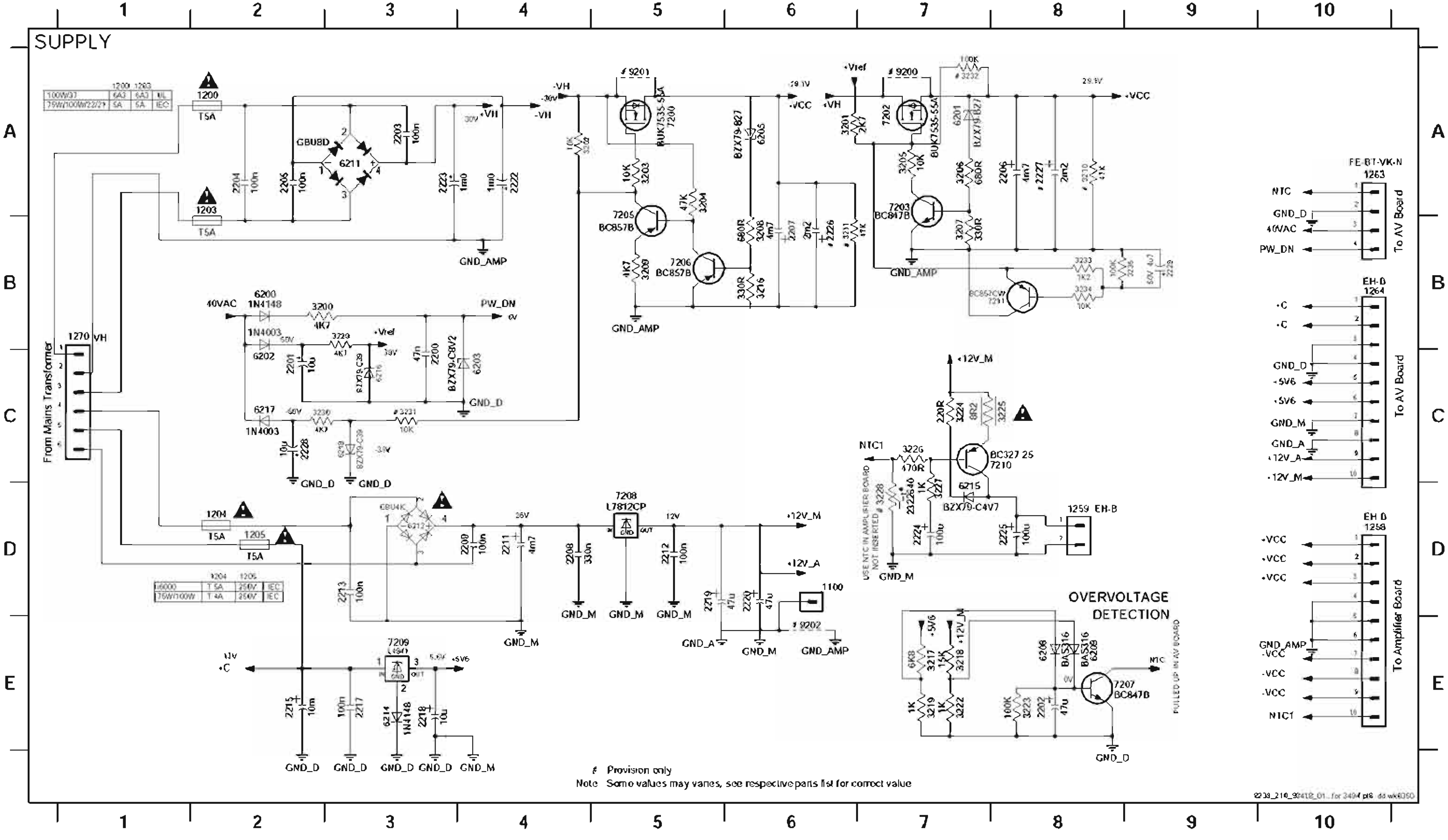
1200 A2	1258 D10	1270 B1	2203 A3	2207 B8	2212 D5	2218 E3	2223 A3	2227 A8	3202 A5	3206 A7	3216 B6	3222 E7	3226 C7	3230 C2	6203 C4	6211 A3	6216 C3	7202 A7	7207 E8	9200 A7
1203 A2	1259 D8	2200 C4	2204 A2	2208 D4	2213 D3	2219 D5	2224 D7	2228 C2	3203 A5	3207 B7	3217 E7	3223 E8	3227 D7	6200 B2	6205 A6	6212 D3	6217 C2	7203 A7	7208 D5	9201 A5
1204 D2	1263 A10	2201 C2	2205 A2	2209 D4	2215 E2	2220 D6	2225 D8	3200 B2	3204 A5	3208 B6	3218 E7	3224 C7	3228 D7	6201 A7	6208 E8	6214 E3	6218 C3	7205 B5	7209 E3	9202 E6
1205 D2	1264 B10	2202 E8	2206 A8	2211 D4	2217 E3	2222 A4	2226 B6	3201 A6	3205 A7	3209 B5	3219 E7	3225 C8	3229 B3	6202 C2	6209 E8	6215 D7	7200 A5	7206 B5	7210 C7	



8-6a

SUPPLY BOARD - CIRCUIT DIAGRAM (For pcb layout ... 93418)

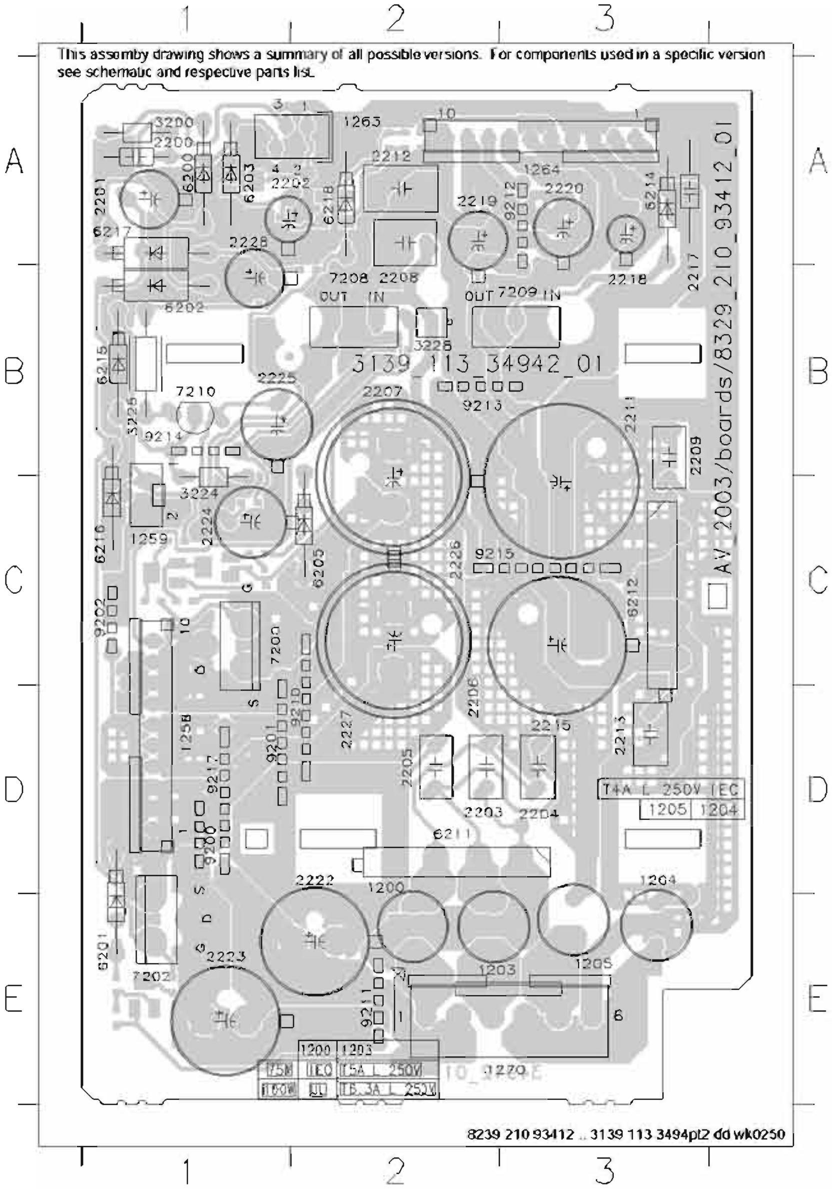
1100 D6	1205 D2	1264 B10	2202 E8	2206 A8	2211 D4	2217 E3	2222 A4	2226 B6	3200 B2	3204 A5	3208 B6	3216 B6	3222 E7	3226 C7	3230 C2	3234 B8	6202 C2	6209 E8	6215 D7	7200 A5	7206 B5	7210 C7	9202 E6
1200 A2	1258 D10	1270 B1	2203 A3	2207 B6	2212 D5	2218 E3	2223 A3	2227 A8	3201 A6	3205 A7	3209 B5	3217 E7	3223 E8	3227 D7	3231 C3	3235 B9	6203 C4	6211 A3	6216 C3	7202 A7	7207 E8	7211 B8	
1203 A2	1259 D8	2200 C3	2204 A2	2208 D4	2213 D3	2219 D5	2224 D7	2228 C2	3202 A4	3206 A7	3210 A8	3218 E7	3224 C7	3228 D7	3232 A7	6200 B2	6205 A6	6212 D3	6217 C2	7203 A7	7208 D5	9200 A7	
1204 D2	1263 A10	2201 C2	2205 A2	2209 D4	2215 E2	2220 D6	2225 D8	2229 B9	3203 A5	3207 B7	3211 B6	3219 E7	3225 C8	3229 B3	3233 B8	6201 A7	6208 E8	6214 E3	6218 C3	7205 B5	7209 E3	9201 A5	



\# Provision only

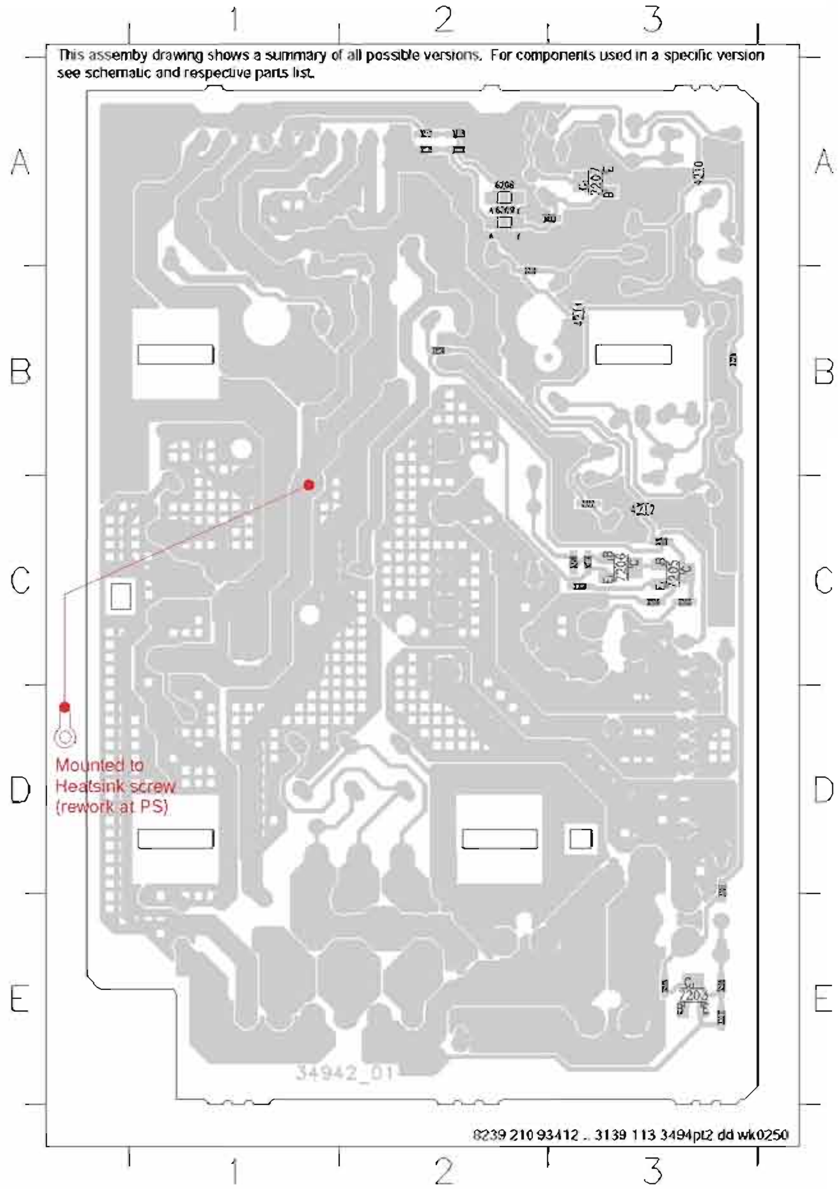
Note Some values may varies, see respective parts list for correct value

SUPPLY BOARD - COMPONENT LAYOUT



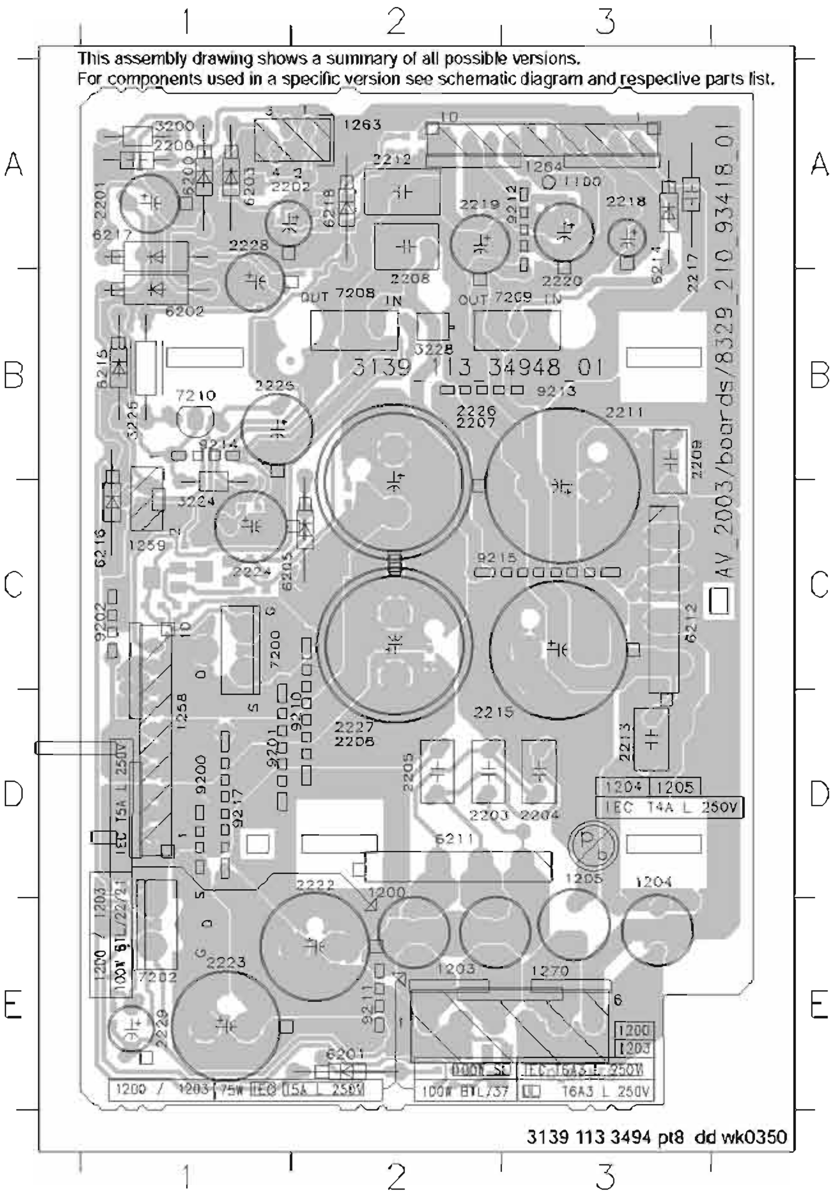
1200	D2
1203	E2
1204	D3
1205	E3
1258	D1
1259	C1
1263	A2
1264	A3
1270	E3
2200	A1
2201	A1
2202	A1
2203	D2
2204	D3
2205	D2
2206	D2
2207	B2
2208	B2
2209	B3
2211	B3
2212	A2
2213	D3
2215	D3
2217	B3
2218	B3
2219	A2
2220	A3
2222	D2
2223	E1
2224	C1
2225	B1
2226	C2
2227	D2
2228	A1
3200	A1
3224	C1
3225	B1
3228	B2
6200	A1
6201	E1
6202	B1
6203	A1
6205	C2
6211	D2
6212	C3
6214	A3
6215	B1
6216	C1
6217	A1
6218	A2
7200	C1
7202	E1
7208	B2
7209	B3
7210	B1
9200	D1
9201	D1
9202	C1
9210	D2
9211	E2
9212	A3
9213	B2
9214	B1
9215	C2
9217	D1

SUPPLY BOARD - CHIP LAYOUT



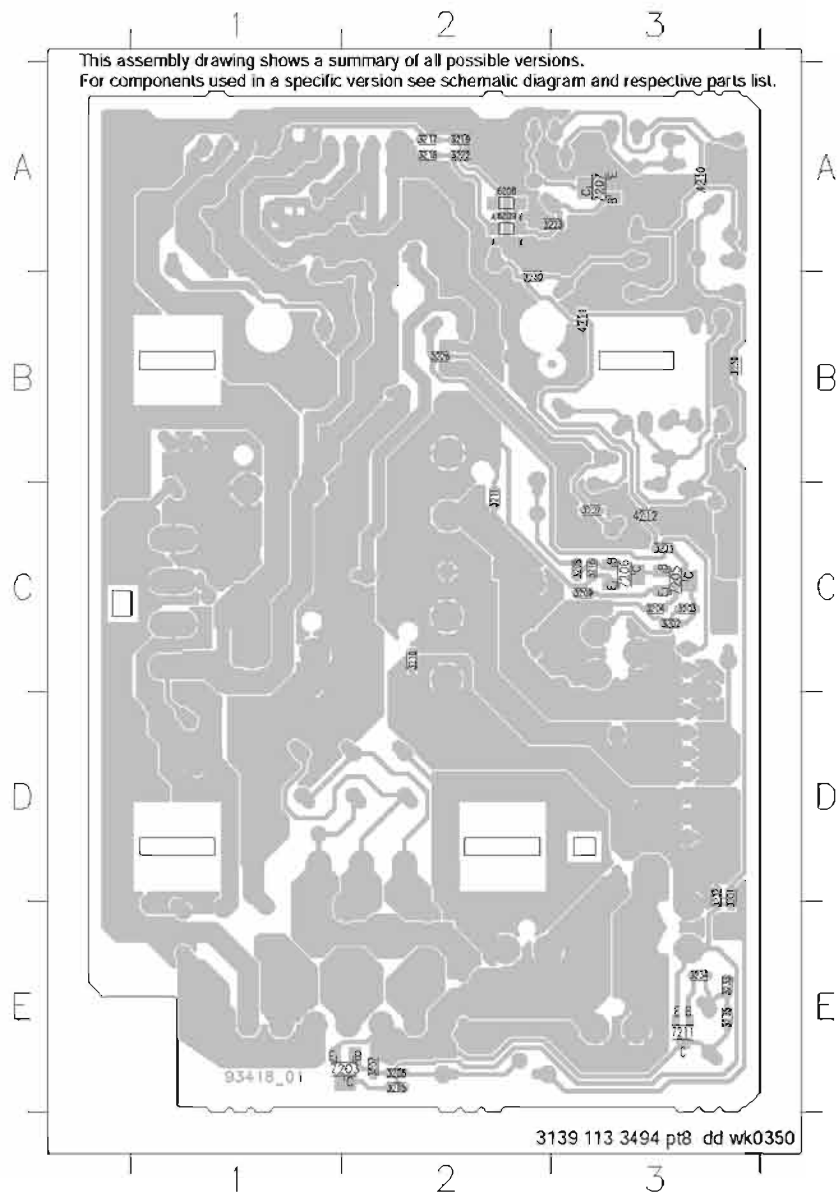
3201	D3
3202	C3
3203	C3
3204	C3
3205	E3
3206	E3
3207	E3
3208	C3
3209	C3
3216	C3
3217	A2
3218	A2
3219	A2
3222	A2
3223	A3
3226	B2
3227	C3
3229	B3
3230	B2
4210	A3
4211	B3
4212	C3
6208	A2
6209	A2
7203	E3
7205	C3
7206	C3
7207	A3

SUPPLY BOARD - COMPONENT LAYOUT (pcb layout ... 93418)



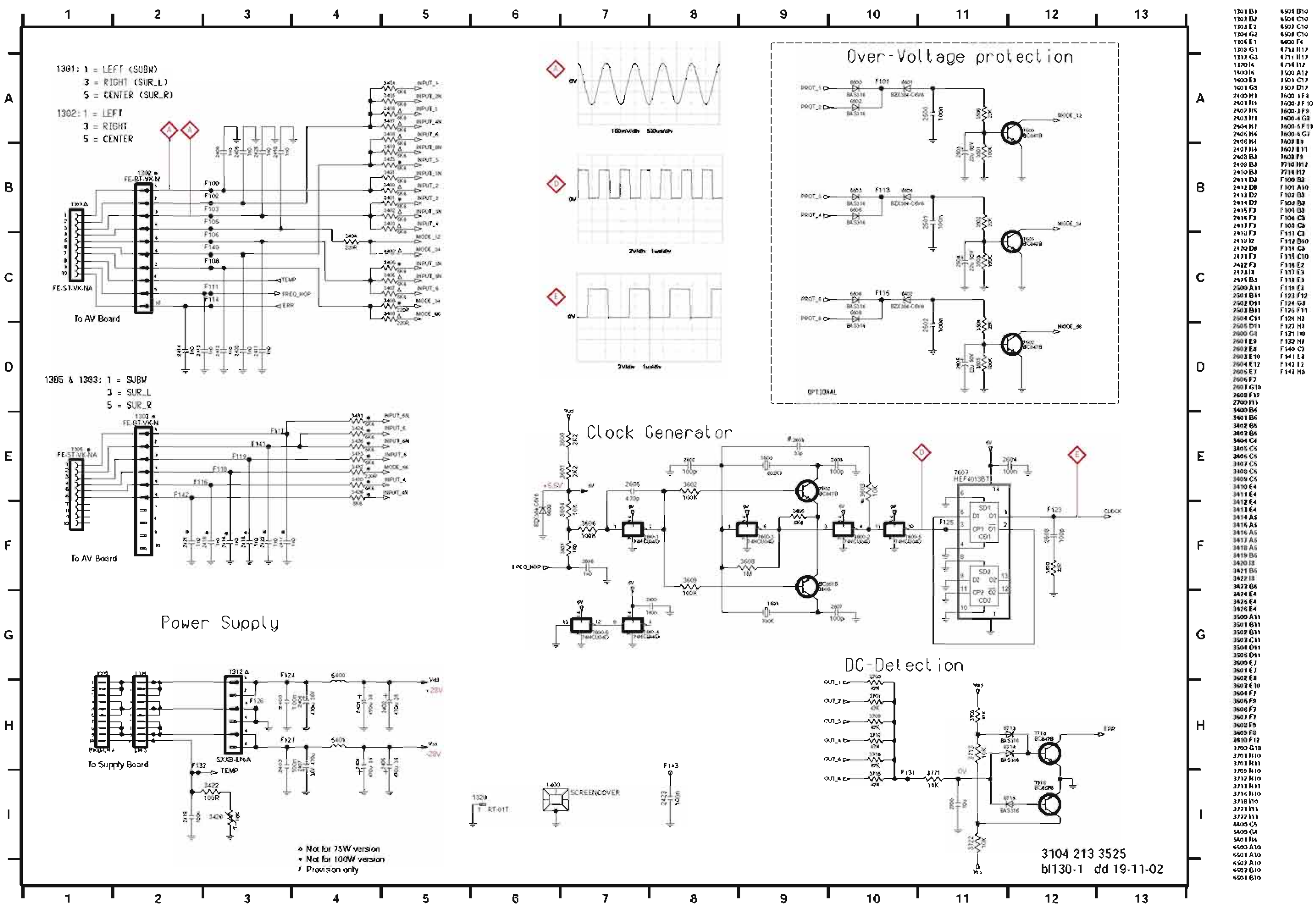
1100	A3
1200	D2
1203	E2
1204	D3
1205	D3
1258	D1
1259	C1
1263	A2
1264	A3
1270	E3
2200	A1
2201	A1
2202	A1
2203	D2
2204	D3
2205	D2
2206	D2
2207	B2
2208	B2
2209	B3
2211	B3
2212	A2
2213	D3
2215	D2
2217	B3
2218	A3
2219	A2
2220	B3
2222	D2
2223	E1
2224	C1
2225	B1
2226	B2
2227	D2
2228	A1
2229	E1
3200	A1
3224	C1
3225	B1
3228	B2
6200	A1
6201	E2
6202	B1
6203	A1
6205	C1
6211	D2
6212	C3
6214	A3
6215	B1
6216	C1
6217	A1
6218	A2
7200	C1
7202	E1
7208	B2
7209	B3
7210	B1
9200	D1
9201	D1
9202	C1
9210	D2
9211	E2
9212	A3
9213	B3
9214	B1
9215	C2
9217	D1

SUPPLY BOARD - CHIP LAYOUT (pcb layout 93418)



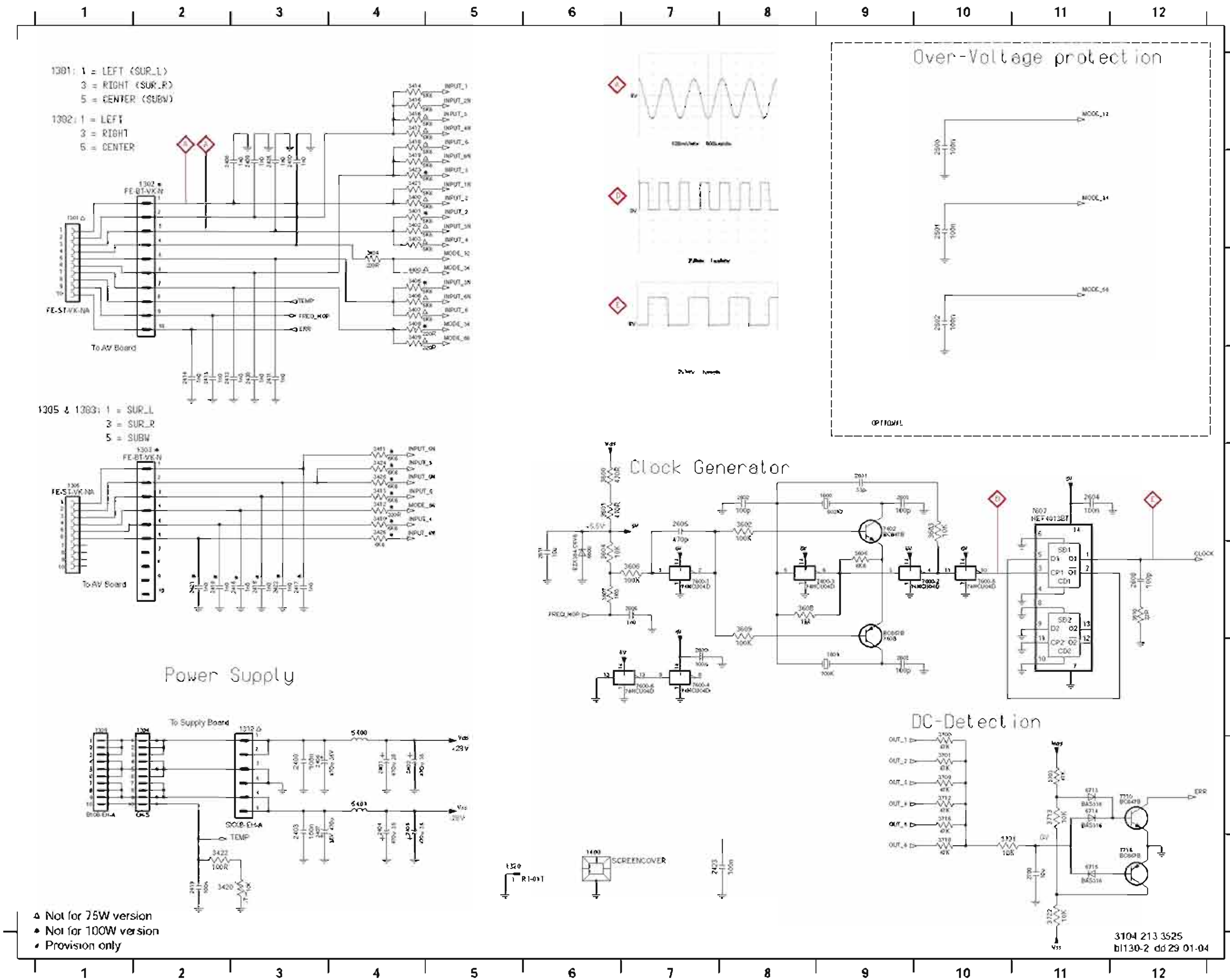
3201	D3
3202	C3
3203	C3
3204	C3
3205	E2
3206	E2
3207	E2
3208	C3
3209	C3
3210	C2
3211	C2
3216	C3
3217	A2
3218	A2
3219	A2
3222	A2
3223	A3
3226	B2
3227	C3
3229	B3
3230	B2
3231	C3
3232	D3
3233	E3
3234	E3
3235	E3
4210	A3
4211	B3
4212	C3
6208	A2
6209	A2
7203	E2
7205	C3
7206	C3
7207	A3
7211	E3

AMPLIFIER BOARD - CLOCK GENERATOR & CONNECTION CIRCUIT

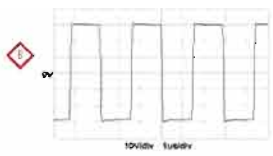


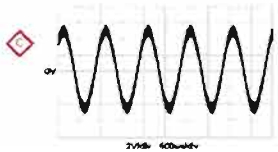
8-8a

AMPLIFIER BOARD - CLOCK GENERATOR & CONNECTION CIRCUIT (For pcb layout ... 34255)

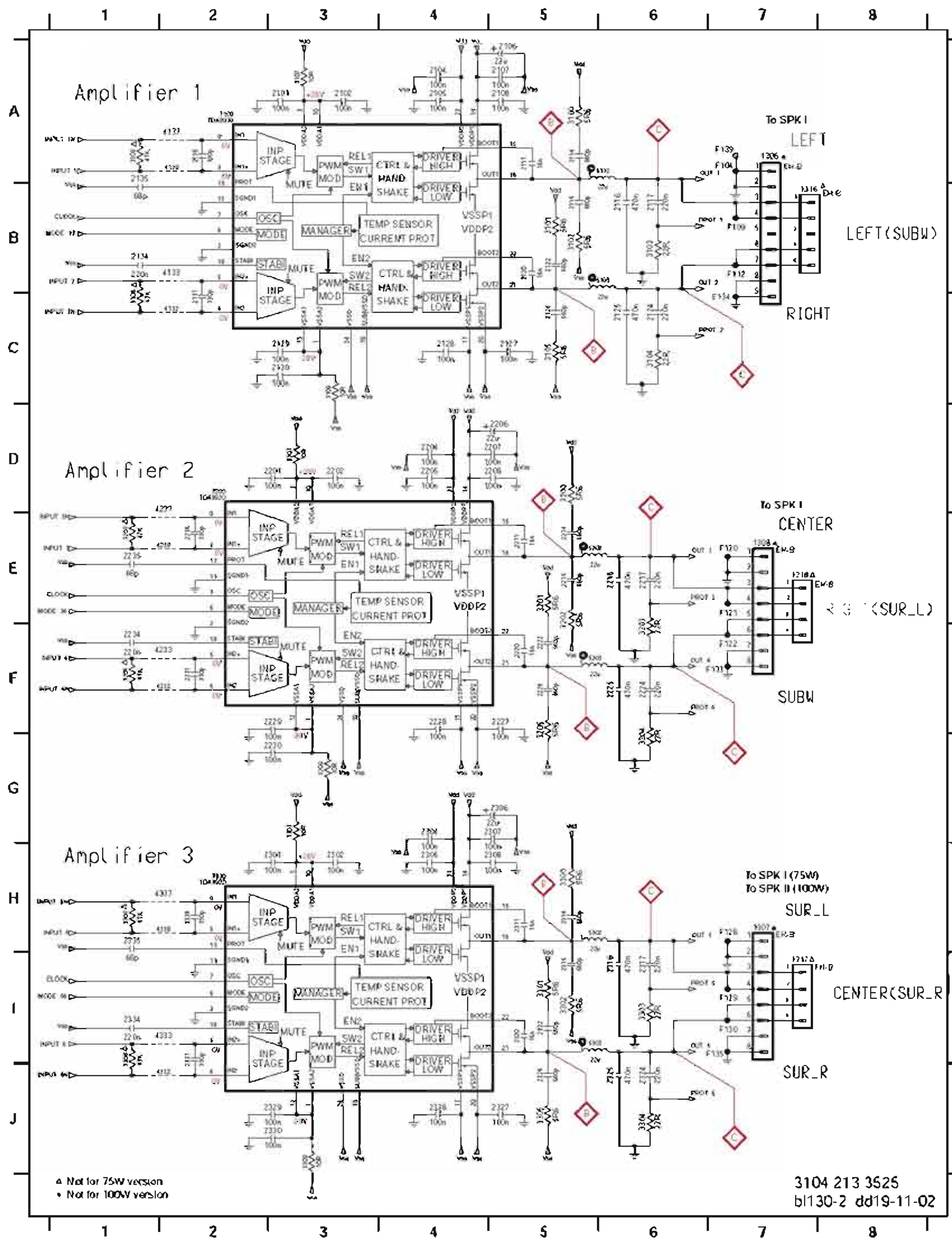


AMPLIFIER BOARD - AMPLIFIER CIRCUIT



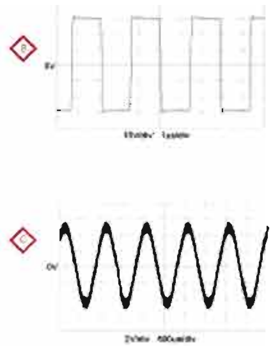


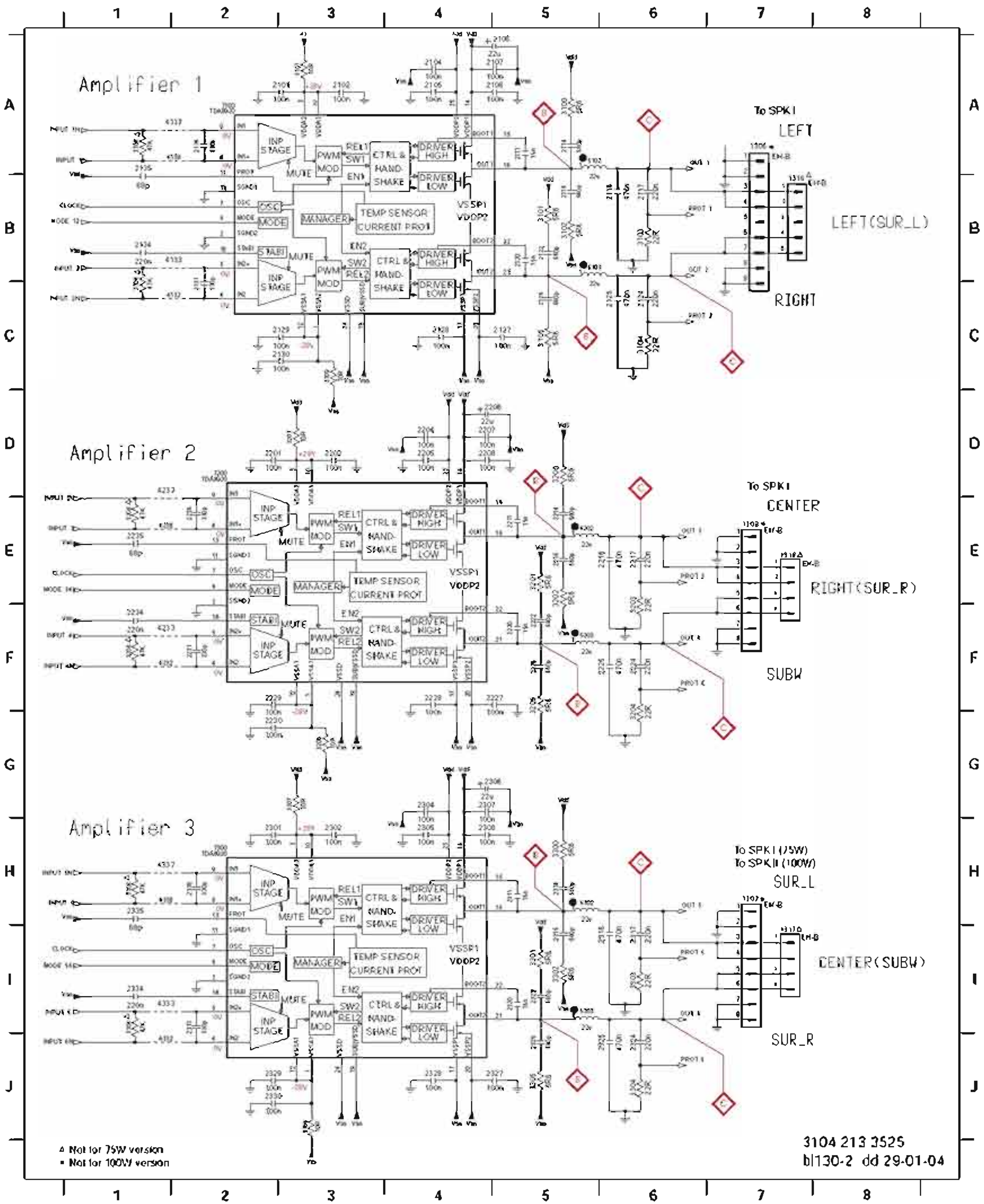
8-9



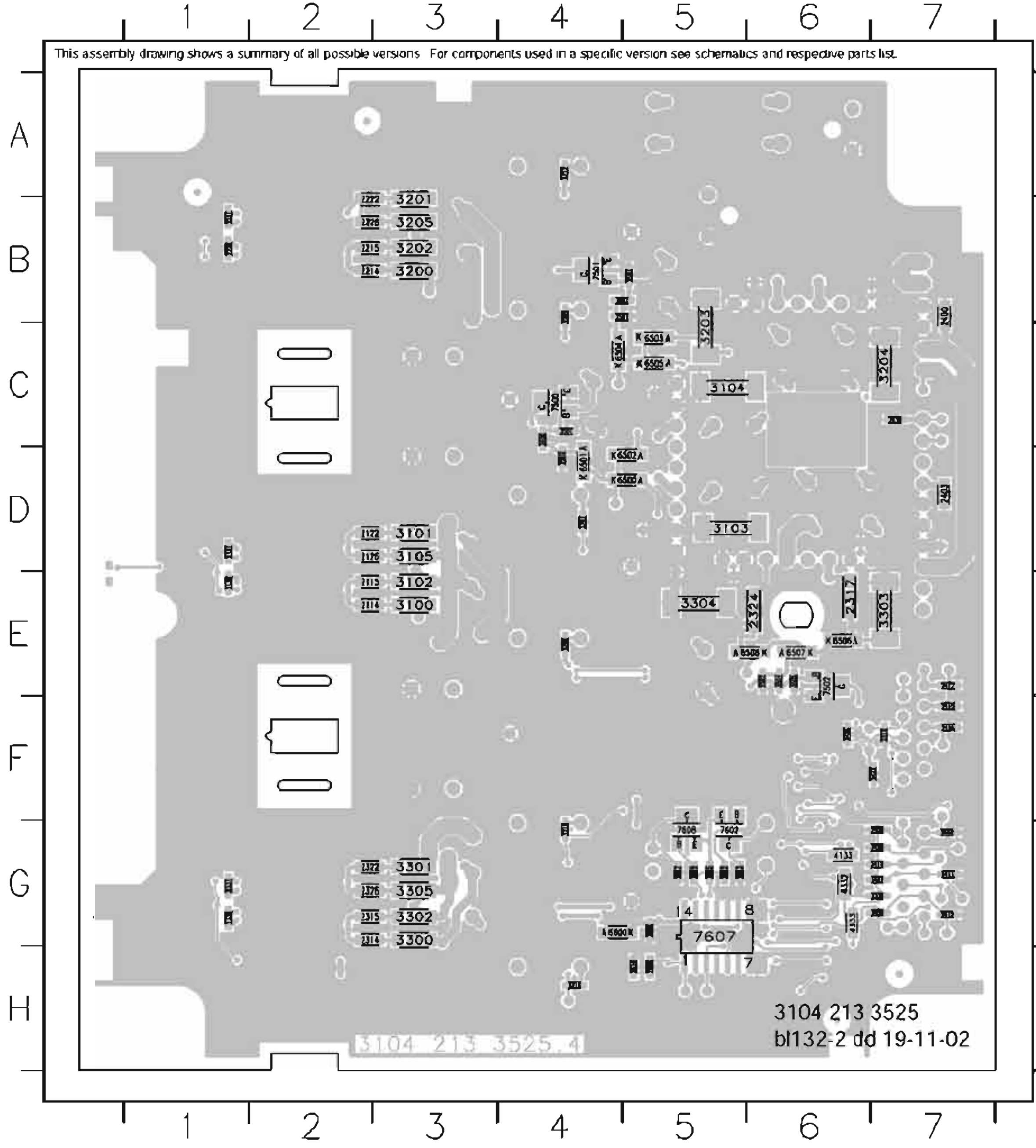
8-9a

AMPLIFIER BOARD - AMPLIFIER CIRCUIT (For pcb layout ... 34255)





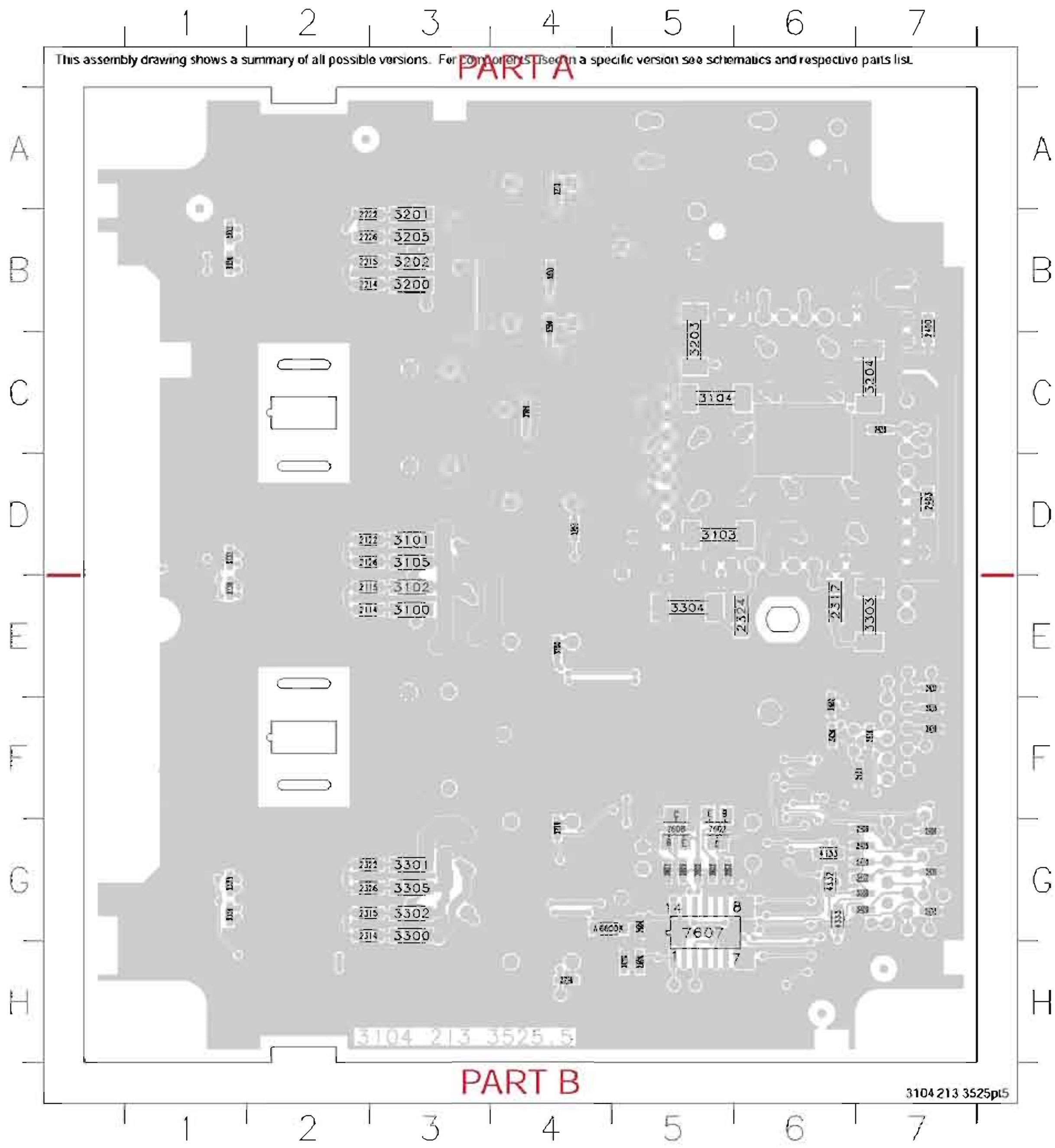
AMPLIFIER BOARD - CHIP VIEW



2114	E2	3610	H5
2115	E2	3700	E4
2122	D2	3701	D4
2126	D2	3709	B4
2131	D1	3712	A4
2136	E1	3716	H4
2214	B2	3718	C4
2215	B2	4133	G6
2222	B2	4333	G6
2226	B2	6500	D5
2231	B1	6501	D4
2236	B1	6502	D5
2314	G2	6503	C5
2315	G2	6504	C4
2317	E6	6505	C5
2322	G2	6506	E6
2324	E6	6507	E6
2326	G2	6508	E6
2331	G1	6600	G4
2332	G6	7500	C4
2336	G1	7501	B4
2400	B7	7502	E6
2403	D7	7602	G5
2408	G7	7607	G5
2409	G7	7608	G5
2410	G7		
2411	G7		
2412	G7		
2415	F7		
2416	F7		
2417	E7		
2418	F7		
2419	C7		
2421	F7		
2425	G7		
2500	D4		
2501	B5		
2502	E6		
2603	G5		
2604	G5		
2607	G5		
2608	H5		
3100	E3		
3101	D3		
3102	E3		
3103	D5		
3104	C5		
3105	D3		
3200	B3		
3201	B3		
3202	B3		
3203	C5		
3204	C7		
3205	B3		
3300	G3		
3301	G3		
3302	G3		
3303	E7		
3304	E5		
3305	G3		
3306	G7		
3407	G7		
3409	G7		
3426	F6		
3500	C4		
3501	C4		
3502	B5		
3503	B5		
3504	E6		
3505	E6		
3602	G5		
3605	G5		
3609	G5		

8-10

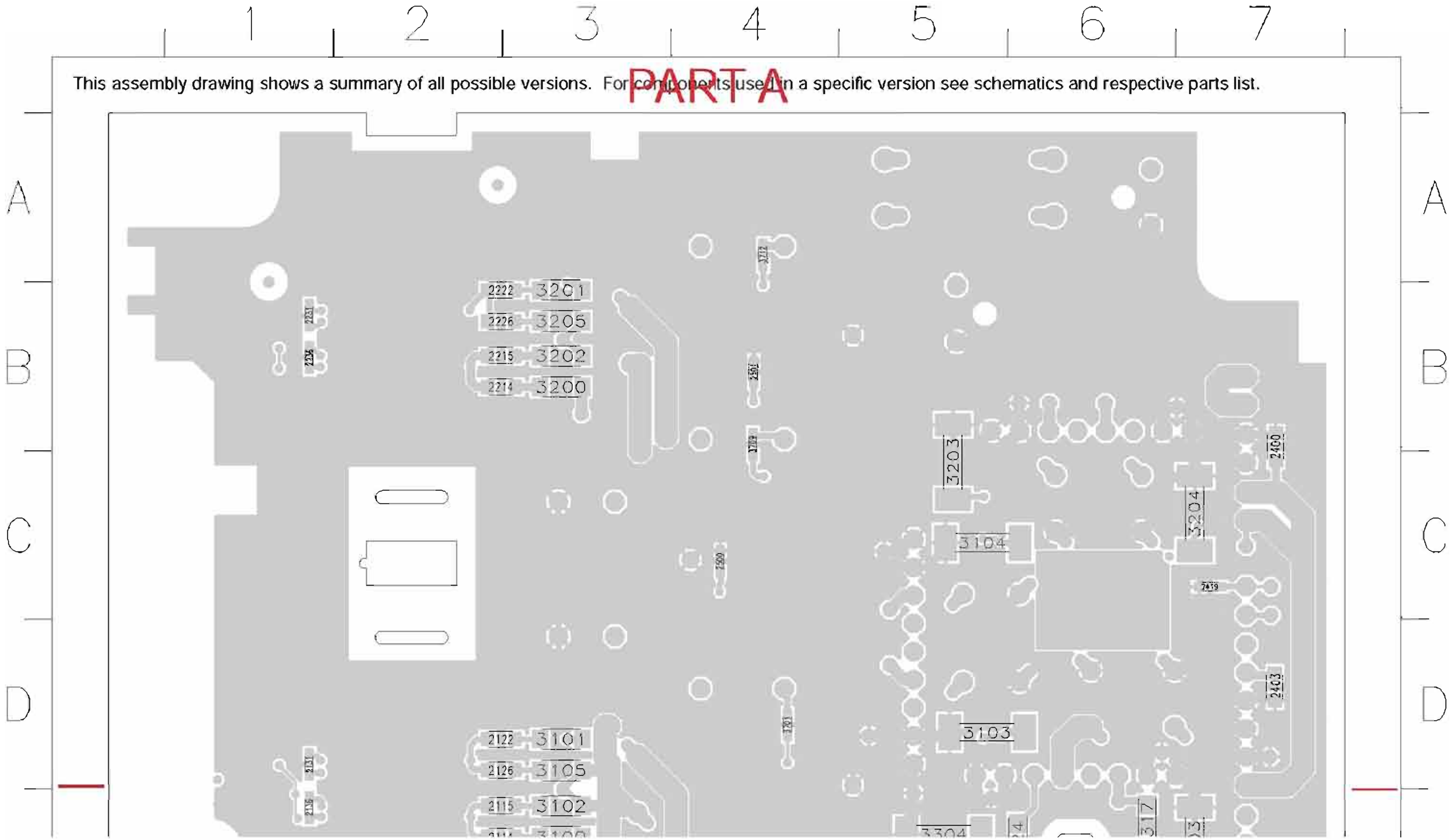
AMPLIFIER BOARD - CHIP VIEW (pcb layout ... 35255)



2114	E2	4332	G6
2115	E2	4333	G6
2122	D2	6600	G4
2126	D2	7602	G5
2131	D1	7607	G5
2136	E1	7608	G5
2214	B2	F100	F7
2215	B2	F102	G7
2222	B2	F103	G7
2226	B2	F104	E5
2231	B1	F105	G7
2236	B1	F106	G7
2314	G2	F108	G7
2315	G2	F109	D5
2317	E6	F111	G7
2322	G2	F112	C5
2324	E6	F114	G7
2326	G2	F116	E7
2331	G1	F117	E7
2336	G1	F118	E6
2400	B7	F119	E7
2403	D7	F120	B6
2408	G7	F121	B6
2409	G7	F122	B6
2410	G7	F123	H5
2411	G7	F124	C7
2412	G7	F125	H5
2415	F7	F126	D7
2416	E7	F127	C7
2417	E7	F128	D6
2418	F7	F129	E6
2419	C7	F130	D6
2421	F7	F131	H4
2425	G7	F132	C7
2500	C4	F133	B7
2501	B4	F134	C5
2502	F6	F135	E5
2603	G5	F139	D5
2604	G5	F140	G7
2607	G5	F141	E7
2608	H5	F142	F6
3100	E3	F143	C6
3101	D3		
3102	E3		
3103	D5		
3104	C5		
3105	D3		
3200	B3		
3201	B3		
3202	B3		
3203	C5		
3204	C7		
3205	B3		
3300	G3		
3301	G3		
3302	G3		
3303	E7		
3304	E5		
3305	G3		
3306	G7		
3407	G7		
3409	G7		
3426	F6		
3602	G5		
3605	G5		
3609	G5		
3610	H5		
3700	E4		
3701	D4		
3709	B4		
3712	A4		
3716	H4		
3718	G4		
4133	G6		

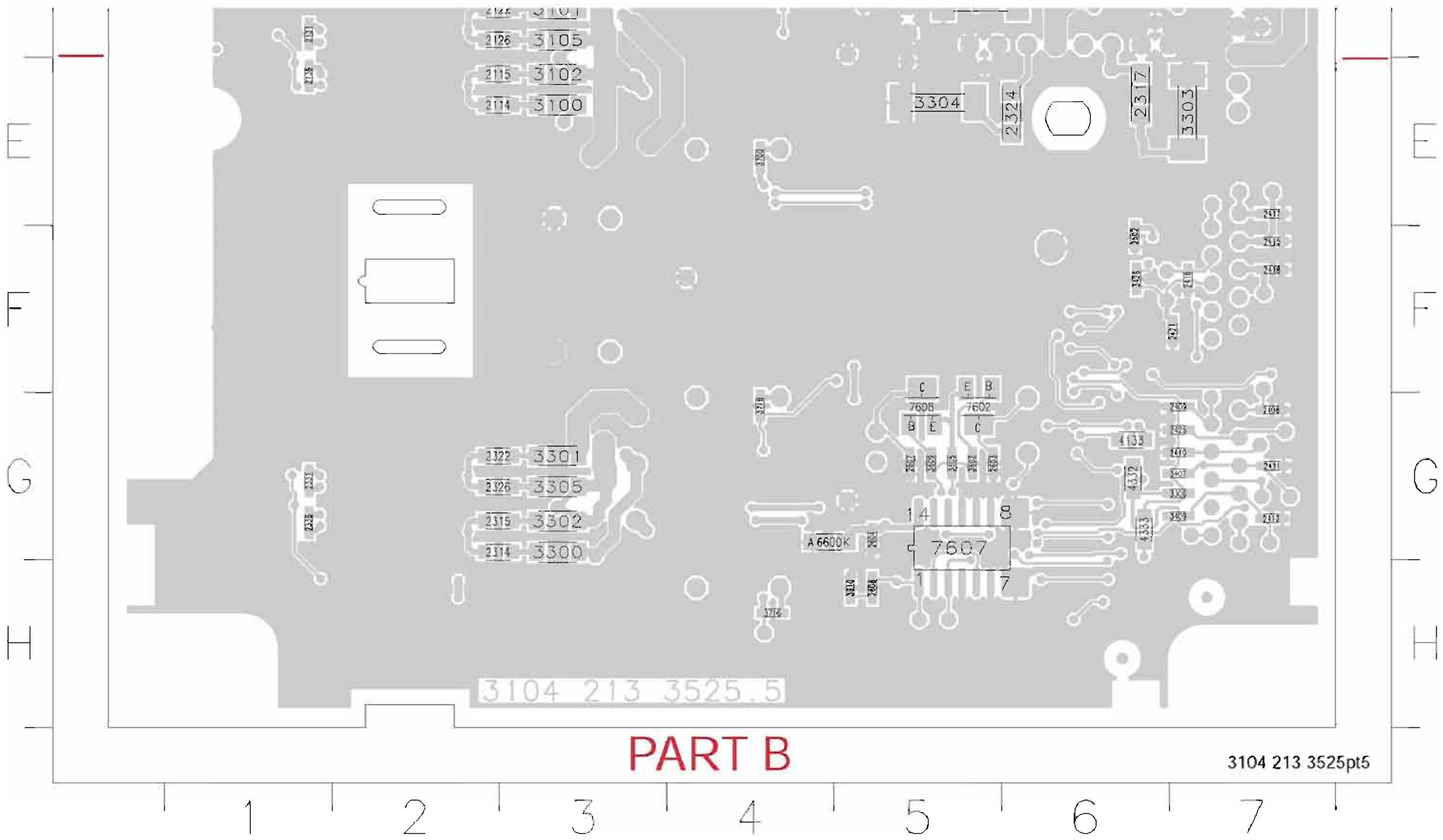
AMPLIFIER BOARD - CHIP VIEW (pcb layout ... 35255) PART A

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



8-10c

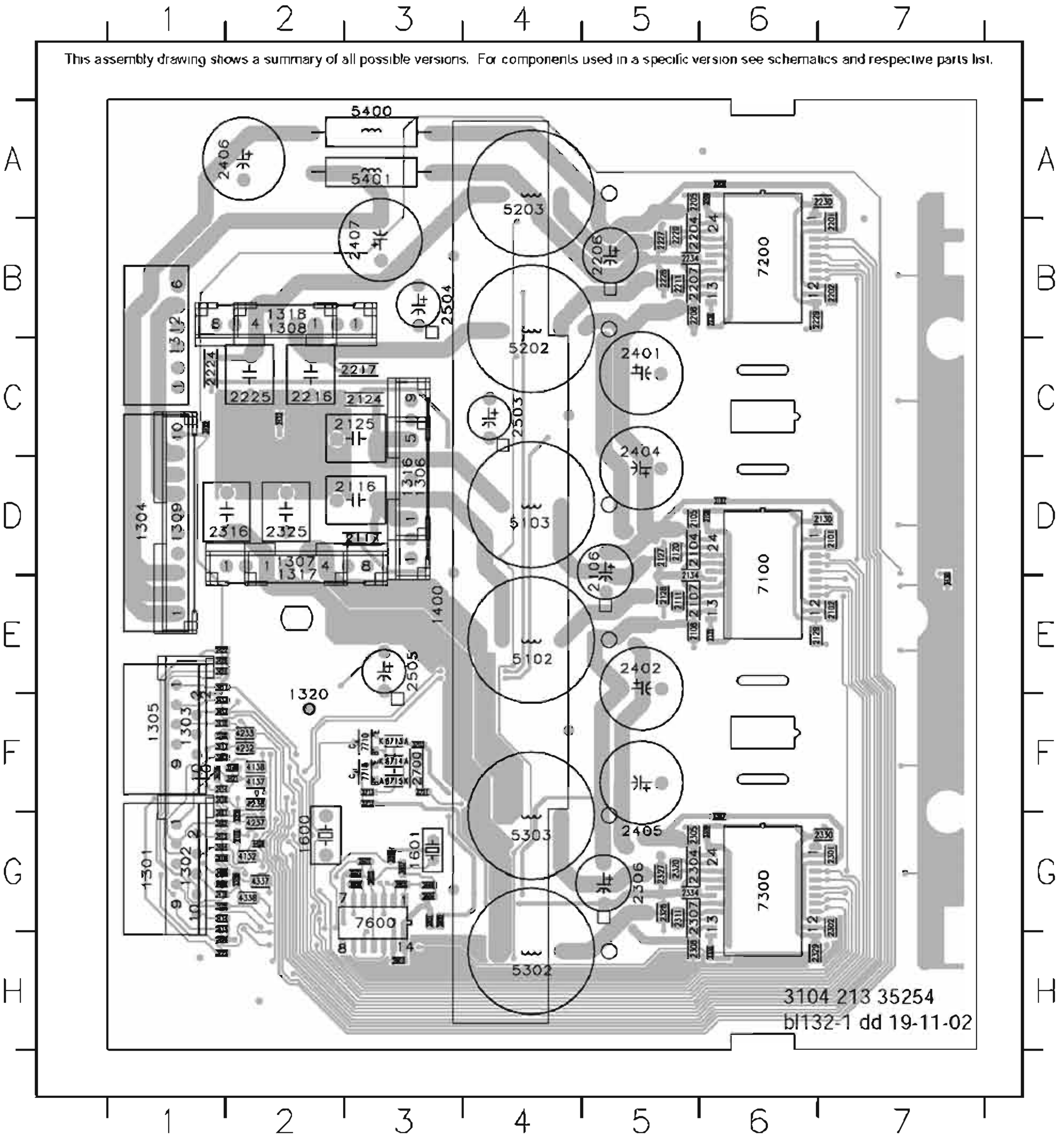
AMPLIFIER BOARD - CHIP VIEW (pcb layout ... 35255) PART B



8-11

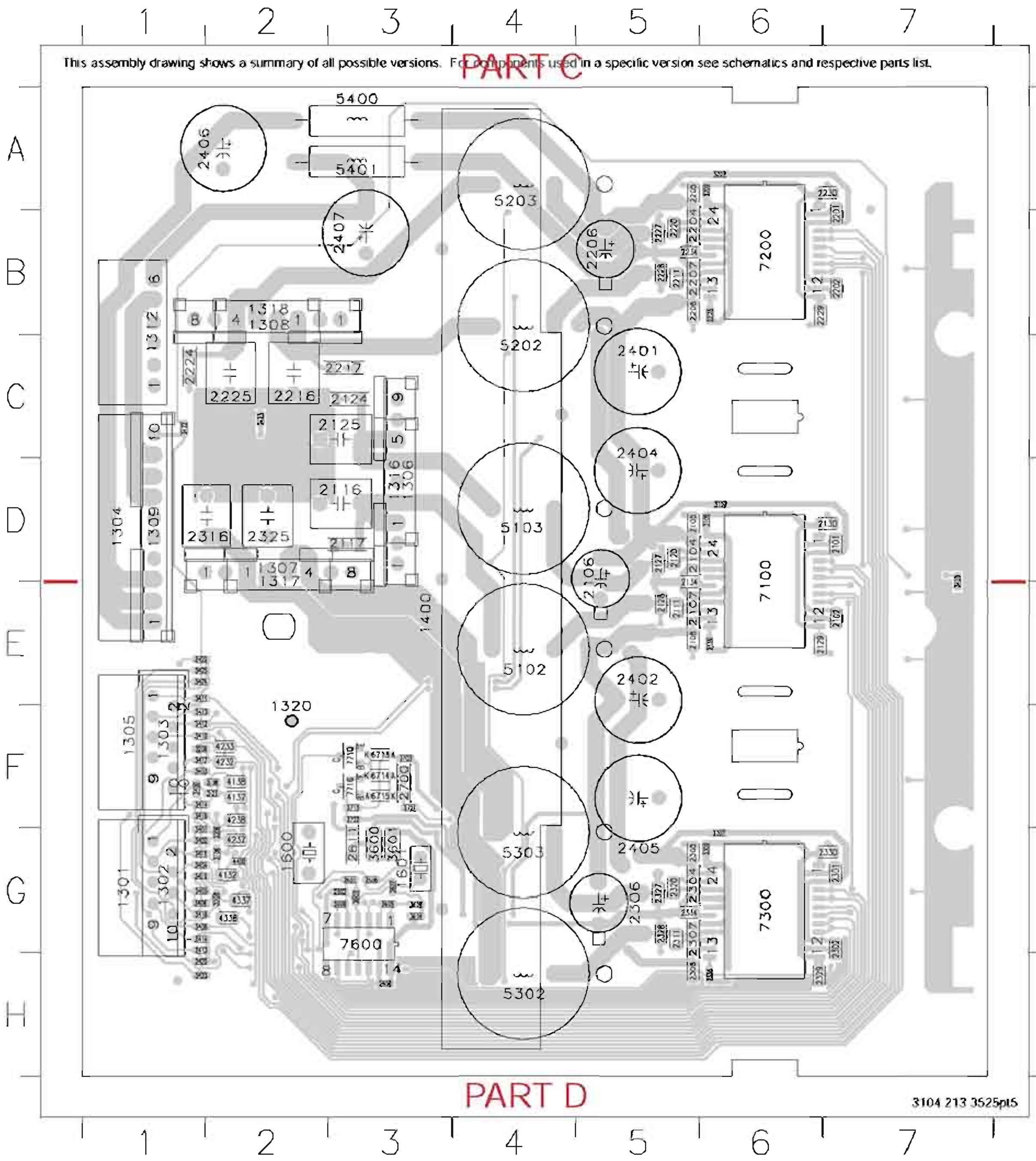
AMPLIFIER BOARD - COMPONENT LAYOUT

1301	G1	2406	A2	5302	H4
1302	G1	2407	B3	5303	G4
1303	F1	2413	G1	5400	A3
1304	D1	2414	G1	5401	A3
1305	F1	2420	H1	6713	F3
1306	D3	2422	E1	6714	F3
1307	D2	2423	C2	6715	F3
1308	B2	2503	C4	7100	D6
1309	D1	2504	B3	7200	B6
1312	B1	2505	E3	7300	G6
1316	D3	2600	H3	7600	G3
1317	D2	2601	G3	7710	F3
1318	B2	2602	G3	7716	F3
1320	F2	2605	G3		
1400	D4	2606	G3		
1600	G2	2700	F3		
1601	G3	3106	G2		
2101	D7	3107	D6		
2102	E7	3108	F2		
2104	D5	3109	D6		
2105	D5	3206	F1		
2106	D5	3207	A6		
2107	E5	3208	G2		
2108	E5	3209	A6		
2111	E5	3307	G6		
2116	D3	3308	G2		
2117	D3	3309	G6		
2120	D5	3400	F1		
2124	C3	3401	G1		
2125	C3	3402	G1		
2127	D5	3403	F1		
2128	E5	3404	G1		
2129	E6	3405	G1		
2130	D7	3406	G1		
2134	E5	3408	G1		
2135	E6	3410	F1		
2201	B7	3411	E1		
2202	B7	3412	F1		
2204	B5	3413	F1		
2205	A5	3414	F1		
2206	B5	3415	G1		
2207	B5	3416	F1		
2208	B5	3417	F1		
2211	B5	3418	G1		
2216	C2	3419	G1		
2217	C3	3420	E7		
2220	B5	3421	F2		
2224	C1	3422	C1		
2225	C2	3423	H1		
2227	B5	3424	E1		
2228	B5	3425	E1		
2229	B6	3600	G3		
2230	A7	3601	G3		
2234	B5	3603	G3		
2235	B6	3604	G3		
2301	G7	3606	G3		
2302	G7	3607	G3		
2304	G5	3608	G3		
2305	G5	3703	F3		
2306	G5	3713	F3		
2307	G5	3721	F3		
2308	H5	3722	F3		
2311	G5	4132	G2		
2316	D2	4137	F2		
2320	G5	4138	F2		
2325	D2	4232	F2		
2327	G5	4233	F2		
2328	G5	4237	G2		
2329	H6	4238	F2		
2330	G7	4337	G2		
2334	G5	4338	G2		
2335	H6	4400	G2		
2401	C5	5102	E4		
2402	E5	5103	D4		
2404	D5	5202	B4		
2405	F5	5203	A4		



8-11a

AMPLIFIER BOARD - COMPONENT LAYOUT (pcb layout ... 35255)

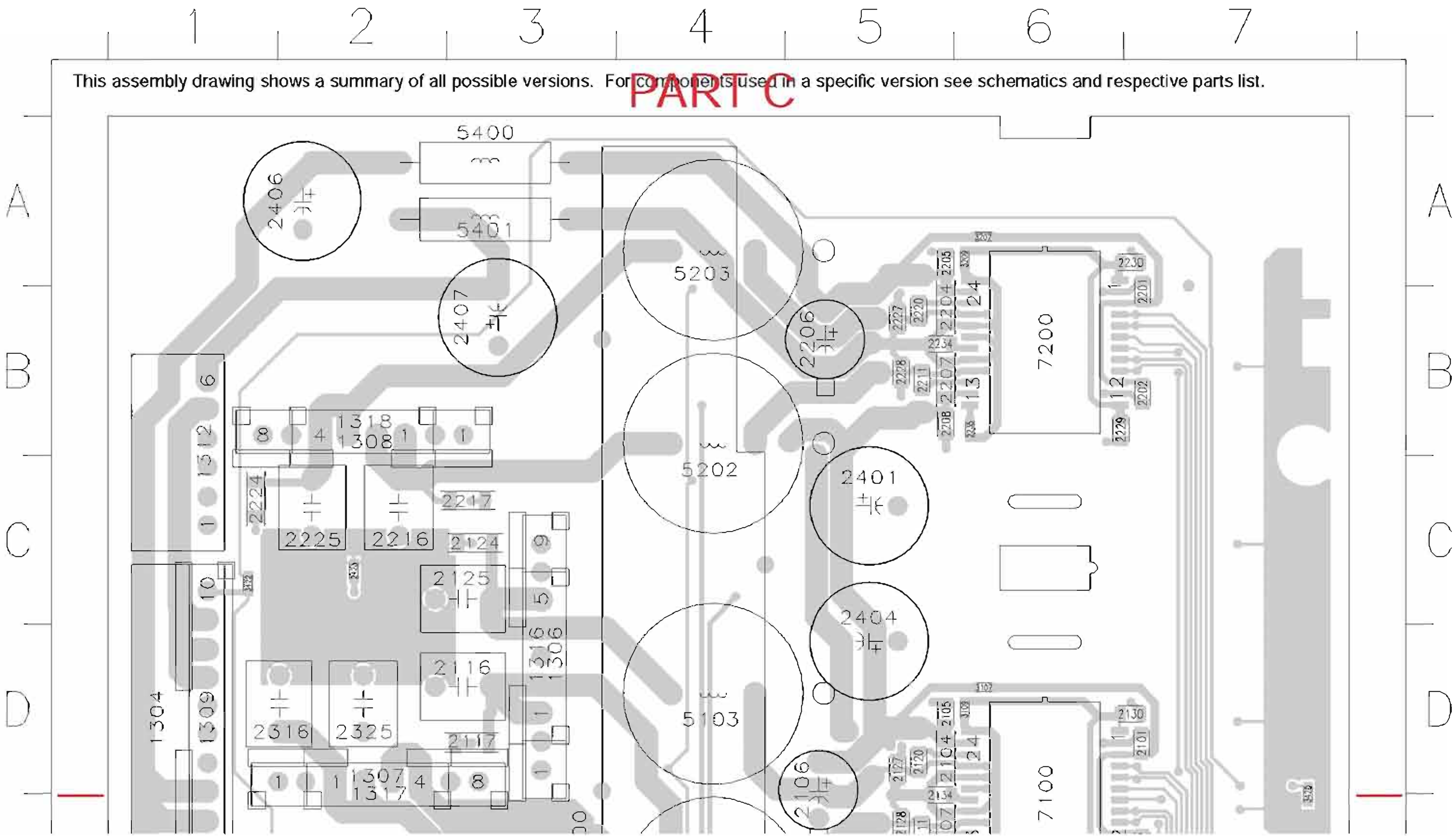


1301	G1	2404	D5	5202	B4
1302	G1	2405	F5	5203	A4
1303	F1	2406	A2	5302	H4
1304	D1	2407	B3	5303	G4
1305	F1	2413	G1	5400	A3
1306	D3	2414	G1	5401	A3
1307	D2	2420	H1	6713	F3
1308	B2	2422	E1	6714	F3
1309	D1	2423	C2	6715	F3
1312	B1	2600	H3	7100	D6
1316	D3	2601	G3	7200	B6
1317	D2	2602	G3	7300	G6
1318	B2	2605	G3	7600	G3
1320	F2	2606	G3	7710	F3
1400	D4	2611	G3	7716	F3
1600	G2	2700	F3		
1601	G3	3106	G2		
2101	D7	3107	D6		
2102	E7	3108	F2		
2104	D5	3109	D6		
2105	D5	3206	F1		
2106	D5	3207	A6		
2107	E5	3208	G2		
2108	E5	3209	A6		
2111	E5	3307	G6		
2116	D3	3308	G2		
2117	D3	3309	G6		
2120	D5	3400	F1		
2124	C3	3401	G1		
2125	C3	3402	G1		
2127	D5	3403	F1		
2128	E5	3404	G1		
2129	E6	3405	G1		
2130	D7	3406	G1		
2134	E5	3408	G1		
2135	E6	3410	E1		
2201	B7	3411	E1		
2202	B7	3412	E1		
2204	B5	3413	F1		
2205	A5	3414	F1		
2206	B5	3415	G1		
2207	B5	3416	F1		
2208	B5	3417	F1		
2211	B5	3418	G1		
2216	C2	3419	G1		
2217	C3	3420	D7		
2220	B5	3421	F2		
2224	C1	3422	C1		
2225	C2	3423	H1		
2227	B5	3424	E1		
2228	B5	3425	E1		
2229	B6	3600	G3		
2230	A7	3601	G3		
2234	B5	3603	G3		
2235	B6	3604	G3		
2301	G7	3606	G3		
2302	G7	3607	G3		
2304	G5	3608	G3		
2305	G5	3703	F3		
2306	G5	3713	F3		
2307	G5	3721	F3		
2308	H5	3722	F3		
2311	G5	4132	G2		
2316	D2	4137	F2		
2320	G5	4138	F2		
2325	D2	4232	F2		
2327	G5	4233	F2		
2328	G5	4237	G2		
2329	H6	4238	F2		
2330	G7	4337	G2		
2334	G5	4338	G2		
2335	H6	4400	G2		
2401	C5	5102	E4		
2402	E5	5103	D4		

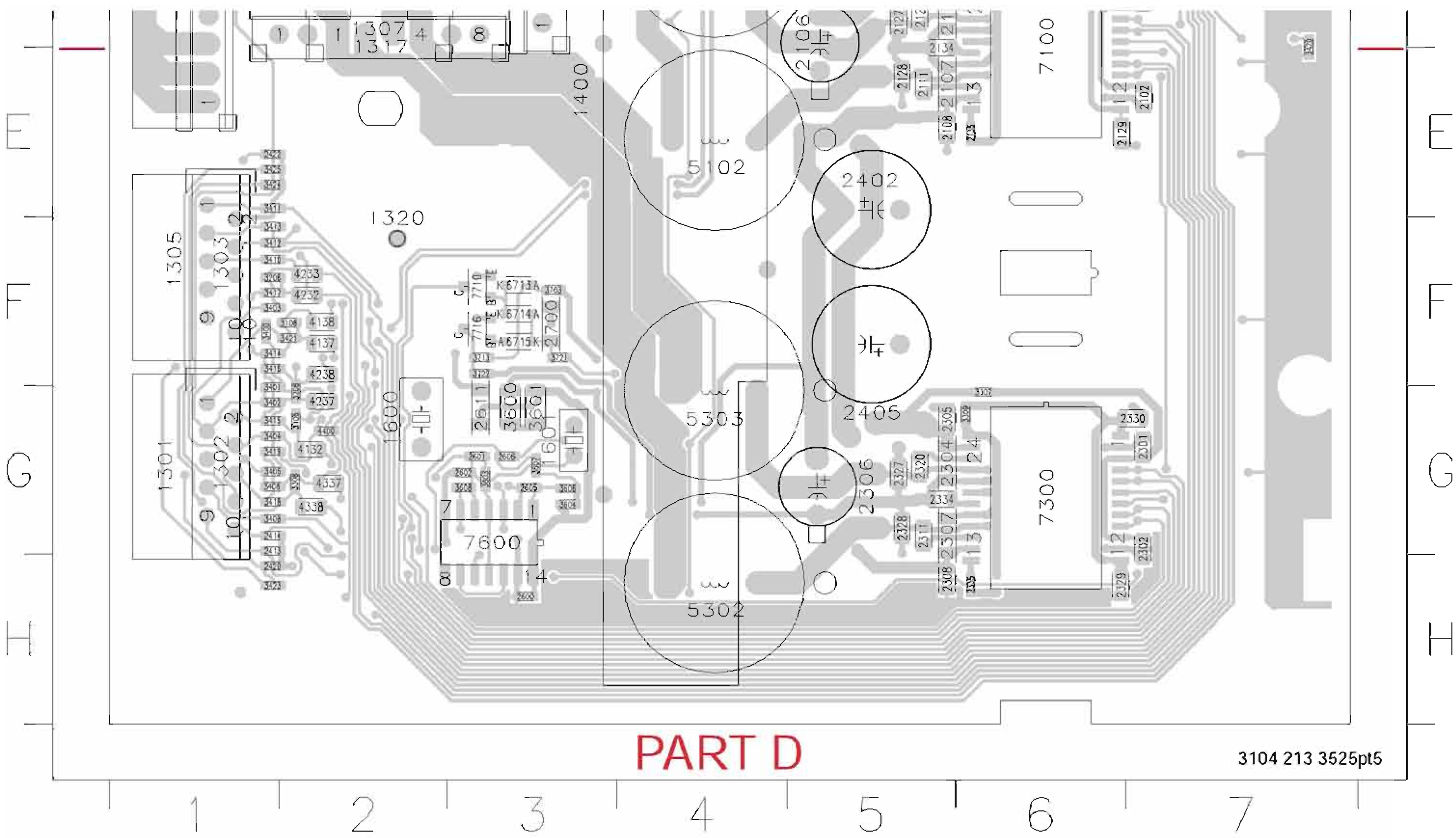
8-11b

AMPLIFIER BOARD - COMPONENT LAYOUT (pcb layout ... 35255) PART C

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



AMPLIFIER BOARD - COMPONENT LAYOUT (pcb layout ... 35255) PART D



MISCELLANEOUS

5	4822 492 11735		SPRING, TRANSISTOR	
1200	4822 071 55002	⚠	FUSE T5A 250V	
1203	4822 071 55002	⚠	FUSE T5A 250V	
1204	9965 000 07786	⚠	FUSE T4A 250V	
1205	9965 000 07786	⚠	FUSE T4A 250V	
1263	4822 267 10733		FLEX CONN. 4PIN VERT.	
1270	2422 025 14044		CONN. 6PIN M3.96 VERT.	
1303	2422 015 19885		LOUDSPEAKER SOCKET 12P	
1901	2422 030 00328	⚠	CONN. MAINS 7A 125V	/17/37
1901	4822 265 31015	⚠	CONN. MAINS 2A5 250V	/78
1905	4822 252 51121	⚠	FUSE T3,15A 250V	/17/37
1905	4822 071 53152	⚠	FUSE T3,15A 250V	/78
1907	4822 265 20723		CONN. 2PIN M7.92 VERT.	
1908	4822 267 10958		FLEX CONN. 5PIN HORT.	
1909	4822 267 10728		CONN. 4P M7.92 VH	/78
1910	2422 132 07519	⚠	RELAY 1P 12V 16A	
1911	9965 000 07789	⚠	VOLTAGE SELECTOR	/78
1912	9965 000 07788	⚠	FUSE T3,15A 250V	/78

CAPACITORS

2000	5322 126 11583		10nF 10% 50V
2001	5322 126 11583		10nF 10% 50V
2002	5322 126 11583		10nF 10% 50V
2003	5322 126 11583		10nF 10% 50V
2004	5322 126 11583		10nF 10% 50V
2005	5322 126 11583		10nF 10% 50V
2006	5322 126 11583		10nF 10% 50V
2007	5322 126 11583		10nF 10% 50V
2008	5322 126 11583		10nF 10% 50V
2009	5322 126 11583		10nF 10% 50V
2010	5322 126 11583		10nF 10% 50V
2011	5322 126 11583		10nF 10% 50V
2200	4822 126 12785		47nF +80/-20% 50V
2201	5322 124 40641		10uF 20% 100V
2202	4822 124 80231		47uF 20% 16V
2203	5322 121 42578		100nF 5% 250V
2204	5322 121 42578		100nF 5% 250V
2205	5322 121 42578		100nF 5% 250V
2206	4822 124 80563		4700uF 20% 35V
2207	4822 124 80563		4700uF 20% 35V
2208	5322 121 42661		330nF 5% 63V
2209	5322 121 42578		100nF 5% 250V
2211	4822 124 80563		4700uF 20% 35V
2212	5322 121 42386		100nF 5% 63V
2213	5322 121 42578		100nF 5% 250V
2215	2020 012 93745		10000uF 20% 16V
2217	2020 561 90365		100nF +80/-20% 50V
2218	4822 124 11947		10uF 20% 16V
2219	4822 124 81286		47uF 20% 16V
2220	4822 124 81286		47uF 20% 16V
2222	4822 124 12056		1000uF 20% 35V
2223	4822 124 12056		1000uF 20% 35V
2224	4822 124 41643		100uF 20% 16V
2225	4822 124 41643		100uF 20% 16V
2228	5322 124 40641		10uF 20% 100V
2229	4822 124 12032		4,7uF 20% 50V
2901	2238 586 59812		100nF 50V
2902	4822 121 43526		47nF 5% 250V
2903	3198 017 34730		47nF 16V
2904	2238 586 59812		100nF 50V
2905	5322 126 11583		10nF 10% 50V
2906	2222 336 19106		22nF 20% 275V
2907	4822 124 40256		100uF 20% 63V
2909	5322 126 11583		10nF 10% 50V
2910	2238 586 59812		100nF 50V
2911	4822 124 41751		47uF 20% 50V
2912	4822 124 12379		220uF 20% 25V
2913	2222 338 22474	⚠	470nF 20% 275V
2914	4822 126 13193		4,7nF 10% 63V
2915	2020 554 90173	⚠	2,2nF 20% 250V
2916	2020 554 90173	⚠	2,2nF 20% 250V

RESISTORS

3200	4822 116 52283		4k7 5% 0,5W
3201	4822 051 30272		2k7 5% 0,062W
3202	4822 051 30103		10k 5% 0,062W
3203	4822 051 30103		10k 5% 0,062W
3204	4822 117 12925		47k 1% 0,063W
3205	4822 051 30103		10k 5% 0,062W
3206	4822 051 30681		680R 5% 0,062W
3207	4822 051 30331		330R 5% 0,062W
3208	4822 051 30681		680R 5% 0,062W
3209	4822 051 30472		4k7 5% 0,062W
3216	4822 051 30331		330R 5% 0,062W
3217	4822 051 30682		6k8 5% 0,062W
3218	4822 051 30153		15k 5% 0,062W
3219	4822 051 30102		1k 5% 0,062W
3222	4822 051 30102		1k 5% 0,062W
3223	4822 117 13632		100k 1% 0,062W
3224	4822 116 83872		220R 5% 0,5W
3225	4822 052 10828	⚠	8R2 5% 0,33W
3226	4822 051 30471		470R 5% 0,062W
3227	4822 051 30102		1k 5% 0,062W
3228	4822 117 12063		NTC DC 5W 10k 5%
3229	4822 051 30472		4k7 5% 0,062W
3230	4822 051 30472		4k7 5% 0,062W
3233	4822 117 11817		1k2 5% 0,062W
3234	4822 051 30103		10k 5% 0,062W
3235	4822 051 30103		10k 5% 0,062W
3901	4822 053 21106		10M 5% 0,5W
3902	4822 051 30103		10k 5% 0,062W
3903	4822 051 30475		4M7 5% 0,062W
3904	4822 051 30331		330R 5% 0,062W
3905	4822 051 30331		330R 5% 0,062W

3906	4822 117 13632	100k 1% 0,062W
3907	4822 051 30333	33k 5% 0,062W
3908	4822 051 30105	1M 5% 0,062W
3909	4822 051 30471	470R 5% 0,062W
3910	4822 051 30222	2k2 5% 0,062W
3911	4822 117 13632	100k 1% 0,062W
3913	4822 117 12925	47k 1% 0 063W
3914	4822 117 12925	47k 1% 0 063W
3915	4822 053 21106	10M 5% 0,5W
3916	4822 051 30334	330k 5% 0,062W
3917	4822 116 52175	100R 5% 0,5W
3918	4822 116 52175	100R 5% 0,5W
3919	4822 051 30152	1k5 5% 0,062W
3920	4822 051 30472	4k7 5% 0,062W
4210	4822 051 30008	0R JUMPER 0603
4211	4822 051 30008	0R JUMPER 0603
4212	4822 051 30008	0R JUMPER 0603

COILS & FILTERS

5901	4822 157 11832	MAINS FILTER 400uH
5902	4822 157 53473	IND. FXD. 1000uH 10%
5903	4822 157 53473	IND. FXD. 1000uH 10%
5904	4822 157 11228	IND. FXD. 100uH 5%
5906	2422 549 45157	STANDBY TRANSFORMER

DIODES

6200	4822 130 30621	1N4148
6201	3198 010 52790	BZX79-B27
6202	4822 130 31878	1N4003G
6203	4822 130 34382	BZX79 B8V2
6206	3198 010 52790	BZX79-B27
6208	4822 130 11397	BAS316
6209	4822 130 11397	BAS316
6211	4822 130 11139	GBU8D
6212	3198 010 10640	GBU4K
6214	4822 130 30621	1N4148
6215	4822 130 34174	BZX79 B4V7
6216	4822 130 34145	BZX79-B39
6217	4822 130 31878	1N4003G
6218	4822 130 34145	BZX79-B39
6901	4822 130 31878	1N4003G
6902	4822 130 31878	1N4003G
6903	4822 130 11397	BAS316
6904	4822 130 11397	BAS316
6905	4822 130 11397	BAS316
6906	4822 130 31878	1N4003G
6907	4822 130 11397	BAS316
6908	4822 130 30621	1N4148
6909	4822 130 11397	BAS316
6910	4822 130 11397	BAS316
6911	4822 130 11397	BAS316
6912	4822 130 31878	1N4003G
6914	4822 130 11397	BAS316
6915	4822 130 34173	BZX79-C5V6
6916	4822 130 31878	1N4003G
6917	4822 130 34145	BZX79-B39
6918	4822 130 11397	BAS316
6919	4822 130 11397	BAS316
6920	4822 130 11397	BAS316
6921	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7200	9340 561 95127	BUK7535-55A
7202	9340 561 95127	BUK7535-55A
7203	5322 130 60159	BC847B
7205	4822 130 60373	BC857B
7206	4822 130 60373	BC857B
7207	5322 130 60159	BC847B
7208	4822 209 33575	L7812CP
7209	4822 209 12335	L4941
7210	4822 130 41246	BC327-25
7211	9340 218 60115	BC857CW
7901	4822 130 60373	BC857B
7902	4822 130 40855	BC337-40
7904	4822 130 42615	BC817-40
7905	4822 130 41327	BC327-40
7906	4822 130 42804	BC817-25

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

ELECTRICAL PARTS LIST - AMPLIFIER BOARD

MISCELLANEOUS

0008	3104 211 29881	SPRING 6 CHANNEL
0010	3104 211 29881	EARTH SPRING
1302	4822 267 10729	FLEX CONN. 10PIN VERT.
1303	4822 267 10729	FLEX CONN 10PIN VERT
1600	2422 540 98514	CERAM RESONATOR 602.7KHZ
1601	2422 540 98568	CERAM RESONATOR 700KHZ

CAPACITORS

2101	2222 580 15649	100nF 10% 50V
2102	2222 580 15649	100nF 10% 50V
2104	2222 601 55649	100nF 10% 100V
2105	2222 580 15649	100nF 10% 50V
2106	2020 021 91431	22uF 20% 100V
2107	2222 601 55649	100nF 10% 100V
2108	2222 580 15649	100nF 10% 50V
2111	4822 126 13188	15nF 5% 63V
2114	5322 116 80853	560pF 5% 63V
2115	5322 116 80853	560pF 5% 63V
2116	4822 121 51252	470nF 5% 63V
2117	2222 601 55649	100nF 10% 100V
2120	4822 126 13188	15nF 5% 63V
2122	5322 116 80853	560pF 5% 63V
2124	2222 601 55649	100nF 10% 100V
2125	4822 121 51252	470nF 5% 63V
2126	5322 116 80853	560pF 5% 63V
2127	2222 580 15649	100nF 10% 50V
2128	2222 580 15649	100nF 10% 50V
2129	2222 580 15649	100nF 10% 50V
2130	2222 580 15649	100nF 10% 50V
2131	4822 126 14241	330pF 50V
2134	2238 780 55654	220nF 10% 16V
2135	4822 126 13956	68pF 5% 63V
2136	4822 126 14241	330pF 50V
2201	2222 580 15649	100nF 10% 50V
2202	2222 580 15649	100nF 10% 50V
2204	2222 601 55649	100nF 10% 100V
2205	2222 580 15649	100nF 10% 50V
2206	2020 021 91431	22uF 20% 100V
2207	2222 601 55649	100nF 10% 100V
2208	2222 580 15649	100nF 10% 50V
2211	4822 126 13188	15nF 5% 63V
2214	5322 116 80853	560pF 5% 63V
2215	5322 116 80853	560pF 5% 63V
2216	4822 121 51252	470nF 5% 63V
2217	2222 601 55649	100nF 10% 100V
2220	4822 126 13188	15nF 5% 63V
2222	5322 116 80853	560pF 5% 63V
2224	2222 601 55649	100nF 10% 100V
2225	4822 121 51252	470nF 5% 63V
2226	5322 116 80853	560pF 5% 63V
2227	2222 580 15649	100nF 10% 50V
2228	2222 580 15649	100nF 10% 50V
2229	2222 580 15649	100nF 10% 50V
2230	2222 580 15649	100nF 10% 50V
2231	4822 126 14241	330pF 50V
2234	2238 780 55654	220nF 10% 16V
2235	4822 126 13956	68pF 5% 63V
2236	4822 126 14241	330pF 50V
2301	2222 580 15649	100nF 10% 50V
2302	2222 580 15649	100nF 10% 50V
2304	2222 601 55649	100nF 10% 100V
2305	2222 580 15649	100nF 10% 50V
2306	2020 021 91431	22uF 20% 100V
2307	2222 601 55649	100nF 10% 100V
2308	2222 580 15649	100nF 10% 50V
2311	4822 126 13188	15nF 5% 63V
2314	5322 116 80853	560pF 5% 63V
2315	5322 116 80853	560pF 5% 63V
2316	4822 121 51252	470nF 5% 63V
2317	2222 601 55649	100nF 10% 100V
2320	4822 126 13188	15nF 5% 63V
2322	5322 116 80853	560pF 5% 63V
2324	2222 601 55649	100nF 10% 100V
2325	4822 121 51252	470nF 5% 63V
2326	5322 116 80853	560pF 5% 63V
2327	2222 580 15649	100nF 10% 50V
2328	2222 580 15649	100nF 10% 50V
2329	2222 580 15649	100nF 10% 50V
2330	2222 580 15649	100nF 10% 50V
2331	4822 126 14241	330pF 50V
2334	2238 780 55654	220nF 10% 16V
2335	4822 126 13956	68pF 5% 63V
2336	4822 126 14241	330pF 50V
2400	2222 580 15649	100nF 10% 50V
2401	4822 124 80062	470uF 20% 35V
2402	4822 124 80062	470uF 20% 35V
2403	2222 580 15649	100nF 10% 50V
2404	4822 124 80062	470uF 20% 35V
2405	4822 124 80062	470uF 20% 35V
2406	4822 123 14026	470uF 20% 35V
2407	4822 123 14026	470uF 20% 35V
2408	5322 126 11578	1nF 10% 50V
2409	5322 126 11578	1nF 10% 50V
2410	5322 126 11578	1nF 10% 50V
2411	5322 126 11578	1nF 10% 50V
2412	5322 126 11578	1nF 10% 50V
2413	5322 126 11578	1nF 10% 50V
2414	5322 126 11578	1nF 10% 50V
2415	5322 126 11578	1nF 10% 50V
2416	5322 126 11578	1nF 10% 50V
2417	5322 126 11578	1nF 10% 50V
2418	5322 126 11578	1nF 10% 50V
2419	2238 586 59812	100nF 50V
2420	5322 126 11578	1nF 10% 50V

ELECTRICAL PARTS LIST - AMPLIFIER BOARD

2421	5322 126 11578	1nF 10% 50V
2422	5322 126 11578	1nF 10% 50V
2423	2238 586 59812	100nF 50V
2425	5322 126 11578	1nF 10% 50V
2500	2238 586 59812	100nF 50V
2501	2238 586 59812	100nF 50V
2600	2238 586 59812	100nF 50V
2602	2020 552 94427	100pF 5% 50V
2603	2020 552 94427	100pF 5% 50V
2604	2238 586 59812	100nF 50V
2605	4822 126 13881	470pF 5% 50V
2606	5322 126 11578	1nF 10% 50V
2607	2020 552 94427	100pF 5% 50V
2608	2020 552 94427	100pF 5% 50V
2611	2020 552 96507	10uF -80/-20% 10V
2700	2020 552 96507	10uF -80/-20% 10V

RESISTORS

3100	4822 051 10568	5R6 5% 0,25W
3101	4822 051 10568	5R6 5% 0,25W
3102	4822 051 10568	5R6 5% 0,25W
3103	2322 762 60229	22R 5% PRC221
3104	2322 762 60229	22R 5% PRC221
3106	4822 051 10568	5R6 5% 0,25W
3107	4822 051 30109	10R 5% 0 062W
3109	4822 051 30109	10R 5% 0,062W
3200	4822 051 10568	5R6 5% 0,25W
3201	4822 051 10568	5R6 5% 0,25W
3202	4822 051 10568	5R6 5% 0,25W
3203	2322 762 60229	22R 5% PRC221
3204	2322 762 60229	22R 5% PRC221
3206	4822 051 10568	5R6 5% 0,25W
3207	4822 051 30109	10R 5% 0,062W
3209	4822 051 30109	10R 5% 0,062W
3300	4822 051 10568	5R6 5% 0,25W
3301	4822 051 10568	5R6 5% 0,25W
3302	4822 051 10568	5R6 5% 0,25W
3303	2322 762 60229	22R 5% PRC221
3304	2322 762 60229	22R 5% PRC221
3306	4822 051 10568	5R6 5% 0,25W
3307	4822 051 30109	10R 5% 0,062W
3309	4822 051 30109	10R 5% 0,062W
3401	4822 051 30562	5k6 5% 0,063W
3404	4822 051 30221	220R 5% 0,062W
3405	4822 051 30562	5k6 5% 0,063W
3408	4822 051 30221	220R 5% 0,062W
3410	4822 051 30562	5k6 5% 0,063W
3411	4822 051 30562	5k6 5% 0,063W
3412	4822 051 30221	220R 5% 0,062W
3413	4822 051 30562	5k6 5% 0,063W
3414	4822 051 30562	5k6 5% 0,063W
3415	4822 051 30562	5k6 5% 0,063W
3420	2322 615 23103	NTC 10k 5% 0,125W
3421	4822 051 30562	5k6 5% 0,063W
3422	4822 051 30101	100R 5% 0,062W
3423	4822 051 30562	5k6 5% 0,063W
3424	4822 051 30562	5k6 5% 0,063W
3425	4822 051 30562	5k6 5% 0,063W
3426	4822 051 30562	5k6 5% 0,063W
3600	4822 051 10821	820R 5% 0,062W
3601	4822 051 10821	820R 5% 0,062W
3602	4822 117 13632	100k 1% 0,062W
3604	4822 051 30103	10k 5% 0,062W
3605	4822 051 30682	6k8 5% 0,062W
3606	4822 117 13632	100k 1% 0,062W
3607	4822 051 30102	1k 5% 0,062W
3608	4822 051 30105	1M 5% 0,062W
3609	4822 117 13632	100k 1% 0,062W
3610	4822 117 12139	22R 5% 0,062W
3700	4822 117 12925	47k 1% 0 063W
3701	4822 117 12925	47k 1% 0,063W
3703	4822 117 12925	47k 1% 0,063W
3709	4822 117 12925	47k 1% 0,063W
3712	4822 117 12925	47k 1% 0,063W
3713	4822 051 30103	10k 5% 0,062W
3716	4822 117 12925	47k 1% 0,063W
3718	4822 117 12925	47k 1% 0 063W
3721	4822 051 30103	10k 5% 0,062W
3722	4822 051 30103	10k 5% 0,062W
4132	4822 126 14583	470nF 16V
4133	4822 126 14583	470nF 16V
4137	4822 126 14583	470nF 16V
4138	4822 126 14583	470nF 16V
4232	4822 126 14583	470nF 16V
4233	4822 126 14583	470nF 16V
4237	4822 126 14583	470nF 16V
4238	4822 126 14583	470nF 16V
4332	4822 126 14583	470nF 16V
4333	4822 126 14583	470nF 16V
4337	4822 126 14583	470nF 16V
4338	4822 126 14583	470nF 16V

COILS & FILTERS

5102	2422 536 00496	IND. FXD. 22uH 10%
5103	2422 536 00496	IND FXD 22uH 10%
5202	2422 536 00496	IND. FXD. 22uH 10%
5203	2422 536 00496	IND. FXD. 22uH 10%
5302	2422 536 00496	IND. FXD. 22uH 10%
5303	2422 536 00496	IND. FXD. 22uH 10%
5400	4822 157 11411	FXD. IND. BEAD 100MHZ 80R
5401	4822 157 11411	FXD. IND. BEAD 100MHZ 80R

8-14

ELECTRICAL PARTS LIST - AMPLIFIER BOARD

DIODES

6600	3198 020 55680	BZX384-C5V6
6713	4822 130 11397	BAS316
6714	4822 130 11397	BAS316
6715	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7100	9352 705 74518	TDA8920TH/N1R
7200	9352 705 74518	TDA8920TH/N1R
7300	9352 705 74518	TDA8920TH/N1R
7600	5322 209 11517	PC74HCU04T
7602	5322 130 60159	BC847B
7607	5322 209 14477	HEF4013BT
7608	4822 130 60373	BC857B
7710	5322 130 60159	BC847B
7716	4822 130 60373	BC857B

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

AV BOARD

TABLE OF CONTENTS

BRIEF INTRODUCTION OF THE AV BOARD

The AV Board consists of the following features :

a. IC 7130 (TDA7468D)
IC 7130 provides the source selection (TUNER, TV/AV Digital in, DVD/CD & AUX) and basic sound processing bass, treble, volume & mute controls for the Front L/R loudspeakers.
Note: Although provided for, the AUX source (pin 3 and 26) are never selected & instead and additional IC 7422 (HEF4052BT) is used to include a TV in from the Scart connector socket.
Sound features are controlled by the microprocessor IC on the Front Board via I²C Bus.
Undesirable noise during source switching are muted off via the software of the microprocessor IC on the Front Board.

b. IC 7422 (HEF4052BT)
This IC allows the additon of another TV source via the SCART connector socket. The output MUX_L/MUX_R will go to pin 4 and 25 of IC 7130.

c. Line out mute
Line out mute is done via the transistors 7100, 7132, 7133 and 7150 during Power up/down, Source and sound switching (MUTE-LO, active low) and Disc & Digital in modes (MUTE_AV, active high).

d. Headphone amplifier / pre-amplifier
IC 7230 (NJM4556AM) is used as headphone amplifier and pre-amplification for the Front L/R signal to the Amplifier board. The transistors matrix 7200, 7231, 7232, 7233 and 7250 allows the heaphone out to be muted when inserting the headphone

e. IC 7304 and 7330 (TDA7468D)
IC 7304 and 7330 provides creation of matrix sound (via Line-L/R from IC 7130) during non-DVD source and sound processing - bass, treble, volume & mute controls for the Center/Subwoofer and Surround L/R loudspeakers respectively.
Sound features are controlled by the microprocessor IC on the Front Board via I²C Bus.
Undesirable noise during source switching are muted off via the software of the microprocessor IC on the Front Board.

f. IC 7352 (74HC4051D)
This multiplexer output (MUX_DET) informs the microprocess IC on the Front Board on the type of connection & condition the set is in

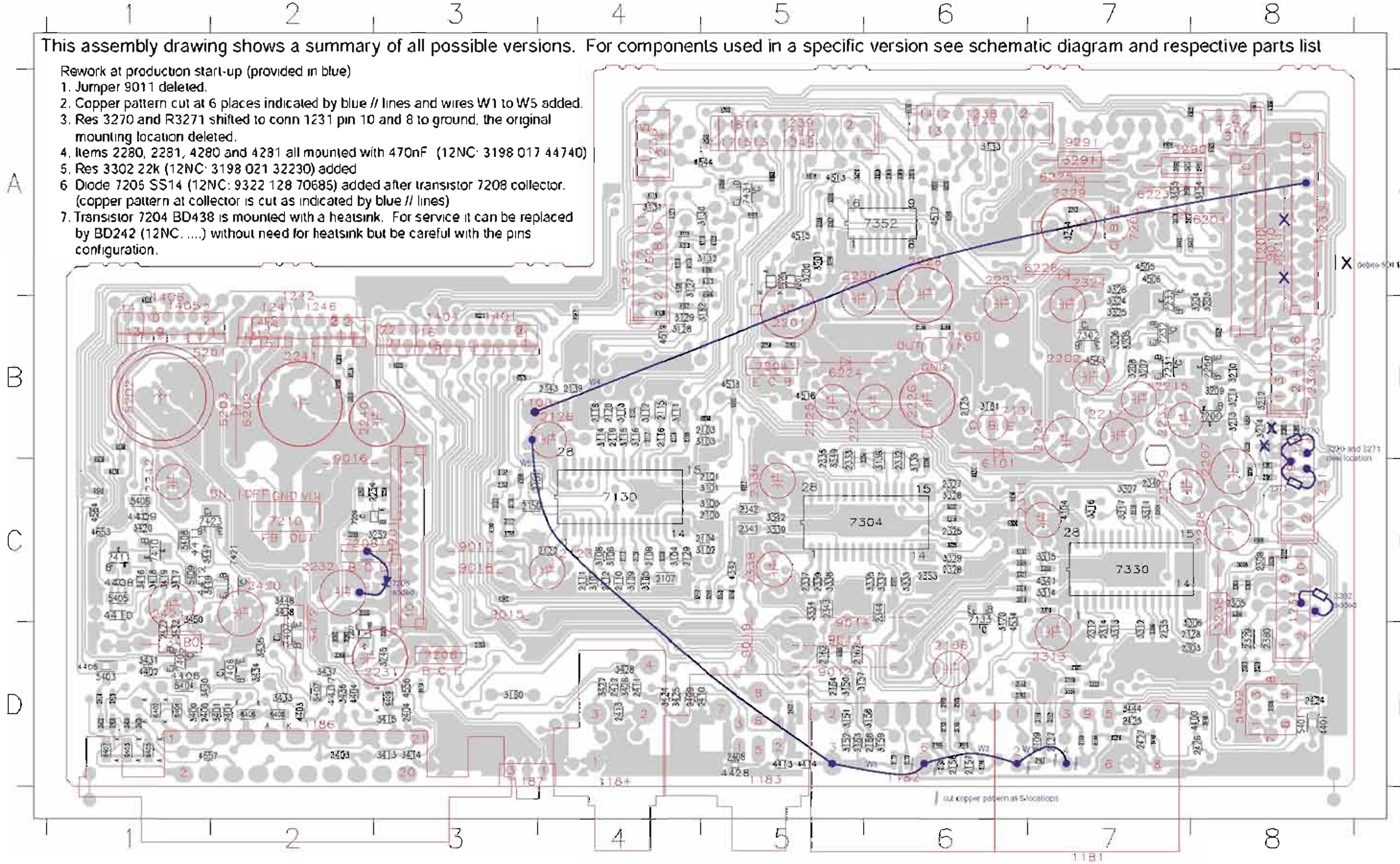
g. IC 7402 (M62320FP)
The IC serves as I²C Expander to provide for additional control lines required.

CHIP & COMPONENT LAYOUTS - CHIP SIDE VIEW

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

Rework at production start-up (provided in blue)

1. Jumper 9011 deleted.
2. Copper pattern cut at 6 places indicated by blue // lines and wires W1 to W5 added.
3. Res 3270 and R3271 shifted to conn 1231 pin 10 and 8 to ground, the original mounting location deleted.
4. Items 2280, 2281, 4280 and 4281 all mounted with 470nF (12NC: 3198 017 44740)
5. Res 3302 22k (12NC: 3198 021 32230) added
6. Diode 7205 SS14 (12NC: 9322 128 70685) added after transistor 7208 collector. (copper pattern at collector is cut as indicated by blue // lines)
7. Transistor 7204 BD438 is mounted with a heatsink. For service it can be replaced by BD242 (12NC: ....) without need for heatsink but be careful with the pins configuration.



 9-2a

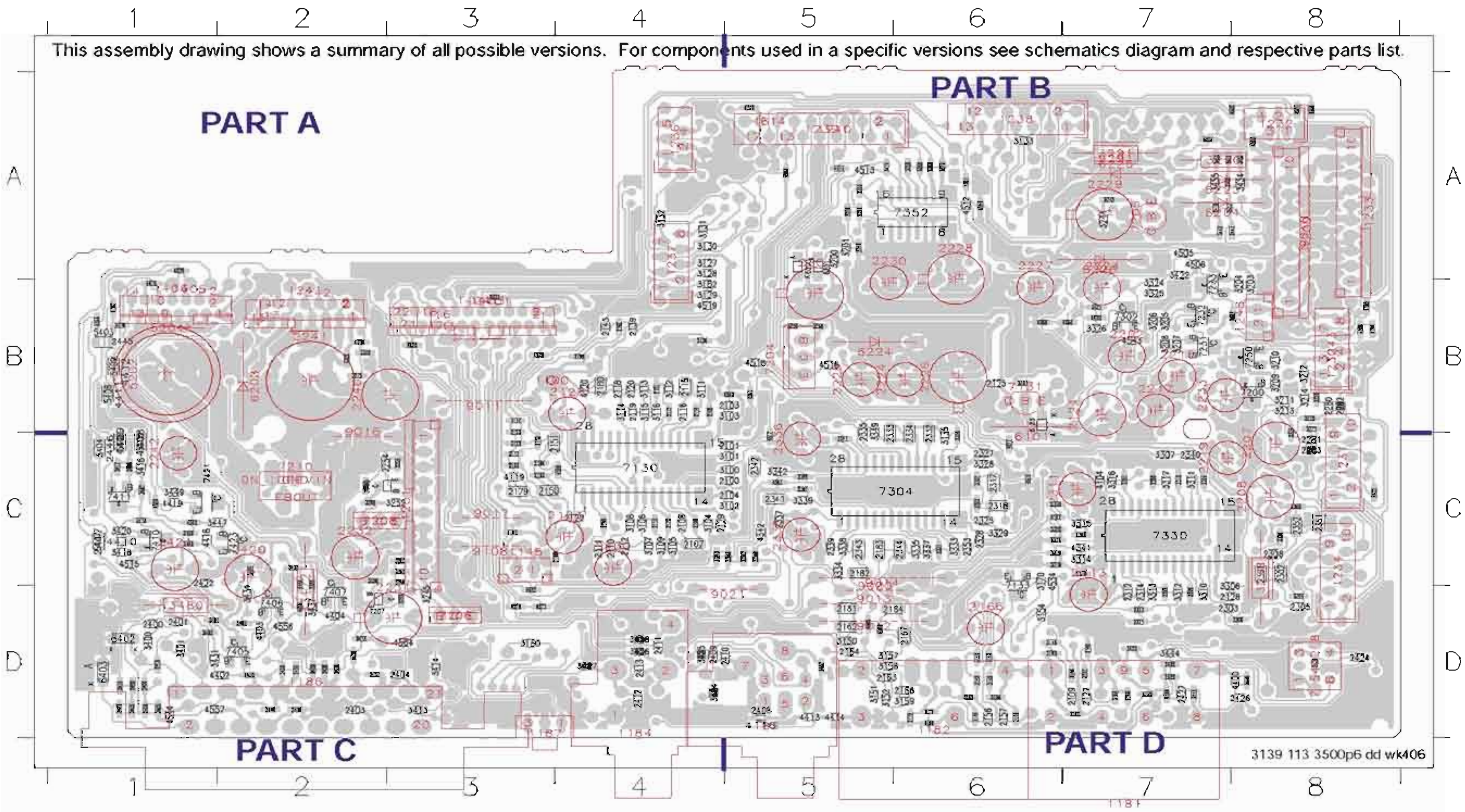
CHIP & COMPONENT LAYOUTS - CHIP SIDE VIEW (pcb layout ... 35006)

2100	C5	2145	D6	2199	C4	2335	B5	2412	D4
2101	C5	2150	C3	2254	C1	2337	C5	2413	D4
2103	B5	2151	C3	2280	B8	2339	C5	2414	D1
2104	C5	2152	C3	2281	C8	2340	C5	2415	D1
2105	B4	2153	B3	2282	B8	2341	C5	2417	A7
2106	C4	2155	D6	2283	C8	2342	C5	2418	A7
2107	C4	2156	D6	2301	C8	2343	C5	2422	C1
2108	C4	2160	D7	2302	C8	2344	C6	2423	D7
2109	D7	2161	D7	2303	D7	2349	A5	2424	D8
2110	C4	2162	D5	2304	C7	2351	C8	2425	D7
2111	C4	2163	D5	2305	D8	2352	C8	2426	D8
2112	C4	2164	D5	2308	C8	2353	C6	2427	D7
2113	C4	2165	D5	2309	D7	2390	C7	2428	D8
2114	B4	2167	D6	2310	C7	2391	C7	2429	D7
2115	B4	2168	D5	2312	D7	2392	C7	2445	B1
2116	B4	2170	C4	2314	D7	2393	D7	2446	C1
2117	B4	2171	D7	2317	C6	2396	C5	2447	C1
2118	B4	2172	D6	2318	C6	2397	C5	2455	D2
2119	B4	2173	D6	2319	C7	2400	D1	2456	D2
2120	B4	2174	D7	2320	C6	2401	D1	2457	D2
2121	B4	2179	C3	2321	D7	2402	A7	2459	D2
2122	C4	2180	B4	2322	D7	2403	D2	2460	D2
2125	B6	2181	D5	2325	C6	2404	D3	3100	C5
2127	D7	2182	C5	2326	C6	2405	D1	3101	C5
2128	D7	2183	C5	2327	C6	2406	D1	3102	C5
2129	C4	2184	D5	2328	C6	2407	D5	3103	B5
2130	B4	2192	B4	2331	C6	2408	D5	3104	C4
2139	B4	2193	C3	2332	C5	2409	D4	3105	C4
2143	B4	2194	C4	2333	C5	2410	D5	3106	C4
2144	D6	2195	D5	2334	C6	2411	D4	3107	C4
		2198	C4						

3108	C4	3152	D5	3225	B8	3318	C6	3369	A6
3109	C4	3154	D6	3243	A7	3319	C6	3370	A6
3110	C3	3157	D5	3244	A7	3320	C6	3400	D1
3111	B4	3158	D5	3245	D3	3321	C6	3401	D1
3112	B4	3159	D6	3250	C2	3322	C6	3402	D1
3113	B4	3160	D3	3252	C3	3324	B7	3403	D1
3114	B4	3161	B6	3254	C3	3325	B7	3404	D1
3115	B4	3162	B4	3259	B5	3326	B7	3405	D1
3116	B4	3163	D6	3260	D3	3327	C6	3411	A7
3117	C3	3164	D7	3261	C2	3328	C6	3413	D3
3122	C3	3165	D6	3262	C3	3329	C6	3414	D3
3127	A4	3166	D6	3263	C3	3333	C6	3415	D2
3128	A4	3170	C6	3265	B3	3334	C5	3416	C1
3129	B4	3200	A5	3268	C3	3335	C6	3417	C1
3130	A4	3201	A5	3269	C3	3336	C6	3418	C1
3131	A4	3202	B8	3270	B8	3337	C5	3419	C1
3132	A4	3203	B8	3271	B8	3338	C5	3420	C1
3133	A8	3204	B8	3304	D8	3339	C5	3421	B7
3135	C6	3205	B7	3305	D8	3340	C5	3422	A7
3137	B3	3206	B7	3306	D7	3341	C5	3424	D4
3140	D6	3207	B7	3307	C7	3342	C5	3425	D4
3142	D6	3208	B7	3308	C8	3343	C4	3426	D4
3143	D6	3209	B8	3310	D7	3344	C5	3427	D4
3145	D6	3210	B8	3311	C7	3347	C5	3428	D4
3146	D7	3211	B8	3312	D7	3349	B5	3430	D2
3147	D7	3212	B8	3313	D7	3355	A5	3431	D2
3148	D5	3213	B8	3314	C7	3356	A5	3432	C2
3149	D7	3214	B8	3315	C7	3357	A5	3433	D2
3150	D5	3215	B8	3316	C7	3359	A6	3434	D2
3151	D5	3224	C8	3317	C7	3368	A6	3435	D2

3436	D2	4192	C3	4419	C1	4520	B3	5407	C1
3437	D2	4193	B8	4421	C8	4521	B3	5408	B1
3438	D2	4194	B8	4422	B7	4528	D2	5409	B1
3441	A8	4195	D7	4424	D4	4534	C6	6123	B6
3442	A7	4196	D7	4425	D4	4539	A1	6200	A5
3444	D7	4197	B1	4426	D4	4540	C1	6201	A5
3445	D7	4198	D6	4427	D4	4541	B5	6402	D1
3446	D8	4200	A5	4428	D4	4542	D3	6403	D1
3447	C1	4201	A6	4430	D2	4543	B7	7130	C4
3448	C1	4205	B2	4433	D2	4544	D1	7133	C6
3449	C1	4206	B2	4436	D2	4546	B1	7200	B8
3450	C1	4209	B8	4500	A8	4548	B5	7207	B8
3451	A8	4280	B8	4501	A8	4549	A6	7209	C2
3452	A7	4281	C8	4502	A8	4556	D2	7231	B7
3454	A6	4341	C7	4503	A8	4557	D1	7232	B7
3455	A7	4342	C5	4504	A7	4561	C5	7233	B7
3474	A5	4400	D8	4505	A7	4564	D3	7250	B8
3481	D1	4402	D2	4506	A7	4565	B7	7302	B7
3482	D1	4403	D2	4507	B8	4568	B6	7304	C6
3483	D2	4404	D2	4508	C1	4569	D5	7330	C7
3484	C2	4408	C1	4510	C6	4571	D3	7352	A6
3485	C2	4409	C1	4511	C6	4574	D3	7405	D2
3486	C2	4410	C1	4512	A5	4579	B3	7406	D2
3487	C1	4411	B1	4513	A5	4585	D5	7407	D2
3488	C1	4412	B1	4514	A5	4593	A5	7410	C1
4104	C7	4413	D5	4515	C1	4598	C4	7411	C1
4116	D5	4414	D5	4516	B5	5403	B1	7421	C1
4119	C3	4415	B1	4517	C5	5404	C1	7423	C2
4120	B4	4416	B1	4518	B5	5405	C1		
4191	C6	4418	C1	4519	B4	5406	C1		

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

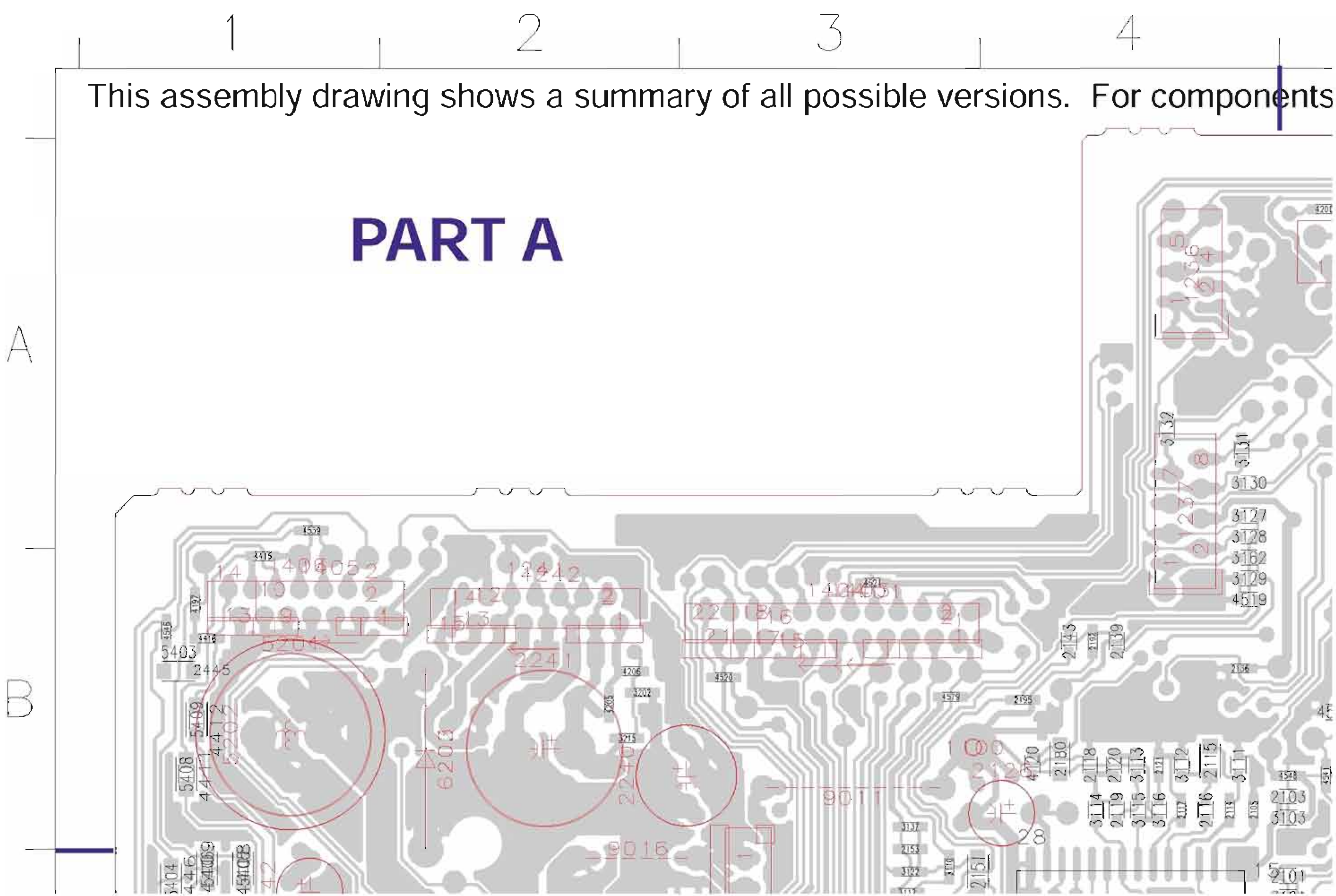


1100	B3	6202	B2
1145	C3	6203	B2
1182	D6	6204	A7
1183	D5	6223	A7
1184	D4	6224	B5
1186	D2	6225	A7
1187	D3	6226	A7
1200	A8	7131	B6
1201	C8	7204	B5
1230	B8	7205	A7
1231	C8	7206	D3
1232	A8	7208	C2
1233	A8	9010	C8
1234	C8	9011	B2
1236	A4	9012	D5
1237	A4	9013	D5
1238	A6	9014	C5
1239	A5	9016	B2
1240	A5	9017	C3
1241	B2	9020	D5
1242	B2	9021	D5
1243	B8	9108	C3
1245	B8	9291	A7
1401	B3		
1403	B3		
1404	B3		
1405	B3		
1406	B4		
2123	C4		
2124	B7		
2126	B4		
2166	D6		
2201	A5		
2202	B7		
2207	C8		
2208	C8		
2215	B7		
2219	C7		
2224	B5		
2225	B6		
2226	B6		
2227	A6		
2228	A6		
2229	A7		
2230	A5		
2231	A5		
2233	C3		
2240	B2		
2241	B2		
2311	C6		
2313	C7		
2324	A7		
2336	C5		
2338	C5		
2420	C2		
2421	C1		
2430	C4		
2438	C8		
3290	A7		
3291	A7		
3447	D2		
3480	D1		
5201	B1		
5202	B1		
5402	D8		
5101	C6		

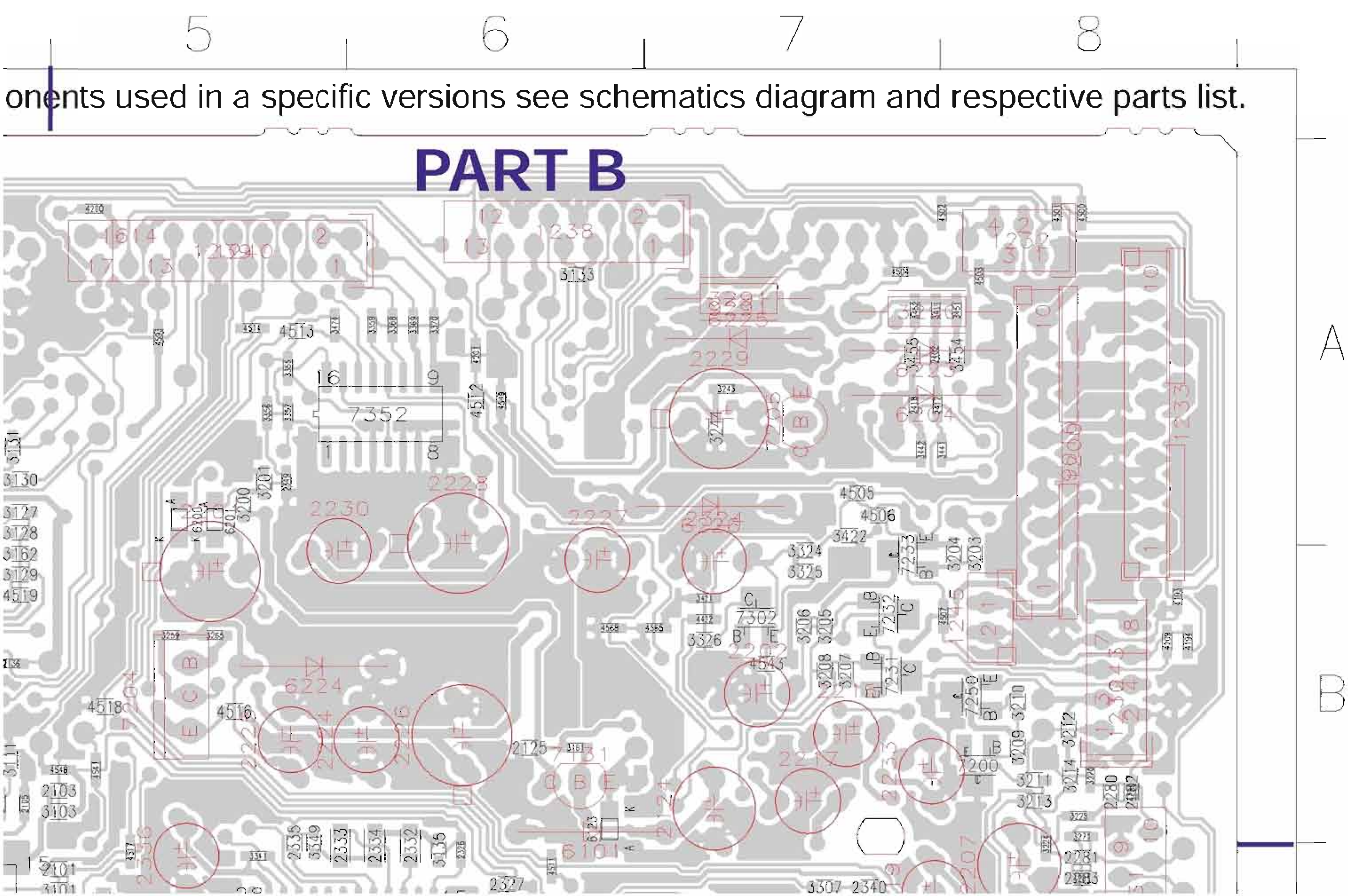
CHIP & COMPONENT LAYOUTS - CHIP SIDE VIEW (pcb layout ... 35006) PART A

This assembly drawing shows a summary of all possible versions. For components

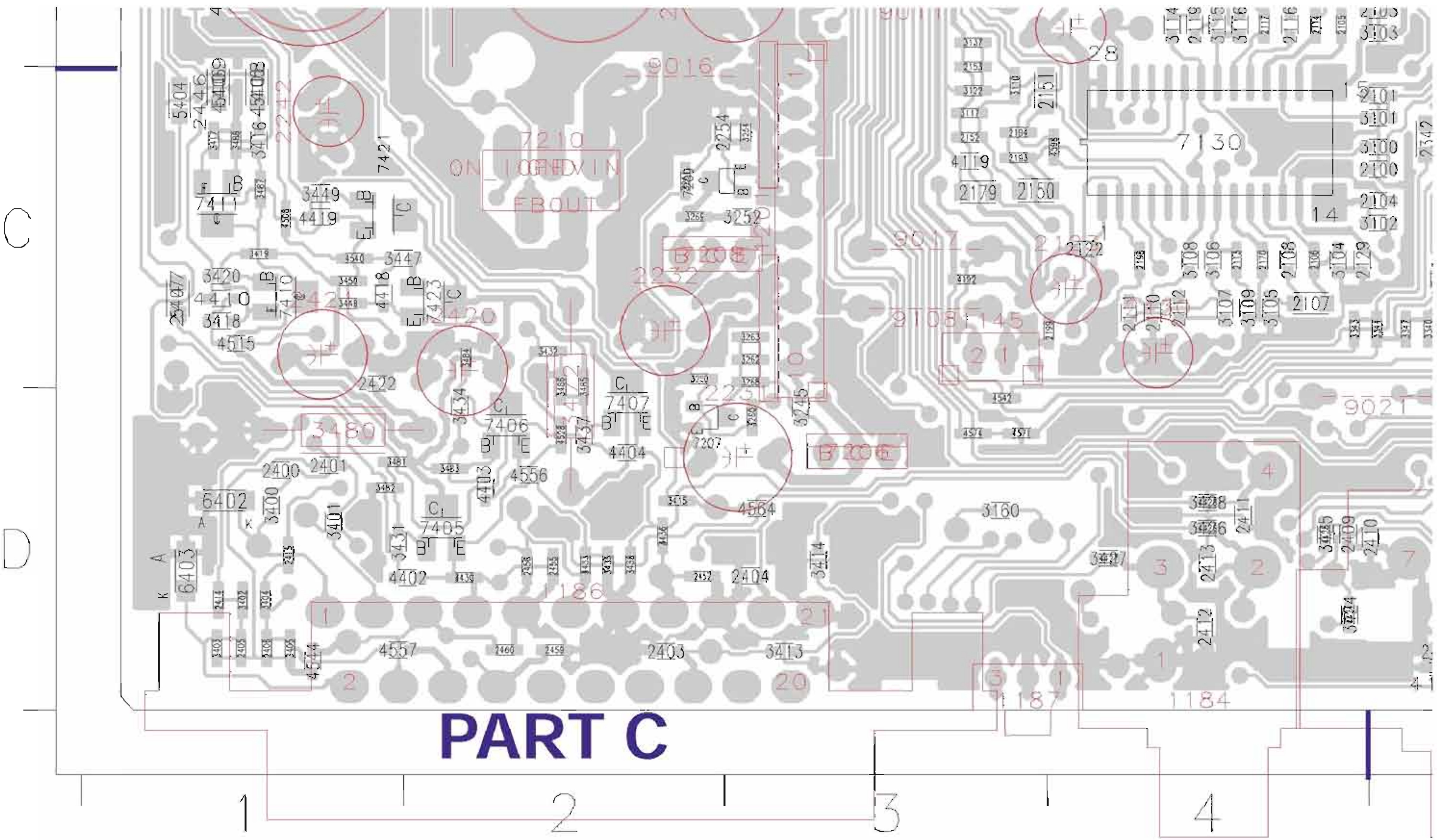
PART A



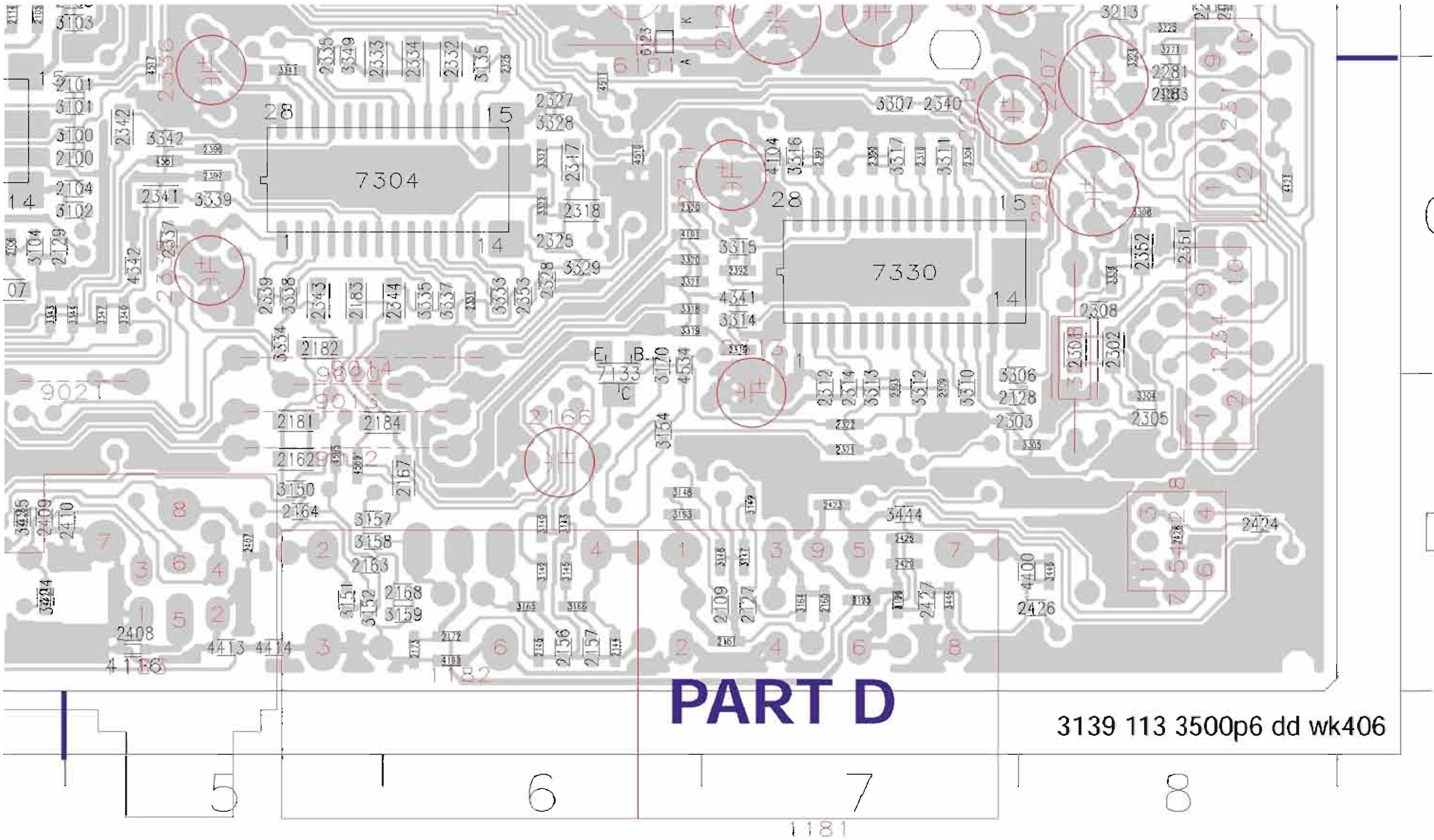
onents used in a specific versions see schematics diagram and respective parts list.



CHIP & COMPONENT LAYOUTS - CHIP SIDE VIEW (pcb layout ... 35006) PART C



CHIP & COMPONENT LAYOUTS - CHIP SIDE VIEW (pcb layout ... 35006) PART D

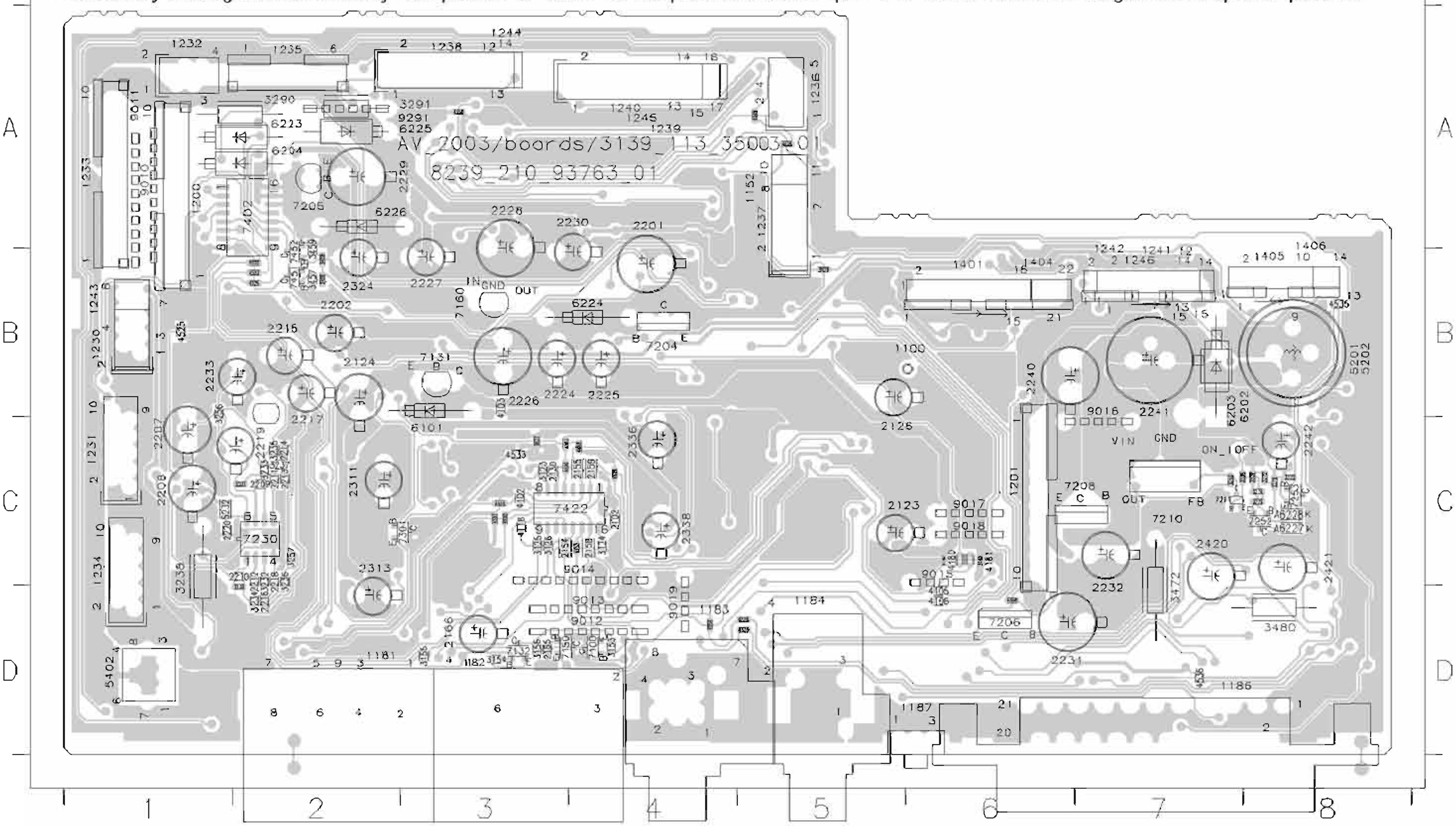


3139 113 3500p6 dd wk406

COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW

1100 B6	1230 B1	1240 A4	1406 A8	2165 D3	2213 C2	2226 B3	2242 C8	3125 C3	3232 C2	3257 C2	3457 B2	4180 C6	4530 C3	4554 D4	6101 C3	7100 D4	7211 C7	9011 A1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1201 C6	1239 A4	1405 B8	2159 C4	2212 C2	2225 B4	2241 B7	3124 C4	3231 C2	3256 B1	3456 B2	4118 C3	4529 C4	4553 C4	5402 D1	[illegible]	7210 C7	9010 A1	9291 A3

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

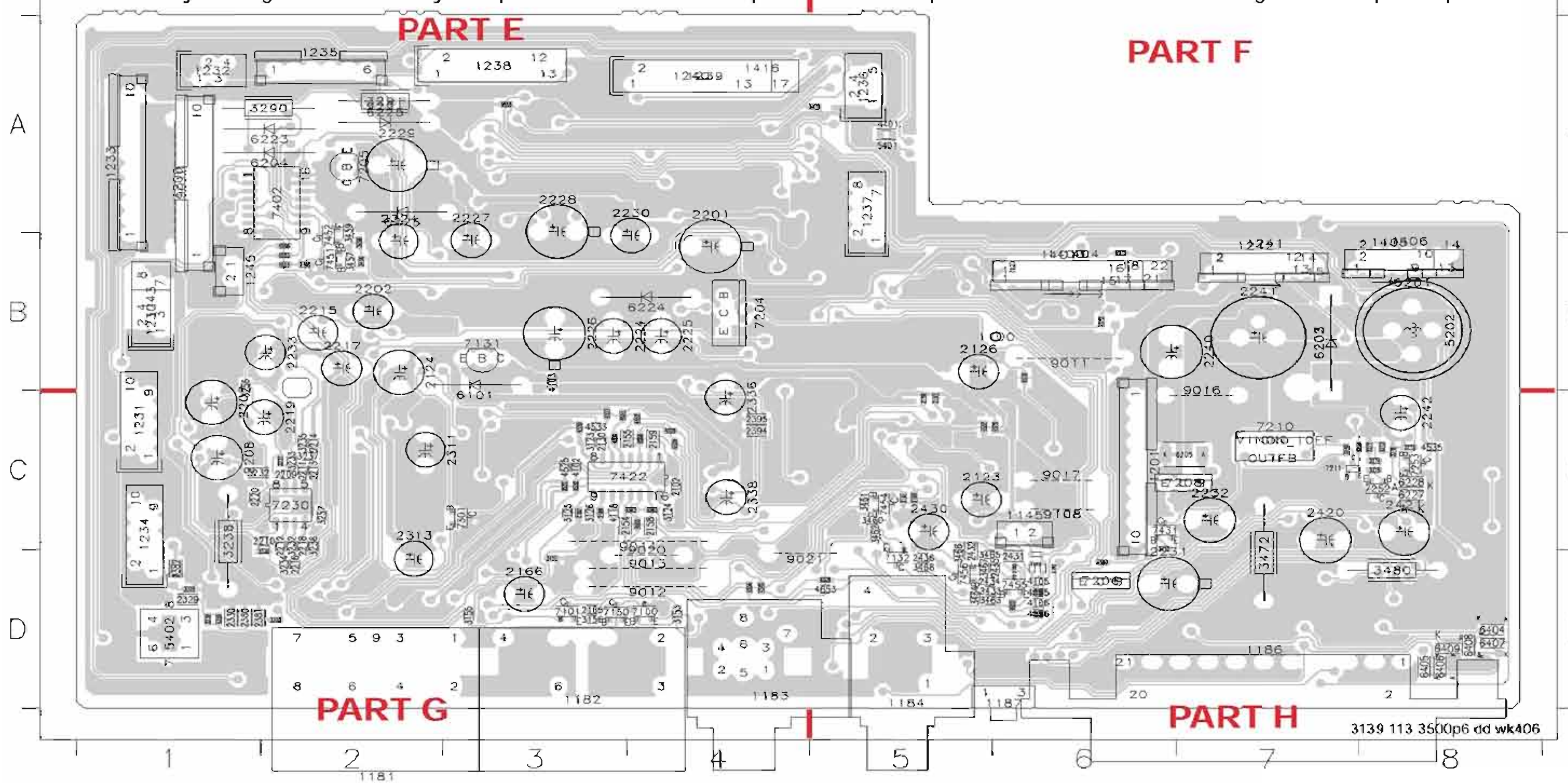


COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW (pcb layout ... 35006)

1100	B6	1238	A3	2154	C3	2208	C1	2228	A3	2381	D1	3125	C3	3239	C7
1145	C6	1239	A4	2155	C4	2209	C2	2229	A2	2382	D1	3126	C3	3240	C7
1182	D3	1240	A4	2158	C4	2210	C2	2230	A4	2394	C4	3153	D4	3256	B1
1183	D4	1241	B7	2159	C4	2211	C2	2231	D6	2395	C4	3155	D3	3257	C2
1184	D5	1242	B7	2165	D3	2212	C2	2232	C7	2420	C7	3156	D3	3272	C8
1186	D7	1243	B1	2166	D3	2213	C2	2233	B2	2421	C8	3180	D6	3273	C8
1187	D6	1245	B1	2185	D6	2214	C2	2240	B7	2430	C5	3182	D6	3274	C8
1200	A1	1401	B6	2186	D6	2215	B2	2241	B7	2431	D6	3183	D6	3275	C8
1201	C6	1403	B6	2187	C3	2216	B2	2242	C8	2432	D5	3230	D2	3276	C8
1230	B1	1404	B6	2188	C3	2217	B2	2311	C3	2433	D5	3231	C2	3277	C8
1231	C1	1405	B8	2190	C5	2218	C2	2313	C2	2434	D5	3232	C2	3290	A2
1232	A1	1406	B6	2191	C5	2219	C2	2324	A2	2435	D6	3233	C2	3291	A2
1233	A1	2102	C4	2196	C5	2220	C1	2329	D1	2436	D5	3234	D2	3302	D1
1234	C1	2123	C5	2197	C5	2224	B4	2330	D1	2450	B2	3235	C2	3303	D2
1235	A2	2124	B2	2201	A4	2225	B4	2336	C4	2451	D3	3236	C2	3330	D1
1236	A5	2126	B5	2202	B2	2226	B3	2338	C4	3123	C3	3237	C2	3412	C6
1237	A5	2130	C3	2207	C1	2227	A3	2380	D1	3124	C4	3238	C1	3456	B2

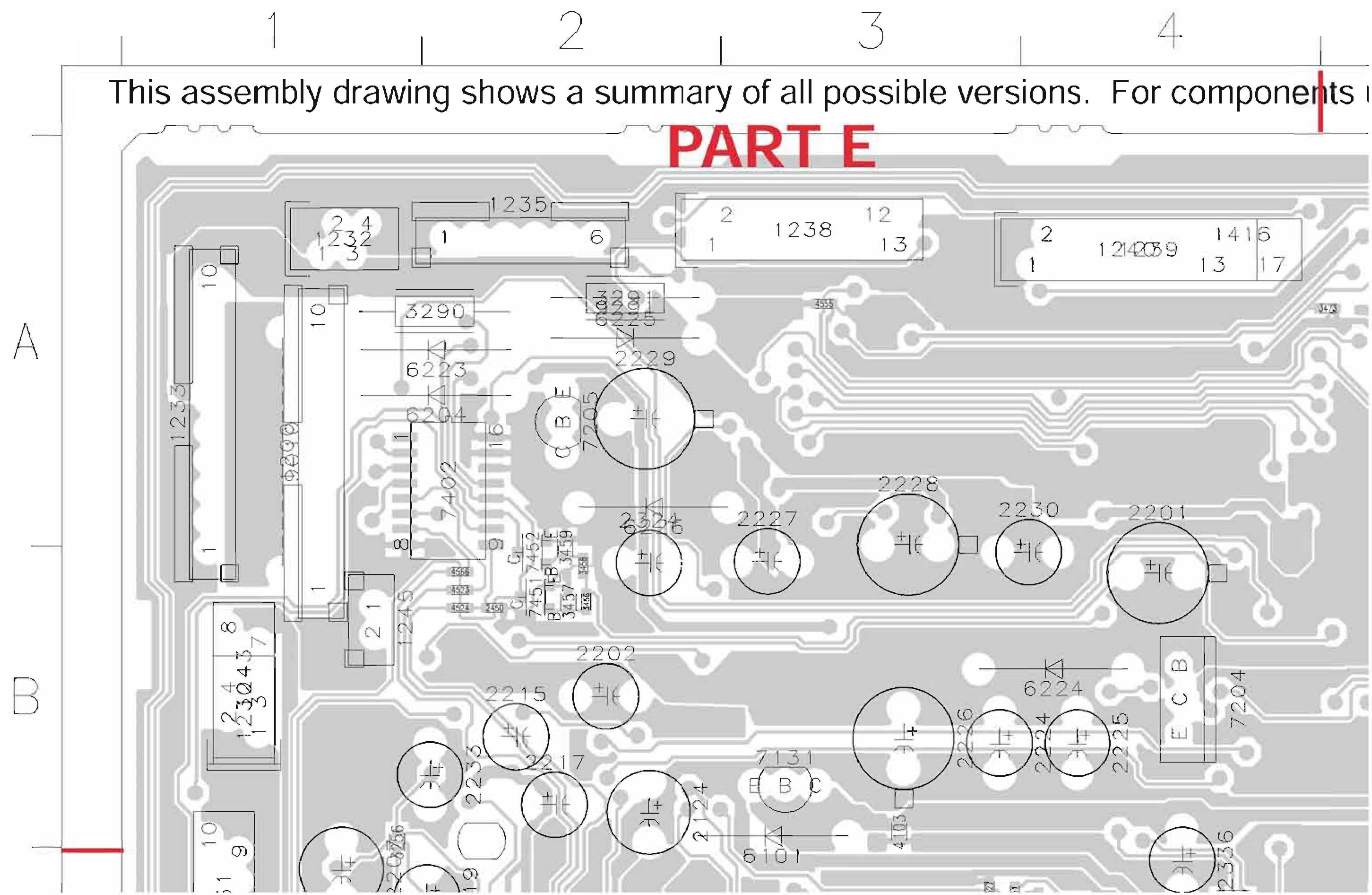
3457	B2	4105	D6	4533	C3	4570	B6	6225	A2	7206	D6	9011	B6		
3458	B2	4106	D6	4535	C8	4572	B6	6226	A2	7208	C7	9012	D4		
3459	B2	4118	C3	4537	C5	4573	B6	6227	C8	7210	C7	9013	D4		
3460	C5	4125	D6	4538	D5	4575	C6	6228	C8	7211	C7	9014	C4		
3461	C5	4126	D6	4545	D4	4653	D5	6404	D8	7230	C2	9016	B7		
3462	C5	4330	D1	4550	C3	5201	B8	6405	D8	7252	C8	9017	C5		
3463	D5	4382	D1	4551	C3	5202	B8	6406	D8	7253	C8	9020	D4		
3464	D5	4401	A5	4552	C4	5232	C1	6407	D8	7301	C3	9021	D4		
3465	D5	4522	D6	4553	C4	5401	A5	6408	D8	7402	A2	9108	C6		
3466	D5	4523	B2	4554	D4	5402	D1	6409	D8	7422	C4	9291	A2		
3467	D5	4524	B2	4555	A3	6101	C3	7100	D4	7431	C6				
3468	D5	4525	C3	4558	C4	6202	B7	7101	D3	7451	B2				
3472	D7	4527	C3	4559	C4	6203	B7	7131	B3	7452	B2				
3473	A5	4529	C4	4560	D6	6204	A2	7132	D5	7454	C5				
3480	D8	4530	C3	4562	C4	6205	C7	7150	D3	7455	D6				
4102	C3	4531	C3	4563	C4	6223	A2	7204	B4	7456	D5				
4103	B3	4532	C3	4566	B2	6224	B4	7205	A2	9010	A1				

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



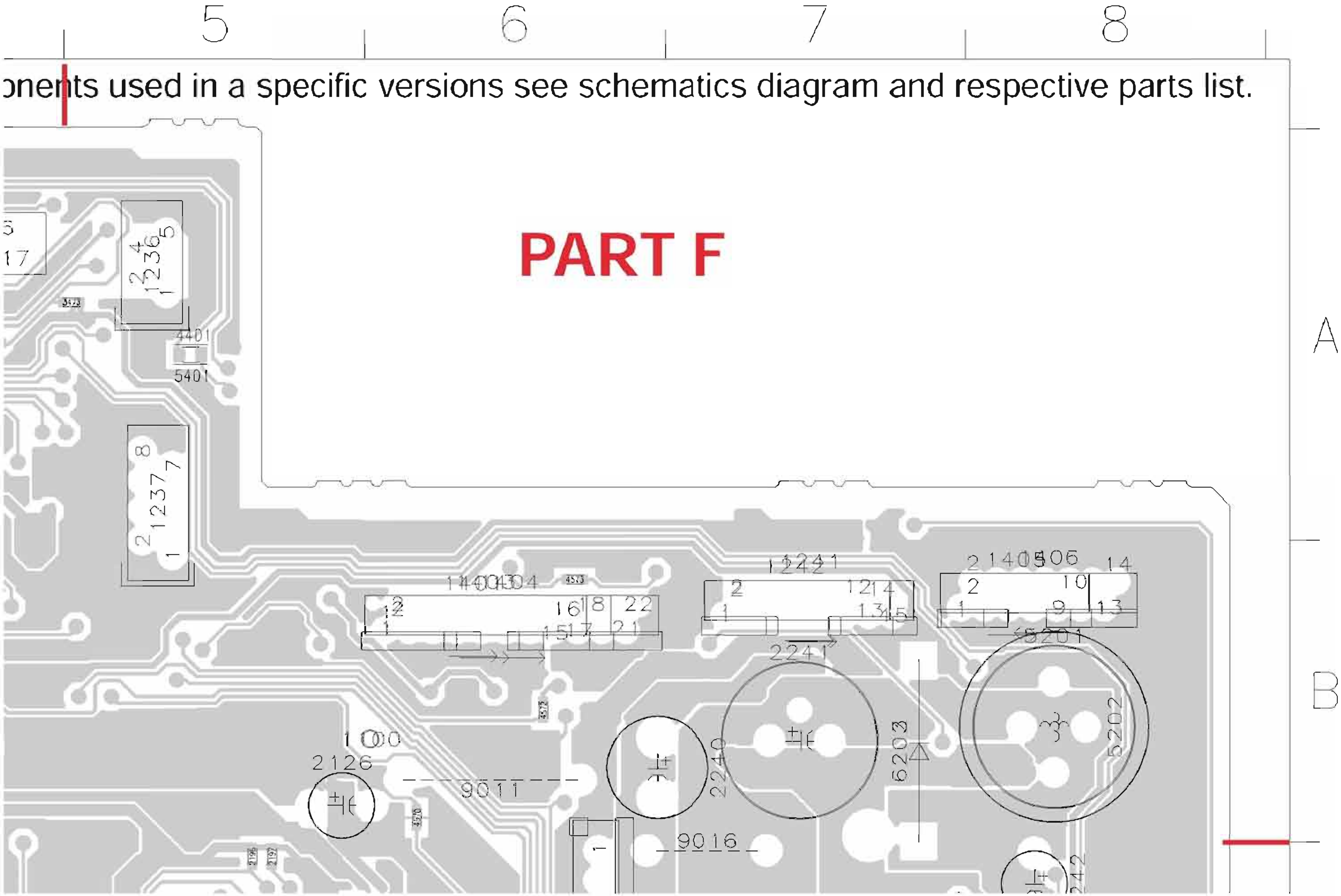
COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW (pcb layout ... 35006) PART E

This assembly drawing shows a summary of all possible versions. For components



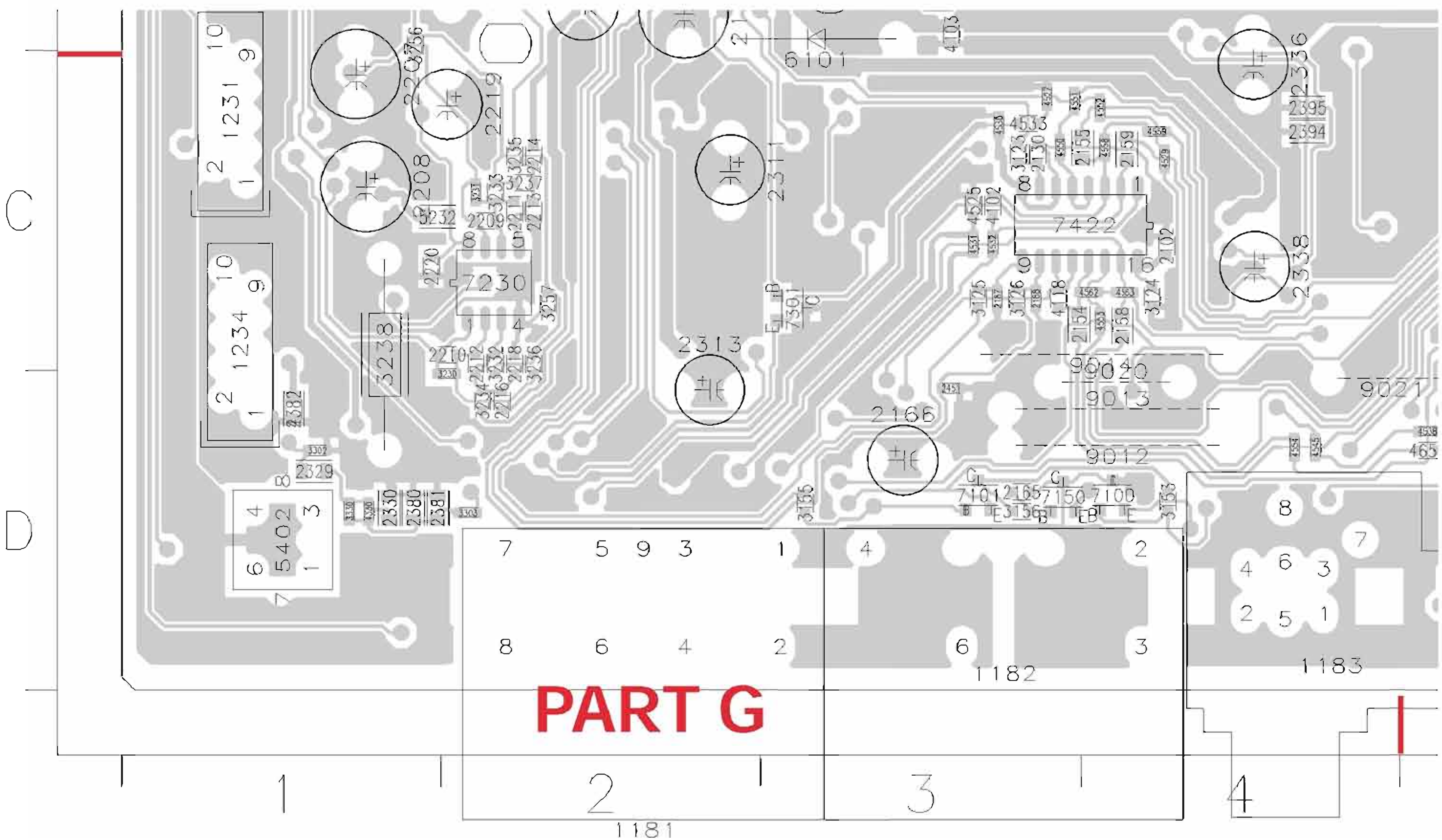
COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW (pcb layout ... 35006) PART F

onents used in a specific versions see schematics diagram and respective parts list.

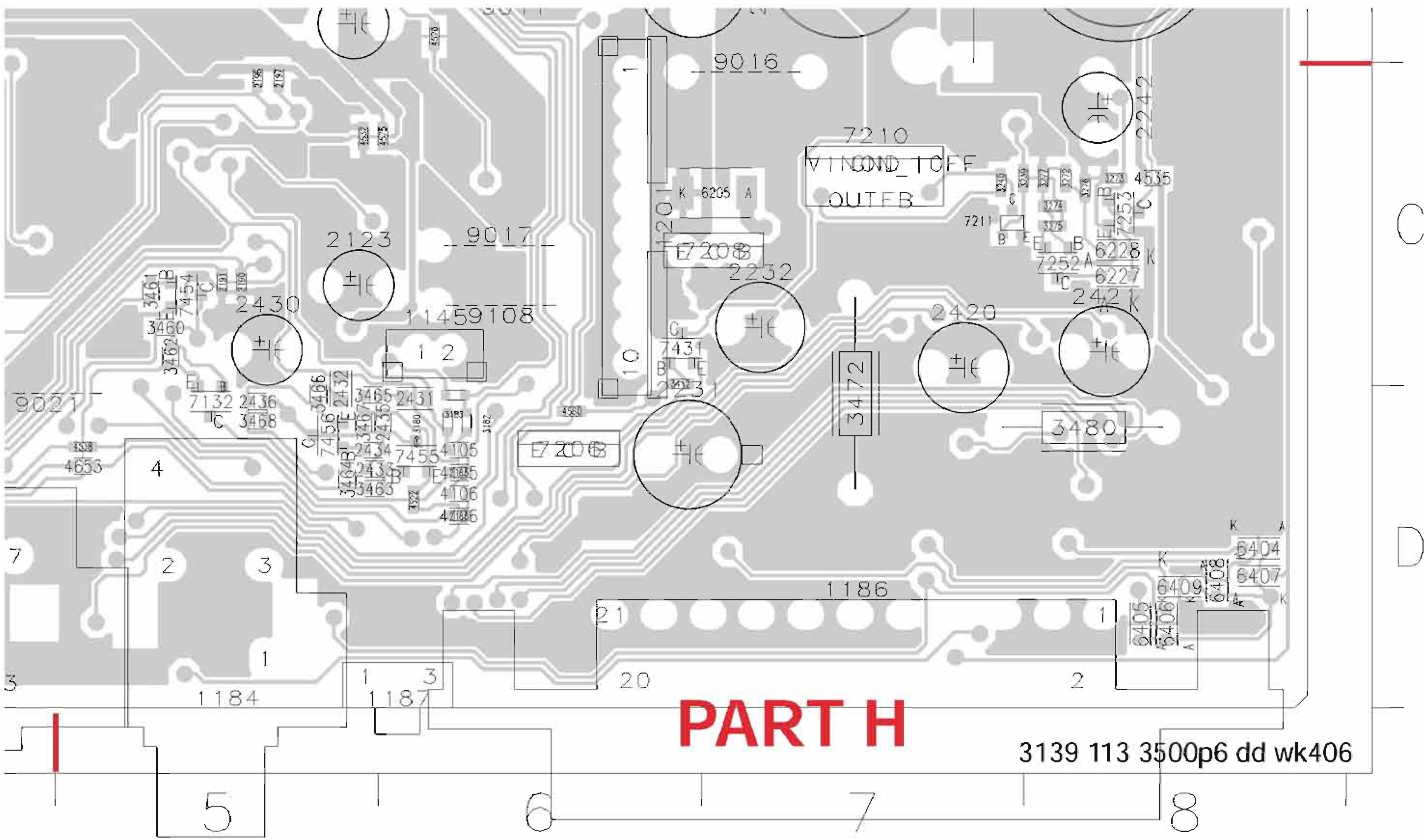


9-3d

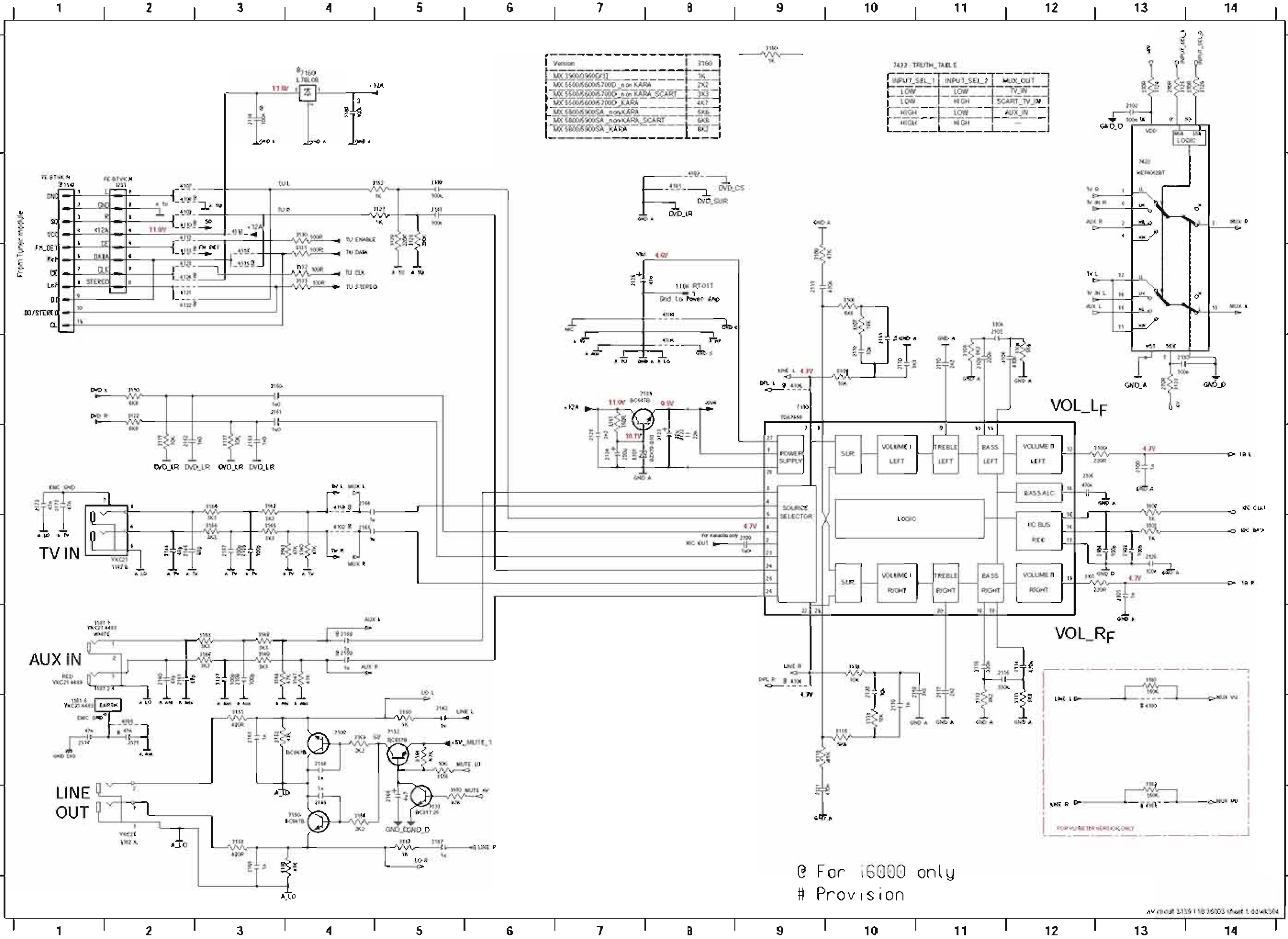
COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW (pcb layout ... 35006) PART G



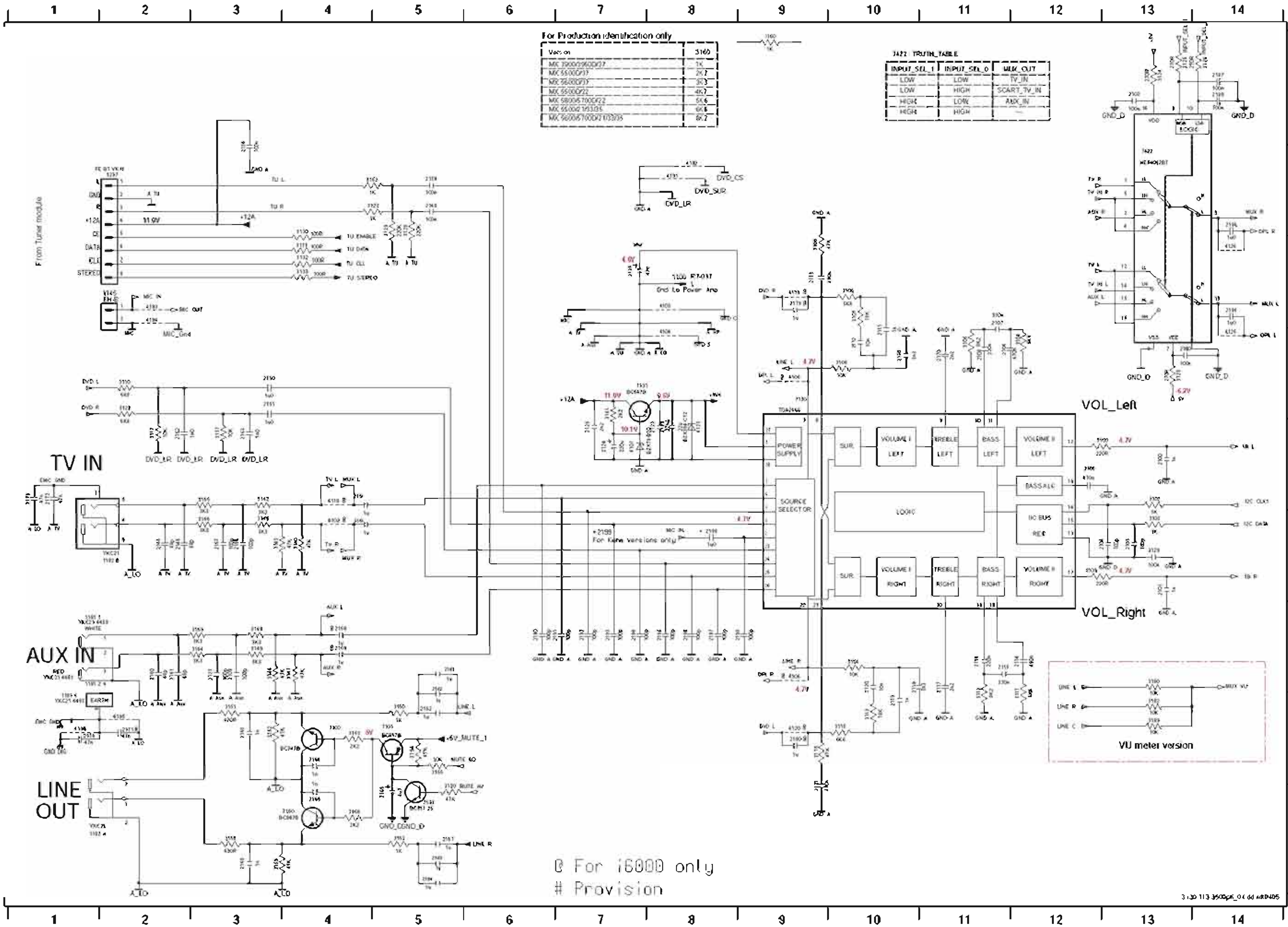
COMPONENT & CHIP LAYOUT - COMPONENT SIDE VIEW (pcb layout ... 35006) PART H



INPUT, SOURCE SELECT & VOLUME CONTROL L/R CIRCUIT

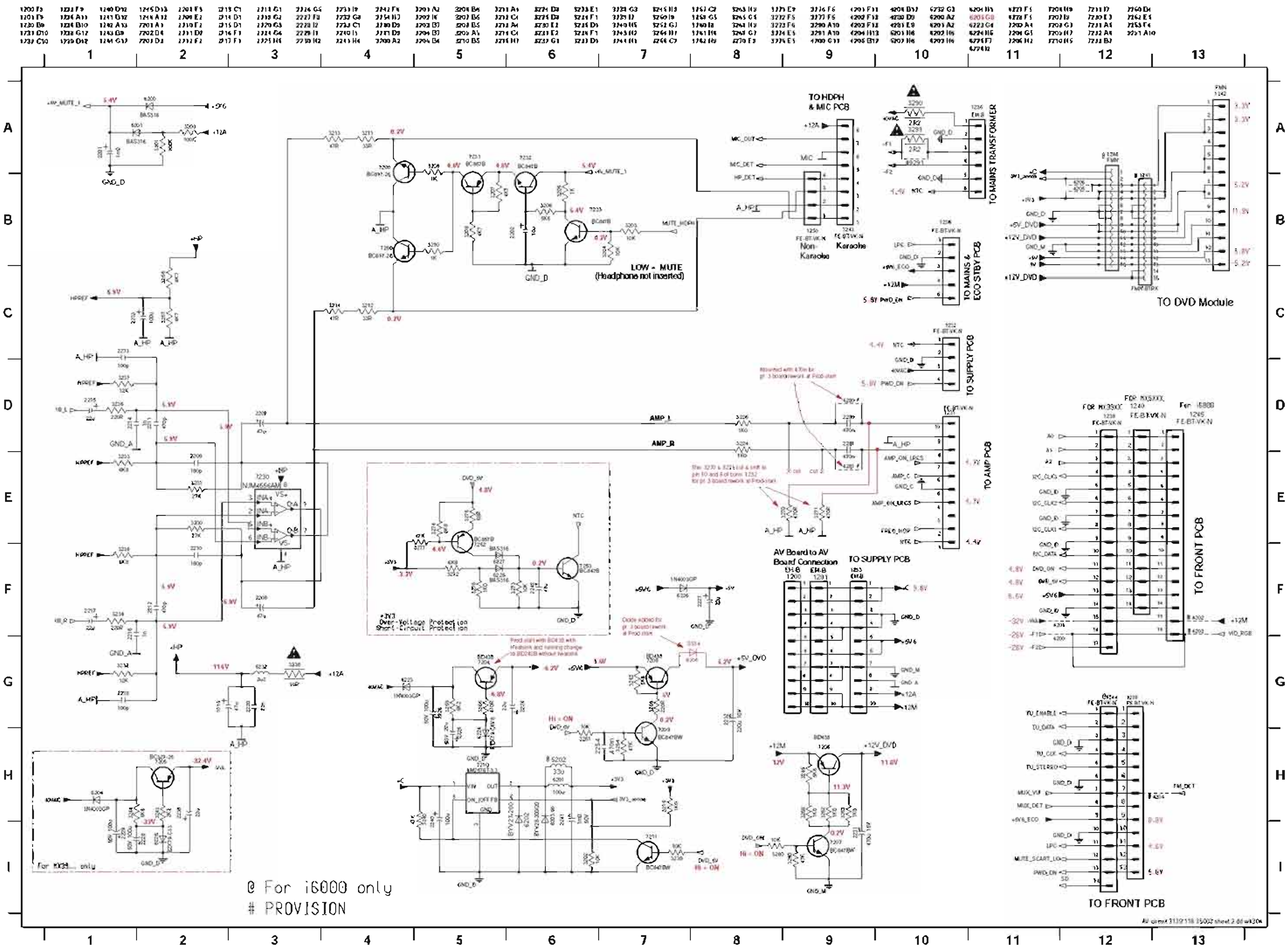


INPUT, SOURCE SELECT & VOLUME CONTROL L/R CIRCUIT (For pcb layout ... 35006)



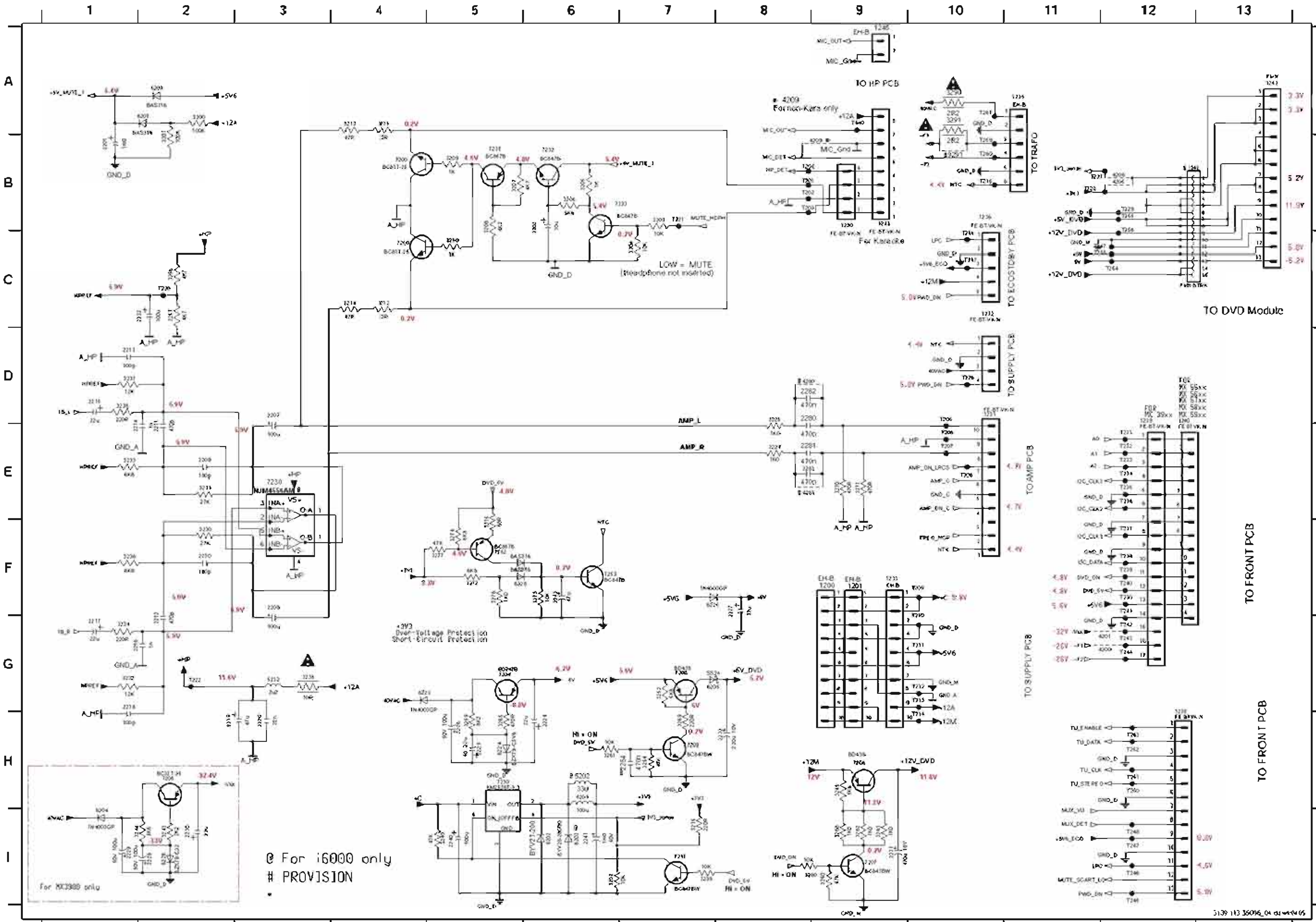
9-5

PRE-AMPLIFIER, SUPPLY & INTERCONNECTION CIRCUIT



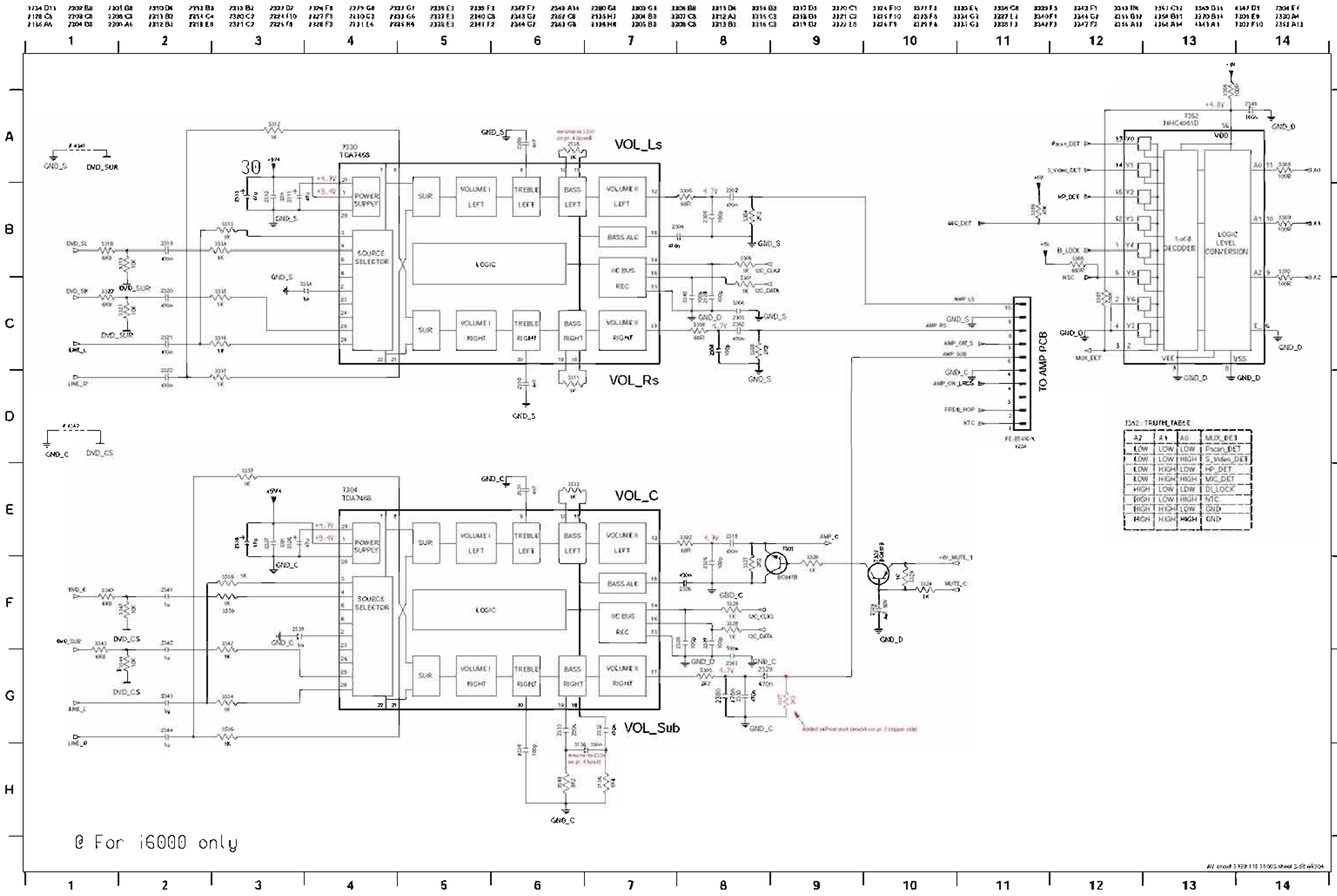
9-5a

PRE-AMPLIFIER, SUPPLY & INTERCONNECTION CIRCUIT (For pcb layout ... 35006)



1200 F9	5201 H6
1201 F9	5202 H6
1230 B9	5212 G3
1231 D10	6200 A2
1232 C10	6201 A2
1233 F9	6202 I6
1235 A11	6203 I6
1236 B10	6204 I1
1238 H12	6205 G7
1239 D12	6223 G4
1240 D12	6224 H5
1241 B12	6225 F7
1242 A13	6226 I2
1243 B9	6227 F5
1245 A9	6228 F5
2201 B1	7200 B4
2202 B6	7204 G5
2207 D3	7205 H9
2208 F3	7206 H9
2209 E2	7207 I9
2210 F2	7208 G7
2211 E2	7209 H7
2212 G2	7210 H5
2213 D1	7211 I7
2214 E1	7230 E3
2215 D1	7231 B5
2216 G1	7232 B6
2217 G1	7233 B7
2218 C1	7250 C4
2219 H2	7252 F5
2220 H3	7253 F6
2224 H6	8291 B10
2225 H5	T201 B8
2226 H6	T202 B8
2227 F8	T203 B8
2228 I2	T204 B8
2229 I1	T205 D10
2230 I2	T206 E10
2231 I9	T207 E10
2232 H8	T208 E10
2233 C7	T209 F10
2240 I5	T210 G10
2241 I6	T211 G10
2242 F6	T212 G10
2254 H7	T213 G10
2280 D8	T214 H10
2281 E8	T215 B10
2282 D8	T216 C10
2283 E8	T217 C10
3200 A2	T220 C2
3201 B2	T221 B7
3202 I6	T222 G2
3203 B7	T226 D10
3204 C7	T227 B11
3205 B6	T228 B11
3206 B6	T229 B12
3207 B5	T230 F12
3208 B5	T231 E12
3209 B5	T232 E12
3210 C5	T233 E12
3211 A4	T234 E12
3212 C4	T235 E12
3213 A4	T236 E12
3214 C4	T237 F12
3215 I7	T238 F12
3224 E8	T239 F12
3225 D8	T240 F12
3230 F2	T241 F12
3231 E2	T242 G11
3232 G1	T243 G12
3233 E1	T244 G11
3234 G1	T245 I11
3235 D1	T246 I11
3236 F1	T247 I11
3237 D1	T248 I12
3238 G3	T250 H12
3239 I7	T251 H12
3240 I5	T252 H12
3243 I2	T253 H12
3244 I2	T254 C12
3245 H9	T255 B12
3250 I9	T256 C12
3252 G7	T257 C11
3254 H7	T258 C11
3256 C2	T259 B10
3257 C2	T260 B10
3259 H6	T261 A10
3260 I8	T440 A8
3261 H6	
3262 I9	
3263 I9	
3265 H5	
3268 I9	
3269 H7	
3270 E9	
3271 E9	
3272 F6	
3273 F6	
3274 F6	
3275 F6	
3276 F6	
3277 F6	
3290 A10	
3291 A10	
4200 G12	
4201 G12	
4205 B12	
4206 B12	
4209 B9	
4280 D8	
4281 E8	

VOLUME CONTROL SURR., CENTER & SW AND CONTROL MULTIPLEXER CIRCUIT

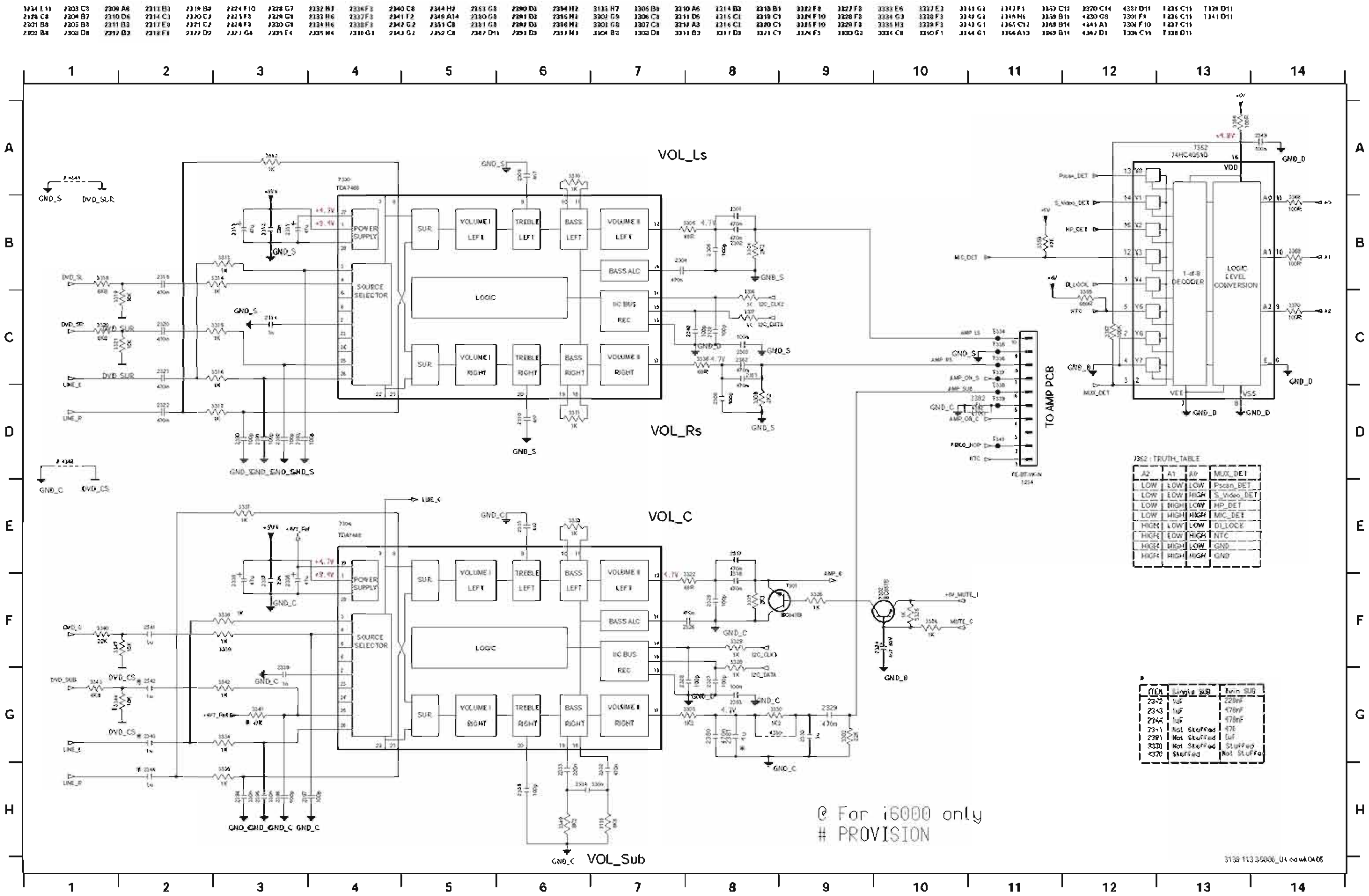


1352 : TRUTH_TABLE

A2	A1	A0	MUX_DET
LOW	LOW	LOW	Pscan_DET
LOW	LOW	HIGH	S_Video_DET
LOW	HIGH	LOW	HP_DET
LOW	HIGH	HIGH	MIC_DET
HIGH	LOW	LOW	DI_LOCK
HIGH	LOW	HIGH	NTC
HIGH	HIGH	LOW	GND
HIGH	HIGH	HIGH	GND

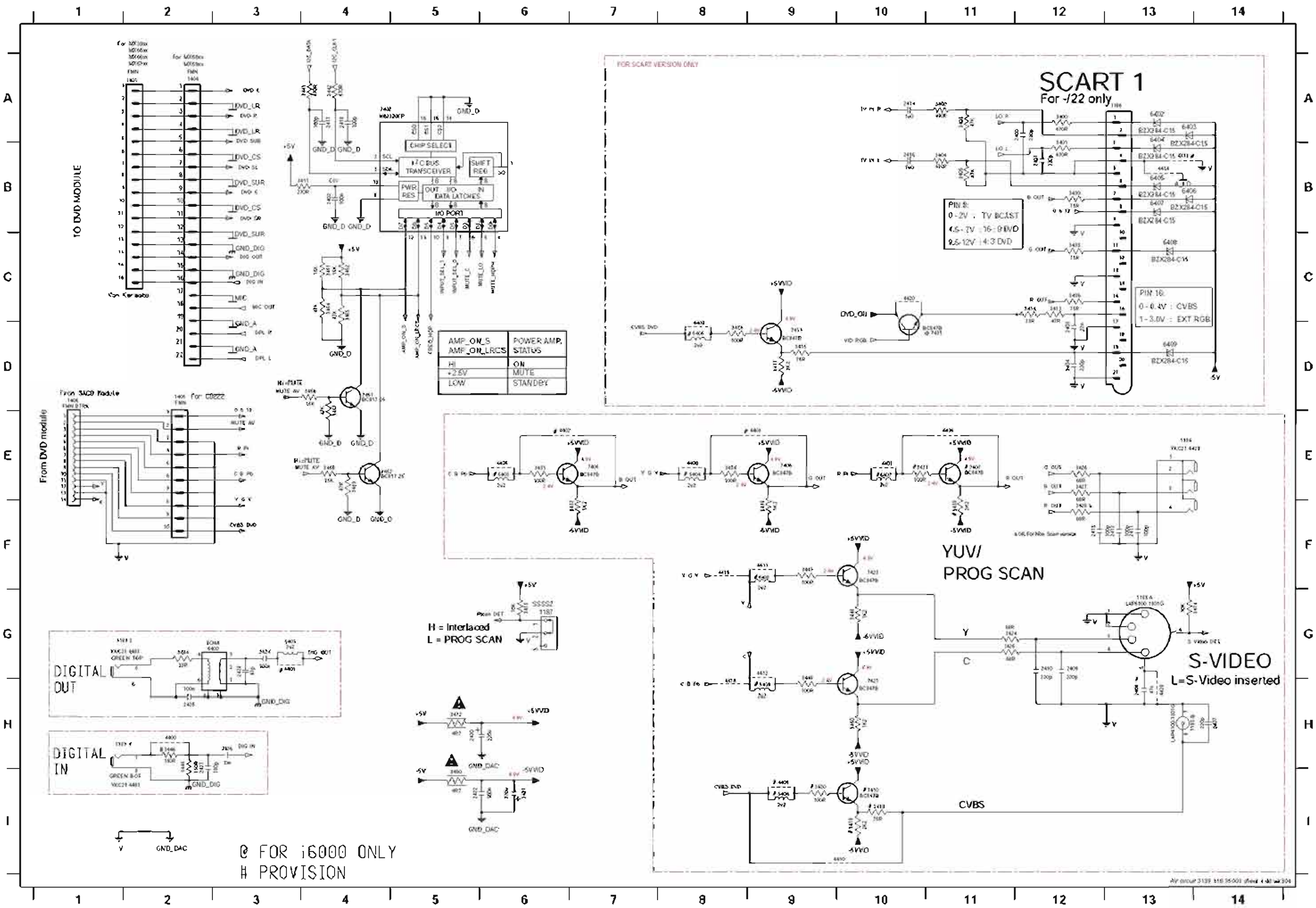
9-6a

VOLUME CONTROL SURR., CENTER & SW AND CONTROL MULTIPLEXER CIRCUIT (For pcb layout ... 35006)

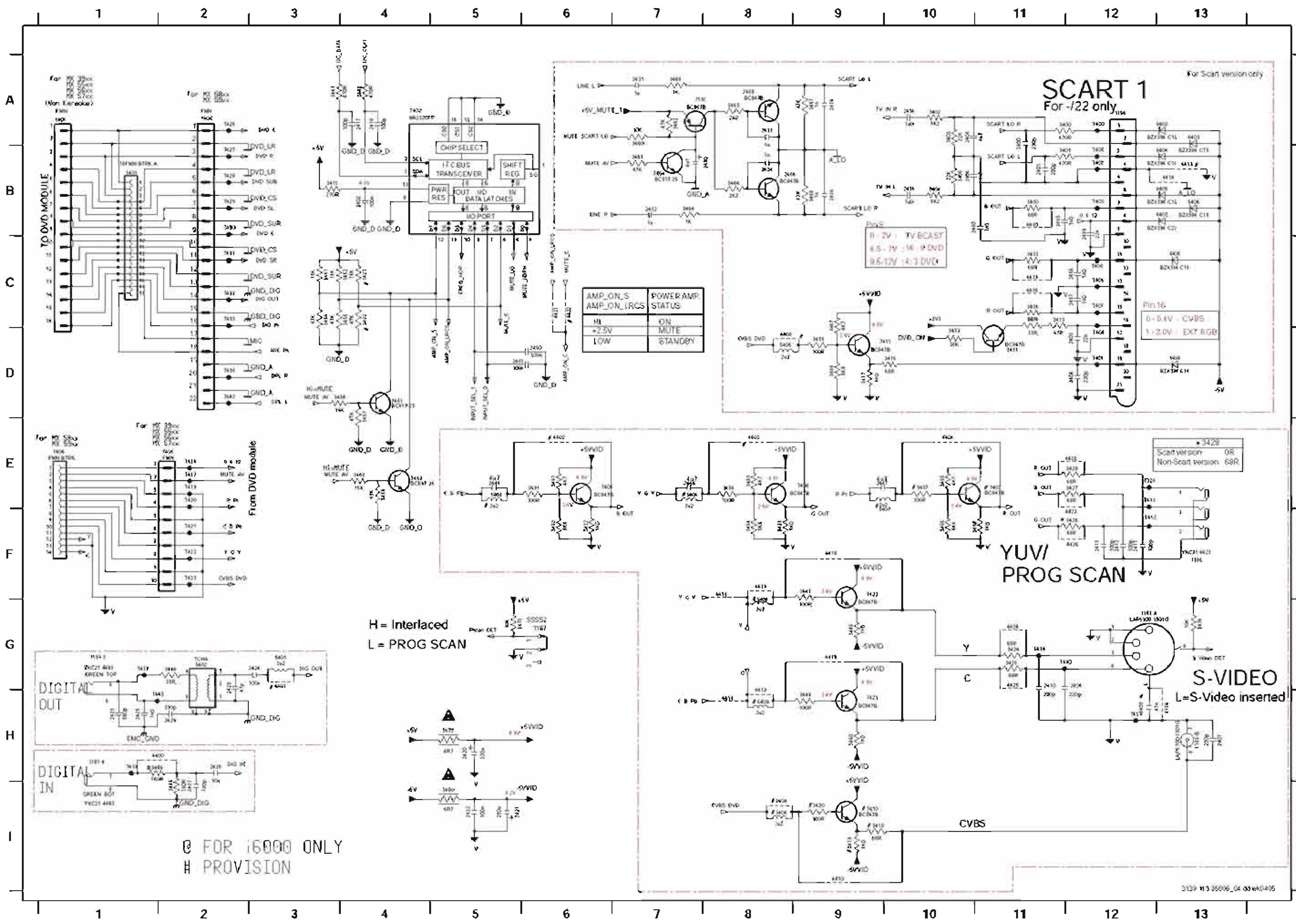


9-7

DIGITAL I/O, S-VIDEO, SCART, & I²C EXPANDER CIRCUITS



DIGITAL I/O, S-VIDEO, SCART, & I²C EXPANDER CIRCUITS (For pcb layout ... 35006)



MISCELLANEOUS

1181	2422 026 05399	Socket Cinch Dig out/Aux in
1182	4822 267 31823	Socket Cinch TV-in/Line-out
1183	2422 033 00468	Socket CVBS/S Video Out
1184	2422 026 05342	Socket YUV Out
1187	2422 127 00476	Switch Pro-SCAN
1230	4822 267 10733	FFC Socket 4P Vert.
1231	4822 267 10729	FFC Socket 10P Vert.
1232	4822 267 10733	FFC Socket 4P Vert.
1234	4822 267 10729	FFC Socket 10P Vert.
1236	4822 267 10954	FFC Socket 5P Vert.
1237	4822 265 11515	FFC Socket 8P Vert.
1238	4822 267 10738	FFC Socket 13P Vert.
1239	4822 267 10871	FFC Socket 17P Vert.
1242	2422 025 16591	FFC Socket 13P Vert.
1401	2422 025 16525	FFC Socket 16P Vert.
1405	2422 025 16587	FFC Socket 10P Vert.

CAPACITORS

2100	3198 016 31020	1nF 10% 25V
2101	3198 016 31020	1nF 10% 25V
2102	2238 586 59812	100nF 10% 50V
2103	2020 552 94427	100pF 5% 50V
2104	2020 552 94427	100pF 5% 50V
2105	3198 017 44740	470nF 10V
2106	3198 017 44740	470nF 10V
2107	2020 552 96327	330nF 10% 16V
2108	4822 126 13879	220nF +80/-20% 16V
2109	2020 552 94427	100pF 5% 50V
2110	5322 126 11579	3,3nF 10% 63V
2111	3198 016 31020	1nF 10% 25V
2112	5322 126 11583	10nF 10% 50V
2113	3198 017 44740	470nF 10V
2114	3198 017 44740	470nF 10V
2115	2020 552 96327	330nF 10% 16V
2116	4822 126 13879	220nF +80/-20% 16V
2117	4822 126 14238	2,2nF 50V
2118	5322 126 11579	3,3nF 10% 63V
2119	3198 016 31020	1nF 10% 25V
2120	5322 126 11583	10nF 10% 50V
2121	3198 017 44740	470nF 10V
2122	4822 126 14494	22nF 10% 25V
2123	4822 124 81151	22uF 20% 50V
2124	4822 124 40196	220uF 20% 16V
2125	4822 126 14238	2,2nF 50V
2126	4822 124 40433	47uF 20% 25V
2127	2020 552 94427	100pF 5% 50V
2128	2020 552 94427	100pF 5% 50V
2129	2238 586 59812	100nF 10% 50V
2130	2238 586 59812	100nF 10% 50V
2135	Refer to resistor 3310	
2136	2238 586 59812	100nF 10% 50V
2139	2238 586 59812	100nF 10% 50V
2143	2238 586 59812	100nF 10% 50V
2144	4822 126 13956	68pF 5% 63V
2145	4822 126 13956	68pF 5% 63V
2150	4822 126 14043	1uF +80/-20% 16V
2151	4822 126 14043	1uF +80/-20% 16V
2152	3198 016 38210	820pF 10% 25V
2153	3198 016 38210	820pF 10% 25V
2154	4822 126 14043	1uF +80/-20% 16V
2155	4822 126 14043	1uF +80/-20% 16V
2156	2020 552 94427	100pF 5% 50V
2157	2020 552 94427	100pF 5% 50V
2160	4822 126 13956	68pF 5% 63V
2161	4822 126 13956	68pF 5% 63V
2162	4822 126 14491	2,2uF +80/-20% 10V
2163	3198 016 31020	1nF 10% 25V
2164	3198 016 31020	1nF 10% 25V
2165	3198 016 31020	1nF 10% 25V
2166	4822 124 40769	4,7uF 20% 100V
2167	4822 126 14491	2,2uF +80/-20% 10V
2168	3198 016 31020	1nF 10% 25V
2170	4822 126 14238	2,2nF 50V
2172	3198 017 34730	47nF 16V
2173	3198 017 34730	47nF 16V
2187	2238 586 59812	100nF 10% 50V
2188	2238 586 59812	100nF 10% 50V
2190	2020 552 94427	100pF 5% 50V
2191	2020 552 94427	100pF 5% 50V
2192	2020 552 94427	100pF 5% 50V
2193	2020 552 94427	100pF 5% 50V
2194	2020 552 94427	100pF 5% 50V
2195	2020 552 94427	100pF 5% 50V
2196	2020 552 94427	100pF 5% 50V
2197	2020 552 94427	100pF 5% 50V
2198	2020 552 94427	100pF 5% 50V
2201	4822 124 40184	1000uF 20% 10V
2202	4822 124 40248	10uF 20% 63V
2207	4822 124 41751	47uF 20% 50V
2208	4822 124 41751	47uF 20% 50V
2209	4822 126 14508	180pF 5% 50V
2210	4822 126 14508	180pF 5% 50V
2211	4822 126 13881	470pF 5% 50V
2212	4822 126 13881	470pF 5% 50V
2213	2020 552 94427	100pF 5% 50V
2214	3198 016 31020	1nF 10% 25V
2215	4822 124 81151	22uF 20% 50V
2216	3198 016 31020	1nF 10% 25V
2217	4822 124 81151	22uF 20% 50V
2218	2020 552 94427	100pF 5% 50V
2219	4822 124 40433	47uF 20% 25V
2220	4822 126 14494	22nF 10% 25V
2224	4822 124 81151	22uF 20% 50V
2225	4822 124 81151	22uF 20% 50V

2226	4822 124 40255	100uF 20% 63V
2227	4822 124 81151	22uF 20% 50V
2228	4822 124 40255	100uF 20% 63V
2229	4822 124 40255	100uF 20% 63V
2230	4822 124 81151	22uF 20% 50V
2231	4822 124 80791	470uF 20% 16V
2232	4822 124 40196	220uF 20% 16V
2233	4822 124 41584	100uF 20% 10V
2240	2020 012 93503	100uF 20% 25V
2241	3198 026 51020	1000uF 20% 50V
2242	4822 124 40433	47uF 20% 25V
2254	3198 017 44740	470nF 10V
2280	3198 017 44740	470nF 10V
2281	3198 017 44740	470nF 10V
2282	3198 017 44740	470nF 10V
2283	3198 017 44740	470nF 10V
2302	3198 017 44740	470nF 10V
2303	2238 586 59812	100nF 10% 50V
2304	3198 017 44740	470nF 10V
2305	2020 552 94427	100pF 5% 50V
2308	2020 552 94427	100pF 5% 50V
2309	4822 126 13193	4,7nF 10% 63V
2310	4822 126 13193	4,7nF 10% 63V
2311	4822 124 40433	47uF 20% 25V
2312	4822 126 14494	22nF 10% 25V
2313	4822 124 40433	47uF 20% 25V
2314	3198 016 31020	1nF 10% 25V
2318	3198 017 41050	1uF +80/-20% 10V
2319	3198 017 44740	470nF 10V
2320	3198 017 44740	470nF 10V
2321	3198 017 44740	470nF 10V
2322	3198 017 44740	470nF 10V
2324	4822 124 12032	4,7uF 20% 50V
2325	2020 552 94427	100pF 5% 50V
2326	3198 017 44740	470nF 10V
2327	2020 552 94427	100pF 5% 50V
2328	2020 552 94427	100pF 5% 50V
2329	2020 552 96684	470nF 10% 16V
2330	4822 126 14472	1uF 10% 10V
2331	4822 126 13193	4,7nF 10% 63V
2332	2020 552 96684	470nF 10% 25V
2333	2020 552 96326	220nF 10% 16V
2334	2222 780 15656	330nF 10% 16V
2335	2020 552 94427	100pF 5% 50V
2336	4822 124 40433	47uF 20% 25V
2337	4822 126 14494	22nF 10% 25V
2338	4822 124 40433	47uF 20% 25V
2339	3198 016 31020	1nF 10% 25V
2340	2020 552 94427	100pF 5% 50V
2341	4822 126 14043	1uF +80/-20% 16V
2342	4822 126 14043	1uF +80/-20% 16V
2343	4822 126 14043	1uF +80/-20% 16V
2344	4822 126 14043	1uF +80/-20% 16V
2349	2238 586 59812	100nF 10% 50V
2352	3198 017 41050	1uF +80/-20% 10V
2353	2238 586 59812	100nF 10% 50V
2380	2020 552 96684	470nF 10% 25V
2390	2020 552 94427	100pF 5% 50V
2391	2020 552 94427	100pF 5% 50V
2392	2020 552 94427	100pF 5% 50V
2393	2020 552 94427	100pF 5% 50V
2394	2020 552 94427	100pF 5% 50V
2395	2020 552 94427	100pF 5% 50V
2396	2020 552 94427	100pF 5% 50V
2397	2020 552 94427	100pF 5% 50V
2402	2238 586 59812	100nF 10% 50V
2407	4822 126 13883	220pF 5% 50V
2409	4822 126 13883	220pF 5% 50V
2410	4822 126 13883	220pF 5% 50V
2411	2020 552 94427	100pF 5% 50V
2412	2020 552 94427	100pF 5% 50V
2413	2020 552 94427	100pF 5% 50V
2417	2020 552 94427	100pF 5% 50V
2418	2020 552 94427	100pF 5% 50V
2420	4822 124 40196	220uF 20% 16V
2421	4822 124 40196	220uF 20% 16V
2422	2238 586 59812	100nF 10% 50V
2423	4822 126 14249	560pF 25V
2424	2238 586 59812	100nF 10% 50V
2425	3198 016 31020	1nF 50V
2426	5322 126 11583	10nF 10% 50V
2427	4822 126 14508	180pF 5% 50V
2428	4822 126 11785	47pF 5% 50V
2429	4822 126 14241	330pF 50V
2445	2020 552 96305	4,7uF +80/-20% 10V
2446	2020 552 96306	4,7uF +80/-20% 10V
2450	2238 586 59812	100nF 10% 50V
2451	2238 586 59812	100nF 10% 50V

RESISTORS

3100	4822 051 30221	220R 5% 0,062W
3101	4822 051 30221	220R 5% 0,062W
3102	4822 051 30102	1k 5% 0,062W
3103	4822 051 30102	1k 5% 0,062W
3104	4822 051 30562	5k6 5% 0,063W
3105	4822 117 12902	8k2 1% 0,063W
3106	4822 051 30562	5k6 5% 0,063W
3107	4822 051 30183	18k 5% 0,062W
3108	4822 051 30103	10k 5% 0,062W
3109	4822 117 12925	47k 1% 0,063W
3110	4822 051 30682	6k8 5% 0,062W
3111	4822 051 30562	5k6 5% 0,063W
3112	4822 117 12902	8k2 1% 0,063W
3113	4822 051 30183	18k 5% 0,062W

ELECTRICAL PARTS LIST - AV BOARD

RESISTORS

3114	4822 051 30103	10k 5% 0,062W
3115	4822 051 30562	5k6 5% 0,063W
3116	4822 117 12925	47k 1% 0,063W
3117	4822 051 30103	10k 5% 0,062W
3122	4822 051 30682	6k8 5% 0,062W
3123	4822 051 30271	270R 5% 0,062W
3124	4822 051 30271	270R 5% 0,062W
3125	4822 051 30271	270R 5% 0,062W
3126	4822 051 30271	270R 5% 0,062W
3127	4822 051 30102	1k 5% 0,062W
3128	4822 117 12891	220k 1% 0,062W
3129	4822 117 12891	220k 1% 0,062W
3130	4822 051 30101	100R 5% 0,062W
3131	4822 051 30101	100R 5% 0,062W
3132	4822 051 30101	100R 5% 0,062W
3133	4822 051 30101	100R 5% 0,062W
3135	4822 051 30562	5k6 5% 0,063W
3136	Refer to capacitor 2334	
3137	4822 051 30103	10k 5% 0,062W
3140	4822 117 12925	47k 1% 0,063W
3142	4822 051 30332	3k3 5% 0,062W
3143	4822 117 12925	47k 1% 0,063W
3145	4822 051 30332	3k3 5% 0,062W
3146	4822 117 12925	47k 1% 0,063W
3147	4822 117 12925	47k 1% 0,063W
3148	4822 051 30332	3k3 5% 0,062W
3149	4822 051 30332	3k3 5% 0,062W
3150	4822 051 30102	1k 5% 0,062W
3151	4822 051 30471	470R 5% 0,062W
3152	4822 117 12925	47k 1% 0,063W
3153	4822 051 30222	2k2 5% 0,062W
3154	4822 117 12925	47k 1% 0,063W
3155	4822 051 30103	10k 5% 0,062W
3156	4822 051 30222	2k2 5% 0,062W
3157	4822 051 30102	1k 5% 0,062W
3158	4822 051 30471	470R 5% 0,062W
3159	4822 117 12925	47k 1% 0,063W
3160	4822 051 30102	1k 5% 0,062W
3161	4822 051 30222	2k2 5% 0,062W
3162	4822 051 30102	1k 5% 0,062W
3163	4822 051 30332	3k3 5% 0,062W
3164	4822 051 30332	3k3 5% 0,062W
3165	4822 051 30332	3k3 5% 0,062W
3166	4822 051 30332	3k3 5% 0,062W
3170	4822 117 12925	47k 1% 0,063W
3180	4822 051 30103	10k 5% 0,062W
3182	4822 051 30103	10k 5% 0,062W
3183	4822 051 30103	10k 5% 0,062W
3200	4822 117 13632	100k 1% 0,062W
3201	4822 117 13632	100k 1% 0,062W
3202	4822 051 30103	10k 5% 0,062W
3203	4822 051 30103	10k 5% 0,062W

3204	4822 051 30103	10k 5% 0,062W
3205	4822 051 30102	1k 5% 0,062W
3206	4822 051 30562	5k6 5% 0,063W
3207	4822 051 30472	4k7 5% 0,062W
3208	4822 051 30472	4k7 5% 0,062W
3209	4822 051 30102	1k 5% 0,062W
3210	4822 051 30102	1k 5% 0,062W
3211	4822 051 30339	33R 5% 0,062W
3212	4822 051 30339	33R 5% 0,062W
3213	4822 051 30479	47R 5% 0,062W
3214	4822 051 30479	47R 5% 0,062W
3224	4822 051 30102	1k 5% 0,062W
3225	4822 051 30102	1k 5% 0,062W
3230	4822 051 30273	27k 5% 0,062W
3231	4822 051 30273	27k 5% 0,062W
3232	4822 051 30123	12k 5% 0,062W
3233	4822 051 30682	6k8 5% 0,062W
3234	4822 051 30221	220R 5% 0,062W
3235	4822 051 30221	220R 5% 0,062W
3236	4822 051 30682	6k8 5% 0,062W
3237	4822 051 30123	12k 5% 0,062W
3238	4822 052 10109 ⚠	10R 5% 0,33W
3239	4822 051 30103	10k 5% 0,062W
3240	4822 117 12925	47k 1% 0,063W
3243	4822 051 30222	2k2 5% 0,062W
3244	4822 051 30562	5k6 5% 0,063W
3245	4822 051 30562	5k6 5% 0,063W
3250	4822 117 12925	47k 1% 0,063W
3252	4822 051 30562	5k6 5% 0,063W
3254	4822 117 12925	47k 1% 0,063W
3256	4822 051 30472	4k7 5% 0,062W
3257	4822 051 30472	4k7 5% 0,062W
3259	4822 117 12902	8k2 1% 0,063W
3260	4822 051 30103	10k 5% 0,062W
3261	4822 051 30103	10k 5% 0,062W
3262	4822 051 30102	1k 5% 0,062W
3263	4822 051 30102	1k 5% 0,062W
3265	4822 051 30471	470R 5% 0,062W
3268	4822 051 30102	1k 5% 0,062W
3269	4822 051 30221	220R 5% 0,062W
3270	4822 051 30471	470R 5% 0,062W
3271	4822 051 30471	470R 5% 0,062W
3272	4822 051 30682	6k8 5% 0,062W
3273	4822 051 30103	10k 5% 0,062W
3274	4822 051 30682	6k8 5% 0,062W
3275	4822 051 30689	68R 5% 0,063W
3276	4822 051 30102	1k 5% 0,062W
3277	4822 117 12925	47k 1% 0,063W
3290	4822 052 10108 ⚠	1R 5% 0,33W
3302	4822 051 30223	22k 5% 0,062W
3303	4822 117 11817	1k2 1% 0,062W
3304	4822 051 30222	2k2 5% 0,062W

3305	4822 051 30689	68R 5% 0,063W
3306	4822 051 30102	1k 5% 0,062W
3307	4822 051 30102	1k 5% 0,062W
3308	4822 051 30222	2k2 5% 0,062W
3310	4822 051 30102	1k 5% 0,062W
3311	4822 051 30102	1k 5% 0,062W
3312	4822 051 30102	1k 5% 0,062W
3313	4822 051 30102	1k 5% 0,062W
3314	4822 051 30102	1k 5% 0,062W
3315	4822 051 30102	1k 5% 0,062W
3316	4822 051 30102	1k 5% 0,062W
3317	4822 051 30102	1k 5% 0,062W
3318	4822 051 30682	6k8 5% 0,062W
3319	4822 051 30103	10k 5% 0,062W
3320	4822 051 30682	6k8 5% 0,062W
3321	4822 051 30103	10k 5% 0,062W
3322	4822 051 30689	68R 5% 0,063W
3324	4822 051 30102	1k 5% 0,062W
3325	4822 051 30102	1k 5% 0,062W
3326	4822 051 30102	1k 5% 0,062W
3327	4822 051 30222	2k2 5% 0,062W
3328	4822 051 30102	1k 5% 0,062W
3329	4822 051 30102	1k 5% 0,062W
3333	4822 051 30102	1k 5% 0,062W
3334	4822 051 30102	1k 5% 0,062W
3335	4822 051 30102	1k 5% 0,062W
3336	4822 051 30689	68R 5% 0,063W
3337	4822 051 30102	1k 5% 0,062W
3338	4822 051 30102	1k 5% 0,062W
3339	4822 051 30102	1k 5% 0,062W
3340	4822 051 30223	22k 5% 0,062W
3342	4822 051 30102	1k 5% 0,062W
3343	4822 051 30682	6k8 5% 0,062W
3347	4822 051 30103	10k 5% 0,062W
3349	4822 117 12902	8k2 1% 0,063W
3355	4822 051 30681	680R 5% 0,062W
3356	4822 051 30101	100R 5% 0,062W
3357	4822 117 13632	100k 1% 0,062W
3359	4822 117 12925	47k 1% 0,063W
3368	4822 051 30101	100R 5% 0,062W
3369	4822 051 30101	100R 5% 0,062W
3370	4822 051 30101	100R 5% 0,062W
3411	4822 051 30271	270R 5% 0,062W
3424	4822 051 30689	68R 5% 0,063W
3425	4822 051 30689	68R 5% 0,063W
3426	4822 051 30689	68R 5% 0,063W
3427	4822 051 30689	68R 5% 0,063W
3431	4822 051 30101	100R 5% 0,062W
3432	4822 117 11817	1k2 1% 0,062W
3434	4822 051 30101	100R 5% 0,062W
3435	4822 117 11817	1k2 1% 0,062W
3438	4822 117 11817	1k2 1% 0,062W

3441	4822 051 30471	470R 5% 0,062W
3442	4822 051 30471	470R 5% 0,062W
3444	4822 051 30339	33R 5% 0,062W
3445	4822 051 30151	150R 5% 0,062W
3447	4822 051 30101	100R 5% 0,062W
3448	4822 117 11817	1k2 1% 0,062W
3449	4822 051 30101	100R 5% 0,062W
3450	4822 117 11817	1k2 1% 0,062W
3451	4822 051 30153	15k 5% 0,062W
3452	4822 051 30153	15k 5% 0,062W
3454	4822 117 12925	47k 1% 0,063W
3455	4822 117 12925	47k 1% 0,063W
3456	4822 051 30153	15k 5% 0,062W
3457	4822 117 12925	47k 1% 0,063W
3458	4822 051 30153	15k 5% 0,062W
3459	4822 117 12925	47k 1% 0,063W
3472	4822 052 10478 ⚠	4R7 5% 0,33W
3473	4822 051 30103	10k 5% 0,062W
3474	4822 051 30103	10k 5% 0,062W
3480	4822 052 10478 ⚠	4R7 5% 0,33W
3481	4822 051 30472	4k7 5% 0,062W
3482	4822 051 30562	5k6 5% 0,063W
3483	4822 051 30472	4k7 5% 0,062W
3484	4822 051 30562	5k6 5% 0,063W
4103	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4107	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4193	4822 051 30008	0R Jumper 0603
4194	4822 051 30008	0R Jumper 0603
4196	4822 051 30008	0R Jumper 0603
4197	4822 051 30008	0R Jumper 0603
4198	4822 051 30008	0R Jumper 0603
4200	4822 051 30008	0R Jumper 0603
4201	4822 051 30008	0R Jumper 0603
4205	4822 051 30008	0R Jumper 0603
4206	4822 051 30008	0R Jumper 0603
4209	4822 051 30008	0R Jumper 0603
4330	4822 051 30008	0R Jumper 0603
4341	4822 051 30008	0R Jumper 0603
4342	4822 051 30008	0R Jumper 0603
4382	4822 051 30008	0R Jumper 0603
4400	4822 051 30008	0R Jumper 0603
4404	4822 051 30008	0R Jumper 0603
4409	4822 051 30008	0R Jumper 0603
4410	4822 051 30008	0R Jumper 0603
4411	4822 051 30008	0R Jumper 0603
4412	4822 051 30008	0R Jumper 0603
4414	4822 051 30008	0R Jumper 0603
4415	4822 051 30008	0R Jumper 0603
4416	4822 051 30008	0R Jumper 0603
4421	4822 051 30008	0R Jumper 0603

9-10

ELECTRICAL PARTS LIST - AV BOARD

RESISTORS

4428	4822 051 30008	0R Jumper 0603
4500	4822 051 30008	0R Jumper 0603
4501	4822 051 30008	0R Jumper 0603
4502	4822 051 30008	0R Jumper 0603
4503	4822 051 30008	0R Jumper 0603
4504	4822 051 30008	0R Jumper 0603
4505	4822 051 30008	0R Jumper 0603
4506	4822 051 30008	0R Jumper 0603
4507	4822 051 30008	0R Jumper 0603
4508	4822 051 30008	0R Jumper 0603
4510	4822 051 30008	0R Jumper 0603
4511	4822 051 30008	0R Jumper 0603
4512	4822 051 30008	0R Jumper 0603
4513	4822 051 30008	0R Jumper 0603
4514	4822 051 30008	0R Jumper 0603
4515	4822 051 30008	0R Jumper 0603
4516	4822 051 30008	0R Jumper 0603
4517	4822 051 30008	0R Jumper 0603
4518	4822 051 30008	0R Jumper 0603
4519	4822 051 30008	0R Jumper 0603
4520	4822 051 30008	0R Jumper 0603
4521	4822 051 30008	0R Jumper 0603
4522	4822 051 30008	0R Jumper 0603
4523	4822 051 30008	0R Jumper 0603
4524	4822 051 30008	0R Jumper 0603
4525	4822 051 30008	0R Jumper 0603
4527	4822 051 30008	0R Jumper 0603
4528	4822 051 30008	0R Jumper 0603
4529	4822 051 30008	0R Jumper 0603
4530	4822 051 30008	0R Jumper 0603
4531	4822 051 30008	0R Jumper 0603
4532	4822 051 30008	0R Jumper 0603
4533	4822 051 30008	0R Jumper 0603
4534	4822 051 30008	0R Jumper 0603
4535	4822 051 30008	0R Jumper 0603
4537	4822 051 30008	0R Jumper 0603
4538	4822 051 30008	0R Jumper 0603
4539	4822 051 30008	0R Jumper 0603
4540	4822 051 30008	0R Jumper 0603
4541	4822 051 30008	0R Jumper 0603
4542	4822 051 30008	0R Jumper 0603
4543	4822 051 30008	0R Jumper 0603
4544	4822 051 30008	0R Jumper 0603
4545	4822 051 30008	0R Jumper 0603
4546	4822 051 30008	0R Jumper 0603
4548	4822 051 30008	0R Jumper 0603
4549	4822 051 30008	0R Jumper 0603
4550	4822 051 30008	0R Jumper 0603
4551	4822 051 30008	0R Jumper 0603
4552	4822 051 30008	0R Jumper 0603
4553	4822 051 30008	0R Jumper 0603
4554	4822 051 30008	0R Jumper 0603
4555	4822 051 30008	0R Jumper 0603
4556	4822 051 30008	0R Jumper 0603
4557	4822 051 30008	0R Jumper 0603
4558	4822 051 30008	0R Jumper 0603
4559	4822 051 30008	0R Jumper 0603
4560	4822 051 30008	0R Jumper 0603
4561	4822 051 30008	0R Jumper 0603
4562	4822 051 30008	0R Jumper 0603
4563	4822 051 30008	0R Jumper 0603
4564	4822 051 30008	0R Jumper 0603
4565	4822 051 30008	0R Jumper 0603
4566	4822 051 30008	0R Jumper 0603
4570	4822 051 30008	0R Jumper 0603
4571	4822 051 30008	0R Jumper 0603
4572	4822 051 30008	0R Jumper 0603
4573	4822 051 30008	0R Jumper 0603
4574	4822 051 30008	0R Jumper 0603
4575	4822 051 30008	0R Jumper 0603
4579	4822 051 30008	0R Jumper 0603
4585	4822 051 30008	0R Jumper 0603
4593	4822 051 30008	0R Jumper 0603
4598	4822 051 30008	0R Jumper 0603
4653	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5201	2422 536 00548	Coil 100uH 15%
5232	4822 157 10586	Coil 2,2uH 10%
5401	4822 157 10586	Coil 2,2uH 10%
5402	4822 157 70601	Coil 100uH 10%
5407	4822 157 10586	Coil 2,2uH 10%

DIODES

6101	9337 12920673	BZX79-C11
6123	9340 548 61115	BZX384-C12
6200	4822 130 11397	BAS316
6201	4822 130 11397	BAS316
6202	4822 130 10871	SBYV27-200
6204	4822 130 31878	1N4003G
6206	9322 128 70685	SS14
6223	4822 130 31878	1N4003G
6224	4822 130 34278	BZX79-B6V8
6225	4822 130 31878	1N4003G
6226	4822 130 34142	BZX79-B33
6227	4822 130 11397	BAS316
6228	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7100	5322 130 60159	BC847B	
7101	4822 130 60373	BC857B	
7130	9322 150 74668	TDA7468D	
7131	4822 130 40959	BC547B	
7132	4822 130 60373	BC857B	
7133	4822 130 42804	BC817-25	
7150	5322 130 60159	BC847B	
7200	4822 130 42804	BC817-25	
7204	4822 130 40995	BD438	only for Prod start up
	9322 196 61687	BD242	running chang over
7205	4822 130 41246	BC327-25	
7206	4822 130 40995	BD438	
7207	3198 010 42310	BC847BW	
7208	4822 130 40995	BD438	
7209	3198 010 42310	BC847BW	
7210	9322 188 75682	LM2576T-3.3	
7211	3198 010 42310	BC847BW	
7230	4822 209 31378	NJM4556MB	
7231	4822 130 60373	BC857B	
7232	5322 130 60159	BC847B	
7233	5322 130 60159	BC847B	
7250	4822 130 42804	BC817-25	
7252	4822 130 60373	BC857B	
7253	5322 130 60159	BC847B	
7301	5322 130 60159	BC847B	
7302	4822 130 60373	BC857B	
7304	9322 150 74668	TDA7468D	
7330	9322 150 74668	TDA7468D	
7352	9337 148 20653	74HC4051D	
7402	4822 209 17345	M62320FP	
7405	5322 130 60159	BC847B	
7406	5322 130 60159	BC847B	
7421	5322 130 60159	BC847B	
7422	5322 209 11102	HEF4052BT	
7423	5322 130 60159	BC847B	
7451	4822 130 42804	BC817-25	
7452	4822 130 42804	BC817-25	

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

5DTC MODULE

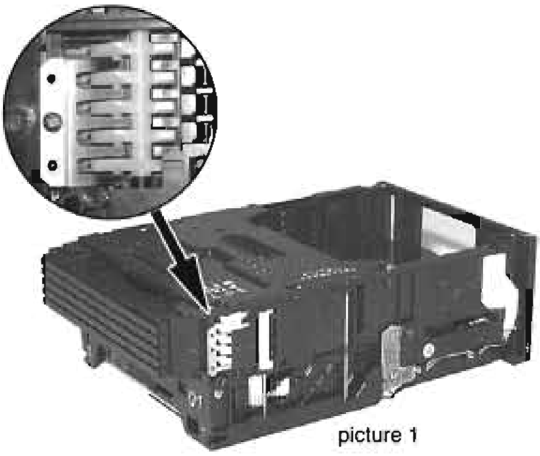
(DVD Version)

TABLE OF CONTENTS

For Mono-FE (Front End) and Mono-BE (Back End) PCB assemblies information see chapters 11 and 12 in this service documentation.

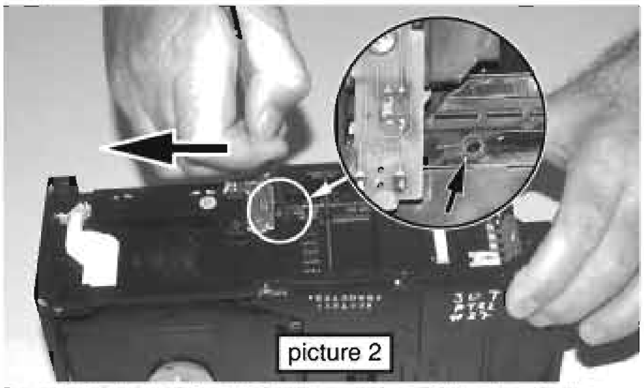
Emergency opening of the trays

The trays of the 5DTC are mechanically locked.



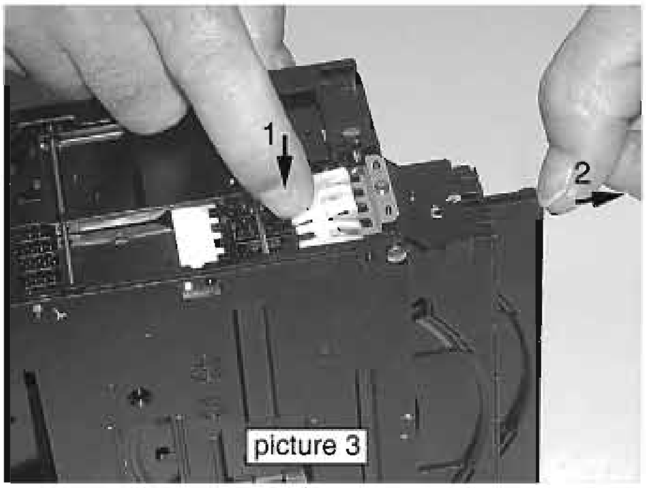
picture 1

To open tray 1, 2 and 3 move lever (pos 29) backwards (e.g. with a screwdriver - see picture 2) to its endposition.



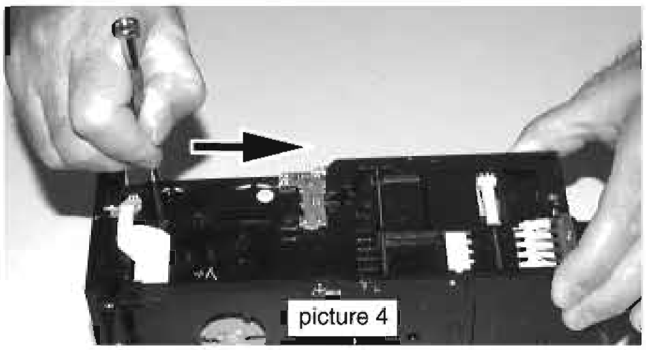
picture 2

Release the locking mechanism and pull out the tray (see picture 3).



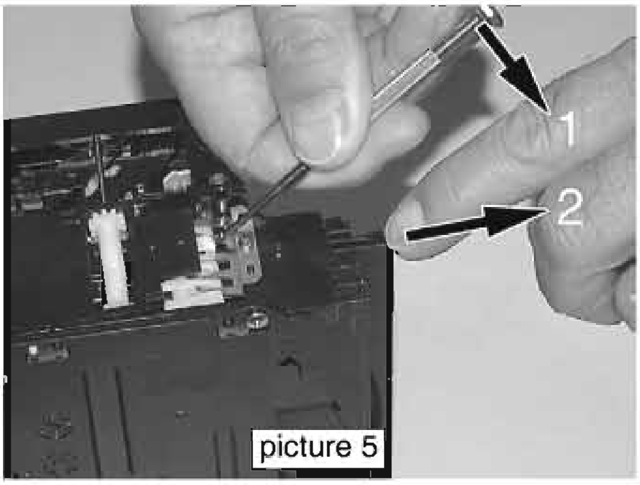
picture 3

To open tray 4 and 5 move lever (pos 29) forward to its endposition (see picture 4).



picture 4

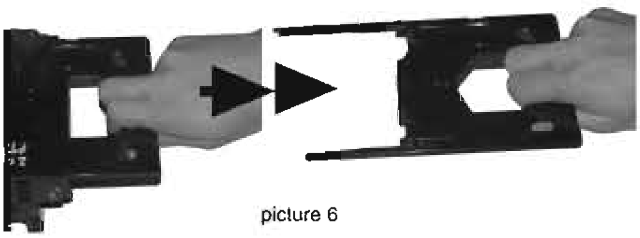
Release snap as shown in picture 5 and pull tray out.



picture 5

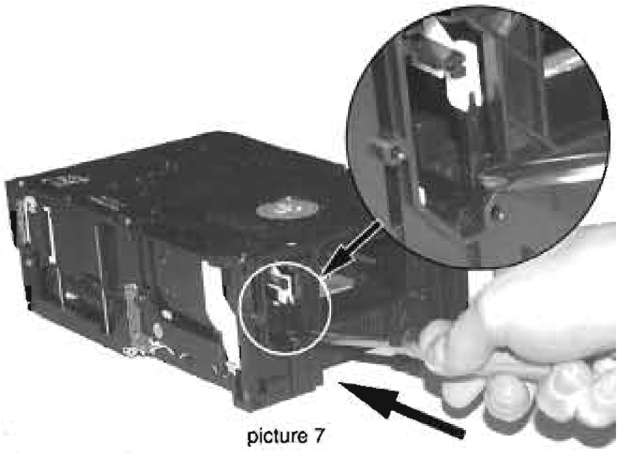
To remove a CD from Play Position perform following steps:

1. Open tray 1 as described before.
2. Tear the tray out with speed (see picture 6). The tray can be inserted aftewards without any alignment.



picture 6

3. Move lever (pos 29) forward to its endposition (see picture 4).
4. Push lever (pos 31) forward (see picture 7).

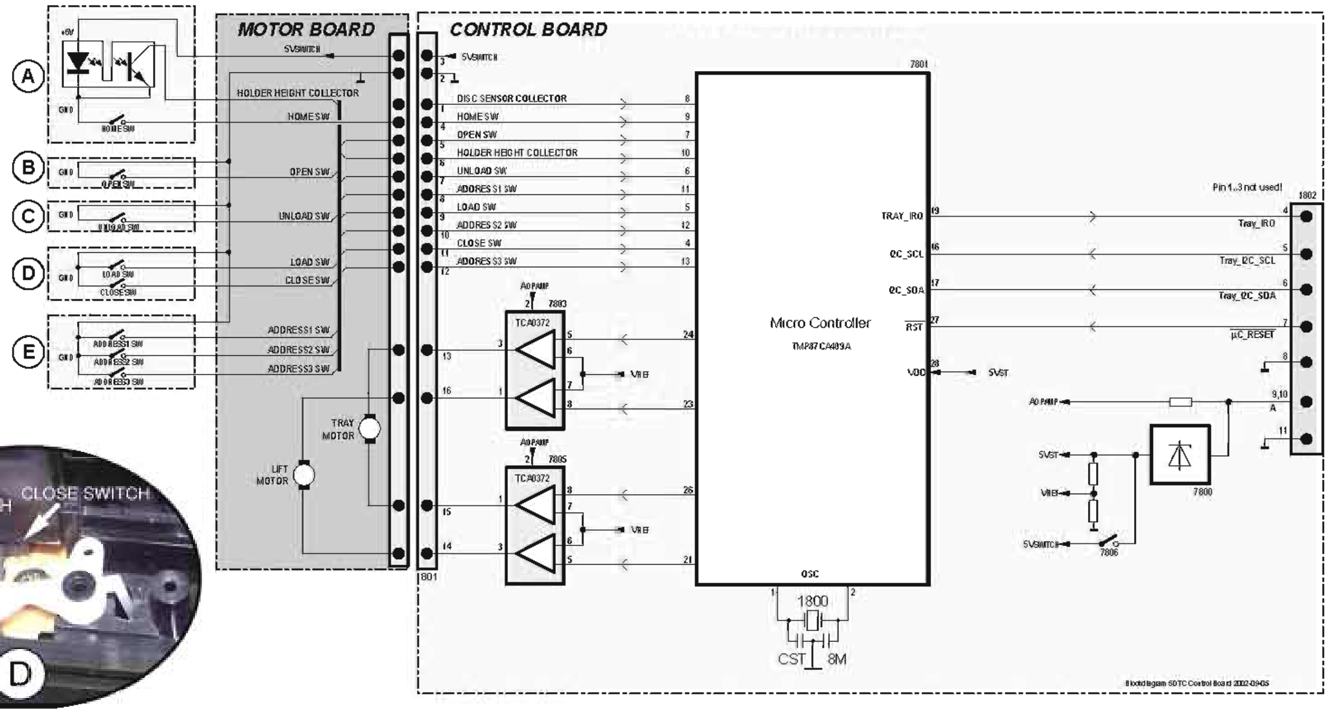


picture 7

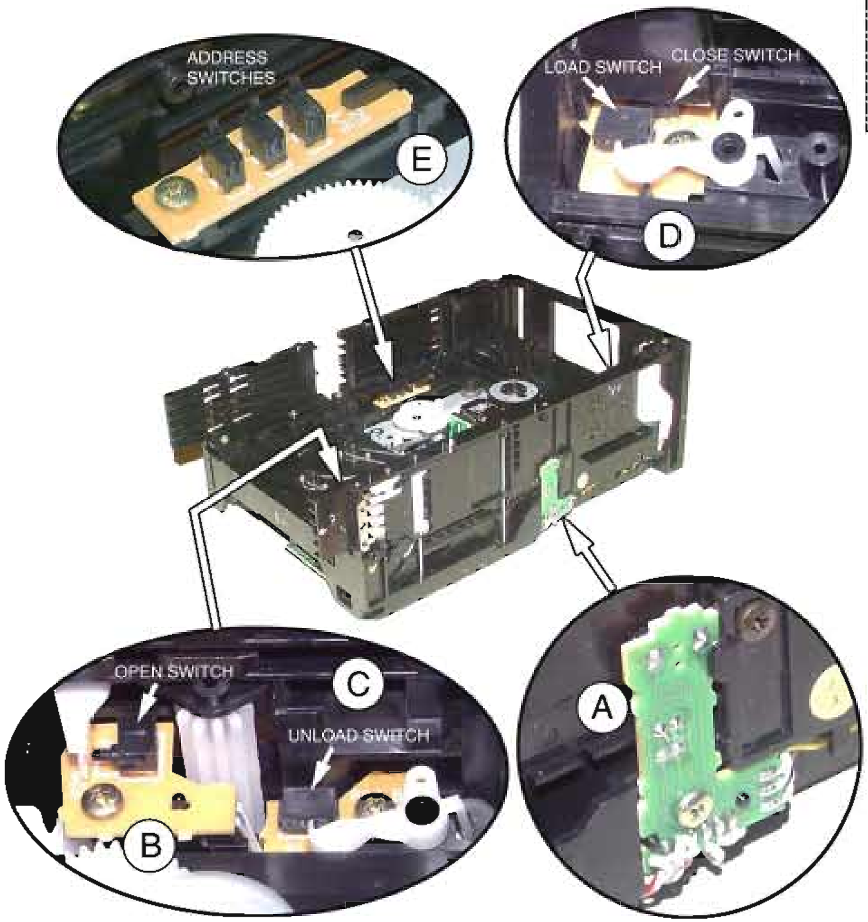
5. Remove CD.

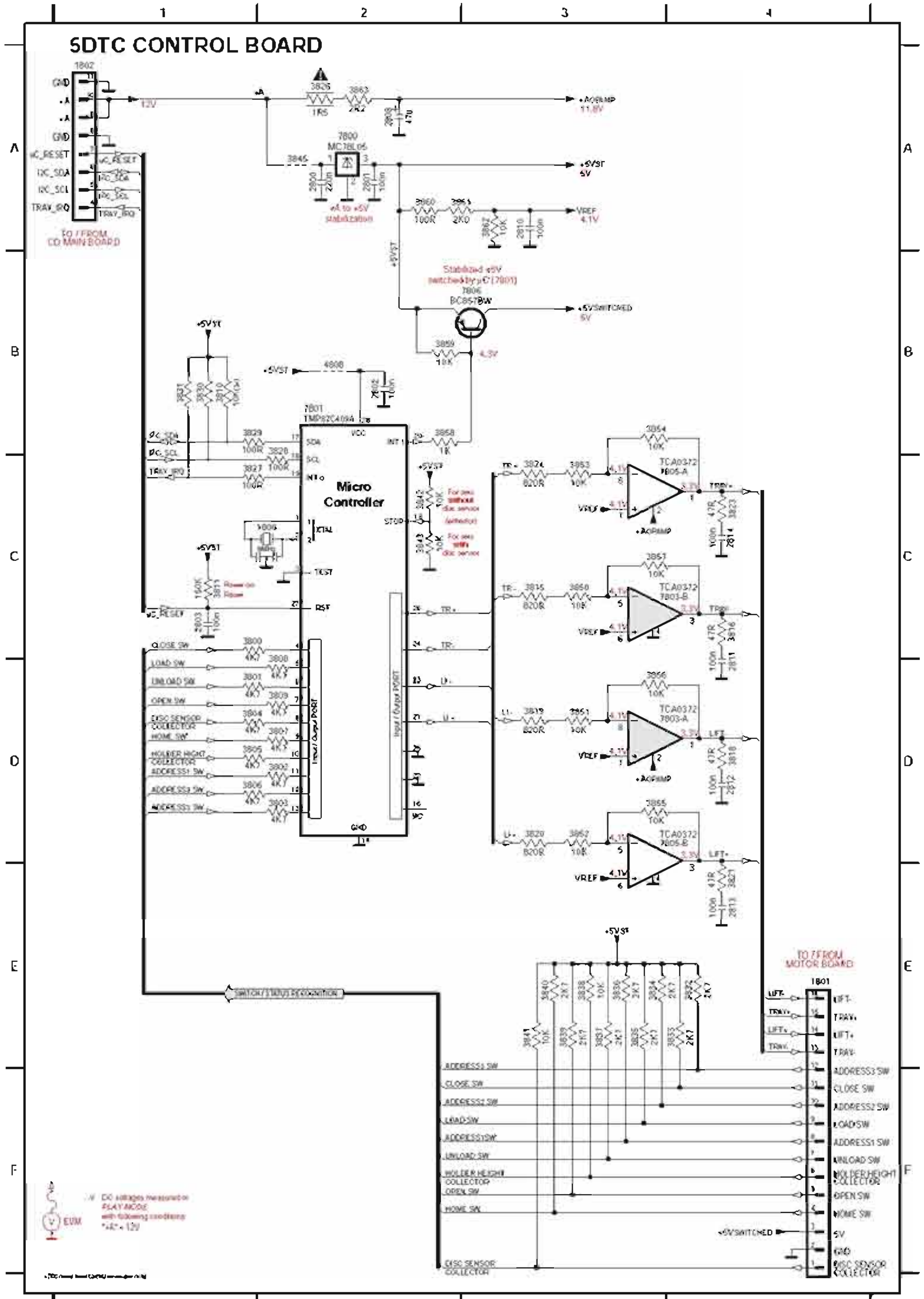
10-3

Blockdiagram



Location of switches





10-4

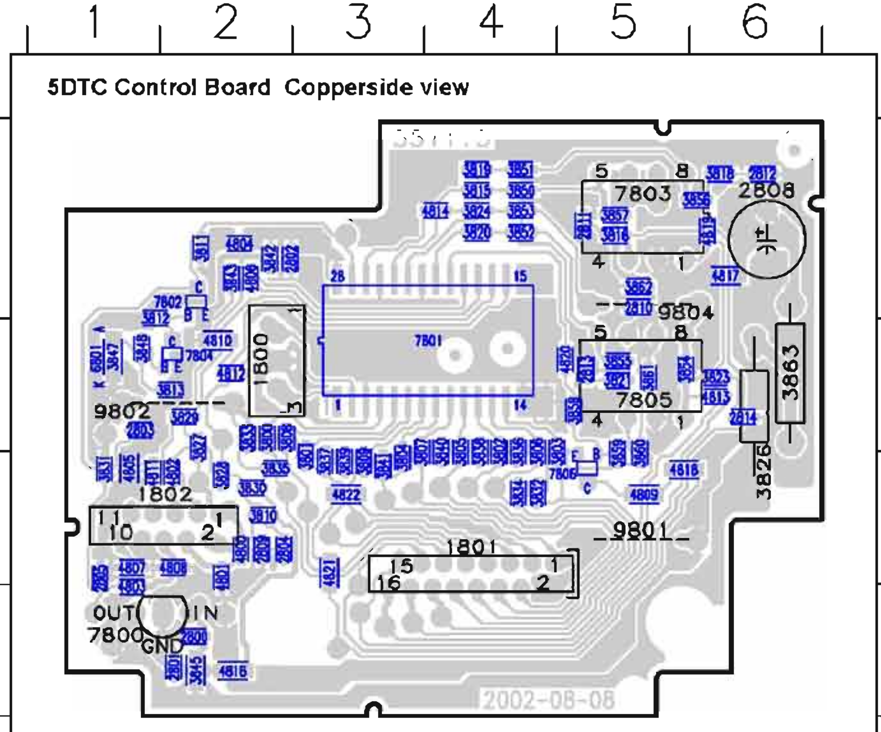
MAPPING FOR CIRCUIT DIAGRAM

1800	C2	2810	A3	3804	D1	3811	C1	3824	C3	3833	E4	3841	E3	3864	B3	3862	A3	7805-B	D3
1801	E4	2811	D4	3805	D1	3815	C3	3826	A2	3834	E3	3842	C2	3855	D3	3863	A2	7806	B3
1802	A1	2812	D4	3806	D1	3816	C4	3827	C1	3835	E3	3843	C2	3856	D3	4808	B2		
2800	A2	2813	E4	3807	D2	3818	D4	3828	C2	3836	E3	3845	A2	3857	C3	7800	A2		
2801	A2	2814	C4	3808	D1	3819	D3	3829	B1	3837	E3	3850	C3	3858	B2	7801	B2		
2802	B2	3800	C1	3808	D2	3820	D3	3830	B1	3838	E3	3851	D3	3859	B3	7803-A	D3		
2803	C1	3802	D2	3809	D2	3821	E4	3831	B1	3839	E3	3852	D3	3860	A2	7803-B	C3		
2808	A2	3803	D2	3810	B1	3823	C4	3832	E4	3840	E3	3853	C3	3861	A2	7805-A	C3		

MAPPING FOR COMPONENT LAYOUT

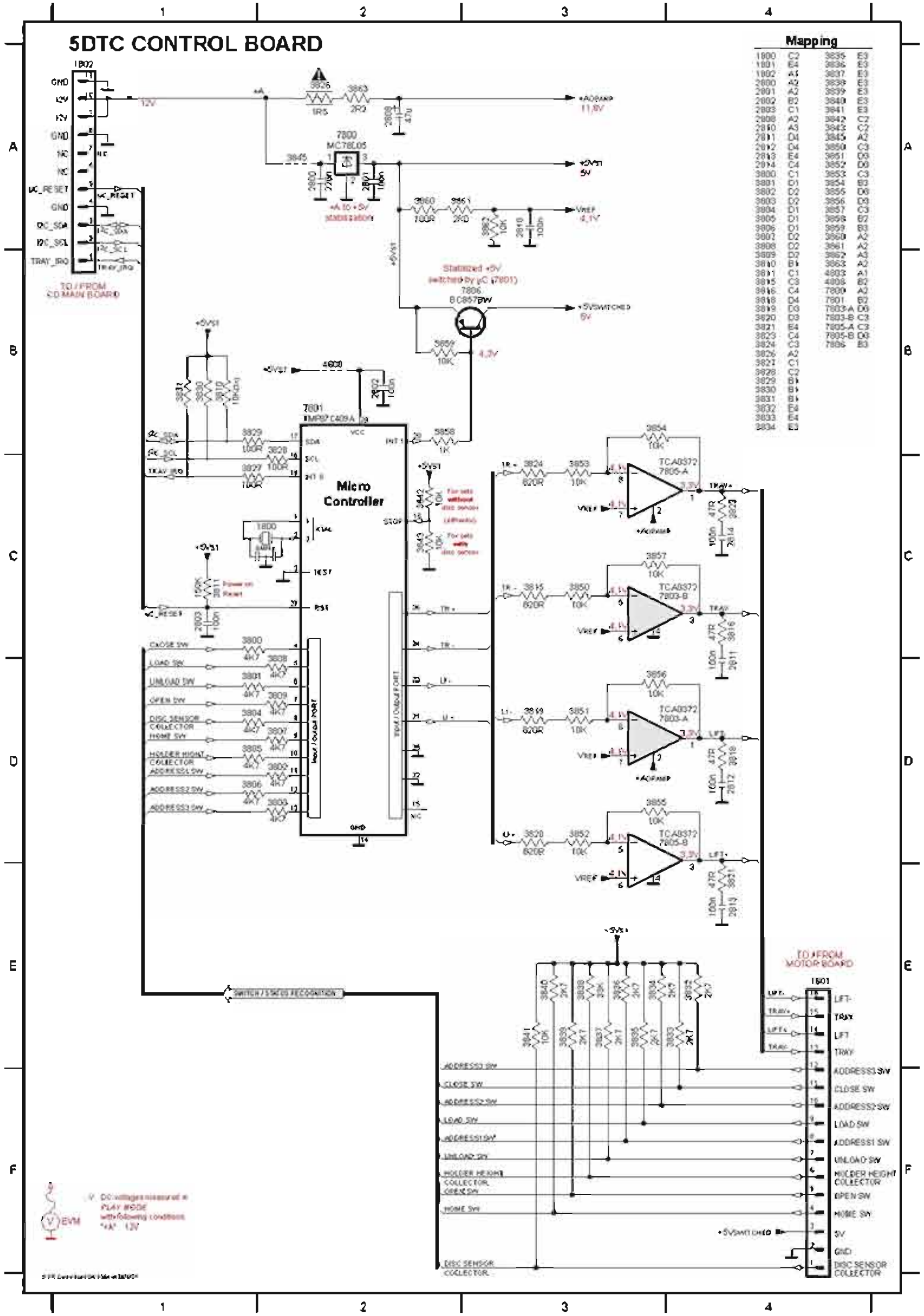
1800	B2	2810	A5	3806	C4	3819	A4	3832	C4	3843	A2	3857	A5	4804	A2	4816	D2	7803	A5
1801	C4	2811	A5	3807	C3	3820	A4	3833	B2	3846	D2	3858	B6	4805	C1	4817	A6	7804	B2
1802	C2	2812	A6	3808	B2	3821	B5	3834	C4	3847	B1	3859	C5	4806	A2	4818	C5	7806	C5
2800	D2	2813	B5	3809	C3	3823	B6	3835	C2	3848	B1	3860	C5	4807	C1	4819	A6	9801	C5
2801	D2	2814	B6	3810	C2	3824	A4	3836	C4	3850	A4	3861	B5	4808	C2	4820	B5	9802	B2
2802	A2	3800	B2	3811	A2	3826	B6	3837	C3	3851	A4	3862	A5	4809	C5	4821	C3	9804	A5
2803	B1	3801	C3	3812	A1	3827	B2	3838	C4	3852	A4	3863	B6	4810	B2	4822	C3		
2804	C2	3802	C4	3813	B2	3828	C2	3839	C3	3853	A4	4800	C2	4811	C1	6801	B1		
2805	C1	3803	C4	3815	A4	3829	B2	3840	C4	3854	B5	4801	C2	4812	B2	7800	D2		
2808	A6	3804	C3	3816	A5	3830	C2	3841	C3	3855	B5	4802	C2	4813	B6	7801	B4		
2809	C2	3805	C4	3818	A6	3831	C1	3842	A2	3856	A6	4803	D1	4814	A4	7802	A2		

5DTC Control Board Copperside view



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

5DTC Control Board Layout stage 3 2002-09-26



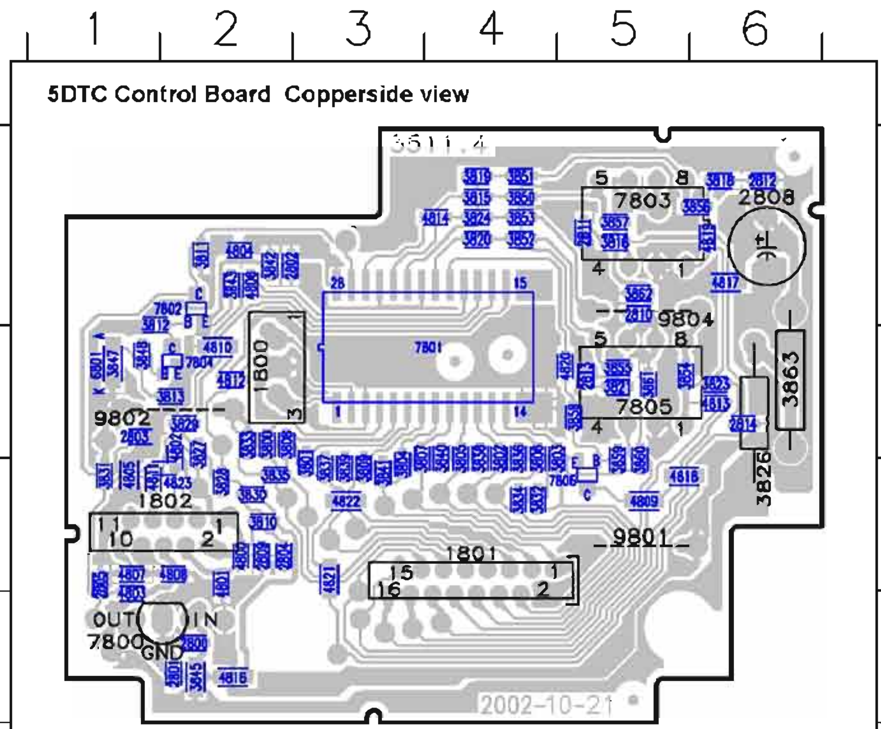
10-4a

Mapping for Circuit Diagram

1800	C2	2810	A3	3804	D1	3811	C1	3824	C3	3833	E4	3841	E3	3854	B3	3862	A3	7805-B	D3
1801	E4	2811	D4	3805	D1	3815	C3	3826	A2	3834	E3	3842	C2	3855	D3	3863	A2	7806	B3
1802	A1	2812	D4	3806	D1	3816	C4	3827	C1	3835	E3	3843	C2	3856	D3	4808	B2		
2800	A2	2813	E4	3807	D2	3818	D4	3828	C2	3836	E3	3845	A2	3857	C3	7800	A2		
2801	A2	2814	C4	3808	D1	3819	D3	3829	B1	3837	E3	3850	C3	3858	B2	7801	B2		
2802	B2	3800	C1	3808	D2	3820	D3	3830	B1	3838	E3	3851	D3	3859	B3	7803-A	D3		
2803	C1	3802	D2	3809	D2	3821	E4	3831	B1	3839	E3	3852	D3	3860	A2	7803-B	C3		
2808	A2	3803	D2	3810	B1	3823	C4	3832	E4	3840	E3	3853	C3	3861	A2	7805-A	C3		

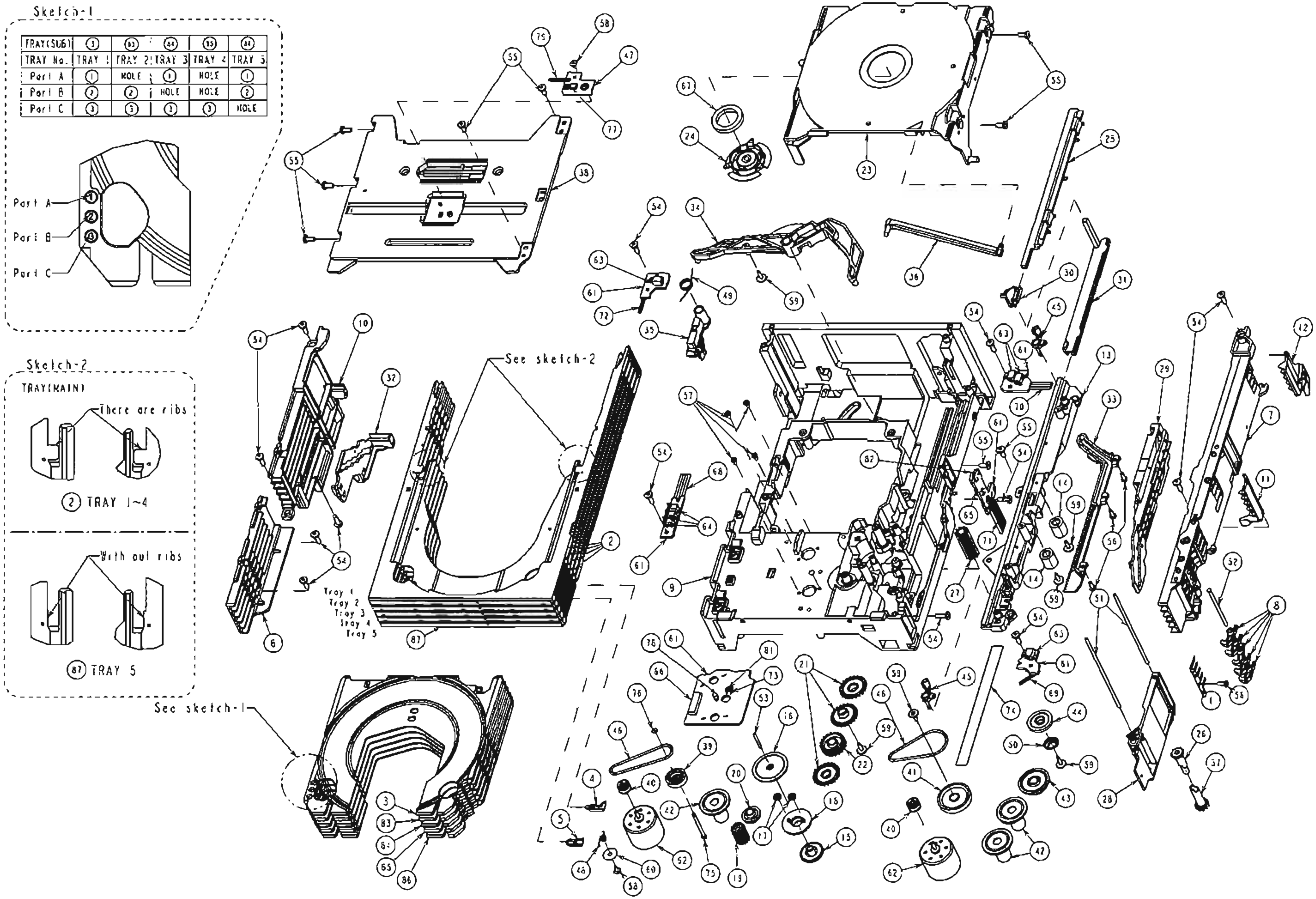
Mapping for Component Layout

1800	B2	2810	A5	3806	C4	3819	A4	3832	C4	3843	A2	3857	A5	4804	A2	4816	D2	7802	A2
1801	C4	2811	A5	3807	C3	3820	A4	3833	B2	3846	D2	3858	B5	4805	C1	4817	A6	7803	A6
1802	C2	2812	A6	3808	B2	3821	B5	3834	C4	3847	B1	3859	C5	4806	A2	4818	C5	7804	B2
2800	D2	2813	B5	3809	C3	3823	B6	3835	C2	3848	B1	3860	C5	4807	C1	4819	A6	7806	C6
2801	D2	2814	B6	3810	C2	3824	A4	3836	C4	3850	A4	3861	B5	4808	C2	4820	B5	9801	C5
2802	A2	3800	B2	3811	A2	3826	B6	3837	C3	3851	A4	3862	A5	4809	C5	4821	C3	9802	B2
2803	B1	3801	C3	3812	A1	3827	B2	3838	C4	3852	A4	3863	B6	4810	B2	4822	C3	9804	A6
2804	C2	3802	C4	3813	B2	3828	C2	3839	C3	3853	A4	4800	C2	4811	C1	4823	B1		
2805	C1	3803	C4	3815	A4	3829	B2	3840	C4	3854	B5	4801	C2	4812	B2	6801	B1		
2808	A6	3804	C3	3816	A5	3830	C2	3841	C3	3855	B5	4802	C2	4813	B6	7800	D2		
2809	C2	3805	C4	3818	A6	3831	C1	3842	A2	3856	A6	4803	D1	4814	A4	7801	B4		

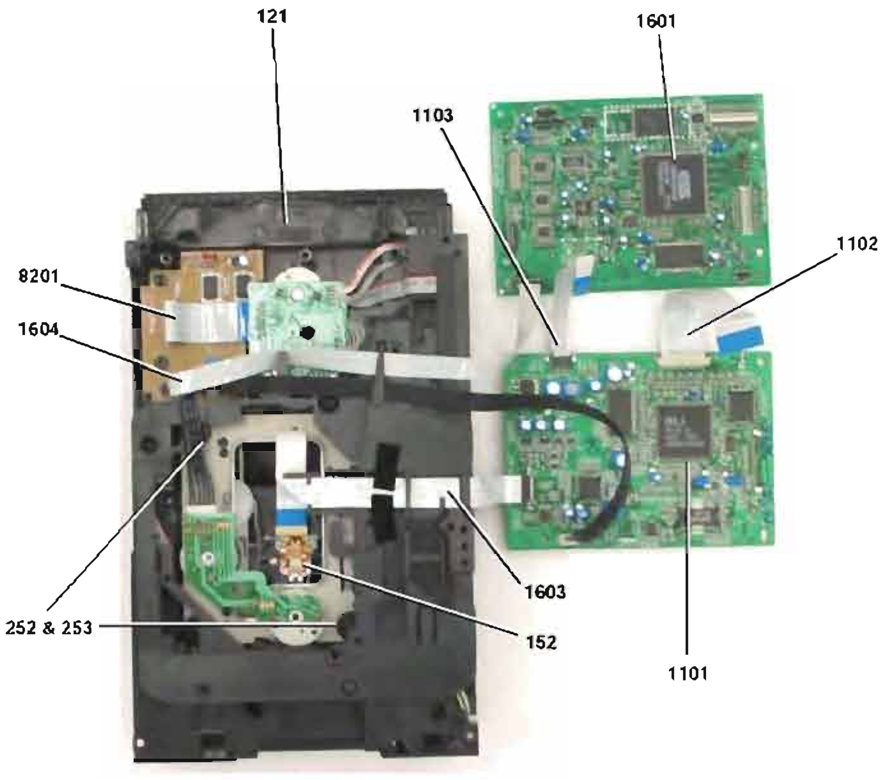


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Exploded view 5DTC mechanic - for orientation only



DVD MODULE COMPONENTS



DVD MODULE PARTS LIST

121	3103 308 54710	5DTC Mechanism w/o Electronics
152	3139 119 00311	DVD Mechanism Sanyo-DV33SS
252	3139 113 27501	Damper Rubber (50 Degrees)
253	3139 113 27501	Damper-Rubber (50 Degrees)
1101	3139 118 56941	Mono FE (Front End) PCB Assembly CD222
1102	3139 111 02151	FFC Cable 40P 10cm BD
1103	3139 111 02141	FFC Cable 7P 10cm BD
1601	3139 118 56481	Mono BE (Back End) PCB Assembly CD222
1603	3139 111 01671	FFC Cable 24P 21cm AD
1604	3139 110 35620	FFC Cable 8P 25cm BD
8021	3103 308 93110	FFC Cable 16P 6cm AD

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

Notes:
For Mono FE and Mono BE pc board assembly electrical parts please refer to Chapter 11 and 12

ELECTRICAL PARTS LIST - CONTROL BOARD

MISCELLANEOUS

1800	4822 242 72066	Ceram Filter 8MHz
1801	2422 025 17065	FFC Connector 16Pin Vert.
1802	2422 025 17788	FFC Connector 8Pin Vert.

CAPACITORS

2800	4822 126 13879	220nF +80/-20% 16V
2801	2238 586 59812	100nF 10% 50V
2802	2238 586 59812	100nF 10% 50V
2803	2238 586 59812	100nF 10% 50V
2808	4822 124 40433	47uF 20% 25V
2810	2238 586 59812	100nF 10% 50V
2811	2238 586 59812	100nF 10% 50V
2812	2238 586 59812	100nF 10% 50V
2813	2238 586 59812	100nF 10% 50V
2814	2238 586 59812	100nF 10% 50V

RESISTORS

3800	4822 051 30472	4k7 5% 0,062W
3801	4822 051 30472	4k7 5% 0,062W
3802	4822 051 30472	4k7 5% 0,062W
3803	4822 051 30472	4k7 5% 0,062W
3804	4822 051 30472	4k7 5% 0,062W
3805	4822 051 30472	4k7 5% 0,062W
3806	4822 051 30472	4k7 5% 0,062W
3807	4822 051 30472	4k7 5% 0,062W
3808	4822 051 30472	4k7 5% 0,062W
3809	4822 051 30472	4k7 5% 0,062W
3810	4822 051 30103	10k 5% 0,062W
3811	4822 051 30154	150k 5% 0,062W
3815	5322 117 13057	820R 1% 0,063W
3816	4822 051 30479	47R 5% 0,062W
3818	4822 051 30479	47R 5% 0,062W
3819	5322 117 13057	820R 1% 0,063W
3820	5322 117 13057	820R 1% 0,063W
3821	4822 051 30479	47R 5% 0,062W
3823	4822 051 30479	47R 5% 0,062W
3824	5322 117 13057	820R 1% 0,063W
3826	4822 117 12148	1R5 5% 0,33W
3827	4822 051 30101	100R 5% 0,062W
3828	4822 051 30101	100R 5% 0,062W
3829	4822 051 30101	100R 5% 0,062W
3830	4822 051 30103	10k 5% 0,062W
3831	4822 051 30103	10k 5% 0,062W
3832	4822 051 30272	2k7 5% 0,062W
3833	4822 051 30272	2k7 5% 0,062W
3834	4822 051 30272	2k7 5% 0,062W
3835	4822 051 30272	2k7 5% 0,062W
3836	4822 051 30272	2k7 5% 0,062W
3837	4822 051 30272	2k7 5% 0,062W
3838	4822 051 30333	33k 5% 0,062W
3839	4822 051 30272	2k7 5% 0,062W
3840	4822 051 30272	2k7 5% 0,062W
3841	4822 051 30103	10k 5% 0,062W
3842	4822 051 30103	10k 5% 0,062W
3845	4822 051 20008	0R Jumper 0805
3850	4822 117 12706	10k 1% 0,063W
3851	4822 117 12706	10k 1% 0,063W
3852	4822 117 12706	10k 1% 0,063W
3853	4822 117 12706	10k 1% 0,063W
3854	4822 117 12706	10k 1% 0,063W
3855	4822 117 12706	10k 1% 0,063W
3856	4822 117 12706	10k 1% 0,063W
3857	4822 117 12706	10k 1% 0,063W
3858	4822 051 30102	1k 5% 0,062W
3859	4822 051 30103	10k 5% 0,062W
3860	5322 117 13017	100R 1% 0,063W
3861	2322 704 62002	2k 1% 0,063W
3862	4822 117 12706	10k 1% 0,063W
3863	4822 053 10228	2R2 5% 1W
4800	4822 051 30008	0R Jumper 0603
4802	4822 051 30008	0R Jumper 0603
4803	4822 051 30008	0R Jumper 0603
4804	4822 051 30008	0R Jumper 0603
4805	4822 051 20008	0R Jumper 0805
4806	4822 051 30008	0R Jumper 0603
4807	4822 051 30008	0R Jumper 0603
4808	4822 051 30008	0R Jumper 0603
4809	4822 051 20008	0R Jumper 0805
4810	4822 051 20008	0R Jumper 0805
4811	4822 051 30008	0R Jumper 0603
4812	4822 051 30008	0R Jumper 0603
4813	4822 051 30008	0R Jumper 0603
4814	4822 051 30008	0R Jumper 0603
4816	4822 051 20008	0R Jumper 0805
4817	4822 051 20008	0R Jumper 0805
4818	4822 051 20008	0R Jumper 0805
4819	4822 051 30008	0R Jumper 0603
4820	4822 051 30008	0R Jumper 0603
4821	4822 051 20008	0R Jumper 0805
4822	4822 051 20008	0R Jumper 0805

TRANSISTORS & INTEGRATED CIRCUITS

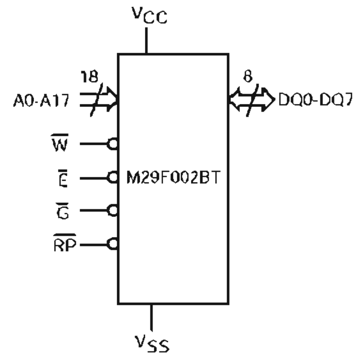
7800	4822 209 72042	MC78L05ACP, Stabilizer
7801	9322 150 41668	TMP87P809M Microcontroller
7803	4822 209 62059	TCA0372DP1, 2-Fold Op-Amp
7805	4822 209 62059	TCA0372DP1, 2-Fold Op-Amp
7806	3198 010 42320	BC857BW

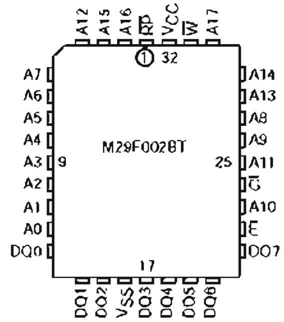
Note: Only the parts mentioned in this list are normal service spare parts.

MONO-FE BOARD

TABLE OF CONTENTS

M29F002BT





Function Description

A0-A17	Address Inputs
DQ0-DQ7	Data Inputs/Outputs
$\overline{E}$	Chip Enable
$\overline{G}$	Output Enable
$\overline{W}$	Write Enable
$\overline{RP}$	M29F002BT, M29F002BB Reset/Block Temporary Unprotect M29F002BNT, M29F002BNB Not Connected Internally
V_{CC}	Supply Voltage
V_{SS}	Ground

M5705 (Ali) Features

Data Separator
- Built-in data slicer and data PLL for data recovery from RF signal.
- Supports digital/analog slice level adjustment.
- Built-in auto calibration function.
- Built-in auto wire range control function.

DVD-DSP
- Built-in synchronous pattern/ID detection /protection/separation.
- Built-in EFM+ (8 to 16) demodulation circuit.
- Built-in high performance RSPC ECC circuit.
- Supports up to 6X DVD-ROM system with ECC correcting "on the fly".
- Built-in descrambler/EDC circuit.

CD-DSP
- Synchronous pattern detection, protection and interpolation.
- Built-in EFM demodulation circuit, subcode demodulation circuit.
- Dual C1 correction and quadrule C2 correction.
- Subcode Q data can output with audio data synchronously.

Digital Servo
- Built-in A/D and D/A converters for servo control signals processing.
- Built-in digital controller for focus, tracking servo control of CD/DVD systems.
- Built-in CLV/CAV auxiliary function for spindle servo control.
- Built-in "Seek Sensor" auxiliary circuit for seek control.
- Automatic adjustment of focus servo and tracking servo, for loop gain, offset and balance.
- Built-in RF gain automatic adjustment function.
- Built-in AFC circuit and APC circuit for CLV and AFC circuit for CAV spindle servo of CD/DVD systems.
- Built-in defect and shock protection function.

DRAM Interface
- Supports up to 16 Mb EDO DRAM and SDRAM.
- Separate buffer address pointers and automatic address calculation that save firmware effort.
- Read-ahead cache scheme for multimedia Isochronous transfer.
- Protection logic preventing uncorrected sectors being released to the host.

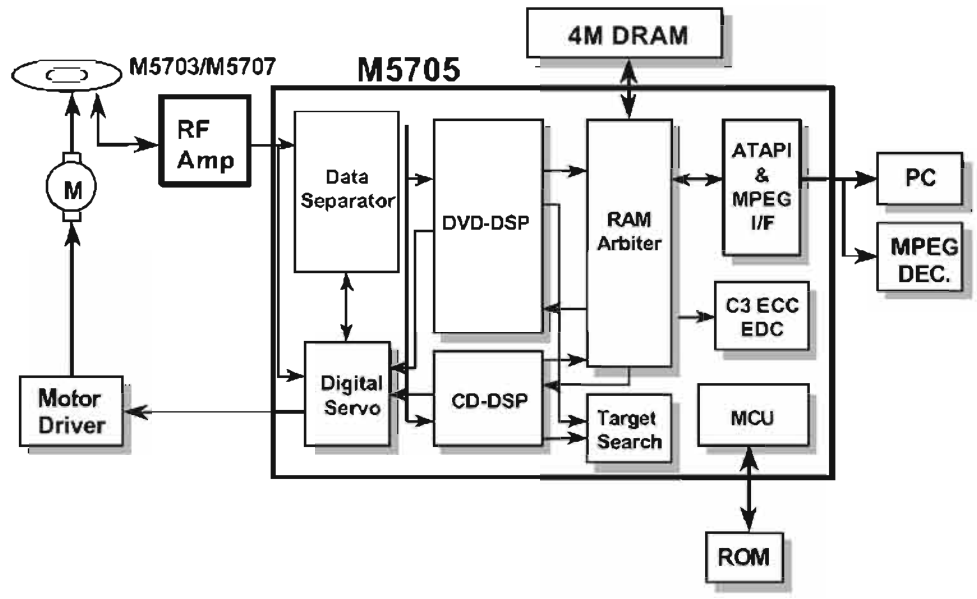
Target Search
- Built-in target sector searching circuit for auto-searching the target sector.
- Automatic data buffering after the target sector has been located.

C3 ECC/EDC
- Programmable Reed-Solomon Product Code (RSPC) that allows different error correction schemes for CD-ROM.
- Built-in On-chip EDC function.
- Support up to 32X CD-ROM system with ECC correcting "on the fly".

Host Interface
- Supports ATA PIO mode 4 timing
- Supports Multiword DMA mode 2 timing
- Compliant with SFF-8020(ATAPI) 2.5, ATA 3(Overlapping feature), and SFF-8090 (ATAPI for DVD) standard
- High current drivers with slew rate control for direct connecting to the ATA bus and noise immunity.
- Automatic Read Control Circuit for host data transfer.
- Automatic wake up from power down on host reset or command write
- Automatic sequence for packet command receiving and Automatic updating of the host task file registers
- Supports ATAPI write command that can let user update firmware from PC.
- Built-in authentication circuit for copy protection.
- Multiplexed MPEG decoder interface (local bus).

Microcontroller Interface
- Embedded microcontroller compatible with Intel 8032 command set
- Supports Intel 8032 series MCUs
- Supports Intel 8032 series MCUs and Hitachi H8 series MCUs.
- Supports automatically download firmware function directly from ATAPI interface to flash memory
- Supports "on-system" upgrade flash memory function from CD-R discs or ATAPI interface
- High speed register (buffer RAM) access to meet the requirement of high performance system
- Supports Direct mapped access to the buffer RAM using ready bit handshaking

M5705 (Ali) Application



M5705 Pins Descriptions

Pin Name	Pin No.	Type	Description
Servo Data Slicer Interface Pins			
XSRFIN	2	I / A	Analog RF signal input after passing through the equalizer.
XSIPIN	3	I / A	Inverting input pin of data slicer.
XSDSSLV	5	O / A	Slice level output pin.
XSRSLINT	6	I / A	Reference current setting pin for analog data slicer.
Servo DAC Interface Pins			
XSAWRC	8	O / A	Output for enlarge VCO range. Analog output from DAC buffer.
XSRFGC	9	O / A	RF gain control output.
XSEFGC	10	O / A	E,F gain control output.
XSFOCUS	11	O / A	Output voltage level for focusing buffer IC.
XSTRACK	12	O / A	Output voltage level for tracking buffer IC.
XSSLEG	13	O / A	Output voltage level for sledge buffer IC.
XSMOTOR	15	O / A	Output voltage level for spindle motor buffer IC.
Servo Comparator Interface Pins			
XSRFRPLP	17	I / A	High bandwidth low pass filter input for RFRP.
XSTELP	18	I / A	High bandwidth low pass filter input for TE.
Servo ADC Interface Pins			
XSVREF2	19	I / A	2.1V reference voltage input.
XSRFRP	20	I / A	RF ripple/envelope signal input.
XSTEXI	21	I / A	Tracking zero crossing input signal.
XSTEI	23	I / A	Tracking error input signal.
XSFEI	24	I / A	Focus error input signal
XSCEI	25	I / A	1. Center error input signal. 2. Photo Interrupt Input.
XSSBAD	27	I / A	Sub-beam addition signal input.
Servo PLL Interface Pins			
XSPDIREF	166	I / A	Phase detector reference current generator. Connect a resistor between this pin and ground to set reference current.
XSFDIREF	167	I / A	Frequency detector reference current generator. Connect a resistor between this pin and ground to set reference current.
XSPLLFTR2	169	I / A	Data PLL loop filter pin #2.
XSFDO	171	O / A	Output node of frequency detector charge pump circuit.
XSFTROPI	172	I / A	Input node of loop filter OP circuit.
XSVR_PLL	173	I / A	PLL reference voltage input.
XSPDOFTR2	174	I / A	Phase detector filter pin #1.
XSVREFO	175	O / A	Reference voltage output.
XSAWRCVCO	176	I / A	Auto Wide Range Control VCO input pin. For enlarge VCO range in CAV mode.
Servo Control Interface Pins			
XSDFCT	29	I	Defect detection signal input.
XSCSJ	30	O	Chip select signal for accessing control registers.
XSCLK	31	O	Clock output for accessing control registers.
XSDATA	32	I/O	Registers data input/output pin.
XSLDC	33	O	Laser diode on/off control output for both CD/DVD.
XSFGIN	34	I	Motor Hall sensor input.
XSSPDON	35	O	Spindle motor on output
XSFLAG[3:0]	36,37, 38,39	O	These pins are used to monitor some status of servo control block.

Pin Name	Pin No.	Type	Description
Microcontroller Interface Pins			
XGPIO[2:0]	48,51,5 2	I/O	1. These pins are used as general purpose I/O bus. 2. When use internal microcontroller, XGPIO[2] can be used as programmable I/O port 3.6.
XMP1_7	40	I/O	Internal microcontroller programmable I/O port 1.7.
XMP1_6	41	I/O	Internal microcontroller programmable I/O port 1.6.
XMP1_5	43	I/O	***This pin is now changed to be NC.***
XMP1_4	44	I/O	Internal microcontroller programmable I/O port 1.4.
XMP1_3	45	I/O	Internal microcontroller programmable I/O port 1.3.
XMP1_2	47	I/O	Internal microcontroller programmable I/O port 1.2.
XMP1_1	49	I/O	Internal microcontroller programmable I/O port 1.1.
XMP1_0	57	I/O	Internal microcontroller programmable I/O port 1.0. This pin is default used as the A16 (microcontroller address line 16).
XMFSCSJ	46	I/O	Output chip select connected to external flash ROM chip enable pin.
XMPSENJ	54	I/O	Output program store enable connected to external ROM PSENJ pin.
XMALE	56	I/O	This signal is used as address latch signal in address/data mux mode.
XMCSJ	70	I/O	1. This signal must be asserted for all microcontroller accesses to the registers of this chip. 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.1.
XMRDJ	71	I/O	1. This signal is used as the Read Strobe signal. 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.0.
XMWRJ	72	I/O	This signal is used as the Write Strobe signal.
XMINT1J	73	I/O	1. This signal is an interrupt line to the microcontroller. 2. When use internal microcontroller, this signal can be used as programmable I/O port 3.7.
XMA[15:0]	91, 90, 89, 87, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86	I/O	These pins are used as address bus.
XMD[7:0]	69, 68, 67, 66, 65, 64, 63, 62	I/O	These pins are used as data bus for the 16-bit processor mode, or the address/data mux bus for the 8-bit processor mode.
Miscellaneous Pins			
XTPLCK	163	I/O	**PLCK test pin.**
XTSLRF	164	I/O	**SLRF test pin.**
XOSC1	59	I	**Crystal input/ System clock.** The input frequency from outside crystal or oscillator is 33.8688Mhz.
XOSC2	60	O	**Crystal output.**
XCRSTJ	53	I	**Chip Reset.** An asserted lowinput generates a component reset that stops all operations within the chip and deasserts all output signals. All input/output signals are set to input.

M5705 Pins Descriptions

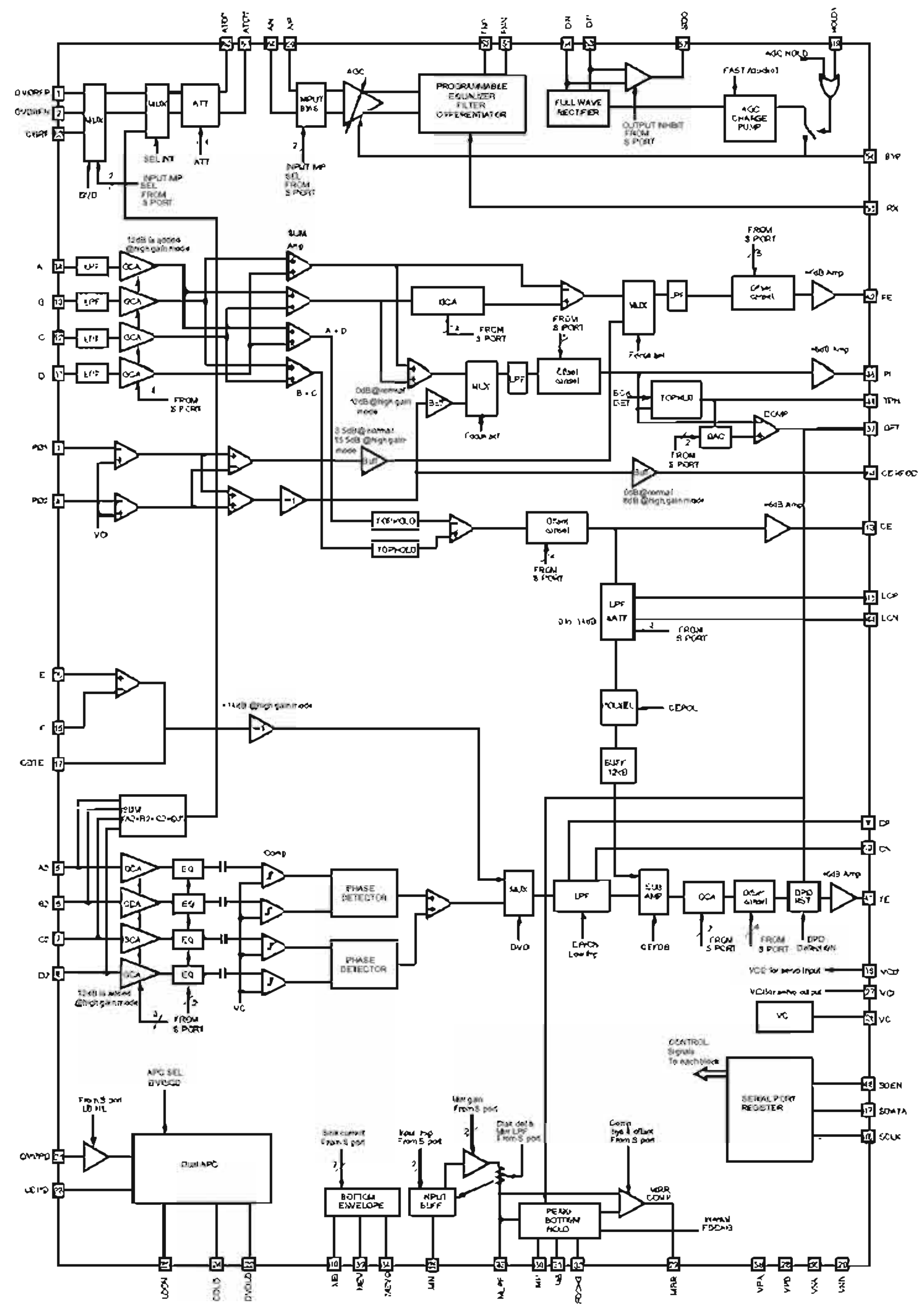
Pin Name	Pin No.	Type	Description
Host Interface Pins			
XHCS1J	94	I	This pin is used to select the command block task file registers.
XHCS3J	93	I	This pin is used to select the control block task file registers.
XHIORJ	103	I	Asserted by the host during a host I/O read operation.
XHIOWJ	104	I	Asserted by the host during a host I/O write operation.
XHDRQ	105	O	**1. DMA request.** This pin is configured as the DMA request signal, and is used during DMA transfer between the host and the controller. This pin is tri-stated when DMA transfers are not enabled. **2. MPEG acknowledge.** This pin is used as the ACKJ signal when MPEG interface mode is selected.
XHDACKJ	101	I	**1. DMA acknowledge** This pin is configured as DACKJ, and is used as the DMA acknowledge signal during DMA data transfers. **2. MPEG request.** This pin is used as the REQ signal when MPEG interface mode is selected.
XHCS16J	99	O	**1. 16-bit data select.** This signal indicates that a 16-bit data transfer is active on the host data bus. This pin is open-drain tri-state output. **2. MPEG clock.** This pin is used as the CLOCK signal when MPEG interface mode is selected.
XHRSTJ	50	I	**Host Reset.** The reset of ATA bus
XHINT	100	O	**1. Host interrupt request.** This tri-state pin is the host interrupt request, and is asserted to indicate to the host that the controller needs attention. **2. MPEG begin.** This pin is used as the BEGIN signal when MPEG interface mode is selected.
XHPDIAGJ	97	I/O	This pin is used as the Passed Diagnostics signal, and may be an input or an open-drain output.
XHDASPJ	92	I/O	This pin is used as the Drive Active/ Slave Present signal, and is an input or an open-drain output. This pin is used for Master/Slave drive communication and/or for driving an LED.
XHIORDY	102	O	**1. I/O channel ready.** This signal is driven low to extend host transfer cycles when the controller is not ready to respond. This pin will be tri-stated when a read or write is not in progress. **2. MPEG error.** This pin is used as the ERROR signal when MPEG interface mode is selected.
XHA[2:0]	95, 98, 96	I	**Host address lines** The host address lines A[2:0] are used to access the various host control, status, and data registers.
XHD[15:0]	106, 108, 111, 113, 116, 118, 120, 122, 123, 121, 119, 117, 114, 112, 109, 107	I/O	**1. Host data bus.** This bus is used to transfer data and status between the host and the controller. **2. MPEG data bus 7-0.** The HD[7:0] are used as the DATA[7:0] when MPEG interface mode is selected. **3. VCD I/F.** Bit3-0 are used as VCD I/F signal when VCD function is enabled. The relationship of bit3-0 and VCD I/F is as follow. HD0 → CD-DATA HD1 → CD-LRCK HD2 → CD-BCK HD3 → CD-C2PO

Pin Name	Pin No.	Type	Description
RAM Interface Pins			
XRSDCLK	143	O	This signal is the clock output for SDRAM.
XROEJ	147	O	This signal is used as the memory output enable for external DRAM buffers. After RSTJ is asserted, this signal will be low.
XRWEJ	142	O	This signal is asserted low when a buffer memory write operation is active.
XRRASJ	144	O	This signal is used as Row address output to external DRAM buffer. After RSTJ is asserted, this signal will be high.
XRCASJ	145	O	This signal is used as column address output to external DRAM. After RSTJ is asserted, this signal will be high.
XRA[11:0]	151, 152, 148, 149, 153, 155, 156, 157, 161, 160, 159, 158	O	**1. RAM address lines.** These are bits 11-0 for addressing the buffer memory. **2. Hardware setting.** The bits 6-0 are used as hardware setting for some functions. RA[9] . FLASH size is 64K/128K 1 : FLASH size is 64K. 0 : FLASH size is 128K. RA[8] : External CPU is 8032/H8 1 : 8032 0 : H8 RA[7] : Microcontroller programmable I/O port 1 pin control 1 : By internal microcontroller. 0 : By registers to decide input/output RA[6] : System testpin output 1 : Normal operation. 0 : System test pin output. RA[5] : For testing purpose, don't need to set RA[4] : IDE master/slave. 1 : Slave. 0 : Master. RA[3] : For testing purpose, don't need to set RA[2] : For testing purpose, don't need to set RA[1-0] : MCU Mode selection. 11 : Normal Mode (internal uP,internal address latch). 10 : Outside uP Mode (ICE Mode). 01 : Test mode for internal uP testing. 00 . Internal uP mode with external address latch.
XRD[15:0]	124, 126, 128, 131, 133, 135, 137, 140, 141, 139, 136, 134, 132, 129, 127, 125	I/O	These signals are the 8-bit parallel data lines to/from the buffer memory.

M5705 Pins Descriptions

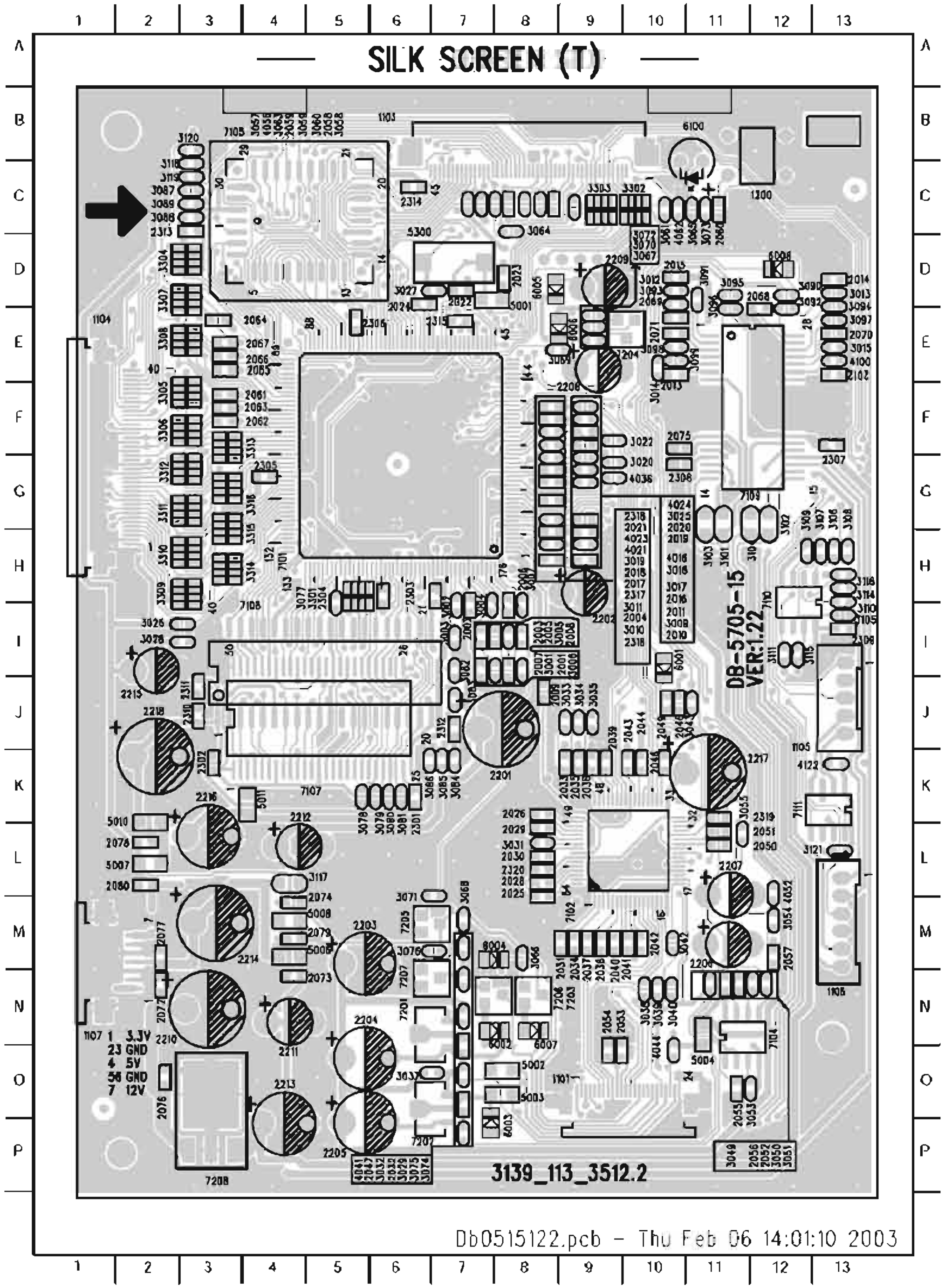
Pin Name	Pin No.	Description
Power Pins		
AVDD5_DS	4	Analog Power +5V for Data Slicer part.
AVDD5_DA	14	Analog Power +5V for DAC part.
AVDD5_AD	26	Analog Power +5V for ADC part.
AVDD5_PL	168	Analog Power +5V for Data PLL part.
VDD	7,55,58, 76,115, 146,150, 162	Power + 3.3V for digital core logic and pad.
AVSS_DS	1	Analog Ground for Data Slicer part.
AVSS_DA	16	Analog Ground for DAC part.
AVSS_AD	22	Analog Ground for ADC part.
AVSS_PL	170	Analog Ground for Data PLL part.
GND	28,42,61, 88,110, 130,138, 154,165	Digital Ground for core logic and pad.

SP32721A Internal Block Diagram



11 6

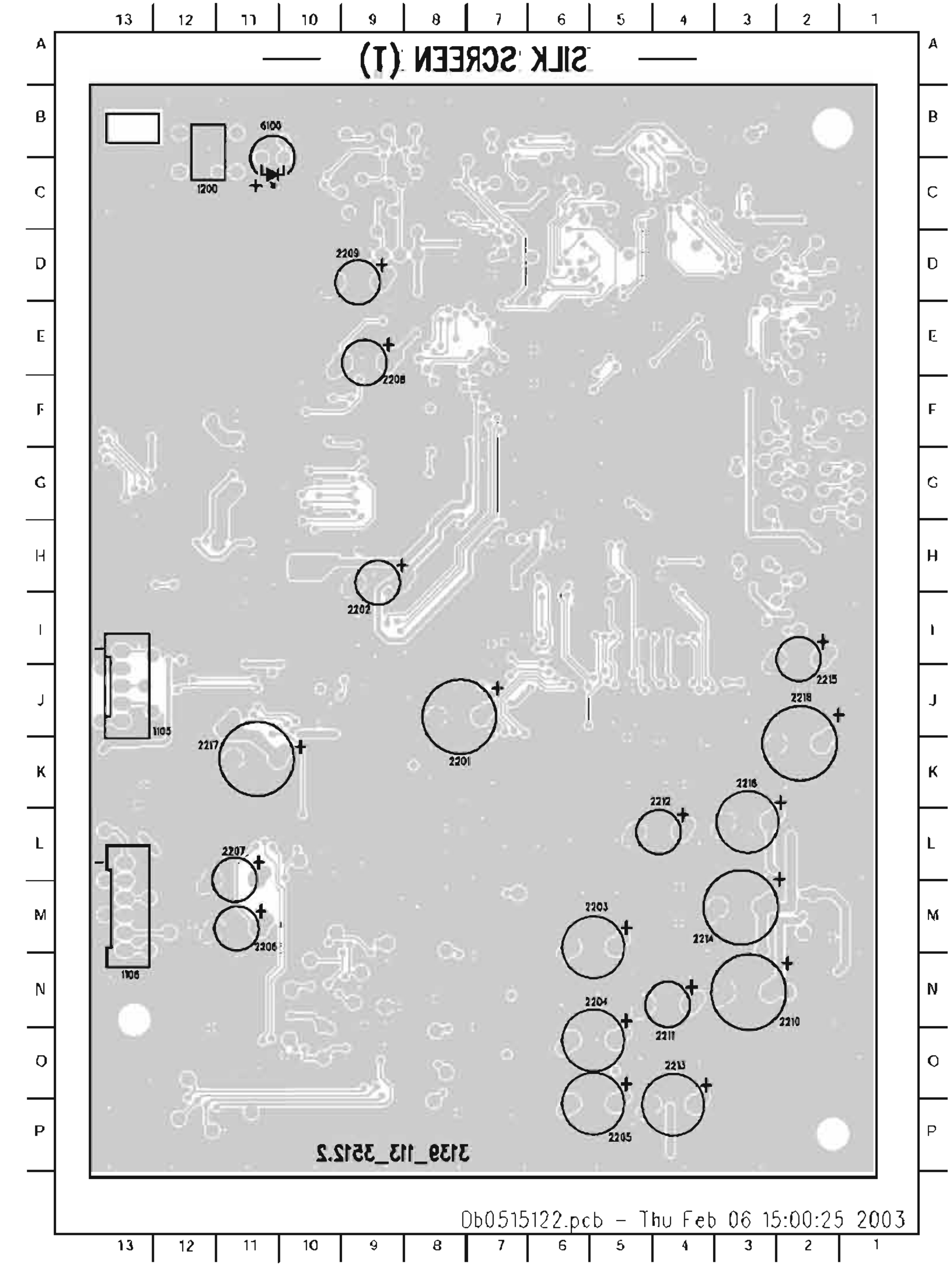
TOP VIEW - SMD & COMPONENT LAYOUT



1101	O9	2310	J3	3301	H6
1102	C9	2311	I3	3302	C10
1103	B8	2312	J7	3303	C9
1104	F2	2313	C3	3304	C3
1105	I13	2314	B6	3305	E3
1106	M13	2315	D7	3306	F3
1107	M2	2316	G8	3307	D3
1200	B11	2317	G8	3308	D3
2001	I8	2318	E8	3309	H3
2002	H7	2319	K11	3310	G3
2003	I7	2320	L8	3311	G3
2004	G8	3001	I8	3312	F3
2005	I8	3002	H7	3313	F4
2006	H8	3003	I7	3314	H4
2007	I7	3004	H7	3315	G4
2008	I8	3005	I8	3316	F4
2009	I8	3006	I8	4016	F9
2010	G9	3007	H8	4021	F8
2011	G9	3009	G9	4023	F8
2012	E12	3010	G8	4024	E9
2013	E10	3011	G8	4036	F9
2014	D12	3012	D10	4041	P7
2015	C10	3013	D12	4044	N10
2016	G9	3014	E10	4052	L12
2017	F8	3015	D12	4056	B7
2018	F8	3017	F9	4062	C10
2019	F9	3018	F9	4100	E12
2020	F9	3019	F8	4122	J12
2021	E8	3020	F9	5001	D7
2022	D7	3022	F9	5002	O8
2023	D8	3025	E9	5003	O8
2024	D7	3026	H3	5004	N11
2025	L8	3027	D7	5006	M6
2026	K8	3028	I3	5007	L3
2028	L8	3029	N7	5008	M6
2029	K8	3031	K8	5010	K3
2030	L8	3032	O7	5011	K4
2031	M8	3033	J9	5300	C7
2032	N7	3034	J9	6001	I10
2033	J9	3035	J9	6002	N8
2034	M9	3037	O7	6003	O7
2035	J9	3038	N10	6004	M3
2036	J9	3039	N10	6005	D8
2037	M9	3040	N10	6006	D8
2038	M9	3042	M10	6007	N8
2039	J9	3043	J10	6008	C12
2040	M9	3049	M11	6100	B10
2041	M9	3050	M11	7101	F6
2042	M10	3051	M11	7102	L9
2043	J9	3053	O11	7104	N11
2044	J10	3054	M12	7105	C5
2046	J10	3055	K11	7107	J5
2047	O7	3057	B7	7108	I5
2048	J10	3058	C9	7109	E11
2049	J10	3059	B8	7110	H12
2050	L11	3060	B8	7111	K12
2051	K11	3061	C10	7201	N7
2052	M11	3063	B8	7202	O7
2053	N9	3064	C8	7203	N8
2054	N9	3065	C10	7204	D9
2055	O11	3066	M8	7205	M7
2056	M11	3067	D9	7206	N8
2057	M12	3068	M7	7207	M7
2058	B8	3069	E8	7208	O3
2059	B8	3070	D9		
2060	C11	3071	L7		
2061	E4	3072	D9		
2062	F4	3073	C11		
2063	E4	3074	M7		
2064	D4	3075	M7		
2065	E4	3076	M7		
2066	E4	3077	H5		
2067	D4	3078	K6		
2068	D11	3079	K6		
2069	D10	3080	K6		
2070	D12	3081	K6		
2071	D10	3082	I7		
2072	M3	3083	I7		
2073	M5	3084	J7		
2074	L5	3085	J7		
2075	F10	3086	J7		
2076	O3	3087	B3		
2077	M3	3088	C3		
2078	K2	3089	B3		
2079	M5	3090	D12		
2080	L2	3091	D10		
2201	J8	3092	D12		
2202	H9	3093	D10		
2203	M6	3094	D12		
2204	O6	3095	D11		
2205	O6	3096	D11		
2206	M11	3097	D12		
2207	L11	3098	D10		
2208	E9	3099	E10		
2209	D9	3101	G11		
2210	N3	3102	G11		
2211	N5	3103	G11		
2212	L5	3104	G11		
2213	O4	3105	H13		
2214	M4	3106	G12		
2215	I3	3107	G12		
2216	K3	3108	G13		
2217	J11	3109	G12		
2218	J3	3110	H13		
2301	K6	3111	I12		
2302	J3	3114	H13		
2303	H7	3115	I12		
2304	H6	3116	H13		
2305	F4	3117	L5		
2306	D6	3118	B3		
2307	F12	3119	B3		
2308	F10	3120	B3		
2309	H13	3121	L13		

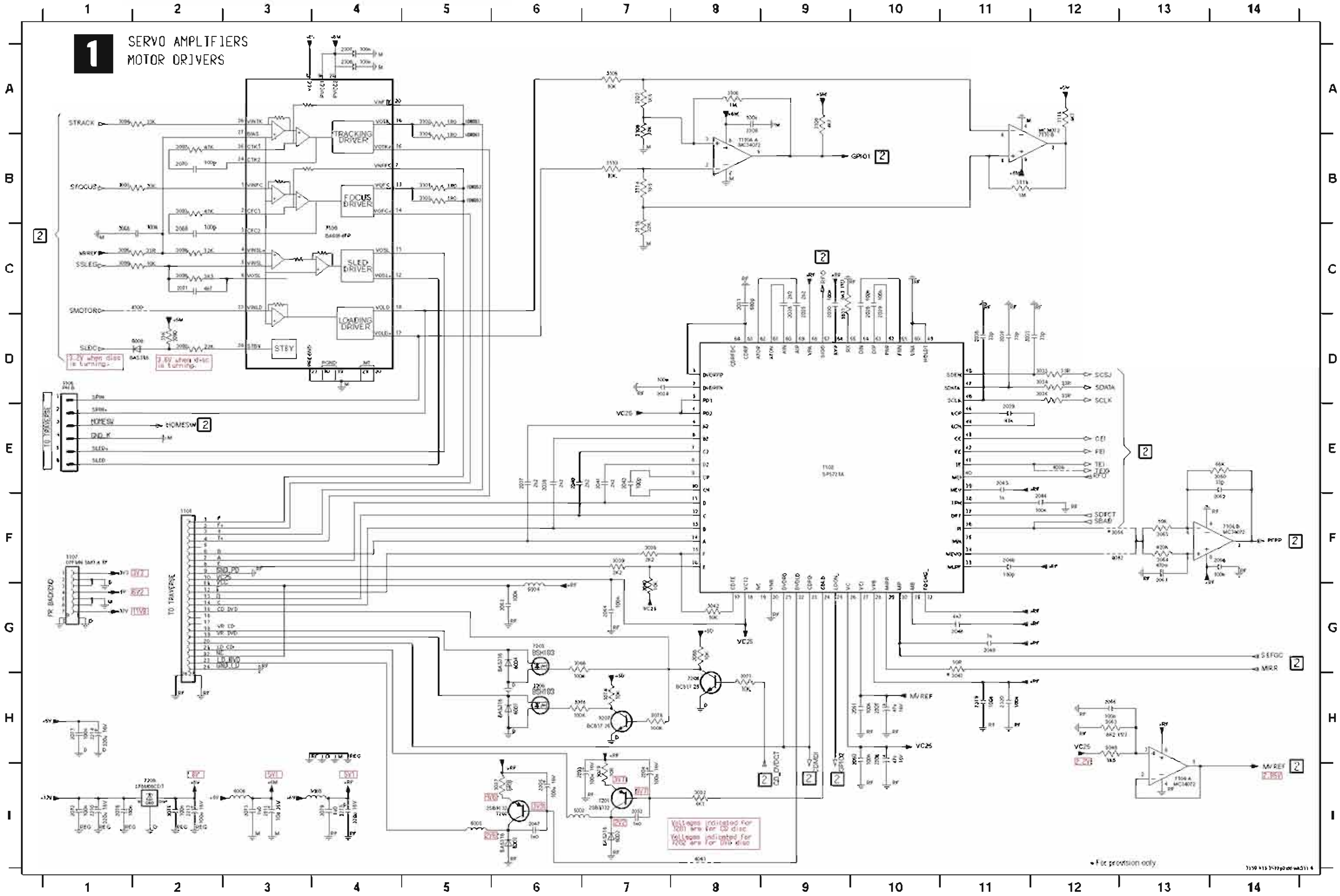
11-7

BOTTOM VIEW - COMPONENT LAYOUT

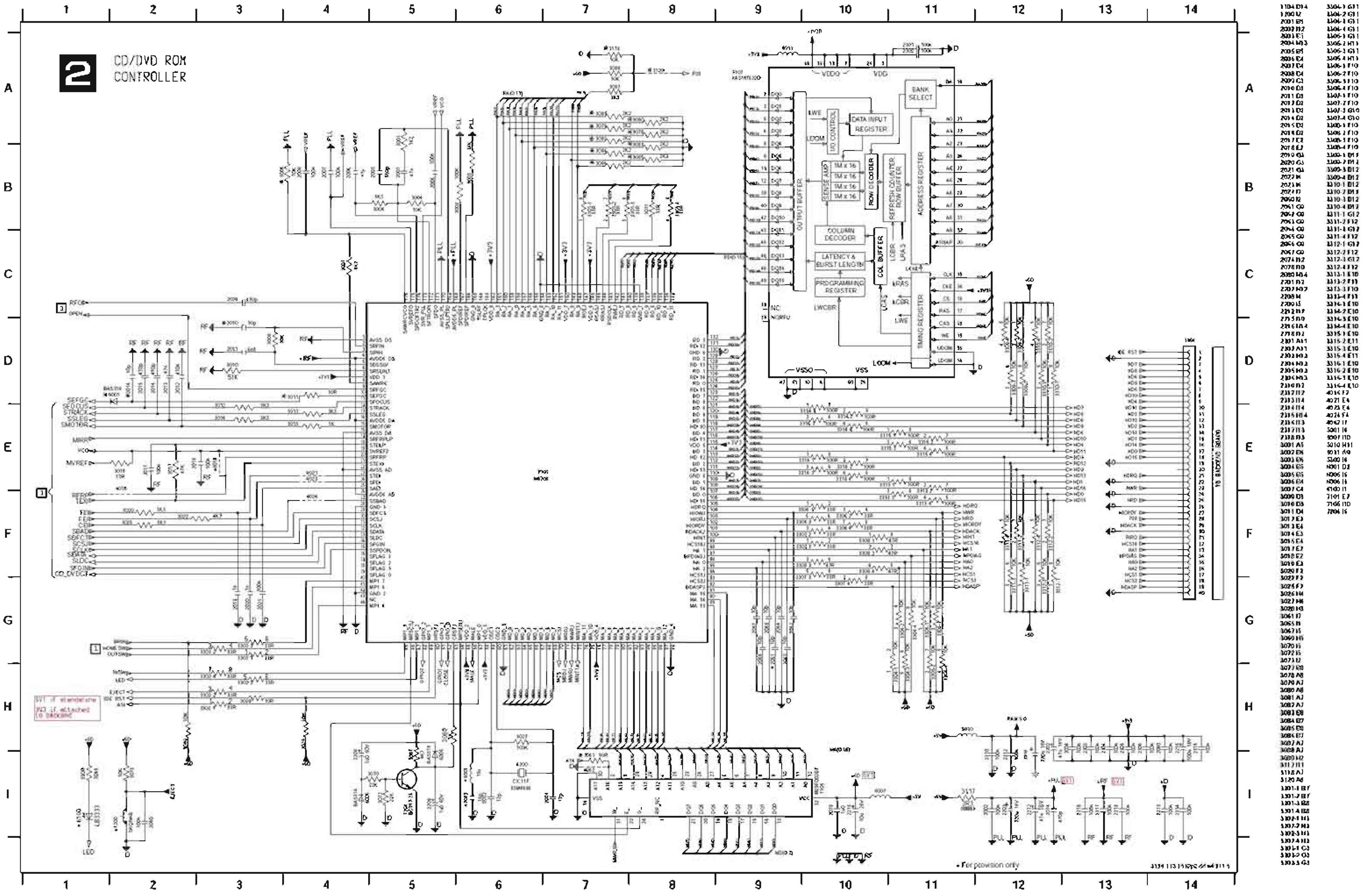


1106	I13
1106	M13
1200	B11
2201	J8
2202	H9
2203	M6
2204	O6
2205	O6
2206	M11
2207	L11
2208	E9
2209	D9
2210	N3
2211	N5
2212	L5
2213	O4
2214	M4
2215	I3
2216	K3
2217	J11
2218	J3
6100	B10

SERVO AMPLIFIERS & MOTOR DRIVERS CIRCUIT



CD/DVD ROM CONTROLLER CIRCUIT



ELECTRICAL PARTS LIST - MONO-FE BOARD

MISCELLANEOUS

	3139 118 56941	FE (Front End) PCB Assembly CD222
1101	2422 025 17529	FFC Socket 24P Hort.
1104	2422 025 17371	FFC Socket 40P Hort.
1107	2422 025 16806	FFC Socket 7P Hort.

CAPACITORS

2001	3198 017 34730	47nF 16V
2002	2238 586 59812	100nF 50V
2003	4822 126 14249	560pF 10% 50V
2004	2238 586 59812	100nF 50V
2005	2238 586 59812	100nF 50V
2006	4822 126 11785	47pF 5% 50V
2007	2238 586 59812	100nF 50V
2008	2238 586 59812	100nF 50V
2009	4822 126 13881	470pF 5% 50V
2011	5322 126 11582	6,8nF 10% 63V
2012	3198 017 44740	470nF 10V
2013	3198 017 34730	47nF 16V
2014	4822 126 13881	470pF 5% 50V
2015	4822 126 13881	470pF 5% 50V
2017	2238 586 59812	100nF 50V
2018	2238 586 59812	100nF 50V
2019	3198 016 31020	1nF 25V
2020	3198 016 31020	1nF 25V
2021	2238 586 59812	100nF 50V
2022	4822 126 11663	12pF 50V
2024	4822 126 11663	12pF 50V
2025	4822 126 14238	2,2nF 50V
2026	2238 586 59812	100nF 50V
2028	4822 126 14238	2,2nF 50V
2029	2238 586 59812	100nF 50V
2030	2238 586 59812	100nF 50V
2031	3198 016 36810	680pF 25V
2032	3198 016 31020	1nF 25V
2033	2222 867 15339	33pF 5% 50V
2034	2238 586 59812	100nF 50V
2035	2222 867 15339	33pF 5% 50V
2036	2222 867 15339	33pF 5% 50V
2037	4822 126 14238	2,2nF 50V
2038	4822 126 14238	2,2nF 50V
2039	3198 017 34730	47nF 16V
2040	4822 126 14238	2,2nF 50V
2041	4822 126 14238	2,2nF 50V
2042	2020 552 94427	100pF 5% 50V
2043	3198 016 31020	1nF 25V
2044	2238 586 59812	100nF 50V
2046	4822 126 14508	180pF 5% 50V
2047	3198 016 31020	1nF 25V
2048	4822 126 13193	4,7nF 10% 63V
2049	3198 016 31020	1nF 25V
2050	2238 586 59812	100nF 50V
2051	2238 586 59812	100nF 50V
2052	2222 867 15339	33pF 5% 50V
2053	2238 586 59812	100nF 50V
2054	2238 586 59812	100nF 50V
2055	2238 586 59812	100nF 50V
2056	2238 586 59812	100nF 50V
2057	3198 017 44740	470nF 10V
2058	4822 126 11785	47pF 5% 50V
2059	4822 126 11785	47pF 5% 50V
2060	2238 586 59812	100nF 50V
2062	4822 122 33741	10pF 10% 50V
2063	4822 122 33741	10pF 10% 50V
2064	4822 122 33741	10pF 10% 50V
2065	4822 122 33741	10pF 10% 50V
2066	4822 122 33741	10pF 10% 50V
2067	4822 122 33741	10pF 10% 50V
2068	2238 586 59812	100nF 50V
2069	2020 552 94427	100pF 5% 50V
2070	2020 552 94427	100pF 5% 50V
2071	4822 126 13193	4,7nF 10% 63V
2072	2238 586 59812	100nF 50V
2073	3198 017 41050	1uF 10V
2074	4822 126 13881	470pF 5% 50V
2075	2238 586 59812	100nF 50V
2076	2238 586 59812	100nF 50V
2077	2238 586 59812	100nF 50V
2078	3198 017 41050	1uF 10V
2079	3198 017 41050	1uF 10V
2080	2238 586 59812	100nF 50V
2201	2022 020 00625	220uF 20% 16V
2202	4822 124 80231	47uF 20% 16V
2203	4822 124 23052	100uF 20% 16V
2204	4822 124 23052	100uF 20% 16V
2205	4822 124 23052	100uF 20% 16V
2206	4822 124 80231	47uF 20% 16V
2207	4822 124 80231	47uF 20% 16V
2208	4822 124 22651	1uF 20% 50V
2209	4822 124 22651	1uF 20% 50V
2210	2022 020 00625	220uF 20% 16V
2211	4822 124 21732	10uF 20% 25V
2212	4822 124 80231	47uF 20% 16V
2213	4822 124 23052	100uF 20% 16V
2214	2022 020 00625	220uF 20% 16V
2215	4822 124 21732	10uF 20% 25V
2216	4822 124 23052	100uF 20% 16V
2217	2022 020 00625	220uF 20% 16V
2218	2022 020 00625	220uF 20% 16V
2301	2238 586 59812	100nF 50V
2302	2238 586 59812	100nF 50V
2303	2238 586 59812	100nF 50V
2304	2238 586 59812	100nF 50V
2305	2238 586 59812	100nF 50V
2306	2238 586 59812	100nF 50V

ELECTRICAL PARTS LIST - MONO-FE BOARD

2307	2238 586 59812	100nF 50V
2308	2238 586 59812	100nF 50V
2309	2238 586 59812	100nF 50V
2310	2238 586 59812	100nF 50V
2312	2238 586 59812	100nF 50V
2313	2238 586 59812	100nF 50V
2314	2238 586 59812	100nF 50V
2315	2238 586 59812	100nF 50V
2316	2238 586 59812	100nF 50V
2317	2238 586 59812	100nF 50V
2318	2238 586 59812	100nF 50V
2319	2238 586 59812	100nF 50V
2320	2238 586 59812	100nF 50V

RESISTORS

3001	4822 117 11817	1k2 1% 1/16W
3002	4822 117 13632	100k 1% 0,062W
3003	4822 051 30563	56k 5% 0,062W
3004	4822 051 30103	10k 5% 0,062W
3005	2322 704 65102	5k1 1% 0,062W
3007	4822 051 30472	4k7 5% 0,062W
3009	2322 704 62003	20k 1% 0,062W
3010	2322 704 65103	51k 1% 0,062W
3012	4822 051 30332	3k3 5% 0,062W
3013	4822 051 30332	3k3 5% 0 062W
3014	4822 051 30332	3k3 5% 0,062W
3015	4822 051 30102	1k 5% 0,062W
3017	4822 117 12925	47k 1% 0,063W
3018	4822 051 30339	33R 5% 0,062W
3020	4822 051 30332	3k3 5% 0,062W
3022	4822 051 30472	4k7 5% 0,062W
3025	2322 704 65102	5k1 1% 0,062W
3026	4822 051 30103	10k 5% 0,062W
3027	4822 117 13632	100k 1% 0,062W
3028	4822 051 30109	10R 5% 0,062W
3029	4822 051 30109	10R 5% 0,062W
3031	5322 117 13056	8k2 1% 0,063W
3032	2322 704 65102	5k1 1% 0,062W
3033	4822 051 30339	33R 5% 0,062W
3034	4822 051 30339	33R 5% 0,062W
3035	4822 051 30339	33R 5% 0,062W
3037	2322 702 60688	6R8 5% 0,062W
3038	4822 051 30222	2k2 5% 0,062W
3039	4822 051 30222	2k2 5% 0,062W
3040	4822 051 30103	10k 5% 0,062W
3042	4822 051 30103	10k 5% 0,062W
3049	4822 051 30152	1k5 5% 0,062W
3050	4822 051 30563	56k 5% 0,062W
3051	4822 051 30103	10k 5% 0,062W
3053	5322 117 13056	8k2 1% 0,063W
3054	4822 051 30474	470k 5% 0,062W
3059	4822 051 30339	33R 5% 0,062W
3060	4822 051 30339	33R 5% 0,062W
3065	4822 051 30391	390R 5% 0,062W
3066	4822 117 13632	100k 1% 0,062W
3067	4822 051 30472	4k7 5% 0,062W
3068	4822 051 30103	10k 5% 0,062W
3069	4822 051 30102	1k 5% 0,062W
3070	4822 051 30223	22k 5% 0,062W
3071	4822 051 30103	10k 5% 0,062W
3072	4822 051 30223	22k 5% 0,062W
3073	4822 051 30103	10k 5% 0,062W
3074	4822 051 30103	10k 5% 0,062W
3075	4822 117 13632	100k 1% 0,062W
3076	4822 117 13632	100k 1% 0,062W
3077	4822 051 30339	33R 5% 0,062W
3087	4822 051 30332	3k3 5% 0,062W
3088	4822 051 30103	10k 5% 0,062W
3089	4822 051 30103	10k 5% 0,062W
3090	4822 051 30333	33k 5% 0,062W
3091	4822 051 30333	33k 5% 0,062W
3092	4822 051 30223	22k 5% 0,062W
3093	4822 117 12925	47k 1% 0,063W
3094	4822 051 30333	33k 5% 0,062W
3095	4822 051 30339	33R 5% 0,062W
3096	4822 051 30123	12k 5% 0,062W
3097	4822 117 12925	47k 1% 0,063W
3098	4822 051 30332	3k3 5% 0,062W
3099	4822 051 30103	10k 5% 0,062W
3101	4822 051 20108	1R 5% 0,1W
3102	4822 051 20108	1R 5% 0,1W
3103	4822 051 20108	1R 5% 0,1W
3104	4822 051 20108	1R 5% 0,1W
3105	4822 051 30103	10k 5% 0,062W
3106	4822 051 30105	1M 5% 0,062W
3107	4822 051 30152	1k5 5% 0,062W
3108	4822 051 30472	4k7 5% 0,062W
3109	4822 051 30223	22k 5% 0,062W
3110	4822 051 30103	10k 5% 0,062W
3111	4822 051 30105	1M 5% 0,062W
3114	4822 051 30152	1k5 5% 0,062W
3115	4822 051 30472	4k7 5% 0,062W
3116	4822 051 30223	22k 5% 0,062W
3117	4822 051 20338	3R30 5% 0,1W
3301	4822 117 13576	RES NETWORK 4 X 33R 5% 1206
3302	4822 117 13576	RES NETWORK 4 X 33R 5% 1206
3303	4822 117 13576	RES NETWORK 4 X 33R 5% 1206
3304	4822 117 13578	RES NETWORK 4 X 10k 5% 1206
3305	4822 117 13578	RES NETWORK 4 X 10k 5% 1206
3306	4822 117 13576	RES NETWORK 4 X 33R 5% 1206
3307	4822 117 13576	RES NETWORK 4 X 33R 5% 1206
3308	4822 117 13573	RES NETWORK 4 X 47R 5% 1206
3309	4822 117 13578	RES NETWORK 4 X 10k 5% 1206
3310	4822 117 13578	RES NETWORK 4 X 10k 5% 1206

ELECTRICAL PARTS LIST - MONO-FE BOARD

RESISTORS

3311	4822 117 13578	RES NETWORK 4 X 10k 5% 1206
3312	4822 117 13578	RES NETWORK 4 X 10k 5% 1206
3313	3198 031 11010	RST NETWORK 4 X 100R 5% 1206
3314	3198 031 11010	RST NETWORK 4 X 100R 5% 1206
3315	3198 031 11010	RST NETWORK 4 X 100R 5% 1206
3316	3198 031 11010	RST NETWORK 4 X 100R 5% 1206
4016	4822 051 30008	0R JUMPER 0603
4021	4822 051 30008	0R JUMPER 0603
4023	4822 051 30008	0R JUMPER 0603
4024	4822 051 30008	0R JUMPER 0603
4036	4822 051 30008	0R JUMPER 0603
4041	4822 051 30008	0R JUMPER 0603
4044	4822 051 30008	0R JUMPER 0603
4052	4822 051 30008	0R JUMPER 0603
4056	4822 051 30008	0R JUMPER 0603
4062	4822 051 30008	0R JUMPER 0603
4100	4822 051 30008	0R JUMPER 0603

COILS & FILTERS

5002	4822 157 71206	IND FXD 100MHZ 600R
5003	4822 157 71206	IND FXD 100MHZ 600R
5004	4822 157 71206	IND FXD 100MHZ 600R
5006	4822 157 71206	IND FXD 100MHZ 600R
5007	4822 157 71206	IND FXD 100MHZ 600R
5008	4822 157 71206	IND FXD 100MHZ 600R
5010	4822 157 71206	IND FXD 100MHZ 600R
5011	4822 157 71206	IND FXD 100MHZ 600R
5300	4822 242 10757	X'TAL RESONATOR 33,868MHZ 20P

DIODES

6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6006	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7101	9322 186 11671	M5705
7102	9322 185 60671	SP3721AAA0PM
7104	4822 209 32073	MC34072D
7105	9965 000 19029	M29F002BT-70K1 with SW program
7107	9322 159 55668	K4S161622D-TC70
7109	9322 187 63668	BA5954FP
7110	4822 209 32073	MC34072D
7201	4822 130 11565	2SB1132
7202	4822 130 11565	2SB1132
7203	9340 547 13215	BSH103
7204	4822 130 42804	BC817-25
7205	4822 130 42804	BC817-25
7206	9340 547 13215	BSH103
7207	4822 130 42804	BC817-25
7208	9322 163 24668	L78M08CDT

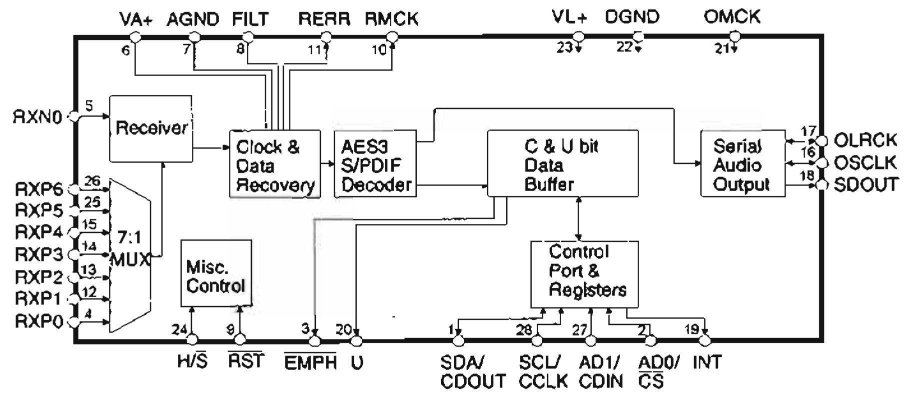
Note: Only the parts mentioned in this list are normal service spare parts.

MONO-BE BOARD

TABLE OF CONTENTS

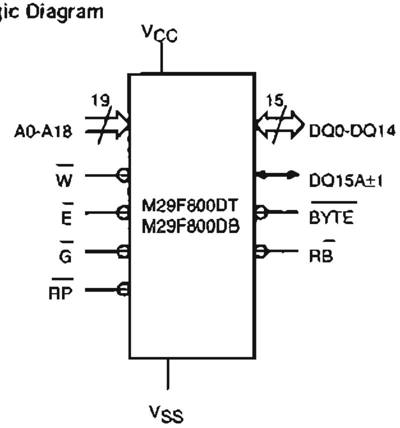
12-1

CS8415A



M29F800DT

Logic Diagram



Pins connection

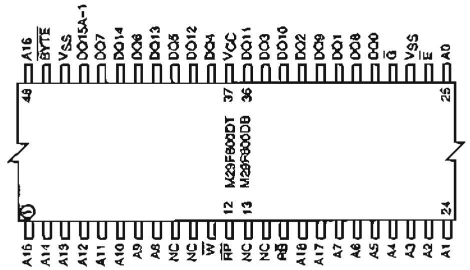


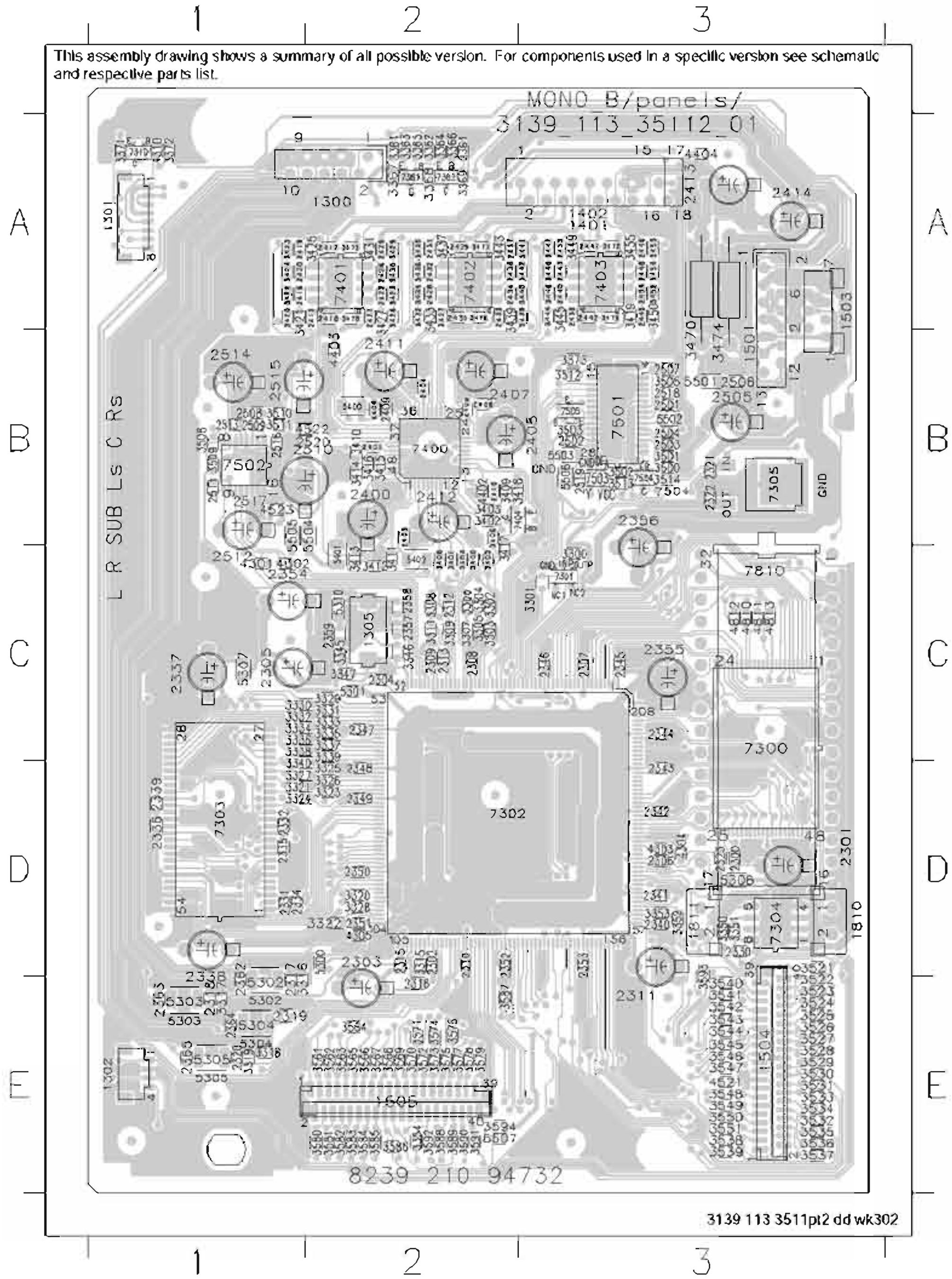
Table 1. Signal Names

A0-A18	Address Inputs
DQ0-DQ7	Data Inputs/Outputs
DQ8-DQ14	Data Inputs/Outputs
DQ15A±1	Data Input/Output or Address Input
$\overline{E}$	Chip Enable
$\overline{G}$	Output Enable
$\overline{W}$	Write Enable
$\overline{RP}$	Reset/Block Temporary Unprotect
R$\overline{B}$	Ready/Busy Output (not available on SO44 package)
$\overline{BYTE}$	Byte/Word Organization Select
V_{CC}	Supply Voltage
V_{SS}	Ground
NC	Not Connected Internally

12-2

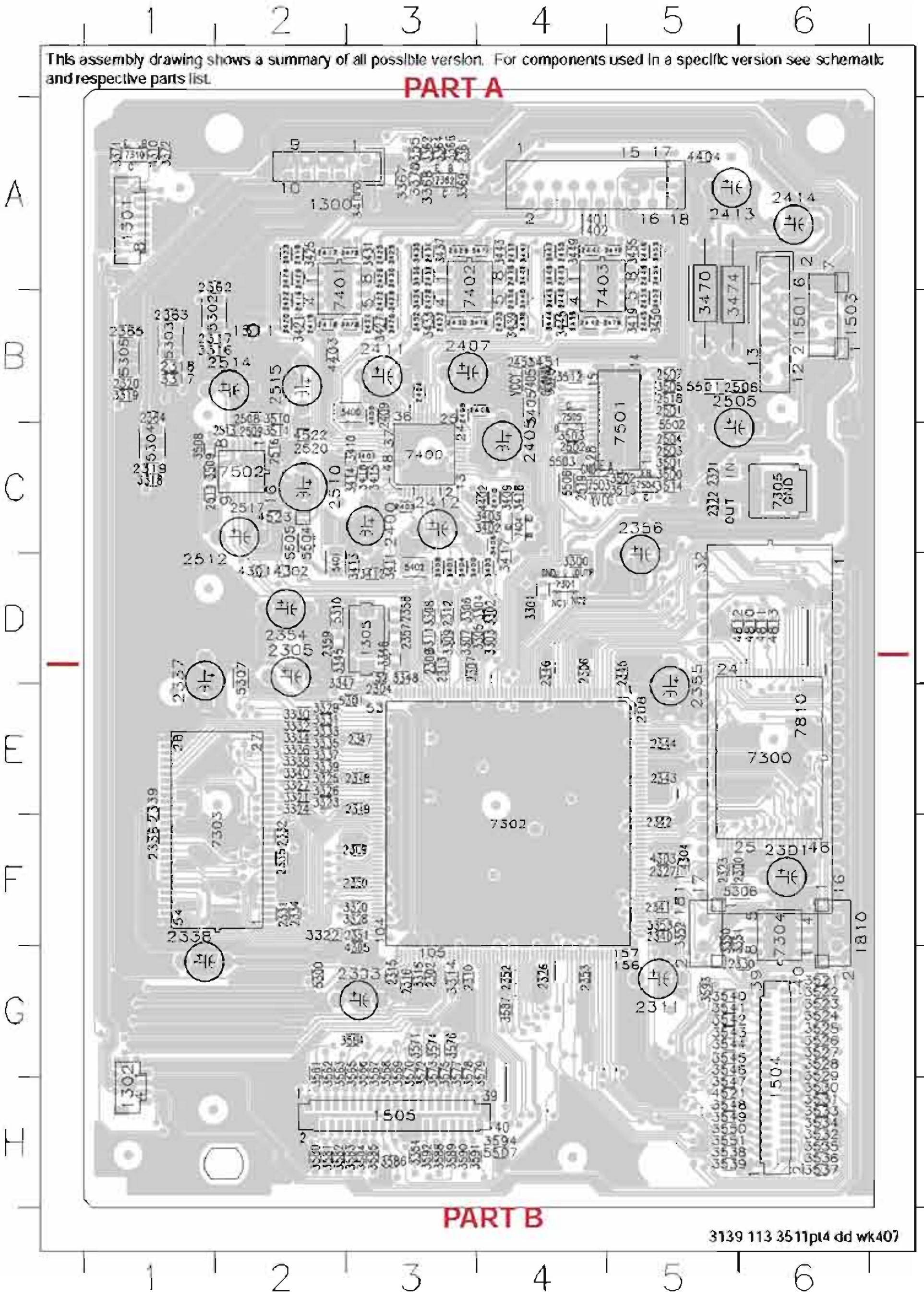
TOP VIEW - SMD & COMPONENT LAYOUT

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



1300	A2	2411	B2	3329	C2	3448	A3	3582	E2
1301	A1	2412	B2	3330	C1	3449	A3	3583	E2
1302	E1	2413	A3	3331	C2	3450	A3	3584	E2
1305	C2	2414	A3	3332	C1	3452	A3	3585	E2
1401	A3	2415	A2	3333	C2	3453	A3	3586	E2
1402	A3	2416	A1	3334	C1	3454	A3	3587	E2
1501	B3	2417	A2	3335	C2	3455	A3	3588	E2
1503	A3	2418	A2	3336	C1	3470	B3	3589	E2
1504	E3	2419	A1	3337	C2	3471	A2	3590	E2
1505	E2	2420	A1	3338	C1	3472	A3	3591	E2
1810	D3	2421	A2	3339	C2	3474	B3	3592	E2
1811	D3	2422	A2	3340	D1	3475	A2	3593	E3
2300	D3	2425	A2	3345	C2	3476	A2	3594	E2
2301	D3	2426	A2	3346	C2	3478	A2	4301	C1
2302	D2	2427	A2	3347	C2	3479	A3	4302	C1
2303	D2	2428	A2	3350	D3	3500	B3	4303	D3
2304	C2	2429	A2	3351	D3	3501	B3	4304	D3
2305	C1	2430	A2	3352	D3	3502	B3	4305	D2
2306	D3	2431	A2	3353	D3	3503	B3	4310	A1
2307	C3	2432	A2	3354	E2	3505	B3	4400	B2
2308	C2	2433	A2	3361	A2	3508	B1	4402	B2
2309	C2	2434	A2	3362	A2	3509	B1	4403	B2
2310	D2	2437	A2	3363	A2	3510	B1	4404	A3
2311	E3	2438	A2	3364	A2	3511	B1	4521	E3
2312	C2	2439	A3	3365	A2	3512	B3	4522	B2
2313	C2	2440	A3	3366	A2	3513	B3	4523	B1
2315	D2	2441	A3	3367	A2	3514	B3	4810	C3
2316	E2	2442	A3	3368	A2	3521	D3	4811	C3
2317	E1	2443	A3	3369	A2	3522	E3	4812	C3
2318	E1	2445	A3	3371	A1	3523	E3	4813	C3
2319	E1	2446	A3	3372	A1	3524	E3	5300	D2
2320	E1	2448	A3	3373	B3	3525	E3	5301	C2
2321	B3	2454	A3	3400	C2	3526	E3	5302	E1
2322	B3	2455	A3	3401	C2	3527	E3	5303	E1
2323	D3	2501	B3	3402	B2	3528	E3	5304	E1
2330	D3	2502	B3	3403	B2	3529	E3	5305	E1
2331	D1	2503	B3	3404	C2	3530	E3	5306	D3
2332	D1	2504	B3	3405	C2	3531	E3	5307	C1
2334	D1	2505	B3	3406	B2	3532	E3	5310	C2
2335	D1	2506	B3	3408	C2	3533	E3	5400	B2
2336	D1	2507	B3	3409	B2	3534	E3	5401	C2
2337	C1	2508	B1	3410	B2	3535	E3	5402	C2
2338	E1	2509	B1	3411	C2	3536	E3	5501	B3
2339	D1	2510	B2	3412	C2	3537	E3	5502	B3
2340	D3	2511	B1	3413	C2	3538	E3	5503	B3
2341	D3	2512	C1	3414	B2	3539	E3	5504	B2
2342	D3	2513	B1	3415	B2	3540	E3	5505	B1
2343	D3	2514	B1	3416	B2	3541	E3	5506	B3
2344	C3	2515	B1	3417	C2	3542	E3	5507	E2
2345	C3	2516	B1	3418	B2	3543	E3	7300	C3
2346	C3	2517	B1	3419	A3	3544	E3	7301	C3
2347	C2	2518	B3	3420	A1	3545	E3	7302	C2
2348	D2	2519	B3	3421	A1	3546	E3	7303	C1
2349	D2	2520	B2	3422	A1	3547	E3	7304	D3
2350	D2	3300	C3	3423	A1	3548	E3	7305	B3
2351	D2	3301	C3	3424	A1	3549	E3	7310	A1
2352	D2	3302	C2	3425	A2	3550	E3	7361	A2
2353	D3	3303	C2	3426	A2	3551	E3	7362	A2
2354	C1	3304	C2	3427	A2	3561	E2	7400	B2
2355	C3	3305	C2	3428	A2	3562	E2	7401	A2
2356	B3	3306	C2	3429	A2	3563	E2	7402	B2
2357	C2	3307	C2	3430	A2	3564	E2	7403	B3
2358	C2	3308	C2	3431	A2	3565	E2	7404	B3
2359	C2	3309	C2	3432	A2	3566	E2	7501	B3
2361	A2	3311	C2	3433	A2	3567	E2	7502	B1
2362	E1	3315	D2	3434	A2	3568	E2	7503	B3
2363	E1	3316	E1	3435	A2	3569	E2	7504	B3
2364	E1	3317	E1	3436	A2	3570	E2	7505	B3
2365	E1	3318	E1	3437	A2	3571	E2	7810	C3
2400	B2	3319	E1	3438	A3	3572	E2		
2401	B2	3320	D2	3439	A2	3573	E2		
2403	B2	3321	D1	3440	A3	3574	E2		
2404	B2	3322	D2	3441	A3	3575	E2		
2405	B3	3323	D2	3442	A3	3576	E2		
2406	B2	3324	D1	3443	A2	3577	E2		
2407	B2	3325	D2	3444	A3	3578	E2		
2408	B2	3326	D2	3445	A3	3579	E2		
2409	B2	3327	D1	3446	A3	3580	E2		
2410	B2	3328	D2	3447	A3	3581	E2		

TOP VIEW - SMD & COMPONENT LAYOUT (pc board ... 3511p4)

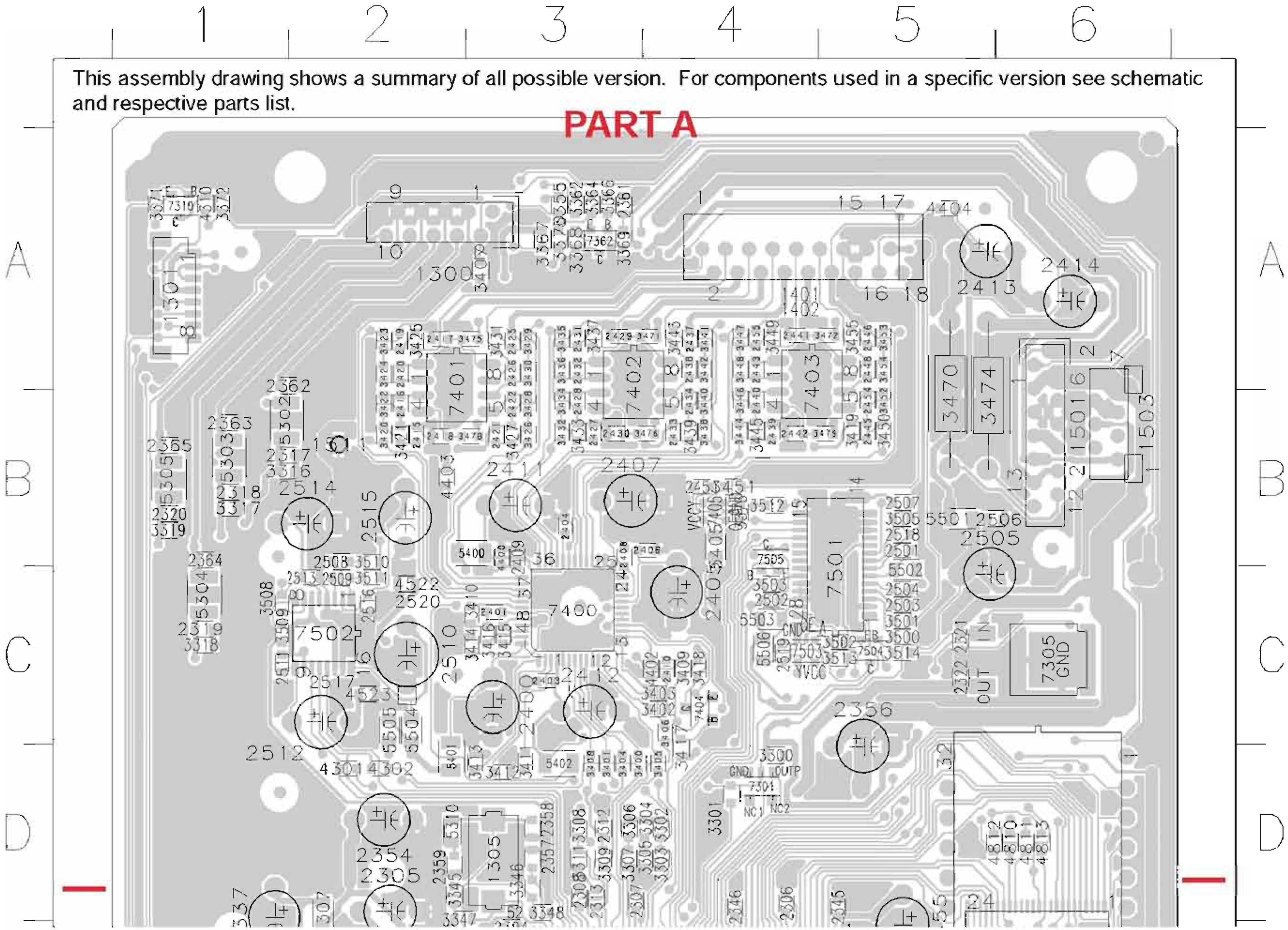


1300	A2	2408	B3	3324	E2	3442	A4	3575	G3
1301	A1	2409	B3	3325	E2	3443	A4	3576	G3
1302	H1	2410	C4	3326	E2	3444	B4	3577	G3
1305	D3	2411	B3	3327	E2	3445	B4	3578	G3
1401	A4	2412	C3	3328	F3	3446	B4	3579	G4
1402	A4	2413	A5	3329	E2	3447	A4	3580	H2
1501	B6	2414	A6	3330	E2	3448	A4	3581	H2
1503	B6	2415	B2	3331	E2	3449	A4	3582	H2
1504	H6	2416	B2	3332	E2	3450	B5	3583	H3
1505	H3	2417	A2	3333	E2	3451	B4	3584	H3
1511	B2	2418	B2	3334	E2	3452	B5	3585	H3
1810	F6	2419	A2	3335	E2	3453	A5	3586	H3
1811	F5	2420	A2	3336	E2	3454	A5	3587	G4
2300	F5	2421	B3	3337	E2	3455	A5	3588	H3
2301	F6	2422	B3	3338	E2	3470	B5	3589	H3
2302	G3	2425	A3	3339	E2	3471	A4	3590	H3
2303	G3	2426	A3	3340	E2	3472	A5	3591	H3
2304	E3	2427	B3	3345	D2	3474	B5	3592	H3
2305	D2	2428	B3	3346	D3	3475	A3	3593	G5
2306	D4	2429	A3	3347	D2	3476	B4	3594	H4
2307	D3	2430	B3	3348	D3	3478	B3	4301	D2
2308	D3	2431	A3	3350	F5	3479	B5	4302	D2
2309	F3	2432	A3	3351	F5	3500	C5	4303	F5
2310	G3	2433	B4	3352	F5	3501	C5	4304	F5
2311	G5	2434	B4	3353	F5	3502	C5	4305	G3
2312	D3	2437	A4	3354	H3	3503	C4	4310	A1
2313	D3	2438	A4	3355	A3	3505	B5	4400	B3
2315	G3	2439	B4	3362	A3	3508	C1	4402	C4
2316	G3	2440	B4	3364	A3	3509	C1	4403	B2
2317	B1	2441	A4	3366	A3	3510	B2	4404	A5
2318	B1	2442	B4	3367	A3	3511	C2	4521	H5
2319	C1	2443	A4	3368	A3	3512	B4	4522	C2
2320	B1	2445	B5	3369	A3	3513	C5	4523	C2
2321	C5	2446	A5	3370	A3	3514	C5	4810	D6
2322	C5	2448	A5	3371	A1	3521	G6	4811	D6
2323	F5	2451	B4	3372	A1	3522	G6	4812	D5
2326	G4	2454	B5	3373	B4	3523	G6	4813	D6
2327	F5	2455	A4	3400	D3	3524	G5	5300	G2
2330	G6	2501	B5	3401	D3	3525	G6	5301	E3
2331	F2	2502	C4	3402	C4	3526	G6	5302	B1
2332	F2	2503	C5	3403	C4	3527	G5	5303	B1
2334	F2	2504	C5	3404	D3	3528	G6	5304	C1
2335	F2	2505	B5	3405	D4	3529	G6	5305	B1
2336	F1	2506	B6	3406	C4	3530	H6	5306	F6
2337	D1	2507	B5	3407	A3	3531	H6	5307	D2
2338	F1	2508	B2	3408	D3	3532	H6	5310	D2
2339	E1	2509	C2	3409	C4	3533	H6	5400	B3
2340	F5	2510	C2	3410	C3	3534	H6	5401	D2
2341	F5	2511	C1	3411	D3	3535	H5	5402	D3
2342	F5	2512	D1	3412	D3	3536	H5	5405	B4
2343	E5	2513	C2	3413	D3	3537	H6	5501	B5
2344	E5	2514	B2	3414	C3	3538	H5	5502	C5
2345	D5	2515	B2	3415	C3	3539	H5	5503	C4
2346	D4	2516	C2	3416	C3	3540	G5	5504	C2
2347	E3	2517	C2	3417	D4	3541	G5	5505	C2
2348	E3	2518	B5	3418	C4	3542	G5	5506	C4
2349	E3	2519	C4	3419	B5	3543	G5	5507	H4
2350	F3	2520	C2	3420	B2	3544	G5	7300	E6
2351	F3	3300	D4	3421	B2	3545	G5	7301	D4
2352	G4	3301	D4	3422	B2	3546	G5	7302	F4
2353	G4	3302	D4	3423	A2	3547	H5	7303	F2
2354	D2	3303	D4	3424	A2	3548	H5	7304	F6
2355	E5	3304	D4	3425	A2	3549	H5	7305	C6
2356	C5	3305	D4	3426	B3	3550	H5	7310	A1
2357	D3	3306	D3	3427	B3	3551	H5	7362	A3
2358	D3	3307	D3	3428	B3	3561	G2	7400	C3
2359	D2	3308	D3	3429	A3	3562	G2	7401	A2
2361	A3	3309	D3	3430	A3	3563	G2	7402	A3
2362	A1	3311	D3	3431	A3	3564	G3	7403	A4
2363	B1	3314	G3	3432	B3	3565	G3	7404	C4
2364	B1	3315	G3	3433	B3	3566	G3	7405	B4
2365	B1	3316	B1	3434	B3	3567	G3	7501	C5
2400	C3	3317	B1	3435	A3	3568	G3	7502	C2
2401	C3	3318	C1	3436	A3	3569	G3	7503	C4
2403	C3	3319	B1	3437	A3	3570	G3	7504	C5
2404	B3	3320	F3	3438	B4	3571	G3	7505	B4
2405	C4	3321	E2	3439	B4	3572	G3	7810	E6
2406	B4	3322	F2	3440	B4	3573	G3		
2407	B3	3323	E2	3441	A4	3574	G3		

12-2b

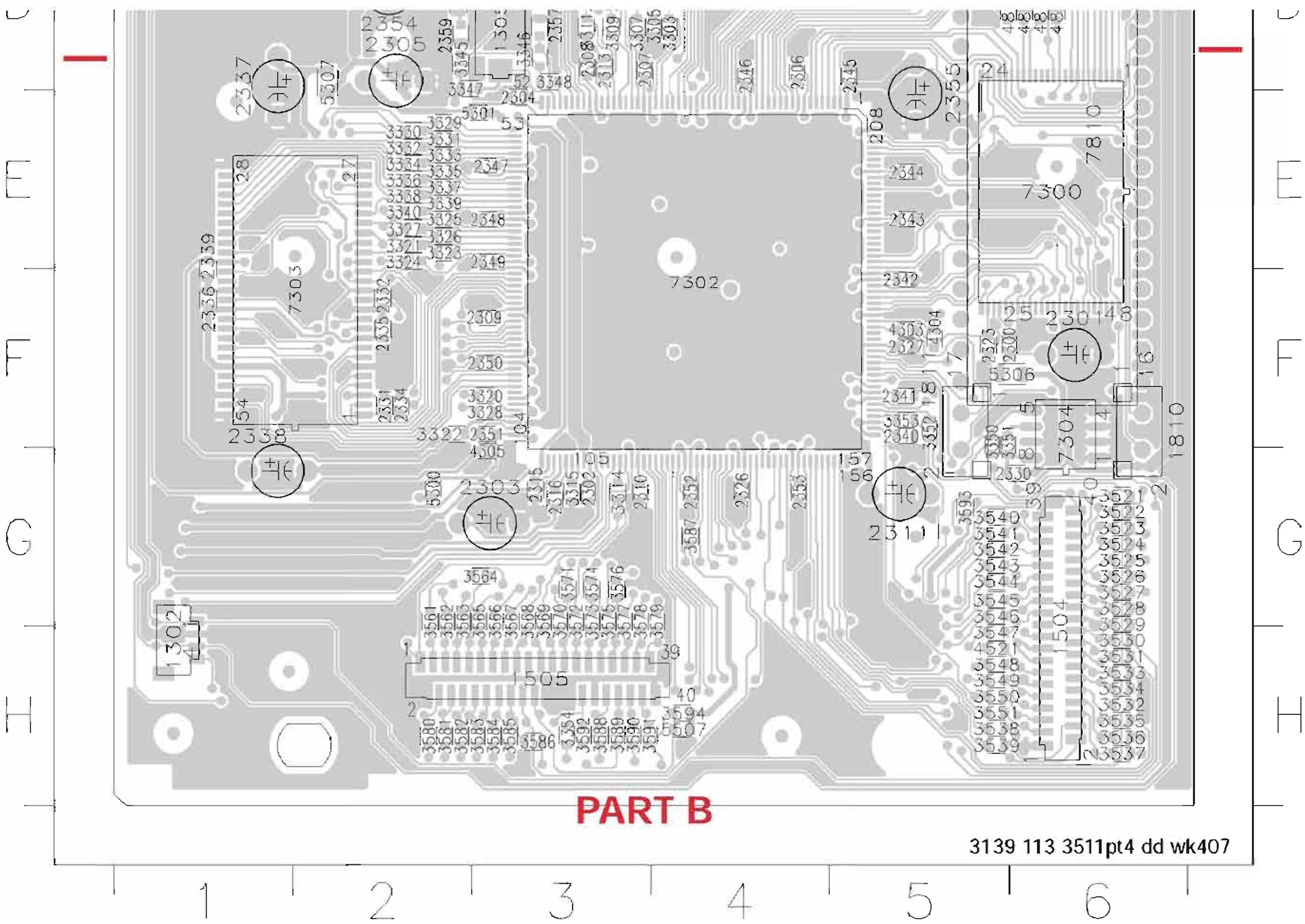
TOP VIEW - SMD & COMPONENT LAYOUT (pc board ... 3511p4) PART A

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

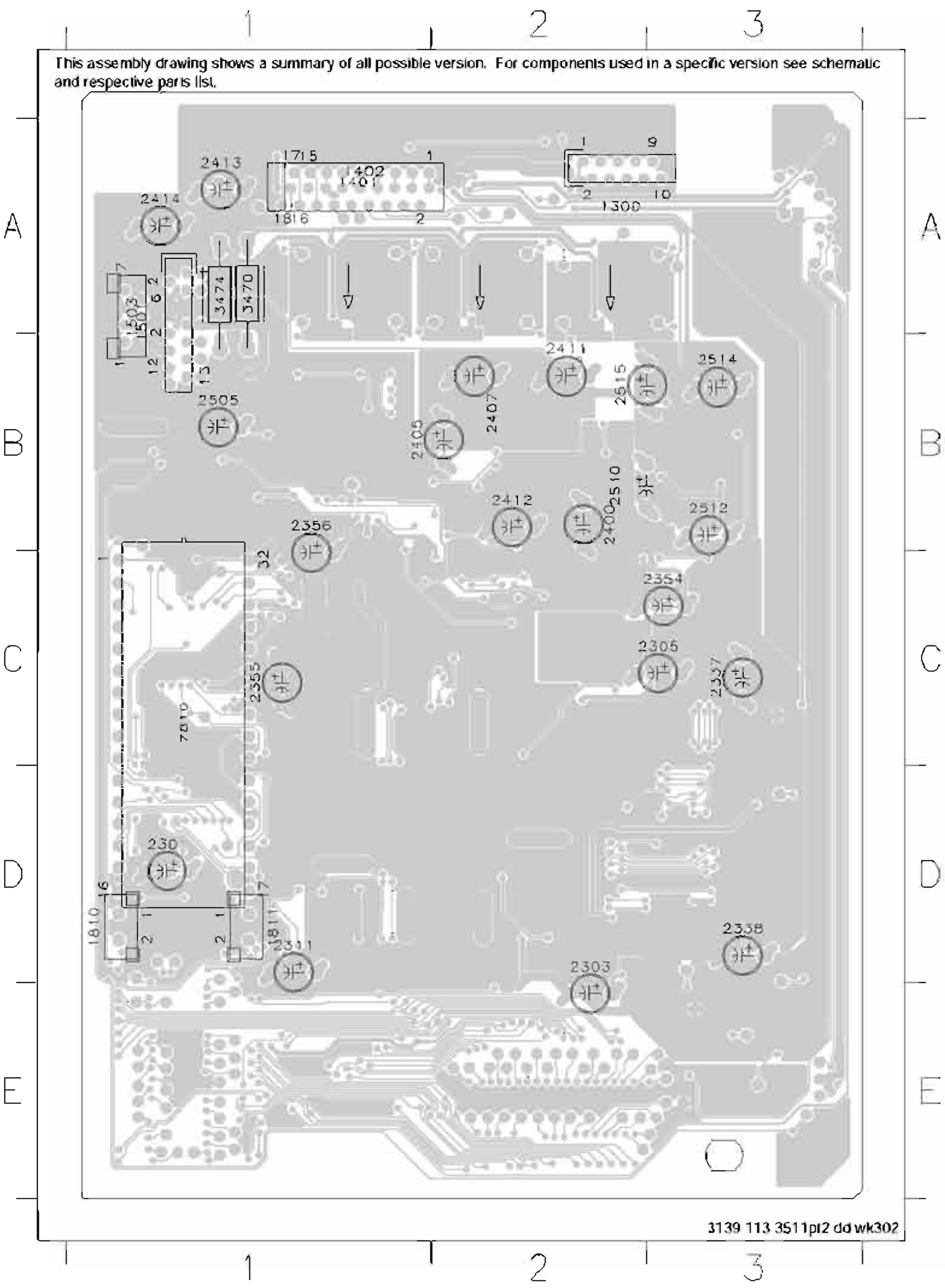


12-2c

TOP VIEW - SMD & COMPONENT LAYOUT (pc board ... 3511p4) PART B



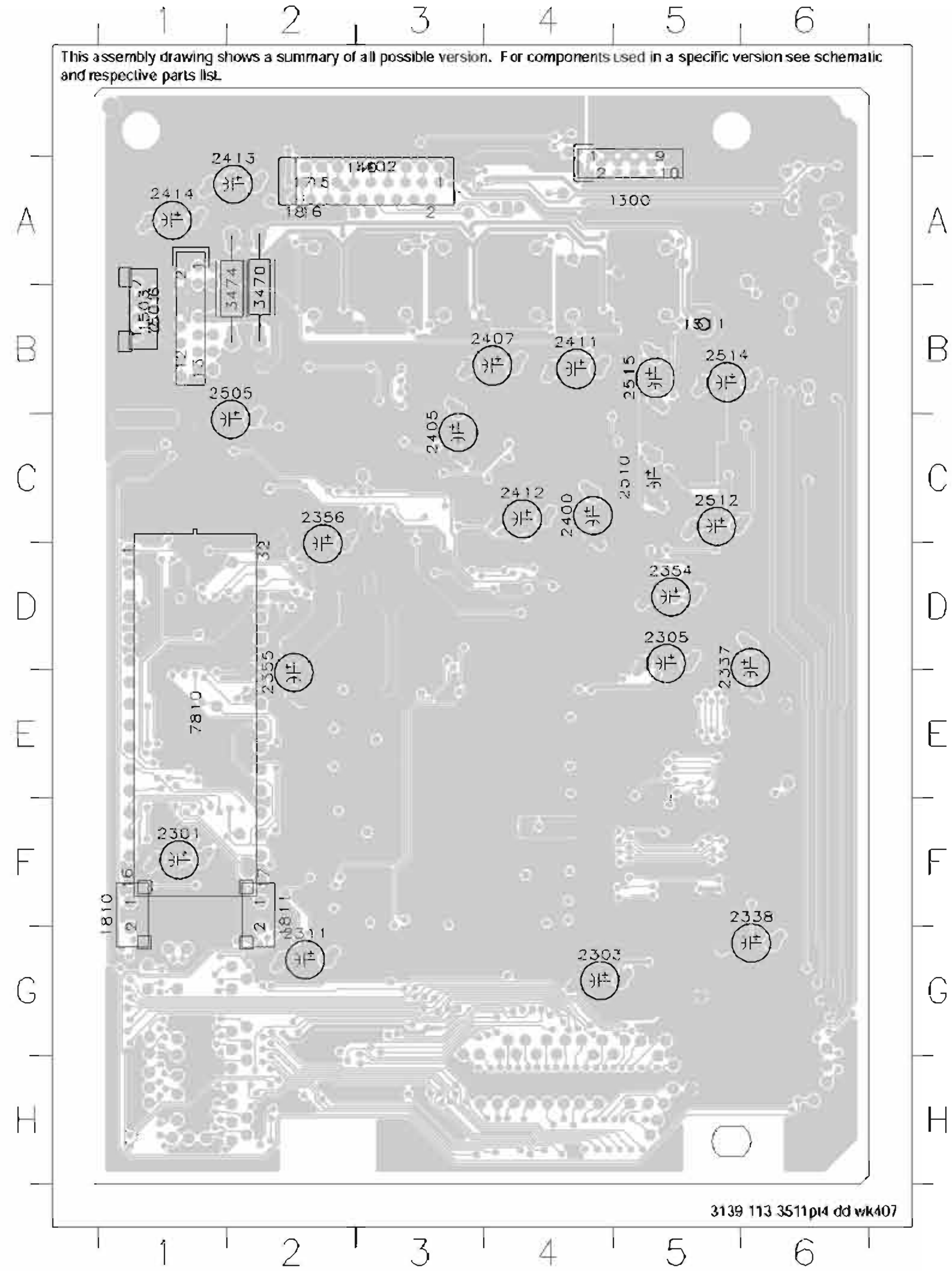
BOTTOM VIEW - COMPONENT LAYOUT



1300	A2
1401	A1
1402	A1
1501	A1
1503	A1
1810	D1
1811	D1
2301	D1
2303	D2
2305	C3
2311	D1
2337	C3
2338	D3
2354	C3
2355	C1
2356	B1
2400	B2
2405	B1
2407	B2
2411	B2
2412	B2
2413	A1
2414	A1
2505	B1
2510	B2
2512	B3
2514	B3
2515	B2
3470	A1
3474	A1
7810	C1

12-3a

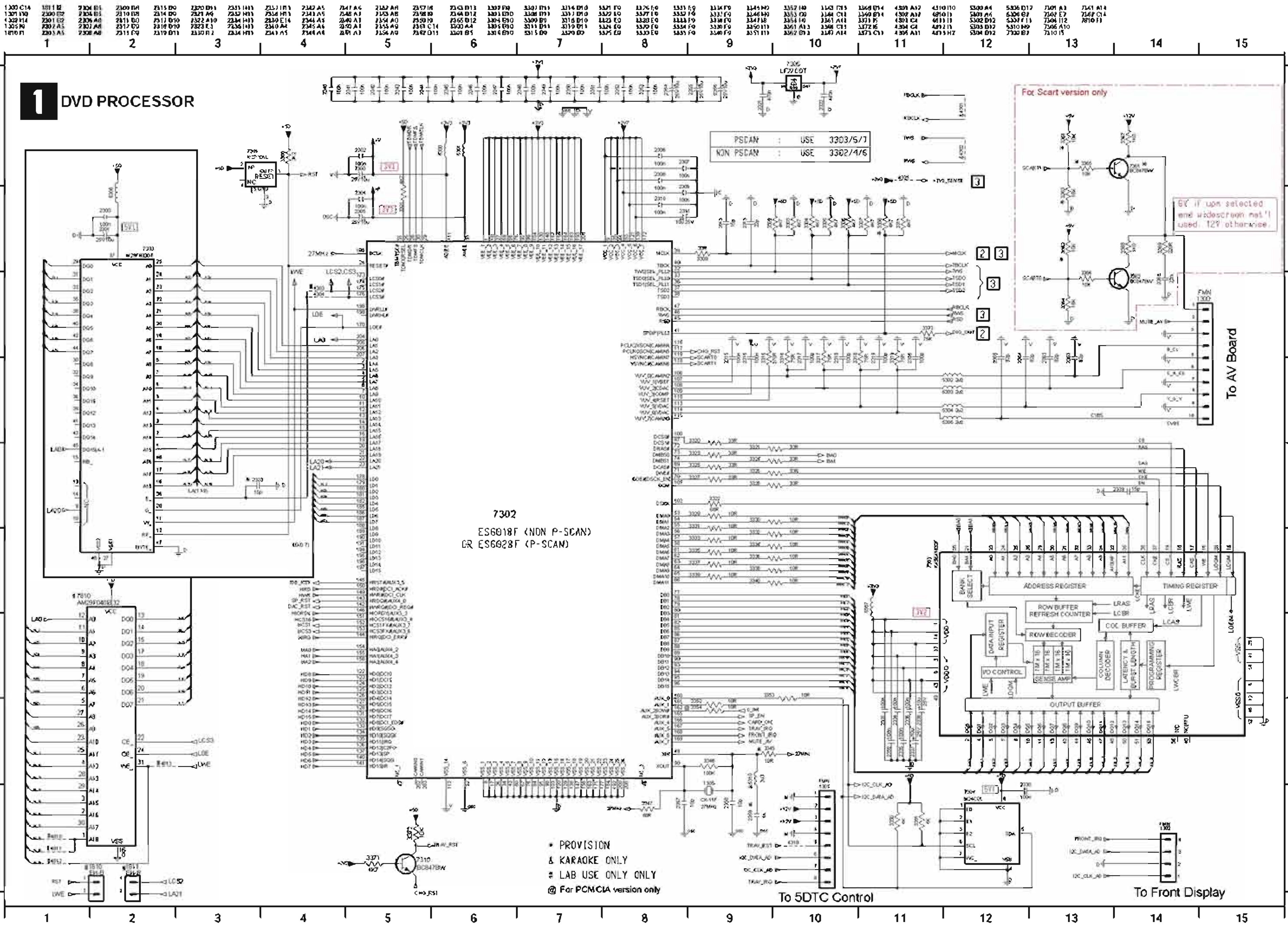
BOTTOM VIEW - COMPONENT LAYOUT (pc board ... 3511p4)



1300	A5
1401	A3
1402	A3
1501	B1
1503	B1
1511	B5
1810	F1
1811	F2
2301	F1
2303	G4
2305	D5
2311	G2
2337	D6
2338	F6
2354	D5
2355	E2
2356	C2
2400	C4
2405	C3
2407	B4
2411	B4
2412	C4
2413	A2
2414	A1
2505	B2
2510	C5
2512	C5
2514	B5
2515	B5
3470	B2
3474	B2
7810	E1

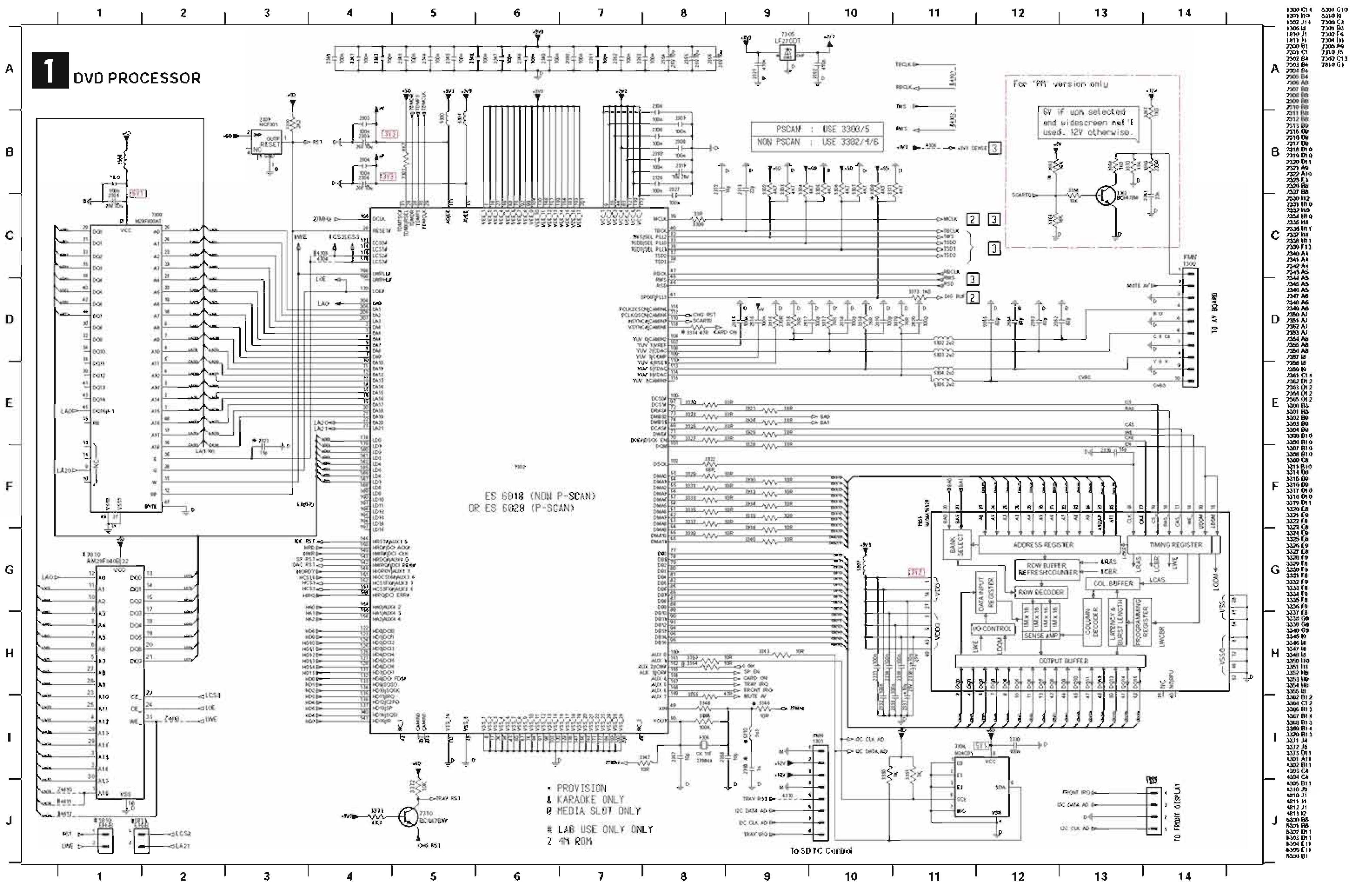
CIRCUIT DIAGRAM 1

1 DVD PROCESSOR

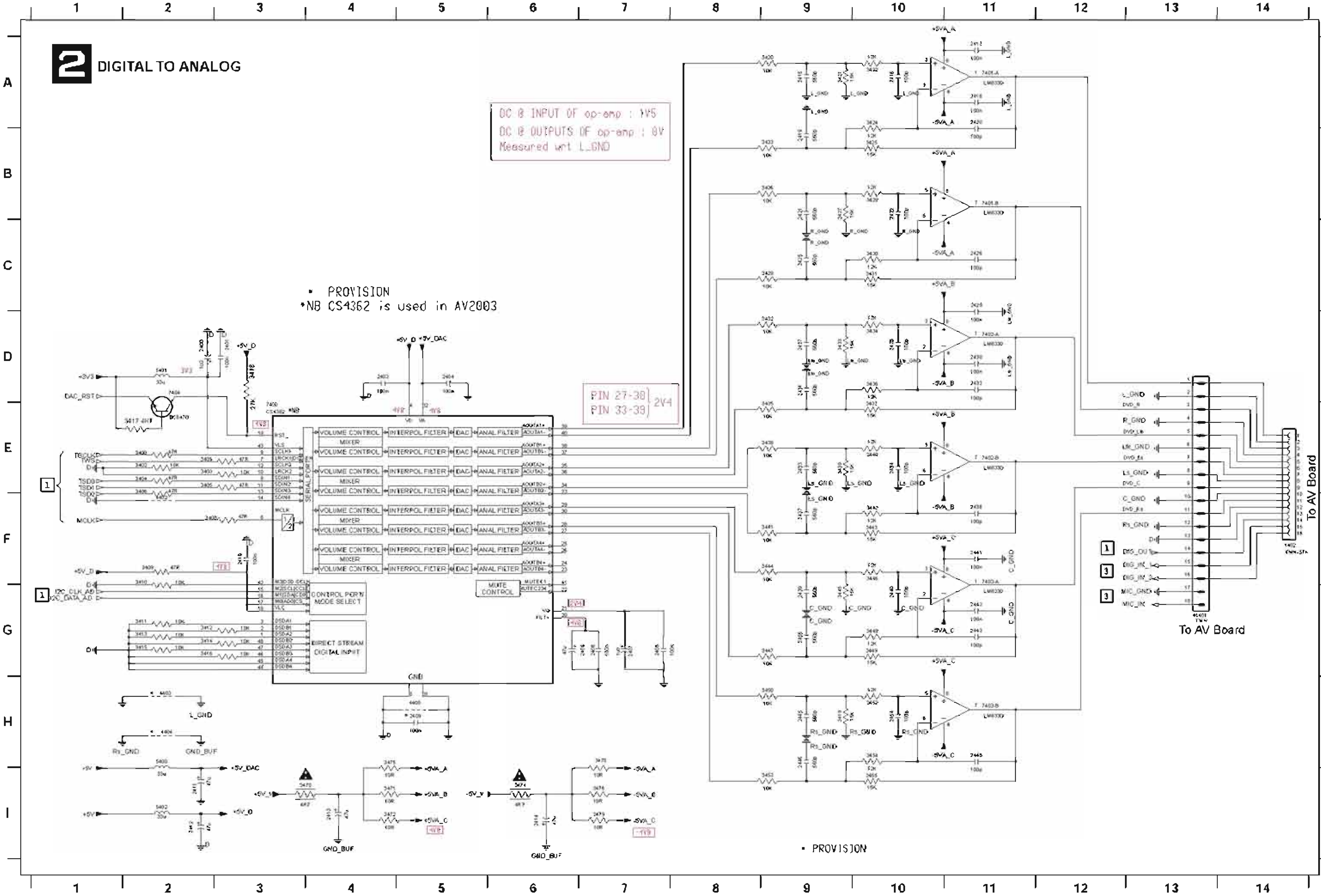


12-4a

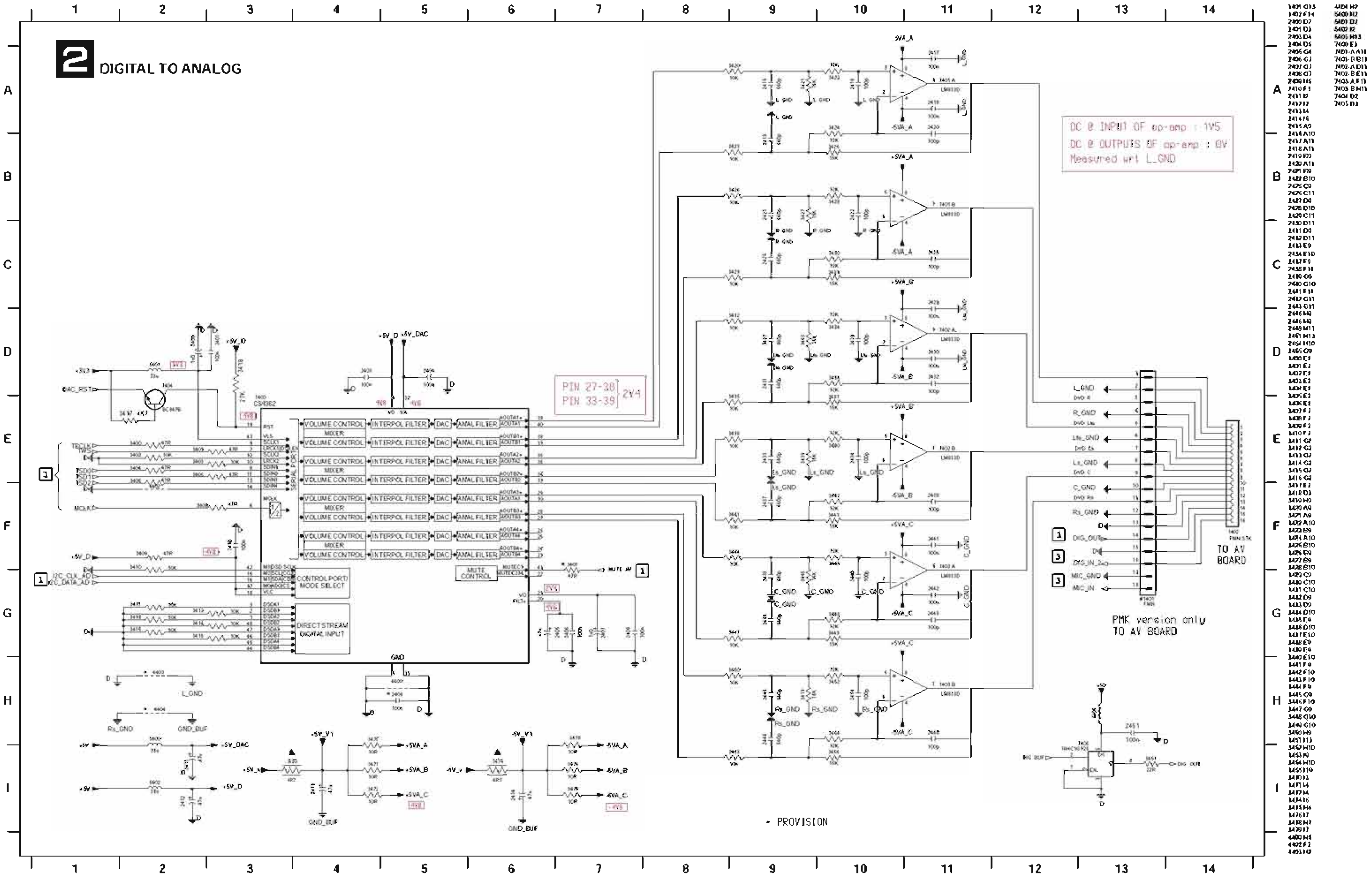
CIRCUIT DIAGRAM 1 (For pc board ... 3511p4)



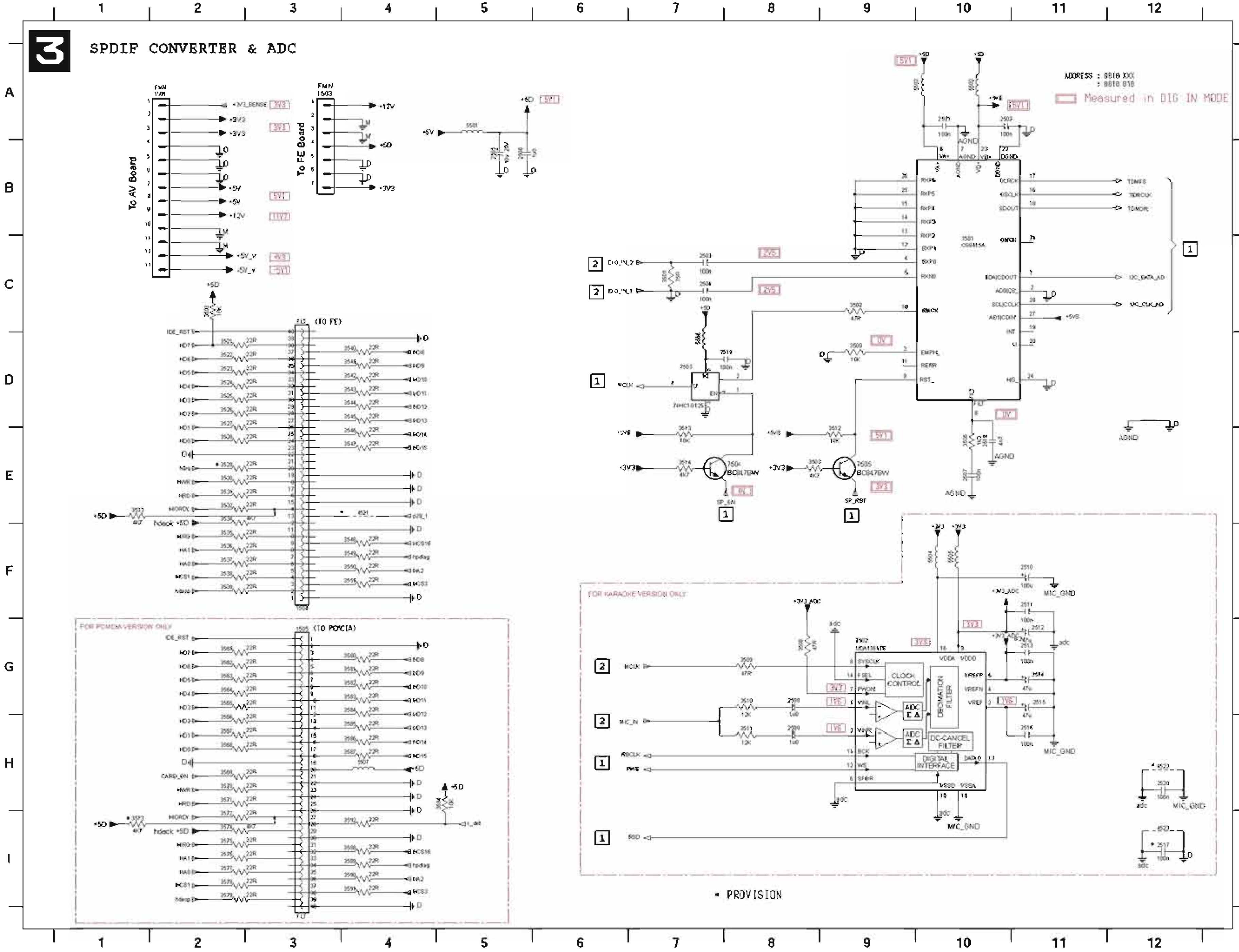
CIRCUIT DIAGRAM 2



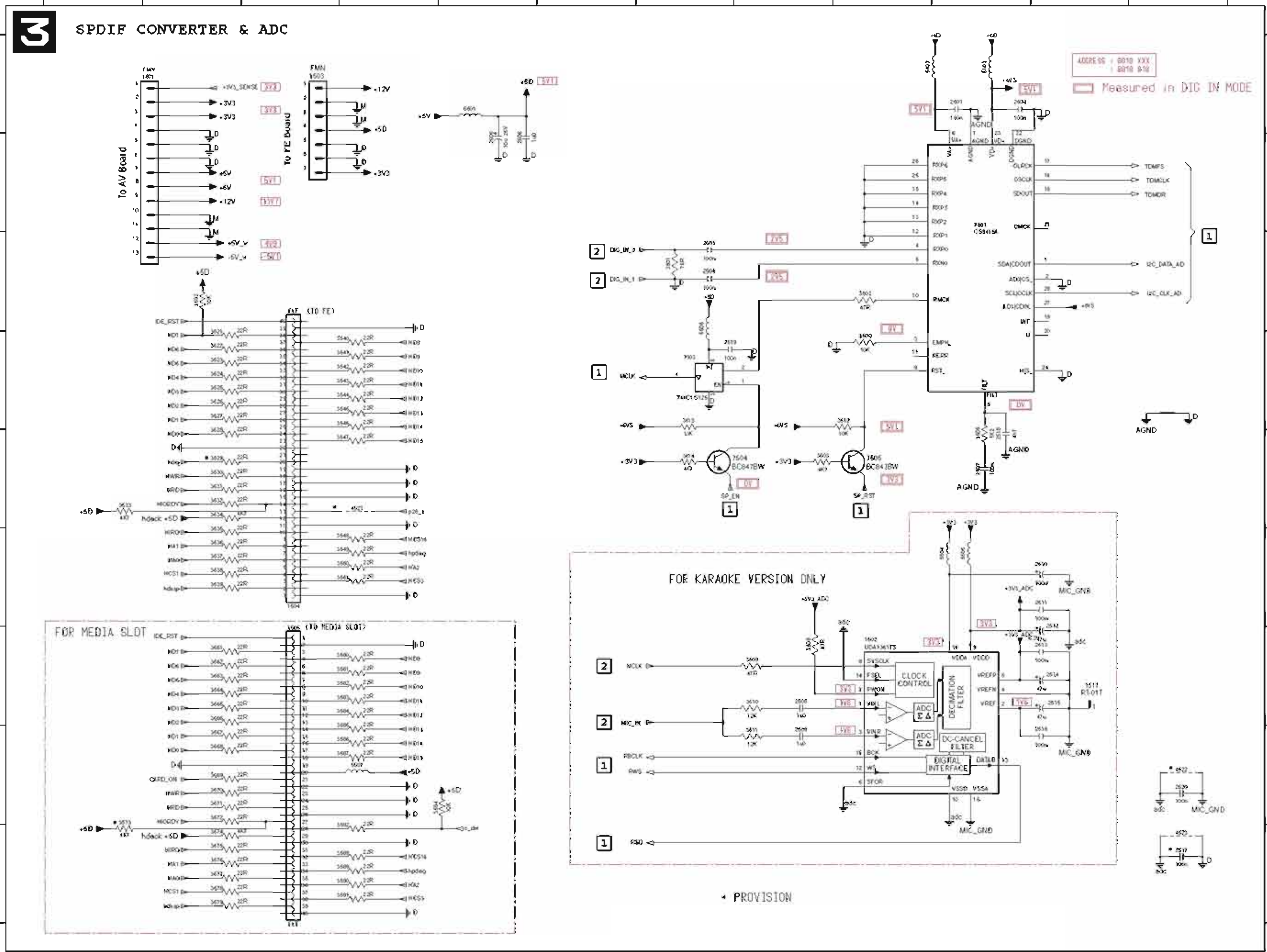
CIRCUIT DIAGRAM 2 (For pc board ... 3511p4)



CIRCUIT DIAGRAM 3



CIRCUIT DIAGRAM 3 (For pc board ...3511p4)



ELECTRICAL PARTS LIST - MONO-BE BOARD

MISCELLANEOUS

	3139 118 56481	BE (Back End) PCB Assembly CD222
1300	2422 025 16587	FFC Socket 10P Vert.
1301	2422 025 16988	FFC Socket 8P Vert
1302	2422 025 16792	FFC Socket 4P Vert
1305	2422 543 01137	X'tal Resonator 27MHz 10p
1402	4822 267 11028	FFC Socket 16P Hort.
1501	2422 025 16591	FFC Socket 13P Vert.
1503	2422 025 17367	FFC Socket 7P Vert.
1504	2422 025 17763	FFC Socket 40P Vert

CAPACITORS

2300	2238 586 59812	100nF 50V
2301	4822 124 21732	10uF 20% 25V
2302	2238 586 59812	100nF 50V
2303	4822 124 21732	10uF 20% 25V
2304	2238 586 59812	100nF 50V
2305	4822 124 21732	10uF 20% 25V
2306	2238 586 59812	100nF 50V
2307	2238 586 59812	100nF 50V
2308	2238 586 59812	100nF 50V
2309	2238 586 59812	100nF 50V
2310	2238 586 59812	100nF 50V
2311	4822 124 21732	10uF 20% 25V
2312	4822 122 33752	15pF 5% 50V
2313	4822 122 33761	22pF 5% 50V
2315	2238 586 59812	100nF 50V
2316	2238 586 59812	100nF 50V
2317	2020 552 94427	100pF 5% 50V
2318	2020 552 94427	100pF 5% 50V
2319	2020 552 94427	100pF 5% 50V
2320	2020 552 94427	100pF 5% 50V
2321	3198 017 44740	470nF 10V
2322	3198 017 44740	470nF 10V
2326	2238 586 59812	100nF 50V
2327	2238 586 59812	100nF 50V
2330	2238 586 59812	100nF 50V
2331	2238 586 59812	100nF 50V
2332	2238 586 59812	100nF 50V
2334	2238 586 59812	100nF 50V
2335	2238 586 59812	100nF 50V
2336	2238 586 59812	100nF 50V
2337	4822 124 21732	10uF 20% 25V
2338	4822 124 21732	10uF 20% 25V
2339	4822 122 33752	15pF 5% 50V
2340	2238 586 59812	100nF 50V
2341	2238 586 59812	100nF 50V
2342	2238 586 59812	100nF 50V
2343	2238 586 59812	100nF 50V
2344	2238 586 59812	100nF 50V
2345	2238 586 59812	100nF 50V
2346	2238 586 59812	100nF 50V
2347	2238 586 59812	100nF 50V
2348	2238 586 59812	100nF 50V
2349	2238 586 59812	100nF 50V
2350	2238 586 59812	100nF 50V
2351	2238 586 59812	100nF 50V
2352	2238 586 59812	100nF 50V
2353	2238 586 59812	100nF 50V
2354	4822 124 21732	10uF 20% 25V
2355	4822 124 21732	10uF 20% 25V
2356	4822 124 21732	10uF 20% 25V
2357	4822 122 33741	10pF 10% 50V
2358	4822 122 33741	10pF 10% 50V
2362	4822 126 14226	82pF 5% 50V
2363	4822 126 14226	82pF 5% 50V
2364	4822 126 14226	82pF 5% 50V
2365	4822 126 14226	82pF 5% 50V
2400	4822 124 22651	1uF 20% 50V
2401	2238 586 59812	100nF 50V
2403	2238 586 59812	100nF 50V
2404	2238 586 59812	100nF 50V
2405	4822 124 80483	47uF 20% 6,3V
2406	2238 586 59812	100nF 50V
2407	4822 124 22651	1uF 20% 50V
2408	2238 586 59812	100nF 50V
2410	2238 586 59812	100nF 50V
2411	4822 124 80483	47uF 20% 6,3V
2412	4822 124 80483	47uF 20% 6,3V
2413	4822 124 80483	47uF 20% 6,3V
2414	4822 124 80483	47uF 20% 6,3V
2415	4822 126 14249	560pF 10% 50V
2416	2020 552 94427	100pF 5% 50V
2417	2238 586 59812	100nF 50V
2418	2238 586 59812	100nF 50V
2419	4822 126 14249	560pF 10% 50V
2420	2020 552 94427	100pF 5% 50V
2421	4822 126 14249	560pF 10% 50V
2422	2020 552 94427	100pF 5% 50V
2425	4822 126 14249	560pF 10% 50V
2426	2020 552 94427	100pF 5% 50V
2427	4822 126 14249	560pF 10% 50V
2428	2020 552 94427	100pF 5% 50V
2429	2238 586 59812	100nF 50V
2430	2238 586 59812	100nF 50V
2431	4822 126 14249	560pF 10% 50V
2432	2020 552 94427	100pF 5% 50V
2433	4822 126 14249	560pF 10% 50V
2434	2020 552 94427	100pF 5% 50V
2437	4822 126 14249	560pF 10% 50V
2438	2020 552 94427	100pF 5% 50V
2439	4822 126 14249	560pF 10% 50V
2440	2020 552 94427	100pF 5% 50V
2441	2238 586 59812	100nF 50V
2442	2238 586 59812	100nF 50V

ELECTRICAL PARTS LIST - MONO-BE BOARD

2443	2020 552 94427	100pF 5% 50V
2445	4822 126 14249	560pF 10% 50V
2446	4822 126 14249	560pF 10% 50V
2448	2020 552 94427	100pF 5% 50V
2451	2238 586 59812	100nF 50V
2454	2020 552 94427	100pF 5% 50V
2456	4822 126 14249	560pF 10% 50V
2501	2238 586 59812	100nF 50V
2502	2238 586 59812	100nF 50V
2503	2238 586 59812	100nF 50V
2504	2238 586 59812	100nF 50V
2505	4822 124 21732	10uF 20% 25V
2506	3198 017 41050	1uF 10V
2507	2238 586 59812	100nF 50V
2518	4822 126 13193	4,7nF 10% 63V
2519	2238 586 59812	100nF 50V

RESISTORS

3300	4822 051 30222	2k2 5% 0,062W
3301	4822 051 30472	4k7 5% 0,062W
3303	4822 051 30472	4k7 5% 0,062W
3305	4822 051 30472	4k7 5% 0,062W
3307	4822 051 30472	4k7 5% 0,062W
3309	4822 051 30339	33R 5% 0,062W
3311	4822 051 30472	4k7 5% 0,062W
3315	4822 051 30271	270R 5% 0,062W
3316	4822 051 30759	75R 5% 0,062W
3317	4822 051 30759	75R 5% 0,062W
3318	4822 051 30759	75R 5% 0,062W
3319	4822 051 30759	75R 5% 0,062W
3320	4822 051 30339	33R 5% 0,062W
3321	4822 051 30339	33R 5% 0,062W
3322	4822 051 30689	68R 5% 0,063W
3323	4822 051 30339	33R 5% 0,062W
3324	4822 051 30339	33R 5% 0,062W
3325	4822 051 30339	33R 5% 0,062W
3326	4822 051 30339	33R 5% 0,062W
3327	4822 051 30339	33R 5% 0,062W
3328	4822 051 30339	33R 5% 0,062W
3329	4822 051 30109	10R 5% 0,062W
3330	4822 051 30109	10R 5% 0,062W
3331	4822 051 30109	10R 5% 0,062W
3332	4822 051 30109	10R 5% 0,062W
3333	4822 051 30109	10R 5% 0,062W
3334	4822 051 30109	10R 5% 0,062W
3335	4822 051 30109	10R 5% 0,062W
3336	4822 051 30109	10R 5% 0,062W
3337	4822 051 30109	10R 5% 0,062W
3338	4822 051 30109	10R 5% 0,062W
3339	4822 051 30109	10R 5% 0,062W
3340	4822 051 30109	10R 5% 0,062W
3346	4822 117 13632	100k 1% 0,062W
3347	4822 051 30689	68R 5% 0,063W
3348	4822 051 30109	10R 5% 0,062W
3350	4822 051 30102	1k 5% 0,062W
3351	4822 051 30102	1k 5% 0,062W
3352	4822 051 30109	10R 5% 0,062W
3353	4822 051 30109	10R 5% 0,062W
3355	4822 051 30479	47R 5% 0,062W
3371	4822 051 30472	4k7 5% 0,062W
3372	4822 051 30103	10k 5% 0,062W
3373	4822 051 30102	1k 5% 0,062W
3400	4822 051 30479	47R 5% 0,062W
3401	4822 051 30479	47R 5% 0,062W
3402	4822 051 30103	10k 5% 0,062W
3403	4822 051 30103	10k 5% 0,062W
3404	4822 051 30479	47R 5% 0,062W
3405	4822 051 30479	47R 5% 0,062W
3406	4822 051 30479	47R 5% 0,062W
3408	4822 051 30479	47R 5% 0,062W
3409	4822 051 30479	47R 5% 0,062W
3410	4822 051 30103	10k 5% 0,062W
3411	4822 051 30103	10k 5% 0,062W
3412	4822 051 30103	10k 5% 0,062W
3413	4822 051 30103	10k 5% 0,062W
3414	4822 051 30103	10k 5% 0,062W
3415	4822 051 30103	10k 5% 0,062W
3416	4822 051 30103	10k 5% 0,062W
3417	4822 051 30472	4k7 5% 0,062W
3418	4822 051 30273	27k 5% 0,062W
3419	4822 051 30153	15k 5% 0,062W
3420	4822 051 30103	10k 5% 0,062W
3421	4822 051 30153	15k 5% 0,062W
3422	4822 051 30123	12k 5% 0,062W
3423	4822 051 30103	10k 5% 0,062W
3424	4822 051 30123	12k 5% 0,062W
3425	4822 051 30153	15k 5% 0,062W
3426	4822 051 30103	10k 5% 0,062W
3427	4822 051 30153	15k 5% 0,062W
3428	4822 051 30123	12k 5% 0,062W
3429	4822 051 30103	10k 5% 0,062W
3430	4822 051 30123	12k 5% 0,062W
3431	4822 051 30153	15k 5% 0,062W
3432	4822 051 30103	10k 5% 0,062W
3433	4822 051 30153	15k 5% 0,062W
3434	4822 051 30123	12k 5% 0,062W
3435	4822 051 30103	10k 5% 0,062W
3436	4822 051 30123	12k 5% 0,062W
3437	4822 051 30153	15k 5% 0,062W
3438	4822 051 30103	10k 5% 0,062W
3439	4822 051 30153	15k 5% 0,062W
3440	4822 051 30123	12k 5% 0,062W
3441	4822 051 30103	10k 5% 0,062W
3442	4822 051 30123	12k 5% 0,062W

12-8

ELECTRICAL PARTS LIST - MONO-BE BOARD

RESISTORS

3443	4822 051 30153	15k 5% 0,062W
3444	4822 051 30103	10k 5% 0,062W
3445	4822 051 30153	15k 5% 0,062W
3446	4822 051 30123	12k 5% 0,062W
3447	4822 051 30103	10k 5% 0,062W
3448	4822 051 30123	12k 5% 0,062W
3449	4822 051 30153	15k 5% 0,062W
3450	4822 051 30103	10k 5% 0,062W
3451	4822 117 12139	22R 5% 0,062W
3452	4822 051 30123	12k 5% 0,062W
3453	4822 051 30103	10k 5% 0,062W
3454	4822 051 30123	12k 5% 0,062W
3455	4822 051 30153	15k 5% 0,062W
3470	4822 052 10478 ⚠	4R7 5% 0,33W
3471	4822 051 30109 ⚠	10R 5% 0,062W
3472	4822 051 30109	10R 5% 0,062W
3474	4822 052 10478	4R7 5% 0,33W
3475	4822 051 30109	10R 5% 0,062W
3476	4822 051 30109	10R 5% 0,062W
3478	4822 051 30109	10R 5% 0,062W
3479	4822 051 30109	10R 5% 0,062W
3500	4822 051 30103	10k 5% 0,062W
3501	4822 051 30759	75R 5% 0,062W
3502	4822 051 30479	47R 5% 0,062W
3503	4822 051 30472	4k7 5% 0,062W
3505	4822 117 11817	1k2 1% 1/16W
3512	4822 051 30103	10k 5% 0,062W
3513	4822 051 30103	10k 5% 0,062W
3514	4822 051 30472	4k7 5% 0,062W
3521	4822 117 12139	22R 5% 0,062W
3522	4822 117 12139	22R 5% 0,062W
3523	4822 117 12139	22R 5% 0,062W
3524	4822 117 12139	22R 5% 0,062W
3525	4822 117 12139	22R 5% 0,062W
3526	4822 117 12139	22R 5% 0,062W
3527	4822 117 12139	22R 5% 0,062W
3528	4822 117 12139	22R 5% 0,062W
3530	4822 117 12139	22R 5% 0,062W
3531	4822 117 12139	22R 5% 0,062W
3532	4822 117 12139	22R 5% 0,062W
3533	4822 051 30472	4k7 5% 0,062W
3534	4822 051 30472	4k7 5% 0,062W
3535	4822 117 12139	22R 5% 0,062W
3536	4822 117 12139	22R 5% 0,062W
3537	4822 117 12139	22R 5% 0,062W
3538	4822 117 12139	22R 5% 0,062W
3539	4822 117 12139	22R 5% 0,062W
3540	4822 117 12139	22R 5% 0,062W
3541	4822 117 12139	22R 5% 0,062W
3542	4822 117 12139	22R 5% 0,062W
3543	4822 117 12139	22R 5% 0,062W
3544	4822 117 12139	22R 5% 0,062W
3545	4822 117 12139	22R 5% 0,062W
3546	4822 117 12139	22R 5% 0,062W
3547	4822 117 12139	22R 5% 0,062W
3548	4822 117 12139	22R 5% 0,062W
3550	4822 117 12139	22R 5% 0,062W
3551	4822 117 12139	22R 5% 0,062W
3593	4822 051 30103	10k 5% 0,062W
4304	4822 051 30008	0R JUMPER 0603
4305	4822 051 30008	0R JUMPER 0603
4310	4822 051 30008	0R JUMPER 0603
4400	4822 051 30008	0R JUMPER 0603
4402	4822 051 30008	0R JUMPER 0603

COILS & FILTERS

5300	4822 157 11499	IND FXE EMI 100MHZ 60R
5301	4822 157 11499	IND FXE EMI 100MHZ 60R
5302	4822 157 70299	IND FXD 2,2uH 5%
5303	4822 157 70299	IND FXD 2,2uH 5%
5304	4822 157 70299	IND FXD 2,2uH 5%
5305	4822 157 70299	IND FXD 2,2uH 5%
5306	4822 157 71206	IND FXD 100MHZ 600R
5307	4822 157 71206	IND FXD 100MHZ 600R
5400	3198 018 63390	IND FXD 33uH 5%
5401	3198 018 63390	IND FXD 33uH 5%
5402	3198 018 63390	IND FXD 33uH 5%
5406	4822 157 71206	IND FXD 100MHZ 600R
5501	4822 157 11716	IND FXD 100MHZ 30R
5502	4822 157 11716	IND FXD 100MHZ 30R
5503	4822 157 11716	IND FXD 100MHZ 30R
5506	4822 157 11716	IND FXD 100MHZ 30R

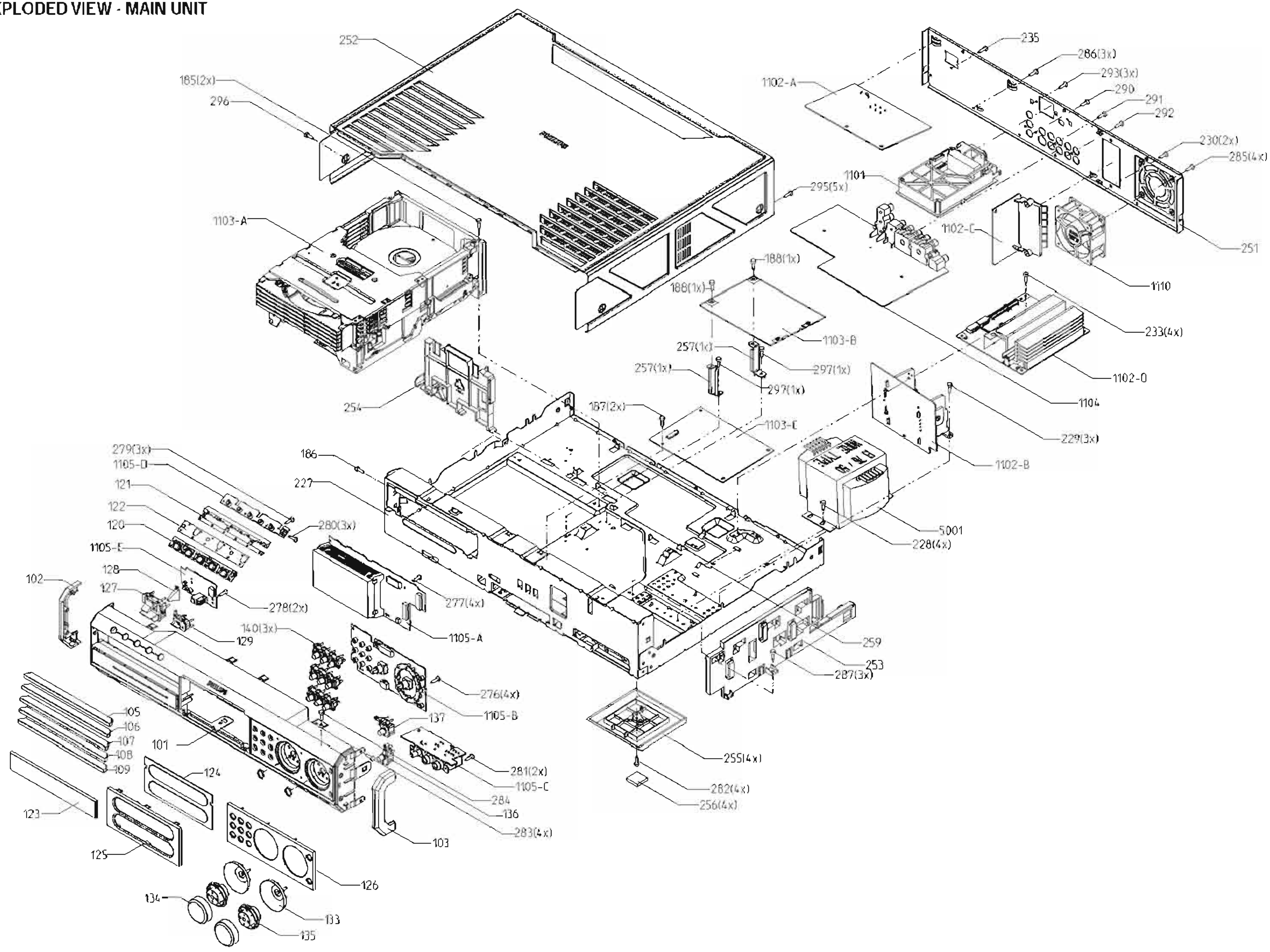
TRANSISTORS & INTEGRATED CIRCUITS

7300	9965 000 18638	M29F800DT-70N1 with SW program
7301	9322 163 27685	NCP301LSN45
7302	9322 185 43671	ES6028F
7303	9322 178 78668	K4S641632F-TC70
7304	9965 000 04931	M24C01-WMN6
7305	9322 178 32668	LF27CDT
7310	3198 010 42310	BC847BW
7400	9322 177 92671	CS4362-KQ
7401	4822 209 30095	LM833D
7402	4822 209 30095	LM833D
7403	4822 209 30095	LM833D
7404	5322 130 60159	BC847B
7405	9352 456 90115	74HC1G125GW
7501	9322 185 10668	CS8415A-CZ
7503	9352 456 90115	74HC1G125GW
7504	3198 010 42310	BC847BW
7505	3198 010 42310	BC847BW

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

13-1

EXPLODED VIEW - MAIN UNIT



MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

101	3139 118 18791	Cabinet Front Silver	MX3900D
101	3139 257 51651	Cabinet Front	MX3910D
101	3139 257 50461	Cabinet Front Dark Grey	MX3950D
101	3139 257 51641	Cabinet Front	MX3960D
102	3139 118 18801	Cover Cab Side Left Silver	
102	3139 257 50471	Cover Cab Side L Dark Grey	
103	3139 118 18811	Cover Cab Side Right Silver	
103	3139 257 50481	Cover Cab Side R Dark Grey	
105	3139 118 18821	Cover Tray Disc 1 Silver	
105	3139 257 50491	Cover Tray Disc 1 Dark Grey	
106	3139 118 19101	Cover Tray Disc 2 Silver	
106	3139 257 50501	Cover Tray Disc 2 Dark Grey	
107	3139 118 19111	Cover Tray Disc 3 Silver	
107	3139 257 50511	Cover Tray Disc 3 Dark Grey	
108	3139 118 19121	Cover Tray Disc 4 Silver	
108	3139 257 50521	Cover Tray Disc 4 Dark Grey	
109	3139 118 19131	Cover Tray Disc 5 Silver	
109	3139 257 50531	Cover Tray Disc 5 Dark Grey	
120	3139 118 19441	Button Set CD Open/Close Chrome	
122	3139 113 27511	Cutsheet Shield CD Open/Close	
123	3139 118 18831	Panel Left Silver	MX3900D
123	3139 257 51671	Panel Left	MX3910D
123	3139 257 50541	Panel Left Dark Grey	MX3950D
123	3139 257 51661	Panel Left	MX3960D
124	3139 118 18841	Window Display	
125	3139 118 18851	Panel Display Silver	
125	3139 257 50551	Panel Display Dark Grey	
126	3139 118 18861	Panel Control Silver	
126	3139 257 50561	Panel Control Dark Grey	
127	3139 118 18871	Button Set Power Eco Silver	
127	3139 257 50571	Button Set Power Eco Dark Grey	
128	3139 114 77041	Lightguide Power Eco Stdby	
133	3139 118 18941	Ring Ornamental	
134	3139 118 18931	Cap Knob Rotary Chrome	
135	3139 118 18921	Knob Source/Volume Rotary	
136	3139 118 19461	Button Set Bass Chrome	
137	3139 118 19471	Button Set Treble Chrome	
140	3139 118 19451	Button Set Source Control Chrome	
256	3139 113 27220	Foot Rubber	
259	3139 111 01470	Spring Grounding	
296	3139 110 40691	Screw M5x6 Hex W/Head Chrome	
296	3139 110 40701	Screw M5x6 Hex W/Head Black	
345	3139 119 01381	Satellite LS Package CS3900D/17S	
345	3139 119 01401	Satellite LS Package CS3950D/17S	
346	3139 119 01391	Subwoofer Box SW3900/17S	
346	3139 119 01411	Subwoofer Box SW3950D/17s	
351	4822 303 50063	FM Antenna	
352	4822 303 50082	AM Loop Antenna	
353	3139 228 61701	Remote Control RC19241001/01	
356	2422 070 98246 ⚠	Mains Cord UL 7A 1,5M	/17/37
356	2422 070 98151 ⚠	Mains Cord Eur 2A5 1,5M	/78
357	3139 128 73011 ⚠	Mains Adaptor	/78
358	4822 263 21206	Cable Video 1,7M Yellow	
361	2422 076 00374	Cable Cinch 1,5M Gn/Bu/Rd	
362	3103 308 92610	Cable Audio 1,5M 2x2 RCA	
370	3139 115 21991	Instruction for Use MX3900D/MX3950D	
1110	3103 308 52950	Fan Assembly KD1206PTS3	
5001	3139 118 32661 ⚠	Mains Transfo. PWR207 6x75W	/17/37
5001	3139 118 32641 ⚠	Mains Transfo. PWR207 6x75W	/78
8000	3139 110 35031	FFC Cable Pin 14cm AD	
8001	3139 111 02001	FFC Cable 13Pin 40cm BD	
8002	3139 111 02041	FFC Cable 17Pin 40cm AD	
8003	3139 111 02271	FFC Cable 13Pin 10cm AD	
8005	3139 111 02051	FFC Cable 7Pin 34cm AD	
8006	3139 110 34860	FFC Cable 4Pin 34cm AD	
8008	3139 111 02021	FFC Cable 4Pin 22cm AD	
8010	3139 111 02601	FFC Cable 16Pin 18cm AD	
8011	3139 111 02591	FFC Cable 10Pin 28cm AD	
8012	3139 111 02581	FFC Cable 13Pin 18cm AD	
8013	3139 111 02571	FFC Cable 10Pin 18cm BD	
8014	3139 111 02571	FFC Cable 10Pin 18cm BD	
8016	3139 110 36140	FFC Cable 4Pin 18cm AD	
8018	3139 111 02231	FFC Cable 5Pin 12cm AD	

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

Breakdown of Satellite LS Package CS3900D/17S (Applicable for MX3900D & MX3910D only)

9965 000 17040	Front Left Speaker Box
9965 000 17041	Front Right Speaker Box
9965 000 17042	Surround Left Speaker Box
9965 000 17043	Surround Right Speaker Box
9965 000 17044	Center Speaker Box
9965 000 17045	Front Grille Assy (Center Speaker)
9965 000 17046	Philips Logo (Center Speaker)
9965 000 17047	Keyhole Bracket Pack set Silver

Breakdown of Satellite LS Package CS3950D/17S (Applicable for MX3950D & MX3960D only)

9965 000 17050	Front Left Speaker Box
9965 000 17051	Front Right Speaker Box
9965 000 17052	Surround Left Speaker Box
9965 000 17053	Surround Right Speaker Box
9965 000 17054	Center Speaker Box
9965 000 17055	Front Grille Assy (Center Speaker)
9965 000 17046	Philips Logo (Center Speaker)
9965 000 17056	Keyhole Bracket Pack Set Black

Breakdown of SW3900/17S & SW3950/17S (Applicable for all)

9965 000 17048	Front Grille Assy SW3900/17S
9965 000 17049	Front Grille Assy SW3950/17S
9965 000 17046	Philips Logo

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

SCREW LISTS - MAIN UNIT

185	M3 x 6
186	D3 x 10
187	M3 x 6
188	M3 x 6
228	M3 x 6
229	M3 x 6
230	D3 x 10
233	M3 x 6
235	D3 x 10
276	D3 x 10
277	D3 x 10
278	D3 x 10
279	D2 x 8
280	D2 x 8
281	D2 x 8
282	M3 x 6
283	M3 x 6
284	M3 x 6
285	D3 x 10
286	M3 x 6
287	M3 x 6
288	D3 x 10
290	D3 x 10
291	D3 x 10
292	D3 x 10
293	D3 x 10
295	M3 x 6
296	M5 x 6 Hex W/Head
297	M3 x 6

REVISION LIST

Version 1.0

* Initial release

Version 1.1

* Add MX3910D/17 and MX3960D/17 into the Service Manual and some correction.
  Pages modified : Pg Front, 1-2 and 2-1
  Pages corrected : Pg 3-3, 8-2, 11-11, 12-7 and 12-8

* Add new pcb layout & schematics released:
  Front Board: Pg 6-2a, 6-3a,b,c, 6-4a, 6-5a,b, 6-6a and 6-7a,b
  AV Board: Pg 8-3a,b,c, 8-4a., 8-5a, 8-6a, 8-7a, 8-8a, 8-9a, 8-10a,b,c and 8-11a,b,c
  Power Module: Pg 9-2a,b,c,d,e, 9-3a,b,c,d,e, 9-4a, 9-5a, 9-6a and 9-7a
  5DTC Control Board: Pg 10-4a
  Mono-BE Board: Pg 12-2a,b,c, 12-3a, 12-4a, 12-5a and 12-6a

Version 1.2 (2 April 2004)

* Add MX3910D/78