

Service
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Service Manual



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3139 785 30580

Version 1.0



PHILIPS

SPECIFICATIONS

GENERAL:

Mains voltage : 120V for /17
 220-240V for /01/05/75
 110-127V/220-240V Switchable for /69

Mains frequency : 50/60Hz

Power consumption : < 0.6W at ECO Standby
 < 80W at 1/8 P_{rated}

Dimension centre unit : 360 x 55 x 325mm

TUNER:

FM

Tuning range : 87.5-108MHz

Grid : 50kHz
 100kHz for /17/69

IF frequency : 10.7MHz ± 25kHz

Aerial input : 75Ω coaxial

Sensitivity at 26dB S/N : < 7μV

Selectivity at 600kHz bandwidth : > 25dB

IF rejection : > 60dB

Image rejection : > 25dB

Distortion at RF=1mV, dev. 75kHz : < 3%

-3dB Limiting point : 8μV

Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
 530-1700kHz for /17/69

Grid : 9kHz
 10kHz for /17/69

IF frequency : 450kHz ± 1kHz

Aerial input : Frame aerial

Sensitivity at 26dB S/N : < 4.0mV/M

Selectivity at 18kHz bandwidth : > 20dB

IF rejection : > 45dB

Image rejection : > 28dB

Distortion at RF=50mV, m=80% : < 5%

AMPLIFIER:

Output power

Front : 50W RMS / channel

Rear : 50W RMS / channel

Centre : 50W RMS

Subwoofer : 75W RMS

Frequency response ±3dB : 20Hz-20kHz

Hum (Volume Minimum) : 200nW

Residual noise (Volume Minimum) : 40nW

Input sensitivity

Aux In : 1V ± 3dB at 39kΩ
 Scart In : 500mV ± 3dB at 39kΩ

Output sensitivity

Line Out (Left/Right) : 0.7V ± 2dB at 47kΩ
 Scart Out (Left/Right) : 0.6V ± 2dB at 10kΩ

COMPACT DISC/VCD/DVD:

Video Decoding : MPEG-2/MPEG-1/MPEG-4/Div X 4 & 5

Video DAC : 12 Bits

Signal System : PAL / NTSC

Video Format : 4:3 / 16:9

CVBS Out ¹⁾

CVBS level : 1.0 ± 0.1V_{p-p}
 Luminance S/N : ≥ 55dB

S-Video Out ¹⁾

Y level : 1.0 ± 0.1V_{p-p}
 Y S/N : ≥ 60dB
 C level (burst) : 286mV_{p-p} +1/-4 dB

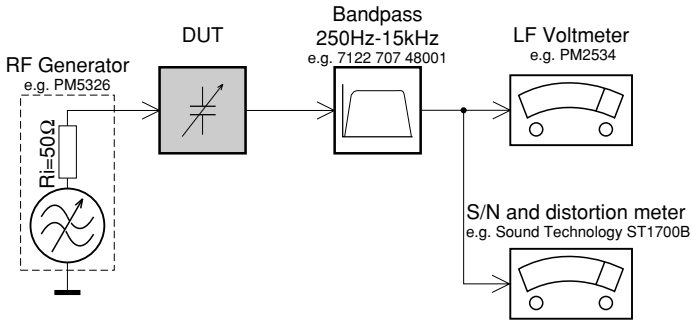
RGB/YUV Out ¹⁾

Amplitude : 0.7 ± 0.1V_{p-p}
 S/N : ≥ 60dB

¹⁾ Output terminals to be terminated with 75Ω

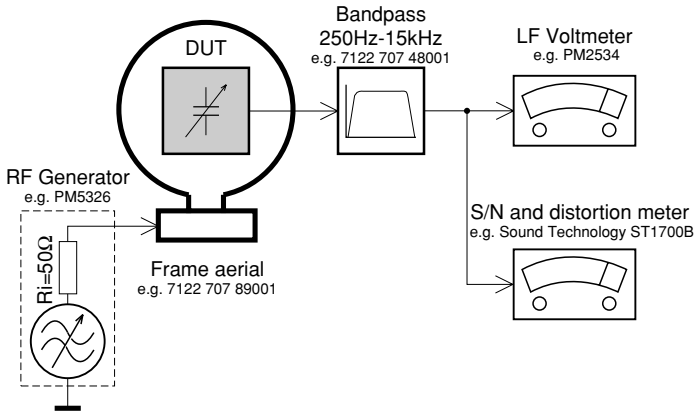
MEASUREMENT SETUP

Tuner FM



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

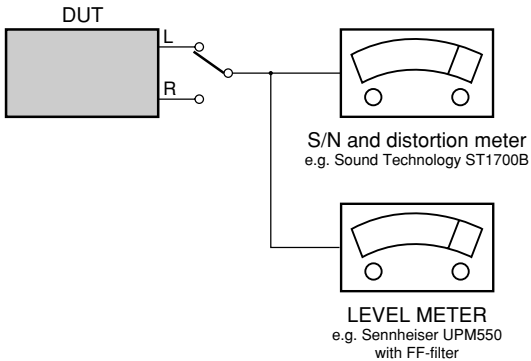
Tuner AM (MW,LW)



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

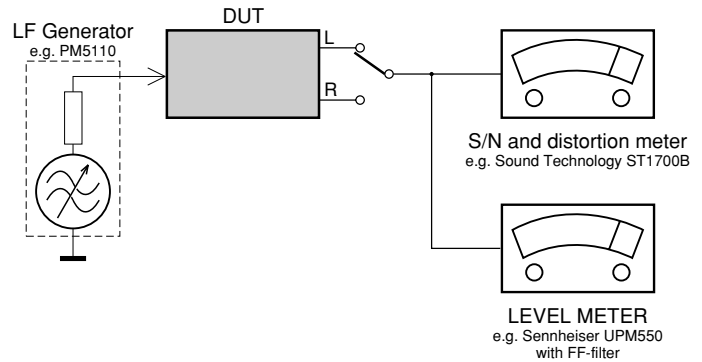
CD

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



Recorder

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



SERVICE AIDS

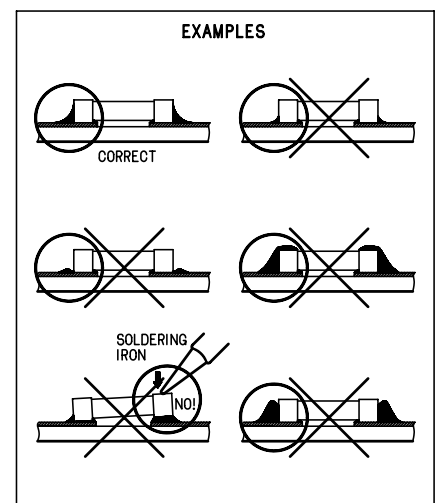
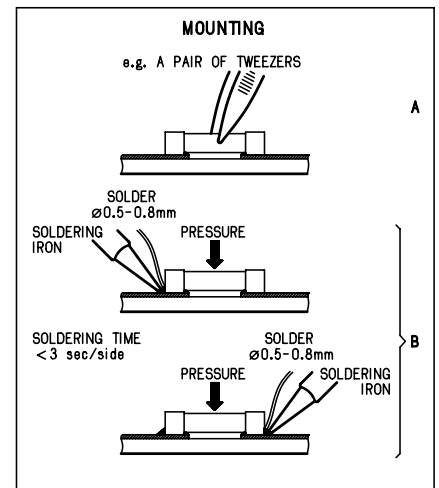
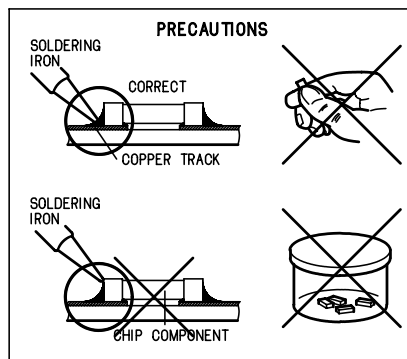
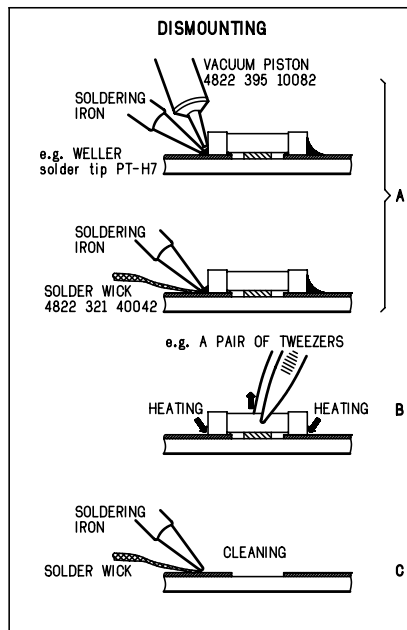
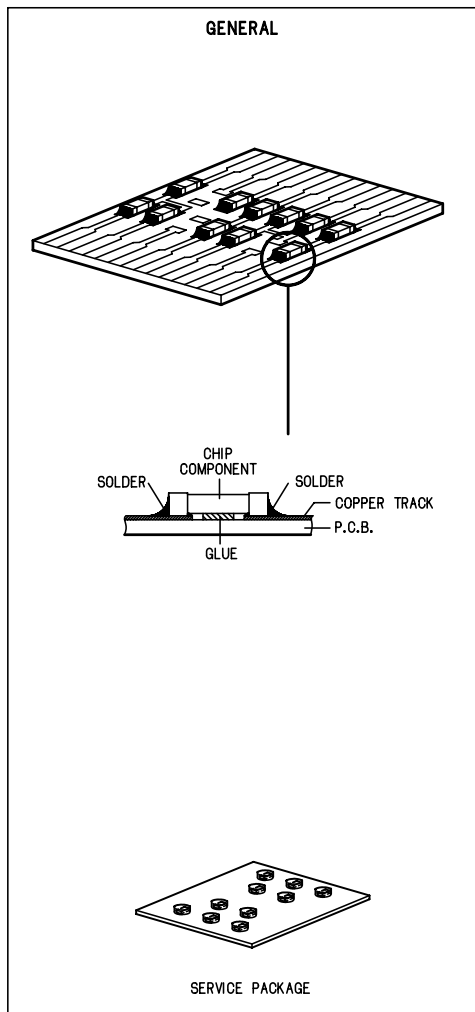
Service Tools:

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

Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

HANDLING CHIP COMPONENTS



(GB) WARNING

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

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

(F) ATTENTION

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

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

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

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

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

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

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

(I) AVVERTIMENTO

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

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

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

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

ESD**(GB) ESD PROTECTION EQUIPMENT:**

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

(GB)

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

Safety components are marked by the symbol \triangle .

(NL)

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

De Veiligheidsonderdelen zijn aangeduid met het symbool \triangle .

(F)

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

Less composants de sécurité sont marqués \triangle .

(D)

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

Sicherheitsbauteile sind durch das Symbol \triangle markiert.

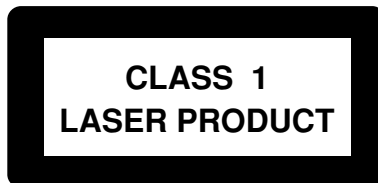
(I)

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

Componenti di sicurezza sono marcati con \triangle .

(GB)

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

**(GB) Warning !**

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

(S) Varning !

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

(SF) Varoitus !

Avatussa laitteessa ja suoalukituksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

(F)

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

DISMANTLING INSTRUCTIONS

Dismantling of the DVD Loader

- 1) The tray can be manually open by inserting a minus screw driver and push the lever in the direction as shown in Figure 1 to unlock the tray before sliding it out.
- 2) Slide out the tray and remove the Cover Tray assembly (pos 110 + pos 111 + pos 112) as shown in Figure 2.
- 3) Loosen 5 screws to remove the Cover Top (pos 240).
 - 1 screw each on the left & right side (pos 272)
 - 3 screws on the rear (pos 270)

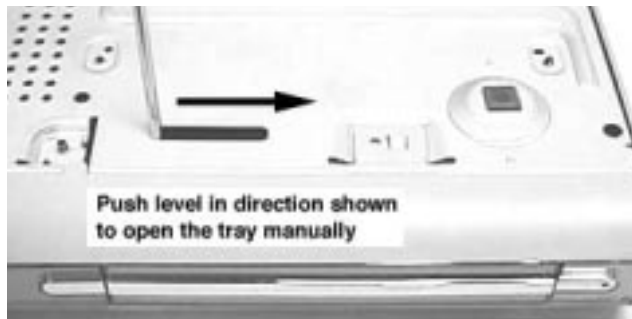


Figure 1

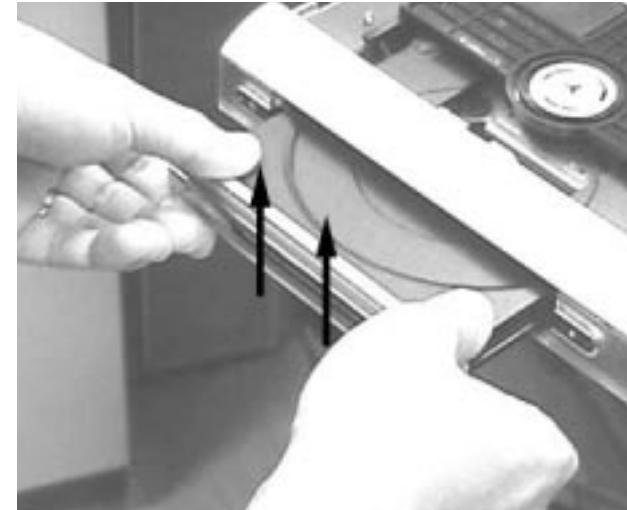


Figure 2

Dismantling of the Tuner Module & Speaker Connector Board

- 1) Loosen 2 screws A (see Figure 4) to remove the Tuner Module (pos 1105).
- 2) When the Tuner Module (pos 1105) become defective and need to be replaced, make sure the Lug of the Tuner Module is bend as shown in Figure 3.

Note : The Lug of the Tuner Module is purposely bend in this way (see Figure 3) to prevent damage to the Flex Cable.

- 3) Loosen 2 screws B (see Figure 4) to remove the Speaker Connector Board (pos 1102).

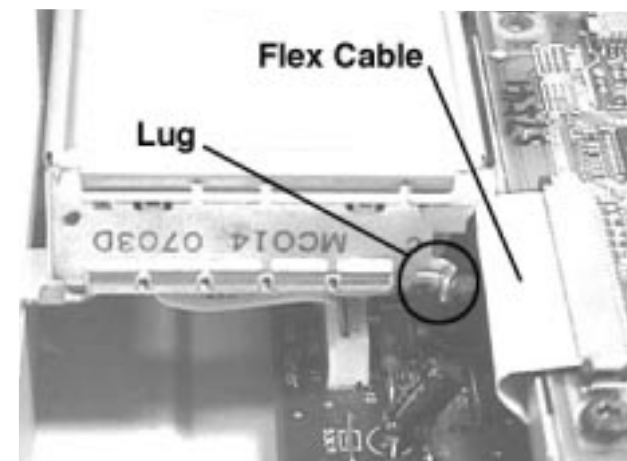


Figure 3

Dismantling of the PSU Board, Amplifier Board, SD6.1 RX Board & AV Board

- 1) Loosen 4 screws E and uncatch C1 (see Figure 5) to remove the PSU Board (pos 1104).
- 2) Loosen 4 screws F (see Figure 5) to remove the Amplifier Board (pos 1107).
- 3) Loosen 2 screws G (see Figure 5) to remove the SD6.1 RX Board (1103-1001).
- 4) Loosen 2 screws H and uncatch C2 (see Figure 6) to remove the Shield AV (pos 180).
- 5) Loosen 5 screws C (see Figure 4) and uncatch 2 catches C3 (see Figure 7) to remove the AV Board (pos 1101).

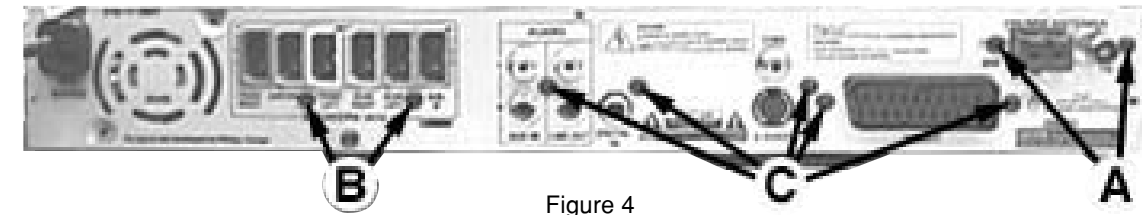


Figure 4

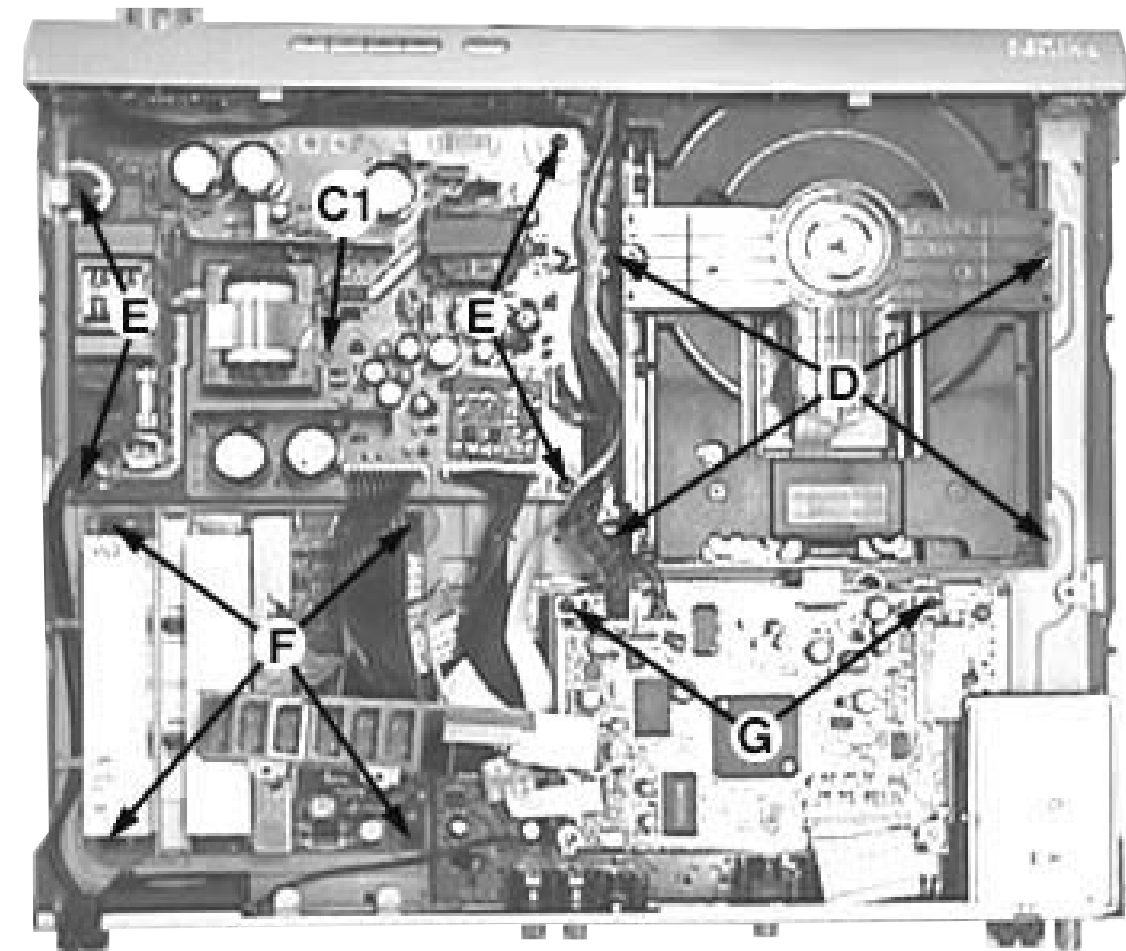


Figure 5

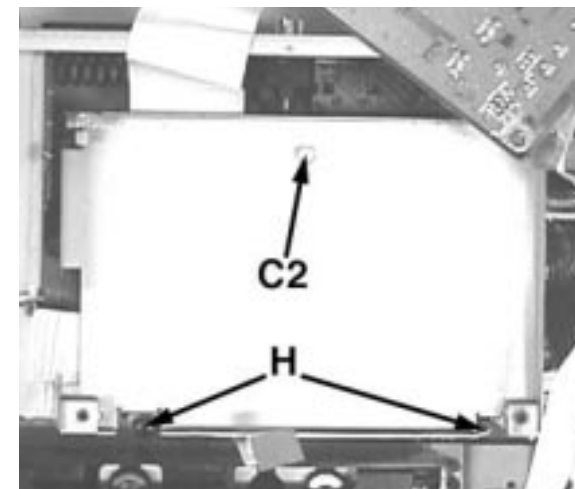


Figure 6

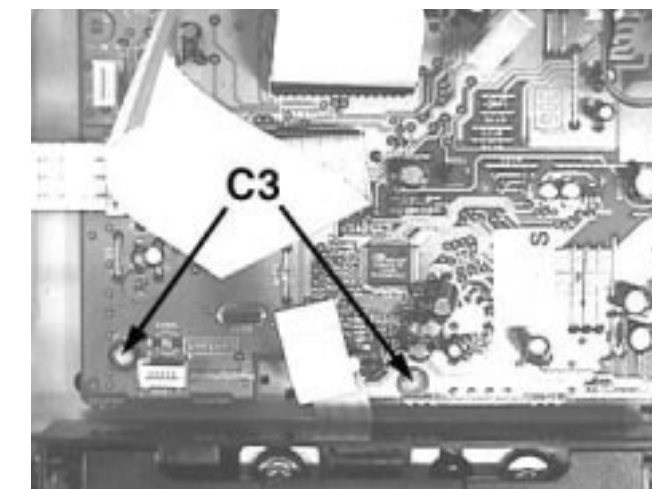
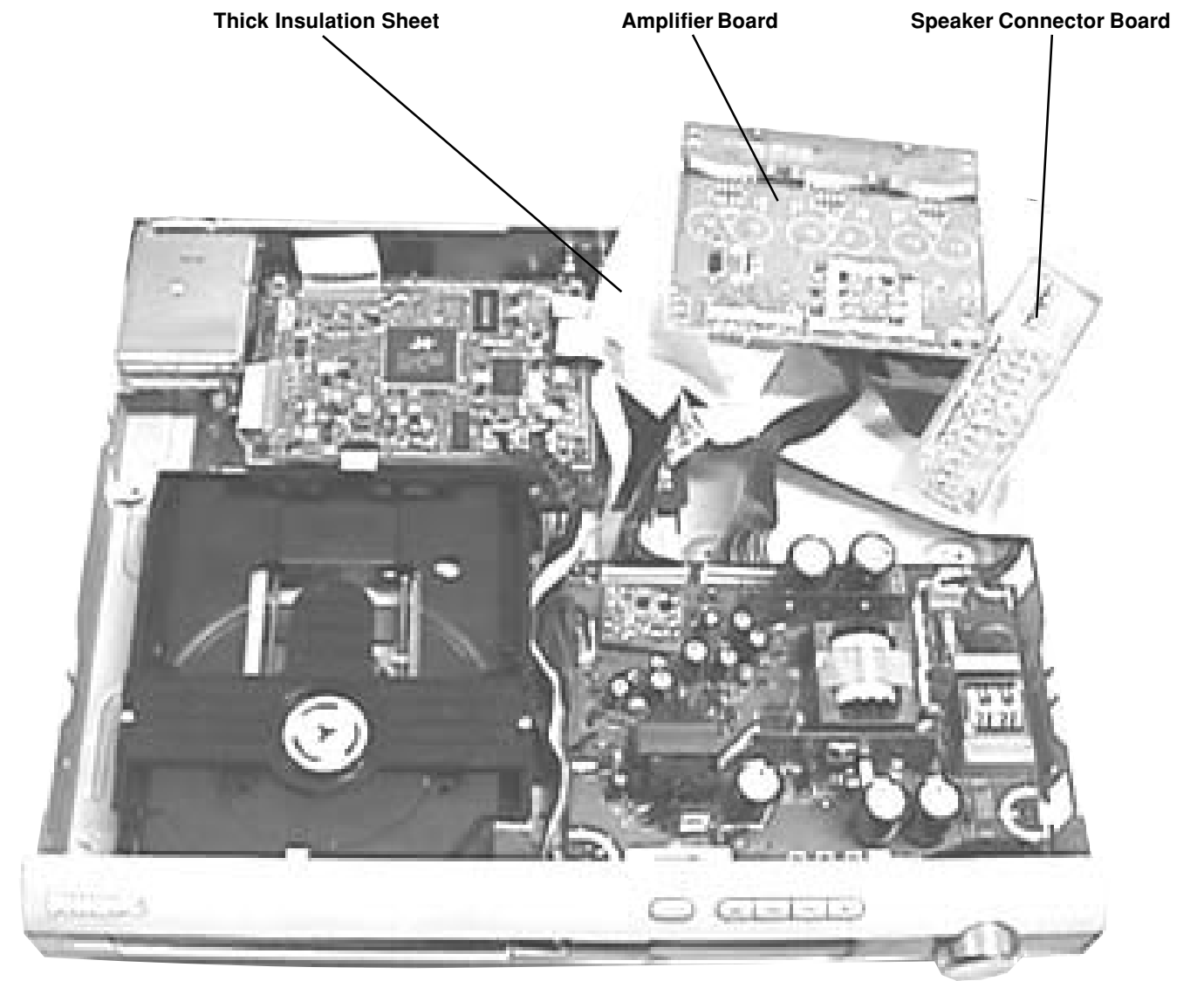
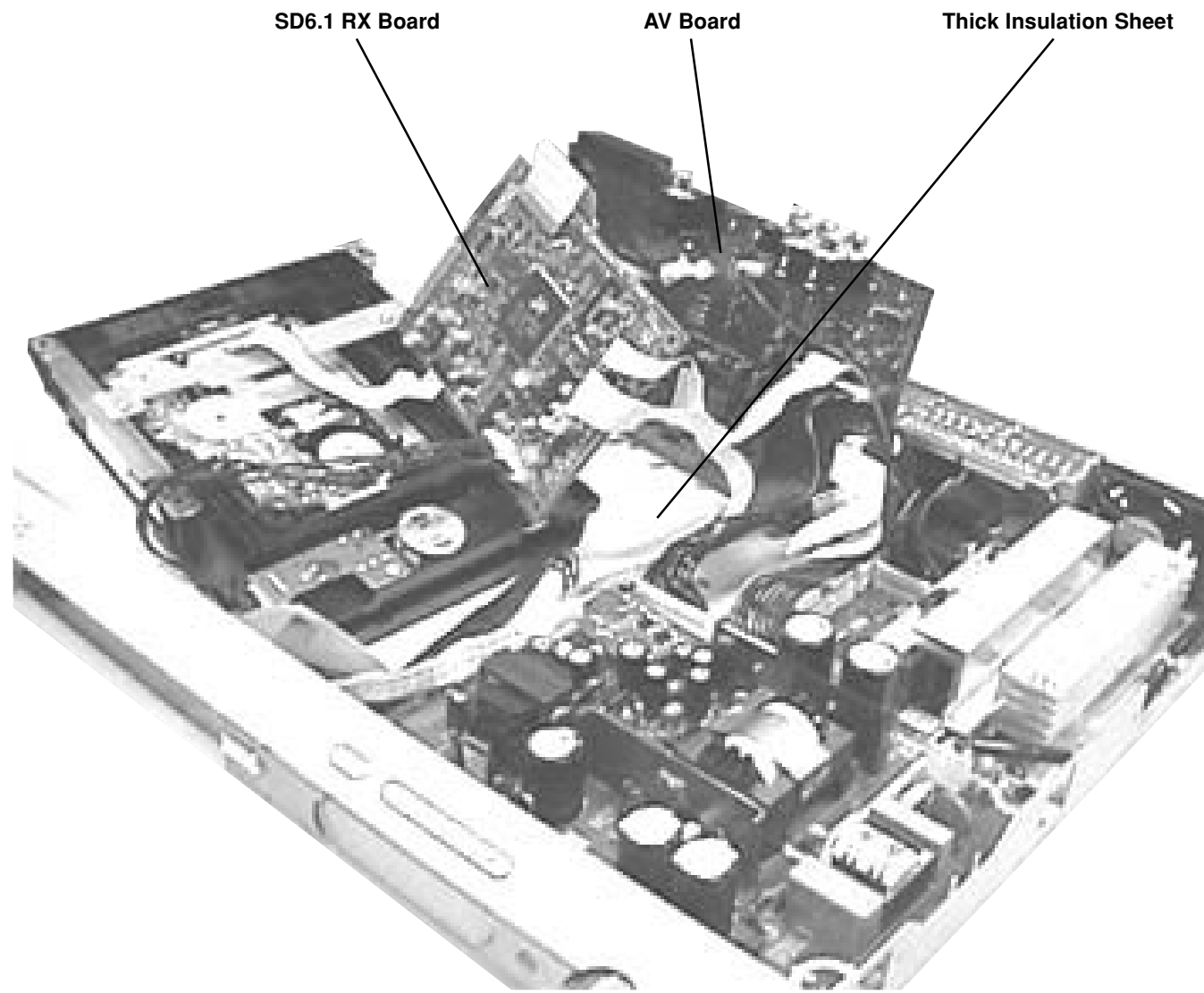
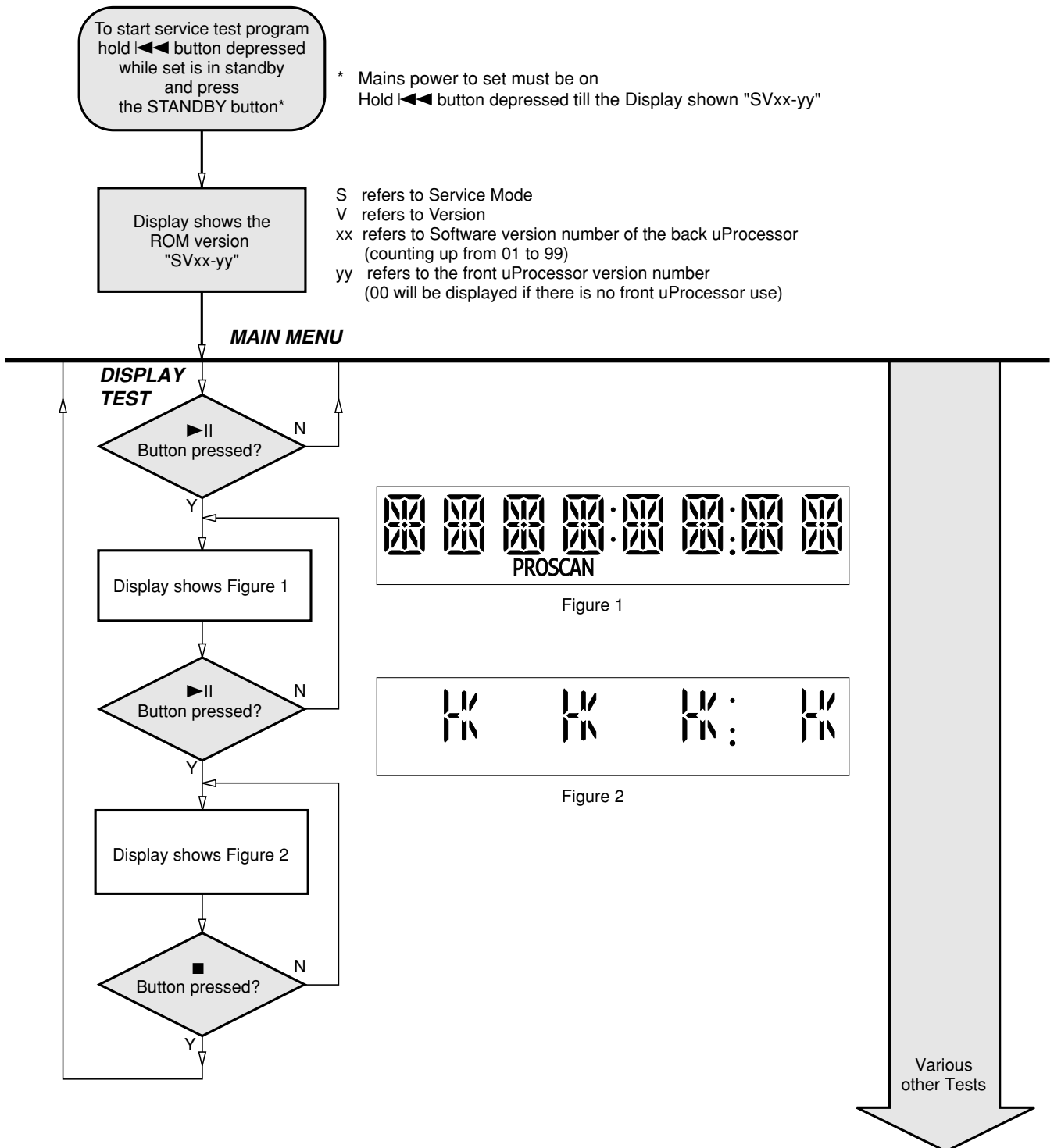


Figure 7

SERVICE POSITIONS



SERVICE TEST PROGRAM



TEST	Activated with	ACTION
EEPROM FORMAT TEST	⏪ ⏪ to Exit	Load default data. Display shows "NEW". Caution! All presets from the customer will be lost!!
ROTARY ENCODER TEST	VOLUME Knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (VOL MIN) or 40 (VOL MAX) is reached.
LEAVE SERVICE TEST PROGRAM	Disconnect mains cord	

Procedure to change Tuner Grid (not for all versions)

- 1) Power up the set and select **TUNER** source.
- 2) Hold "PLAY" button depressed while set is in standby and press the "STANDBY" button.
- 3) Hold "PLAY" button depressed till the display shown '**PHILIPS->FM**' followed by display the new tuning grid '**GRID 9**' or '**GRID 10**'.

Note: Repeating the same action will toggle back to its previous tuning grid setting.

Reprogramming of DVD version Matrix

After repair, the customer setting and region code may be lost. Reprogramming will put the set back in the state in which it has left the factory, ie. with the default setting and the allowed region code.

To reprogram do as follows:

- 1) Power up the set and select **DISC** source.
- 2) Open tray by press "OPEN/CLOSE" button on the set or press and hold "STOP" button on the RC.
- 3) Press the following buttons on the Remote Control:
 <9> <9> <9> <9> <AUDIO> <1> for LX3900SA/01
 <9> <9> <9> <9> <AUDIO> <2> for LX3900SA/05
 <9> <9> <9> <9> <AUDIO> <3> for LX3900SA/69
 <9> <9> <9> <9> <AUDIO> <4> for LX3900SA/75
 <9> <9> <9> <9> <AUDIO> <5> for LX3950W/01
 <9> <9> <9> <9> <AUDIO> <6> for LX3950W/05
- 4) The display shows '**YYYY-ZZ**' and the tray will close.
 YYYY = model number (eg. 3900, 3950, etc.)
 ZZ = stroke version (eg. 01, 05, etc.)

Procedure for check Software version

- 1) Power up the set and select **DISC** source.
- 2) Open tray by press "OPEN/CLOSE" button on the set or press and hold "STOP" button on the RC.
- 3) Press "OSD" button on the Remote control.
- 4) The TV screen will shows:

SD6.1 Vxx YYYY-ZZ P QQ
SERVO: GGGGGGGG REG:D

xx = version number
 YYYY = model number (eg. 3900, 3950, etc.)
 ZZ = stroke version (eg. 01, 05, etc.)
 P / D = region code
 QQ = version number of front uProcessor
 GGGGGGGG = version for servo code

Procedure to upgrade software

- 1) Power up the set and select **DISC** source.
- 2) Open tray by press "OPEN/CLOSE" button on the set or press and hold "STOP" button on the RC.
- 3) Place upgrade CD-ROM onto tray and close.
- 4) The set will response and display the following:
 - **LOAD** [After the disc is read, the tray will open for you to remove the disc]
 - **ERASE**
 - **WRITE**
 - **ERROR** [if upgrade is unsuccessful]
 - **UPG END -> PHILIPS** [if upgrade is successful]
 - **DISC->CLOSE->LOAD** [Tray will close indicating that the upgrade process is completed]
- 5) The whole process should not take more than 5 minutes.

Caution: Do not unplug the set until upgrade is completed.

Trade Mode

Trade mode is a feature that will block all set keys when enabled. It is for dealers to prevent customers from removing disc, changing source etc using the set keys. Rotary and Remote Control (RC) keys are still allowed in Trade mode.

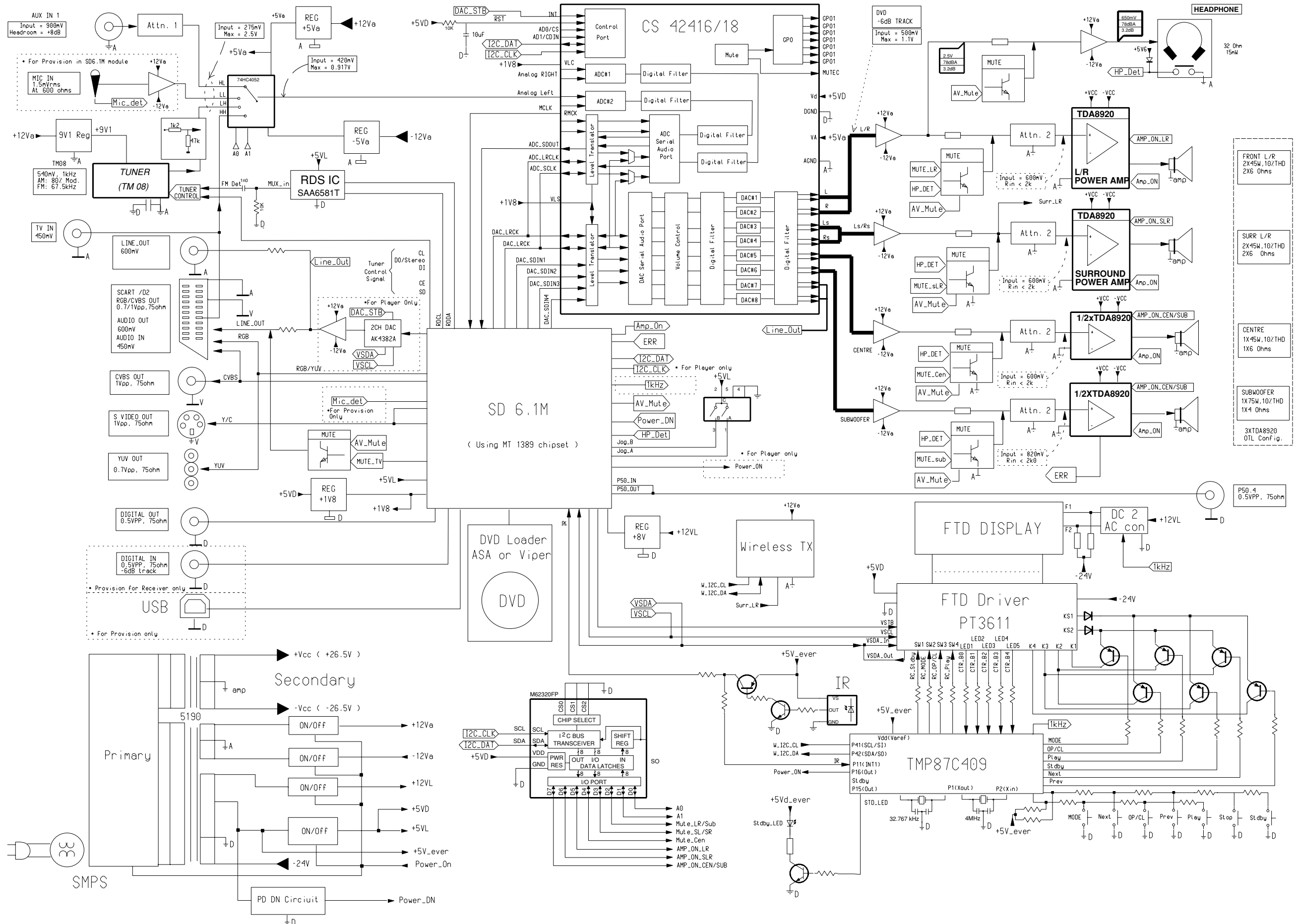
To activate Trade Mode:

- 1) Power up the set and select **DISC** source.
- 2) Open tray by press "OPEN/CLOSE" button on the set or press and hold "STOP" button on the RC.
- 3) Then press buttons <2> <5> <9> on the RC.
- 4) The display shows '**TRA ON**' and the tray will close.
Trade Mode is now enabled.

To deactivate Trade Mode:

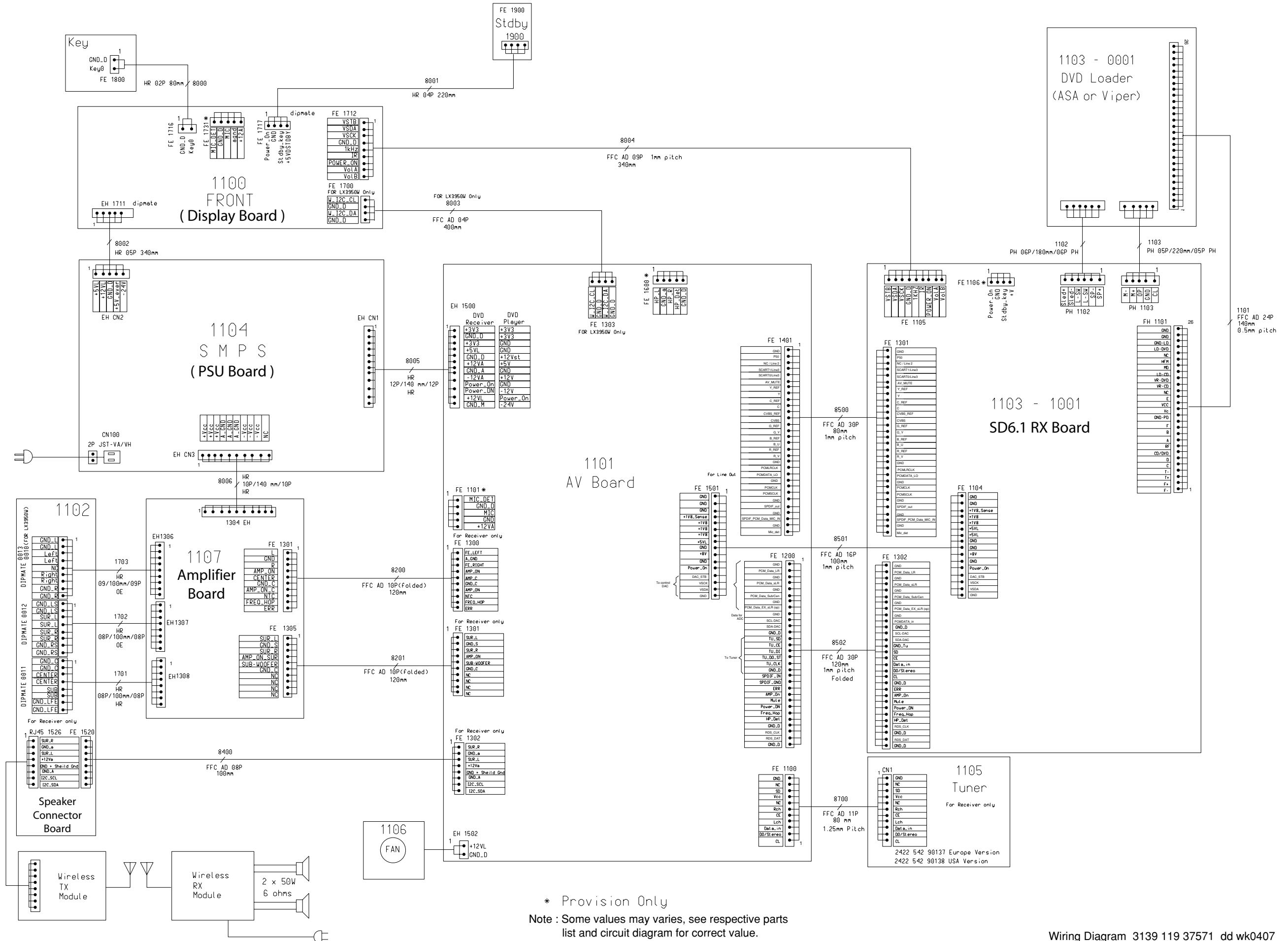
- 1) Power up the set and select **DISC** source.
- 2) Open tray by press and hold "STOP" button on the RC.
- 3) Then press buttons <2> <5> <9> on the RC.
- 4) The display shows '**TRA OFF**' and the tray will close.
Trade Mode is now disabled.

SET BLOCK DIAGRAM



Note :
 Power_DN - This signal is provided by the SMPS to Master control

SET WIRING DIAGRAM



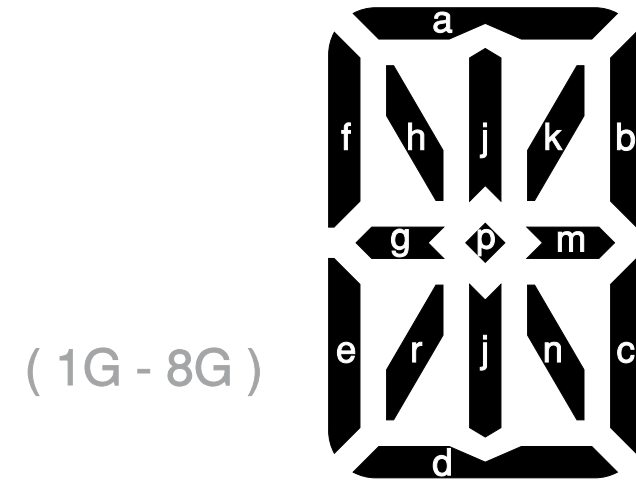
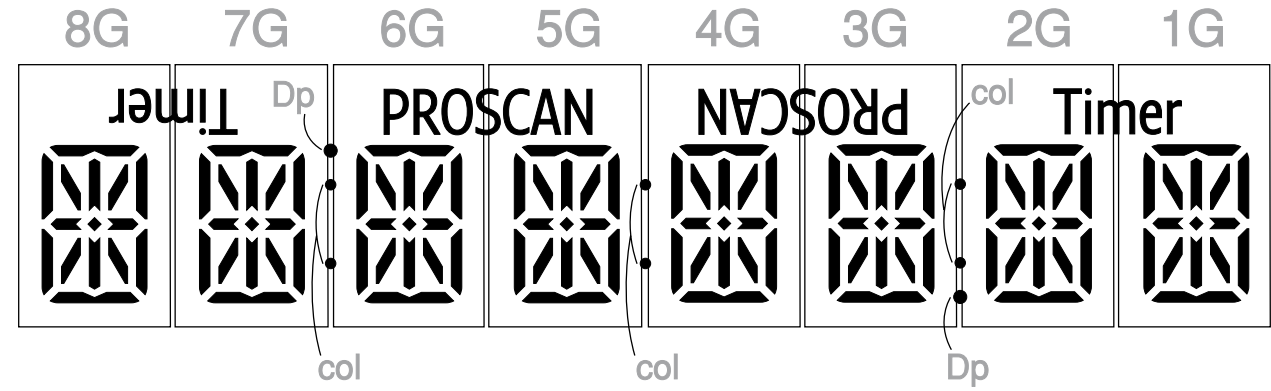
* Provision Only
 Note : Some values may varies, see respective parts list and circuit diagram for correct value.

FRONT BOARD

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FTD DISPLAY PIN CONNECTION

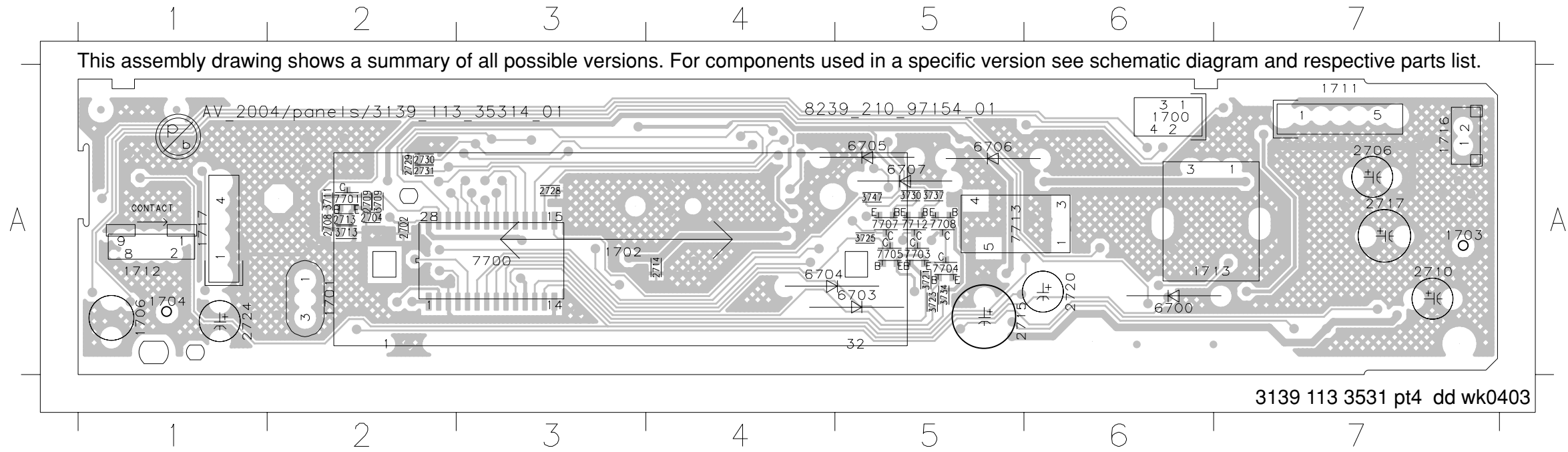


(1G - 8G)

	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a
P2	j	j	j	j	j	j	j	j
P3	h	h	h	h	h	h	h	h
P4	k	k	k	k	k	k	k	k
P5	b	b	b	b	b	b	b	b
P6	f	f	f	f	f	f	f	f
P7	m	m	m	m	m	m	m	m
P8	g	g	g	g	g	g	g	g
P9	c	c	c	c	c	c	c	c
P10	e	e	e	e	e	e	e	e
P11	r	r	r	r	r	r	r	r
P12	n	n	n	n	n	n	n	n
P13	d	d	d	d	d	d	d	d
P14	-	col	col	col	col	col	col	-
P15	p	p	p	p	p	p	p	p
P16	Timer	PROSCAN	PROSCAN	PROSCAN	PROSCAN	PROSCAN	PROSCAN	Timer
P17	-	Dp	Dp	Dp	Dp	Dp	Dp	-

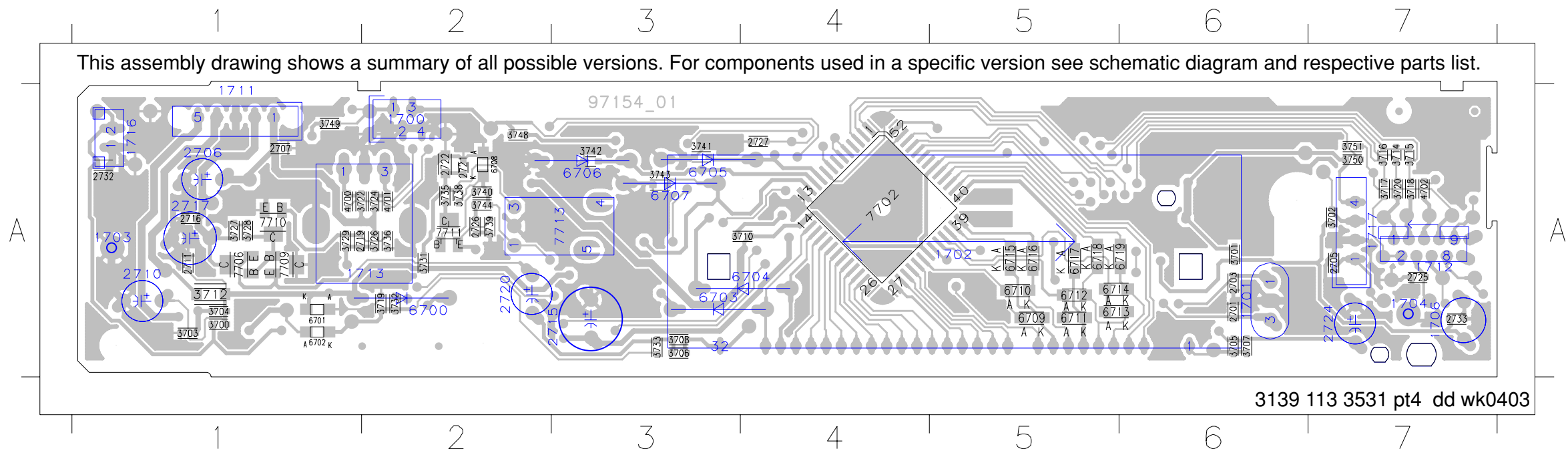
DISPLAY BOARD - TOP VIEW LAYOUT

1700 A6	1704 A1	1713 A6	2704 A2	2710 A7	2717 A7	2729 A2	3711 A2	3725 A5	3747 A5	6705 A5	7701 A2	7707 A5
1701 A2	1706 A1	1716 A7	2706 A7	2713 A2	2720 A6	2730 A2	3713 A2	3730 A5	6700 A6	6706 A5	7703 A5	7708 A5
1702 A3	1711 A7	1717 A1	2708 A2	2714 A4	2724 A1	2731 A2	3721 A5	3734 A5	6703 A5	6707 A5	7704 A5	7712 A5
1703 A7	1712 A1	2702 A2	2709 A2	2715 A5	2728 A3	3709 A2	3723 A5	3737 A5	6704 A4	7700 A3	7705 A5	7713 A5

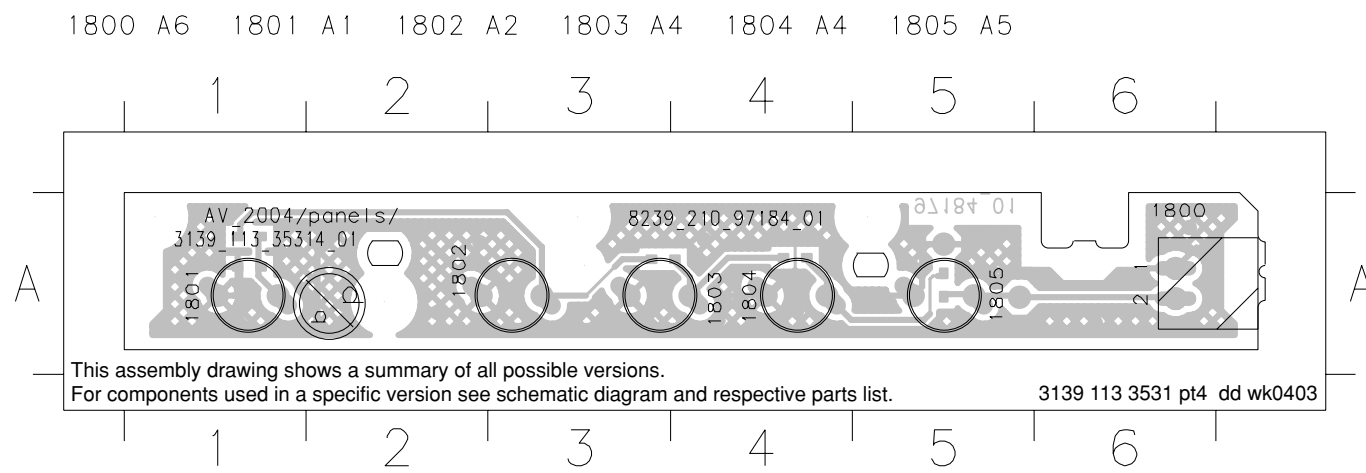


DISPLAY BOARD - BOTTOM VIEW LAYOUT

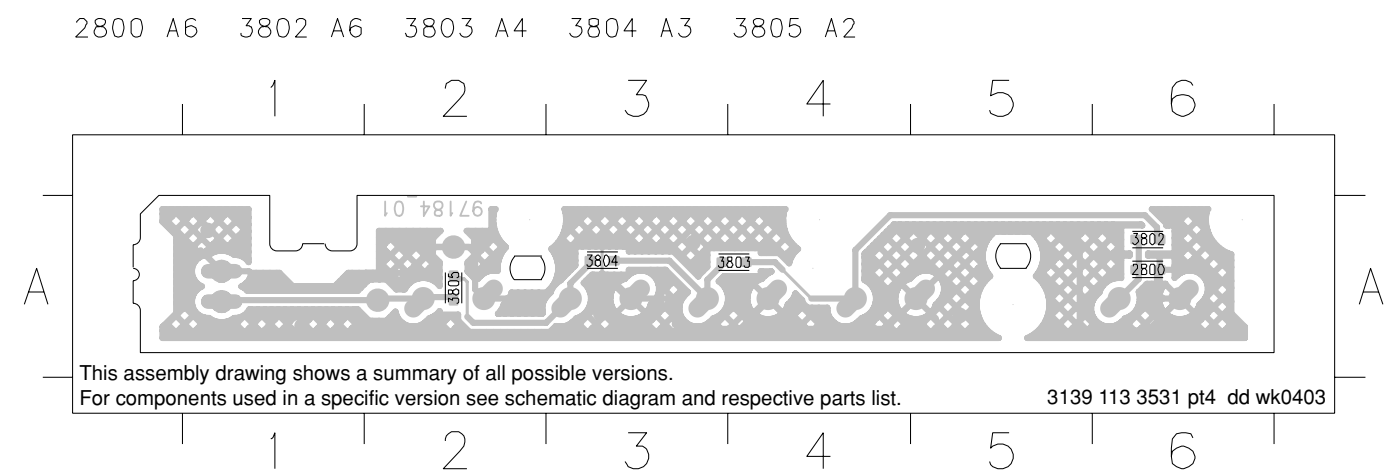
2701 A6	2719 A1	2732 A1	3704 A1	3712 A1	3719 A2	3728 A1	3736 A2	3743 A3	4700 A1	6709 A5	6715 A5	7706 A1
2703 A6	2721 A2	2733 A7	3705 A6	3714 A7	3720 A7	3729 A1	3738 A2	3744 A2	4701 A2	6710 A5	6716 A5	7709 A1
2705 A7	2722 A2	3700 A1	3706 A3	3715 A7	3722 A1	3731 A2	3739 A2	3748 A2	4702 A7	6711 A5	6717 A5	7710 A1
2707 A1	2725 A7	3701 A6	3707 A6	3716 A7	3724 A2	3732 A2	3740 A2	3749 A1	6701 A1	6712 A5	6718 A5	7711 A2
2711 A1	2726 A2	3702 A7	3708 A3	3717 A7	3726 A2	3733 A3	3741 A3	3750 A7	6702 A1	6713 A5	6719 A6	
2716 A1	2727 A4	3703 A1	3710 A4	3718 A7	3727 A1	3735 A2	3742 A3	3751 A7	6708 A2	6714 A5	7702 A4	
1700 A2	1702 A5	1704 A7	1711 A1	1713 A2	1717 A7	2710 A1	2717 A1	2724 A7	6703 A3	6705 A3	6707 A3	
1701 A6	1703 A1	1706 A7	1712 A7	1716 A1	2706 A1	2715 A3	2720 A2	6700 A2	6704 A4	6706 A3	7713 A3	



KEY BOARD - COMPONENT LAYOUT

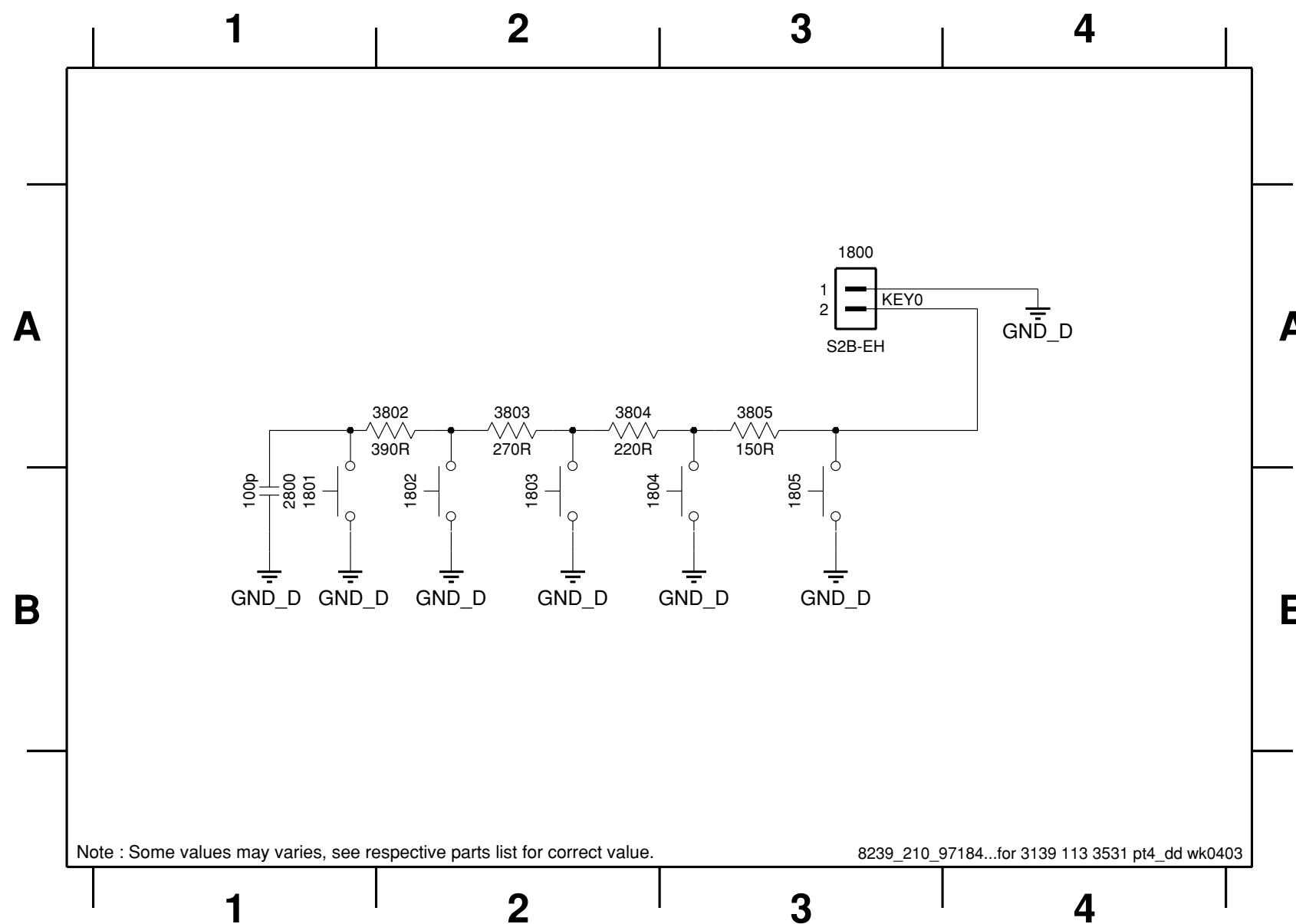


KEY BOARD - CHIP LAYOUT



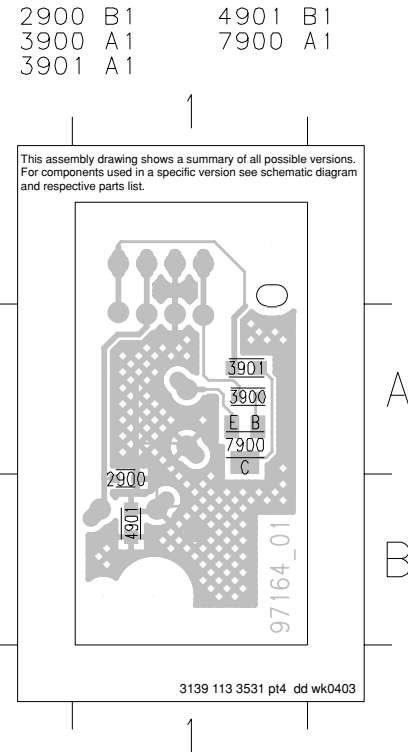
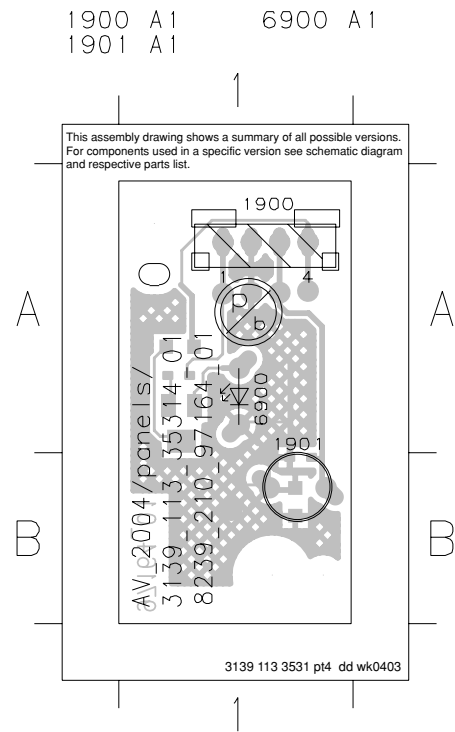
KEY BOARD - CIRCUIT DIAGRAM

1800 A3 1801 B1 1802 B2 1803 B2 1804 B2 1805 B3 2800 B1 3802 A2 3803 A2 3804 A2 3805 A3

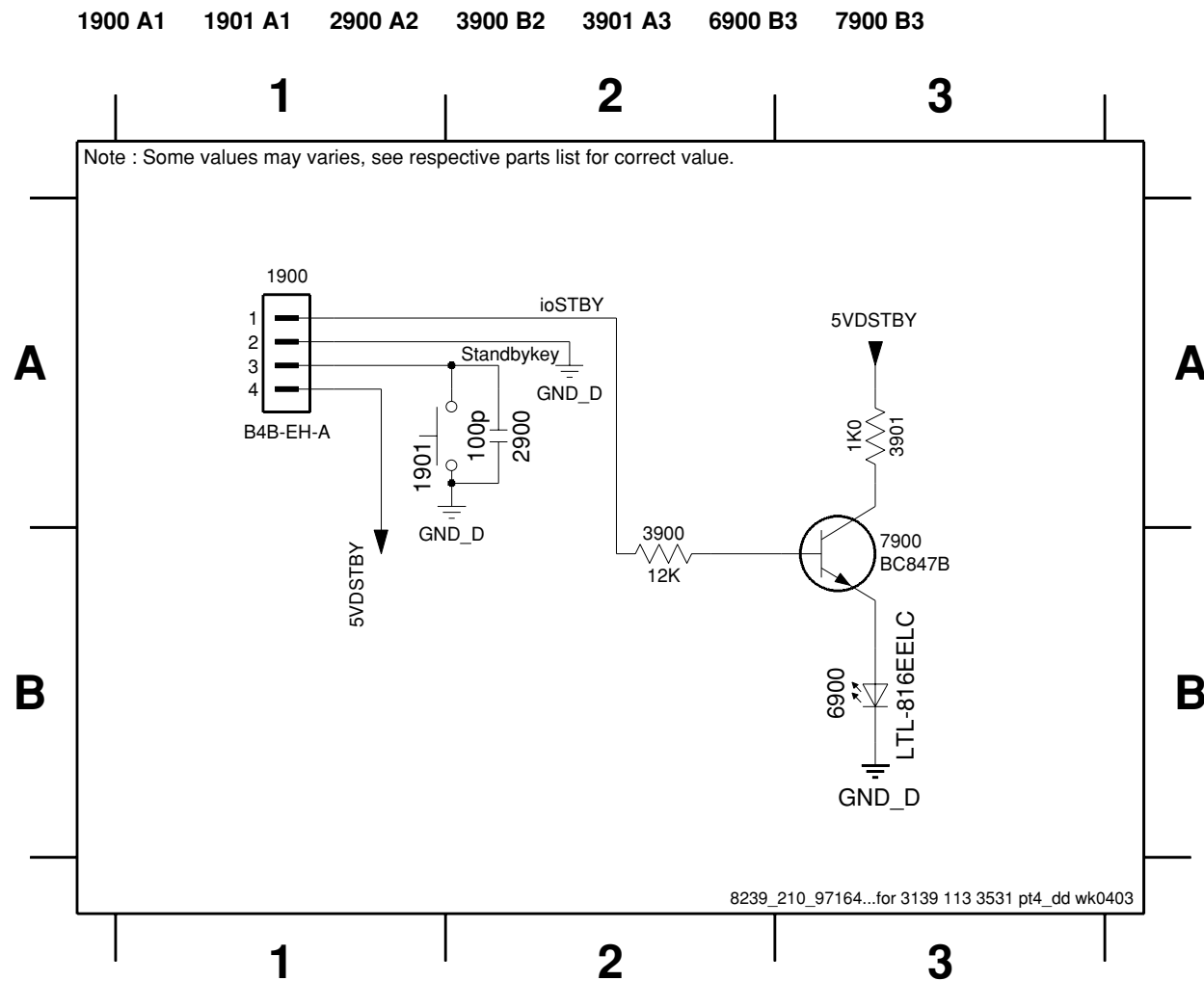


STANDBY BOARD - COMPONENT LAYOUT

STANDBY BOARD - CHIP LAYOUT



STANDBY BOARD - CIRCUIT DIAGRAM



ELECTRICAL PARTS LIST - FRONT BOARD

MISCELLANEOUS

1700	4822 267 10733	Flex Connector 4P	3707	4822 051 30339	33R 5% 0,062W
1701	2422 540 98518	RES CER 8MHz	3708	4822 051 30339	33R 5% 0,062W
1702	3139 111 04131	FTD HUV-08SS57T	3709	4822 051 30102	1k 5% 0,062W
1706	4822 276 13775	Tact Switch	3710	4822 117 12925	47k 1% 0,063W
1712	2422 025 16586	Flex Connector 9P	3711	4822 051 30684	680k 5% 0,062W
1713	2422 129 16975	Rotary Encoder 12P	3712	4822 117 11152	Δ 4R7 5%
1801	4822 276 13775	Tact Switch	3713	4822 117 10837	100k 1% 0,1W
1802	4822 276 13775	Tact Switch	3714	4822 051 30103	10k 5% 0,062W
1803	4822 276 13775	Tact Switch	3715	4822 051 30103	10k 5% 0,062W
1804	4822 276 13775	Tact Switch	3716	4822 051 30103	10k 5% 0,062W
1805	4822 276 13775	Tact Switch	3717	4822 051 30101	100R 5% 0,062W
1901	4822 276 13775	Tact Switch	3718	4822 051 30101	100R 5% 0,062W
			3719	4822 051 30103	10k 5% 0,062W

CAPACITORS

2701	4822 122 33752	15pF 5% 50V	3720	4822 051 30101	100R 5% 0,062W
2702	3198 016 31020	1nF 25V	3721	4822 051 30472	4k7 5% 0,062W
2703	4822 122 33752	15pF 5% 50V	3722	4822 051 30103	10k 5% 0,062W
2704	5322 126 11583	10nF 10% 50V	3723	4822 051 30472	4k7 5% 0,062W
2706	4822 124 40433	47uF 20% 25V	3724	4822 051 30103	10k 5% 0,062W
2707	2238 586 59812	100nF +80/-20% 50V	3725	4822 051 30472	4k7 5% 0,062W
2708	2238 586 59812	100nF +80/-20% 50V	3726	4822 051 30472	4k7 5% 0,062W
2709	5322 126 11583	10nF 10% 50V	3727	4822 051 30331	330R 5% 0,062W
2710	4822 124 40433	47uF 20% 25V	3728	4822 051 30331	330R 5% 0,062W
2711	2238 586 59812	100nF +80/-20% 50V	3729	4822 051 30472	4k7 5% 0,062W
2713	5322 126 11583	10nF 10% 50V	3730	4822 051 30472	4k7 5% 0,062W
2714	2238 586 59812	100nF +80/-20% 50V	3731	4822 051 30101	100R 5% 0,062W
2715	3198 028 44790	47uF 20% 35V	3732	4822 051 30471	470R 5% 0,062W
2716	4822 126 14549	33nF 16V	3733	4822 051 30471	470R 5% 0,062W
2717	4822 124 12233	47uF 20% 25V	3734	4822 051 30472	4k7 5% 0,062W
2719	4822 122 33761	22pF 5% 50V	3735	4822 117 11817	1k2 1% 1/16W
2720	3198 028 41090	10uF 20% 35V	3736	4822 051 30103	10k 5% 0,062W
2721	2238 586 59812	100nF +80/-20% 50V	3737	4822 051 30472	4k7 5% 0,062W
2722	2020 552 96305	4,7uF +80/-20% 10V	3738	4822 051 30103	10k 5% 0,062W
2724	3198 028 41090	10uF 20% 35V	3739	4822 051 30103	10k 5% 0,062W
2725	2238 916 15641	22nF 10% 25V	3740	4822 117 12925	47k 1% 0,063W
2726	4822 126 14238	2,2nF 50V	3741	4822 051 30472	4k7 5% 0,062W
2727	2020 552 94427	100pF 5% 50V	3742	4822 051 30472	4k7 5% 0,062W
2728	2020 552 94427	100pF 5% 50V	3743	4822 051 30472	4k7 5% 0,062W
2732	2238 586 59812	100nF +80/-20% 50V	3744	4822 051 30102	1k 5% 0,062W
2733	2238 586 59812	100nF +80/-20% 50V	3747	4822 051 30472	4k7 5% 0,062W
2800	2020 552 94427	100pF 5% 50V	3748	4822 051 30472	4k7 5% 0,062W
2900	2020 552 94427	100pF 5% 50V	3749	4822 051 30472	4k7 5% 0,062W

RESISTORS

3700	4822 051 30272	2k7 5% 0,062W	3802	4822 051 30391	390R 5% 0,062W
3701	4822 051 30272	2k7 5% 0,062W	3803	4822 051 30271	270R 5% 0,062W
3702	4822 051 30151	150R 5% 0,062W	3804	4822 051 30221	220R 5% 0,062W
3703	4822 051 30181	180R 5% 0,062W	3805	4822 051 30151	150R 5% 0,062W
3704	4822 051 30272	2k7 5% 0,062W	3900	4822 051 30123	12k 5% 0,062W
3705	4822 051 30339	33R 5% 0,062W	3901	4822 051 10102	1k 2% 0,25W
3706	4822 051 30339	33R 5% 0,062W	4700	4822 051 30008	0R Jumper 0603
			4701	4822 051 30008	0R Jumper 0603
			4901	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD

DIODES

6700	4822 130 30621	1N4148
6701	3198 020 55680	DIO REG SM PDZ5.6B
6702	9340 548 54115	DIO REG SM PDZ6.2B
6703	4822 130 30621	1N4148
6704	4822 130 30621	1N4148
6705	4822 130 34173	BZX79-C5V6
6706	4822 130 34173	BZX79-C5V6
6707	4822 130 34173	BZX79-C5V6
6708	3198 020 55680	DIO REG SM PDZ5.6B
6709	4822 130 11397	BAS316
6710	4822 130 11397	BAS316
6711	4822 130 11397	BAS316
6712	4822 130 11397	BAS316
6713	4822 130 11397	BAS316
6714	4822 130 11397	BAS316
6715	4822 130 11397	BAS316
6716	4822 130 11397	BAS316
6717	4822 130 11397	BAS316
6718	4822 130 11397	BAS316
6719	4822 130 11397	BAS316
6900	9322 179 76676	LED VS LTL-816EELC

TRANSISTORS & INTEGRATED CIRCUITS

7700	3139 240 50831	TMP87C809BM - 'LX3950S50831'
7701	5322 130 60159	BC847B
7702	9322 202 26671	IC SM UPD16311GC-AB6
7703	4822 130 60373	BC857B
7704	4822 130 60373	BC857B
7705	4822 130 60373	BC857B
7706	4822 130 42804	BC817-25
7707	4822 130 60373	BC857B
7708	4822 130 60373	BC857B
7709	4822 130 60373	BC857B
7710	5322 130 60159	BC847B
7711	5322 130 60159	BC847B
7712	4822 130 60373	BC857B
7713	9322 185 95667	IR Receiver TSOP4836ZC1
7900	5322 130 60159	BC847B

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

BRIEF INTRODUCTION OF THE AV BOARD

AV BOARD

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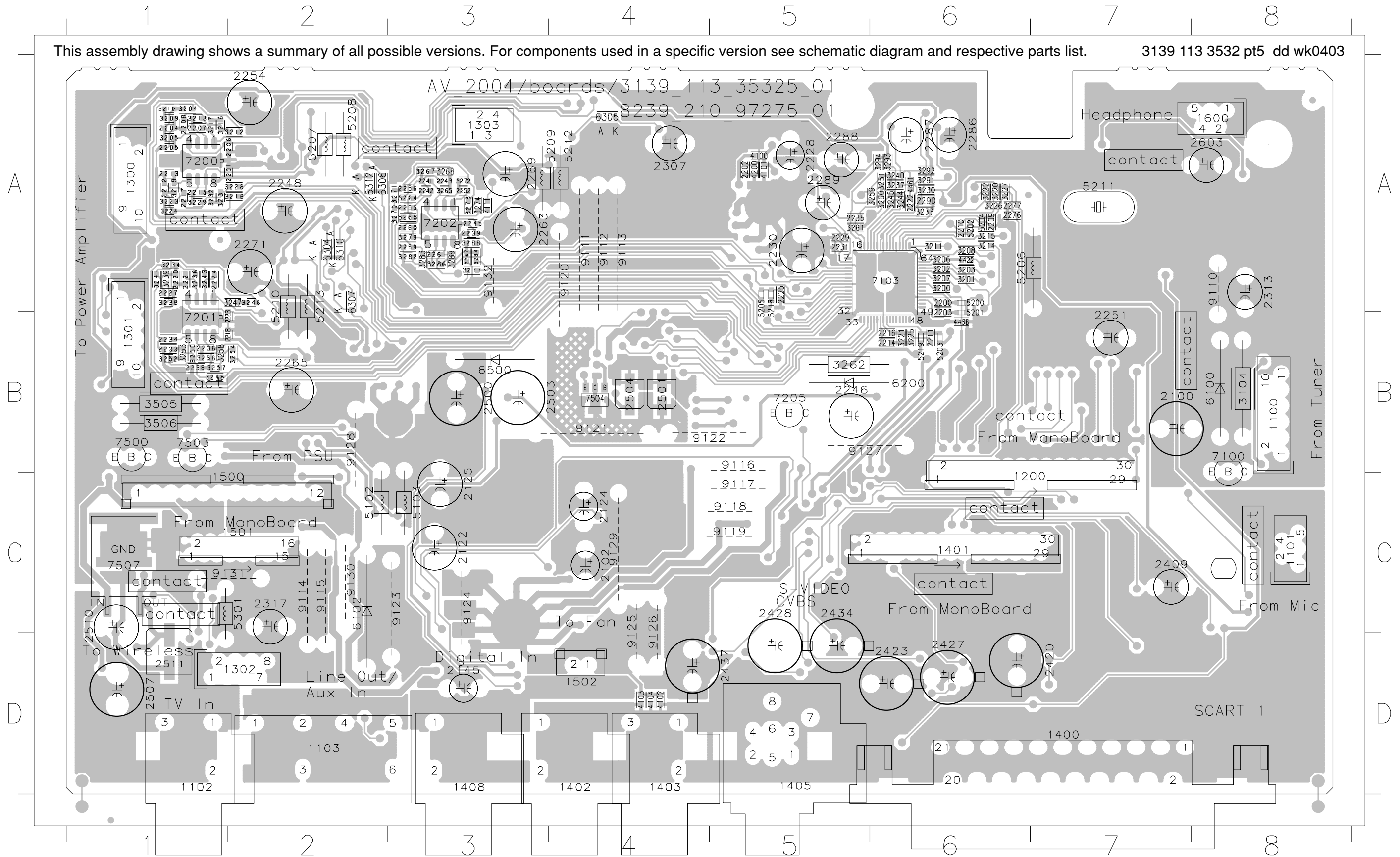
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The AV Board consists of the following features :

- a. IC CS42418
IC CS42418 which includes functions such as ADC and DAC, sound control, volume control and muting function.
Sound features such as DSC are controllable via I²C Bus from the SD6.1 module.

The IC caters for 2 channels analog input via a 4 stereo channels MUX HEF4052BT.
The MUX multiplexed between Aux In, TV In, Tuner and Mic In.
Input networks are included to provide appropriate attenuation for various sources.
- b. SCART (for /01 and /05 versions only)
SCART input/output for audio/video (output only) connection to TV.
- c. LINE OUT
Line out with cinch socket for connection to external amplifier.
- d. TV IN
TV In cinch socket for connection to external TV input.
- e. Y/Pb/Pr (not for /01 and /05 versions)
Y/Pb/Pr component video output with cinch socket for connection to TV.
Progressive Y/Pb/Pr is selected through RC.
- f. IC M62320FP
IC M62320FP which served as additional I/O port.
- g. DIGITAL IN
Digital In with cinch socket for connection to Digital Out of other audio equipments.
The Digital In source is fed to the SD6.1 module for audio decoding.

AV BOARD - TOP VIEW LAYOUT



AV BOARD - TOP VIEW LAYOUT (MAPPING)

1100 B8	1600 A8	2211 B6	2231 A5	2259 A3	2409 C7	3202 A6	3220 A6	3239 A1	3260 A6	3286 A3	4466 B6	5219 B6	7500 B1	9124 C3
1101 C8	2100 B7	2212 A1	2233 B1	2260 A3	2420 D7	3203 A6	3221 B6	3240 A6	3261 A5	3288 A3	5102 C3	5301 C1	7503 B1	9125 C4
1102 D1	2102 C4	2213 A1	2234 B1	2261 A3	2423 D6	3204 A1	3222 A6	3241 A1	3262 B5	3289 A3	5103 C3	6100 B8	7504 B4	9126 C4
1103 D2	2122 C3	2214 B6	2235 A5	2263 A3	2427 D6	3205 A1	3223 A1	3243 A1	3263 A3	3291 A6	5200 A6	6102 C2	7507 C1	9127 B5
1200 C6	2124 C4	2215 A1	2236 B1	2265 B2	2428 C5	3206 A6	3224 A1	3244 A6	3264 A3	3292 A6	5201 B6	6200 B5	9110 A8	9128 B2
1300 A1	2125 C3	2216 B6	2238 B1	2267 A3	2434 C5	3207 A6	3225 B6	3245 A6	3265 A3	3293 A6	5202 A6	6304 A2	9111 A4	9129 C4
1301 B1	2145 D3	2217 A1	2239 A3	2269 A3	2437 D5	3208 A6	3226 A6	3246 A2	3267 A3	3294 A6	5203 B6	6305 A4	9112 A4	9130 C2
1302 D2	2200 A6	2218 B2	2241 A3	2271 A2	2500 B3	3209 A1	3227 A6	3247 A2	3268 A3	3505 B1	5204 A6	6306 A2	9113 A4	9131 C2
1303 A3	2201 A2	2220 A1	2242 A3	2276 A6	2501 B4	3210 A1	3228 A2	3248 B1	3270 A3	3506 B1	5205 A5	6307 A2	9114 C2	9132 A3
1400 D7	2202 A5	2221 A1	2243 A3	2277 A6	2503 B4	3211 A6	3229 A1	3250 B1	3271 A3	4100 A5	5206 A6	6310 A2	9115 C2	
1401 C6	2203 B6	2222 A6	2245 A3	2286 A6	2504 B4	3212 A2	3230 A6	3251 A6	3272 A3	4101 A5	5207 A2	6312 A2	9116 C5	
1402 D4	2204 A1	2223 B2	2246 B5	2287 A6	2507 D1	3213 A1	3231 A1	3252 B1	3273 A3	4102 D4	5208 A2	6500 B3	9117 C5	
1403 D4	2205 A1	2224 A1	2248 A2	2288 A5	2510 C1	3214 A6	3232 A1	3253 B1	3274 A3	4103 D4	5209 A3	7100 B8	9118 C5	
1405 D5	2206 A2	2225 A5	2251 B7	2289 A5	2511 D1	3215 A6	3233 A6	3254 B2	3277 A3	4104 D4	5210 A2	7103 A6	9119 C5	
1408 D3	2207 A1	2227 A1	2252 A3	2290 A6	2603 A8	3216 A1	3234 A1	3256 B1	3279 A3	4111 A3	5211 A7	7200 A1	9120 A4	
1500 C2	2208 A1	2228 A5	2254 A2	2307 A4	3104 B8	3217 A1	3236 A1	3257 B1	3282 A3	4200 A5	5212 A3	7201 B1	9121 B4	
1501 C2	2209 A6	2229 A5	2255 A3	2313 A8	3200 A6	3218 A2	3237 A6	3258 B1	3283 A3	4422 A6	5213 A2	7202 A3	9122 B4	
1502 D4	2210 A6	2230 A5	2256 A3	2317 C2	3201 A6	3219 A1	3238 A1	3259 A6	3284 A3	4461 A6	5218 A5	7205 B5	9123 C3	

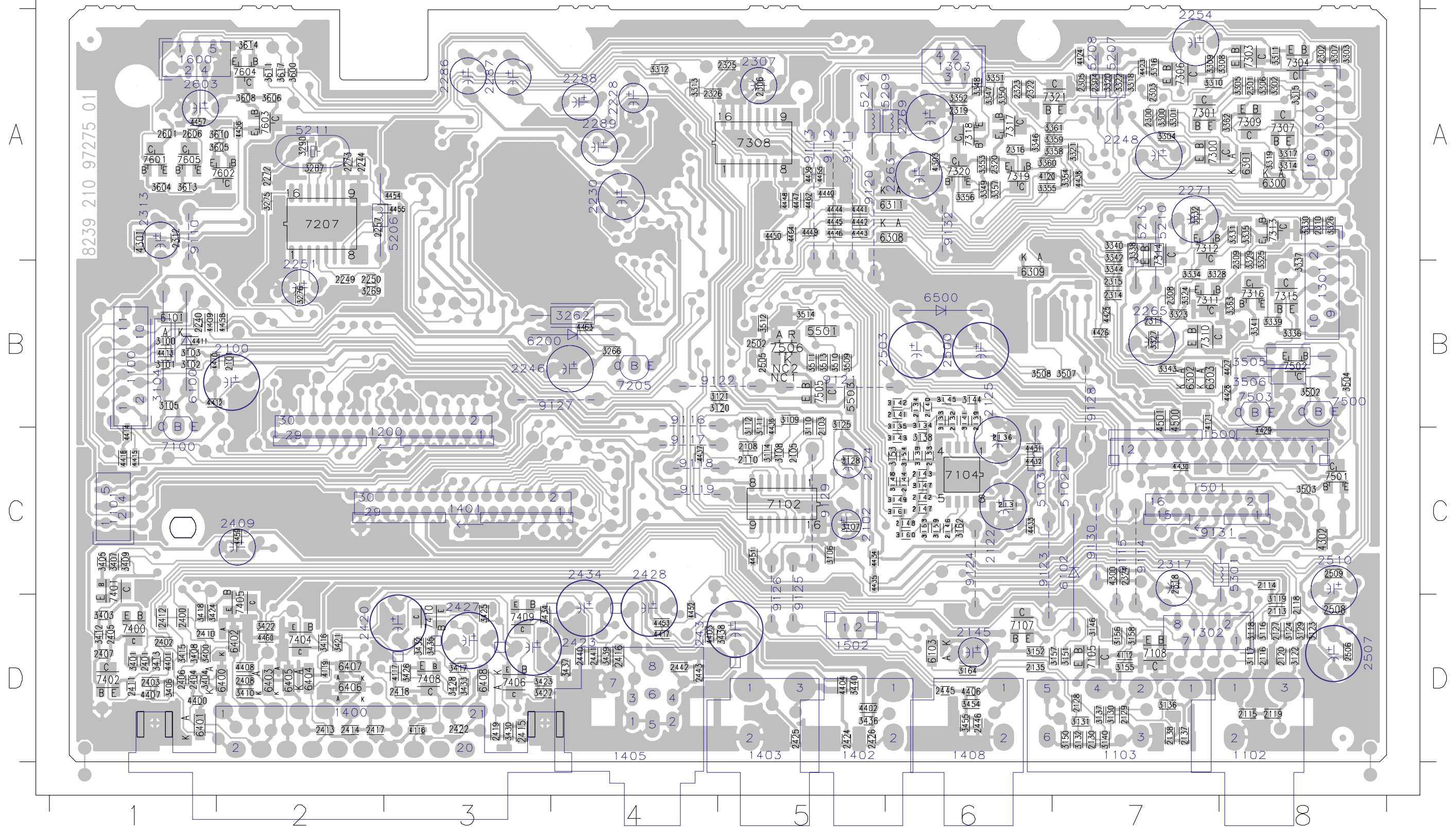
AV BOARD - BOTTOM VIEW LAYOUT (MAPPING)

2101 B2	2143 C6	2319 A6	2425 D5	3116 D8	3146 D7	3303 A8	3331 A8	3361 A7	3432 D3	3611 A2	4415 C1	4448 A5	6309 B6	7313 A8
2103 B5	2144 C6	2320 A6	2426 D5	3117 D8	3147 C6	3304 A7	3332 A7	3362 A8	3433 D3	3613 A1	4416 C1	4449 A5	6311 A6	7314 A7
2105 C5	2146 C6	2322 A6	2440 D4	3118 D8	3148 C6	3305 A8	3334 B7	3363 B8	3434 D3	3614 A2	4417 D4	4450 A5	6400 D2	7315 B8
2108 C5	2147 C6	2323 A6	2441 D4	3119 D8	3149 C6	3306 A8	3335 A8	3400 D1	3435 D3	3617 A2	4423 A7	4451 C5	6401 D1	7316 B8
2110 C5	2148 C6	2324 C7	2442 D4	3120 B5	3150 D7	3307 A8	3336 B8	3401 D1	3436 D5	4112 D7	4424 A7	4452 D4	6402 D2	7317 A6
2113 D8	2240 B1	2325 A5	2443 D4	3121 B5	3151 D7	3308 A8	3337 B8	3403 D1	3437 D4	4116 D3	4425 B7	4453 D4	6403 D2	7318 A6
2114 C8	2244 A2	2326 A4	2445 D6	3122 D8	3152 D6	3309 A7	3338 A7	3404 D1	3438 D5	4117 D3	4426 B7	4454 A3	6404 D2	7319 A6
2115 D8	2249 B2	2400 D1	2446 D6	3123 D8	3153 C6	3310 A7	3339 B8	3405 C1	3439 D4	4119 D2	4427 B8	4455 A3	6405 D2	7320 A6
2116 D8	2250 B2	2401 D1	2502 B5	3124 D8	3154 C6	3311 A8	3340 A7	3406 D1	3440 D5	4120 A6	4428 B8	4456 A2	6406 D2	7321 A7
2118 D8	2257 A2	2402 D1	2505 B5	3125 B5	3155 D7	3312 A4	3341 B8	3407 C1	3454 D6	4121 B7	4429 C8	4457 A1	6407 D2	7400 D1
2119 D8	2272 A2	2403 D1	2506 D8	3128 C5	3156 D7	3313 A4	3342 A7	3408 D1	3455 D6	4300 C7	4430 C7	4458 B2	6408 D3	7401 C1
2120 D8	2273 A2	2404 D1	2508 D8	3129 D8	3157 D7	3314 A8	3343 B7	3409 C1	3502 B8	4301 A1	4431 C6	4459 C2	7102 C5	7402 D1
2127 D8	2300 A7	2405 D1	2509 C8	3130 D7	3158 D7	3315 A8	3344 B7	3410 D2	3503 C8	4302 C8	4432 C6	4460 D2	7104 C6	7404 D2
2128 D7	2301 A8	2406 D1	2601 A1	3131 D7	3159 C6	3316 A7	3346 A6	3412 D1	3504 B8	4303 A6	4433 C6	4462 A5	7105 D7	7405 D2
2129 D7	2302 A8	2407 D1	2606 A1	3132 D7	3160 C6	3317 A8	3347 A6	3413 D1	3507 B7	4400 D1	4434 C5	4463 B4	7107 D6	7406 D3
2130 D7	2303 A7	2408 D2	3100 B1	3133 B6	3161 C6	3318 A7	3348 A6	3415 D1	3508 B6	4401 D1	4435 C5	4464 A5	7108 D7	7408 D3
2131 C6	2304 A7	2410 D1	3101 B1	3134 B6	3162 C6	3319 A8	3349 A6	3416 D2	3509 B5	4402 D5	4436 B5	4465 A5	7207 A2	7409 D3
2132 B6	2305 A7	2411 D1	3102 B1	3135 B6	3163 C6	3320 A7	3350 A6	3417 D3	3510 B5	4403 D4	4437 C4	4500 B7	7300 A7	7410 D3
2133 C6	2306 A5	2412 D1	3103 B1	3136 D7	3164 D6	3321 A7	3351 A6	3418 D1	3511 B5	4404 D5	4438 A7	4501 B7	7301 A7	7501 C8
2134 B6	2308 B7	2413 D2	3105 B1	3137 D7	3266 B4	3322 A7	3352 A6	3421 D2	3512 B5	4406 D6	4439 A5	5501 B5	7303 A8	7502 B8
2135 D6	2309 A8	2414 D2	3106 C5	3138 C6	3269 B2	3323 B7	3353 A6	3422 D2	3513 B5	4407 D1	4440 A5	5503 B5	7304 A8	7505 B5
2136 C6	2310 A8	2415 D3	3107 C5	3139 C6	3275 A2	3324 B7	3354 A7	3423 D3	3514 B5	4408 D2	4441 A5	6101 B1	7306 A7	7506 B5
2137 D7	2311 B7	2416 D4	3108 C5	3140 D7	3276 B2	3325 A8	3355 A6	3424 D1	3600 A2	4409 B1	4442 A5	6103 D6	7307 A8	7601 A1
2138 D7	2312 A1	2417 D2	3109 B5	3141 B6	3287 A2	3326 A8	3356 A6	3425 D3	3604 A1	4410 B1	4443 A5	6300 A8	7308 A5	7602 A2
2139 B6	2314 B7	2418 D3	3110 B5	3142 B6	3290 A2	3327 B7	3357 A6	3426 D3	3605 A2	4411 B1	4444 A5	6301 A8	7309 A8	7603 A2
2140 B6	2315 B7	2419 D3	3111 B5	3143 C6	3300 A7	3328 B7	3358 A7	3427 D3	3606 A2	4412 B1	4445 A5	6302 B7	7310 B7	7604 A2
2141 B6	2316 A6	2422 D3	3112 B5	3144 B6	3301 A7	3329 A8	3359 A7	3428 D3	3608 A2	4413 B1	4446 A5	6303 B7	7311 B7	7605 A1
2142 C6	2318 C7	2424 D5	3114 C5	3145 B6	3302 A8	3330 A8	3360 A6	3430 D3	3610 A2	4414 C1	4447 A5	6308 A6	7312 A7	
1100 B1	1302 D7	1408 D6	2122 C6	2248 A7	2286 A3	2409 C2	2500 B6	3505 B8	5209 A6	6102 C7	9110 A1	9117 C4	9124 C6	9131 C7
1101 C1	1303 A6	1500 C7	2124 C5	2251 B2	2287 A3	2420 D2	2503 B5	3506 B8	5210 A7	6200 B4	9111 A5	9118 C4	9125 C5	9132 A6
1102 D8	1400 D2	1501 C7	2125 C6	2254 A7	2288 A4	2423 D3	2507 D8	5102 C6	5211 A2	6500 B6	9112 A5	9119 C4	9126 C5	
1103 D7	1401 C3	1502 D5	2145 D6	2263 A6	2289 A4	2427 D3	2510 C8	5103 C6	5212 A6	7100 B1	9113 A5	9120 A5	9127 B4	
1200 C3	1402 D5	1600 A1	2228 A4	2265 B7	2307 A5	2428 C4	2603 A1	5206 A3	5213 A7	7205 B4	9114 C7	9121 B5	9128 B7	
1300 A8	1403 D5	2100 B2	2230 A4	2269 A6	2313 A1	2434 C4	3104 B1	5207 A7	5301 C8	7500 B8	9115 C7	9122 B4	9129 C5	
1301 B8	1405 D4	2102 C5	2246 B4	2271 A7	2317 C7	2437 D4	3262 B4	5208 A7	6100 B1	7503 B8	9116 C4	9123 C6	9130 C7	

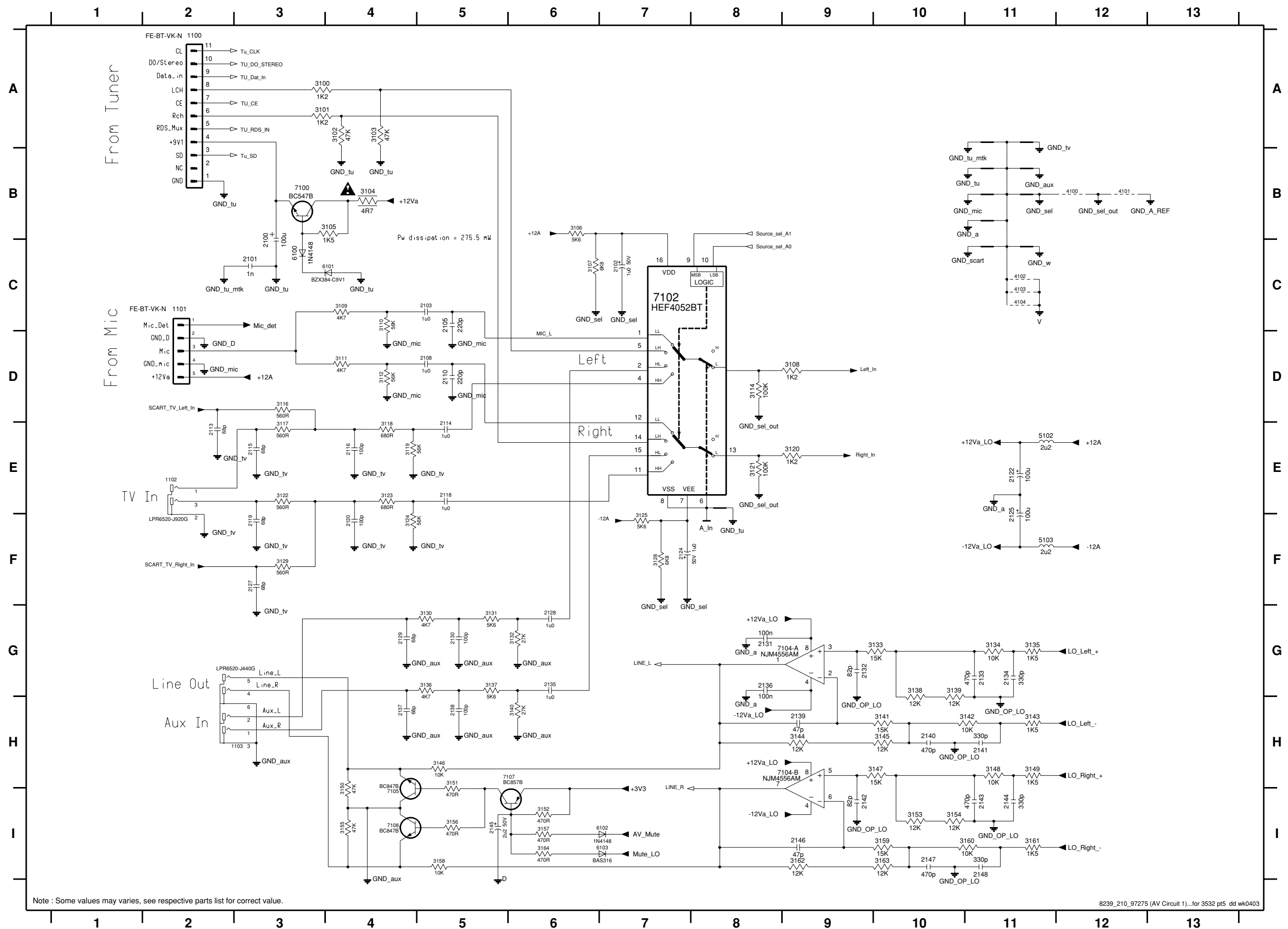
AV BOARD - BOTTOM VIEW LAYOUT

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

3139 113 3532 pt5 dd wk0403

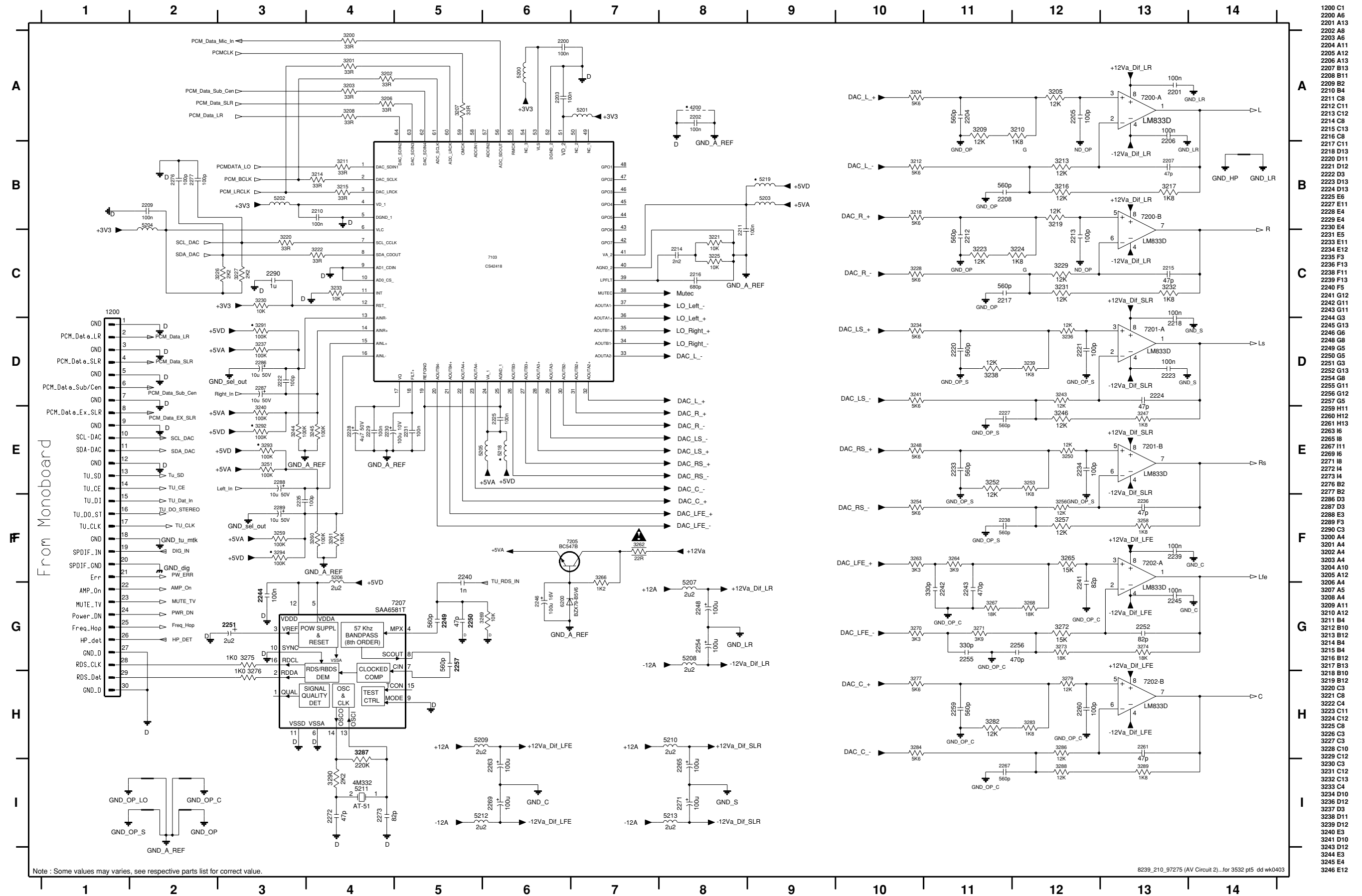


AV BOARD - CIRCUIT DIAGRAM (PART 1)

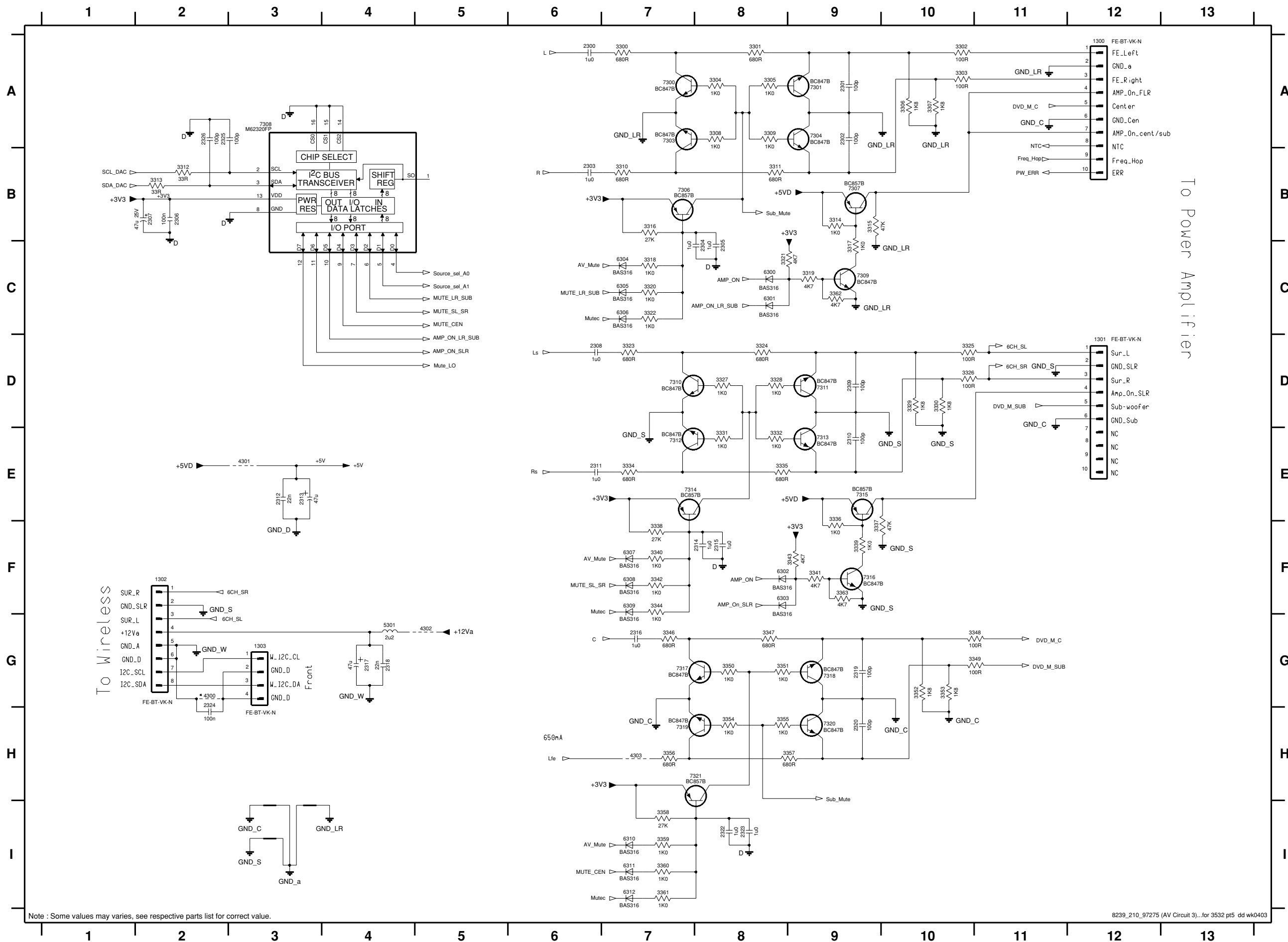


- 1100 A2
- 1101 C2
- 1102 E2
- 1103 H3
- 2100 C3
- 2101 C3
- 2102 C7
- 2103 C5
- 2105 C5
- 2108 D5
- 2110 D5
- 2113 E2
- 2114 E5
- 2115 E3
- 2116 E4
- 2118 E5
- 2119 F3
- 2120 F4
- 2122 E11
- 2124 F7
- 2125 F11
- 2127 F3
- 2128 G6
- 2129 G4
- 2130 G5
- 2131 G8
- 2132 G5
- 2133 G11
- 2134 G11
- 2135 G6
- 2136 G8
- 2137 H4
- 2138 H5
- 2139 H9
- 2140 H10
- 2141 H11
- 2142 I9
- 2143 I11
- 2144 I11
- 2145 I5
- 2146 I9
- 2147 I10
- 2148 I11
- 3100 A3
- 3101 A3
- 3102 A4
- 3103 A4
- 3104 B4
- 3105 B4
- 3106 B6
- 3107 C6
- 3108 D9
- 3109 C4
- 3110 C4
- 3111 D4
- 3112 D4
- 3114 D8
- 3116 D3
- 3117 E3
- 3118 E4
- 3119 E4
- 3120 E9
- 3121 E8
- 3122 E3
- 3123 E4
- 3124 F4
- 3125 F7
- 3128 F7
- 3129 F3
- 3130 G5
- 3131 G5
- 3132 G6
- 3133 G10
- 3134 G11
- 3135 G11
- 3136 G5
- 3137 G5
- 3138 G10
- 3139 G10
- 3140 H6
- 3141 H10
- 3142 H11
- 3143 H11
- 3144 H9
- 3145 H10
- 3146 H5
- 3147 H10
- 3148 H11
- 3149 H11
- 3150 I4
- 3151 H5
- 3152 I6
- 3153 I10
- 3154 I10
- 3155 I4
- 3156 I5
- 3157 I6
- 3158 I5
- 3159 I10
- 3160 I11
- 3161 I11
- 3162 I9
- 3163 I10
- 3164 I6
- 4100 B12
- 4101 B12
- 4102 C11
- 4103 C11
- 4104 C11
- 5102 E11
- 5103 F11
- 6100 C3
- 6101 C4
- 6102 I7
- 6103 I7
- 7100 B3
- 7102 C7
- 7104-A G9
- 7104-B H9
- 7105 I4
- 7107 H5
- 7108 I4

AV BOARD - CIRCUIT DIAGRAM (PART 2)



AV BOARD - CIRCUIT DIAGRAM (PART 3)

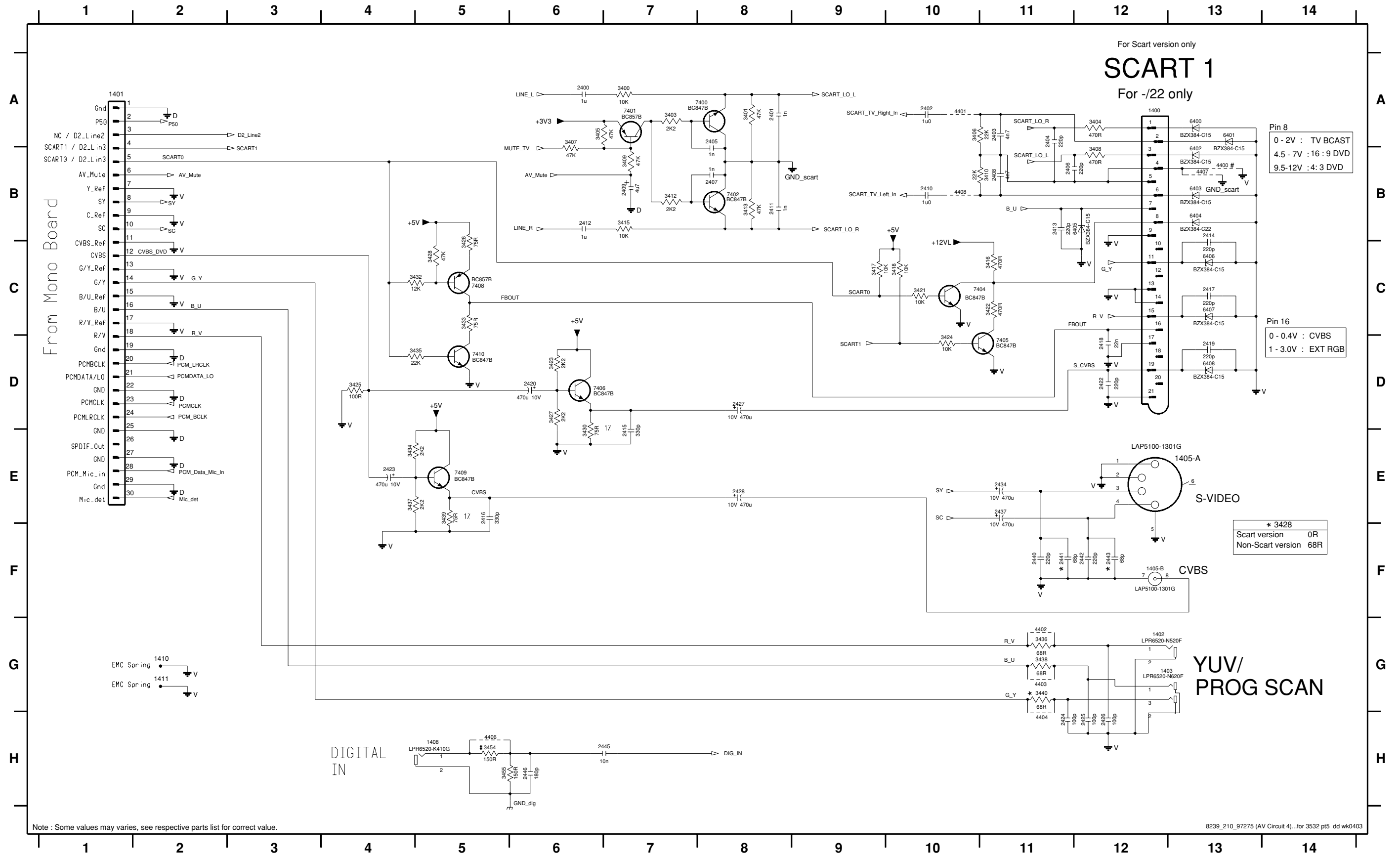


- 1300 A12
- 1301 D12
- 1302 F2
- 1303 G3
- 2300 A6
- 2301 A9
- 2302 A9
- 2303 B6
- 2304 C8
- 2305 C8
- 2306 B2
- 2307 B2
- 2308 D6
- 2309 D9
- 2310 E9
- 2311 E3
- 2312 E3
- 2313 E3
- 2314 F8
- 2315 F8
- 2316 G7
- 2317 G4
- 2318 G4
- 2319 G9
- 2320 H9
- 2322 I8
- 2323 I8
- 2324 H2
- 2325 A2
- 2326 A2
- 3300 A7
- 3301 A8
- 3302 A10
- 3303 A10
- 3304 A9
- 3305 A8
- 3306 A10
- 3307 A10
- 3308 A8
- 3309 A8
- 3310 B7
- 3311 B8
- 3312 B2
- 3313 B2
- 3314 B9
- 3315 B9
- 3316 B7
- 3317 C9
- 3318 C7
- 3319 C9
- 3320 C7
- 3321 C8
- 3322 C7
- 3323 D7
- 3324 D8
- 3325 D10
- 3326 D10
- 3327 D8
- 3328 D8
- 3329 D10
- 3330 D10
- 3331 E8
- 3332 E8
- 3333 E8
- 3334 F9
- 3335 F9
- 3336 F9
- 3337 F9
- 3338 F7
- 3339 F7
- 3340 F7
- 3341 F9
- 3342 F7
- 3343 F9
- 3344 F7
- 3346 G7
- 3347 G8
- 3348 G11
- 3349 G11
- 3350 G8
- 3351 G8
- 3352 G10
- 3353 G10
- 3354 H8
- 3355 H8
- 3356 H7
- 3357 H9
- 3358 I7
- 3359 I7
- 3360 I7
- 3361 I7
- 3362 C9
- 3363 F9
- 4300 G2
- 4301 E3
- 4302 G5
- 4303 H7
- 5301 G4
- 6300 C8
- 6301 C8
- 6302 F8
- 6303 F8
- 6304 C7
- 6305 C7
- 6306 C7
- 6307 F7
- 6308 F7
- 6309 F7
- 6310 I7
- 6311 I7
- 6312 I7
- 7300 A7
- 7301 A9
- 7303 A7
- 7304 A9
- 7306 B7
- 7307 B9
- 7308 A3
- 7309 C9
- 7310 D7
- 7311 D9
- 7312 E7
- 7313 E9
- 7314 E8
- 7315 E9
- 7316 F9
- 7317 G7
- 7318 G9
- 7319 H7
- 7320 H9
- 7321 H7

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

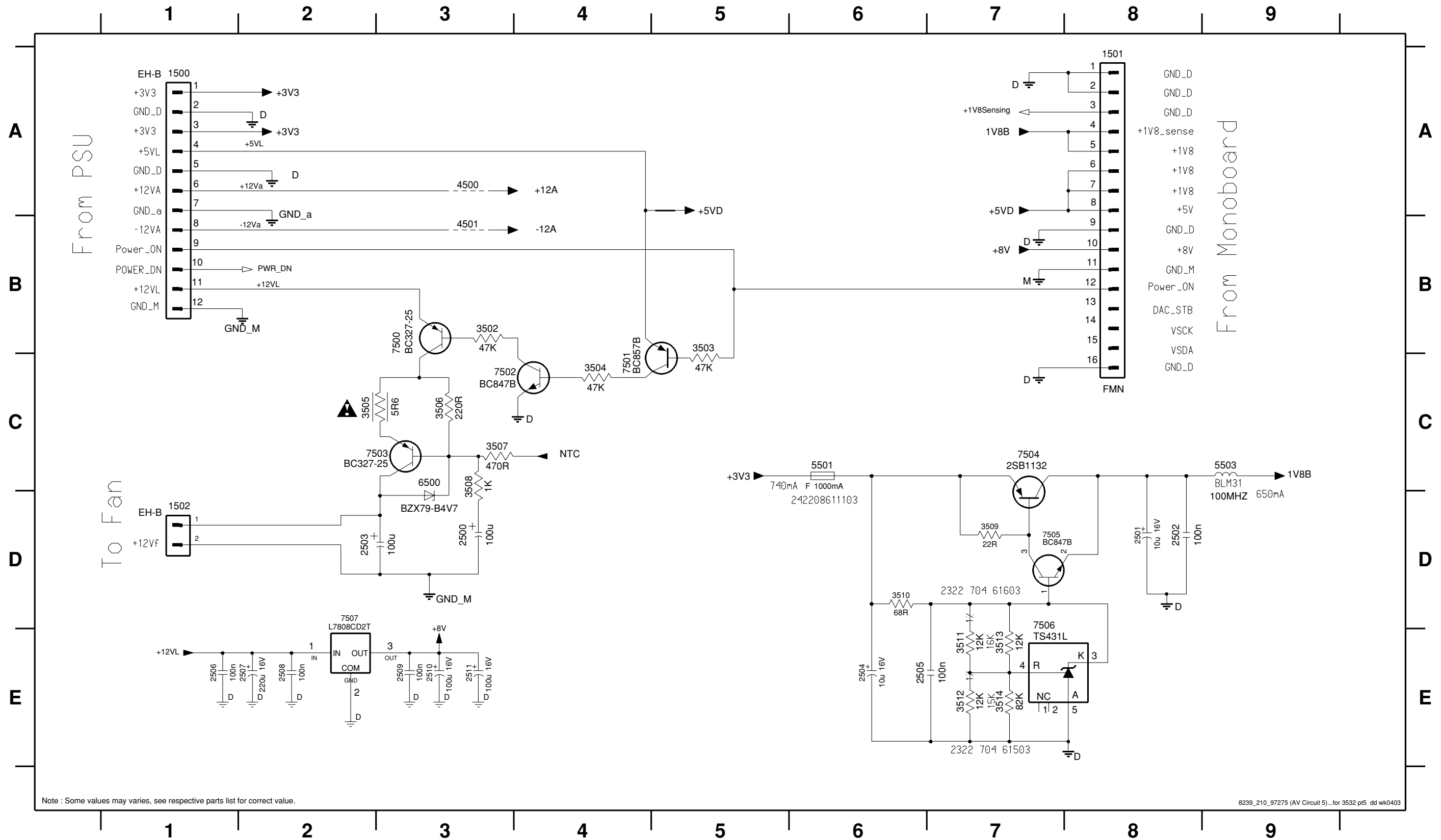
AV BOARD - CIRCUIT DIAGRAM (PART 4)

1400 A12	1405-A E13	1411 G2	2403 A11	2407 B8	2411 B8	2415 E7	2419 D13	2424 H11	2428 E8	2441 F11	2446 H6	3404 A12	3408 B12	3413 B8	3418 C10	3424 D10	3428 C5	3434 E4	3438 G11	3455 H5	4403 G11	4408 B10	6403 B13	6407 C13	7402 B8	7408 C5
1401 A1	1405-B F12	2400 A6	2404 A11	2408 B11	2412 B6	2416 E5	2420 D6	2425 H12	2434 E11	2442 F12	3400 A7	3405 A6	3409 B7	3415 B7	3421 C10	3425 D4	3430 E6	3435 D5	3439 E5	4400 B13	4404 H11	6400 A13	6404 B13	6408 D13	7404 C10	7409 E5
1402 G12	1408 H5	2401 A8	2405 A8	2409 B7	2413 B11	2417 C13	2422 D12	2426 H12	2437 E11	2443 F12	3401 A8	3406 A10	3410 B11	3416 C11	3422 C11	3426 C5	3432 C5	3436 G11	3440 G11	4401 A10	4406 H5	6401 A13	6405 B12	7400 A7	7405 D11	7410 D5
1403 G12	1410 G2	2402 A10	2406 B11	2410 B10	2414 B13	2418 D12	2423 E4	2427 D8	2440 F1	2445 H7	3403 A7	3407 A6	3412 B7	3417 C9	3423 D6	3427 D6	3433 C5	3437 E4	3454 H5	4402 G11	4407 B13	6402 B13	6406 C13	7401 A7	7406 D7	



AV BOARD - CIRCUIT DIAGRAM (PART 5)

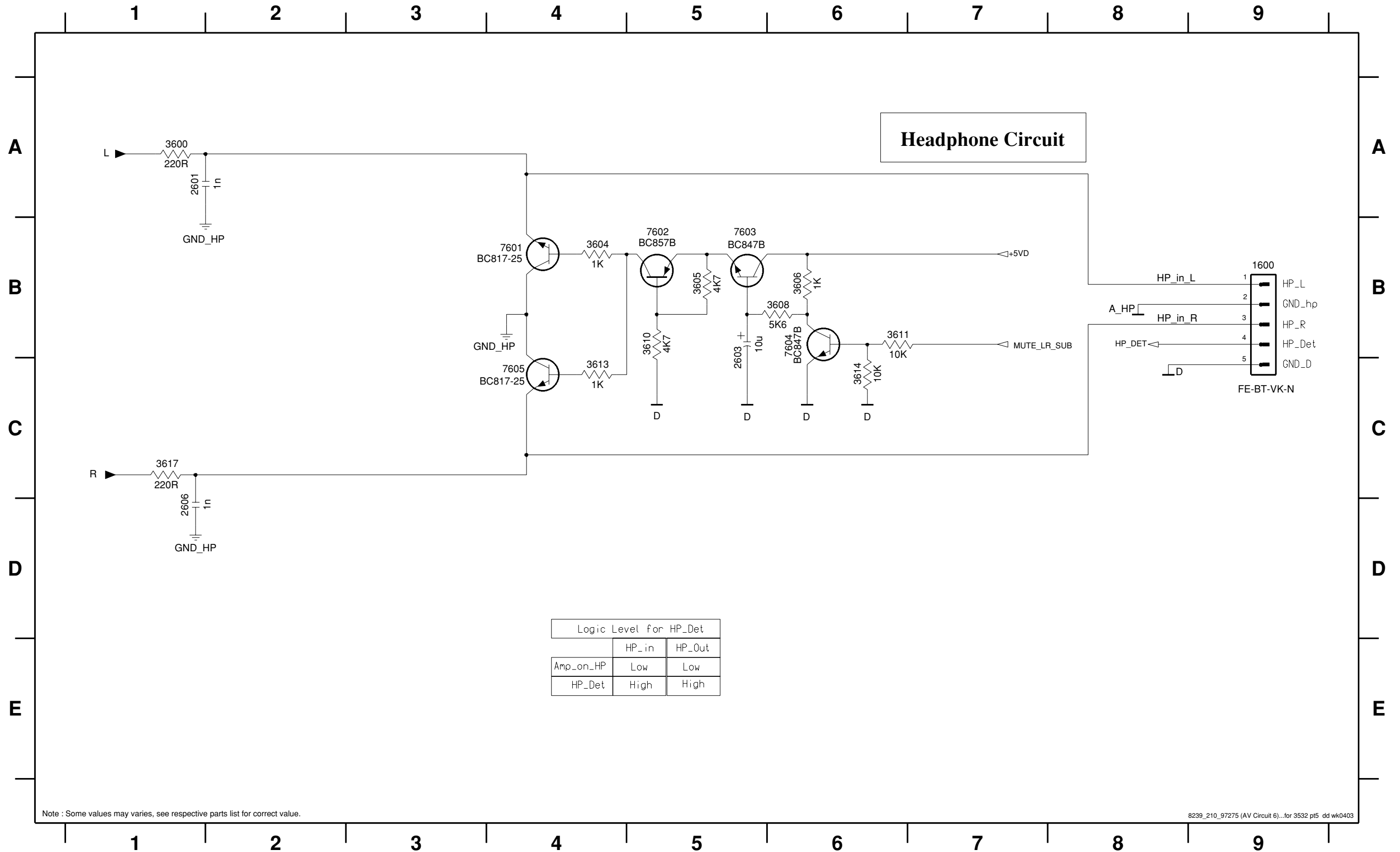
- 1500 A1 1502 D1 2501 D8 2503 D2 2505 E6 2507 E2 2509 E3 2511 E3 3503 B5 3505 C2 3507 C3 3509 D7 3511 E7 3513 E7 4500 A3 5501 C6 6500 C3 7501 C4 7503 C3 7505 D7 7507 D2
- 1501 A8 2500 D3 2502 D8 2504 E6 2506 E1 2508 E2 2510 E3 3502 B3 3504 C4 3506 C3 3508 C3 3510 D6 3512 E7 3514 E7 4501 B3 5503 C9 7500 C3 7502 C4 7504 C7 7506 D7



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

AV BOARD - CIRCUIT DIAGRAM (PART 6)

1600 B9 2601 A1 2603 B5 2606 D1 3600 A1 3604 B4 3605 B5 3606 B6 3608 B6 3610 B5 3611 B6 3613 C4 3614 C6 3617 C1 7601 B4 7602 B5 7603 B5 7604 B6 7605 C4



ELECTRICAL PARTS LIST - AV BOARD**MISCELLANEOUS**

1100	4822 267 11039	Flex Connector 11P
1103	2422 026 05462	SocCinch 4P (Aux-in/Line-out)
1200	2422 025 17433	Flex Connector 30P
1300	4822 267 10729	Flex Connector 10P
1301	4822 265 11515	Flex Connector 8P
1302	4822 265 11515	Flex Connector 8P
1303	4822 267 10733	Flex Connector 4P
1400	2422 025 12352	Socket Scart 21P
1401	2422 025 17433	Flex Connector 30P
1405	2422 033 00468	Socket 2P (S-Video/CVBS)
1408	2422 026 05427	Socket Cinch 1P (Digital in)
1410	3139 241 21102	EMC Spring
1411	3139 241 21102	EMC Spring
1501	2422 025 16525	Flex Connector 16P

CAPACITORS

2100	4822 124 41643	100uF 20% 16V
2101	5322 126 11578	1nF 10% 50V
2102	4822 124 22651	1uF 20% 50V
2103	3198 017 41050	1uF 10V
2105	4822 126 13883	220pF 5% 50V
2108	3198 017 41050	1uF 10V
2110	4822 126 13883	220pF 5% 50V
2113	4822 126 14221	68pF 5% 50V
2114	3198 017 41050	1uF 10V
2116	2020 552 94427	100pF 5% 50V
2118	3198 017 41050	1uF 10V
2120	2020 552 94427	100pF 5% 50V
2122	4822 124 23052	100uF 20% 16V
2124	4822 124 22651	1uF 20% 50V
2125	4822 124 23052	100uF 20% 16V
2127	4822 126 14221	68pF 5% 50V
2128	3198 017 41050	1uF 10V
2129	4822 126 14221	68pF 5% 50V
2130	2020 552 94427	100pF 5% 50V
2131	2238 586 59812	100nF +80/-20% 50V
2132	4822 126 14226	82pF 5% 50V
2133	4822 126 13881	470pF 5% 50V
2134	4822 126 14241	330pF 50V
2135	3198 017 41050	1uF 10V
2136	2238 586 59812	100nF +80/-20% 50V
2137	4822 126 14221	68pF 5% 50V
2138	2020 552 94427	100pF 5% 50V
2139	4822 126 14226	82pF 5% 50V
2140	4822 126 13881	470pF 5% 50V
2141	4822 126 14241	330pF 50V
2142	4822 126 14226	82pF 5% 50V
2143	4822 126 13881	470pF 5% 50V
2144	4822 126 14241	330pF 50V
2145	4822 124 22652	2,2uF 20% 50V
2146	4822 126 14226	82pF 5% 50V
2147	4822 126 13881	470pF 5% 50V

2148	4822 126 14241	330pF 50V
2200	2238 586 59812	100nF +80/-20% 50V
2201	2238 586 59812	100nF +80/-20% 50V
2202	2238 586 59812	100nF +80/-20% 50V
2203	2238 586 59812	100nF +80/-20% 50V
2204	4822 126 14249	560pF 10% 50V
2205	2020 552 94427	100pF 5% 50V
2206	2238 586 59812	100nF +80/-20% 50V
2207	4822 126 11785	47pF 5% 50V
2208	4822 126 14249	560pF 10% 50V
2209	2238 586 59812	100nF +80/-20% 50V
2210	2238 586 59812	100nF +80/-20% 50V
2211	2238 586 59812	100nF +80/-20% 50V
2212	4822 126 14249	560pF 10% 50V
2213	2020 552 94427	100pF 5% 50V
2214	4822 126 14238	2,2nF 50V
2215	4822 126 11785	47pF 5% 50V
2216	3198 016 36810	680pF 25V
2217	4822 126 14249	560pF 10% 50V
2218	2238 586 59812	100nF +80/-20% 50V
2220	4822 126 14249	560pF 10% 50V
2221	2020 552 94427	100pF 5% 50V
2222	4822 126 14238	2,2nF 50V
2223	2238 586 59812	100nF +80/-20% 50V
2224	4822 126 11785	47pF 5% 50V
2225	2238 586 59812	100nF +80/-20% 50V
2227	4822 126 14249	560pF 10% 50V
2228	4822 124 40769	4,7uF 20% 100V
2229	2238 586 59812	100nF +80/-20% 50V
2230	3198 037 11010	100uF 20% 10V
2231	2238 586 59812	100nF +80/-20% 50V
2233	4822 126 14249	560pF 10% 50V
2234	2020 552 94427	100pF 5% 50V
2235	4822 126 14238	2,2nF 50V
2236	4822 126 11785	47pF 5% 50V
2238	4822 126 14249	560pF 10% 50V
2239	2238 586 59812	100nF +80/-20% 50V
2240	3198 016 31020	1nF 25V
2241	4822 126 14226	82pF 5% 50V
2242	4822 126 14241	330pF 50V
2243	4822 126 13881	470pF 5% 50V
2244	2238 586 59812	100nF +80/-20% 50V
2245	2238 586 59812	100nF +80/-20% 50V
2246	4822 124 23052	100uF 20% 16V
2248	4822 124 23052	100uF 20% 16V
2249	4822 126 14249	560pF 10% 50V
2250	4822 126 11785	47pF 5% 50V
2251	4822 124 22652	2,2uF 20% 50V
2252	4822 126 14226	82pF 5% 50V
2254	4822 124 23052	100uF 20% 16V
2255	4822 126 14241	330pF 50V
2256	4822 126 13881	470pF 5% 50V

ELECTRICAL PARTS LIST - AV BOARD

2257	4822 126 14249	560pF 10% 50V
2259	4822 126 14249	560pF 10% 50V
2260	2020 552 94427	100pF 5% 50V
2261	4822 126 11785	47pF 5% 50V
2263	4822 124 23052	100uF 20% 16V
2265	4822 124 23052	100uF 20% 16V
2267	4822 126 14249	560pF 10% 50V
2269	4822 124 23052	100uF 20% 16V
2271	4822 124 23052	100uF 20% 16V
2272	4822 126 11785	47pF 5% 50V
2273	4822 126 14226	82pF 5% 50V
2286	4822 124 40248	10uF 20% 63V
2287	4822 124 40248	10uF 20% 63V
2288	4822 124 40248	10uF 20% 63V
2289	4822 124 40248	10uF 20% 63V
2290	4822 126 14472	1uF 10% 10V
2300	3198 017 41050	1uF 10V
2301	2020 552 94427	100pF 5% 50V
2302	2020 552 94427	100pF 5% 50V
2303	3198 017 41050	1uF 10V
2304	3198 017 41050	1uF 10V
2305	3198 017 41050	1uF 10V
2306	2238 586 59812	100nF +80/-20% 50V
2307	4822 124 40433	47uF 20% 25V
2308	3198 017 41050	1uF 10V
2309	2020 552 94427	100pF 5% 50V
2310	2020 552 94427	100pF 5% 50V
2311	3198 017 41050	1uF 10V
2312	2238 916 15641	22nF 10% 25V
2313	4822 124 40433	47uF 20% 25V
2314	3198 017 41050	1uF 10V
2315	3198 017 41050	1uF 10V
2316	3198 017 41050	1uF 10V
2317	4822 124 40433	47uF 20% 25V
2318	2238 916 15641	22nF 10% 25V
2319	2020 552 94427	100pF 5% 50V
2320	2020 552 94427	100pF 5% 50V
2321	3198 017 41050	1uF 10V
2322	3198 017 41050	1uF 10V
2323	3198 017 41050	1uF 10V
2324	2222 586 18812	100nF 10% 50V
2400	4822 126 14043	1uF +80/-20% 16V
2401	3198 016 31020	1nF 25V
2402	3198 017 41050	1uF 10V
2403	4822 126 13193	4,7nF 10% 63V
2404	4822 126 13883	220pF 5% 50V
2405	3198 016 31020	1nF 25V
2406	4822 126 13883	220pF 5% 50V
2407	3198 016 31020	1nF 25V
2408	4822 126 13193	4,7nF 10% 63V
2409	4822 124 40769	4,7uF 20% 100V
2410	3198 017 41050	1uF 10V

2411	3198 016 31020	1nF 25V
2412	4822 126 14043	1uF +80/-20% 16V
2413	4822 126 13883	220pF 5% 50V
2414	4822 126 13883	220pF 5% 50V
2415	5322 122 31863	330pF 5% 63V
2416	5322 122 31863	330pF 5% 63V
2417	4822 126 13883	220pF 5% 50V
2418	3198 017 42230	22nF 50V
2420	4822 124 80195	470uF 20% 10V
2423	4822 124 80195	470uF 20% 10V
2427	4822 124 80195	470uF 20% 10V
2428	4822 124 80195	470uF 20% 10V
2434	4822 124 80195	470uF 20% 10V
2437	4822 124 80195	470uF 20% 10V
2440	4822 126 13883	220pF 5% 50V
2441	4822 126 14221	68pF 5% 50V
2442	4822 126 13883	220pF 5% 50V
2443	4822 126 14221	68pF 5% 50V
2445	5322 126 11583	10nF 10% 50V
2446	4822 126 14508	180pF 5% 50V
2500	4822 124 41643	100uF 20% 16V
2501	4822 124 23002	10uF 16V
2502	2238 586 59812	100nF +80/-20% 50V
2503	4822 124 41643	100uF 20% 16V
2504	4822 124 23002	10uF 16V
2505	2238 586 59812	100nF +80/-20% 50V
2506	2238 586 59812	100nF +80/-20% 50V
2507	3198 029 22210	220uF 20% 16V
2508	4822 126 14585	100nF 10% 50V
2509	2238 586 59812	100nF +80/-20% 50V
2510	4822 124 23052	100uF 20% 16V

RESISTORS

3100	4822 117 11817	1k2 1% 1/16W
3101	4822 117 11817	1k2 1% 1/16W
3102	4822 117 12925	47k 1% 0,063W
3103	4822 117 12925	47k 1% 0,063W
3104	4822 052 10478 Δ	4R7 5% 0,33W
3105	4822 051 30152	1k5 5% 0,062W
3106	4822 051 30562	5k6 5% 0,063W
3107	4822 051 30682	6k8 5% 0,062W
3108	4822 117 11817	1k2 1% 1/16W
3109	4822 051 30472	4k7 5% 0,062W
3110	4822 051 30563	56k 5% 0,062W
3111	4822 051 30472	4k7 5% 0,062W
3112	4822 051 30563	56k 5% 0,062W
3114	4822 117 13632	100k 1% 0,62W
3116	4822 051 30561	560R 5% 0,062W
3118	4822 051 30681	680R 5% 0,062W
3119	4822 051 30563	56k 5% 0,062W
3120	4822 117 11817	1k2 1% 1/16W
3121	4822 117 13632	100k 1% 0,62W

ELECTRICAL PARTS LIST - AV BOARD

RESISTORS

3123	4822 051 30681	680R 5% 0,062W
3124	4822 051 30563	56k 5% 0,062W
3125	4822 051 30562	5k6 5% 0,063W
3128	4822 051 30682	6k8 5% 0,062W
3129	4822 051 30561	560R 5% 0,062W
3130	4822 051 30472	4k7 5% 0,062W
3131	4822 051 30562	5k6 5% 0,063W
3132	4822 051 30273	27k 5% 0,062W
3133	4822 051 30153	15k 5% 0,062W
3134	4822 051 30103	10k 5% 0,062W
3135	4822 051 30103	10k 5% 0,062W
3136	4822 051 30472	4k7 5% 0,062W
3137	4822 051 30562	5k6 5% 0,063W
3138	4822 051 30123	12k 5% 0,062W
3139	4822 051 30123	12k 5% 0,062W
3140	4822 051 30273	27k 5% 0,062W
3141	4822 051 30153	15k 5% 0,062W
3142	4822 051 30103	10k 5% 0,062W
3143	4822 051 30103	10k 5% 0,062W
3144	4822 051 30123	12k 5% 0,062W
3145	4822 051 30123	12k 5% 0,062W
3146	4822 051 30103	10k 5% 0,062W
3147	4822 051 30153	15k 5% 0,062W
3148	4822 051 30103	10k 5% 0,062W
3149	4822 051 30103	10k 5% 0,062W
3150	4822 117 12925	47k 1% 0,063W
3151	4822 051 30471	470R 5% 0,062W
3152	4822 051 30471	470R 5% 0,062W
3153	4822 051 30123	12k 5% 0,062W
3154	4822 051 30123	12k 5% 0,062W
3155	4822 117 12925	47k 1% 0,063W
3156	4822 051 30471	470R 5% 0,062W
3157	4822 051 30471	470R 5% 0,062W
3158	4822 051 30103	10k 5% 0,062W
3159	4822 051 30153	15k 5% 0,062W
3160	4822 051 30103	10k 5% 0,062W
3161	4822 051 30103	10k 5% 0,062W
3162	4822 051 30123	12k 5% 0,062W
3163	4822 051 30123	12k 5% 0,062W
3164	4822 051 30471	470R 5% 0,062W
3200	4822 051 30339	33R 5% 0,062W
3201	4822 051 30339	33R 5% 0,062W
3202	4822 051 30339	33R 5% 0,062W
3203	4822 051 30339	33R 5% 0,062W
3204	4822 051 30562	5k6 5% 0,063W
3205	4822 051 30123	12k 5% 0,062W
3206	4822 051 30339	33R 5% 0,062W
3207	4822 051 30339	33R 5% 0,062W
3208	4822 051 30339	33R 5% 0,062W
3209	4822 051 30123	12k 5% 0,062W
3210	4822 117 12903	1k8 1% 0,063W
3211	4822 051 30339	33R 5% 0,062W

3212	4822 051 30562	5k6 5% 0,063W
3213	4822 051 30123	12k 5% 0,062W
3214	4822 051 30339	33R 5% 0,062W
3215	4822 051 30339	33R 5% 0,062W
3216	4822 051 30123	12k 5% 0,062W
3217	4822 117 12903	1k8 1% 0,063W
3218	4822 051 30562	5k6 5% 0,063W
3219	4822 051 30123	12k 5% 0,062W
3220	4822 051 30339	33R 5% 0,062W
3221	4822 051 30103	10k 5% 0,062W
3222	4822 051 30339	33R 5% 0,062W
3223	4822 051 30123	12k 5% 0,062W
3224	4822 117 12903	1k8 1% 0,063W
3225	4822 051 30103	10k 5% 0,062W
3226	4822 051 30222	2k2 5% 0,062W
3227	4822 051 30222	2k2 5% 0,062W
3228	4822 051 30562	5k6 5% 0,063W
3229	4822 051 30123	12k 5% 0,062W
3230	4822 051 30103	10k 5% 0,062W
3231	4822 051 30123	12k 5% 0,062W
3232	4822 117 12903	1k8 1% 0,063W
3233	4822 051 30103	10k 5% 0,062W
3234	4822 051 30562	5k6 5% 0,063W
3236	4822 051 30123	12k 5% 0,062W
3237	4822 117 13632	100k 1% 0,62W
3238	4822 051 30123	12k 5% 0,062W
3239	4822 117 12903	1k8 1% 0,063W
3240	4822 117 13632	100k 1% 0,62W
3241	4822 051 30562	5k6 5% 0,063W
3243	4822 051 30123	12k 5% 0,062W
3244	4822 117 13632	100k 1% 0,62W
3245	4822 117 13632	100k 1% 0,62W
3246	4822 051 30123	12k 5% 0,062W
3247	4822 117 12903	1k8 1% 0,063W
3248	4822 051 30562	5k6 5% 0,063W
3250	4822 051 30123	12k 5% 0,062W
3251	4822 117 13632	100k 1% 0,62W
3252	4822 051 30123	12k 5% 0,062W
3253	4822 117 12903	1k8 1% 0,063W
3254	4822 051 30562	5k6 5% 0,063W
3256	4822 051 30123	12k 5% 0,062W
3257	4822 051 30123	12k 5% 0,062W
3258	4822 117 12903	1k8 1% 0,063W
3259	4822 117 13632	100k 1% 0,62W
3260	4822 117 13632	100k 1% 0,62W
3261	4822 117 13632	100k 1% 0,62W
3262	4822 052 10229	△ 22R 5% 0,33W
3263	4822 117 11817	1k2 1% 1/16W
3264	4822 051 30222	2k2 5% 0,062W
3265	4822 051 30153	15k 5% 0,062W
3266	4822 117 11817	1k2 1% 1/16W
3267	4822 051 30183	18k 5% 0,062W

ELECTRICAL PARTS LIST - AV BOARD

3268	4822 051 30183	18k 5% 0,062W
3269	4822 051 30103	10k 5% 0,062W
3270	4822 117 11817	1k2 1% 1/16W
3271	4822 051 30222	2k2 5% 0,062W
3272	4822 051 30153	15k 5% 0,062W
3273	4822 051 30183	18k 5% 0,062W
3274	4822 051 30183	18k 5% 0,062W
3275	4822 051 30102	1k 5% 0,062W
3276	4822 051 30102	1k 5% 0,062W
3277	4822 051 30562	5k6 5% 0,063W
3279	4822 051 30123	12k 5% 0,062W
3282	4822 051 30123	12k 5% 0,062W
3283	4822 117 12903	1k8 1% 0,063W
3284	4822 051 30562	5k6 5% 0,063W
3286	4822 051 30123	12k 5% 0,062W
3287	4822 117 12891	220k 1%
3288	4822 051 30123	12k 5% 0,062W
3289	4822 117 12903	1k8 1% 0,063W
3290	4822 051 30222	2k2 5% 0,062W
3300	4822 051 30681	680R 5% 0,062W
3301	4822 051 30681	680R 5% 0,062W
3302	4822 051 30101	100R 5% 0,062W
3303	4822 051 30101	100R 5% 0,062W
3304	4822 051 30102	1k 5% 0,062W
3305	4822 051 30102	1k 5% 0,062W
3306	4822 117 12903	1k8 1% 0,063W
3307	4822 117 12903	1k8 1% 0,063W
3308	4822 051 30102	1k 5% 0,062W
3309	4822 051 30102	1k 5% 0,062W
3310	4822 051 30681	680R 5% 0,062W
3311	4822 051 30681	680R 5% 0,062W
3312	4822 051 30339	33R 5% 0,062W
3313	4822 051 30339	33R 5% 0,062W
3314	4822 051 30102	1k 5% 0,062W
3315	4822 117 12925	47k 1% 0,063W
3316	4822 051 30273	27k 5% 0,062W
3317	4822 051 30102	1k 5% 0,062W
3318	4822 051 30102	1k 5% 0,062W
3319	4822 051 30472	4k7 5% 0,062W
3320	4822 051 30102	1k 5% 0,062W
3321	4822 051 30472	4k7 5% 0,062W
3322	4822 051 30102	1k 5% 0,062W
3323	4822 051 30681	680R 5% 0,062W
3324	4822 051 30681	680R 5% 0,062W
3325	4822 051 30101	100R 5% 0,062W
3326	4822 051 30101	100R 5% 0,062W
3327	4822 051 30102	1k 5% 0,062W
3328	4822 051 30102	1k 5% 0,062W
3329	4822 117 12903	1k8 1% 0,063W
3330	4822 117 12903	1k8 1% 0,063W
3331	4822 051 30102	1k 5% 0,062W
3332	4822 051 30102	1k 5% 0,062W

3334	4822 051 30681	680R 5% 0,062W
3335	4822 051 30681	680R 5% 0,062W
3336	4822 051 30102	1k 5% 0,062W
3337	4822 117 12925	47k 1% 0,063W
3338	4822 051 30273	27k 5% 0,062W
3339	4822 051 30102	1k 5% 0,062W
3340	4822 051 30102	1k 5% 0,062W
3341	4822 051 30472	4k7 5% 0,062W
3342	4822 051 30102	1k 5% 0,062W
3343	4822 051 30472	4k7 5% 0,062W
3344	4822 051 30102	1k 5% 0,062W
3346	4822 051 30681	680R 5% 0,062W
3347	4822 051 30681	680R 5% 0,062W
3348	4822 051 30101	100R 5% 0,062W
3349	4822 051 30101	100R 5% 0,062W
3350	4822 051 30102	1k 5% 0,062W
3351	4822 051 30102	1k 5% 0,062W
3352	4822 117 12903	1k8 1% 0,063W
3353	4822 117 12903	1k8 1% 0,063W
3354	4822 051 30102	1k 5% 0,062W
3355	4822 051 30102	1k 5% 0,062W
3356	4822 051 30102	1k 5% 0,062W
3357	4822 051 30102	1k 5% 0,062W
3358	4822 051 30273	27k 5% 0,062W
3359	4822 051 30102	1k 5% 0,062W
3360	4822 051 30102	1k 5% 0,062W
3361	4822 051 30102	1k 5% 0,062W
3362	4822 051 30472	4k7 5% 0,062W
3363	4822 051 30472	4k7 5% 0,062W
3400	4822 051 30103	10k 5% 0,062W
3402	5322 117 13056	8k2 1% 0,063W
3403	4822 051 30222	2k2 5% 0,062W
3404	4822 051 30471	470R 5% 0,062W
3405	4822 117 12925	47k 1% 0,063W
3406	4822 051 30223	22k 5% 0,062W
3407	4822 117 12925	47k 1% 0,063W
3408	4822 051 30471	470R 5% 0,062W
3409	4822 117 12925	47k 1% 0,063W
3410	4822 051 30223	22k 5% 0,062W
3412	4822 051 30222	2k2 5% 0,062W
3413	4822 117 12925	47k 1% 0,063W
3415	4822 051 30103	10k 5% 0,062W
3416	4822 051 30471	470R 5% 0,062W
3417	4822 051 30103	10k 5% 0,062W
3418	4822 051 30103	10k 5% 0,062W
3421	4822 051 30103	10k 5% 0,062W
3422	4822 051 30471	470R 5% 0,062W
3423	4822 051 30222	2k2 5% 0,062W
3424	4822 051 30103	10k 5% 0,062W
3425	5322 117 13017	100R 1% 0,063W
3426	4822 051 30759	75R 5% 0,062W
3427	4822 051 30222	2k2 5% 0,062W

ELECTRICAL PARTS LIST - AV BOARD**RESISTORS**

3428	4822 117 12925	47k 1% 0,063W	4423	4822 051 30008	OR Jumper 0603
3430	5322 117 13055	75R 1% 0,063W	4424	4822 051 30008	OR Jumper 0603
3432	4822 051 30123	12k 5% 0,062W	4425	4822 051 30008	OR Jumper 0603
3433	4822 051 30759	75R 5% 0,062W	4426	4822 051 30008	OR Jumper 0603
3434	4822 051 30222	2k2 5% 0,062W	4427	4822 051 30008	OR Jumper 0603
3435	4822 051 30223	22k 5% 0,062W	4428	4822 051 30008	OR Jumper 0603
3437	4822 051 30222	2k2 5% 0,062W	4429	4822 051 30008	OR Jumper 0603
3439	5322 117 13055	75R 1% 0,063W	4430	4822 051 30008	OR Jumper 0603
3454	4822 051 30151	150R 5% 0,062W	4431	4822 051 30008	OR Jumper 0603
3455	4822 051 30151	150R 5% 0,062W	4432	4822 051 30008	OR Jumper 0603
3502	4822 117 12925	47k 1% 0,063W	4433	4822 051 30008	OR Jumper 0603
3503	4822 117 12925	47k 1% 0,063W	4434	4822 051 30008	OR Jumper 0603
3504	4822 117 12925	47k 1% 0,063W	4435	4822 051 30008	OR Jumper 0603
3505	4822 052 10568	△ 5R60 5% 0,33W	4436	4822 051 30008	OR Jumper 0603
3506	4822 116 83872	220R 5% 0,5W	4437	4822 051 30008	OR Jumper 0603
3507	4822 051 30471	470R 5% 0,062W	4438	4822 051 30008	OR Jumper 0603
3508	4822 051 30102	1k 5% 0,062W	4439	4822 051 30008	OR Jumper 0603
3509	4822 117 12139	22R 5% 0,062W	4440	4822 051 30008	OR Jumper 0603
3510	4822 051 30689	68R 5% 0,063W	4441	4822 051 30008	OR Jumper 0603
3511	5322 117 13028	12k 1% 0,063W	4442	4822 051 30008	OR Jumper 0603
3512	5322 117 13028	12k 1% 0,063W	4443	4822 051 30008	OR Jumper 0603
3514	4822 117 12864	82k 5% 0,6W	4444	4822 051 30008	OR Jumper 0603
4100	4822 051 30008	OR Jumper 0603	4445	4822 051 30008	OR Jumper 0603
4101	4822 051 30008	OR Jumper 0603	4446	4822 051 30008	OR Jumper 0603
4102	4822 051 30008	OR Jumper 0603	4447	4822 051 30008	OR Jumper 0603
4103	4822 051 30008	OR Jumper 0603	4448	4822 051 30008	OR Jumper 0603
4104	4822 051 30008	OR Jumper 0603	4449	4822 051 30008	OR Jumper 0603
4111	4822 051 30008	OR Jumper 0603	4450	4822 051 30008	OR Jumper 0603
4112	4822 051 30008	OR Jumper 0603	4451	4822 051 30008	OR Jumper 0603
4116	4822 051 30008	OR Jumper 0603	4452	4822 051 30008	OR Jumper 0603
4117	4822 051 30008	OR Jumper 0603	4453	4822 051 30008	OR Jumper 0603
4119	4822 051 30008	OR Jumper 0603	4454	4822 051 30008	OR Jumper 0603
4120	4822 051 30008	OR Jumper 0603	4455	4822 051 30008	OR Jumper 0603
4121	4822 051 30008	OR Jumper 0603	4456	4822 051 30008	OR Jumper 0603
4301	4822 051 20008	OR Jumper 0805	4457	4822 051 30008	OR Jumper 0603
4302	4822 051 20008	OR Jumper 0805	4458	4822 051 30008	OR Jumper 0603
4303	4822 051 30008	OR Jumper 0603	4459	4822 051 30008	OR Jumper 0603
4400	4822 051 30008	OR Jumper 0603	4460	4822 051 30008	OR Jumper 0603
4401	4822 051 30008	OR Jumper 0603	4461	4822 051 30008	OR Jumper 0603
4406	4822 051 30008	OR Jumper 0603	4462	4822 051 30008	OR Jumper 0603
4407	4822 051 30008	OR Jumper 0603	4463	4822 051 30008	OR Jumper 0603
4408	4822 051 30008	OR Jumper 0603	4464	4822 051 30008	OR Jumper 0603
4409	4822 051 30008	OR Jumper 0603	4465	4822 051 30008	OR Jumper 0603
4410	4822 051 30008	OR Jumper 0603	4466	4822 051 30008	OR Jumper 0603
4411	4822 051 30008	OR Jumper 0603	4500	4822 051 20008	OR Jumper 0805
4412	4822 051 30008	OR Jumper 0603	4501	4822 051 20008	OR Jumper 0805
4413	4822 051 30008	OR Jumper 0603			
4414	4822 051 30008	OR Jumper 0603			
4415	4822 051 30008	OR Jumper 0603			
4416	4822 051 30008	OR Jumper 0603			
4417	4822 051 30008	OR Jumper 0603			
4422	4822 051 30008	OR Jumper 0603			

COILS & FILTERS

5102	4822 157 62552	Coil 2,2uH 5%
5103	4822 157 62552	Coil 2,2uH 5%
5200	2422 549 43062	FXD IND 0603 100MHz 600R
5201	2422 549 43062	FXD IND 0603 100MHz 600R

ELECTRICAL PARTS LIST - AV BOARD

5202	2422 549 43062	FXD IND 0603 100MHz 600R	7108	5322 130 60159	BC847B
5203	2422 549 43062	FXD IND 0603 100MHz 600R	7200	4822 209 30095	IC SM LM833D
5204	2422 549 43062	FXD IND 0603 100MHz 600R	7201	4822 209 30095	IC SM LM833D
5205	2422 549 43062	FXD IND 0603 100MHz 600R	7202	4822 209 30095	IC SM LM833D
5206	4822 157 62552	Coil 2,2uH 5%	7205	4822 130 40959	BC547B
5207	4822 157 62552	Coil 2,2uH 5%	7207	9352 686 05118	IC SM SAA6581T
5208	4822 157 62552	Coil 2,2uH 5%	7300	5322 130 60159	BC847B
5209	4822 157 62552	Coil 2,2uH 5%	7301	5322 130 60159	BC847B
5210	4822 157 62552	Coil 2,2uH 5%	7303	5322 130 60159	BC847B
5211	4822 242 11033	RES XTL 4,332MHz	7304	5322 130 60159	BC847B
5212	4822 157 62552	Coil 2,2uH 5%	7306	4822 130 60373	BC857B
5213	4822 157 62552	Coil 2,2uH 5%	7307	4822 130 60373	BC857B
5301	4822 157 62552	Coil 2,2uH 5%	7308	4822 209 17345	IC SM M62320FP
5501	2422 086 11103	FUSE SM F 2A 125V UL R	7309	5322 130 60159	BC847B
5503	4822 157 11717	INDFXD 1206 EMI 100MHz 50R	7310	5322 130 60159	BC847B

DIODES

6100	4822 130 30621	1N4148	7312	5322 130 60159	BC847B
6101	9322 150 08685	DIO REG SM BZX384-C9V1	7313	5322 130 60159	BC847B
6102	4822 130 30621	1N4148	7314	4822 130 60373	BC857B
6103	4822 130 11397	BAS316	7315	4822 130 60373	BC857B
6200	4822 130 83206	BZX79-B5V6	7316	5322 130 60159	BC847B
6300	4822 130 11397	BAS316	7317	5322 130 60159	BC847B
6301	4822 130 11397	BAS316	7318	5322 130 60159	BC847B
6302	4822 130 11397	BAS316	7319	5322 130 60159	BC847B
6303	4822 130 11397	BAS316	7320	5322 130 60159	BC847B
6304	4822 130 11397	BAS316	7321	4822 130 60373	BC857B
6305	4822 130 11397	BAS316	7400	5322 130 60159	BC847B
6306	4822 130 11397	BAS316	7401	4822 130 60373	BC857B
6307	4822 130 11397	BAS316	7402	5322 130 60159	BC847B
6308	4822 130 11397	BAS316	7404	5322 130 60159	BC847B
6309	4822 130 11397	BAS316	7405	5322 130 60159	BC847B
6310	4822 130 11397	BAS316	7406	5322 130 60159	BC847B
6311	4822 130 11397	BAS316	7408	4822 130 60373	BC857B
6312	4822 130 11397	BAS316	7409	5322 130 60159	BC847B
6400	4822 130 11522	DIO REG SM BZX384-C15	7410	5322 130 60159	BC847B
6401	4822 130 11522	DIO REG SM BZX384-C15	7500	4822 130 41246	BC327-25
6402	4822 130 11522	DIO REG SM BZX384-C15	7501	4822 130 60373	BC857B
6403	4822 130 11522	DIO REG SM BZX384-C15	7502	5322 130 60159	BC847B
6404	9340 548 67115	DIO REG SM BZX384-C22	7503	4822 130 41246	BC327-25
6405	4822 130 11522	DIO REG SM BZX384-C15	7504	4822 130 11565	2SB1132
6406	4822 130 11522	DIO REG SM BZX384-C15	7505	5322 130 60159	BC847B
6407	4822 130 11522	DIO REG SM BZX384-C15	7506	9322 146 75685	IC SM TS431L
6500	4822 130 34174	BZX79-B4V7	7507	9322 163 24668	IC SM L78M08CDT

TRANSISTORS & INTEGRATED CIRCUITS

7100	4822 130 40959	BC547B	7601	4822 130 42804	BC817-25
7102	5322 209 11102	IC SM HEF4052BT	7602	4822 130 60373	BC857B
7103	9322 203 36668	IC SM CS42418-CQ	7603	5322 130 60159	BC847B
7104	4822 209 31378	IC SM NJM4556AM	7604	5322 130 60159	BC847B
7105	5322 130 60159	BC847B	7605	4822 130 42804	BC817-25
7107	4822 130 60373	BC857B			

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

AMPLIFIER BOARD

(Module Class D PWR307 - 75W / 4-Channel)

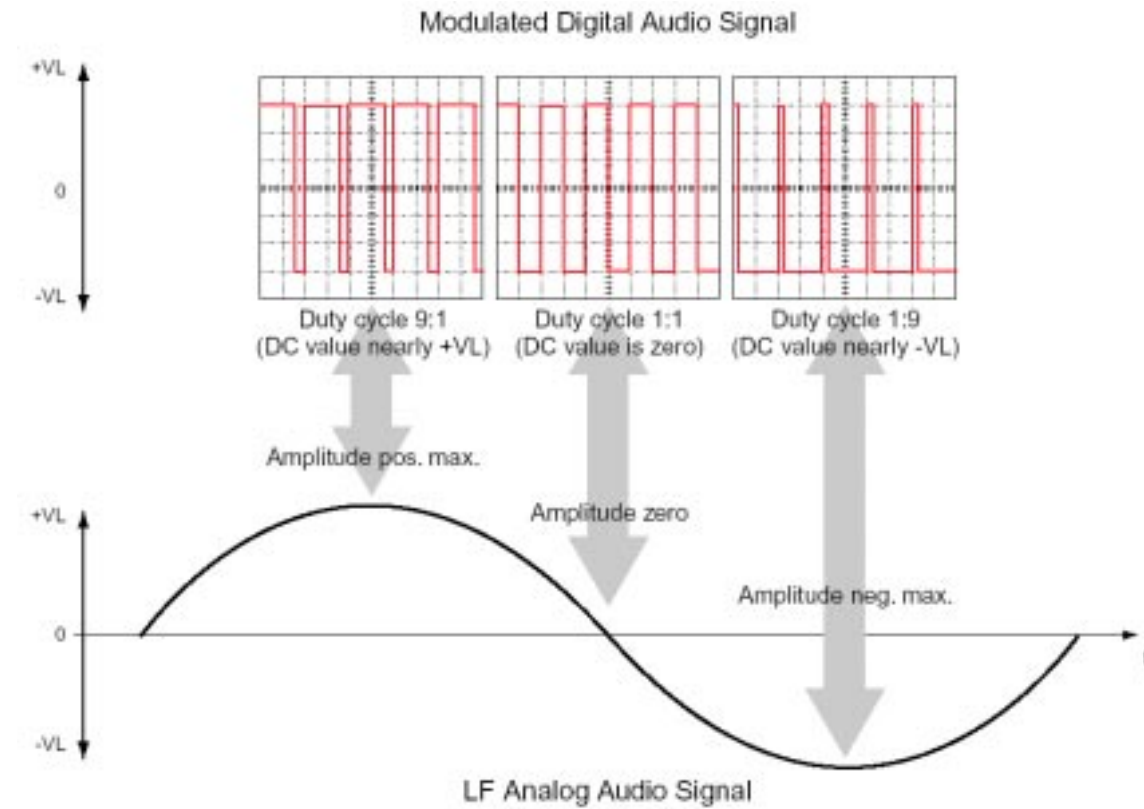
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6-channel class D amplifier

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.



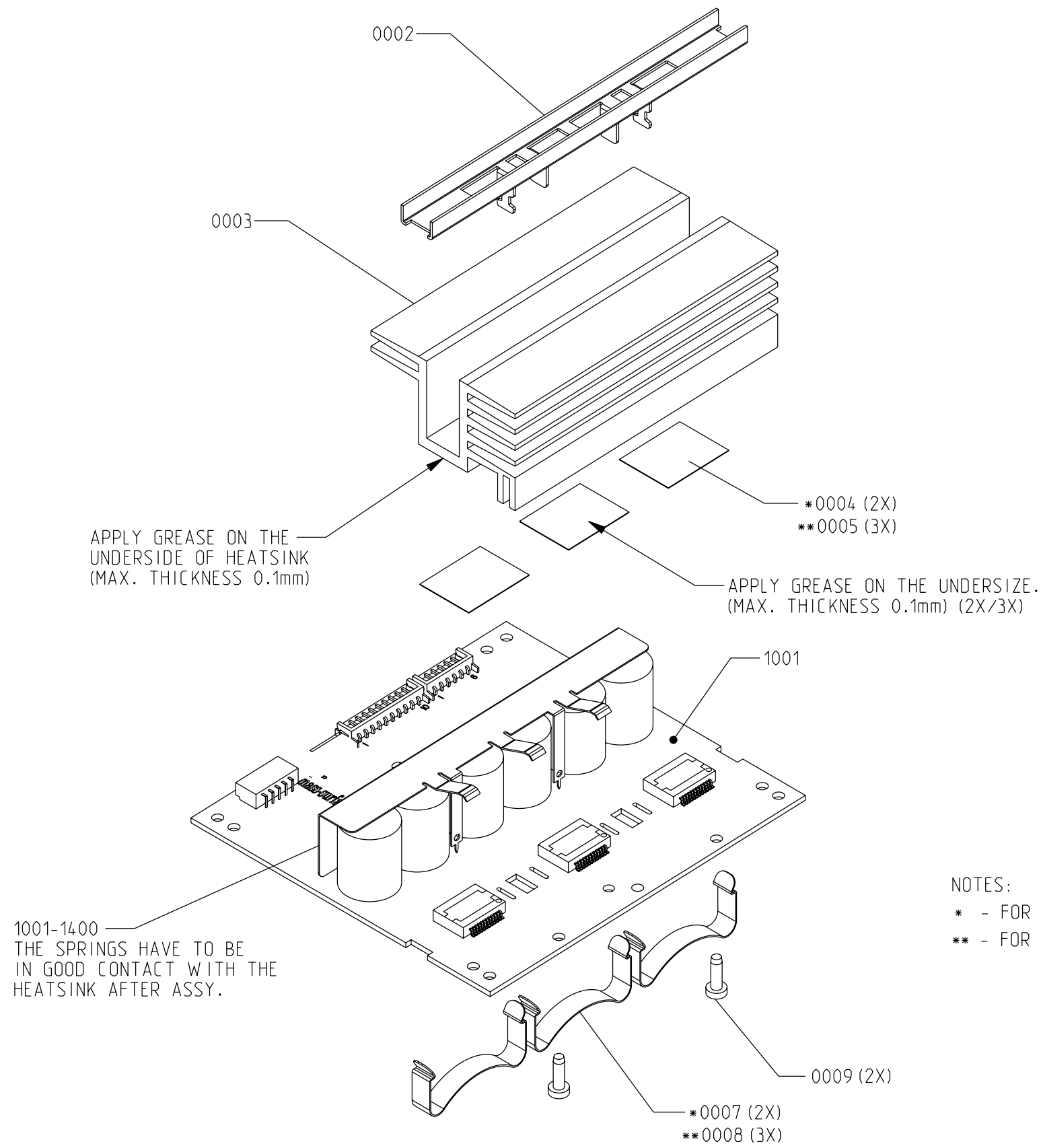
Compared to a conventional power amplifier the benefits of the Class-D amplifier are:

- higher efficiency
- 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 radiation (EMC).

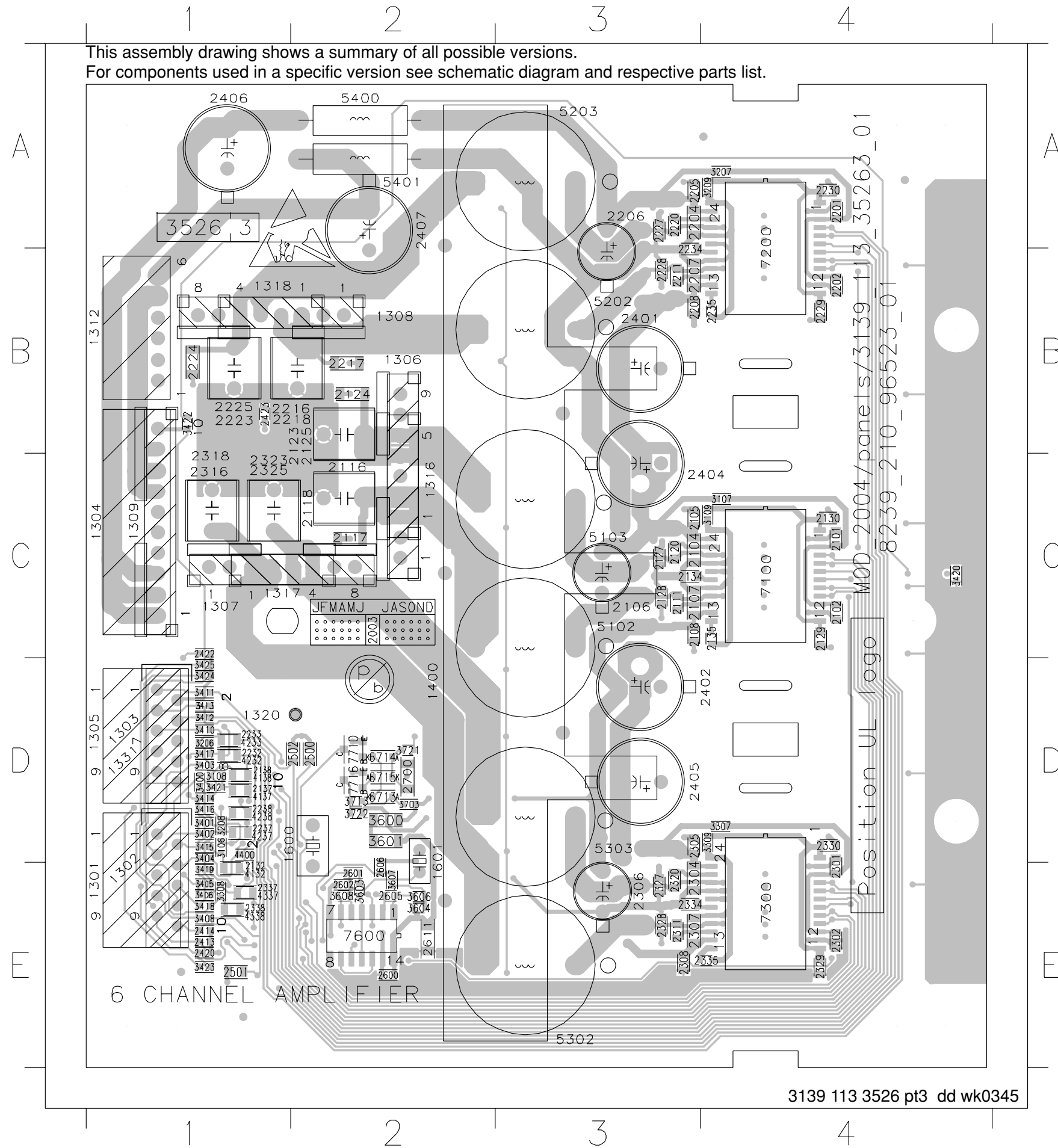
EXPLODED VIEW



NOTES:

- * - FOR 75W 4CH VERSION
- ** - FOR 75W 6CH & 100W SE VERSIONS

CLASS D AMPLIFIER BOARD - TOP VIEW LAYOUT



1301	E1	6713	D2	2101	C4	2501	E1	4238	D1
1302	E1	6714	D2	2102	C4	2502	D2	4337	E1
1303	D1	6715	D2	2104	C3	2600	E2	4338	E1
1304	C1	7100	C4	2105	C3	2601	E2	4400	D1
1305	D1	7200	A4	2107	C3	2602	E2	6713	D2
1306	B2	7300	E4	2108	C3	2605	E2	6714	D2
1307	C1	7600	E2	2111	C3	2606	E2	6715	D2
1308	B2	7710	D2	2117	C2	2611	E2	7100	C4
1309	C1	7716	D2	2120	C3	2700	D2	7200	A4
1312	B1			2124	B2	3106	D1	7300	E4
1316	C2			2127	C3	3107	C4	7600	E2
1317	C1			2128	C3	3108	D1	7710	D2
1318	B1			2129	C4	3109	C4	7716	D2
1320	D1			2130	C4	3206	D1		
1331	D1			2132	E1	3207	A4		
1400	D2			2134	C3	3208	D1		
1600	D1			2135	C4	3209	A4		
1601	D2			2137	D1	3307	D4		
2104	C3			2138	D1	3308	E1		
2106	C3			2201	A4	3309	D4		
2107	C3			2202	B4	3400	D1		
2116	C2			2204	A3	3401	D1		
2117	C2			2205	A3	3402	D1		
2118	C2			2207	B3	3403	D1		
2123	B2			2208	B3	3404	D1		
2124	B2			2211	B3	3405	E1		
2125	B2			2217	B2	3406	E1		
2204	A3			2220	A3	3408	E1		
2206	A3			2224	B1	3410	D1		
2207	B3			2227	A3	3411	D1		
2216	B1			2228	B3	3412	D1		
2217	B2			2229	B4	3413	D1		
2218	B2			2230	A4	3414	D1		
2223	B1			2232	D1	3415	D1		
2224	B1			2233	D1	3416	D1		
2225	B1			2234	B3	3417	D1		
2304	D3			2235	B4	3418	E1		
2306	E3			2237	D1	3419	E1		
2307	E3			2238	D1	3420	C4		
2316	C1			2301	E4	3421	D1		
2318	C1			2302	E4	3422	B1		
2323	C1			2304	E3	3423	E1		
2325	C1			2305	D3	3424	D1		
2401	B3			2307	E3	3425	D1		
2402	D4			2308	E3	3600	D2		
2404	C4			2311	E3	3601	D2		
2405	D3			2320	E3	3603	E2		
2406	A1			2327	E3	3604	E2		
2407	A2			2328	E3	3606	E2		
2611	E2			2329	E4	3607	E2		
2700	D2			2330	D4	3608	E2		
3600	D2			2334	E3	3703	D2		
3601	D2			2335	E4	3713	D2		
5102	C3			2337	E1	3721	D2		
5103	C3			2338	E1	3722	D2		
5202	B3			2413	E1	4132	E1		
5203	A3			2414	E1	4137	D1		
5302	E3			2420	E1	4138	D1		
5303	D3			2422	C1	4232	D1		
5400	A2			2423	B1	4233	D1		
5401	A2			2500	D2	4237	D1		

ELECTRICAL PARTS LIST - CLASS D AMPLIFIER BOARD**MISCELLANEOUS**

0007	3104 211 29861	Spring 6 Channel
1302	4822 267 10729	Flex Connector 10P
1331	4822 265 11515	Flex Connector 8P
1600	2422 540 98514	RES CER 602kHz7
1601	2422 540 98568	RES CER 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	2238 600 15619	560pF 10% 100V
2115	2238 600 15619	560pF 10% 100V
2116	4822 121 51252	470nF 5% 63V
2117	2222 601 55649	100nF 10% 100V
2120	4822 126 13188	15nF 5% 63V
2122	2238 600 15619	560pF 10% 100V
2124	2222 601 55649	100nF 10% 100V
2125	4822 121 51252	470nF 5% 63V
2126	2238 600 15619	560pF 10% 100V
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
2132	4822 126 14583	470nF 10% 16V
2133	4822 126 14583	470nF 10% 16V
2134	2238 780 55654	220nF 10% 16V
2135	4822 126 14221	68pF 5% 50V
2136	4822 126 14241	330pF 50V
2137	4822 126 14583	470nF 10% 16V
2138	4822 126 14583	470nF 10% 16V
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	2238 600 15619	560pF 10% 100V
2215	2238 600 15619	560pF 10% 100V
2216	4822 121 51252	470nF 5% 63V
2217	2222 601 55649	100nF 10% 100V
2220	4822 126 13188	15nF 5% 63V
2222	2238 600 15619	560pF 10% 100V
2224	2222 601 55649	100nF 10% 100V
2225	4822 121 51252	470nF 5% 63V

2226	2238 600 15619	560pF 10% 100V
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
2232	4822 126 14583	470nF 10% 16V
2233	4822 126 14583	470nF 10% 16V
2234	2238 780 55654	220nF 10% 16V
2235	4822 126 14221	68pF 5% 50V
2236	4822 126 14241	330pF 50V
2237	4822 126 14583	470nF 10% 16V
2238	4822 126 14583	470nF 10% 16V
2400	2222 580 15649	100nF 10% 50V
2401	3198 038 44710	470uF 20% 35V
2402	3198 038 44710	470uF 20% 35V
2403	2222 580 15649	100nF 10% 50V
2404	3198 038 44710	470uF 20% 35V
2405	3198 038 44710	470uF 20% 35V
2406	4822 123 14026	35V 470U 20%
2407	4822 123 14026	35V 470U 20%
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 +80/-20% 50V
2420	5322 126 11578	1nF 10% 50V
2421	5322 126 11578	1nF 10% 50V
2422	5322 126 11578	1nF 10% 50V
2423	2238 586 59812	100nF +80/-20% 50V
2425	5322 126 11578	1nF 10% 50V
2600	2238 586 59812	100nF +80/-20% 50V
2602	2020 552 94427	100pF 5% 50V
2603	2020 552 94427	100pF 5% 50V
2604	2238 586 59812	100nF +80/-20% 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

ELECTRICAL PARTS LIST - CLASS D AMPLIFIER BOARD

3102	4822 051 10568	5R6 5% 0,25W
3103	2322 762 60229	RST SM 2512 22R 5%
3104	2322 762 60229	RST SM 2512 22R 5%
3105	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	RST SM 2512 22R 5%
3204	2322 762 60229	RST SM 2512 22R 5%
3205	4822 051 10568	5R6 5% 0,25W
3207	4822 051 30109	10R 5% 0,062W
3209	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 33103	NTC SM 0603 0W125 10k 5%
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 2% 0,25W
3601	4822 051 10821	820R 2% 0,25W
3602	4822 117 13632	100k 1% 0,62W
3604	4822 051 30103	10k 5% 0,062W
3605	4822 051 30682	6k8 5% 0,062W
3606	4822 117 13632	100k 1% 0,62W
3607	4822 051 30102	1k 5% 0,062W
3608	4822 051 30105	1M 5% 0,062W
3609	4822 117 13632	100k 1% 0,62W
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
3721	4822 051 30103	10k 5% 0,062W
3722	4822 051 30103	10k 5% 0,062W
4501	4822 051 30008	0R Jumper 0603
4511	4822 051 30008	0R Jumper 0603
4522	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5102	2422 536 00733	IND FXD DASM S 22U PM20
5103	2422 536 00733	IND FXD DASM S 22U PM20
5202	2422 536 00733	IND FXD DASM S 22U PM20
5203	2422 536 00733	IND FXD DASM S 22U PM20
5400	4822 157 11411	FXD IND BEAD 100MHz 80R
5401	4822 157 11411	FXD IND BEAD 100MHz 80R

DIODES

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

TRANSISTORS & INTEGRATED CIRCUITS

7100	9352 705 74518	IC SM TDA8920TH/N1
7200	9352 705 74518	IC SM TDA8920TH/N1
7600	5322 209 11517	IC SM 74HCU04D
7602	5322 130 60159	BC847B
7607	5322 209 14477	IC SM 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.

SPEAKER CONNECTOR BOARD

ELECTRICAL PARTS LIST - SPEAKER CONNECTOR BOARD

MISCELLANEOUS

1520	4822 265 11515	Flex Connector 8P
1521	2422 025 18425	Speaker Socket 4P White/Red
1522	2422 025 18426	Speaker Socket 4P Purple/Green
1526	2422 025 17618	Wireless Transmitter Socket 8P

CAPACITORS

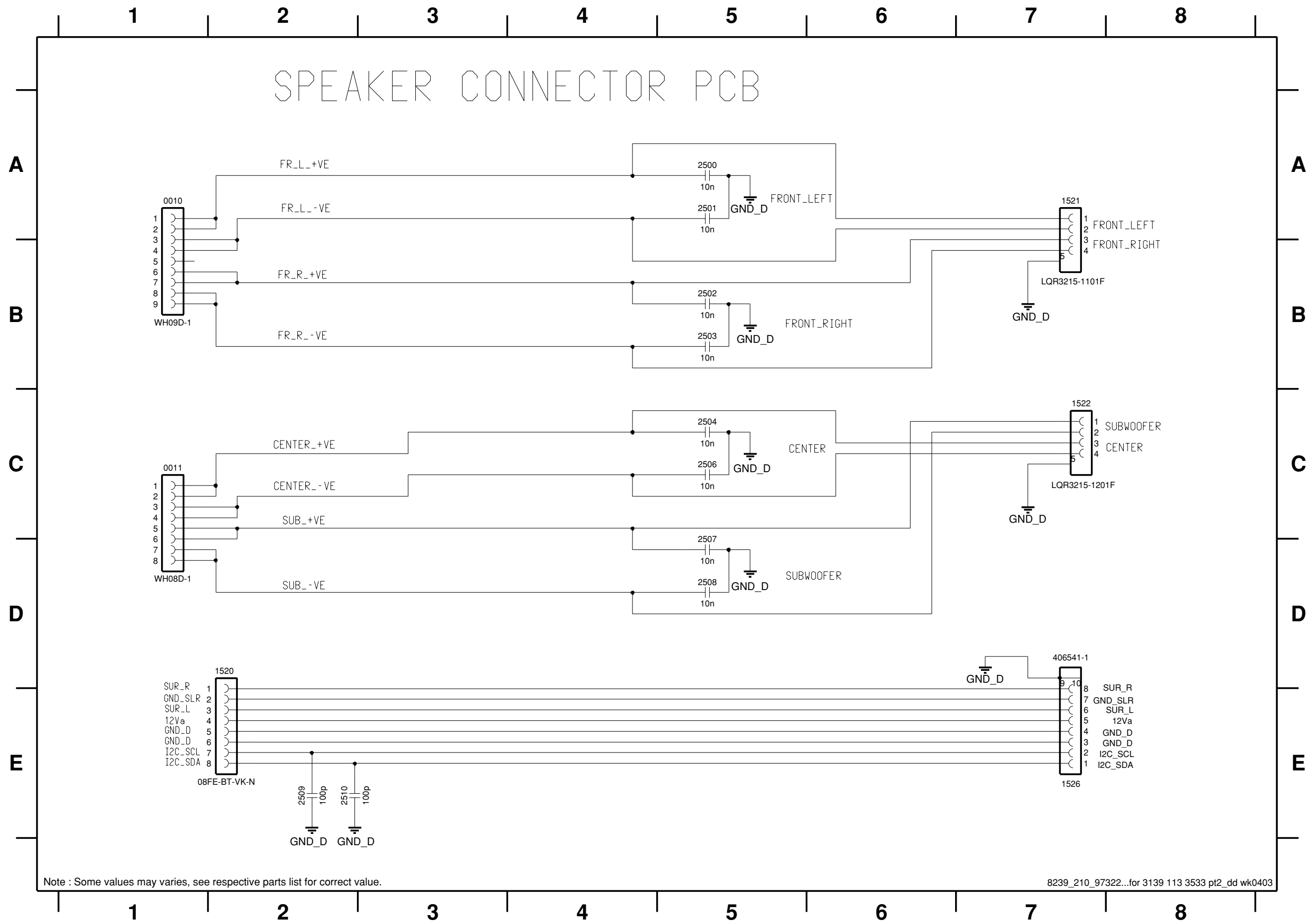
2500	5322 126 11583	10nF 10% 50V
2501	5322 126 11583	10nF 10% 50V
2502	5322 126 11583	10nF 10% 50V
2503	5322 126 11583	10nF 10% 50V
2504	5322 126 11583	10nF 10% 50V
2506	5322 126 11583	10nF 10% 50V
2507	5322 126 11583	10nF 10% 50V
2508	5322 126 11583	10nF 10% 50V
2509	2020 552 94427	100pF 5% 50V
2510	2020 552 94427	100pF 5% 50V

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

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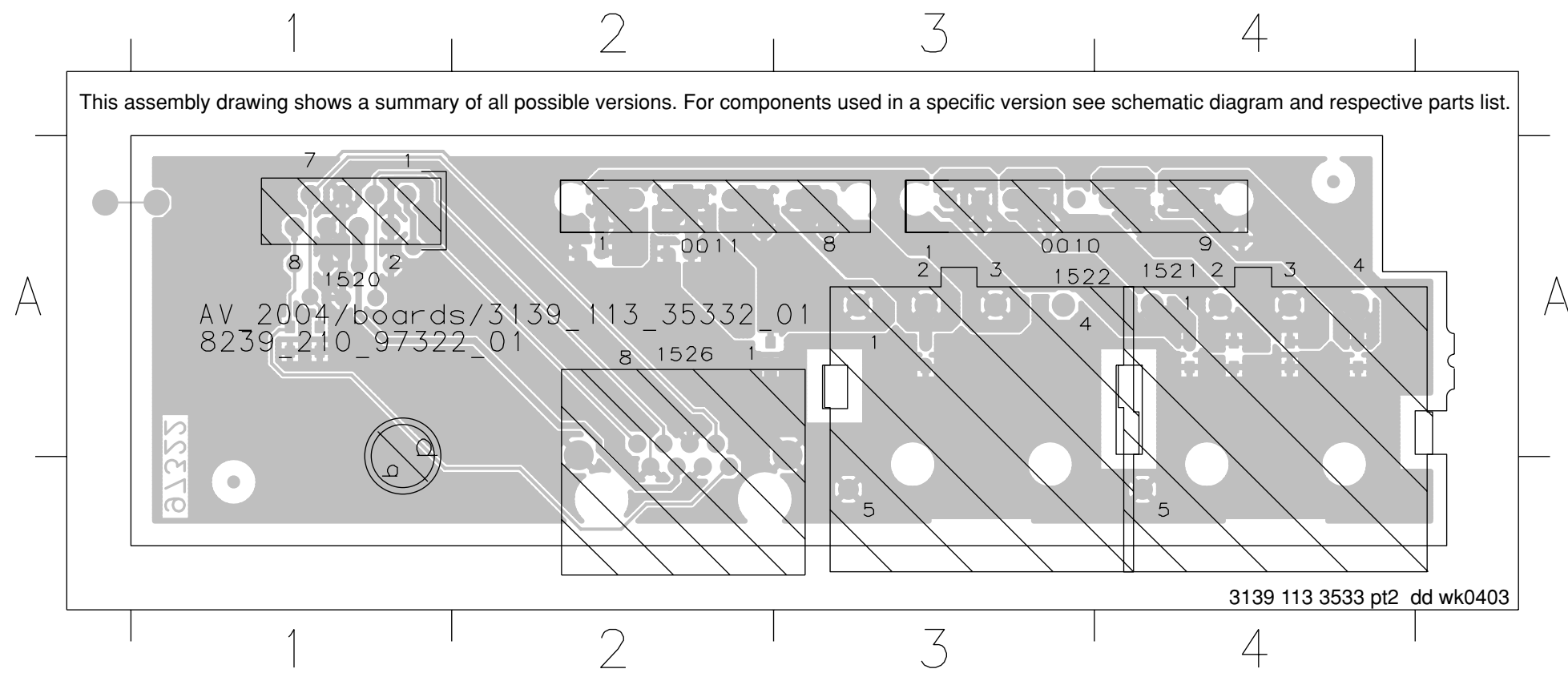
SPEAKER CONNECTOR BOARD - CIRCUIT DIAGRAM



- 0010 A1
- 0011 C1
- 1520 D2
- 1521 A7
- 1522 C7
- 1526 E7
- 2500 A5
- 2501 A5
- 2502 B5
- 2503 B5
- 2504 C5
- 2506 C5
- 2507 D5
- 2508 D5
- 2509 E2
- 2510 E2

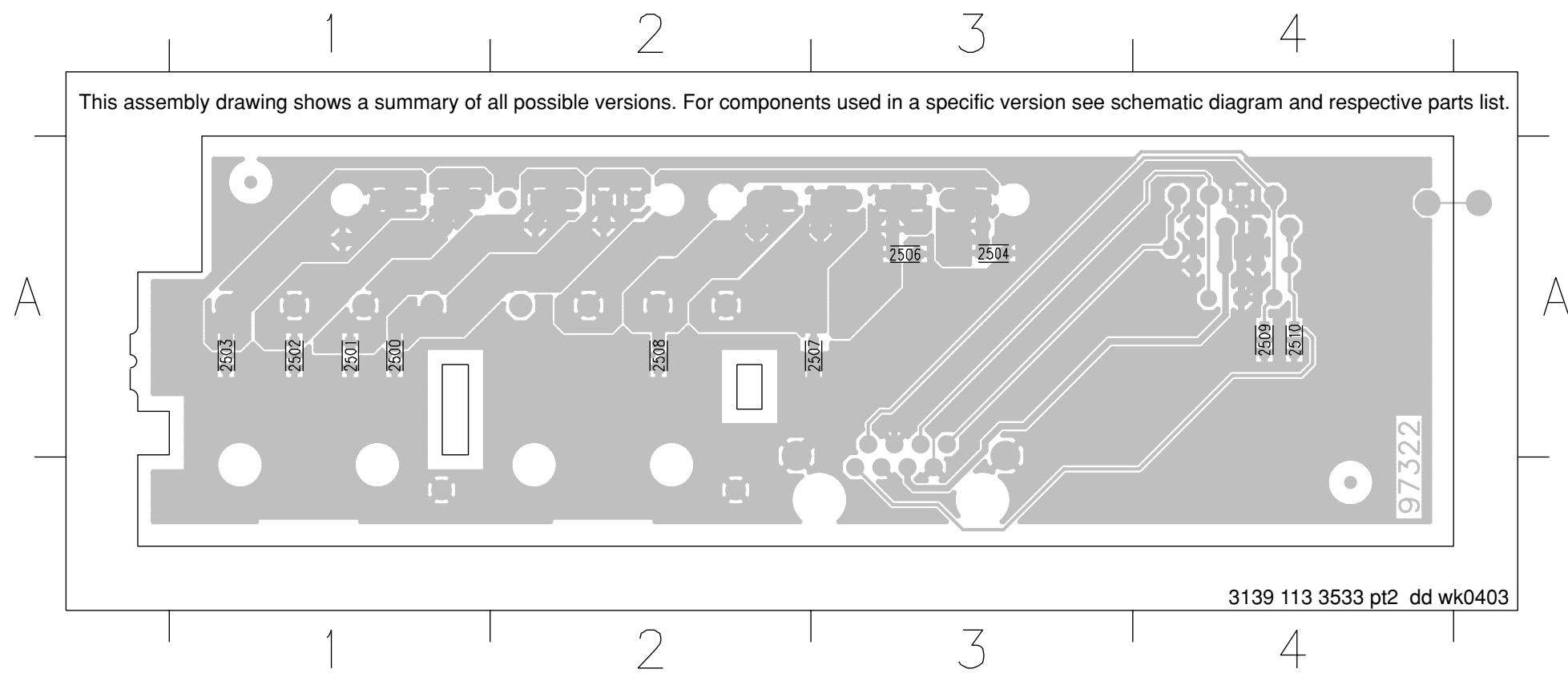
Note : Some values may varies, see respective parts list for correct value.

SPEAKER CONNECTOR BOARD - COMPONENT LAYOUT



- 0010 A3
- 0011 A2
- 1520 A1
- 1521 A4
- 1522 A3
- 1526 A2

SPEAKER CONNECTOR BOARD - CHIP LAYOUT



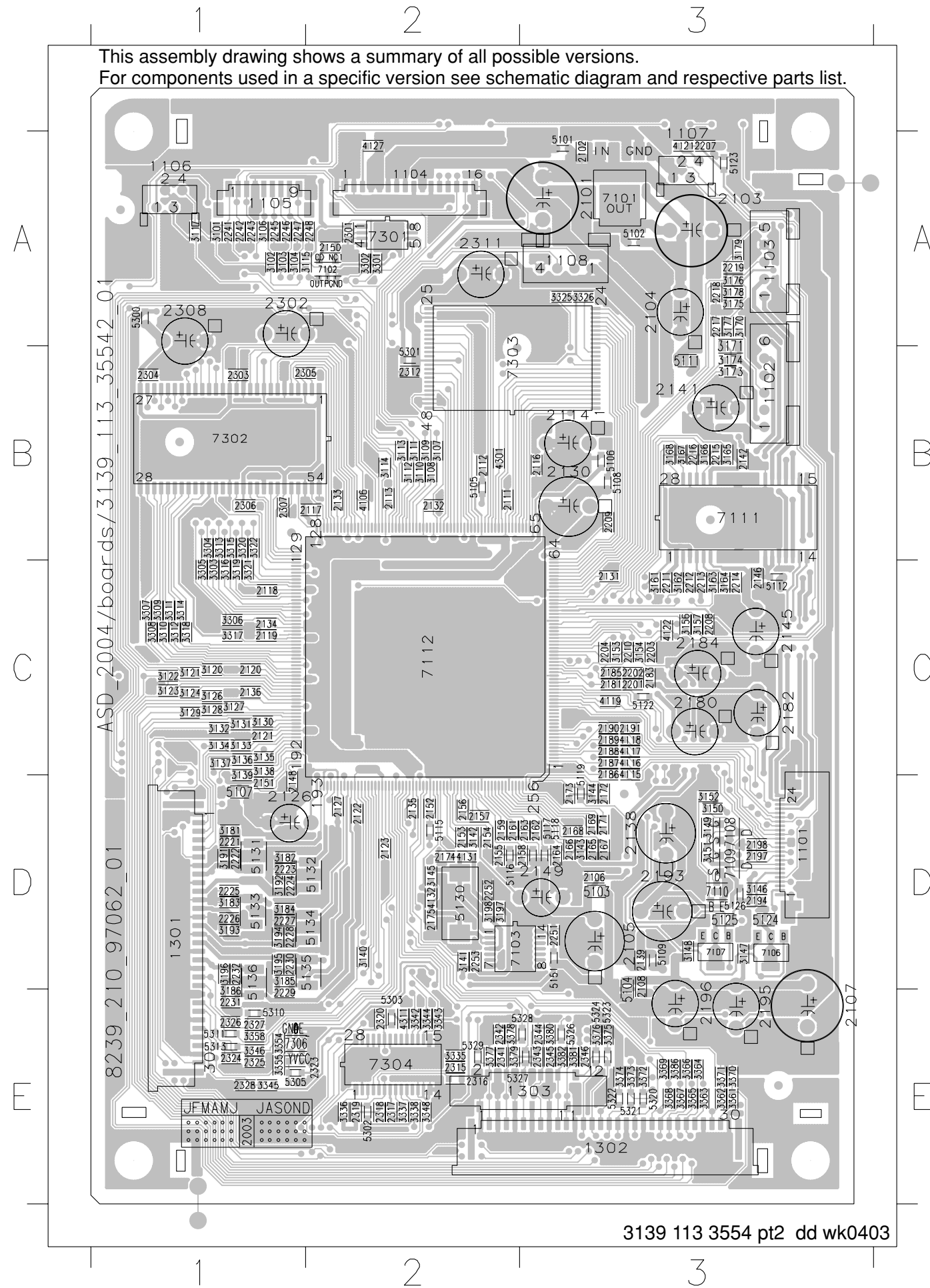
- 2500 A1
- 2501 A1
- 2502 A1
- 2503 A1
- 2504 A3
- 2506 A3
- 2507 A3
- 2508 A2
- 2509 A4
- 2510 A4

MODULE SD6.1 RX

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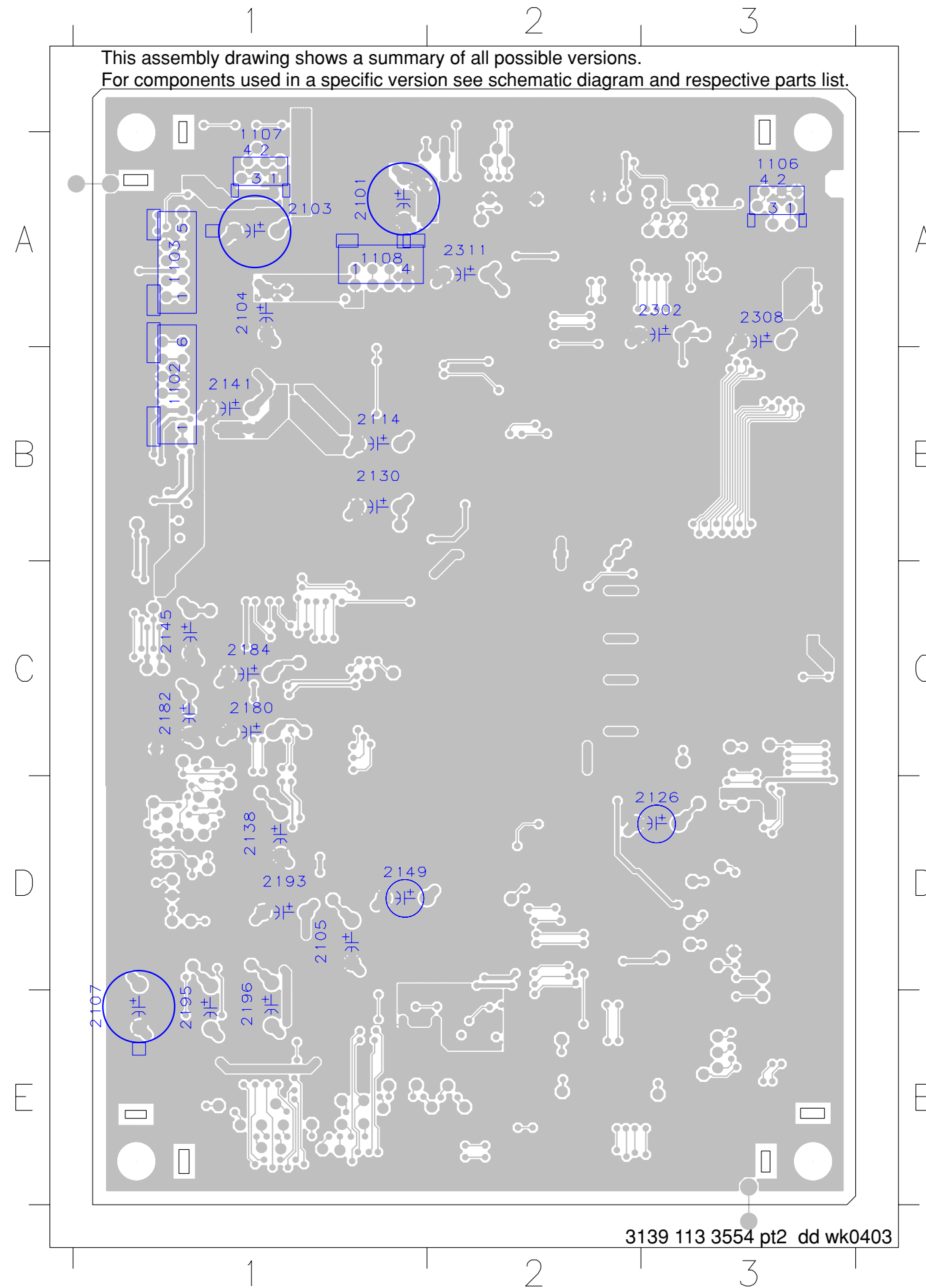
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SD6.1 RX BOARD - TOP VIEW LAYOUT



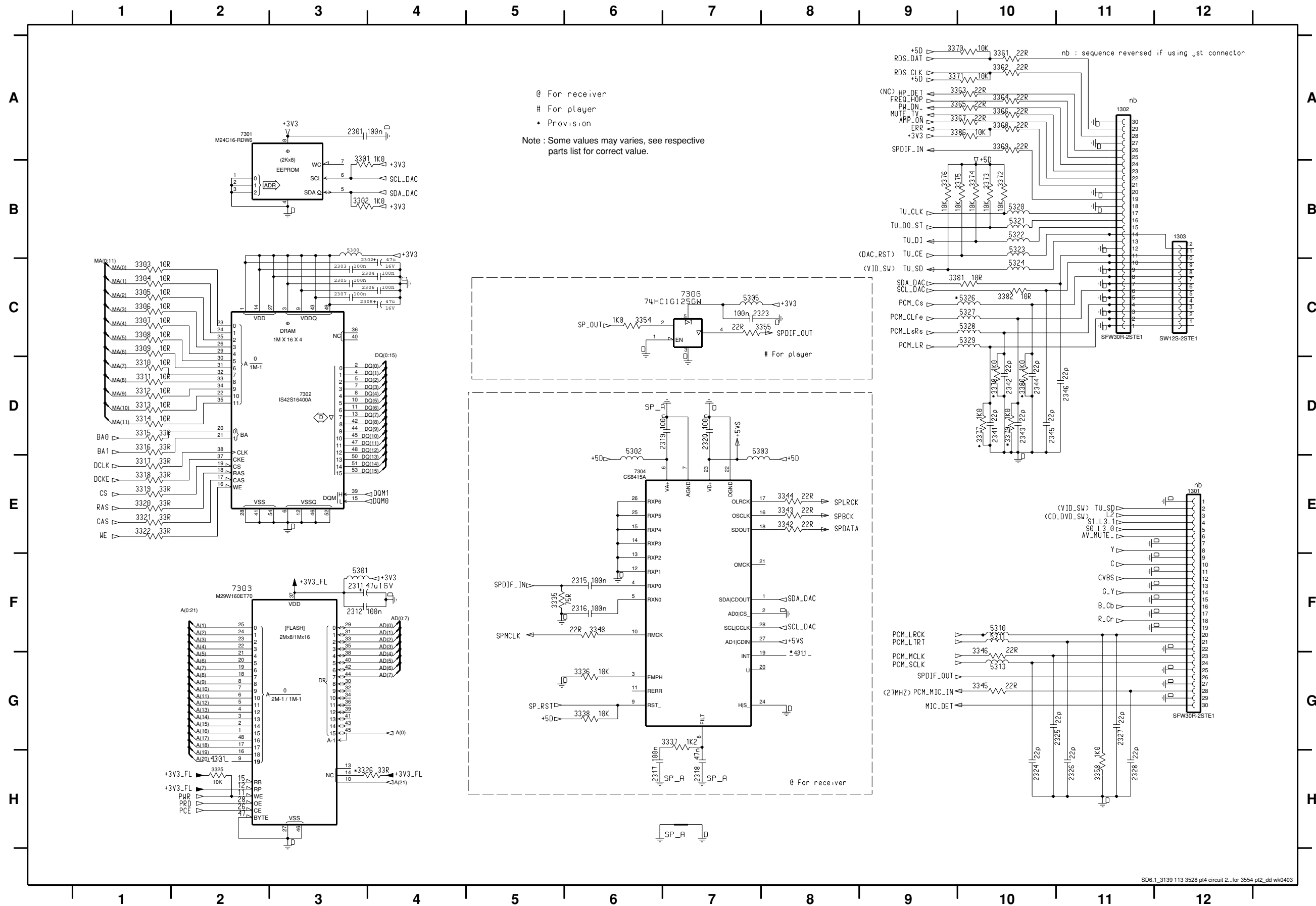
1101	D3	2169	D3	2304	B1	3147	D3	3336	E2	5124	D3
1102	B3	2171	D3	2305	B2	3148	D3	3337	E2	5125	D3
1103	A3	2172	D3	2306	B1	3149	D3	3338	E2	5126	D3
1104	A2	2173	D3	2307	B1	3150	D3	3342	E2	5130	D2
1105	A1	2174	D2	2308	A1	3151	D3	3343	E2	5131	D1
1106	A1	2175	D2	2311	A2	3152	D3	3344	E2	5132	D2
1107	A3	2180	C3	2312	B2	3153	C3	3345	E1	5133	D1
1108	A3	2181	C3	2315	E2	3154	C3	3346	E1	5134	D2
1301	D1	2182	C3	2316	E2	3156	C3	3348	E2	5135	D2
1302	E3	2183	C3	2317	E2	3157	C3	3354	E1	5136	D1
1303	E3	2184	C3	2318	E2	3161	C3	3355	E1	5151	D3
2101	A3	2185	C3	2319	E2	3162	C3	3358	E1	5300	A1
2102	A3	2186	C3	2320	E2	3163	C3	3361	E3	5301	B2
2103	A3	2187	C3	2323	E2	3164	C3	3362	E3	5302	E2
2104	A3	2188	C3	2324	E1	3165	B3	3363	E3	5303	E2
2105	D3	2189	C3	2325	E1	3166	B3	3364	E3	5305	E1
2106	D3	2190	C3	2326	E1	3167	B3	3365	E3	5310	E1
2107	E3	2191	C3	2327	E1	3168	B3	3366	E3	5311	E1
2108	D3	2193	D3	2328	E1	3170	A3	3367	E3	5313	E1
2111	B2	2194	D3	2341	E2	3171	B3	3368	E3	5320	E3
2112	B2	2195	E3	2342	E2	3173	B3	3369	E3	5321	E3
2113	B2	2196	E3	2343	E3	3174	B3	3370	E3	5322	E3
2114	B3	2197	D3	2344	E3	3175	A3	3371	E3	5323	E3
2116	B3	2198	D3	2345	E3	3176	A3	3372	E3	5324	E3
2117	B2	2201	C3	2346	E3	3177	A3	3373	E3	5326	E3
2118	C1	2202	C3	3101	A1	3178	A3	3374	E3	5327	E2
2119	C1	2203	C3	3102	A1	3179	A3	3375	E3	5328	E3
2120	C1	2204	C3	3103	A1	3181	D1	3376	E3	5329	E2
2121	C1	2207	A3	3104	A1	3182	D1	3377	E2	7101	A3
2122	D2	2208	C3	3106	A1	3183	D1	3378	E2	7102	A2
2123	D2	2209	B3	3107	B2	3184	D1	3379	E2	7103	D2
2126	D1	2210	C3	3108	B2	3185	D1	3380	E3	7106	D3
2127	D2	2211	C3	3109	B2	3186	E1	3381	E3	7107	D3
2130	B3	2212	C3	3110	B2	3191	D1	3382	E3	7108	D3
2131	C3	2213	C3	3111	B2	3192	D1	3386	E3	7109	D3
2132	B2	2214	C3	3112	B2	3193	D1	4106	B2	7110	D3
2133	B2	2215	B3	3113	B2	3194	D1	4115	C3	7111	B3
2134	C1	2216	B3	3114	B2	3195	D1	4116	C3	7112	C2
2135	D2	2217	A3	3115	A2	3196	D1	4117	C3	7301	A2
2136	C1	2218	A3	3117	A1	3197	D2	4118	C3	7302	B1
2138	D3	2219	A3	3120	C1	3198	D2	4119	C3	7303	B2
2139	D3	2221	D1	3121	C1	3301	A2	4121	A3	7304	E2
2141	B3	2222	D1	3122	C1	3302	A2	4122	C3	7306	E1
2142	B3	2223	D1	3123	C1	3303	C1	4127	A2		
2145	C3	2224	D1	3124	C1	3304	B1	4131	D2		
2146	C3	2225	D1	3126	C1	3305	C1	4132	D2		
2148	D1	2226	D1	3127	C1	3306	C1	4301	B2		
2149	D3	2227	D1	3128	C1	3307	C1	4311	E2		
2150	A2	2228	D1	3129	C1	3308	C1	5101	A3		
2151	D1	2229	E1	3130	C1	3309	C1	5102	A3		
2152	D2	2230	D1	3131	C1	3310	C1	5103	D3		
2153	D2	2231	E1	3132	C1	3311	C1	5104	E3		
2154	D2	2232	D1	3133	C1	3312	C1	5105	B2		
2155	D2	2241	A1	3134	C1	3313	B1	5106	B3		
2156	D2	2242	A1	3135	C1	3314	C1	5107	D1		
2157	D2	2243	A1	3136	C1	3315	B1	5108	B3		
2158	D3	2245	A1	3137	C1	3316	C1	5109	D3		
2159	D2	2246	A1	3138	C1	3317	C1	5111	B3		
2161	D2	2247	A1	3139	D1	3318	C1	5112	C3		
2162	D3	2248	A2	3140	D2	3319	C1	5115	D2		
2163	D3	2251	D3	3141	D2	3320	B1	5116	D2		
2164	D3	2252	D2	3142	D2	3321	C1	5117	D3		
2165	D3	2253	D2	3143	D3	3322	B1	5118	D3		
2166	D3	2301	A2	3144	D3	3325	A3	5119	D3		
2167	D3	2302	A1	3145	D2	3326	A3	5122	C3		
2168	D3	2303	B1	3146	D3	3335	E2	5123	A3		

SD6.1 RX BOARD - BOTTOM VIEW LAYOUT



- 1102 B1
- 1103 A1
- 1106 A3
- 1107 A1
- 1108 A1
- 2101 A1
- 2103 A1
- 2104 A1
- 2105 D1
- 2107 E1
- 2114 B1
- 2126 D3
- 2130 B1
- 2138 D1
- 2141 B1
- 2145 C1
- 2149 D1
- 2180 C1
- 2182 C1
- 2184 C1
- 2193 D1
- 2195 E1
- 2196 E1
- 2302 A3
- 2308 A3
- 2311 A2

SD6.1 RX BOARD - CIRCUIT DIAGRAM (PART 2)

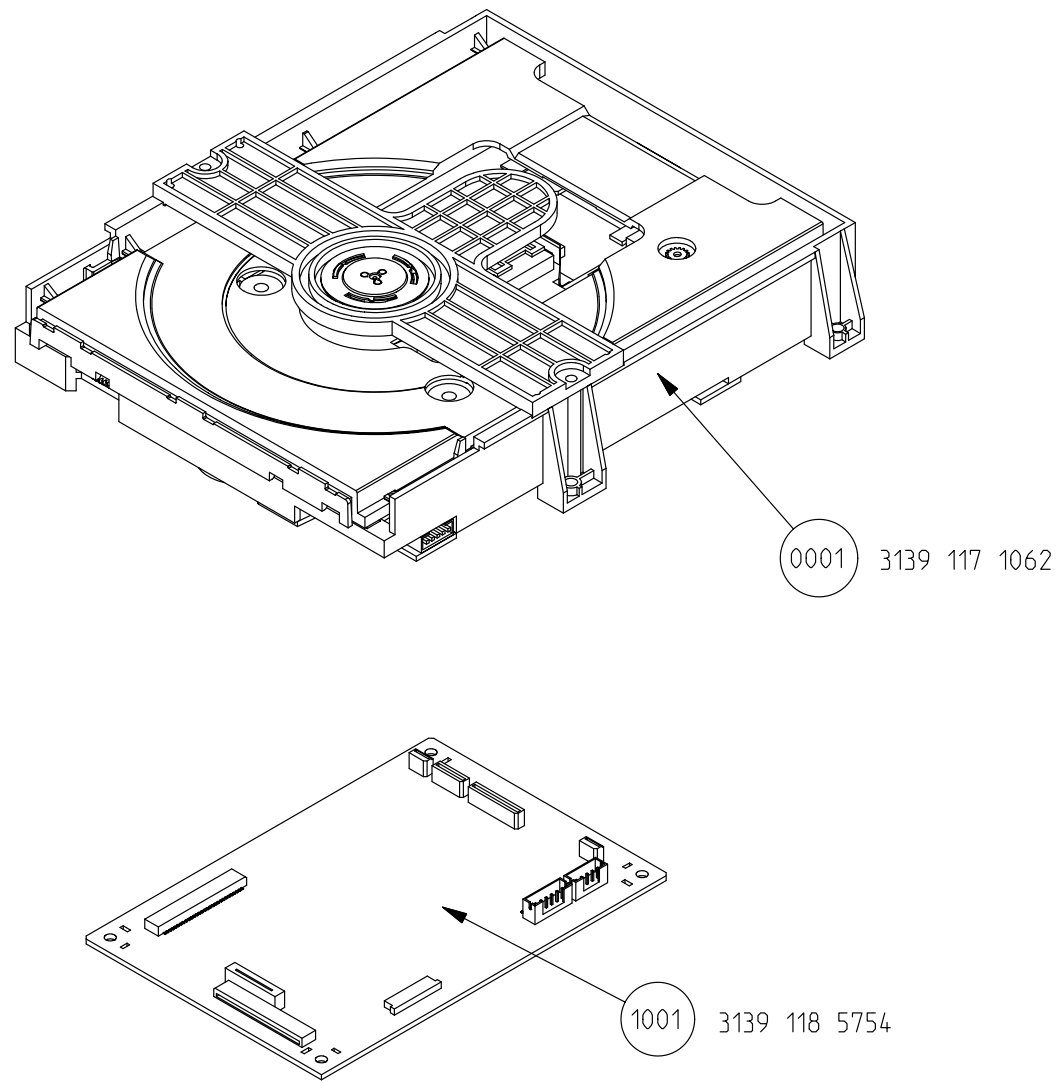


@ For receiver
 # For player
 * Provision

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

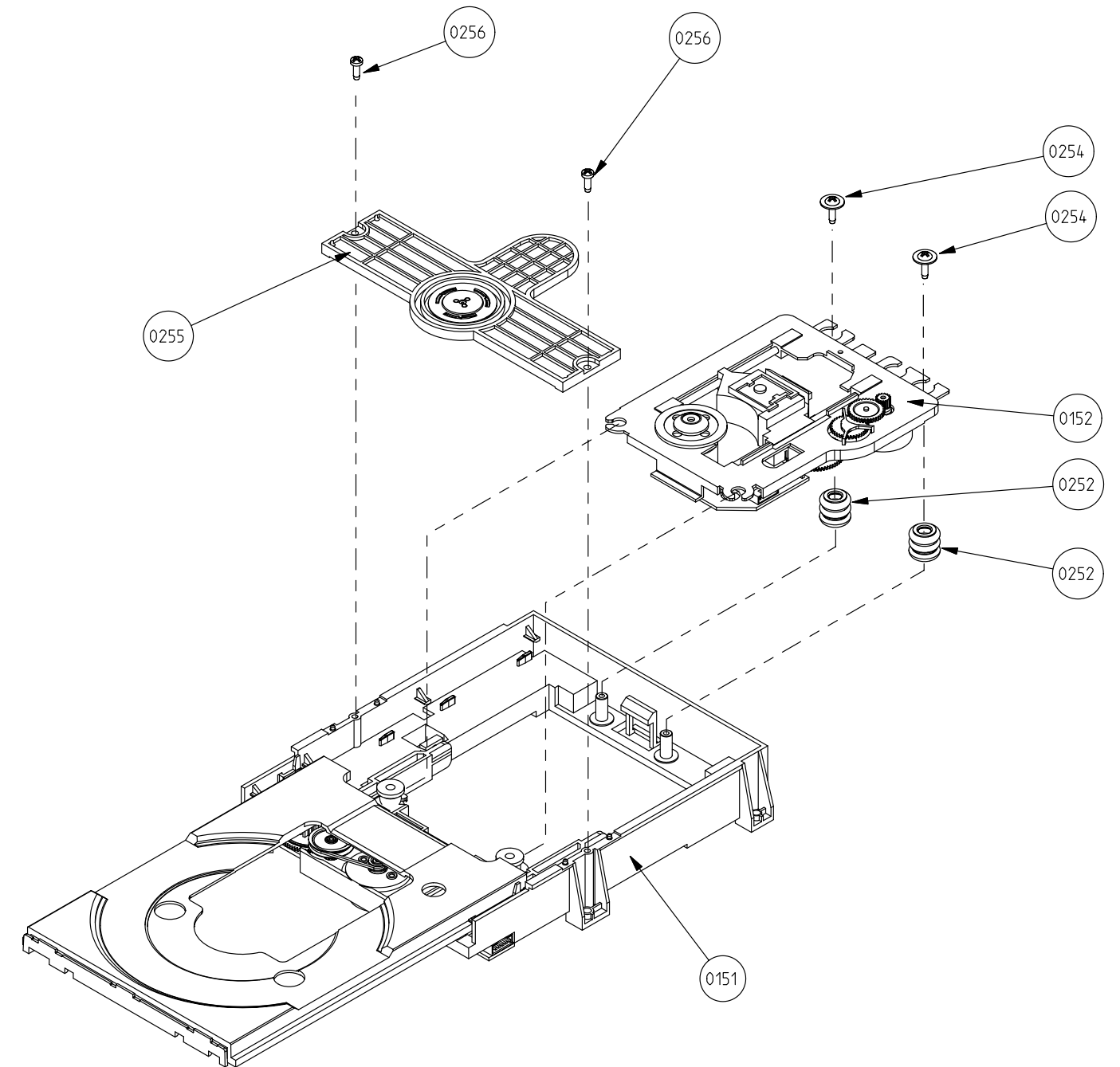
1301 E12	5323 B10
1302 A11	5324 C10
1303 B12	5326 C10
2301 A3	5327 C10
2302 C4	5328 C10
2303 C3	5329 C10
2304 C4	7301 A2
2305 C3	7302 D3
2306 C4	7303 F2
2307 C3	7304 E6
2308 C4	7306 C7
2311 F3	
2312 F3	
2315 F6	
2316 F6	
2317 H6	
2318 H7	
2319 D6	
2320 D7	
2323 C7	
2324 H10	
2325 G10	
2326 H11	
2327 G11	
2328 H11	
2341 D10	
2342 D10	
2343 D10	
2344 D10	
2345 D10	
2346 D11	
3301 B3	
3302 B3	
3303 C1	
3304 C1	
3305 C1	
3306 C1	
3307 C1	
3308 C1	
3309 C1	
3310 D1	
3311 D1	
3312 D1	
3313 D1	
3314 D1	
3315 D1	
3316 D1	
3317 E1	
3318 E1	
3319 E1	
3320 E1	
3321 E1	
3322 E1	
3325 H2	
3326 H3	
3335 F5	
3336 G6	
3337 G7	
3338 G6	
3342 E8	
3343 E8	
3344 E8	
3345 G10	
3346 G10	
3348 F6	
3354 C6	
3355 C8	
3358 H11	
3361 A10	
3362 A10	
3363 A10	
3364 A10	
3365 A10	
3366 A10	
3367 A10	
3368 A10	
3369 A10	
3370 A9	
3371 A9	
3372 B10	
3373 B10	
3374 B10	
3375 B9	
3376 B9	
3377 D10	
3378 D10	
3379 D10	
3380 D10	
3381 C9	
3382 C10	
3386 A10	
4301 H2	
4311 G8	
5300 B3	
5301 F3	
5302 D6	
5303 D7	
5305 C7	
5310 F10	
5311 F10	
5313 G10	
5320 B10	
5321 B10	
5322 B10	

EXPLODED VIEW - MODULE SD6.1 RX



Module SD6.1 RX_3139 117 10651_dd wk0406

EXPLODED VIEW - MODULE DVD LOADER ASA+DV34



Module DVD Loader ASA+DV34_3139 117 10621_dd wk0406

MODULE SD6.1 RX PARTS LIST

0001	3139 117 10621	Module DVD Loader ASA+DV34
1001	3139 118 57541	PCBAS SD6.1 RX
1101	3139 111 03851	FFC Foil24P/140/24PAD 0.5MMP

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

ELECTRICAL PARTS LIST - SD6.1 RX BOARD**MISCELLANEOUS**

1101	2422 025 17529	Flex Connector 24P
1104	2422 025 16388	Flex Connector 16P
1105	2422 025 17768	Flex Connector 9P
1301	2422 025 17451	Flex Connector 30P
1302	2422 025 17451	Flex Connector 30P

CAPACITORS

2101	3198 029 12210	220uF 20% 10V
2102	2238 586 59812	100nF +80/-20% 50V
2103	3198 029 12210	220uF 20% 10V
2104	4822 124 80231	47uF 20% 16V
2105	4822 124 40196	220uF 20% 16V
2106	2238 586 59812	100nF +80/-20% 50V
2107	3198 029 12210	220uF 20% 10V
2108	2238 586 59812	100nF +80/-20% 50V
2111	2238 586 59812	100nF +80/-20% 50V
2112	2238 586 59812	100nF +80/-20% 50V
2113	2238 586 59812	100nF +80/-20% 50V
2114	4822 124 81151	22uF 50V
2116	2238 586 59812	100nF +80/-20% 50V
2117	2238 586 59812	100nF +80/-20% 50V
2118	2238 586 59812	100nF +80/-20% 50V
2119	2238 586 59812	100nF +80/-20% 50V
2120	2238 586 59812	100nF +80/-20% 50V
2121	2238 586 59812	100nF +80/-20% 50V
2122	2238 586 59812	100nF +80/-20% 50V
2123	2238 586 59812	100nF +80/-20% 50V
2126	4822 124 21732	10uF 20% 25V
2127	2238 586 59812	100nF +80/-20% 50V
2130	4822 124 40196	220uF 20% 16V
2131	2238 586 59812	100nF +80/-20% 50V
2132	2238 586 59812	100nF +80/-20% 50V
2133	2238 586 59812	100nF +80/-20% 50V
2134	2238 586 59812	100nF +80/-20% 50V
2135	2238 586 59812	100nF +80/-20% 50V
2136	2238 586 59812	100nF +80/-20% 50V
2138	4822 124 40196	220uF 20% 16V
2139	2238 586 59812	100nF +80/-20% 50V
2141	4822 124 80231	47uF 20% 16V
2142	2238 586 59812	100nF +80/-20% 50V
2145	4822 124 80231	47uF 20% 16V
2146	2238 586 59812	100nF +80/-20% 50V
2149	4822 124 21732	10uF 20% 25V
2150	2238 586 59812	100nF +80/-20% 50V
2151	2238 586 59812	100nF +80/-20% 50V
2152	2238 586 59812	100nF +80/-20% 50V
2153	2238 586 59812	100nF +80/-20% 50V
2154	3198 017 44740	470nF 10V
2155	2238 586 59812	100nF +80/-20% 50V
2156	3198 017 34730	47nF 16V
2157	3198 017 34730	47nF 16V
2158	2238 586 59812	100nF +80/-20% 50V

2159	3198 017 41050	1uF 10V
2161	2238 586 59812	100nF +80/-20% 50V
2162	5322 126 11578	1nF 10% 50V
2163	2238 586 59812	100nF +80/-20% 50V
2164	2238 586 59812	100nF +80/-20% 50V
2165	4822 122 33761	22pF 5% 50V
2166	5322 126 11578	1nF 10% 50V
2167	2238 586 59812	100nF +80/-20% 50V
2168	4822 126 14549	33nF 16V
2169	2238 586 59812	100nF +80/-20% 50V
2171	2238 586 59812	100nF +80/-20% 50V
2172	2238 586 59812	100nF +80/-20% 50V
2173	2238 586 59812	100nF +80/-20% 50V
2174	4822 126 14223	2,2pF 50V
2175	4822 126 14223	2,2pF 50V
2180	4822 124 80231	47uF 20% 16V
2181	2238 586 59812	100nF +80/-20% 50V
2182	4822 124 80231	47uF 20% 16V
2183	2238 586 59812	100nF +80/-20% 50V
2184	4822 124 80231	47uF 20% 16V
2185	2238 586 59812	100nF +80/-20% 50V
2186	3198 017 41050	1uF 10V
2187	3198 017 41050	1uF 10V
2188	3198 017 41050	1uF 10V
2189	3198 017 41050	1uF 10V
2190	3198 017 41050	1uF 10V
2193	4822 124 40196	220uF 20% 16V
2194	2238 586 59812	100nF +80/-20% 50V
2195	4822 124 80231	47uF 20% 16V
2196	4822 124 80231	47uF 20% 16V
2197	2238 586 59812	100nF +80/-20% 50V
2198	2238 586 59812	100nF +80/-20% 50V
2201	2238 586 59812	100nF +80/-20% 50V
2202	2238 586 59812	100nF +80/-20% 50V
2204	4822 126 14238	2,2nF 50V
2209	4822 126 14247	1,5nF 50V
2210	4822 126 14238	2,2nF 50V
2211	2238 586 59812	100nF +80/-20% 50V
2212	4822 126 13881	470pF 5% 50V
2213	3198 017 31540	150nF 10V
2214	2222 586 18812	100nF 10% 50V
2215	2222 586 18812	100nF 10% 50V
2216	4822 126 13881	470pF 5% 50V
2217	4822 126 13881	470pF 5% 50V
2218	4822 126 13881	470pF 5% 50V
2219	4822 126 13881	470pF 5% 50V
2221	4822 126 11785	47pF 5% 50V
2222	4822 126 11785	47pF 5% 50V
2223	4822 126 11785	47pF 5% 50V
2224	4822 126 11785	47pF 5% 50V
2225	4822 126 11785	47pF 5% 50V
2226	4822 126 11785	47pF 5% 50V

ELECTRICAL PARTS LIST - SD6.1 RX BOARD

2227	4822 126 11785	47pF 5% 50V
2228	4822 126 11785	47pF 5% 50V
2229	4822 126 11785	47pF 5% 50V
2230	4822 126 11785	47pF 5% 50V
2231	4822 126 11785	47pF 5% 50V
2232	4822 126 11785	47pF 5% 50V
2241	2020 552 94427	100pF 5% 50V
2242	2020 552 94427	100pF 5% 50V
2243	2020 552 94427	100pF 5% 50V
2245	2020 552 94427	100pF 5% 50V
2246	2020 552 94427	100pF 5% 50V
2247	2020 552 94427	100pF 5% 50V
2248	2020 552 94427	100pF 5% 50V
2301	2238 586 59812	100nF +80/-20% 50V
2302	4822 124 80231	47uF 20% 16V
2303	2238 586 59812	100nF +80/-20% 50V
2304	2238 586 59812	100nF +80/-20% 50V
2305	2238 586 59812	100nF +80/-20% 50V
2306	2238 586 59812	100nF +80/-20% 50V
2307	2238 586 59812	100nF +80/-20% 50V
2308	4822 124 80231	47uF 20% 16V
2311	4822 124 80231	47uF 20% 16V
2312	2238 586 59812	100nF +80/-20% 50V
2315	2238 586 59812	100nF +80/-20% 50V
2316	2238 586 59812	100nF +80/-20% 50V
2317	2238 586 59812	100nF +80/-20% 50V
2318	3198 017 34730	47nF 16V
2319	2238 586 59812	100nF +80/-20% 50V
2320	2238 586 59812	100nF +80/-20% 50V
2323	2238 586 59812	100nF +80/-20% 50V
2324	4822 122 33761	22pF 5% 50V
2325	4822 122 33761	22pF 5% 50V
2326	4822 122 33761	22pF 5% 50V
2327	4822 122 33761	22pF 5% 50V
2328	4822 122 33761	22pF 5% 50V
2341	4822 122 33761	22pF 5% 50V
2342	4822 122 33761	22pF 5% 50V
2343	4822 122 33761	22pF 5% 50V
2344	4822 122 33761	22pF 5% 50V
2345	4822 122 33761	22pF 5% 50V
2346	4822 122 33761	22pF 5% 50V

RESISTORS

3101	4822 051 30103	10k 5% 0,062W
3102	4822 051 30102	1k 5% 0,062W
3103	4822 051 30102	1k 5% 0,062W
3104	4822 051 30102	1k 5% 0,062W
3106	4822 117 11817	1k2 1% 1/16W
3107	4822 051 30102	1k 5% 0,062W
3108	4822 051 30101	100R 5% 0,062W
3109	4822 051 30101	100R 5% 0,062W
3110	4822 051 30109	10R 5% 0,062W

3111	4822 051 30109	10R 5% 0,062W
3112	4822 051 30339	33R 5% 0,062W
3113	4822 051 30339	33R 5% 0,062W
3114	4822 051 30102	1k 5% 0,062W
3115	4822 051 30472	4k7 5% 0,062W
3120	4822 117 12139	22R 5% 0,062W
3122	4822 117 12139	22R 5% 0,062W
3123	4822 117 12139	22R 5% 0,062W
3124	4822 117 12139	22R 5% 0,062W
3126	4822 117 12139	22R 5% 0,062W
3127	4822 117 12139	22R 5% 0,062W
3128	4822 117 12139	22R 5% 0,062W
3129	4822 117 12139	22R 5% 0,062W
3130	4822 117 12139	22R 5% 0,062W
3131	4822 117 12139	22R 5% 0,062W
3132	4822 117 12139	22R 5% 0,062W
3133	4822 117 12139	22R 5% 0,062W
3134	4822 117 12139	22R 5% 0,062W
3135	4822 117 12139	22R 5% 0,062W
3136	4822 117 12139	22R 5% 0,062W
3137	4822 117 12139	22R 5% 0,062W
3138	4822 117 12139	22R 5% 0,062W
3139	4822 051 30561	560R 5% 0,062W
3140	4822 117 12139	22R 5% 0,062W
3142	2322 704 67504	RST SM 0603 RC22H 750k PM1
3143	4822 117 13632	100k 1% 0,62W
3144	4822 051 30153	15k 5% 0,062W
3145	4822 117 13632	100k 1% 0,62W
3146	4822 051 30391	390R 5% 0,062W
3147	4822 051 30109	10R 5% 0,062W
3148	4822 051 30109	10R 5% 0,062W
3149	4822 117 13632	100k 1% 0,62W
3150	4822 117 13632	100k 1% 0,62W
3151	4822 051 30103	10k 5% 0,062W
3152	4822 051 30103	10k 5% 0,062W
3153	4822 051 30684	680k 5% 0,062W
3154	4822 051 30684	680k 5% 0,062W
3161	4822 051 30103	10k 5% 0,062W
3162	4822 051 30273	27k 5% 0,062W
3163	4822 051 30563	56k 5% 0,062W
3164	4822 051 30153	15k 5% 0,062W
3165	5322 117 13056	8k2 1% 0,063W
3166	4822 051 30223	22k 5% 0,062W
3167	4822 051 30103	10k 5% 0,062W
3168	4822 051 30103	10k 5% 0,062W
3170	4822 051 30102	1k 5% 0,062W
3171	4822 051 20108	1R 5% 0,1W
3173	4822 051 30334	330k 5% 0,062W
3174	4822 051 30334	330k 5% 0,062W
3175	4822 051 30103	10k 5% 0,062W
3176	4822 051 30103	10k 5% 0,062W
3177	4822 051 30103	10k 5% 0,062W

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RESISTORS

3178	4822 051 30102	1k 5% 0,062W	3362	4822 117 12139	22R 5% 0,062W
3179	4822 051 30102	1k 5% 0,062W	3363	4822 117 12139	22R 5% 0,062W
3181	2322 704 61501	RST SM 0603 RC22H 150R PM1	3364	4822 117 12139	22R 5% 0,062W
3182	2322 704 61501	RST SM 0603 RC22H 150R PM1	3365	4822 117 12139	22R 5% 0,062W
3183	2322 704 61501	RST SM 0603 RC22H 150R PM1	3366	4822 117 12139	22R 5% 0,062W
3184	2322 704 61501	RST SM 0603 RC22H 150R PM1	3367	4822 117 12139	22R 5% 0,062W
3185	2322 704 61501	RST SM 0603 RC22H 150R PM1	3368	4822 117 12139	22R 5% 0,062W
3186	2322 704 61501	RST SM 0603 RC22H 150R PM1	3369	4822 117 12139	22R 5% 0,062W
3191	2322 704 61501	RST SM 0603 RC22H 150R PM1	3370	4822 051 30103	10k 5% 0,062W
3192	2322 704 61501	RST SM 0603 RC22H 150R PM1	3371	4822 051 30103	10k 5% 0,062W
3193	2322 704 61501	RST SM 0603 RC22H 150R PM1	3372	4822 051 30103	10k 5% 0,062W
3194	2322 704 61501	RST SM 0603 RC22H 150R PM1	3373	4822 051 30103	10k 5% 0,062W
3195	2322 704 61501	RST SM 0603 RC22H 150R PM1	3374	4822 051 30103	10k 5% 0,062W
3196	2322 704 61501	RST SM 0603 RC22H 150R PM1	3375	4822 051 30103	10k 5% 0,062W
3301	4822 051 30102	1k 5% 0,062W	3376	4822 051 30103	10k 5% 0,062W
3302	4822 051 30102	1k 5% 0,062W	3381	4822 051 30109	10R 5% 0,062W
3303	4822 051 30109	10R 5% 0,062W	3382	4822 051 30109	10R 5% 0,062W
3304	4822 051 30109	10R 5% 0,062W	3386	4822 051 30103	10k 5% 0,062W
3305	4822 051 30109	10R 5% 0,062W	4106	4822 051 30008	0R Jumper 0603
3306	4822 051 30109	10R 5% 0,062W	4115	4822 051 30008	0R Jumper 0603
3307	4822 051 30109	10R 5% 0,062W	4116	4822 051 30008	0R Jumper 0603
3308	4822 051 30109	10R 5% 0,062W	4117	4822 051 30008	0R Jumper 0603
3309	4822 051 30109	10R 5% 0,062W	4118	4822 051 30008	0R Jumper 0603
3310	4822 051 30109	10R 5% 0,062W	4119	4822 051 30008	0R Jumper 0603
3311	4822 051 30109	10R 5% 0,062W	4122	4822 051 30008	0R Jumper 0603
3312	4822 051 30109	10R 5% 0,062W	4127	4822 051 30008	0R Jumper 0603
3313	4822 051 30109	10R 5% 0,062W	4131	4822 051 30008	0R Jumper 0603
3314	4822 051 30109	10R 5% 0,062W	4132	4822 051 30008	0R Jumper 0603
3315	4822 051 30339	33R 5% 0,062W	4301	4822 051 30008	0R Jumper 0603
3316	4822 051 30339	33R 5% 0,062W			
3317	4822 051 30339	33R 5% 0,062W			
3318	4822 051 30339	33R 5% 0,062W			
3319	4822 051 30339	33R 5% 0,062W			
3320	4822 051 30339	33R 5% 0,062W			
3321	4822 051 30339	33R 5% 0,062W			
3322	4822 051 30339	33R 5% 0,062W			
3325	4822 051 30103	10k 5% 0,062W			
3326	4822 051 30339	33R 5% 0,062W			
3335	4822 051 30759	75R 5% 0,062W			
3336	4822 051 30103	10k 5% 0,062W			
3337	4822 117 11817	1k2 1% 1/16W			
3338	4822 051 30103	10k 5% 0,062W			
3342	4822 117 12139	22R 5% 0,062W			
3343	4822 117 12139	22R 5% 0,062W			
3344	4822 117 12139	22R 5% 0,062W			
3345	4822 117 12139	22R 5% 0,062W			
3346	4822 117 12139	22R 5% 0,062W			
3348	4822 117 12139	22R 5% 0,062W			
3354	4822 051 30102	1k 5% 0,062W			
3355	4822 117 12139	22R 5% 0,062W			
3358	4822 051 30102	1k 5% 0,062W			
3361	4822 117 12139	22R 5% 0,062W			

COILS & FILTERS

5101	2422 549 45618	INDFXD 0603 EMI 100MHz 60R
5102	2422 549 45618	INDFXD 0603 EMI 100MHz 60R
5103	4822 157 71206	FXDIND 0805 100MHz 600R
5104	4822 157 71206	FXDIND 0805 100MHz 600R
5105	2422 549 43062	FXDIND 0603 100MHz 600R
5106	2422 549 43062	FXDIND 0603 100MHz 600R
5107	4822 157 71206	FXDIND 0805 100MHz 600R
5108	2422 549 45618	INDFXD 0603 EMI 100MHz 60R
5109	2422 549 43062	FXDIND 0603 100MHz 600R
5111	4822 157 71206	FXDIND 0805 100MHz 600R
5112	2422 549 45618	INDFXD 0603 EMI 100MHz 60R
5115	2422 549 43062	FXDIND 0603 100MHz 600R
5116	2422 549 43062	FXDIND 0603 100MHz 600R
5117	2422 549 43062	FXDIND 0603 100MHz 600R
5118	2422 549 43062	FXDIND 0603 100MHz 600R
5119	2422 549 43062	FXDIND 0603 100MHz 600R
5122	2422 549 43062	FXDIND 0603 100MHz 600R
5124	3198 018 31090	FXDIND SM 0805 10U PM10
5125	3198 018 31090	FXDIND SM 0805 10U PM10
5126	2422 549 43062	FXDIND 0603 100MHz 600R
5130	2422 543 01393	RES XTL SM 27MHz 10P CX8045

ELECTRICAL PARTS LIST - SD6.1 RX BOARD

5131	4822 157 11414	FXDIND SM 1210 1U8 PM5
5132	4822 157 11414	FXDIND SM 1210 1U8 PM5
5133	4822 157 11414	FXDIND SM 1210 1U8 PM5
5134	4822 157 11414	FXDIND SM 1210 1U8 PM5
5135	4822 157 11414	FXDIND SM 1210 1U8 PM5
5136	4822 157 11414	FXDIND SM 1210 1U8 PM5
5300	2422 549 43062	FXDIND 0603 100MHz 600R
5301	2422 549 43062	FXDIND 0603 100MHz 600R
5302	2422 549 43062	FXDIND 0603 100MHz 600R
5303	2422 549 43062	FXDIND 0603 100MHz 600R
5305	2422 549 43062	FXDIND 0603 100MHz 600R
5310	2422 549 43062	FXDIND 0603 100MHz 600R
5311	2422 549 43062	FXDIND 0603 100MHz 600R
5313	2422 549 43062	FXDIND 0603 100MHz 600R
5320	2422 549 43062	FXDIND 0603 100MHz 600R
5321	2422 549 43062	FXDIND 0603 100MHz 600R
5322	2422 549 43062	FXDIND 0603 100MHz 600R
5323	2422 549 43062	FXDIND 0603 100MHz 600R
5324	2422 549 43062	FXDIND 0603 100MHz 600R
5326	2422 549 43062	FXDIND 0603 100MHz 600R
5327	2422 549 43062	FXDIND 0603 100MHz 600R
5328	2422 549 43062	FXDIND 0603 100MHz 600R
5329	2422 549 43062	FXDIND 0603 100MHz 600R

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 17398	IC SM LD1117DT33
7102	9322 165 15685	IC SM NCP303LSN30
7106	4822 130 11565	2SB1132
7107	4822 130 11565	2SB1132
7108	9340 547 13215	FET SIG SM BSH103
7109	9340 547 13215	FET SIG SM BSH103
7110	9340 219 30115	BC817-25W
7111	9322 201 94668	IC SM MM1646XH
7112	9322 203 35671	IC SM MT1389E
7301	9322 189 04668	IC SM M24C16-RDW6
7302	9322 199 38671	IC SM IS42S16400A-7T
7303	3139 110 53721	FLASH + EMBEDDED SW
7304	9322 185 10668	IC SM CS8415A-CZ
7306	9352 456 90115	IC SM 74HC1G125GW

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



WIRELESS SURROUND LOUDSPEAKER BOXES

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11. Wireless Surround Loudspeaker boxes

1.1. Introduction

With the Wireless surround system it is possible to connect rear speakers wireless with the main set. The system consists of: transmitter part Tx: interface-board and transmitter board receiver part RX: receiver board, amplifier board and SMPSupply part
Loudspeaker boxes left and right rear, per equipment defined.
The interface board can be an integrated part of a TV set (EM6E-chassis) or a separate board in the transmitter part in case of the AV Entertainment (DVD-receiver) application.
Transmitter and receiver can be seen as one system,
The amplifier board is per application (TV or AV) adapted.



Figure 1-1 Wireless transm. receiver cabinets

1.2. Mechanical Instructions

1.2.1. EV drawings + mechanical partslists

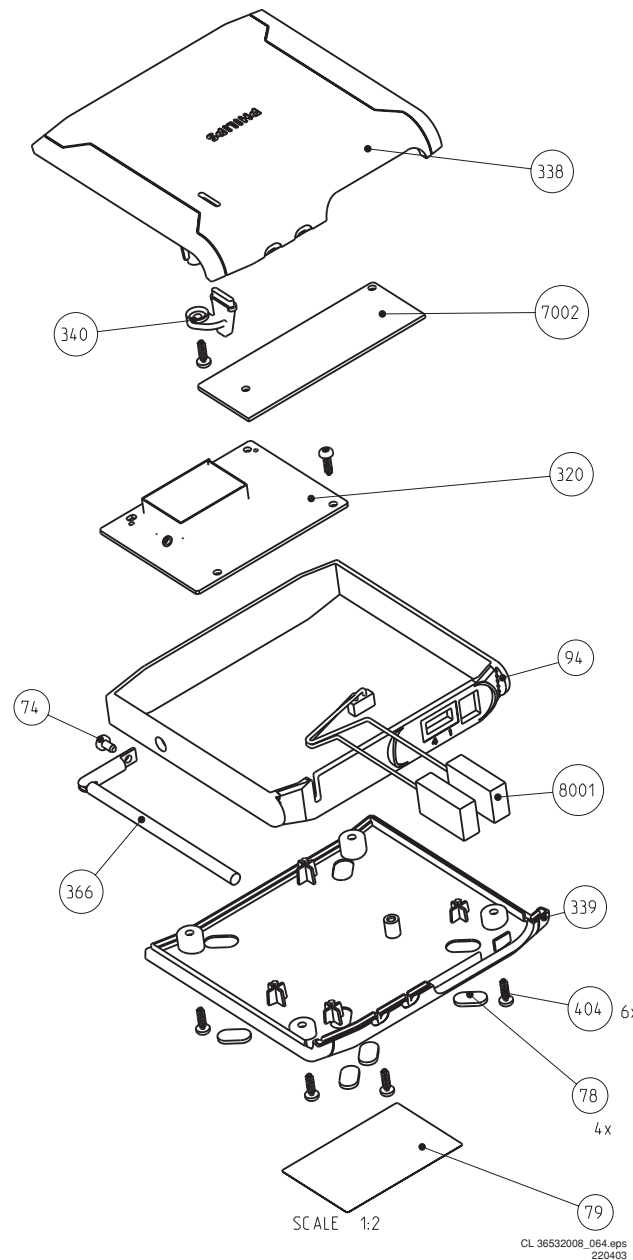


Figure 1-2 Transmitter

Partslist Transmitter

0078	4304 074 19580	FEET
0094	4340 704 00781	RING
0320		TRANSMITTER BOARD
0338	4340 704 00761	TOP COVER TRANSMITTER
0339	4340 704 00771	BOTTOM COVER TRANSMITTER
0340	4304 074 19560	LIGHT GUIDE TRANSMITTER
0366	3104 131 20090	ANTENNA
7002		INTERFACE BOARD TRANSMITTER
8001	4304 078 90050	CABLE ASSY LS INPUT TR/INTERFACE

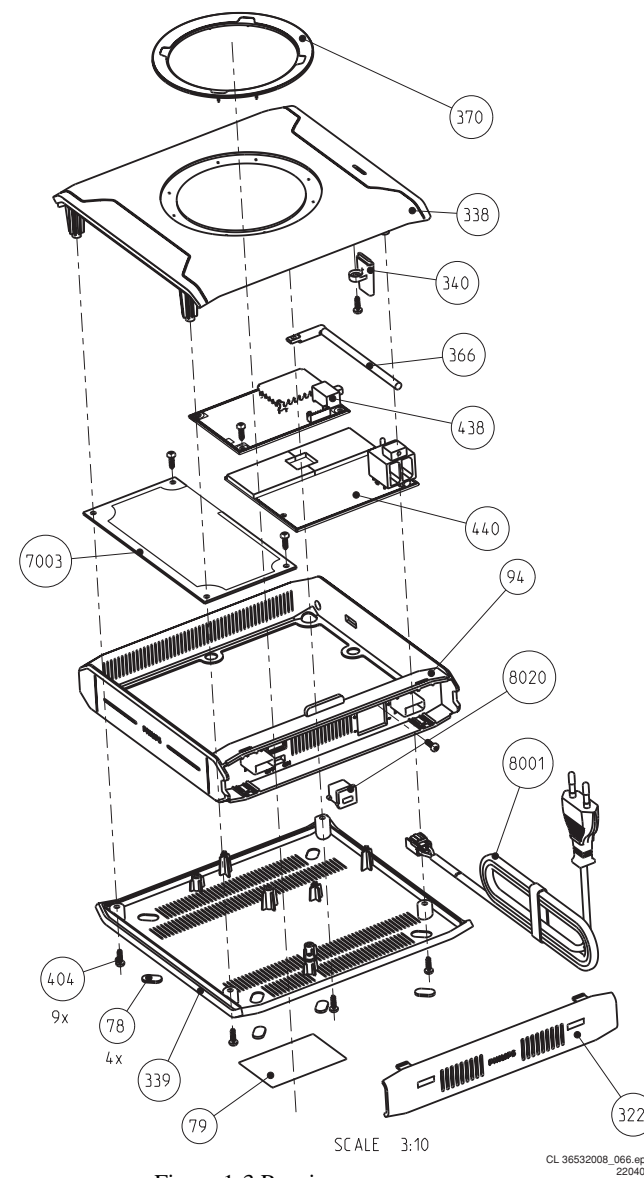


Figure 1-3 Receiver

Partslist Receiver

0078	4304 074 19580	FEET
0322	4340 704 00831	CABLE COVER
0338	4340 704 00791	TOP COVER RECEIVER
0339	4340 704 00801	BOTTOM COVER RECEIVER
0366	3104 131 20090	ANTENNA
0438		RECEIVER BOARD
0440		AMPLIFIER BOARD
7003	3141 137 00010	SMPowerSupply WIRELESS RECEIVER/AMP
8001	4304 078 89090	CABLE ASSY POWER EUR
	4304 074 18910	CABLE RELIEF
	4304 078 90080	CABLE ASSY

1.2.2. Demounting TX transmitter:

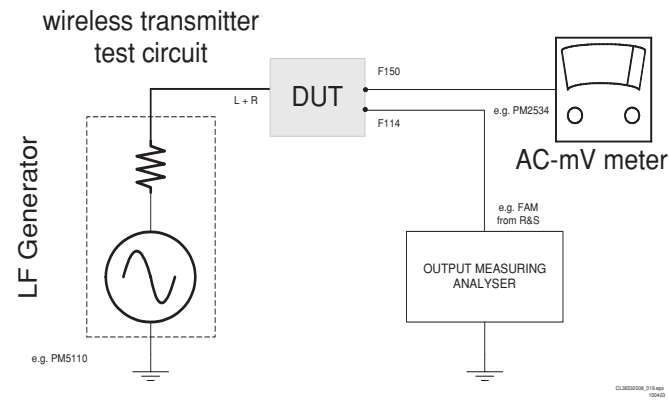
- Loosen 4 screws at bottom side.
- Now top cover can be removed
- The interface board can be removed after disconnecting cable 8003Tx.
- To remove the transmitter board loosen one screw, be careful for antenna which positioned through the mechanical "ring" and disconnect cable.
- To remount transmitter take care for LS cable 8001Tx to put it through the opening in the mechanical ring and through the wire inlays in the bottom part otherwise damaging of the wires may happen.

1.2.3. Demounting RX receiver:

- Loosen 4 screws at bottom side.
- Remove antenna
- Now the top cover can be removed
- The receiver board can be removed after loosening of one screw and connection cable 8004Rx.
- The amplifier board is fixed with 2 screws, one on board one on connector 1100. The screw which fits connector 1100 is behind the cable cover. After removing cables 8002Rx, 8003Rx and 8004Rx, the board can be taken out.
- The SMPowerSupply board is fixed with 2 screws, after loosening of these screws and disconnecting cables 8002Rx and 8003Rx the board can be removed.
- To remount receiver take care for correct positioning of the antenna, when fixing bottom cover.

1.3. Service hints, faultfinding and alignments

1.3.1 Measurement setup



Wireless Transmitter functional check and adjustment table Audio AD905W (LX3750W) versions

Powersupply check	Measurement ground	testpoint	Scope / Voltmeter
DC Check	F116	F119	+12V ± 0.5V
		F124	+ 8.35V ± 0.25V
		F126	+ 5V ± 0.25V
		F145	+ 2.52V ± 0.2V
		F144	+ 2.52V ± 0.2V
		F147	+ 4.2V ± 0.3V
		F149	+ 4.2V ± 0.3V

picture DUT:

LF input signal L = 400Hz; R = 400Hz, via	input level	testpoint	Input and Measurement ground	AC Voltmeter	Frequency counter	
F117	410 mV L	F130	F116		23.4375 kHz ± 10 Hz	
F118	410mV R					
F117	410 mV L	F131			46.875 kHz ± 20 Hz	
F118	410mV R					
F117	410 mV L	F145			210 mV ± 20 mV	
F118	410mV R	F144			210 mV ± 20 mV	
F117	410 mV L	F147			200 mV ± 20 mV	
F118	410mV R					
F117	410 mV L	F149			205 mV ± 20 mV	
F118	410mV R					
F117	2100 mV L	F149		380 mV ± 40 mV		
F118	2100 mV R					

Check RF output signal

LF input signal L = 400Hz; R = 400Hz, via	input level	Input ground	channel	Measurement RF ground	Output signal	Frequency counter	Version
F117	0 mV L	F116	4	F115	F114	864.5 ± 0.025 MHz	for EUR and UK version
F118	0 mV R					915.3 ± 0.025 MHz	for USA version

Alignment of the modulation level *
Method 1

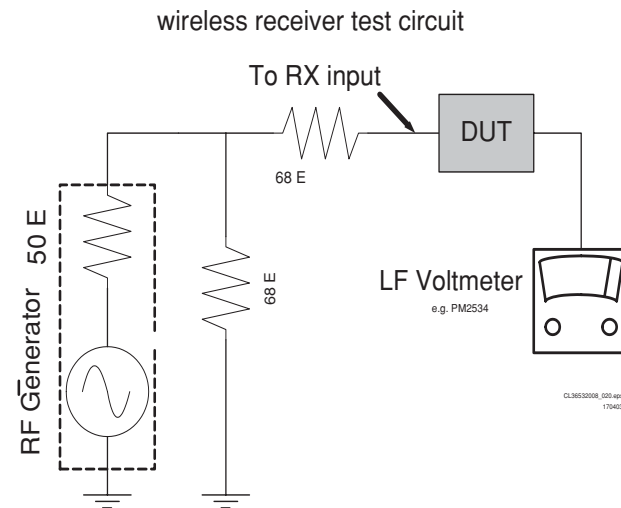
LF input signal L = 400Hz; R = 400Hz, via	input level	input ground	Connect RF Modulation Analyzer to testpoint	Measurement ground	Align	RF Modulation Analyser deviation
F117	410 mV L	F116	F114	F115	3179	50 kHz ± 3 Hz
F118	410 mV R					

Method 2

LF input signal L = 400Hz; R = 400Hz, via	input level	input ground	Connect AC mV meter to testpoint	Measurement ground	Align	AC mV meter
F117	410 mV L	F116	F150	F116	3179	80mV rms (= 230mV pp)
F118	410 mV R					

* or Method 1 or Method 2 to be applied

Figure 1-4 Table AV transmitter



WirelessReceiver functional check and adjustment table Audio AD905W (LX3750W) versions

Powersupply check	Measurement ground	testpoint	Scope / Voltmeter
DC Check	F701	F702	+10V ± 0.1V
		F740	+ 5.2V ± 0.5V
		F705	+ 8V ± 0.5V
		F707	+ 8V ± 0.5V
		F708	+3.6V ± 0.2V
	F709	+7.75V ± 0.5V	
	F744	F740	+ 5.2V ± 0.2V
	F701	F712	+ 4.1V ± 0.3V
		F713	+ 4.1V ± 0.3V

Functional check
picture: receiver test circuit:

RF input signal, modulation = 50 kHz via adaptation network*	RF carrier frequency	Input signal	channel switch select	Output signal	Voltmeter	version
F748	863.3 MHz	1 mV rms	channel 1	F728	LF output	for EUR and UK version
F748	914.1 MHz	1 mV rms	channel 1	F728	LF output	for USA version

Alignment of the receiver EUR version

RF input signal, modulation = 50 kHz via adaptation network*	RF carrier frequency	Input signal	Testpoints grounded to F744	channel switch select	Alignment	Align	Output signal	Voltmeter	version
F748	863.3 MHz	1 mV rms	F724 & F725	channel 1	FM Detector coil	1710	F728	LF max output	for EUR and UK version
			Remove groundin gs F724 & F725						
F748	863.3 MHz	250 µV rms		channel 1	Sliding stereo signal	3743	F747	>3 V DC	for EUR and UK version
F748	863.3 MHz	250 µV rms		channel 1	Sliding stereo signal	reduce 3743 slowly	F747	between 0.2 and 3 V	for EUR and UK version
F748	863.3 MHz	10 µV rms		channel 1	Tuned/Muted level	3741	F724	>2.5 V DC	for EUR and UK version
F748	863.3 MHz	10 µV rms		channel 1	Tuned/Muted level	reduce 3741 slowly	F724	< 1 V	for EUR and UK version

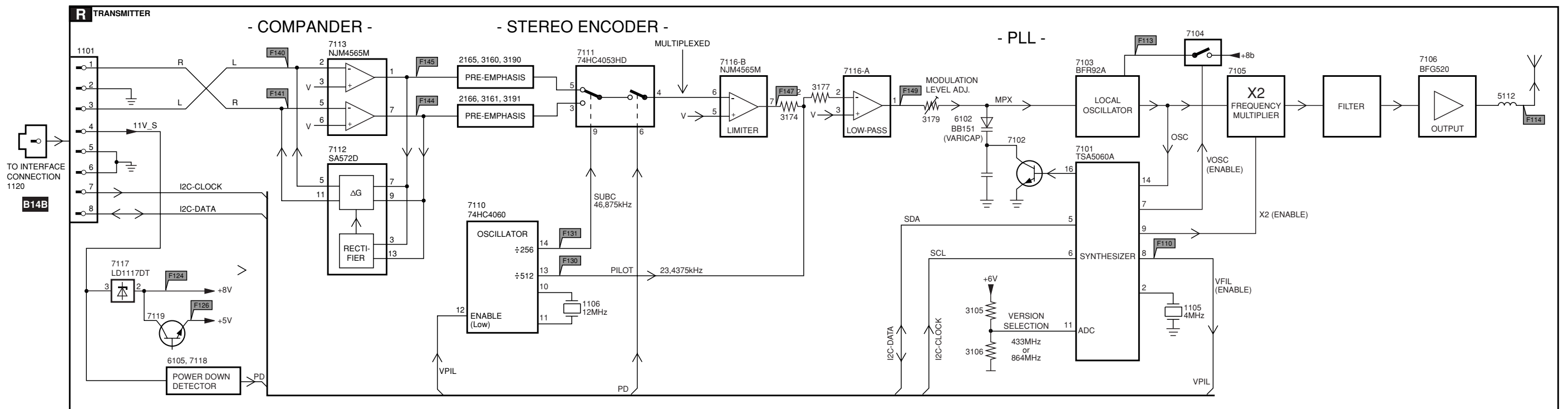
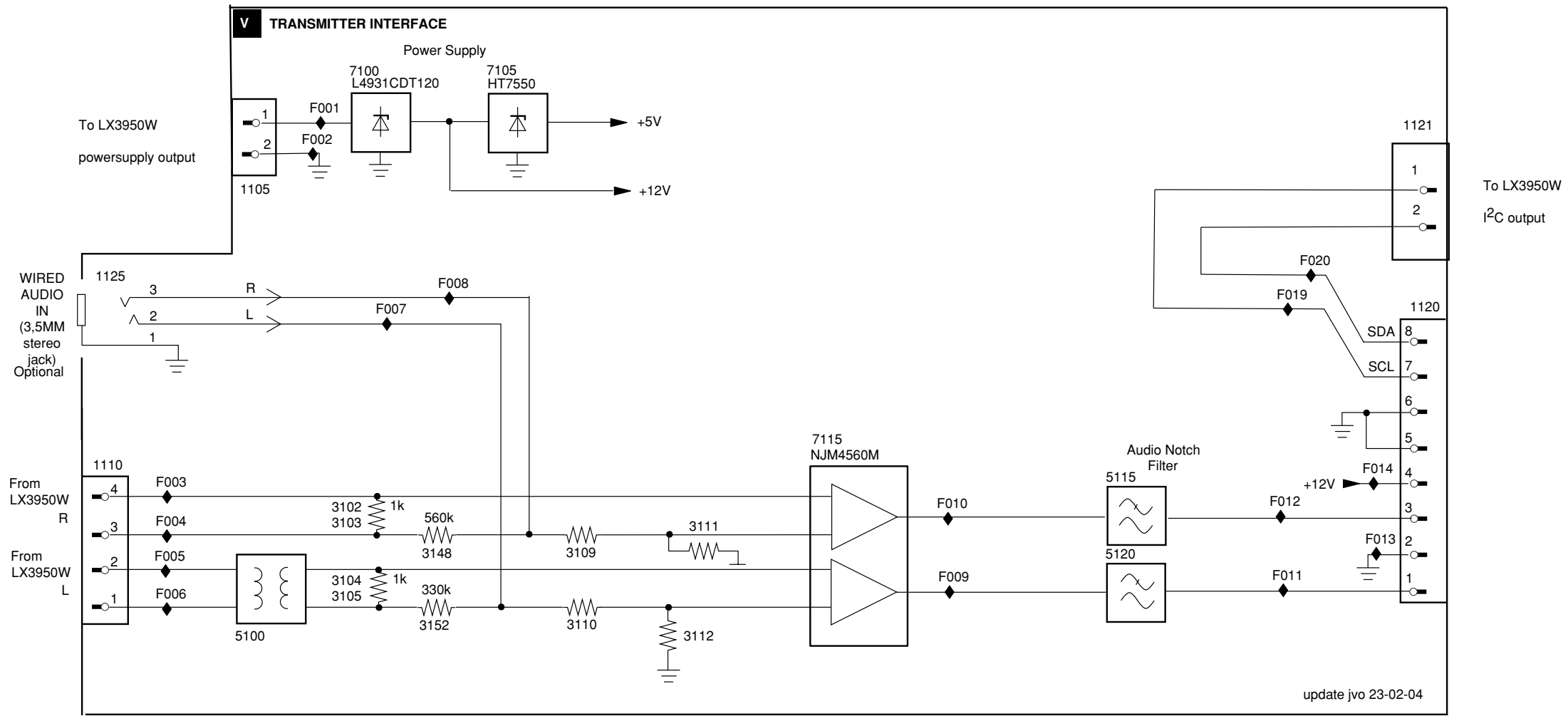
Alignment of the receiver USA version

RF input signal, modulation = 50 kHz via adaptation network*	RF carrier frequency	Input signal	Testpoints grounded to F744	channel switch select	Alignment	Align	Output signal	Voltmeter	version
F748	914.1 MHz	1 mV rms	F724 & F725	channel 1	FM Detector coil	1710	F728	LF max output	for USA version
			Remove groundin gs F724 & F725						
F748	914.1 MHz	250 µV rms		channel 1	Sliding stereo signal	3743	F747	>3 V DC	for USA version
F748	914.1 MHz	250 µV rms		channel 1	Sliding stereo signal	reduce 3743 slowly	F747	between 0.2 and 3 V	for USA version
F748	914.1 MHz	10 µV rms		channel 1	Tuned/Muted level	3741	F724	>2.5 V DC	for USA version
F748	914.1 MHz	10 µV rms		channel 1	Tuned/Muted level	reduce 3741 slowly	F724	< 1 V	for USA version

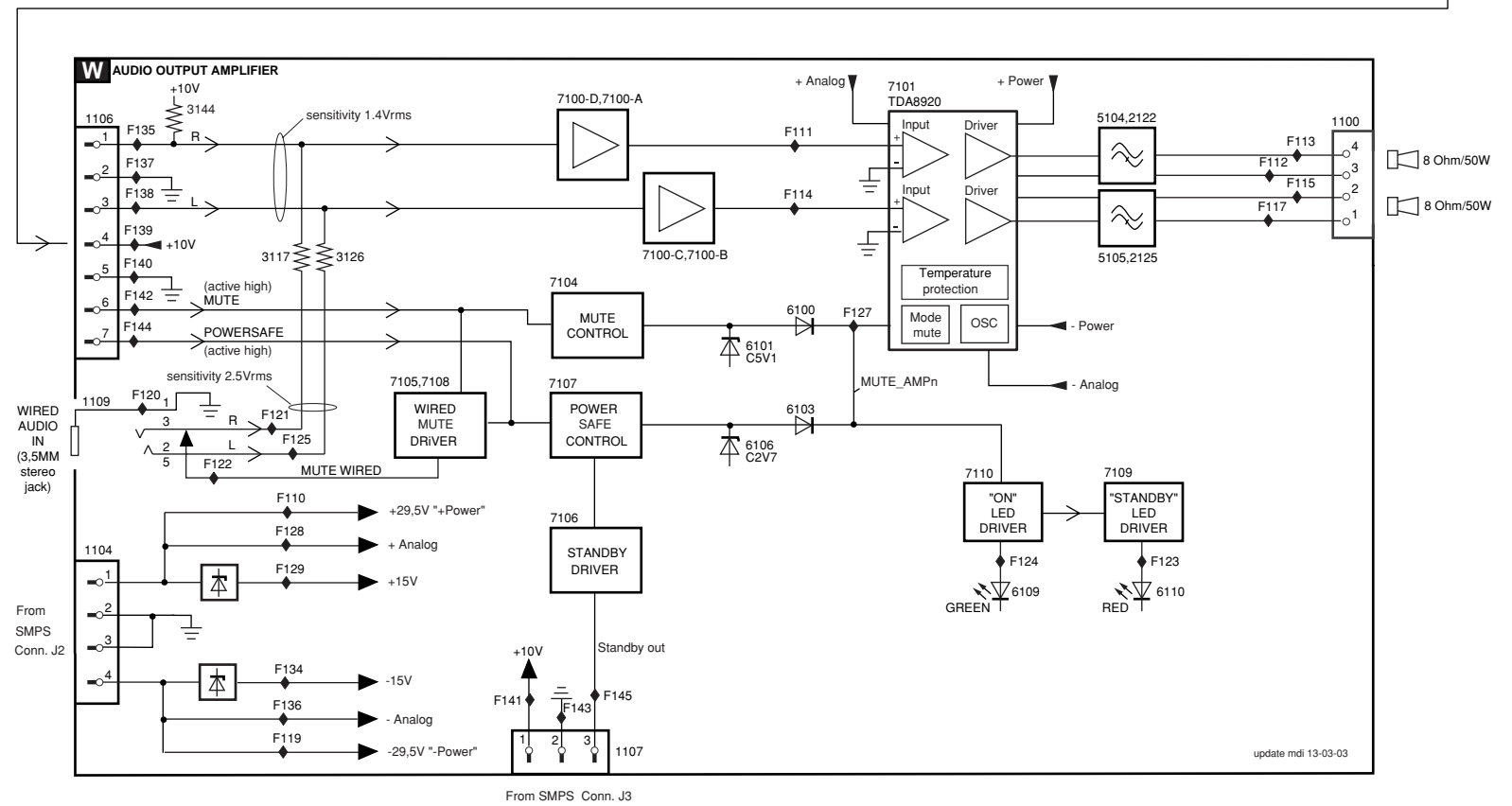
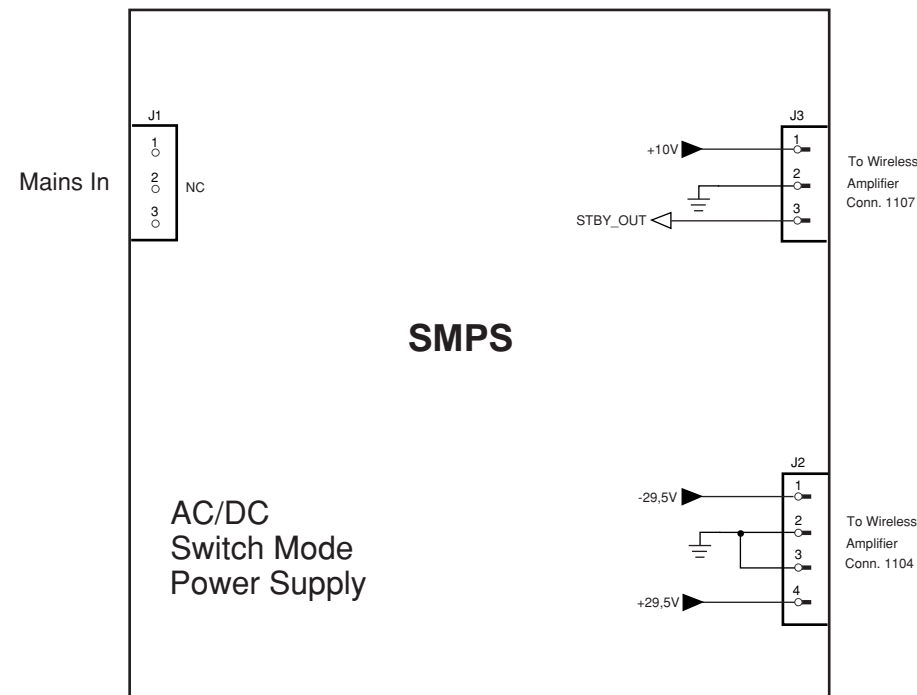
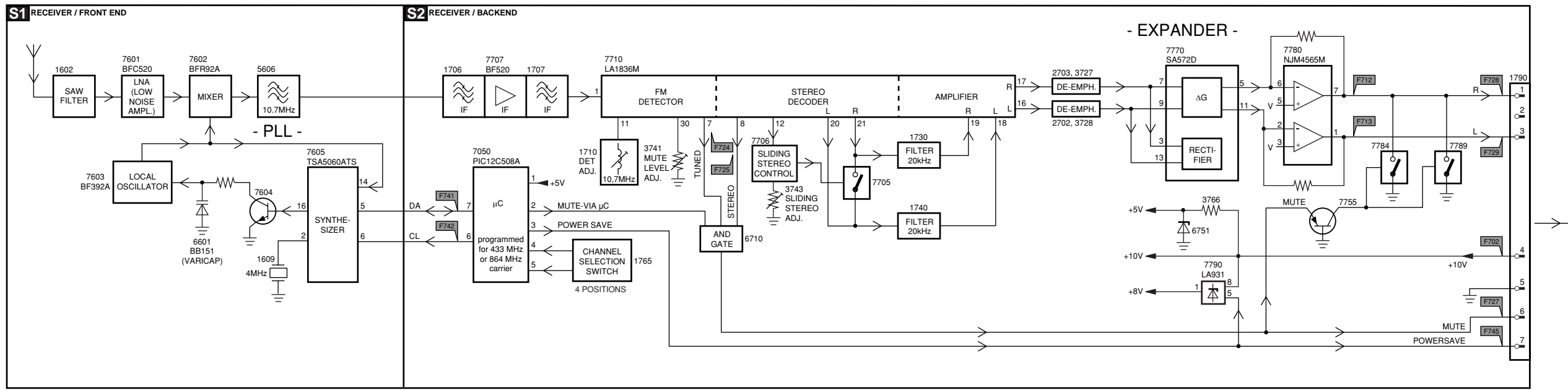
* e.g. SMT02 from Rohde & Schwarz

Figure 1-5 Table AV receiver

1.4 Block Diagram TX

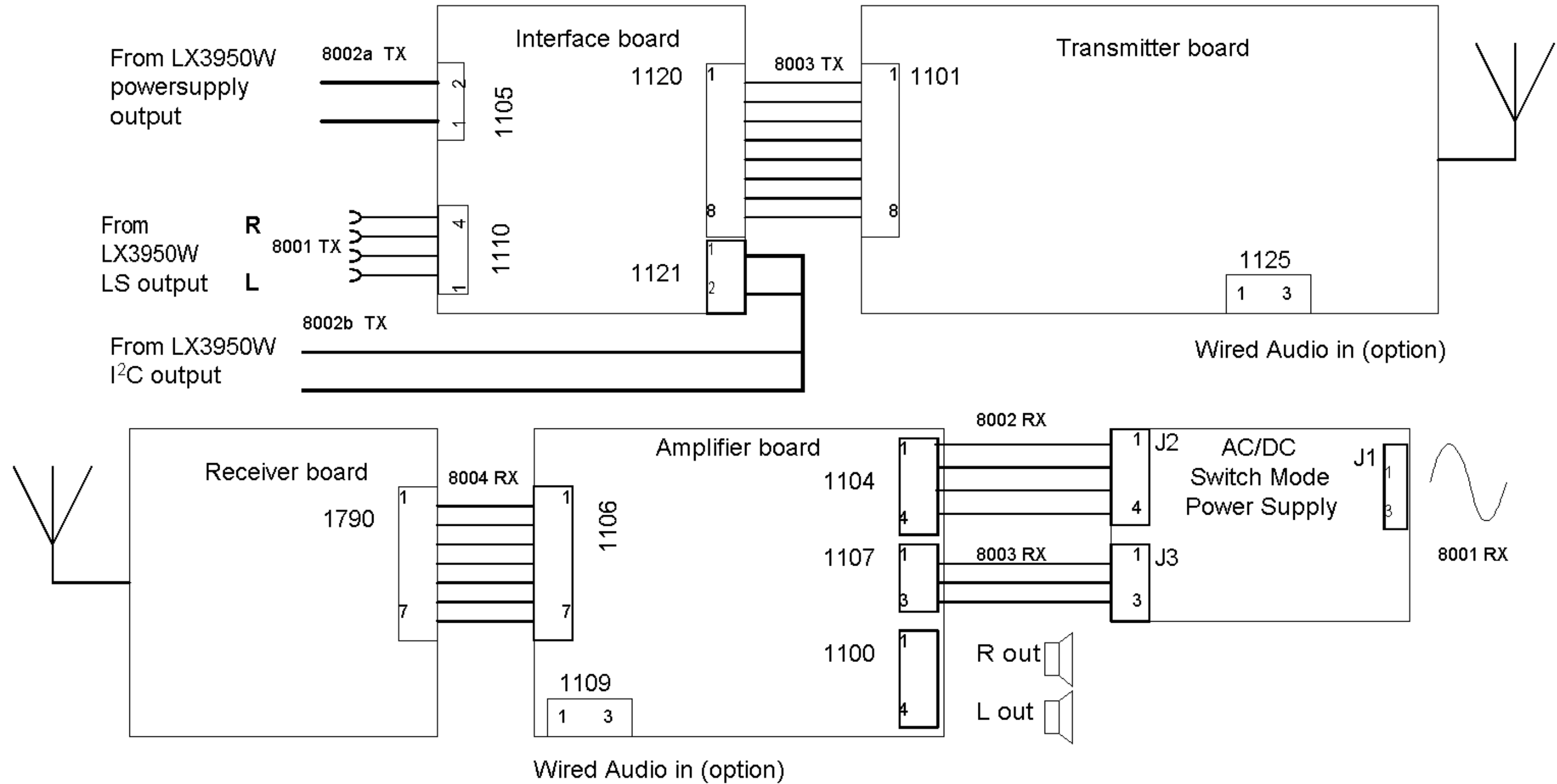


1.5 Block Diagram RX



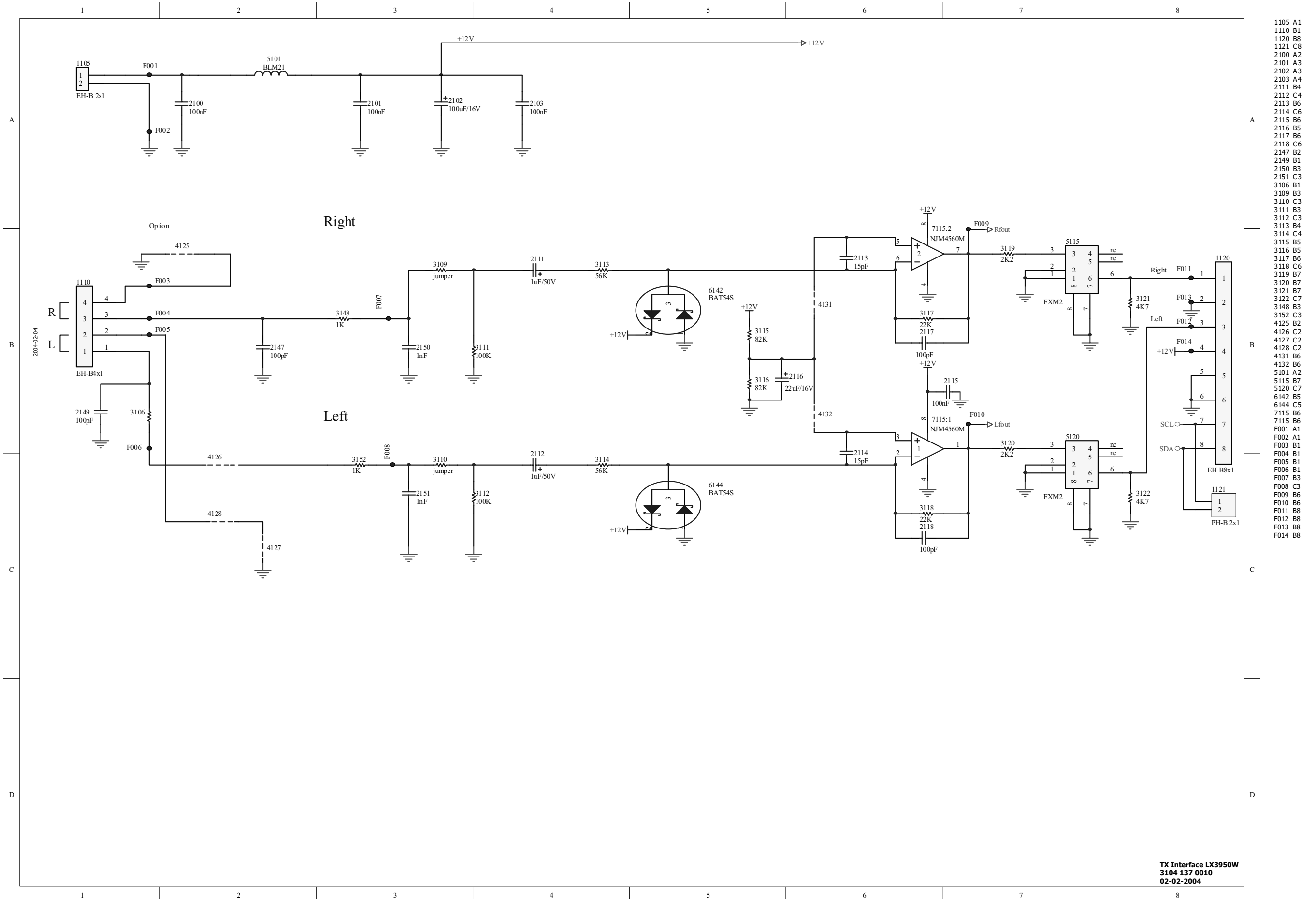
1.6 Wiring Diagram

Wiring Diagram Wireless Transmitter/Receiver AD906W



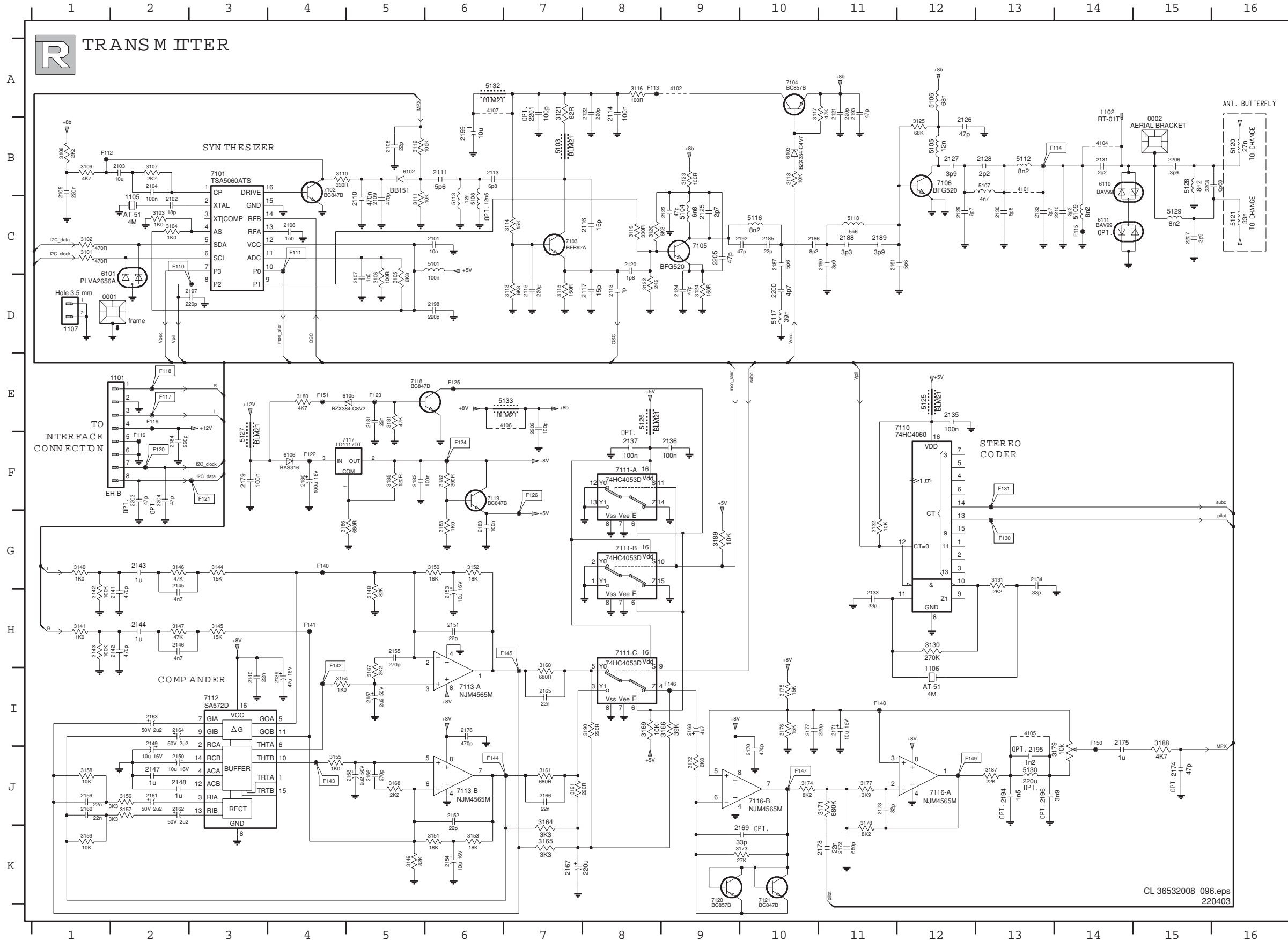
1.7 Electrical Diagrams

1.7.1 Wireless Interface Board



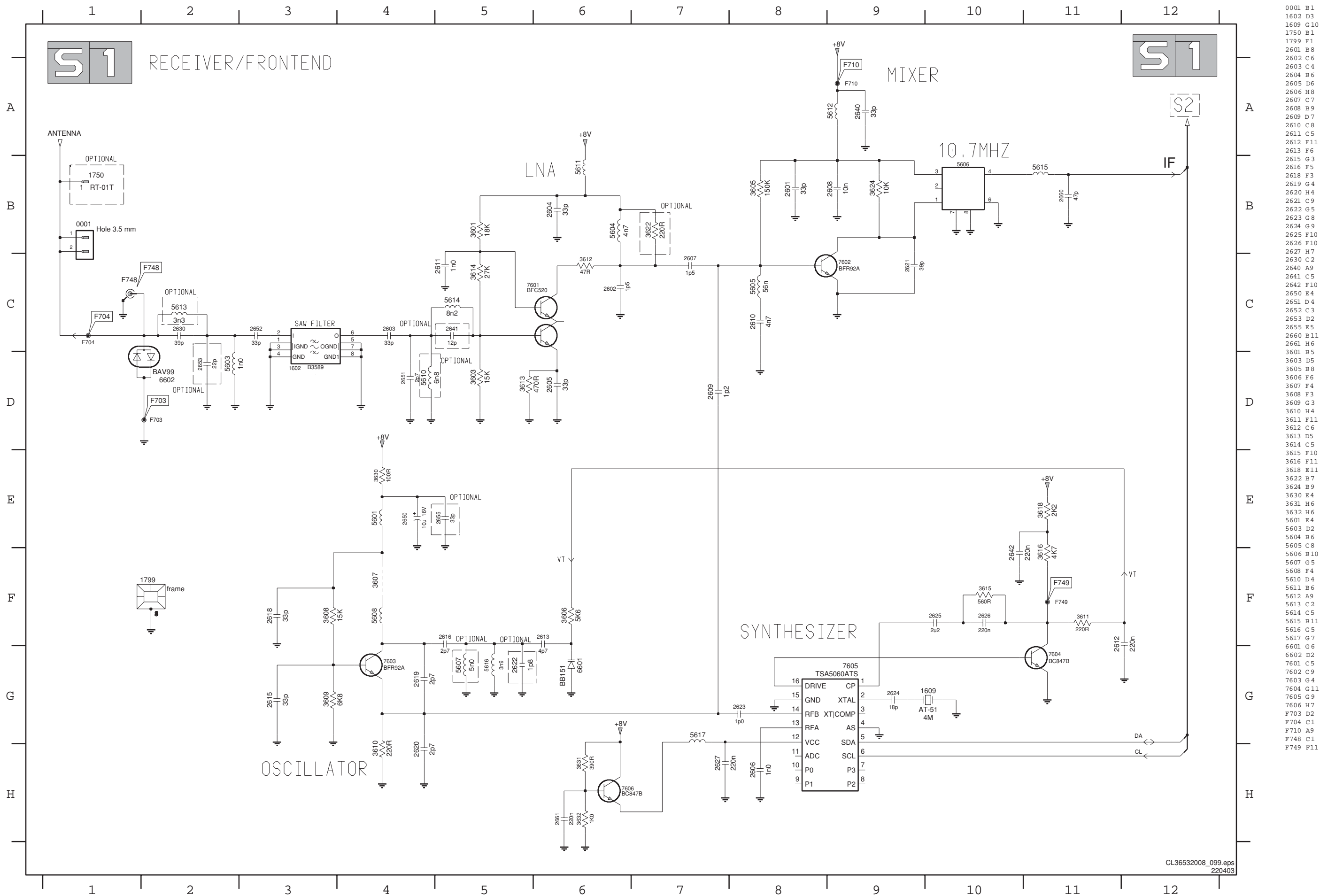
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- 1110 B1
- 1120 B8
- 1121 C8
- 2100 A2
- 2101 A3
- 2102 A3
- 2103 A4
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- 2112 C4
- 2113 B6
- 2114 C6
- 2115 B6
- 2116 B5
- 2117 B6
- 2118 C6
- 2147 B2
- 2149 B1
- 2150 B3
- 2151 C3
- 3106 B1
- 3109 B3
- 3110 C3
- 3111 B3
- 3112 C3
- 3113 B4
- 3114 C4
- 3115 B5
- 3116 B5
- 3117 B6
- 3118 C6
- 3119 B7
- 3120 B7
- 3121 B7
- 3122 C7
- 3148 B3
- 3152 C3
- 4125 B2
- 4126 C2
- 4127 C2
- 4128 C2
- 4131 B6
- 4132 B6
- 5101 A2
- 5115 B7
- 5120 C7
- 6142 B5
- 6144 C5
- 7115 B6
- 7115 B6
- F001 A1
- F002 A1
- F003 B1
- F004 B1
- F005 B1
- F006 B1
- F007 B3
- F008 C3
- F009 B6
- F010 B6
- F011 B8
- F012 B8
- F013 B8
- F014 B8

1.7.2 Wireless Transmitter Board

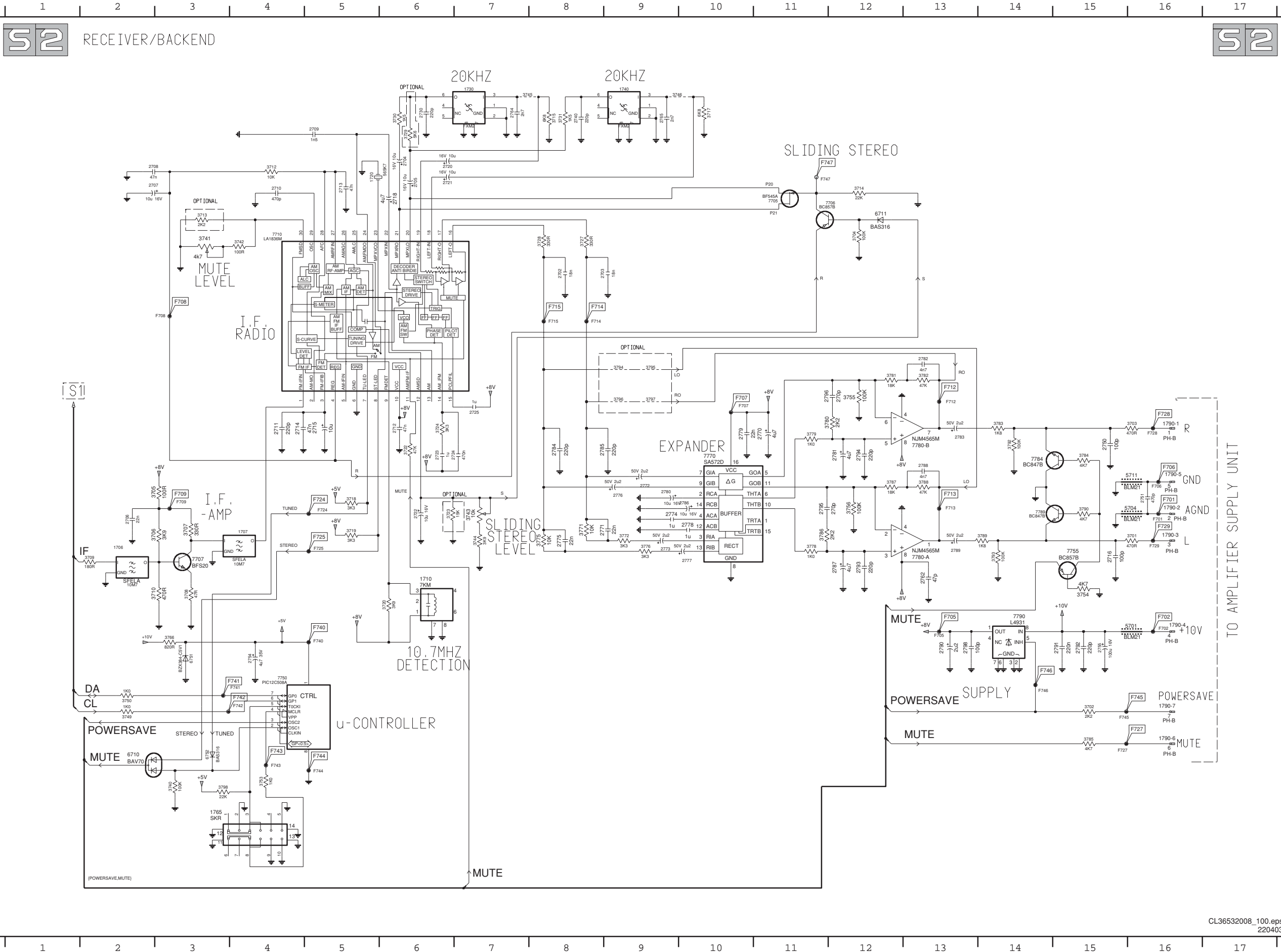


0001	D1	3115	D7	F119	E2
0002	B15	3116	A8	F120	F2
1101	E2	3117	A10	F121	F3
1102	A14	3118	B10	F122	F4
1105	C2	3119	C8	F123	E5
1106	D2	3120	C8	F124	F6
1107	D1	3121	A7	F125	E6
2101	C6	3122	D8	F126	F7
2102	C2	3123	B9	F130	G13
2103	B2	3124	D9	F131	F13
2104	B2	3125	B12	F140	G4
2106	C4	3131	G13	F142	H4
2107	D5	3132	G11	F143	J4
2108	B5	3140	G1	F144	J6
2109	C5	3141	H1	F145	H7
2110	C5	3142	H1	F146	H9
2111	B6	3143	H1	F147	J10
2113	B6	3144	G3	F148	H1
2114	A8	3145	H3	F149	J12
2115	D7	3146	G2	F150	H4
2116	C8	3147	H2		
2117	D8	3148	H5		
2118	D8	3149	K5		
2120	C8	3150	G6		
2121	A11	3151	K6		
2122	A8	3152	G6		
2123	C9	3153	K6		
2124	D9	3154	H		
2125	C9	3155	C9		
2126	B12	3156	J2		
2127	B12	3157	J2		
2128	B13	3158	J1		
2129	C13	3159	K1		
2130	C13	3160	H7		
2131	B14	3161	J7		
2132	C13	3164	J7		
2133	H11	3165	K7		
2134	G13	3166	H		
2135	B12	3167	H		
2136	F9	3168	J5		
2137	F8	3169	H		
2139	H	3171	J11		
2140	B	3172	J9		
2141	K10	3173	K10		
2142	H2	3174	J10		
2143	G2	3175	H0		
2144	H2	3176	H0		
2145	G2	3177	J11		
2146	H2	3178	J11		
2147	J2	3179	J13		
2148	J2	3180	E4		
2149	Z	3181	E5		
2150	J2	3182	F6		
2151	B6	3183	G6		
2152	J6	3185	F5		
2153	H6	3186	G4		
2154	K6	3187	J13		
2155	H5	3188	H5		
2156	J5	3189	G9		
2157	H	3190	H		
2158	J5	3191	J7		
2159	J1	4101	B13		
2160	J1	4102	A9		
2161	J2	4104	B14		
2162	J2	4105	H3		
2163	Z	4106	E7		
2164	Z	4107	A6		
2165	Z	5101	C6		
2166	B7	5103	B7		
2167	K7	5104	C9		
2168	H	5105	B12		
2169	K10	5106	A12		
2170	J10	5107	B13		
2171	H1	5108	C6		
2172	K11	5109	C14		
2173	J11	5112	B13		
2174	J15	5113	C6		
2175	Z4	5116	C10		
2176	Z6	5117	D10		
2177	H0	5118	C11		
2178	K11	5120	B16		
2179	F3	5121	C16		
2180	F4	5125	E12		
2181	B5	5126	B8		
2182	F5	5127	F3		
2183	G6	5128	B15		
2184	F2	5129	C15		
2185	C10	5130	J13		
2186	C10	5132	A6		
2187	C10	5133	E7		
2188	C11	6101	D2		
2189	C11	6102	B5		
2190	C11	6103	B10		
2191	C11	6105	B5		
2192	C10	6106	F4		
2193	A11	6110	B14		
2194	J13	6111	C14		
2195	J13	7101	B3		
2196	J13	7102	B4		
2197	D3	7103	C7		
2198	D6	7104	A10		
2199	B6	7105	C9		
2200	D10	7106	B12		
2201	A7	7110	E11		
2202	F2	7111-A	F8		
2203	F2	7111-B	F8		
2204	F2	7111-C	H8		
2205	C9	7112	B		
2206	B15	7113-A	I6		
2207	C15	7113-B	O6		
2208	B15	7116-A	J12		
2210	C14	7116-B	J10		
3101	C1	7117	F5		
3102	C1	7118	E5		
3103	C2	7119	F6		
3104	C2	7120	K9		
3105	D5	7121	K10		
3106	D5	F110	C2		
3107	B2	F111	C4		
3108	B1	F112	B1		
3109	B1	F113	A8		
3110	B4	F114	B14		
3111	C5	F115	C14		
3112	B5	F116	F2		
3113	D7	F117	D7		
3114	C7	F118	E2		

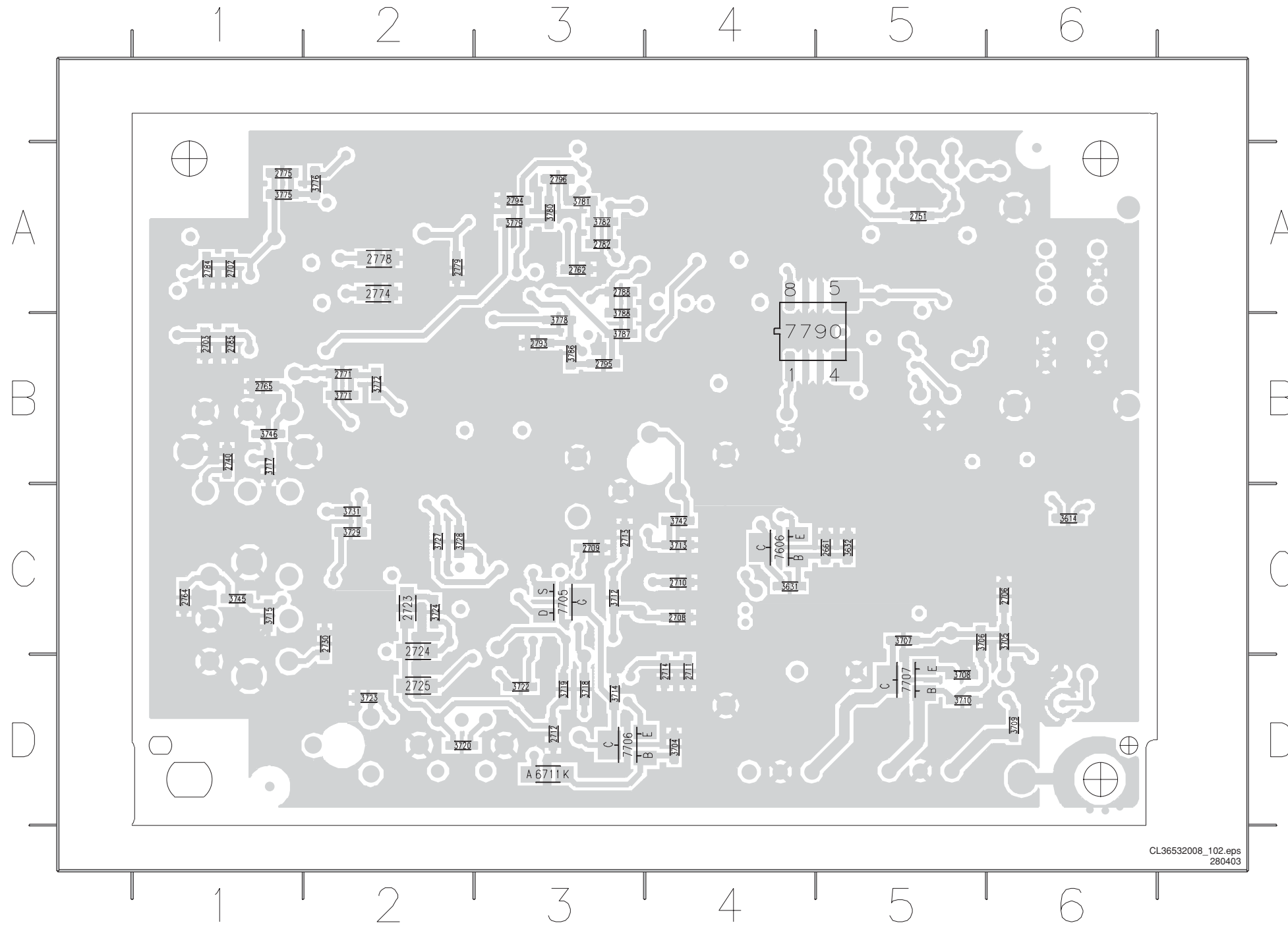
1.7.3 Wireless Receiver Board



- 0001 B1
- 1602 D3
- 1609 G10
- 1750 B1
- 1799 F1
- 2601 B8
- 2602 C6
- 2603 C4
- 2604 B6
- 2605 D6
- 2606 H8
- 2607 C7
- 2608 B9
- 2609 D7
- 2610 C8
- 2611 C5
- 2612 F11
- 2613 F6
- 2615 G3
- 2616 F5
- 2618 F3
- 2619 G4
- 2620 H4
- 2621 C9
- 2622 G5
- 2623 G8
- 2624 G9
- 2625 F10
- 2626 F10
- 2627 H7
- 2630 C2
- 2640 A9
- 2641 C5
- 2642 F10
- 2650 E4
- 2651 D4
- 2652 C3
- 2653 D2
- 2655 E5
- 2660 B11
- 2661 H6
- 3601 B5
- 3603 D5
- 3605 B8
- 3606 F6
- 3607 F4
- 3608 F3
- 3609 G3
- 3610 H4
- 3611 F11
- 3612 C6
- 3613 D5
- 3614 C5
- 3615 F10
- 3616 F11
- 3618 E11
- 3622 B7
- 3624 B9
- 3630 E4
- 3631 H6
- 3632 H6
- 5601 E4
- 5603 D2
- 5604 B6
- 5605 C8
- 5606 B10
- 5607 G5
- 5608 F4
- 5610 D4
- 5611 B6
- 5612 A9
- 5613 C2
- 5614 C5
- 5615 B11
- 5616 G5
- 5617 G7
- 6601 G6
- 6602 D2
- 7601 C5
- 7602 C9
- 7603 G4
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- F704 C1
- F710 A9
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- F749 F11

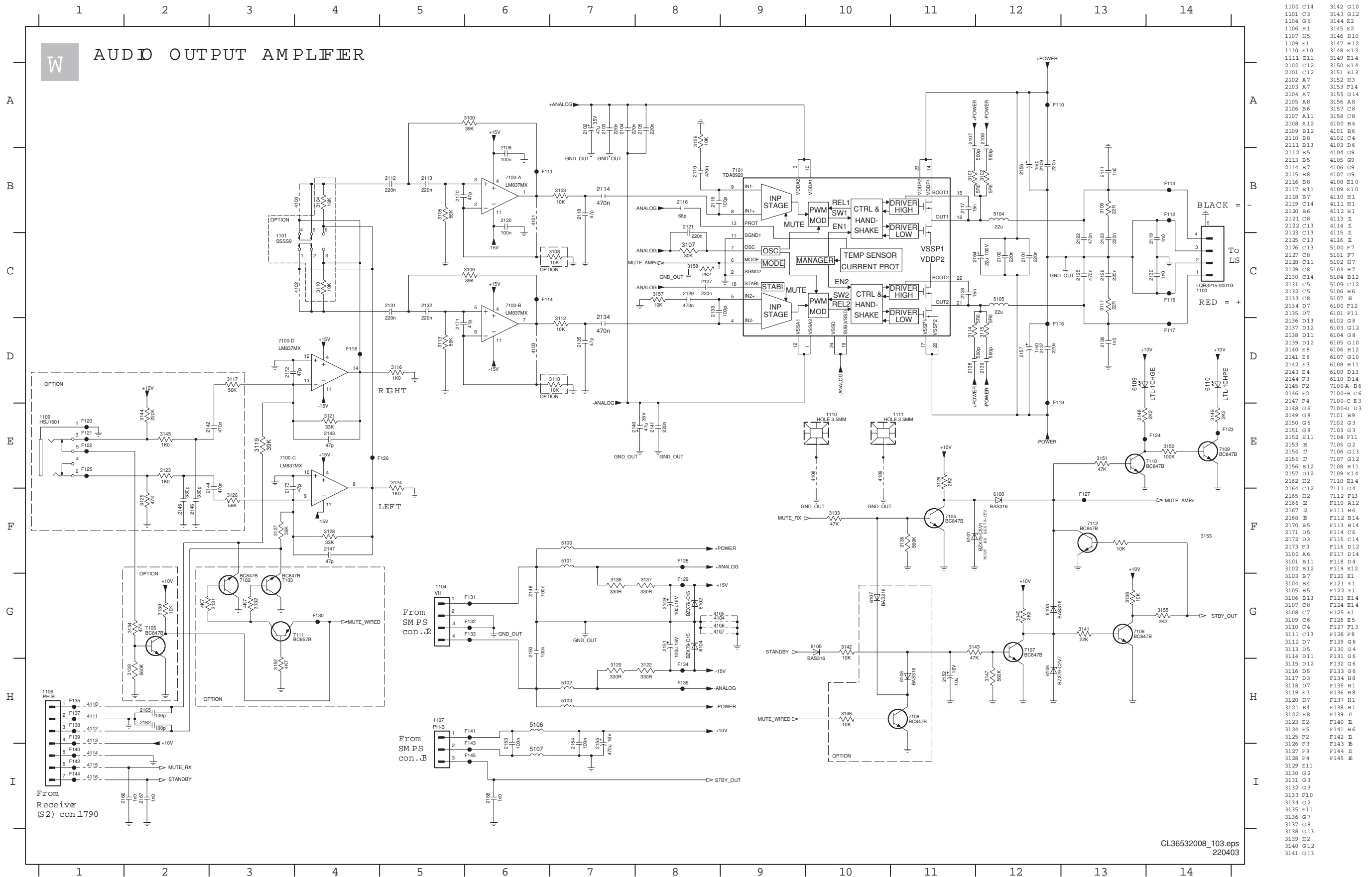


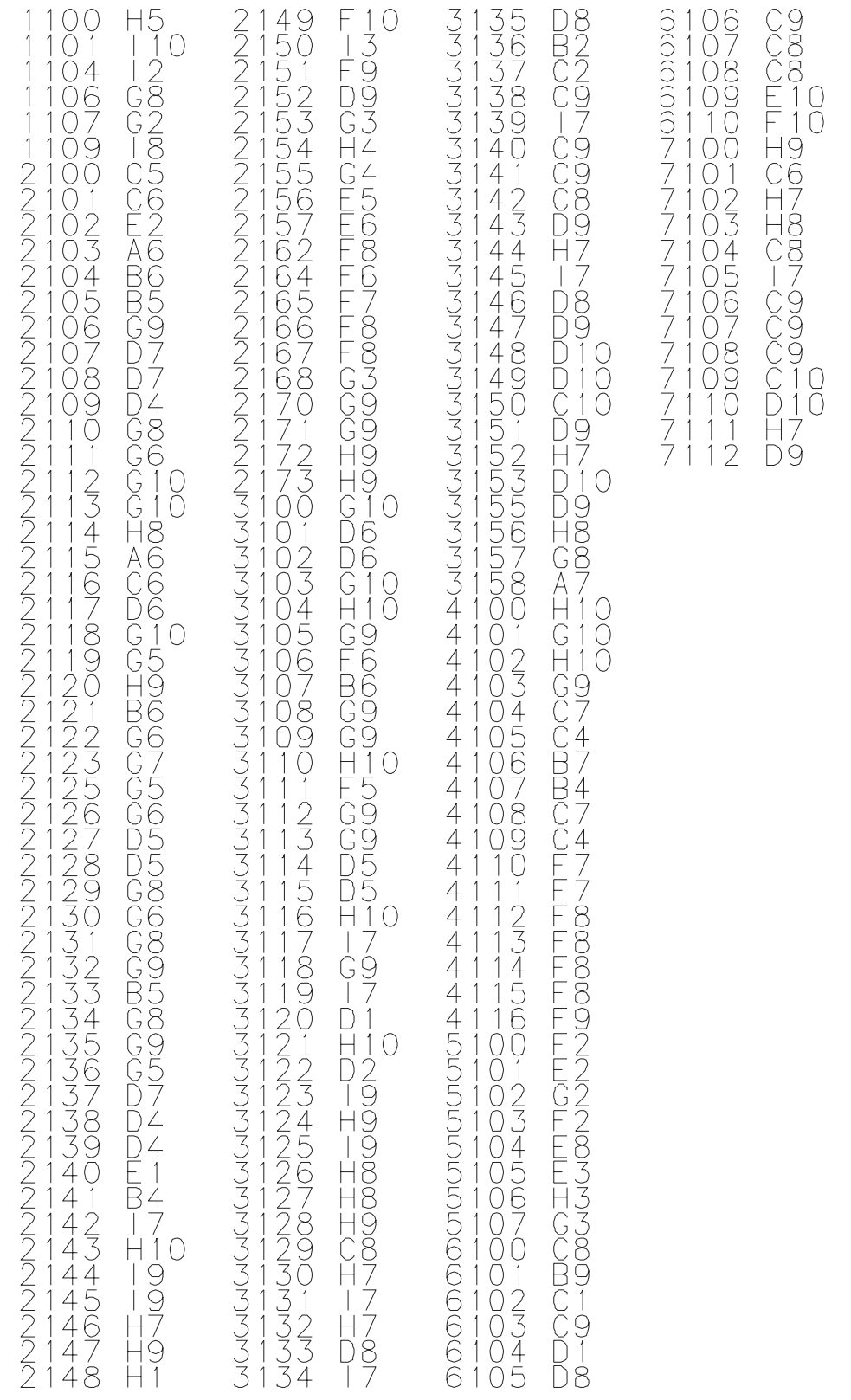
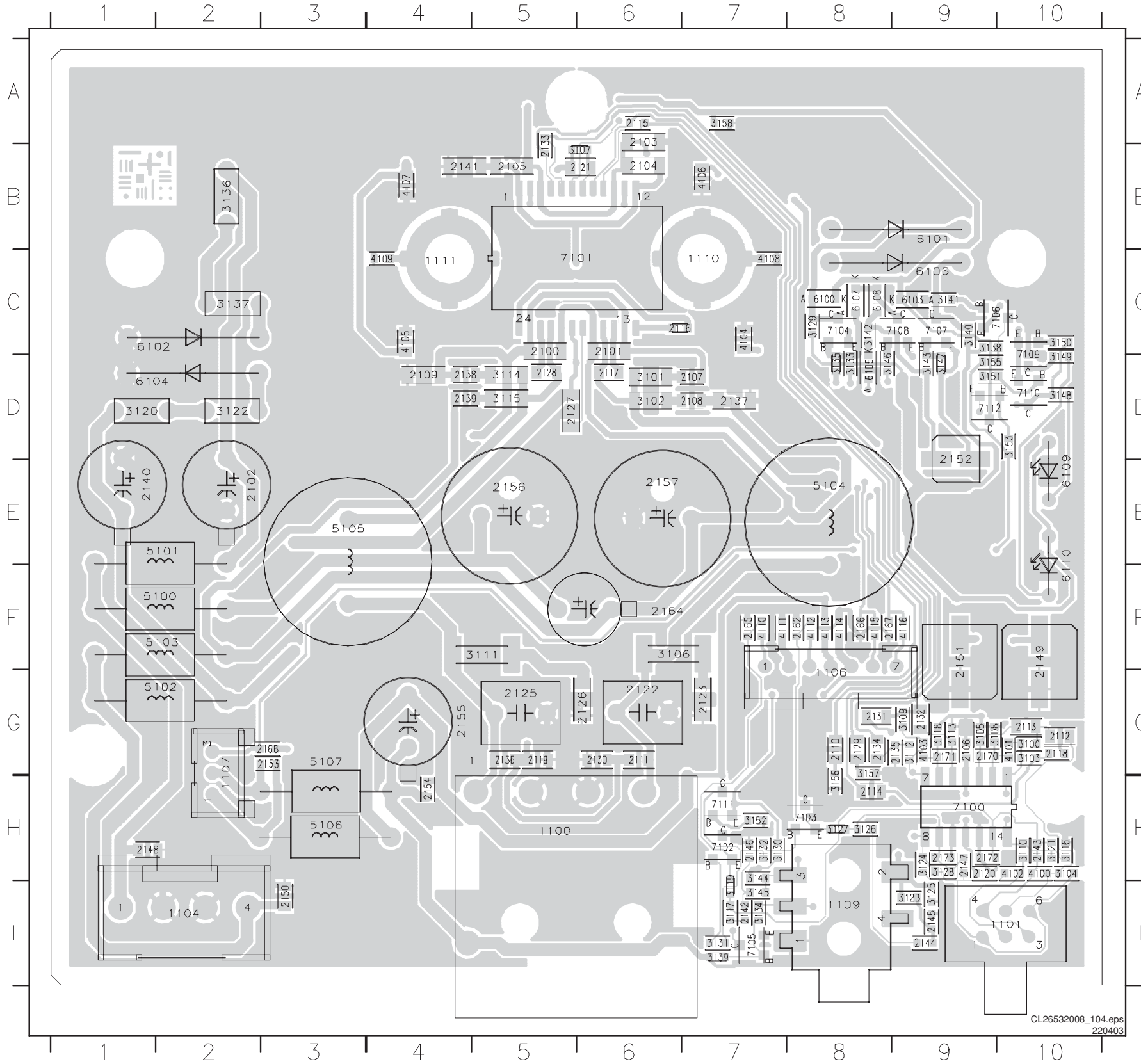
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- 1790-3 G16
- 1790-4 B16
- 1790-5 F16
- 1790-6 J16
- 1790-7 J16
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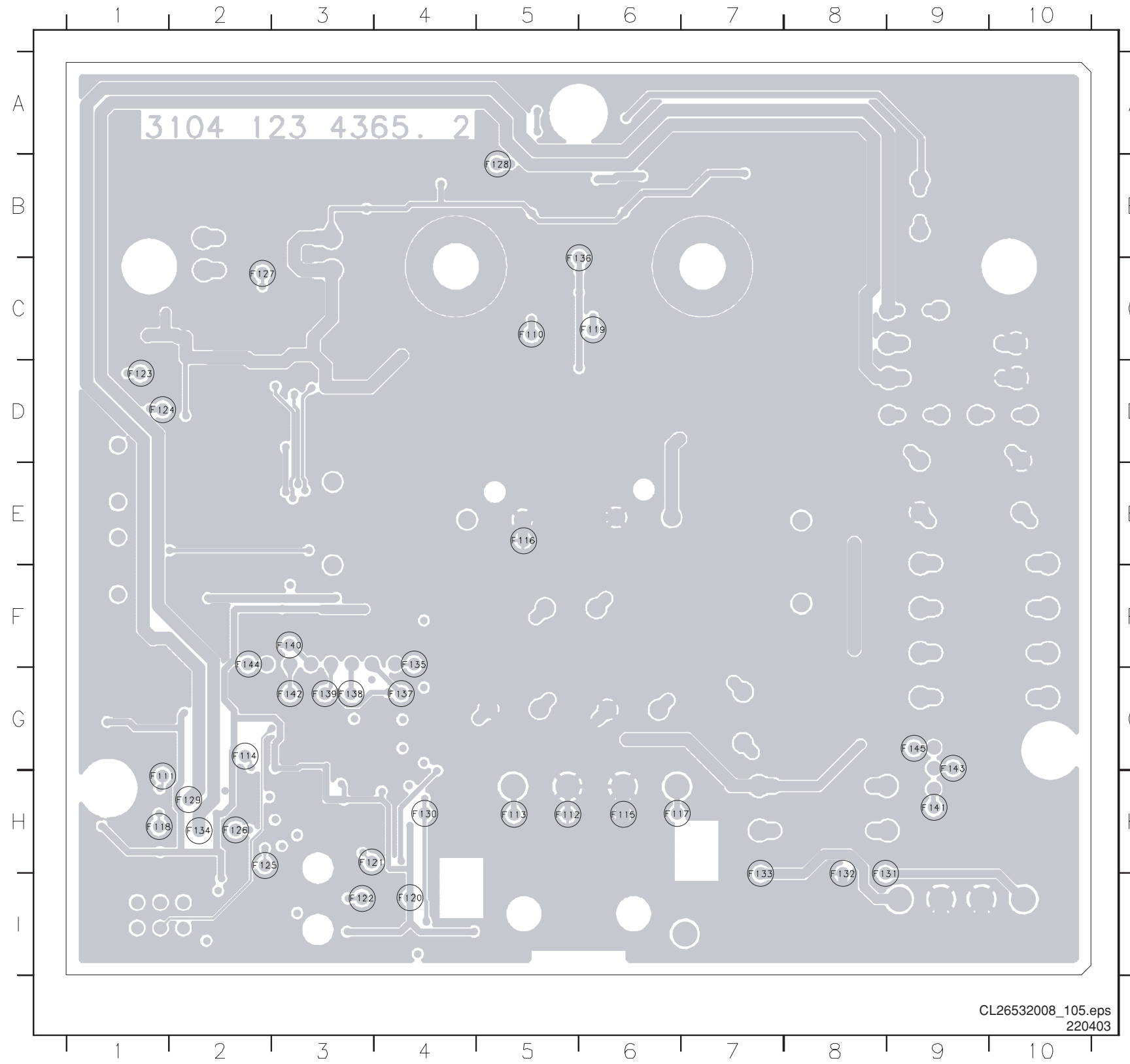
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1.7.4 Wireless Audio Amplifier Board



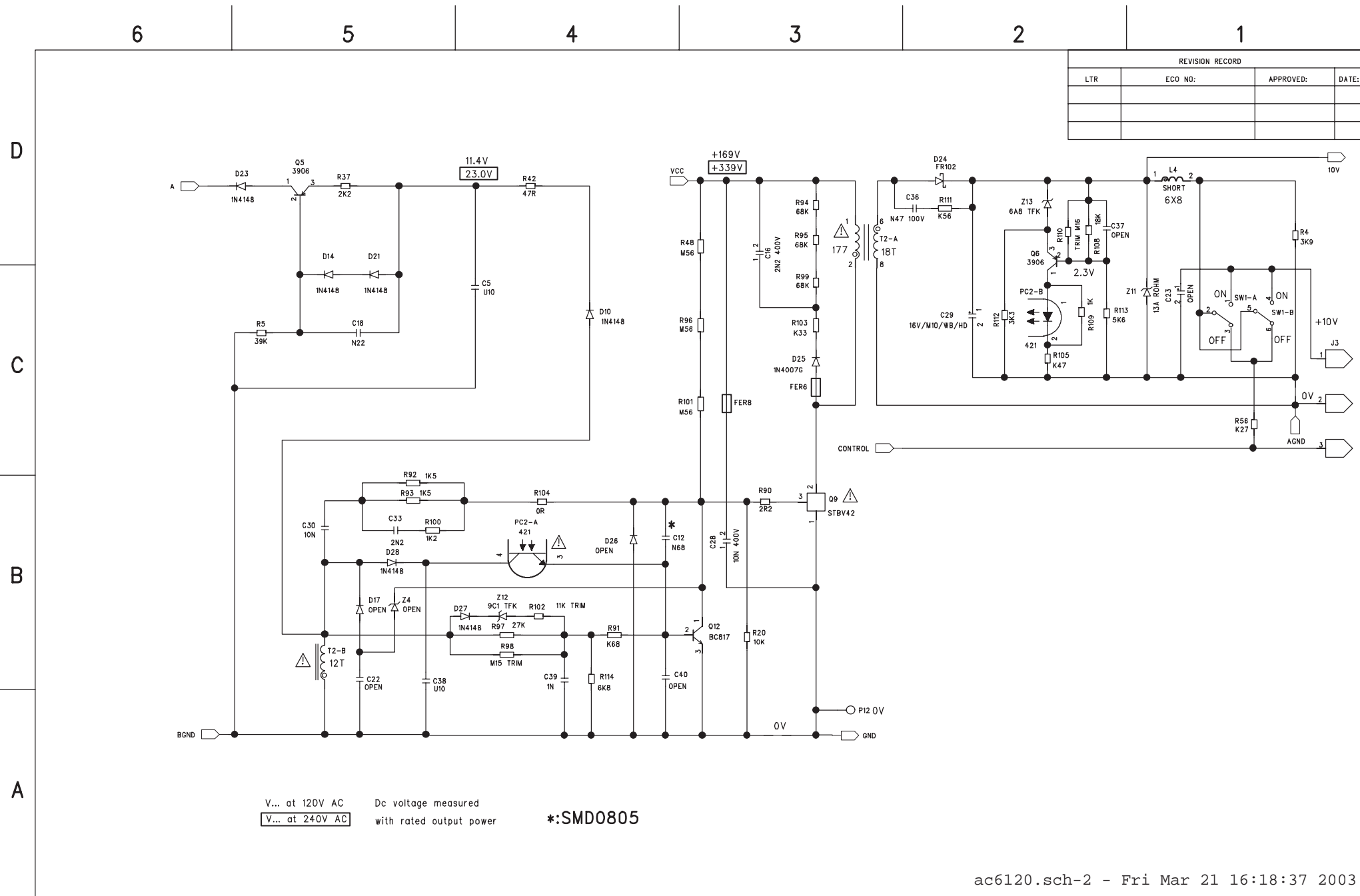


Layout Wireless Audio Amplifier Board (Bottom Side)



F	1	10	C	5
F	1	11	G	1
F	1	12	H	5
F	1	13	H	5
F	1	14	G	2
F	1	15	H	6
F	1	16	H	6
F	1	17	H	6
F	1	18	H	6
F	1	19	C	6
F	1	20	H	4
F	1	21	H	3
F	1	22	H	3
F	1	23	C	1
F	1	24	C	1
F	1	25	H	2
F	1	26	H	2
F	1	27	B	2
F	1	28	A	5
F	1	29	H	4
F	1	30	H	4
F	1	31	H	8
F	1	32	H	8
F	1	33	H	8
F	1	34	H	2
F	1	35	T	4
F	1	36	B	6
F	1	37	G	4
F	1	38	G	3
F	1	39	G	3
F	1	40	H	3
F	1	41	H	3
F	1	42	G	3
F	1	43	G	3
F	1	44	G	3
F	1	45	G	3

SMPS Part B



REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

C5	C4	R92	B5
C12	B4	R93	B5
C16	D3	R94	D3
C18	C5	R95	D3
C22	B5	R96	C3
C23	C1	R97	B4
C28	B3	R98	B4
C29	C2	R99	C3
C30	B5	R100	B5
C33	B5	R101	C3
C36	D2	R102	B4
C37	D2	R103	C3
C38	B5	R104	B4
C39	B4	R105	C2
C40	B4	R108	D2
D10	C4	R109	C2
D14	C5	R110	D2
D17	B5	R111	D2
D21	C5	R112	C2
D23	D6	R113	C2
D24	D2	R114	B4
D25	C3	SW1A	C1
D26	B4	T2A	D3
D27	B4	T2B	B5
D28	B5	Z4	B5
FER6	C3	Z11	C1
FER8	C3	Z12	B4
J3	C1	Z13	D2
L4	D1		
PC2A	B4		
PC2B	C2		
Q5	D5		
Q6	D2		
Q9	B3		
Q12	B3		
R4	D1		
R5	C5		
R20	B3		
R37	D5		
R42	D4		
R48	D3		
R56	C1		
R90	B3		
R91	B4		

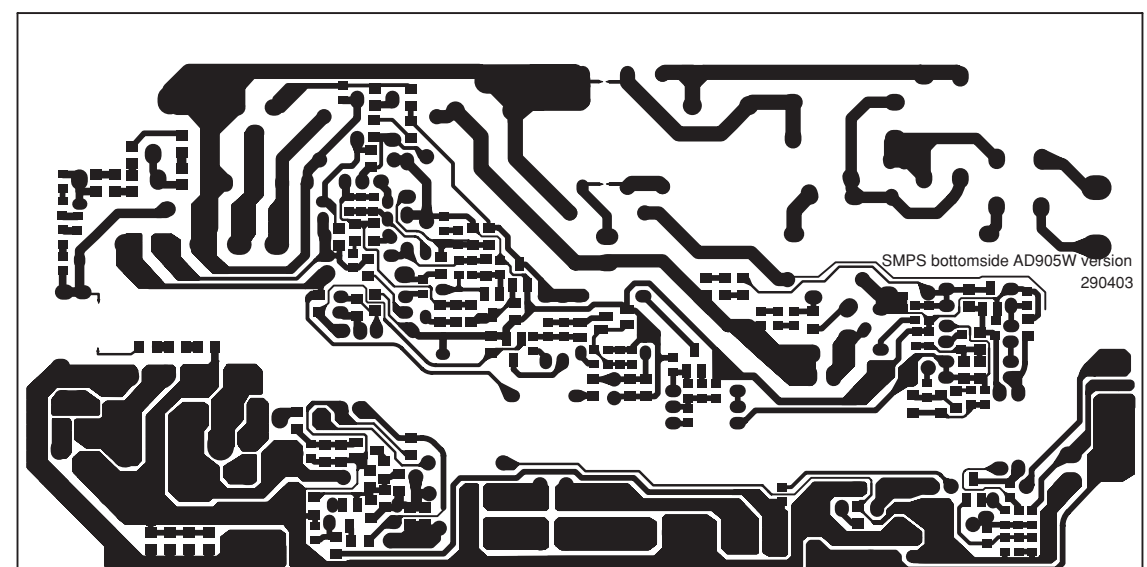
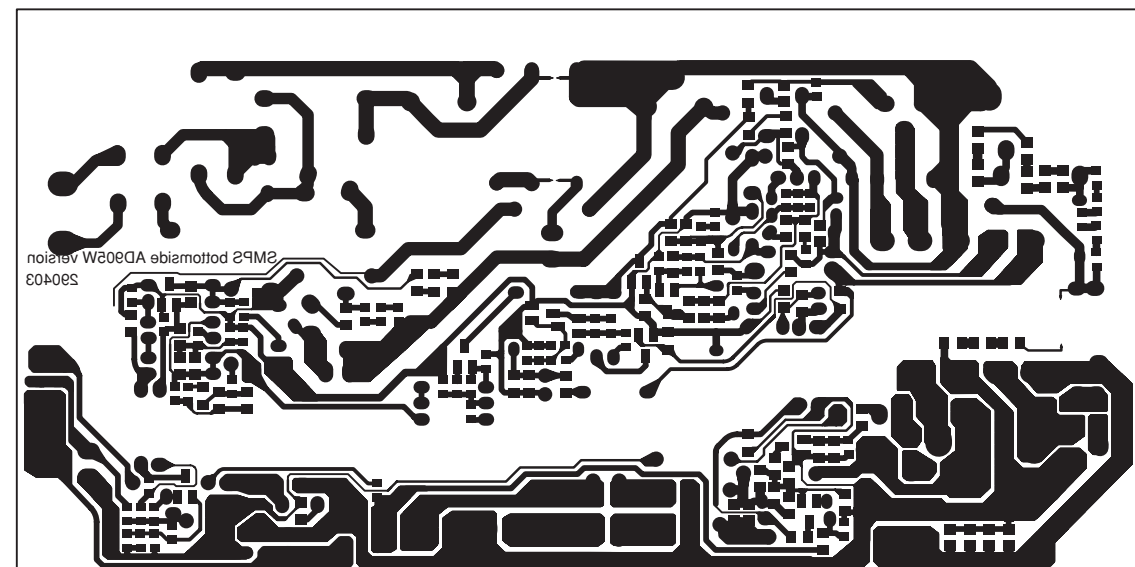
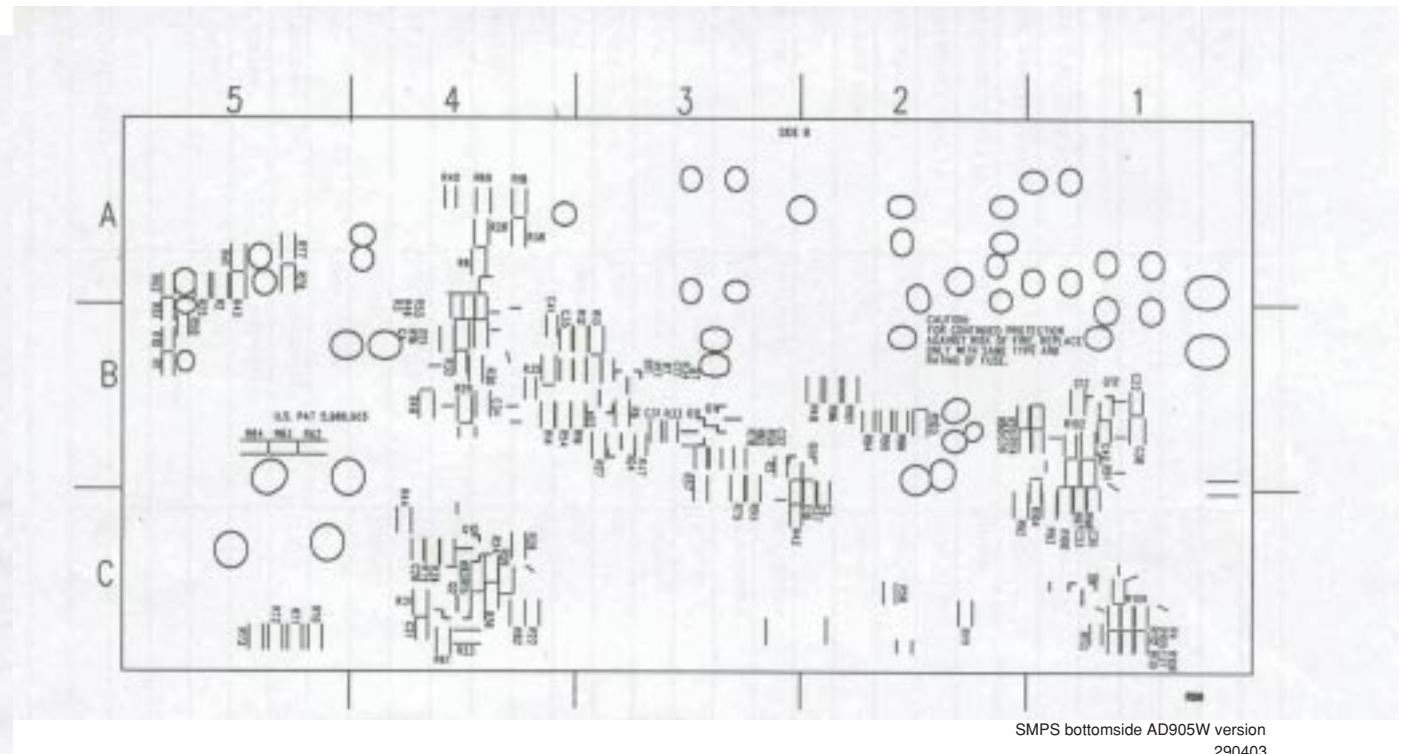
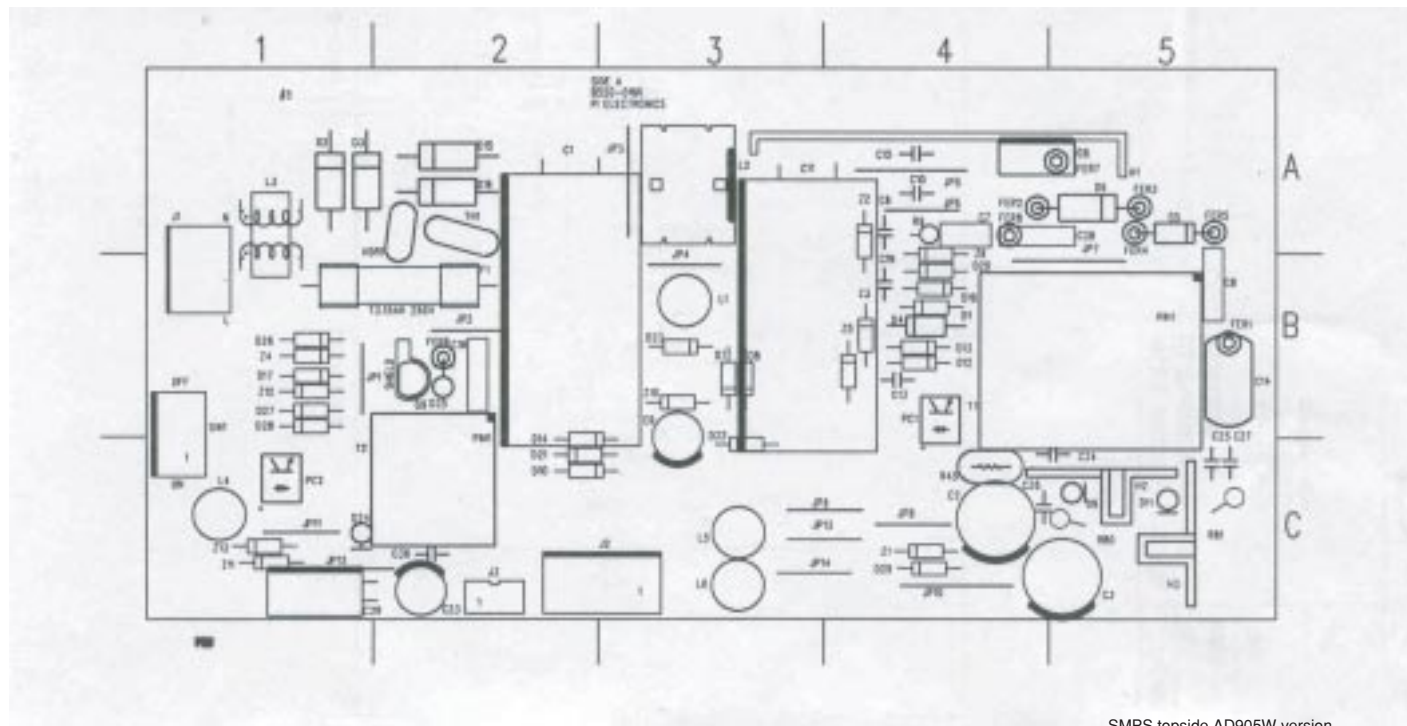
V... at 120V AC Dc voltage measured
 V... at 240V AC with rated output power *:SMD0805

Layout Wireless SMPS Board (Top Side)

C1	A2	C19	B4	D5	A5	D19	B4	FER2	A4	L1	B3	R81	C5	Z11	C1
C2	C4	C23	C2	D6	A5	D20	B4	FER3	A5	L2	A3	SW1	B1	Z12	B1
C3	C5	C24	C5	D7	B3	D21	C2	FER4	A5	L3	A1	T1	B5	Z13	C1
C6	A4	C25	C5	D8	B3	D22	C3	FER5	A5	L4	C1	T2	C2	SHIELD	B2
C7	A4	C26	C4	D9	C5	D23	B3	FER6	B2	L5	C3	TH1	A2		
C8	B5	C27	C5	D10	C2	D24	C1	FER7	A5	L6	C3	VDR1	A2		
C8	B5	C28	A5	D11	C5	D25	B2	FER8	A4	PC1	C4	Z1	C4		
C9	B3	C29	C1	D12	C5	D26	B1	H1	A5	PC2	C1	Z2	A4		
C11	A3	C36	C2	D13	B4	D27	B1	H2	C5	Q8	A5	Z3	B4		
C13	B4	D1	B4	D14	C2	D28	B1	H3	C5	Q9	B2	Z4	B1		
C14	B5	D2	A1	D15	A2	D29	C4	J1	A1	R9	A4	Z5	B4		
C15	A4	D3	A1	D16	A2	F1	B2	J2	C3	R45	A4	Z6	B4		
C16	B2	D4	B4	D17	B1	FER1	B5	J3	C2	R80	C5	Z10	B3		

Layout Wireless SMPS Board (Bottom Side)

B3	B4	C32	B3	Q5	B2	R8	A4	R24	C4	R37	C2	R52	A5	R65	B3	R78	A5	R99	B2	
B18	A4	C33	C1	Q6	C1	R10	B5	R25	A5	R38	A4	R53	B4	R66	C4	R79	C4	R100	C1	
B49	B4	C34	B4	Q7	B3	R11	B4	R26	A4	R39	C4	R54	B4	R67	C5	R82	C4	R101	B2	
C4	B4	C35	B4	Q10	C4	R12	B3	R27	B3	R40	A4	R55	C3	R68	B2	R83	C4	R102	B1	
C5	C2	C37	C1	Q11	B3	R13	B3	R28	C4	R41	A5	R56	C2	R69	A4	R90	B2	R103	B2	
C12	B1	C38	C1	Q12	B1	R14	B4	R29	B4	R42	C2	R57	B3	R70	C5	R91	B1	R104	C1	
C17	B3	C39	B2	R1	B5	R15	C4	R30	B4	R43	A5	R58	B3	R71	C5	R92	C2	R105	C1	
C18	C2	C40	B1	R2	A5	R16	B4	R31	C4	R44	C4	R59	C4	R72	C5	R93	C1	R108	C1	
C20	C4	C41	B4	R2	C4	R17	B4	R32	C4	R46	B4	R60	A5	R73	C5	R94	B2	R109	C1	
C21	C4	Q1	B3	R4	C1	R19	B3	R33	B3	R47	B3	R61	C4	R74	C2	R95	B2	R110	C1	
C22	B4	Q2	C4	R5	B3	R20	B1	R34	B3	R48	B2	R62	B5	R75	C3	R96	B2	R111	C2	
C30	C1	Q3	B3	R6	B3	R21	B4	R35	B4	R50	B5	R63	B5	R76	C3	R97	B1	R112	C1	
C31	B3	Q4	B4	R7	B3	R23	B3	R36	C4	R51	B5	R64	B5	R77	A5	R98	B1	R113	C1	
																			R114	B1



1.8 Circuit descriptions

The Circuit description of the wireless surround system. The complete Wireless surround system consists of: transmitter part Tx: interface-board and transmitter board receiver part RX: receiver board, amplifier board and SMPSupply part

Loudspeaker boxes, per equipment defined. The interface board can be part of a TV set (EM6E-chassis) or a separate board in the transmitter part in case of the AV Entertainment (DVD-receiver) application. transmitter and receiver are described as one system, amplifier board is per application (TV or AV) adapted.

1.8.1. Transmitter Interface board:

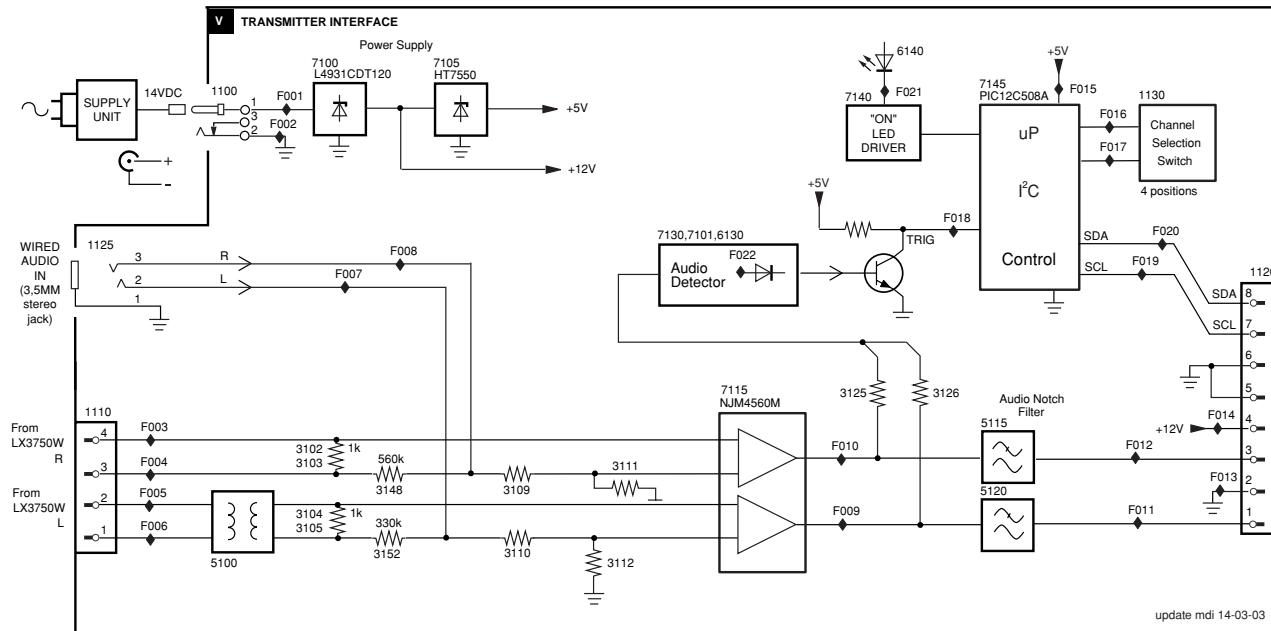


Figure 1-7 Block diagram transmitter interface

General

The transmitter interface (TX-interface) is intended to deliver all necessary audio and I²C control signals to the transmitter. The interface is capable to deliver the specific I²C protocols for the selection of the 4 channels, the power-up and power down sequence. Also an audio detector and a led control circuit is on the board, all controlled by the processor. The used microcontroller is a PIC12C508A. There is only one software version, which can handle automatically the 2 possible TX frequencies (864 and 914 MHz) in AV application. For TV application the interface function is integrated in the corresponding TV set and controls via I²C commands the 2 frequencies (433 and 864 MHz).

Besides the I²C, all audioconditioning is done by a dual opamp NJM4560M.

A 23 kHz pilot notch filter is formed by both coils 5115 and 5120, this to avoid interference with the used pilot of the TX. The AV interface transmitter combination has always to be used with the recommended mains power adaptor of 14Vdc/150mA. (There is a EUR, UK and USA version)

Input / output - sense :

Full modulation of the TX transmitter: on both right and left out (pin 1 and 3 of connector 1120), 0.42V rms (or 1.1653V peak to peak), this means for the AV interface: 20 Vrms input on right and left input. For TV 3V rms input on right and left input. Start modulation:

At power-up: auto start of the interface and TX transmitter for at least 4 minutes; when no audio on one of the inputs >0.1 V for a period of 4 minutes then the Processor shuts down the modulation of the TX transmitter (LED off)

Tx in off mode: (TX transmitter powered, no modulation and LED off) Start of the modulation and LED on by applying minimum 0.1Vrms on left or right input

Frequency response: Response is flat (+/- 1.5dB) between 100Hz and 15kHz for both channels
One channel-input is built up by using an audiotrafo to make the coupling towards source (LX3750 Home cinema DVD player with incorporated class D amplifiers) This causes a difference in f-response especially for low frequencies below 100Hz for left and right channel, however not audible in its application.
Input impedance: < 1 K ohm
Led-functionality: built in led indication: Red = ON, power on, transmitter active
Red = OFF, power on, no modulation

Audio-input section:

The right audio input channel is different from the left input: left uses a low cost audio transfo, since there has to be a complete separation between the left and right speaker outs of the DVD player LX3750. Of course this gives a small difference in frequency response, but absolutely not audible in its application. Pin 4 is connected straight to one output pin of the DVD speaker out: this to have a "reference - ground". Input impedance for both channels is always below 1Khz, making the unit immune for all kinds of interferences on the speaker lines. The rather high input levels (up to 20V rms /each channel) are conditioned and brought to a level of nominal 0.42 Vrms on pin 1 and 3 of 1120. This 0.42 Vrms gives 50Khz FM deviation in the transmitter. Extra protection is established by the fast diodes 6142 and 6144. DC-reference is made by 3115-3116 and 2116. A 23Khz notch filter 5115 / 5120 is built in to avoid interferences with the used pilot frequency of the transmitter.

Audio detector:

A part of the audio info is fed to the audio detector built up around 7101-A and 7101-B. Basically it's a two-stage amplifier with a very high gain factor (3135/3133 and 3136/3134). A square-wave is fed to the rectifier/ integrator around 6130. In normal operation 7135 is always conducting, pulling down the level on the trig-input of the microprocessor 7145. As long this input is low the connected transmitter is enabled by the microprocessor. When no audio input, the trig input comes high (5V), and the internal timer of the processor counts down till 4 minutes have past away. After this four minutes (approx.) the transmitter will be disabled = no modulation and red led off. A very low audio input "trigs" the processor and the transmitter starts up again. (Led = red). Four-channel selection is done by 2 lines (LSB - MSB) on the processor.

Power supply:

The unit operates on a 14 Vdc mains power adaptor: 12Vdc, mainly for the transmitter, is furnished by 7100 -L4931CDT120, which is a low drop regulator. The 5 Vdc for the PIC is made by the HT7550 low power regulator.

1.8.2. Wireless System

GENERAL INTRODUCTION

The wireless system is intended for stereo sound in the range from 20 Hz to 20 kHz.

It can be used for normal L/R stereo sound or for the surround channels in Dolby systems.

The system has an analogue sound processing system (companding - expanding) and uses synthesised tuning at both the transmitter and receiver side. There are frequency executions

available in different frequency bands: 433 MHz (some EU), 864 MHz (EU) and 914 MHz (US). In each particular frequency band, there is a choice between 4 different channels or frequencies.

SYSTEM CONSIDERATIONS

The Wireless system uses a very high performance audio processing that allows up to 100 dB dynamic range to be transmitted over a classic analogue link. Through the companding effect at the transmitter (reducing the dynamic range by a factor of 2 in dB) and by an expanding effect in the receiver (increasing the dynamic range by a factor of 2 in dB). In addition the system has the possibility to maintain the high S/N up to low RX fieldstrengths by applying sliding stereo (this means reducing the stereo effect at low signal fieldstrengths) Pre-emphasis (at TX) / de-emphasis (at RX) technique is with 15 µS time constance. Since the signal processing is analogue, there is a low latency in the system of < 15 µS between input TX and output RX. The receiver part has a power save mode that will be initiated automatically when no signal to reduce power consumption. The system uses normal FM modulation / demodulation and also uses the Zenith stereo principle. However, the frequencies used are different in this respect: Subcarrier freq. = 3 * 15625 Hz = 46.875 kHz (chosen because interference zero-beats with the TV line freq). Consequently the pilot freq. is 23.4375 kHz (half of subcarrier).

TRANSMITTER

The block diagram of the transmitter is as follows:

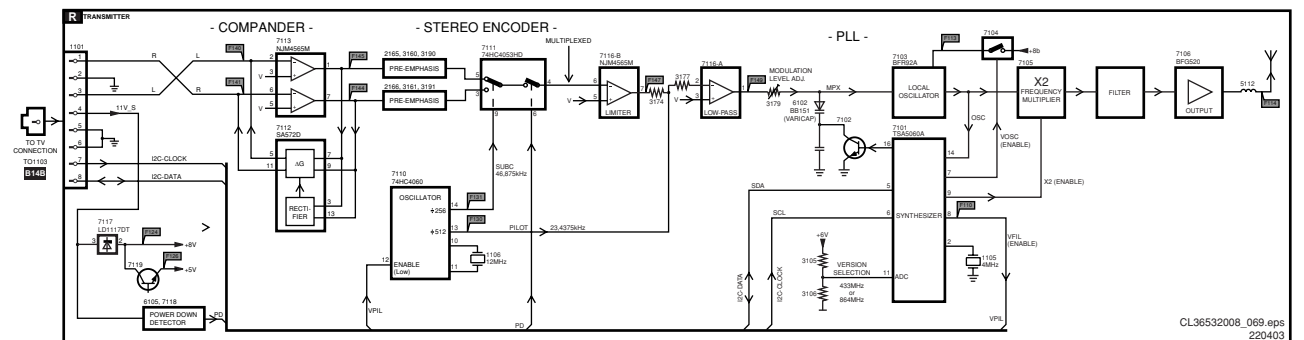


Figure 1-8 Block diagram transmitter

Synthesiser and local oscillator

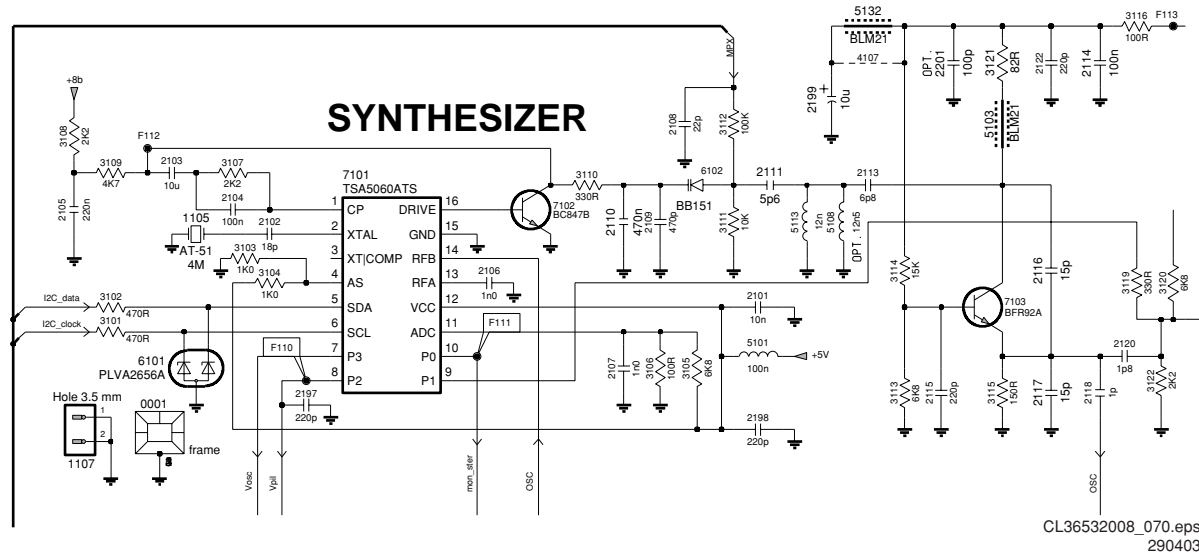


Figure 1-9 Synthesizer part of transmitter circuit diagram

The internal circuitry of the TSA5060A can be seen in below figure

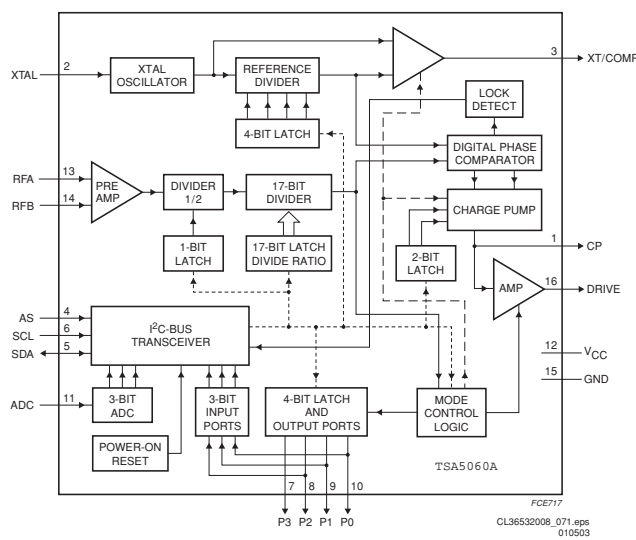


Figure 1-10 Block diagram TSA5060A

The TSA5060A is software controlled by the I2C bus. TV applications do send commands directly via the TV slow bus while the audio applications have a small interface board with an μ P PIC12C508 to send the commands. To verify whether there is communication between the host device and the TSA 5060A one can check the supply voltage of the osc.transistor 7103 (TP F113) and should be about 7.5 V in normal conditions when the I2C signal is interpreted by the synthesiser. If there is improper communication the voltage remains at zero V. There is version recognition foreseen to discriminate between 433-864 and 914 MHz units. This feature will automatically load the correct frequency division words into the synthesiser at starting up and initialisation of the host device (e.g. TV set). The reference quartz is 4 MHz and is divided down to a lower reference frequency of 25 or 50 kHz (depending on the version). The PLL filter is passive and includes 2103 – 2104 – 3107. The transistor 7102 is part of the PLL current source and

allows connection to higher supply voltages as +5V. The TSA5060A has some output ports that are used to:

- Vosc (to switch the LO)
- Vpil (to switch the pilot)
- Port P1 to switch the PA

The oscillator (LO) is a common base transistor (7103) that is oscillating at half the output frequency. The frequency is tuned by the varicap 6102 until the tuning voltage is in the range of the loop filter (between 1 and 6 Vdc). If the voltage is outside this range then possibly the division ratio is chosen outside the normal range or some freq. dependant component around the transistor is faulty.

Multiplier and power amplifier

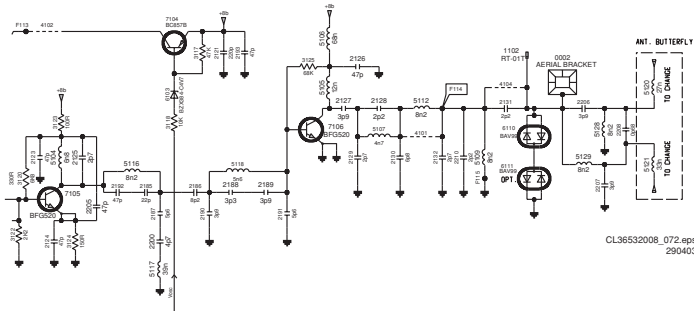


Figure 1-11 Multiplier and power amplifier

The LO signal is multiplied by two in a separate stage 7105 in order to get a high isolation between the LO and the antenna. There is quite some filtering necessary at the output because it is necessary to suppress the half freq, and its harmonics from reaching the PA stage. There is 2 stage bandstop filter followed by an elliptic low pass filter. This filtering has to do with the legal requirements for spurious radiation. The PA stage with 7106 increases the power level to about +15 dBm at the output of the filter. The transistor is polarised into class A for min. harmonic content and furthermore there is output filtering available to further reduce the harmonics. The configuration differs with the freq. version.

The 864 and 914 MHz versions for TV sets are using an integrated antenna on the board while the 433 TV version and all AV versions use a telescopic antenna. This results in different matching networks between TX and antenna. The printed dipole is driven symmetrically by a balun for optimum power transfer and symmetry. There are protection diodes (6110 & 6111) foreseen but not stuffed for ESD when applying to an external antenna.

The audio compander circuit

The audio compander uses a SA572 (7112), which is intended for high-end applications. It is to be used together with a low noise opamp (7113). There is no audio input filtering ahead of the compander. Therefore it can only be used when the source is having no frequency components above 20 kHz otherwise the compander linearity will be at risk. In the TV applications this is realised with a digital filter at the MDM board while for the AV applications there is additional low pass filtering to ensure good operation.

Graphically the operation of a companding expanding system can be understood from following figure:

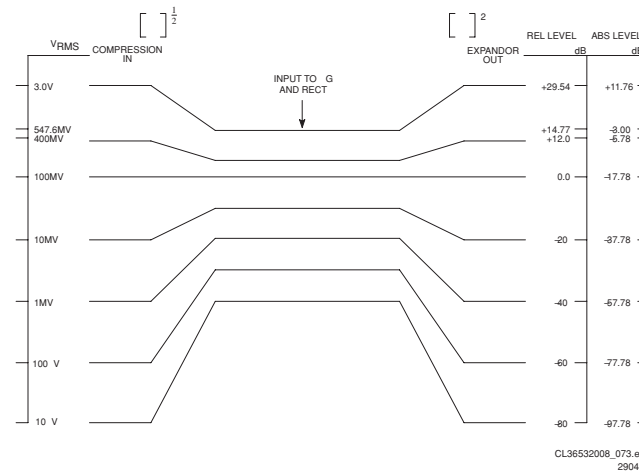


Figure 1-12 Compander graphics

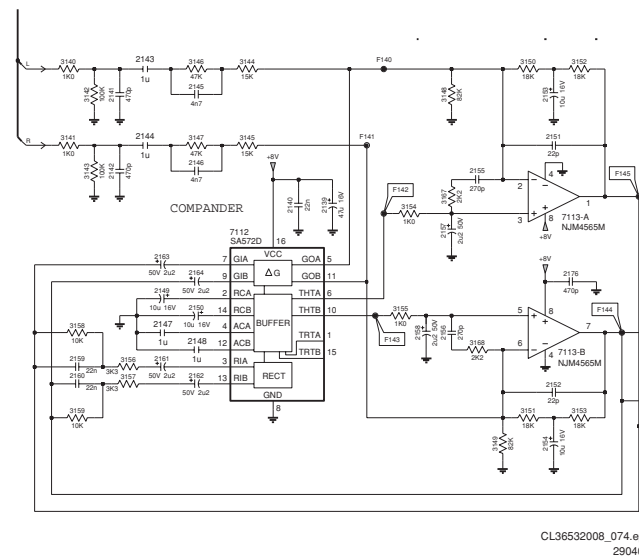


Figure 1-13 Compander circuit

Basically the circuit comes down to following simple circuit:

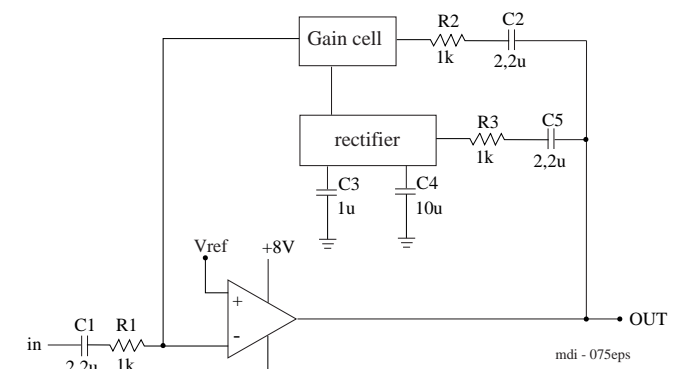


Figure 1-14 Gain cell

The basic compander configuration is given above. From the diagram one can understand the factor of 2 of companding as follows:

There is a variable gain cell (variable resistor) in the feedback loop of an opamp (NJM4565M). There is a rectifier cell that detects the output voltage of the opamp and translates it into a current send to the gain cell. The rectifier has an attack time constant (C3) and a decay time constant (C4), which is optimised to give the best auditive result. If the input V_{in} rises with e.g. 4 times then the output can rise only 2 times. This is because the feedback resistor formed by the gain cell is decreased with a factor of 2. Remember for an opamp $V_{out} = V_{in} * ((R_f + R_1) / R_1)$ where R_1 is constant. ($R_f = R_2 +$ internal gain cell res.)

The preemphasis, stereo coding and output filtering

The 2 channels available from the compander are now having pre-emphasis with a time constant of 12 μ s. Too much time constant would give problems with the voltage rising too high at maximum Modulation frequency and hence occupied band width of the modulated signal. The pre-emphasis consist of a simple RC circuit. The stereocoder 7111C is in fact just an electronic switch, which is driven from the subcarrier frequency. By this operation the spectrum at the output of the switch is as follows in the frequency domain:

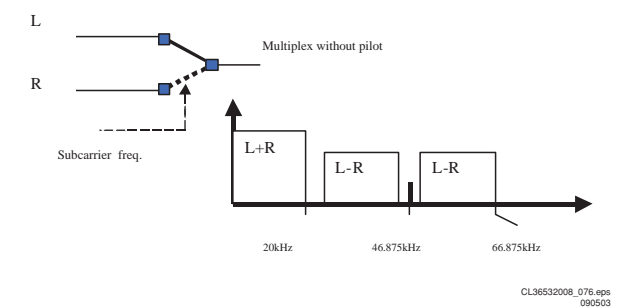


Figure 1-15 Multiplex without pilot

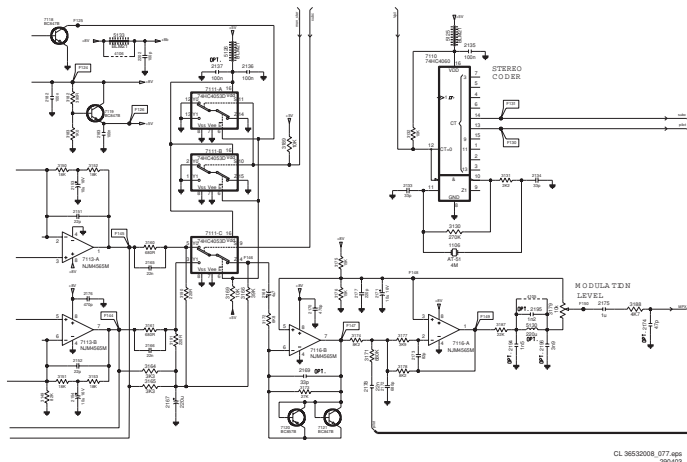


Figure 1-16 Stereocoder

Note that the other 2 switches of 7111 (respectively 7111A and 7111B) are unused.

Power supply and power down
The board is having a low drop voltage regulator 7117, which has an output voltage of 8.3Vdc. The 5 V supply is extracted via transistor 7119.

Receiver
The blockdiagram of the receiver is as follows:

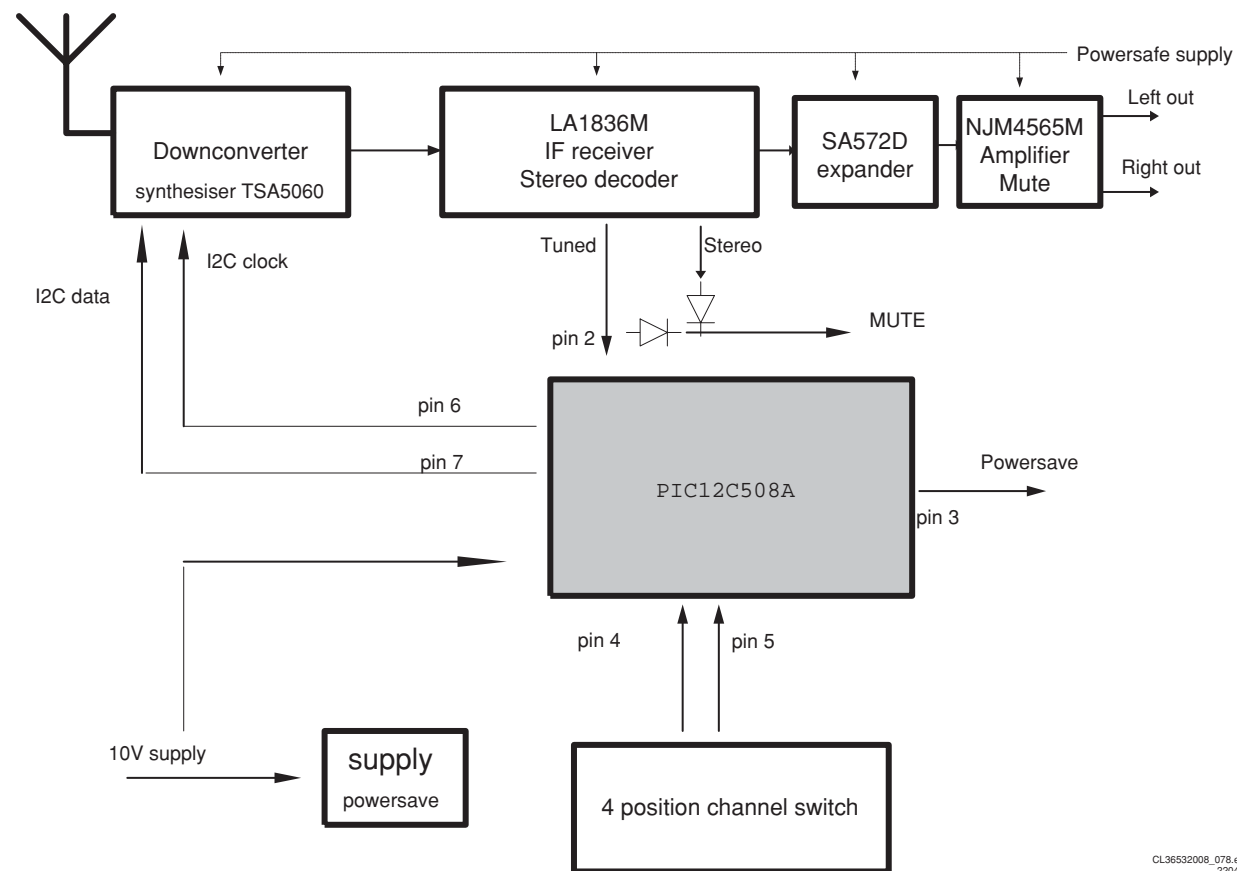


Figure 1-17 Block diagram receiver

The power down detection is done via 6105 and 7118. When the voltage drops the transistor 7118 comes out of saturation rapidly thereby putting the stereocoder in Hi-Z position (idle) and no AF output will be there from the stereocoder. Suitable timing signals for the subcarrier and pilot frequency are extracted out of a 12 MHz crystal by division with 256 and 512 respectively. The whole chip 7110 can be enabled / disabled from the synthesiser port P2 (Vpil). (Low = enable). The outputs are square wave 5 V compatible.

The multiplex output from the stereocoder is fed into a limiter amplifier 7116B that sets a limit to the output voltage. In case the audio input signals increase towards 1.3 V the signal will be flat-topped and limited symmetrically. This of course introduces distortion but is necessary in order to observe the bandwidth limitations as set by legal standards. The base-emitter junctions of 7120 & 7121 form the limits.

This output signal is then summed with the pilot signal, which is injected just as a plain square wave. The amplifier 7116A forms a second order low pass filter that cuts at about 90 kHz. This reduces the harmonics present in the composite output signal. This signal is actually fed via trimpotmeter 3179 towards the varicap in order to achieve FM modulation. Trimpotmeter 3179 is aligned for a deviation of 50 kHz. There are 3 ways to align the trimpotmeter:

- Use a FM modulation analyser meter such as FAM (R&S) or similar.
- Put the RF output on a spectrum analyser and connect both audio inputs together at 0.41 V / 400Hz at the inputs of the TX. There are 2 peaks visible on the screen. Align until the difference between the peaks -3 dB is 2* 50kHz or 100 kHz.
- Use an accompanying receiver and while modulating both inputs of the TX align until the measured audio output of the RX is 1.3 Vrms.

Synthesiser and local oscillator

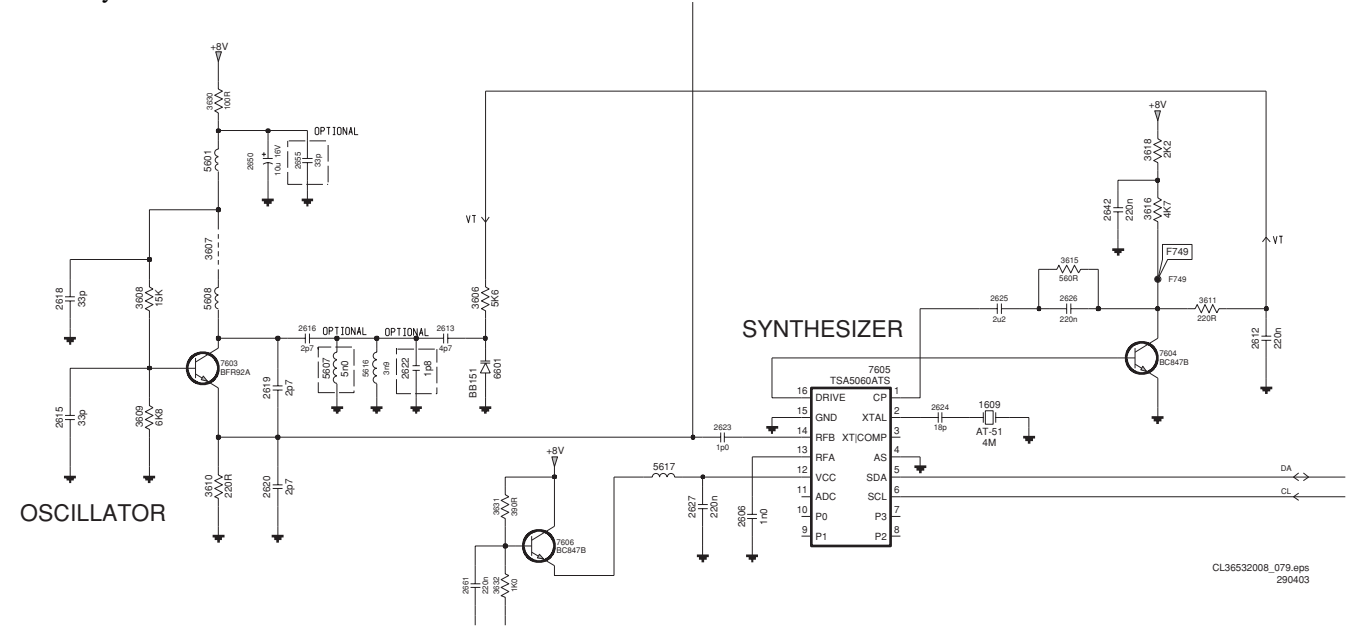


Figure 1-18 Synthesiser circuit

The internal circuitry of the TSA5060A can be seen in below figure.

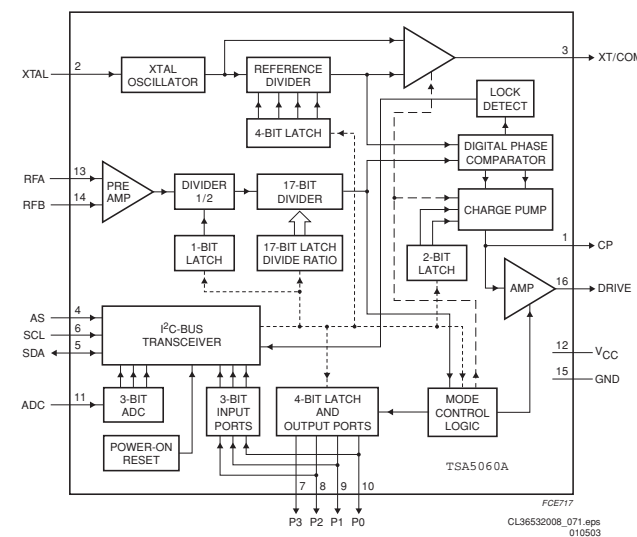


Figure 1-19 Block diagram TSA5060A

The TSA5060A is software controlled via the I2C bus by the PIC12C508 microcontroller. There is no hardware version recognition foreseen but the version can be read out from the PIC12C508 microcontroller. There is a different software code for 864, 433 and 914 MHz version. The reference quartz is 4 MHz and is divided down to a lower ref.freq. of 200 KHz or 100KHz (depending on the version). The PLL filter is passive and includes 2625 – 2626 – 3615-3611-2612. The transistor 7604 is part of the PLL current source and allows connection to higher supply voltages as +5V. The oscillator (LO) is a common base transistor (7603) that is oscillating at the fundamental frequency. The frequency is tuned by the varicap 6601 until the tuning voltage is in the range of the loop filter (between 0.5 and 7 Vdc). If the voltage is outside this range then possibly the division ratio is chosen outside the normal range or some freq. dependant component around the transistor is faulty.

Antenna input

The antenna input is tuned for a 17 cm telescopic antenna. The input is ESD protected by diode 6602. The SAW filter 1602 protects the receiver for out of band interference.

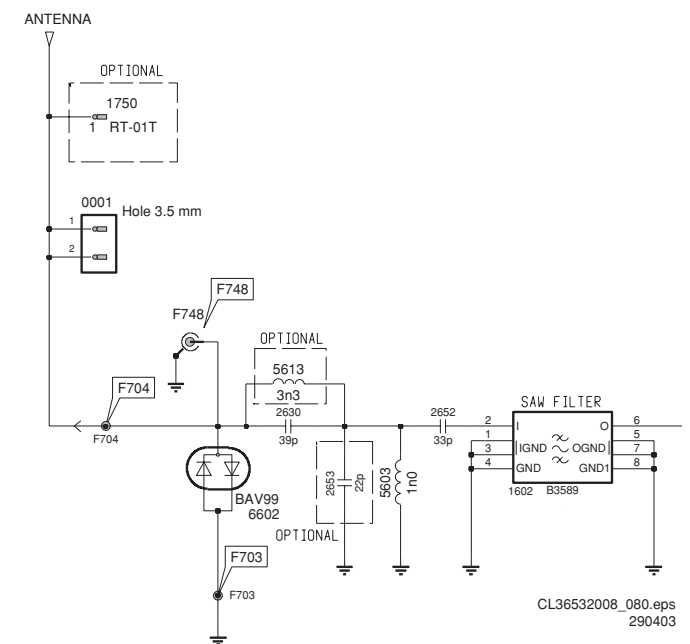


Figure 1-20 Antenna circuit

LNA and mixer

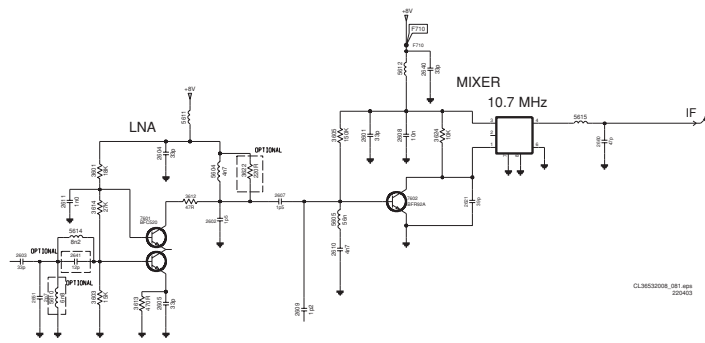


Figure 1-21 Mixer circuit

The LNA is a cascode configuration around the 7601. This circuit provides gain with a low noise figure while providing isolation from the oscillator to antenna. This isolation is necessary to comply with the legal requirements for radiated interference. The output of the LNA and the LO signal is mixed in 7602. This is a one transistor mixer that provides high conversion gain with low LO input signal. This level is only around 20 mV. The reason for this high conversion gain is that there is a 10.7 MHz trap at the base, 5605-2610. The output of the mixer is a tuned circuit at 10.7 MHz. The coil is pre-aligned at the factory.

The FM IF radio circuit

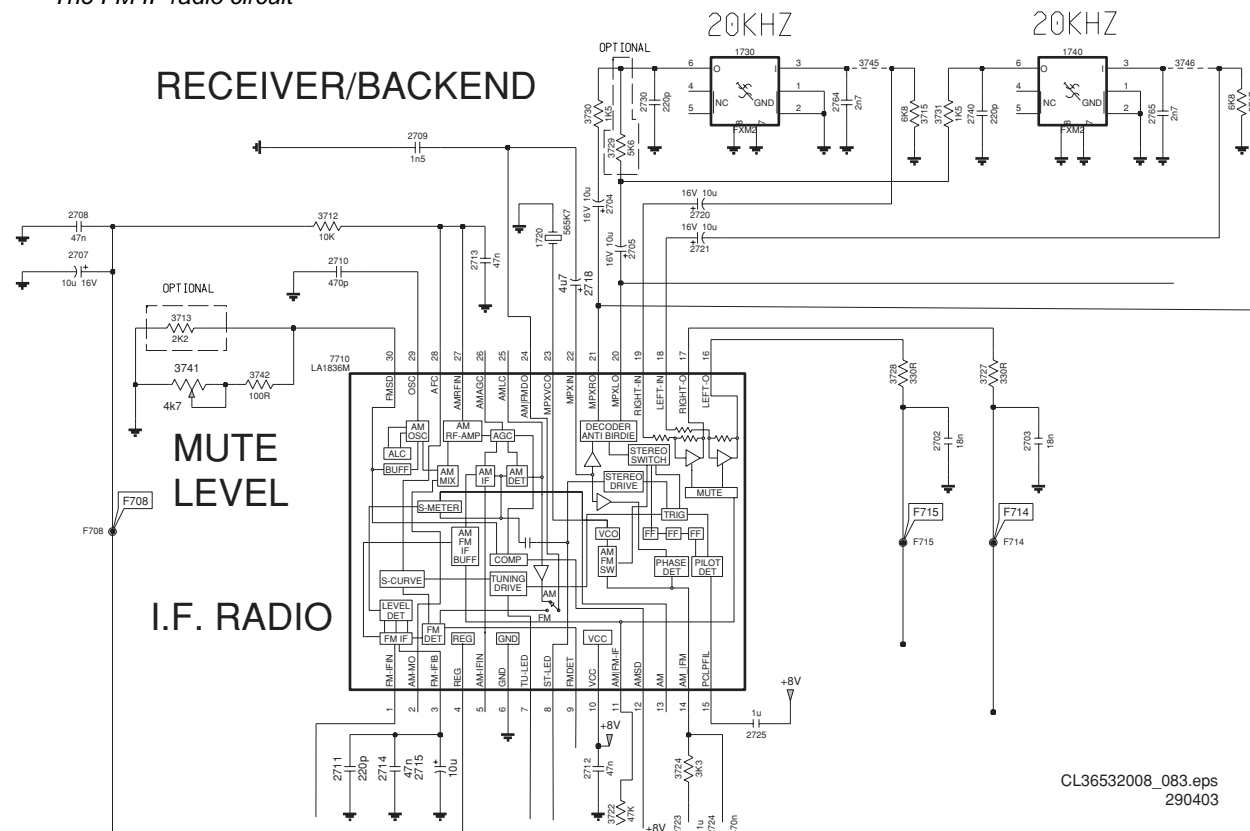


Figure 1-23 Receiver / backend circuit

FM Detector

The IF signal is demodulated in the 7710, LA1836M the IF radio IC. This IC has a coil FM detector that is aligned. In the alignment instructions this adjustment has been given. The stereodecoder is integrated and needs no adjustment. The demodulated signal is filtered with 1730-1740. These filters are pre-aligned and are reducing the pilot- and subcarrier frequency. This is necessary to prevent wrong operation of the expander circuit.

IF amplifier

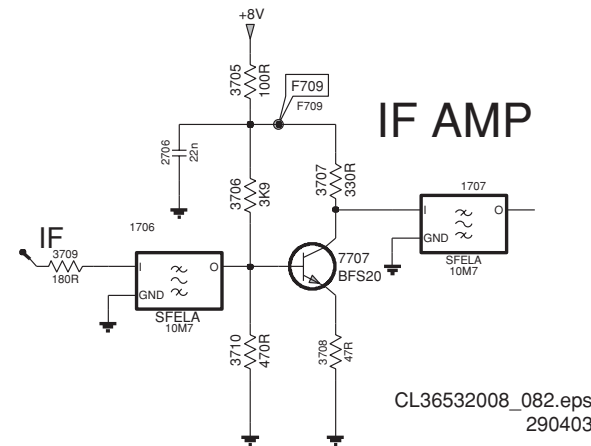


Figure 1-22 IF amp circuit

The mixer output signal is filtered by two ceramic IF filters. An IF amplifier 7707 is reducing the loss introduced by these filters.

SLIDING STEREO

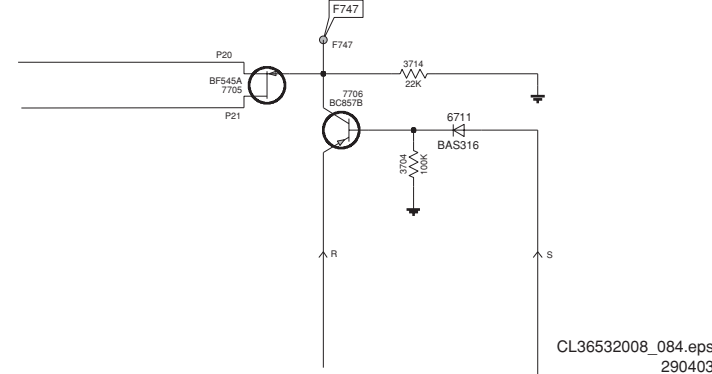


Figure 1-24 Receiver / backend circuit

There is a sliding stereo circuit for reducing the stereo noise at

The audio expander circuit

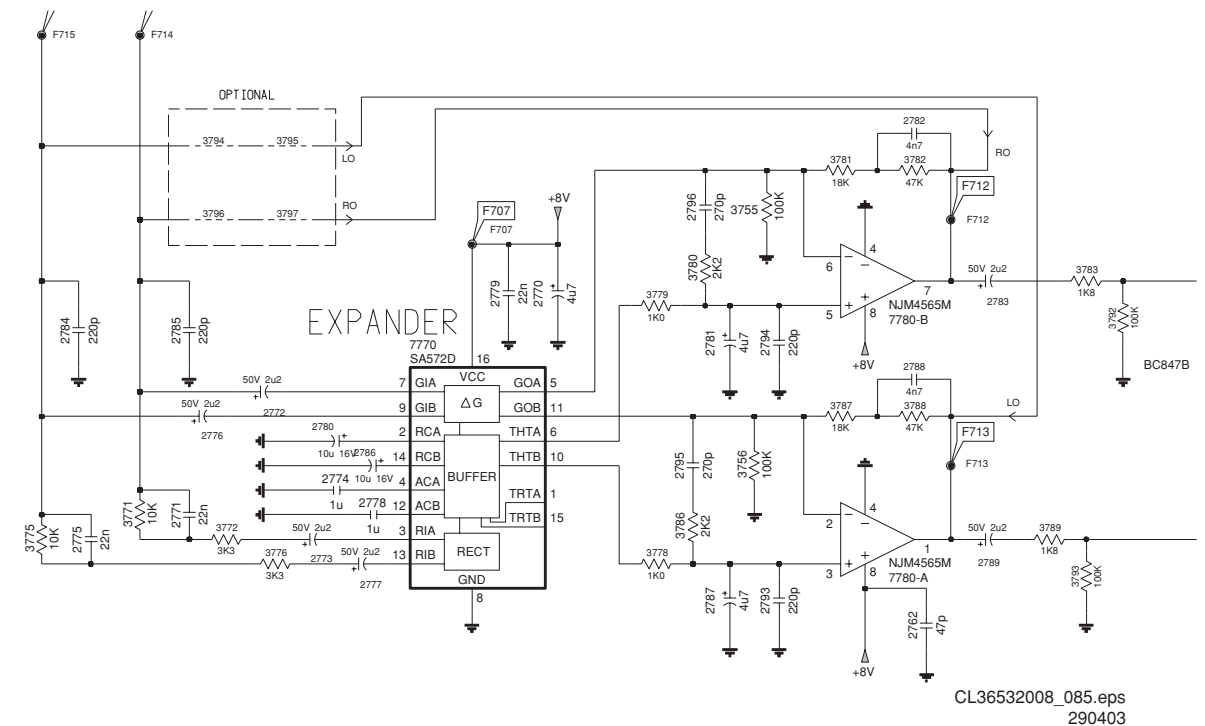


Figure 1-25 Expander circuit

The audio compander uses a device from SA572 (7770) that is intended for high-end applications. It is to be used together with a low noise opamp (7780).

There is an expanding factor of 2 in dB. There is a variable gain cell (variable resistor) in the negative input of the opamp (NJM4565M). There is a rectifier cell that detects the input voltage and translates into a current send to the gain cell. The rectifier has an attack time constant and a decay timeconstant, which is optimised to give the best auditive result. If the input V_{in} rises with e.g. 2 times then the output rise 4 times. This is because the negative input resistor formed by the gain cell is decreased with a factor of 2. Remember for an opamp $V_{out} = V_{in} * ((R_f + R_{in}) / R_{in})$ where R_f is constant. (R_{in} = internal gain cell resistor)

Microcontroller functions

The microcontroller is an OTP Microchip PIC12C508A type with 512-bit EPROM and 6 I/O lines. The controller has to be programmed on the production line according the required version of 864, 914 MHz and 433 MHz. The main functions of the uP are reading the setting of the 4 position slide switch within every 250 milliseconds and read the Tuned info continuously and start the powersave mode if necessary.

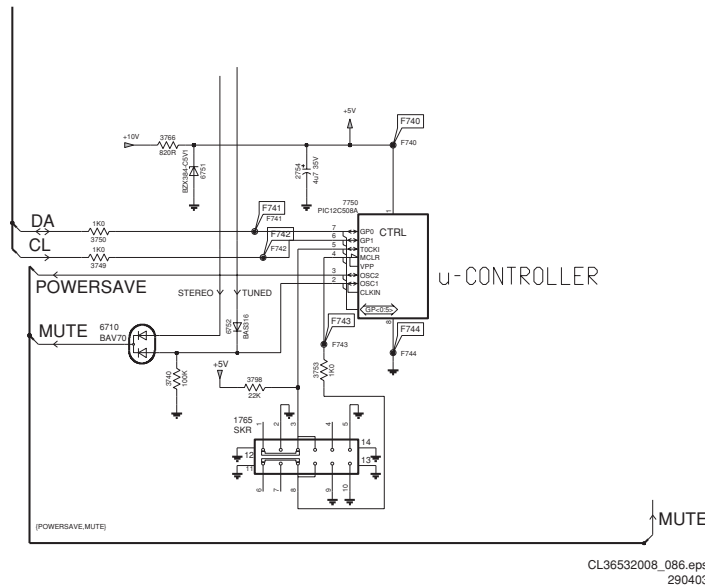


Figure 1-26 Microcontroller functions

Frequency setting

Frequency setting is necessary when the 4-position slide switch is changed. In an internal look-up table the 4 required frequencies for the local oscillator are stored. The output towards the synthesiser chip in the front end is in I²C form. The synthesizer is the only device on the bus. During frequency setting the Mute is active. Scanning of the channel switch should occur within every 250 milliseconds in any mode.

The AV-version of RX Amplifier board

General: The amplifier module is intended to deliver 2 x 50 Watts into 8 ohm speakers. Speakers are connected through "easy-fit" connectors. See amplifier blockdiagram.

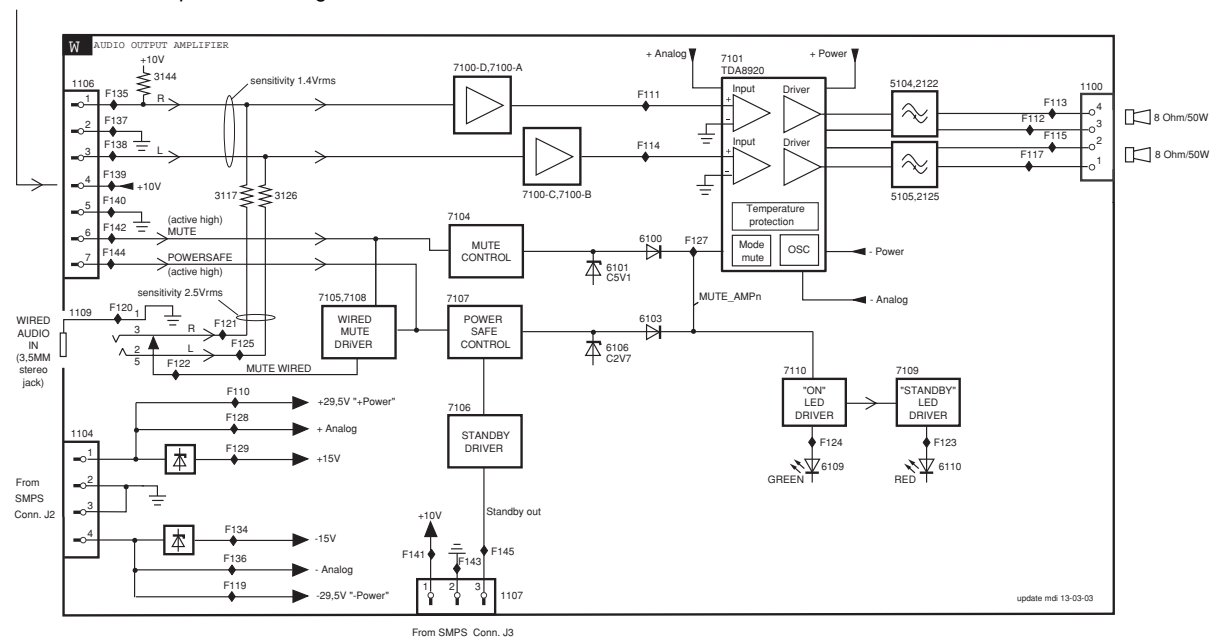


Figure 1-27 Block diagram amplifier

The crossover of the built-in high pass – filter will be around 30Hz. This eliminates sub-bass info going to the surround speakers. The amplifier uses "class D" amplifier-chip TDA8920.

Additionally, the module is featured with a 2-colour indicator, green indicates the active state while red is standby. There is also an on-board 10 Vdc supply conditioning, specially intended for the TX receiver.

In normal mode when Tuned is going "High" the channel data should be transmitted to the synthesizer to protect the receiver in case of hang-up situations.

Muting

The mute of the receiver is controlled by the IF receiver part but can be overridden by the microcontroller. The mute action initiated by the microcontroller is necessary during channel switching and in the standby mode. Muting has priority on all other main tasks. The hardware Mute is the result of an AND function between the "Tuned" and "Stereo" information. The Tuned information can be read by the microcontroller (pin 2). The same pin (pin 2) has to be put in output mode to activate the microcontroller initiated Mute. This Mute must be used during the frequency setting and during the standby mode.

Powersave mode

The main supply can be switched off with the "powersave" control line to reduce the current consumption. The microcontroller is always powered by the power supply. All other electronics can be put into powersave mode. After approx. 10 minutes of no "Tuned" signal the receiver goes into powersave mode. Once in powersave mode, the receiver is operated in "listen-sleep" mode to reduce the average current consumption.

Power supply

The board is having a low drop voltage regulator 7790, which has an output voltage of 8 Vdc. The 5 V supply for the micro controller is extracted from the 10 Vdc input supply via a zenerdiode 6751. The 5 Vdc supply of the synthesizer is extracted from transistor 7606. The powersave signal is also provided to the connector for the amplifier and for AV via the amplifierboard the SMPS is controlled.

DC-references and supply:

+/- 15 Vdc preamp supply: The supply for the preamp is made by using a derived +/-15 Vdc from main power supply +/- 29.5 Vdc. Doing so assures a good symmetrical start-up on the power lines of the preamp, this suppresses possible plops. This supply is 15V for all operating conditions, except power save standby.

Mute circuitry:

In normal operating circumstances, the voltage on the "mode" pin of the amplifier IC7101 will be 4V5. This is the MUTE_AMPn signal.

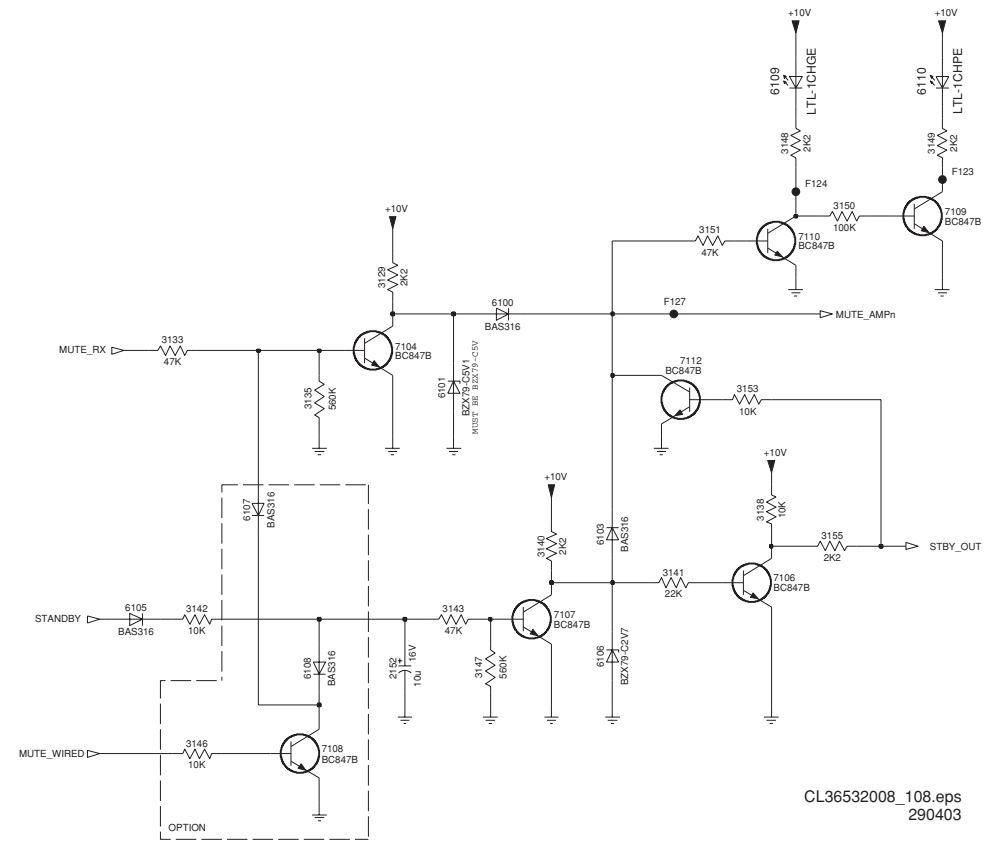


Figure 1-28 Mute ampn circuit

This signal is coming from zener 6101 via diode 6100. Transistor 7104 and 7107 are not saturated at that moment. When the receiver generates a "mute" (MUTE_RX = 4Vdc on pin 6 of connector 1106) then 7104 saturates, diode 6100 blocks and the level on pin 6 -of IC 7101 becomes 2V1. The signal is now formed by zener 6106 via diode 6103. All DC references stay as they were; the class D keeps on oscillating, the led stays green but no sound is produced on the outputs. The control line STBY_OUT (connector 1107-pin 3) to the power supply stays low.

When the receiver goes into powersavemode (= after 10 minutes no signal from the AV set), STANDBY signal is high; then the circuitry around 7107 pulls down the mode line of the amplifier to nearly 0V via the MUTE_AMPn signal. (Note that the mute line from the receiver is also high under this condition).

The amplifier is completely in standby mode, the oscillator in amplifier IC 7101 stops and all internal references are disabled. The led red will be on, while green is off. At the same moment transistor 7106 is not saturated anymore and the control line towards the switched mode power-supply becomes high. This switches off the main +/- 29.5Vdc supply and the whole unit comes in a real power save mode. 7112 helps to pull down the

+/- 29.5 Vdc main supply: Will be switched off when the unit goes into power save-mode. See circuitry around 7107 and 7106.
+ 10Vdc receiver supply: Is always present, receiver stays always active
Note that all supplies have the same ground reference.

mute line of the amplifier-chip 7101 as fast as possible to avoid plops at this transition.

When the receiver detects a valid signal from the AV set, this power-save-line becomes continuously low, and after a small time (2152, 3143, 3147), 7104 is off. At the same moment the mute line becomes low and the amplifier is enabled again. Also the control line (connector 1107-pin 3) to the power supply becomes low, thus starting up the main +/- 29.5 Vdc supply

Amplifier

The amplifier TDA8920TH operates on +/-29.5 Vdc and can deliver 2 x 50 Watts into 8 ohm loads. Using the very efficient class D - technology, it minimizes the dissipation. The class - D chip runs on a ± 300kHz oscillator, therefore a 12dB / octave output filter is needed (coil 5104 and 5105, and capacitor 2122 and 2125). Input signals are 180° phase shifted by 7100-C and 7100-D, (the effect - speakers have to be in phase with left and right main speakers, otherwise bass reproduction will be poor) Input signals are filtered in the two-section high pass filter around 7100-B and 7100-A. The - 3 dB point is somewhere around 30Hz. Input sensitivity of the amplifier for maximum output: typical 1.4V rms

ELECTRICAL PARTS LIST - WIRELESS SPEAKER SYSTEM**INTERFACE BOARD****MISCELLANEOUS**

1105	2412 020 00724	CON BM V 2P M 2.50 EH B
1110	4822 267 10565	CONNECTOR 4P
1120	4822 267 10574	CON BM V 8P 2.50
1121	2422 025 09405	CON BM V 2P M 2.00 PH B

COILS & FILTERS

5101	4822 157 71206	BLM21A601SPT
5115	2422 549 45464	FIL LC VAR MPX 20kHz LP B
5120	2422 549 45464	FIL LC VAR MPX 20kHz LP B

DIODES

6142	4822 130 82262	BAT54S
6144	4822 130 82262	BAT54S

TRANSISTORS & INTEGRATED CIRCUITS

7115	4822 209 83357	NJM4560M
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Note : Only the parts mentioned in this list are normal service spare parts.

TRANSMITTER BOARD**MISCELLANEOUS**

0002	3104 211 29820	SHIELDING FRAME
0003	3104 211 29830	SHIELDING COVER
0003	4304 071 38510	SUPPORT
1101	4822 267 10574	CON BM V 8P 2.50
1105	2422 543 00723	RES XTL 4MHz 20P AT-51 B
1106	4822 242 10694	RESONATOR 12MHz

COILS & FILTERS

5101	2422 535 94784	IND FXD SM 0603 100nH 5%
5103	4822 157 71206	BLM21A601SPT
5104	2422 535 94613	IND FXD SM 0603 6,8nH 5%
5105	2422 535 94721	IND FXD SM 0603 12nH 5%
5107	2422 535 94776	IND FXD SM 0603 4,7nH 3%
5109	2422 535 94714	IND FXD SM 0603 3,3nH 3%
5112	2422 535 94716	IND FXD SM 0603 8,2nH 5%
5113	2422 535 94721	IND FXD SM 0603 12nH 5%
5116	2422 535 94716	IND FXD SM 0603 8,2nH 5%
5117	2422 535 94779	IND FXD SM 0603 39nH 5%
5118	2422 535 94715	IND FXD SM 0603 5,6nH 5%
5125	4822 157 71206	BLM21A601SPT
5126	4822 157 71206	BLM21A601SPT
5127	4822 157 71206	BLM21A601SPT

DIODES

6101	4822 130 11423	PLVA2656A
6102	9340 550 65115	DIO VAR SM BB151
6103	4822 130 11148	UDZ4.7B
6105	4822 130 11551	UDZS10B
6106	4822 130 11397	BAS316
6107	3198 020 55680	BZX384-C5V6
6108	5322 130 34331	BAV70

TRANSISTORS & INTEGRATED CIRCUITS

7101	9352 675 58118	IC SM TSA5060ATS/C1
7102	5322 130 60159	BC846B
7103	5322 130 60647	BFR92A
7104	4822 130 60373	BC856B
7105	9340 188 10235	TRA SIG SM BFG520/X
7106	9340 188 10235	TRA SIG SM BFG520/X
7110	5322 209 71591	PC74HC4060T
7111	4822 209 60792	74HC4053D
7112	9337 725 40623	IC SM SA572D
7113	9322 180 21668	IC SM NJM4565M
7116	9322 180 21668	IC SM NJM4565M
7117	9322 144 97668	IC SM LD1117DT
7118	5322 130 60159	BC846B
7119	5322 130 60159	BC846B
7120	4822 130 60373	BC856B
7121	5322 130 60159	BC846B

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

ELECTRICAL PARTS LIST - WIRELESS SPEAKER SYSTEM**RECEIVER BOARD****MISCELLANEOUS**

0002	3104 211 29820	SHIELDING FRAME
0003	3104 211 29830	SHIELDING COVER
1602	2422 549 45394	FIL SAW SM 864MHz B3589
1609	2422 543 00723	RES XTL 4MHz 20P AT-51 B
1706	4822 242 70665	FILTER 10,7M
1707	4822 242 70665	FILTER 10,7M
1710	2422 549 43868	IND VAR 7MM 7KM 10M7 B
1720	2422 540 98572	RES CER 565kHz7 CSBLA562
1730	2422 549 45464	FIL LC VAR MPX 20kHz LP B
1740	2422 549 45464	FIL LC VAR MPX 20kHz LP B
1765	2422 127 00552	SWITCH SLIDE 2P 4POS
1790	4822 267 10618	CONNECTOR 7P

COILS & FILTERS

5601	2422 549 44607	IND FXD SM EMI 100MHz 600R
5603	2422 535 94785	IND FXD SM 0603 1nH 3%
5604	2422 535 94776	IND FXD SM 0603 4,7nH 3%
5605	2422 535 94782	IND FXD SM 0603 56nH 5%
5606	2422 549 45299	IND VAR SM 5CHH 10MHz7 R
5608	2422 549 44607	IND FXD SM EMI 100MHz 600R
5611	2422 549 44607	IND FXD SM EMI 100MHz 600R
5612	2422 549 44607	IND FXD SM EMI 100MHz 600R
5614	2422 535 94716	IND FXD SM 0603 8,2nH 5%
5615	2422 549 44607	IND FXD SM EMI 100MHz 600R
5616	2422 535 94614	IND FXD SM 0603 3,9nH 3%
5617	2422 549 44607	IND FXD SM EMI 100MHz 600R
5704	4822 157 71206	BLM21A601SPT
5711	4822 157 71206	BLM21A601SPT

DIODES

6601	9340 550 65115	DIO VAR SM BB151
6602	5322 130 34337	BAV99
6710	5322 130 34331	BAV70
6711	4822 130 11397	BAS316
6751	9340 548 52115	PDZ5.1B
6752	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7601	9340 414 20115	TRA SIG SM BFC520
7602	5322 130 60647	BFR92A
7603	5322 130 60647	BFR92A
7604	5322 130 60159	BC846B
7605	9352 675 58118	IC SM TSA5060ATS/C1
7606	5322 130 60159	BC846B
7705	4822 130 63087	BF545A
7706	4822 130 60373	BC856B
7707	5322 130 42718	BFS20
7710	9322 183 01668	IC SM LA1836M
7750	9322 183 39668	IC SM PIC12C508A
7755	4822 130 60373	BC856B
7770	9337 725 40623	IC SM SA572D
7780	9322 180 21668	IC SM NJM4565M

7784	5322 130 60159	BC846B
7789	5322 130 60159	BC846B
7790	9322 140 09668	IC SM L4931CD80

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

ELECTRICAL PARTS LIST - WIRELESS SPEAKER SYSTEM**AMPLIFIER BOARD****MISCELLANEOUS**

1100	9965 000 18078	TMP HAS SOC LQR3215-0001G
1104	2422 025 10647	CON BMT B4P-VH 1P
1106	4822 267 10618	CONNECTOR 7P
1107	2422 025 10768	CON BM V 3P M 2.00 PH B

CAPACITORS

2100	2222 601 55649	100nF 10% 100V
2101	2222 601 55649	100nF 10% 100V
2102	3198 028 44790	47uF 20% 35V
2103	2222 581 15654	220nF 10% 50V
2104	2222 601 55649	100nF 10% 100V
2105	2222 601 55649	100nF 10% 100V
2106	2222 586 18812	100nF 10% 50V
2107	5322 116 80853	560pF 5% 63V
2108	5322 116 80853	560pF 5% 63V
2109	2222 581 15654	220nF 10% 50V
2110	2020 552 96684	470nF 10% 25V
2111	5322 122 31647	1nF 10% 63V
2112	4822 126 14076	220nF +80/-20% 25V
2113	4822 126 14076	220nF +80/-20% 25V
2114	2020 552 96684	470nF 10% 25V
2115	2020 552 94427	100pF 5% 50V
2116	4822 126 14221	68pF 5% 50V
2117	4822 126 13188	15nF 5% 63V
2118	4822 126 11785	47pF 5% 50V
2119	5322 122 31647	1nF 10% 63V
2120	2222 586 18812	100nF 10% 50V
2121	4822 126 14076	220nF +80/-20% 25V
2122	4822 121 51252	470nF 5% 63V
2123	2222 581 15654	220nF 10% 50V
2125	4822 121 51252	470nF 5% 63V
2126	2222 581 15654	220nF 10% 50V
2127	2222 581 15654	220nF 10% 50V
2128	4822 126 13188	15nF 5% 63V
2129	2020 552 96684	470nF 10% 25V
2130	5322 122 31647	1nF 10% 63V
2131	4822 126 14076	220nF +80/-20% 25V
2132	4822 126 14076	220nF +80/-20% 25V
2133	2020 552 94427	100pF 5% 50V
2134	2020 552 96684	470nF 10% 25V
2135	4822 126 11785	47pF 5% 50V
2136	5322 122 31647	1nF 10% 63V
2137	2222 581 15654	220nF 10% 50V
2138	5322 116 80853	560pF 5% 63V
2139	5322 116 80853	560pF 5% 63V
2140	3198 028 44790	47uF 20% 35V
2141	2222 581 15654	220nF 10% 50V
2143	4822 126 11785	47pF 5% 50V
2147	4822 126 11785	47pF 5% 50V
2148	2222 580 15649	100nF 10% 50V
2149	4822 124 12095	100uF 20% 16V
2150	2222 580 15649	100nF 10% 50V

2151	4822 124 12095	100uF 20% 16V
2152	4822 124 23002	10uF 16V
2153	2222 586 18812	100nF 10% 50V
2154	2222 586 18812	100nF 10% 50V
2155	4822 124 80791	470uF 16V 20%
2156	4822 124 12056	1000uF 20% 35V
2157	4822 124 12056	1000uF 20% 35V
2162	2020 552 94427	100pF 5% 50V
2164	4822 124 40764	22uF 100 V
2165	2020 552 94427	100pF 5% 50V
2166	3198 016 31020	1nF 25V
2167	3198 016 31020	1nF 25V
2168	3198 016 31020	1nF 25V
2170	4822 126 11785	47pF 5% 50V
2171	4822 126 11785	47pF 5% 50V
2172	4822 126 11785	47pF 5% 50V
2173	4822 126 11785	47pF 5% 50V

RESISTORS

3100	4822 051 30393	39k 5% 0,062W
3101	4822 051 10568	5R6 5% 0,25W
3102	4822 051 10568	5R6 5% 0,25W
3103	4822 051 30103	10k 5% 0,062W
3105	4822 051 30563	56k 5% 0,062W
3106	2322 762 60229	RST SM 2512 22R 5%
3107	2322 702 60303	RST SM 0603 30k 5%
3109	4822 051 30393	39k 5% 0,062W
3111	2322 762 60229	RST SM 2512 22R 5%
3112	4822 051 30103	10k 5% 0,062W
3113	4822 051 30563	56k 5% 0,062W
3114	4822 051 10568	5R6 5% 0,25W
3115	4822 051 10568	5R6 5% 0,25W
3116	4822 051 30102	1k 5% 0,062W
3119	4822 051 30393	39k 5% 0,062W
3120	4822 116 52219	330R 5% 0,5W
3121	4822 051 30333	33k 5% 0,062W
3122	4822 116 52219	330R 5% 0,5W
3124	4822 051 30102	1k 5% 0,062W
3127	4822 051 30393	39k 5% 0,062W
3128	4822 051 30333	33k 5% 0,062W
3129	5322 117 13046	1k8 1% 0,063W
3133	4822 117 12925	47k 1% 0,063W
3135	2322 704 65604	RST SM 0603 560k 1%
3136	4822 116 52219	330R 5% 0,5W
3137	4822 116 52219	330R 5% 0,5W
3138	4822 051 30103	10k 5% 0,062W
3140	4822 051 30222	2k2 5% 0,062W
3141	4822 051 30223	22k 5% 0,062W
3142	4822 051 30103	10k 5% 0,062W
3143	4822 117 12925	47k 1% 0,063W
3147	2322 704 65604	RST SM 0603 560k 1%
3148	4822 051 30102	1k 5% 0,062W
3149	4822 051 30102	1k 5% 0,062W

ELECTRICAL PARTS LIST - WIRELESS SPEAKER SYSTEM

3150	4822 117 13632	100k 1% 0,62W
3151	4822 051 30223	22k 5% 0,062W
3153	4822 117 12925	47k 1% 0,063W
3153	4822 051 30103	10k 5% 0,062W
3155	4822 051 30222	2k2 5% 0,062W
3156	4822 051 30103	10k 5% 0,062W
3157	4822 051 30103	10k 5% 0,062W
3158	2322 704 62202	RST SM 0603 2k2 1%
4100	4822 051 30008	0R Jumper 0603
4101	4822 051 30008	0R Jumper 0603
4102	4822 051 30008	0R Jumper 0603
4103	4822 051 30008	0R Jumper 0603
4104	4822 051 20008	0R Jumper 0805
4105	4822 051 20008	0R Jumper 0805
4106	4822 051 20008	0R Jumper 0805
4107	4822 051 20008	0R Jumper 0805
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

COILS & FILTERS

5100	9965 000 18079	TMP HAS IND FXD BEAD EMI
5101	9965 000 18079	TMP HAS IND FXD BEAD EMI
5102	9965 000 18079	TMP HAS IND FXD BEAD EMI
5103	9965 000 18079	TMP HAS IND FXD BEAD EMI
5104	2422 536 00496	IND FXD 16RHBP S 22uH 10%
5105	2422 536 00496	IND FXD 16RHBP S 22uH 10%
5106	9965 000 18079	TMP HAS IND FXD BEAD EMI
5107	9965 000 18079	TMP HAS IND FXD BEAD EMI

DIODES

6100	4822 130 11397	BAS316
6101	4822 130 34233	BZX79-B5V1
6102	4822 130 34281	BZX79-B15
6103	4822 130 11397	BAS316
6104	4822 130 34281	BZX79-B15
6105	4822 130 11397	BAS316
6106	4822 130 82714	BZX79-B2V7
6109	4822 130 10791	LTL-1CHGE
6110	4822 130 82978	LTL-16kPE-P

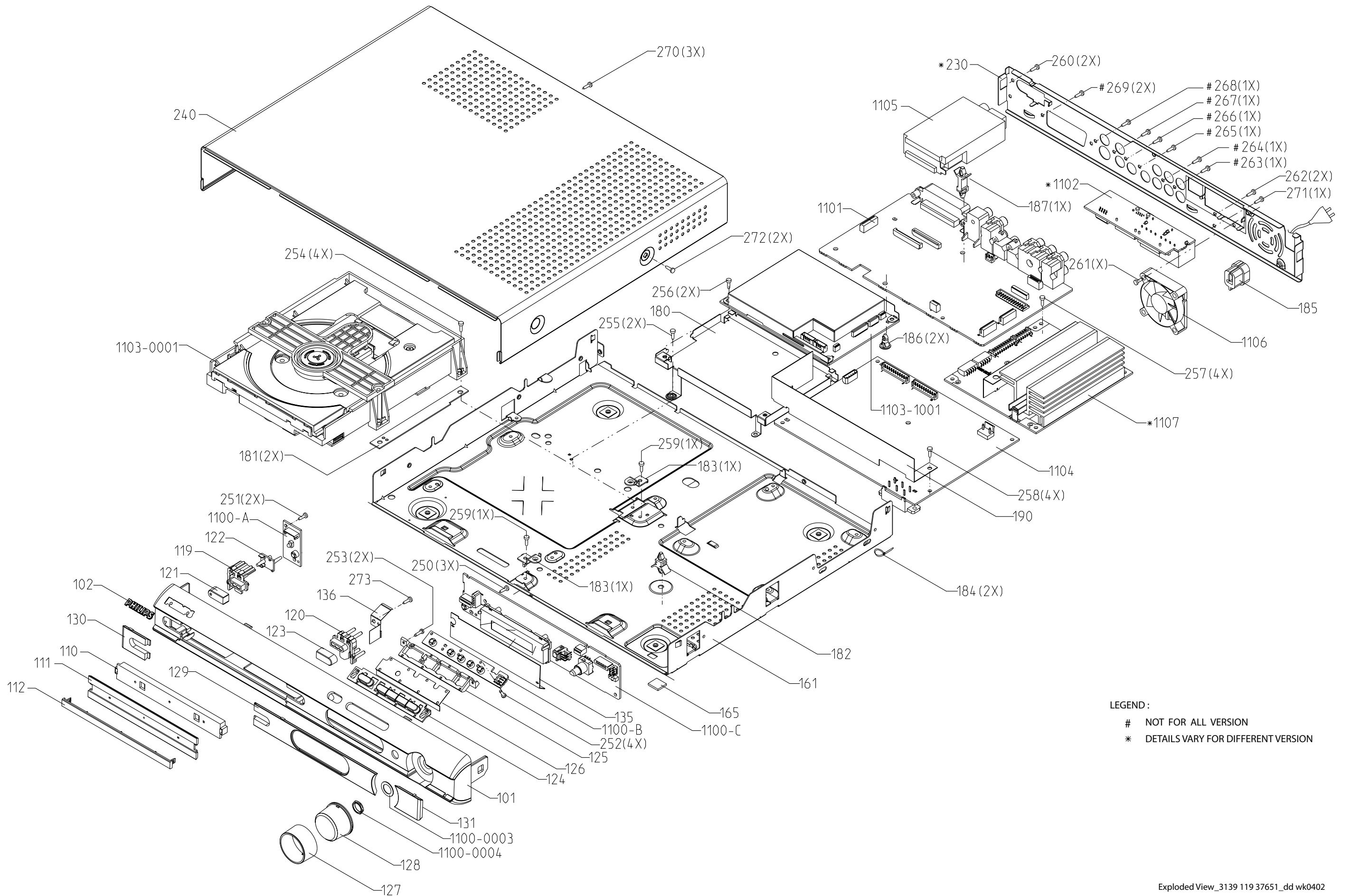
TRANSISTORS & INTEGRATED CIRCUITS

7100	9965 000 18080	TMP HAS IC SM LM837MX
7101	9352 705 74518	IC SM TDA8920TH/N1
7104	5322 130 60159	BC846B
7106	5322 130 60159	BC846B
7107	5322 130 60159	BC846B

7109	5322 130 60159	BC846B
7110	5322 130 60159	BC846B
7112	5322 130 60159	BC846B

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

SET MECHANICAL EXPLODED VIEW



LEGEND:
 # NOT FOR ALL VERSION
 * DETAILS VARY FOR DIFFERENT VERSION

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

0101	3139 254 00531	Cabinet Front	8400	3139 111 03791	FFC Foil 08P/080/08P AD	250	D3 x 8
0102	3139 247 51831	Badge Philips Assy Silver	8500	3139 241 00251	FFC Foil 30P/080/30P BD 1MMP	251	D3 x 8
0110	3139 114 79831	Cover Tray Technical	8501	3139 241 00551	FFC Foil 16P/100/16PAD 1MMP	252	D2 x 6
0111	3139 114 79821	Cover Tray Lens	8502	3139 111 04221	FFC Foil 30P/120 BD 1MMP Fold	253	D2 x 6
0112	3139 114 79811	Cover Tray Orn Chrome	8700	3139 111 03801	FFC Foil 11P/080/11P AD	254	M3 x 8
0119	3139 254 00431	Button Frame Standby				255	M3 x 6
0120	3139 254 00421	Button Frame Open/Close				256	M3 x 6
0121	3139 114 79711	Cap Standby Chrome				257	M3 x 6
0122	3139 114 79721	Lightguide Standby	4340 702 10701	Center Speaker Box		258	M3 x 6
0123	3139 114 79701	Cap Open/Close Chrome	4340 702 10711	Front Speaker Box Right		259	M3 x 4
			4340 702 10721	Front Speaker Box Left			
0124	3139 114 79691	Button Function	4340 702 10731	Rear Speaker Box Right		260	M3 x 4
0125	3139 114 79801	Bracket Button Function	4340 702 10761	Rear Speaker Box Left		261	M3x 12
0127	3139 114 79761	Knob Volume	4340 704 00641	Bracket		262	D3 x 8
0128	3139 114 79751	Cap Volume Chrome				264	D3 x 8
0129	3139 114 79791	Window Main				265	D3 x 8
0130	3139 114 79781	Window Left				268	D3 x 8
0131	3139 114 79771	Window Right				269	D3 x 8
0165	3139 243 10080	Cushion Foot				270	M3 x 4
0182	8204 055 76161	Spacer Locking				271	M3 x 4
0184	2422 015 16901	Saddle Mini Clamp				272	M3 x 6
						273	D3 x 8
0185	4822 532 60948	Bush					
0186	3139 254 00451	Spacer PCB H6.0					
0186	3139 254 00981	Spacer H6.4					
0187	3139 254 00461	Spacer PCB H20.9					
0325	3139 119 02431	Subwoofer SW3950W/01					
0326	3139 119 02421	Satellite Spk Boxes CS3950W/01					
0331	2422 076 00546	Cable FM Aerial					
0332	2422 549 45386	Antenna AM Loop					
0332	2422 549 45813	Antenna AM Loop					
0333	3139 258 70031	Remote Control					
0336	2422 070 98231	△ Mains Cord /01					
0336	4822 321 11462	△ Mains Cord /01					
0342	2422 076 00468	△ Cable SCART 1M1 21P BK					
1104	3139 117 10671	Module SMPS03-02 150W EUR					
1105	2422 542 90137	Tuner A+F ENG07703Q EUR					
1106	3139 118 79760	Fan KD1245PFS3					
8003	4822 320 12751	FFC Foil 04P/400/04P AD					
8004	3139 111 03811	FFC Foil 09P/340/09P AD 1MMP					
8200	3139 111 03781	FFC Foil 10P/120/10P AD Fold					
8201	3139 111 04011	FFC Foil 08P/120/08P AD Fold					

Satellite Speaker Boxes Breakdown (CS3950W/01)

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