

Service  
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**Service**



# Service Manual

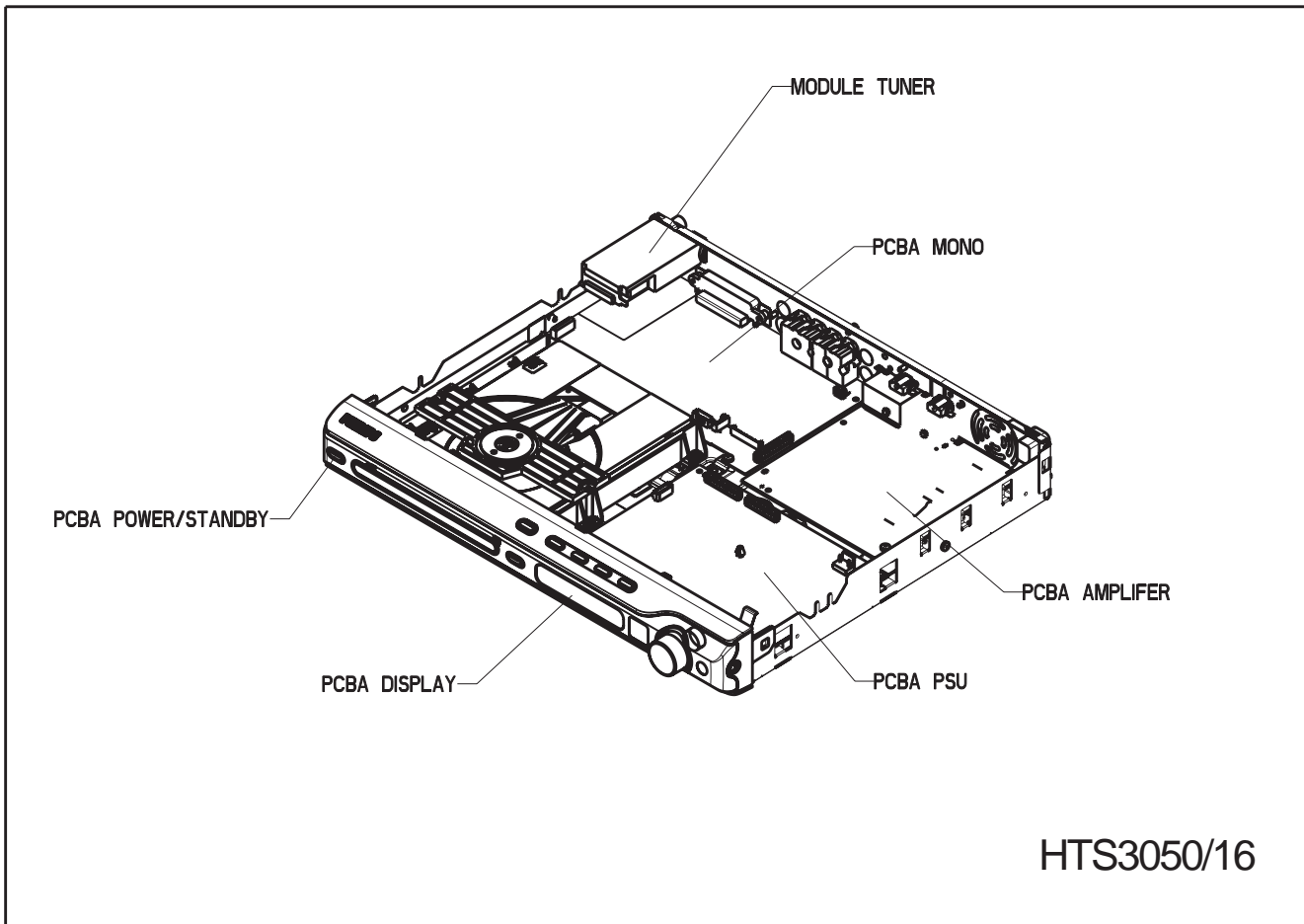


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## LOCATION OF PC BOARDS



### VERSION VARIATIONS:

Features &	Type /Versions:	HTS3050
		/16
Progressive Scan		
Line-Out		
TV-In		
Aux-In		x
Y/Pb/Pr (YUV) Component Video Output		
Coax		x
CVBS		
S-Video Output		
SCART		x

# 1. Specifications

## 1.1 General:

Mains voltage	: 230V
Mains frequency	: 50Hz
Power consumption	: 70W
	< 0.5W Eco standby power
	< 70W at 1/8 P <sub>rated</sub> (For main unit)
Dimension main unit	: 360 x 54 x 324mm

## 1.2 Tuner FM

Tuning range	: 87.5-108MHz
Grid	: 50kHz
IF frequency	: 10.7MHz ± 25kHz
Aerial input	: 75Ω coaxial
Sensitivity at 26dB S/N	: < 7μV
Selectivity at 600kHz bandwidth	: > 25dB
IF rejection	: > 60dB
Image rejection	: > 25dB
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: 8μV
Crosstalk at RF=1mV, dev. 67.5kHz	: > 28dB
Crosstalk at RF=1mV, dev. 40kHz	: > 18dB

## MW

Tuning range	: 531-1602kHz
Grid	: 9kHz
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%

## 1.3 AMPLIFIER:

Output power	
Front	: 100W RMS / channel
Rear	: 75W RMS / channel
Center	: 100W RMS
Subwoofer	: 150W RMS
Frequency response ±0.5dB	: 20Hz-20kHz
Hum (Volume Minimum)	: 200nW
Residual noise (Volume Minimum)	: 40nW

Input sensitivity	
Aux In	: 1V ± 3dB at 22kΩ
Scart In	: 0.5V ± 3dB at 22kΩ
Output sensitivity	
Line Out (Left/Right)	: 1V ± 2dB at 10kΩ
Scart Out (Left/Right)	: 1V ± 2dB at 10kΩ

## 1.4 COMPACT DISC/VCD/DVD:

Video Decoding	: MPEG-1/MPEG-2/ MPEG-4/DivX 3.11, 4.x & 5.x
Video DAC	: 12 Bits
Signal System	: PAL / NTSC
Video Format	: 4:3 / 16:9

CVBS Out <sup>1)</sup>	
CVBS level	: 1.0 ± 0.1V <sub>p-p</sub>
Luminance S/N	: ≥ 60dB

S-Video Out <sup>1)</sup>	
Y level	: 1.0 ± 0.1V <sub>p-p</sub>
Y S/N	: ≥ 60dB
C level (burst)	: 286mV <sub>pp</sub> +1/-4 dB

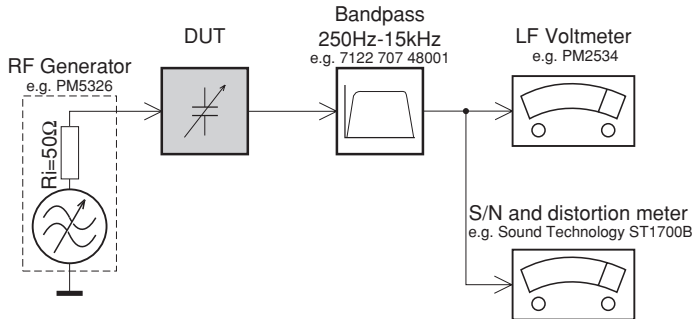
RGB/YUV Out <sup>1)</sup>	
Amplitude	: 0.7 ± 0.1V <sub>p-p</sub>
S/N	: ≥ 60dB

<sup>1)</sup> Output terminals to be terminated with 75Ω

## 2. Measurements Setup, Service Aid & Lead Free Requirements

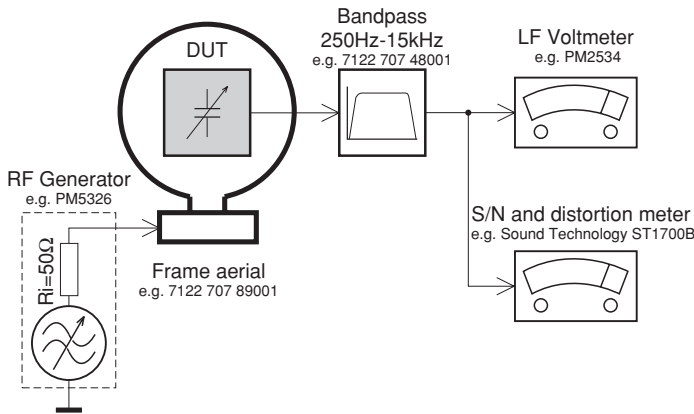
### MEASUREMENT SETUP

#### Tuner FM



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

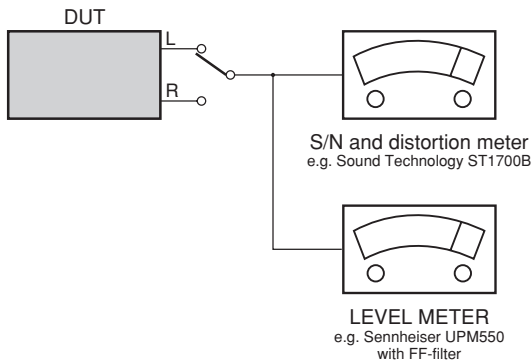
#### Tuner AM (MW,LW)



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).

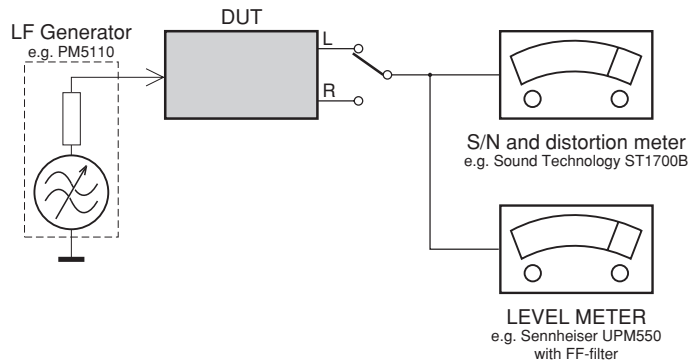
#### CD

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

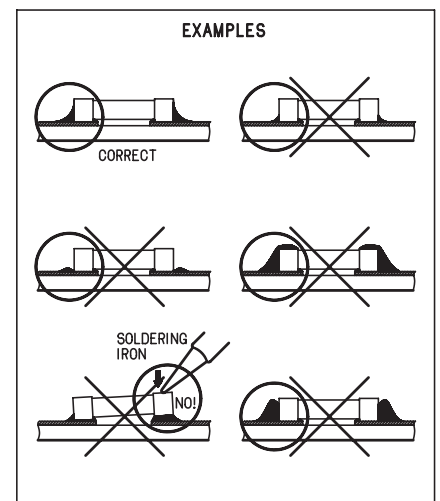
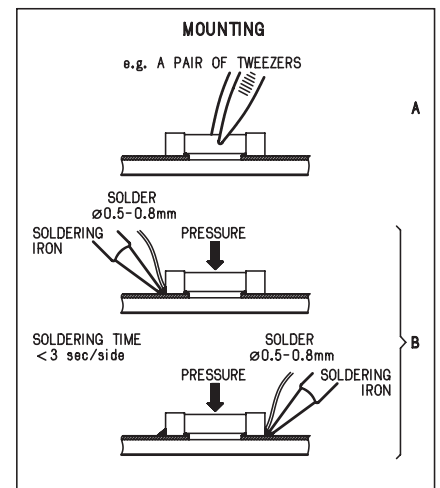
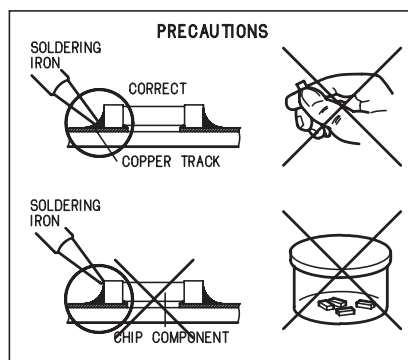
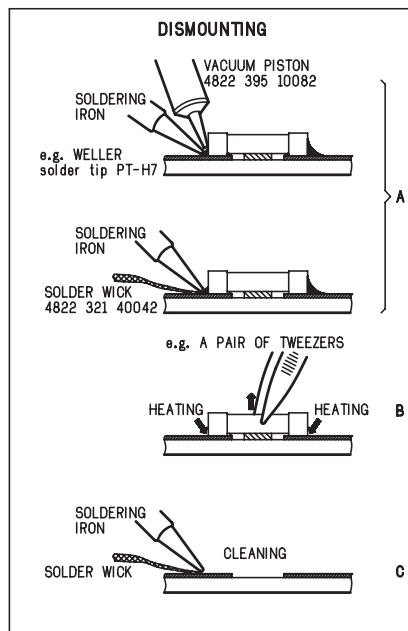
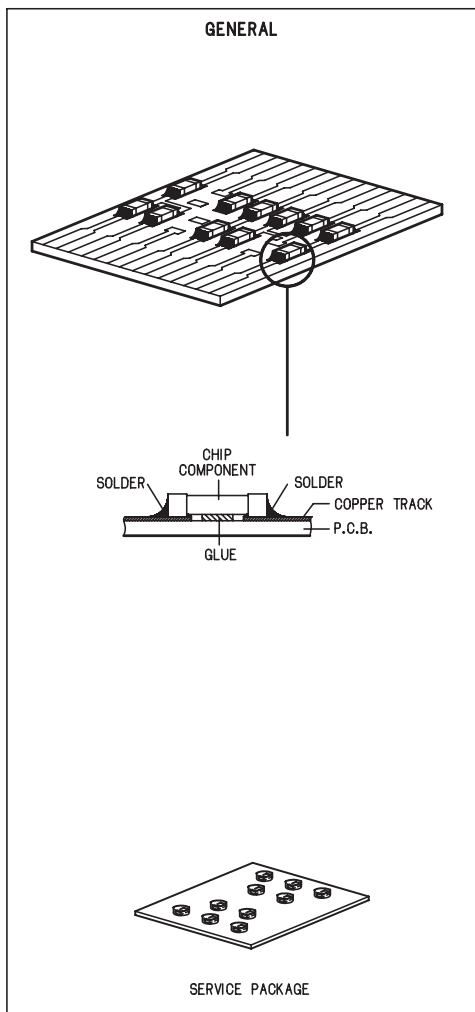
### Service Tools:

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.

**ESD****(NL) WAARSCHUWING**

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

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

**(F) ATTENTION**

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

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

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

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

**(D) WARNUNG**

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

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

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

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

**(I) AVVERTIMENTO**

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

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

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

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

**(GB) ESD PROTECTION EQUIPMENT:**

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

**(GB)**

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

Safety components are marked by the symbol  $\triangle$ .

**(NL)**

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

De Veiligheidsonderdelen zijn aangeduid met het symbool  $\triangle$ .

**(F)**

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

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 suojalukituksen 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".

## 2.1 Lead Free Requirements

### Pb(Lead) Free Solder

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

#### IDENTIFICATION:



Regardless of special logo (not always indicated)

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

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

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

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
  - Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
    - o To reach at least a solder-temperature of 400°C,
    - o To stabilize the adjusted temperature at the solder-tip
    - o To exchange solder-tips for different applications.
  - Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
  - Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
  - Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
  - Special information for BGA-ICs:
    - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
    - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
- Do not re-use BGAs at all.

- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.

- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:

- BGA-de-/soldering (+ baking instructions)
- Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

## 2.2 Service Hints

### CAUTION

**CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE DRIVE ELECTRONICS WHEN CONNECTING A NEW DRIVE. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE**

- SWITCH OFF POWER SUPPLY
- ESD PROTECTION

**ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.**

#### The following steps have to be done when replacing the defective loader :

1. Dismantling of the loader to access the ESD protection point if necessary.
2. **Solder the ESD protection point\***.
3. Disconnect flexfoil cable from the defective loader.
4. Put a paper clip on the flexfoil to short-circuit the contacts (fig.1)
5. Replace the defective loader with a new loader.
6. Remove paperclip from the flexfoil and connect it to the new loader.
7. Remove solder joint on the ESD protection point.

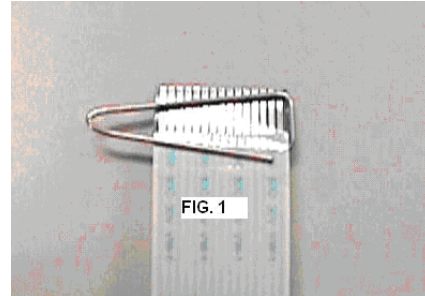
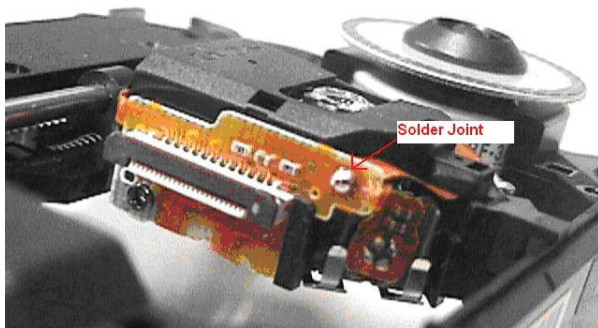


FIG. 1

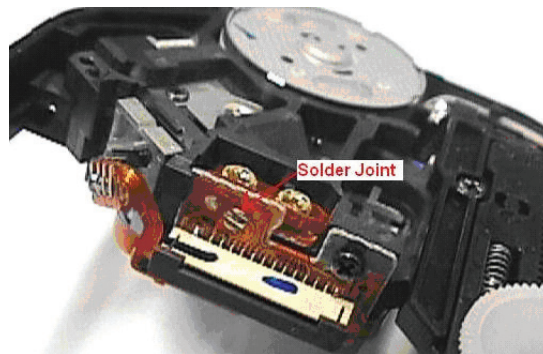
ATTENTION: The laser diode of this loader is protected against ESD by a solder joint which shortcircuits the laserdiode to ground. For proper functionality of the loader this solder joint must be remove **after** connection loader to the set.

Type 1



(ESD protection point is access ble from top of loader)

Type 2



(ESD protection point is accessible from bottom of the loader)

**\*Only applicable for defective loader needed to be sent back to supplier for failure analysis and to support backcharging evidence.**

**This is also applicable for all partnership workshops.**



### 3. Mechanical Instructions

#### 3.1 Dismantling of the Front Board, PSU Module & DVD Loader.

- 1) Release 4 snap hooks to remove the Front Board.
  - 1 snap hook each on the left & right side
  - 2 snap hooks on the bottom side
- 2) Loosen 4 screws A (See Figure 3-1) to remove the PSU Module.

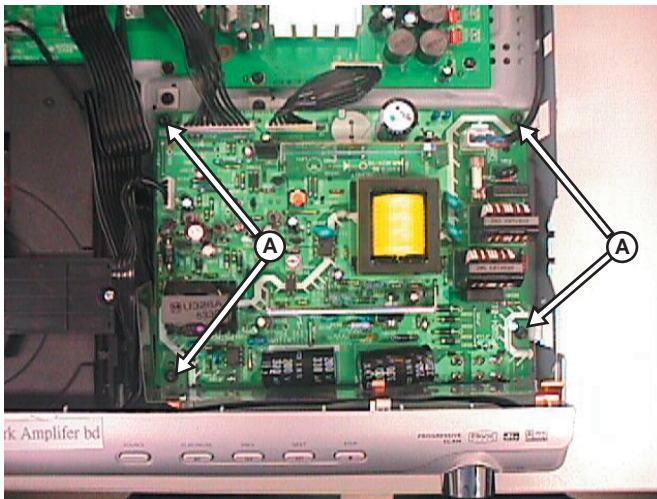


Figure 3-1

- 3) Loosen 4 screws B (See Figure 3-2) to remove the DVD Loader.

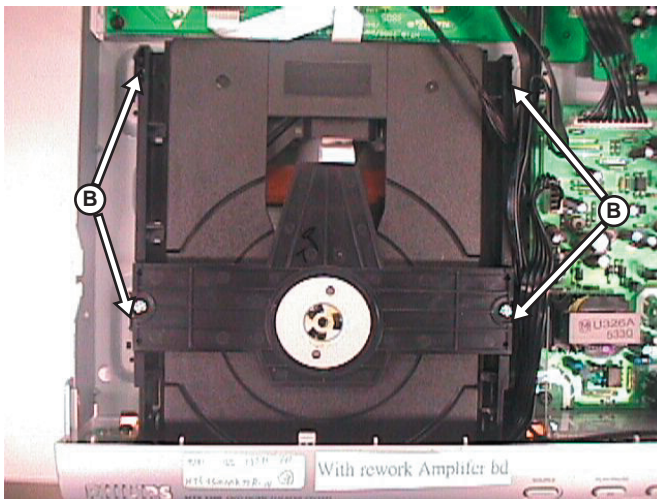


Figure 3-2

#### 3.2 Dismantling of the Tuner Module & Mono Board.

- 1) Loosen 1 screw C (See Figure 3-3) to remove the Tuner Module.

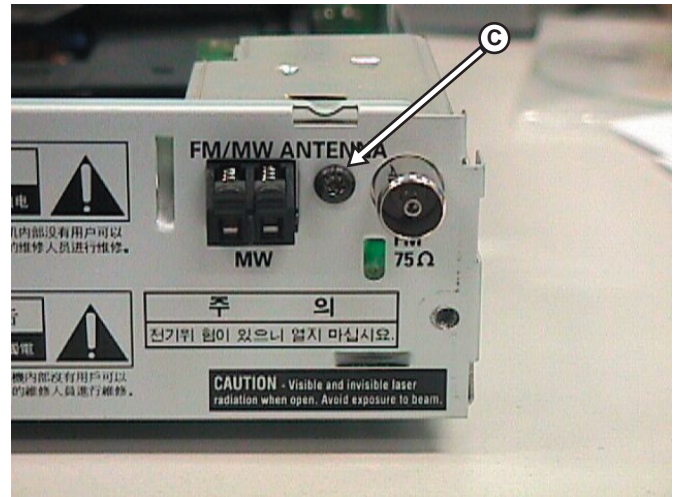


Figure 3-3

- 2) Loosen 2 screws D and E (See Figure 3-4 & Figure 3-5) to remove the Mono Board.

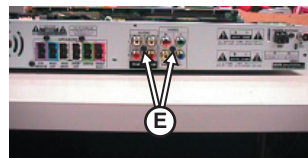


Figure 3-4(AP)

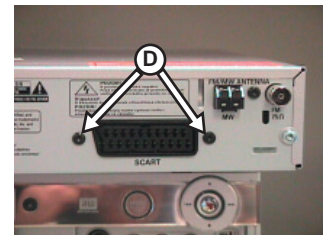


Figure 3-4(Europe)

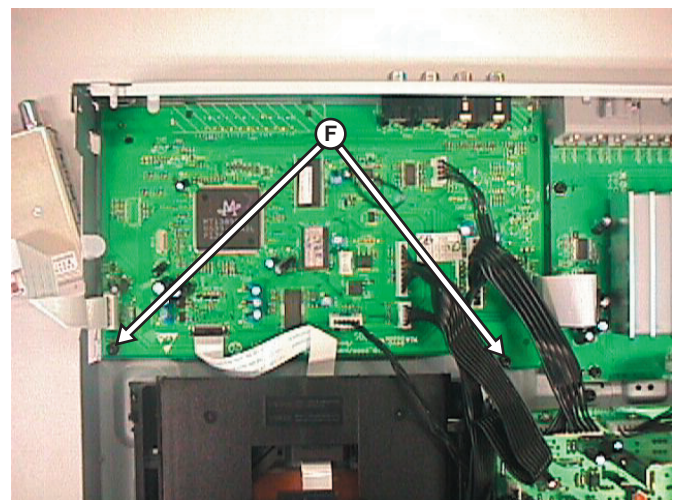


Figure 3-5

### 3.3 Dismantling of the Amp-module Board

- 1) Loosen 4 screws F and 2 screws G (See Figure 3-6 & Figure 3-7) to remove Amp-Module Board

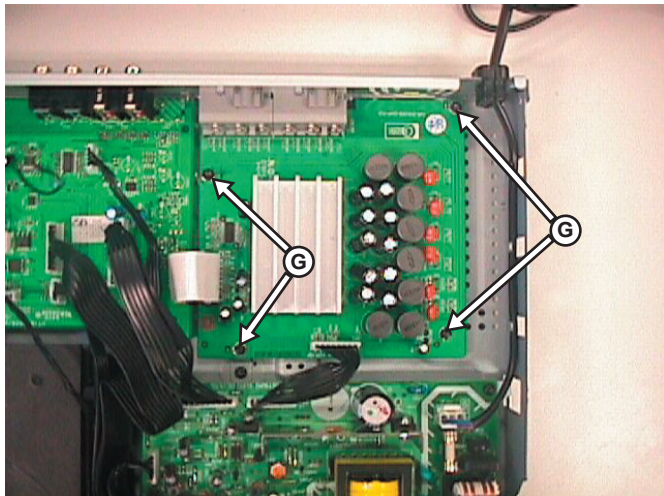


Figure 3-6

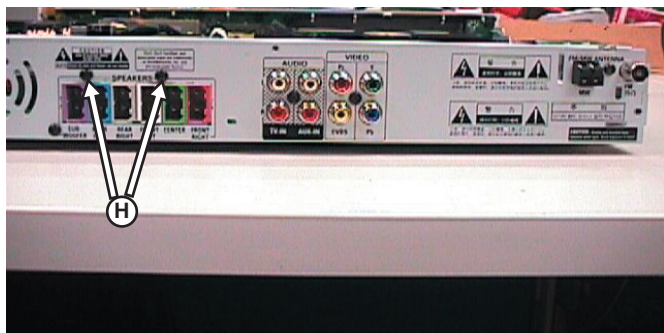
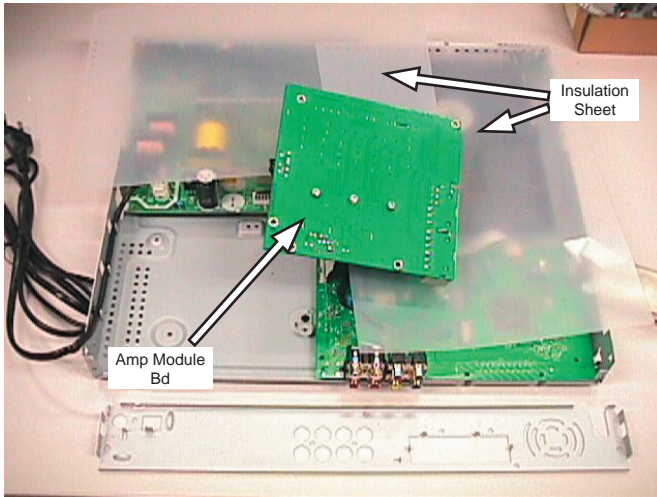


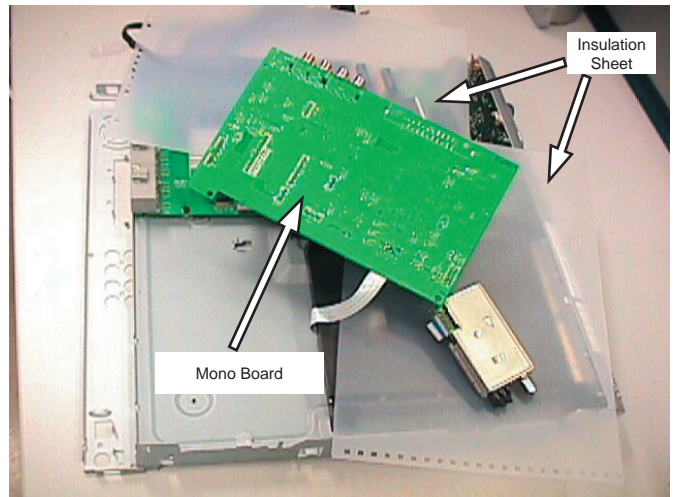
Figure 3-7



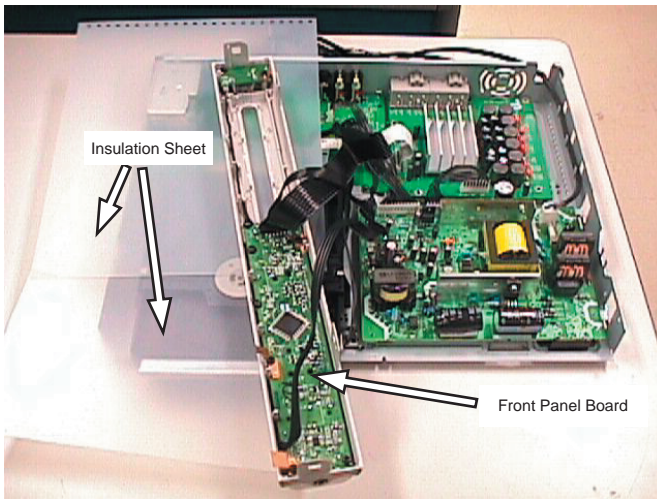
### 3.4 Service Positions



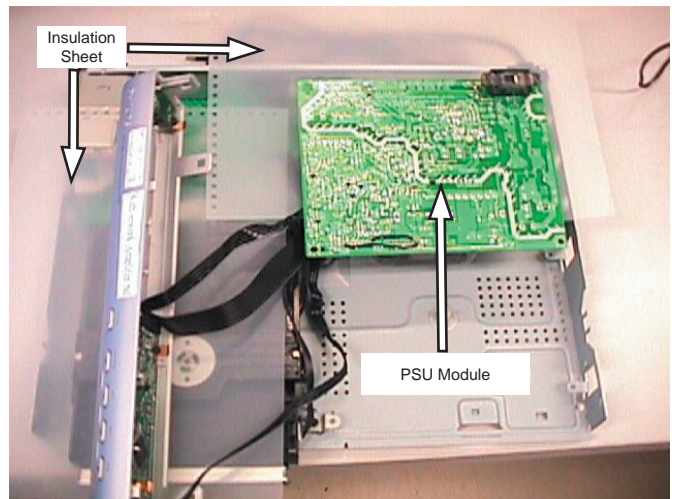
Service Position - Amp Module Bd



Service Position - Mono Board

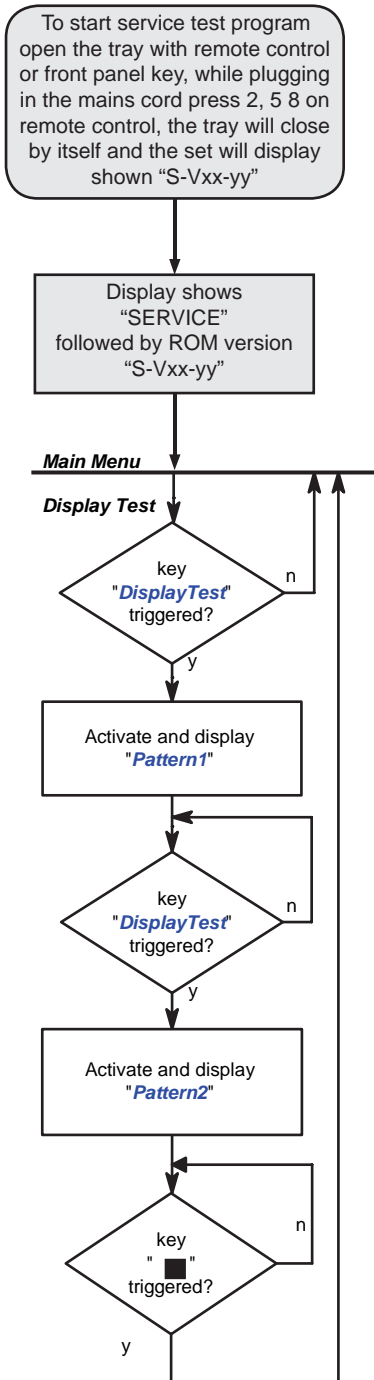


Service Position - Front Panel



Service Position - PSU Module

# 4. Service Test Program



S refers to Service Mode  
 V refers to Version  
 xx refers to Software version number of BEA (counting up from 01 to 99)  
 yy refers to Software version number of Front uP (counting up from 01 to 99)

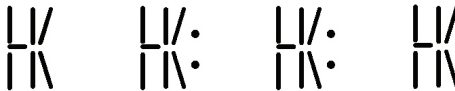
## 4.1 Display Test

**Purpose:**  
 This test is used to check the driving circuits, the display and whether there are any short-circuits, open-circuits or any other defects.

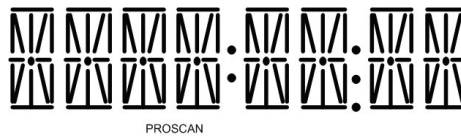
**Player:**  
 Following display patterns are used to test the display and its connections to μP.  
 Pattern 1: *Default: All display control pins are ON*  
 - to check the open-circuits



Pattern 2: *Alternate display control pins are on (Test Pattern: 0x55)*  
 - to check the short-circuits on Data port



**Receiver:**  
 Following display patterns are used to test the display and its connections to μP.  
 Pattern 1: *Default: All display control pins are ON*  
 - to check the open-circuits



Pattern 2: *Alternate display control pins are on (Test Pattern: 0x55)*  
 - to check the short-circuits on Data port



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. Volume 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	



#### 4.1.1 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.

Model	Region	Region Code	TV Type
HTS 3050/16	Spain	2	PAL

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> <8> .....for HTS 3050/16
- 4) The display shows 'YYYY-ZZ' and the tray will close.  
 YYYY = model number (eg. 8300, 8500, etc.)  
 ZZ = slash stroke version (eg. 01, 69, etc.)

#### 4.1.2 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 "DISPLAY" button on the Remote control.
- 4) The TV screen will shows:

PPPP-Vxx YYYYY-ZZ  
SERVO: GGGGGGGG REG:DD

PPPP = HTS 3300MKII  
 xx = version number  
 YYYYY = model # - 3300D  
 ZZ = stroke version (12, 51, 05, 98, 55, 51K)  
 GGGGGGGG = version for servo code

#### 4.1.3 Burning of firmware

1. Unzip the zip-archive attached with this service information.
2. Start the CD burning software and create a new CD Project (Data disc) with the following settings:
  - a. File System: ISO9660
  - b. Format: MODE 2/XA
  - c. Recording format: Single Session (Track at once), Finalized CD
3. Place the content of the zip-archive into the root directory of the new CD project.
4. Burn the data onto a blank CDR or CDRW.

Note: ISO9660 is mandatory, UDF discs are not supported!  
The final CDRW must not contain any other data except the file from the zip-archive.

#### 4.1.4 Procedure to upgrade the firmware

1. Power up the set and open tray.
2. Insert the prepared Upgrade CDROM and close the tray.
3. The set will display:

LOAD -> MULTICH ->..... ->UPG END.  
The whole process takes less than 2 minutes.

*Note: Do not press any button or interrupt the main supply upgrading process, Otherwise the set may become defective.*

4. When the upgrade is completed, the tray will close automatic.
5. The tray will close and the set will go to Standby mode automatically when the upgrade process is completed.

#### 4.1.5 Procedure to check the firmware version to confirm upgrading

1. Power up the set and open tray.
2. Press the <Menu Display> button on the Remote Control.
3. The firmware version will be displayed on the top left hand corner of the OSD.

#### 4.1.6 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.

#### 4.1.7 Procedure to change Tuner Grid (/98, /55 only)

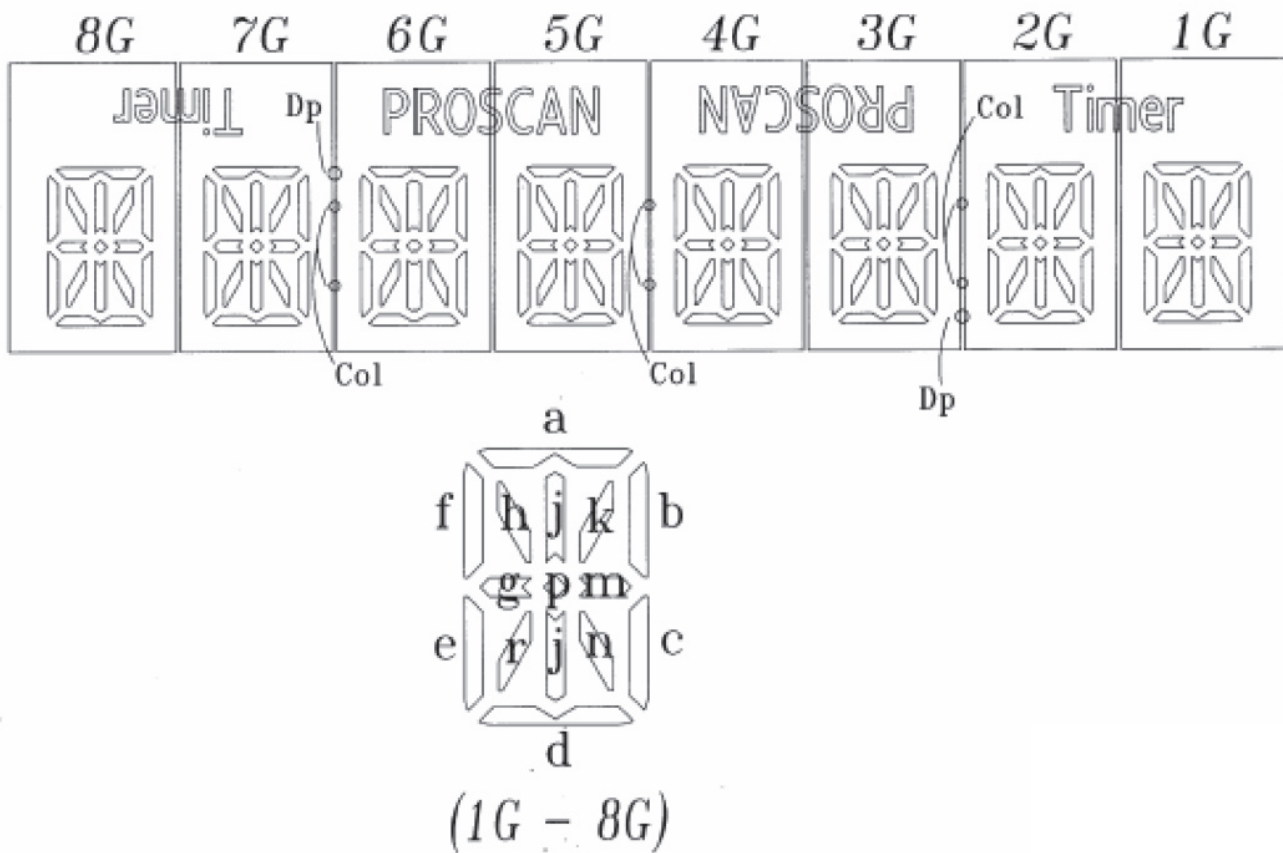
- 1 Press **SOURCE** to select "FM" or "FM1".
- 2 Press **STANDBY ON** to switch the DVD system to standby mode.
- 3 Press **STANDBY ON** again to turn on the DVD system and hold down  button on the front panel.  
→ The display will show "GRID 9" or "GRID 10".

##### Helpful Hint:

– GRID 9 and GRID 10 indicate that the tuning grid is in step of 9 kHz and 10 kHz respectively.

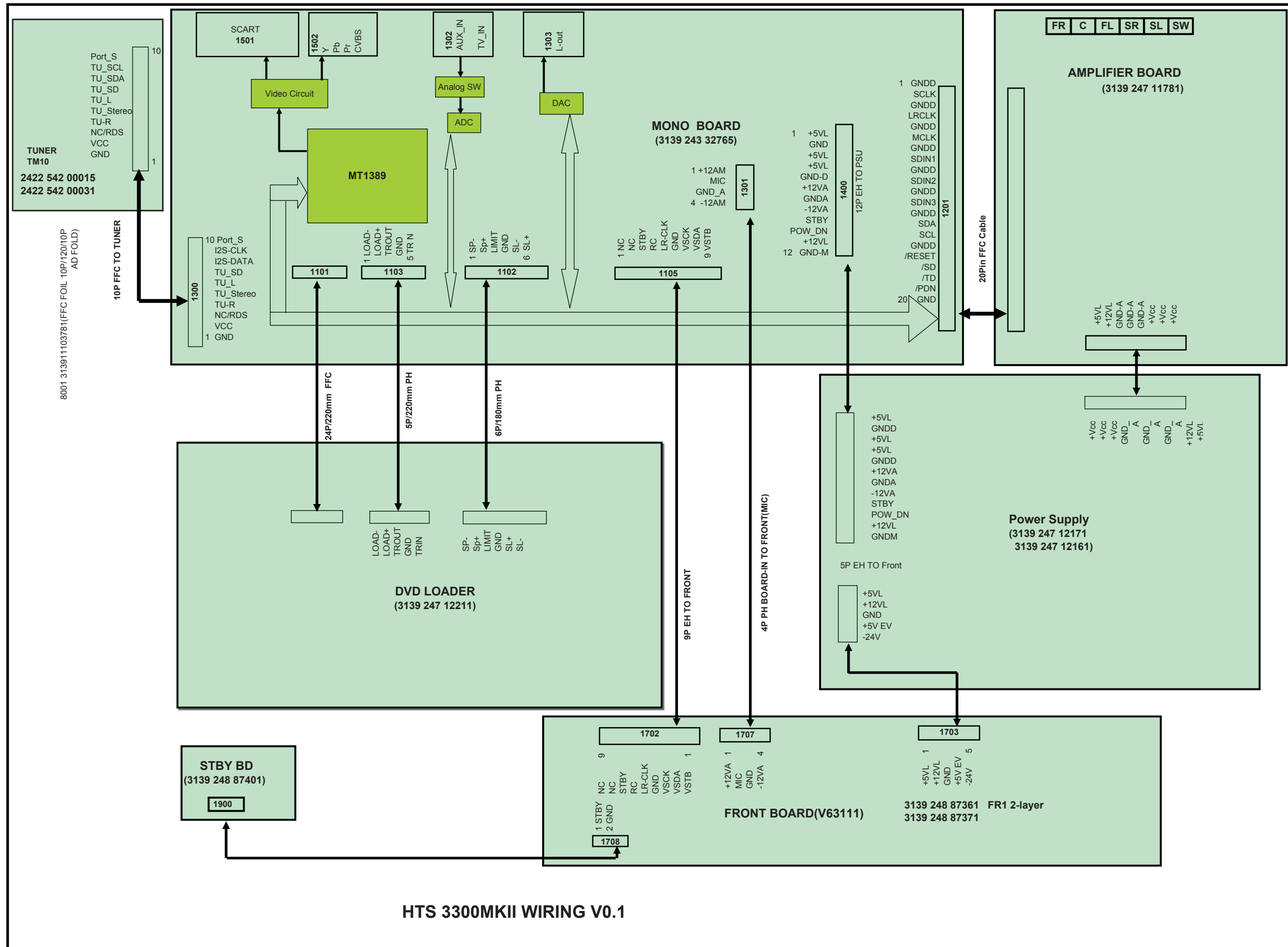
*Note: Repeating the same action will toggle back to its previous tuning grid setting.*

### 5. FTD Display Pin Connection

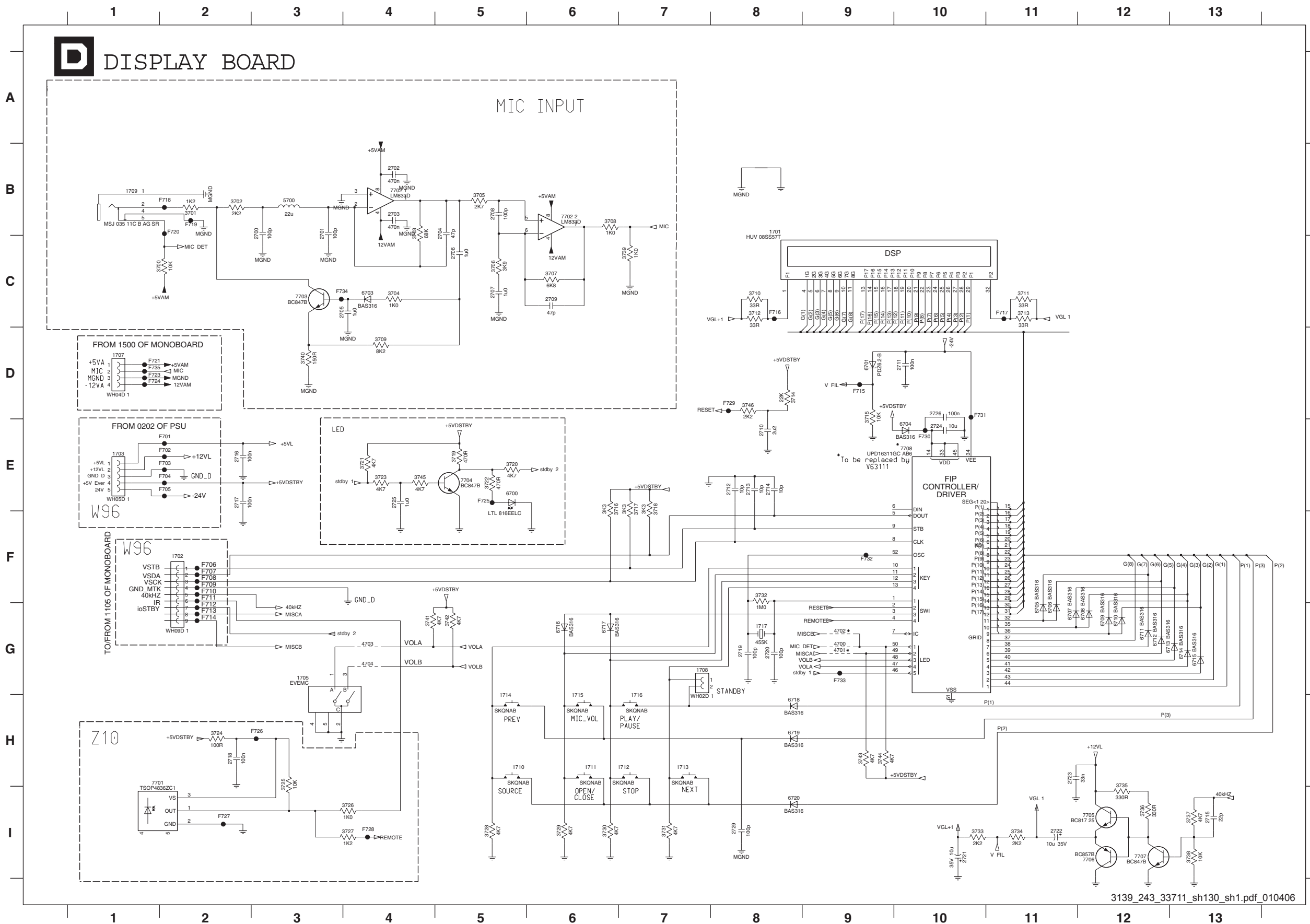


	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a
P2	j	j	j	j	j	j	j	j
P3	h	h	h	h	h	h	h	h
P4	k	k	k	k	k	k	k	k
P5	b	b	b	b	b	b	b	b
P6	f	f	f	f	f	f	f	f
P7	m	m	m	m	m	m	m	m
P8	g	g	g	g	g	g	g	g
P9	c	c	c	c	c	c	c	c
P10	e	e	e	e	e	e	e	e
P11	r	r	r	r	r	r	r	r
P12	n	n	n	n	n	n	n	n
P13	d	d	d	d	d	d	d	d
P14		col			col			col
P15	p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

# Wiring Diagram

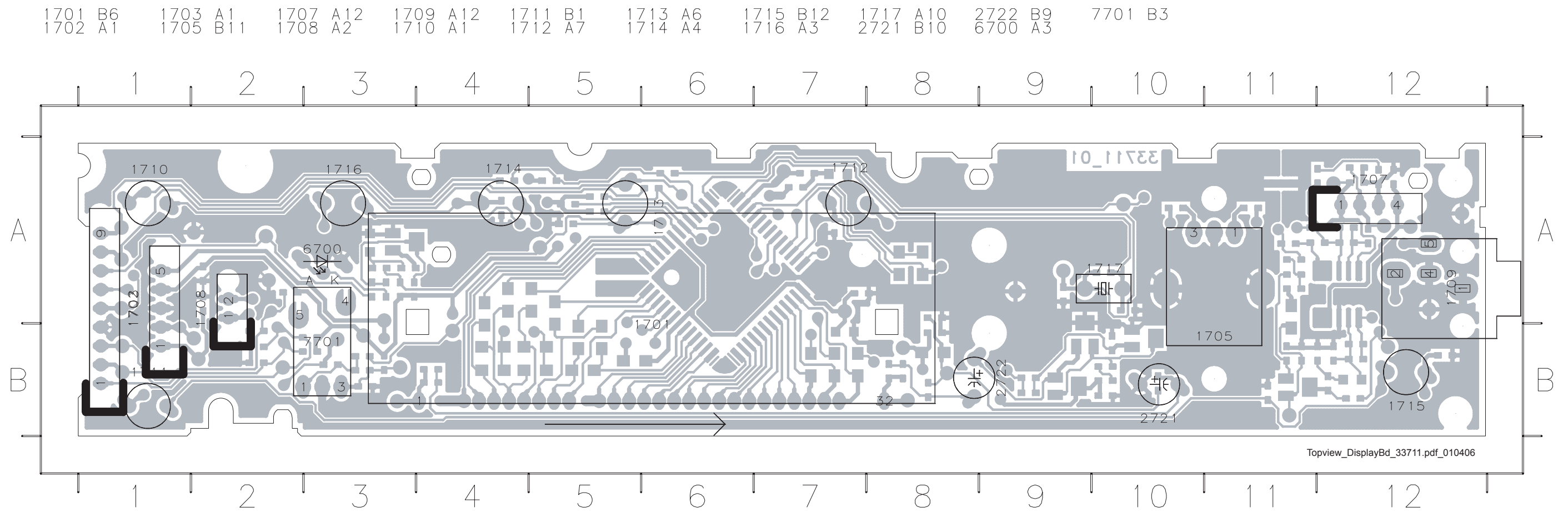


# 7. Front: Display



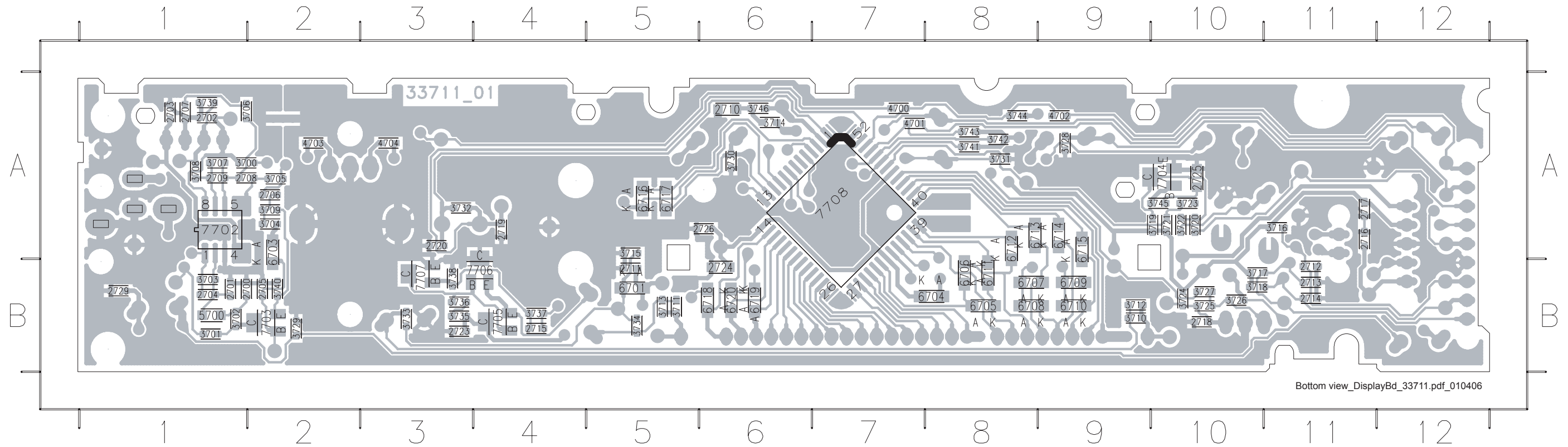
- 1701 B8
- 1702 F2
- 1703 E1
- 1705 G3
- 1707 D1
- 1708 G7
- 1709 B1
- 1710 H5
- 1711 H6
- 1712 H7
- 1713 H7
- 1714 H5
- 1715 H6
- 1716 H7
- 1717 G8
- 2700 B3
- 2701 B3
- 2702 B4
- 2703 B4
- 2704 B5
- 2705 C4
- 2706 C5
- 2707 C5
- 2708 B5
- 2709 C6
- 2710 E8
- 2711 D10
- 2712 E8
- 2713 E8
- 2714 E8
- 2715 H3
- 2716 E2
- 2717 E2
- 2718 H2
- 2719 G8
- 2720 G8
- 2721 H0
- 2722 H1
- 2723 H1
- 2724 E10
- 2725 E4
- 2726 D10
- 2729 I8
- 3700 C2
- 3701 B2
- 3702 B2
- 3703 B4
- 3704 C4
- 3705 B5
- 3706 C5
- 3707 C6
- 3708 B6
- 3709 D4
- 3710 C8
- 3711 C11
- 3712 C8
- 3713 C11
- 3714 D8
- 3715 D9
- 3716 E6
- 3717 E7
- 3718 E5
- 3719 E5
- 3720 E5
- 3721 E4
- 3722 E5
- 3723 E4
- 3724 H2
- 3725 H3
- 3726 I4
- 3727 I4
- 3728 I5
- 3729 I6
- 3730 I6
- 3731 I7
- 3732 F8
- 3733 I10
- 3734 I11
- 3735 I12
- 3736 I12
- 3737 I13
- 3738 I13
- 3739 C7
- 3740 D3
- 3741 G4
- 3742 G5
- 3743 H9
- 3744 H9
- 3745 E4
- 3746 D8
- 4700 G9
- 4701 G9
- 4702 G9
- 4703 G4
- 4704 G4
- 5700 B3
- 6700 E5
- 6701 D9
- 6703 C4
- 6704 E10
- 6705 G11
- 6706 G11
- 6707 G11
- 6708 G12
- 6709 G12
- 6710 G12
- 6711 G12
- 6712 G12
- 6713 G13
- 6714 G13
- 6715 G13
- 6716 G6
- 6717 G6
- 6718 H8
- 6719 H8
- 6720 I8
- 6701 H1
- 7702-1 B4
- 7702-2 B6
- 7703 C3
- 7704 E5
- 7705 I12
- 7706 I12
- 7707 I12
- 7708 E10
- F701 E2
- F702 E2
- F703 E2
- F704 E2
- F705 E2
- F706 F2
- F707 F2
- F708 F2
- F709 F2
- F710 F2
- F711 F2
- F712 G2
- F713 G2
- F714 G2
- F715 D9
- F716 C8
- F717 C11
- F718 B2
- F719 B2
- F720 B2
- F721 D1
- F723 D1
- F724 D1
- F725 E5
- F726 H3
- F727 I2
- F728 I4
- F729 D8
- F730 E10
- F731 D10
- F732 G9
- F733 C3
- F735 D1

### Front: Display (topview)



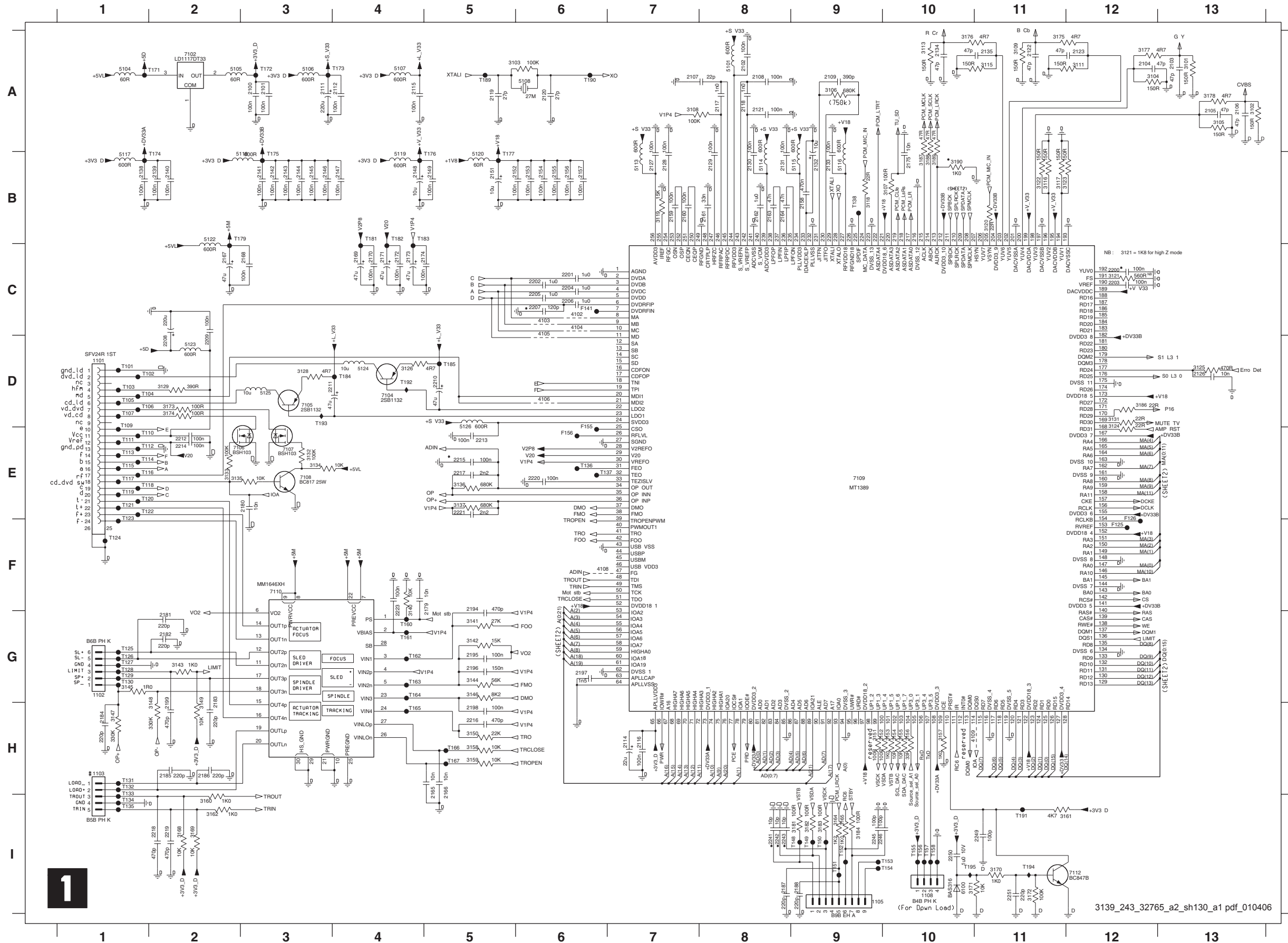
Front: Display (Bottom view)

2700	B1	2709	A1	2718	B10	3701	B1	3710	B9	3719	A10	3728	A9	3737	B4	3746	A6	6704	B8	6713	A8	7703	B2
2701	B1	2710	A6	2719	A4	3702	B1	3711	B5	3720	A10	3729	B2	3738	B3	4700	A7	6705	B8	6714	A9	7704	A10
2702	A1	2711	B5	2720	A3	3703	B1	3712	B9	3721	A10	3730	A6	3739	A1	4701	A7	6706	B8	6715	A9	7705	B4
2703	A1	2712	B11	2723	B3	3704	A2	3713	B5	3722	A10	3731	A8	3740	B2	4702	A9	6707	B8	6716	A5	7706	B4
2704	B1	2713	B11	2724	B6	3705	A2	3714	A6	3723	A10	3732	A3	3741	A8	4703	A2	6708	B8	6717	A5	7707	B3
2705	B2	2714	B11	2725	A10	3706	A1	3715	A5	3724	B10	3733	B3	3742	A8	4704	A3	6709	B8	6718	B6	7708	A7
2706	A2	2715	B4	2726	A6	3707	A1	3716	A11	3725	B10	3734	B5	3743	A8	5700	B1	6710	B8	6719	B6		
2707	A1	2716	A11	2729	B1	3708	A1	3717	B10	3726	B10	3735	B3	3744	A8	6701	B5	6711	B8	6720	B6		
2708	A1	2717	A11	3700	A1	3709	A2	3718	B10	3727	B10	3736	B3	3745	A10	6703	A2	6712	A8	7702	A1		



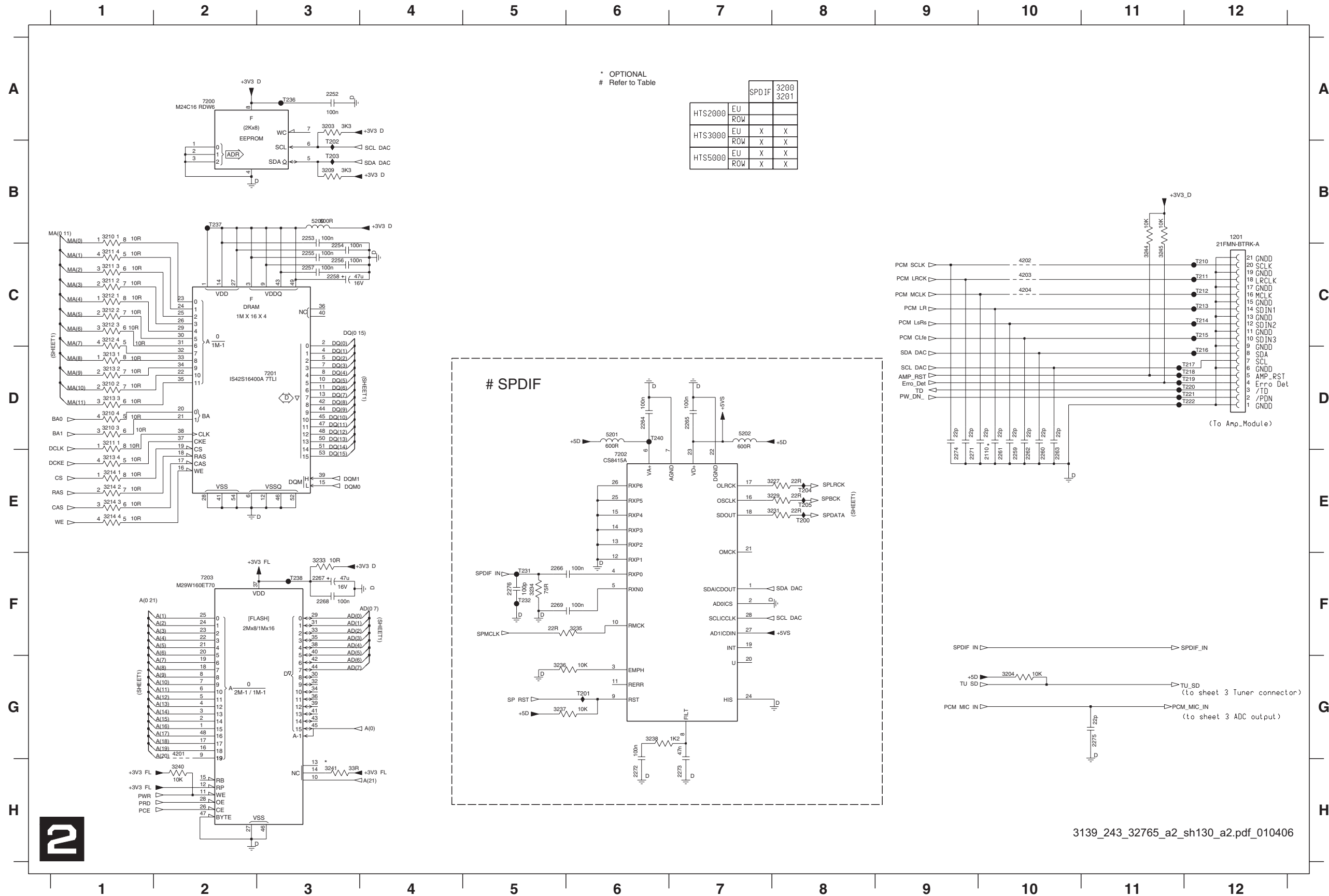


# Mono Board: Circuit Diagram (Part 1)



1101 D1	2246 I9	F125 F12
1102 G1	2249 I11	F126 F12
1103 H1	2250 I10	F141 C6
1105 I9	2251 I11	F155 E6
1108 I10	3101 A13	F156 E6
2100 A3	3102 A13	T101 D1
2101 A3	3103 A5	T102 D1
2102 A8	3104 A12	T103 D1
2103 A13	3105 A13	T104 D1
2104 A12	3106 A9	T105 D1
2105 A13	3107 B10	T106 D1
2106 A13	3108 A7	T107 D1
2107 A7	3109 A11	T109 E1
2108 A8	3111 A12	T110 E1
2109 A9	3113 A10	T111 E1
2111 A3	3115 A11	T112 E1
2112 A4	3116 B11	T113 E1
2114 H7	3117 B11	T114 E1
2115 A4	3118 B9	T115 E1
2116 H7	3119 B7	T116 E1
2117 A8	3120 B11	T117 E1
2118 A8	3121 C12	T118 E1
2119 A5	3122 B11	T119 E1
2120 A6	3123 B12	T120 E1
2121 A8	3124 D12	T121 E1
2122 A11	3125 D13	T122 E1
2123 A12	3126 D4	T123 F1
2126 D13	3128 D3	T124 F1
2127 B7	3129 D2	T125 G1
2128 B7	3131 D12	T126 G1
2129 B8	3132 C3	T127 G1
2130 B8	3133 C2	T128 G1
2131 B8	3134 C3	T129 G1
2132 B9	3135 C1	T130 G1
2133 B9	3136 E5	T131 H1
2134 A10	3137 E5	T132 H1
2135 A11	3140 F4	T133 H1
2138 B1	3141 G5	T134 H1
2139 B2	3142 G5	T135 I1
2140 B2	3143 G2	T136 E6
2141 B3	3144 G5	T137 E6
2142 B3	3145 G1	T138 B9
2143 B3	3146 G5	T148 I9
2144 B3	3147 H1	T149 I9
2145 B3	3148 H2	T150 I9
2146 B3	3149 H2	T151 I9
2147 B4	3150 H5	T152 I9
2148 B4	3151 H9	T153 I10
2149 B5	3152 H9	T154 I10
2151 B5	3153 H10	T155 I10
2152 B6	3154 H10	T156 I10
2153 B6	3155 H10	T157 I10
2154 B6	3156 H10	T158 I10
2155 B6	3157 H10	T160 G4
2156 B6	3158 H5	T161 G4
2157 B6	3159 H5	T162 G4
2158 B9	3160 I2	T163 G4
2159 B7	3161 I12	T164 G4
2160 B7	3162 I2	T165 H4
2161 B8	3164 I9	T166 H5
2162 B8	3165 I9	T167 H5
2163 B8	3168 I2	T171 A2
2164 B8	3169 I2	T172 A3
2165 H5	3170 I11	T173 A4
2166 H5	3171 I10	T174 B2
2167 C2	3172 I11	T175 B3
2168 C3	3173 D2	T176 B5
2169 C4	3174 D2	T177 B5
2170 C4	3175 A11	T179 B2
2171 C4	3176 A10	T181 B4
2172 C4	3177 A12	T182 B4
2173 C4	3178 A13	T183 B4
2174 C5	3181 I9	T184 D4
2175 B10	3182 I9	T185 D5
2179 F5	3183 I9	T189 A5
2180 E3	3184 I9	T190 A6
2181 G2	3186 D12	T191 I11
2182 G2	3187 B10	T192 D4
2183 G2	3188 B10	T193 D3
2184 H1	3189 B10	T194 I11
2185 H2	3190 B10	T195 I10
2186 H2	4102 C6	
2187 I8	4103 C6	
2188 I9	4104 C6	
2194 G5	4105 C6	
2195 G5	4106 D6	
2196 G5	4108 F6	
2197 G6	4109 H10	
2198 H5	5101 A8	
2199 H8	5104 A1	
2200 C12	5105 A2	
2201 C6	5106 A3	
2202 C6	5107 A4	
2203 C12	5108 A6	
2204 C6	5113 B7	
2205 C6	5114 B8	
2206 C6	5115 B9	
2207 C6	5116 B9	
2208 D2	5117 B1	
2209 D2	5118 B3	
2210 D5	5119 B4	
2211 D3	5120 B5	
2212 E2	5122 B2	
2213 E2	5123 D2	
2214 E2	5124 D4	
2215 E5	5125 D3	
2216 H5	5126 E5	
2217 E5	6100 I10	
2218 I2	7102 A2	
2219 I2	7104 D4	
2220 E6	7105 D3	
2221 E5	7106 E2	
2223 F4	7107 E3	
2241 I8	7108 E3	
2242 I8	7109 E9	
2243 I8	7110 F3	
2245 I9	7112 I12	

# Mono Board: Circuit Diagram (Part 2)



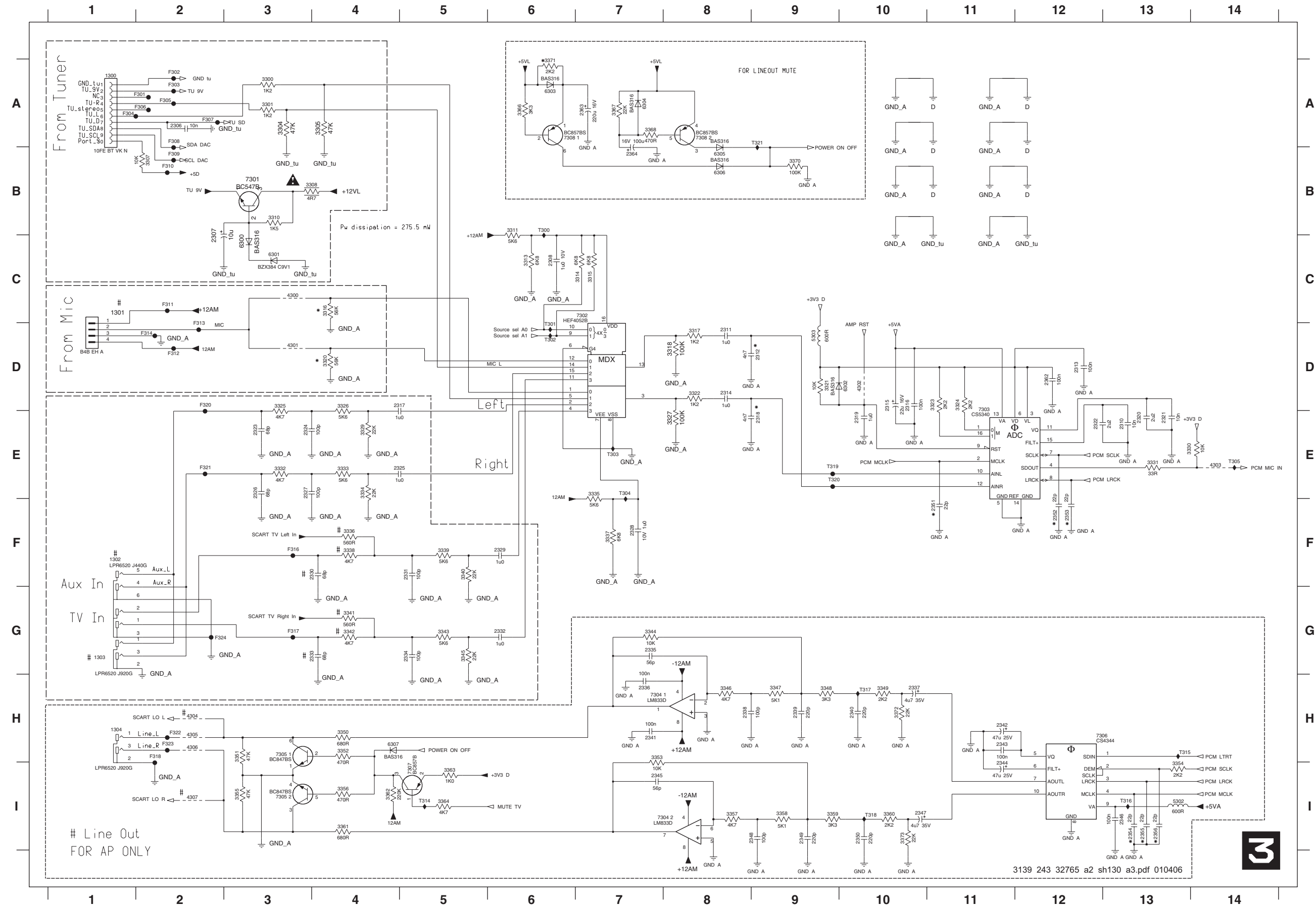
\* OPTIONAL  
# Refer to Table

	SPDIF	3200	3201
HTS2000	EU		
HTS2000	ROW	X	X
HTS3000	EU	X	X
HTS3000	ROW	X	X
HTS5000	EU	X	X
HTS5000	ROW	X	X

- 1201 B12
- 2110 E10
- 2252 A3
- 2253 B3
- 2254 C3
- 2255 C3
- 2256 C3
- 2257 C3
- 2258 C3
- 2259 E10
- 2260 E10
- 2261 E10
- 2262 E10
- 2263 E10
- 2264 D6
- 2265 D7
- 2266 F5
- 2267 F3
- 2268 F3
- 2269 F5
- 2271 E9
- 2272 H6
- 2273 H7
- 2274 E9
- 2275 G11
- 2276 F5
- 3203 A3
- 3204 G10
- 3209 B3
- 3210-1 B1
- 3210-2 D1
- 3210-3 D1
- 3210-4 D1
- 3211-1 D1
- 3211-2 C1
- 3211-3 C1
- 3211-4 C1
- 3212-1 C1
- 3212-2 C1
- 3212-3 C1
- 3212-4 C1
- 3213-1 D1
- 3213-2 D1
- 3213-3 D1
- 3213-4 E1
- 3214-1 E1
- 3214-2 E1
- 3214-3 E1
- 3214-4 E1
- 3214-5 E1
- 3214-6 E1
- 3214-7 E1
- 3214-8 E1
- 3214-9 E1
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- 3214-21 E1
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- 3214-24 E1
- 3214-25 E1
- 3214-26 E1
- 3214-27 E1
- 3214-28 E1
- 3214-29 E1
- 3214-30 E1
- 3214-31 E1
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- 3214-33 E1
- 3214-34 E1
- 3214-35 E1
- 3214-36 E1
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- 3214-38 E1
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- 3214-50 E1
- 3214-51 E1
- 3214-52 E1
- 3214-53 E1
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- 3214-56 E1
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- 3214-58 E1
- 3214-59 E1
- 3214-60 E1
- 3214-61 E1
- 3214-62 E1
- 3214-63 E1
- 3214-64 E1
- 3214-65 E1
- 3214-66 E1
- 3214-67 E1
- 3214-68 E1
- 3214-69 E1
- 3214-70 E1
- 3214-71 E1
- 3214-72 E1
- 3214-73 E1
- 3214-74 E1
- 3214-75 E1
- 3214-76 E1
- 3214-77 E1
- 3214-78 E1
- 3214-79 E1
- 3214-80 E1
- 3214-81 E1
- 3214-82 E1
- 3214-83 E1
- 3214-84 E1
- 3214-85 E1
- 3214-86 E1
- 3214-87 E1
- 3214-88 E1
- 3214-89 E1
- 3214-90 E1
- 3214-91 E1
- 3214-92 E1
- 3214-93 E1
- 3214-94 E1
- 3214-95 E1
- 3214-96 E1
- 3214-97 E1
- 3214-98 E1
- 3214-99 E1
- 3214-100 E1

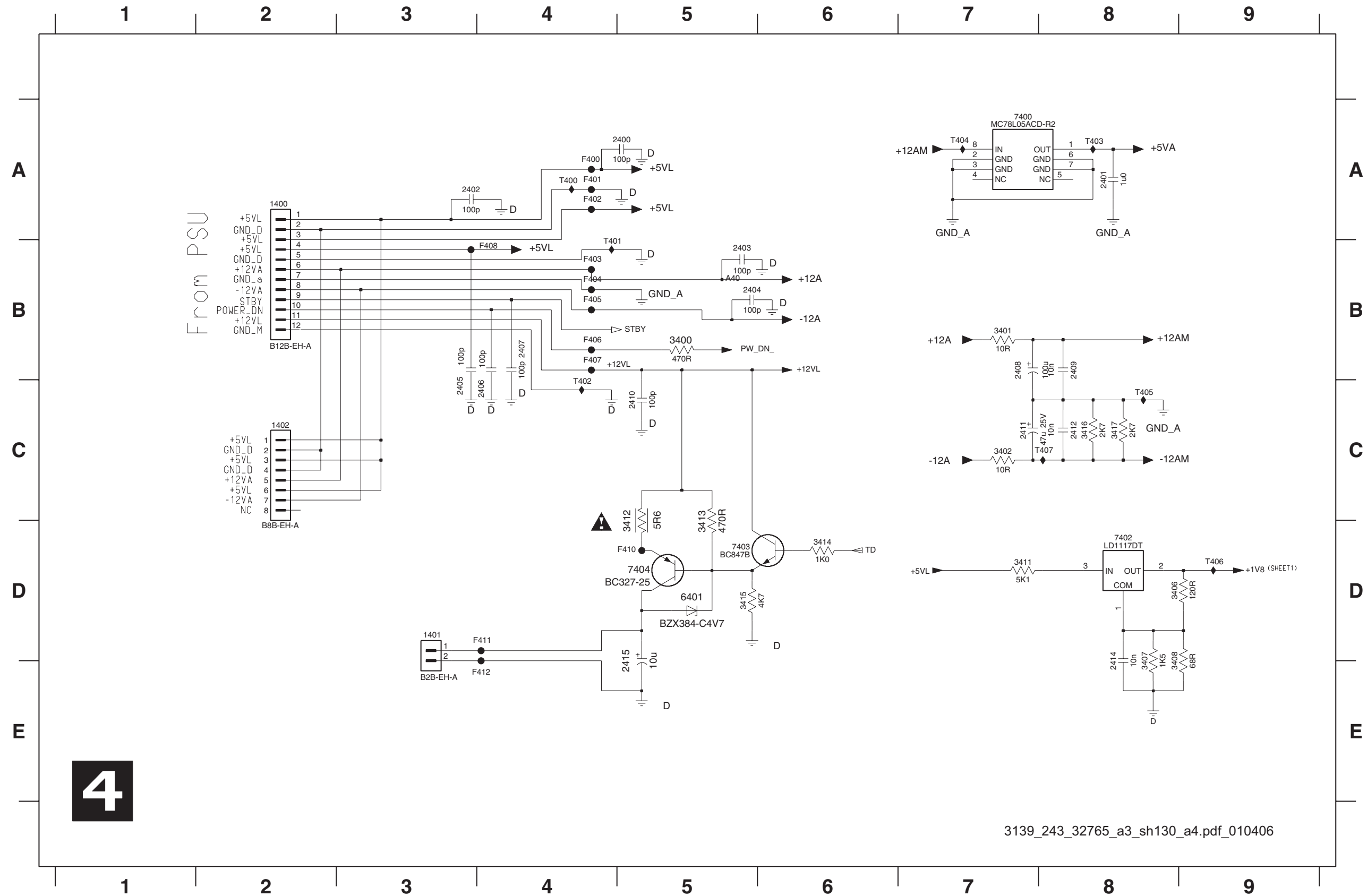


# Mono Board: Circuit Diagram (Part 3)



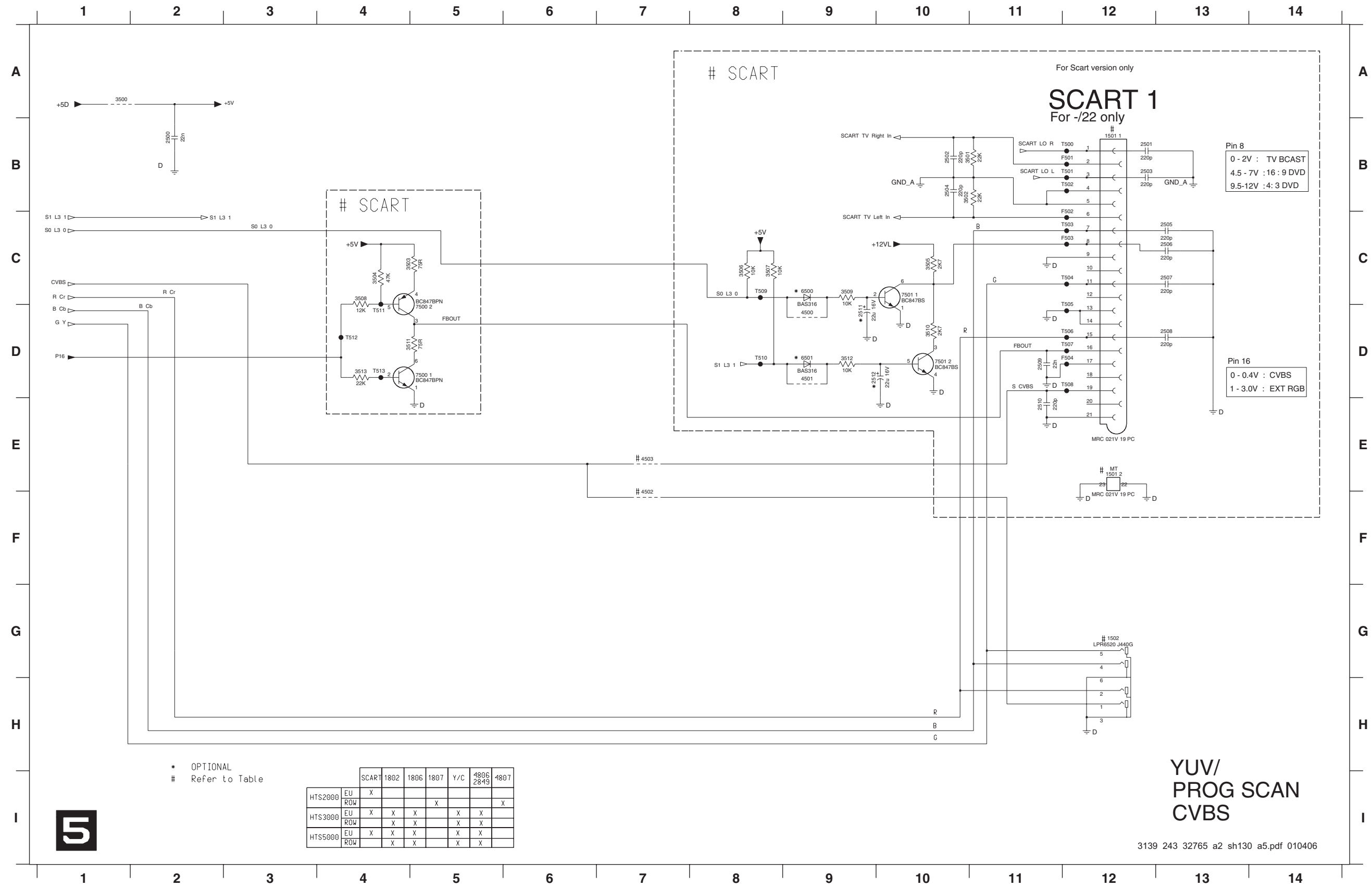
1300 A1	3367 A7
1301 C1	3368 A7
1302 F1	3370 B9
1303 G1	3371 A6
1304 H1	3372 H10
2306 A2	3373 I10
2307 C2	4300 C3
2308 C6	4301 D3
2310 E13	4302 D10
2311 D8	4303 E14
2312 D9	4304 H2
2313 D12	4305 H2
2314 D8	4306 H2
2315 D10	4307 I2
2316 D10	5302 I13
2317 D4	5303 D9
2318 E9	6300 C3
2319 E10	6301 C3
2320 E13	6302 D10
2321 E13	6303 A6
2322 E12	6304 A7
2323 E3	6305 B8
2324 E3	6306 B8
2325 E4	6307 H4
2326 E3	7301 B3
2327 E3	7302 C7
2328 F7	7303 E11
2329 F6	7304-1 H8
2330 F4	7304-2 I8
2331 F5	7305-1 H3
2332 G6	7305-2 I3
2333 G4	7306 H12
2334 G5	7307 I5
2335 G7	7308-1 A6
2336 H7	7308-2 A8
2337 H10	F301 A2
2338 H8	F302 A2
2339 H9	F303 A2
2340 H10	F304 A1
2341 H7	F305 A2
2342 H11	F306 A2
2343 H11	F307 A2
2344 I11	F308 A2
2345 I7	F309 B2
2346 I13	F310 B2
2347 I10	F311 C2
2348 I9	F312 D2
2349 I9	F313 D2
2350 I10	F314 D2
2351 F11	F316 F3
2352 F12	F317 G3
2353 F12	F318 H2
2354 I13	F320 D2
2355 I13	F321 E2
2356 I13	F322 H2
2362 D12	F323 H2
2363 A7	F324 G2
2364 B7	T300 B6
2365 A3	T301 D6
2366 A3	T302 D6
2367 A3	T303 E7
2368 A3	T304 E7
2369 B2	T305 E14
2370 B3	T314 I5
2371 B3	T315 H13
2372 B6	T316 I13
2373 C6	T317 H10
2374 C7	T318 H10
2375 C7	T319 E9
2376 C4	T320 E9
2377 D8	T321 A9
2378 D8	
2379 D4	
2380 D4	
2381 D8	
2382 D8	
2383 D11	
2384 D11	
2385 D3	
2386 D4	
2387 E8	
2388 E4	
2389 E4	
2390 E13	
2391 E13	
2392 E3	
2393 E4	
2394 E4	
2395 E7	
2396 F4	
2397 F7	
2398 F5	
2399 F5	
2400 G4	
2401 G4	
2402 G5	
2403 G5	
2404 G7	
2405 G5	
2406 H8	
2407 H9	
2408 H9	
2409 H10	
2410 H10	
2411 H3	
2412 H4	
2413 H4	
2414 H4	
2415 H4	
2416 H4	
2417 H4	
2418 H4	
2419 H4	
2420 H4	
2421 H4	
2422 H4	
2423 H4	
2424 H4	
2425 H4	
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2484 H4	
2485 H4	
2486 H4	
2487 H4	
2488 H4	
2489 H4	
2490 H4	
2491 H4	
2492 H4	
2493 H4	
2494 H4	
2495 H4	
2496 H4	
2497 H4	
2498 H4	
2499 H4	
2500 H4	

# Mono Board: Circuit Diagram (Part 4)



- 1400 A2
- 1401 D3
- 1402 C2
- 2400 A5
- 2401 A8
- 2402 A3
- 2403 B5
- 2404 B5
- 2405 C3
- 2406 C4
- 2407 B4
- 2408 B7
- 2409 B8
- 2410 C5
- 2411 C7
- 2412 C8
- 2414 D8
- 2415 D5
- 3400 B5
- 3401 B7
- 3402 C7
- 3406 D8
- 3407 D8
- 3408 D8
- 3411 D7
- 3412 D5
- 3413 D5
- 3414 D6
- 3415 D5
- 3416 C8
- 3417 C8
- 6401 D5
- 7400 A7
- 7402 D8
- 7403 D5
- 7404 D5
- F400 A4
- F401 A4
- F402 A4
- F403 B4
- F404 B4
- F405 B4
- F406 B4
- F407 B4
- F408 B4
- F410 D5
- F411 D4
- F412 E4
- T400 A4
- T401 B4
- T402 C4
- T403 A8
- T404 A7
- T405 C8
- T406 D9
- T407 C8

Mono Board: Circuit Diagram (Part 5)



- 1501-1 B12
- 1501-2 E12
- 1502 G12
- 2500 B2
- 2501 B12
- 2502 B10
- 2503 B12
- 2504 B10
- 2505 C13
- 2506 C13
- 2507 C13
- 2508 D13
- 2509 D11
- 2510 E11
- 2511 D9
- 2512 D9
- 3500 A1
- 3501 B11
- 3502 B10
- 3503 C5
- 3504 C4
- 3505 C10
- 3506 C8
- 3507 C8
- 3508 C4
- 3509 C9
- 3510 D10
- 3511 D5
- 3512 D9
- 3513 D4
- 4500 D9
- 4501 D9
- 4502 E7
- 4503 E7
- 6500 C9
- 6501 D9
- 7500-1 D5
- 7500-2 D5
- 7501-1 C10
- 7501-2 D10
- F501 B12
- F502 C12
- F503 C12
- F504 D12
- T500 B12
- T501 B12
- T502 B12
- T503 C12
- T504 C12
- T505 D12
- T506 D12
- T507 D12
- T508 D12
- T509 C8
- T510 D8
- T511 D4
- T512 D4
- T513 D4

\* OPTIONAL  
# Refer to Table

		SCART	1802	1806	1807	Y/C	4806 2843	4807
HTS2000	EU ROW	X			X			X
HTS3000	EU ROW	X	X	X		X	X	
HTS5000	EU ROW	X	X	X		X	X	

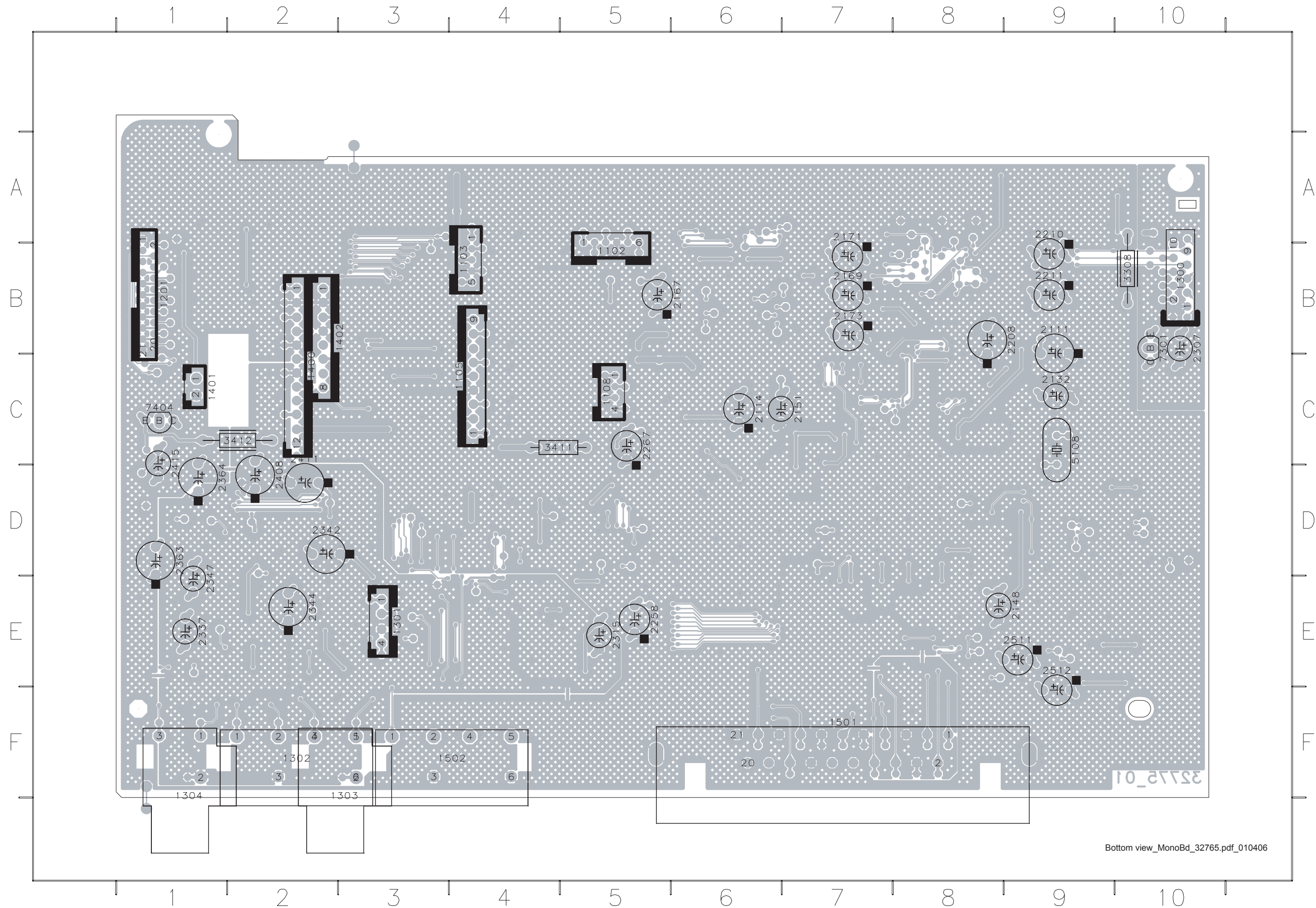
YUV/  
PROG SCAN  
CVBS





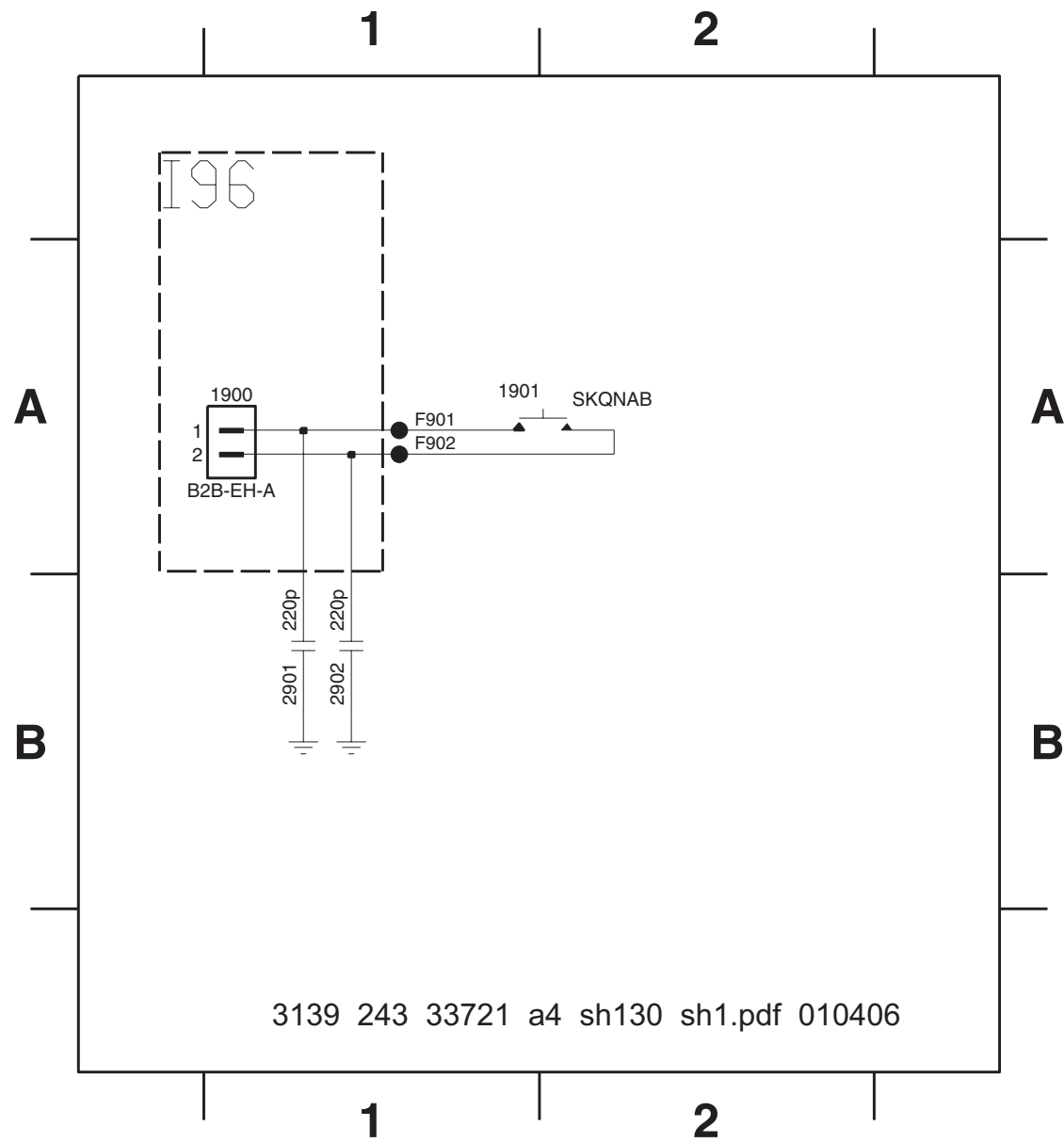


### Layout: Mono Board (Bottom view)

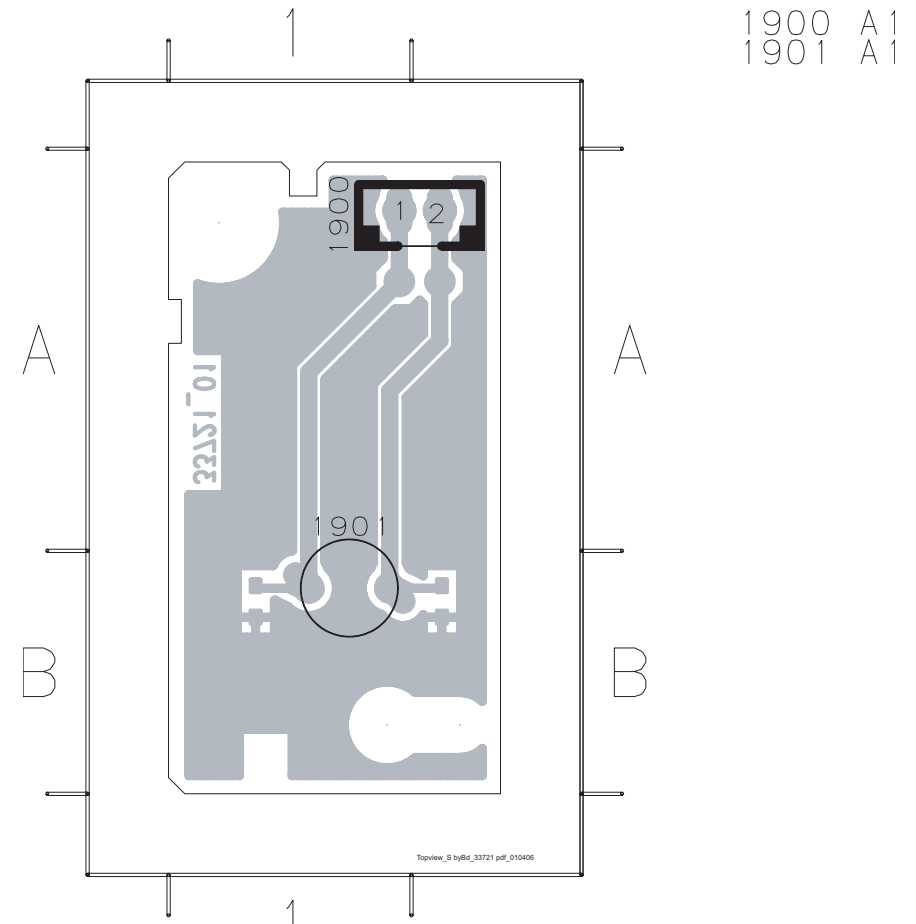


- 1102 BB5
- 1103 BB4
- 1105 CC4
- 1108 CC5
- 1201 BB1
- 1300 BB3
- 1301 BB2
- 1302 BB3
- 1303 BB3
- 1304 BB1
- 1400 CC2
- 1401 CC1
- 1402 CC3
- 1501 BB7
- 1502 BB4
- 2111 BB9
- 2114 BB9
- 2132 CC9
- 2148 BB9
- 2151 BB6
- 2167 BB7
- 2169 BB7
- 2171 BB7
- 2173 BB7
- 2177 BB7
- 2178 BB7
- 2208 BB7
- 2210 BB9
- 2211 BB9
- 2258 CC5
- 2267 CC5
- 2307 BB5
- 2315 BB5
- 2337 BB5
- 2342 DD2
- 2344 DD2
- 2347 DD2
- 2363 DD2
- 2364 DD2
- 2404 DD2
- 2415 DD2
- 2408 DD2
- 2411 DD2
- 2415 DD2
- 2511 DD2
- 2512 DD2
- 2518 DD2
- 2519 DD2
- 2520 DD2
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- 2659 DD2
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- 2745 DD2
- 2746 DD2
- 2747 DD2
- 2748 DD2
- 2749 DD2
- 2750 DD2
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- 2752 DD2
- 2753 DD2
- 2754 DD2
- 2755 DD2
- 2756 DD2
- 2757 DD2
- 2758 DD2
- 2759 DD2
- 2760 DD2
- 2761 DD2
- 2762 DD2
- 2763 DD2
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- 2766 DD2
- 2767 DD2
- 2768 DD2
- 2769 DD2
- 2770 DD2
- 2771 DD2
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- 2773 DD2
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- 2813 DD2
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- 2843 DD2
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- 2872 DD2
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- 2923 DD2
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- 2991 DD2
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- 2995 DD2
- 2996 DD2
- 2997 DD2
- 2998 DD2
- 2999 DD2
- 3000 DD2

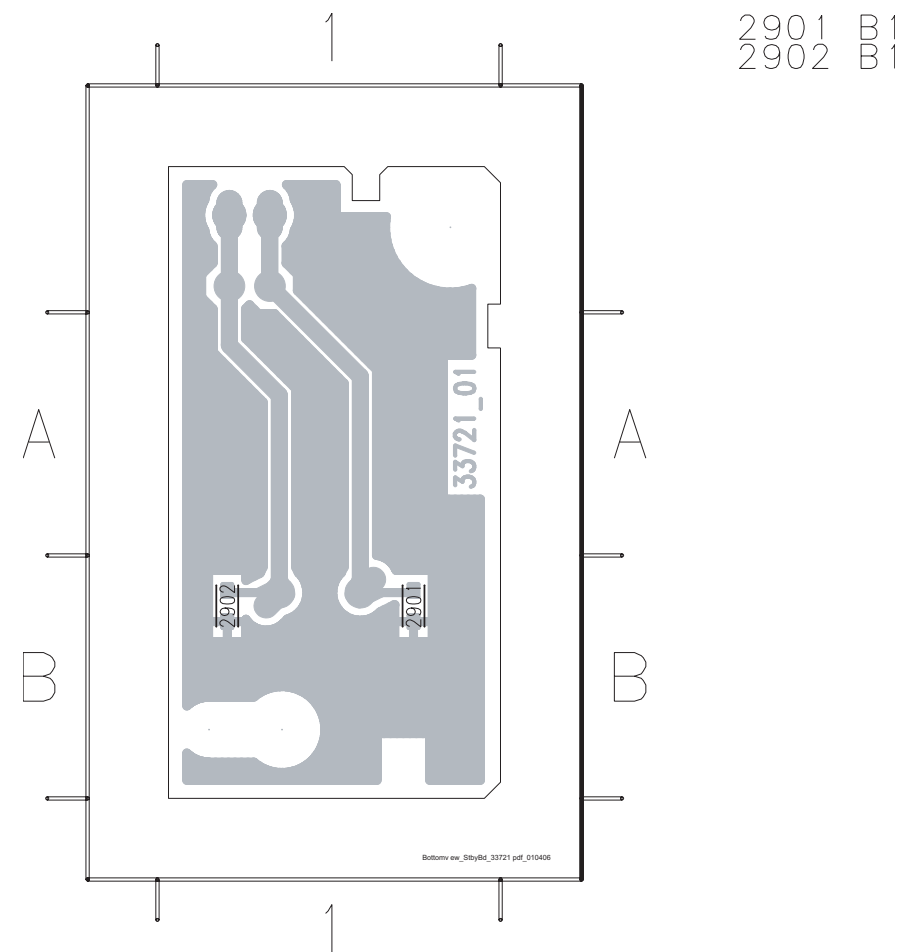
### Front: Standby



- 1900 A1
- 1901 A1
- 2901 B1
- 2902 B1
- F901 A1
- F902 A1

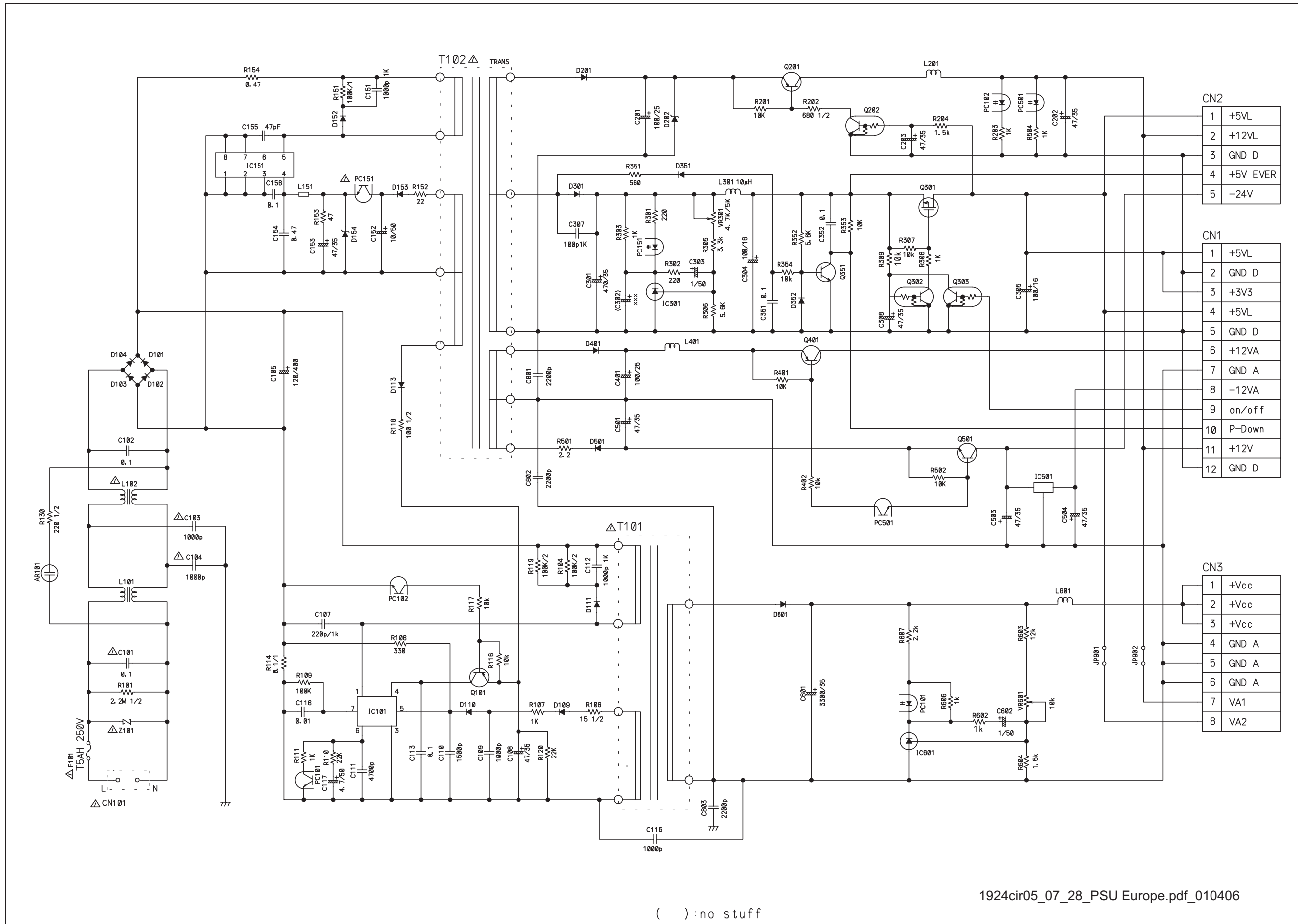


- 1900 A1
- 1901 A1

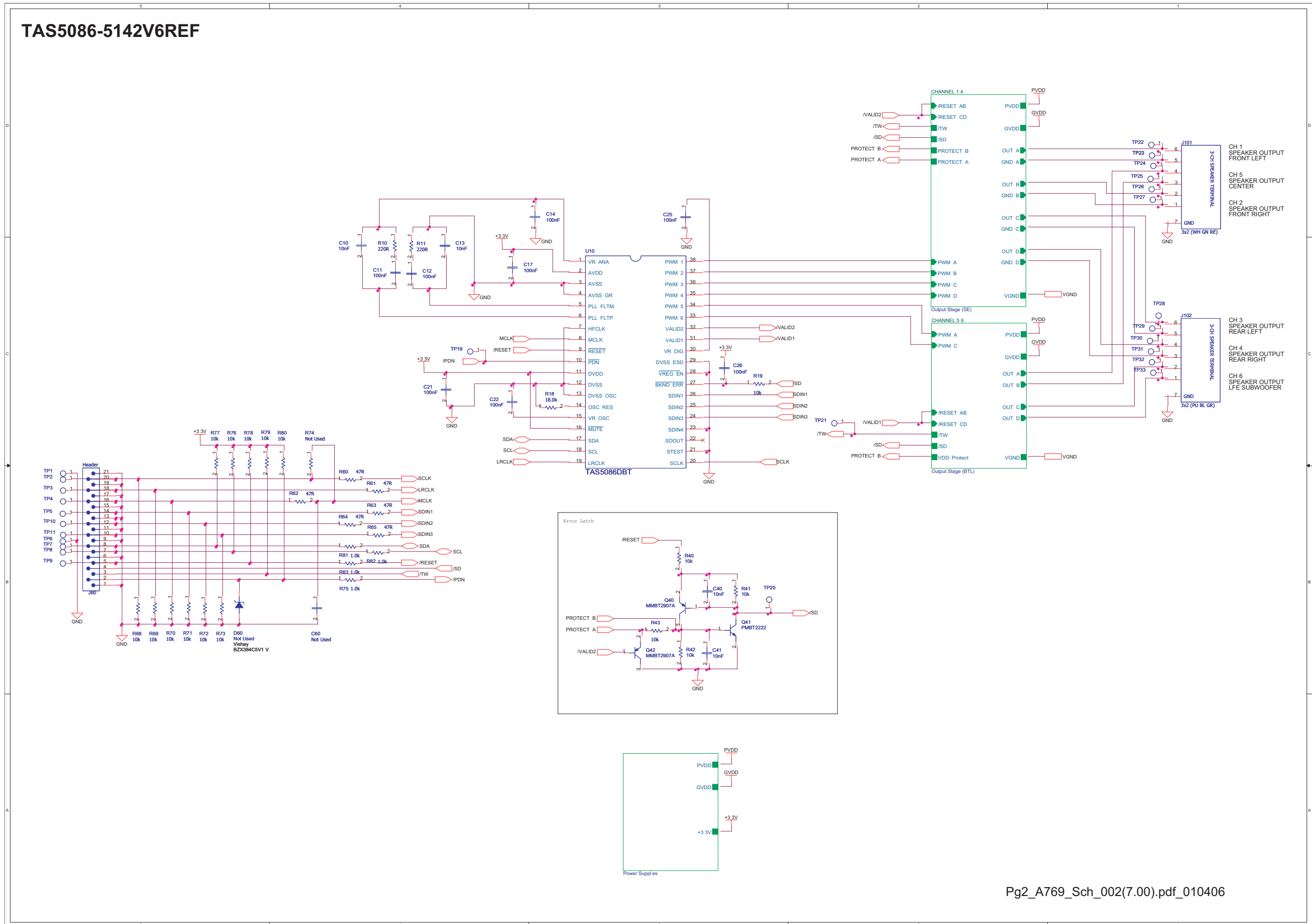


- 2901 B1
- 2902 B1

# PSU Circuit Diagram (For information only) For HTS3050 /16

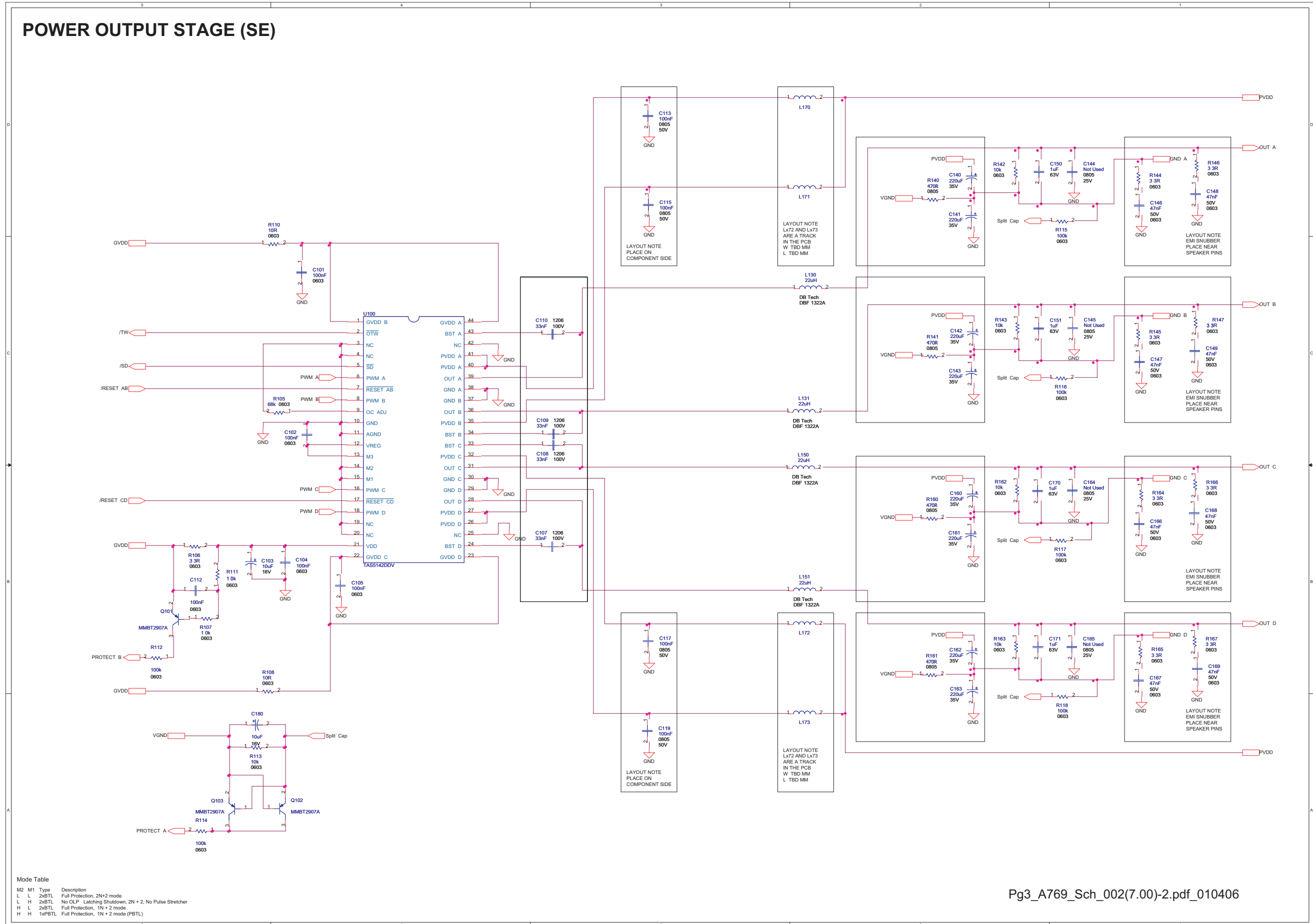


### 8. TAS5086-5142V6REF

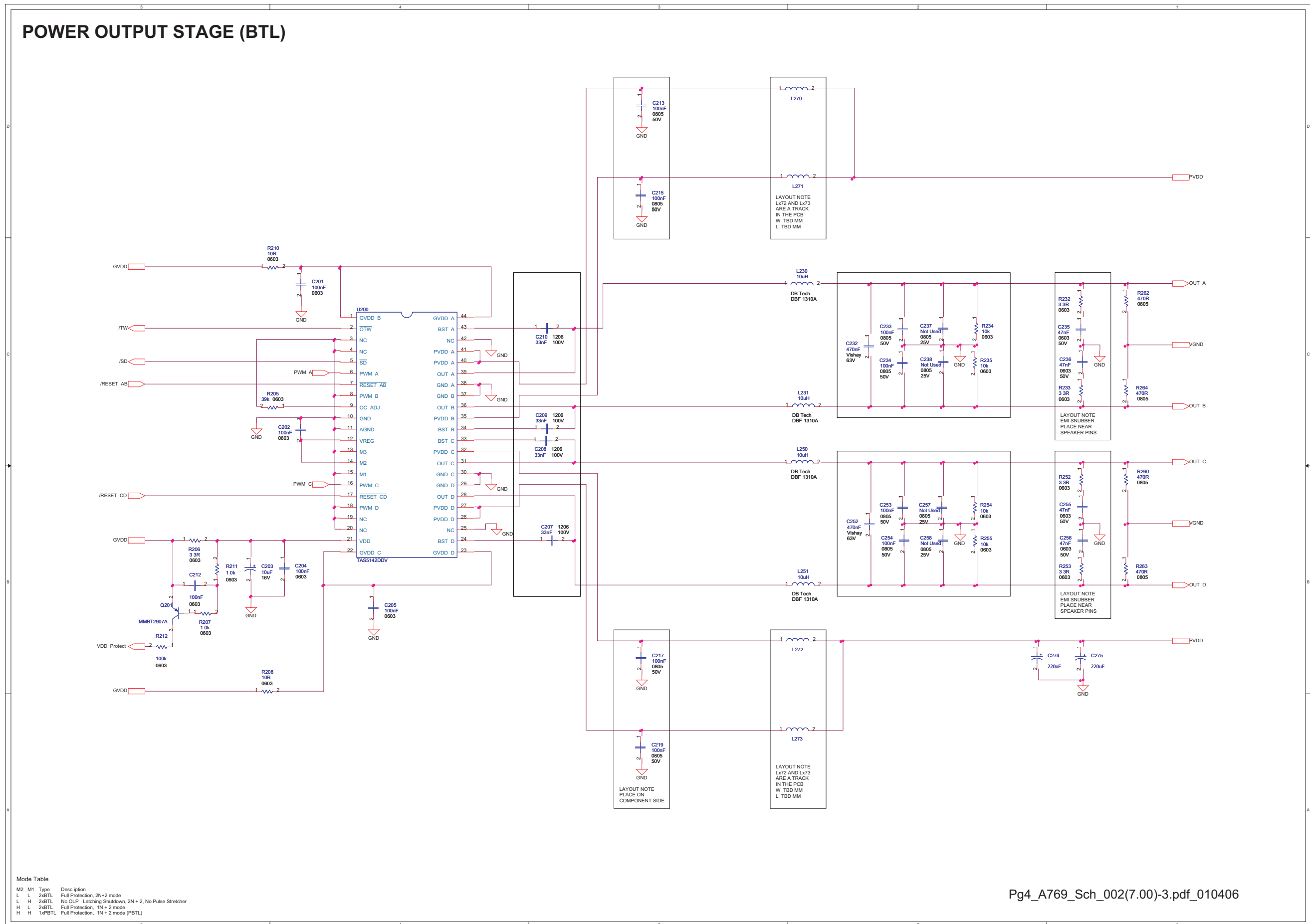




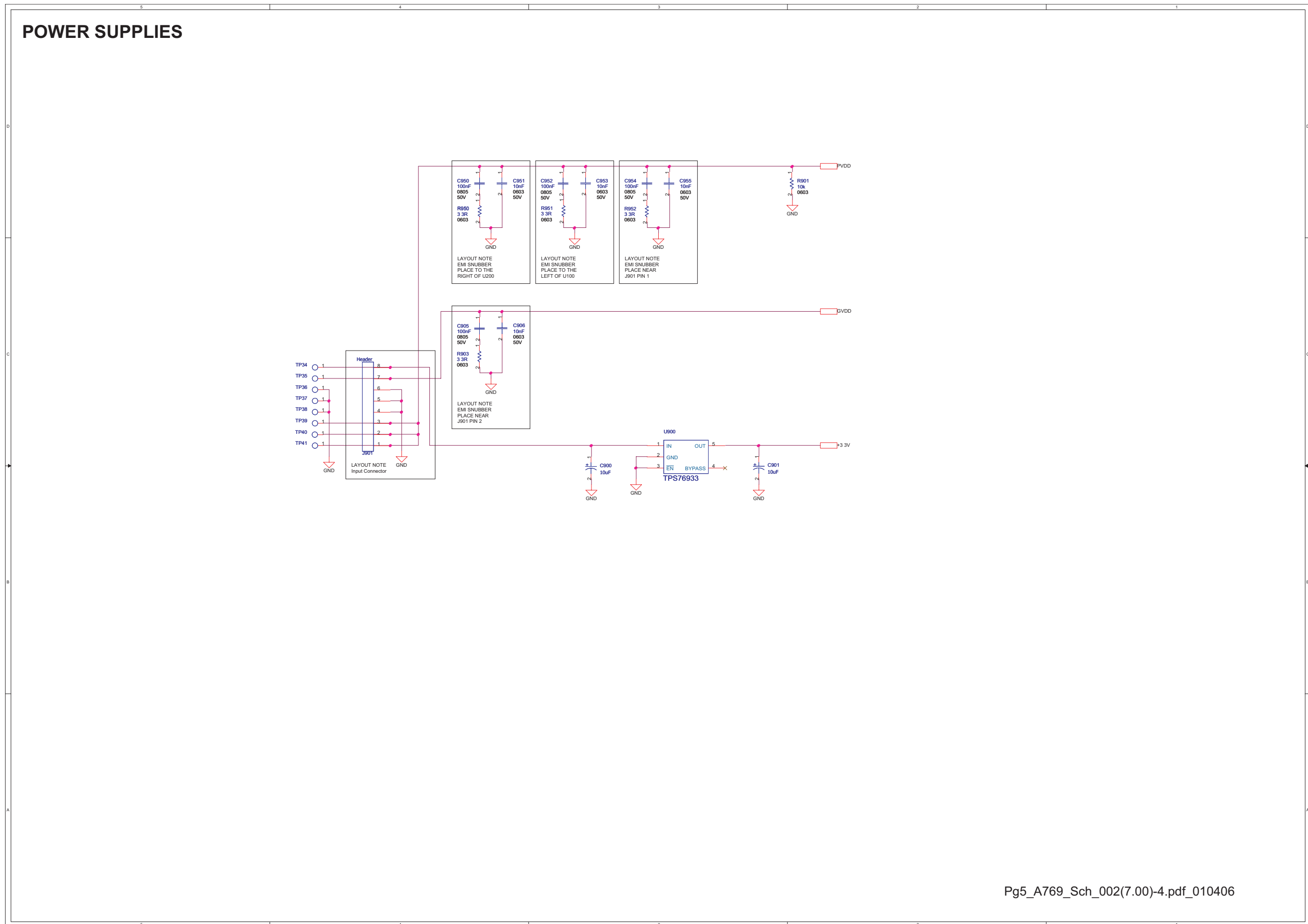
# Power Output Stage (SE)

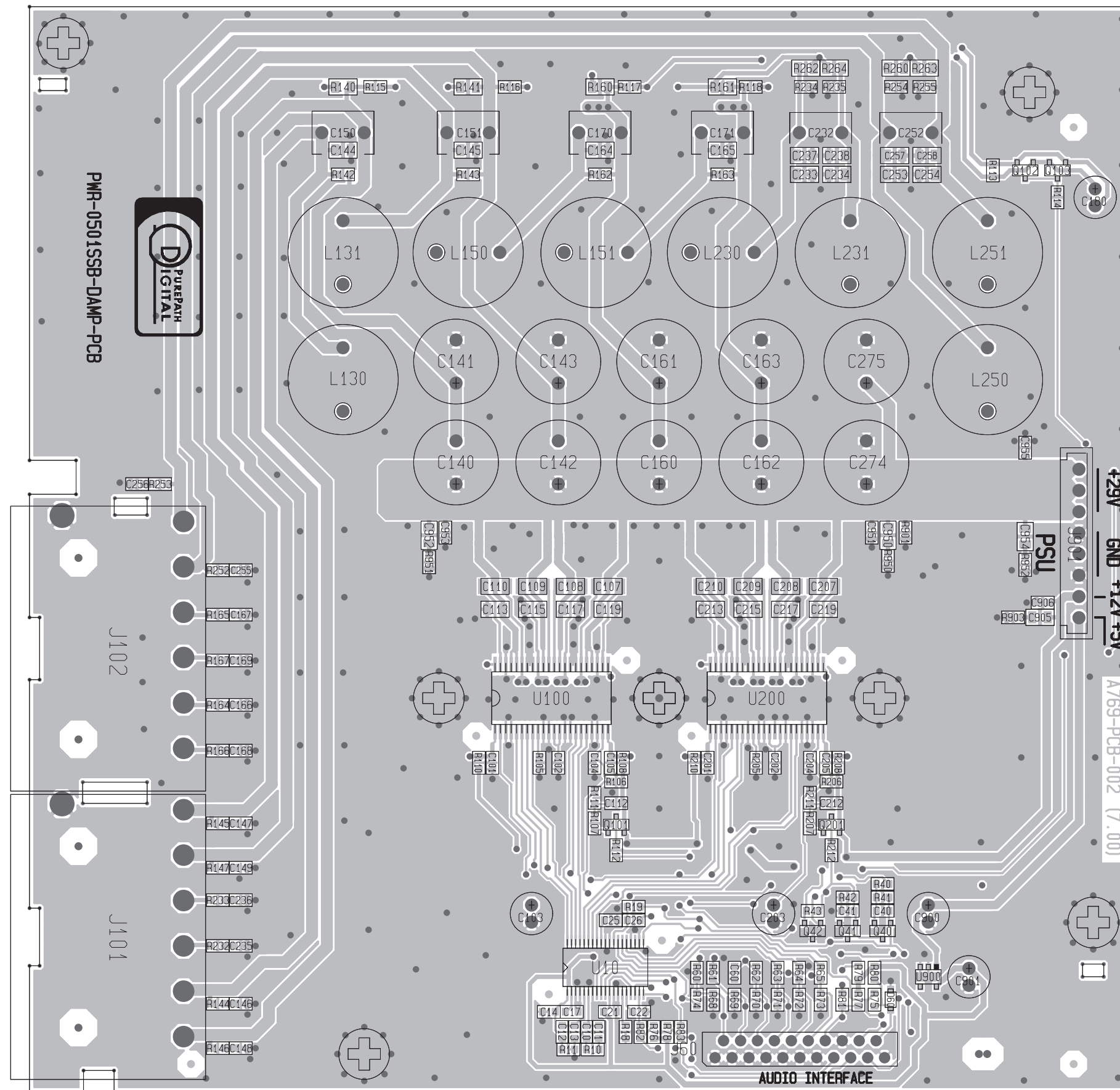


Power Output Stage (BTL)



# Power Supplies





9. Exploded View of the Set

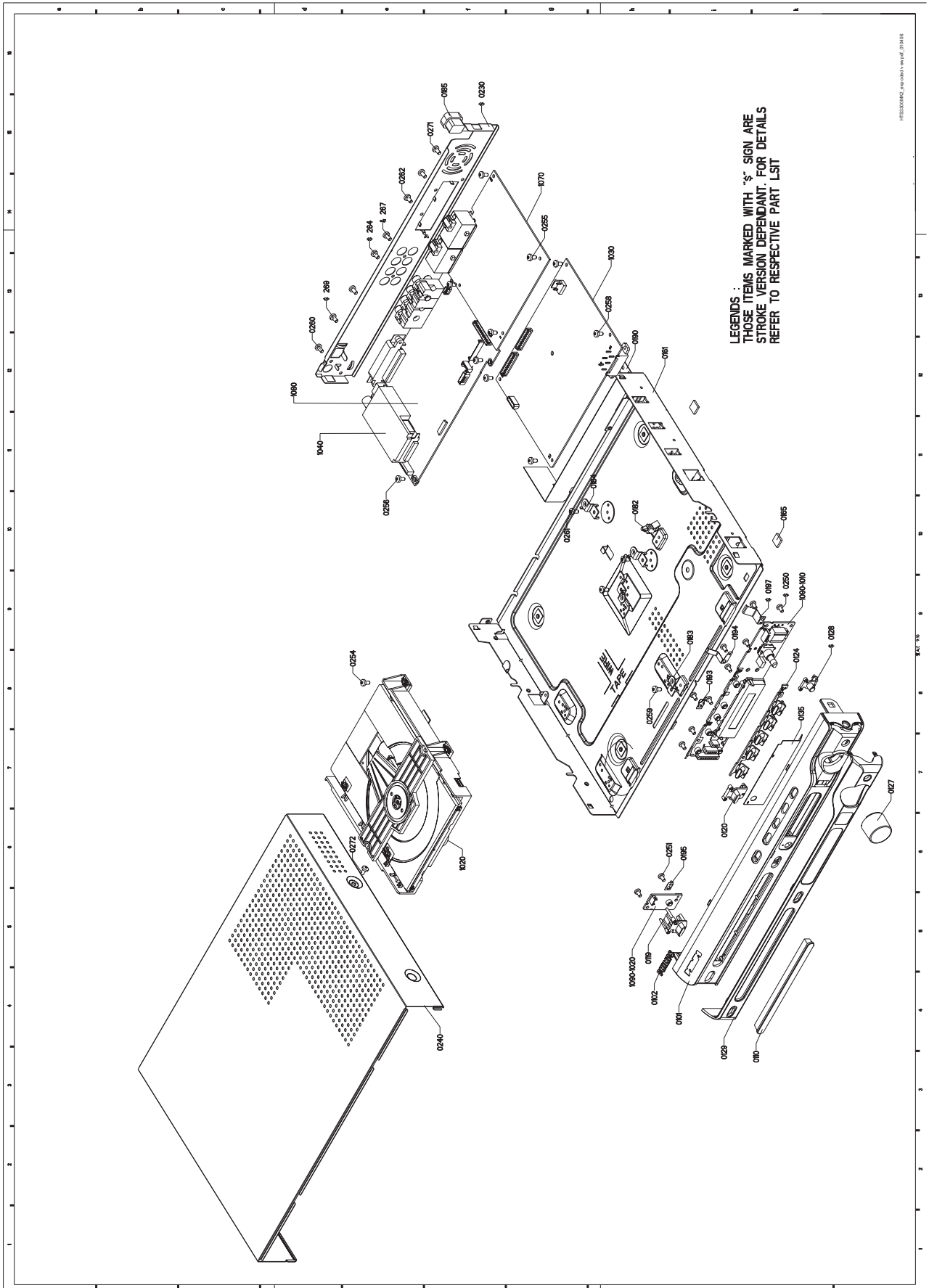


Figure 9-1

## HTS3050/16

**MISCELLANEOUS**

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0127	3139 254 01511	KNOB VOL CHROME
0325	3139 247 13101	BOX SPK ASSY SW-3050/16 E
0326	3139 247 13091	BOX SPK ASSY CS-3050/16 E
0333	3139 258 70111	REMOTE CONTROL HTS3500S EU
0336	4822 321 11499	△ MAINSCORD 2.0M - EU
0342	2422 076 00468	△ CBLE SCART 1M1 SCART 21P BK B
1030	3139 247 12171	△ MODULE PSU 05 T100M EU
1040	2422 542 00031	TUN A F ENG07806QRF EUR B
1070	3139 247 11781	△ MODULE AMP-05-01 200W ( TI )
1080	3139 248 89871	PCBA HTS3050/16 MONO
1090	3139 248 87381	PCBA FRONT HTS3300MRKII EU
8001	3139 241 01381	FFC FOIL10P/120/10P AD FOLD
8005	3139 241 01561	FFC FOIL 21P/080/21P BD 1MMP
P001	3143 027 64341	FRONT ASSY HTS3050/16
P002	3143 027 63751	FRAME ASSY HTS3300 MKII

**LOADER ASSY ST KHM313 RX**

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0151	3139 248 72111	S	LOADER ASA WXD-8229
0152	2422 549 00629	S	DVD MECHANISM KHM-313AAA Y
0260	3139 243 31491	S	PCB ASA-8233-A07
1101	3139 241 00341	S	FFC FOIL 24P/220/24P AD 0.5MMP