

Service Service Service



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Service Manual

Contents	Page
1. Technical Specifications, Connections, and Chassis Overview	2
2. Safety Instructions, Warnings, and Notes	5
3. Directions for Use	6
4. Mechanical Instructions	7
5. Service Modes, Error Codes, and Fault Finding	16
6. Block Diagrams, Test Point Overview, and Waveforms	
Wiring Diagram 32" LCD	27
Wiring Diagram 42" LCD	28
Block Diagram Video	29
Block Diagram Audio	30
Block Diagram Control & Clock Signals	31
SSB: Test Points (Overview Bottom Side)	32-36
I2C IC Overview	37
Supply Lines Overview	38
7. Circuit Diagrams and PWB Layouts	
Display Supply (32"): Part 1 (A1)	39
Display Supply (32"): Part 2 (A2)	40
SSB: DC/DC (B01)	43
SSB: Tuner IF & Demodulator (B02)	44
SSB: Micro Processor (B03)	45
SSB: Trident CX32 (B04A)	46
SSB: LVDS Connectors (B04B)	47
SSB: Audio Processor Micronas (B05A)	48
SSB: Audio Class-D (B05B)	49
SSB: YPbPr & SVHS (B06A)	50
SSB: I/O Cinch 1 & 2 (B06B)	51
SSB: VGA & PC Audio/ComPair/UART (B06C)	52
SSB: HDMI Main (B06D)	53
SSB: SRP List Explanation	54
SSB: SRP List	55
Keyboard Control Panel (E)	66
IR / LED Panel (J)	67

Contents	Page
8. Alignments	69
9. Circuit Descriptions, Abbreviation List, and IC Data Sheets	72
Abbreviation List	77
IC Data Sheets	79
10. Spare Parts List & CTN Overview	84
11. Revision List	84

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1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connection Overview
- 1.3 Chassis Overview

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

1.1.1 Vision

Display type	: LCD
Screen size	: 32" (82 cm), 16:9
	: 42" (107 cm), 16:9
Resolution (HxV pixels)	: 1366 × 768
Dyn. contrast ratio	: 33000:1 (32")
	: 24000:1 (42")
Min. light output (cd/m ²)	: 500
Typ. response time (ms)	: 8.5 (32")
	: 5 (42")
Viewing angle (HxV degrees)	: 176 × 176 (32")
	: 178 × 178 (42")
Tuning system	: PLL
Presets/channels	: 99 presets
Tuner bands	: VHF, UHF, S, H
TV Colour systems	: PAL B/G, D/K, I
	: SECAM B/G, D/K
	: NTSC M
Video playback	: NTSC
	: PAL
	: SECAM
Supported computer formats	: 640 × 480
	: 720 × 400
	: 800 × 600
	: 1024 × 768
	: 1280 × 768
	: 1360 × 768
Supported video formats	: 480i @ 60 Hz
	: 480p @ 60 Hz
	: 576i @ 50 Hz
	: 576p @ 50 Hz
	: 720p @ 50, 60 Hz
	: 1080p @ 24, 25, 30, 50, 60 Hz

1.1.2 Sound

Sound systems	: Mono
	: Stereo
	: BBE®
Maximum power (W _{RMS})	: 2 × 30

1.1.3 Miscellaneous

Power supply:

- Mains voltage (V _{AC})	: 100 - 240
- Mains frequency (Hz)	: 50 / 60

Ambient conditions:

- Temperature range (°C)	: +5 to +40
- Maximum humidity	: 90% R.H.

Power consumption (values are indicative)

- Normal operation (W)	: ≈ 130 (32")
	: ≈ 200 (42")
- Stand-by (W)	: < 0.15

Dimensions (W × H × D mm)	: 819 × 518 × 92
	(32PFL5xxx)
	: 809 × 544 × 92
	(32PFL3xxx)
	: 1033 × 666 × 88 (42")

Weight (kg)	: 14.5 (32")
	: 20.5 (42")

1.2 Connection Overview

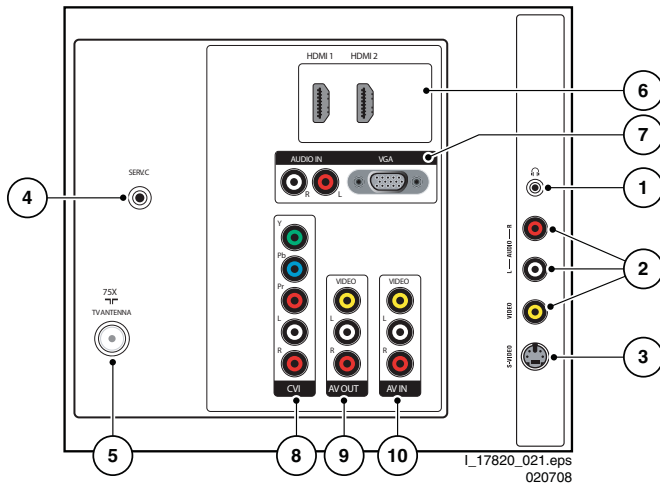


Figure 1-1 Side and rear I/O connections

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Side Connections

1 - Head phone - Out

Bk - Head phone 32 - 600 ohm / 10 mW



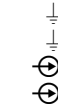
2 - Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS 1 V_{PP} / 75 ohm
Wh - Audio L 0.5 V_{RMS} / 10 kohm
Rd - Audio R 0.5 V_{RMS} / 10 kohm



3 - S-Video (Hosiden): Video Y/C - In

1 - Ground Y Gnd
2 - Ground C Gnd
3 - Video Y 1 V_{PP} / 75 ohm
4 - Video C 0.3 V_{PP} / 75 ohm



1.2.2 Rear Connections

4 - Service Connector (ComPair)

1 - SDA-S I²C Data (0 - 5 V)
2 - SCL-S I²C Clock (0 - 5 V)
3 - Ground Gnd



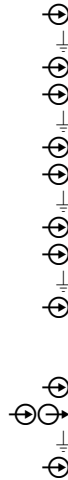
5 - Aerial - In

- IEC-type (EU) Coax, 75 ohm



6 - HDMI1 and 2: Digital Video, Digital Audio - In

1 - D2+ Data channel
2 - Shield Gnd
3 - D2- Data channel
4 - D1+ Data channel
5 - Shield Gnd
6 - D1- Data channel
7 - D0+ Data channel
8 - Shield Gnd
9 - D0- Data channel
10 - CLK+ Data channel
11 - Shield Gnd
12 - CLK- Data channel
13 - n.c.
14 - n.c.
15 - DDC_SCL DDC clock
16 - DDC_SDA DDC data
17 - Ground Gnd
18 - +5V



19 - HPD
20 - Ground

Hot Plug Detect
Gnd



7 - PC: VGA: Video RGB - In, Cinch: Audio - In

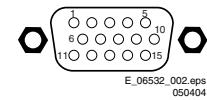
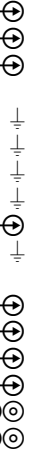


Figure 1-2 VGA Connector

1 - Video Red 0.7 V_{PP} / 75 ohm
2 - Video Green 0.7 V_{PP} / 75 ohm
3 - Video Blue 0.7 V_{PP} / 75 ohm
4 - n.c.
5 - Ground Gnd
6 - Ground Red Gnd
7 - Ground Green Gnd
8 - Ground Blue Gnd
9 - +5V_{DC} +5 V
10 - Ground Sync Gnd
11 - n.c.
12 - DDC_SDA DDC data
13 - H-sync 0 - 5 V
14 - V-sync 0 - 5 V
15 - DDC_SCL DDC clock
Wh - Audio L 0.5 V_{RMS} / 10 kohm
Rd - Audio R 0.5 V_{RMS} / 10 kohm



8 - CVI: Cinch: Video YPbPr - In, Audio - In

Gn - Video Y 1 V_{PP} / 75 ohm
Bu - Video Pb 0.7 V_{PP} / 75 ohm
Rd - Video Pr 0.7 V_{PP} / 75 ohm
Wh - Audio L 0.5 V_{RMS} / 10 kohm
Rd - Audio R 0.5 V_{RMS} / 10 kohm



9 - AV Out: Cinch: Video CVBS - Out, Audio - Out

Ye - Video CVBS 1 V_{PP} / 75 ohm
Wh - Audio L 0.5 V_{RMS} / 10 kohm
Rd - Audio R 0.5 V_{RMS} / 10 kohm



10 - AV In: Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS 1 V_{PP} / 75 ohm
Wh - Audio L 0.5 V_{RMS} / 10 kohm
Rd - Audio R 0.5 V_{RMS} / 10 kohm



1.3 Chassis Overview

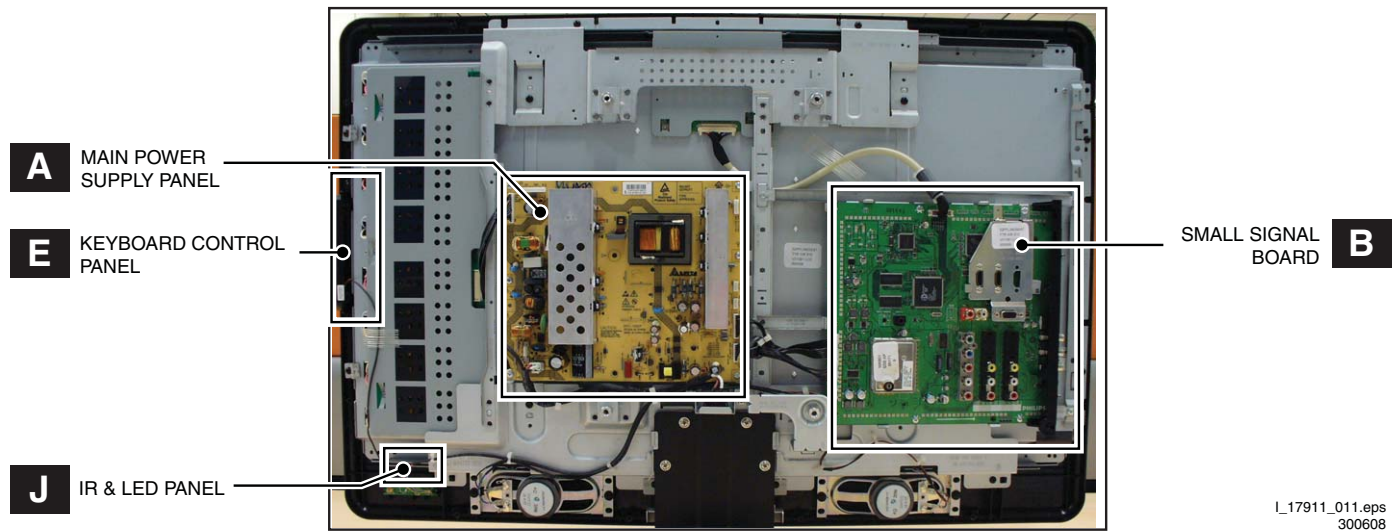


Figure 1-3 PWB/CBA locations xxPFL3xxx (MG8 styling)

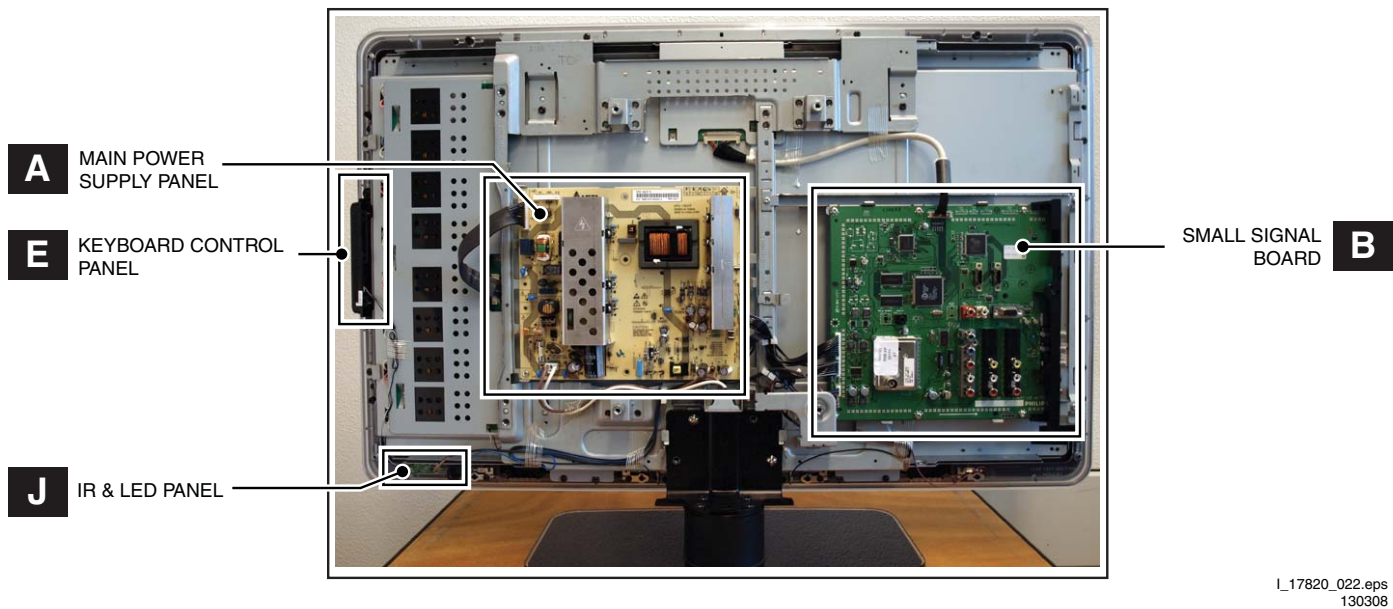


Figure 1-4 PWB/CBA locations xxPFL5xxx (ME8 styling)

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Warnings
- 2.3 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol , only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
 1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
 2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
 3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ.
 4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ) . Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground () , or hot ground () , depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).

- Where necessary, measure the waveforms and voltages with () and without () aerial signal. Measure the voltages in the power supply section both in normal operation () and in stand-by () . These values are indicated by means of the appropriate symbols.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kΩ).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 Ω).
- All capacitor values are given in micro-farads ($\mu = \times 10^{-6}$), nano-farads ($n = \times 10^{-9}$), or pico-farads ($p = \times 10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 BGA (Ball Grid Array) ICs

Introduction

For more information on how to handle BGA devices, visit this URL: www.atyourservice.ce.philips.com (needs subscription, not available for all regions). After login, select "Magazine", then go to "Repair downloads". Here you will find Information on how to deal with BGA-ICs.

BGA Temperature Profiles

For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website www.atyourservice.ce.philips.com (needs subscription, but is not available for all regions)

You will find this and more technical information within the "Magazine", chapter "Repair downloads".

For additional questions please contact your local repair help desk.

2.3.4 Lead-free Soldering

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

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering 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 soldering tin. The solder tool must be able:
 - To reach a solder-tip temperature of at least 400°C.
 - To stabilize the adjusted temperature at the solder-tip.
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of 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 increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to

avoid mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

2.3.5 Alternative BOM identification

It should be noted that on the European Service website, "Alternative BOM" is referred to as "Design variant".

The **third digit** in the serial number (example: AG2B0335000001) indicates the number of the alternative B.O.M. (Bill Of Materials) that has been used for producing the specific TV set. In general, it is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different suppliers. This will then result in sets which have the same CTN (Commercial Type Number; e.g. 28PW9515/12) but which have a different B.O.M. number.

By looking at the third digit of the serial number, one can identify which B.O.M. is used for the TV set he is working with. If the third digit of the serial number contains the number "1" (example: AG1B0335000001), then the TV set has been manufactured according to B.O.M. number 1. If the third digit is a "2" (example: AG2B0335000001), then the set has been produced according to B.O.M. no. 2. ***This is important for ordering the correct spare parts!***

For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 1 and 2 refer to the production center (e.g. AG is Bruges), digit 3 refers to the B.O.M. code, digit 4 refers to the Service version change code, digits 5 and 6 refer to the production year, and digits 7 and 8 refer to production week (in

example below it is 2006 week 17). The 6 last digits contain the serial number.



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Figure 2-1 Serial number (example)

2.3.6 Board Level Repair (BLR) or Component Level Repair (CLR)

If a board is defective, consult your repair procedure to decide if the board has to be exchanged or if it should be repaired on component level.

If your repair procedure says the board should be exchanged completely, do not solder on the defective board. Otherwise, it cannot be returned to the O.E.M. supplier for back charging!

2.3.7 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>

4. Mechanical Instructions

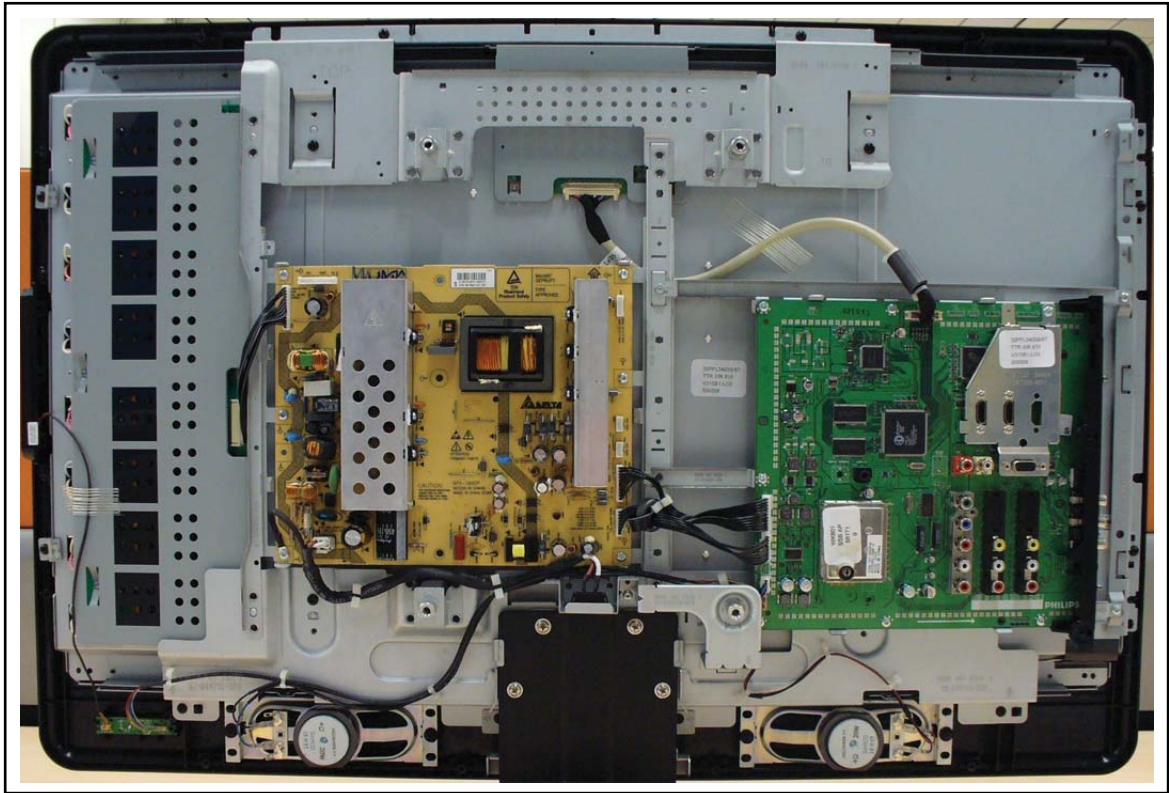
Index of this chapter:

- 4.1 Cable Dressing
- 4.2 Service Positions
- 4.3 Assy/Panel Removal ME8 Styling
- 4.4 Assy/Panel Removal MG8 Styling
- 4.5 Set Re-assembly

Notes:

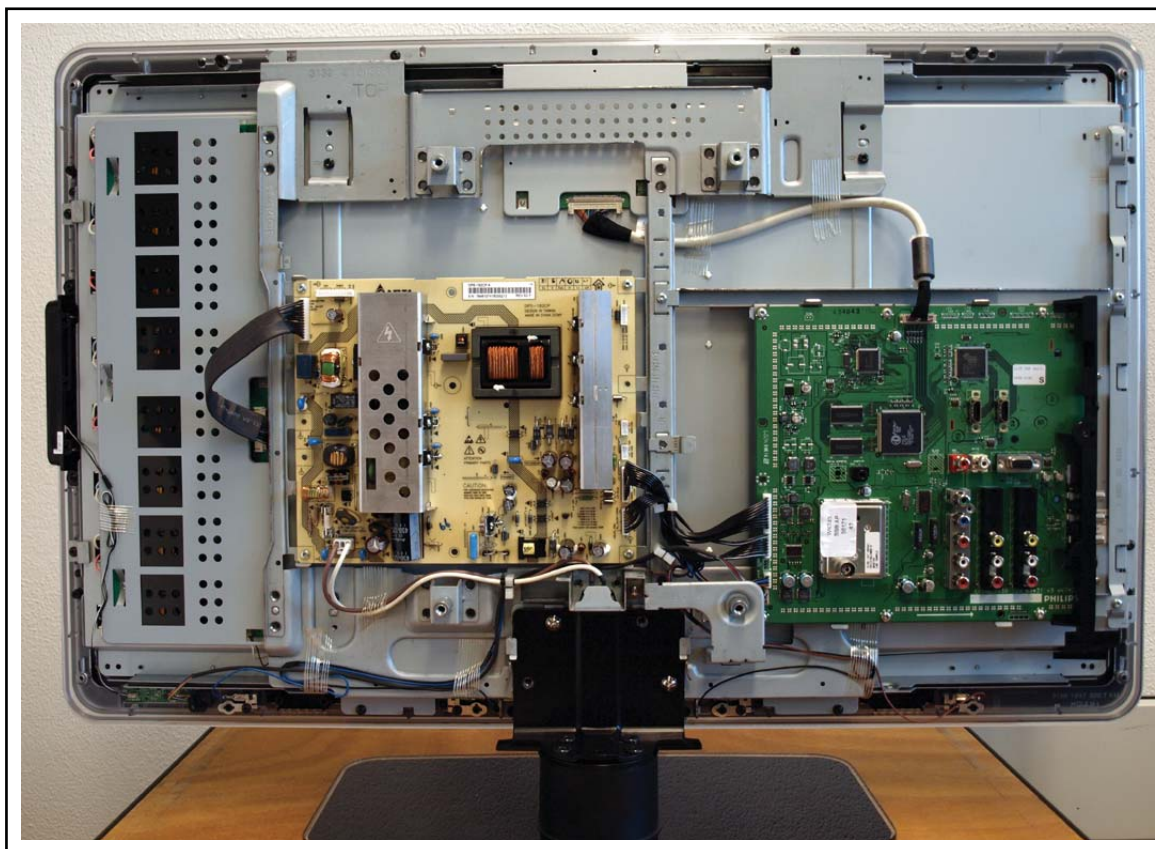
- Figures below can deviate slightly from the actual situation, due to the different set executions.

4.1 Cable Dressing



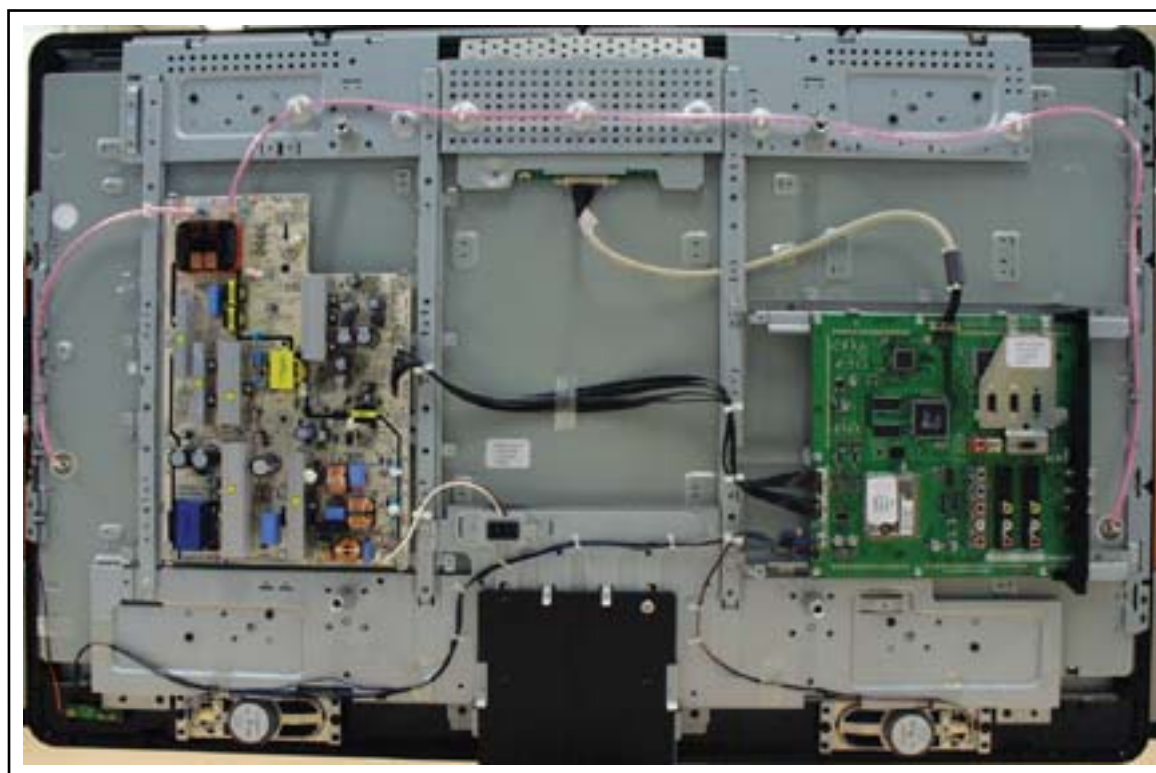
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Figure 4-1 Cable dressing 32PFL3xxx (MG8 styling)



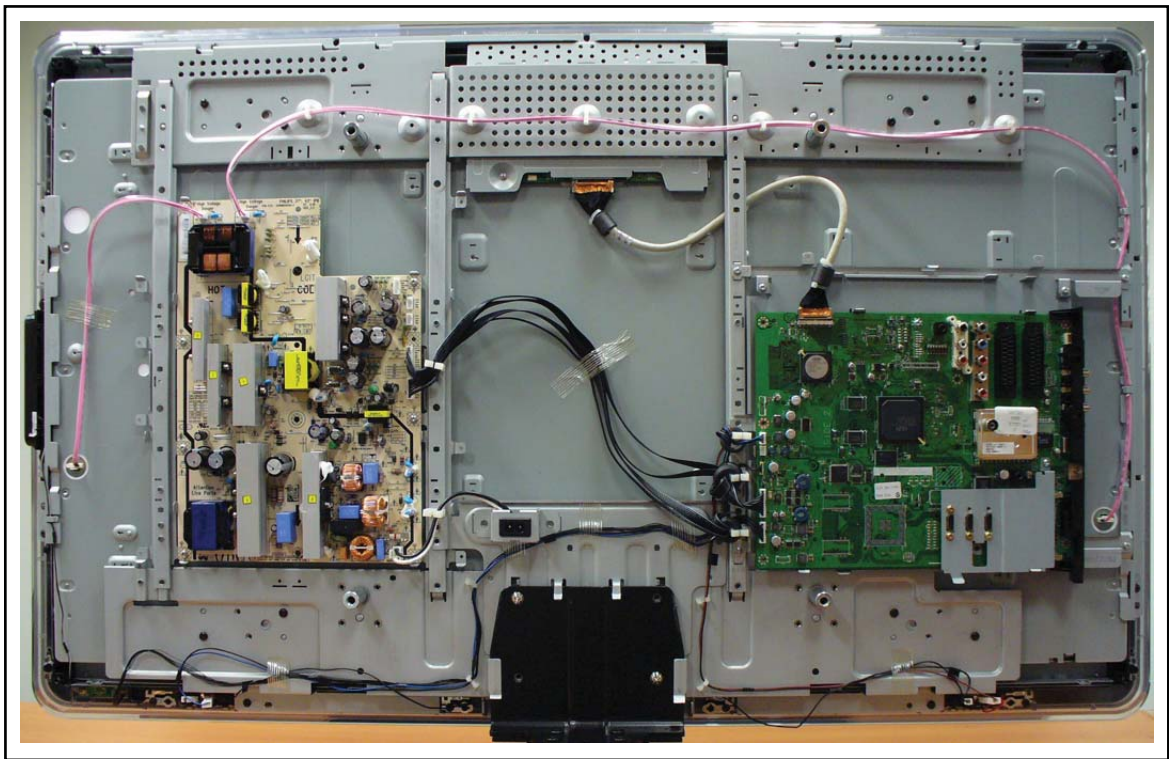
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Figure 4-2 Cable dressing 32PFL5xxx (ME8 styling)



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Figure 4-3 Cable dressing 42PFL3xxx (MG8 styling)



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Figure 4-4 Cable dressing 42PFL5xxx (ME8 styling)

4.2 Service Positions

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging (see figure "Rear cover").
- Foam bars (created for Service).

4.2.1 Foam Bars

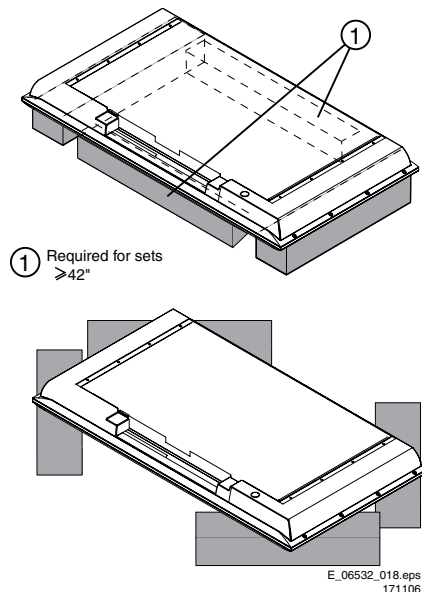


Figure 4-5 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. See figure "Foam bars" for details. Sets with a display of 42" and larger, require **four** foam bars [1]. Ensure that the foam bars are always supporting the cabinet and **never** only the display.

Caution: Failure to follow these guidelines can seriously damage the display!

By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By placing a mirror under the TV, you can monitor the screen.

4.3 Assy/Panel Removal ME8 Styling

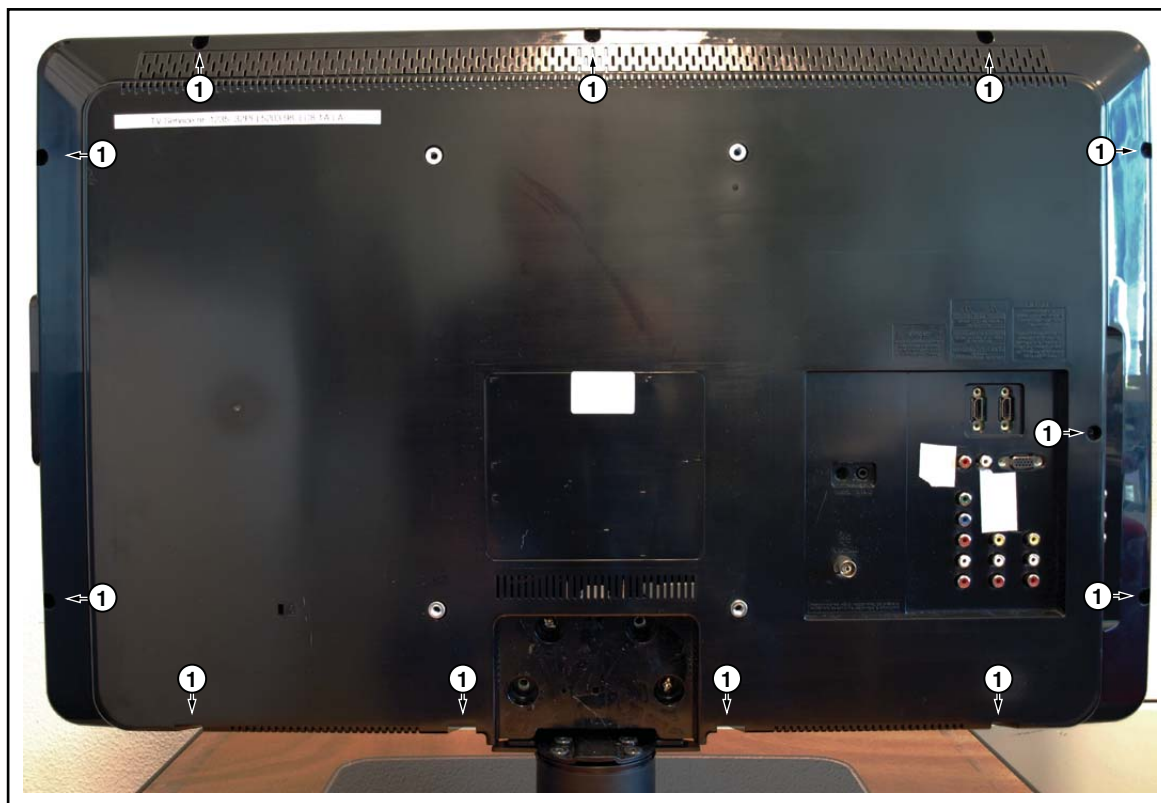
4.3.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.

Note: it is **not** necessary to remove the stand while removing the rear cover.

Refer to next figures for details.

1. Remove the screws [1].
2. Lift the back cover from the TV. Make sure that wires and flat coils are not damaged while lifting the rear cover from the set.



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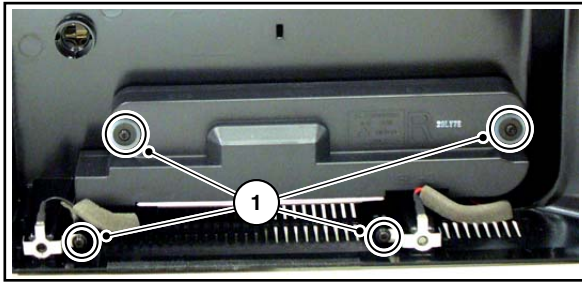
Figure 4-6 Back Cover Removal

4.3.2 Speakers

Refer to next figure for details.

1. Remove the screws [1] and lift the whole unit from the back cover.

Take the speakers out together with their casing. When defective, replace the whole unit.



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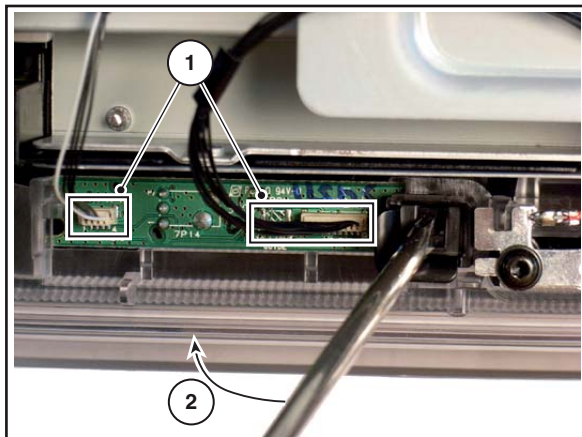
Figure 4-7 Speaker

4.3.3 IR & LED Board

Refer to next figure for details.

1. Unplug connectors [1].
2. Use a flat screw driver to release the clip by pushing in the indicated direction [2].
3. Lift the board and take it out of the set.

When defective, replace the whole unit.



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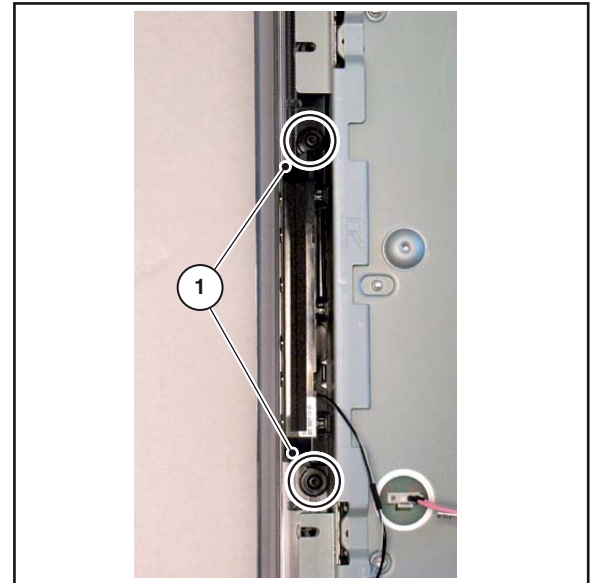
Figure 4-8 IR & LED Board

4.3.4 Key Board

Refer to next figure for details.

1. Unplug the key board connector from the IR & LED board.
2. Remove the screws [1].
3. Lift the unit and take it out of the set.

When defective, replace the whole unit.



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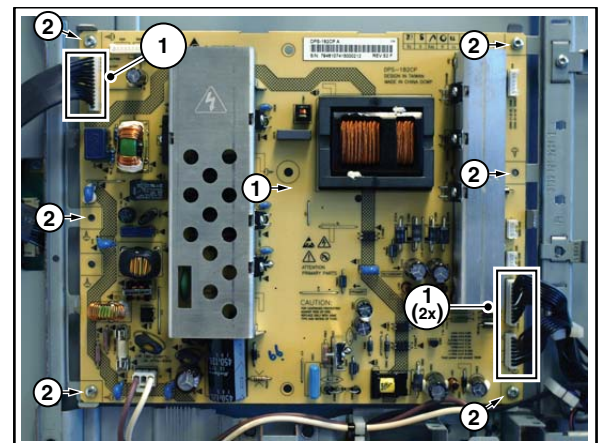
Figure 4-9 Key Board

4.3.5 Main Power Supply Panel

Refer to next figure for details.

1. Unplug connectors [1].
2. Remove the fixation screws [2].
3. Take the board out.

When defective, replace the whole unit.



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Figure 4-10 Main Power Supply Panel

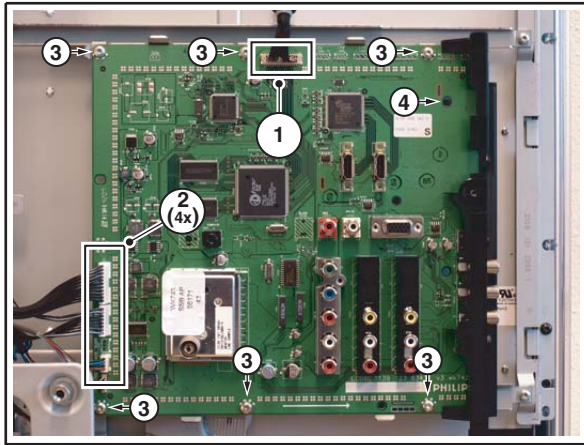
4.3.6 Small Signal Board (SSB)

Refer to next figure for details.

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

Refer to next figures or details.

1. Unplug the LVDS connector [1].
- Caution:** be careful, as this is a very fragile connector!
2. Unplug the connectors [2].
3. Remove the screws [3].
4. The SSB can now be taken out of the set, together with the side cover.
5. To remove the side cover, push back the clamp [4] using a screw driver.
6. Pull the cover sideways from the SSB.



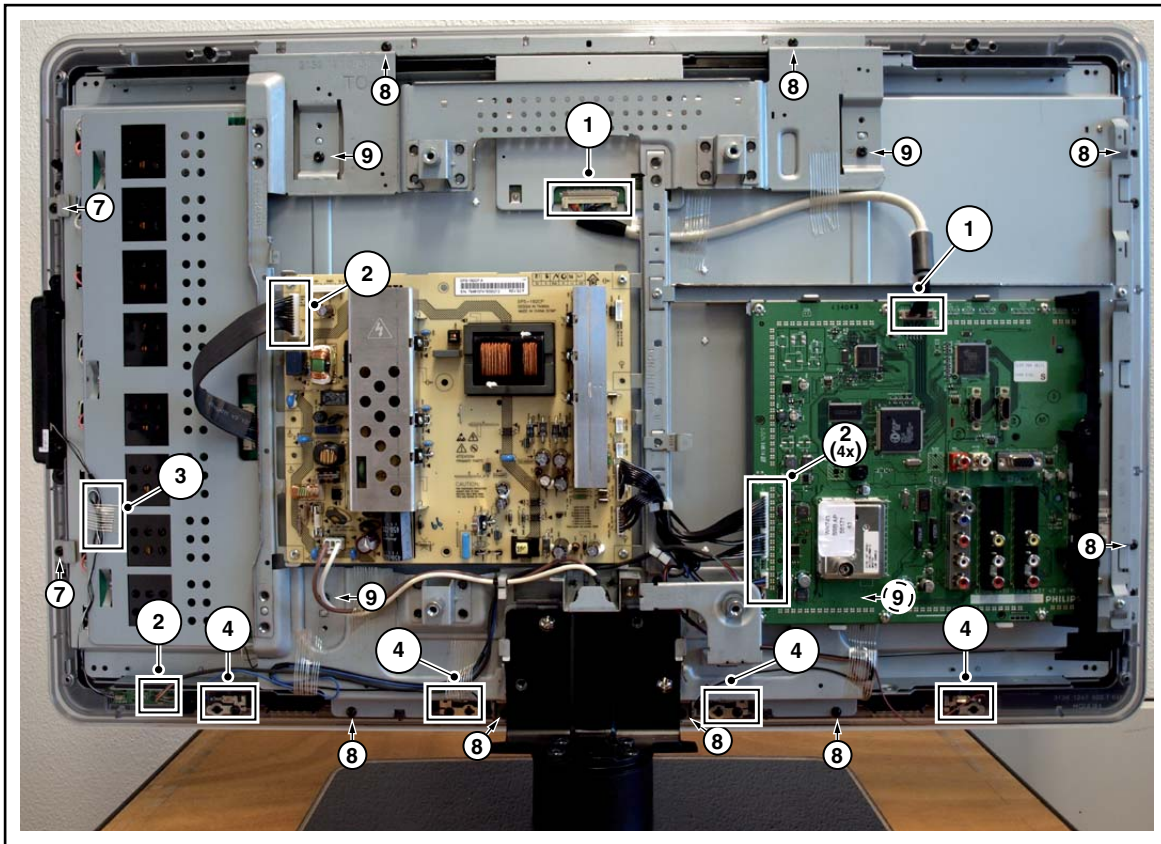
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Figure 4-11 Small Signal Board

4.3.7 LCD Panel

Refer to next figures for details.

1. Unplug the LVDS connector [1].
- Caution:** be careful, as this is a very fragile connector!
2. Unplug the connectors [2].
3. Release the tape which fixes the wiring [3].
4. Release the speaker connectors [4].
5. Remove the fixation screws [5] from the support and take it out. The support hinges from the bottom side.
6. Remove the fixation screws [6] from the SSB support and take the SSB out together with its support.
7. Remove the fixation screws [7] and remove the clamps.
8. Remove the fixation screws [8], that hold the subframe and the fixation screws [9], that hold the LCD panel.
9. Lift out the sub frame.
10. The LCD panel can now be lifted from the front cabinet.



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Figure 4-12 LCD Panel

4.4 Assy/Panel Removal MG8 Styling

Pictures are taken from LC8.1L LA chassis, which has other end-user connectors (I/O) on the SSB. This has no effect for Service.

4.4.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.

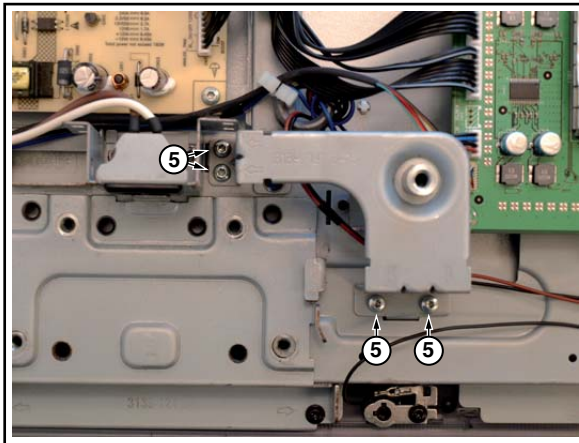
Remove the stand before removing the backcover.

Refer to ME8 description.

4.4.2 Speakers

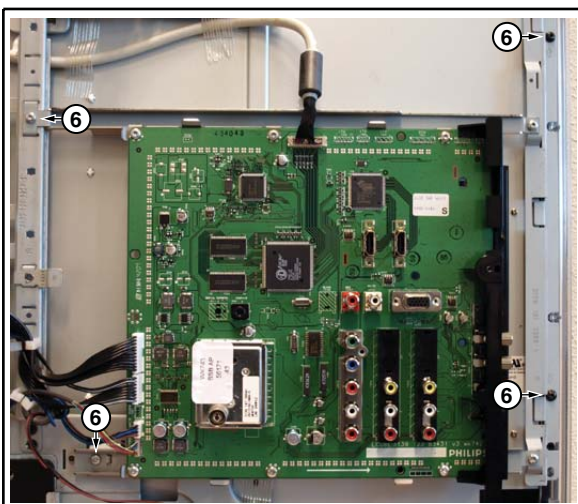
Refer to next figure for details.

1. Unplug the connectors [1].
2. Remove the screws [2] and lift the speaker from the back cover.



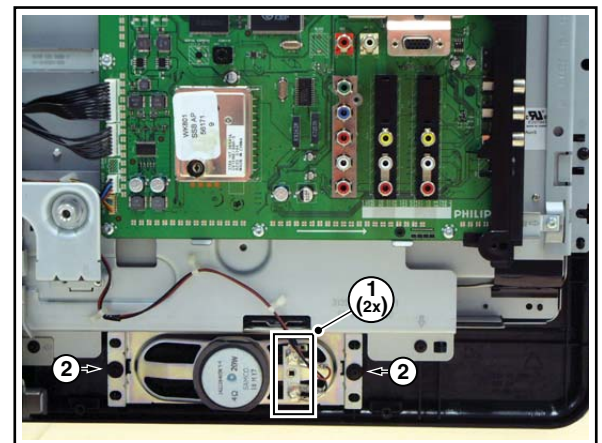
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Figure 4-13 Support



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Figure 4-14 SSB Support



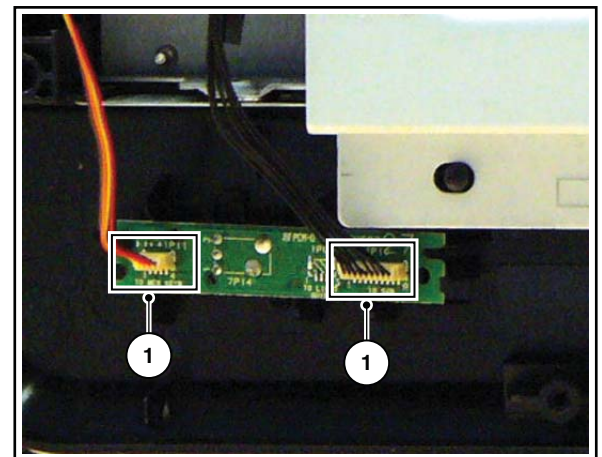
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Figure 4-15 Speakers

4.4.3 IR & LED Panel

Refer to next figure for details.

1. Unplug connectors [1].
 2. Release the clips and take the panel out.
- When defective, replace the whole unit.



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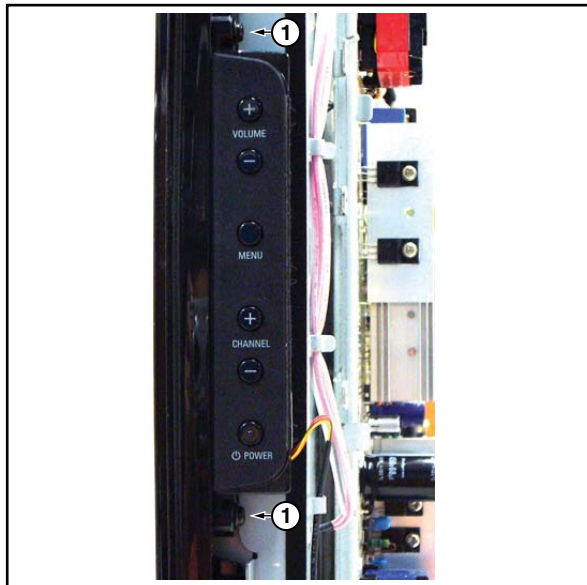
Figure 4-16 IR & LED Board

4.4.4 Keyboard Control Panel

Refer to next figure for details.

1. Unplug the key board connector from the IR & LED board.
2. Remove the screws [1].
3. Lift the unit and take it out of the set.

When defective, replace the whole unit.



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300608

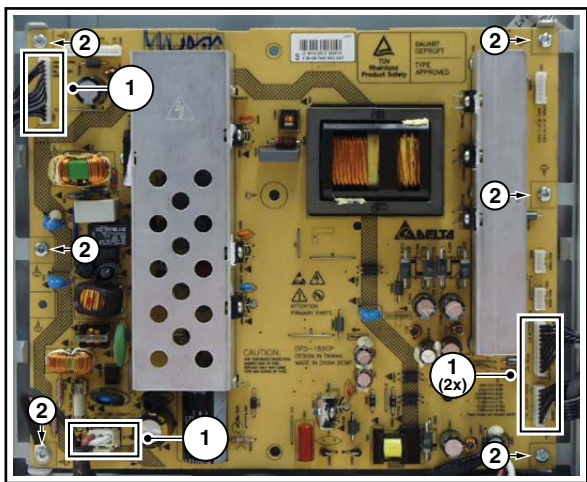
Figure 4-17 Key Board

4.4.5 Main Power Supply Panel 32"

Refer to next figure for details.

1. Unplug connectors [1].
2. Remove the fixation screws [2].
3. Take the board out.

When defective, replace the whole unit.



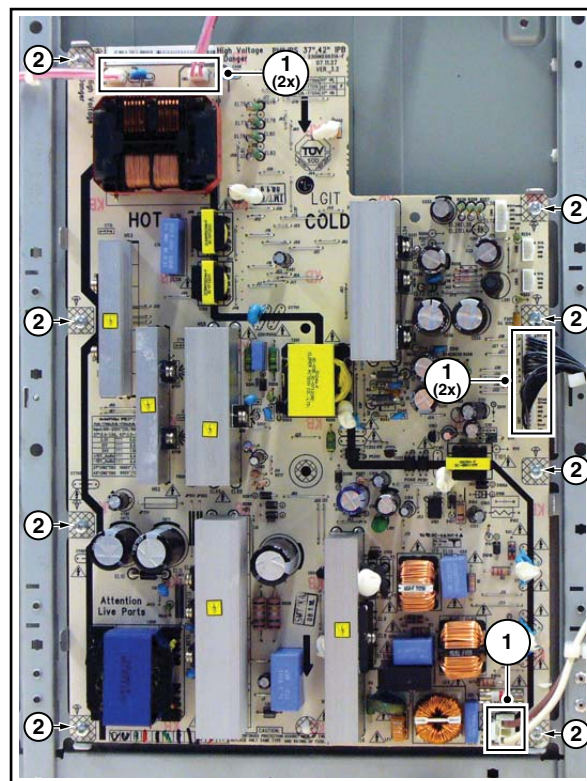
I_17911_004.eps
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Figure 4-18 Main Power Supply Panel 32"

4.4.6 Main Power Supply Panel 42"

Refer to next figure for details.

1. Unplug connectors [1].
 2. Remove the fixation screws [2].
 3. Take the board out.
- When defective, replace the whole unit.



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Figure 4-19 Main Power Supply Panel 42"

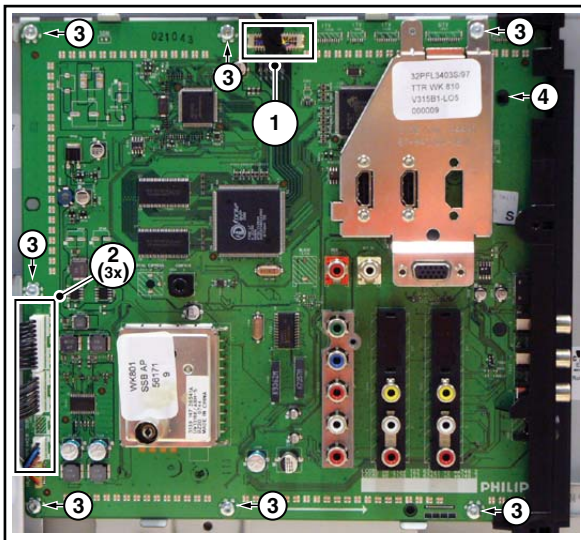
4.4.7 Small Signal Board (SSB)

Refer to next figure for details.

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

Refer to next figures or details.

1. Unplug the LVDS connector [1].
- Caution:** be careful, as this is a very fragile connector!
2. Unplug the connectors [2].
3. Remove the screws [3].
4. The SSB can now be taken out of the set, together with the side cover.
5. To remove the side cover, push back the clamp [4] using a screw driver.
6. Pull the cover sideways from the SSB.



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Figure 4-20 Small Signal Board

4.4.8 LCD Panel

The exchange of the LCD panel is not described in this manual.

4.5 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Notes:

- While re-assembling, make sure that all cables are placed and connected in their original position. See figure "Cable dressing".
- Pay special attention not to damage the EMC foams on the SSB shields. Ensure that EMC foams are mounted correctly.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

- 5.1 Test Points
- 5.2 Service Modes
- 5.3 Service Tools
- 5.4 Error Codes
- 5.5 The Blinking LED Procedure
- 5.6 Software Upgrading
- 5.7 Fault Finding and Repair Tips

5.1 Test Points

In the chassis schematics and layout overviews, the test points (Fxxx) are mentioned. In the schematics, test points are indicated with a rectangular box around "Fxxx" or "Ixxx", in the layout overviews with a "half-moon" sign.

As most signals are digital, it will be difficult to measure waveforms with a standard oscilloscope. Several key ICs are capable of generating test patterns, which can be controlled via ComPair. In this way it is possible to determine which part is defective.

Perform measurements under the following conditions:

- Service Default Mode.
- Video: Colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

The Service Mode feature is split into four parts:

- Service Default Mode (SDM).
- Service Alignment Mode (SAM).
- Customer Service Mode (CSM).
- Digital Customer Service Mode (DCSM).
- Computer Aided Repair Mode (ComPair).

SDM and SAM offer features, which can be used by the Service engineer to repair/align a TV set. Some features are:

- A pre-defined situation to ensure measurements can be made under uniform conditions (SDM).
- Activates the blinking LED procedure for error identification when no picture is available (SDM).
- The possibility to overrule software protections when SDM was entered via the Service pins.
- Make alignments (e.g. white tone), (de)select options, enter options codes, reset the error buffer (SAM).
- Display information ("SDM" or "SAM" indication in upper right corner of screen, error buffer, software version, operating hours, options and option codes, sub menus).

The CSM is a Service Mode that can be enabled by the consumer. The CSM displays diagnosis information, which the customer can forward to the dealer or call centre. In CSM mode, "CSM", is displayed in the top right corner of the screen. The information provided in CSM and the purpose of CSM is to:

- Increase the home repair hit rate.
- Decrease the number of nuisance calls.
- Solved customers' problem without home visit.

ComPair Mode is used for communication between a computer and a TV on I2C /UART level and can be used by a Service engineer to quickly diagnose the TV set by reading out error codes, read and write in NVMs, communicate with ICs and the uP (PWM, registers, etc.), and by making use of a fault finding database. It will also be possible to up and download the software of the TV set via I2C with help of ComPair. To do this, ComPair has to be connected to the TV set via the ComPair connector, which will be accessible through the rear of the set (without removing the rear cover).

5.2.1 General

Some items are applicable to all Service Modes or are general. These are listed below.

Life Timer

During the life time cycle of the TV set, a timer is kept. It counts the normal operation hours (not the Stand-by hours). The actual value of the timer is displayed in SDM and CSM in a decimal value. Every two soft-resets increase the hour by +1.

Software Identification, Version, and Cluster

The software ID, version, and cluster will be shown in the main menu display of SDM, SAM, and CSM.

The screen will show: "AAAABCD X.YY", where:

- **AAAA** is the chassis name: LC81.
- **B** is the region indication: E= Europe, A= AP/China, U= NAFTA, L= LATAM.
- **C** is the display indication: L= LCD, P= Plasma.
- **D** is the language/feature indication: 1= standard, H= 1080p full HD.
- **X** is the main version number: this is updated with a major change of specification (incompatible with the previous software version). Numbering will go from 1 - 9 and A - Z.
 - If the main version number changes, the new version number is written in the NVM.
 - If the main version number changes, the default settings are loaded.
- **YY** is the sub version number: this is updated with a minor change (backwards compatible with the previous versions) Numbering will go from 00 - 99.
 - If the sub version number changes, the new version number is written in the NVM.
 - If the NVM is fresh, the software identification, version, and cluster will be written to NVM.

Display Option Code Selection

When after an SSB or display exchange, the display option code is not set properly, it will result in a TV with "no display". Therefore, **it is required** to set this display option code after such a repair.

To do so, press the following key sequence on a standard RC transmitter: "062598" directly followed by **MENU** and "xxx", where "xxx" is a 3 digit decimal value of the panel type: see column "Display code" in table "Option code overview" (ch. 8), or see sticker on the side/bottom of the cabinet. When the value is accepted and stored in NVM, the set will switch to Stand-by, to indicate that the process has been completed.

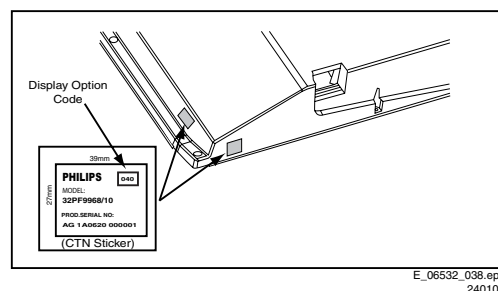


Figure 5-1 Location of Display Option Code sticker

During this algorithm, the NVM-content must be filtered, because several items in the NVM are TV-related and not SSB-related (e.g. Model and Prod. S/N). Therefore, "Model" and "Prod. S/N" data is changed into "See Type Plate". In case a call centre or consumer reads "See Type Plate" in CSM mode, he needs to look to the side/bottom sticker to identify the set, for further actions.

5.2.2 Service Default Mode (SDM)

Purpose

Set the TV in SDM mode in order to be able to:

- Create a pre-defined setting for measurements to be made.
- Override software protections.
- Start the blinking LED procedure.
- Read the error buffer.
- Check the life timer.

Specifications

Table 5-1 SDM default settings

Region	Freq. (MHz)	Default syst.
Europe (except France), AP-PAL-Multi	475.25	PAL B/G
France		SECAM L
NAFTA, AP-NTSC	61.25 (channel 3)	NTSC M
LATAM		PAL M

- Set linear video and audio settings to 50%, but volume to 25%. Stored user settings are not affected.
- All service-unfriendly modes (if present) are disabled, since they interfere with diagnosing/repairing a set. These service unfriendly modes are:
 - (Sleep) timer.
 - Blue mute/Wall paper.
 - Auto switch “off” (when there is no “ident” signal).
 - Hotel or hospital mode.
 - Child lock or parental lock (manual or via V-chip).
 - Skipping, blanking of “Not favourite”, “Skipped” or “Locked” presets/channels.
 - Automatic storing of Personal Preset or Last Status settings.
 - Automatic user menu time-out (menu switches back/OFF automatically).
 - Auto Volume levelling (AVL).

How to Activate

To activate SDM, use **one** of the following methods:

- Press the following key sequence on the remote control transmitter: “**062596**” directly followed by the **MENU** button (do not allow the display to time out between entries while keying the sequence).
- Short one of the “Service” jumpers on the TV board during cold start (see Figures “Service jumper”). Then press the mains button (remove the short after start-up).

Caution: Activating SDM by shorting “Service” jumpers will override the DC speaker protection (error 1), the General I2C error (error 4), and the Trident video processor error (error 5). When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.

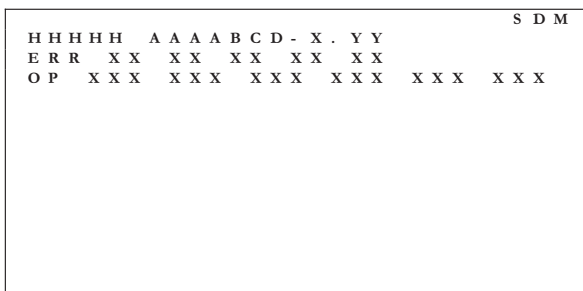


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Figure 5-2 Service jumper (SSB component side)

On Screen Menu

After activating SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Mode.



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Figure 5-3 SDM menu

Menu explanation:

- **HHHHH**: Are the operating hours (in decimal).
- **AAAABCD-X.YY**: See paragraph “Service Modes” -> “General” -> “Software Identification, Version, and Cluster” for the SW name definition.
- **SDM**: The character “SDM” to indicate that the TV set is in Service mode.
- **ERR**: Shows all errors detected since the last time the buffer was erased. Five errors possible.
- **OP**: Used to read-out the option bytes. See “Options” in the Alignments section for a detailed description. Seven codes are possible.

How to Navigate

As this mode is read only, there is not much to navigate. To switch to other modes, use one of the following methods:

- Command MENU from the user remote will enter the normal user menu (brightness, contrast, colour, etc...) with “SDM” OSD remaining, and pressing MENU key again will return to the last status of SDM again.
- To prevent the OSD from interfering with measurements in SDM, command “OSD” (“STATUS” for NAFTA and LATAM) from the user remote will toggle the OSD “on/off” with “SDM” OSD remaining always “on”.
- Press the following key sequence on the remote control transmitter: “**062596**” directly followed by the **OSD/STATUS/INFO/i+** button to switch to SAM (do not allow the display to time out between entries while keying the sequence).

How to Exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or on the television set.
If you switch the television set “off” by removing the mains (i.e., unplugging the television), the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared. The error buffer will only be cleared when the “clear” command is used in the SAM menu.

Note:

- If the TV is switched “off” by a power interrupt while in SDM, the TV will show up in the last status of SDM menu as soon as the power is supplied again. The error buffer will not be cleared.
- In case the set is in Factory mode by accident (with “F” displayed on screen), by pressing and hold “VOL-” and “CH-” together should leave Factory mode.

5.2.3 Service Alignment Mode (SAM)

Purpose

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

Specifications

- Operation hours counter (maximum five digits displayed).
- Software version, error codes, and option settings display.
- Error buffer clearing.
- Option settings.
- Software alignments (Tuner, White Tone, and Audio).
- NVM Editor.
- ComPair Mode switching.
- Set the screen mode to full screen (all contents on screen are viewable).

How to Activate

To activate SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: “062596” directly followed by the **OSD/STATUS/INFO/i+** button (it depends on region which button is present on the RC). Do not allow the display to time out between entries while keying the sequence.
- Or via ComPair.

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.

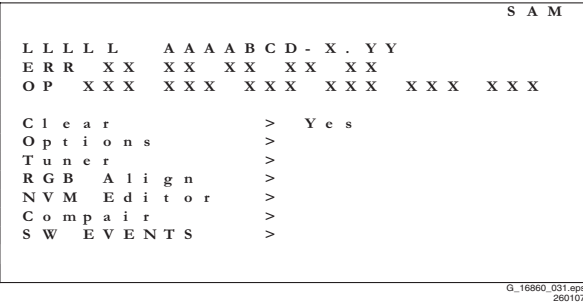


Figure 5-4 SAM menu

Menu explanation:

1. **LLLLL**. This represents the run timer. The run timer counts normal operation hours, but does not count Stand-by hours.
2. **AAAABCD-X.YY**. See paragraph “Service Modes” -> “General” -> “Software Identification, Version, and Cluster” for the SW name definition.
3. **SAM**. Indication of the Service Alignment Mode.
4. **ERR (ERRor buffer)**. Shows all errors detected since the last time the buffer was erased. Five errors possible.

5. **OP (Option Bytes)**. Used to read-out the option bytes. See “Options” in the Alignments section for a detailed description. Seven codes are possible.
6. **Clear**. Erases the contents of the error buffer. Select the CLEAR menu item and press the MENU RIGHT key. The content of the error buffer is cleared.
7. **Options**. Used to set the option bits. See “Options” in the “Alignments” chapter for a detailed description.
8. **Tuner**. Used to align the tuner. See “Tuner” in the “Alignments” chapter for a detailed description.
9. **RGB Align**. Used to align the White Tone. See “White Tone” in the “Alignments” chapter for a detailed description.
10. **NVM Editor**. Can be used to change the NVM data in the television set. See also paragraph “Fault Finding and Repair Tips” further on.
11. **ComPair**. Can be used to switch the television to “In Application Programming” mode (IAP), for software uploading via ComPair. Read paragraph “Service Tools” -> “ComPair”. **Caution:** When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.
12. **SW Events**. Only to be used by development to monitor SW behaviour during stress test.

How to Navigate

- In the SAM menu, select menu items with the MENU UP/ DOWN keys on the remote control transmitter. The selected item will be indicated. When not all menu items fit on the screen, use the MENU UP/DOWN keys to display the next / previous menu items.
- With the MENU LEFT/RIGHT keys, it is possible to:
 - Activate the selected menu item.
 - Change the value of the selected menu item.
 - Activate the selected sub menu.
- When you press the MENU button twice while in top level SAM, the set will switch to the normal user menu (with the SAM mode still active in the background). To return to the SAM menu press the MENU button.
- Command **OSD/STATUS/INFO/i+** button from the user remote will toggle the OSD “on/off” with “SAM” OSD remaining always “on”.
- Press the following key sequence on the remote control transmitter: “062596” directly followed by the **MENU** button to switch to SDM (do not allow the display to time out between entries while keying the sequence).

How to Store SAM Settings

To store the settings changed in SAM mode (except the OPTIONS settings), leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

How to Exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.

Note:

- When the TV is switched “off” by a power interrupt while in SAM, the TV will show up in “normal operation mode” as soon as the power is supplied again. The error buffer will not be cleared.
- In case the set is in Factory mode by accident (with “F” displayed on screen), by pressing and hold “VOL-” and “CH-” together should leave Factory mode.

5.2.4 Customer Service Mode (CSM)

Purpose

The Customer Service Mode shows error codes and information on the TV's operation settings. A call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps them to diagnose problems and failures in the TV before making a service call. The CSM is a read-only mode; therefore, modifications are not possible in this mode.

Specifications

- Ignore "Service unfriendly modes".
- Line number for every line (to make CSM language independent).
- Set the screen mode to full screen (all contents on screen are viewable).
- After leaving the Customer Service Mode, the original settings are restored.
- Possibility to use "CH+" or "CH-" for channel surfing, or enter the specific channel number on the RC.

How to Activate

To activate CSM, press the following key sequence on the remote control transmitter: "123654" (do not allow the display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:

```

1  M O D E L   : 3 2 P F L 5 2 0 3 / 9 8
2  P R O D   S / N : A G 1 A 0 8 1 2 1 2 3 4 5 6
3  S W   I   D   : L C 8 2 A L 1 - 1 . x x
4  O P       : X X X   X X X   X X X   X X X   X X X   X X X   X X X
5  C O D E S   : X X   X X   X X   X X   X X
6  S S   B     : 3 1 3 9   1 2 3   6 3 4 9 1
7  N V   M     : X X X X X X X X
8  F l a s h   D a t a : X X . X X . X X . X X
9  D I S P L A Y :   X X X X X X X X X X
P A G E   D O W N :
  
```

C S M

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Figure 5-5 CSM menu -1- (example)

```

1 0  T U N E R   : W E A K / G O O D / S T R O N G
1 1  S Y S T E M : P A L / N T S C / S E C A M
1 2  S O U N D   : M O N O / S T E R E O / N I C A M
1 3  H D A U     : Y E S / N O
1 4  F O R M A T : X X X X X X X X
1 5  :
1 6  F P G A   F W : X X . X X . X X
1 7  :
1 8  :
P A G E   U P :
  
```

C S M

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Figure 5-6 CSM menu -2- (example)

Menu Explanation

1. **MODEL.** Type number, e.g. 32PFL7762D/05. (*)
2. **PROD S/N.** Product serial no., e.g. AG1A0712123456. (*)
3. **SW ID.** Software cluster and version is displayed.
4. **OP.** Option code information.
5. **CODES.** Error buffer contents.
6. **SSB.** Indication of the SSB factory ID (= 12nc). (*)
7. **NVM.** The NVM software version no.
8. **Flash Data.** PQ (picture quality) and AQ (audio quality) data version. This is a sub set of the main SW.
9. **DISPLAY.** Indication of the display ID (=12 nc).
10. **TUNER.** Indicates the tuner signal condition: "Weak" when signal falls below threshold value, "Medium" when signal is at mid-range, and "Strong" when signal falls above threshold value.
11. **SYSTEM.** Gives information about the video system of the selected transmitter (PAL/SECAM/NTSC).
12. **SOUND.** Gives information about the audio system of the selected transmitter (MONO/STEREO/NICAM).
13. **HDAU.** HDMI audio stream detection. "YES" means audio stream detected. "NO" means no audio stream present. Only displayed when HDMI source is selected.
14. **FORMAT.** Gives information about the video format of the selected transmitter (480i/480p/720p/1080i).
15. **Reserved.**
16. **FPGA FW.** Only applicable to sets with an FPGA.
17. **Reserved.**
18. **Reserved.**

(*) If an NVM IC is replaced or initialised, the Model Number, Serial Number, and SSB Code Number must be re-written to the NVM. ComPair will foresee in a possibility to do this.

How to Exit

To exit CSM, use one of the following methods:

- Press the MENU button twice, or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Service Tools

5.3.1 ComPair

Introduction

ComPair (Computer Aided Repair) is a Service tool for Philips Consumer Electronics products. and offers the following:

1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short and effective way.
2. ComPair allows very detailed diagnostics and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C or UART commands yourself, because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the uP is working) and all repair information is directly available.
4. ComPair features TV software up possibilities.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The (new) ComPair II interface box is connected **to the PC** via an USB cable. For the TV chassis, the ComPair interface box and the TV communicate via a bi-directional cable via the service connector(s).

How to Connect

This is described in the ComPair chassis fault finding database.

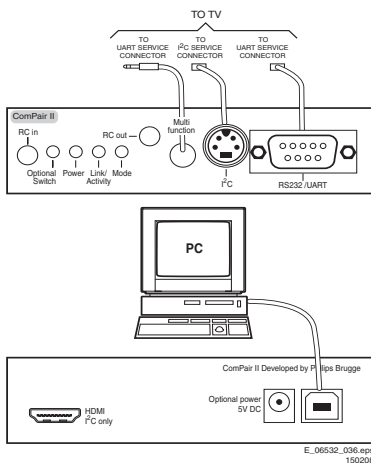


Figure 5-7 ComPair II interface connection

Caution: It is compulsory to connect the TV to the PC as shown in the picture above (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

How to Order

ComPair II order codes:

- ComPair II interface: 3122 785 91020.
- The latest ComPair software can be found on the Philips Service website.
- ComPair I²C interface cable: 9965 100 07325 (to be used for upgrading the Main software).

Note: If you encounter any problems, contact your local support desk.

5.3.2 LVDS Tool

Support of the LVDS Tool has been discontinued.

5.4 Error Codes

5.4.1 Introduction

Error codes are required to indicate failures in the TV set. In principle a unique error code is available for every:

- Activated protection.
- Failing I2C device.
- General I2C error.
- SDRAM failure.

The last errors, stored in the NVM, are shown in the Service menu's. This is called the error buffer.

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

An error will be added to the buffer if this error differs from any error in the buffer. The last found error is displayed on the left.

An error with a designated error code may **never** lead to a deadlock situation. This means that it must always be diagnosable (e.g. error buffer via OSD or blinking LED procedure, ComPair to read from the NVM).

In case a failure identified by an error code automatically results in other error codes (cause and effect), only the error code of the MAIN failure is displayed.

Example: In case of a failure of the I2C bus (CAUSE), the error code for a "General I2C failure" and "Protection errors" is displayed. The error codes for the single devices (EFFECT) is not displayed. All error codes are stored in the same error buffer (TV's NVM) except when the NVM itself is defective.

5.4.2 How to Read the Error Buffer

You can read the error buffer in 3 ways:

- On screen via the SAM/SDM/CSM (if you have a picture).
Example:
 - ERROR: 0 0 0 0 0: No errors detected
 - ERROR: 6 0 0 0 0: Error code 6 is the last and only detected error
 - ERROR: 9 6 0 0 0: Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See "The Blinking LED Procedure".
- Via ComPair.

5.4.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

Table 5-2 Error code overview

Error code ¹⁾	Description	Item no.	Remarks
0	No error.		
1	DC Protection of speakers.		
2	+12V protection error.		12V missing or "low".
3	Reserved.		
4	General I2C error.		note 2
5	Trident Video Processor communication error.	7C02	When Trident IC is defective, error 10 and 14 might also be reported. Trident communicates via parallel bus, not via the I2C bus. The I2C bus of Trident is only used in ComPair mode.
6	I2C error while communicating with the NVM.	7L23	The TV will not start-up due to critical data not available from the NVM, but the LED will blink the error code.
7	I2C error while communicating with the Tuner.	1101	
8	I2C error while communicating with the IF Demodulator.	7113	
9	I2C error communicating with the Sound Processor.	7411	
10	SDRAM defective.	7C04	
11	I2C error while communicating with the HDMI IC.	7N17	
12	Brazil/China ISDTV digital bolt-on module communication failure		
13	Reserved		
14	SDRAM defective.	7C05	
15	Reserved		
16	Reserved		
17	Reserved	(7700 or external)	I2C error while communicating with FPGA (only applicable to AmbiLight sets)
18	Reserved (iTV)		(iTV)
19	I2C error while communicating with bolt-on DFI		1080p 100Hz sets only
20	Reserved		
21	Reserved	(7M07)	I2C error while communicating with the HDMI mux IC
22	Reserved.		
23	Reserved.		

Notes

- Some of the error codes reported are depending on the option code configurations.
- This error means: no I2C device is responding to the particular I2C bus. Possible causes: SCL/SDA shorted to GND, SCL shorted to SDA, or SCL/SDA open (at uP pin). The internal bus of the Trident platform should not cause the entire system to halt as such an error can be reported.

5.4.4 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:

- By using the CLEAR command in the SAM menu:
 - To enter SAM, press the following key sequence on the remote control transmitter: **"062596"** directly followed by the **OSD/STATUS/INFO/i+** button (do not allow the display to time out between entries while keying the sequence).
 - Make sure the menu item CLEAR is selected. Use the MENU UP/DOWN buttons, if necessary.
 - Press the MENU RIGHT button to clear the error buffer. The text on the right side of the "CLEAR" line will change from "CLEAR?" to "CLEARED"
- If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

Note: If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

5.5 The Blinking LED Procedure**5.5.1 Introduction**

The software is capable of identifying different kinds of errors. Because it is possible that more than one error can occur over time, an error buffer is available, which is capable of storing the last five errors that occurred. This is useful if the OSD is not working properly.

Errors can also be displayed by the blinking LED procedure. The method is to repeatedly let the front LED pulse with as many pulses as the error code number, followed by a period of 1.5 seconds in which the LED is "off". Then this sequence is repeated.

Example (1): error code 4 will result in four times the sequence LED "on" for 0.25 seconds / LED "off" for 0.25 seconds. After this sequence, the LED will be "off" for 1.5 seconds. Any RC5 command terminates the sequence. Error code LED blinking is in red colour.

Example (2): the content of the error buffer is **"1 2 9 6 0 0"** After entering SDM, the following occurs:

- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again with 12 short blinks.

5.5.2 Displaying the Entire Error Buffer

Additionally, the entire error buffer is displayed when Service Mode "SDM" is entered. In case the TV set is in protection or Stand-by: The blinking LED procedure sequence (as in SDM-mode in normal operation) must be triggered by the following RC sequence: **"MUTE" "062500" "OK"**.

In order to avoid confusion with RC5 signal reception blinking, this blinking procedure is terminated when a RC5 command is received.

To erase the error buffer, the RC command **"MUTE" "062599" "OK"** can be used.

5.6 Software Upgrading

In this chassis, the following SW "stacks" is used:

- TV main SW (processor and processor NVM).

5.6.1 TV Main SW Upgrade

For instructions on how to upgrade the TV Main software, refer to ComPair.

5.7 Fault Finding and Repair Tips

Notes:

- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.7.1 NVM Editor

In some cases, it can be convenient if one directly can change the NVM contents. This can be done with the "NVM Editor" in SAM mode. With this option, single bytes can be changed.

Caution:

- **Do not change the NVM settings without understanding the function of each setting, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- Always write down the existing NVM settings, before changing the settings. This will enable you to return to the original settings, if the new settings turn out to be incorrect.

Table 5-3 NVM editor overview

	Hex	Dec	Description
.ADR	0x000A	10	Existing value
.VAL	0x0000	0	New value
.Store	Store?		

5.7.2 Load Default NVM Values

It is possible to download default values automatically into the NVM in case a blank NVM is placed or when the NVM first 20 address contents are "FF". After the default values are downloaded, it is possible to start-up and to start aligning the TV set. To initiate a forced default download the following action has to be performed:

1. Switch "off" the TV set with the mains cord disconnected from the wall outlet (it does not matter if this is from "Stand-by" or "Off" situation).
2. Short-circuit the SDM jumpers on the SSB (keep short circuited).
3. Press "P+" or "CH+" on the local keyboard (and keep it pressed).
4. Reconnect the mains supply to the wall outlet.
5. Release the "P+" or "CH+" when the set is "on" or blue LED is blinking.

When the downloading has completed successfully, the set should be into Stand-by, i.e. red LED on.

Alternative method (1):

1. Go to SAM.
2. Select NVM Editor.
3. Select ADR (address) to 1 (dec).
4. Change the VAL (value) to 170 (dec).
5. Store the value.
6. Do a hard reset to make sure new default values took place.

Alternative method (2):

It is also possible to upload the default values to the NVM with ComPair in case the SW is changed, the NVM is replaced with a new (empty) one, or when the NVM content is corrupted. After replacing an EEPROM (or with a defective/no EEPROM), default settings should be used to enable the set to start-up and allow the Service Default Mode and Service Alignment Mode to be accessed.

5.7.3 Start-up/Shut-down Flowcharts

On the next pages you will find start-up and shut-down flowcharts, followed by a trouble shooting flowchart, which might be helpful during fault finding.

Please note that some events are only related to PDP sets, and therefore not applicable to this LCD chassis.

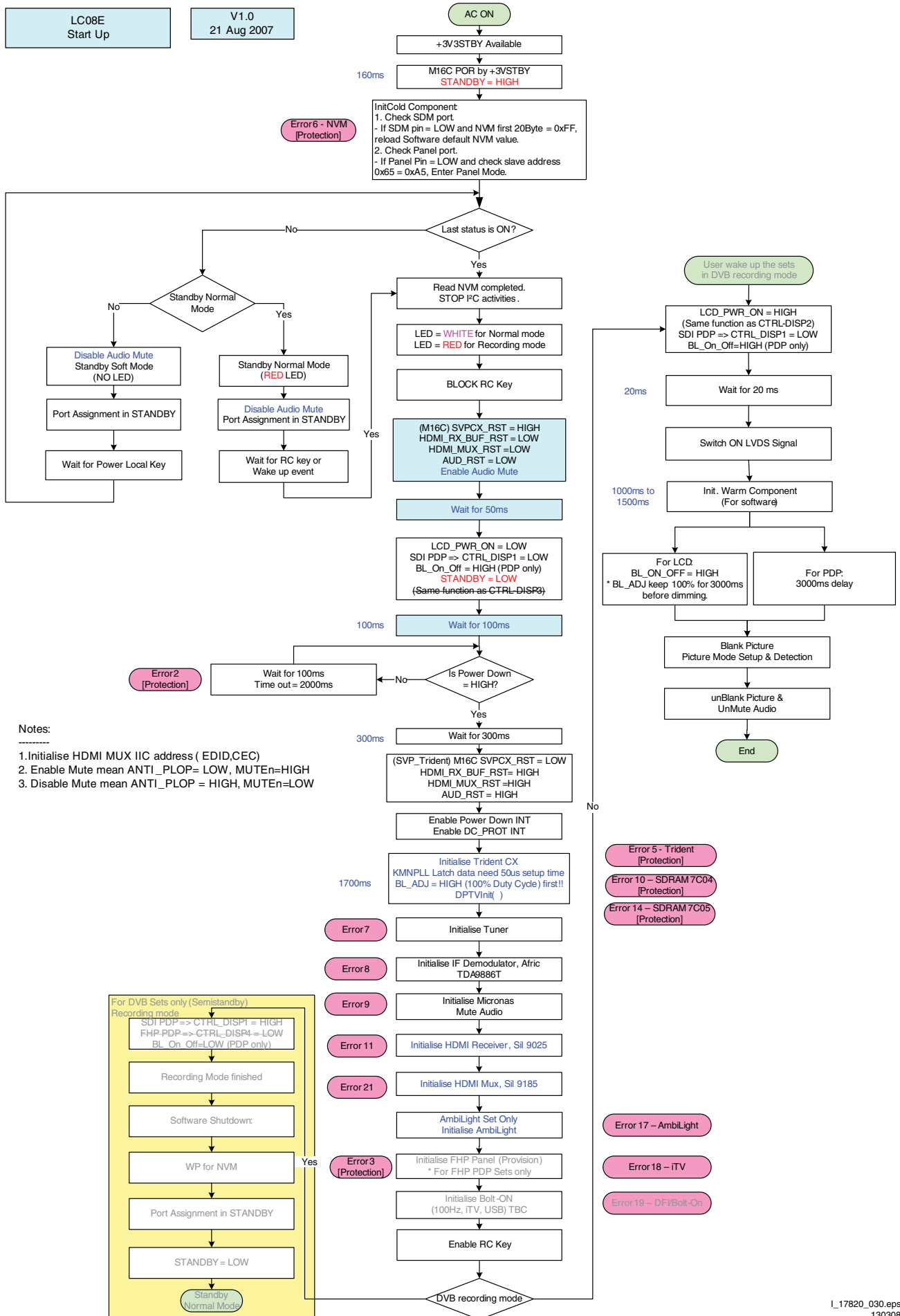


Figure 5-8 Start-up flowchart

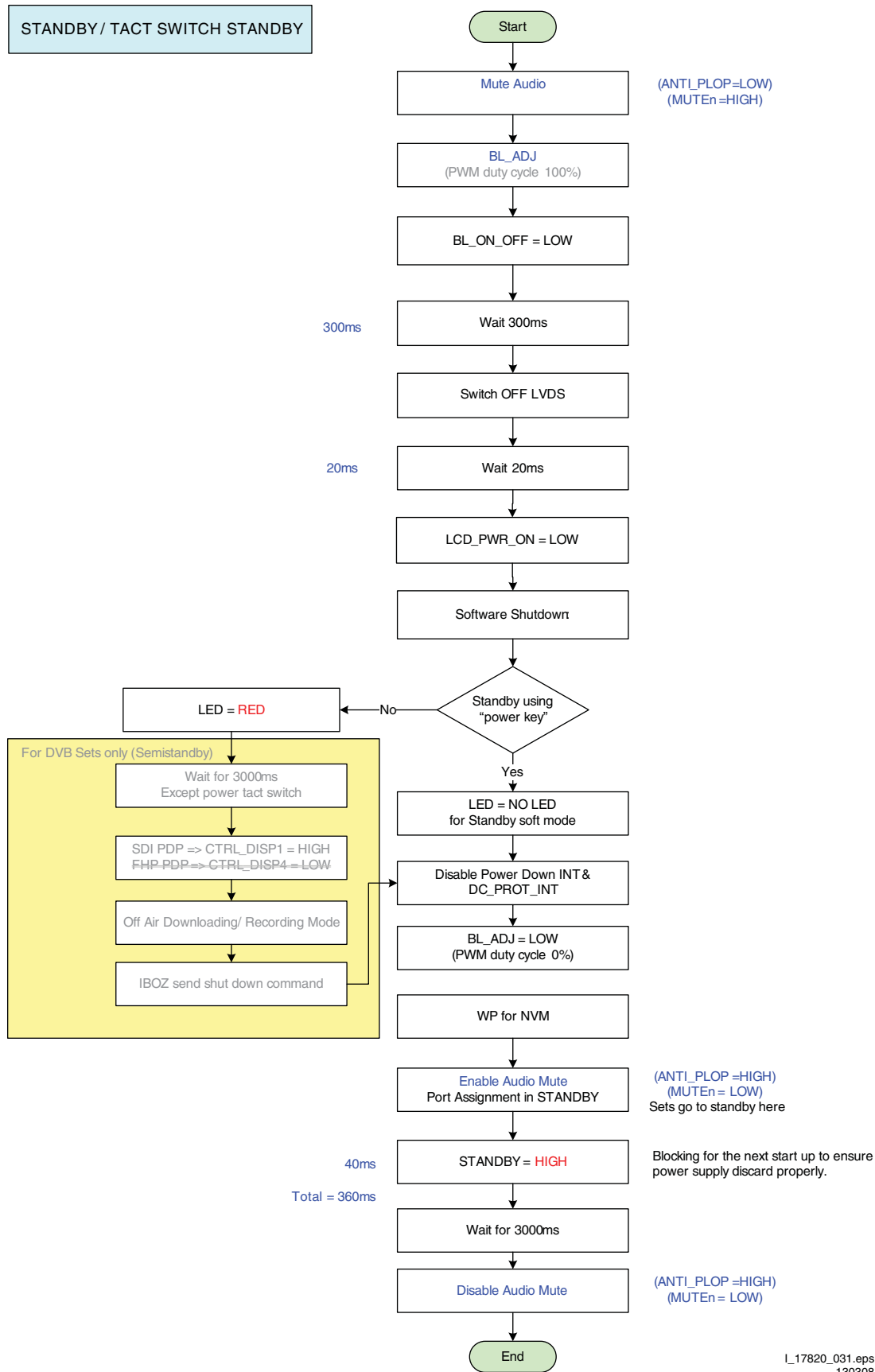
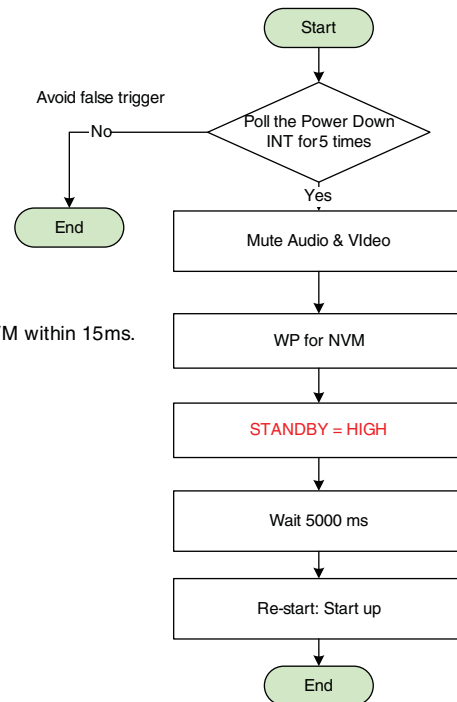


Figure 5-9 Stand-by / Tact Switch Stand-by flowchart

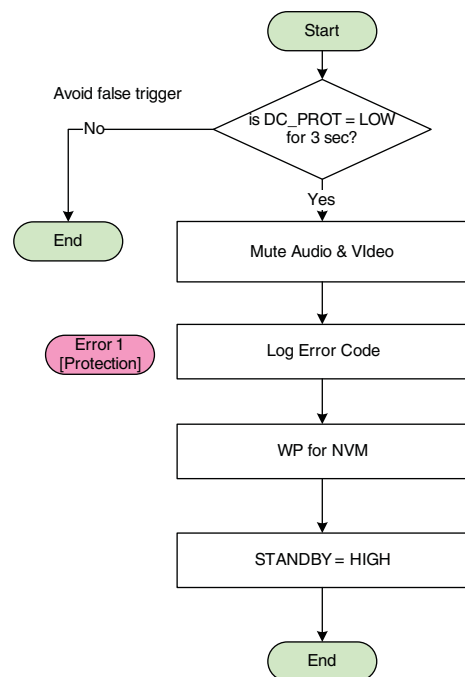
Power Down INT:
AC OFF or Transient INT

Notes:

1. Power Down INT will based on fall edge triggering
2. +3V3STBY will stay for 15ms, software must perform WP for NVM within 15ms.



DC_PROT INT



L_17820_032.eps
130308

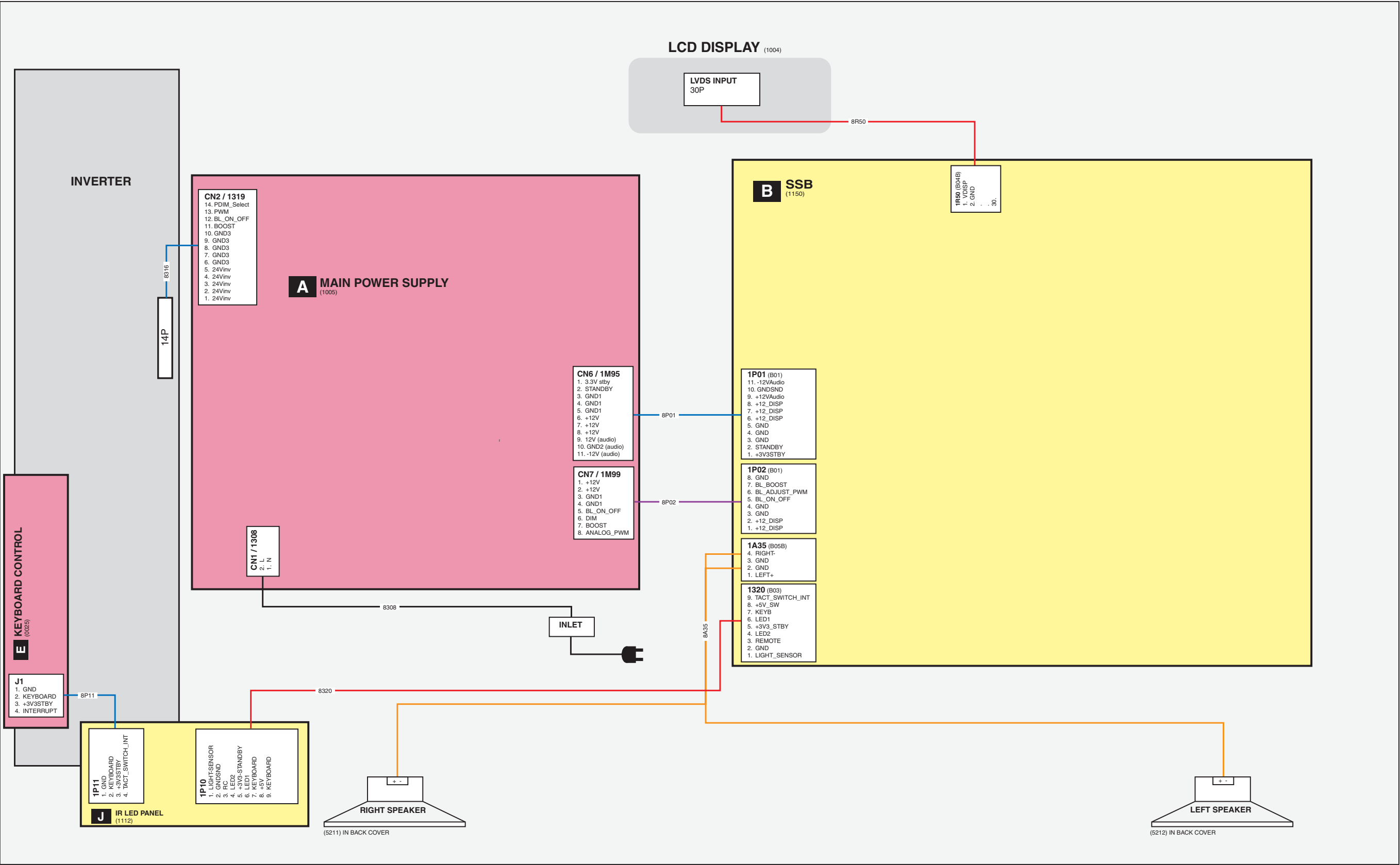
Figure 5-10 Power Down & DC_PROT flowchart

Personal Notes:

6. Block Diagrams, Test Point Overview, and Waveforms

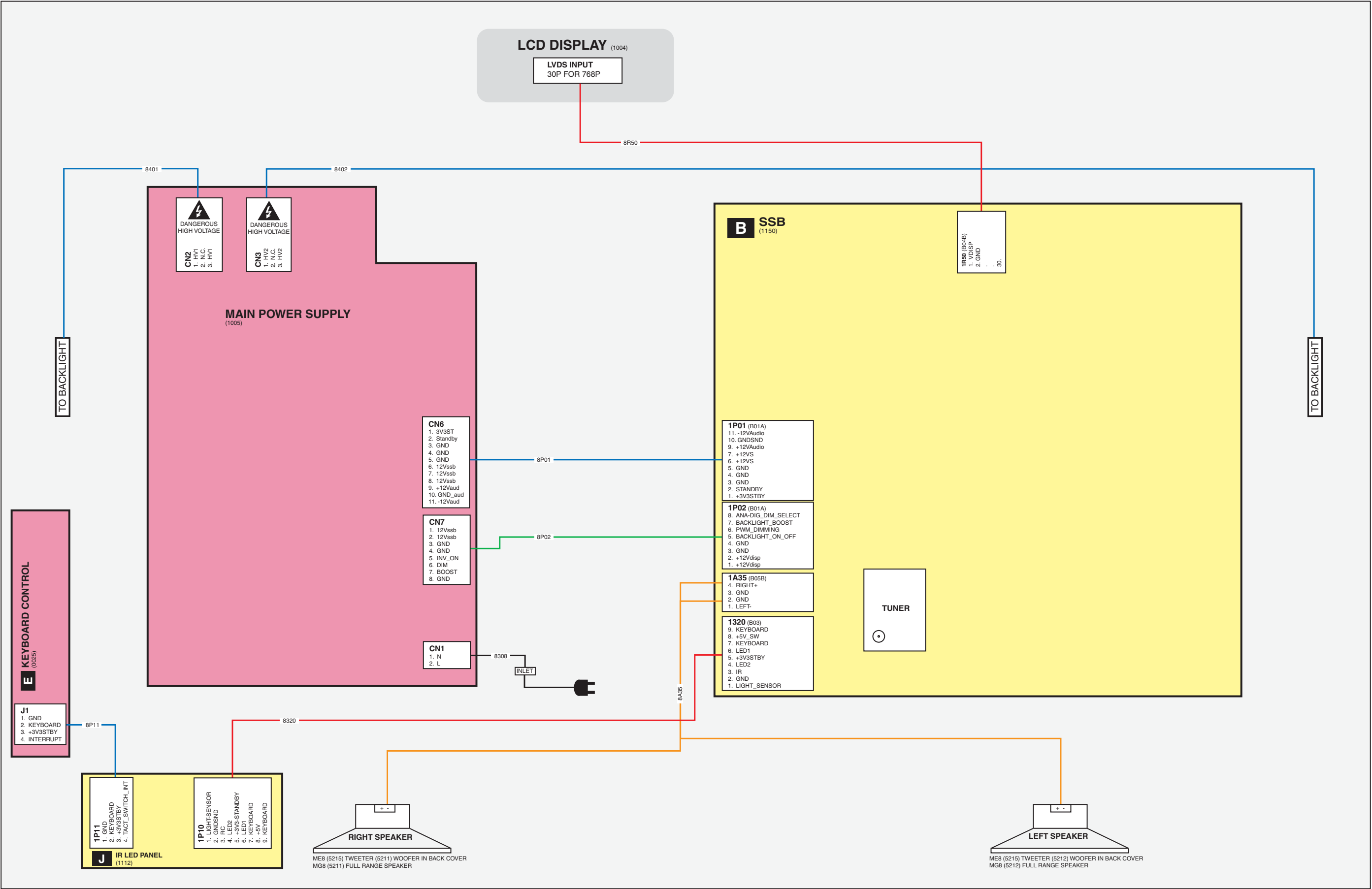
Wiring Diagram 32" LCD

WIRING 32" (STYLING ME8 / MG8)



Wiring Diagram 42" LCD

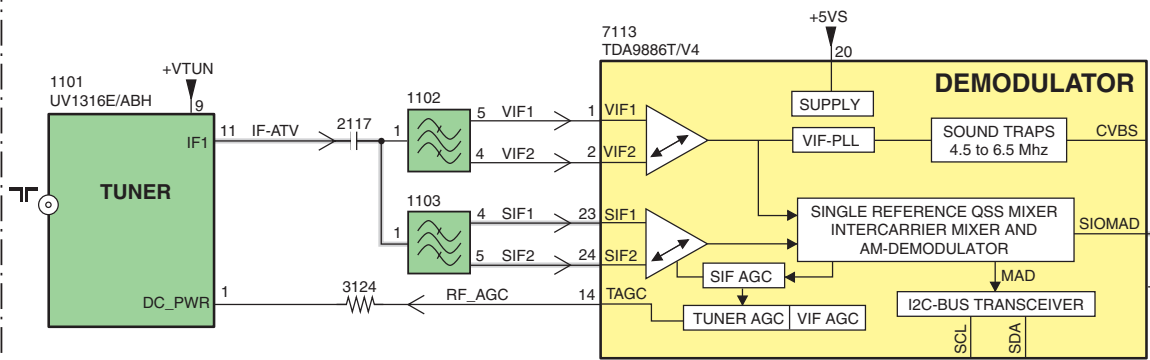
WIRING DIAGRAM 42" (STYLING ME8 / MG8)



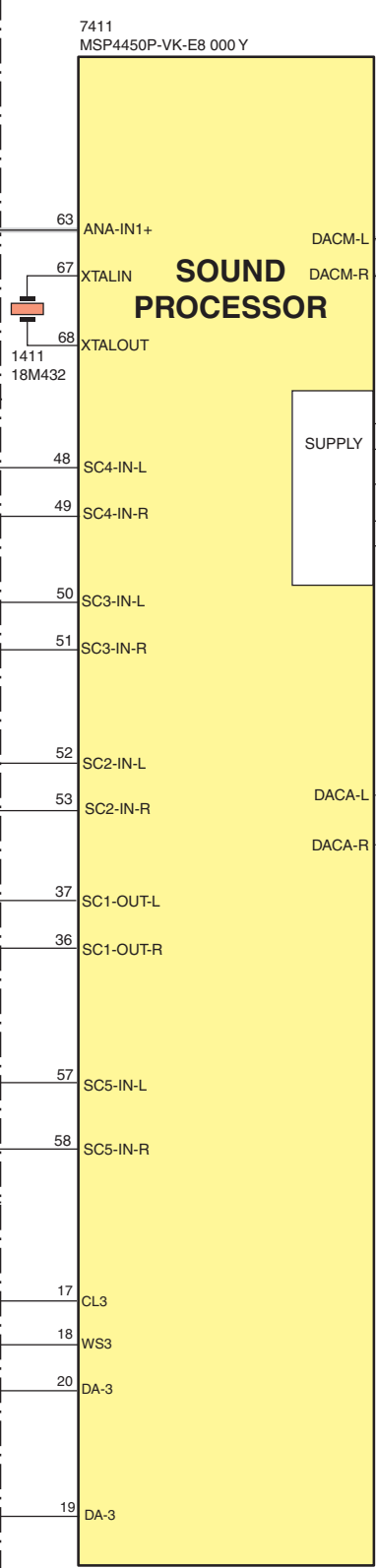
Block Diagram Audio

AUDIO

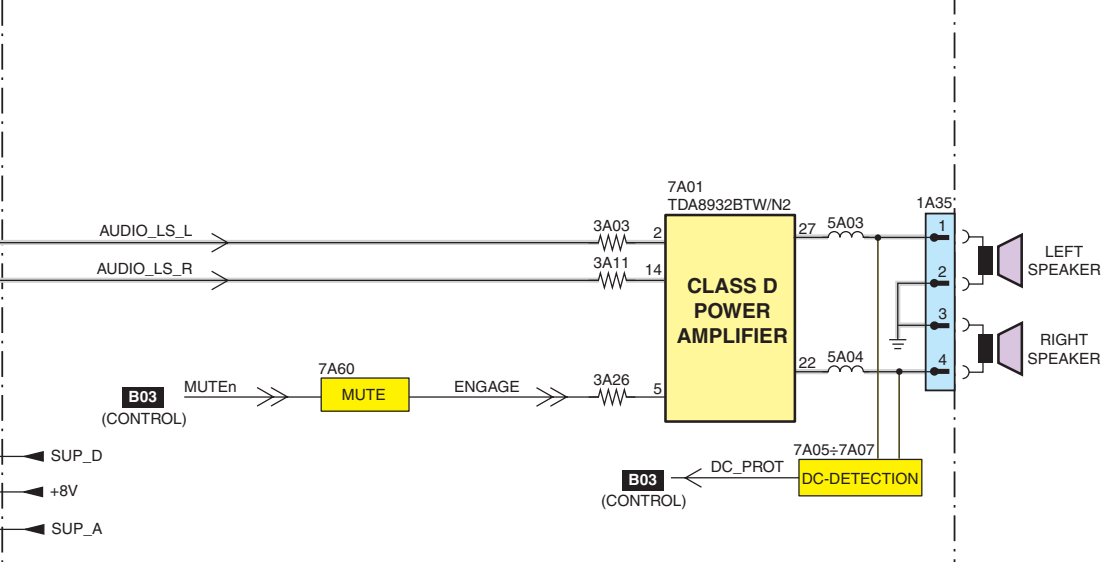
B02 TUNER IF & DEMODULATOR



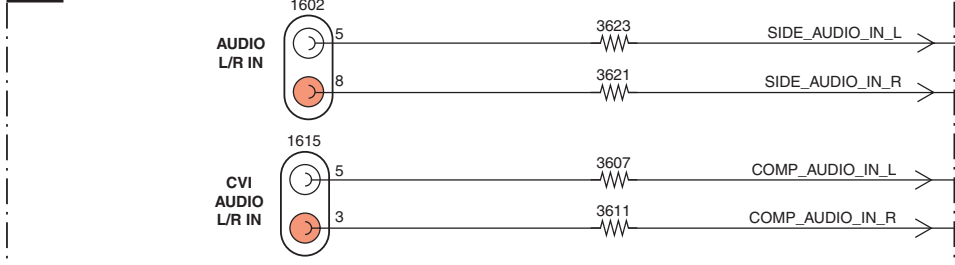
B05A AUDIO PROCESSOR - MICRONAS



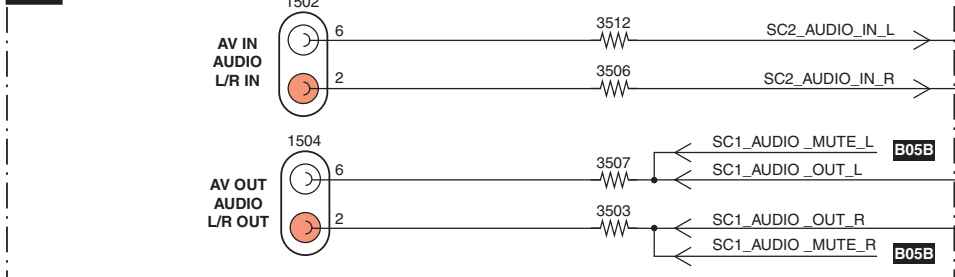
B05B AUDIO - CLASS D



B06A YPBPR & SVHS



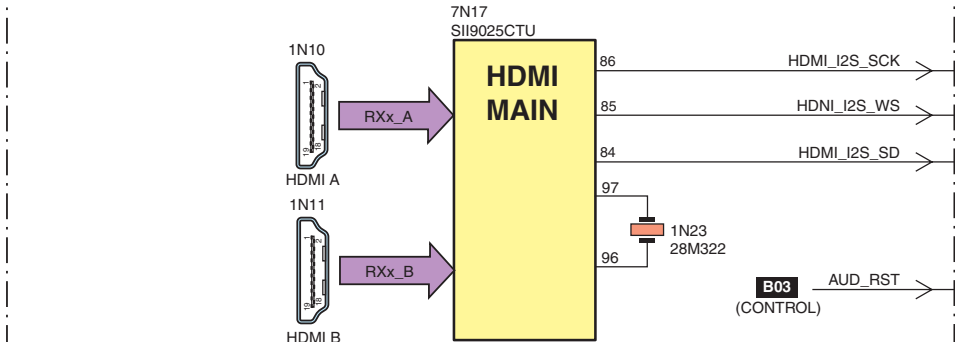
B06B I0 - CINCH 1 & 2



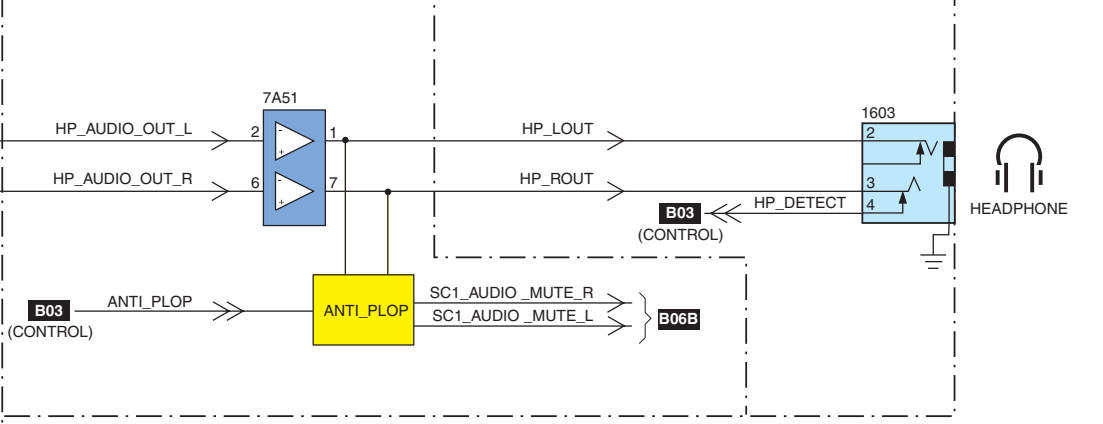
B06C VGA & PC AUDIO & COMPAIR & UART



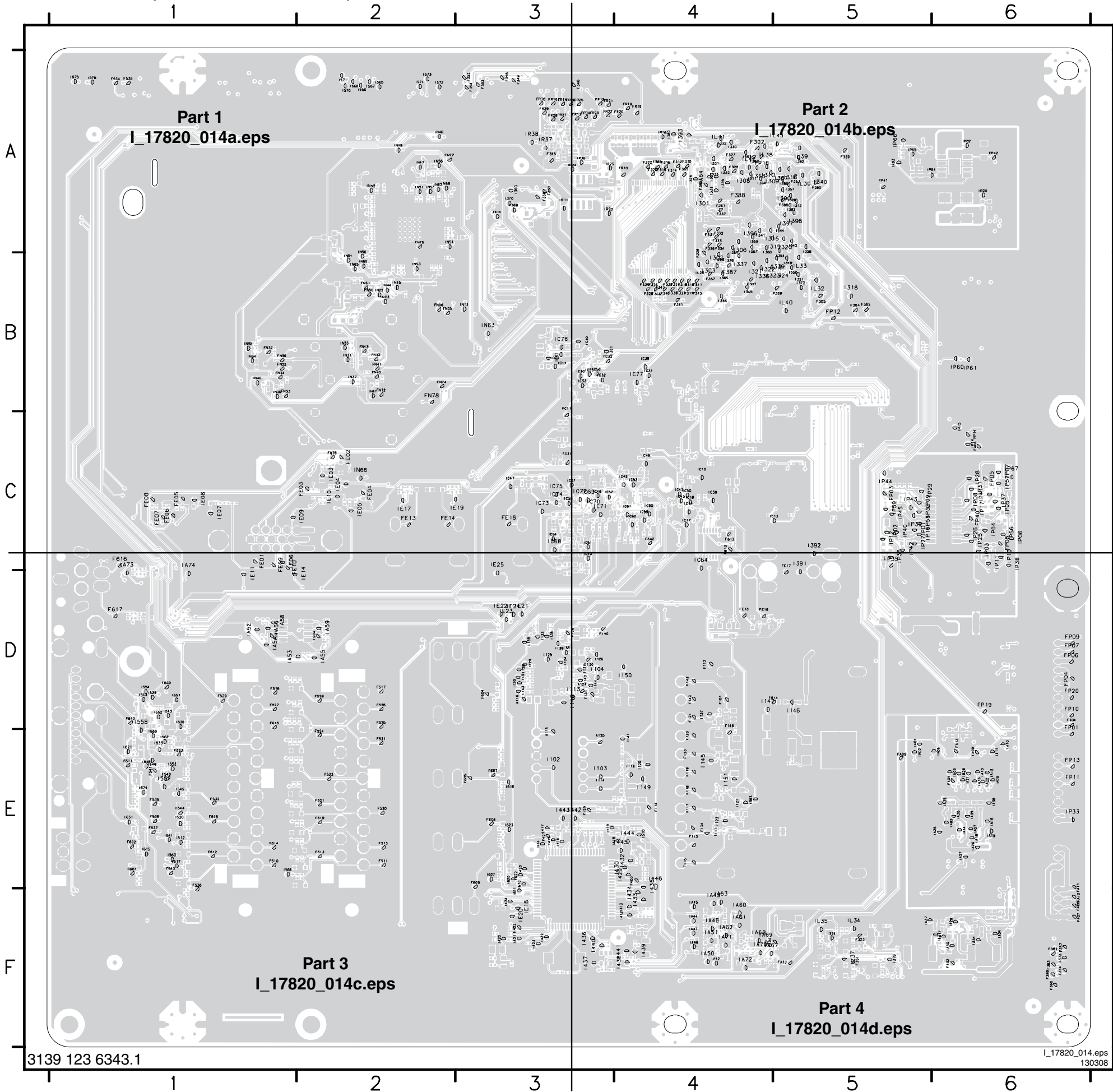
B06D HDMI MAIN



B06A YPBPR & SVHS

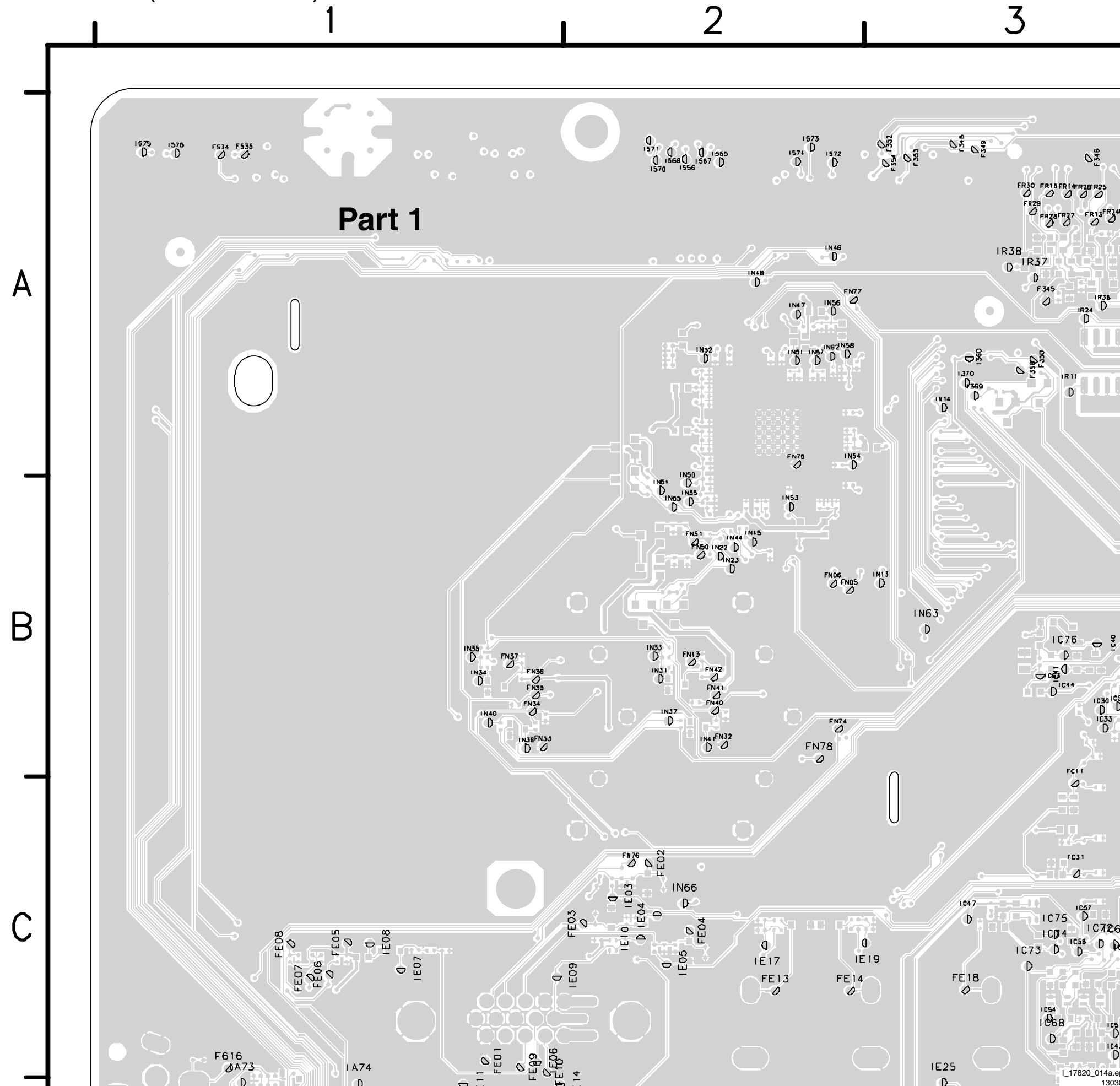


SSB: Test Points (Overview Bottom Side)



A115	E3	F540	E1	I130	D3	I512	E1	IC46	C4	IP45	C5
A116	D3	F541	E1	I131	D3	I517	E1	IC47	C3	IP55	C5
A124	D3	F542	C4	I133	D3	I520	E1	IC48	C3	IP56	C6
A125	E3	F543	E1	I135	D3	I528	D1	IC49	A4	IP57	C6
F101	D4	F544	E1	I136	D3	I530	D1	IC50	C4	IP59	C5
F112	D4	F601	E1	I137	D4	I533	E1	IC51	C3	IP60	B6
F114	E4	F602	E1	I138	D3	I541	E1	IC52	C3	IP61	B6
F115	E4	F604	D3	I139	D3	I543	D1	IC53	C4	IP62	A6
F116	E4	F605	E3	I141	E4	I544	D1	IC54	C3	IP63	A5
F117	E4	F607	E3	I142	D3	I545	E1	IC55	B3	IP64	A5
F118	E4	F608	E3	I143	D3	I548	E1	IC56	B3	IP65	A5
F119	E4	F609	E3	I144	D3	I549	E1	IC57	C3	IP66	A5
F120	E4	F610	D1	I145	E4	I550	E1	IC58	C3	IP67	C6
F121	D4	F611	E1	I146	D5	I551	D1	IC59	C4	IR11	A3
F128	D3	F612	C4	I147	D4	I552	D1	IC60	C4	IR16	A4
F129	E3	F613	C4	I148	D3	I553	E1	IC61	C4	IR20	A3
F130	D3	F614	D5	I149	E4	I554	D1	IC62	C4	IR24	A3
F131	D3	F615	D1	I150	D4	I556	A2	IC63	B3	IR25	A3
F133	E4	F616	C1	I151	E4	I557	E1	IC64	C4	IR36	A3
F134	E4	F617	D1	I301	A4	I558	D1	IC68	C3	IR37	A3
F140	D3	F901	D1	I302	B4	I562	E1	IC69	C3	IR38	A3
F142	D4	F904	D2	I303	B4	I563	E1	IC70	C3		
F143	D4	FA04	E6	I306	A4	I564	E1	IC71	C3		
F146	D4	FA05	E5	I307	A5	I565	A2	IC72	C3		
F302	A4	FA06	C6	I308	A4	I567	A2	IC73	C3		
F304	D6	FA07	F6	I309	A4	I568	A2	IC74	C3		
F305	B5	FA08	F6	I310	A4	I570	A2	IC75	C3		
F309	B5	FA09	E6	I311	A4	I571	A2	IC76	B3		
F310	A4	FA10	F6	I312	A5	I572	A2	IC77	B4		
F311	B4	FA11	E6	I313	A4	I573	A2	IE03	C2		
F312	A4	FA12	F5	I315	A5	I574	A2	IE04	C2		
F313	B4	FA13	E6	I316	A4	I575	A1	IE05	C2		
F314	A4	FA32	F6	I318	B5	I576	A1	IE06	C1		
F315	B4	FC11	B3	I319	A5	I610	E3	IE07	C1		
F316	A4	FC31	C3	I320	A5	I611	F3	IE08	C1		
F317	B4	FC32	B3	I321	B4	I615	E1	IE09	C2		
F318	A4	FE01	C1	I322	B4	I616	E3	IE10	C2		
F319	B4	FE02	C2	I323	B4	I620	E3	IE11	D1		
F320	A4	FE03	C2	I324	B5	I621	E1	IE14	D2		
F321	B4	FE04	C2	I326	A5	I622	E3	IE17	C2		
F322	A4	FE05	C1	I327	A4	I623	E3	IE18	F3		
F323	F5	FE06	C1	I328	A4	I624	E1	IE19	C3		
F324	B4	FE07	C1	I329	B4	I627	E3	IE20	F3		
F325	A4	FE08	C1	I330	A4	I631	E1	IE21	D3		
F326	B4	FE09	C1	I331	A4	IA01	E5	IE22	D3		
F327	A4	FE10	C1	I332	A4	IA02	E5	IE23	D3		
F328	B4	FE13	C2	I333	A4	IA03	E6	IE24	D3		
F329	B4	FE14	C2	I335	A4	IA04	F6	IE25	C3		
F330	A5	FE15	D4	I336	B4	IA05	E6	IL25	B4		
F331	A4	FE16	D4	I337	B4	IA06	E6	IL30	A5		
F332	A4	FE17	C5	I338	A4	IA07	E6	IL32	B5		
F333	A4	FE18	C3	I339	B5	IA09	E6	IL33	B5		
F334	A4	FN05	B2	I340	A5	IA10	E6	IL34	F5		
F335	A4	FN06	B2	I341	A4	IA11	E6	IL35	F5		
F336	B4	FN32	B2	I342	A5	IA12	E6	IL37	F5		
F337	A4	FN33	B1	I344	A5	IA13	E6	IL38	A4		
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F347	B4	FN42	B2	I353	A4	IA21	E6	IN14	A3		
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F349	A3	FN50	B2	I357	A5	IA24	E6	IN23	B2		
F350	A3	FN51	B2	I358	A5	IA25	E6	IN31	B2		
F351	F5	FN74	B2	I359	A4	IA26	E6	IN33	B2		
F352	A3	FN75	A2	I360	A3	IA27	E6	IN34	B1		
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F363	A5	FP06	D6	I368	B4	IA37	F5	IN46	A2		
F364	B5	FP07	D6	I369	A3	IA38	E6	IN47	A2		
F365	B5	FP08	C6	I370	A3	IA39	E6	IN48	A2		
F366	B4	FP09	D6	I372	B5	IA42	F4	IN50	A2		
F367	B4	FP10	D6	I373	F6	IA44	F4	IN51	A2		
F368	A4	FP11	E6	I374	F5	IA45	F4	IN52	A2		
F369	A4	FP12	B5	I376	F5	IA46	F4	IN53	B2		
F380	A5	FP13	E6	I380	A4	IA47	F4	IN54	A2		
F381	B4	FP14	C6	I384	B4	IA48	F4	IN55	B2		
F382	F6	FP18	A4	I387	A5	IA49	F4	IN56	A2		
F383	F6	FP19	D6	I389	A5	IA50	F4	IN57	A2		
F384	F6	FP20	D6	I390	A5	IA51	F4	IN58	A2		
F385	A4	FP35	C5	I391	C5	IA52	D1	IN62	A2		
F386	A5	FP40	C6	I392	C5	IA53	D1	IN63	B3		
F387	B4	FP41	A5	I393	A4	IA54	D1	IN64	B2		
F388	A4	FP42	A6	I396	A4	IA55	D2	IN65	B2		
F389	F6	FR10	A4	I397	A5	IA56	D1	IN66	C2		
F401	E3	FR12	A3	I398	A5	IA58	D1	IP01	C5		
F402	F3	FR13	A3	I412	F4	IA59	D2	IP02	C5		
F403	E4	FR14	A3	I413	F4	IA60	F4	IP03	C6		
F404	F4	FR15	A3	I414	E3	IA61	F4	IP04	C6		
F510	E1	FR18	A4	I415	E3	IA62	F4	IP05	C6		
F511	E2	FR19	A4	I416	E3	IA63	F4	IP06	C6		
F512	E1	FR20	A4	I417	E3	IA64	A4	IP07	C6		
F513	E2	FR21	A3	I418	E3	IA67	F4	IP08	C6		
F514	E1	FR22	A3	I419	E3	IA68	F4	IP09	C5		
F515	E2	FR23	A3	I420	F3	IA69	F4	IP10	C6		
F516	D1	FR24	A3	I421	F3	IA70	F4	IP11	C6		
F517	D2	FR25	A3	I422	F3	IA71	F4	IP12	C5		
F518	E1	FR26	A3	I423	F3	IA72	F4	IP14	C6		
F519	E2	FR27	A3	I424	F3	IA73	C1	IP15	C6		
F520	E2	FR28	A3	I425	E3	IA74	C1	IP16	C5		
F521	E2	FR29	A3	I429	E4	IB20	A6	IP17	C6		
F522	E2	FR30	A3	I430	E4	IC10	C4	IP25	C6		
F523	E1	I102	E3	I432	E4	IC13	C5	IP26	C6		
F524	E2	I103	E3	I433	F4	IC14	C4	IP27	C5		
F525	D2	I104	D3	I434	F4	IC17	C4	IP28	C6		
F526	D2	I111	E4	I435	E4	IC18	C4	IP29	C5		
F527	D1	I113	D3	I436	F3	IC30	B3	IP31	C6		
F528	D2	I114	E3	I437	F3	IC31	B4	IP32	C5		
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F530	D1	I120	E4	I439	F4	IC33	B3	IP36	C5		
F531	E2	I121	E4	I440	F3	IC38	B4	IP37	C6		
F532	E1	I123	E4	I441	F4	IC39	C4	IP38	C6		
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F535	A1	I125	D3	I443	E3	IC41	B3	IP40	C5		
F536	E1	I126	D3	I444	E4	IC42	C4	IP41	C6		
F537	E1	I127	D3	I445	E4	IC43	C3	IP42	C5		
F538	E1	I128	D3	I446	E4	IC44	B3	IP43	C5		
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SSB: Test Points (Part 1 Bottom Side)



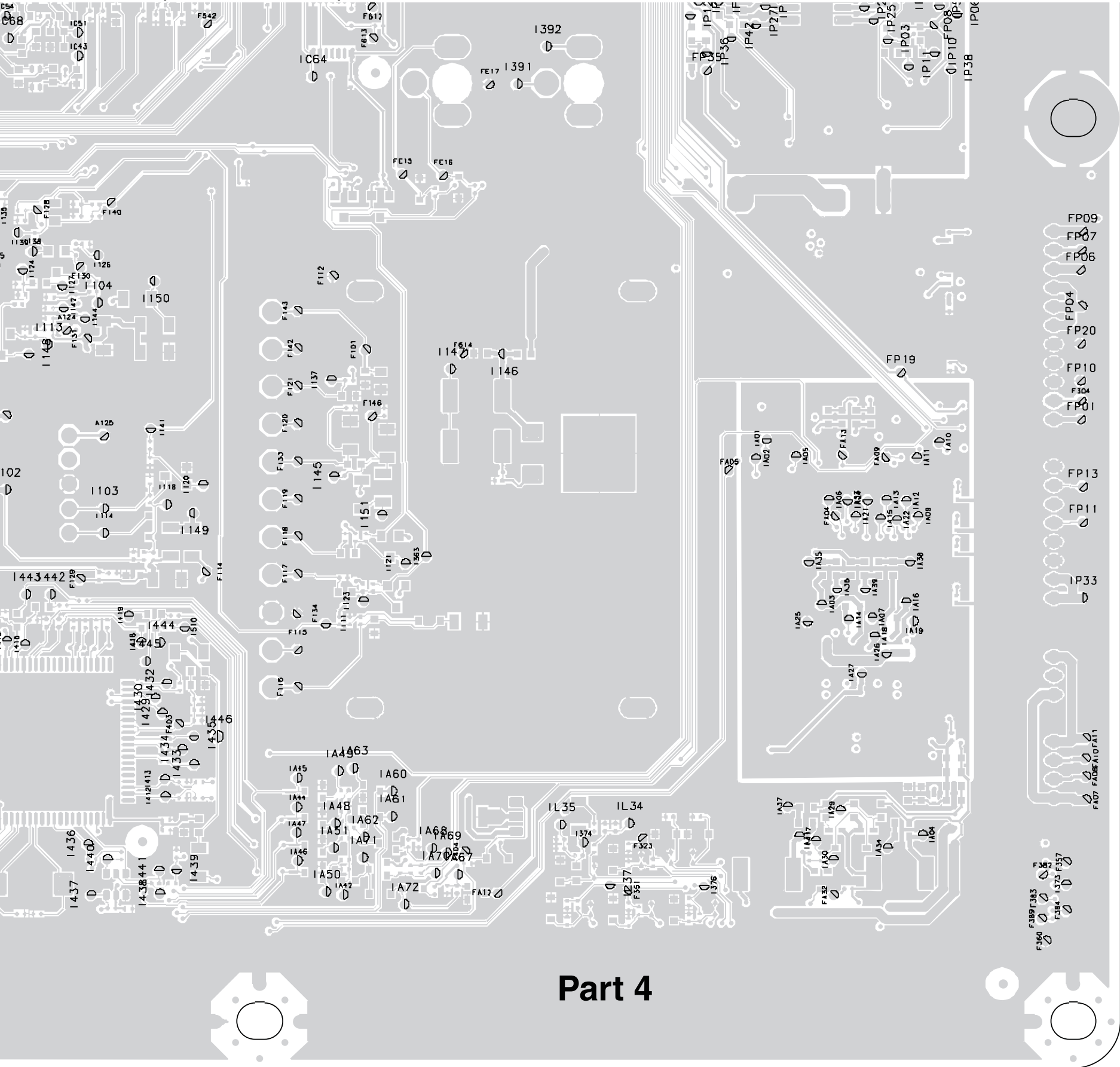
6



F



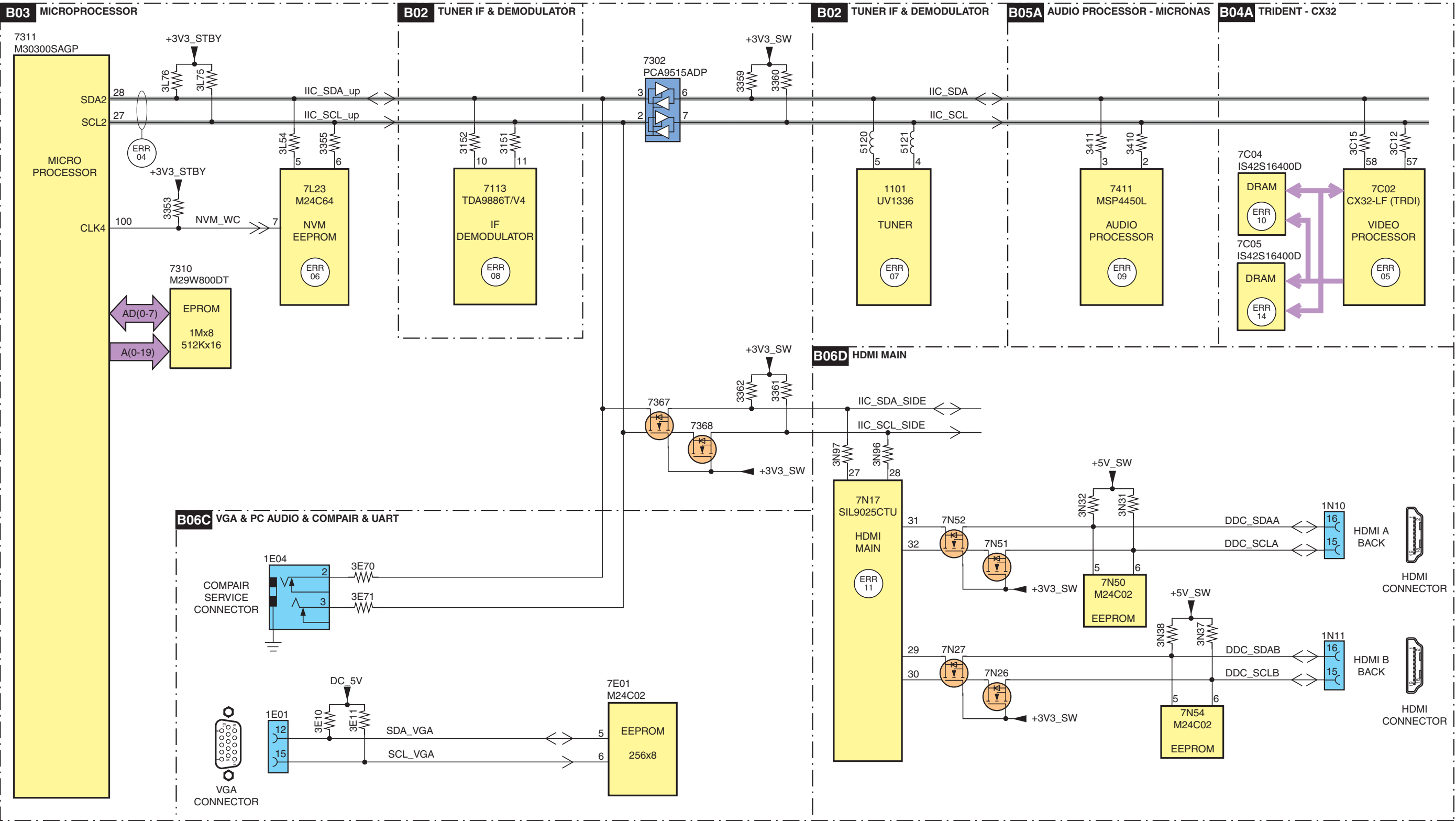
SSB: Test Points (Part 4 Bottom Side)



Part 4

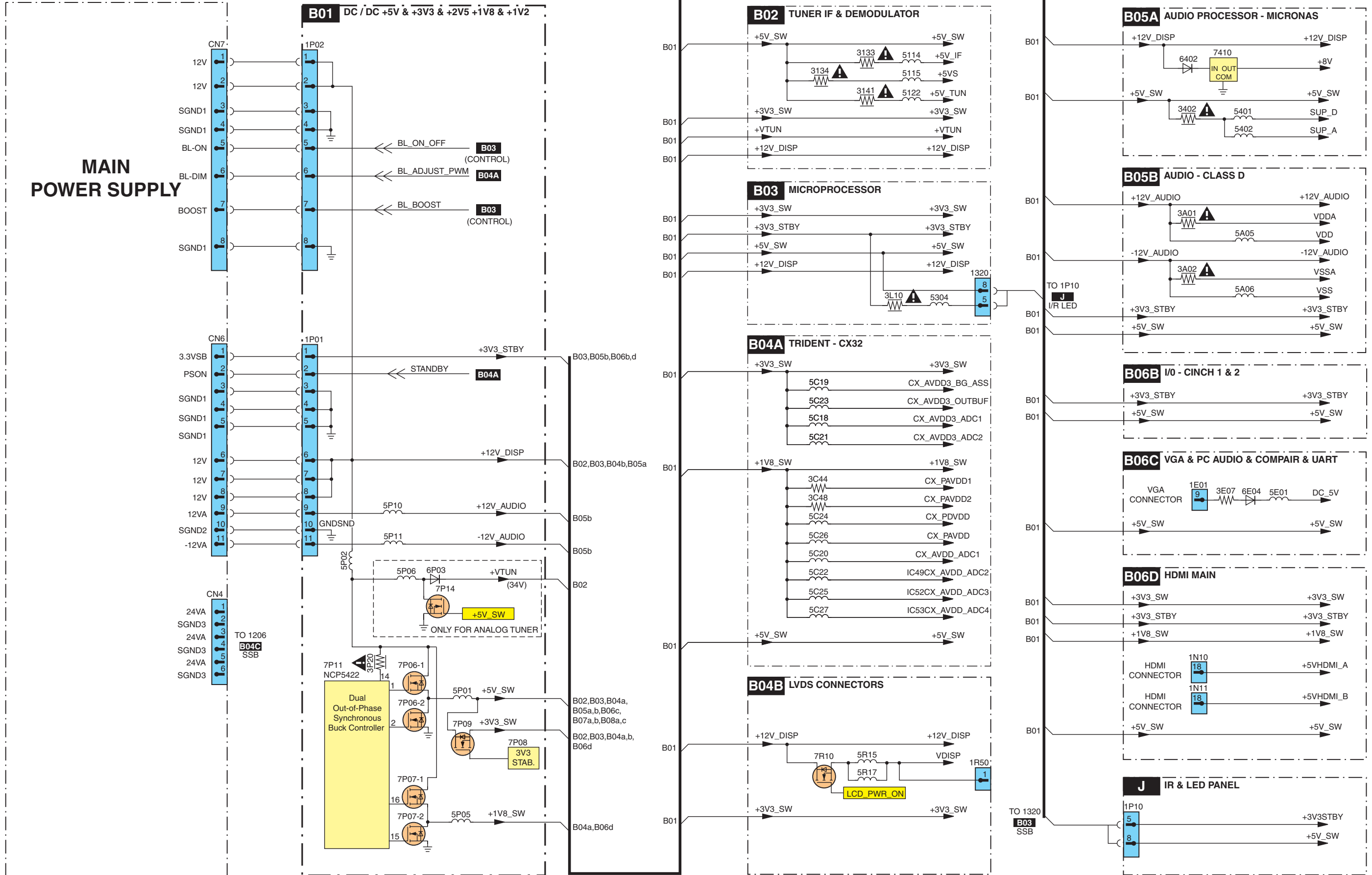
I2C IC Overview

I²C

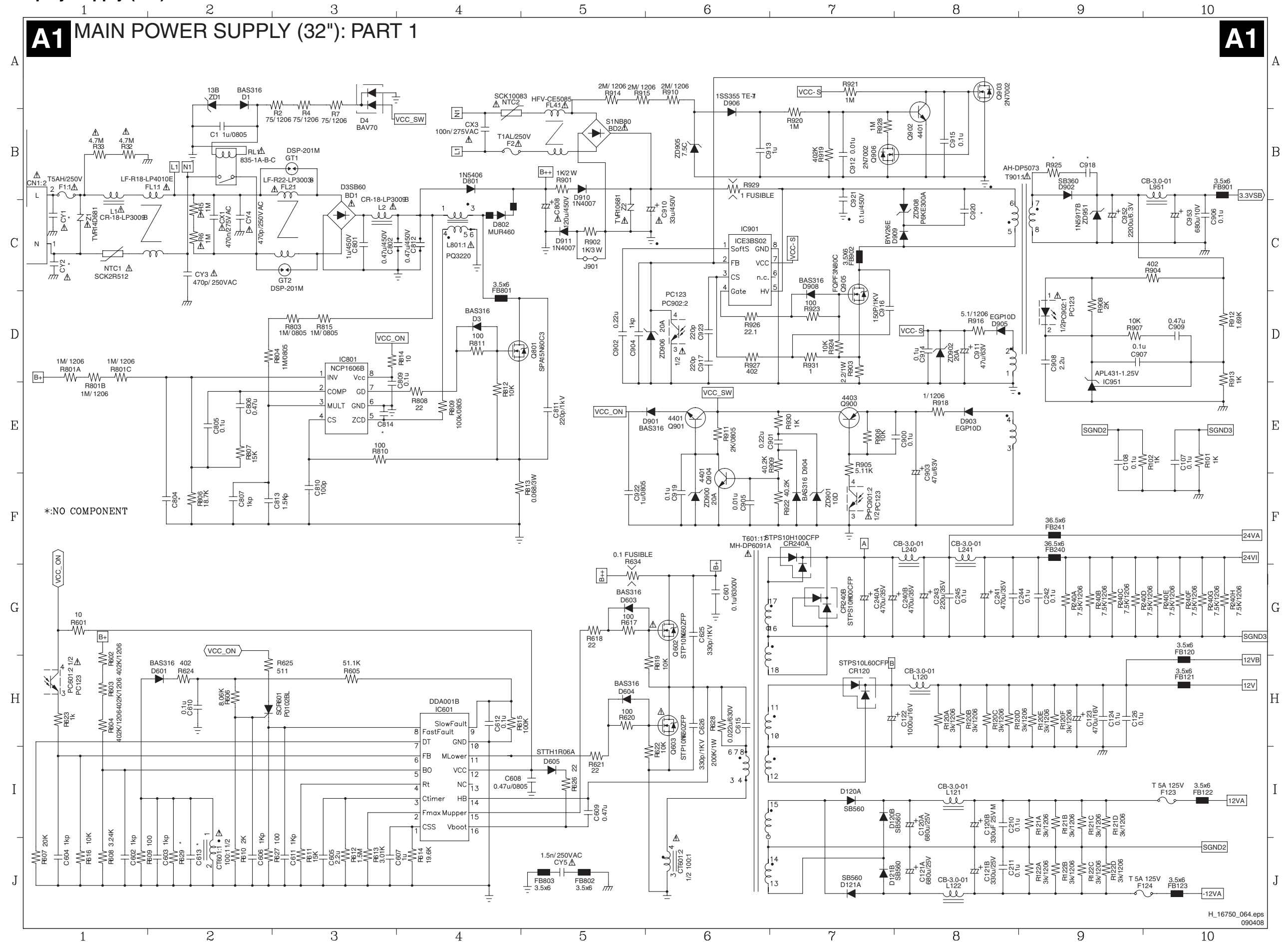


Supply Lines Overview

SUPPLY LINES OVERVIEW



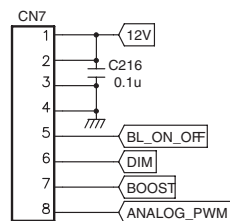
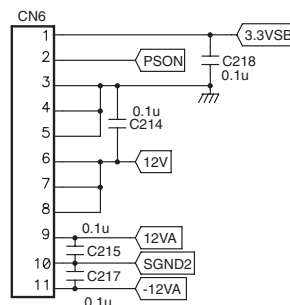
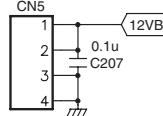
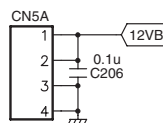
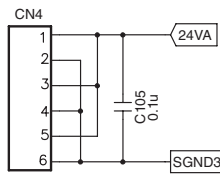
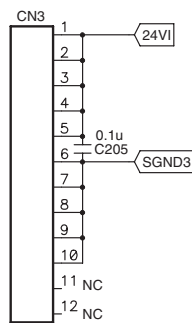
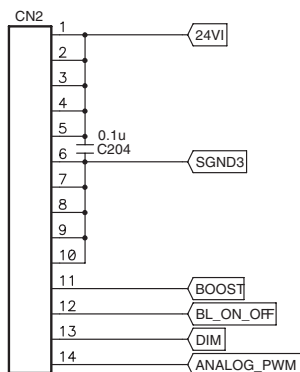
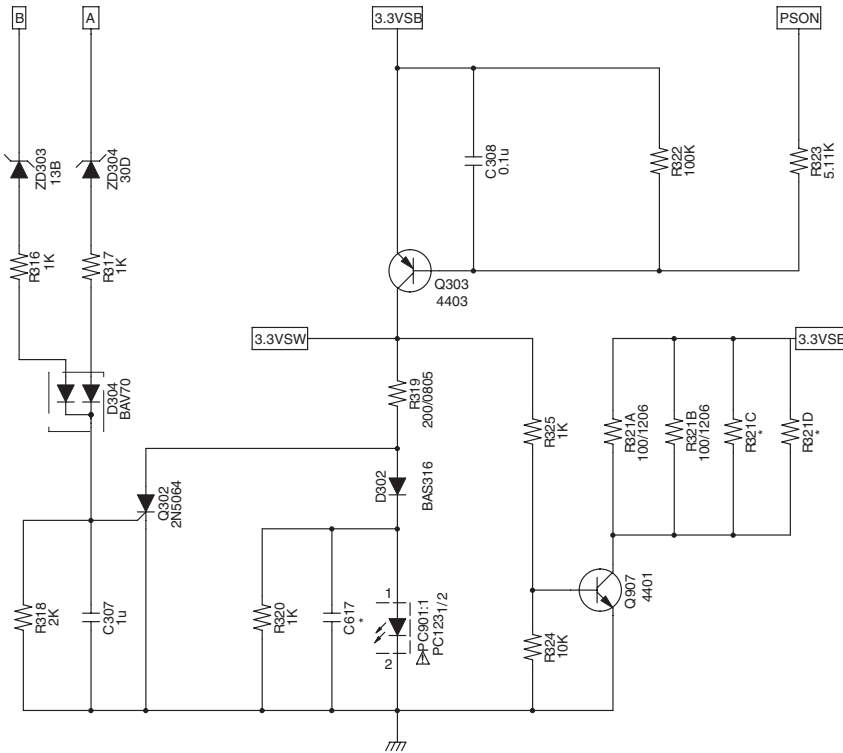
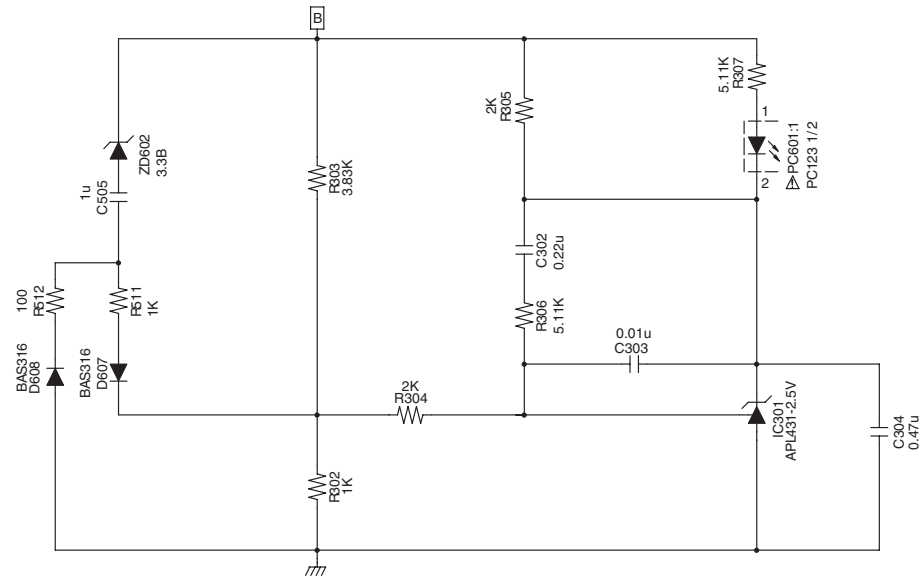
Display Supply (32"): Part 1



Display Supply (32"): Part 2

A2 MAIN POWER SUPPLY (32"): PART 2

A2



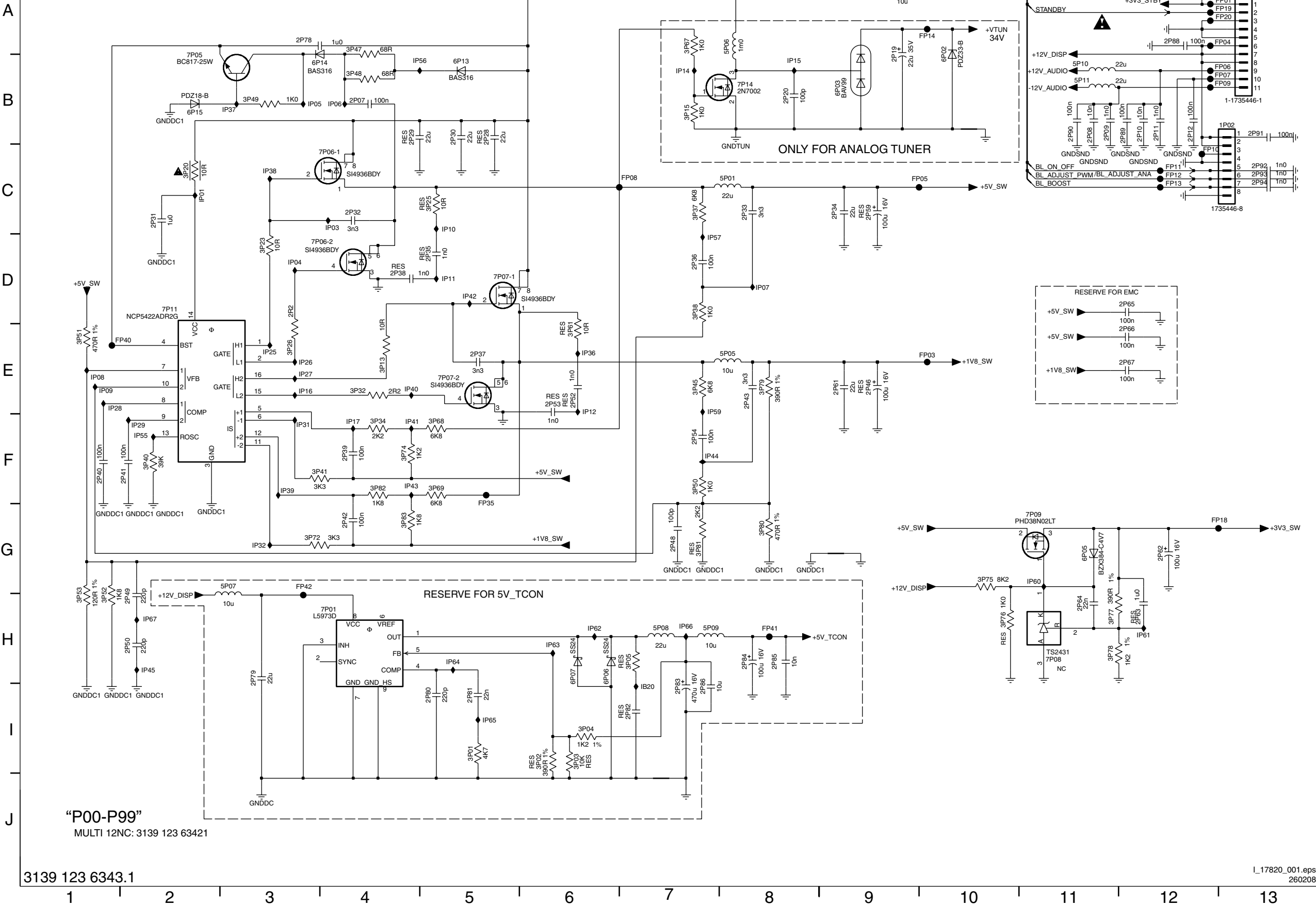
H_17650_066.eps
100108

H_17650_067.eps
100108

SSB: DC/DC

B01 DC/DC +5V & +3V3 & +2V5 & +1V8 & +1V2

B01



- | | |
|----------|-----------|
| 1P01 A12 | 3P82 E4 |
| 1P02 B11 | 3P83 E4 |
| 2P07 B4 | 5P01 B7 |
| 2P08 B10 | 5P02 A9 |
| 2P09 B10 | 5P05 D7 |
| 2P10 B11 | 5P06 A7 |
| 2P11 B11 | 5P07 F3 |
| 2P12 B11 | 5P08 F7 |
| 2P19 A9 | 5P09 F7 |
| 2P20 B8 | 5P10 A10 |
| 2P28 B5 | 5P11 B10 |
| 2P29 B4 | 6P02 A9 |
| 2P30 B5 | 6P03 B8 |
| 2P31 C2 | 6P05 F10 |
| 2P32 C4 | 6P06 G6 |
| 2P33 C7 | 6P07 G6 |
| 2P34 C8 | 6P13 A5 |
| 2P35 C5 | 6P14 A4 |
| 2P36 C7 | 6P15 B3 |
| 2P37 D5 | 7P01 F4 |
| 2P38 C4 | 7P05 A3 |
| 2P39 E4 | 7P06-1 B4 |
| 2P40 E2 | 7P06-2 C4 |
| 2P41 E2 | 7P07-1 C5 |
| 2P42 E4 | 7P07-2 D5 |
| 2P43 D7 | 7P08 G10 |
| 2P46 D8 | 7P09 E10 |
| 2P48 F7 | 7P11 D2 |
| 2P49 F2 | 7P14 B7 |
| 2P50 F2 | FP01 A11 |
| 2P52 D6 | FP03 D9 |
| 2P53 D6 | FP04 A11 |
| 2P54 E7 | FP05 B9 |
| 2P59 C8 | FP06 A11 |
| 2P61 D8 | FP07 B11 |
| 2P62 F11 | FP08 B6 |
| 2P63 F11 | FP09 B11 |
| 2P64 F10 | FP10 B11 |
| 2P65 C11 | FP11 B11 |
| 2P66 D11 | FP12 B11 |
| 2P67 D11 | FP13 B11 |
| 2P78 A4 | FP14 A9 |
| 2P79 G3 | FP18 E11 |
| 2P80 G5 | FP19 A11 |
| 2P81 G5 | FP20 A11 |
| 2P82 G6 | FP35 E5 |
| 2P83 G7 | FP40 D2 |
| 2P84 G7 | FP41 F8 |
| 2P85 G8 | FP42 F4 |
| 2P86 G7 | IB20 G6 |
| 2P87 A11 | IP01 C3 |
| 2P88 A11 | IP02 A8 |
| 2P89 B11 | IP03 C4 |
| 2P90 B10 | IP04 C3 |
| 2P91 B12 | IP05 B4 |
| 2P92 B12 | IP06 B4 |
| 2P93 B12 | IP07 C7 |
| 2P94 B12 | IP08 D2 |
| 3P01 G5 | IP09 D2 |
| 3P02 G6 | IP10 C5 |
| 3P03 G6 | IP11 C5 |
| 3P04 G6 | IP12 D6 |
| 3P05 G6 | IP14 A7 |
| 3P13 D4 | IP15 A8 |
| 3P15 B7 | IP16 D4 |
| 3P20 B3 | IP17 D4 |
| 3P23 C3 | IP25 D3 |
| 3P25 C5 | IP26 D4 |
| 3P26 D3 | IP27 D4 |
| 3P32 D4 | IP28 D2 |
| 3P34 D4 | IP29 E2 |
| 3P37 C7 | IP31 D4 |
| 3P38 D7 | IP32 F3 |
| 3P40 E2 | IP33 A9 |
| 3P41 E4 | IP36 D6 |
| 3P45 D7 | IP37 B3 |
| 3P47 A4 | IP38 B3 |
| 3P48 A4 | IP39 E3 |
| 3P49 B3 | IP40 D4 |
| 3P50 E7 | IP41 D4 |
| 3P51 D2 | IP42 C5 |
| 3P52 F2 | IP43 E4 |
| 3P53 F2 | IP44 E7 |
| 3P61 D6 | IP45 G2 |
| 3P67 A7 | IP55 E2 |
| 3P68 D5 | IP56 A5 |
| 3P69 E5 | IP57 C7 |
| 3P72 E4 | IP59 D7 |
| 3P74 E4 | IP60 F10 |
| 3P75 F9 | IP61 F11 |
| 3P76 F10 | IP62 F6 |
| 3P77 F10 | IP63 F6 |
| 3P78 F10 | IP64 G5 |
| 3P79 D7 | IP65 G5 |
| 3P80 E7 | IP66 F7 |
| 3P81 F7 | IP67 F2 |

"P00-P99"
MULTI 12NC: 3139 123 63421

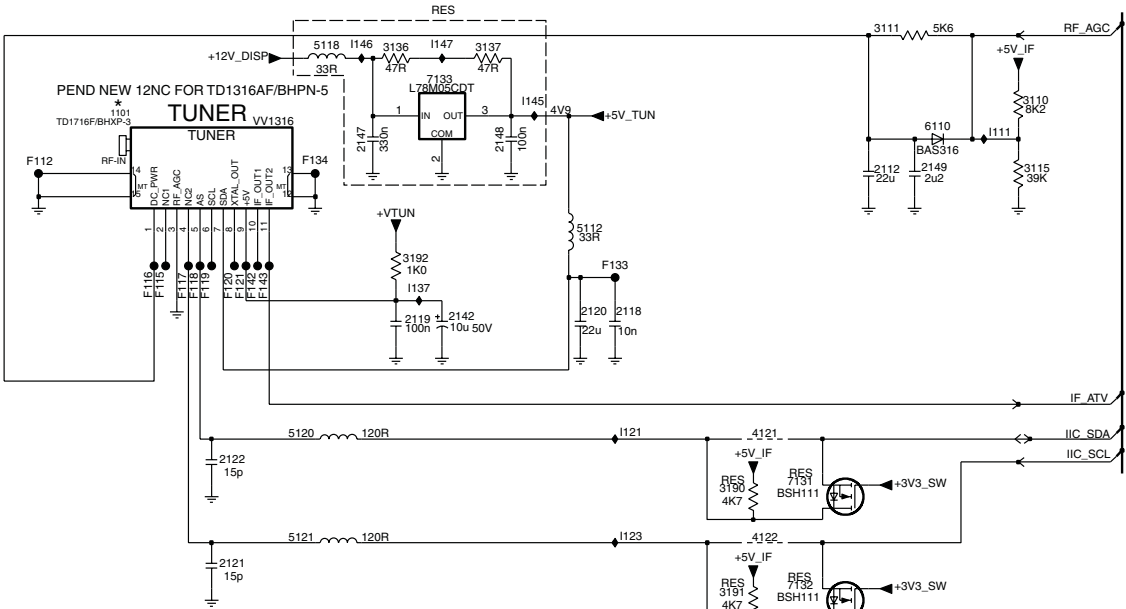
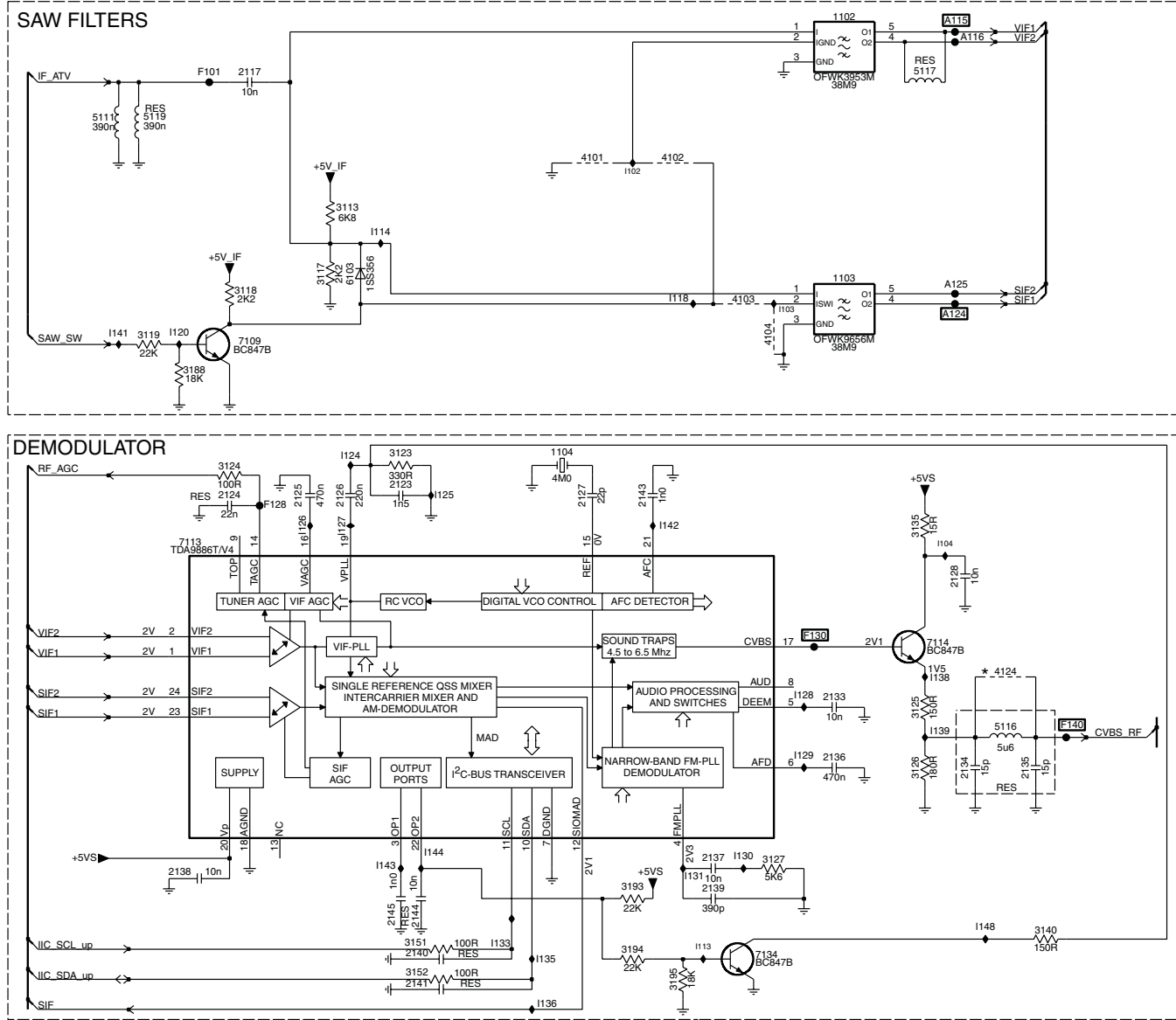
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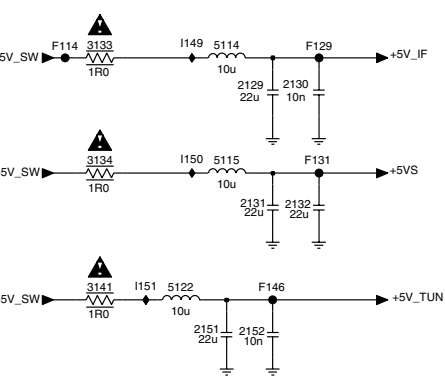
SSB: Tuner IF & Demodulator

B02 TUNER IF & DEMODULATOR

B02

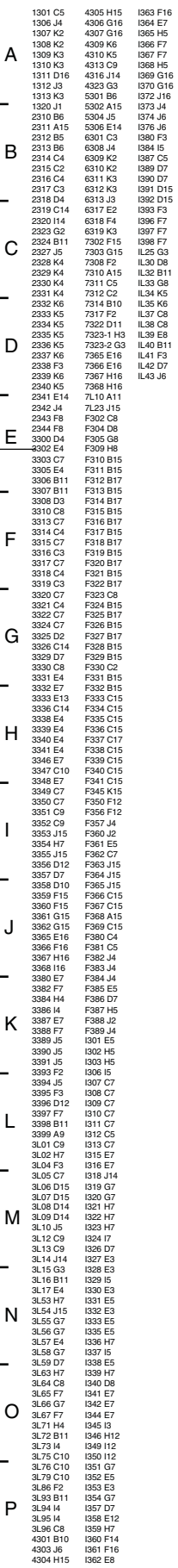


SAW FILTER			
*	EU	AP	CHINA
4101	Y	Y	Y
4102	Y	Y	Y
4103	Y	Y	Y
4104	Y	Y	Y



TUNER	EUROPE	AP	CHINA	LATAM
1101	VV1316E	VV1356	VV1336	VV1336
SAW FILTER	EUROPE	AP	CHINA	LATAM
1102	K3953M	K7257M	-	M1971M
1103	K9656M	K9362M	K9352M	-
1105	-	-	K6274K	-

B03 MICROPROCESSOR



B04A TRIDENT- CX32



C001 D4	3C75F1 B10
1C015 L5	3C75E2 B10
1C16 L7	3C75S3 B10
1C17 L5	3C75E3 B10
1C18 L7	3C76H1 C10
2C03 K7	3C76E2 C10
2C04 K6	3C76S3 C10
2C05 K5	3C76F4 C10
2C06 K7	3C76H2 C10
2C07 B15	3C77E2 C10
2C08 B15	3C77S3 C10
2C09 B15	3C77F4 C10
2C10 B15	3C78H1 C10
2C11 C5	3C78E2 C10
2C13 C5	3C78F4 C10
2C14 C5	3C79F1 C10
2C15 C5	3C79E2 D10
2C16 C9	3C79S3 D10
2C17 B13	3C79F4 E10
2C18 B13	3C80H1 F10
2C19 B13	3C80E2 F10
2C20 B13	3C80S3 F10
2C21 B13	3C80F4 F10
2C22 B13	3C81H1 F10
2C23 B13	3C81E2 F10
2C24 E12	3C81S3 F10
2C25 E12	3C81F4 F10
2C26 E13	3C82H1 F10
2C27 E13	3C82E2 F10
2C28 E13	3C82S3 F10
2C29 B14	3C82F4 F10
2C30 C5	4C00 L9
2C31 C5	4C10 L5
2C32 C5	4C14 L5
2C34 D8	4C13 L8
2C35 D8	4C13 L6
2C36 D8	4C13 L6
2C37 D4	4C16 L6
2C38 D4	4C17 L7
2C39 D4	5C10 B4
2C40 D4	5C12 A14
2C41 D4	5C12 C9
2C42 D4	5C14 C4
2C43 D5	5C16 C3
2C44 D5	5C18 A6
2C45 D5	5C18 A4
2C46 D3	5C20 A8
2C47 E3	5C21 B6
2C50 F4	5C22 B8
2C51 F4	5C23 B4
2C52 F4	5C24 B7
2C53 F4	5C25 B8
2C54 F4	5C26 C7
2C55 H	5C27 C8
2C56 F4	5C28 F4
2C57 F4	7C02 D4
2C58 F4	7C03 K9
2C59 F4	7C04 B11
2C60 F4	7C10 E11
2C61 F4	7C06 K9
2C62 A15	7C11 L1 J2
2C63 A15	7C11 K2 E2
2C64 A15	7C11 S3 K2
2C65 J1	7C11 L2 E2
2C66 J1	7C11 S4 L2
2C67 B15	7C11 L6 E4
2C68 F4	FC11 C9
2C69 J3	FC12 B9
2C70 J11	FC32 E4
2C71 J10	IC10 B5
2C72 J10	IC13 A13
2C73 J3	IC13 B3
2C74 J10	IC13 E4
2C75 J3	IC18 E8
2C76 J3	IC30 E4
2C77 J3	IC31 E4
2C78 J3	IC32 E4
2C79 A7	IC33 E4
2C80 A6	IC38 J4
2C81 L8	IC39 K4
2C82 A9	IC40 B8
2C84 A4	IC41 K9
2C85 F4	IC42 A6
2C86 B7	IC43 A7
2C87 B7	IC44 L8
2C88 B6	IC45 A4
2C89 B4	IC46 A9
2C90 B7	IC47 B7
2C91 B9	IC48 A6
2C92 C7	IC49 B9
2C93 C9	IC50 B4
2C94 K3	IC51 B7
2C95 E13	IC52 B9
2C96 K3	IC53 C9
2C97 E13	IC54 C7
2C98 D8	IC55 D2
2C99 J9	IC56 D2
3C01 L14	IC57 J4
3C02 L14	IC58 J4
3C01 L34	IC59 J10
3C01 L4	IC60 J10
3C02 L14	IC61 J10
3C03 L14	IC62 J4
3C02 L34	IC63 K8
3C02 L4	IC64 L3
3C03 L14	IC68 K5
3C03 L24	IC69 K6
3C04 L4	IC70 K7
3C03 L4	IC71 K8
3C04 L14	IC72 K6
3C04 L24	IC73 K6
3C05 L4	IC74 K6
3C04 L4	IC75 K7
3C10 K9	IC76 K9
3C11 D8	IC77 D8
3C12 D8	
3C19 E1	
3C20 E2	
3C21 E1	
3C22 E2	
3C28 G2	
3C29 G2	
3C30 G2	
3C31 G2	
3C32 G3	
3C39 K4	
3C40 K3	
3C41 K9	
3C42 K9	
3C44 A7	
3C45 K8	
3C48 B7	
3C49 J3	
3C53 K3	
3C55 K3	
3C58 L3	
3C59 J1	
3C58 K1	
3C66 C12	
3C67 F13	
3C72 G2	

SSB: LVDS Connectors

B04B LVDS CONNECTORS

B04B

A

B

C

D

E

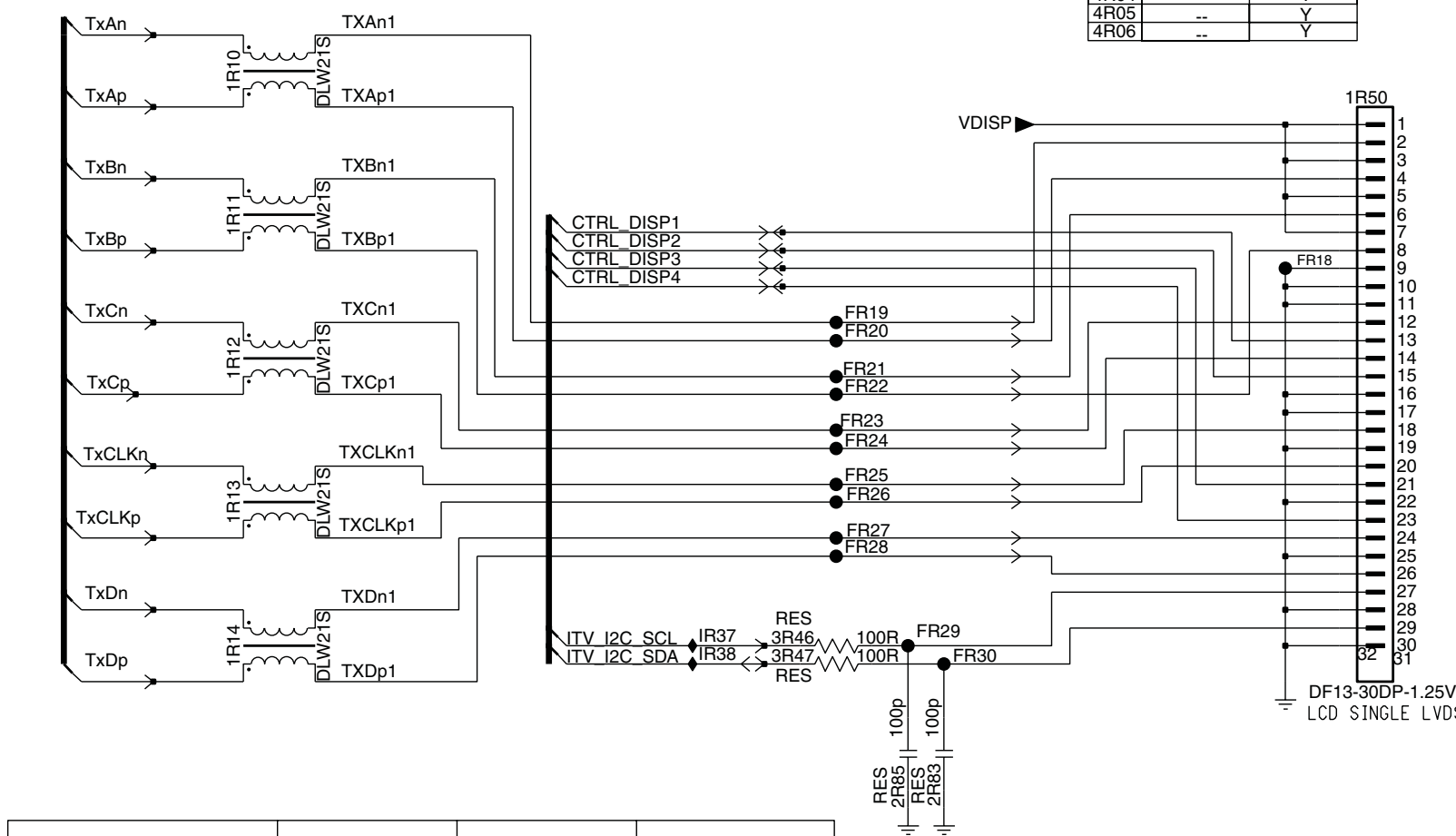
A

B

C

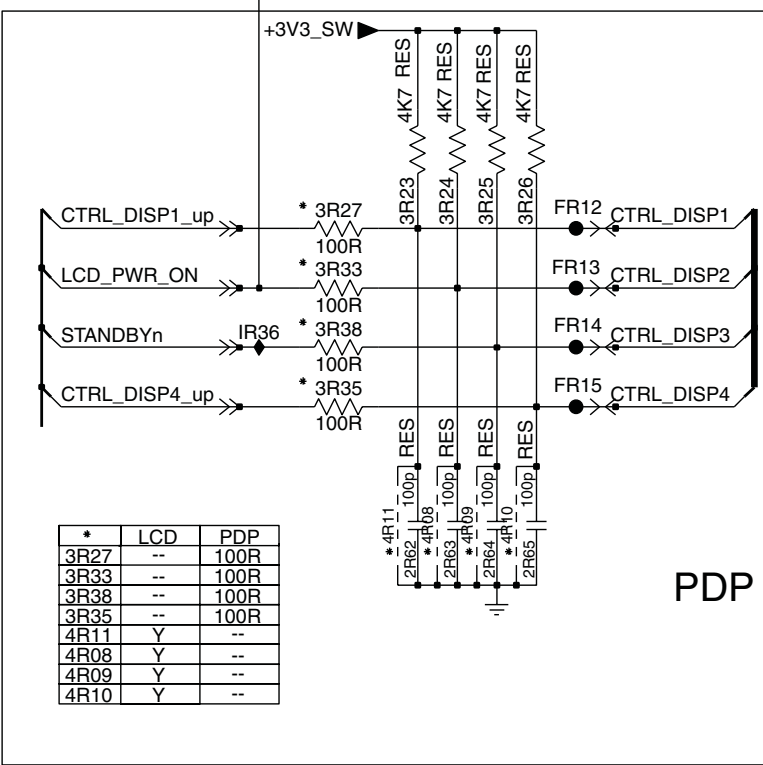
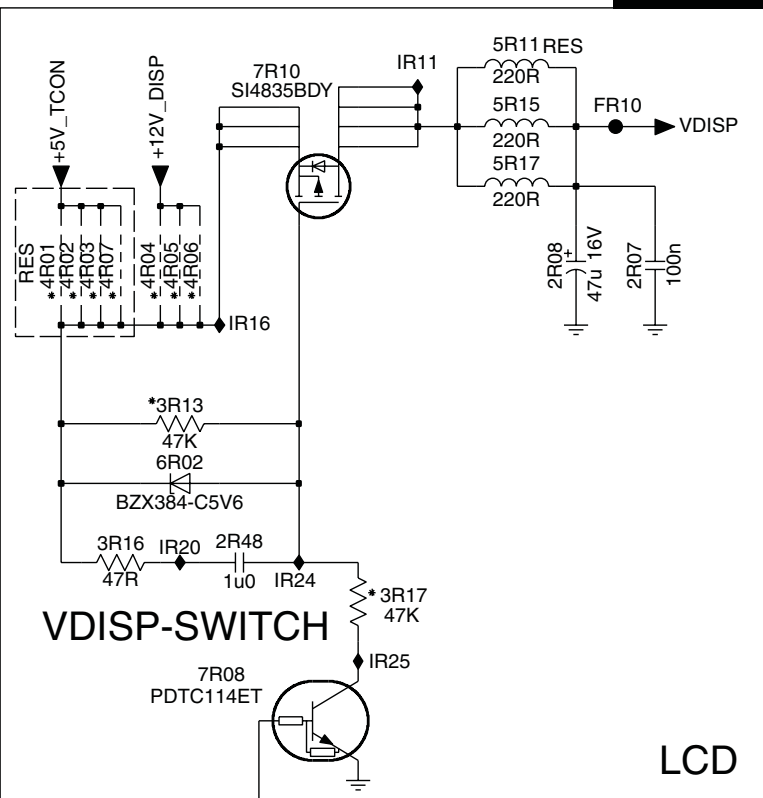
D

E



	LGE	SDI	FHP
CTRL-DISP1		RESET Semi standby : H Normal and off : L	
CTRL-DISP2(LCD_PWR_on)	DISPEN On time : H Off time : Don't care		CPU-GO On time : H Off time : Don't care
CTRL-DISP3(Rev_Standby)			PDWIN On time : H Off time : Don't care
CTRL-DISP4			PDP-GO On time : H Semi standby : L Off time : Don't care

*	+5V_TCON	+12V_DISP
3R13	220K	47K
3R17	47K	47K

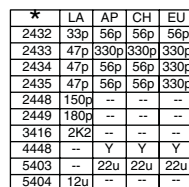


*	LCD	PDP
3R27	--	100R
3R33	--	100R
3R38	--	100R
3R35	--	100R
4R11	Y	--
4R08	Y	--
4R09	Y	--
4R10	Y	--

- 1R10 B1
- 1R11 B1
- 1R12 C1
- 1R13 C1
- 1R14 D1
- 1R50 B6
- 2R07 A9
- 2R08 A9
- 2R48 B8
- 2R62 E8
- 2R63 E8
- 2R64 E9
- 2R65 E9
- 2R83 D4
- 2R85 D4
- 3R13 B7
- 3R16 B7
- 3R17 B8
- 3R23 D8
- 3R24 D8
- 3R25 D9
- 3R26 D9
- 3R27 D8
- 3R33 D8
- 3R35 D8
- 3R38 D8
- 3R46 D4
- 3R47 D4
- 4R01 A7
- 4R02 A7
- 4R03 A7
- 4R04 A7
- 4R05 A7
- 4R06 A7
- 4R07 A7
- 4R08 E8
- 4R09 E8
- 4R10 E9
- 4R11 E8
- 5R11 A9
- 5R15 A9
- 5R17 A9
- 6R02 B7
- 7R08 C7
- 7R10 A8
- FR10 A9
- FR12 D9
- FR13 D9
- FR14 D9
- FR15 D9
- FR18 B6
- FR19 B4
- FR20 C4
- FR21 C4
- FR22 C4
- FR23 C4
- FR24 C4
- FR25 C4
- FR26 C4
- FR27 C4
- FR28 C4
- FR29 D4
- FR30 D4
- IR11 A8
- IR16 A8
- IR20 B7
- IR24 B8
- IR25 B8
- IR36 D8
- IR37 D3
- IR38 D3

AUDIO PROCESSOR - MICRONAS

B05A



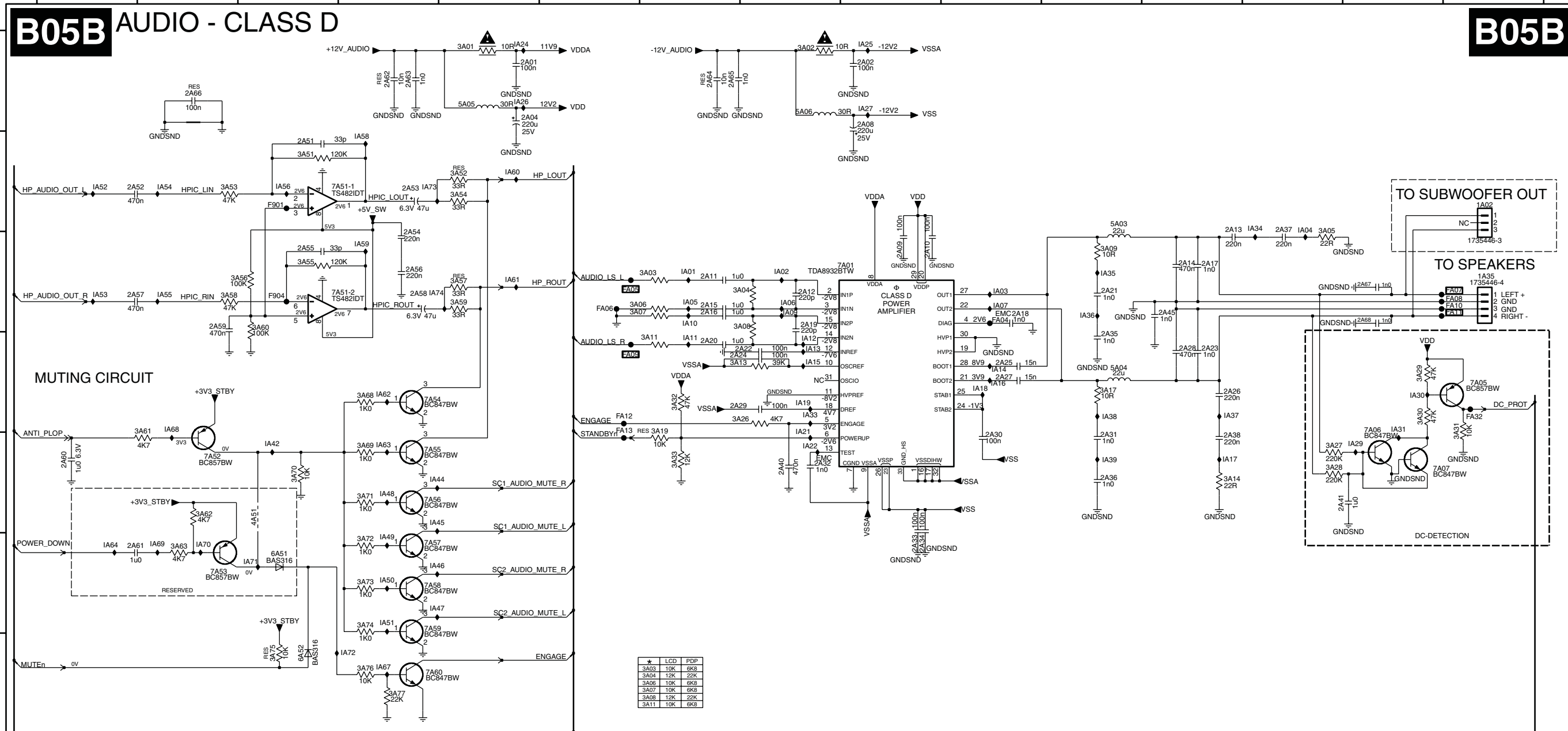
1411 C4	I444 E8
2408 B5	I445 E8
2409 B5	I446 B2

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SSB: Audio Class-D

1A02 B15	2A10 C9	2A17 C12	2A24 D7	2A31 D11	2A38 E12	2A54 B4	2A61 F1	2A68 C14	3A07 C6	3A19 E7	3A32 D7	3A56 C3	3A63 F2	3A74 F4	5A05 A5	7A07 E14	7A56 E4	FA04 C10	FA11 C15	IA04 B13	IA12 D8	IA19 D8	IA29 E14	IA37 D12	IA47 F4	IA54 B2	IA62 D4	IA71 F3
1A35 C15	2A11 C7	2A18 C10	2A25 D10	2A32 E8	2A40 E8	2A55 C3	2A62 A4	3A01 A5	3A08 C8	3A26 D8	3A33 E7	3A57 C5	3A68 D4	3A75 G3	5A06 A8	7A51-1 B3	7A57 F4	FA05 C6	FA12 D6	IA05 C7	IA13 D8	IA21 D8	IA30 D14	IA38 D11	IA48 E4	IA55 C2	IA63 E4	IA72 G4
2A01 A5	2A12 C8	2A19 C8	2A26 D12	2A33 F9	2A41 E14	2A56 C4	2A63 A4	3A02 A8	3A09 C11	3A27 E13	3A51 B3	3A58 C2	3A69 E4	3A76 G4	6A51 F3	7A51-2 C3	7A58 F4	FA06 C6	FA13 E6	IA06 C8	IA14 D10	IA22 E8	IA31 D14	IA39 E11	IA49 F4	IA56 B3	IA64 F1	IA73 B4
2A02 A9	2A13 C12	2A20 D7	2A27 D10	2A34 F9	2A45 C12	2A57 C1	2A64 A7	3A03 C7	3A11 D7	3A28 E13	3A52 B5	3A59 C5	3A70 E3	3A77 G4	6A52 G3	7A52 E2	7A59 F4	FA07 C15	FA32 D15	IA07 C10	IA15 D8	IA24 A5	IA33 D8	IA42 E3	IA50 F4	IA58 B4	IA67 G4	IA74 C4
2A04 A5	2A14 C12	2A21 C11	2A28 D12	2A35 C11	2A51 B3	2A58 C4	2A65 A7	3A04 C8	3A13 D7	3A29 D14	3A53 B2	3A60 C3	3A71 E4	4A51 E3	7A01 C9	7A53 F2	7A60 G4	FA08 C15	IA01 C7	IA09 C8	IA16 D10	IA25 A9	IA34 B13	IA44 E4	IA51 F4	IA59 C4	IA68 D2	
2A08 A9	2A15 C7	2A22 D8	2A29 D7	2A36 E11	2A52 B1	2A59 C2	2A66 A2	3A05 C13	3A14 E12	3A30 D14	3A54 B5	3A61 D2	3A72 F4	5A03 B11	7A05 D15	7A54 D4	F901 B3	FA09 D6	IA02 C8	IA10 C7	IA17 E12	IA26 A5	IA35 C11	IA45 E4	IA52 B1	IA60 B5	IA69 F2	
2A09 C9	2A16 C7	2A23 D12	2A30 D10	2A37 C13	2A53 B4	2A60 E1	2A67 C14	3A06 C6	3A17 D11	3A31 D15	3A55 C3	3A62 E2	3A73 F4	5A04 D11	7A06 D14	7A55 E4	F904 C3	FA10 C15	IA03 C10	IA11 D7	IA18 D10	IA27 A9	IA36 C11	IA46 F4	IA53 C1	IA61 C5	IA70 F2	

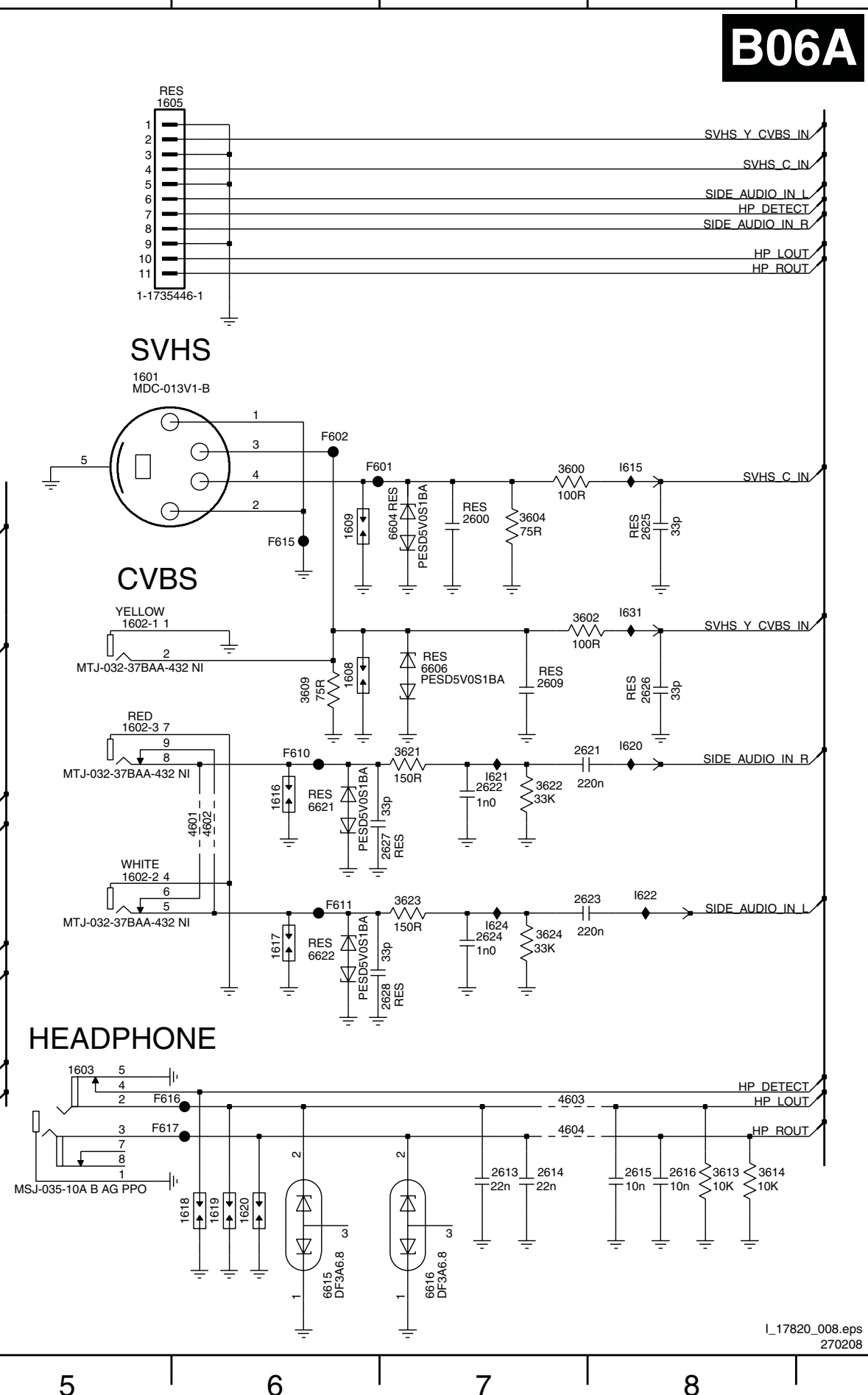


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B06A YPBPR & SVHS

B06A

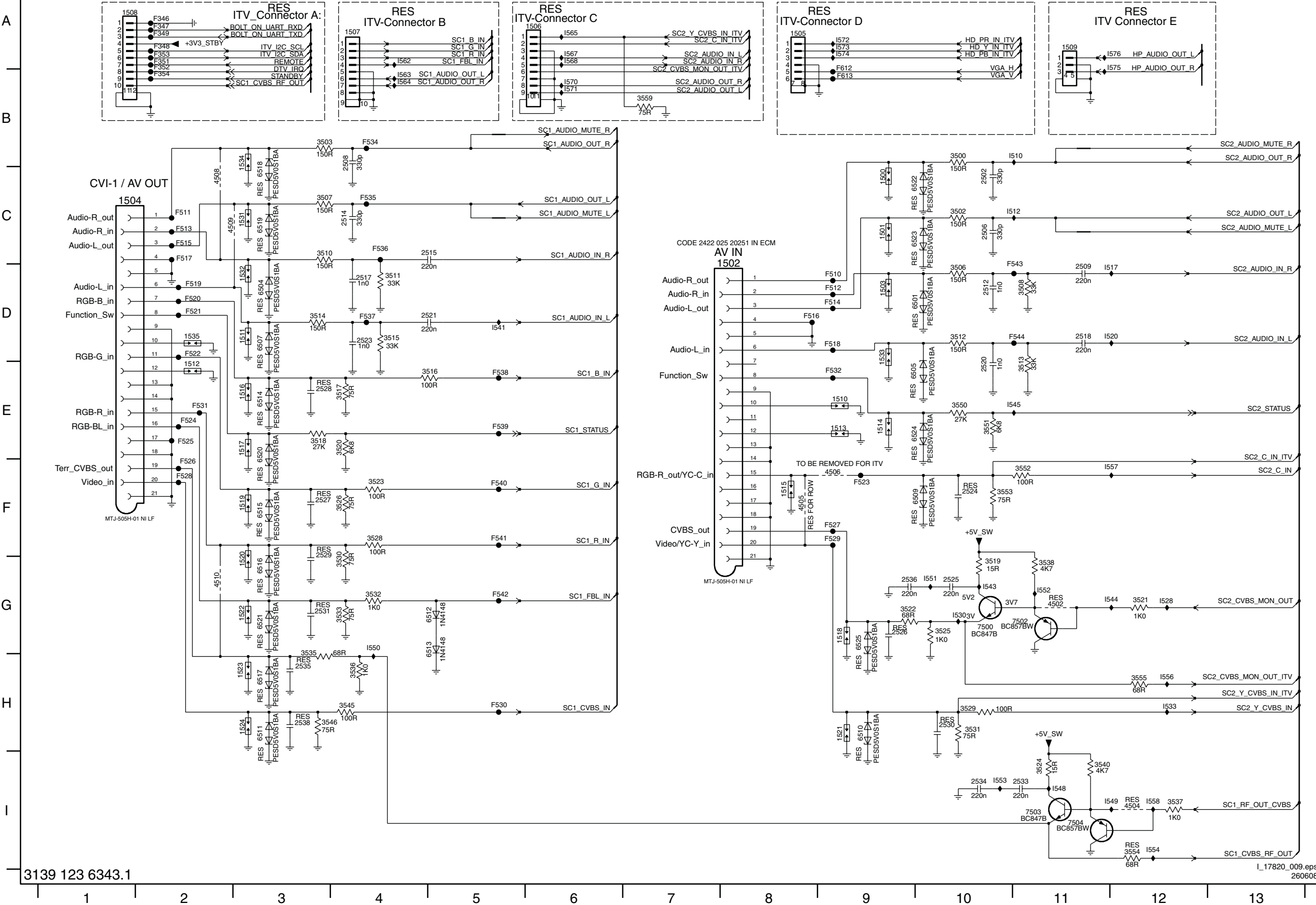


1601 B5	6621 D6
1602-1 C5	6622 E6
1602-2 D5	F601 B6
1602-3 D5	F602 B6
1603 E5	F604 D2
1605 A5	F605 E2
1606 E1	F607 E2
1607 D3	F608 C1
1608 C6	F609 C1
1609 C6	F610 D6
1610 F1	F611 D6
1611 C1	F614 C1
1613 C1	F615 C6
1615 B1	F616 E5
1616 D6	F617 E5
1617 E6	I610 C4
1618 F6	I611 C4
1619 F6	I615 B8
1620 F6	I616 E4
1621 A3	I620 D8
2600 C7	I621 D7
2602 E2	I622 D8
2603 D3	I623 C3
2606 E2	I624 E7
2607 C4	I627 C3
2608 C3	I631 C8
2609 C7	
2610 C4	
2612 C3	
2613 F7	
2614 F7	
2615 F8	
2616 F8	
2621 D7	
2622 D7	
2623 D7	
2624 E7	
2625 C8	
2626 C8	
2627 D7	
2628 E7	
3600 B7	
3601 E3	
3602 C7	
3603 D2	
3604 C7	
3605 F3	
3607 C2	
3608 C3	
3609 C6	
3611 C2	
3612 C3	
3613 F8	
3614 F8	
3617 E4	
3618 D4	
3619 E3	
3621 D7	
3622 D7	
3623 D7	
3624 E7	
4601 D6	
4602 D6	
4603 E7	
4604 F7	
6604 C7	
6606 C7	
6610 E2	
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6613 C2	
6614 C2	
6615 F6	
6616 F7	

SSB: I/O Cinch 1 & 2

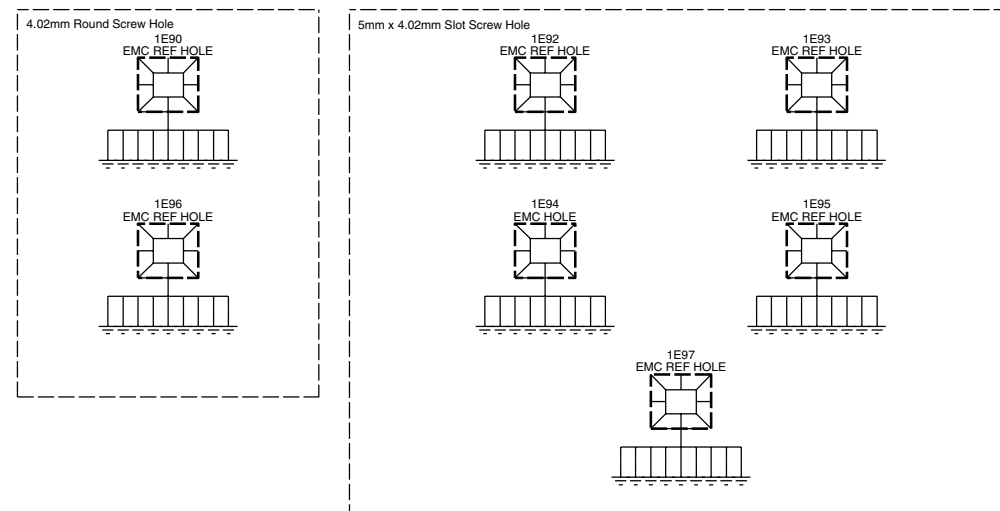
B06B IO - CINCH 1 & 2

B06B



1500 C9	6516 G3
1501 C9	6517 H3
1502 D8	6518 C3
1503 D9	6519 C3
1504 C1	6520 E3
1505 A8	6521 G3
1506 A6	6522 C9
1507 A4	6523 C9
1508 A1	6524 E9
1509 A11	6525 G9
1510 E9	7500 G10
1511 D3	7502 G11
1512 E2	7503 I11
1513 E9	7504 I11
1514 E9	F346 A2
1515 F8	F347 A2
1516 E3	F348 A2
1517 E3	F349 A2
1518 G9	F351 A2
1519 F3	F352 A2
1520 G3	F353 A2
1521 H9	F354 B2
1522 G3	F510 D9
1523 H3	F511 C2
1524 H3	F512 D9
1531 C3	F513 C2
1532 D3	F514 D9
1533 E9	F515 C2
1534 C3	F516 D8
1535 D2	F517 C2
2502 C10	F518 D9
2506 C10	F519 D2
2508 B4	F520 D2
2509 D11	F521 D2
2512 D10	F522 D2
2514 C4	F523 F9
2515 C5	F524 E2
2517 D4	F525 E2
2518 D11	F526 F2
2520 E10	F527 F9
2521 D5	F528 F2
2523 D4	F529 F9
2524 F10	F530 H5
2525 G10	F531 E2
2526 G9	F532 E9
2527 F3	F534 B4
2528 E3	F535 C4
2529 F3	F536 C4
2530 H10	F537 D4
2531 G3	F538 E5
2533 I11	F539 E5
2534 I10	F540 F5
2535 H3	F541 F5
2536 G9	F542 G5
2538 H3	F543 C11
3500 B10	F544 D10
3502 C10	F612 B9
3503 B3	F613 B9
3506 D10	I510 B10
3507 C3	I512 C10
3508 D11	I517 D11
3510 C3	I520 D11
3511 D4	I528 G12
3512 D10	I530 G10
3513 E11	I533 H12
3514 D3	I541 D5
3515 D4	I543 G10
3516 E4	I544 G12
3517 E4	I545 E11
3518 E3	I548 I11
3519 G10	I549 I12
3520 E4	I550 G4
3521 G12	I551 G10
3522 G9	I552 G11
3523 F4	I553 I10
3524 I11	I554 I12
3525 G10	I556 H12
3526 F4	I557 F12
3528 F4	I558 I12
3529 H10	I562 A4
3530 G4	I563 B4
3531 H10	I564 B4
3532 G4	I565 A6
3533 G4	I567 A6
3535 H3	I568 A6
3536 H4	I570 B6
3537 I12	I571 B6
3538 G11	I572 A9
3540 I11	I573 A9
3545 H4	I574 A9
3546 H3	I575 A12
3550 E10	I576 A12
3551 E10	
3552 F11	
3553 F10	
3554 I12	
3555 H12	
3559 B7	
4502 G11	
4504 I12	
4505 F8	
4506 F9	
4508 C2	
4509 C2	
4510 G2	
6501 D9	
6504 D3	
6505 E9	
6507 D3	
6509 F10	
6510 H9	
6511 H3	
6512 G5	
6513 G5	
6514 E3	
6515 F3	

B06C VGA & PC AUDIO & COMPAIR & UART



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B06D HDMI MAIN

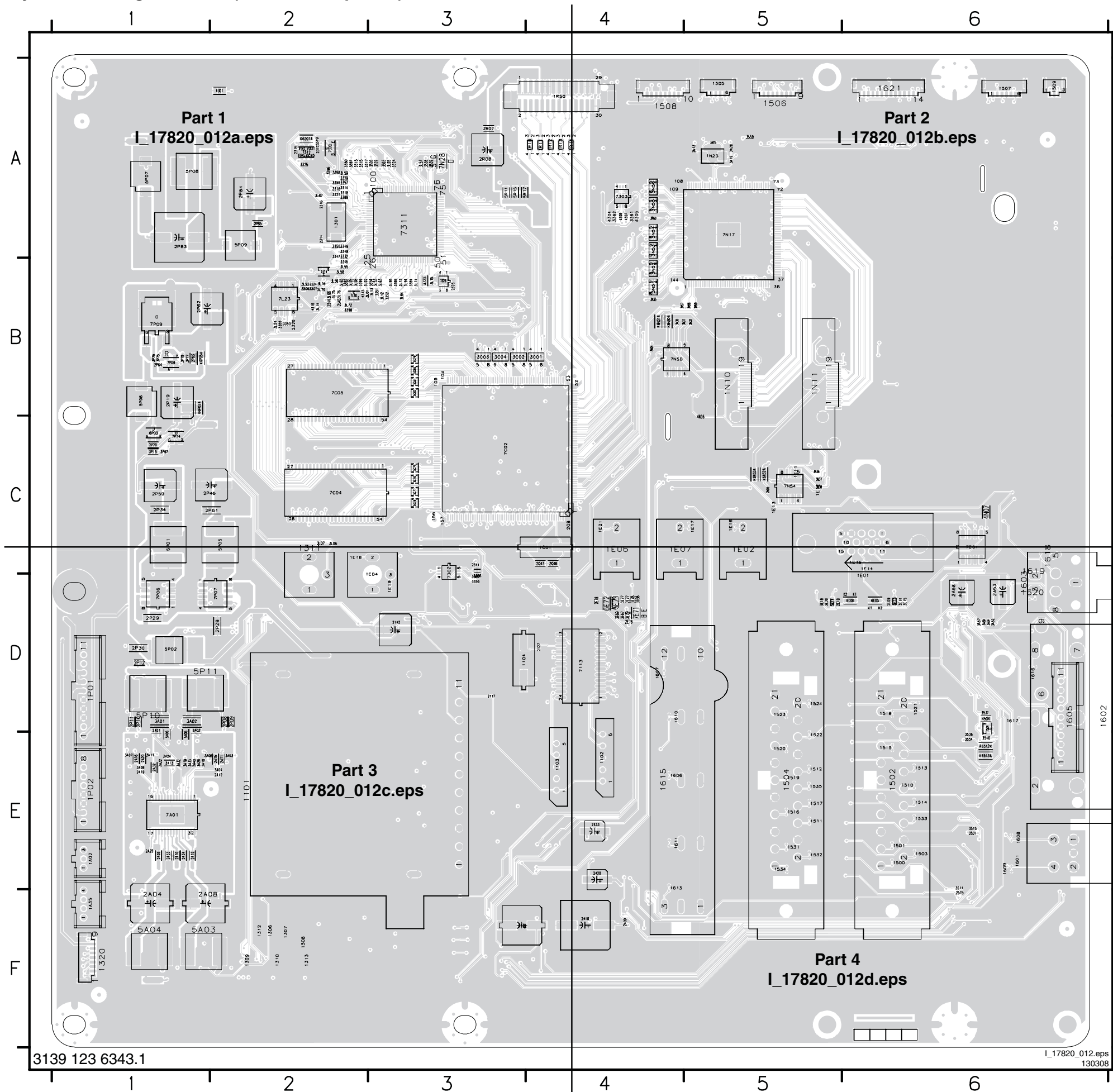


11N10 D3	7N28 D7
11N11 H3	7N55 F7
11N23 J10	7N51 F9
11N25 C9	7N52 G9
2N05 G8	7N53 J5
2N09 J8	7N54 F7
2N10 I8	7N55 J14
2N11 C12	7N56 J14
2N16 C13	FN32 E3
2N17 C13	FN33 H3
2N18 E13	FN34 I3
2N19 C13	FN35 I3
2N28 J10	FN36 I3
2N29 C12	FN37 I3
2N30 C12	FN40 F3
2N35 C13	FN41 F3
2N36 C14	FN42 F3
2N37 C14	FN43 F3
2N38 C14	FN44 F3
2N40 C14	FN51 J7
2N43 C15	FN75 F15
2N44 C15	FN76 G1
2N45 C15	FN77 H11
2N47 D12	FN78 D7
2N48 D12	IN11 J14
2N49 D14	IN14 J14
2N50 D13	IN22 F9
2N51 D13	IN52 G9
2N52 D13	IN31 F4
2N53 D13	IN33 F4
2N54 D14	IN34 I4
2N55 D14	IN35 I4
2N56 D14	IN36 J4
2N57 D14	IN37 J5
2N58 D15	IN40 G5
2N59 D15	IN41 G4
2N60 D15	IN44 H8
2N61 D15	IN45 H8
2N65 E12	IN46 H10
2N66 E12	IN47 H11
2N67 E13	IN48 J10
2N68 E13	IN50 B12
2N69 E13	IN51 B13
2N70 E13	IN52 B13
2N71 E14	IN53 B14
2N72 E14	IN54 B14
2N73 E14	IN55 B15
2N74 E14	IN56 B15
2N75 E15	IN57 B15
2N76 E15	IN58 B15
2N77 F5	IN62 I11
2N78 F5	IN63 E7
2N79 I8	IN64 H9
2N81 I8	IN65 H9
2N82 C16	IN66 G7
2N83 D16	
2N84 D16	
2N85 E5	
2N86 E5	
3N01 F3	
3N02 I7	
3N11 I10	
3N12 I3	
3N15 I10	
3N16 J10	
3N30 E8	
3N31 E8	
3N32 E8	
3N33 E8	
3N34 G9	
3N35 F13	
3N36 G7	
3N37 G8	
3N38 G8	
3N42 G9	
3N43 H9	
3N50 J7	
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3N51-3 F13	
3N51-4 G13	
3N52-1 G13	
3N52-2 G13	
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3N55-4 H13	
3N56-1 H13	
3N56-2 H13	
3N56-3 H13	
3N56-4 H13	
3N57 J13	
3N58 J13	
3N59 J13	
3N60 J13	
3N62 F4	
3N63 F4	
3N64 G4	
3N65 I4	
3N66 I4	
3N67 J4	
3N68 J6	
3N71 G5	
3N96 H7	
3N97 H7	
4N01 F5	
4N02 F5	
4N04 I5	
4N05 I5	
4N06 D7	
4N07 F8	
5N10 B13	
5N11 B13	
5N12 B13	
5N13 B14	
5N14 B14	
5N15 B15	
5N16 B15	
5N17 B12	
5N18 B15	
5N20 E7	
6N31 E7	
6N32 G7	
6N33 G6	
7N14 F4	
7N15 J4	
7N16 G5	
7N17-1 F11	
7N17-2 F11	
7N17-3 D10	
7N24 I7	
7N25 J7	
7N26 G9	
7N27 H8	

SSB: SRP List

Netname	Schematic	AD(6)	B04A (1x)	HDMI_Cb(2)	B04A (1x)	IIC_SDA	B04A (1x)	SC2_CVBS_MON_OUT_ITV	B06B (1x)	WR	B04A (1x)
+12V_AUDIO	B01 (1x)	AD(7)	B03 (2x)	HDMI_Cb(2)	B06D (1x)	IIC_SDA_SIDE	B03 (1x)	SC2_STATUS	B03 (1x)	WR_EN	B06C (1x)
+12V_AUDIO	B05B (1x)	AD(7)	B04A (1x)	HDMI_Cb(3)	B04A (1x)	IIC_SDA_SIDE	B06D (1x)	SC2_STATUS	B06B (1x)	WR_EN	B06D (1x)
+12V_DISP	B01 (4x)	ALE_EMU	B03 (1x)	HDMI_Cb(3)	B06D (1x)	IIC_SDA_up	B02 (1x)	SC2_Y_CVBS_IN	B04A (1x)		
+12V_DISP	B02 (1x)	ALE_EMU	B04A (1x)	HDMI_Cb(4)	B04A (1x)	IIC_SDA_up	B03 (1x)	SC2_Y_CVBS_IN	B06B (1x)		
+12V_DISP	B03 (1x)	ANTI_PLOP	B03 (1x)	HDMI_Cb(4)	B06D (1x)	IIC_SDA_up	B05A (1x)	SC2_Y_CVBS_IN_ITV	B04A (1x)		
+12V_DISP	B04B (1x)	ANTI_PLOP	B05B (1x)	HDMI_Cb(5)	B04A (1x)	IIC_SDA_up	B06C (1x)	SC2_Y_CVBS_IN_ITV	B06A (1x)		
+12V_DISP	B05A (1x)	AUD_RST	B03 (1x)	HDMI_Cb(5)	B06D (1x)	ITV_I2C_SCL	B03 (1x)	SC2_Y_CVBS_IN_ITV	B06B (2x)		
+12V_DISP	B05A (1x)	AUD_RST	B05A (1x)	HDMI_Cb(6)	B04A (1x)	ITV_I2C_SCL	B04B (1x)	SIDE_AUDIO_IN_L	B05A (1x)		
+1V8_SW	B01 (3x)	AUD_RST	B05A (1x)	HDMI_Cb(6)	B06D (1x)	ITV_I2C_SCL	B06B (1x)	SIDE_AUDIO_IN_L	B06A (1x)		
+1V8_SW	B04A (3x)	AUDIO_LS_L	B05B (1x)	HDMI_Cb(7)	B04A (1x)	ITV_I2C_SDA	B03 (1x)	SIDE_AUDIO_IN_R	B05A (1x)		
+1V8_SW	B06D (3x)	AUDIO_LS_R	B05A (1x)	HDMI_Cb(7)	B06D (1x)	ITV_I2C_SDA	B04B (1x)	SIDE_AUDIO_IN_R	B06A (1x)		
+3V3_STBY	B01 (1x)	AUDIO_LS_R	B05B (1x)	HDMI_CEC_A	B06D (2x)	ITV_I2C_SDA	B06B (1x)	SIF	B02 (1x)		
+3V3_STBY	B03 (29x)	BL_ADJUST_PWM	B01 (1x)	HDMI_Cr(0)	B04A (1x)	KEYB	B03 (2x)	SIF	B05A (1x)		
+3V3_STBY	B04A (1x)	BL_ADJUST_PWM	B04A (1x)	HDMI_Cr(0)	B06D (1x)	LCD_PWR_ON	B03 (1x)	SIF1	B02 (2x)		
+3V3_STBY	B05B (3x)	BL_BOOST	B01 (1x)	HDMI_Cr(0:7)	B04A (1x)	LCD_PWR_ON	B04B (1x)	SIF2	B02 (2x)		
+3V3_STBY	B06B (1x)	BL_BOOST	B03 (1x)	HDMI_Cr(0:7)	B06D (1x)	LED1	B03 (2x)	SPDIF_IN	B05A (1x)		
+3V3_STBY	B06D (1x)	BL_ON_OFF	B01 (1x)	HDMI_Cr(1)	B04A (1x)	LED2	B03 (2x)	SPDIF_IN	B06A (1x)		
+3V3_SW	B01 (1x)	BL_ON_OFF	B03 (1x)	HDMI_Cr(1)	B06D (1x)	LIGHT_SENSOR	B03 (1x)	SPDIF_OUT	B05A (1x)		
+3V3_SW	B02 (2x)	BOLT_ON_UART_RXD	B03 (1x)	HDMI_Cr(2)	B04A (1x)	MUTE _n	B03 (1x)	SPDIF_OUT	B06C (1x)		
+3V3_SW	B03 (18x)	BOLT_ON_UART_RXD	B06A (1x)	HDMI_Cr(2)	B06D (1x)	MUTE _n	B05B (1x)	STANDBY	B01 (1x)		
+3V3_SW	B04A (10x)	BOLT_ON_UART_RXD	B06B (1x)	HDMI_Cr(3)	B04A (1x)	NVM_WC	B03 (2x)	STANDBY	B03 (1x)		
+3V3_SW	B04B (1x)	BOLT_ON_UART_TXD	B03 (1x)	HDMI_Cr(3)	B06D (1x)	POWER_DOWN	B03 (1x)	STANDBY	B06B (1x)		
+3V3_SW	B05A (1x)	BOLT_ON_UART_TXD	B06A (1x)	HDMI_Cr(4)	B04A (1x)	POWER_DOWN	B05B (1x)	STANDBY _n	B03 (1x)		
+3V3_SW	B06D (16x)	BOLT_ON_UART_TXD	B06B (1x)	HDMI_Cr(4)	B06D (1x)	RD	B03 (1x)	STANDBY _n	B04B (1x)		
+5V_IF	B02 (6x)	CE	B03 (1x)	HDMI_Cr(5)	B04A (1x)	RD	B04A (1x)	STANDBY _n	B05B (1x)		
+5V_SW	B01 (6x)	CEC_INT	B03 (1x)	HDMI_Cr(5)	B06D (1x)	REMOTE	B03 (2x)	SUP_A	B05A (3x)		
+5V_SW	B02 (3x)	CEC_INT	B06D (1x)	HDMI_Cr(6)	B04A (1x)	REMOTE	B06B (1x)	SUP_D	B05A (2x)		
+5V_SW	B03 (2x)	COMP_AUDIO_IN_L	B05A (1x)	HDMI_Cr(6)	B06D (1x)	RF_AGC	B02 (2x)	SVHS_C_IN	B04A (1x)		
+5V_SW	B04A (2x)	COMP_AUDIO_IN_L	B06A (1x)	HDMI_Cr(7)	B04A (1x)	RX0_A-	B06D (2x)	SVHS_C_IN	B06A (1x)		
+5V_SW	B05A (3x)	COMP_AUDIO_IN_R	B05A (1x)	HDMI_Cr(7)	B06D (1x)	RX0_A+	B06D (2x)	SVHS_Y_CVBS_IN	B04A (1x)		
+5V_SW	B05B (1x)	COMP_AUDIO_IN_R	B06A (1x)	HDMI_DE	B04A (1x)	RX0_B-	B06D (2x)	SVHS_Y_CVBS_IN	B06A (1x)		
+5V_SW	B06B (2x)	CPU_RST	B03 (1x)	HDMI_DE	B06D (1x)	RX0_B+	B06D (2x)	SVPCX_INT	B03 (1x)		
+5V_SW	B06C (2x)	CS	B03 (1x)	HDMI_H	B04A (1x)	RX1_A-	B06D (2x)	SVPCX_INT	B04A (1x)		
+5V_SW	B06D (2x)	CS	B04A (1x)	HDMI_H	B06D (1x)	RX1_A+	B06D (2x)	SVPCX_RST	B03 (1x)		
+5V_TCON	B01 (1x)	CTRL_DISP1	B04B (2x)	HDMI_HOTPLUG_RST	B03 (1x)	RX1_B-	B06D (2x)	SVPCX_RST	B04A (1x)		
+5V_TCON	B04B (1x)	CTRL_DISP1_up	B03 (1x)	HDMI_HOTPLUG_RST	B06D (2x)	RX1_B+	B06D (2x)	TACT_SWITCH_INT	B03 (1x)		
+5V_TUN	B02 (2x)	CTRL_DISP1_up	B04B (1x)	HDMI_I2S_SCK	B05A (1x)	RX2_A-	B06D (2x)	TXAn	B04A (1x)		
+5VHDMI_A	B06D (3x)	CTRL_DISP2	B04B (2x)	HDMI_I2S_SCK	B06D (1x)	RX2_A+	B06D (2x)	TXAn	B04B (1x)		
+5VHDMI_B	B06D (3x)	CTRL_DISP3	B04B (2x)	HDMI_I2S_SD	B05A (1x)	RX2_B-	B06D (2x)	TXAn1	B04B (1x)		
+5VS	B02 (4x)	CTRL_DISP4	B04B (2x)	HDMI_I2S_SD	B06D (1x)	RX2_B+	B06D (2x)	TXAp	B04A (1x)		
+8V	B05A (2x)	CTRL_DISP4_up	B03 (1x)	HDMI_I2S_WS	B05A (1x)	RXC_A-	B06D (2x)	TXAp	B04B (1x)		
+VTUN	B01 (1x)	CTRL_DISP4_up	B04B (1x)	HDMI_I2S_WS	B06D (1x)	RXC_A+	B06D (2x)	TXAp1	B04B (1x)		
+VTUN	B02 (1x)	CVBS_RF	B02 (1x)	HDMI_RX_BUF_RST	B03 (1x)	RXC_B-	B06D (2x)	TXBn	B04A (1x)		
-12V_AUDIO	B01 (1x)	CVBS_RF	B04A (1x)	HDMI_RX_BUF_RST	B06D (1x)	RXC_B+	B06D (2x)	TXBn	B04B (1x)		
-12V_AUDIO	B05B (1x)	CX_AVDD_ADC1	B04A (2x)	HDMI_V	B04A (1x)	SAW_SW	B02 (1x)	TXBn1	B04B (1x)		
A(0)	B03 (2x)	CX_AVDD_ADC2	B04A (2x)	HDMI_V	B06D (1x)	SAW_SW	B03 (1x)	TXBp	B04A (1x)		
A(0)	B04A (1x)	CX_AVDD_ADC3	B04A (2x)	HDMI_VCLK	B04A (1x)	SC1_AUDIO_IN_L	B05A (1x)	TXBp	B04B (1x)		
A(0:7)	B03 (1x)	CX_AVDD_ADC4	B04A (2x)	HDMI_VCLK	B06D (1x)	SC1_AUDIO_IN_L	B06B (1x)	TXBp1	B04B (1x)		
A(0:7)	B04A (1x)	CX_AVDD3_ADC1	B04A (2x)	HDMI_Y(0)	B04A (1x)	SC1_AUDIO_IN_R	B05A (1x)	TXCLKn	B04A (1x)		
A(1)	B03 (2x)	CX_AVDD3_ADC2	B04A (2x)	HDMI_Y(0)	B06D (1x)	SC1_AUDIO_IN_R	B06B (1x)	TXCLKn	B04B (1x)		
A(1)	B04A (1x)	CX_AVDD3_BG_ASS	B04A (2x)	HDMI_Y(0:7)	B04A (1x)	SC1_AUDIO_MUTE_L	B05B (1x)	TXCLKn1	B04B (1x)		
A(1:7)	B03 (1x)	CX_AVDD3_OUTBUF	B04A (2x)	HDMI_Y(0:7)	B06D (1x)	SC1_AUDIO_MUTE_L	B06B (1x)	TXCLKp	B04A (1x)		
A(10)	B03 (2x)	CX_PAVDD	B04A (2x)	HDMI_Y(1)	B04A (1x)	SC1_AUDIO_MUTE_R	B05B (1x)	TXCLKp	B04B (1x)		
A(11)	B03 (2x)	CX_PAVDD1	B04A (2x)	HDMI_Y(1)	B06D (1x)	SC1_AUDIO_MUTE_R	B06B (1x)	TXCLKp1	B04B (1x)		
A(12)	B03 (2x)	CX_PAVDD2	B04A (2x)	HDMI_Y(2)	B04A (1x)	SC1_AUDIO_OUT_L	B05A (1x)	TXCn	B04A (1x)		
A(13)	B03 (2x)	CX_PDVDD	B04A (2x)	HDMI_Y(2)	B06D (1x)	SC1_AUDIO_OUT_L	B06B (2x)	TXCn	B04B (1x)		
A(14)	B03 (2x)	DC_5V	B06C (3x)	HDMI_Y(3)	B04A (1x)	SC1_AUDIO_OUT_R	B05A (1x)	TXCn1	B04B (1x)		
A(15)	B03 (2x)	DC_PROT	B03 (1x)	HDMI_Y(3)	B06D (1x)	SC1_AUDIO_OUT_R	B06B (2x)	TXCp	B04A (1x)		
A(16)	B03 (2x)	DC_PROT	B05B (1x)	HDMI_Y(4)	B04A (1x)	SC1_B_IN	B04A (1x)	TXCp	B04B (1x)		
A(17)	B03 (2x)	DDC_RST	B03 (1x)	HDMI_Y(4)	B06D (1x)	SC1_B_IN	B06B (2x)	TXCp1	B04B (1x)		
A(18)	B03 (2x)	DDC_RST	B06D (2x)	HDMI_Y(5)	B04A (1x)	SC1_CVBS_IN	B04A (1x)	TXDn	B04A (1x)		
A(19)	B03 (2x)	DDC_SCLA	B06D (2x)	HDMI_Y(5)	B06D (1x)	SC1_CVBS_IN	B06B (1x)	TXDn	B04B (1x)		
A(2)	B03 (2x)	DDC_SCLB	B06D (2x)	HDMI_Y(6)	B04A (1x)	SC1_CVBS_RF_OUT	B06B (2x)	TXDn1	B04B (1x)		
A(2)	B04A (1x)	DDC_SDAA	B06D (2x)	HDMI_Y(6)	B06D (1x)	SC1_FBL_IN	B04A (1x)	TXDp	B04A (1x)		
A(3)	B03 (2x)	DDC_SDAB	B06D (2x)	HDMI_Y(7)	B04A (1x)	SC1_FBL_IN	B06B (2x)	TXDp	B04B (1x)		
A(3)	B04A (1x)	DTV_IRQ	B03 (1x)	HDMI_Y(7)	B06D (1x)	SC1_G_IN	B04A (1x)	TXDp1	B04B (1x)		
A(4)	B03 (2x)	DTV_IRQ	B06A (1x)	HP_AUDIO_OUT_L	B05A (1x)	SC1_G_IN	B06B (2x)	UART_RXD	B03 (2x)		
A(4)	B04A (1x)	DTV_IRQ	B06B (1x)	HP_AUDIO_OUT_L	B05B (1x)	SC1_R_IN	B04A (1x)	UART_TXD	B03 (2x)		
A(5)	B03 (2x)	ENGAGE	B05B (1x)	HP_AUDIO_OUT_L	B06B (1x)	SC1_R_IN	B06B (2x)	VDD	B05B (3x)		
A(5)	B04A (1x)	GNDDC	B01 (1x)	HP_AUDIO_OUT_R	B05A (1x)	SC1_RF_OUT_CVBS	B04A (1x)	VDDA	B05B (3x)		
A(6)	B03 (2x)	GNDDC1	B01 (13x)	HP_AUDIO_OUT_R	B05B (1x)	SC1_RF_OUT_CVBS	B06B (1x)	VDISP	B04B (2x)		
A(6)	B04A (1x)	GNDSND	B01 (5x)	HP_AUDIO_OUT_R	B06B (1x)	SC1_STATUS	B03 (1x)	VGA_AUDIO_IN_L	B05A (1x)		
A(7)	B03 (2x)	GNDSND	B05B (25x)	HP_DETECT	B03 (1x)	SC1_STATUS	B06B (1x)	VGA_AUDIO_IN_L	B06C (1x)		
A(7)	B04A (1x)	GNDTUN	B01 (1x)	HP_DETECT	B06A (1x)	SC2_AUDIO_IN_L	B05A (1x)	VGA_AUDIO_IN_R	B05A (1x)		
A(8)	B03 (2x)	HD_PB_IN	B04A (1x)	HP_LOUT	B05B (1x)	SC2_AUDIO_IN_L	B06A (1x)	VGA_AUDIO_IN_R	B06C (1x)		
A(8:19)	B03 (2x)	HD_PB_IN	B06A (1x)	HP_LOUT	B06A (1x)	SC2_AUDIO_IN_L	B06B (2x)	VGA_B_IN	B04A (1x)		
A(9)	B03 (2x)	HD_PB_IN_ITV	B06A (2x)	HP_ROUT	B05B (1x)	SC2_AUDIO_IN_R	B05A (1x)	VGA_B_IN	B06C (1x)		
AD(0)	B03 (2x)	HD_PB_IN_ITV	B06B (1x)	HP_ROUT	B06A (1x)	SC2_AUDIO_IN_R	B06A (1x)	VGA_G_IN	B04A (1x)		
AD(0)	B04A (1x)	HD_PR_IN	B04A (1x)	HPD_RST_A	B03 (1x)	SC2_AUDIO_IN_R	B06B (2x)	VGA_G_IN	B06C (1x)		
AD(0:7)	B03 (2x)	HD_PR_IN	B06A (1x)	HPD_RST_A	B06D (1x)	SC2_AUDIO_MUTE_L	B05B (1x)	VGA_H	B04A (1x)		
AD(0:7)	B04A (1x)	HD_PR_IN_ITV	B06A (2x)	IF_ATV	B02 (2x)	SC2_AUDIO_MUTE_L	B06B (1x)	VGA_H	B06B (1x)		
AD(1)	B03 (2x)	HD_PR_IN_ITV	B06B (1x)	IIC_SCL	B02 (1x)	SC2_AUDIO_MUTE_R	B05B (1x)	VGA_H	B06C (1x)		
AD(1)	B04A (1x)	HD_Y_IN	B04A (1x)	IIC_SCL	B03 (1x)	SC2_AUDIO_MUTE_R	B06B (1x)	VGA_R_IN	B04A (1x)		
AD(2)	B03 (2x)	HD_Y_IN	B06A (1x)	IIC_SCL	B04A (1x)	SC2_AUDIO_OUT_L	B05A (1x)	VGA_R_IN	B06C (1x)		
AD(2)	B04A (1x)	HD_Y_IN_ITV	B06A (2x)	IIC_SCL_SIDE	B03 (1x)	SC2_AUDIO_OUT_L	B06B (1x)	VGA_V	B04A (1x)		
AD(3)	B03 (2x)	HD_Y_IN_ITV	B06B (1x)	IIC_SCL_SIDE	B06D (1x)	SC2_AUDIO_OUT_R	B05A (1x)	VGA_V	B06B (1x)		
AD(3)	B04A (1x)	HDMI_Cb(0)	B04A (1x)	IIC_SCL_up	B02 (1x)	SC2_AUDIO_OUT_R	B06B (1x)	VGA_V	B06C (1x)		
AD(4)	B03 (2x)	HDMI_Cb(0)	B06D (1x)	IIC_SCL_up	B03 (1x)	SC2_C_IN	B04A (1x)	VIF1	B02 (2x)		
AD(4)	B04A (1x)	HDMI_Cb(0:7)	B04A (1x)	IIC_SCL_up	B05A (1x)	SC2_C_IN	B06B (1x)	VIF2	B02 (2x)		
AD(5)	B03 (2x)	HDMI_Cb(0:7)	B06D (1x)	IIC_SCL_up	B06C (1x)	SC2_C_IN_ITV	B06B (2x)	VSS	B05B (3x)		
AD(5)	B04A (1x)	HDMI_Cb(1)	B04A (1x)	IIC_SDA	B02 (1x)	SC2_CVBS_MON_OUT	B04A (1x)	VSSA	B05B (5x)		
AD(6)	B03 (2x)	HDMI_Cb(1)	B06D (1x)	IIC_SDA	B03 (1x)	SC2_CVBS_MON_OUT	B06B (1x)	WR	B03 (1x)		

Layout Small Signal Board (Overview Top Side)

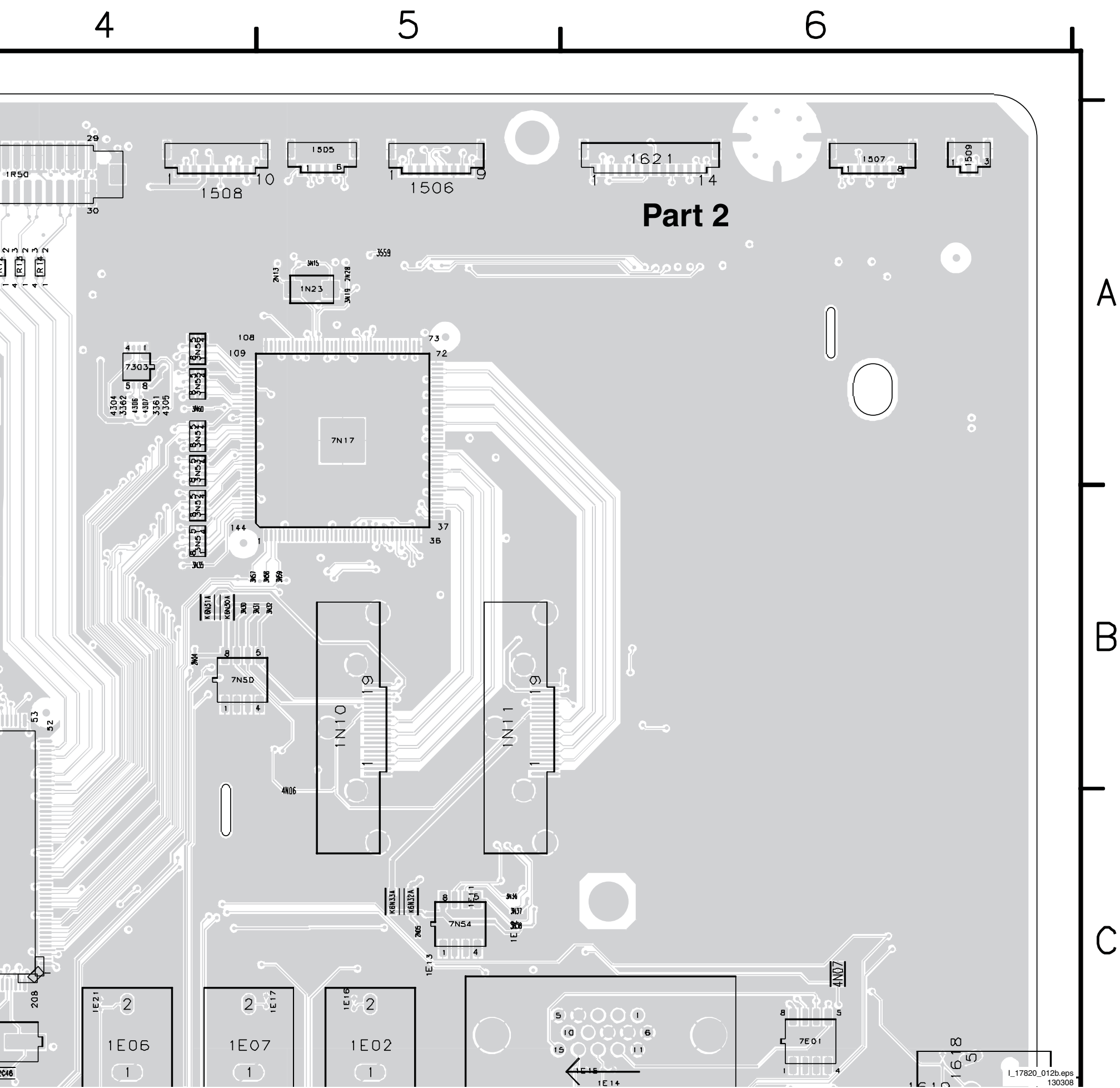


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1104	D3	2E78	D4	3L13	B3
1301	A2	2N04	B4	3L14	B2
1311	C2	2N05	C5	3L15	B3
1320	F1	2N13	A5	3L16	B2
1500	E6	2N28	A5	3L53	B3
1501	E6	2P08	D2	3L54	B2
1502	E6	2P09	D2	3L55	B2
1503	E6	2P10	D1	3L56	B2
1504	E5	2P11	D1	3L57	A3
1505	A5	2P12	D1	3L58	B2
1506	A5	2P19	B1	3L59	A2
1507	A6	2P20	C1	3L63	B3
1508	A4	2P28	D2	3L64	B3
1509	A6	2P29	D1	3L65	B2
1510	E6	2P30	D1	3L66	B2
1511	E5	2P34	C1	3L67	A2
1512	E5	2P46	C1	3L71	B3
1513	E6	2P59	C1	3L72	B2
1514	E6	2P61	C2	3L73	B3
1515	E6	2P62	B1	3L75	B2
1516	E5	2P63	B1	3L76	B2
1517	E5	2P64	B1	3L79	B2
1518	D6	2P83	A1	3L93	B2
1519	E5	2P84	A2	3L94	B3
1520	E5	2P85	A2	3L95	B3
1521	D6	2R07	A3	3N15	A5
1522	E5	2R08	A3	3N19	A5
1523	D5	3303	A3	3N30	B4
1524	D5	3306	B2	3N31	B4
1531	E5	3307	B2	3N32	B5
1532	E5	3313	A2	3N35	B4
1533	E6	3314	A2	3N36	C5
1534	E5	3315	A2	3N37	C5
1535	E5	3316	A2	3N38	C5
1601	E6	3317	A2	3N51	B4
1602	D6	3318	A2	3N52	B4
1603	D6	3319	A2	3N53	A4
1605	D6	3320	A3	3N54	A4
1606	E4	3321	A2	3N55	A4
1607	D4	3322	A3	3N56	A4
1608	E6	3324	A3	3N57	B4
1609	E6	3325	A2	3N58	B5
1610	D4	3329	A2	3N59	B5
1611	E4	3332	A2	3N60	A4
1613	E4	3338	A3	3P15	C1
1615	E4	3339	A3	3P67	C1
1616	D6	3346	B2	3P75	B1
1617	D6	3347	A2	3P76	B1
1618	C6	3348	A2	3P77	B1
1620	D6	3349	A2	3P78	B1
1621	A6	3350	A2	4301	A2
1A02	E1	3351	B3	4304	A4
1A35	F1	3352	B3	4305	A4
1C01	C4	3353	B2	4306	A4
1E01	D6	3354	B3	4307	A4
1E02	C5	3355	B2	4313	B2
1E04	D3	3356	A2	4316	B2
1E06	C4	3357	A2	4323	B3
1E07	C4	3358	A2	4504	D6
1E14	C6	3359	D3	4N06	C5
1E15	C6	3360	D3	4N07	C6
1E16	C5	3361	A4	5306	D3
1E17	C5	3362	A4	5A03	F1
1E18	C2	3380	A2	5A04	F1
1E19	D3	3382	B2	5A05	E1
1E21	C4	3384	B3	5A06	E1
1N10	B5	3386	B3	5E13	D6
1N11	B5	3387	A2	5E14	D5
1N23	A5	3388	A2	5E71	D4
1P01	D1	3396	A2	5P01	C1
1P02	E1	3398	B2	5P02	D1
1R10	A4	3399	B2	5P05	C2
1R11	A4	3511	E6	5P06	B1
1R12	A4	3515	E6	5P07	A1
1R13	A4	3536	E6	5P08	A1
1R14	A4	3537	D6	5P09	A2
1R50	A4	3540	E6	5P10	D1
2117	D3	3554	E6	5P11	D1
2127	D4	3559	A5	5R11	A3
2142	D3	3A01	D1	5R15	A3
2314	A2	3A02	D1	5R17	A3
2315	A2	3A03	E2	6301	A2
2316	A2	3A04	E2	6512	E6
2317	A2	3A06	E1	6513	E6
2320	B2	3A07	E1	6E05	D6
2323	B3	3A08	E1	6E06	D6
2324	B2	3A11	E1	6E72	D4
2341	C3	3A13	E1	6N30	B4
2343	B2	3A19	E1	6N31	B4
2344	B2	3A26	E1	6N32	C5
2409	F4	3A32	E1	6N33	C5
2410	F4	3A33	E1	6P02	B1
2420	E4	3A52	D6	6P03	C1
2423	E4	3A54	D6	6P05	B1
2439	F3	3A57	D6	7113	D4
2515	F6	3A59	D6	7302	C3
2521	E6	3C01	B4	7303	A4
2A01	D1	3C02	B3	7311	A3
2A02	D1	3C03	B3	7312	A2
2A04	F1	3C04	B3	7314	B2
2A08	F1	3C75	C3	7322	A2
2A09	E1	3C76	C3	7323	B3
2A10	E1	3C77	C3	7504	D6
2A11	E2	3C78	C3	7A01	E1
2A12	E2	3C79	B3	7C02	C3
2A15	E2	3C80	B3	7C04	C2
2A16	E1	3C81	B3	7C05	B2
2A18	E1	3C82	B3	7E01	C6
2A19	E1	3E14	D6	7E71	D4
2A20	E1	3E15	D6	7L10	B2
2A22	E1	3E18	D5	7L23	B2
2A24	E1	3E20	D5	7N17	A5
2A29	E1	3E67	D4	7N28	A3
2A30	E1	3E68	D4	7N50	B4
2A32	E1	3E69	D4	7N54	C5
2A33	E1	3E77	D4	7P06	D1
2A34	E1	3E78	D4	7P07	D2
2A40	E1	3E79	D4	7P08	B1
2A53	D6	3L01	B2	7P09	B1
2A58	D6	3L02	B2	7P14	C1
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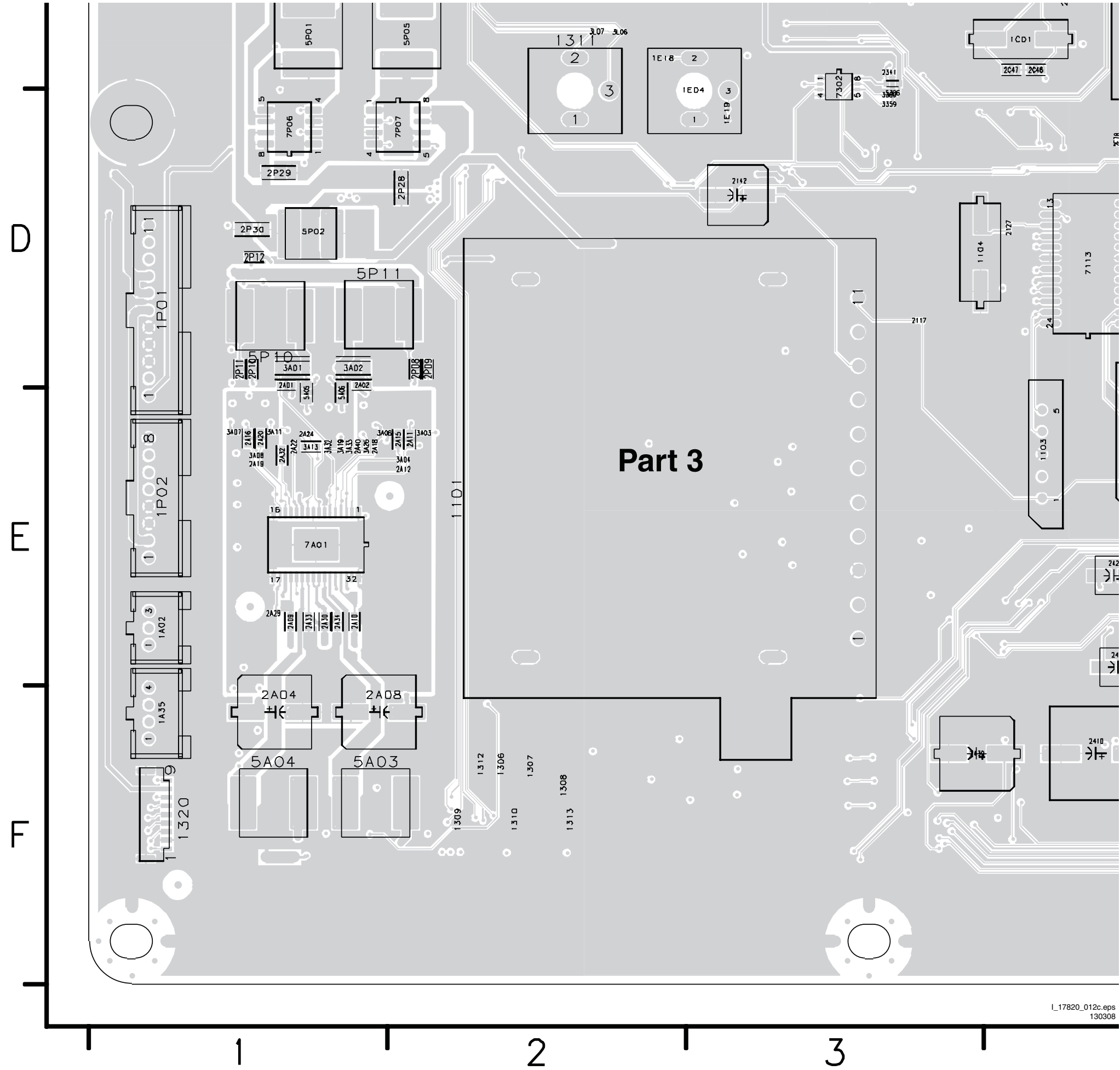
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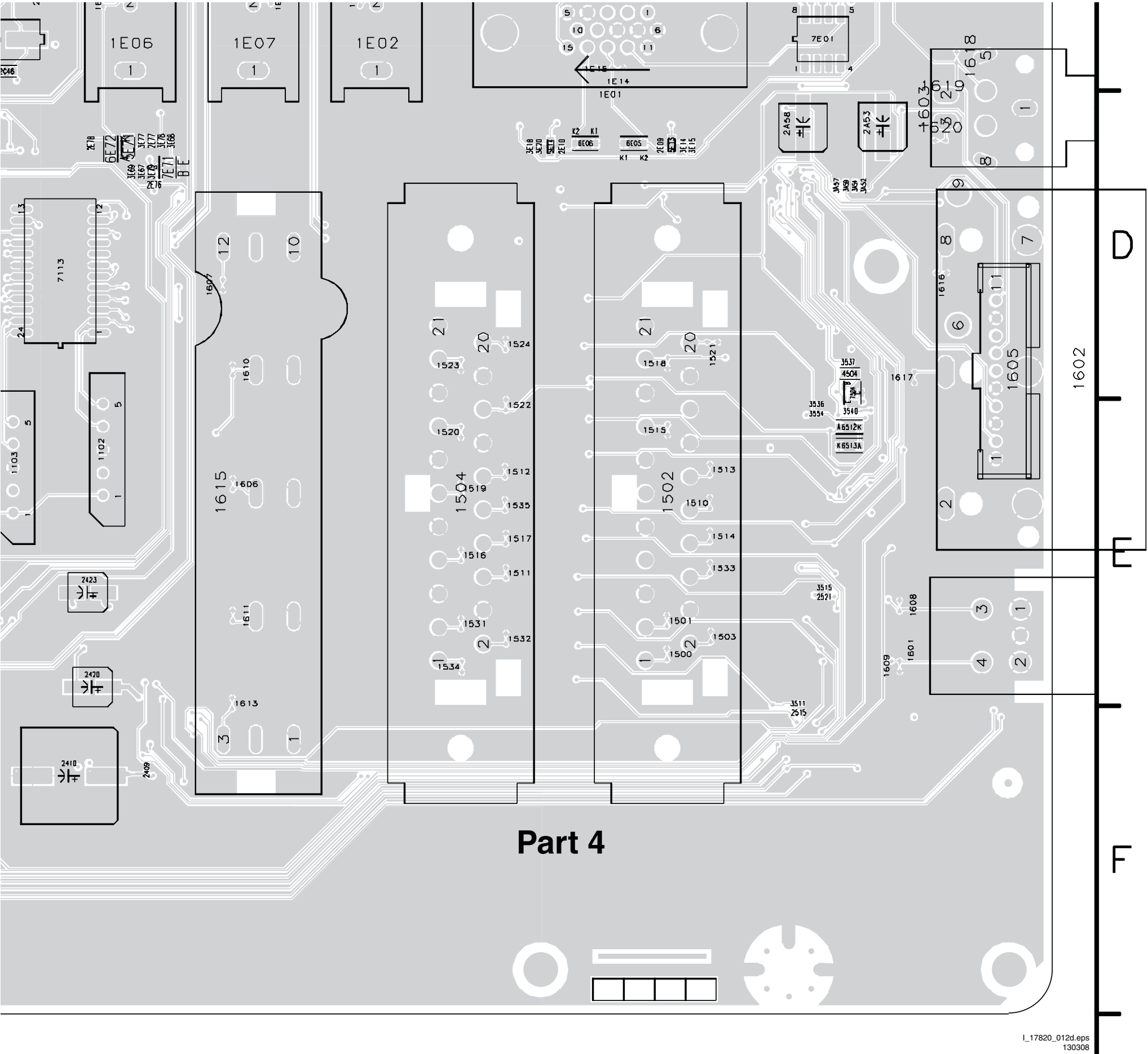
Layout Small Signal Board (Part 2 Top Side)



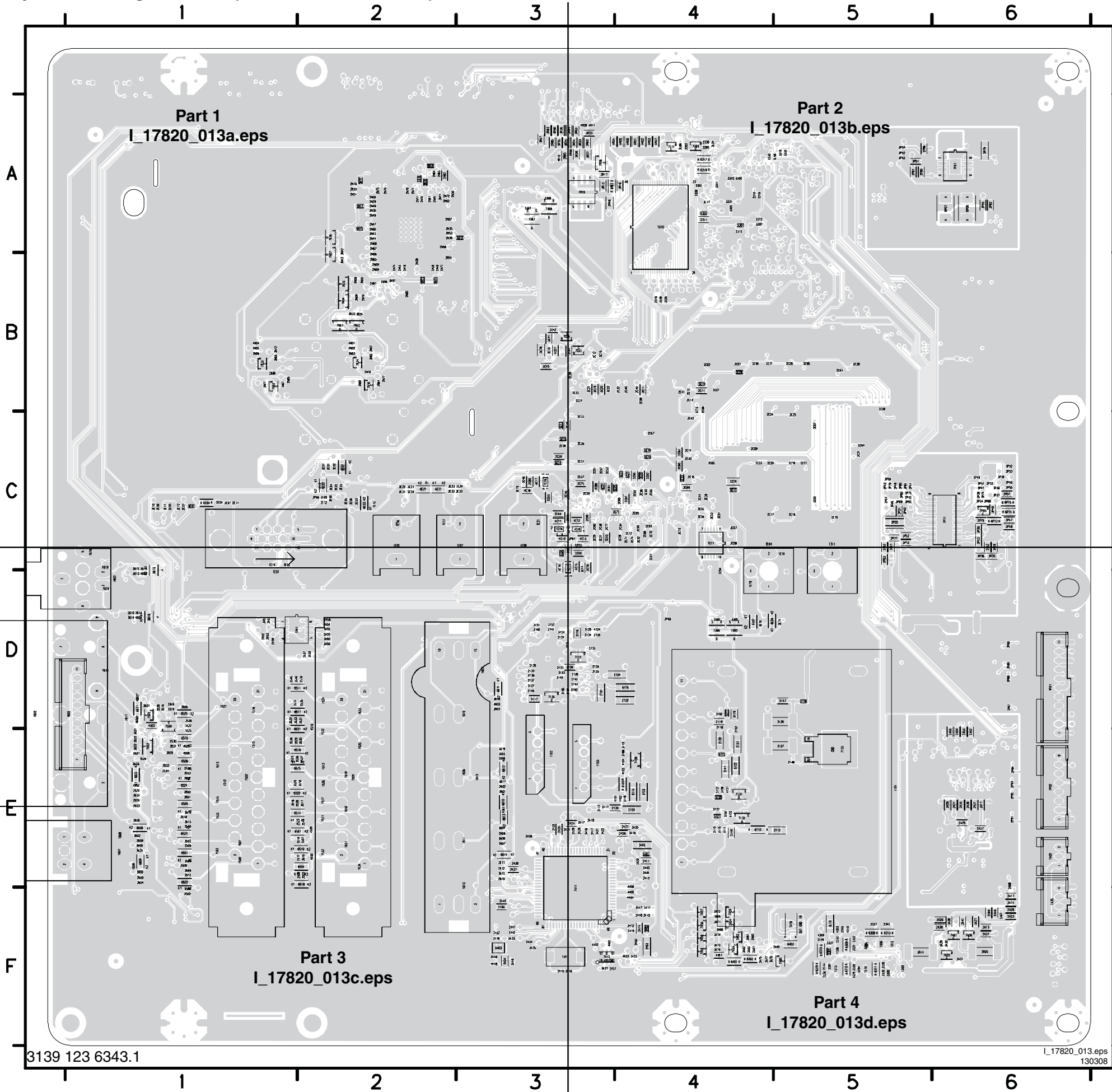
Layout Small Signal Board (Part 3 Top Side)



Layout Small Signal Board (Part 4 Top Side)

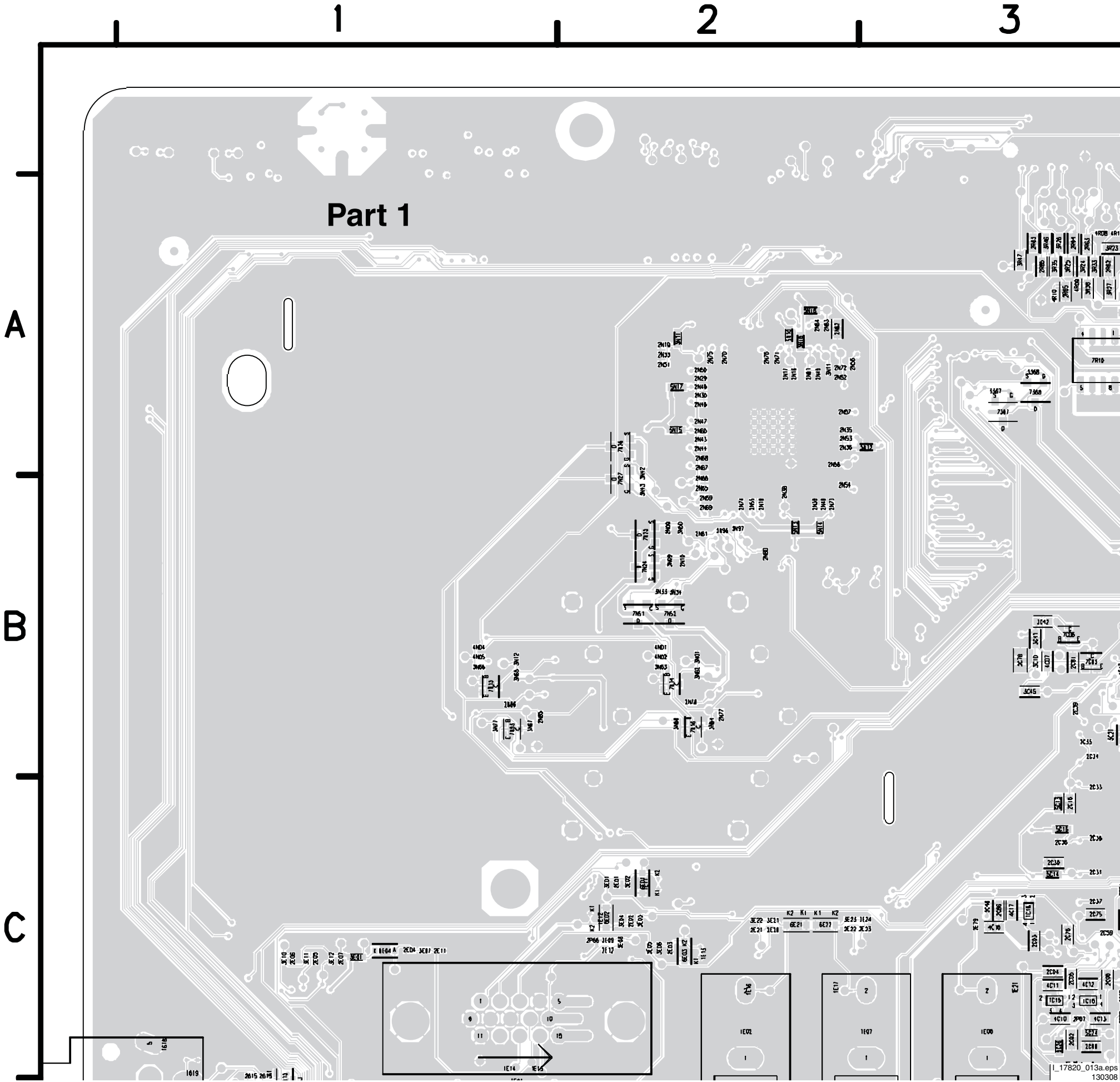


Layout Small Signal Board (Overview Bottom Side)

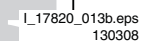


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1307 F5	2535 D2	2C78 B3	2R64 A3	3A27 F6	3P81 C5	6507 E2
1308 F5	2536 D1	2C79 C3	2R65 A3	3A28 F6	3P82 C5	6509 E1
1309 F5	2538 D2	2C80 C4	2R83 A3	3A29 F6	3P83 C5	6510 E1
1310 F5	2600 E1	2C81 B3	2R85 A3	3A30 F6	3R13 A3	6511 D2
1312 F5	2602 E3	2C82 C4	3110 E4	3A31 F6	3R16 A4	6514 E2
1313 F5	2603 D3	2C84 C4	3111 E4	3A51 D1	3R17 A3	6515 E2
1411 F3	2606 E3	2C85 C4	3113 E3	3A53 D1	3R23 A3	6516 E2
1619 C1	2607 E3	2C86 C3	3115 E4	3A55 D2	3R24 A3	6517 D2
1C15 C3	2608 E3	2C87 C4	3117 E3	3A56 D2	3R25 A3	6518 E2
1C16 C3	2609 E1	2C88 C3	3118 E4	3A58 D2	3R26 A3	6519 E2
1C17 C3	2610 E3	2C89 C4	3119 E4	3A60 D2	3R27 A3	6520 E1
1C18 C3	2612 E3	2C90 C3	3123 D3	3A61 F4	3R33 A3	6521 E2
1E11 C2	2613 C1	2C91 C3	3124 D3	3A62 F4	3R35 A3	6522 E1
1E12 C2	2614 D1	2C92 C3	3125 D3	3A63 F4	3R38 A3	6523 E1
1E13 C2	2615 C1	2C93 C4	3126 D3	3A68 F4	3R46 A3	6524 E1
2112 E5	2616 D1	2C94 D4	3127 D3	3A69 F4	3R47 A3	6525 D1
2118 D4	2621 E1	2C95 B5	3133 E4	3A70 F4	4101 E4	6604 E1
2119 D4	2622 E1	2C96 B4	3134 D4	3A71 F4	4102 E4	6606 E1
2120 E4	2623 E1	2C97 B4	3135 D3	3A72 F4	4103 E4	6610 E3
2121 E4	2624 E1	2C98 B4	3136 D5	3A73 F4	4104 E4	6611 D3
2122 E4	2625 E1	2C99 B4	3137 E5	3A74 F4	4121 E4	6612 E3
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2124 D3	2627 D1	2E02 C2	3141 E4	3A76 F4	4124 D3	6614 E3
2125 D3	2628 E1	2E03 C2	3151 D3	3A77 F4	4303 F5	6615 D1
2126 D3	2A13 F6	2E04 C1	3152 D3	3C10 B3	4309 F5	6616 D1
2128 D3	2A14 F6	2E05 C1	3188 E4	3C11 B4	4310 F5	6621 D1
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2130 E4	2A21 E6	2E07 C1	3191 E4	3C15 B3	4402 F3	6A51 F4
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2328 F5	2A67 F6	2N49 A2	3397 A4	3E01 C2	4N02 B2	7367 A3
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2332 F5	2C05 C3	2N53 A2	3411 F4	3E05 C2	4R02 A4	7412 F3
2333 F5	2C06 C3	2N54 B2	3416 F3	3E06 C2	4R03 A4	7500 D1
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2335 F5	2C08 B5	2N56 A2	3418 E3	3E08 C2	4R05 A4	7503 E1
2336 F5	2C09 C4	2N57 A2	3419 E4	3E09 C2	4R06 A4	7A05 F6
2337 F5	2C10 C5	2N58 A2	3420 E4	3E10 C1	4R07 A4	7A06 F6
2338 A4	2C11 B4	2N59 B2	3423 F4	3E11 C1	4R08 A3	7A07 F6
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2422 E3	2C26 B5	2N77 B2	3518 E2	3N11 A2	5301 A4	7N15 B1
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2425 E3	2C28 B5	2N80 B2	3520 E1	3N33 B2	5304 F5	7N24 B2
2426 E4	2C29 C4	2N81 B2	3521 D1	3N34 B2	5401 E4	7N25 B2
2427 E4	2C30 C3	2N82 A2	3522 D1	3N42 A2	5402 F4	7N26 A2
2428 E3	2C31 C3	2N83 A2	3523 E1	3N43 B2	5403 F3	7N27 B2
2429 E3	2C32 C3	2N84 A2	3524 E1	3N50 B2	5404 F3	7N51 B2
2430 E3	2C33 C3	2N85 B1	3525 E1	3N62 B2	5C10 B4	7N52 B2
2431 E3	2C34 B3	2N86 B1	3526 E2	3N63 B2	5C12 C4	7N53 B1
2432 F3	2C35 B3	2P07 C6	3528 E1	3N64 B2	5C13 C3	7P01 A6
2433 F3	2C36 C3	2P31 C5	3529 E1	3N65 B1	5C14 C3	7P05 C6
2434 F3	2C37 C3	2P32 C6	3530 E2	3N66 B1	5C16 C3	7P11 C6
2435 F3	2C38 C3	2P33 C6	3531 E1	3N67 B1	5C18 C4	7R08 A3
2436 F3	2C39 B3	2P35 C6	3532 D1	3N68 B2	5C19 C4	7R10 A3
2437 E3	2C40 B4	2P36 C6	3533 D1	3N77 B1	5C20 C4	
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2440 F5	2C42 C4	2P38 C6	3538 D1	3N97 B2	5C22 C4	
2441 F3	2C43 C4	2P39 C6	3545 D1	3P01 A5	5C23 C4	
2442 F3	2C44 C4	2P40 C6	3546 D1	3P02 A5	5C24 C3	
2443 E4	2C45 B4	2P41 C5	3550 E1	3P03 A5	5C25 C4	
2444 E4	2C50 C4	2P42 C5	3551 E1	3P04 A5	5C26 C3	
2445 F3	2C51 C4	2P43 C5	3552 E1	3P05 A6	5C27 C4	
2446 F4	2C52 C4	2P48 C5	3553 E1	3P13 C5	5C28 B4	
2447 F4	2C53 C3	2P49 C6	3555 D1	3P20 C5	5E01 C1	
2448 F3	2C54 C4	2P50 C6	3600 E1	3P23 C6	5N10 A2	
2449 F3	2C55 C4	2P52 C5	3601 E3	3P25 C6	5N11 A2	
2450 F4	2C56 C4	2P53 C5	3602 E1	3P26 C6	5N12 A3	
2451 F3	2C57 C3	2P54 C5	3603 D3	3P32 C5	5N13 B2	
2502 F1	2C58 C3	2P65 D4	3604 E1	3P34 C6	5N14 B2	
2506 E1	2C59 C3	2P66 C2	3605 E3	3P37 C6	5N15 A2	
2508 E2	2C60 C3	2P67 C3	3607 E3	3P38 C6	5N16 A2	
2509 E1	2C61 C3	2P78 C6	3608 E3	3P40 C5	5N17 A2	
2512 E1	2C62 B4	2P79 A6	3609 E1	3P41 C6	5N18 A2	
2514 E2	2C63 B5	2P80 A5	3611 E3	3P45 C5	6103 E4	
2517 E2	2C64 C5	2P81 A5	3612 E3	3P47 C6	6110 E4	
2518 E1	2C65 C4	2P82 A6	3613 D1	3P48 C6	6308 F5	
2520 E1	2C66 C4	2P86 A5	3614 D1	3P49 C6	6309 F5	
2523 E2	2C67 C4	2P87 D6	3617 E3	3P50 C5	6310 F5	
2524 E1	2C68 C4	2P88 D6	3618 D3	3P51 C6	6311 F5	
2525 D1	2C69 C4	2P89 D6	3619 E3	3P52 C6	6312 F5	
2526 D1	2C70 C4	2P90 D6	3621 E1	3P53 C6	6313 F5	
2527 E2	2C71 C4	2P91 E6	3622 E1	3P61 C5	6317 A4	
2528 E1	2C72 C4	2P92 E6	3623 E1	3P68 C6	6318 A4	
2529 E1	2C73 C4	2P93 E6	3624 E1	3P69 C5	6319 F5	
2530 E1	2C74 C4	2P94 E6	3A05 F6	3P72 C5	6402 F5	
2531 D2	2C75 C3	2R48 A3	3A09 E6	3P74 C6	6501 E1	
2533 E1	2C76 C3	2R62 A3	3A14 F5	3P79 C5	6504 E2	

Layout Small Signal Board (Part 1 Bottom Side)



6

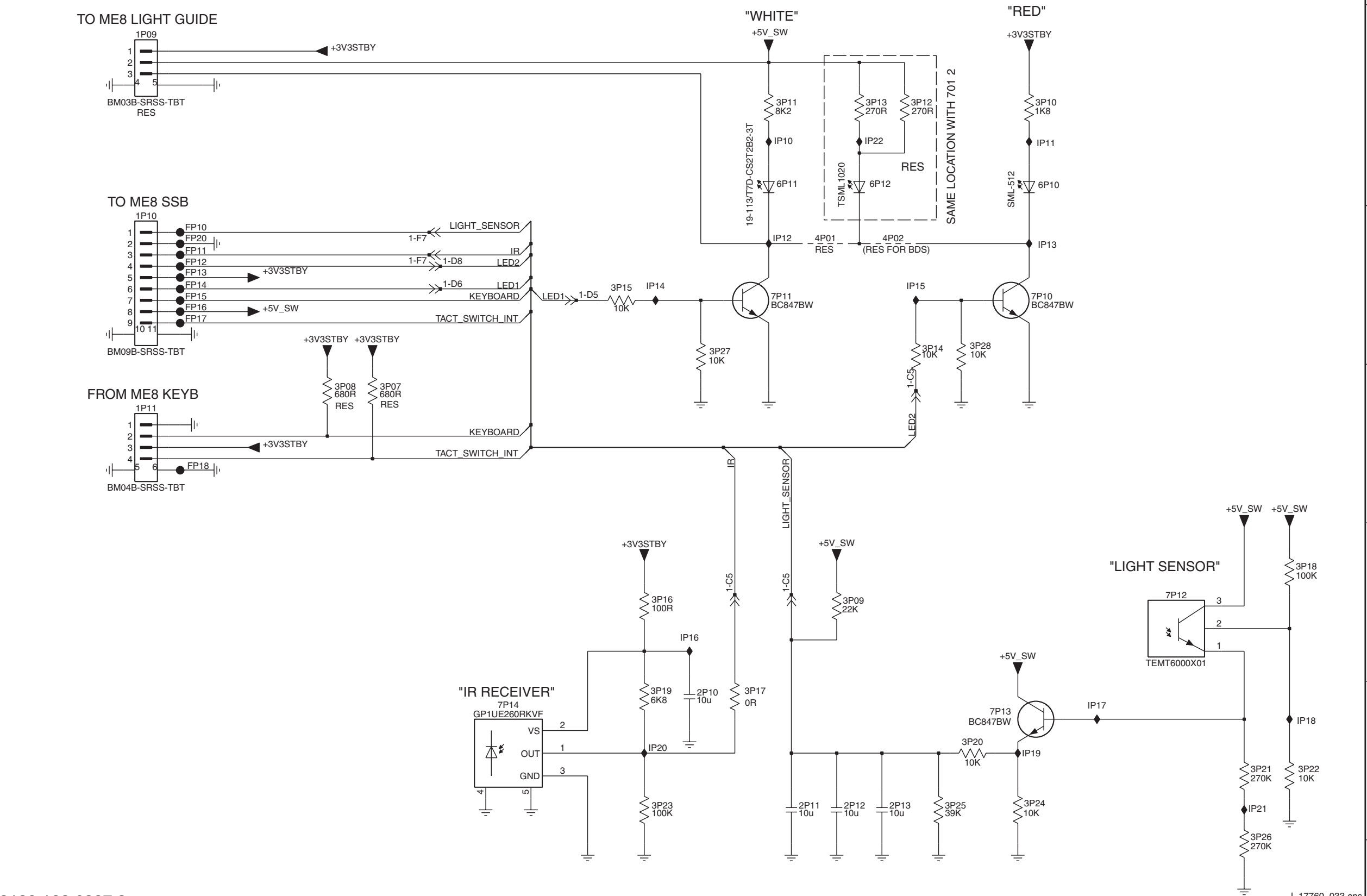


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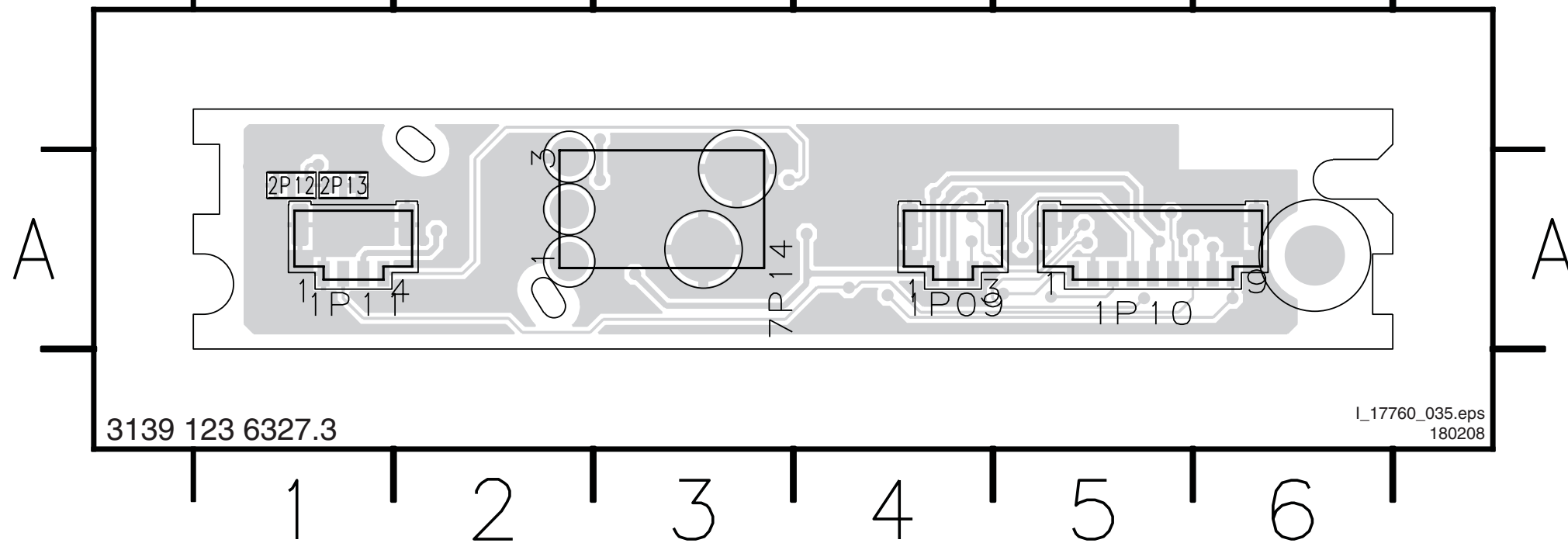
IR / LED Panel

J IR & LED PANEL

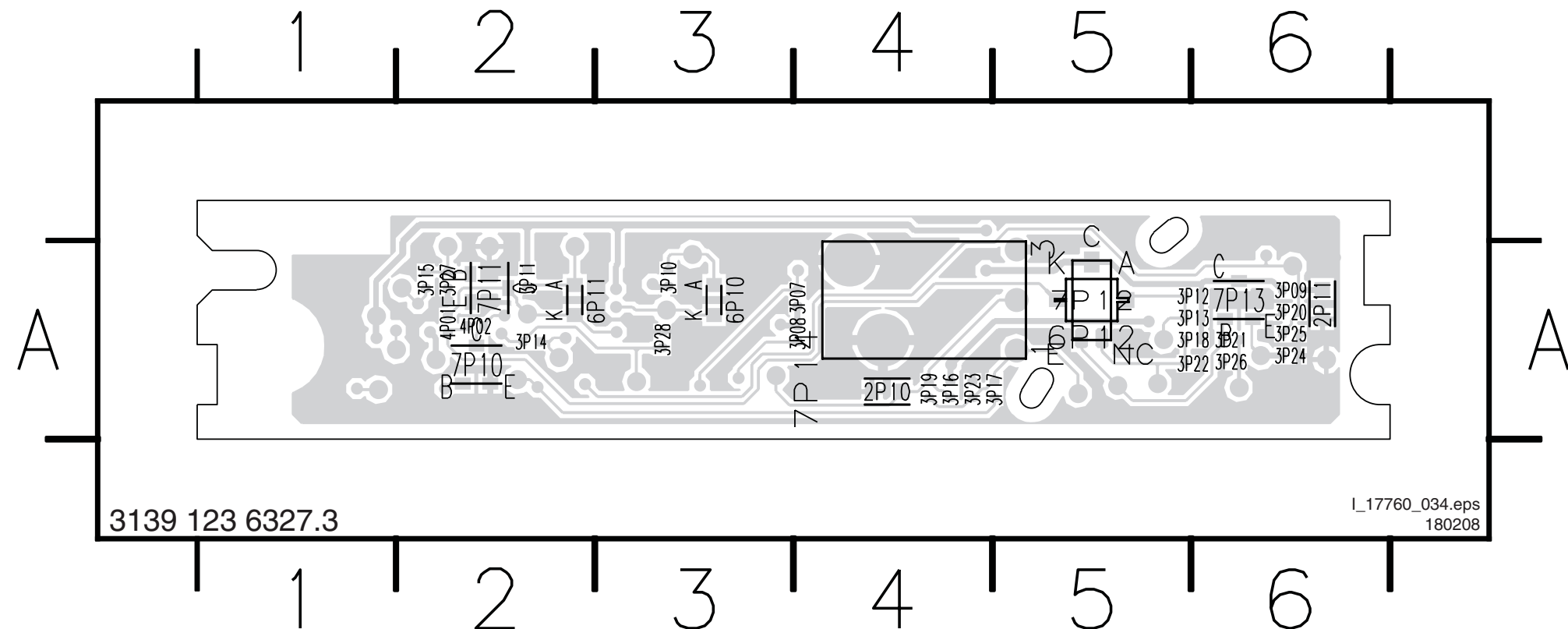


- 1P09 A1
- 1P10 B1
- 1P11 C1
- 2P10 E5
- 2P11 E5
- 2P12 E6
- 2P13 E6
- 3P07 C3
- 3P08 C2
- 3P09 D6
- 3P10 A7
- 3P11 A5
- 3P12 A6
- 3P13 A6
- 3P14 B6
- 3P15 B4
- 3P16 D4
- 3P17 E5
- 3P18 D8
- 3P19 E4
- 3P20 E6
- 3P21 E8
- 3P22 E8
- 3P23 E4
- 3P24 E7
- 3P25 E6
- 3P26 E8
- 3P27 B5
- 3P28 B6
- 4P01 B5
- 4P02 B6
- 6P10 A7
- 6P11 A5
- 6P12 A6
- 7P10 B7
- 7P11 B5
- 7P12 D8
- 7P13 E7
- 7P14 E3
- FP10 B1
- FP11 B1
- FP12 B1
- FP13 B1
- FP14 B1
- FP15 B1
- FP16 B1
- FP17 B1
- FP18 C1
- FP20 B1
- IP10 A5
- IP11 A7
- IP12 B5
- IP13 B7
- IP14 B4
- IP15 B6
- IP16 D5
- IP17 E7
- IP18 E8
- IP19 E7
- IP20 E4
- IP21 E8
- IP22 A6

1 2 3 4 5 6



2P10	A4	3P09	A6	3P13	A6	3P17	A5	3P21	A6	3P25	A6	4P01	A2	6P12	A5	7P13	A6
2P11	A6	3P10	A3	3P14	A2	3P18	A6	3P22	A6	3P26	A6	4P02	A2	7P10	A2	7P14	A4
3P07	A4	3P11	A2	3P15	A2	3P19	A4	3P23	A4	3P27	A2	6P10	A3	7P11	A2		
3P08	A4	3P12	A6	3P16	A4	3P20	A6	3P24	A6	3P28	A3	6P11	A3	7P12	A5		



8. Alignments

Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware Alignments
- 8.3 Software Alignments
- 8.4 Option Settings

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

General: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the CURSOR UP, DOWN, LEFT or RIGHT keys of the remote control transmitter.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
 - AP-NTSC: 120 V_{AC} or 230 V_{AC} / 50 Hz (± 10%).
 - AP-PAL-multi: 120 - 230 V_{AC} / 50 Hz (± 10%).
 - EU: 230 V_{AC} / 50 Hz (± 10%).
 - LATAM-NTSC: 120 - 230 V_{AC} / 50 Hz (± 10%).
 - US: 120 V_{AC} / 60 Hz (± 10%).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 15 minutes.
- Measure voltages and waveforms in relation to correct ground (e.g. measure audio signals in relation to AUDIO_GND).

Caution: It is not allowed to use heatsinks as ground.
- Test probe: R_i > 10 Mohm, C_i < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.2 Hardware Alignments

There are no hardware alignments foreseen for this chassis, but below find an overview of the most important DC voltages on the SSB. These can be used for checking proper functioning of the DC/DC converters.

Description	Test Point	Specifications (V)			Diagram
		Min.	Typ.	Max.	
+VTUN	FP14	30	33	36	B01_DC-DC
+12V_AUDIO	FP06	11.40	12.00	12.60	B01_DC-DC
-12V_AUDIO	FP09	-11.40	-12.00	-12.60	B01_DC-DC
+12V_DISP	FP04	11.40	12.00	12.60	B01_DC-DC
+8V	F401	7.60	8.00	8.40	B05A_Audio Proc.
+3V3_STBY	FP01	3.20	3.30	3.40	B01_DC-DC
+5V_SW	FP05	4.90	5.16	5.42	B01_DC-DC
SUP_A	F402	4.75	5.00	5.25	B05A_Audio Proc.
SUP_D	F403	4.75	5.00	5.25	B05A_Audio Proc.
+5V_TUN	F133	4.75	5.00	5.25	B02_Tuner IF
+3V3_SW	FP18	3.1	3.3	3.5	B01_DC-DC
+1V8_SW	FP03	1.70	1.80	1.90	B01_DC-DC
VDISP (+12V-TCON only)	FR10	11.40	12.00	12.60	B04A_LVDS Connectors
VDISP (+5V-TCON only)	FR10	4.75	5.00	5.25	B04A_LVDS Connectors

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the Tuner and RGB settings can be aligned. To store the data: Use the RC button "Menu" to switch to the main menu and next, switch to "Stand-by" mode.

8.3.1 Tuner Adjustment (RF AGC Take Over Point)

Purpose: To keep the tuner output signal constant as the input signal amplitude varies.

The LC8.1A LA chassis comes with the UV1316E analogue tuner. No alignment is necessary, as the AGC alignment is done automatically (standard value: "15"). However in case of problems use the following method (use multimeter and RF generator):

- Apply a vision IF carrier of 38.9 MHz (105 dBuV = 178 mVrms) to test point F101 (input via 50 ohm coaxial cable terminated with an RC network of series 10nF with 120 ohm to ground).
- Measure voltage on pin 1 of the tuner (test point F116).
- Adjust AGC (via SAM menu: TUNER -> AGC), until voltage on pin 1 is 3.3 +0.5/-1.0 V.
- Store settings and exit SAM.

8.3.2 RGB Alignment

Before alignment, choose "TV MENU" -> "Picture" and set:

- "Brightness" to "50".
- "Colour" to "50".
- "Contrast" to "100".

White Tone Alignment:

- Activate SAM.
- Select "RGB Align." -> "White Tone" and choose a colour temperature.
- Use a 100% white screen as input signal and set the following values:
 - All "White point" values initial to "256".
 - All "BlackL Offset" values to "0".

In case you have a colour analyser:

- Measure with a calibrated (phosphor- independent) colour analyser (e.g. Minolta CA-210) in the centre of the screen. Consequently, the measurement needs to be done in a dark environment.
- Adjust the correct x,y coordinates (while holding one of the White point registers R, G or B on "256") by means of decreasing the value of one or two other white points to the correct x,y coordinates (see table "White D alignment values"). Tolerance: dx: ± 0.004, dy: ± 0.004.
- Repeat this step for the other colour Temperatures that need to be aligned.
- When finished return to the SAM root menu and press STANDBY on the RC to store the aligned values to the NVM.

Table 8-1 White D alignment values

Value	Cool (11000 K)	Normal (9000 K)	Warm (6500 K)
x	0.278	0.289	0.314
y	0.278	0.291	0.319

If you do **not** have a colour analyser, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

- Set the RED, GREEN and BLUE default values per temperature according to the values in the "Tint settings" table.
- When finished return to the SAM root menu and press STANDBY on the RC to store the aligned values to the NVM.

Table 8-2 Tint settings 32"

Colour Temp.	R	G	B
Cool	243	256	233
Normal	251	256	220
Warm	256	241	189

Table 8-3 Tint settings 42"

Colour Temp.	R	G	B
Cool	255	235	254
Normal	255	229	233
Warm	255	215	196

Black Level Offset Alignment

- Activate SAM.
- Select "RGB Align." -> "BlackL Offset" and choose a colour.
- Set all "BlackL Offset" values to "0".
- When finished return to the SAM root menu and press STANDBY on the RC to store the aligned values to the NVM.

Note: For models with "Pixel Plus", the "Black Offset" (black level offset) should **NOT** be changed in SAM. These offset values of RGB should be set to "0", and should **NOT** be adjusted. Any adjustment of these values will affect the low light white balance.

ADC YPbPr Gray Scale Alignment

When the grey scale is not correct, use this alignment:

- Activate SAM.
- Select "NVM Editor".
- Enter address "26(dec)" (ADR).
- Set value (VAL) to "197(dec) ± 25".
- Store (STORE) the value.

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I²C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence/absence of these specific ICs (or functions) is made known by the option codes.

Notes:

- After changing the option(s), save them with the STORE command.
- The new option setting becomes active after the TV is switched "off" and "on" again with the mains switch (the EAROM is then read again).

8.4.2 How To Set Option Codes

When the NVM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set all option numbers. You can find the correct option numbers in table "Option Codes OP1...OP7" below.

How to Change Options Codes

An option code (or "option byte") represents eight different options (bits). When you change these numbers directly, you can set all options very quickly. All options are controlled via seven option bytes (OP1... OP7).
 Activate SAM and select "Options". Now you can select the option byte (OP1 to OP7) with the CURSOR UP/ DOWN keys, and enter the new 3 digit (decimal) value. For the correct factory default settings, see the next table "Option codes OP1...OP7". For more detailed information, see the second table "Option codes at bit level". If an option is set (value "1"), it represents a certain decimal value.
 When all the correct options (bits) are set, the sum of the decimal values of each Option Byte (OP) will give the option code.

Table 8-4 Option code overview

CTN	Option Code	Display Code
32PFL3403/94	000 029 138 249 008 228 132	069
32PFL3403S/97	000 029 138 249 008 228 132	069
32PFL5203/94	128 093 138 249 009 228 130	069
32PFL5203/98	128 093 138 249 009 228 130	069
32PFL5203S/98	128 093 138 249 009 228 130	069
42PFL3403/94	000 029 138 249 008 228 131	138
42PFL3403S/97	000 029 138 249 008 228 131	138

Option Bit Overview

Below find an overview of the Option Codes on **bit** level.

Table 8-5 Option codes at bit level (OP1-OP7)

Option Byte & Bit	Dec. Value	Option Name	Description
Byte OP1			
Bit 7 (MSB)	128	BBE	ON = BBE is available; OFF = BBE is not available
Bit 6	64	CHINA	ON = SW is for CHINA only; OFF = SW is for Non-China AP cluster
Bit 5	32	DTV_CHINA	ON = DTV_CHINA will be available (Reserved); OFF = DTV_CHINA will not be available
Bit 4	16	DTV_EU	ON = DTV will be available; OFF = DTV will not be available
Bit 3	8	UK_PNP	ON = UK PNP is available (for analogue TV only); OFF = UK PNP is not available (for analogue TV only)
Bit 2	4	VIRGIN_MODE	ON = Virgin Mode (PNP) is available; OFF = Virgin Mode (PNP) is not available
Bit 1	2	ACI	ON = ACI is available; OFF = ACI is not available
Bit 0 (LSB)	1	ATS	ON = ATS is available; OFF = ATS is not available
Byte OP2			
Bit 7 (MSB)	128	1080P	ON = 1080p is available; OFF = 1080p is not available
Bit 6	64	LIGHT_SENSOR	ON = Light Sensor is available; OFF = Light Sensor is not available
Bit 5	32	AMBILIGHT	ON = Ambilight Feature will be available; OFF = Ambilight Feature will not be available
Bit 4	16	BACKLIGHT_DIMMING	ON = Backlight Dimming is available; OFF = Backlight Dimming is not available
Bit 3	8	HUE	ON = Hue is available; OFF = Hue is not available
Bit 2	4	2D3DCF	ON = 3D Comb Filter is available; OFF = 2D Comb Filter is available
Bit 1	2	WSSB	ON = WSS is available; OFF = WSS is not available
Bit 0 (LSB)	1	WIDE_SCREEN	ON = TV is 16x9 set; OFF = TV is 4x3 set
Byte OP3			
Bit 7 (MSB)	128	CVI1	ON=CVI1 (YPbPr) (For ROW)
Bit 6	64	HDMI3	ON = HDMI3 (rear) is available; OFF = HDMI3 (rear) is not available
Bit 5	32	HDMI4	ON = HDMI4 (side) is available; OFF = HDMI4 (side) is not available
Bit 4	16	VCHIP	ON = VChip is available; OFF = VChip is not available
Bit 3	8	VIDEO_TEXT	ON = Video-TXT is available; OFF = Video-TXT is not available
Bit 2	4	STEREO_DBX	ON = Stereo DBX detection is available (LATAM); OFF = Stereo DBX detection is not available
Bit 1	2	STEREO_NICAM_2CS	ON = Stereo NICAM 2CS detection is available (EU/AP/China); OFF = Stereo NICAM 2CS detection is not available
Bit 0 (LSB)	1	LIP_SYNC	ON = Lip Sync is available; OFF = Lip Sync is not available
Byte OP4			
Bit 7 (MSB)	128	HDMI2	ON = HDMI2 is available; OFF = HDMI2 is not available
Bit 6	64	HDMI1	ON = HDMI1 is available; OFF = HDMI1 is not available
Bit 5	32	VGA	ON = VGA is available; OFF = VGA is not available
Bit 4	16	SVHS3	ON = SVHS3 is available; OFF = SVHS3 is not available
Bit 3	8	AV3	ON = AV3 is available; OFF = AV3 is not available
Bit 2	4	CVI	ON = CVI is available; OFF = CVI is not available
Bit 1	2	SVHS2	ON = SVHS2 is available; OFF = SVHS2 is not available
Bit 0 (LSB)	1	AV2	ON = AV2 is available; OFF = AV2 is not available
Byte OP5			
Bit 7 (MSB)	128	NVM_CHECK	ON = NVM (range) checking is available; OFF = NVM (range) checking is not available
Bit 6	64	Reserved	Not Used (Reserved)
Bit 5	32	Reserved	Not Used (Reserved)
Bit 4	16	MP_ALIGN	ON = Using multi-point alignment for Gamma & White Point; OFF = Using old way for Gamma (pre-defined) & WP alignment
Bit 3	8	SYS_RECOVERY	ON = System Recovery is available; OFF = System Recovery is not available
Bit 2	4	SL_WIRED	ON = BDS Smart Loader Wired is available; OFF = BDS Smart Loader Wired is not available
Bit 1	2	HOTEL	ON = Hotel/BDS is available; OFF = Hotel/BDS is not available
Bit 0 (LSB)	1	SS_DEMO	ON = Split Screen Demo is available; OFF = Split Screen Demo is not available
Byte OP6			
Bit 7 (MSB)	128	BACKLIGHT_BOOST	ON = iLAB Backlight boost feature is available; OFF = iLAB Backlight boost feature is not available
Bit 6	64	STATIC_DIMMING	ON = iLAB Static Dimming feature is available; OFF = iLAB Static Dimming feature is not available
Bit 5	32	CEC	ON = CEC feature available; OFF = CEC feature not available
Bit 4	16	AUTO_HDMI	ON = Auto HDMI feature available; OFF = Auto HDMI feature not available
Bit 3	8	TUNER PROFILE	0 = ATV_EU_PHILIPS UV1318S/AIH-3; 1 = ATV_EU_Panasonic EN57K28G3F; 2 = DTV_EU_PHILIPS TD1316AF/IHP-2; 3 = Not Used (Reserved); 4 = ATV_AP_PHILIPS UV1316E/AIH-4; 5 = ATV_CHINA_PHILIPS UV1356; 6 = ATV_CHINA_ALPS TEDE9-286B; 7 = ATV_CHINA_Tuner2 (Reserved); 8 = ATV_LATAM_PHILIPS UV1338/AIH-4; 9 = ATV_LATAM_PHILIPS UV1336; 10 = DTV_CHINA_Tuner1 (Reserved); 11 = DTV_CHINA_Tuner2 (Reserved); 12 = Not Used (Reserved); 13 = Not Used (Reserved); 14 = Not Used (Reserved); 15 = Not Used (Reserved)
Bit 2	4		
Bit 1	2		
Bit 0 (LSB)	1		
Byte OP7			
Bit 7 (MSB)	128	OPC_VOL_UP_UNMUTE	ON = Volume Up key will unmute the TV; OFF = Volume Up key will not unmute the TV
Bit 6	64	Reserved	Not Used (Reserved)
Bit 5	32	OPC_DTV_LATAM	ON = Brazil Digital available; OFF = Brazil Digital not available
Bit 4	16	CABINET PROFILE	0 = All flat response; 1 = ME8 42/47/52 Basic; 2 = ME8 42/47/52 AMBL; 3- 16 = Reserved
Bit 3	8		
Bit 2	4		
Bit 1	2		
Bit 0 (LSB)	1		

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

- 9.1 Introduction
- 9.2 LCD Power Supply
- 9.3 DC/DC converters
- 9.4 Front-End
- 9.5 Video Processing
- 9.6 Audio Processing
- 9.7 HDMI
- 9.8 Abbreviation List
- 9.9 IC Data Sheets

Notes:

- Only **new** circuits (circuits that are not published recently) are described.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the Wiring, Block (chapter 6) and

Circuit Diagrams (chapter 7). Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

The LC8.1A LA chassis (development name “LC08E”) is a new chassis using a Trident chipset. It covers screen sizes of 32" and 42" with stylings called “ME8” (xxPFL5xxx) and “MG8” (xxPFL3xxx).

Main key components are:

- Trident CX32 video processor
- Micronas MSP4450P audio processor
- SiL9025CTU HDMI processor
- UV1316 tuner and TDA9886 demodulator.

Refer to figure “LC08E Architecture” for details.

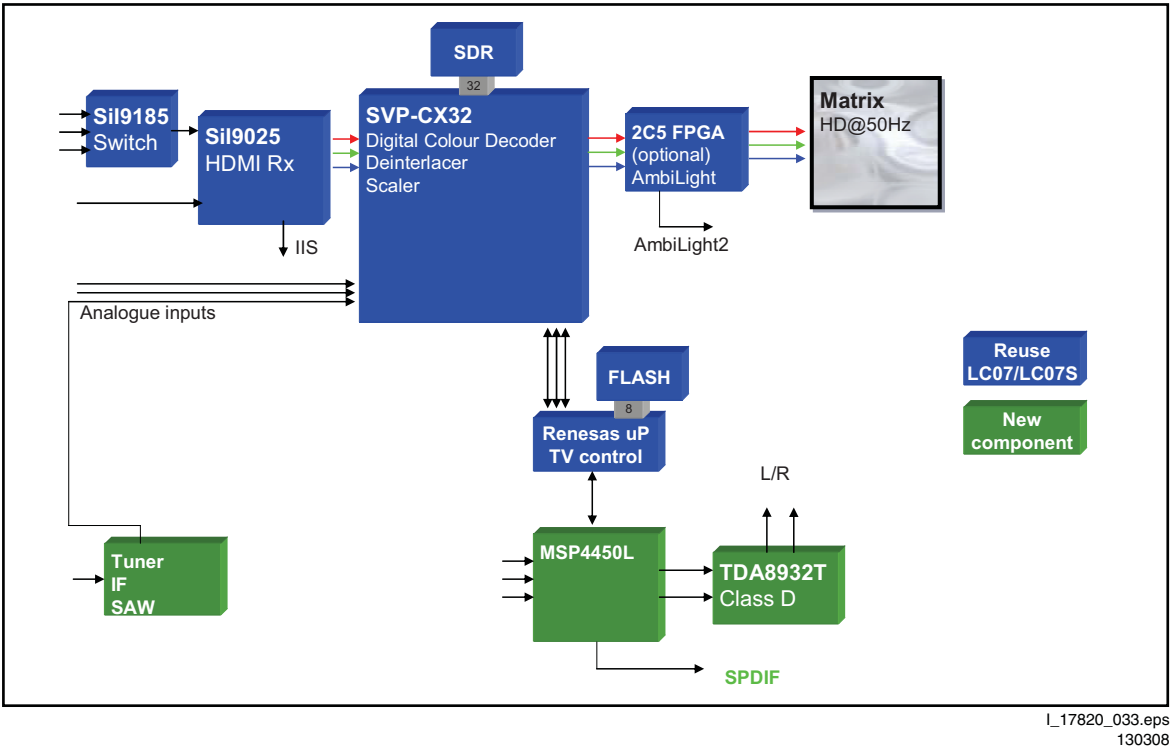
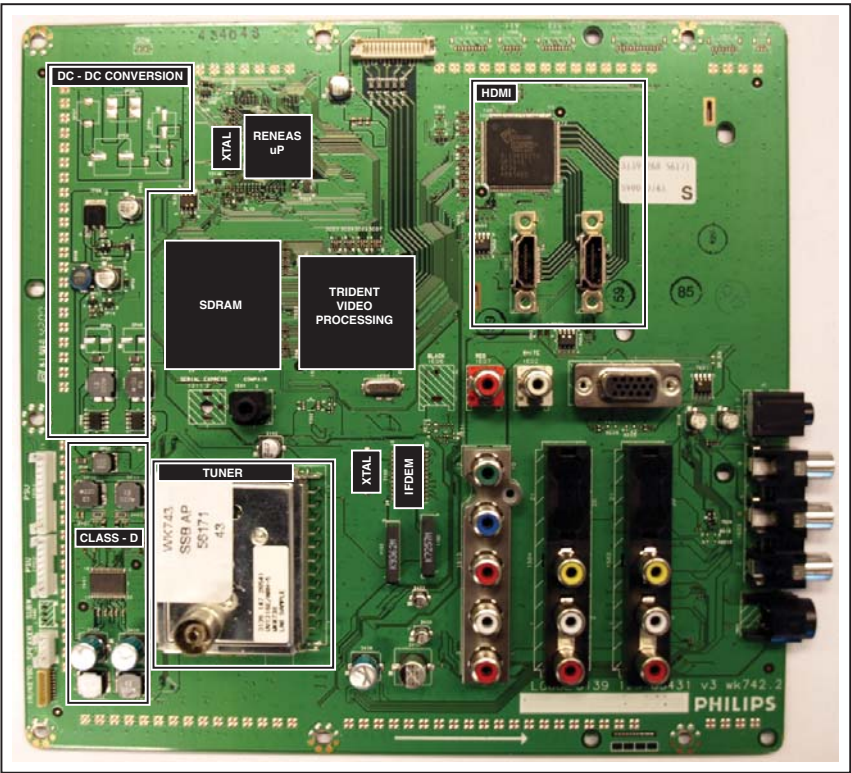


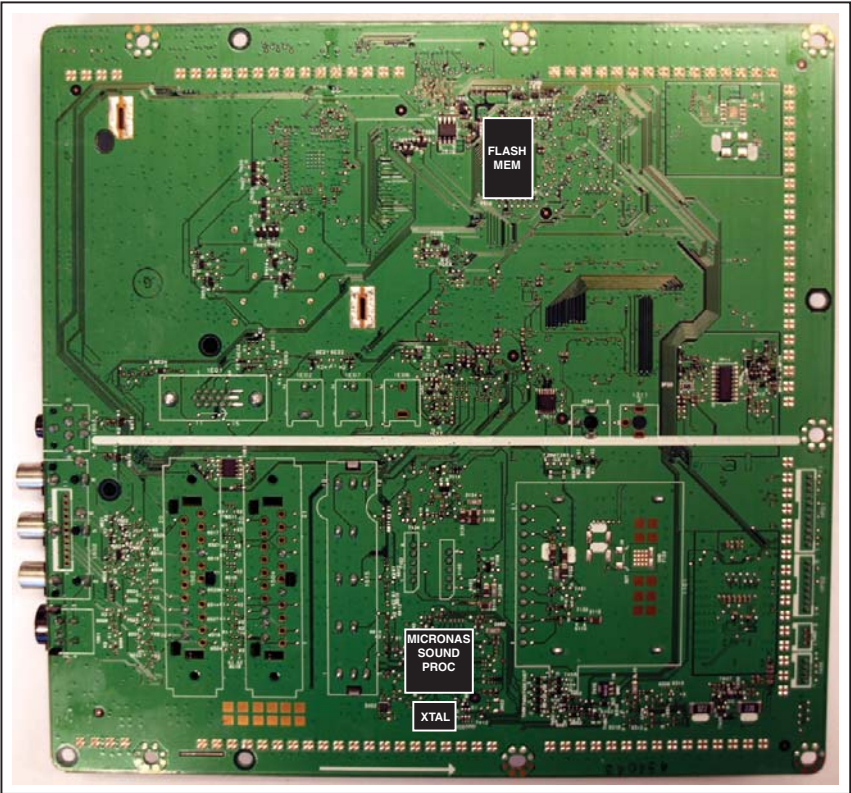
Figure 9-1 LC08E Architecture

9.1.1 SSB Cell Layout



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Figure 9-2 SSB top view



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Figure 9-3 SSB bottom view

9.2 LCD Power Supply

The Power Supply Unit (PSU) in this chassis is a buy-in and is a black-box for Service. When defective, a new panel must be ordered and the defective panel must be returned for repair, unless the main fuse of the unit is broken. Always replace the fuse with one with the correct specifications! This part is commonly available in the regular market.

- Different PSUs are used in this chassis:
- 32" sets use a "Delta" PSU (DSP-182CP A)
 - 42" sets use an "LG" PSU (LGIT PLHL-T721A or -T720A).
- All Power Supply Units deliver the following voltages to the chassis:
- High voltage to drive the backlight units (no inverters needed)
 - +3V3_{STBY} to SSB
 - +12 V_{display} to SSB
 - +12 V_{audio} and -12 V_{audio} to SSB
 - +12 V to DC-DC converters to SSB
 - +12 V to Bolt-on Supply (where applicable) to SSB
 - +24 V to Bolt-on Supply (where applicable) to SSB.

9.3 DC/DC converters

- On-board DC-DC converters convert the +12 V coming from the PSU and deliver the following voltages:
- +5 V (+5V_{tuner})
 - +VTUN
 - +5 V (+5V_{SW})
 - +3.3 V (+3V3_{SW})
 - +2.5 V (+2V5_{SW})
 - +1.8 V (+1V8_{SW})
 - +1.2 V (+1V2_{SW})
 - +8 V (+8V)

The following diagram shows the power supply architecture of the SSB:

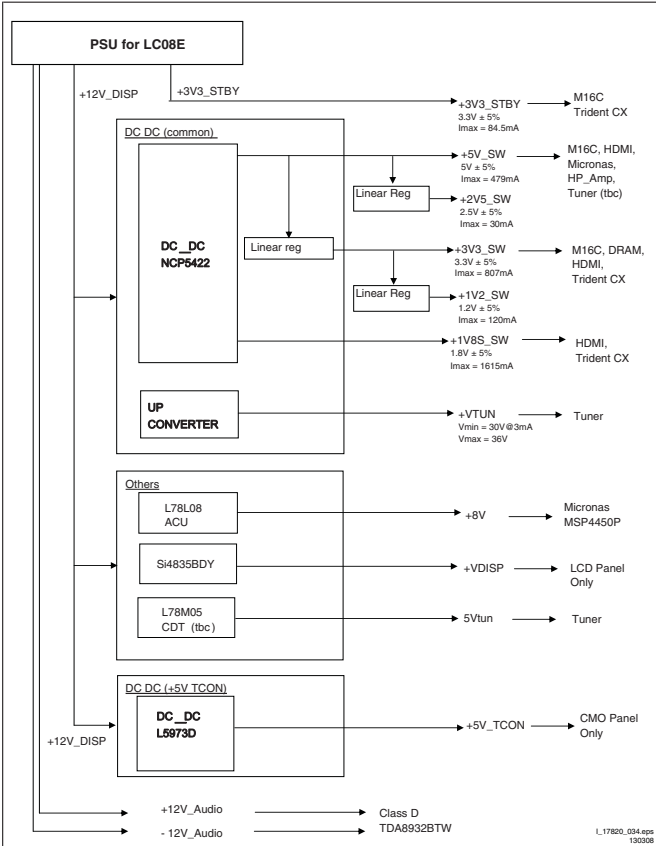


Figure 9-4 Power Supply Architecture

9.4 Front-End

This chassis uses the UV1316E analogue tuner.

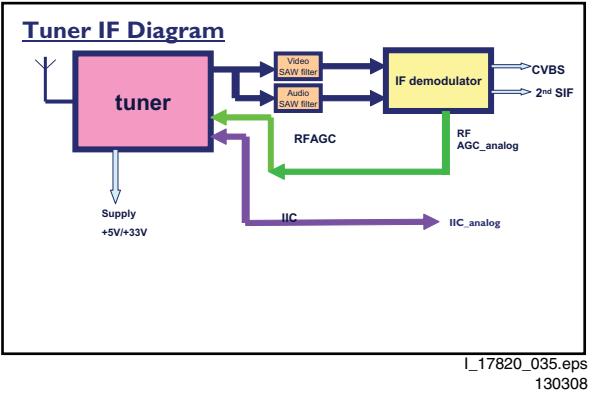


Figure 9-5 Tuner IF diagram

While receiving analogue signals, the signal coming from the tuner is fed to the IF demodulator (through the SAW filters) and then passed to the Trident Video Processor.

9.4.1 Video IF Amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (item 1102) and one for IF-audio (item 1103). The video IF filter can be switched to another standard, what makes it suitable for applications in multi-standard platforms. Switching is done by the microcontroller via SAW_SW. In table "SAW filter switching" is explained how to address the different system standards.

Table 9-1 SAW filter switching

Region	SAW_SW	System
AP	1	B/G, D/K, I
	0	M/N

The pin assignment of all analogue tuners is equal and can be found in table "Pin assignment analogue tuners".

Table 9-2 Pin assignment analogue tuners

Pin number	Description	DC voltage (V)
1	RF AGC voltage	3.3 - 4.5 (weak or no signal) < 3.3 (strong signal)
2	n.c.	
3	I ² C-bus address select	0
4	SCL	0 to 3.3
5	SDA	0 to 3.3
6	n.c.	
7	supply voltage	5 ±0.25
8	n.c.	
9	fixed tuning voltage	33
10	n.c.	
11	TV IF output	

9.5 Video Processing

- The video processing is completely handled by the Trident SVP CX32 video processor which features:
- CVBS-input for analogue signals.
 - RGB-input for input signals via VGA connector.
 - Motion and "edge-adaptive" de-interlacing.
 - Integrated ADC.
 - Built-in 8-bit LVDS transmitter.
 - Colour stretch.

- Skin colour enhancement.
- 3D Digital Comb Video Decoder.
- Interlaced and Progressive Scan refresh.
- TeleText decoding.
- OSD and VBI/Closed Caption.

9.5.1 Video Application

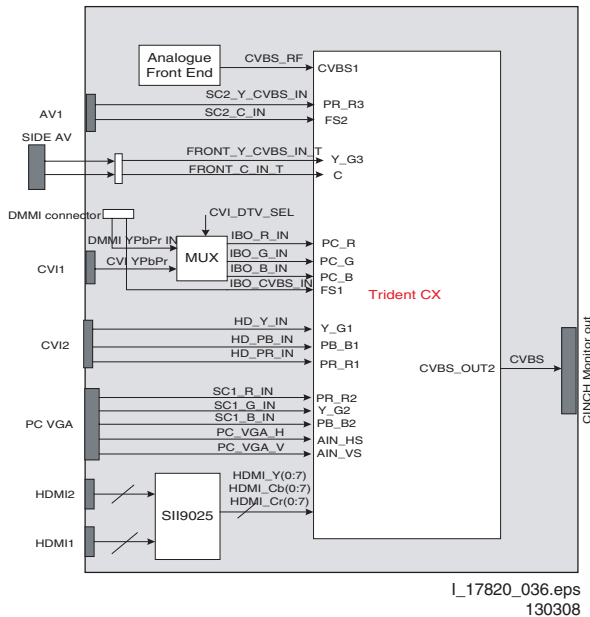


Figure 9-6 Block diagram video processing

“Block diagram video processing” shows the input and output signals to and from the Trident Video Processor in AP applications.

During analogue reception, a CVBS signal coming from the analogue front-end is fed to the video processor via pin CVBS1.

9.6 Audio Processing

The audio decoding is done entirely via the Multistandard Sound Processor (MSP) 4450P (item 7411). This processor covers the processing of both analogue and (NICAM) digital input signals by processing the (analogue) IF signal-in to processed (analogue) AF-out (baseband audio). An internal 40 ms (stereo) audio delay line (LIP SYNC) is foreseen and therefore no external delay line is necessary.

All internal clock signals are derived from an external 18.432 MHz oscillator, which, in NICAM or I²S-mode, on its turn is locked to the corresponding source.

The following functionality is included:

- Automatic Standard Detection (ASD) automatically detects the actual broadcasted TV standard
- Automatic Sound Select (ASS) automatically switches (without any I²C-bus action) between mono/stereo/bilingual mode when the broadcast mode changes.

9.6.1 Audio Application

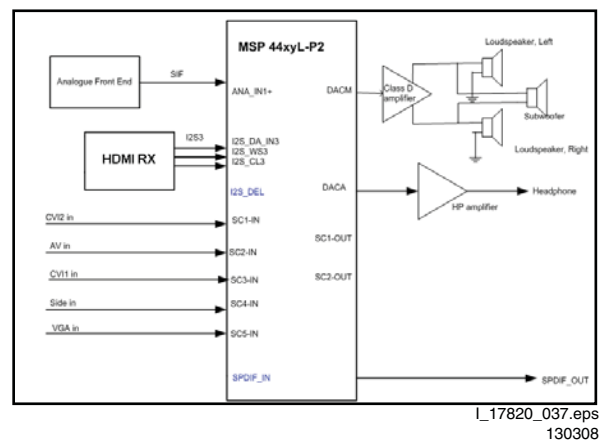


Figure 9-7 Block diagram audio processing - AP application

In AP applications, the MSP features:

- Sound IF input for signals coming from the analogue front-end
- Three I²S-inputs for signals (“DATA”, “CLK” and “WS”) coming from the HDMI receiver
- Five analogue inputs
- Loudspeaker output path
- Headphone output path.

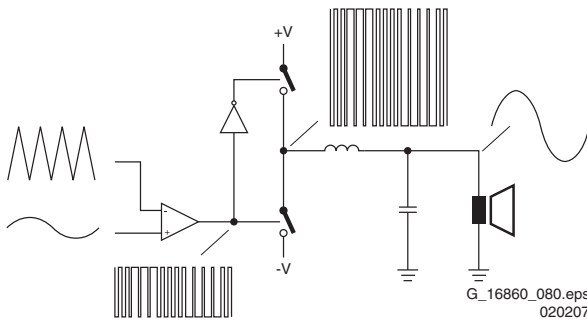
In case of reception from HDMI sources, digital audio signals are directly fed to the MSP via the I2S_DA_IN3, I2S_WS3 and I2S_CL3 lines. This ensures a “true digital path”.

The microprocessor (item 7311) controls the audio part with the following control lines:

- MUTE: used to mute the Class D amplifiers
- ANTI_PLOP: used to detect any DC failure in the Class D amplifiers
- DC_PROT: used to detect any DC failure in the Class D amplifiers.

9.6.2 Audio Amplifier

The audio amplifier is an integrated class-D amplifier (TDA8932T, item 7A01). It combines a good performance with a high efficiency, resulting in a big reduction in heat generation.

Principle**Figure 9-8 Principle Class-D Amplifier**

The Class D amplifier works by varying the duty cycle of a Pulse Width Modulated (PWM) signal.

By comparing the input voltage to a triangle wave, the amplifier increases duty cycle to increase output voltage, and decreases duty cycle to decrease output voltage.

The output transistors of a Class D amplifier switch from 'full off' to 'full on' (saturated) and then back again, spending very little time in the linear region in between. Therefore, very little power is lost to heat. If the transistors have a low 'on' resistance ($R_{DS(ON)}$), little voltage is dropped across them, further reducing losses.

A Low Pass Filter at the output passes only the average of the output wave, which is an amplified version of the input signal. In order to keep the distortion low, negative feedback is applied.

The **advantage** of Class D is increased efficiency (= less heat dissipation). Class D amplifiers can drive the same output power as a Class AB amplifier using less supply current.

The **disadvantage** is the large output filter. The main reason for this filter is that the switching waveform results in maximum current flow. This causes more loss in the load, which causes lower efficiency. An LC filter with a cut-off frequency less than the Class D switching frequency, allows the switching current to flow through the filter instead of the load, thus reducing the overall loss and increasing the efficiency.

DC-protection

A DC-detection circuit is foreseen to protect the speakers. It is built around three transistors (items 7A05 to 7A07) and generates a protection signal (DC_PROT) to the microprocessor in case of a DC failure in the Class D amplifiers.

9.7 HDMI**9.7.1 Introduction**

Note: Text below is an excerpt from the "HDMI Specification" that is issued by the HDMI founders (see <http://www.hdmi.org>).

The High-Definition Multimedia Interface is developed for transmitting digital signals from audiovisual sources to television sets, projectors and other video displays. HDMI can carry high quality multi-channel audio data and can carry all standard and high-definition consumer electronics video formats. Content protection technology is available. HDMI can also carry control and status information in both directions.

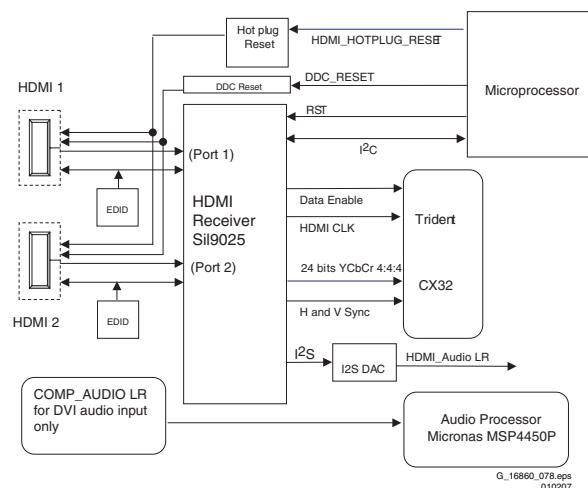
HDMI is backward compatible with DVI (1.0). Compared with DVI, HDMI offers extra:

- YUV 4:4:4 (3×8 -bit) or 4:2:2 (up to 2×12 -bit), where DVI offers only RGB 4:4:4 (3×8 bit).
- Digital audio in CD quality (16-bit, 32/44.1/48 kHz), higher quality available (8 channels, 192 kHz).
- Remote control via CEC bus (Consumer Electronics Control): allows user to control all HDMI devices with the TV's remote control and menus.
- Smaller connector (SCART successor).
- Less cables: e.g. from 10 audio/9 video cables to 3 HDMI cables.

9.7.2 Implementation

The IC used is the SiI 9025 (Silicon Image) third generation HDMI receiver (item 7N17 on the SSB) with following features:

- Dual HDMI input connector.
- Two EEPROMs to support EDID.
- HDMI audio.
- I²S output to DACs which operating freq. of 32 to 192 kHz.
- Integrated HDCP decryption engine.
- Built-in pre-programmed HDCP keys for copy protection.
- Colour space conversion RGB to YCbCr.
- "Hot Plug Reset" signal.

**Figure 9-9 HDMI implementation**

HDMI connectors 1 and 2 are connected to resp. ports 1 and 2 of the HDMI receiver. The ports cannot be activated at the same moment. Switching is controlled by software.

"Hot Plug Reset" and "DDC Reset" are controlled by the microprocessor.

The HDMI receiver will convert all RGB or YCbCr 4:2:2 signals to 24-bit YCbCr 4:4:4. When it receives a YCbCr 4:4:4 signal it will just pass the signal directly to the Trident Video Processor.

9.8 Abbreviation List

1080i	1080 visible lines, interlaced	ED	Enhanced Definition: 480p, 576p
1080p	1080 visible lines, progressive scan	EDID	Extended Display Identification Data (VESA standard)
2CS	2 Carrier Sound	EEPROM	Electrically Erasable and Programmable Read Only Memory
2DNR	Spatial (2D) Noise Reduction	EU	EUrope
3DNR	Temporal (3D) Noise Reduction	EXT	EXTERNAL (source), entering the set by SCART or by cinches (jacks)
480i	480 visible lines, interlaced	FBL	Fast Blanking: DC signal accompanying RGB signals
480p	480 visible lines, progressive scan	FBL-TXT	Fast Blanking Teletext
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio	FLASH	FLASH memory
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page	FM	Field Memory / Frequency Modulation
ADC	analogue to Digital Converter	FMR	FM Radio
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency	FRC	Frame Rate Converter
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box	FTV	Fiat TeleVision
AM	Amplitude Modulation	H	H_sync to the module
AUO	Acer Unipack Optonics	HD	High Definition: 720p, 1080i, 1080p
AP	Asia Pacific	HDCP	High-bandwidth Digital Content Protection; A "key" encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a "snow vision" mode or changed to a low resolution. For normal content distribution, the source and the display device must be enabled for HDCP "software key" decoding
AR	Aspect Ratio: 4 by 3 or 16 by 9	HDMI	High Definition Multimedia Interface, digital audio and video interface
ASD	Automatic Standard Detection	HP	Head Phone
AV	Audio Video	I	Monochrome TV system. Sound carrier distance is 6.0 MHz
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz	I2C	Integrated IC bus
BTSC	Broadcast Television System Committee	I2S	Integrated IC Sound bus
CAM	Conditional Access Module	IBO(Z)	Intelligent Bolt On module. Z= Zapper; module for DVB reception.
CBA	Circuit Board Assembly (or PWB)	IC	Integrated Circuit
CEC	Consumer Electronics Control bus; remote control bus on HDMI connections	IF	Intermediate Frequency
CI	Common Interface; E.g PCMCIA slot for a CAM in a set top box	IR	Infra Red
CL	Constant Level: audio output to connect with an external amplifier	IRQ	Interrupt ReQuest
CLUT	Colour Look Up Table	Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
ComPair	Computer aided rePair	LATAM	LATIn AMerica
COFDM	Coded Orthogonal Frequency Division Multiplexing; A multiplexing technique that distributes the data to be transmitted over many carriers	LC08	Philips chassis name for LCD TV 2008 project
CSM	Customer Service Mode	LCD	Liquid Crystal Display
CVBS	Composite Video Blanking and Synchronisation	LED	Light Emitting Diode
CVBS-MON	CVBS monitor signal	L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
CVBS-TER-OUT	CVBS terrestrial out	LPL	LG Philips LCD
CVI	Component Video Input	LS	Loud Speaker
DAC	Digital to analogue Converter	LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
DBE	Dynamic Bass Enhancement: extra low frequency amplification	M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
DDC	Display Data Channel; is a part of the "Plug and Play" feature	MOSFET	Metal Oxide Semiconductor Field Effect Transistor
DFU	Directions For Use: owner's manual	MPEG	Motion Pictures Experts Group
DNR	Dynamic Noise Reduction	MSP	Multi-standard Sound Processor: ITT sound decoder
DRAM	Dynamic RAM	MUTE	MUTE Line
DSP	Digital Signal Processing	NAFTA	North American Free Trade Association: Trade agreement between Canada, USA and Mexico
DST	Dealer Service Tool: special (European) remote control designed for service technicians	NC	Not Connected
DTS	Digital Theatre Sound		
DVB(T)	Digital Video Broadcast; An MPEG2 based standard for transmitting digital audio and video. T= Terrestrial		
DVD	Digital Versatile Disc		
DVI	Digital Visual Interface		
DW	Double Window		

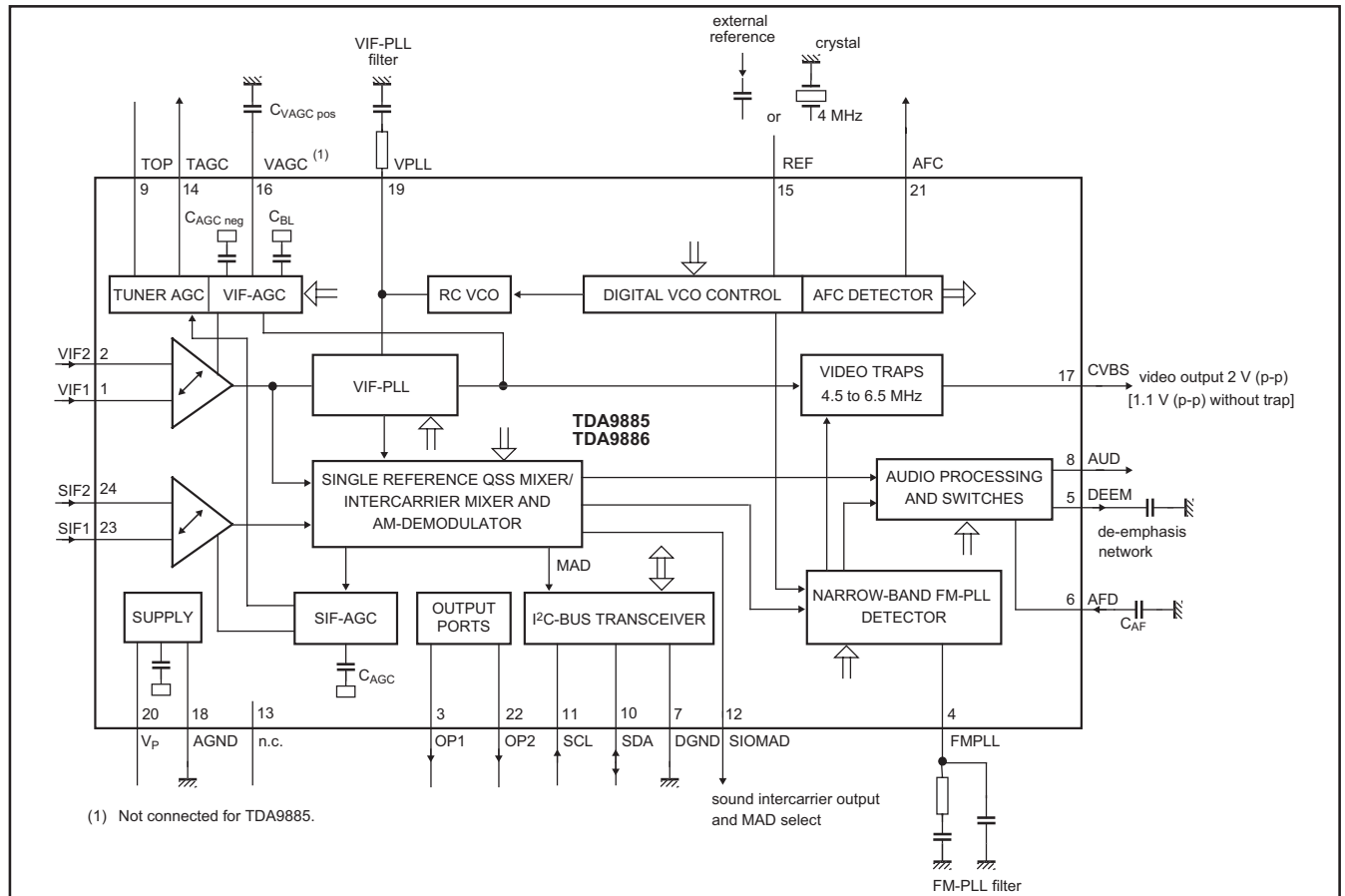
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe.	VL	Variable Level out: processed audio output toward external amplifier
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)	VCR	Video Cassette Recorder
		VGA	Video Graphics Array
		WD	Watch Dog
		WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
NVM	Non Volatile Memory: IC containing TV related data (for example, options)	XTAL	Quartz crystal
O/C	Open Circuit	YPbPr	Component video (Y= Luminance, Pb/Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV)
ON/OFF LED	On/Off control signal for the LED	Y/C	Video related signals: Y consists of luminance signal, blanking level and sync; C consists of colour signal.
OAD	Over the Air Download	Y-OUT	Luminance-signal
OSD	On Screen Display	YUV	Baseband component video (Y= Luminance, U/V= Colour difference signals)
PAL	Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)		
PC	Personal Computer		
PCB	Printed Circuit Board (or PWB)		
PDP	Plasma Display Panel		
PIG	Picture In Graphic		
PIP	Picture In Picture		
PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency		
PSU	Power Supply Unit		
PWB	Printed Wiring Board (or PCB)		
RAM	Random Access Memory		
RC	Remote Control transmitter		
RC5 (6)	Remote Control system 5 (6), the signal from the remote control receiver		
RF	Radio Frequency		
RGB	Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced.		
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync		
ROM	Read Only Memory		
SAM	Service Alignment Mode		
SC	SandCastle: two-level pulse derived from sync signals		
SC1-OUT	SCART output of the MSP audio IC		
SC2-OUT	SCART output of the MSP audio IC		
S/C	Short Circuit		
SCL	Clock signal on I2C bus		
SD	Standard Definition: 480i, 576i		
SDA	Data signal on I2C bus		
SDI	Samsung Display Industry		
SDM	Service Default Mode		
SDRAM	Synchronous DRAM		
SECAM	SEquence Couleur Avec Memoire. Colour system used mainly in France and Eastern Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz		
SIF	Sound Intermediate Frequency		
SMPS	Switch Mode Power Supply		
SND	SouND		
SOPS	Self Oscillating Power Supply		
S/PDIF	Sony Philips Digital InterFace		
SRAM	Static RAM		
SSB	Small Signal Board		
STBY	Stand-by		
SVHS	Super Video Home System		
SW	Sub Woofer / SoftWare / Switch		
THD	Total Harmonic Distortion		
TXT	TeleteXT		
uP	Microprocessor		

9.9 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.9.1 Diagram B02, Type TDA9886T (IC7113), Demodulator

Block Diagram



Pin Configuration

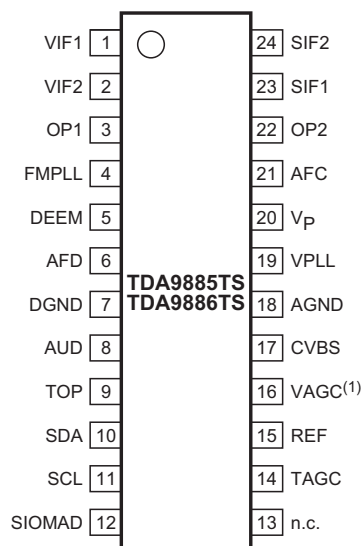
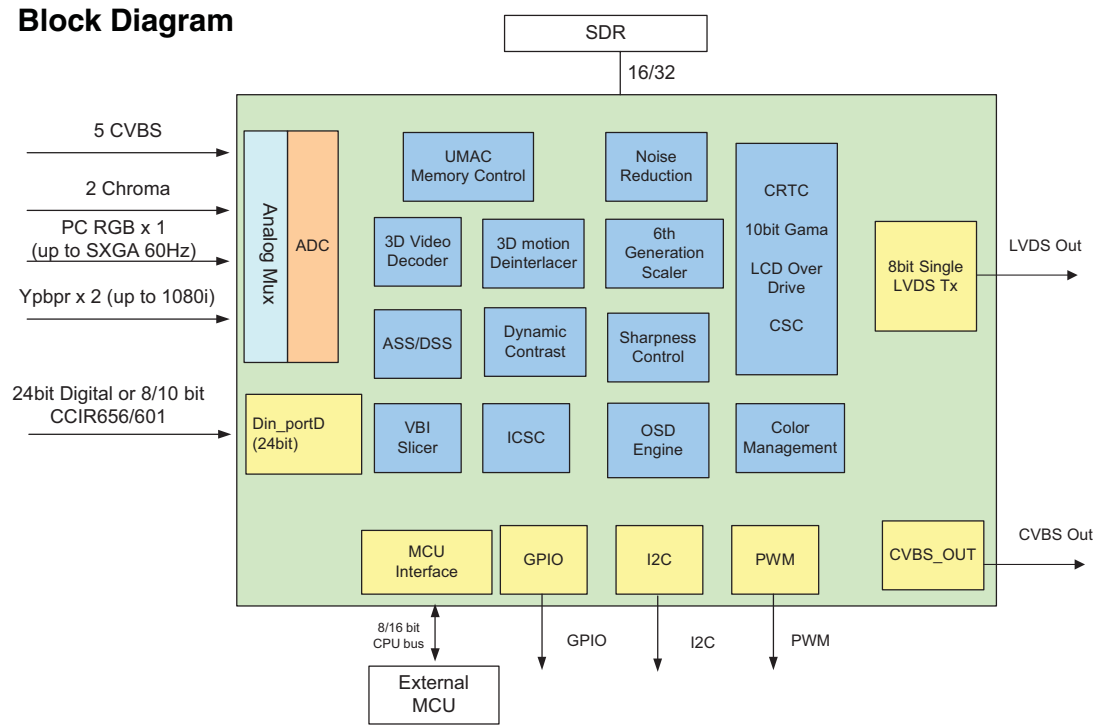


Figure 9-10 Internal block diagram and pin configuration

9.9.2 Diagram B04A, Type SVP CX32 (IC7C02), Trident Video Processor

Block Diagram



Pin Configuration

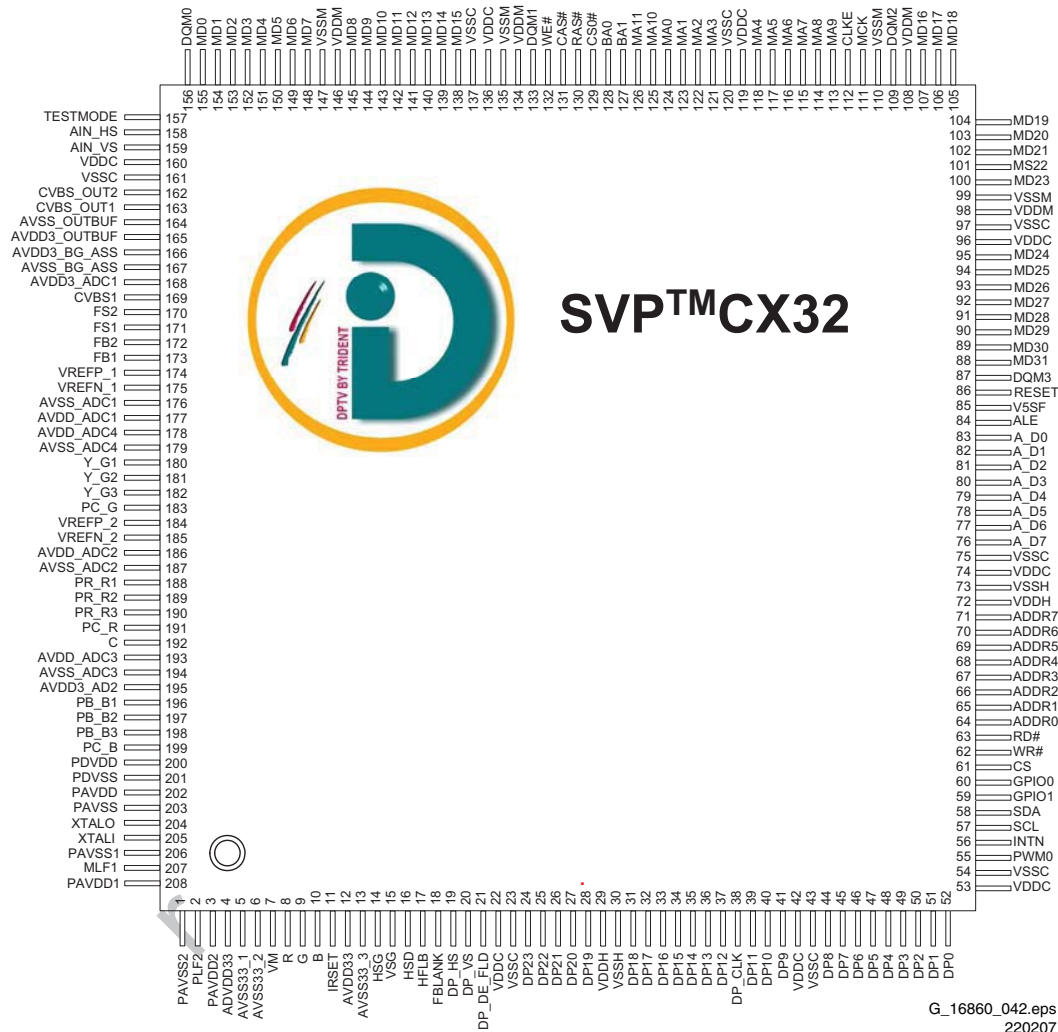
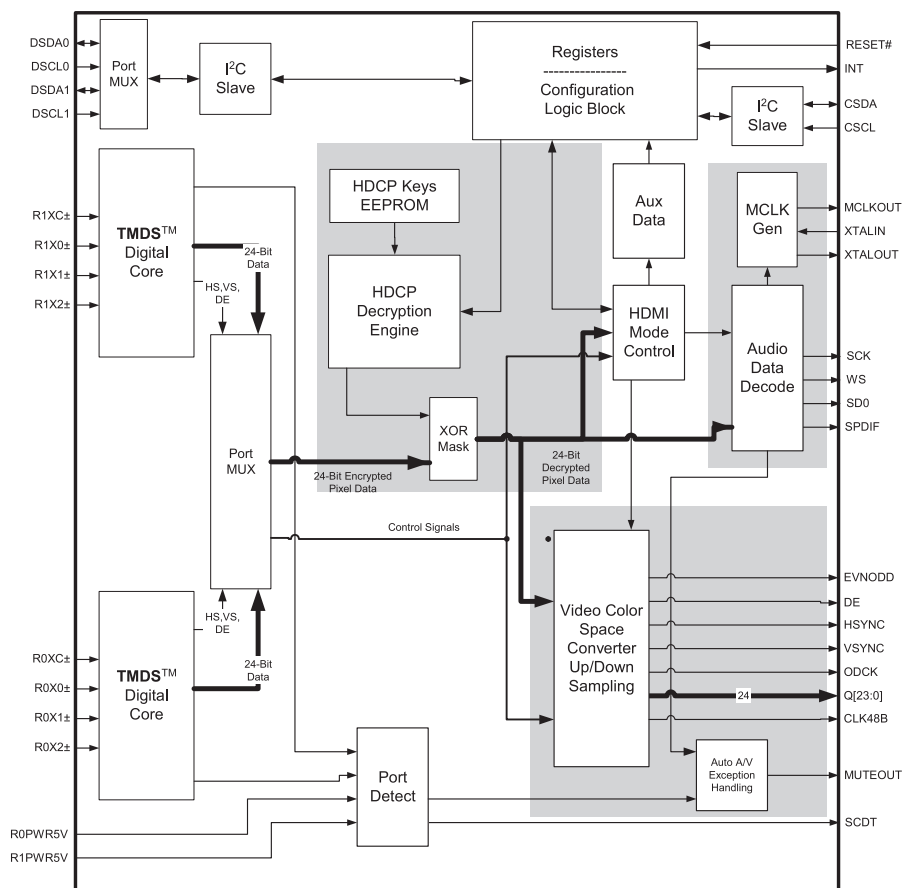


Figure 9-11 Internal block diagram and pin configuration

Block Diagram



Pin Configuration

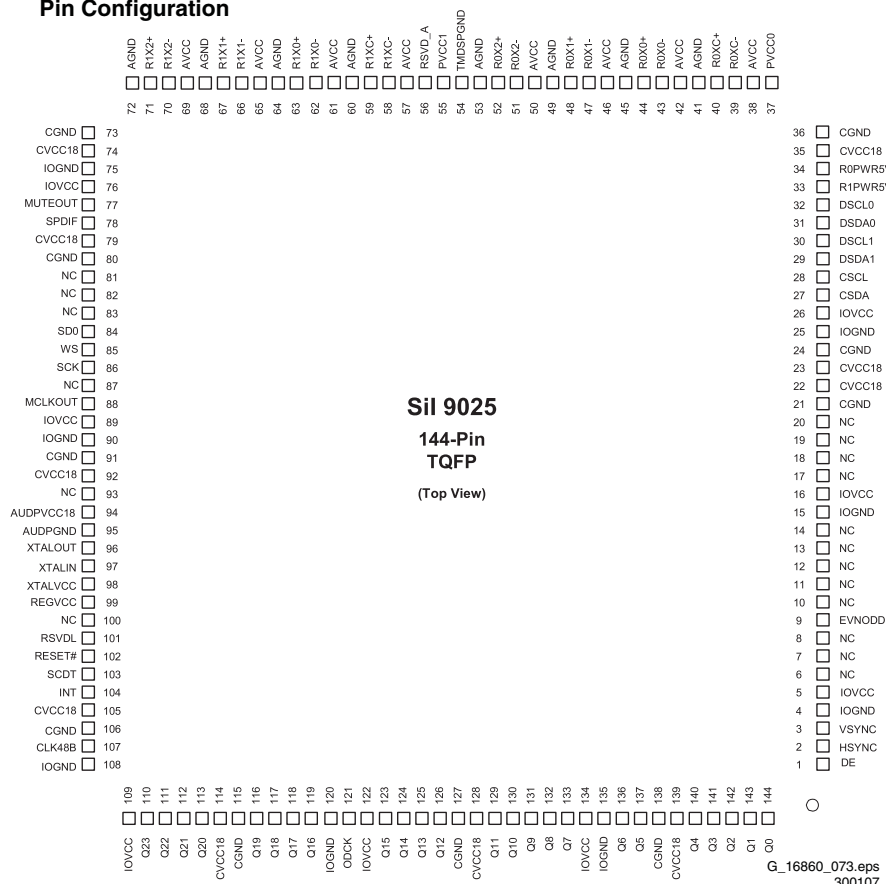


Figure 9-12 Internal block diagram and pin configuration

9.9.4 Diagram B05A, Type MSP4450P (IC7411), Micronas Audio processor

Block Diagram

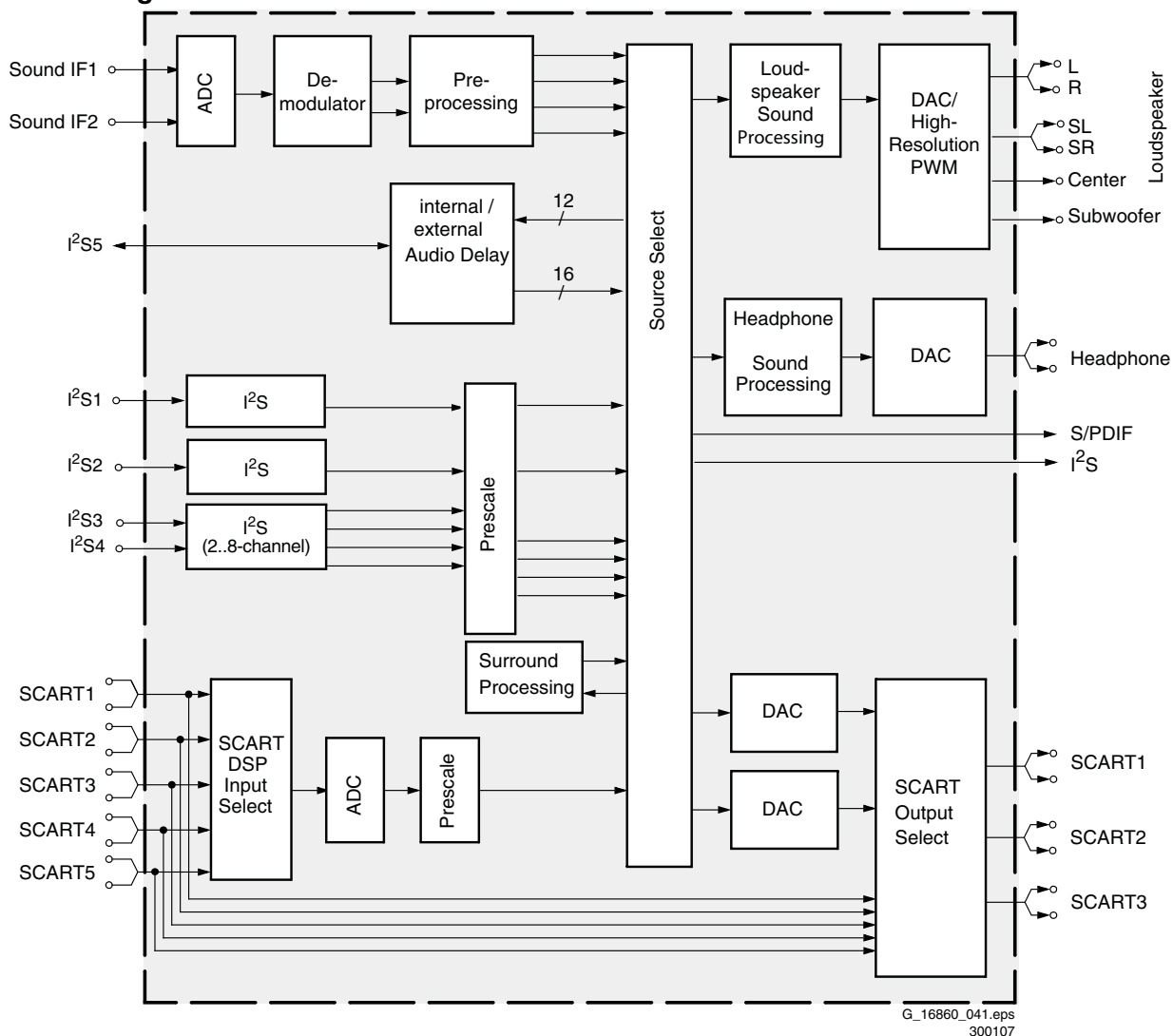
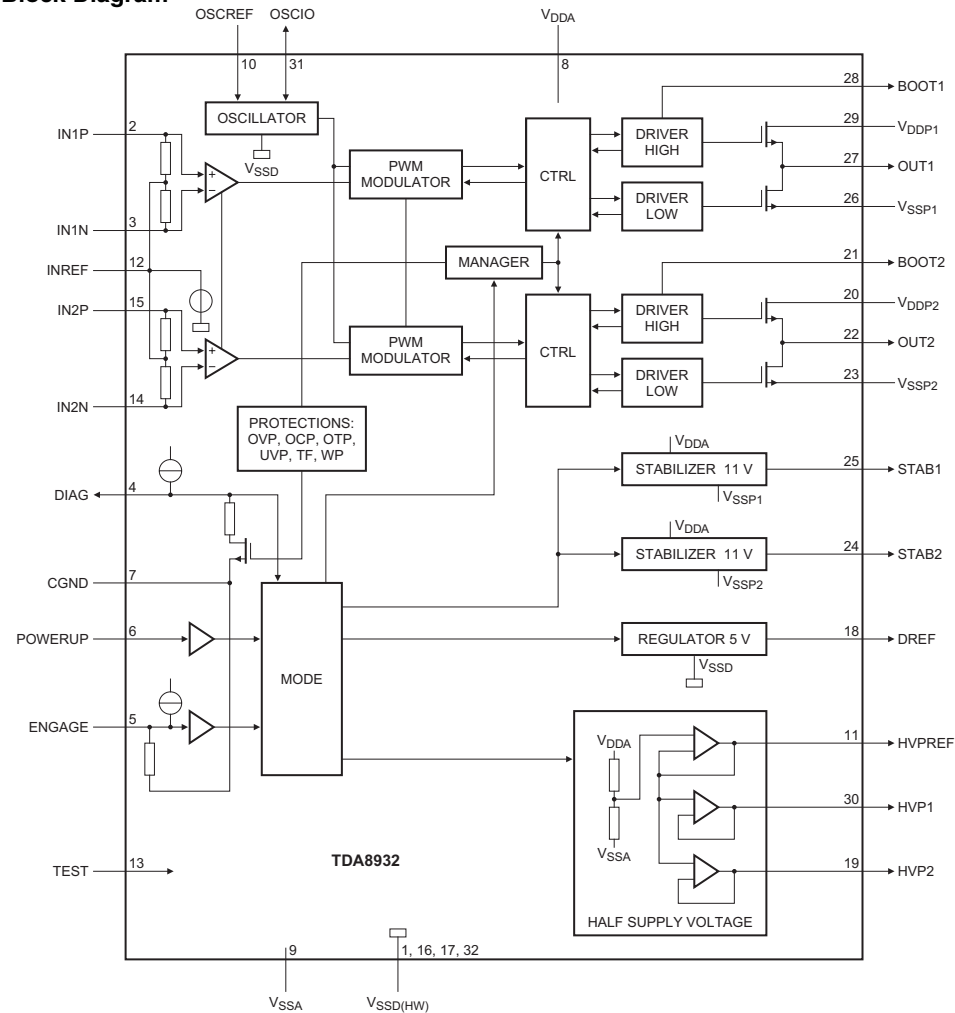


Figure 9-13 Internal block diagram and pin configuration

9.9.5 Diagram B05B, Type TDA8932BT (IC7A01), Audio Amplifier

Block Diagram



Pin Configuration

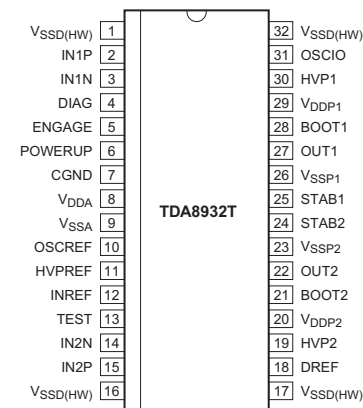


Figure 9-14 Internal block diagram and pin configuration

10. Spare Parts List & CTN Overview

For the latest spare part overview, please consult the Philips Service website.

Table 10-1 Sets described in this manual:

CTN	Styling
32PFL3403/94	MG8
32PFL3403S/97	MG8
32PFL5203/94	ME8
32PFL5203/98	ME8
32PFL5203S/98	ME8
42PFL3403/94	MG8
42PFL3403S/97	MG8

11. Revision List

Manual xxxx xxx xxxx.0

- First release.

Manual xxxx xxx xxxx.1

- Added CTNs: 32PFL3403/94, 32PFL3403S/97, 32PFL5203/94, 32PFL5203S/98, 42PFL3403/94, 42PFL3403S/97.

www.s-manuals.com