Colour Television

Chassis

LC4.6U

AA

Service
Service
Service



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Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

1.1 Technical Specifications
1.2 Connections
1.3 Chassis Overview

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

1.1 Technical Specifications

1.1.1 Vision

Display type	:	LCD-IPS
Screen size	:	30” (76 cm), 15:9
Resolution (HxV pixels)	:	1280x768
Contrast ratio	:	600:1 (AUO)
	:	500:1 (LPL)
Light output (cd/m^2)	:	600 (AUO)
	:	500 (LPL)
Viewing angle (HxV degrees)	:	170x170
Tuning system	:	PLL
TV Color systems	:	NTSC M 3.58
Video playback	:	NTSC M 3.58
Supported computer formats	:	VGA (640x480)
	:	VGA (720x400)
	:	VGA (640x350)
	:	MAC (640x480)
	:	MAC (832x624)
	:	SVGA (800x600)
	:	XVGA (1024x768)
	:	WXGA (1280x768)
Supported video formats	:	PAL 576i 1fH CVI
	:	NTSC 480i 1fH CVI
	:	PAL 576p 2fH HD
	:	NTSC 480p 2fH HD
	:	ATSC 720p 2fH HDMI
	:	ATSC 1080i 2fH HDMI
Channel selections	:	120 presets
	:	VHF
	:	UHF
	:	S-band
	:	Hyper-band
Aerial input	:	75 ohm, Coax
	:	F-type

1.1.2 Sound

Sound systems	:	BTSC
Maximum power (W_{RMS})	:	2 x 15 (int.)

1.1.3 Miscellaneous

Power supply:		
- AC Power voltage (V_{AC})	:	108 - 132
- AC Power frequency (Hz)	:	60
Ambient conditions:		
- Temperature range (deg. C)	:	+5 to +40
- Maximum humidity	:	90% R.H.
Power consumption		
- Normal operation (W)	:	185
- Standby (W)	:	< 2
Dimensions (WxHxD) in cm	:	89.1x48.9x11.0
Weight (kg)	:	18

1.2 Connections

Note: The following connector color 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 Rear I/O Connections

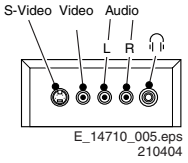


Figure 1-1 Rear I/O connections (part 1)

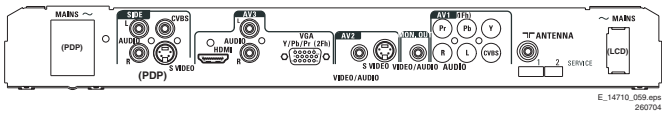


Figure 1-2 Rear connections (part 1)

SIDE Cinch: CVBS - In, Audio - In

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

SIDE SVHS: 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

AV3 HDMI: Digital Video - In, Digital Audio - In

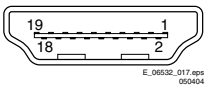


Figure 1-3 HDMI (type A) connector

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	Hot Plug Detect
20	- Ground	Gnd

AV3 Cinch: Audio - In

Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

AV3 VGA: Video 2fH RGB - In

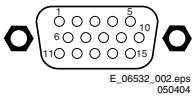


Figure 1-4 VGA Connector

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_{DC}	
10	- Gnd 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	

AV2 Mini Jack: Video 1fH CVBS - In, Audio - In

1	- Audio R	0.5 V_{RMS} / 10 kohm	
2	- Gnd CVBS	Gnd	
3	- Video CVBS	1 V_{PP} / 75 ohm	
4	- Audio L	0.5 V_{RMS} / 10 kohm	

AV2 SVHS: Video 1fH 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	

Monitor Out Mini Jack: Video CVBS - Out, Audio - Out

1	- Audio R	0.5 V_{RMS} / 10 kohm	
2	- Gnd CVBS	Gnd	
3	- Video CVBS	1 V_{PP} / 75 ohm	
4	- Audio L	0.5 V_{RMS} / 10 kohm	

AV1 Cinch: Video 1fH CVBS/YPbPr - In, Audio - In

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

Aerial - In

-	- F-type	Coax, 75 ohm	

Service connector 1 (UART)

1	- UART_TX	Transmit data	
2	- Ground	Gnd	
3	- UART_RX	Receive data	

Service connector 2 (ComPair)

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

1.3 Chassis Overview

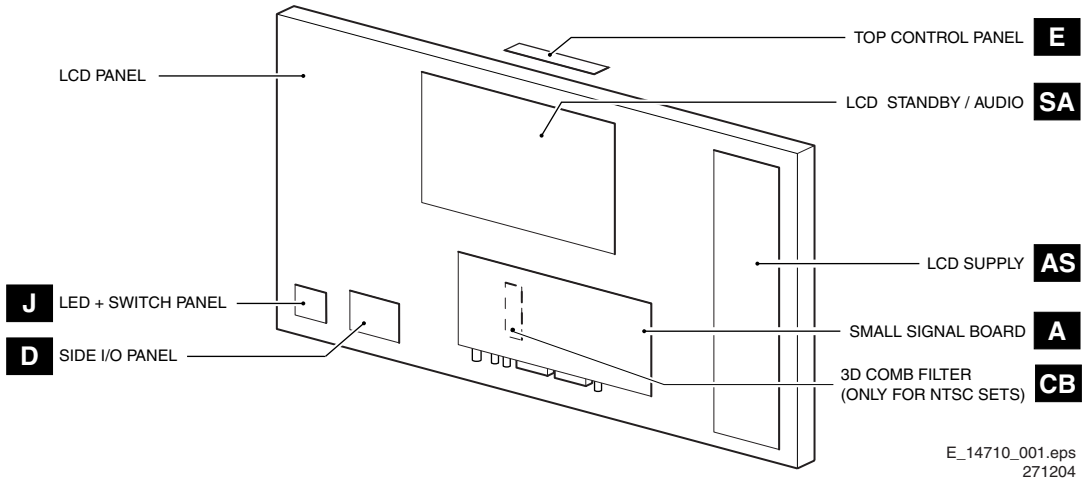


Figure 1-5 CBA locations

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 that **during** a repair:

- Connect the set to the 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 AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power plug and the secondary side (only for sets which have a AC Power isolated power supply):
  1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
  2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid 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. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- 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.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby” 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 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-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 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
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 “Workshop Information”. Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead Free Solder

Philips CE is going to produce lead-free sets (PBF) from 1.1.2005 onwards.

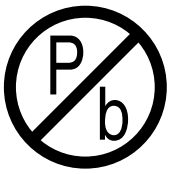


Figure 2-1 Lead-free logo

This sign normally has a diameter of 6 mm, but if there is less space on a board also 3 mm is possible.

Regardless of this logo (is not always present), one must treat all sets from this date onwards according to the following rules.

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 at least a solder-tip temperature of 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” 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 not to avoid, clean carefully the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened short before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: 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 "Workshop information".
For additional questions please contact your local repair help desk.

2.3.5 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 - 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

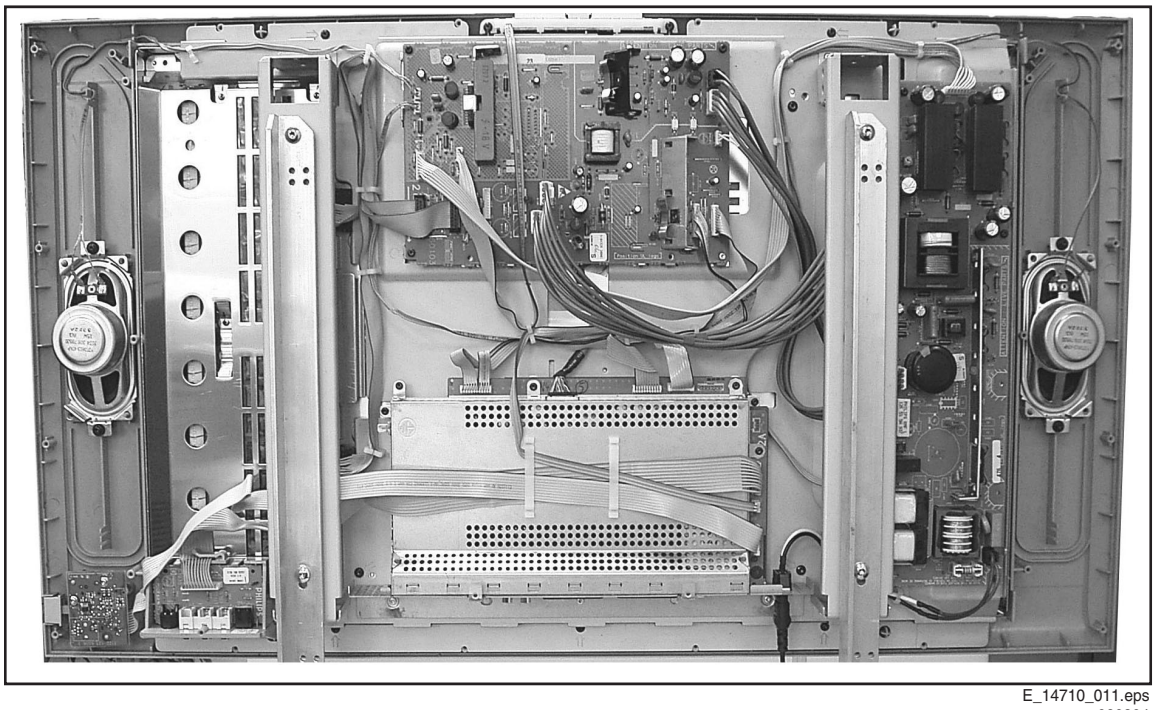
Index of this chapter:

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

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassemble instructions in described order.

4.1 Cable Dressing



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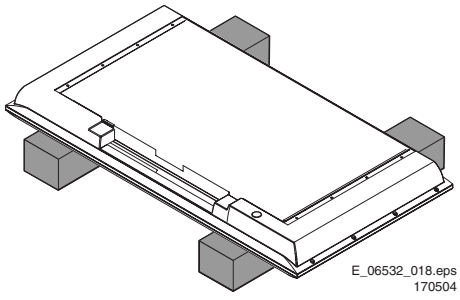
Figure 4-1 Cable dressing

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).
- Aluminium service stands (created for Service).

4.2.1 Foam Bars

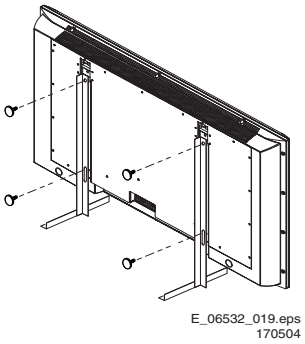


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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. 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.

4.2.2 Aluminium Stands



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Figure 4-3 Aluminium stands (drawing of MkI)

The aluminium stands (order code 3122 785 90480) can be mounted with the back cover removed or still left on. So, the stand can be used to store products or to do measurements. It is also very suitable to perform duration tests without taking much space, without having the risk of overheating, or the risk of products falling. The stands can be mounted and removed quick and easy with use of the delivered screws that can be tightened and loosened manually without the use of tools. See figure above.

Note: Only use the delivered screws to mount the monitor to the stands.

4.3 Assy/Panel Removal

4.3.1 Rear Cover

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

1. Remove the screws, which secure the rear cover. The screws are located at the top, bottom, left and right sides; next to the Side/IO and Rear connections. There are also three deeper located screws next to the stands.
2. Lift the rear cover from the cabinet. Make sure that wires and flat foils are not damaged during cover removal.

4.3.2 Side I/O Panel

1. Disconnect the cable from the panel.
2. To replace the complete bracket, remove the two fixation screws on either side of the panel.
3. Release the two fixation clamps and lift the panel out of the bracket.

4.3.3 LED/Switch Panel

1. Remove the two fixation screws.
2. Disconnect the cable from the rear of the panel.

4.3.4 Top Control Panel

1. Remove the two fixation screws.
2. Release the two fixation clamps and lift the panel out of the bracket.

4.3.5 Small Signal Panel (SSB) and 3D Comb Filter

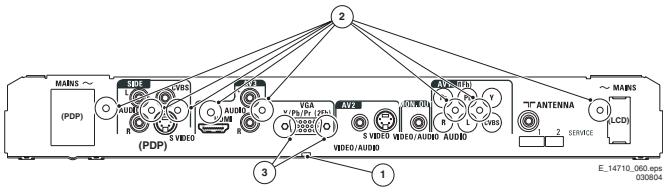


Figure 4-4 SSB Connector plate

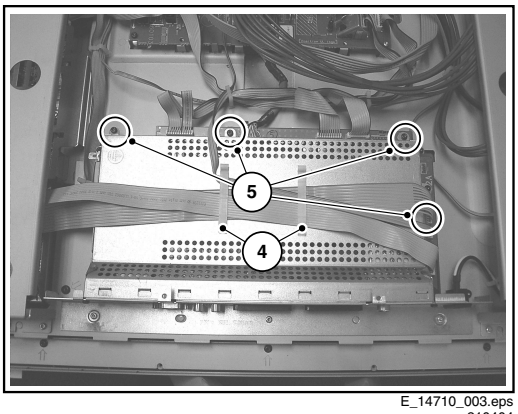


Figure 4-5 Shielding of the SSB

1. Remove the middle fixation screw (1) from the bottom side of the connector plate (as this holds the SSB bracket).
   Note: Sometimes it is easier to loosen the complete connector plate and remove it together with the SSB.
2. Remove all connector fixation screws (2) from the front side of the connector plate.
3. Remove the two female screw locks (3) of the VGA connector.
4. Release the plastic cable clips (4) on the shielding and disconnect all cables from the SSB.
   Note: Be careful with the fragile LVDS connector on the SSB.
5. Now, completely remove the SSB (together with all the shieldings) from the set.
6. Once the SSB is out, remove the fixation screws (5) from the shielding.
7. Remove the shielding, it hinges at the left side (acc. photo).
8. Remove the fixation screws that hold the panel, and take out the panel. On the rear side of the SSB, the **3D Comb Filter** is mounted with plastic clips.

Notes:

- Pay special attention to the EMC foam on the SSB shielding. These must be replaced in their initial positions during set re-assembly.
- Insulate the tuner pins, so they cannot touch the shielding (see also figure “SDM Service jumper” in Chapter 5).

4.3.6 LCD Supply Panel

1. Disconnect all cables from the panel.
2. Remove the fixation screws and take out the panel.

4.3.7 LCD Standby/Audio Panel

1. Disconnect all cables from the panel.
2. Remove the fixation screws and take out the panel.

4.3.8 LCD Panel

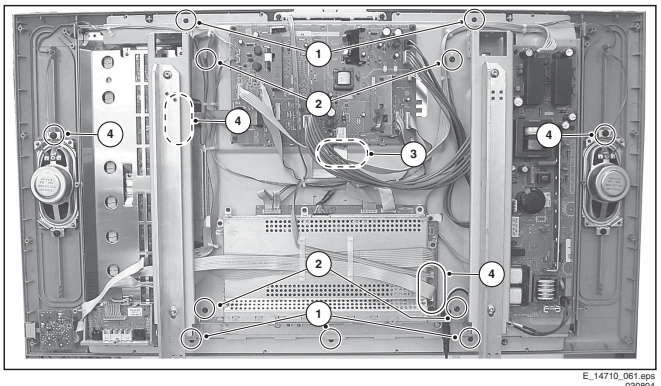


Figure 4-6 LCD panel disassembly

1. Remove the T10 screws (1) from the mounting frame.
2. Remove all mounting LCD panel T20 screws (2).
3. **Important:** Unplug the LVDS connector (3) at the LCD panel. **Be careful**, as this is a very fragile connector!
4. Unplug the following connectors (4).
   – LCD back light (disconnect at the LCD side)
   – Loudspeaker (easiest to disconnect at the speaker and to release the cable holders a little.
   – Top Control cable (disconnect at SSB side).
   – Cable between LED/Switch panel and SSB.
5. Lift the metal frame (together with all CBAs) from the LCD panel.
6. After removal of the frame, you can lift the LCD display from the set.

4.4 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 "Wire dressing".
- Pay special attention not to damage the EMC foams at the SSB shielding. Check that EMC foams are put correctly in place.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points
5.2 Service Modes
5.3 Problems and Solving Tips Related to CSM
5.4 ComPair
5.5 Error Codes
5.6 The Blinking LED Procedure
5.7 Fault Finding and Repair Tips

5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics test points are identified with a rectangle box around Fxxx or Ixxx. These test points are specifically mentioned in the service manual as “half moons” with a dot in the centre.
Perform measurements under the following conditions:

- Television set in Service Default Alignment Mode.
- Video input: Color bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version read-out for all chassis.
Minimum requirements for ComPair: a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

Specifications

Table 5-1 SDM default settings

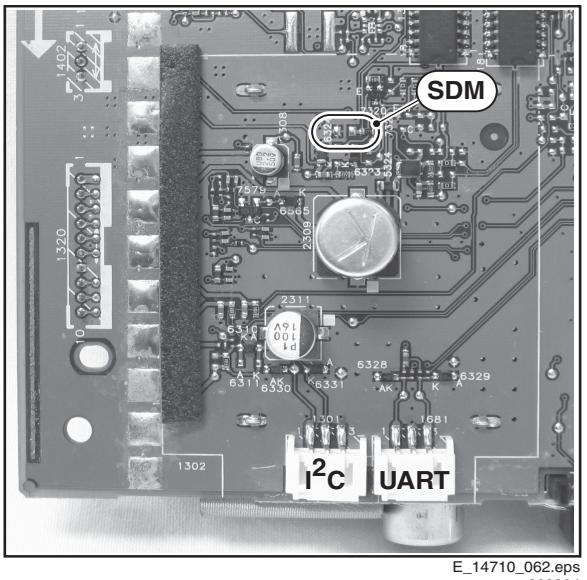
Region	Freq. (MHz)	Default system
Europe, AP-PAL/Multi	475.25	PAL B/G
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

- All picture settings at 50% (brightness, color contrast, hue).
- Bass, treble and balance at 50%; volume at 25%.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  - Timer / Sleep timer.
  - Child / parental lock.
  - Blue mute.
  - Hotel / hospital mode.
  - Auto shut off (when no “IDENT” video signal is received for 15 minutes).
  - Skipping of non-favourite presets / channels.
  - Auto-storage of personal presets.
  - Auto user menu time-out.
  - Auto Volume Levelling (AVL).

How to enter

To enter SDM, use one of the following methods:

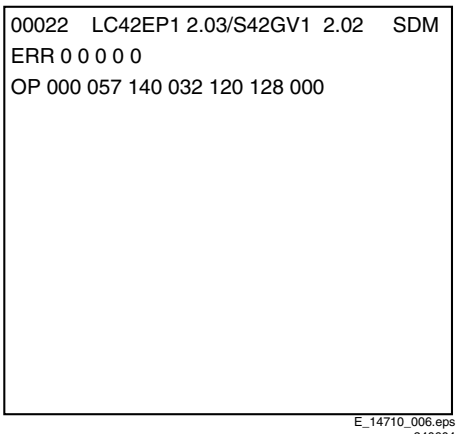
- Press the following key sequence on the remote control transmitter: **“062596”** directly followed by the MENU button (do not allow the OSD display to time out between entries while keying the sequence).
- Short SDM jumper (item 4022, see Figure "Service jumper") on the TV board and apply AC Power. Remove the short after start-up.
  Caution: Entering SDM by shorting "Service" jumpers will override the software protections. Do this only for a short period. **When doing this, the service-technician must know exactly what he is doing, as it could damage the television set**.



E_14710_062.eps
260804

Figure 5-1 SDM Service jumper

After entering 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 Alignment Mode.



E_14710_006.eps
240604

Figure 5-2 SDM menu (example from LC4.2E)

How to navigate

When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.

How to exit

Switch the set to STANDBY by pressing the POWER button on the remote control transmitter.

If you turn the television set off by removing the mains (i.e., unplugging the television) or by using the POWER button on the TV set, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 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, Geometry, and Audio).
- NVM Editor.
- ComPair Mode switching.

How to enter
Press the following key sequence on the remote control transmitter: **"062596"** directly followed by the OSD/STATUS/INFO button (do not allow the OSD display to time out between entries while keying the sequence).

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.

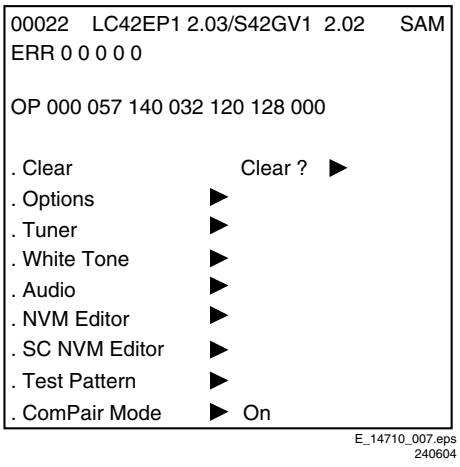


Figure 5-3 SAM menu (example from LC4.2E)

Menu explanation
1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours (including "on/off" switching), but does not count stand-by hours.
2. **AAAABCD-X.YY/EEEEEE_F.GG.** This is the software identification of the Main/Scaler microprocessor:
   - **A**= the chassis name.
   - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
   - **C**= the software diversity:
     - **Europe:** T= 1 pg TXT, F= Full TXT, V= Voice ctrl.
     - **LATAM and NAFTA:** N= Stereo non-dBx, S= Stereo dBx.
     - **Asian Pacific:** T= TXT, N= non-TXT, C= NTSC.
     - **ALL regions:** M= mono, D= DVD, Q= Mk2.
   - **D**= the language cluster number.
   - **X**= the Main software version number (updated with a major change that is incompatible with previous versions).
   - **YY**= the sub software version number (updated with a minor change that is compatible with previous versions).
   - **EEEEEE**= the Scaler SW cluster
   - **F**= the Scaler SW version no.
   - **GG**= the sub-version no.
3. **SAM.** Indication of the Service Alignment Mode.
4. **Error Buffer (ERR).** Shows all errors detected since the last time the buffer was erased. Five errors possible.
5. **Option Bytes (OP).** Shows all option settings. See "Options" in the Alignments section for a detailed description. Seven codes are available.
6. **Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the CURSOR RIGHT key. The content of the error buffer is cleared.
7. **Options.** Used to set the option bits. See "Options" in the Alignments section for a detailed description.
8. **Tuner.** Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
9. **White Tone.** Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
10. **Audio.** No audio alignment is necessary for this television set.
11. **NVM Editor.** Can be used to change the NVM data in the television set.
12. **SC NVM Editor. Can be used to edit Scaler NVM.**
13. **Test Pattern.** For future use.
14. **ComPair.** Can be used to switch the television to "In System Programming" (ISP) mode, for software uploading via ComPair.
    Caution: When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

How to navigate
- In SAM, select menu items with the CURSOR UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the CURSOR UP/DOWN keys to display the next / previous menu items.
- With the CURSOR LEFT/RIGHT keys, it is possible to:
  - Activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU button again.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

How to store SAM settings
To store the settings changed in SAM mode, 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 POWER button on the remote control transmitter or on the television set.

5.2.3 Customer Service Mode (CSM)

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

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

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

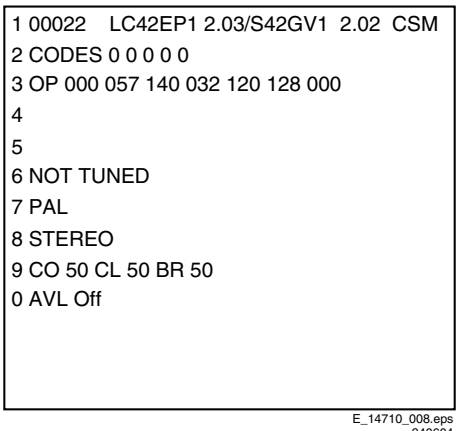


Figure 5-4 CSM menu (example from LC4.2E)

Menu explanation
1. Indication of the decimal value of the operation hours counter, Main/Scaler software version (see "Service Alignment Mode" for an explanation), and service mode (CSM= Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set (option).
5. Reserved.
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED"
7. Displays the detected Color system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to exit
To exit CSM, use one of the following methods:
- Press the MENU, STATUS (or EXIT/INFO/[i+]), or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture too dark or too bright

If:
- The picture improves when you press the AUTO PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the CURSOR LEFT/RIGHT keys to increase or decrease the BRIGHTNESS value.
7. Use the CURSOR UP/DOWN keys to select PICTURE.
8. Press the CURSOR LEFT/RIGHT keys to increase or decrease the PICTURE value.
9. Press the MENU button on the remote control transmitter twice to exit the user menu.
10. The new PERSONAL preference values are automatically stored.

White line around picture elements and text

If:
The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select SHARPNESS.
6. Press the CURSOR LEFT key to decrease the SHARPNESS value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Snowy picture
Check CSM line 6. If this line reads "Not Tuned", check the following:
- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/ repair the tuner if necessary.

Black and white picture

If:
- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select COLOR.
6. Press the CURSOR RIGHT key to increase the COLOR value.

7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Menu text not sharp enough

If:
- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select PICTURE.
6. Press the CURSOR LEFT key to decrease the PICTURE value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:
- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I^2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^2C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:
- Automatic (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^2C/UART level. ComPair can access the I^2C/UART bus of the television. ComPair can send and receive I^2C/UART commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^2C/UART busses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:
- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the (European) Dealer Service Tool (DST).
- If both ComPair and Force/SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.
  Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier*.
  – Click on the “Panel” hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  – Click on the “Schematic” hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 How To Connect

This is described in the chassis fault finding database in ComPair .

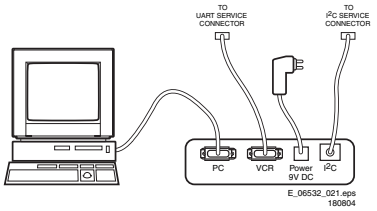


Figure 5-5 ComPair interface connection

5.4.4 How To Order

ComPair order codes (US):
- ComPair Software: ST4191.
- ComPair Interface Box: 4822 727 21631.
- AC Adapter: T405-ND.
- ComPair Quick Start Guide: ST4190.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630

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

5.5 Error Codes

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.

5.5.1 How To Read The Error Buffer

You can read the error buffer in 3 ways:
- On screen via the SAM (if you have a picture).
  Examples:
  - 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.

5.5.2 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 button (do not allow the OSD display to time out between entries while keying the sequence).
  - Make sure the menu item CLEAR is highlighted. Use the CURSOR UP/DOWN buttons, if necessary.
  - Press the CURSOR RIGHT button to clear the error buffer. The text on the right side of the “CLEAR” line will change from “CLEAR?” to “CLEARED”
- If an error does not reoccur within 50 hours it is deleted from the error buffer.

5.5.3 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	Device	Error description	Check item	Diagram
0	Not applicable	-	-	-
1	Not applicable	-	-	-
2	Not applicable	-	-	-
3	Not applicable	-	-	-
4	GM1501 Scaler Flash-ROM	I^2C error while communicating with the Genesis Scaler and/or Flash-ROM is faulty/empty	7401 7530	A7 A11
5	Not applicable	+5V protection	7930	A6
6	I2C bus	General I^2C error	7011, 3088, 3096	A2
7	Not applicable	-	-	-
8	M24C32	I^2C error while communicating with the Scaler EEPROM	7531	A11
9	M24C16	I^2C error while communicating with the EEPROM	7099	A2
10	Tuner	I^2C error while communicating with the PLL tuner	1302, 3302, 3303, 3327	A1
11	Not applicable	-	-	-
12	Not applicable	-	-	-
13	Not applicable	-	-	-
14	K4D263238M	Read-write error with the Scaler SDRAM	7501	A10
15	TDA9178T/N1	I^2C error while communicating with Histogram	7560	A3
16	TDA9178T/N1	I^2C error while communicating with EPLD on Pixel Plus panel	7560	A3

5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:
- The LED blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the LED is “off”.
- Then this sequence is repeated.

Any RC5 command terminates this sequence.

Example of error buffer: **12 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 at 12 short blinks.

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 handy 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.

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

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. After the default values are downloaded it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch “off” the TV set via the AC Power switch.
2. Short circuit the SDM jumpers (keep short-circuited).
3. Press P+ or Ch+ on the local keyboard (and keep it pressed).
4. Switch on the TV set via the AC Power switch.
5. When the set has started, the P+/Ch+ button can be released and the short circuit of the SDM jumpers can be removed.
6. The red LED will be on continuously to indicate that the download is initiated (normally when SDM is activated the red LED will start with the Blinking LED sequence).
7. Wait +/- 30 s (time needed to download default values to the NVM).

5.7.3 Tuner and IF

No Picture in RF mode

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check that the Option settings are correct.
3. Check that all supply voltages are present.
4. Check if I^2C lines are working correctly (3.3V).
5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Feed in 105 dBuV at Tuner pin 11 and check whether there is RGB output from Video Processing IC. If yes, Tuner may be defect. Replace Tuner.

Required system is not selected correctly

1. Check whether a Service jumper (#4022, 0805 size) is present. If yes, remove it.

5.7.4 Video Processing

No power

1. Check +12 V and 3V3 at position 1910.
2. If no supply, check the connector 1910.
3. If it is correct, check the power supply board.

Power supply is correct but no green LED

1. Check if connectors 1005 and 1601 are properly inserted.
2. If yes, check if the 3V3 is present.

No picture display

1. Check the RGB signal.
2. If it is present, check 3-IC7016 (NE555).
3. If it has output, the problem is in SCALER part.
4. Otherwise, check H-out on pin 2 of NE555. If the input signal of pin2 is present, but no output, the IC is defect.

Note:

- If the H-out (pin 67) doesn’t have signal or the level is low, check the output of NE555 (pin 3) during start up.
- If the H-out (pin 67) has a signal (or has a signal for a very short time), change IC7016 (NE555).

No TV but PC is present

1. Check if HSYNC and VSYNC are present at pin 3 of 7017 and 7015.
2. If they are present, check RGB output.
3. If there is no RGB output, the IC TDA120xx can be defect.

Comb Filter not working

Check Option Byte 5 in SAM (see also chapter 8 “Alignments”).

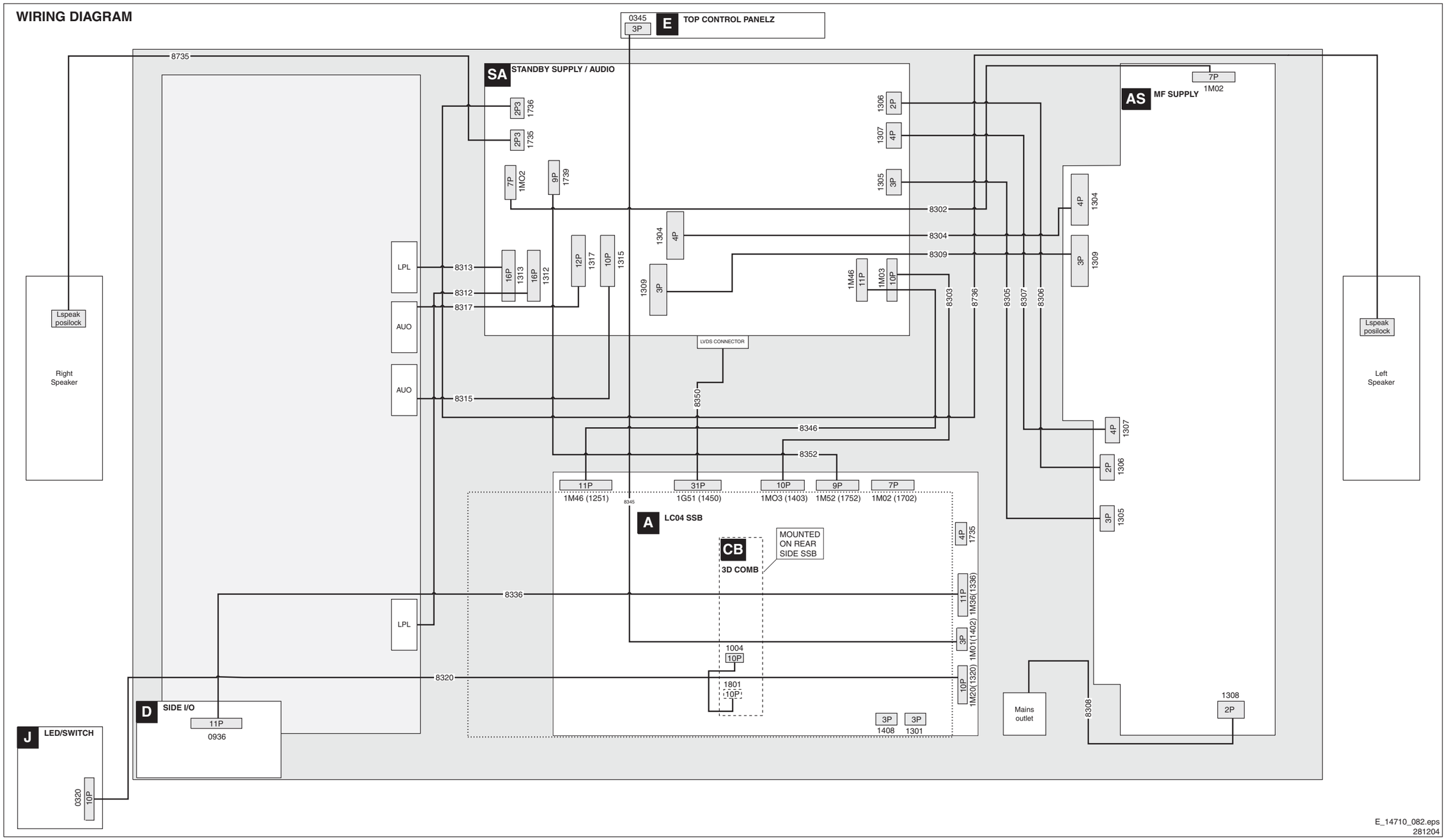
5.7.5 Power Supply

This power supply contains two fuses. One is near the AC Power (mains) inlet connector 1308 and the other is near connector 1307.

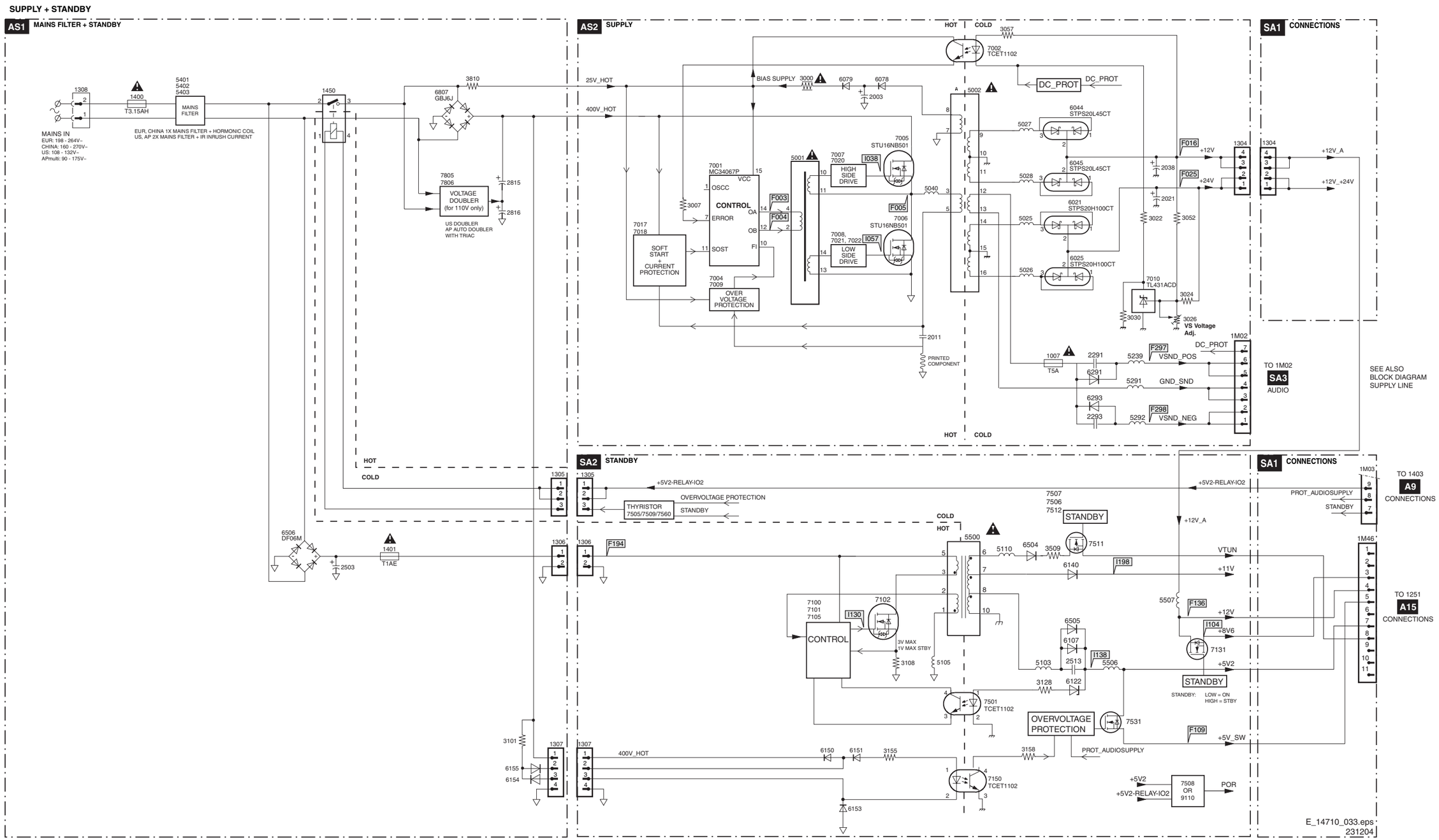
1. Check with power supply in “off” state by means of ohmic measurement.
2. Fuse 1400 may open in case of severe lightning strikes and/or failures in the power supply.
3. Fuses 1401 may open in case of a problem with the Standby Supply. Replacement of the fuse is needed, but not before the cause of the overload conditions is resolved.

6. Block Diagrams, Testpoint Overviews, and Waveforms

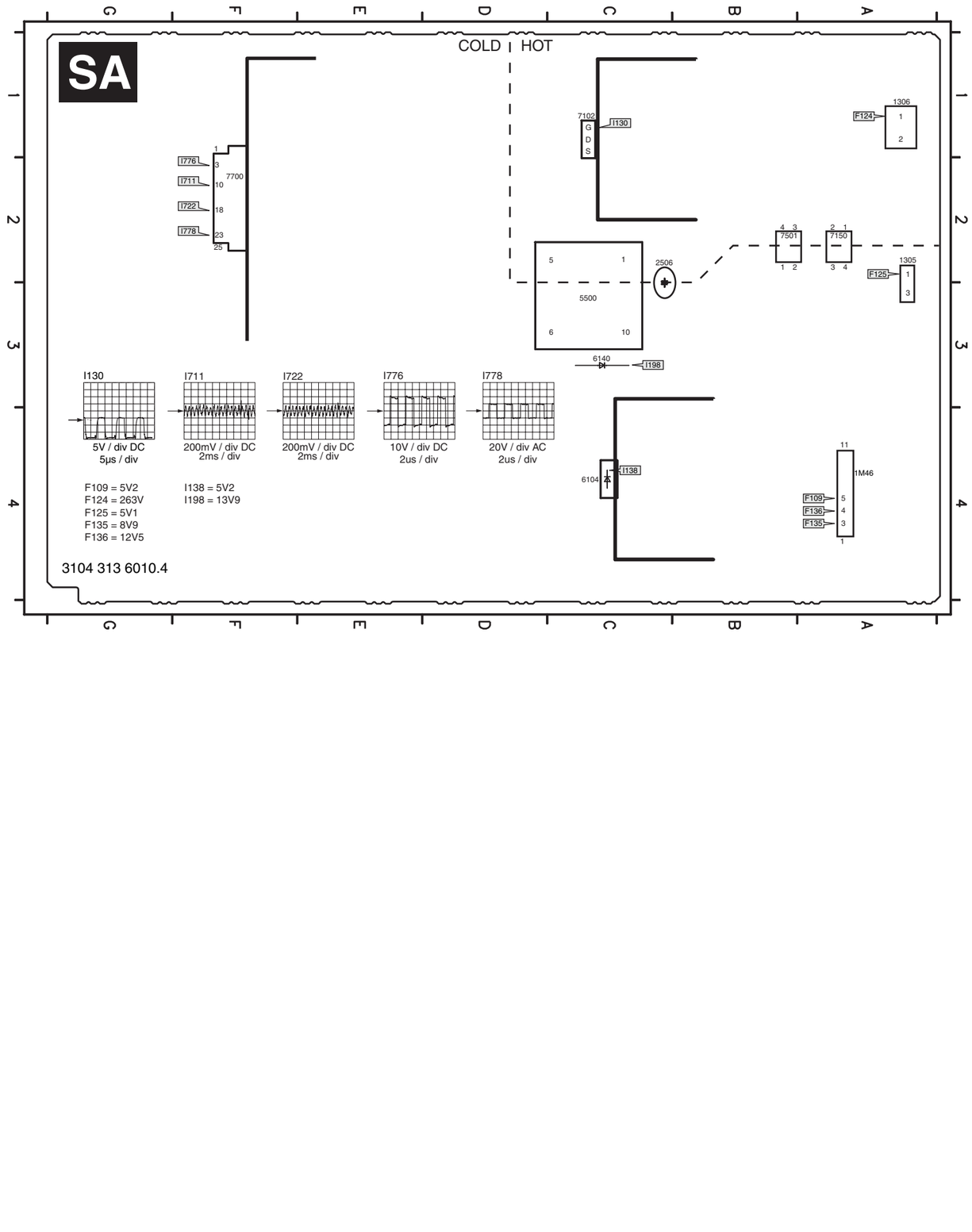
Wiring Diagram

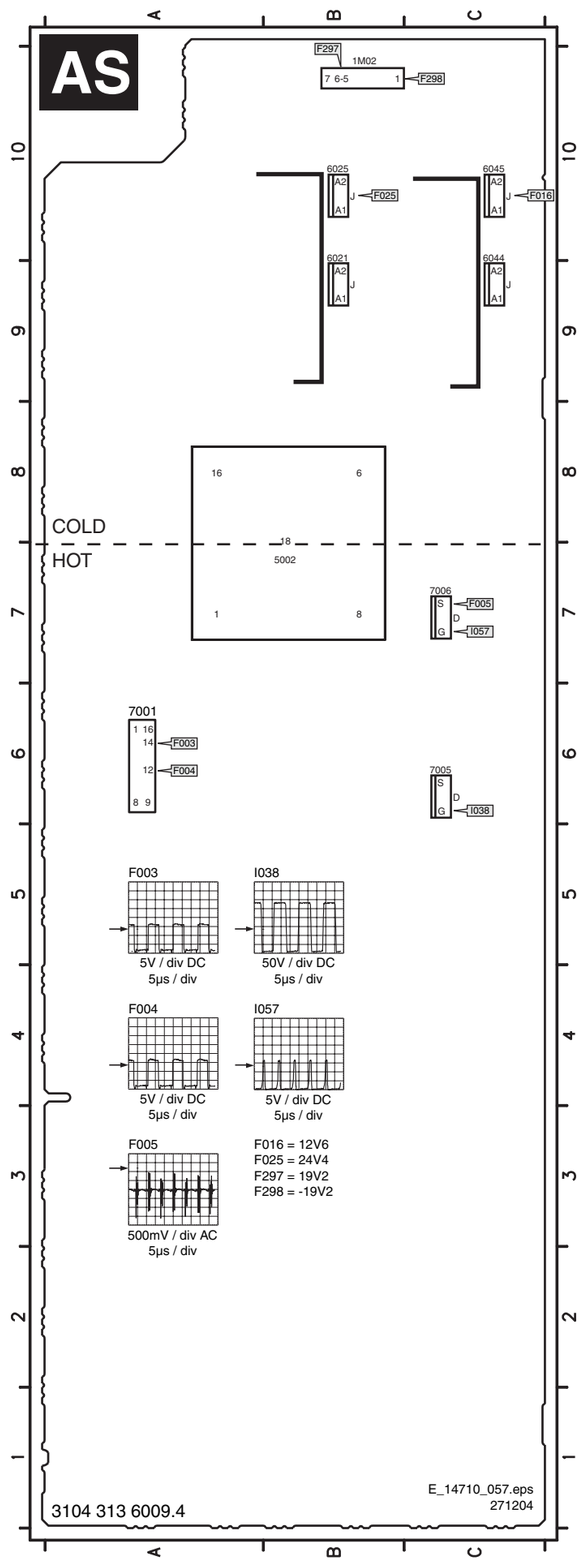


Block Diagram Supply and Standby

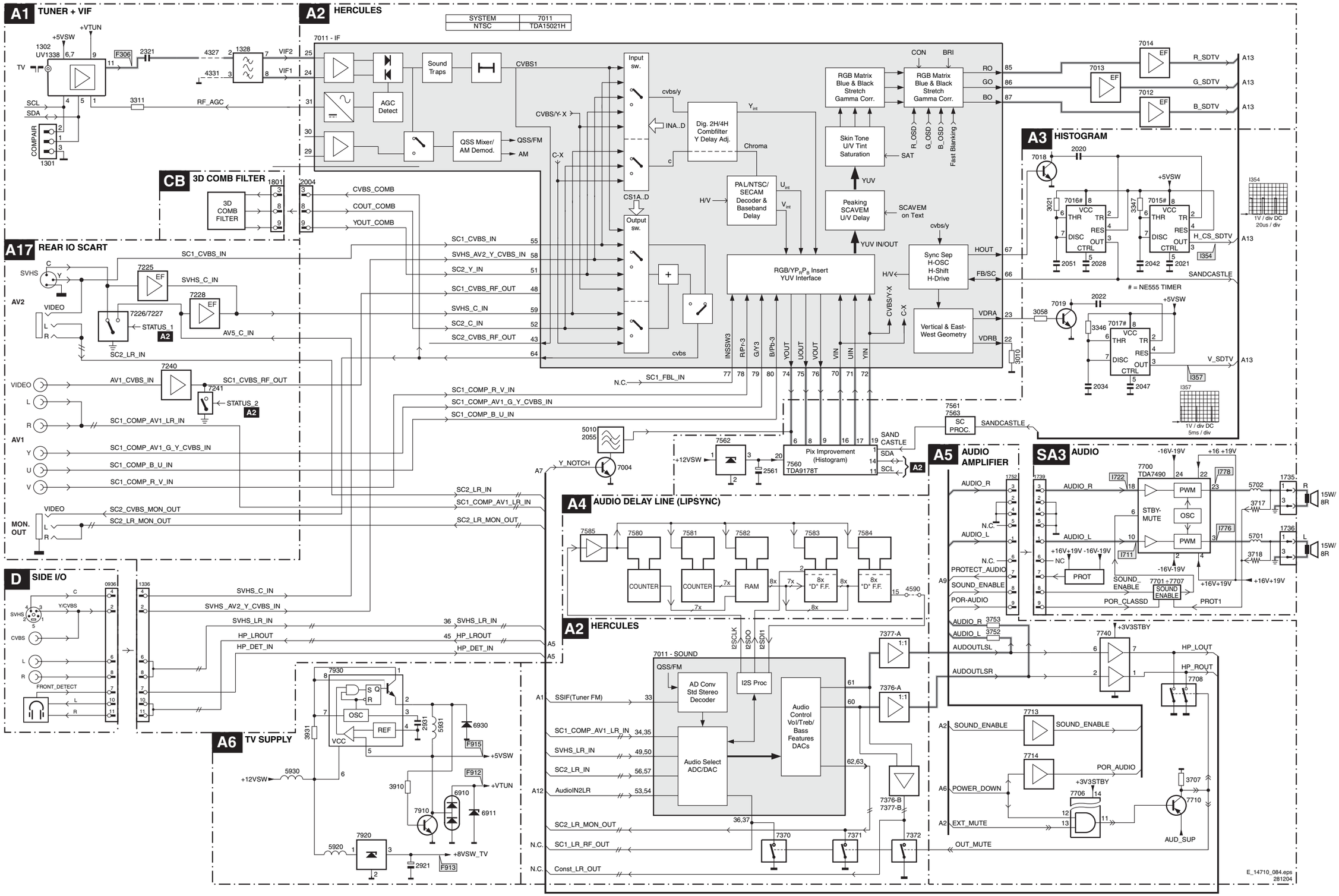


Testpoint Overview Supply and Standby

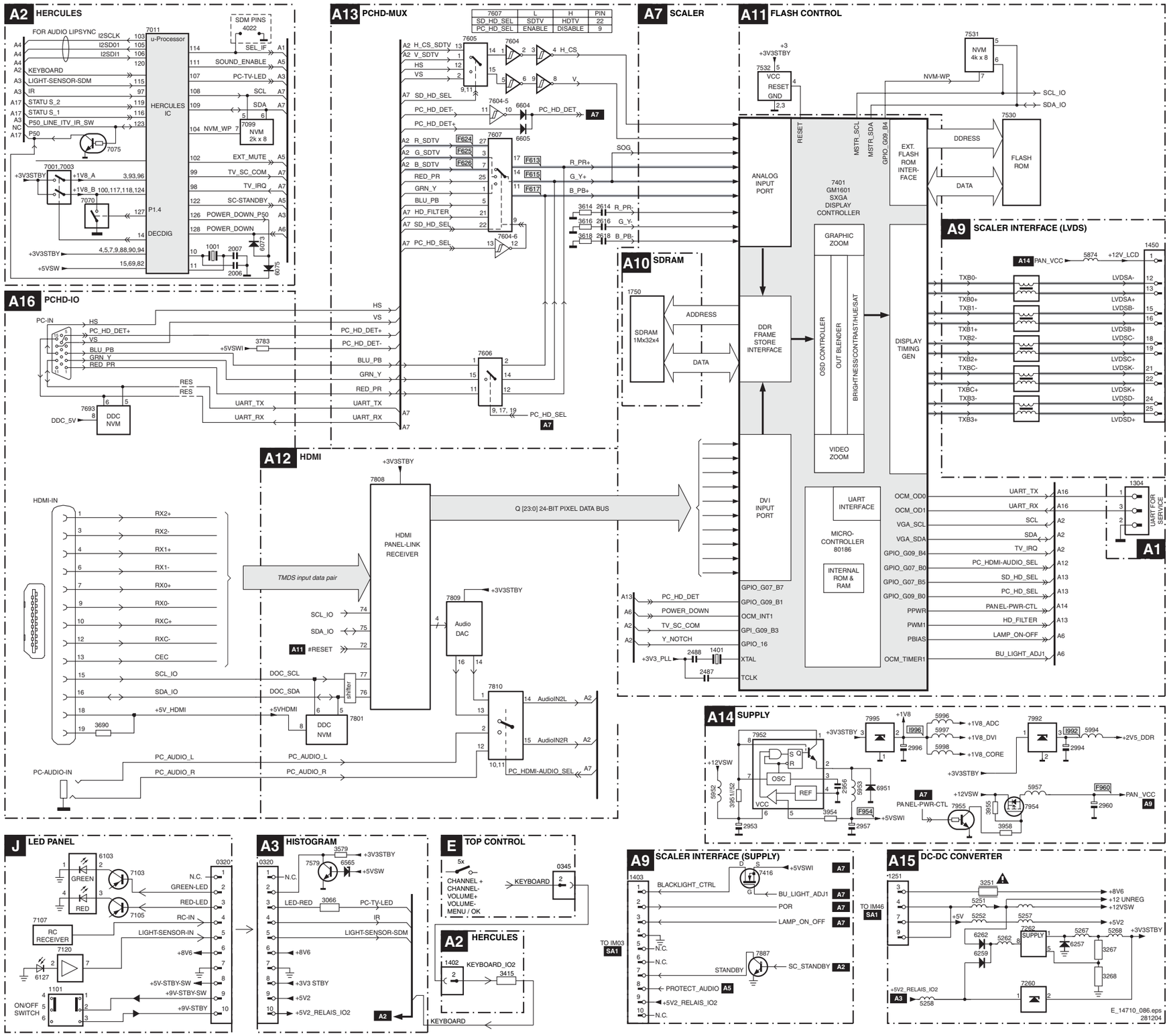




Block Diagram Tuner, Hercules and Audio

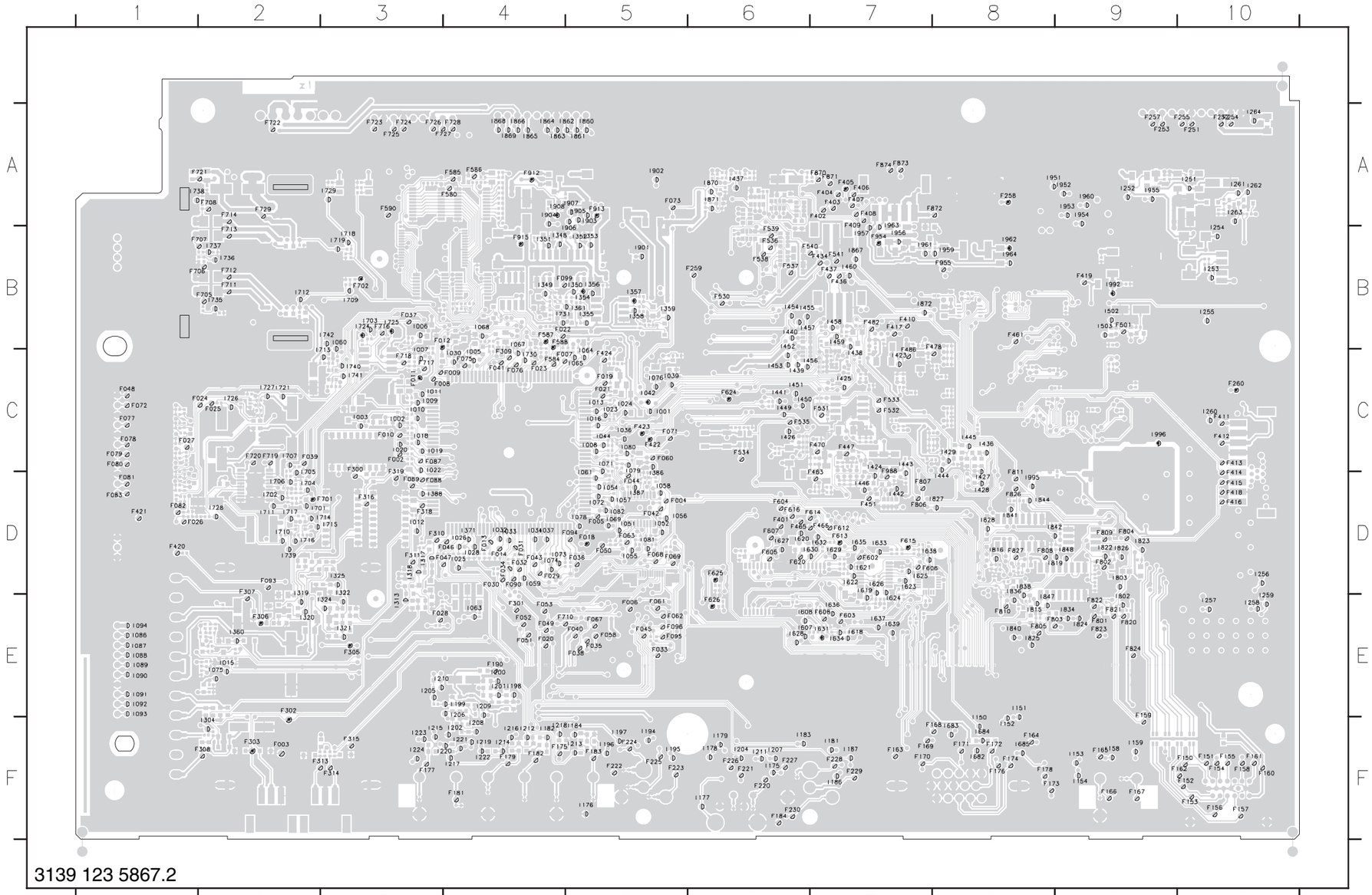


Block Diagram Scaler and Supply

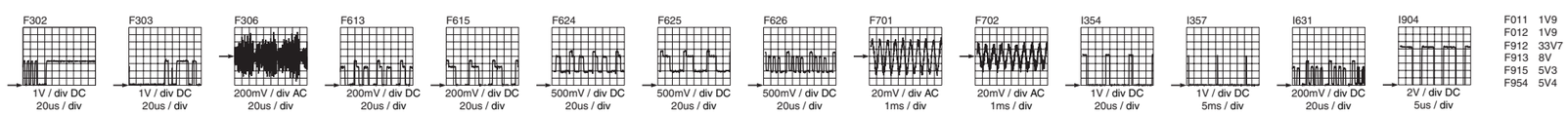


Testpoint Overview SSB (Top Side)

F002 C3 F003 F2 F004 D5 F005 D5 F006 E5 F007 C4 F008 C3 F009 C4 F010 C3 F011 C3 F012 B3 F013 D4
F014 D4 F018 D5 F019 C5 F020 E4 F021 C5 F022 B4 F023 C4 F024 C2 F025 C2 F026 D1 F027 C1 F028 E3
F029 D4 F030 D4 F031 D4 F032 D4 F033 E5 F034 D4 F035 E5 F036 D5 F037 B3 F038 E5 F039 C2 F040 E5
F041 C4 F042 D5 F043 D4 F044 D5 F045 E5 F046 D4 F047 D4 F048 C1 F049 E4 F050 D5 F051 E4 F052 E4
F053 E4 F058 E5 F060 C5 F061 E5 F062 E5 F063 D5 F067 E5 F068 D5 F069 D5 F071 C5 F072 C1 F073 A5
F075 C4 F076 C4 F077 C1 F078 C1 F079 C1 F080 C1 F081 D1 F082 D1 F083 D1 F087 C3 F088 D3 F089 D3
F090 D4 F093 D2 F094 D5 F095 E5 F096 E5 F099 B4 F150 F10 F151 F10 F152 F10 F153 F10 F154 F10 F155 F10
F156 F10 F157 F10 F158 F10 F159 E9 F160 F10 F161 F10 F162 F10 F163 F7 F164 F8 F165 F9 F166 F9 F167 F9
F168 F8 F169 F7 F170 F7 F171 F8 F172 F8 F173 F8 F174 F8 F175 F4 F176 F8 F177 F3 F178 F8 F179 F4
F181 F4 F182 F4 F183 F5 F184 F6 F190 E4 F220 F6 F221 F6 F222 F5 F223 F5 F224 F5 F225 F5 F226 F6
F227 F6 F228 F7 F229 F7 F230 F6 F251 A10 F252 A10 F253 A9 F254 A10 F255 A10 F257 A9 F258 A8 F259 B6
F260 C10 F300 C3 F301 E4 F302 E2 F303 F2 F305 E3 F306 E2 F307 D2 F308 F2 F309 C4 F310 D3
F311 D3 F313 F2 F314 F3 F315 F3 F316 D3 F318 D3 F319 C3 F401 D6 F402 A7 F403 A7 F404 A7 F405 A7
F406 A7 F407 A7 F408 A7 F409 A7 F410 B7 F411 C10 F412 C10 F413 C10 F414 D10 F415 D10 F416 D10 F417 B7
F418 D10 F419 B9 F420 D1 F421 D1 F422 C5 F423 C5 F424 C5 F434 B7 F436 B7 F437 B7 F447 C7 F451 D7
F461 B8 F463 D7 F465 D6 F466 D7 F470 C7 F478 B8 F482 B7 F486 C7 F501 B9 F530 B6 F531 C7 F532 C7
F533 C7 F534 C6 F535 C6 F536 B6 F538 B6 F539 B6 F540 B7 F541 B7 F580 A4 F584 C4 F585 A4
F586 A4 F587 B4 F588 B4 F590 A3 F602 D7 F603 E7 F604 D6 F605 D6 F606 D7 F607 D6 F608 E7 F612 D7
F613 D7 F614 D7 F615 D7 F616 D6 F620 D6 F624 C6 F625 D6 F626 E6 F701 D3 F702 B3 F705 B2 F706 B1
F707 B2 F708 A2 F710 E5 F711 B2 F712 B2 F713 B2 F714 A2 F716 B3 F717 C3 F718 C3 F719 C2 F720 C2
F721 A2 F722 A2 F723 A3 F724 A3 F725 A3 F726 A3 F727 A4 F728 A4 F729 A2 F801 E9 F802 D9 F803 E9
F804 D9 F805 E8 F806 D7 F807 D7 F808 D8 F809 D9 F810 E8 F811 D8 F820 E9 F821 E9 F822 E9 F823 E9
F824 E9 F826 D8 F827 D8 F870 A7 F871 A7 F872 A8 F873 A7 F874 A7 F912 A4 F913 A5 F915 B4 F954 B7
F955 B8 F988 C7 I001 C5 I002 C3 I003 C3 I005 C4 I006 B3 I007 C3 I008 C5 I009 C3 I010 C3 I011 C3
I012 D3 I013 C5 I015 E2 I016 C5 I018 C3 I019 C3 I020 C3 I022 C3 I023 C5 I024 C5 I025 D4 I026 D4
I028 D4 I030 C4 I032 D4 I033 D4 I034 D4 I036 C5 I037 D4 I039 C5 I042 C5 I044 C5 I051 D5 I052 D5
I054 D5 I055 D5 I056 D5 I057 D5 I058 D5
I059 D4 I060 B3 I061 D5 I063 E4 I064 C5 I065 C5 I067 B4 I068 B4 I069 D5 I071 C5 I072 D5 I073 D4
I074 D4 I075 E2 I076 C5 I078 D5 I079 C5 I080 C5 I081 D5 I082 D5 I086 E1 I087 E1 I088 E1 I089 E1
I090 E1 I091 E1 I092 E1 I093 E1 I094 E1 I150 F8 I151 E8 I152 F8 I153 F9 I154 F9 I158 F9 I159 F9
I175 F6 I176 F5 I177 F6 I178 F6 I179 F6 I182 F4 I183 F6 I184 F5 I186 F7 I187 F7 I194 F5 I195 F5
I196 F5 I198 E4 I199 E4 I200 E4 I201 E4 I202 F4 I204 F6 I205 E3 I206 E4 I207 F6 I208 F4 I209 E4
I210 E3 I211 F6 I212 F4 I213 F5 I214 F4 I215 F3 I216 F4 I217 F4 I218 F4 I219 F4 I220 F4 I221 F4
I222 F4 I223 F3 I224 F3
I251 A10 I252 A9 I253 B10 I254 B10 I255 B10 I256 D10 I257 E10 I258 E10 I259 E10 I260 C10 I261 A10
I262 A10 I263 A10 I264 A10 I304 F2 I313 E3 I317 D3 I318 D3 I319 D2 I320 E2 I321 E3 I322 D3 I324 E3
I325 D3 I348 B4 I349 B4 I350 B5 I351 B4 I352 B5 I353 B5 I354 B5 I355 B5 I356 B5 I357 B5 I358 B5
I359 B5 I360 E2 I361 B5 I371 D4 I386 D5 I387 D5 I388 D3 I423 C7 I424 C7 I425 C7 I426 C6 I427 D8
I428 D8 I429 C8 I436 C8 I437 A6 I438 C7 I439 C6 I440 B6 I441 C6 I442 D7 I443 C7 I444 D8 I445 C8
I450 C6 I451 C6 I452 B6 I453 C6 I454 B6 I455 B6 I456 C7 I457 B6 I458 B7 I459 B7 I460 B7 I502 B9
I503 B9 I607 E6 I608 E6 I618 E7
I619 D7 I620 D6 I621 D7 I622 D7 I623 D7 I624 E7 I625 D7 I626 D7 I627 D6 I628 E6 I629 D7 I630 D7
I631 E7 I632 D7 I633 D7 I634 E7 I635 D7 I636 E7 I637 E7 I638 D7 I639 E7 I682 F8 I683 F8 I684 F8
I685 F8 I701 D2 I702 D2 I703 B3 I704 D2 I705 D2 I706 D2 I707 C2 I709 B3 I710 D2 I711 D2 I712 B2
I713 C3 I714 D3 I715 D3 I716 D2 I717 D2 I718 B3 I719 B3 I721 C2 I724 B3 I725 B3 I726 C2 I727 C2
I728 D2 I729 A3 I730 C4 I731 B4 I735 B2 I736 B2 I737 B2 I738 A1 I739 D2 I740 C3 I741 C3 I742 B3
I802 E9 I803 D9 I815 E8 I816 D8 I819 D9 I822 D9 I823 D9 I824 E9 I825 E8 I826 D9 I827 D8 I828 D8
I834 E9 I836 D8 I838 D8 I840 E8 I841 D8
I842 D8 I844 D8 I847 E8 I848 D9 I860 A5 I861 A5 I862 A5 I863 A4 I864 A4 I865 A4 I866 A4 I867 B7
I868 A4 I869 A4 I870 A6 I871 A6 I872 B7 I901 B5 I902 A5 I903 A5 I904 A4 I905 A5 I906 B5 I907 A5
I908 A4 I951 A8 I952 A9 I953 A9 I954 A9 I955 A9 I956 B7 I957 B7 I959 B8 I960 A9 I961 B7 I962 B8
I963 A7 I964 B8 I992 B9 I995 D8 I996 C9



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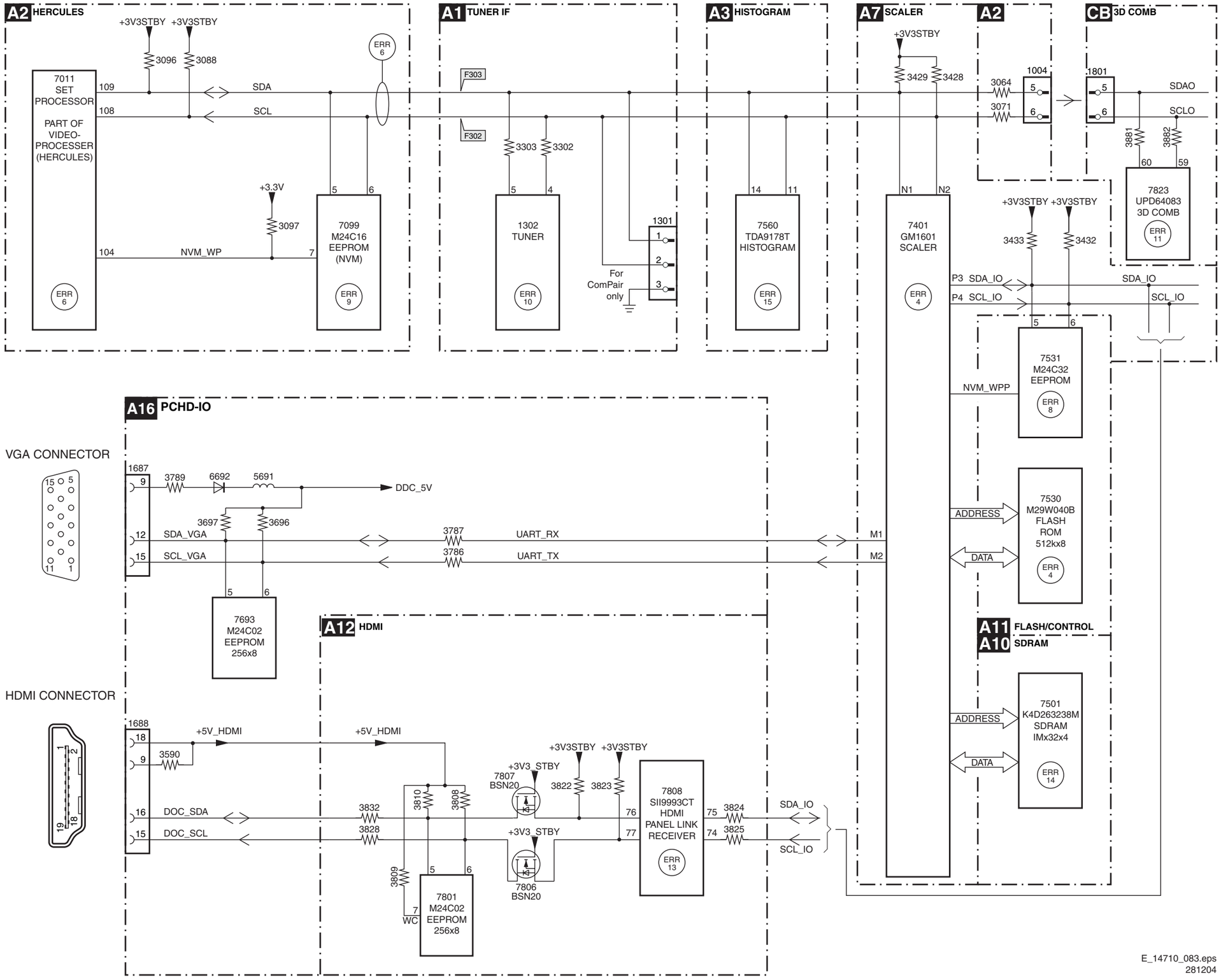


F011 1V9
F012 1V9
F912 33V7
F913 8V
F915 5V3
F954 5V4

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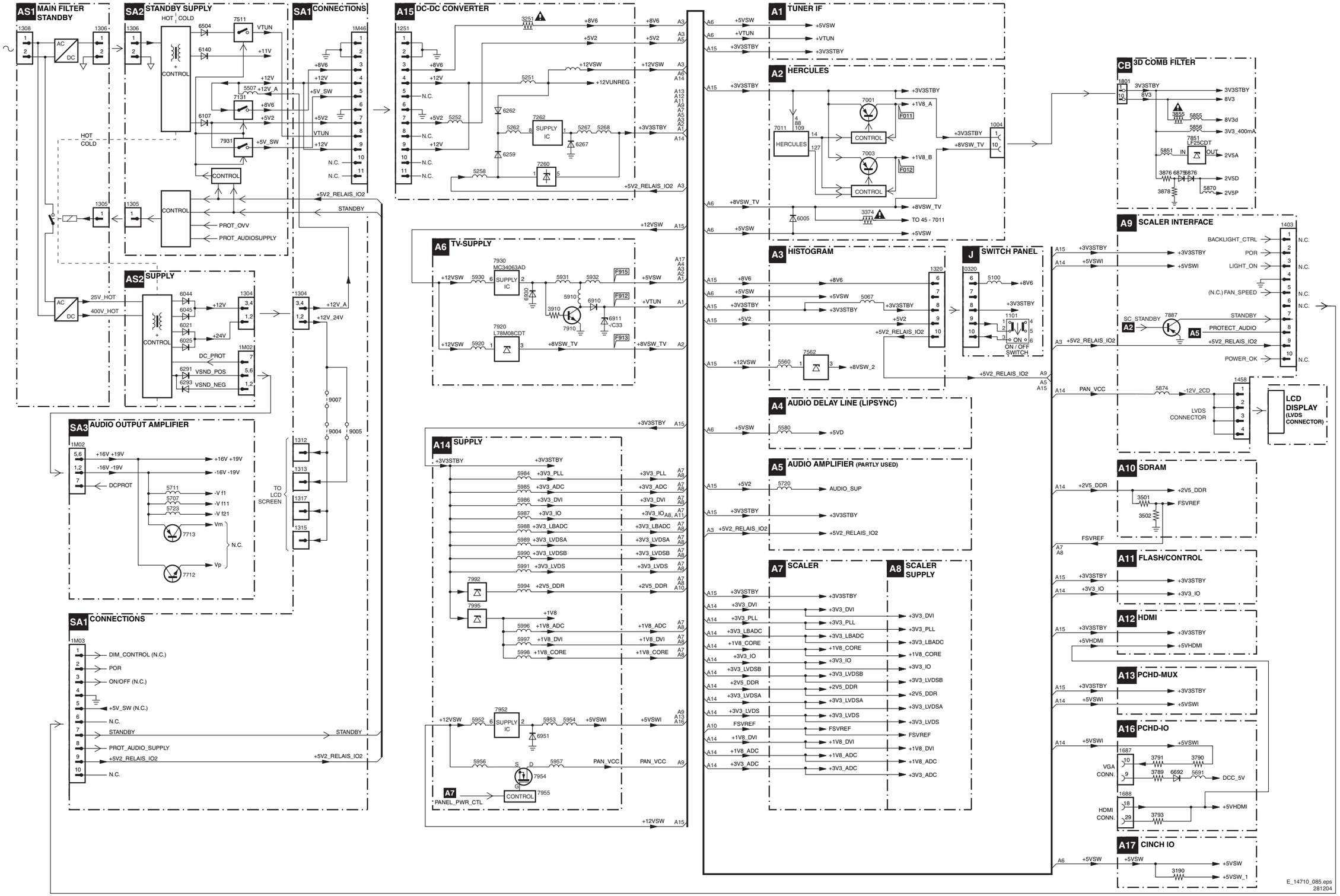
I2C IC Overview

I2C BUS INTERCONNECTION DIAGRAM



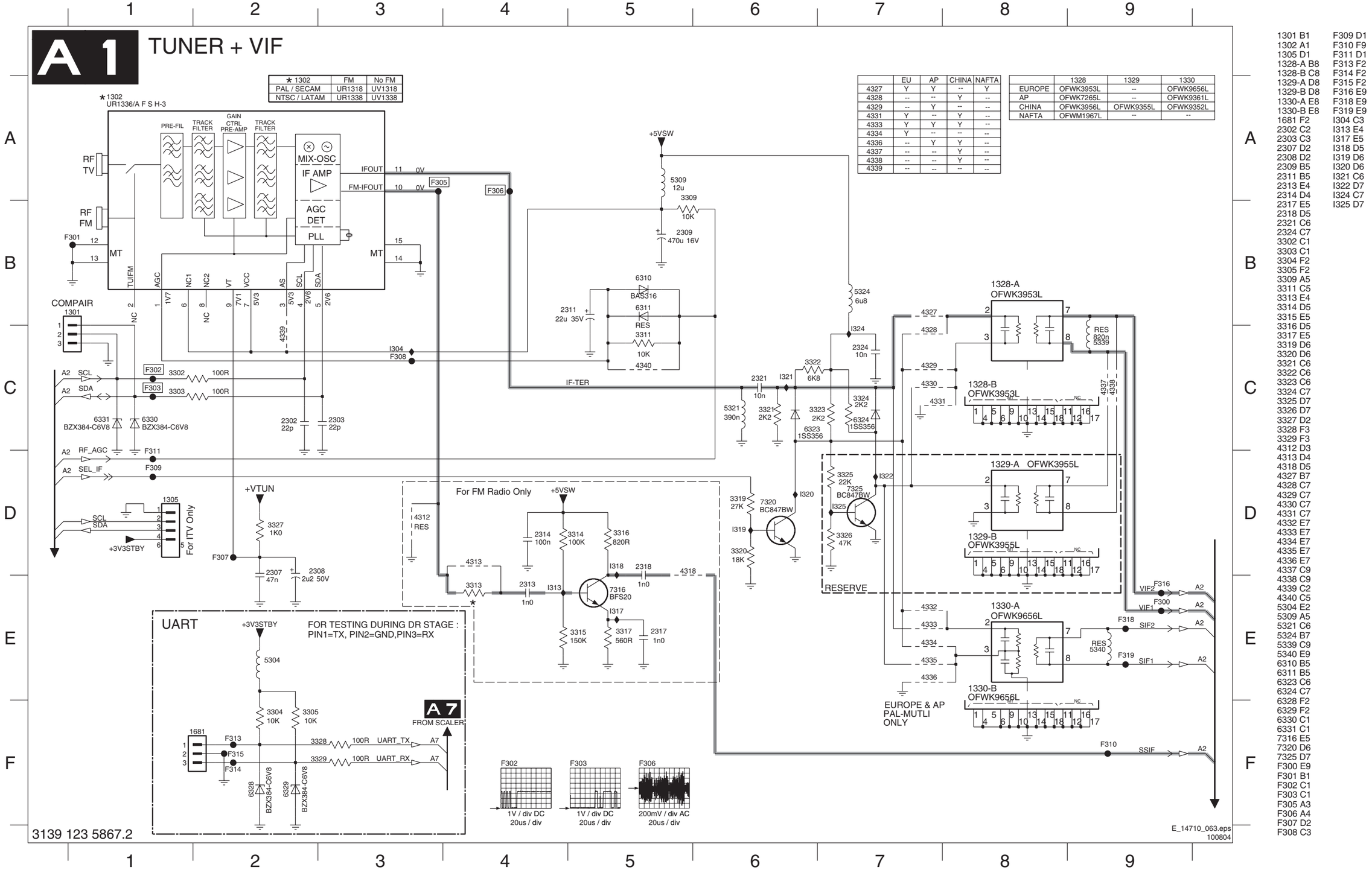
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Supply Voltage Overview



7. Circuit Diagrams and PWB Layouts

SSB: Tuner and VIF



	EU	AP	CHINA	NAFTA
4327	Y	Y	--	Y
4328	--	--	Y	--
4329	--	Y	--	--
4331	Y	--	Y	--
4333	Y	Y	Y	--
4334	Y	--	--	--
4336	--	Y	Y	--
4337	--	--	Y	--
4338	--	--	Y	--
4339	--	--	--	--

	1328	1329	1330
EUROPE	OFWK3953L	--	OFWK9656L
AP	OFWK7265L	--	OFWK9361L
CHINA	OFWK3956L	OFWK9355L	OFWK9352L
NAFTA	OFWM1967L	--	--

1301 B1
1302 A1
1305 D1
1328-A B8
1328-B C8
1329-A D8
1329-B D8
1330-A E8
1330-B E8
1681 F2
2302 C2
2303 C3
2307 D2
2308 D2
2309 B5
2311 B5
2313 E4
2314 D4
2317 E5
2318 D5
2321 C6
2324 C7
3302 C1
3303 C1
3304 F2
3305 F2
3309 A5
3311 C5
3313 E4
3314 D5
3315 E5
3316 D5
3317 E5
3319 D6
3320 D6
3321 C6
3322 C6
3323 C6
3324 C7
3325 D7
3326 D7
3327 D2
3328 F3
3329 F3
4312 D3
4313 D4
4318 D5
4327 B7
4328 C7
4329 C7
4330 C7
4331 C7
4332 E7
4333 E7
4334 E7
4335 E7
4336 E7
4337 C9
4338 C9
4339 C2
4340 C5
5304 E2
5309 A5
5321 C6
5324 B7
5339 C9
5340 E9
6310 B5
6311 B5
6323 C6
6324 C7
6328 F2
6329 F2
6330 C1
6331 C1
7316 E5
7320 D6
7325 D7
F300 E9
F301 B1
F302 C1
F303 C1
F305 A3
F306 A4
F307 D2
F308 C3
F309 D1
F310 F9
F311 D1
F313 F2
F314 F2
F315 F2
F316 E9
F318 E9
F319 E9
I304 C3
I313 E4
I317 E5
I318 D5
I319 D6
I320 D6
I321 C6
I322 D7
I324 C7
I325 D7

SSB: Histogram and Hercules

A2 HISTOGRAM & HERCULES

Item	No 3D	3D
4004	-	Yes
4005	Yes	-
4006	-	Yes
4007	Yes	-
4002	Yes	-
3009	Yes	-
2083	-	Yes

*	HETV (15W)	MTV (5W)
3380	5K6	10K
3381	5K6	10K
3382	5K6	10K
3383	5K6	10K

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120804

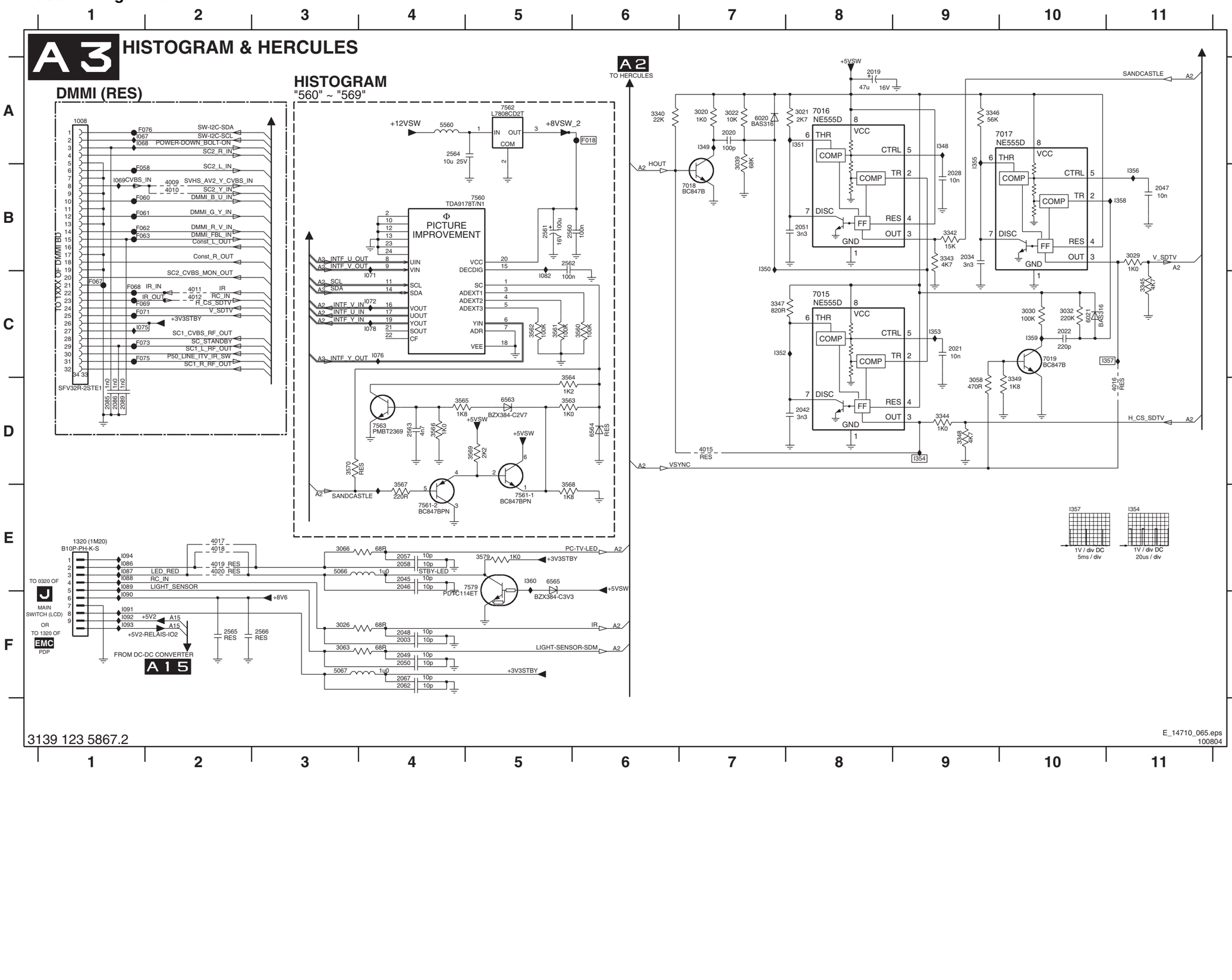
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3068 G3 3069 H3 3070 B3 3071 I12 3072 H3 3073 C5 3074 H6 3075 B5 3077 B5 3078 B5 3079 B5 3080 A7 3081 B7 3082 B7 3083 B8 3084 B8 3085 A8 3086 B9 3087 B9 3088 B9 3089 C3 3091 B11 3092 B11 3093 A11 3094 C9 3096 B8 3097 A13 3098 F14 3357 C5 3358 G7 3359 G8 3360 H17 3361 H17 3362 H17 3363 I17 3364 I17 3365 I17 3366 H15 3370 F7 3371 G5 3372 G5 3373 J15 3374 H7 3378 H13 3380 F11 3382 G11 3383 H12 3389 B10 3390 G9 3392 G9 3393 G10 3394 C6 3415 A3 4002 G8 4004 H10 4005 H10 4006 H10 4007 H10 4022 A8 4023 H3 4062 E6 4085 H3 4086 I3 4361 J14 4362 J14 4363 J14 5001 C6 5002 C7 5003 E4 5004 H8 5005 E11 5006 D12 5007 C11 5008 C11 5010 E12 5060 C6 5070 A6 5071 B7 5072 B9 5360 I14 5370 C10 5371 C10 5372 C11 6001 C3 6005 H7 6073 C3 6074 C3 6075 B3 6076 C3 7001 E3 7002-1 F3 7002-2 F2 7003 E2 7004 F14 7005 C2 7011 D8 7012 B15 7013 B15 7014 B16 7070 C3 7075 B3 7099 A13 7360 I16 7370-1 J5 7370-2 J6 7371-1 J6 7371-2 J7 7372-1 J7 7372-2 J8 7376-A H11 7376-B H12 7377-A G11 7377-B G12 F002 E6 F003 C6 F004 D5 F005 F10 F006 B6 F007 A6 F008 C6 F009 B4 F010 D6 F011 F3 F012 F3 F013 H7 F014 H8 F019 C10 F020 C10 F021 C11 F022 A12 F023 B9 F024 I3 F025 J3 F026 J3 F027 I3 F028 I5 F029 I5 F030 I5 F031 I5 F032 I5 F033 B7 F034 I5 F035 I5 F036 I5 F037 I5 F038 J4 F039 J5 F040 K4 F041 B7 F042 K4 F043 I5 F044 K4 F045 K4 F046 F5 F047 G5 F048 I2 F049 G5

SSB: Histogram and Hercules

A3 HISTOGRAM & HERCULES

DMMI (RES)

HISTOGRAM
"560" ~ "569"



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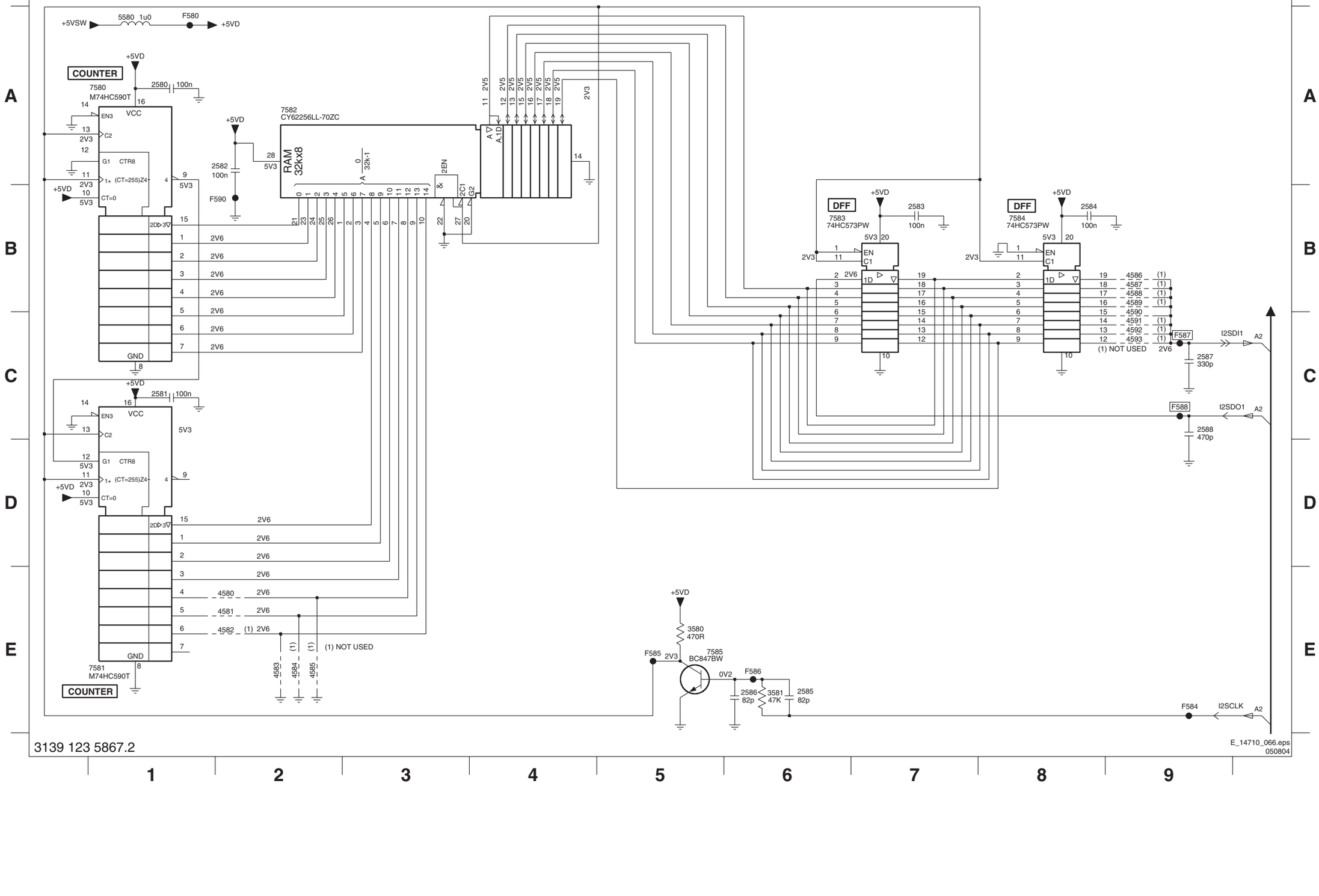
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1008 A1
1320 E1
2003 F4
2019 A8
2020 A7
2021 C9
2022 C10
2028 B9
2034 B9
2042 D8
2045 E4
2046 E4
2047 B11
2048 F4
2049 F4
2050 F4
2051 B8
2057 E4
2058 E4
2062 F4
2067 F4
2085 D1
2086 D1
2089 D1
2560 B5
2561 B5
2562 B5
2563 D4
2564 A4
2565 F2
2566 F3
3020 A7
3021 A8
3022 A7
3026 F3
3029 B11
3030 C10
3032 C10
3039 A7
3058 C9
3063 F3
3066 E3
3340 A6
3342 B9
3343 B9
3344 D9
3345 C11
3346 A9
3347 C7
3348 D9
3349 C10
3560 C6
3561 C5
3562 C5
3563 D5
3564 D5
3565 D4
3566 D4
3567 E4
3568 E5
3569 D5
3570 D3
3579 E5
4009 B2
4010 B2
4011 C2
4012 C2
4015 D7
4016 D11
4017 E2
4018 E2
4019 E2
4020 E2
5066 E3
5067 F3
5560 A4
6020 A7
6021 C10
6563 D5
6564 D6
6565 E5
7015 C8
7016 A8
7017 A9
7018 B7
7019 C10
7560 B5
7561-1 E5
7561-2 E4
7562 A5
7563 D4
7579 E5
7018 A6
F058 B1
F060 B1
F061 B1
F062 B1
F063 B1
F067 C1
F068 C1
F069 C1
F071 C1
F073 C1
F075 C1
F076 A2
I067 A1
I068 A1
I069 B1
I071 C4
I072 C4
I075 C1
I076 C4
I078 C4
I082 C5
I086 E1
I087 E1
I088 E1
I089 E1
I090 F1
I091 F1
I092 F1
I093 F1
I094 E1
I348 A9
I349 A7
I350 B7
I351 A8
I352 C7
I353 C9
I354 D9
I355 A9
I356 B11
I357 C11
I358 B11
I359 C10
I360 E5

SSB: Audio Delay line (Lipsync)

A 4 AUDIO DELAY LINE (LIPSYNC)

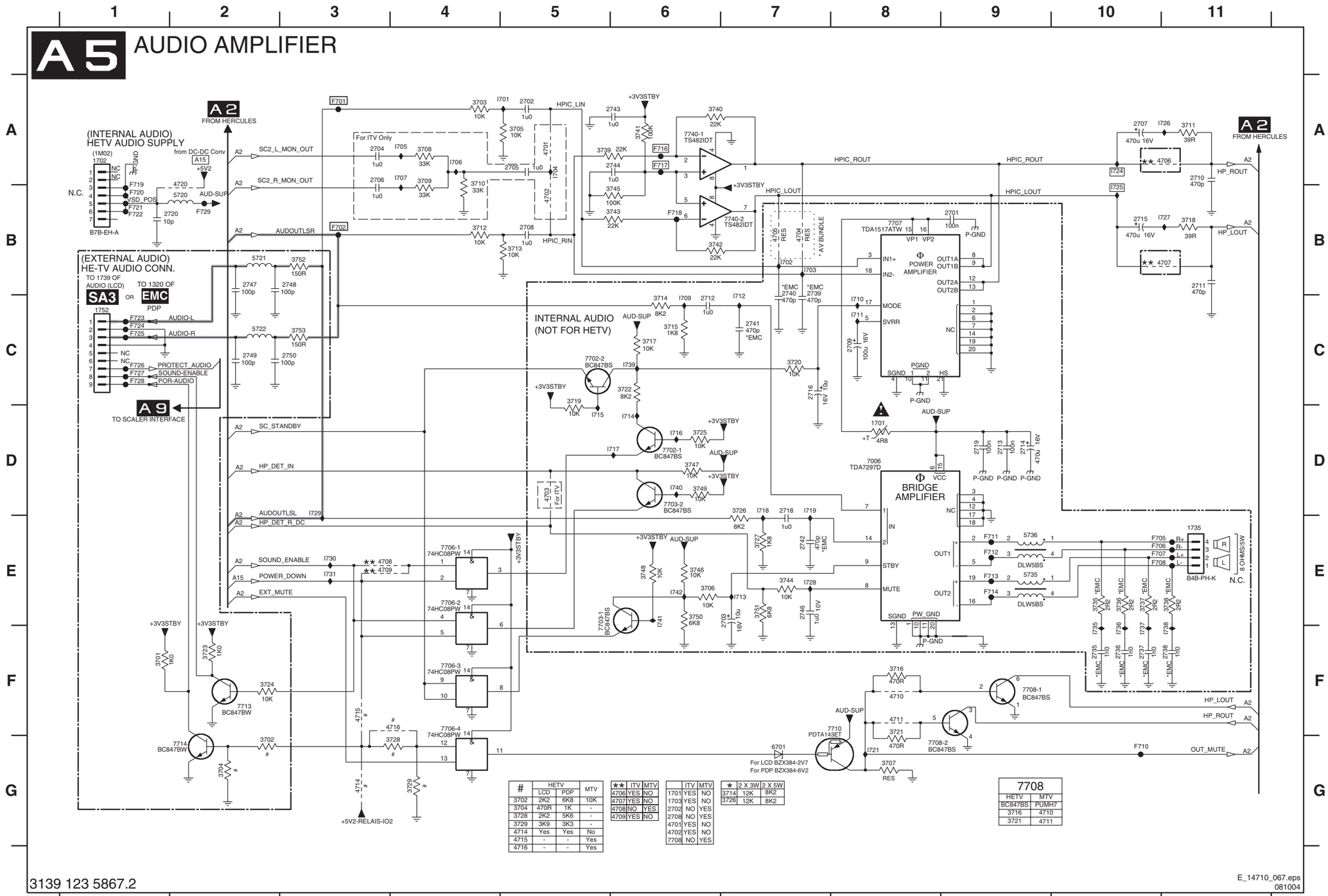
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2583 B7
2584 B8
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2587 C9
2588 C9
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4580 E2
4581 E2
4582 E2
4583 E2
4584 E2
4585 E2
4586 B9
4587 B9
4588 B9
4589 B9
4590 C9
4591 C9
4592 C9
4593 C9
5580 A1
7580 A1
7581 E1
7582 A2
7583 B6
7584 B8
7585 E5
F580 A1
F584 E9
F585 E5
F586 E6
F587 C9
F588 C9
F590 B2



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SSB: Audio Amplifier

A5 AUDIO AMPLIFIER



#	HETV LCD	HETV PDP	MTV
3702	2K2	6K8	10K
3704	470R	1K	-
3728	2K2	5K6	-
3729	3K9	3K3	-
4714	Yes	Yes	No
4715	-	-	Yes
4716	-	-	Yes

**	ITV	MTV
4706	YES	NO
4707	YES	NO
4708	NO	YES
4709	YES	NO

	ITV	MTV
1701	YES	NO
1703	YES	NO
2702	NO	YES
2708	NO	YES
4701	YES	NO
4702	YES	NO
7708	NO	YES

*	2 X 3W	2 X 5W
3714	12K	8K2
3726	12K	8K2

7708	
HETV	MTV
BC847BS	PUMH7
3716	4710
3721	4711

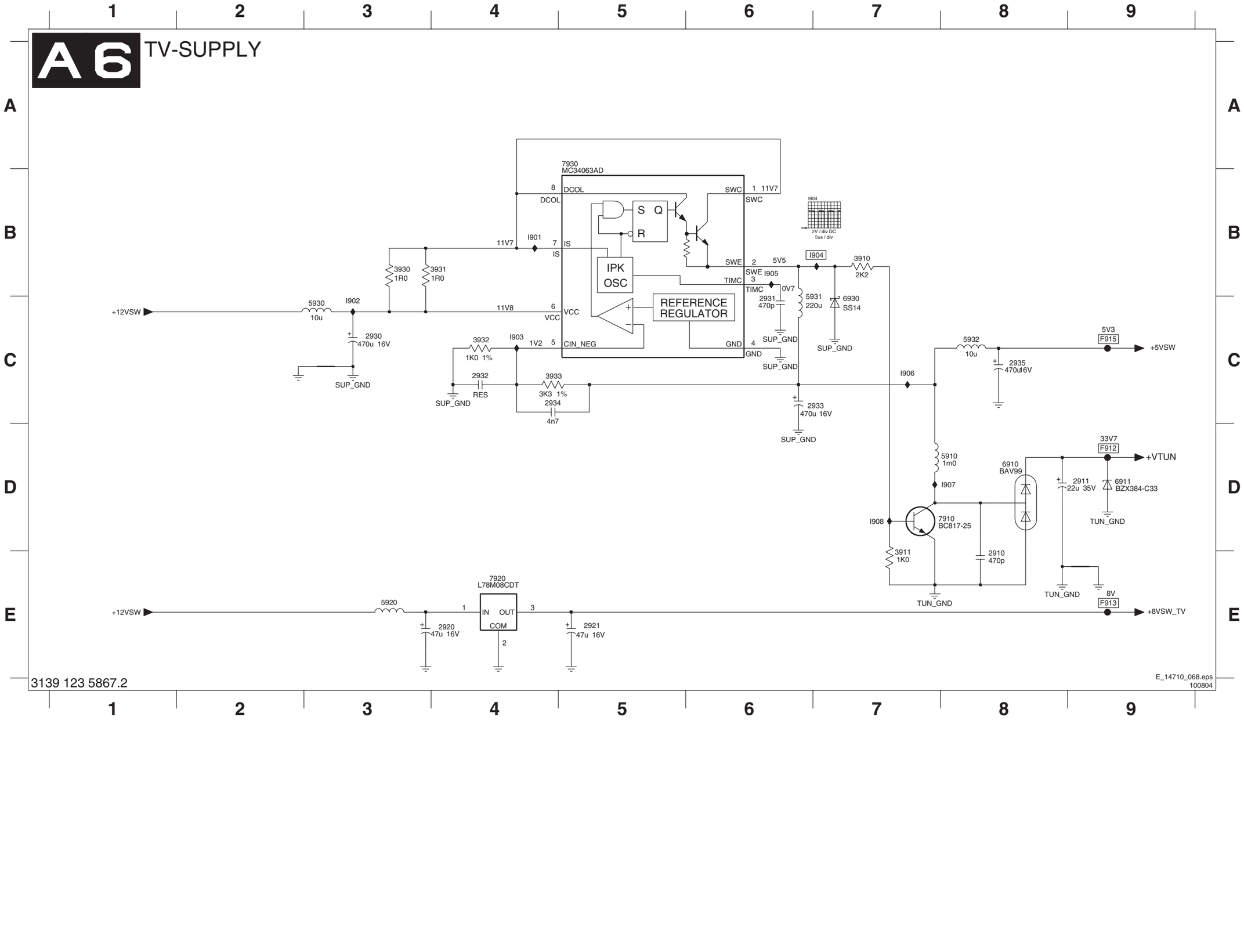
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1701 D8	4709 E3
1702 A1	4710 F8
1735 E11	4711 F8
1752 C1	4714 G3
2701 B9	4715 F3
2702 A5	4716 F4
2703 E7	4720 B2
2704 A3	5720 B2
2705 A5	5721 B2
2706 A3	5722 C2
2707 A10	5735 E9
2708 B5	5736 E9
2709 C8	6701 G7
2710 A11	7006 D8
2711 B11	7702-1 D6
2712 C6	7702-2 C5
2713 D9	7703-1 E5
2714 D9	7703-2 D6
2715 B10	7706-1 E4
2716 C7	7706-2 E4
2718 D7	7706-3 F4
2719 D9	7706-4 F4
2720 B2	7707 B8
2735 F10	7708-1 F9
2736 F10	7708-2 G8
2737 F10	7710 F8
2738 F11	7713 F2
2739 B7	7714 G2
2740 B7	7740-1 A6
2741 C7	7740-2 B7
2742 E7	F701 A3
2743 A6	F702 B3
2744 A6	F705 E10
2746 E7	F706 E10
2747 B2	F707 E10
2748 B3	F708 E10
2749 C2	F710 G10
2750 C3	F711 E9
3701 F1	F712 E9
3702 G2	F713 E9
3703 A4	F714 E9
3704 G2	F716 A6
3705 A5	F717 A6
3706 E6	F718 B6
3707 G8	F719 B1
3708 A4	F720 B1
3709 A4	F721 B1
3710 A4	F722 B1
3711 A11	F723 C1
3712 B4	F724 C1
3713 B5	F725 C1
3714 C6	F726 C1
3715 C6	F727 C1
3716 F8	F728 C1
3717 C6	F729 B2
3718 B11	I701 A5
3719 C5	I702 B7
3720 C7	I703 B7
3721 F8	I704 A5
3722 C6	I705 A4
3723 F2	I706 A4
3724 F2	I707 A4
3725 D6	I709 C6
3726 D7	I710 C8
3727 E7	I711 C8
3728 G4	I712 C7
3729 G4	I713 E7
3735 E10	I714 D6
3736 E10	I715 D5
3737 E10	I716 D6
3738 E11	I717 D6
3739 A5	I718 D7
3740 A6	I719 D7
3741 A6	I721 G8
3742 B6	I724 A10
3743 B6	I725 B10
3744 E7	I726 A11
3745 B6	I727 B11
3746 E6	I728 E7
3747 D6	I729 D3
3748 E6	I730 E3
3749 D6	I731 E3
3750 E6	I735 F10
3751 E7	I736 F10
3752 B3	I737 F10
3753 C3	I738 F11
4701 A5	I739 C6
4702 B5	I740 D6
4703 D5	I741 E6
4704 B7	I742 E6
4705 B7	
4706 A11	
4707 B11	
4708 E3	

SSB: TV Supply

A6 TV-SUPPLY



2910 D8
2911 D9
2920 E4
2921 E5
2930 C3
2931 B6
2932 C4
2933 C7
2934 C4
2935 C8
3910 B7
3911 D7
3930 B3
3931 B4
3932 C4
3933 C4
5910 D8
5920 E3
5930 C3
5931 B7
5932 C8
6910 D8
6911 D9
6930 C7
7910 D7
7920 E4
7930 A5
F912 D9
F913 E9
F915 C9
I901 B4
I902 C3
I903 C4
I904 B7
I905 B6
I906 C7
I907 D8
I908 D7

SSB: Scaler

A 7 SCALER

SCALER

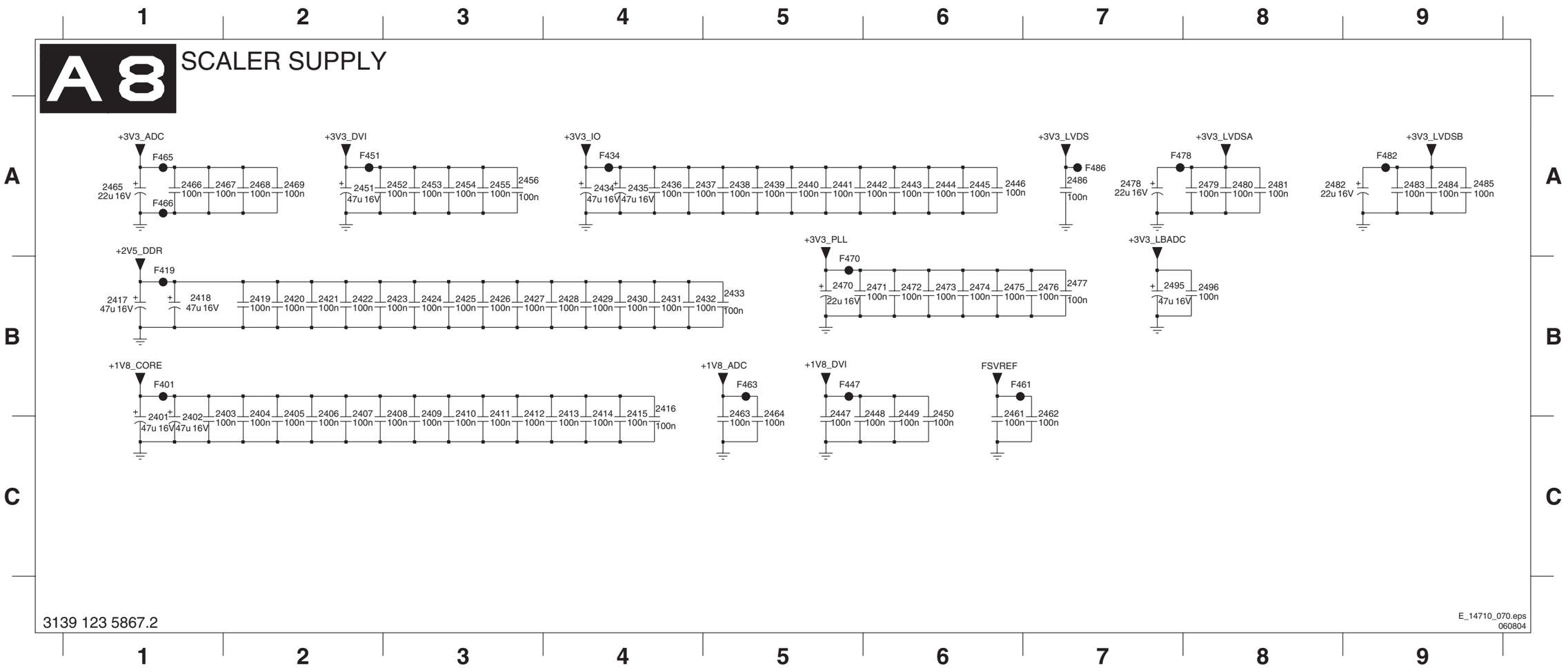
1401 C3
1408 J15
2487 C3
2488 C2
2490 G2
2491 G3
2492 G3
3401-1 A13
3401-2 A13
3401-3 A13
3401-4 A13
3402-1 B13
3402-2 B13
3402-3 B13
3402-4 B13
3403-1 B13
3403-2 B13
3403-3 B13
3403-4 B13
3404-1 C13
3404-2 B13
3404-3 B13
3404-4 B13
3405-1 C13
3405-2 C13
3405-3 C13
3405-4 C13
3406-1 C13
3406-2 C13
3406-3 C13
3406-4 C13
3407-1 D13
3407-2 D13
3407-3 C13
3407-4 C13
3408-1 D13
3408-2 D13
3408-3 D13
3408-4 D13
3409-1 C15
3409-2 C15
3409-3 C15
3409-4 C15
3410-1 D15
3410-2 D15
3410-3 D15
3410-4 D15
3411-1 D15
3411-2 D15
3411-3 D15
3411-4 D15
3412-2 E13
3412-3 E13
3412-4 E13
3412-1 E13
3413-2 E13
3413-3 E13
3413-4 E13
3414 E13
3422 D13
3423 K11
3424 B3
3425 C3
3426 D3
3428 C2
3429 C2
3432 H3
3433 H3
3436 J15
3437 J14
3438-1 J12
3438-2 J12
3438-3 J12
3438-4 J12
3439-1 K3
3439-2 K3
3439-3 K3
3439-4 K3
3440-1 K3
3440-2 K3
3440-3 K3
3440-4 K3
3441-1 I3
3441-2 I3
3441-3 I3
3441-4 I3
3442-1 G3
3442-2 H3
3442-3 H3
3442-4 G3
3443 F3
3446 B3
3447 E13
3448 H12
3449 G12
4446 G2
7401 A4
F402 H12
F403 I12
F404 I12
F405 I12
F406 I12
F407 I12
F408 I12
F409 I12
F410 I12
F417 I12
F436 J15
F437 J15
I423 K11
I424 B3
I425 C4
I426 C4
I427 F4
I429 F4
I438 J11
I439 K4
I440 K4
I441 I4
I442 G4
I443 F4
I446 B4
I449 I4
I450 I4
I451 I4
I452 K4
I453 K4
I454 K4
I455 K4
I456 K4
I457 K4
I458 J11
I459 J11
I460 J15

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SSB: Scaler Supply

2401 B1	2405 B2	2409 B3	2413 B4	2417 B1	2421 B2	2425 B3	2429 B4	2433 B5	2437 A5	2441 A5	2445 A6	2449 B6	2453 A3	2461 B6	2465 A1	2469 A2	2473 B6	2477 B7	2481 A8	2485 A9	2401 B1	2451 A2	2466 A1	F486 A7
2402 B1	2406 B2	2410 B3	2414 B4	2418 B1	2422 B2	2426 B3	2430 B4	2434 A4	2438 A5	2442 A6	2446 A6	2450 B6	2454 A3	2462 B7	2466 A1	2470 B5	2474 B6	2478 A7	2482 A8	2486 A7	2419 B1	2461 B6	2470 B5	
2403 B2	2407 B2	2411 B3	2415 B4	2419 B2	2423 B3	2427 B3	2431 B4	2435 A4	2439 A5	2443 A6	2447 B5	2451 A2	2455 A3	2463 B5	2467 A2	2471 B6	2475 B6	2479 A8	2483 A9	2495 B7	F434 A4	F463 B5	F478 A7	
2404 B2	2408 B3	2412 B3	2416 B4	2420 B2	2424 B3	2428 B4	2432 B5	2436 A4	2440 A5	2444 A6	2448 B6	2452 A3	2456 A3	2464 B5	2468 A2	2472 B6	2476 B7	2480 A8	2484 A9	2496 B8	F447 B5	F465 A1	F482 A9	



SSB: Scaler Interface

A 9 SCALER INTERFACE

A7 TO SCALER

FOR PDP ONLY

4871
4872
+3V3STBY
5872
2872 100n
7872 PCA9515DP
VCC
A7 SDA_IO 3 SDA0 SDA1 6 3871 68R SDA_DMA_BUS1_DISP F870
A7 SCL_IO 2 SCL0 SCL1 7 3870 68R SCL_DMA_BUS1_DISP F871
BUF_ENABLE 5 EN GND NC 1 NC
4
2870 10p
2871 10p

1860 DLW21S
2860 10p
2861 10p
1861 DLW21S
2862 10p
2863 10p
1862 DLW21S
2864 10p
2865 10p
1863 DLW21S
2866 10p
2867 10p
1864 DLW21S
2868 10p
2869 10p

(1G50) 1450
LVDSD+
LVDSD-
LVDSCLK+
LVDSCLK-
LVDSC+
LVDSC-
LVDSB+
LVDSB-
LVDSA+
LVDSA-
(NC)CTRL_DISP3
(NC)CTRL_DISP2
(NC)CTRL_DISP1
(NC)VDISP_2
(NC)VDISP2
LVDS CONNECTOR
FI-WE31P-HF-E1500
F873
F874

A7 TXB3+
A7 TXB3-
A7 TXBC+
A7 TXBC-
A7 TXB2+
A7 TXB2-
A7 TXB1+
A7 TXB1-
A7 TXB0+
A7 TXB0-

A14 PAN_VCC F872 5874 +12V_LCD
2874 10p
2875 10p
FOR LCD ONLY

PROVISION FOR PIXEL+ MODULE
1409
+5VSWI F411
+3V3STBY F412
PIXEL+_SYNC F413
PIXEL+_RESET F414
SCL_IO F415
SDA_IO F416
F418
(RES)
S9B-PH-SM3-TB-A

FOR LCD ONLY
BU_LHT_ADJ2
4428 RES
3427 RES
I428
4427 RES
I436
BU_LIGHT_ADJ2 (NC)
2494 RES
+5VSWI +5VSWI
3418 390R
BU_LHT_ADJ1
3416 1K0
7416 SI2301DS-T1
3460 RES
I444
4445 RES
I437
BU_LIGHT_ADJ1
3444 10K
I445
4444
3417 1K0
2493 1u0
LAMP_ON-OFF
POR
FAN_SPEED1
POWER_OK_UP

A5 FROM AUDIO AMPLIFIER
3876 68R
2876 10n
2879 10n
3879 68R
2878 10n
2881 10n
3877 68R
2877 10p
2883 10p
3883 68R
2887 10p
2880 10p

A2 FROM HERCULES
+3V3STBY
3886 10K
I871
SC_STANDBY
A2
3887 10K
I870
7887 BC847BW
2884 10n
+5V2_RELAIS_IO2
4887 RES
4888 (PDP)

FOR PDP ONLY
I872
5882 1u0
I867
3885 68R
2882 10p
2885 10p
2886 10u
2889 10p

BACKLIGHT_CTRL I860
LIGHT_ON I861
FAN_SPEED I862
STANDBY I863
PROTECT_AUDIC I864
NC I865
POWER_OK I866
I869
I868
1403
SA1 (LCD) OR (PDP)
TO 1M03 OF SUPPLY
TO CN9005 OF SUB SUPPLY

BUF_ENABLE

1403 D12
1409 A7
1450 D5
1860 D3
1861 D3
1862 E3
1863 F3
1864 F3
2493 C9
2494 C7
2860 D3
2861 D3
2862 D3
2863 D3
2864 E3
2865 E3
2866 E3
2867 F3
2868 F3
2869 F3
2870 C4
2871 C5
2872 B3
2874 G4
2875 G5
2876 C10
2877 E9
2878 D10
2879 C11
2880 E10
2881 D11
2882 F9
2883 E9
2884 E8
2885 F9
2886 F10
2887 E10
2889 F10
3416 C7
3417 C8
3418 C7
3427 C7
3444 C8
3460 C8
3870 C4
3871 B4
3876 C10
3877 D9
3879 D10
3883 E9
3885 F9
3886 D8
3887 E7
4427 C7
4428 C7
4444 C9
4445 C8
4871 B3
4872 B3
4887 E7
4888 E7
5872 B3
5874 G5
5882 F9
7416 C7
7872 B2
7887 E8
F411 A7
F412 B7
F413 B7
F414 B7
F415 B7
F416 B7
F418 B7
F870 B5
F871 C5
F872 G4
F873 F5
F874 E5
I428 C7
I436 C8
I437 C9
I444 C8
I445 C9
I860 D12
I861 D12
I862 D12
I863 D12
I864 D12
I865 E12
I866 E12
I867 F9
I868 E12
I869 E12
I870 E8
I871 E8
I872 F9

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SSB: SDRAM

A10 SDRAM

+2V5_DDR

2501 47u, 2502 47u, 2503 100n, 2504 100n, 2505 100n, 2506 100n, 2507 100n, 2508 100n, 2509 100n, 2510 100n, 2511 100n, 2512 100n, 2513 100n, 2514 100n, 2515 100n, 2516 100n

+2V5_DDR

3501 10K 1%

FSVREF

F501

FSVREF

2526 16V 22u

2517 100n

3503 150R 1%

3502 10K 1%

I503

I502

A7 FSCLK+

A7 FSCLK-

+2V5_DDR

7501 K4D263238M-QC50

SDRAM
1M X 32 X 4

VREF VDD VDDQ

A7 FSRAS → RAS
A7 FSCAS → CAS
A7 FSWE → WE
A7 FSCLK+ → CK
A7 FSCLK- → CK
A7 FSCKE → CKE
A7 FSDQM0 → DM0
A7 FSDQM1 → DM1
A7 FSDQM2 → DM2
A7 FSDQM3 → DM3
A7 FSBKSEL0 → BA0
A7 FSBKSEL1 → BA1
A7 FSADDR0 → A0
A7 FSADDR1 → A1
A7 FSADDR2 → A2
A7 FSADDR3 → A3
A7 FSADDR4 → A4
A7 FSADDR5 → A5
A7 FSADDR6 → A6
A7 FSADDR7 → A7
A7 FSADDR8 → A8
A7 FSADDR9 → A9
A7 FSADDR10 → A10
A7 FSADDR11 → A11

NC

RFU
MCL

VSS VSSQ

DQS → FSDQS → A7

A7 TO/FROM SCALER

FSDATA0 A7
FSDATA1 A7
FSDATA2 A7
FSDATA3 A7
FSDATA4 A7
FSDATA5 A7
FSDATA6 A7
FSDATA7 A7
FSDATA8 A7
FSDATA9 A7
FSDATA10 A7
FSDATA11 A7
FSDATA12 A7
FSDATA13 A7
FSDATA14 A7
FSDATA15 A7
FSDATA16 A7
FSDATA17 A7
FSDATA18 A7
FSDATA19 A7
FSDATA20 A7
FSDATA21 A7
FSDATA22 A7
FSDATA23 A7
FSDATA24 A7
FSDATA25 A7
FSDATA26 A7
FSDATA27 A7
FSDATA28 A7
FSDATA29 A7
FSDATA30 A7
FSDATA31 A7

2501 A1
2502 A1
2503 A1
2504 A1
2505 A2
2506 A2
2507 A2
2508 A3
2509 A3
2510 A3
2511 A3
2512 A4
2513 A4
2514 A4
2515 A5
2516 A5
2517 B4
2526 A4
3501 A3
3502 B3
3503 B2
7501 B3
F501 B3
I502 B2
I503 B2

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SSB: Flash / Control

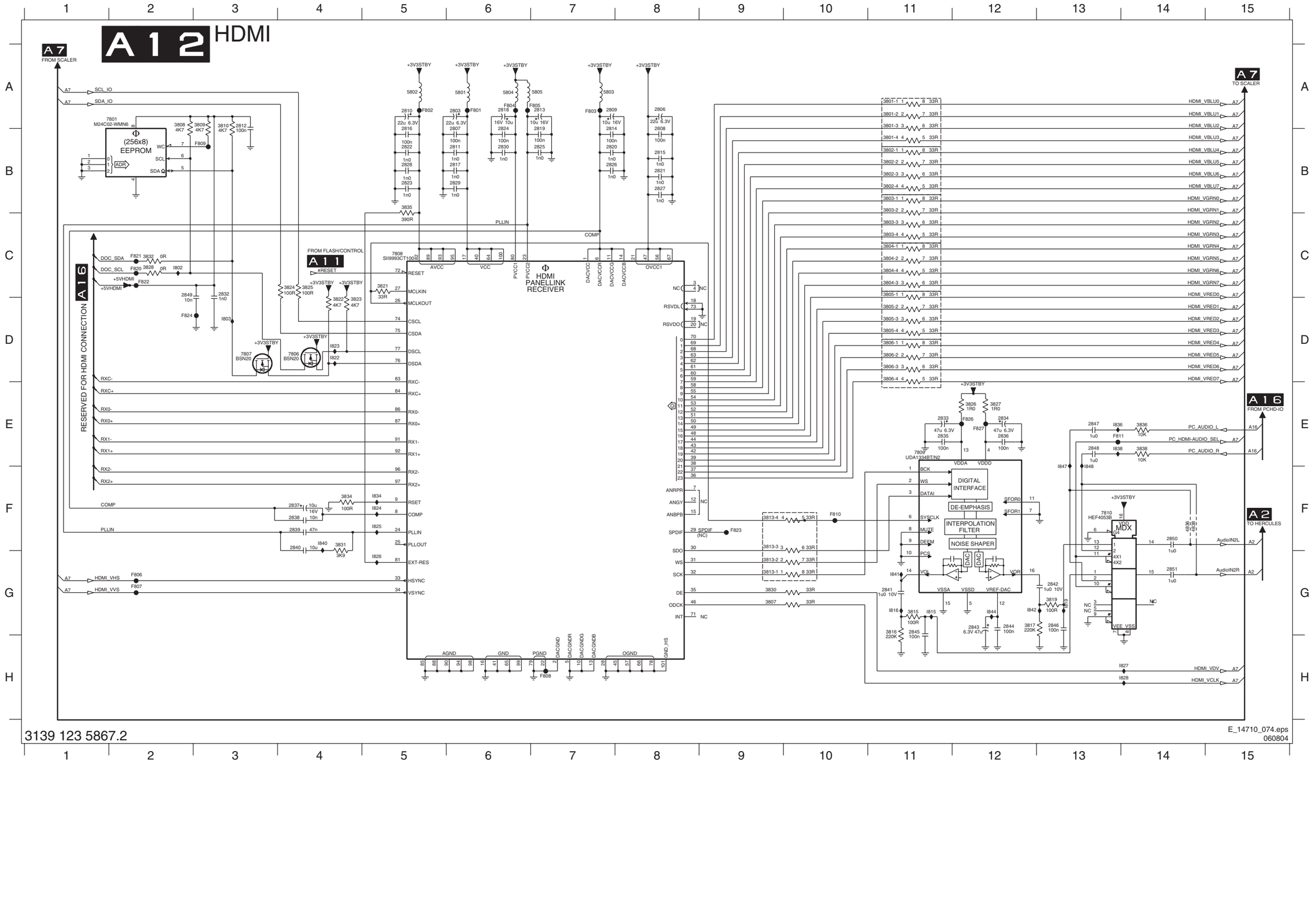
A11 FLASH / CONTROL

Item	LCD 30"	PQP 42"	AUO 30"
3549	1K	1K	RES
3551	1K	RES	RES
3552	1K	1K	RES
3553	1K	1K	1K
3550	1K	1K	1K

1530 C7
1532 E4
2530 A3
2531 E2
2532 E4
2533 A3
3531 E2
3532 E4
3533 E6
3534 E6
3536 B7
3538-1 C5
3538-2 C5
3538-3 C5
3538-4 C5
3539-1 C5
3539-2 C5
3539-3 C5
3539-4 C5
3540-1 B6
3540-2 B6
3540-3 B6
3540-4 B6
3541 D6
3542 D6
3543 D7
3544-1 B5
3544-2 B5
3544-3 C5
3544-4 C5
3545-1 B5
3545-2 B5
3545-3 B5
3545-4 B5
3546-1 B5
3546-2 B5
3546-3 B5
3546-4 B5
3547-1 A5
3547-2 A5
3547-3 A6
3547-4 A6
3548 A6
3549 B6
3550 A6
3551 B6
3552 A6
3553 A6
5530 A2
7530 A2
7531 E3
7532 E5
F530 A2
F531 E2
F532 E2
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F536 C7
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F539 C6
F540 C7
F541 C7

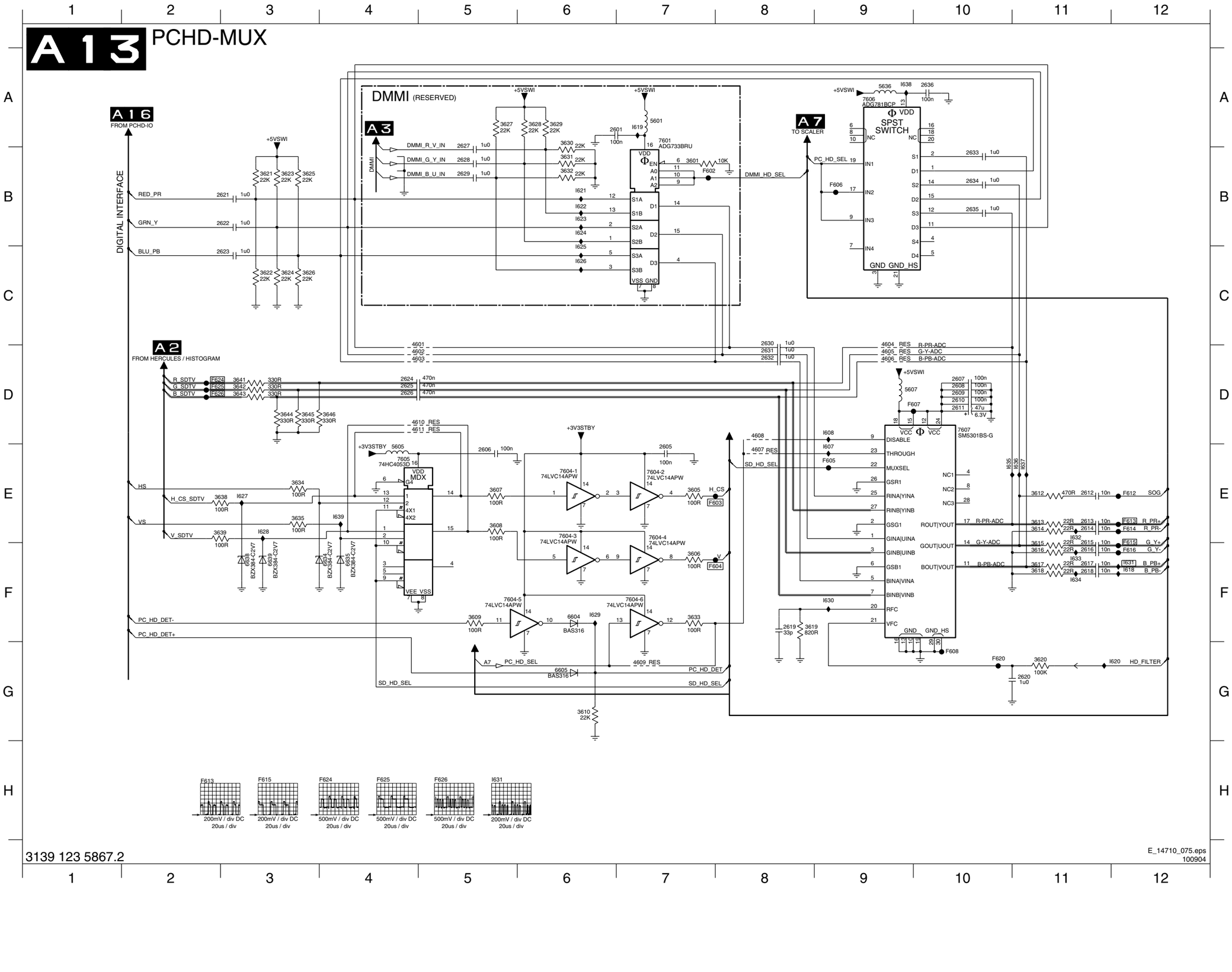
SSB: HDMI

2803 A6 2806 A8 2807 B6 2808 B8 2809 A7 2810 A5 2811 B6 2812 A3 2813 A7 2814 B7 2815 B8 2816 B5 2817 B6 2818 A6 2819 B7 2820 B7 2821 B8 2822 B5 2823 B5 2824 B6 2825 B7 2826 B7 2827 B8 2828 B5 2829 B6 2830 B6 2832 C3 2833 E11 2834 E12 2835 E11 2836 E12 2837 F4 2838 F4 2839 F4 2840 F4 2841 G11 2842 G13 2843 G12 2844 G12 2845 G11 2846 G13 2847 E13 2848 E13 2849 C2 2850 F14 2851 G14 3801-1 A11 3801-2 A11 3801-3 A11 3801-4 B11 3802-1 B11 3802-2 B11 3802-3 B11 3802-4 B11 3803-1 B11 3803-2 B11 3803-3 C11 3803-4 C11 3804-1 C11 3804-2 C11 3804-3 C11 3804-4 C11 3805-1 C11 3805-2 D11 3805-3 D11 3805-4 D11 3806-1 D11 3806-2 D11 3806-3 D11 3806-4 D11 3807 G9 3808 A2 3809 A3 3810 A3 3813-1 G9 3813-2 G9 3813-3 F9 3813-4 F9 3815 G11 3816 G11 3817 G12 3819 G13 3821 C5 3822 C4 3823 C4 3824 C4 3825 C4 3826 E12 3827 E12 3828 C2 3830 G9 3831 F4 3832 C2 3834 F4 3835 B5 3836 E14 3838 E14 4836 F14 4838 F14 5801 A6 5802 A5 5803 A7 5804 A6 5805 A7 7801 A2 7806 D4 7807 D3 7808 C5 7809 E11 7810 F13 F801 A6 F802 A5 F803 A7 F804 A6 F805 A7 F806 G2 F807 G2 F808 H7 F809 B3 F810 F10 F811 E13 F820 C2 F821 C2 F822 C2 F823 F9 F824 D2 F826 E12 F827 E12 I802 C2 I803 D3 I815 G11 I816 G11 I819 G13 I822 D4 I823 D4 I824 F5 I825 F5 I826 G5 I827 H14 I828 H14 I834 F5 I836 E13 I838 E13 I840 F4 I841 G11 I842 G12 I844 F5 I847 E13 I848 E13



SSB: PCHD MUX

A 13 PCHD-MUX



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100904

2601 A7
2605 E7
2606 E5
2607 D10
2608 D10
2609 D10
2610 D10
2611 D10
2612 E11
2613 E11
2614 E11
2615 F11
2616 F11
2617 F11
2618 F11
2619 F8
2620 G11
2621 B3
2622 B3
2623 C3
2624 D4
2625 D4
2626 D4
2627 A5
2628 B5
2629 B5
2630 C8
2631 D8
2632 D8
2633 B10
2634 B10
2635 B10
2636 A10
3601 B7
3605 E7
3606 F7
3607 E5
3608 E5
3609 F5
3610 G6
3612 E11
3613 E11
3614 E11
3615 F11
3616 F11
3617 F11
3618 F11
3619 F8
3620 G11
3621 B3
3622 C3
3623 B3
3624 C3
3625 B3
3626 C3
3627 A5
3628 A6
3629 A6
3630 A6
3631 B6
3632 B6
3633 F7
3634 E3
3635 E3
3638 E2
3639 E2
3641 D3
3642 D3
3643 D3
3644 D3
3645 D3
3646 D4
4601 D5
4602 D5
4603 D5
4604 D9
4605 D9
4606 D9
4607 E8
4608 D8
4609 G7
4610 D5
4611 D5
5601 A7
5605 E4
5607 D9
5636 A9
6604 F6
6605 G6
6634 F4
6635 F4
6638 F3
6639 F3
7601 A7
7604-1 E6
7604-2 E7
7604-3 E6
7604-4 E7
7604-5 F6
7604-6 F7
7605 E4
7606 A9
7607 D10
F602 B7
F603 E8
F604 F8
F605 E9
F606 B9
F607 D10
F608 G10
F612 E12
F613 E12
F614 E12
F615 E12
F616 E12
F620 G10
F624 D2
F625 D2
F626 D2
I607 E9
I608 D9
I618 F12
I619 A7
I620 G12
I621 B6
I622 B6
I623 B6
I624 B6
I625 C6
I626 C6
I627 E3
I628 E3
I629 F6
I630 F9
I631 F12
I632 E11
I633 F11
I634 F11
I635 E10
I636 E11
I637 E11
I638 A9
I639 E4

SSB: Supply

A14 SUPPLY

NOT FOR PDP

PROVISION FOR 1.5A 5V

1951 RES
I962
I963
I964
+5VSWI +3V3STBY +12VSW
5960 RES
*5955 RES
*5956
*5959 RES
I959
*2959 RES
*7953 L4940D2T12 IN OUT COM
2960 470u 16V
PAN_VCC
SS = 4V9
I956
I957
*5957
2962 10n
3955 10K
2961 10n
7954 SI2301DS-T1
I961
*3958 15K
A7 FROM SCALER
PANEL-PWR-CTL
F955
(0V) 0V6
7955 PDTC114ET

7952 MC34063AD
DCOL SWC 11V7
S Q R
IPK OSC
REFERENCE REGULATOR
SWE TIMC VCC CIN_NEG GND
I951 3951 1R0 3952 1R0
I955 I960
2956 470p
5953 220u
6951 SS14
SUPP_GND
+12VSW 5952 10u
I952
2953 470u 16V
3953 1K0 1%
I953 1V2
2954 RES
3954 3K3 1%
I954
2955 4n7
5954 10u
F954
+5VSWI
2957 470u 16V
2958 470u 16V
GND SUPP_GND

"951"~"979"

ITEM	13"	≥15"
2959	---	100N
3958	1K	15K
5954	---	YES
5955	YES	---
5956	---	YES
5957	YES	---
7953	---	L4940D2T12

SUPPLY FOR SCALER

+3V3STBY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 F988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS

+3V3STBY
7992 LF25CDT IN OUT COM
I992
2992 100n
2993 1n0
2994 470u 16V
5994 +2V5_DDR

+3V3STBY
+1V8
7995 LD1086D2T18 IN OUT COM
I995
I996
2995 100n
2996 47u 16V
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE

"980"~"999"

1951 A1
2953 E1
2954 F2
2955 F2
2956 E4
2957 F4
2958 F5
2959 B4
2960 B5
2961 B3
2962 B2
2992 C7
2993 C8
2994 C8
2995 E7
2996 E8
3951 E2
3952 E2
3953 F2
3954 F2
3955 B2
3958 C3
5952 E1
5953 E4
5954 F4
5955 B2
5956 B3
5957 B3
5959 A3
5960 B2
5984 A9
5985 A9
5986 A9
5987 A9
5988 B9
5989 B9
5990 B9
5991 B9
5994 C9
5996 D9
5997 E9
5998 E9
6951 E5
7952 D2
7953 A4
7954 B3
7955 C3
7992 C7
7995 D7
F954 F5
F955 C2
F988 B9
I951 E2
I952 E1
I953 F2
I954 F3
I955 E4
I956 B3
I957 B3
I959 A4
I960 E4
I961 B3
I962 A1
I963 A1
I964 A1
I992 C8
I995 E7
I996 E8

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SSB: DC-DC Converter

A15 DC-DC CONVERTER

SUPPLY

SA1 (LCD)
OR
TO CN9005 OF SUB SUPPLY (PDP)
TO 1M46 OF SUPPLY

1251 F251 F252 F253 NC F254 F255 NC F257 NC

3251 1R0 I264 +8V6

4251 RES +12V 5251 +12VUNREG F258 +12VSW

+5V 5252

2251 10p 2252 10p 2254 10u 16V 2253 10u 16V

A3
TO/FROM 1M20 OF HERCULES

1252 for ITV only

+9V_STBY_PDP 4255 (PDP) 2255 10p (PDP)

+5V2 A3
+5V2_RELAIS_IO2 A3

5257 (LCD) 5258 (LCD) I251 5259 (PDP)

7260 LF33CPT
I252 I253 IN OUT CTRL NC COM NC

3259 10K 6259 SS14 3260 6K8 2261 RES 2262 47u 16V

F260 +3V3STBY

+12VUNREG 6262 SS24 I254 5262 10u I255

7262 L5973D VCC VREF OUT FB COMP INH SYNC GND GND_HS NC

2263 10u 2264 10u SupplyGnd

I256 5267 33u I257 I258 I260 5268 10u

6267 SS36 3267 5K6 1% 2268 470u 16V 2269 470u 16V

2265 220p 2266 22n I259 3266 4K7 3268 3K3 1%

+12VUNREG +3V3STBY

6270 BZX384-C8V2 I261 3270 2K2 3271 820R 2271 10n

I262 7271 BC847BW I263 7272 BC847BW

3273 220K 3274 22K F259 POWER_DOWN A2 A5 A7

A2 A5 A7

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1251 A1 I258 D5
1252 B1 I259 D5
2251 A2 I260 D7
2252 A2 I261 A6
2253 A3 I262 A6
2254 A2 I263 A6
2255 B2 I264 A2
2261 C4
2262 C4
2263 D3
2264 D4
2265 D5
2266 D5
2268 D7
2269 D7
2271 B6
3251 A2
3259 C2
3260 C3
3266 D5
3267 D6
3268 D6
3270 A6
3271 B6
3273 A7
3274 A7
4251 A2
4255 B2
5251 A2
5252 A2
5257 B3
5258 B3
5259 B3
5262 C3
5267 D6
5268 D7
6259 C3
6262 C3
6267 D6
6270 A6
7260 B4
7262 C4
7271 B7
7272 A7
F251 A1
F252 A1
F253 A1
F254 A1
F255 A1
F257 A1
F258 A4
F259 A7
F260 B7
I251 B3
I252 B4
I253 C4
I254 C3
I255 C4
I256 D5
I257 D5

SSB: PCHD IO

A16 PCHD-IO

AV3: VGA + 2fHYPbPr

VGA Connector
1687
F168
F169
F170
F163
F171
3789 150R
I682
6692 BAS316
I683
5691
DDC_5V
F172
3791 1K0
I684
3790 10K
+5VSWI
SDA_VGA
F173
F174
F176
F178
SCL_VGA
17 16
788624-1
2784 330p
2785 330p
2683 100n

5689 3691 75R RED_PR A13
5688 3692 75R GRN_Y A13
5690 3695 75R BLU_PB A13
3785 100R I150 PC_HD_DET+ A13
3792 1K0
5682 3694 220R I151 HS A13
3682 2K2
2688 100p
5681 3690 220R I152 VS A13
3688 2K2
2682 100p

A13 TO PCHD-MUX

DDC_5V
2693 100n
I685
7693 M24C02-WMN6
Φ (256x8) EEPROM
WC
SCL
SDA
ADR
F164
3693 10K
3696 10K
3697 10K
3786 1R0 I153 UART_RX A7
3787 1R0 I154 UART_TX A7

A7 TO SCALER

A12 TO HDMI

PC AUDIO IN
1686
F166
F167
F165
LPR6520-J920G
S698
S699
3698 150R I158 PC_AUDIO_L
3699 150R I159 PC_AUDIO_R
2698 100p
3700 47K
2699 100p
3781 47K

HDMI - (NAFTA & AP ONLY)

A12 TO HDMI

HDMI CONNECTOR
1688
F150
F162
F151
F152
F153
F154
F155
F156
F157
F158
F159
F160
F161
DC1
1690 ACM
1691 ACM
1692 ACM
1693 ACM
RX2+
RX2-
RX1+
RX1-
RX0+
RX0-
RXC+
RXC-
CEC
DOC_SCL
DOC_SDA
+5VHDMI
3793 1K0

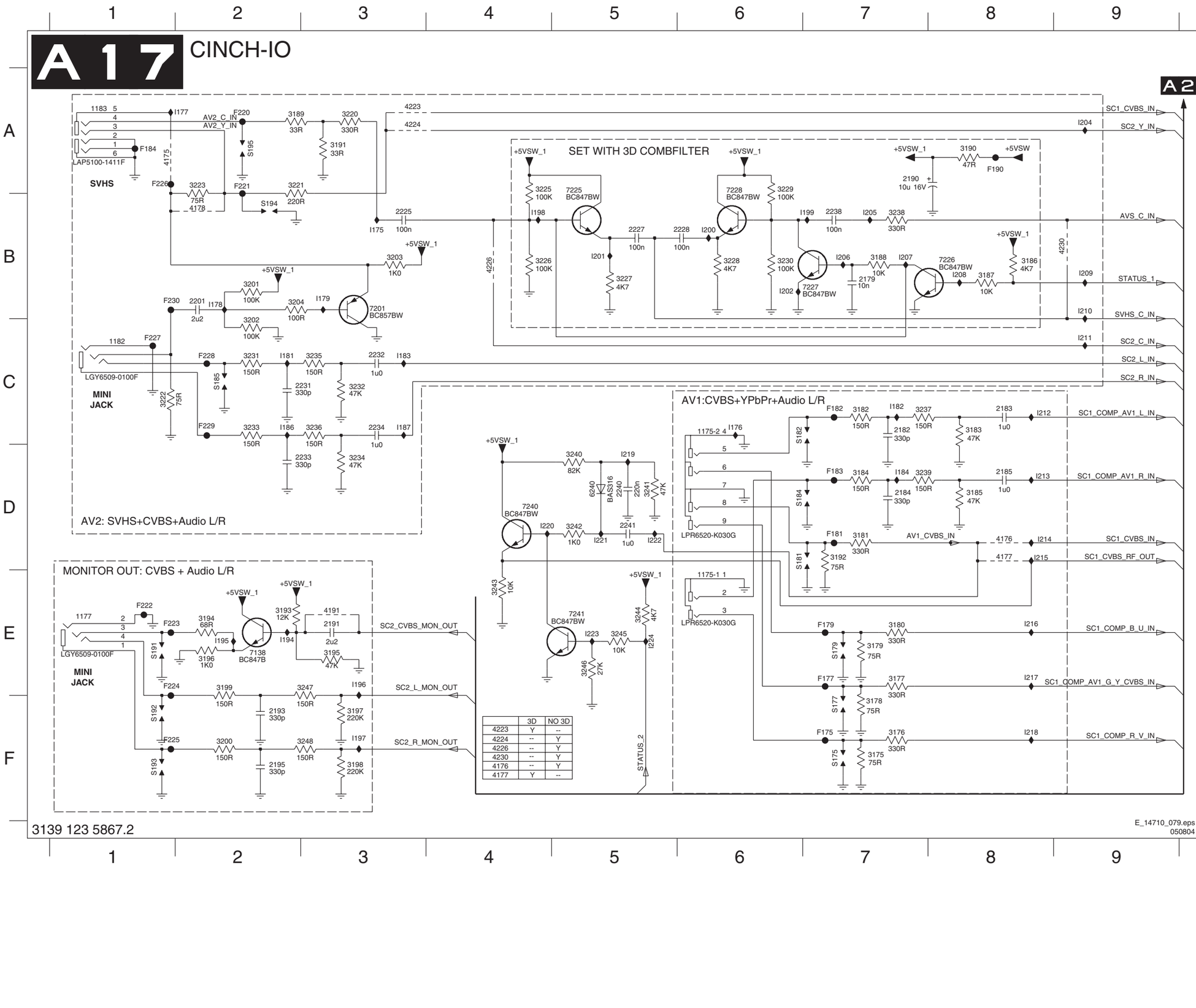
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1686 E1 I154 D8
1687 A1 I158 E4
1688 E6 I159 E4
1690 E8 I682 A2
1691 E7 I683 A3
1692 E8 I684 A2
1693 E7 I685 D2
2682 D6 S698 E2
2683 B2 S699 E2
2688 C6
2693 C2
2698 E3
2699 E4
2784 B1
2785 B2
3682 C6
3688 D6
3690 C6
3691 A6
3692 A6
3693 D3
3694 C6
3695 B6
3696 D4
3697 D4
3698 E2
3699 E2
3700 E3
3781 E4
3785 B5
3786 D4
3787 D4
3789 A2
3790 A3
3791 A2
3792 C6
3793 F7
5681 C5
5682 C5
5688 A6
5689 A6
5690 B6
5691 A3
6692 A3
7693 D2
F150 E6
F151 E6
F152 E6
F153 E6
F154 E6
F155 E6
F156 E6
F157 F6
F158 F6
F159 F6
F160 F6
F161 F6
F162 E6
F163 A1
F164 D3
F165 E1
F166 E2
F167 E2
F168 A2
F169 A2
F170 A2
F171 A2
F172 A2
F173 B2
F174 B2
F176 B2
F178 B2
I150 B8
I151 C8
I152 C8
I153 D8

SSB: Cinch IO

A 1 7 CINCH-IO

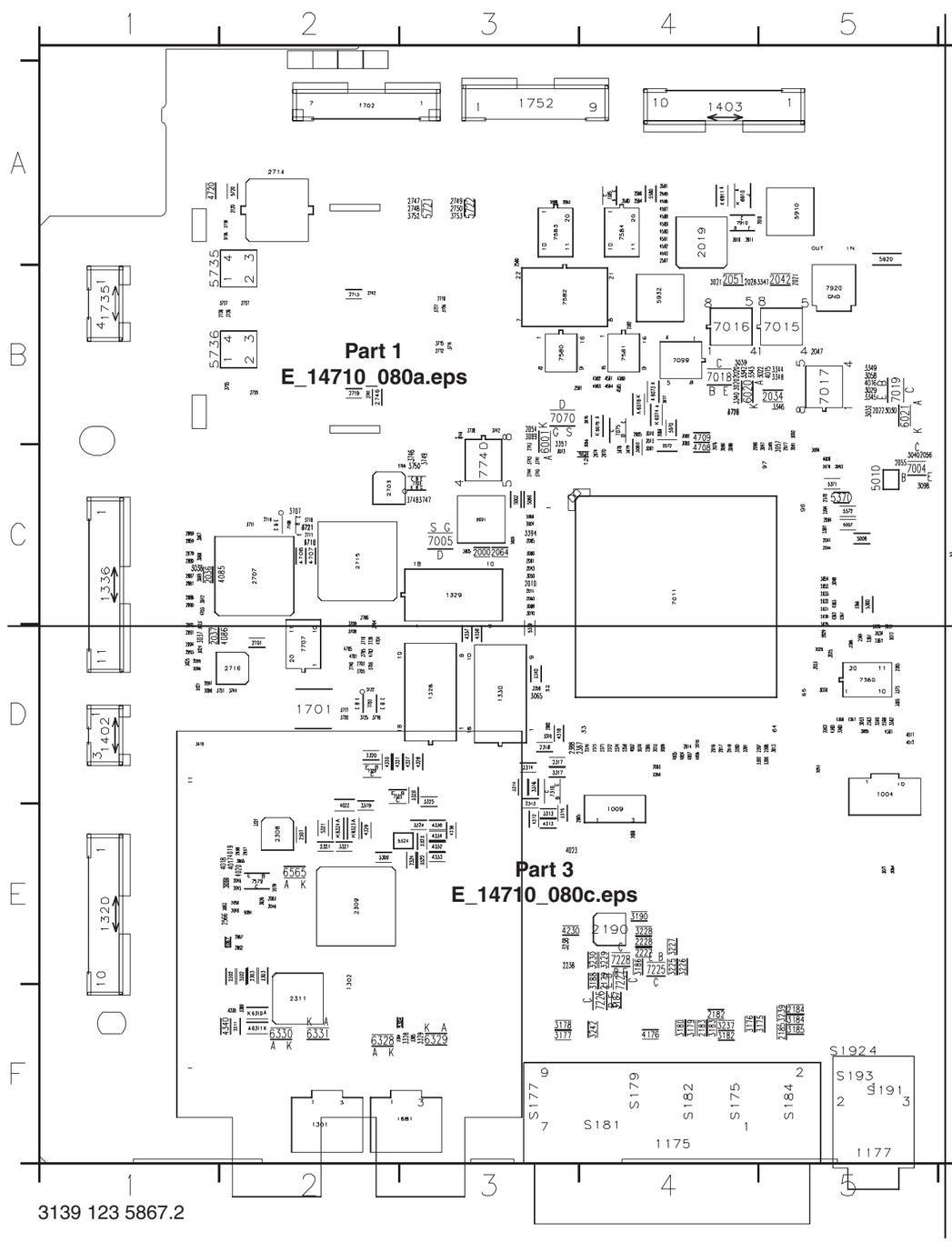


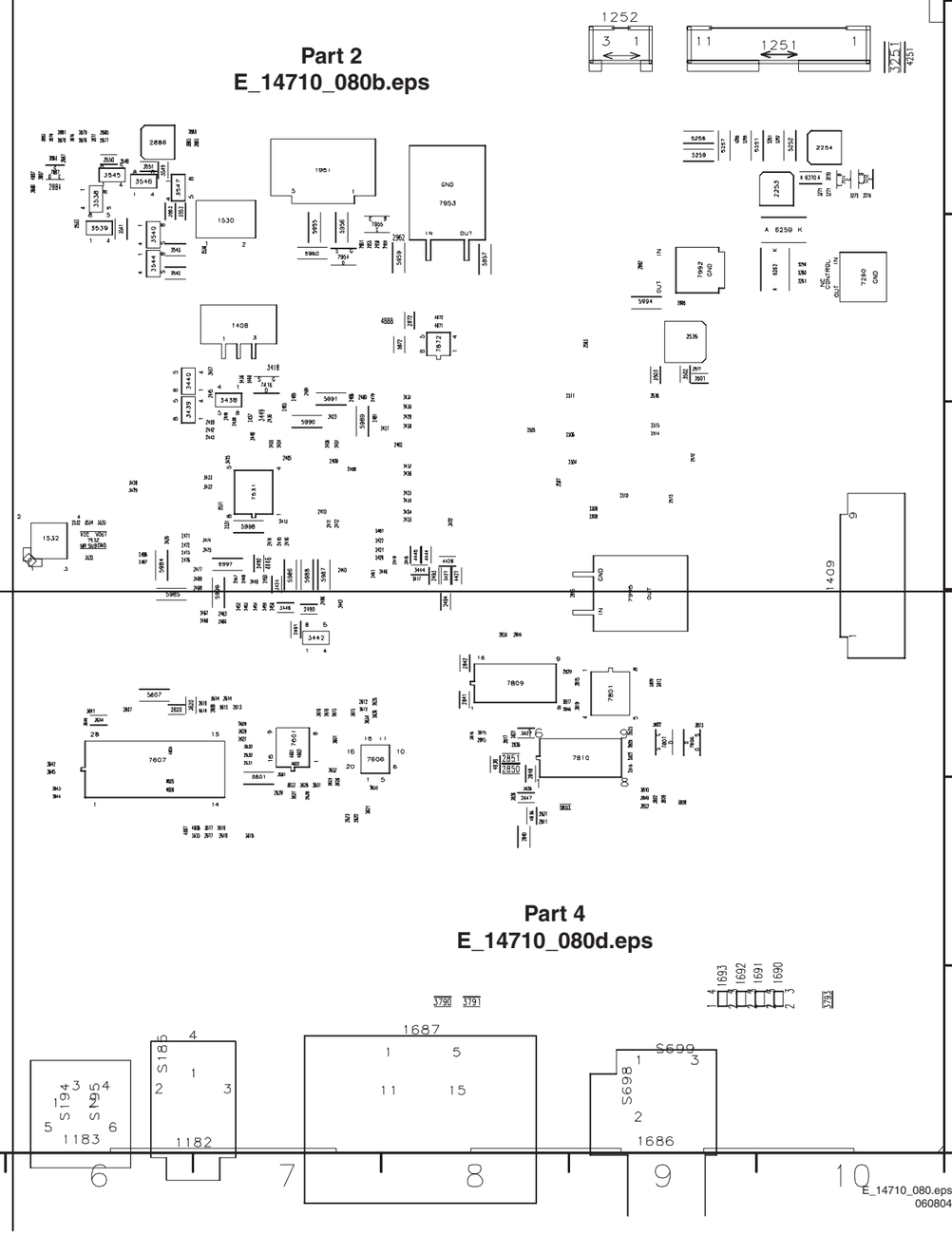
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4223	Y	--
4224	--	Y
4226	--	Y
4230	--	Y
4176	--	Y
4177	Y	--

1175-1 E6
1175-2 C6
1177 E1
1182 C1
1183 A1
2179 B7
2182 C7
2183 C8
2184 D7
2185 D8
2190 A7
2191 E3
2193 F2
2195 F2
2201 B2
2225 B3
2227 B5
2228 B6
2231 C2
2232 C3
2233 D2
2234 C3
2238 B7
2240 D5
2241 D5
3175 F7
3176 F7
3177 E7
3178 F7
3179 E7
3180 E7
3181 D7
3182 C7
3183 C8
3184 D7
3185 D8
3186 B8
3187 B8
3188 B7
3189 A2
3190 A8
3191 A3
3192 D7
3193 E2
3194 E2
3195 E3
3196 E2
3197 F3
3198 F3
3199 E2
3200 F2
3201 B2
3202 C2
3203 B3
3204 B2
3220 A3
3221 A2
3222 C1
3223 A2
3225 A4
3226 B4
3227 B5
3228 B6
3229 A6
3230 B6
3231 C2
3232 C3
3233 C2
3234 D3
3235 C3
3236 C3
3237 C7
3238 B7
3239 D7
3240 D5
3241 D5
3242 D5
3243 E4
3244 E5
3245 E5
3246 E5
3247 E3
3248 F3
3249 E4
4175 A1
4176 D8
4177 D8
4178 B2
4191 E3
4223 A3
4224 A3
4230 B9
6240 D5
7138 E2
7201 B3
7225 A5
7226 B8
7227 B6
7228 A6
7240 D4
7241 E5
F175 F7
F177 E7
F179 E7
F181 D7
F182 C7
F183 D7
F184 A1
F190 A8
F220 A2
F221 A2
F222 E1
F223 E1
F224 E1
F225 F1
F226 A1
F227 C1
F228 C2
F229 C2
F230 B1
I175 B3
I176 C6
I177 A2
I178 B2
I179 B3
I181 C2
I182 C7
I183 C3
I184 D7
I186 C2
I187 C3
I194 E2
I195 E2
I196 E3
I197 F3
I198 B4
I199 B7
I200 B6
I201 B5
I202 B6
I204 A9
I205 B7
I206 B7
I207 B7
I208 B8
I209 B9
I210 B9
I211 C9
I212 C8
I213 D8
I214 D8
I215 D8
I216 E8
I217 E8
I218 F8
I219 D5
I220 D4
I221 D5
I222 D5
I223 E5
I224 E5
S175 F7
S177 F7
S179 E7
S181 D6
S182 C6
S184 D6
S185 C2
S191 E1
S192 F1
S193 F1
S194 B2
S195 A2

Layout Small Signal Panel (Top Side Overview)

1004 D5 2000 C3 2023 D5 2046 E2 2065 E3 2084 C5 2183 F4 2308 E2 2368 D5 2406 C7 2425 C8 2444 C7 2467 D7 2487 C6 2512 C9 2586 A4 2621 E7 2704 D2 2738 A2 2821 E8 2849 E9 2959 B8 3023 D1 3040 C5 3072 C1 3094 C5 3190 E4 3274 A10 3324 E3 3360 D5 3415 D1 3439 C6 3538 A6 3580 A4 3630 D7 3711 C2 3738 A2 3791 F8 5252 A10 S192 F5
1009 E4 2001 C3 2025 D5 2047 B5 2066 E4 2085 B4 2184 F5 2309 E2 2370 D4 2407 C7 2426 C8 2445 B7 2468 C7 2488 C6 2513 C9 2587 A4 2622 E7 2705 D2 2739 D2 2822 D9 2850 D8 2961 B7 3024 D1 3048 C5 3073 C3 3096 C4 3225 E4 3302 E2 3325 D3 3361 D5 3416 C8 3440 B6 3539 B6 3581 A4 3631 E7 3714 B3 3739 B3 3793 F10 5257 A9 S193 F5
1301 F2 2003 E2 2026 D5 2048 E2 2067 E2 2086 B4 2185 F5 2311 F2 2371 D4 2408 C7 2427 C8 2446 C8 2469 C7 2490 D7 2514 C9 2588 A3 2623 E7 2706 C2 2740 D2 2823 D9 2851 D8 2962 B8 3025 D1 3054 C5 3074 D4 3097 C5 3226 E4 3303 E2 3326 D3 3362 D5 3417 C8 3442 D7 3540 B6 3601 D7 3632 E7 3715 B3 3740 B3 3808 E9 5258 A9 S194 F6
1328 D3 2004 C3 2028 B4 2049 E2 2068 C3 2087 C1 2190 E4 2313 D3 2372 D4 2409 C7 2428 C8 2447 C7 2471 C6 2491 D7 2515 C9 2601 D7 2624 D6 2707 C2 2741 B2 2827 D8 2872 B8 2992 B9 3026 E2 3055 D5 3075 B4 3098 C5 3227 E4 3304 F2 3327 E2 3363 D5 3418 B7 3443 D7 3541 B6 3612 D7 3633 E7 3716 C2 3741 C3 3809 D9 5259 A9 S195 F6
1329 C3 2005 C3 2029 D5 2050 E2 2069 C1 2088 C1 2227 E4 2314 D3 2373 D4 2410 C7 2429 C8 2448 C7 2472 C6 2492 C7 2516 B9 2607 D6 2627 D7 2710 C2 2742 B2 2828 D9 2876 A6 2993 B9 3027 D1 3056 B4 3077 B4 3175 F5 3228 E4 3305 F3 3328 F3 3365 D5 3422 C8 3444 C8 3542 B6 3613 D7 3641 D6 3717 D2 3742 B3 3810 E9 5304 F3 S698 F9
1330 D3 2010 C3 2030 C5 2051 B4 2070 C4 2090 C1 2228 E4 2317 D3 2374 D4 2411 C7 2430 C8 2449 C7 2473 C6 2493 C8 2517 B9 2608 D7 2628 E7 2711 C2 2743 C3 2829 D8 2877 A6 2995 D9 3028 D5 3057 C5 3078 C4 3176 F4 3229 E4 3309 F2 3329 F3 3366 C5 3423 C7 3446 D7 3543 B6 3614 D7 3642 D6 3718 C2 3743 C3 3815 D8 5309 E2 S699 F9
1408 B7 2011 C3 2031 C5 2052 C5 2072 C4 2091 D1 2238 E3 2318 D3 2378 C5 2412 C7 2431 B8 2450 C7 2474 C7 2494 D8 2526 B9 2609 D7 2629 E7 2712 B3 2744 C3 2832 E9 2878 A6 3000 C3 3029 B5 3058 B5 3079 C4 3177 F3 3230 E4 3311 F2 3340 B4 3367 C5 3424 C7 3448 C7 3544 B6 3615 D7 3643 E6 3719 D2 3744 D2 3816 D8 5321 E2
1409 C10 2013 D4 2032 C5 2053 D5 2073 B4 2092 D1 2251 A10 2321 E2 2381 C5 2413 C7 2432 C8 2452 D7 2475 C7 2496 D7 2531 C7 2610 E7 2630 D7 2713 B2 2746 B2 2835 D8 2879 A6 3005 C3 3030 B5 3059 C3 3080 C4 3178 F3 3237 F4 3313 E3 3342 B4 3368 D5 3425 C7 3449 C7 3545 A6 3616 D7 3644 E6 3720 D2 3745 C3 3817 D8 5324 E3
1530 B7 2014 D4 2033 C5 2054 B3 2074 C4 2093 D1 2252 A10 2324 E3 2387 D4 2414 C7 2433 C8 2453 D7 2476 C6 2503 B9 2532 B6 2612 D7 2631 D7 2714 A2 2747 A3 2836 D8 2880 A6 3006 C3 3031 D5 3063 E2 3081 C4 3179 F4 3238 E3 3314 D3 3343 B4 3369 D5 3426 C6 3460 B7 3546 A6 3617 E7 3645 D6 3721 C2 3746 C3 3819 D9 5339 D3
1532 C6 2015 D4 2034 B5 2055 C5 2076 C4 2094 D1 2253 A10 2358 D4 2388 D3 2415 C7 2436 C7 2454 D7 2477 C7 2504 C9 2533 B6 2613 D7 2632 D7 2715 C2 2748 A3 2840 E8 2881 A6 3008 C3 3032 B5 3064 E5 3082 B4 3180 F4 3239 F5 3315 E3 3344 B5 3370 D3 3427 C8 3501 B9 3547 A6 3618 E7 3646 D6 3722 D2 3747 C3 3822 D9 5340 D3
1681 F3 2016 D4 2036 C1 2056 C5 2077 C5 2095 D1 2254 A10 2359 D3 2394 C5 2416 C7 2437 C7 2455 D7 2479 B7 2505 C8 2566 E2 2614 D7 2633 E7 2716 D2 2749 A3 2841 D8 2883 A6 3009 D4 3033 D5 3065 D3 3083 B4 3182 F4 3242 F4 3316 D3 3345 B5 3373 D5 3428 C6 3502 B9 3548 A6 3619 D7 3703 D2 3725 D2 3748 C3 3823 D9 5360 C5
1690 F10 2017 D4 2037 D1 2057 E2 2078 C5 2096 D1 2255 A9 2361 D5 2395 D4 2419 C8 2438 C7 2456 D7 2480 B7 2506 C9 2580 A3 2615 D7 2634 D7 2718 B3 2750 A3 2842 D8 2884 A6 3010 C3 3034 D5 3066 E2 3084 E2 3183 F4 3251 A10 3317 D3 3346 B5 3389 C5 3429 C6 3503 B9 3549 A6 3620 D6 3705 D2 3726 B3 3749 C3 3827 D8 5370 C5
1691 F10 2018 D4 2041 C5 2058 E2 2079 C1 2097 D1 2261 B10 2363 D5 2397 D5 2420 C7 2439 C7 2461 C7 2481 C7 2507 C8 2581 B3 2616 D7 2635 D7 2719 B2 2811 E8 2844 D8 2885 A7 3012 D5 3035 C5 3067 C1 3088 C4 3184 F5 3259 B10 3319 E2 3347 B5 3390 D4 3432 C7 3531 C7 3550 A6 3625 E7 3706 C3 3727 B3 3750 C3 3828 E9 5371 C5
1692 F9 2019 A4 2042 B5 2059 C1 2080 C1 2098 D1 2271 A10 2364 D5 2398 D5 2421 C7 2440 C7 2462 C8 2483 C7 2508 C9 2582 B4 2617 E7 2636 D7 2720 A2 2812 D9 2845 D8 2886 A6 3013 D5 3036 D5 3068 C1 3089 B3 3185 F5 3260 B10 3320 D2 3348 B5 3391 D4 3433 C7 3532 C6 3551 A6 3626 E7 3707 C2 3728 B4 3751 D2 3832 E9 5372 C5
1693 F9 2020 B4 2043 C3 2060 C3 2081 C1 2099 C4 2302 E2 2365 D5 2403 C7 2422 C7 2441 C7 2463 D7 2484 B7 2509 C9 2583 A3 2618 E7 2701 D2 2735 B2 2815 D9 2846 D8 2887 A6 3020 B4 3037 D1 3069 C1 3091 C5 3186 E4 3270 A10 3321 E2 3349 B5 3392 D5 3436 B7 3533 C6 3552 A6 3627 E7 3708 D2 3735 B2 3752 A3 3836 E8 5580 A4
1701 D2 2021 B5 2044 C5 2062 E2 2082 D3 2179 E4 2303 E2 2366 D5 2404 C7 2423 C8 2442 C7 2464 D7 2485 B7 2510 C9 2584 A4 2619 D7 2702 D2 2736 B2 2816 D9 2847 E8 2889 A6 3021 B4 3038 C1 3070 B4 3092 B5 3187 F4 3271 A10 3322 E3 3357 B3 3393 D5 3437 B7 3534 C6 3553 A6 3628 E7 3709 C2 3736 B2 3753 A3 3838 E8 5601 D7
1951 A7 2022 B5 2045 E2 2064 C3 2083 D4 2182 F4 2307 E2 2367 D5 2405 C7 2424 C8 2443 C7 2466 D7 2486 B7 2511 B9 2585 A4 2620 D6 2703 C2 2737 B2 2817 D8 2848 D8 2910 A5 3022 B5 3039 B4 3071 E5 3093 C5 3188 E4 3273 A10 3323 E3 3358 D4 3394 C3 3438 B7 3536 B7 3579 E2 3629 D7 3710 D2 3737 B2 3790 F8 3876 A6 5607 D6
3877 A6 5720 A2
3879 A6 5721 A3
3883 A6 5722 A3
3885 A6 5735 B1
3886 A6 5736 B1
3887 A6 5803 E8
3910 A4 5872 B8
3911 A4 5910 A5
3955 B7 5920 A5
3958 B7 5932 B4
4002 D4 5955 B7
4004 D4 5956 B7
4005 D4 5957 B8
4006 D4 5959 B8
4007 D4 5960 B7
4008 C5 5984 C6
4011 D5 5985 D6
4012 D5 5986 C7
4015 B5 5987 C7
4016 B5 5988 C7
4017 E2 5989 C7
4018 E2 5990 C7
4019 E2 5991 B7
4020 E2 5994 B9
4022 E2 5996 D7
4023 E3 5997 C7
4085 C2 5998 C7
4086 D2 6001 B3
4176 F4 6020 B4
4230 E3 6021 B5
4251 A10 6073 B4
4255 A9 6074 B4
4312 E3 6075 B4
4313 E3 6076 B4
4318 D3 6259 B10
4327 D3 6262 B10
4328 D3 6270 A10
4329 E2 6310 F2
4330 D2 6311 F2
4331 D2 6323 E2
4332 E3 6324 E2
4333 E3 6328 F2
4334 E3 6329 F3
4335 E3 6330 F2
4336 E3 6331 F2
4337 D3 6565 E2
4338 D3 6910 A4
4339 F2 6911 A4
4340 F2 7004 C5
4360 D5 7005 C3
4361 D5 7011 C4
4362 C5 7015 B5
4363 C5 7016 B4
4427 C8 7017 B5
4428 C8 7018 B4
4444 C8 7019 B5
4445 C8 7070 B3
4446 C7 7075 B4
4580 B4 7099 B4
4581 B4 7225 E4
4582 B4 7226 F4
4583 B4 7227 E4
4584 B4 7228 E4
4585 B4 7260 B10
4586 A4 7271 A10
4587 A4 7272 A10
4588 A4 7316 D3
4589 A4 7320 D2
4590 A4 7325 D2
4591 A4 7360 D5
4592 A4 7416 B7
4593 A4 7531 C7
4601 D7 7532 C6
4602 D7 7579 E2
4603 D7 7580 B3
4604 D6 7581 B4
4605 E6 7582 B3
4606 E6 7583 A3
4607 E6 7584 A4
4608 E7 7585 A4
4701 D2 7601 D7
4702 D2 7606 D7
4703 C1 7607 D6
4704 D2 7702 D2
4705 D2 7703 C3
4706 C2 7707 D2
4707 C2 7708 C2
4708 C4 7740 C3
4709 B4 7801 D9
4710 C2 7806 D9
4711 C2 7807 D9
4716 B4 7809 D8
4720 A1 7810 D9
4836 E8 7872 B8
4838 D8 7887 A6
4871 B8 7910 A4
4872 B8 7920 B5
4887 A6 7953 A8
4888 B8 7954 B7
5001 C3 7955 B7
5002 C3 7992 B9
5007 C5 7995 D9
5008 C5 S175 F4
5010 C5 S177 F3
5060 C3 S179 F4
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5070 B4 S184 F5
5071 C4 S185 F6
5251 A9 S191 F5

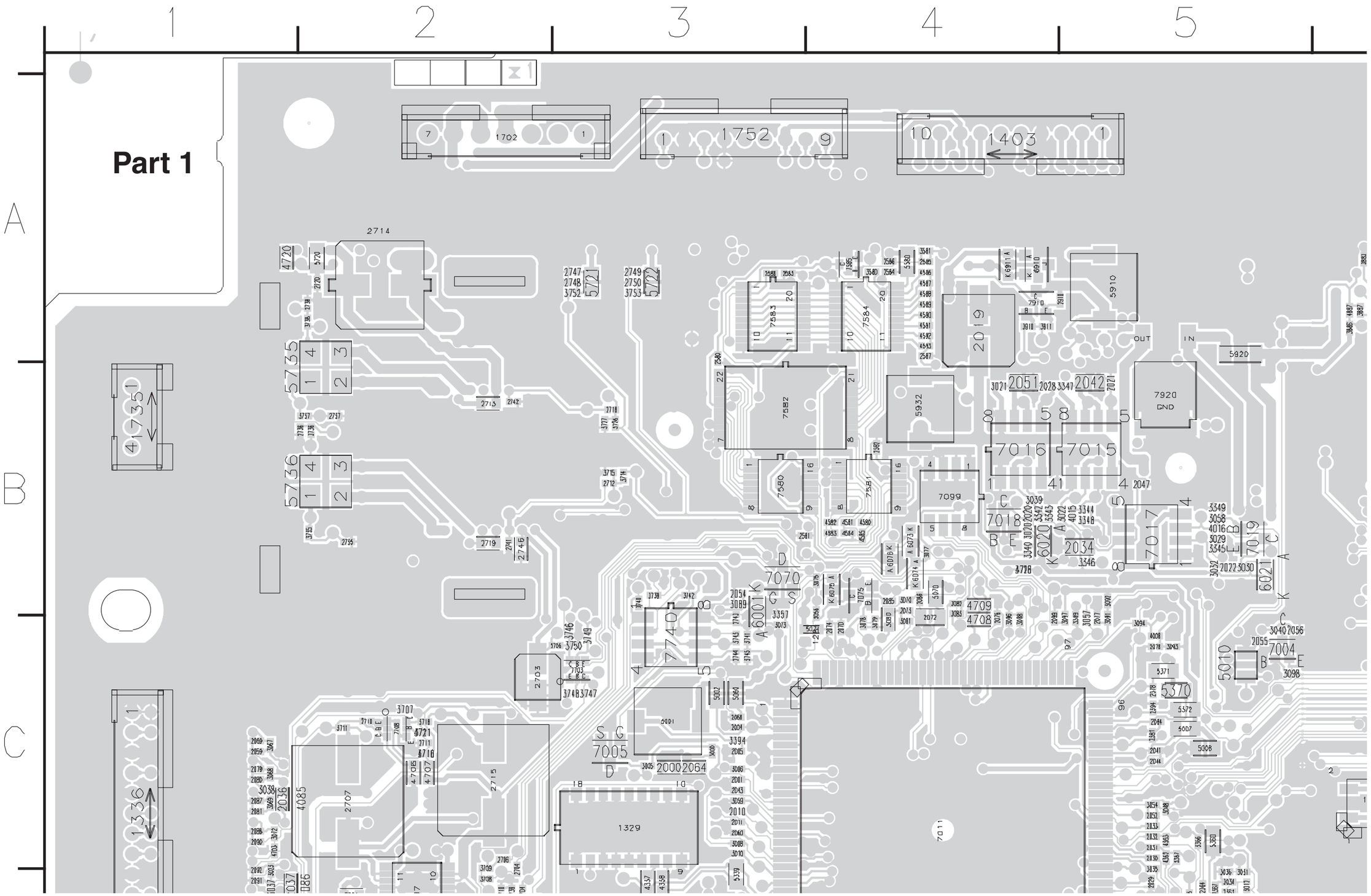




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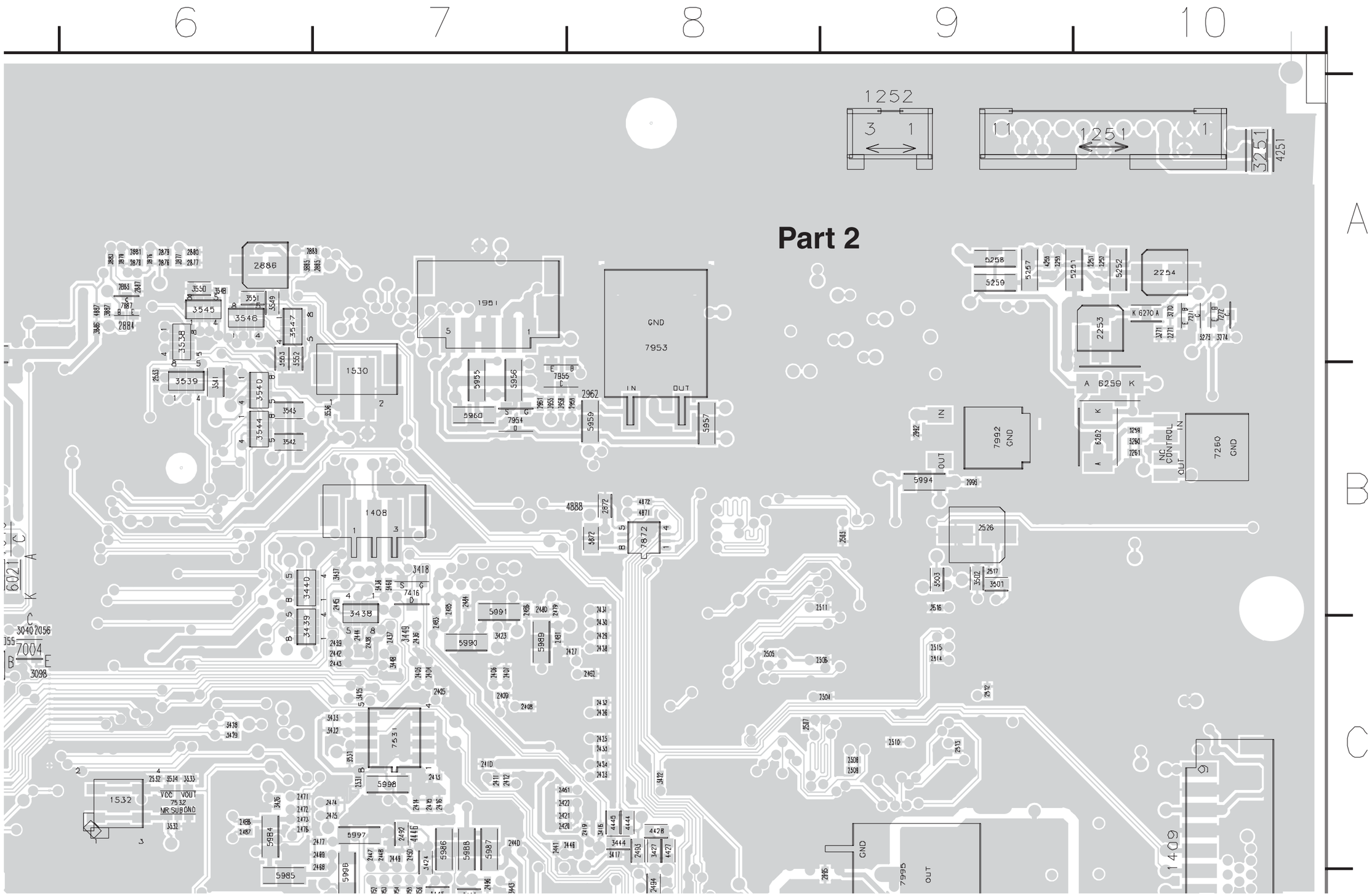
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060804

Layout Small Signal Panel (Top Side Part 1)



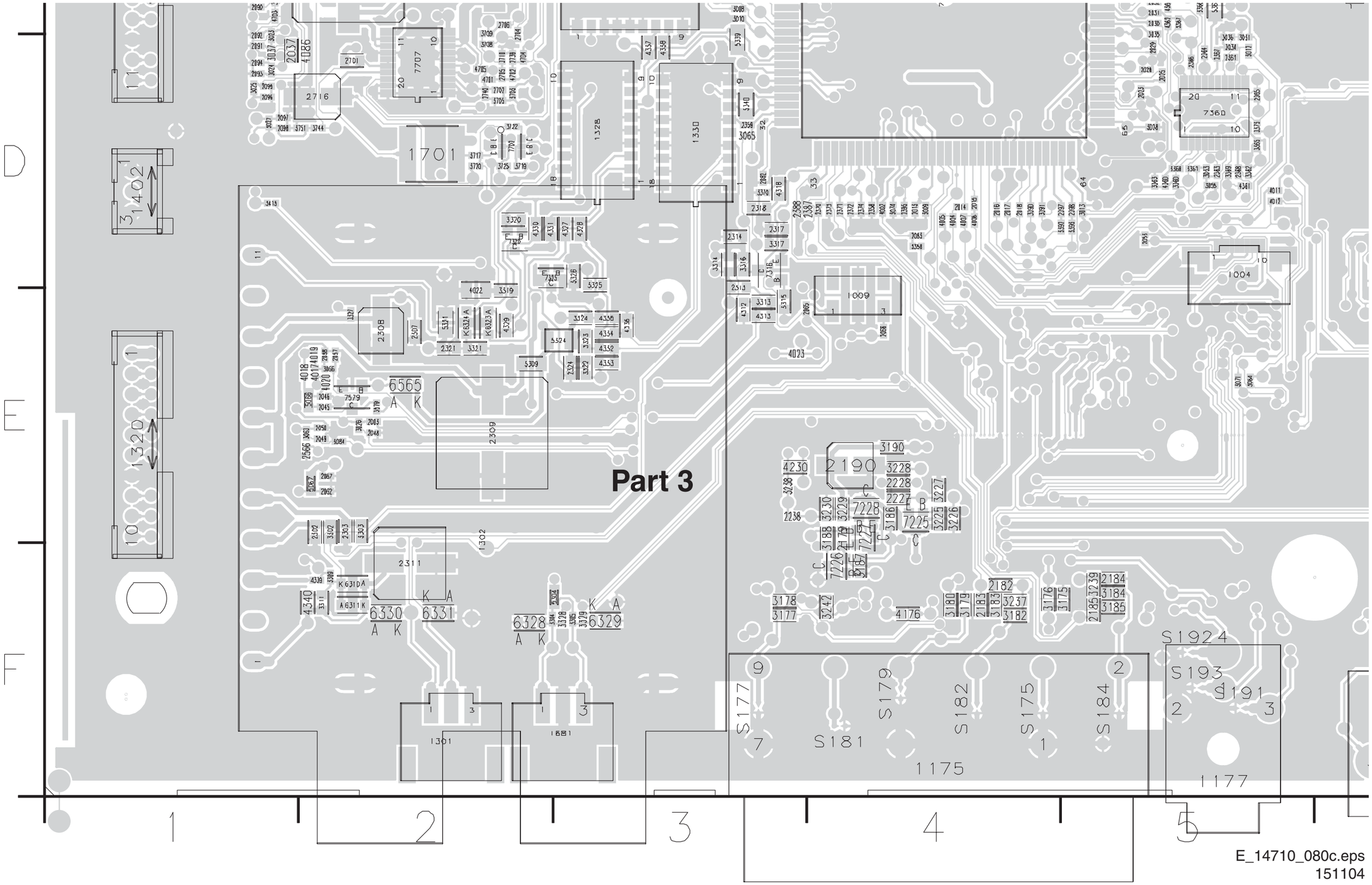
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Layout Small Signal Panel (Top Side Part 2)

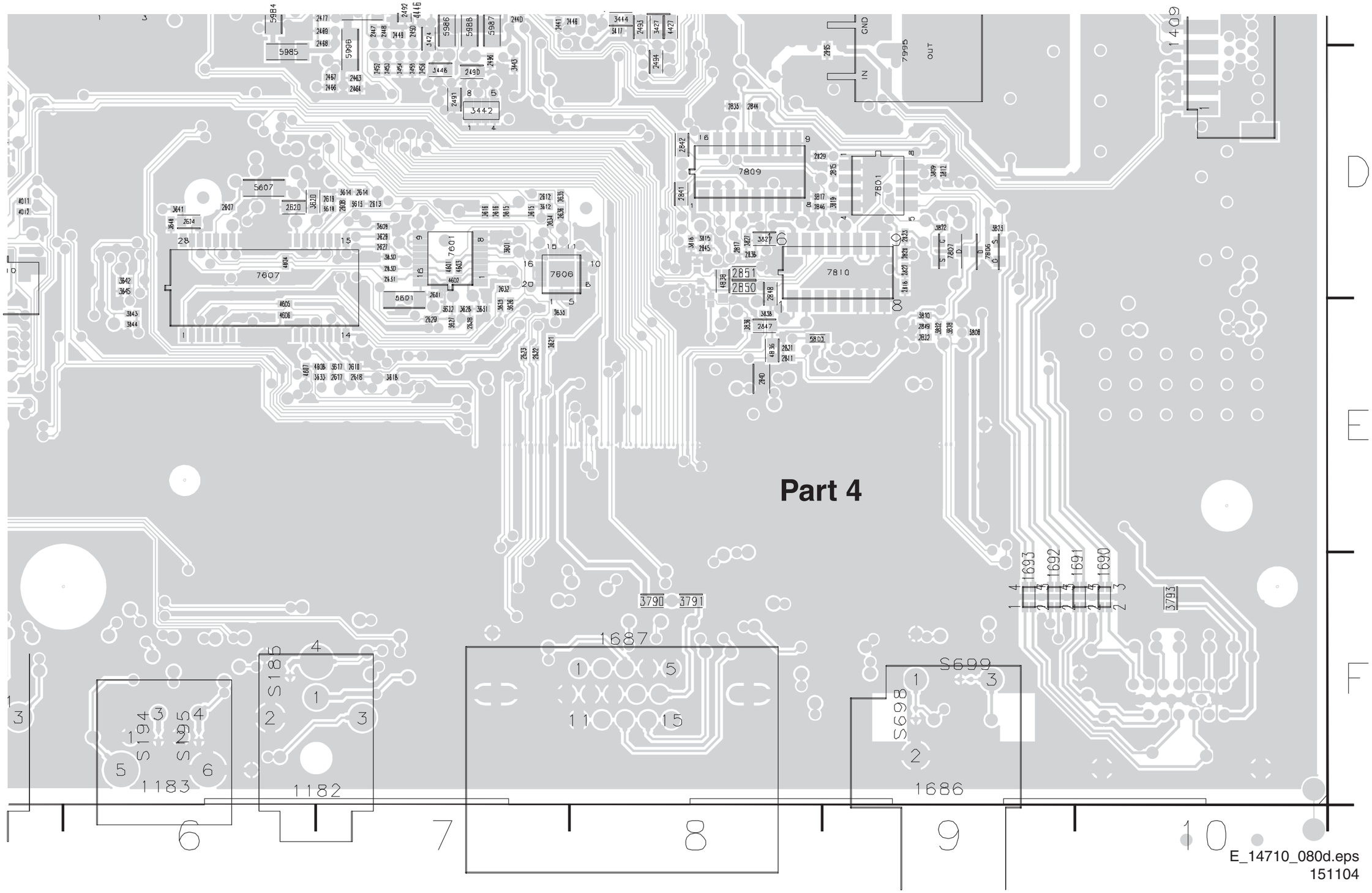


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Layout Small Signal Panel (Top Side Part 3)

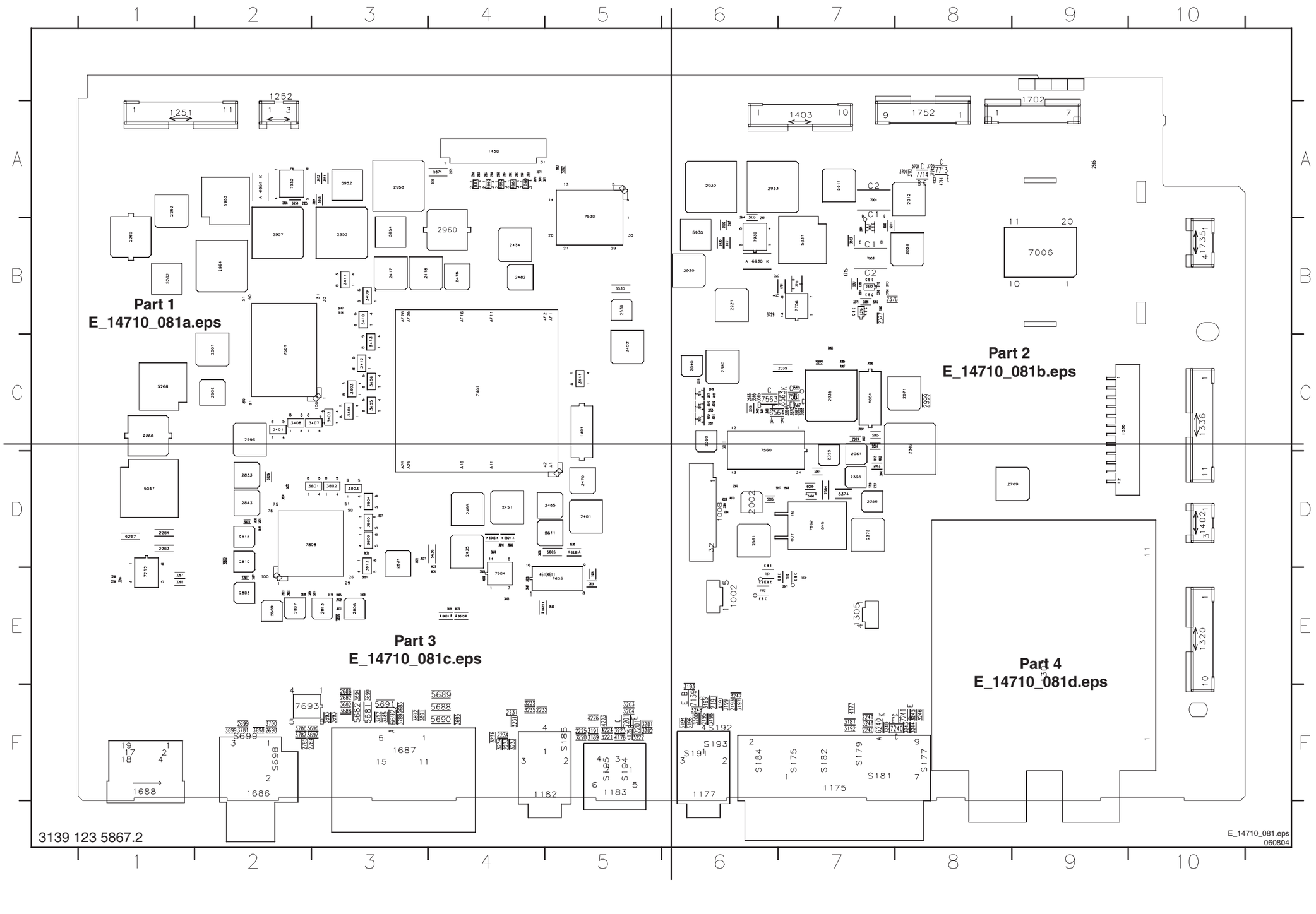


Layout Small Signal Panel (Top Side Part 4)

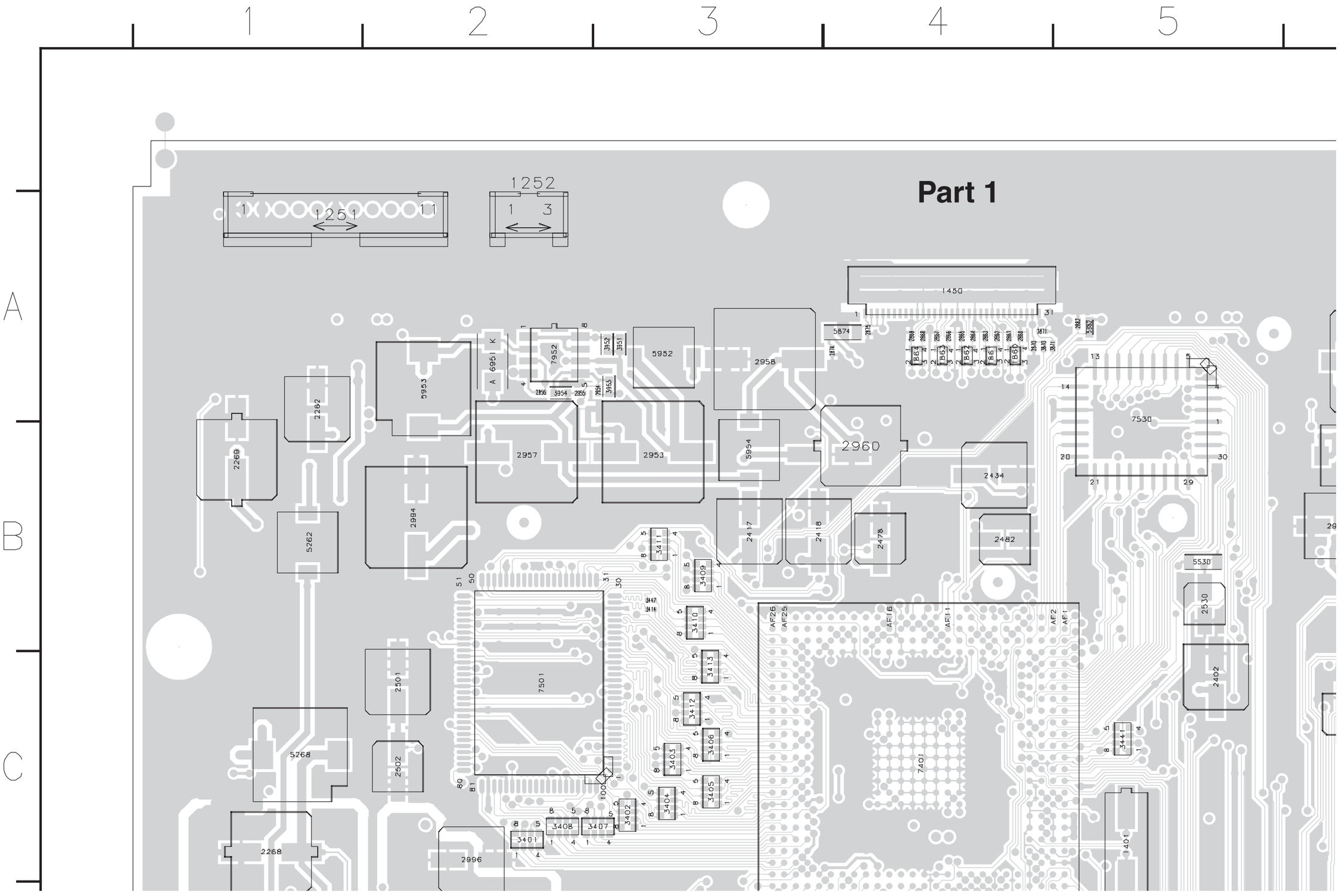


Layout Small Signal Panel (Bottom Side Overview)

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1002 E6 2006 C7 2089 D6 2262 A1 2376 B7 2435 D4 2562 D6 2693 F3 2810 D2 2837 E2 2868 A4 2932 B6 2996 C2 3018 C6 3189 F5 3202 F5 3236 F4 3359 D7 3402 C3 3414 B3 3569 C7 3634 E4 3696 F3 3729 B6 3806 D3 3871 A4 4175 F5 5003 C7 5681 F3 5930 B6 6634 E4 7012 C6 7377 B7 7710 B7
1008 D6 2007 C7 2191 F6 2263 D1 2377 B7 2451 D4 2563 C6 2698 F2 2813 E3 2838 E2 2869 A4 2933 A6 2999 C8 3019 C6 3191 F5 3203 F5 3240 F7 3364 D6 3403 C3 3441 C5 3570 C7 3635 E4 3697 F3 3781 F2 3807 D3 3930 B6 4177 F7 5004 D7 5682 F3 5931 B7 6635 E4 7013 C6 7401 C4 7713 A8
1036 C9 2008 C7 2193 F6 2264 D1 2380 C6 2465 D5 2564 D7 2699 F2 2814 E3 2839 E3 2870 A4 2934 A6 3001 B7 3049 C6 3192 F7 3204 F5 3241 F7 3371 E7 3404 C3 3447 B3 3605 E4 3638 D5 3698 F2 3785 F3 3813 D3 3931 B6 4178 F5 5005 D6 5688 F4 5952 A3 6638 D5 7014 C6 7501 C2 7714 A8
1305 E7 2009 C7 2195 F6 2265 E1 2382 C8 2470 D5 2565 A9 2708 B7 2818 D2 2843 D2 2871 A4 2935 C7 3002 B7 3050 C6 3193 F6 3220 F5 3243 F8 3372 E7 3405 C3 3560 C6 3606 D4 3639 E5 3699 F2 3786 F2 3821 E3 3932 B6 4191 F6 5006 C6 5689 F4 5953 A2 6639 E4 7139 F6 7530 A5 7808 D2
1401 C5 2012 A8 2201 F5 2266 E1 2386 B7 2478 B4 2605 E4 2709 D9 2819 E3 2860 A4 2874 A4 2953 B3 3003 B7 3051 C6 3194 F6 3221 F5 3244 F8 3374 D7 3406 C3 3561 C6 3607 E4 3682 F3 3700 F2 3787 F2 3824 D2 3933 A6 4223 F5 5072 C7 5690 F4 5954 B3 6692 F3 7201 F5 7560 C6 7930 B6
1450 A4 2024 B8 2225 F5 2268 C1 2392 B7 2482 B4 2606 D4 2784 F2 2820 E2 2861 A4 2875 A4 2954 A3 3004 B7 3052 C6 3195 F6 3222 F5 3245 F8 3378 B7 3407 C3 3562 C6 3608 E4 3688 F3 3701 A8 3789 F3 3825 D2 3951 A3 4224 F5 5262 B1 5691 F3 6005 D7 6701 B7 7240 F8 7561 C7 7952 A2
1860 A4 2027 D7 2231 F4 2269 B1 2396 D7 2495 D4 2611 D5 2785 F2 2824 D2 2862 A4 2882 A5 2955 A2 3007 C7 3053 D7 3196 F6 3223 F5 3246 F8 3380 B7 3408 C2 3563 C7 3609 D4 3690 F3 3702 A8 3792 F3 3826 D2 3952 A3 4226 F5 5267 D1 5801 E2 6240 F7 6930 B6 7241 F8 7562 D7
1861 A4 2035 C7 2232 F4 2355 D7 2401 D5 2501 C2 2625 E5 2803 E2 2825 E3 2863 A4 2911 A7 2956 A2 3011 C6 3060 D7 3197 F6 3231 F4 3247 F6 3381 B7 3409 B3 3564 C7 3610 D4 3691 F3 3704 A8 3801 D3 3830 D3 3953 A3 4609 E4 5268 C1 5802 D2 6267 D1 6951 A2 7262 E1 7563 C6
1862 A4 2040 C6 2233 F4 2356 D7 2402 C5 2502 C2 2626 E5 2806 E3 2826 E2 2864 A4 2920 B6 2957 B2 3014 C6 3085 C7 3198 F6 3232 F4 3248 F6 3382 B7 3410 B3 3565 C6 3621 D3 3692 F3 3712 B7 3802 D3 3831 E3 3954 A2 4610 E4 5530 B5 5804 D2 6563 C7 7001 A7 7370 E7 7604 E4
1863 A4 2061 D7 2234 F4 2357 D7 2417 B3 2530 B5 2682 F3 2807 E2 2830 D2 2865 A4 2921 B6 2958 A3 3015 C6 3086 C7 3199 F6 3233 F4 3266 E1 3383 B7 3411 B3 3566 C6 3622 D3 3693 F3 3713 B7 3803 D3 3834 E2 4009 D6 4611 E5 5560 D7 5805 E3 6564 C6 7002 B7 7371 E6 7605 E5
1864 A4 2063 D7 2240 F7 2360 C6 2418 B3 2560 D7 2683 F3 2808 E3 2833 D2 2866 A4 2930 A6 2960 B4 3016 C6 3087 C7 3200 F6 3234 F4 3267 E1 3386 B7 3412 C3 3567 C7 3623 D4 3694 F3 3723 A8 3804 D3 3835 D2 4010 D6 4714 A8 5605 D5 5874 A4 6604 D4 7003 B7 7372 E6 7693 F2

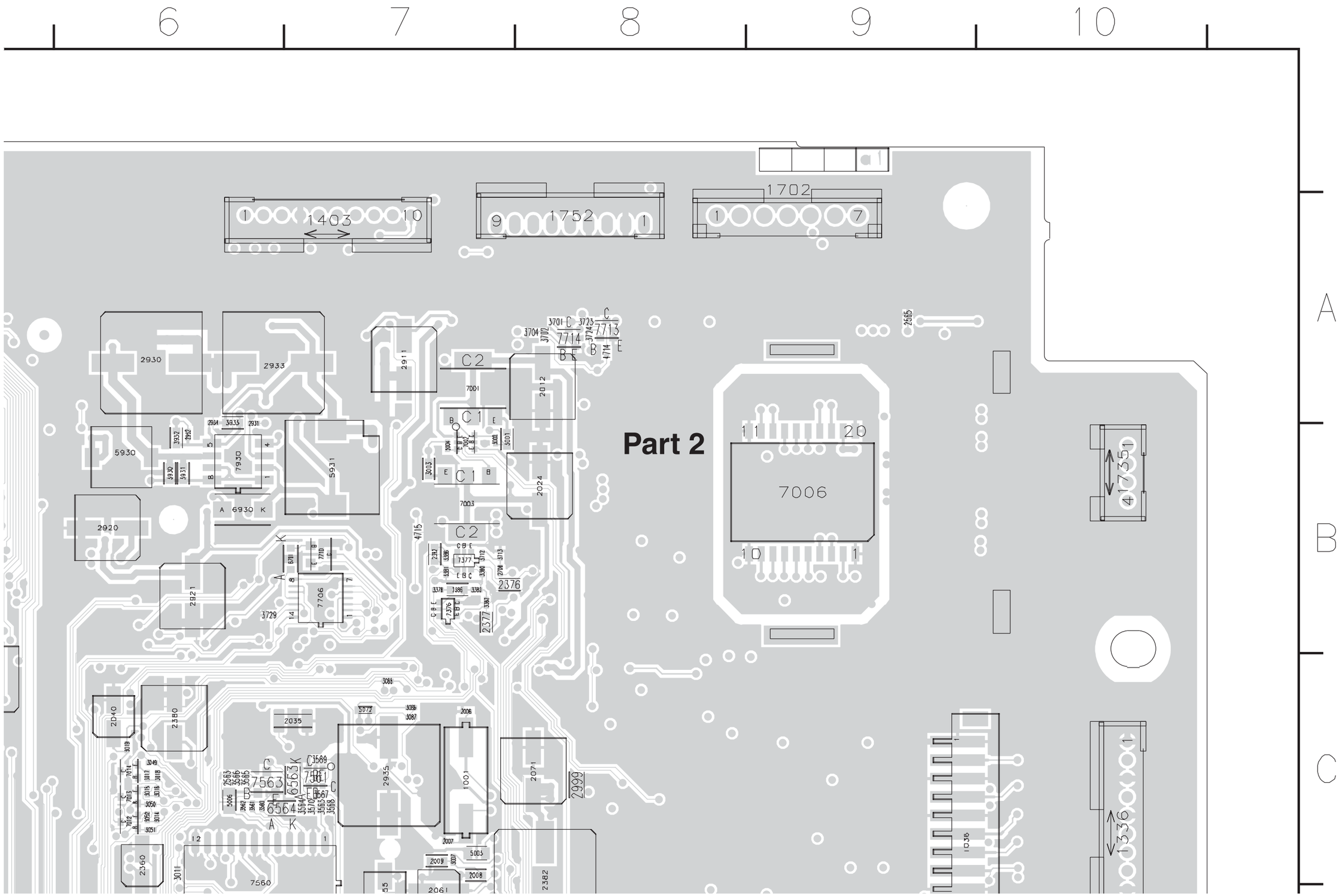


Layout Small Signal Panel (Bottom Side Part 1)



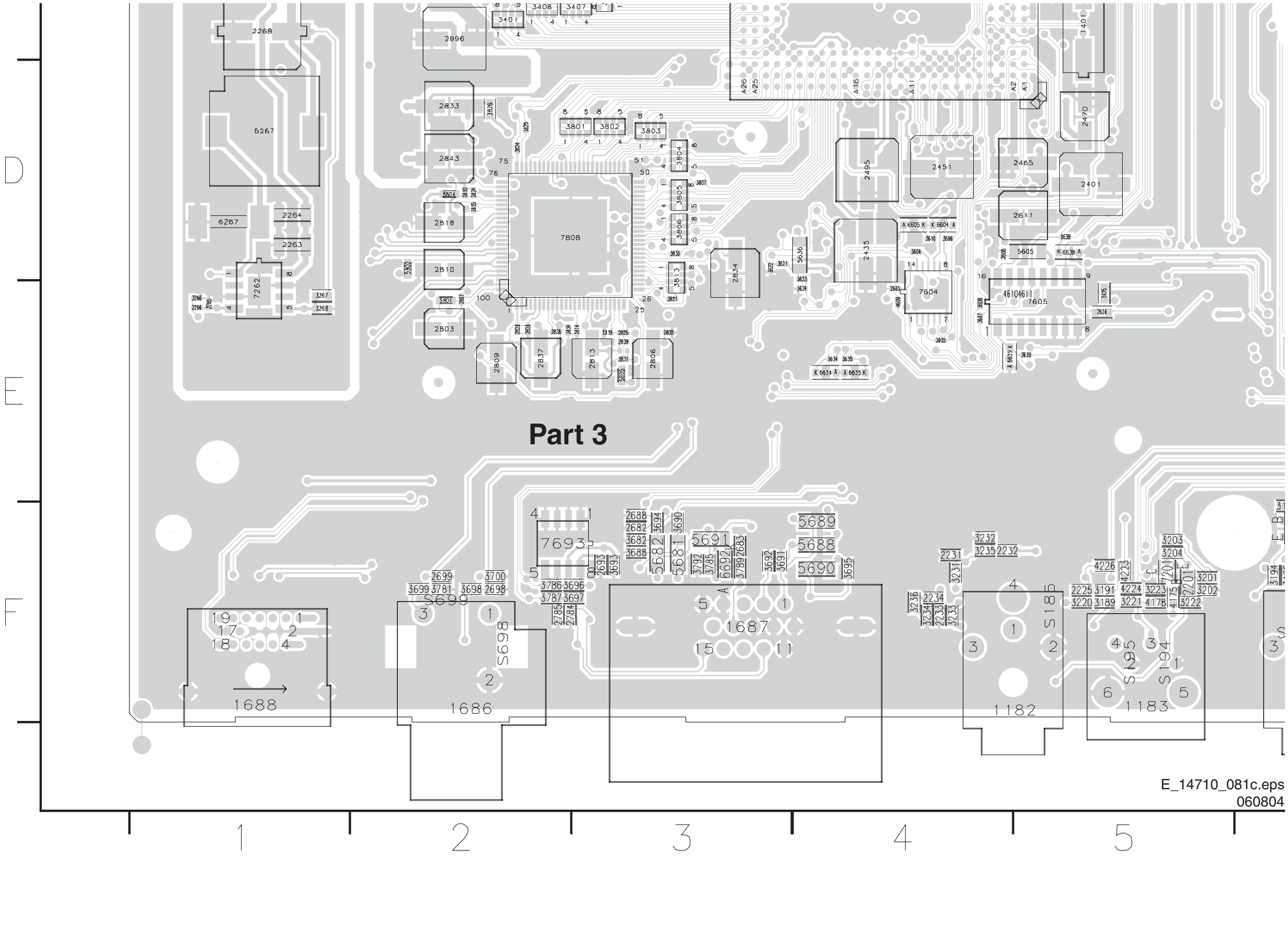
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Layout Small Signal Panel (Bottom Side Part 2)

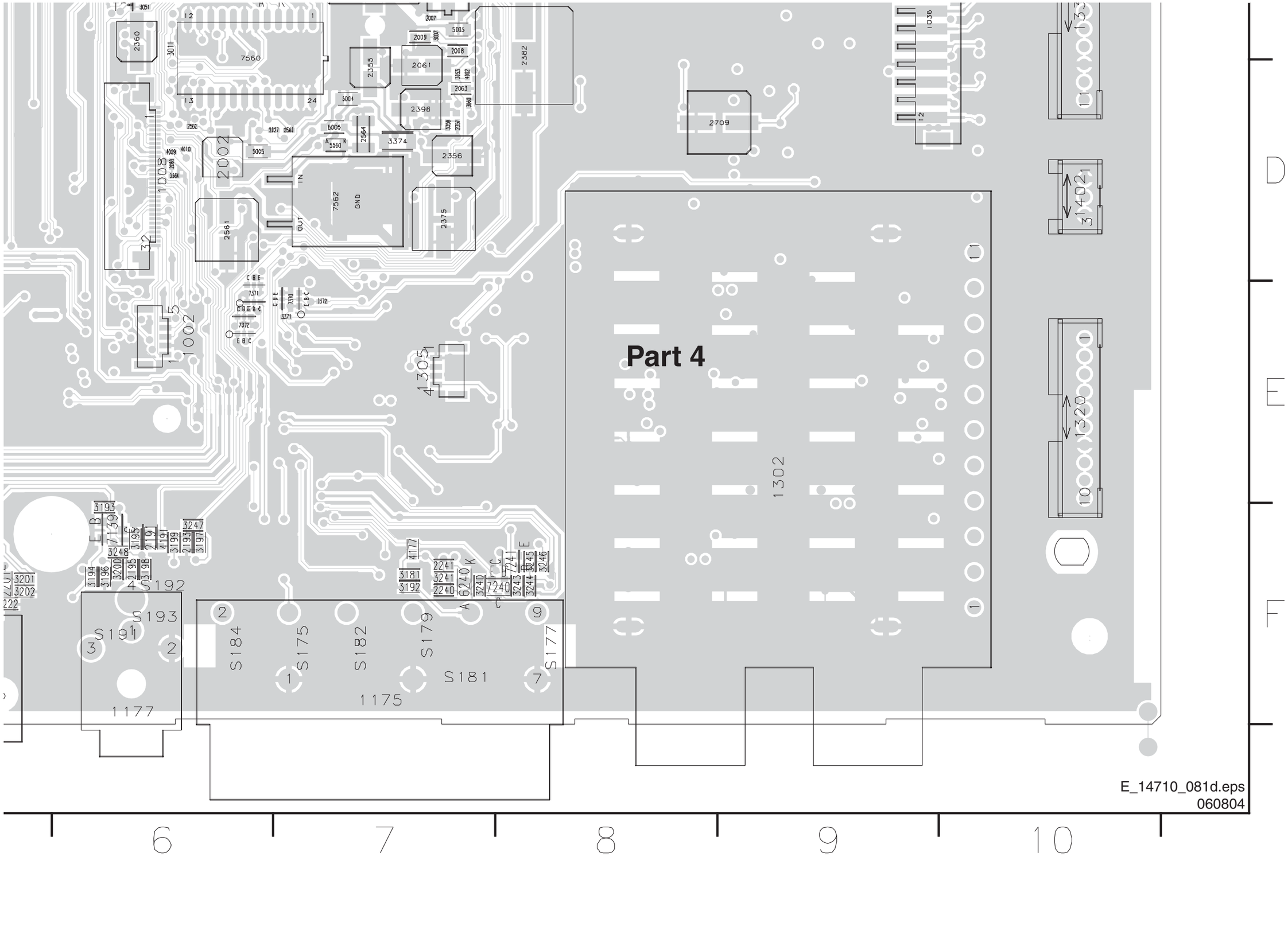


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Layout Small Signal Panel (Bottom Side Part 3)



Layout Small Signal Panel (Bottom Side Part 4)



Power Supply Unit (30-32 Inch): Mains Filter and Standby

AS1 MAINS FILTER + STANDBY **AS1**

MAINS FILTER

MAINS INPUT
95-264Vac

COLD GROUND

HOT

COLD

TO 1306
SA2
AUDIO-STANDBY

TO 1305
SA2
AUDIO-STANDBY

TO 1307
SA2
AUDIO-STANDBY

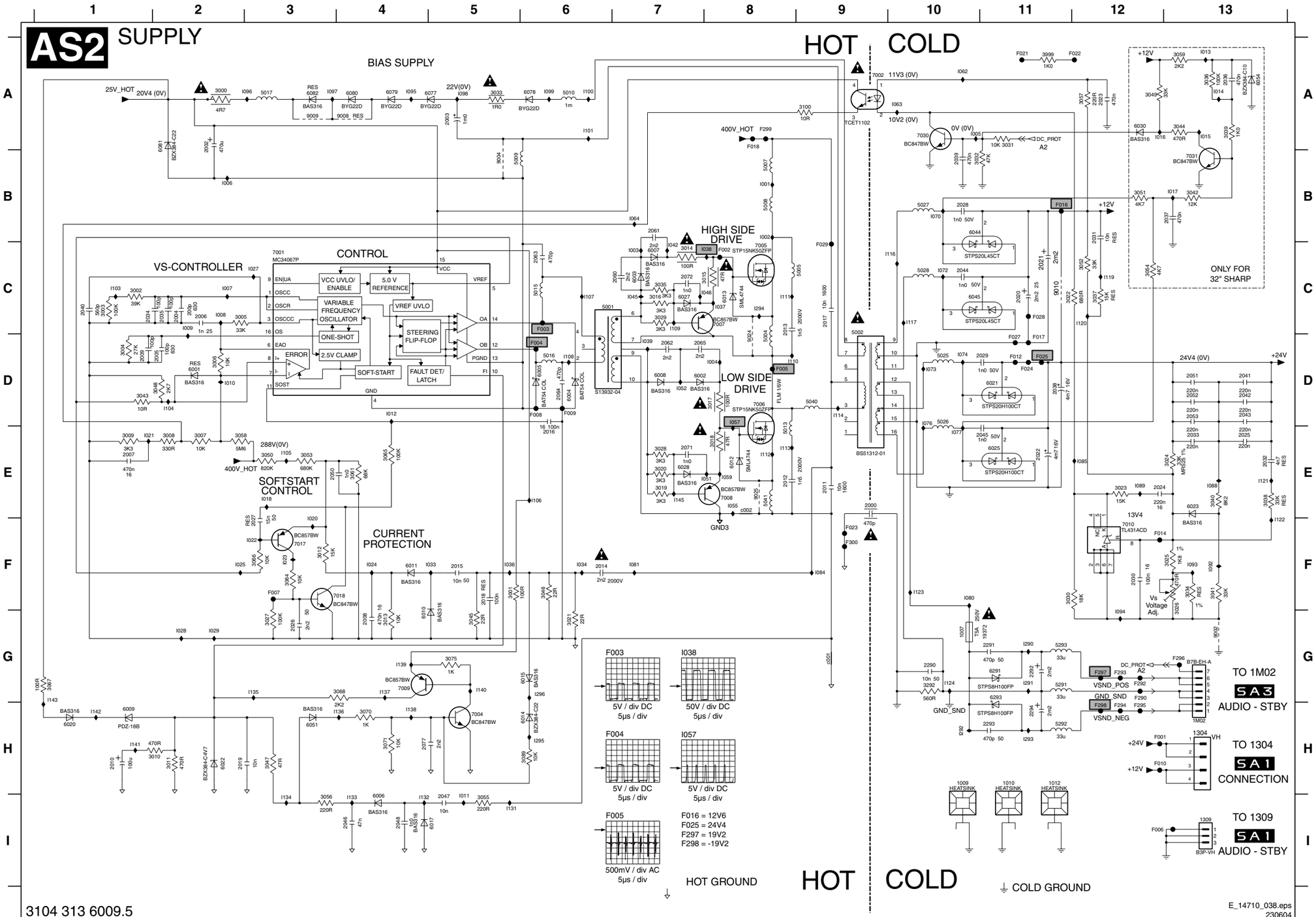
COLD

3104 313 6009.5

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230604

1000 D2
1001 D4
1011 E5
1305 F7
1306 F2
1307 B13
1308 C1
1400 C2
1401 F3
1402 D3
1403 D3
1450 C8
2400 C2
2401 C4
2404 C3
2406 C5
2407 C4
2408 C6
2503 E6
2802 E10
2803 C11
2804 C10
2806 F10
2808 E11
2809 E12
2810 D12
2815 C11
2816 D12
3101 C12
3400 C3
3401 C1
3402 C2
3403 D2
3404 D4
3405 D3
3450 B6
3451 C6
3800 E9
3802 E10
3803 E11
3804 E9
3805 E12
3806 E9
3807 E9
3810 B10
5401 C3
5402 C5
5403 B5
5804 E11
6154 C12
6155 C12
6460 E8
6461 D8
6506 E6
6807 C10
6808 E9
6809 D9
7805 D10
7806 E11
9001 C5
9003 C5
9005 C6
9806 E9
9808 C12
9810 D10
9811 D12
9812 E11
9813 C12
9814 C12
F410 B2
F411 B2
F412 C1
F413 C1
F414 C2
F415 C1
F416 C2
F417 C2
F418 C1
F419 C2
F420 F7
F421 F8
F422 B10
F423 B10
F424 F2
F425 F2
F426 F2
F427 F3
F428 F4
I410 C3
I411 C4
I412 C5
I413 C8
I414 B13
I415 C6
I416 C4
I417 B13
I418 C12
I419 D2
I420 D12
I421 E11
I422 E11
I423 E10
I424 E7
I425 E10
I426 E10
I427 E10
I428 E10
I429 D2
I430 D4
I431 D3
I432 D5
I442 B6
I444 B6
I445 C6
I455 D4
I456 E7
I810 B10
I811 B11
I812 B11
I813 C10
I814 E9
I815 E9
I816 E9
I817 C11
I820 F9
I824 E12
I825 E12
I826 E12
I828 E9

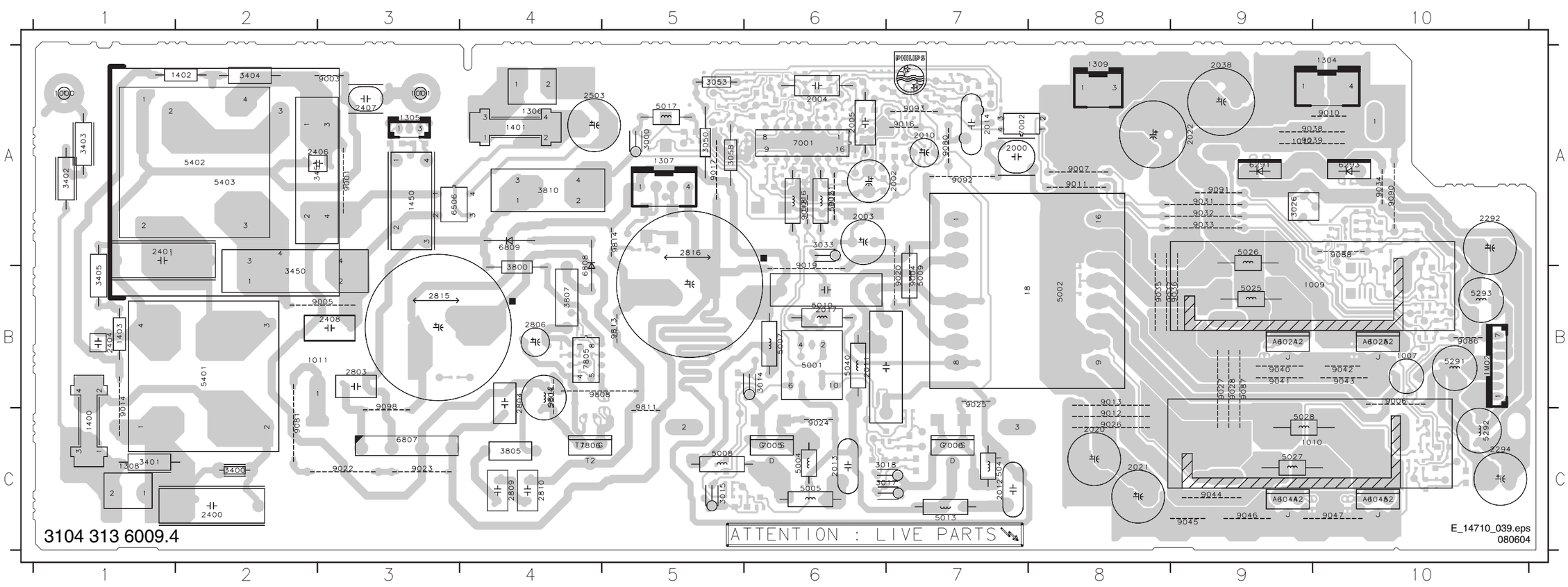
Power Supply Unit (30-32 Inch): Supply



1007 G10	3043 D1	F010 H12	I137 G4
1009 H10	3044 A13	F012 D11	I138 H4
1010 H11	3045 G5	F014 F12	I139 G4
1012 H11	3046 F6	F016 B11	I140 G5
1304 H13	3047 H3	F017 D11	I141 H1
1309 I13	3048 D2	F018 A8	I142 H1
1M02 H13	3049 A12	F021 A11	I143 G1
2000 E9	3050 E3	F022 A12	I145 E7
2002 A2	3051 B12	F023 F9	I290 G11
2003 A5	3052 C12	F024 D11	I291 G11
2004 C2	3053 E3	F025 D11	I292 H10
2005 D2	3054 C12	F027 D11	I293 H11
2006 C2	3055 I5	F028 C11	I294 C8
2007 E1	3056 I3	F029 C9	I295 H6
2008 G4	3057 A12	F290 G12	I296 G6
2009 D1	3058 E2	F292 G12	c001 G9
2010 H1	3059 A13	F293 G12	c002 E8
2011 E9	3061 E4	F294 H12	
2012 E8	3064 F3	F295 H12	
2013 C8	3065 E4	F296 G13	
2014 F6	3066 F3	F297 G12	
2015 F5	3067 G1	F298 H12	
2016 E6	3068 G4	F299 A8	
2017 C9	3070 H4	F300 F9	
2018 F5	3071 H4	I001 B8	
2019 H2	3075 G5	I002 B8	
2020 C11	3089 H6	I003 C7	
2021 C11	3100 A9	I004 D8	
2022 E11	3292 G10	I005 A10	
2023 A12	3999 A11	I006 B2	
2024 E12	5001 C6	I007 C2	
2025 E13	5002 D9	I008 C2	
2026 G3	5004 D8	I009 C2	
2027 F3	5005 C9	I010 D2	
2028 B10	5007 B8	I011 I5	
2029 D11	5008 B8	I012 D4	
2030 F12	5009 B5	I013 A13	
2031 B12	5010 A6	I014 A13	
2032 E13	5013 E8	I015 A13	
2033 E13	5015 C6	I016 A12	
2034 C1	5016 D6	I017 B13	
2035 C2	5017 A3	I018 E3	
2036 A13	5025 D10	I020 F3	
2037 B13	5026 D10	I021 E1	
2038 D11	5027 B10	I022 F3	
2039 B10	5028 C10	I023 F3	
2040 C1	5040 D9	I024 F4	
2041 D13	5041 E8	I025 F2	
2042 D13	5291 G11	I027 C3	
2043 D13	5292 H11	I028 G2	
2044 C10	5293 G11	I029 G2	
2045 E11	6001 D2	I033 F5	
2046 I4	6002 D7	I034 F6	
2047 I5	6003 C7	I036 F5	
2048 I4	6004 D6	I037 C8	
2050 E3	6005 D6	I038 C8	
2051 D13	6006 I4	I039 D7	
2052 D13	6007 C7	I042 C7	
2053 D13	6008 D7	I045 C7	
2060 C7	6009 H1	I046 C8	
2061 B7	6010 G4	I051 E8	
2062 D7	6011 F4	I052 D7	
2063 C6	6012 E8	I055 E8	
2064 D6	6013 C8	I057 D8	
2065 D7	6014 H6	I059 E8	
2071 E7	6015 G6	I062 A10	
2072 C7	6017 I5	I063 A10	
2077 H4	6020 H1	I064 B7	
2290 G10	6021 D11	I070 B10	
2291 G11	6022 H2	I072 C10	
2292 G11	6023 E13	I073 D10	
2293 H11	6025 E11	I074 D10	
2294 H11	6027 C7	I076 D10	
3000 A2	6028 E7	I077 E10	
3001 F5	6030 A12	I080 F10	
3002 C1	6044 B10	I081 F7	
3003 C1	6045 C10	I084 F9	
3004 D1	6051 H3	I085 E12	
3005 C2	6054 A13	I088 E13	
3006 D2	6077 A5	I089 E12	
3007 E2	6078 A6	I092 F13	
3008 E2	6079 A4	I093 F13	
3009 E1	6080 A4	I094 G12	
3010 H2	6081 A2	I095 A4	
3011 H2	6082 A3	I096 A3	
3012 F3	6291 G11	I097 A3	
3013 G4	6293 G11	I098 A5	
3014 C7	7001 C3	I099 A6	
3015 C8	7002 A9	I100 A6	
3016 C7	7004 H5	I101 A6	
3017 D8	7005 C8	I103 C1	
3018 E8	7006 D8	I104 D2	
3019 E7	7007 C8	I105 E3	
3020 E7	7008 E8	I106 E6	
3021 G6	7009 G4	I107 C6	
3022 C11	7010 F12	I108 D6	
3023 E12	7017 F3	I109 C7	
3024 E13	7018 F3	I110 D8	
3025 F13	7030 A10	I111 C8	
3026 G13	7031 B13	I112 E8	
3027 G3	9002 G13	I113 E8	
3028 E7	9004 B5	I114 D9	
3029 C7	9008 A4	I116 C10	
3030 F11	9009 A3	I117 C10	
3031 A11	9010 C11	I119 C12	
3032 B10	9024 D8	I120 C12	
3033 A5	9025 E8	I121 E13	
3034 F13	F001 H12	I122 F13	
3035 C7	F002 C8	I123 F10	
3036 A13	F003 C6	I124 G10	
3037 C12	F004 D6	I131 I5	
3038 E13	F005 D8	I132 I4	
3039 A13	F006 I12	I133 I4	
3040 E13	F007 F3	I134 I3	
3041 F13	F008 D6	I135 G3	
3042 B13	F009 D6	I136 H4	

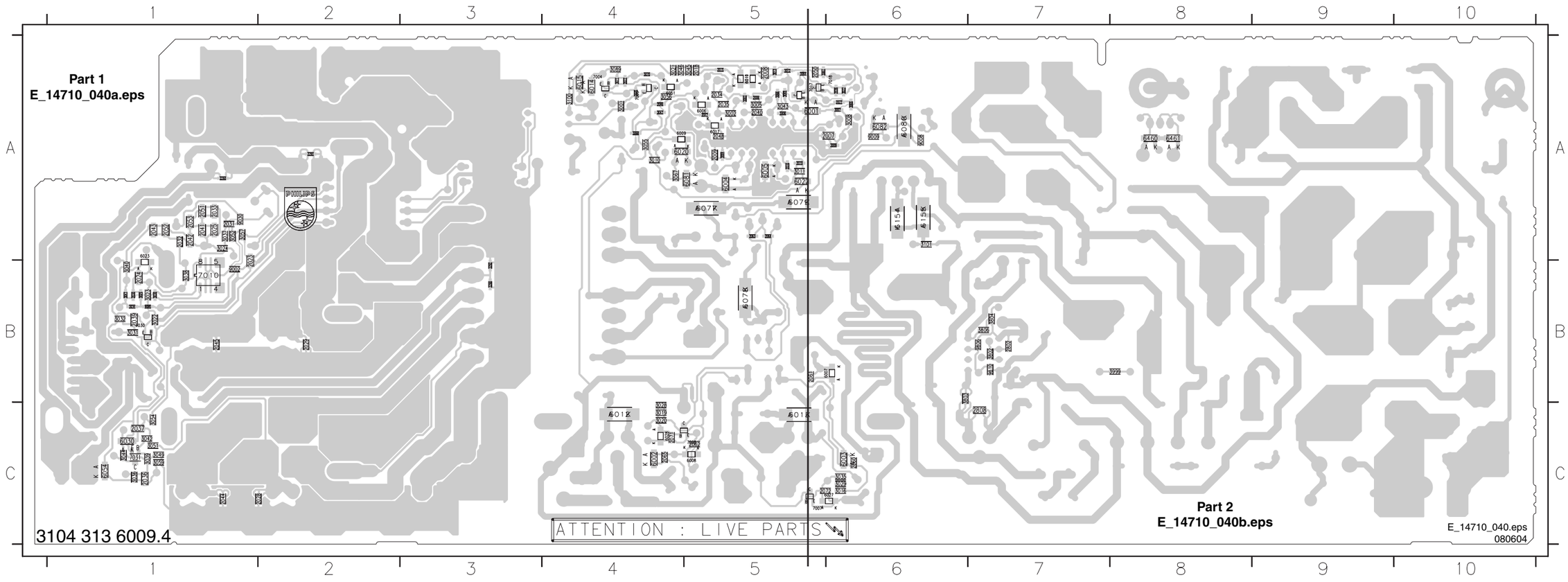
Layout Power Supply Unit (30-32 Inch) (Top Side)

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1001 A3	1305 A3	1402 A2	2004 A6	2017 B6	2400 C2	2803 B3	3000 A5	3050 A5	3404 A2	3810 A4	5009 B7	5026 A9	5293 B10	6044 C10	6809 A4	9001 A3	9011 A8	9019 A6	9026 C8	9035 B8	9042 B10	9081 C2	9093 A7	
1007 B10	1306 A4	1403 B1	2005 A6	2020 C8	2401 B1	2804 B4	3014 B6	3053 A5	3405 B1	5001 B6	5010 B6	5027 C9	5401 B2	6045 C10	7001 A6	9003 A3	9012 C8	9020 B7	9027 B9	9036 B9	9043 B10	9086 B10	9098 B3	
1009 B9	1307 A5	1450 A3	2010 A7	2021 C8	2404 B1	2806 B4	3015 C5	3058 A5	3450 A2	5002 A7	5013 C7	5028 C9	5402 A1	6291 A9	7002 A8	9004 A7	9013 B8	9021 A6	9028 B9	9037 B8	9044 C9	9087 B9	9808 B5	
1010 C9	1308 C1	1M02 B10	2011 B7	2022 A8	2406 A3	2809 C4	3017 C7	3400 C2	3451 A3	5004 C6	5015 A6	5040 B6	5403 A3	6293 A10	7005 C6	9005 B3	9014 B1	9022 C3	9031 A9	9038 A9	9045 C9	9088 A10	9811 B5	
1011 C3	1309 A8	2000 A7	2012 C7	2038 A9	2407 A3	2810 C4	3018 C7	3401 C2	3800 A4	5005 C6	5016 A6	5041 C7	5804 B4	6506 A4	7006 C7	9006 C10	9016 A7	9023 C3	9032 A9	9039 A9	9046 C9	9090 A10	9812 B4	
1012 A9	1400 C1	2002 A7	2013 C6	2292 A10	2408 B3	2815 A3	3026 A9	3402 A1	3805 C4	5007 B6	5017 A5	5291 B10	6021 B9	6807 C3	7805 B4	9007 A8	9017 A5	9024 C6	9033 A9	9040 B9	9047 C10	9091 A9	9813 B5	

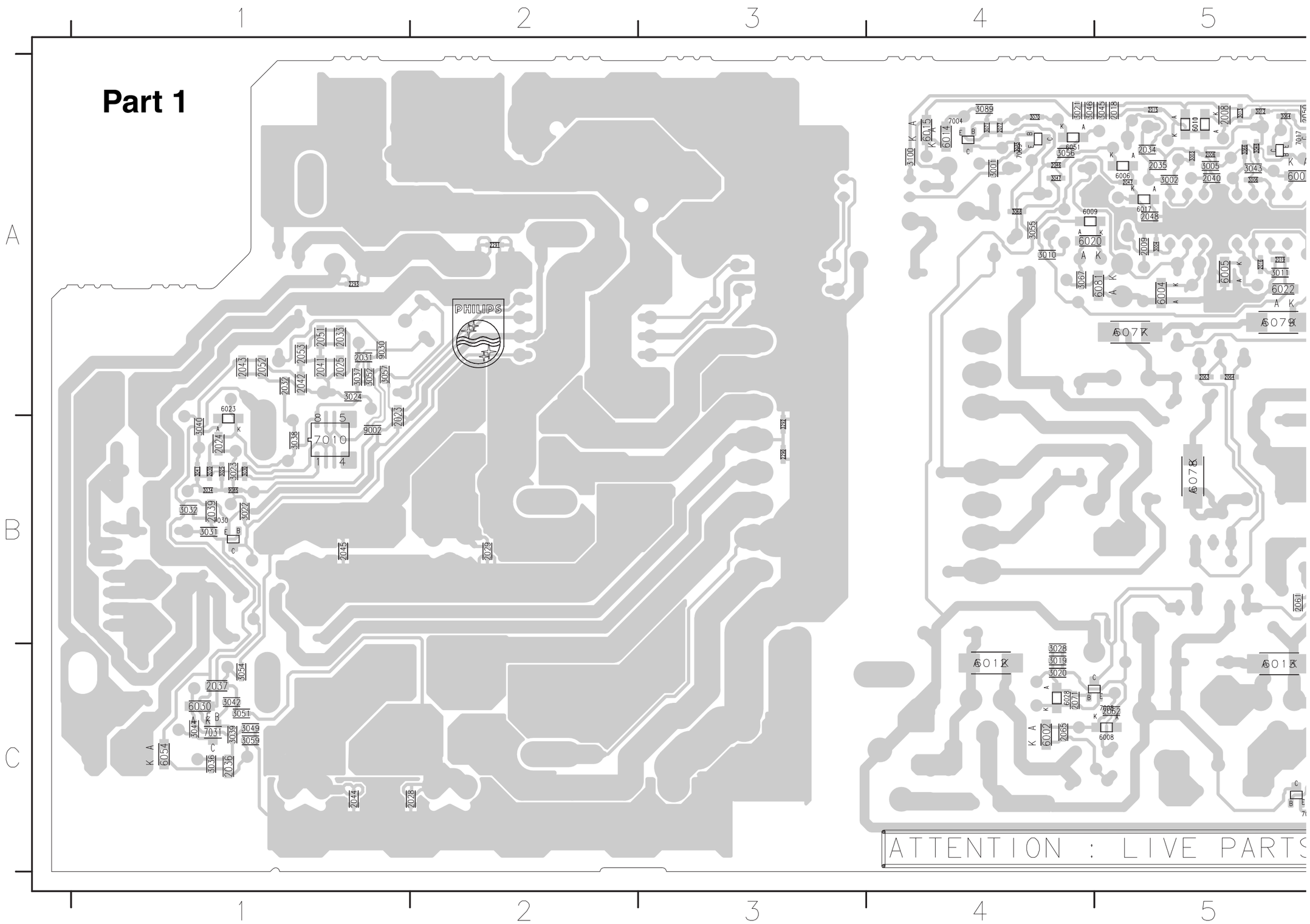


Layout Power Supply Unit (30-32 Inch) (Overview Bottom Side)

2006	A5	2018	A5	2027	A6	2033	A1	2040	A5	2046	A4	2053	A1	2065	C4	2293	A1	3004	A5	3010	A4	3020	C4	3027	A6	3034	B1	3040	B1	3046	A4	3054	C1	3064	A5	3071	A4	3802	B7	6002	C4	6008	C5	6014	A4	6027	C6	6078	B5	6155	A6	7009	A4	9002	B1	9810	B7
2007	A6	2019	A5	2028	C2	2034	A5	2041	A1	2047	A5	2060	C6	2071	C4	2802	B7	3005	A5	3011	A5	3021	A4	3028	C4	3035	C6	3041	B1	3047	A4	3055	A4	3065	A6	3075	A4	3803	B6	6003	C6	6009	A4	6015	A4	6028	C4	6079	A5	6460	A8	7010	A1	9008	A6		
2008	A5	2023	B1	2029	B2	2035	A5	2042	A1	2048	A5	2061	B5	2072	C5	2808	C7	3006	A5	3012	A5	3022	B1	3029	C6	3036	C1	3042	C1	3048	A5	3056	A4	3066	A5	3089	A4	3804	B7	6004	A5	6010	A5	6017	A5	6030	C1	6080	A6	6461	A8	7017	A5	9009	A6		
2009	A5	2024	B1	2030	B1	2036	C1	2043	A1	2050	A5	2062	C5	2077	A4	3001	A4	3007	A6	3013	A5	3023	B1	3030	B1	3037	A1	3043	A5	3049	C1	3057	A1	3067	A4	3100	A4	3806	B7	6005	A5	6011	A5	6020	A4	6051	A4	6081	A4	7004	A4	7018	A6	9030	A1		
2015	A5	2025	A1	2031	A1	2037	C1	2044	C1	2051	A1	2063	A5	2290	B3	3002	A5	3008	A6	3016	C6	3024	A1	3031	B1	3038	B1	3044	C1	3051	C1	3059	C1	3068	A4	3101	A6	3999	B8	6006	A5	6012	B4	6022	A5	6054	C1	6082	A6	7007	C5	7030	B1	9085	B1		
2016	A5	2026	A6	2032	A1	2039	B1	2045	B1	2052	A1	2064	A5	2291	A2	3003	A5	3009	A6	3019	C4	3025	B1	3032	B1	3039	C1	3045	A5	3052	A1	3061	A5	3070	A4	3292	B3	6001	A5	6007	B6	6013	C5	6023	A1	6077	A5	6154	A6	7008	C5	7031	C1	9806	B7		

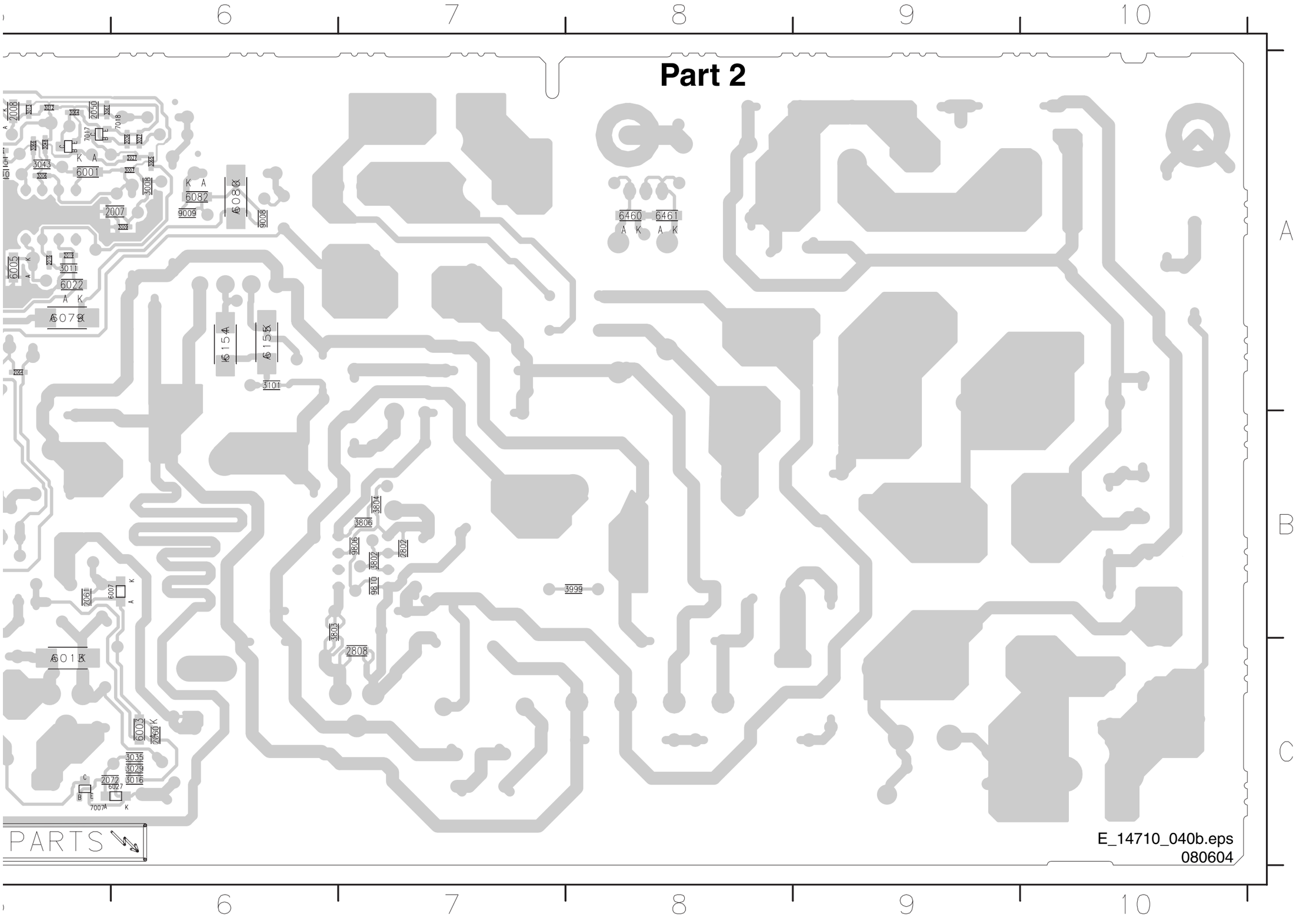


Layout Power Supply Unit (30-32 Inch) (Part 1 Bottom Side)



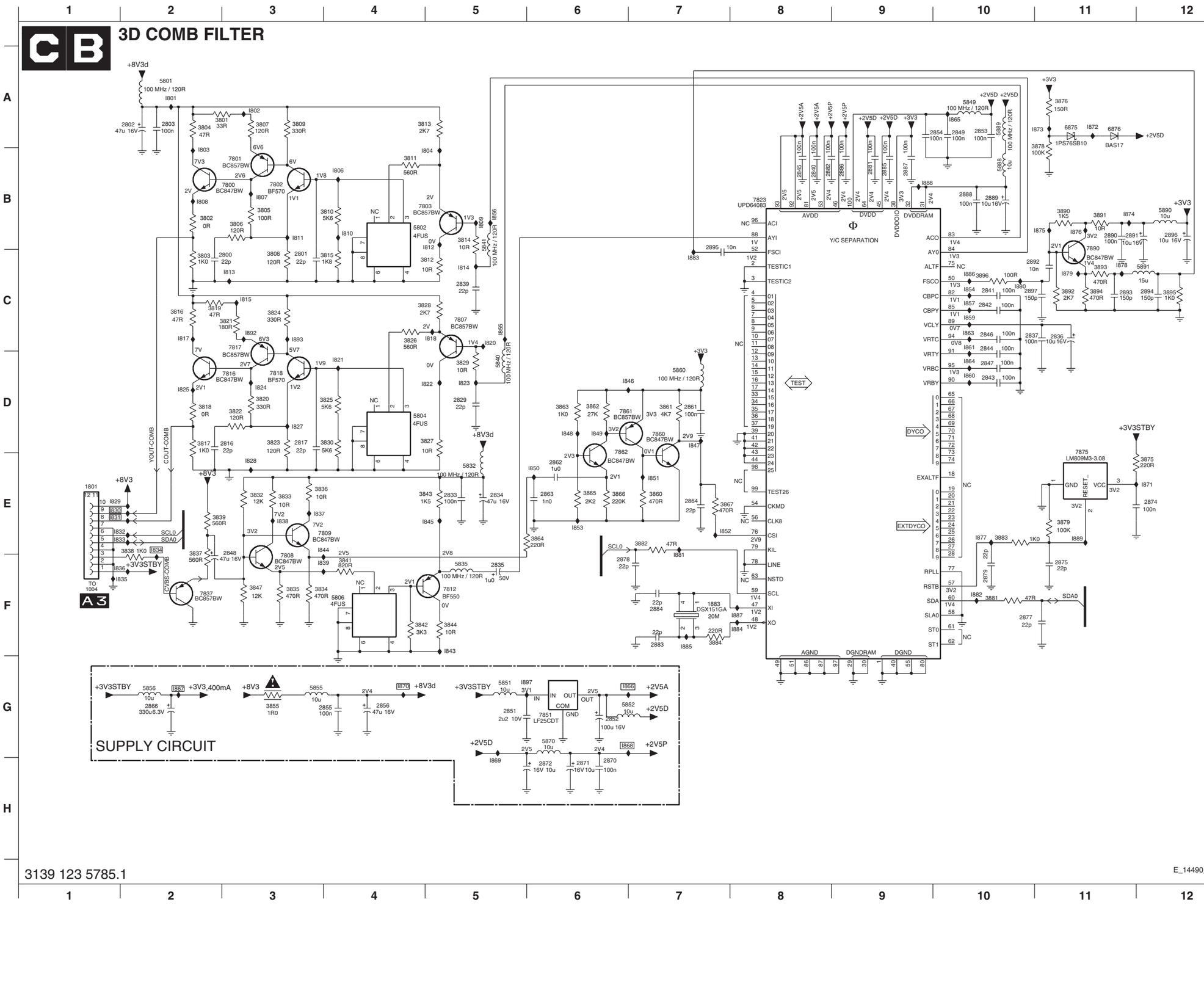
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080604

Layout Power Supply Unit (30-32 Inch) (Part 2 Bottom Side)



3D Comb Filter

3D COMB FILTER

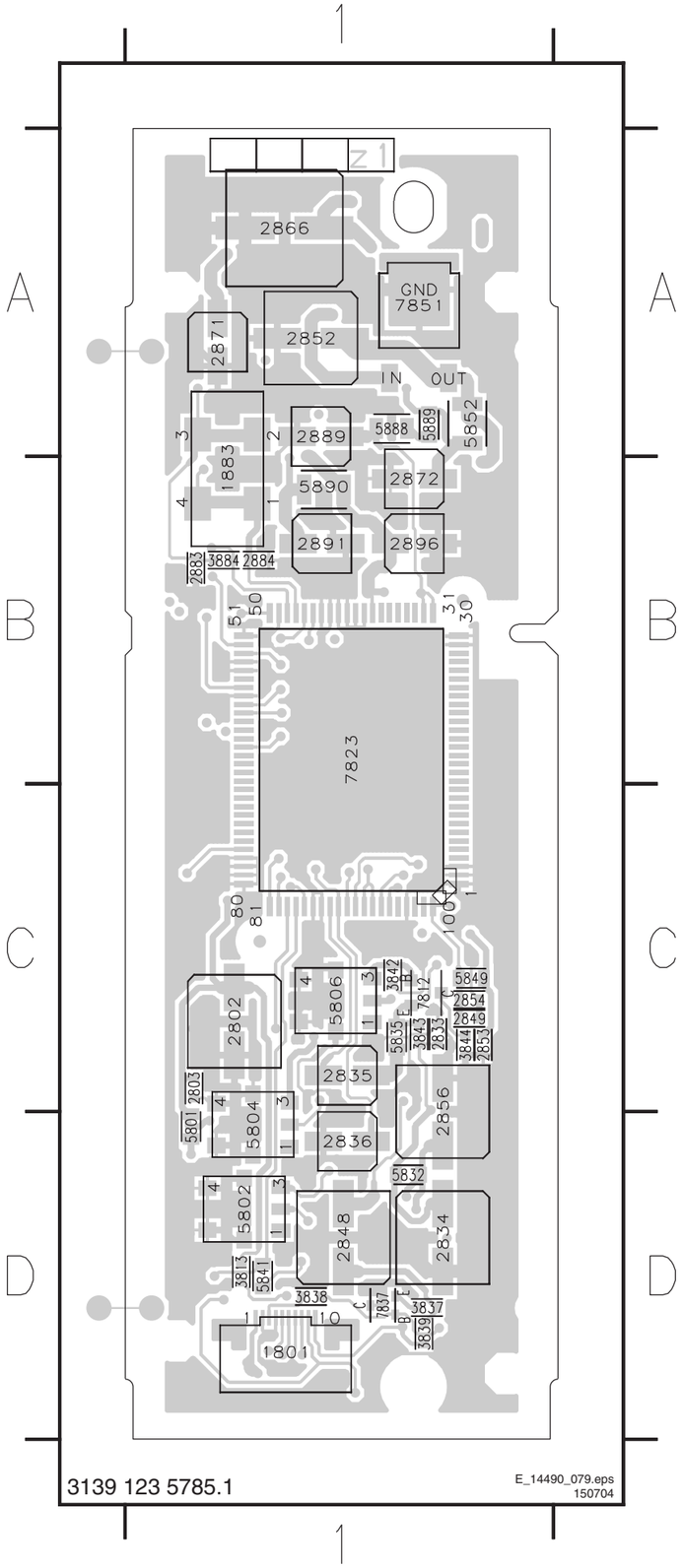


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E_14490_078.eps
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1801 E1	3878 A11	I872 A11
1883 F7	3879 E11	I873 A11
2800 C3	3881 F10	I874 B11
2801 C3	3882 E7	I875 B11
2802 A2	3883 E10	I876 B11
2803 A2	3884 F7	I877 E10
2816 D3	3890 B11	I878 C11
2817 D3	3891 B11	I879 C11
2829 D5	3892 C11	I880 C10
2833 E5	3893 C11	I881 F7
2834 E5	3894 C11	I882 F10
2835 F5	3895 C12	I883 C7
2836 C11	3896 C10	I884 F8
2837 C10	5801 A2	I885 F7
2839 C5	5802 B4	I886 C10
2840 B8	5804 D4	I887 F8
2841 C10	5806 F4	I888 B9
2842 C10	5832 E5	I889 E11
2843 D10	5835 F5	I892 C3
2844 C10	5840 D5	I893 C3
2845 B8	5841 B5	I897 G6
2846 C10	5849 A10	
2847 D10	5851 G5	
2848 E3	5852 G7	
2849 A10	5855 G3	
2851 G5	5856 G2	
2852 G6	5860 D7	
2853 A10	5870 G6	
2854 A10	5888 B10	
2855 G4	5889 A10	
2856 G4	5890 B12	
2861 D7	5891 C12	
2862 E6	6875 A11	
2863 E6	6876 A11	
2864 E7	7800 B3	
2866 G2	7801 B3	
2870 H6	7802 B3	
2871 H6	7803 B5	
2872 H6	7807 C5	
2874 E12	7808 F3	
2875 F11	7809 E3	
2877 F10	7812 F5	
2878 F6	7816 D3	
2879 F10	7817 C3	
2881 B9	7818 D3	
2882 B8	7823 B8	
2883 F7	7837 F2	
2884 F7	7851 G6	
2885 B9	7860 D7	
2886 B9	7861 D6	
2887 B9	7862 E6	
2888 B10	7875 E11	
2889 B10	7890 C11	
2890 B11	I801 A2	
2891 B11	I802 A3	
2892 C10	I803 B2	
2893 C11	I804 B5	
2894 C12	I806 B4	
2895 B7	I807 B3	
2896 B12	I808 B2	
2897 C10	I809 B5	
3801 A3	I810 B4	
3802 B2	I811 B3	
3803 C2	I812 B5	
3804 A2	I813 C3	
3805 B3	I814 C5	
3806 B3	I815 C3	
3807 A3	I817 C2	
3808 C3	I818 C5	
3809 A3	I820 C5	
3810 B4	I821 D4	
3811 B4	I822 D5	
3812 C5	I823 D5	
3813 A4	I824 D3	
3814 B5	I825 D2	
3815 C4	I827 D3	
3816 C2	I828 E3	
3817 D2	I829 E1	
3818 D2	I830 E1	
3819 C2	I831 E1	
3820 D3	I832 E1	
3821 C3	I833 E1	
3822 D3	I834 E2	
3823 D3	I835 F2	
3824 C3	I836 F1	
3825 D4	I837 E3	
3826 C4	I838 E3	
3827 D5	I839 F4	
3828 C4	I843 F5	
3829 D5	I844 E4	
3830 D4	I845 E5	
3832 E3	I846 D7	
3833 E3	I847 D7	
3834 F3	I848 D6	
3835 F3	I849 D6	
3836 E3	I850 E6	
3837 F2	I851 E7	
3838 E2	I852 E7	
3839 E2	I853 E6	
3841 F4	I854 C10	
3842 F4	I855 C5	
3843 E5	I856 B5	
3844 F5	I857 C10	
3847 F3	I859 C10	
3855 G3	I860 D10	
3860 E7	I861 C10	
3861 D7	I863 C10	
3862 D6	I864 D10	
3863 D6	I865 A10	
3864 E6	I866 G7	
3865 E6	I867 G2	
3866 E6	I868 G6	
3867 E7	I869 H5	
3875 E12	I870 G4	
3876 A11	I871 E12	

Layout 3D Comb Filter (Top Side)

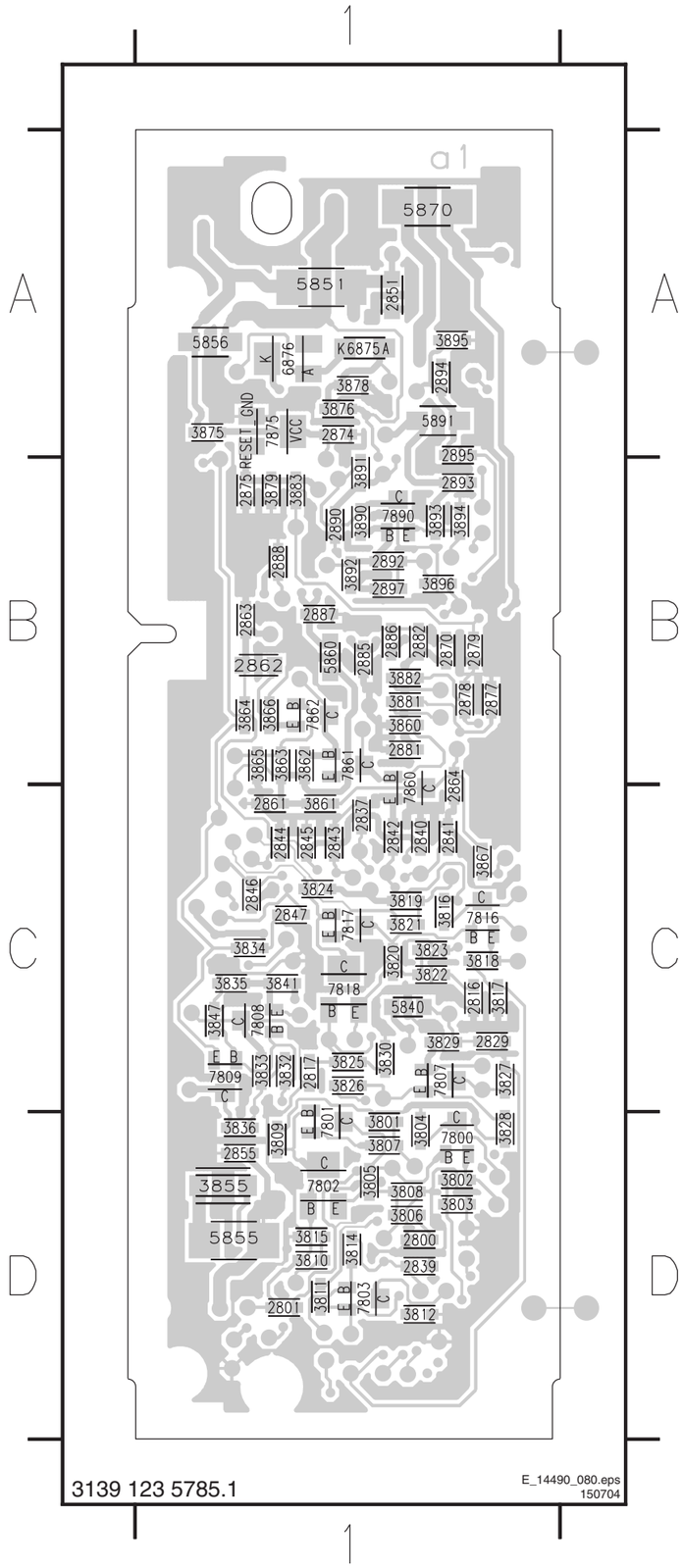


1801 D1
1883 B1
2802 C1
2803 C1
2833 C1
2834 D1
2835 C1
2836 D1
2848 D1
2849 C1
2852 A1
2853 C1
2854 C1
2856 D1
2866 A1
2871 A1
2872 B1
2883 B1
2884 B1
2889 A1
2891 B1
2896 B1
3813 D1
3837 D1
3838 D1
3839 D1
3842 C1
3843 C1
3844 C1
3884 B1
5801 D1
5802 D1
5804 D1
5806 C1
5832 D1
5835 C1
5841 D1
5849 C1
5852 A1
5888 A1
5889 A1
5890 B1
7812 C1
7823 B1
7837 D1
7851 A1

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Layout 3D Comb Filter (Bottom Side)

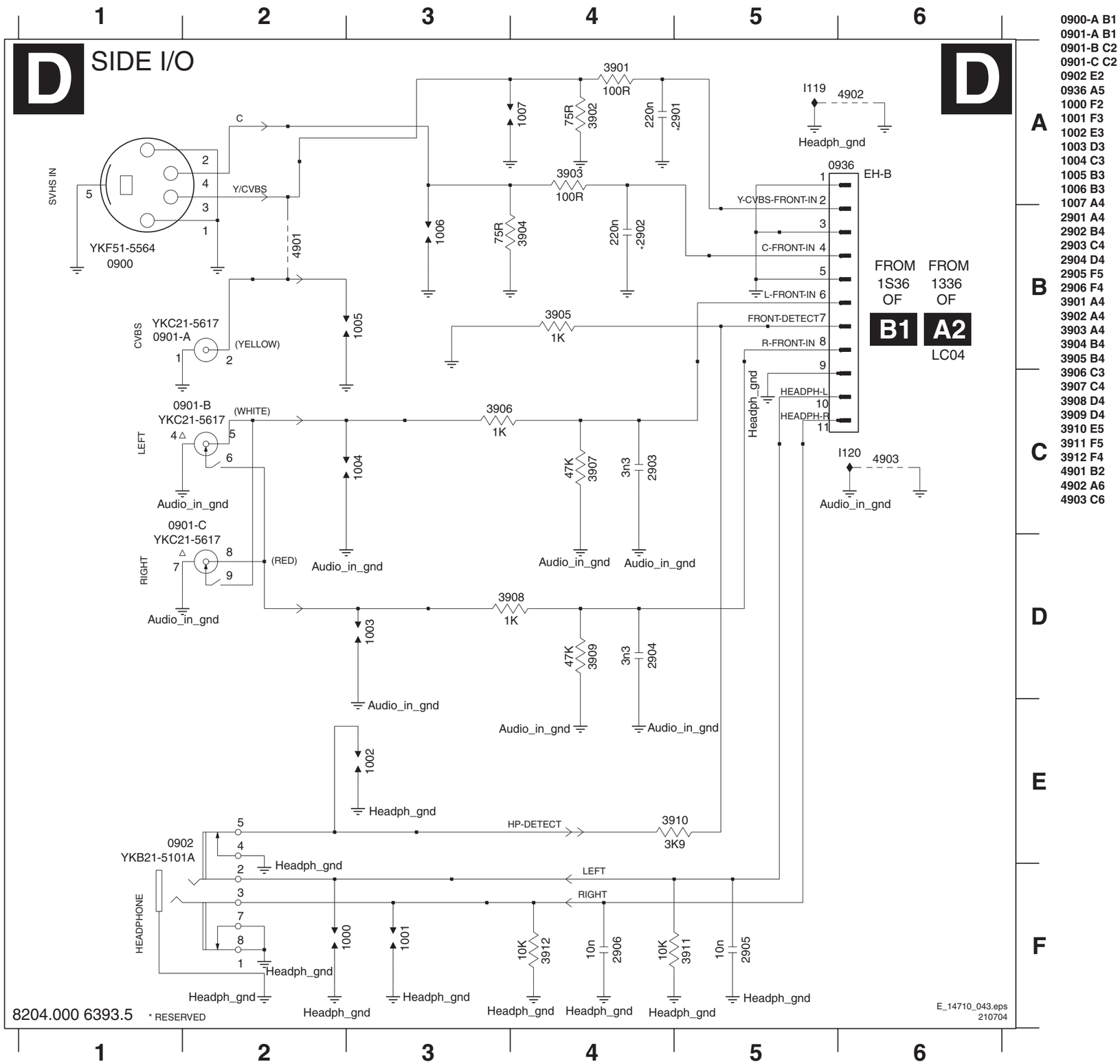


2800 D1
2801 D1
2816 C1
2817 C1
2829 C1
2837 C1
2839 D1
2840 C1
2841 C1
2842 C1
2843 C1
2844 C1
2845 C1
2846 C1
2847 C1
2851 A1
2855 D1
2861 C1
2862 B1
2863 B1
2864 C1
2870 B1
2874 A1
2875 B1
2877 B1
2878 B1
2879 B1
2881 B1
2882 B1
2885 B1
2886 B1
2887 B1
2888 B1
2890 B1
2892 B1
2893 B1
2894 A1
2895 A1
2897 B1
3801 D1
3802 D1
3803 D1
3804 D1
3805 D1
3806 D1
3807 D1
3808 D1
3809 D1
3810 D1
3811 D1
3812 D1
3814 D1
3815 D1
3816 C1
3817 C1
3818 C1
3819 C1
3820 C1
3821 C1
3822 C1
3823 C1
3824 C1
3825 C1
3826 C1
3827 C1
3828 D1
3829 C1
3830 C1
3832 C1
3833 C1
3834 C1
3835 C1
3836 D1
3841 C1
3847 C1
3855 D1
3860 B1
3861 C1
3862 B1
3863 B1
3864 B1
3865 B1
3866 B1
3867 C1
3875 A1
3876 A1
3878 A1
3879 B1
3881 B1
3882 B1
3883 B1
3890 B1
3891 B1
3892 B1
3893 B1
3894 B1
3895 A1
3896 B1
5840 C1
5851 A1
5855 D1
5856 A1
5860 B1
5870 A1
5891 A1
6875 A1
6876 A1
7800 D1
7801 D1
7802 D1
7803 D1
7807 C1
7808 C1
7809 C1
7816 C1
7817 C1
7818 C1
7860 B1
7862 B1
7875 A1
7890 B1

3139 123 5785.1

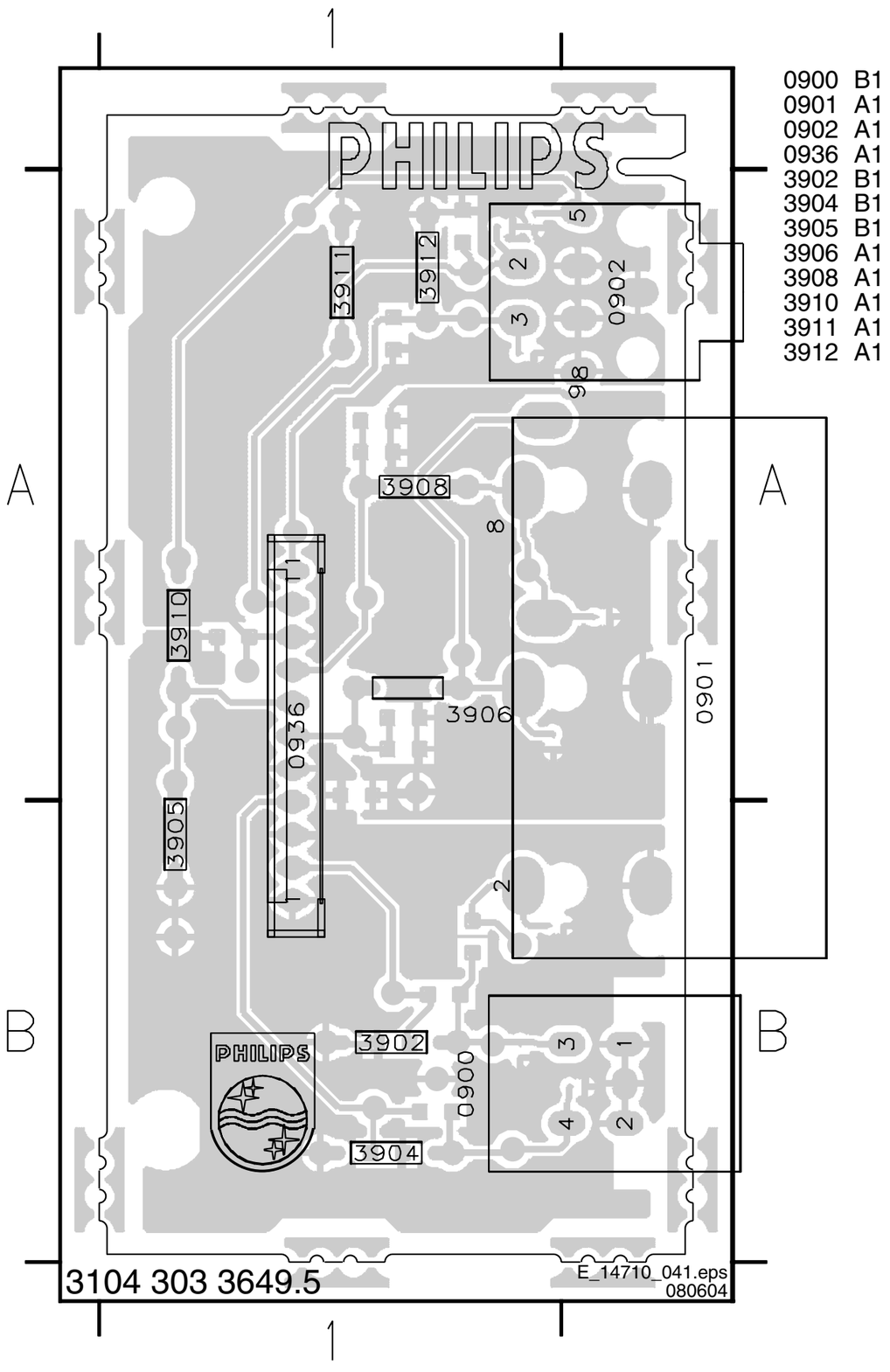
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Side I/O Panel

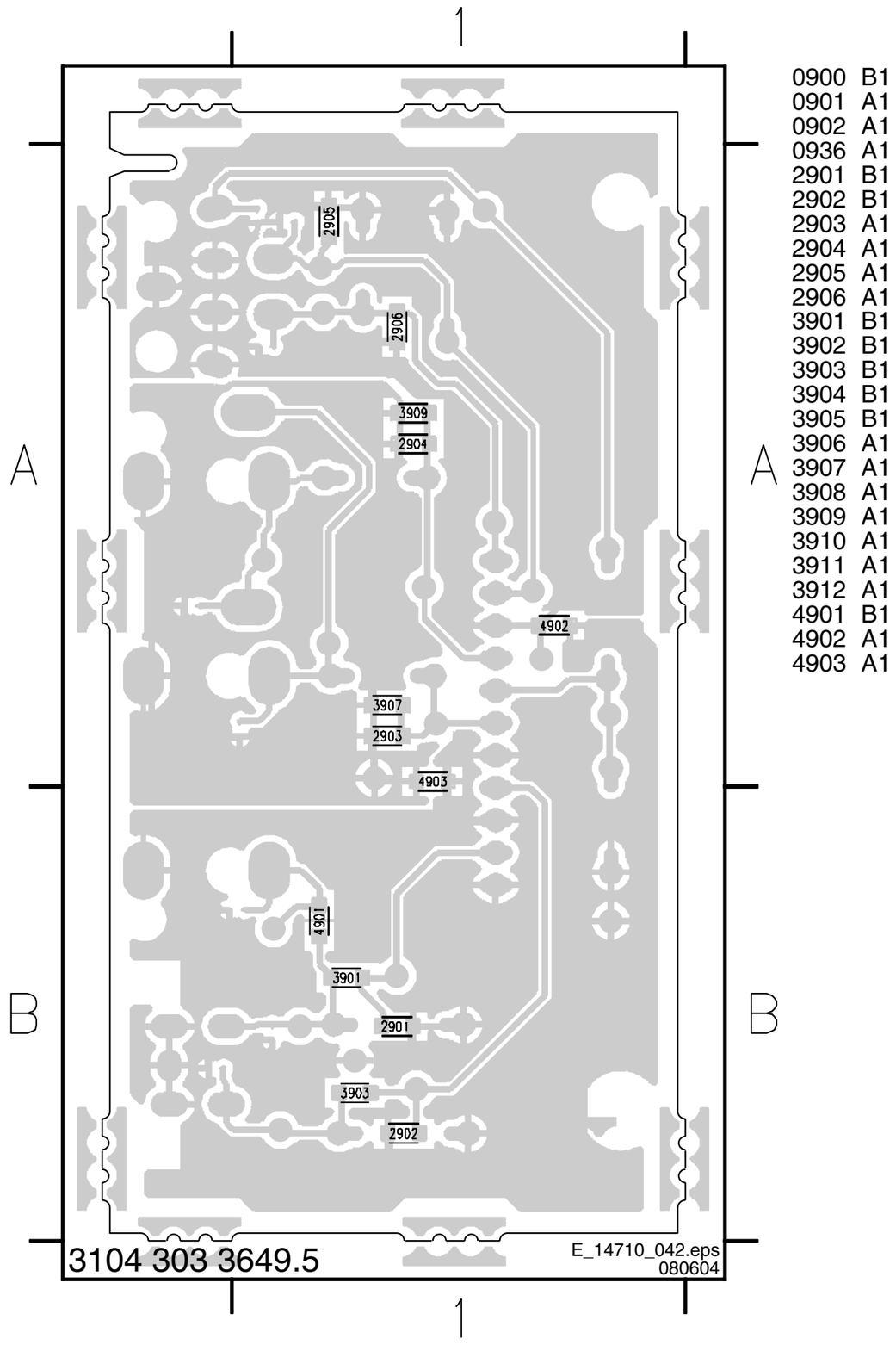


0900-A B1
0901-A B1
0901-B C2
0901-C C2
0902 E2
0936 A5
1000 F2
1001 F3
1002 E3
1003 D3
1004 C3
1005 B3
1006 B3
1007 A4
2901 A4
2902 B4
2903 C4
2904 D4
2905 F5
2906 F4
3901 A4
3902 A4
3903 A4
3904 B4
3905 B4
3906 C3
3907 C4
3908 D4
3909 D4
3910 E5
3911 F5
3912 F4
4901 B2
4902 A6
4903 C6

Layout Side I/O Panel (Top Side)

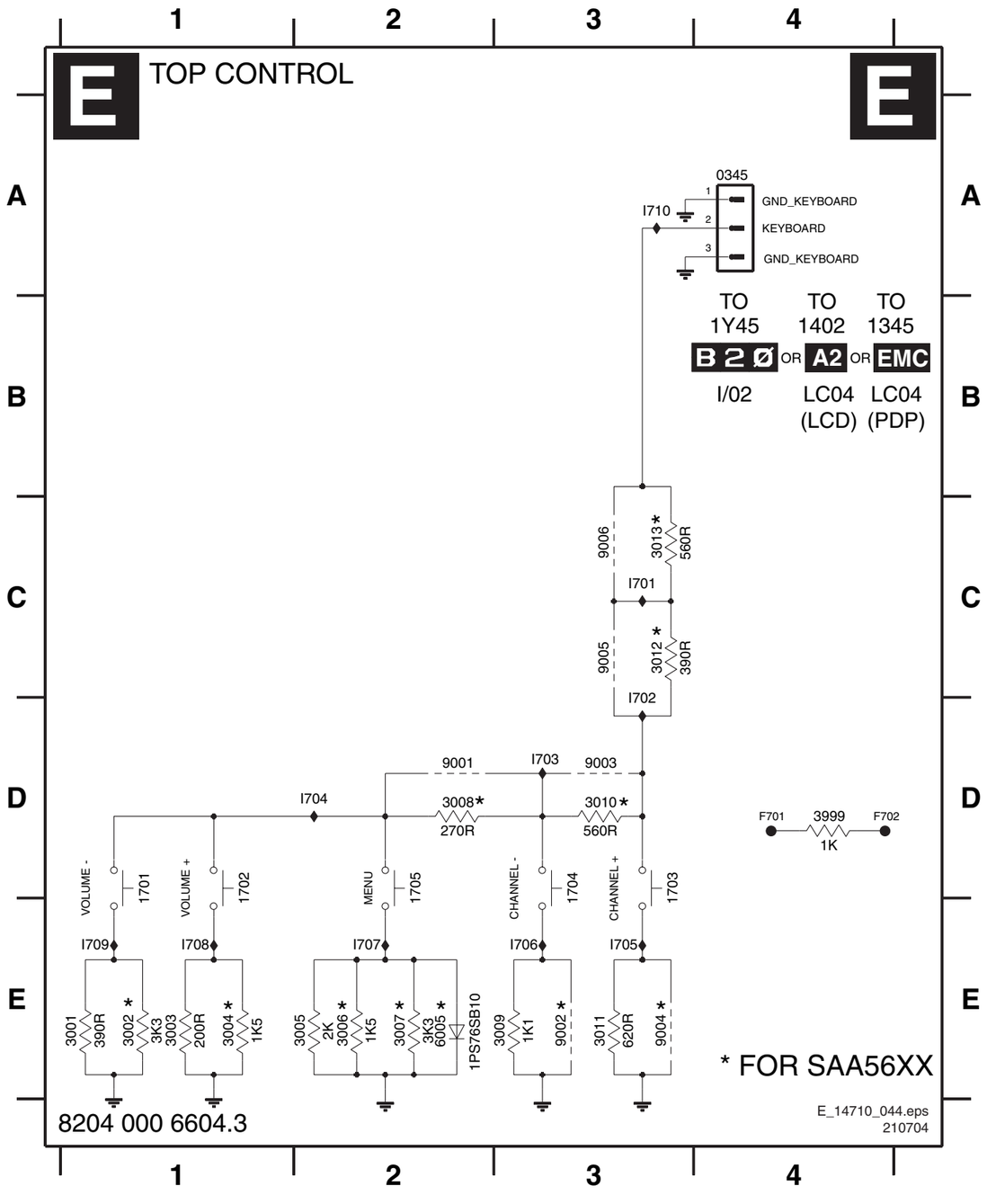


Layout Side I/O Panel (Bottom Side)



Top Control Panel

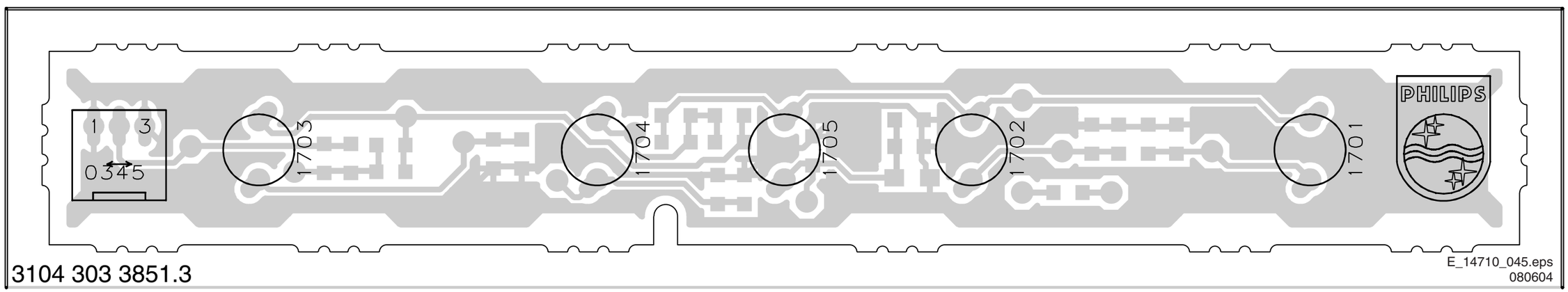
0345 A4 1704 D3 3003 E1 3007 E2 3011 E3 6005 E2 9004 E3 F702 D4 I704 D2 I708 E1
1701 D1 1705 D2 3004 E1 3008 D2 3012 C3 9001 D2 9005 C3 I701 C3 I705 E3 I709 E1
1702 D1 3001 E1 3005 E2 3009 E3 3013 C3 9002 E3 9006 C3 I702 D3 I706 E3 I710 A3
1703 D3 3002 E1 3006 E2 3010 D3 3999 D4 9003 D3 F701 D4 I703 D3 I707 E2



al Notes:

Layout Top Control Panel (Top Side)

0345 1701 1702 1703 1704 1705

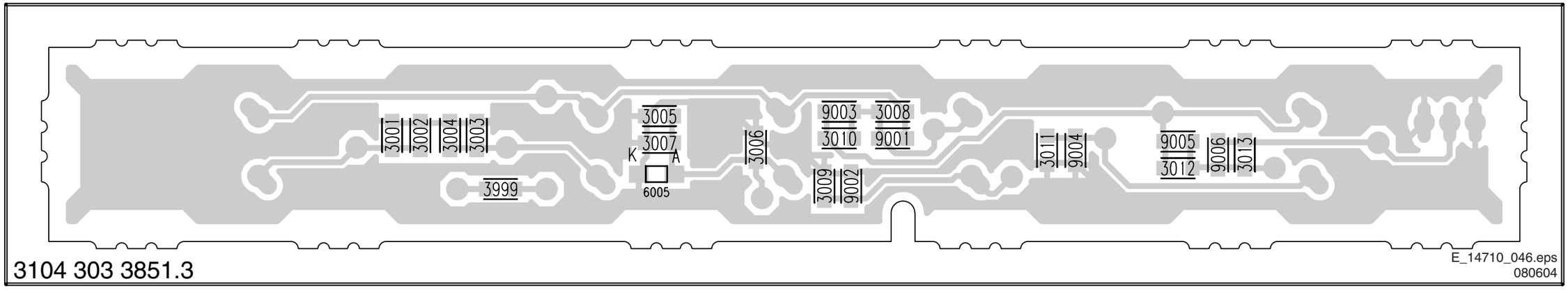


3104 303 3851.3

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Layout Top Control Panel (Top Side)

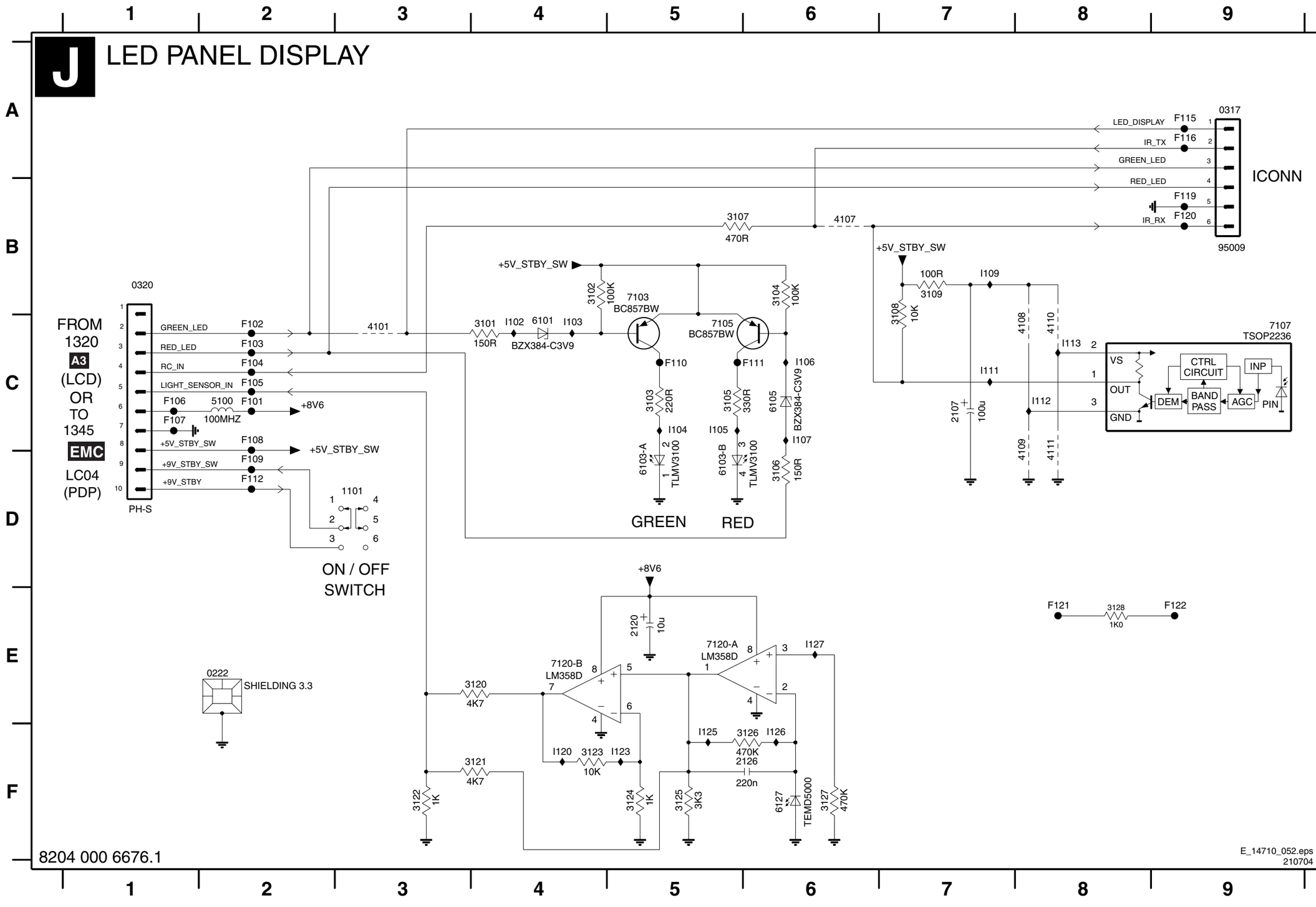
3001 3003 3005 3007 3009 3011 3013 6005 9002 9004 9006
3002 3004 3006 3008 3010 3012 3999 9001 9003 9005



3104 303 3851.3

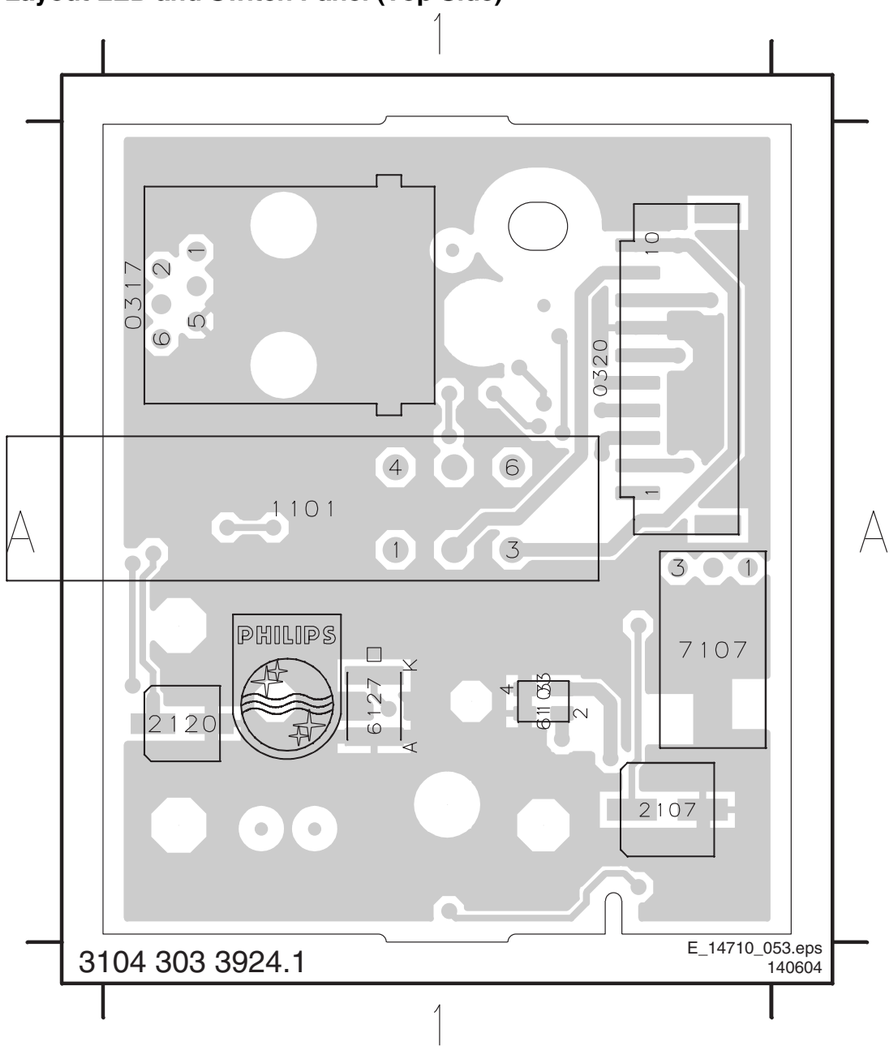
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LED and Switch Panel



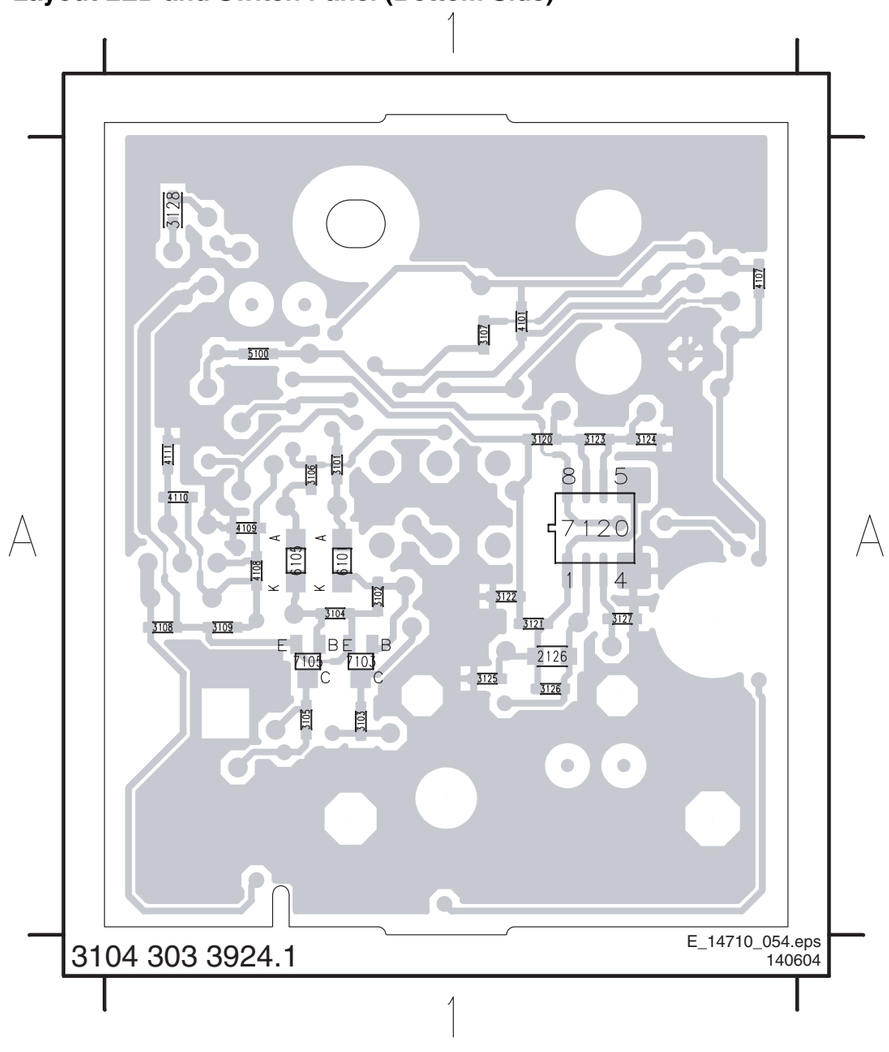
0222 E2
0317 A9
0320 B1
1101 D3
2107 C7
2120 E5
2126 F6
3101 C4
3102 B4
3103 C5
3104 B6
3105 C5
3106 D6
3107 B5
3108 B7
3109 B7
3120 E4
3121 F4
3122 F3
3123 F4
3124 F5
3125 F5
3126 F6
3127 F6
3128 E8
4101 C3
4107 B6
4108 C8
4109 C8
4110 C8
4111 C8
5100 C2
6101 C4
6103-A D5
6103-B D5
6105 C6
6127 F6
7103 B5
7105 C5
7107 C9
7120-A E5
7120-B E4
F101 C2
F102 C2
F103 C2
F104 C2
F105 C2
F106 C1
F107 C1
F108 C2
F109 D2
F110 C5
F111 C6
F112 D2
F115 A9
F116 A9
F119 B9
F120 B9
F121 E8
F122 E9
I102 C4
I103 C4
I104 C5
I105 C5
I106 C6
I107 C6
I109 B7
I111 C7
I112 C8
I113 C8
I120 F4
I123 F5
I125 F5
I126 F6
I127 E6

Layout LED and Switch Panel (Top Side)



0317 A1
0320 A1
1101 A1
2107 A1
2120 A1
6103 A1
6127 A1
7107 A1

Layout LED and Switch Panel (Bottom Side)



0317 A1
1101 A1
2126 A1
3101 A1
3102 A1
3103 A1
3104 A1
3105 A1
3106 A1
3107 A1
3108 A1
3109 A1
3120 A1
3121 A1
3122 A1
3123 A1
3124 A1
3125 A1
3126 A1
3127 A1
3128 A1
4101 A1
4107 A1
4108 A1
4109 A1
4110 A1
4111 A1
5100 A1
6101 A1
6105 A1
7103 A1
7105 A1
7107 A1
7120 A1

LCD Standby Audio Panel: Connections

SA1 CONNECTIONS

SA1

TO DISPLAY 1314 — PH-B — GND-SSP
TO DISPLAY 1315 — PH-B
TO DISPLAY 1316 — B12P-PH-K — GND-SSP
TO DISPLAY 1317 — B12P-PH-K
1318 — B6B-PH-K
+5V_SW, +5V_SW
9008 RES — F137
9009 RES — F138
9002 RES — GND-SSP
9003 RES — GND-SSP
ON_OFF SA1 (3x)
DIM_CONTROL SA1
DIM_CONTROL SA1
POR SA2
ON_OFF SA1 (3x)
DIM_CONTROL SA1
STANDBY SA2
ON_OFF SA1 (3x)
PROT_AUDIOSUPPLY SA2
+5V2-RELAY-IO2
F111, F113, F115, F121, F139, F122
1M03 — PH-B
+5V_SW — 9113 — GND-SSP
TO DISPLAY 1313 — 440091-7
TO DISPLAY 1312 — 440091-7
F102, F104, F105, F106, F107, F119
GND-SSP

TO 1M03 B21 SSB EMG
OR
TO 1M03 B10 SSB JAGUAR

TO 1303 A4 LCD SUPPLY 42"
1303 — B4P-VH — +24V_2 — F103 — F110
1M10 — B4B-PH-K
TO AL AMBI LIGHT
1320 — B3P-VH — GND-SSP
TO 1320 A4 LCD SUPPLY 42"
1304 — B4P-VH
F101 — +12V_+24V
9018
F108 — +12V_A
TO 1304 A2 LCD SUPPLY 30"/37"/42"

F120
9004 — 5018 — 68u RES — 9010
9005 — 5019 — 68u RES — 9011
9006, 9007
1309 — B3P-VH — F112 — GND-SSP
TO 1309 A2 LCD SUPPLY 30"/37"/42"
3190 1K2, 3191 1K2, 3192 1K2 — GND-SSP

0001 — GND screw — 1 — GND-SSP

1M46 — B11B-PH-K
F131 — GND-SSP
F135 — +8V6
F136 — +12V
F109 — +5V_SW
GND-SSP
F114 — +5V2 — F132
VTUN
+12V
9V_STBY
F117 — 9V_STBY_SW
9001

TO 1M46 B21 SSB EMG
OR
TO 1M46 B10 SSB JAGUAR

8204 000 8314.5

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020704

0001 E1
1303 A9
1304 B9
1309 D9
1312 A8
1313 A7
1314 B1
1315 B2
1316 A3
1317 A4
1318 A5
1320 B9
1M03 B7
1M10 A9
1M46 D7
3190 D9
3191 D9
3192 D9
5018 C8
5019 D8
9001 E6
9002 B5
9003 B5
9004 C8
9005 D8
9006 C9
9007 C9
9008 A5
9009 A5
9010 C8
9011 D8
9018 B10
9113 B6
F101 B10
F102 A8
F103 A9
F104 A7
F105 A7
F106 A7
F107 B7
F108 B10
F109 E6
F110 B9
F111 B6
F112 D10
F113 B6
F114 E6
F115 B6
F117 E6
F119 B7
F120 C8
F121 B6
F122 C6
F131 D6
F132 E6
F135 D6
F136 D6
F137 A5
F138 B5
F139 C6

LCD Standby Audio Panel: Standby

SA2 STANDBY

Caution: Both ⏚ and ⏚ symbols can indicate a HOT ground in this schematic!!

SA2

COLD GROUND

HOT GROUND

TO 1306 A1 LCD SUPPLY 30"/37"/42"

TO 1307 A1 LCD SUPPLY 30"/37"/42"

TO 1305 A1 LCD SUPPLY 30"/37"/42"

HOT GROUND COLD GROUND

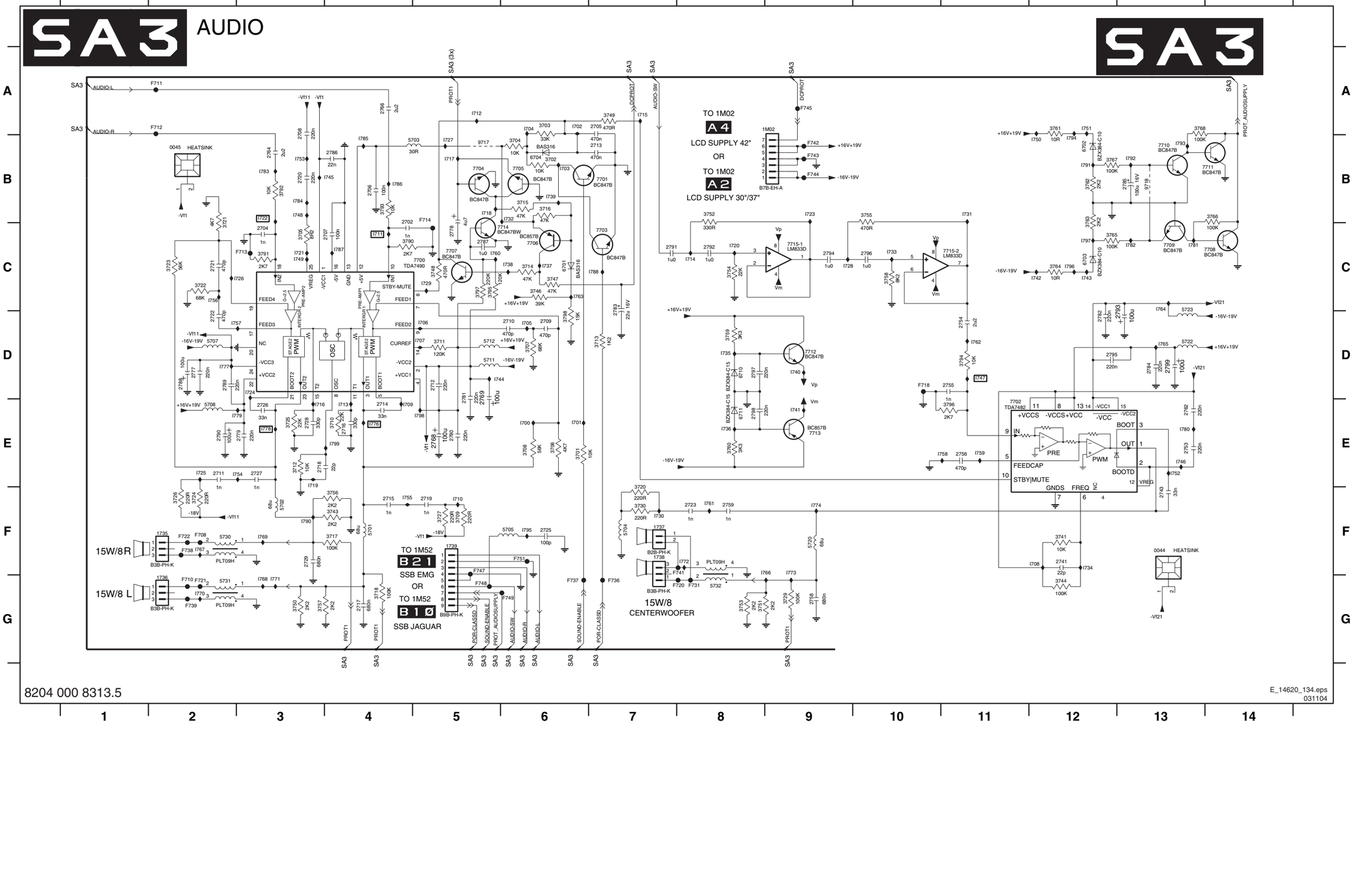
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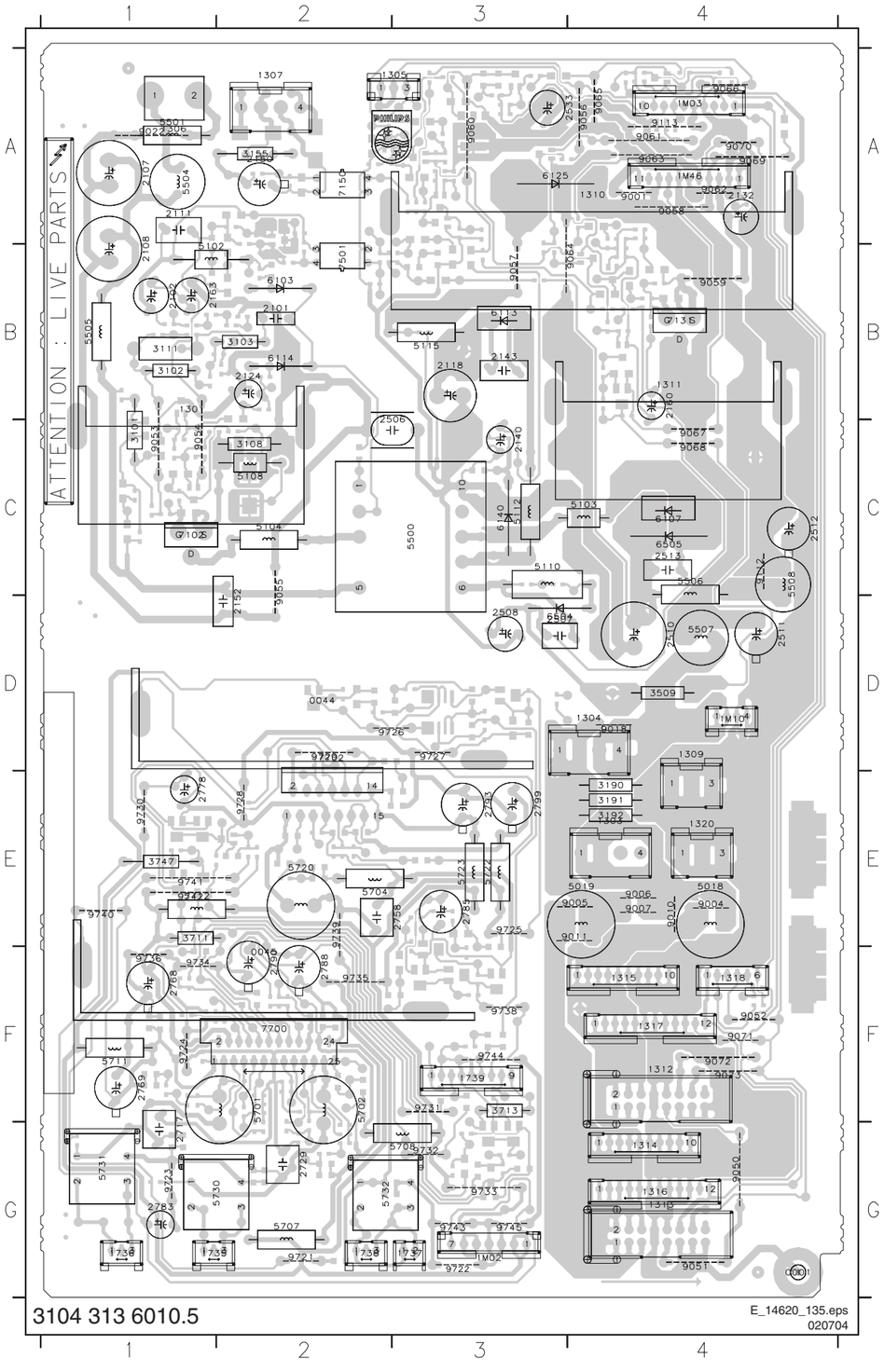
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1310 A13	3512 C9	9111 D1	I199 D5
1311 A12	3513 D10	9112 E9	I501 F7
2101 C2	3515 B8	F100 D5	I502 F7
2102 F2	3516 A9	F123 B4	I503 F6
2103 D2	3517 A11	F124 B4	I504 F12
2105 D2	3528 C11	F125 D13	I505 F13
2107 A4	3529 C12	F126 E13	I506 F13
2108 B4	3530 D13	F127 H4	I507 F13
2109 F7	3531 C13	F128 H4	I508 A8
2110 F2	3532 C12	F129 H4	I509 A9
2111 E2	3533 D12	F130 H4	I510 A10
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2132 C11	3540 G13	I104 B10	
2140 F8	3541 G12	I105 B7	
2141 D7	3542 H13	I106 C11	
2143 D7	3544 G12	I107 C8	
2144 F2	3560 E12	I108 C9	
2145 D3	3561 F12	I109 C11	
2149 G7	3562 E12	I110 C3	
2150 G5	3999 H8	I111 C3	
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2544 G13	6115 D4	I136 D2	
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3105 D2	6121 G7	I142 D2	
3106 E1	6122 E7	I143 D3	
3107 F1	6125 C8	I144 D2	
3108 D4	6130 B10	I145 D3	
3109 F1	6132 C10	I146 D4	
3110 F1	6133 C9	I147 E2	
3111 D2	6134 C9	I148 E10	
3112 G1	6140 D7	I149 E7	
3113 E7	6142 F3	I150 E13	
3114 F6	6144 D3	I151 E13	
3117 D3	6147 D5	I152 E12	
3122 B6	6148 F8	I153 E1	
3123 F7	6149 F9	I154 E4	
3124 F7	6150 G4	I155 E4	
3125 E3	6151 G5	I156 E4	
3126 E4	6153 H6	I157 F6	
3127 F4	6156 H5	I158 F7	
3128 F6	6504 A7	I159 F8	
3132 D9	6505 E7	I160 F8	
3134 C10	6508 G9	I161 F9	
3135 C10	6510 E13	I162 E2	
3137 D8	6511 A8	I163 F9	
3138 D3	6531 F10	I164 F7	
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3141 F10	6540 F12	I166 F3	
3142 F9	6562 E13	I167 F4	
3145 G2	7100 F4	I168 F9	
3146 F4	7101 D4	I169 F2	
3147 H3	7102 C4	I170 G8	
3148 E4	7105 E4	I171 F5	
3149 E4	7131 B10	I172 F2	
3150 D4	7140 F10	I173 F2	
3152 D3	7150 H6	I174 F3	
3153 C8	7501 F6	I175 F5	
3155 G5	7505 G13	I176 G7	
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3158 G6	7508 H10	I179 G12	
3159 E8	7509 G12	I180 G5	
3160 D4	7510 F13	I181 G2	
3161 C10	7511 A8	I182 G13	
3171 C9	7512 A10	I183 G5	
3172 C10	7531 E11	I184 G6	
3175 F8	7532 D9	I185 F3	
3176 G10	7560 E12	I186 G6	
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3507 F13	9020 C3	I190 G2	

LCD Standby Audio Panel: Audio

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2715 F4 2716 E4 2717 G4 2718 E3 2719 F5 2720 B3 2721 C2 2722 D2 2723 F8 2725 F6
2726 E3 2727 E3 2728 E3 2729 F3 2741 F12 2743 F13 2753 E13 2754 D11 2755 D11 2756 E11
2758 G9 2759 F8 2762 E13 2764 B3 2766 A4 2768 E5 2769 D5 2777 D2 2778 C5 2779 E3
2780 E5 2781 D5 2782 D12 2783 C7 2784 D13 2785 B13 2786 B4 2787 C5 2788 D2 2789 D2
2790 E2 2791 C7 2792 C8 2793 D13 2794 C9 2795 D12 2796 C10 2797 D8 2798 E8 2799 D13
3701 E6 3702 B6 3703 A6 3704 B6 3705 C3 3706 E6 3707 D6 3708 E6 3709 F5 3710 E4
3711 D5 3712 E3 3713 D7 3714 C6 3715 B6 3716 B6 3717 F4 3718 G4 3720 F7 3721 B2
3722 C2 3723 C2 3724 F2 3725 E3 3726 F2 3727 F5 3729 G9 3730 F7 3741 F12 3743 F4
3744 G12 3746 C6 3747 C6 3748 C5 3749 A7 3750 G3 3751 G8 3752 B8 3753 G8 3754 C8
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3796 E11 3797 C5 3798 D6 5701 F4 5702 F3 5703 B5 5704 F7 5705 F6 5707 D2 5708 E2
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6703 C12 6704 B6 6710 D8 6711 E8 7700 C5 7701 B7 7702 E11 7703 C7 7704 B5 7705 B6
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F743 B9 F744 B9 F745 A9 F747 F5 F748 G5 F749 G6 F751 F6 I700 E6 I701 E6 I702 A6
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I713 E4 I714 C8 I715 A7 I716 E3 I717 B5 I718 B5 I719 E3 I720 C8 I721 C3 I722 B3
I723 B9 I724 D3 I725 E2 I726 C3 I727 B5 I728 C9 I729 C5 I730 F7 I731 B11 I732 B6
I733 C10 I734 F12 I735 D8 I736 C8 I737 E9 I738 E9 I739 C6 I740 D9 I741 E9 I742 C12
I743 C12 I744 D5 I745 B4 I746 E13 I747 D11 I748 B3 I749 C3 I750 B12 I751 A12 I752 E13
I753 B3 I754 E3 I755 F4 I756 C2 I757 D2 I758 E11 I759 E11 I760 C5 I761 F8 I762 D11
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I774 B12 I776 C13 I777 D2 I778 E3 I779 E3 I780 E13 I781 C13 I782 C13 I783 B3 I784 B13
I785 B13 I786 B4 I787 C4 I788 C7 I790 F3 I791 B12 I792 B13 I793 B13 I794 B12
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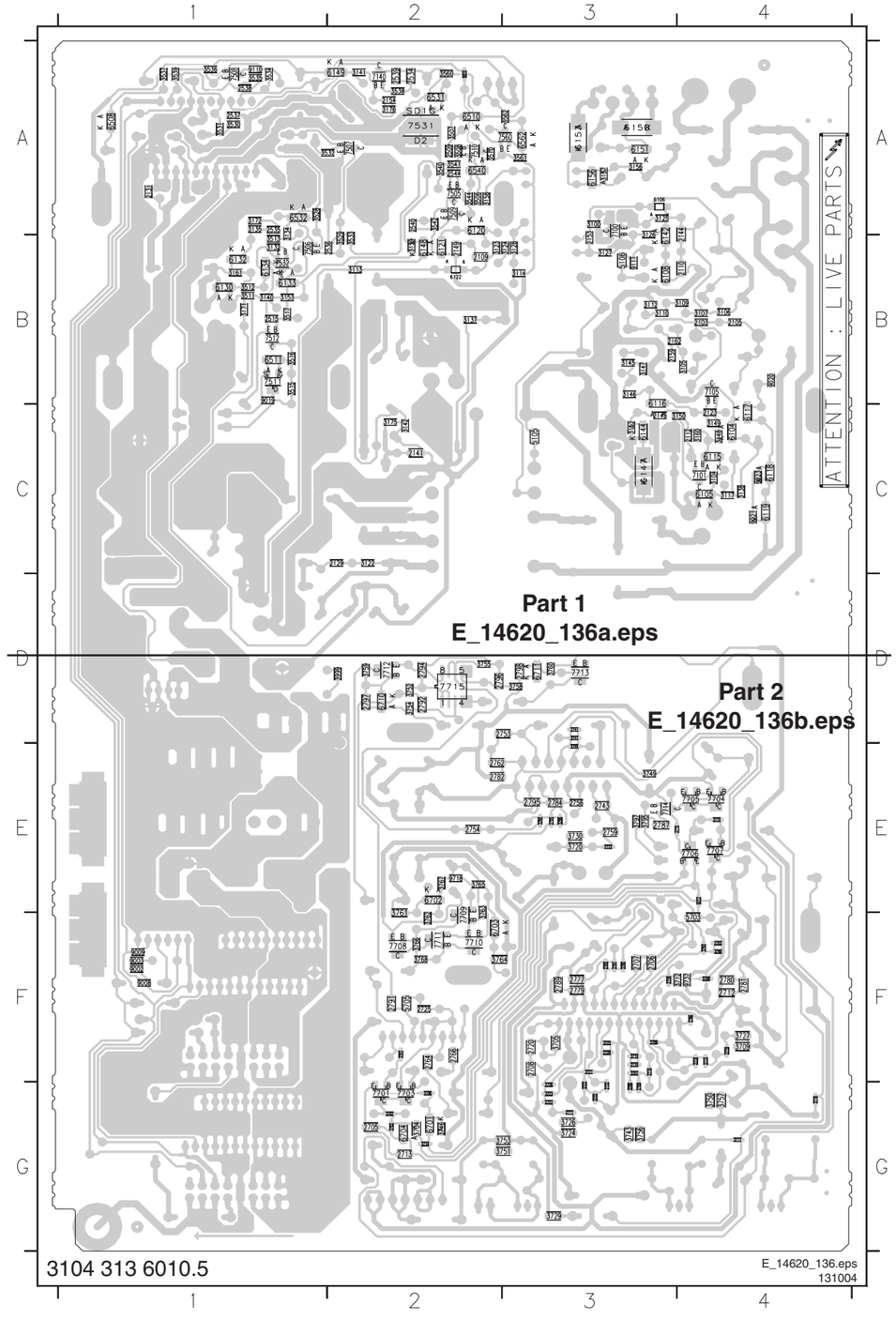
Layout LCD Standby Audio Panel (Top Side)



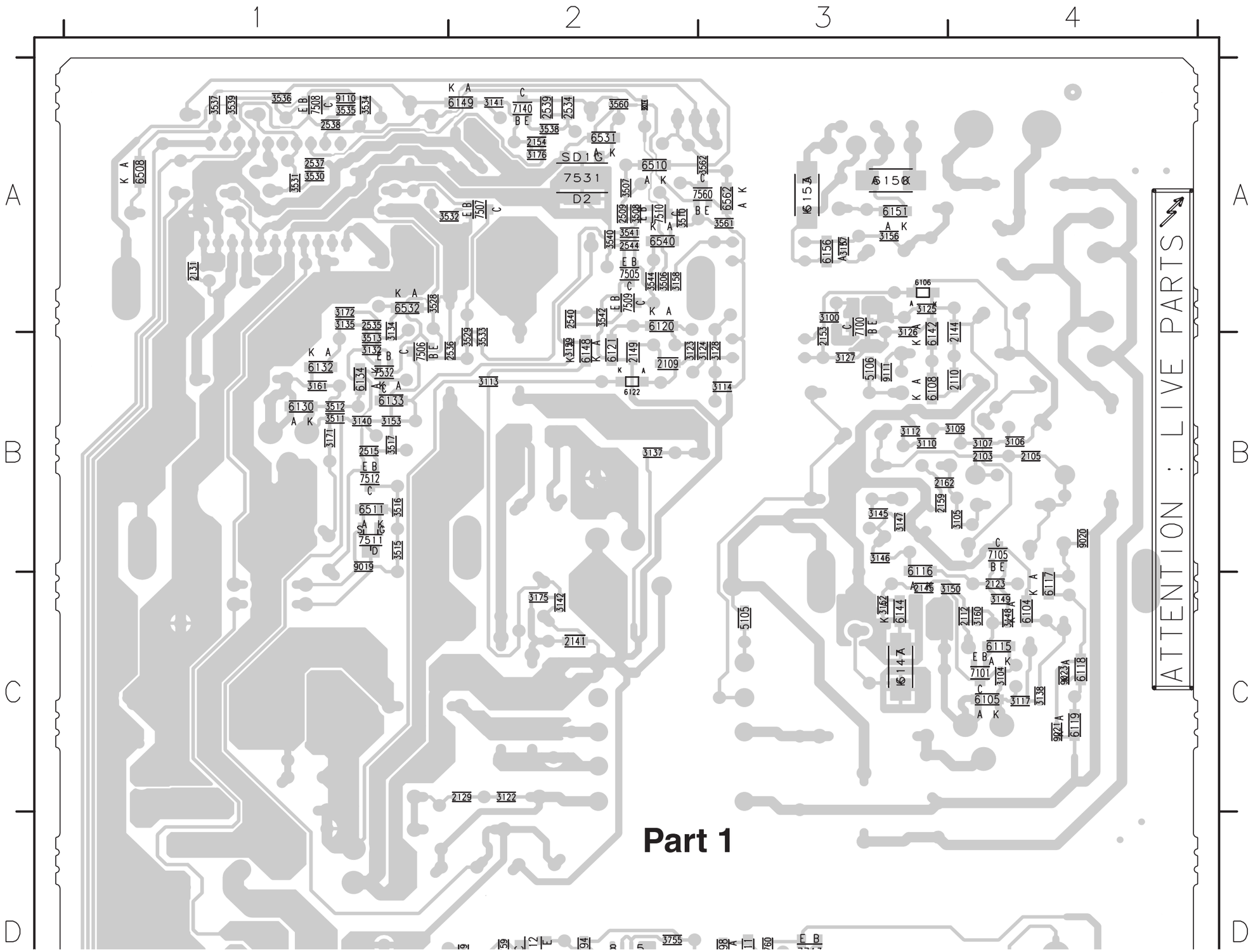
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1307 A2 5712 E1
1309 D4 5720 E2
1310 A3 5722 E3
1311 B4 5723 E3
1312 F4 5730 G2
1313 G4 5731 G1
1314 G4 5732 G3
1315 F4 6103 B2
1316 G4 6107 C4
1317 F4 6113 B3
1318 F4 6114 B2
1320 E4 6125 A3
1735 G1 6140 C3
1736 G1 6504 D3
1737 G3 6505 C4
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2107 A1 9005 E4
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2783 G1 9069 A4
2785 E3 9070 A4
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Layout LCD Standby Audio Panel (Overview Bottom Side)

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3750 G4 9003 F1
3751 G3 9008 F1
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3753 G3 9019 B1
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3755 D2 9021 C4
3756 G3 9023 C4
3757 G4 9074 A2
3758 D3 9110 A1
3759 D2 9111 B3
3760 D3 9717 E4
3761 F2 9718 E2
3762 F2 9737 F4
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3764 F2
3765 E2
3766 F2
3767 E2
3768 F2
3790 F4
3791 F3
3792 F3
3793 F4
3794 E3
3795 E3
3796 E3
3797 E3
3798 G2
3999 D2
5105 C3
5106 B3
5703 F4
5705 F2
6104 C4
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6106 A3
6108 B3
6115 C4
6116 B3
6117 B4
6118 C4
6119 C4
6120 A2
6121 B2
6122 B2
6130 B1
6132 B1
6133 B1
6134 B1
6142 B3
6144 C3
6147 C3
6148 B2
6149 A2
6150 A3
6151 A3
6153 A3
6156 A3
6508 A1
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6531 A2
6532 A1
6540 A2
6562 A3
6701 G2
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6704 G2
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6711 D3
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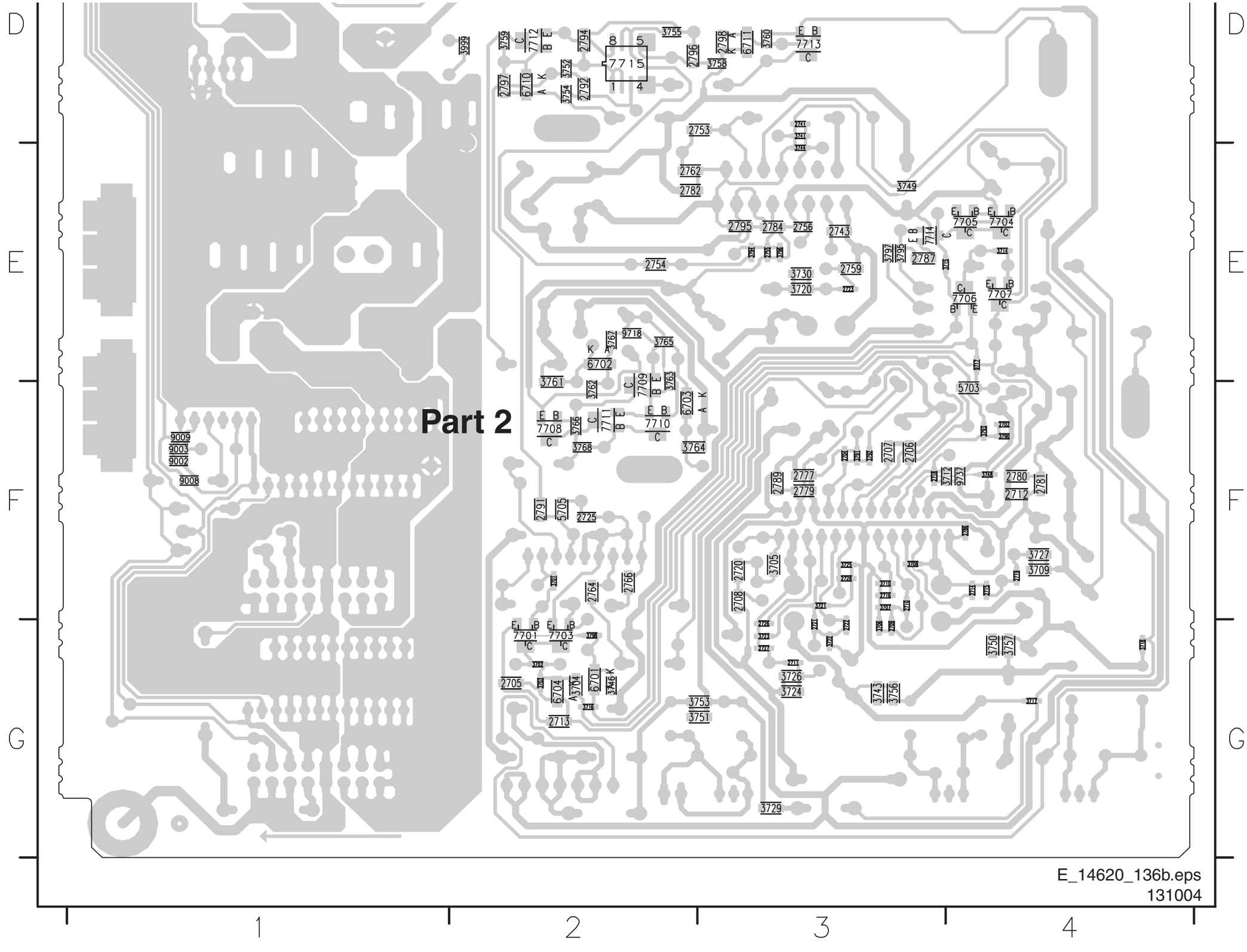


Layout LCD Standby Audio Panel (Part 1 Bottom Side)



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131004

Layout LCD Standby Audio Panel (Part 2 Bottom Side)



Personal Notes:

E_06532_013.eps
131004

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments

Note: 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 AC Power 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 chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: It is not allowed to use heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.1.1 Initial Settings

Perform all electrical adjustments with the following initial settings:

1. To avoid the working of the lightsensor, set "Active Control" to "Off" (via the "Active Control" button on the RC).
2. Set "Smart Picture" to "Natural" or “Soft” (via the "Smart Picture" button on the RC).

8.1.2 Alignment Sequence

- First, set the correct options:
  - In SAM, select OPTIONS,
  - Fill in the option settings according to the set sticker (see also paragraph "Option Settings"),
  - Store the OPTIONS by switching the set to STAND-BY.
- Warming up (>15 minutes).
- White-D alignment.

8.2 Hardware Alignments

8.2.1 Backlight Voltage Alignment

Switch the set "on" and measure the voltage between pin 3 (or 4) of connector 1304 (on MF panel) and ground. Align R3026 until this voltage is 12.2 V_{DC} +/- 0.1 V.

Caution: This voltage must be aligned very precisely (within 1%): when it is too high, it can destroy the inverters. When it is too low, the backlight will not start up.

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM), Options can be set and the WHITE TONE, TUNER (IF) and AUDIO settings can be aligned.

To store the data: Use the RC button MENU to switch to the main menu and then switch to STAND-BY mode.

For the next alignments, supply the following test signals via a video generator to the RF input:

- **EU/AP-PAL** models: a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC** models: an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).
- **LATAM** models: an NTSC M or PAL M TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

8.3.1 SAM Menu

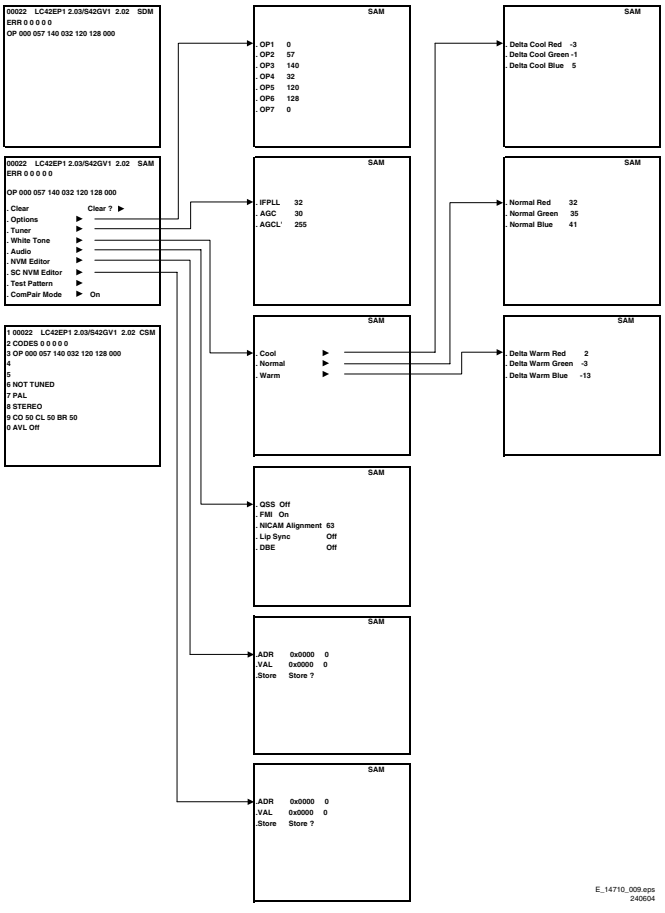


Figure 8-1 Overview SAM menu (example from EU set).

8.3.2 White Tone

Method 1 (with color analyzer):

1. Supply a 100% white uniformity test signal (100 IRE white) to the tuner.
2. Enter SAM menu (color features are switched “off” automatically).
3. Do NOT change the SMART PICTURE, ACTIVE CONTROL, and CONTRAST+ settings to prevent activating of Green Enhancement, Blue Stretch, and Black Stretch.

Offset values in NVM are used for HD-, HDMI-, and VGA mode, therefore only the settings in TV mode need to be set.

Make the following settings in the normal **user menu**, when the television is in TV Mode:

Table 8-1 User menu settings for White Tone alignment

	LCD (AUO)	LCD (LPL)	Plasma (SDI)
CONTRAST	99		
BRIGHTNESS	42 (EU) 44 (US)	46	46 (AP+EU) 48 (US+LA)
COLOR/SAT.	50 (AP+LA+US) 60 (EU)		

Go to WHITE TONE in SAM and set NORMAL GREEN to:

Table 8-2 Service menu settings for White Tone alignment

	LCD (AUO)	LCD (LPL)	Plasma (SDI)
NORMAL GREEN	200		180

1. Measure with a calibrated (phosphor- independent) color analyzer (e.g. Minolta CA-200) in the center of the screen (use a contact less analyzer, e.g. Minolta CA-210, to align the LCD TV). The analyzer may not touch the screen, and the measurement must be done in a dark environment.
   Note: The color analyzer must be calibrated for the LCD or Plasma panel in question. See the manual of the color analyzer for the procedure on how to perform this calibration.
2. Leave the value with the lowest output on the initial value.
3. Align the NORMAL white points, by lowering the other two colors, to the right x-y coordinates (see table "White Tone alignment values").
   Note: To prevent clipping of the color, these values must only be lowered!

Table 8-3 White Tone alignment values

	NORMAL color temp. (all regions)
X	0.289
Y	0.299

Only the values for NORMAL are aligned with X, Y values. The delta values for COOL and WARM are given below.

Table 8-4 Fixed delta values

Screen Type	Color temp.	RED	GREEN	BLUE
LCD (AUO)	DELTA COOL	-3	-12	+10
	DELTA WARM	+5	-5	-20
LCD (LPL)	DELTA COOL	-8	-12	+3
	DELTA WARM	+2	-10	-21
Plasma	DELTA COOL	-6	-10	+5
	DELTA WARM	+4	-5	-19

After the alignment is finished, switch the set to STANDBY, in order to store the alignments.
Note: When disconnecting the power before doing this, the settings will not be stored.

Method 2 (without color analyzer):
If you do not have a color analyzer, you can use the default values. These values are based on the average values in production.

- Set the values for the NORMAL color temperature. Given in the table “Average statistical values for NORMAL” from production.
- Set the delta values for the COOL and WARM mode. See table: “Fixed delta values.”

After the alignment is finished, switch the set to STANDBY, in order to store the alignments.
Note: When disconnecting the power before doing this, the settings will not be stored.

Table 8-5 Average statistical values for “NORMAL”

Display type	Colour Temp.	RED	GREEN	BLUE
LCD (AUO)	NORMAL	165	182	200
LCD (LPL)	NORMAL	200	195	190
Plasma 37“ (SDI)	NORMAL	174	180	178
Plasma 42” (SDI)	NORMAL	173	180	172
Note: Values are valid for all regions				

8.3.3 Tuner Adjustment

AGC (RF AGC Take Over Point)
Set pattern generator (e.g. PM5580) with color bar pattern and connect to aerial input with RF signal amplitude -10mV and set frequency for NTSC to 61.25 MHz (channel 3).

- Activate the SAM-menu. Go to the sub-menu TUNER, select the sub-menu option AFC WINDOW and adjust the value to “100 kHz”.
- Select the AGC sub-menu.
- Connect a DC multi-meter to test point F306 or pin1 of the tuner.
- Adjust the AGC until the voltage at pin 1 of the tuner is 3.3 V +0.5 / -1.0.
- The value can be increased or decreased by pressing the RIGHT/LEFT cursor button on the RC.
- Switch the set to STAND-BY to store the data.

8.3.4 Grey Scale Adjustment

SDTV Grey Scale Adjustment

Equipment and setting

- E.g. Fluke 54200 or Philips PM5580.
- 100% “8-step grey scale” pattern.

Alignment Method

- Switch with the RC to TV mode,
- Press the MUTE button on RC,
- Set SMART PICTURE to SOFT mode,
- Activate the auto color function by pressing key-sequence: INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results

- Visual check if the 8 Grey levels are correct.

Analog PC Grey Scale Adjustment

Equipment and setting

- Quantum Data 802B.
- PC input signal, with 64 levels Grey scale pattern, 1024x768 @ 60Hz (Format= 81:DMT1060, Pattern= 123:Grey 64).
- PC input at D-sub VGA connector.

Alignment Method

- Switch with the RC to PC mode.
- Press the MUTE button on RC.
- Set BRIGHTNESS and CONTRAST to nominal “50”.
- Activate the auto color function by pressing key-sequence: INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results

- Visual check if the 64 Grey levels are correct.

HD Grey Scale Adjustment

Equipment and setting
- Quantum Data 802B.
- HD input signal, Top half 100% color bar and bottom half Grey scale pattern,1920x1080i@60Hz YPbPr (Format= 1080i30, Pattern= HDBar100).
- HD input at D-sub VGA connector.

Alignment Method
- Switch with the RC to HD mode.
- Press the MUTE button on RC.
- Activate the auto color function by pressing key-sequence: INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results
- Visual check if Color bar tint and Grey scale is correct.

8.3.5 Sound

No adjustments needed for sound.

8.3.6 Options

Options are used to control the presence/absence of certain features and hardware.
See for an overview, the table on the next page.

How to change an Option Byte
An Option Byte represents a number of different options. Changing these bytes directly makes it possible to set all options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the cursor UP/ DOWN keys, and enter the new value.

Leaving the OPTION sub menu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched “off” and “on” with the AC power switch (cold start).

Table 8-6 Option codes (general overview for all regions and displays)

Bit (DEC)	Option	Description	/78 (LATAM)	/61 (AP-NTSC)	/69 ,79 ,98 (AP-PAL)	/93 (China)	/10, /12 (Europe)	/17, /37 (NAFTA)	Remarks
7 (128)	OP_PHILIPS_TUNER	Philips Tuner available	1	1	1	1	1	1	
6 (64)	OP_FM_RADIO	FM Radio available	0	0	0	0	0	0	
5 (32)	OP_LNA	Low Noise Amplifier available	0	0	0	0	0	0	
4 (16)	OP_ATS	Auto Tuning System	0	0	0	0	1	0	
3 (8)	OP_ACI	ACI	0	0	0	0	1	0	
2 (4)	OP_UK_PNP	After virgin = English + Great Britain	0	0	0	0	0	0	
1 (2)	OP_VIRGIN_MODE	Activate Plug & Play menu at start-up	0	0	0	0	0	0	
0 (1)	OP_CHINA	AP-PAL tuning algorithm for China	0	0	0	1	0	0	
OP1:			**128**	**128**	**128**	**129**	**152**	**128**	
7 (128)	OP_SMART_SOUND	Four smart sound settings	1	1	1	1	1	1	
6 (64)	OP_UI_GREEN	UI for Magnavox sets (NAFTA)	0	0	0	0	0	0	
5 (32)	OP_CHANNEL_NAMING	Naming of channel feature available	1	1	1	1	0	1	
4 (16)	OP_LTI	Histogr. algorithm available (TDA9178)	1	1	1	1	1	1	
3 (8)	OP_TILT	Picture Rotation available	0	0	0	0	0	0	
2 (4)	OP_FINE_TUNING	Fine Tuning algorithm available	1	1	1	1	1	1	
1 (2)	OP_PIP_PHILIPS_TUNER	PIP Philips tuner	0	0	0	0	0	0	
0 (1)	OP_HUE	Tint for NTSC transmission	1	1	0	0	0	1	
OP2:			**181**	**181**	**180**	**180**	**148**	**181**	
7 (128)	OP_EW_FUNCTION	Geometry adj. for Large screen sets	0	0	0	0	0	0	
6 (64)	OP_2TUNER_PIP	Double Tuner for PIP available	0	0	0	0	0	0	
5 (32)	OP_PIP_SPLITTER	Not used	0	0	0	0	0	0	
4 (16)	OP_SPLITTER	Not used	0	0	0	0	0	0	
3 (8)	OP_VIRTUAL_DOLBY	Virtual Dolby Effect	1	1	1	1	1	1	
2 (4)	OP_WIDE_SCREEN	16:9 sets	1	1	1	1	1	1	
1 (2)	OP_WSSB	Wide Screen Signalling Bit detection	0	0	1	0	1	0	
0 (1)	OP_ECO_SUBWOOFER	Sub woofer available	0	0	0	0	0	0	
OP3:			**12**	**12**	**14**	**12**	**14**	**12**	
7 (128)	OP_LIP_SYNC	Lip Synchronisation Circuit available	0	0	0	0	0	0	Not for LCD
6 (64)	OP_NOTUSED2	Not used	0	0	0	0	0	0	
5 (32)	OP_ULTRA_BASS	Ultra Bass Boost available	0	0	0	0	0	0	
4 (16)	OP_DELTA_VOLUME	Delta Volume feature available	0	0	0	0	1	0	EU only
3 (8)	OP_NOTUSED3	Not used	0	0	0	0	0	0	
2 (4)	OP_NOTUSED4	Not used	0	0	0	0	0	0	
1 (2)	OP_STEREO_DBX	Stereo DBX for NTSC available	1	0	0	0	0	1	NTSC only
0 (1)	OP_STEREO_NICAM_2CS	Stereo NICAM 2CS available	0	0	1	0	1	0	
OP4:			**2**	**0**	**1**	**0**	**17**	**2**	
7 (128)	OP_AV1	External Source 1 available	1	1	1	1	1	1	
6 (64)	OP_AV2	External Source 2 available	1	1	1	1	1	1	
5 (32)	OP_AV3	External Source 3 (Side AV) available	1	1	1	1	1	1	
4 (16)	OP_CVI	Component Video In available	1	1	1	1	0	1	Not for EU
3 (8)	OP_SVHS2	Super Video Home System 2 available	1	0	0	0	0	0	
2 (4)	OP_SVHS3	Super Video Home System 3 available	1	0	0	0	0	0	
1 (2)	OP_HOTEL_MODE	LATAM specific simplified Hotel Mode	0	0	0	0	0	0	
0 (1)	OP_NOTUSED	Not used	0	0	0	0	0	0	
OP5:			**252**	**240**	**240**	**240**	**224**	**240**	
7 (128)	OP_PERSONAL_ZAPPING	Zapping of channels feature available	0	0	0	0	0	0	
6 (64)	OP_SMART_SURF	Surf List available	1	0	0	0	0	0	
5 (32)	OP_FMTRAP	FM trap available	0	0	0	0	0	0	
4 (16)	OP_COMBFILTER	comb filter available	1	1	1	1	1	1	In Hercules
3 (8)	OP_ACTIVE_CONTROL	Auto Picture Impr. feature available	1	1	1	1	1	1	
2 (4)	OP_SMART_LOCK	Toggle Child Lock & Lock Chan. enabled	1	1	1	1	1	1	
1 (2)	OP_LIGHT_SENSOR	Light Sensor enabled	1	1	1	1	1	1	
0 (1)	OP_TWIN_TEXT	2 txt pages on screen available	0	0	1	1	1	0	
OP6:			**94**	**30**	**31**	**31**	**31**	**30**	
7 (128)	OP_TIME_WIN1	1= 5 s, 0= 2 s (Europe fixed 1.2 s)	1	1	0	1	0	1	
5, 6	not used		0	0	0	0	0	0	
4 (16)	OP_3DCOMB	3D comb filter available	0	1	0	0	0	1	NTSC only
AP-PAL									
3 (8)	OP_COLOR_SYSTEM_AP	1: Auto, PAL 4.43, NTSC 4.43, NTSC 3.58, SECAM 0: OFF- Auto, PAL 4.43, NTSC 4.43, NTSC 3.58	0	0	1	0	0	0	
2 (4)	OP_SOUND_SYSTEM_AP_1	000: BG 001: BG / DK 010: I / DK 011: BG / I / DK	0	1	1	1	0	0	
1 (2)	OP_SOUND_SYSTEM_AP_2	100: BG / I / DK / M	0	0	0	0	0	0	
0 (1)	OP_SOUND_SYSTEM_AP_3		0	0	0	0	0	0	
EUROPE									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7	Not used	0	0	0	0	0	0	
1 (2)	OP_WEST_EU	West Europe Set (0 - East Europe Set) by default "on"	0	0	0	0	1	0	
0 (1)	OP_MULTI_STANDARD_EUR	For Europe multi standard set	0	0	0	0	1	0	
LATAM									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7		0	0	0	0	0	0	
1 (2)	OP_SYSTEM_LT_1	00: NTSC-M, 01: NTSC-M, PAL-M, 10: NTSC-M, PAL-	0	0	0	0	0	0	
0 (1)	OP_SYSTEM_LT_2	M, PAL-N, 11: NTSC-M, PAL-M, PAL-N, PAL-BG	0	0	0	0	0	0	
NAFTA & AP-NTSC									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7	Not used	0	0	0	0	0	0	
1 (2)	OP_DUMMY8	Not used	0	0	0	0	0	0	
0 (1)	OP_DUMMY9	Not used	0	0	0	0	0	0	
OP7:			**128**	**148**	**12**	**132**	**3**	**144**	

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

Index of this chapter:

9.1 Introduction
9.2 Block Diagram
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9.6 Video: TV Part (diagrams A1, A2, and A3)
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9.8 Audio Processing
9.9 Control
9.10 Abbreviation List
9.11 IC Data Sheets

Note:

- Only **new** (not recently published) circuits are described here. For the other circuit descriptions, see a.o. the A02, FTL13, and FTL2.1 Service Manuals.
- 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 and circuit diagrams. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

The LC4.6 LCD TV is a global LCD TV for the year 2004. It is the successor of the LC03 LCD TV and covers screens size 30 inch with a new styling called “Entry”.
This chassis has the following (new) features:

- **Audio**: The sound processor is part of the UOC processor (called “Hercules”).
- **Video**: Enhanced video features, video drivers, Active Control and multiple PIP.

The architecture consists of a TV and Scaler panel, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel.

The functions for video/audio processing, microprocessor (uP), and CC/Teletext (TXT) decoder are all combined in one IC (TDA120xx, item 7011), the so-called third generation Ultimate One Chip (UOC-III) or “Hercules”. This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/ Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF.
- FM sound, no traps/bandpass filters.
- Full multi-standard color decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, color decoder, and stereo sound processor).

9.2 Block Diagram

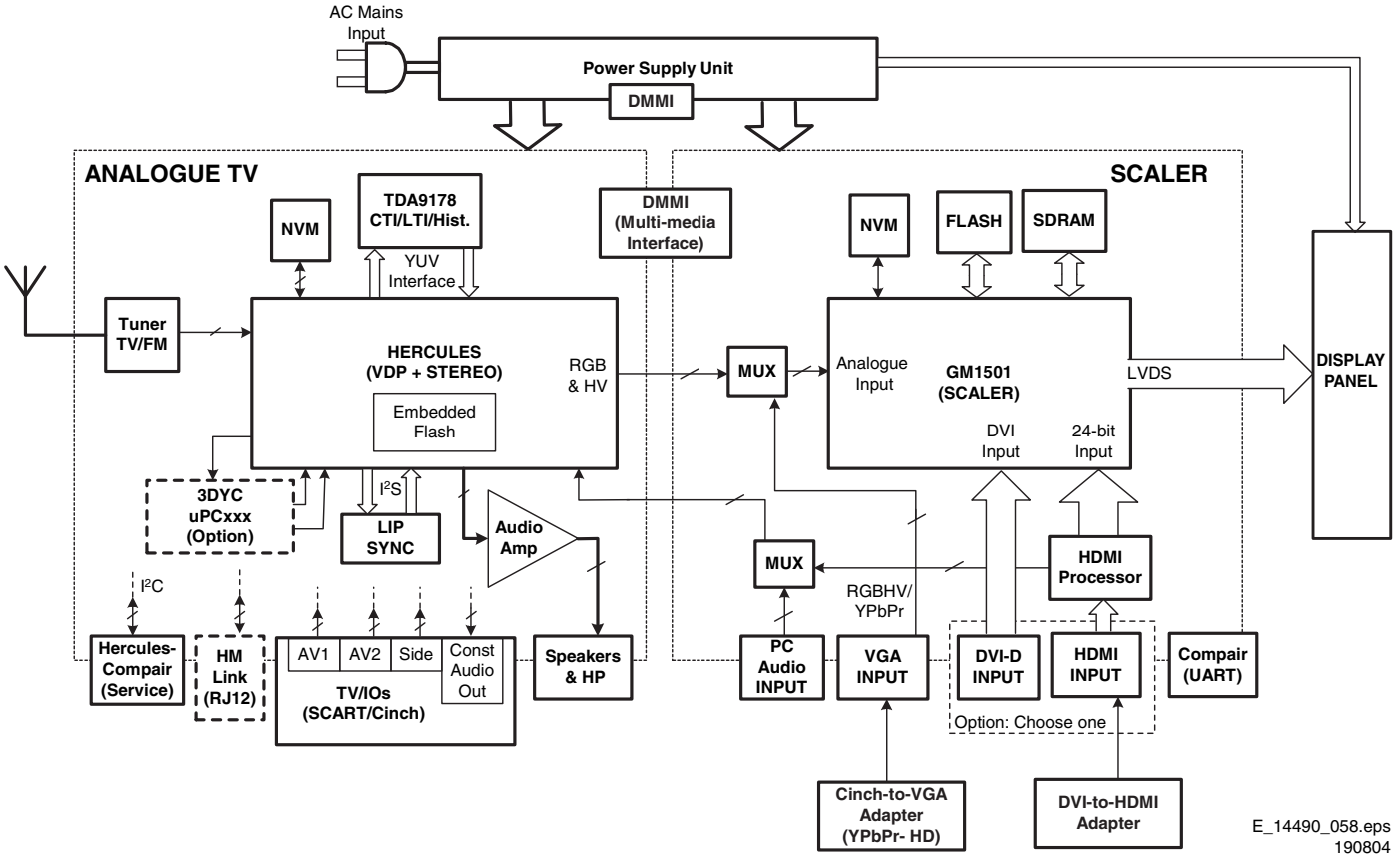


Figure 9-1 Block Diagram

The PLL tuner delivers the IF-signal, via audio & video SAW-filters, to the Video Signal Processor with FLASH embedded TEXT/Control/Graphics m-Controller (TCG m-Controller) and US Closed Caption decoder. TDA120x1 (item 7011, also called Hercules). This IC has the following functions:
- Analogue Video Processing.
- Sound Demodulation.
- Audio Interfaces and switching.
- Volume and tone control for loudspeakers.
- Reflection and delay for loudspeaker channels.
- Micro Controller.
- Data Capture.
- Display.

The Hercules has one input for the internal CVBS signal and a video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed. The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two AV inputs with CVBS, Y/C and YUV, a PC (VGA) input, and an HDMI input. The side has a CVBS and Y/C (SVHS) input. The video part delivers the RGB signals to the Scaler IC.

The Genesis GM1501 Malibu Scaler IC can receive different video input signals: SDTV (from Hercules), DVI/HDMI (from external DVI/HDMI source), or PC (VGA) (from external computer).

After the video processing, the digital data is send via a Low Voltage Differential Signalling bus to the LCD panel. LVDS is used to improve data speed and to reduce EMI significantly.

There are two I^2C lines and two interrupt and communication lines (TV_IRQ and TV_SC_COM) for the Scaler control. The Scaler communicates with the Hercules as a slave device. To avoid buffer overflow at the Scaler side, the TV_SC_COM line provides the necessary hardware flow control. To allow bi-directional communication, the Scaler can initiate a service interrupt-request to the Hercules via the TV_IRQ line.

The Hercules, and EEPROM are supplied with 3.3 V, which is also present during STANDBY.

The EEPROMs, or NVMs (Non Volatile Memory) are used to store the settings.

The sound part is built up around the Hercules. The Source Selection, Decoding and Processing are all done by the Hercules.

Power supply input are several DC voltages coming from a supply panel.

9.3 Power Supply LCD

See the FTL2.1 manual for a detailed description.

9.4 Input/Output

The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two AV inputs with CVBS, Y/C and YUV, a PC (VGA) input, and an HDMI input. The side has a CVBS and Y/C (SVHS) input.

AV1: The input of AV1 is CVBS + YUV + L/R.

AV2: The input of AV2 is Y/C + CVBS + L/R.

PC (VGA) in: This input is directly going to the Scaler IC. See paragraph “Video: Scaler Part”.

HDMI in: This input is directly going to the Scaler IC. See paragraph “Video: Scaler Part”.

The selection of the external I/O's is controlled by the Hercules.

9.5 Tuner and IF (diagram A1)

A Philips UV13xx Tuner is used in the TV board. The SIF signals are decoded by the Hercules. Tuning is done via I^2C.

9.5.1 Video IF amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (1328) and one for IF-audio (1330). The type of these filters is depending of the standard(s) that has to be received.

The output of the tuner is controlled via an IF-amplifier with AGC-control. This is a voltage feedback from pin 31 of the Hercules to pin 1 of the tuner. The AGC-detector operates on top sync and top white level. AGC take-over point is adjusted via the service alignment mode "Tuner” - “AGC". If there is too much noise in the picture, then it could be that the AGC setting is wrong. The AGC-setting could also be mis-aligned if the picture deforms with perfect signal; the IF-amplifier amplifies too much.

9.6 Video: TV Part (diagrams A1, A2, and A3)

The video processing is completely handled by the Hercules:
- IF demodulator.
- Chrominance decoder
- Sync separator.
- Horizontal & vertical drive.
- RGB processing.
- CVBS and SVHS source select.

It has also build in features like:
- CTI.
- Black stretch.
- Blue stretch.
- White stretch.
- Slow start up.
- Dynamic skin tone correction etc.

Further, it also incorporates sound IF traps and filters, and requires only one crystal for all systems.

9.6.1 Histogram (YUV picture improvement) IC

The demodulated video-signal can be checked on pins 74, 75, and 76 of IC7011 and is fed to pins 70, 71, and 72. In this path, the Histogram IC TDA9171 is inserted.
This TDA9178 can control various picture improvements:
- Histogram processing.
- Color transient improvement.
- Luminance transient improvement.
- Black and white stretch.
- Skin tone correction.
- Green enhancement.
- Blue stretch.
- Smart peaking.
- Video dependent coring.
- Color dependent stretching.

Since the TDA9171 is connected to the Hercules, picture improvement works only for signals that are routed through the Hercules and not for signals directly connected to the Scaler.

9.7 Video: Scaler Part (diagram A7 and A13)

The Genesis GM1501 Scaler is a dual channel graphics and video processing IC for LCD monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD TV, e.g. like the deflection circuit in a CRT-based TV. It controls all the view modes (e.g. like "zooming" and "shifting"). Features like PC (VGA) or HD inputs, are also handled by this part.

9.7.1 Features

The Scaler provides several key IC functions:
- Scaling.
- Auto-configuration/ Auto-Detection.
- Various Input Ports:
  - Analog RGB.
  - Video Graphics.
- Integrated LVDS Transmitter.
- On-chip Micro-controller.

9.7.2 Inputs

Analog RGB
The RGB input is fed to pins B2, C2 and D2. This input consists of either the Hercules RGB output or the RGB/YPbPr input of the VGA connector. The Scaler can switch between the two signals via the PC_HD_SEL signal and selection IC SM5301.

PC (VGA) input
The VGA input is processed by the VGA block of the Scaler. The Scaler supports pixel frequencies up to 165 MHz. YPbPr format is also supported via the VGA interface and covers resolutions of: 480p/560p/720p/1080i.

HDMI input
HDMI input signals are fed to the HDMI Panellink Receiver (item 7808 on diagram A12). This IC consists of a flexible audio and video interface.
The video part delivers RGB/YPbPr output, that directly is fed to the Scaler.
The audio part delivers a 2-channel I2S digital audio signal that is fed to the audio DAC (item 7809). After DA conversion, the signals are fed to the Hercules.
Note: For more information about the HDMI signals see the A02 Service Manual.

9.7.3 Output

The Display Output Port provides data and control signals that permit the Scaler to connect to a variety of display devices using a TTL or LVDS interface. The output interface is configurable for single or dual wide TTL/LVDS in 18, 24 or 30-bit RGB pixels format. All display data and timing signals are synchronous with the DCLK output clock. The integrated LVDS transmitter is programmable to allow the data and control signals to be mapped into any sequence depending on the specified receiver format.

9.8 Audio Processing

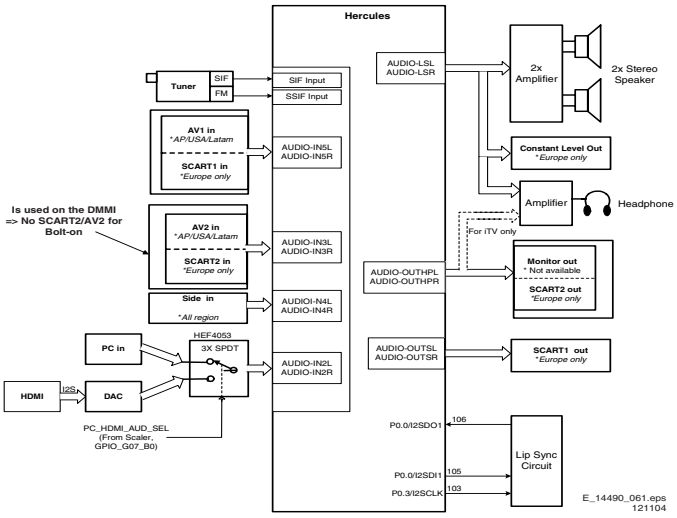


Figure 9-2 Block diagram audio processing

The audio decoding is done entirely via the Hercules. The IF output from the Tuner is fed directly to either the Video-IF or the Sound-IF input depending on the type of concept chosen. There are mainly two types of decoder in the Hercules, an analogue decoder that decodes only Mono, regardless of any standards, and a digital decoder (or DEMDEC) that can decode both Mono and Stereo, again regardless of any standards.

In this chassis, the analogue decoder is used in two cases:
- It is used for AM Sound demodulation in the Europe SECAM LL' transmission.
- It is used for all FM demodulation in AV-Stereo sets.

9.8.1 Diversity

The diversity for the Audio decoding can be broken up into two main concepts:
- The Quasi Split Sound concept used in Europe and some AP sets.
- The Inter Carrier concept, used in NAFTA and LATAM.

The UOC-III family makes no difference any more between QSS- and Intercarrier IF, nearly all types are software-switchable between the two SAW-filter constructions.

Simple data settings are required for the set to determine whether it is using the Inter Carrier or the QSS concept. These settings are done via the "QSS" and "FMI" bit found in SAM mode. Due to the diversity involved, the data for the 2 bits are being placed in the NVM location and it is required to write once during start-up.

On top of that, it can be further broken down into various systems depending on the region. The systems or region chosen, will in turn affect the type of sound standard that is/are allowed to be decoded.
- For Europe, the standard consists of BG/DK/I/LL' for a Multi-System set. There are also versions for Eastern Europe and Western Europe and the standard for decoding will be BG/DK and I/DK respectively. FM Radio is a feature diversity for the Europe. The same version can have either FM Radio or not, independent of the system (e.g. sets with BG/DK/I/LL' can have or not have FM radio).
- For NAFTA and LATAM, there is only one transmission standard, which is the M standard. The diversity then will be based on whether it has a dBx noise reduction or a Non-dBx (no dBx noise reduction).
- For AP, the standard consists of BG/DK/I/M for a Multi-System set. The diversity here will depend on the region.

AP China can have a Multi-System and I/DK version. For India, it might only be BG standard.

9.8.2 Functionality

The features available in the Hercules are as follows:
- Treble and Bass Control.
- Surround Sound Effect that includes:
  - Incredible Stereo.
  - Incredible Mono.
  - 3D Sound (not for AV Stereo).
  - TruSurround (not for AV Stereo).
  - Virtual Dolby Surround, VDS422 (not for AV Stereo).
  - Virtual Dolby Surround, VDS423 (not for AV Stereo).
  - Dolby Pro-Logic (not for AV Stereo).
- Bass Feature that includes:
  - Dynamic Ultra-Bass.
  - Dynamic Bass Enhancement.
  - BBE (not for AV Stereo).
- Auto-Volume Leveller.
- 5 Band Equalizer.
- Loudness Control.

All the features stated are available for the Full Stereo versions and limited features for the AV Stereo.

9.8.3 Audio Amplifier Panel (diagram SA3)

Introduction
This panel contains the audio filters and amplifiers necessary for driving the speakers.
The audio inputs come from the SSB (via connector 1739).
The PSU delivers the positive and negative supply voltage of 16 V_{DC}.
After being filtered and amplified, the signals go to the speaker section, where the full range speakers are driven (load impedance is 8 ohm).

Amplifier
The amplifier is an integrated class-D amplifier (TDA7490). It combines a good performance with a high efficiency, resulting in a big reduction in heat generation.

Principle
Audio-power-amplifier systems have traditionally used linear amplifiers, which are well known for being inefficient. In fact, a linear Class AB amplifier is designed to act as a variable resistor network between the power supply and the load. The transistors operate in their linear region, and the voltage that is dropped across the transistors (in their role as variable resistors) is lost as heat, particularly in the output transistors. Class D amplifiers were developed as a way to increase the efficiency of audio-power-amplifier systems.

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 (RDS(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 (via R3723/3708).

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 **disadvantag**e is the large output filter that drives up cost and size. 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. The filter is less lossy than the speaker, which causes less power dissipated at high output power and increases efficiency in most cases.

Mute
A mute switch (item 7701) is provided at pin 6. This switch is controlled by the SOUND_ENABLE line from the Hercules (mute during operation).

Protections
Because of the symmetrical supply, a DC-blocking capacitor, between the amplifier and the speaker, is not necessary. However, it is still necessary to protect the speaker for DC voltages. Therefore, the following protections are therefore implemented:
- Via R3765 and R3767, each stabilised supply voltage line is checked on deviations.
- Via R3718 and 3717, each amplifier output is checked for DC-voltage.

9.8.4 Audio: Lip Sync (Optional)

A “lip sync” circuit with an audio delay can be added (not for all models/regions), in order to synchronise with video delay due to the complexity of the display processing. This video delay is significant, due to memory based processing. For instance, the “frame rate conversion” cause a delay of two frames, while the LCD panel response also cause a delay.

The circuit is a (16 bit) FIFO based digital delay. E.g.: the memory size required for a 80 ms delay (with a data clock of 1.024 MHz) can be calculated with: Memory size = delay time * f_clk. This gives: 80 ms * 1.024 MHz = 81920 bits.

To calculate the memory size for a 16 bits mode I2S digital audio stream we must use the following data:
- f_s = 32 kHz, 16 bits, stereo
- Data clock = 32 kHz * 16 * 2 = 1.024 MHz
- Memory size for 1 ms delay = 1 ms * 1.024 MHz = 1024 bits = 1 kbit

So, the delay time of 80 ms can be built with five steps of 16 ms, which is close to the frame rate. Therefore, a 128 kbit SRAM (16 x 8) is chosen.

Note that above described calculation is just an example, values in the set can deviate.

9.9 Control

9.9.1 Hercules

The System Board has two main micro-controllers on board. These are:
- On-chip x86 micro-controller (OCM) from Genesis LCD TV/ Monitor Controller.
- On-chip 80C51 micro-controller from Philips Semiconductors UOCIII (Hercules) series.

Each micro-controller has it own I^2C bus which host its own internal devices.
The Hercules is integrated with the Video and Audio Processor. For dynamic data storage, such as SMART PICTURE and SMART SOUND settings, an external NVM IC is being used. Another feature includes an optional Teletext/Closed Caption decoder with the possibility of different page storage depending on the Hercules type number.

The Micro Controller ranges in ROM from 128 kB with no TXT-decoder to 128 kB with a 10 page Teletext or with Closed Caption.

9.9.2 Block Diagram

The block diagram of the Micro Controller application is shown below.

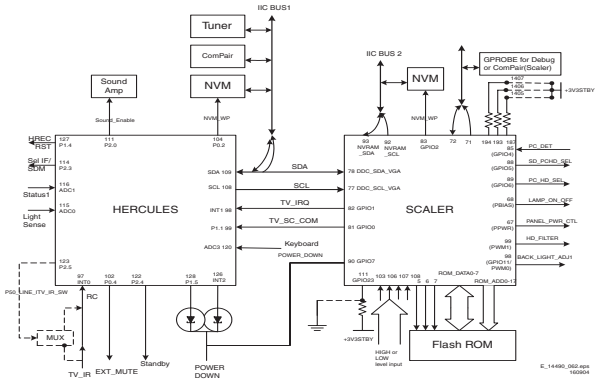


Figure 9-3 Micro Controller block diagram

9.9.3 Basic Specification

The Micro Controller operates at the following supply voltages:
- +3.3 V_{DC} at pins 4, 88, 94, and 109.
- +1.8 V_{DC} at pins 93, 96, and 117.
- I^2C pull up supply: +3.3 V_{DC}.

9.9.4 Pin Configuration and Functionality

The ports of the Micro Controller can be configured as follows:
- A normal input port.
- An input ADC port.
- An output Open Drain port.
- An output Push-Pull port.
- An output PWM port.
- Input/Output Port

The following table shows the ports used for the L04 control:

Table 9-1 Micro Controller ports overview

Pin	Name	Description	Configuration
97	INT0/ P0.5	IR	INT0
98	P1.0/ INT1	TV_IRQ	INT2
99	P1.1/ T0	TV_SC_COM	P1.1
102	P0.4/ I2SWS	EXT_MUTE	P0.4
103	P0.3/ I2SCLK	Lip Sync	I2SCLK
104	P0.2/ I2SDO2	NVM_WP	P0.2
105	P0.1/ I2SDO1	Lip Sync	I2SDO1
106	P0.0/ I2SDI/O	Lip Sync	I2SDI/O
107	P1.3/ T1	PC-TV_LED	P1.3
108	P1.6/ SCL	SCL	SCL
109	P1.7/ SDA	SDA	SDA
111	P2.0/ TPWM	SOUND_ENABLE	P2.0
112	P2.1/ PWM0	(for future use)	-
113	P2.2/ PWM1	(for future use)	-
114	P2.3/ PWM2	SEL_IF	P2.3
115	P3.0/ ADC0	Light Sensor - SDM	ADC0
116	P3.1/ ADC1	STATUS_1	ADC1
119	P3.2/ ADC2	STATUS_2	ADC2
120	P3.3/ ADC3	KEYBOARD	ADC3
122	P2.4/ PWM3	STANDBY	P2.4
123	P2.5/ PWM4	(for future use)	-
126	P1.2/ INT2	(for future use)	-
127	P1.4/ RX	HERC_RESET	-
128	P1.5/ TX	POWER_DOWN	P1.5

The description of each functional pin is explained below:
- **LED.** This signal is used to drive the LED for Stand-by, Remote, and Error Indication:
  - During protection mode, the LED blinks and the set is in Stand-by mode.
  - During error conditions it blinks at a predefined rate.
  - After receiving a valid RC or local keyboard command it flashes once.
  - For sets with error message indication, the LED blinks when message is active and the set is in Stand-by mode.
- **SCL.** This is the clock wire of the two-wire single master bi-directional I^2C bus.
- **SDA.** This is the data wire of the two-wire single master bi-directional I^2C bus.
- **STANDBY.** The Hercules generates this signal. This can enable the power supply in normal operation and disable it during Stand-by. It is of logic “high” (3.3 V) under normal operation and “low” (0 V) during Stand-by.
- **IR.** This input pin is connected to an RC5 remote control receiver.
- **SEL-IF.** This is an output pin to switch the Video SAW filter between M system and other systems.
  - 0: NTSC M (default).
  - 1: PAL B/G, DK, I, L.
- **NVM_WP.** The global protection line is used to enable and disable write protection to the NVM. When write to the NVM is required, pin 7 of the NVM must be pulled to logic “0" first (via Write_Protect of the micro-controller pin) before a write is performed. Otherwise pin 7 of NVM must always be at logic “1”
  - 0: Disabled.
  - 1: Enabled (default).
- **SOUND_ENABLE.** This pin is use to MUTE the audio amplifier. It is configured as push pull.
- **STATUS_1.** This signal is used to read the status of the SCART 1 input (EU only).
- **STATUS_2.** This signal is used to read the status of the SCART 2 input (EU only).
- **HERC_RESET.** This pin is use to switch the +1.8 V supply.
- **POWER_DOWN.** The power supply generates this signal. Logic “high” (3.3 V) under normal operation of the TV and goes “low” (0 V) when the Mains input voltage supply goes below 70 V_{AC}.
- **KEYBOARD.** Following are the Keyboard functions and the step values (8 bit) for it.

Table 9-2 Local keyboard values

Function	Voltage (V_{DC})	Step values (8 bit)
P+ / Ch+	0.43	7 - 33
P- / Ch-	0.93	54 - 73
Menu (Vol - and Vol +)	1.19	74 - 96
Vol -	1.49	97 - 121
Vol +	2.12	148 - 169

- **TV_IRQ.** This signal is the interrupt from the Scaler IC.
- **TV_SC_COM.** This signal is used for the communication with the Scaler IC.
- **EXT_MUTE.** This signal is used to reduce the switch “off” plop.

9.10 Abbreviation List

1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Sound
2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AUO	Acer Unipack Optronics
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AV	Audio Video
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BTSC	Broadcast Television System Committee
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Color Look Up Table
ComPair	Computer aided rePair
CSM	Customer Service Mode
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Directions For Use: owner's manual
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DST	Dealer Service Tool: special (European) remote control designed for service technicians
DTS	Digital Theatre Sound
DVD	Digital Versatile Disc
DVI	Digital Visual Interface
DW	Double Window
ED	Enhanced Definition: 480p, 576p
EEPROM	Electrically Erasable and Programmable Read Only Memory
EU	EUrope
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FLASH	FLASH memory
FM	Field Memory / Frequency Modulation
FMR	FM Radio
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
FTV	Flat TeleVison
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
H	H_sync to the module
HD	High Definition: 720p, 1080i, 1080p
HDMI	High Definition Multimedia Interface, digital audio and video interface
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I2C	Integrated IC bus
I2S	Integrated IC Sound bus
IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt ReQuest
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
LATAM	LATin AMerica
LC04	Philips chassis name for LCD TV 2004 project
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LPL	LG Philips LCD
LS	LoudSpeaker
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MSP	Multi-standard Sound Processor: ITT sound decoder
MUTE	MUTE Line
NAFTA	North American Free Trade Association: Trade agreement between Canada, USA and Mexico
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe.
NTSC	National Television Standard Committee. Color system used mainly in North America and Japan. Color carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED

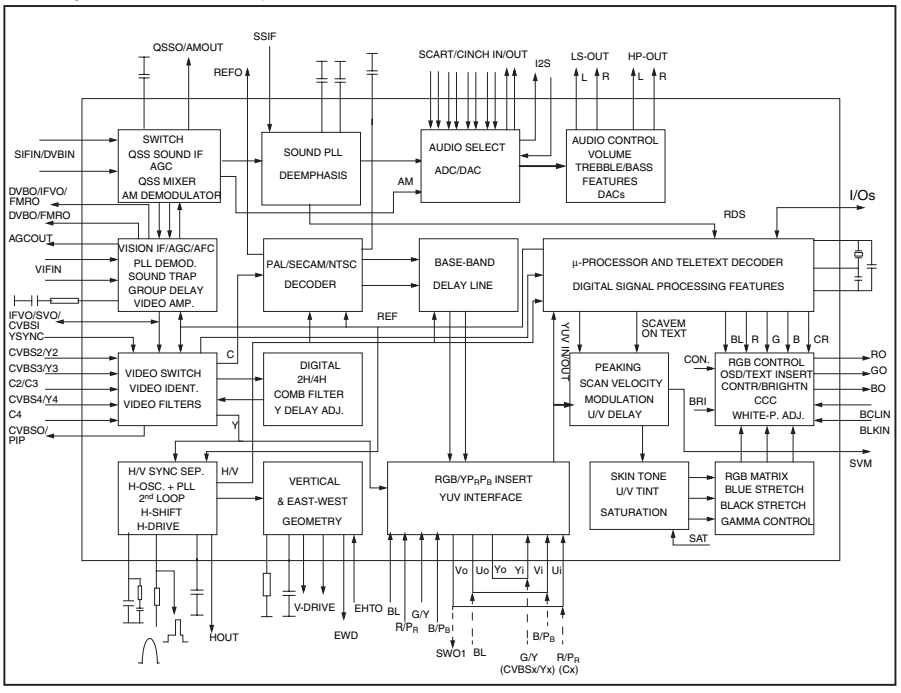
OSD	On Screen Display
PAL	Phase Alternating Line. Color system used mainly in Western Europe (color carrier = 4.433619 MHz) and South America (color carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PDP	Plasma Display Panel
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
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
RGB	Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (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-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 chrominance in
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	SEequence Couleur Avec Memoire. Color system used mainly in France and Eastern Europe. Color carriers = 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switch Mode Power Supply
SND	SouND
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out
SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SNDS-VL-OUT	Surround sound left variable level out
SNDS-VR-OUT	Surround sound right variable level out
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
STBY	Stand-by
SVHS	Super Video Home System
SW	Sub Woofer / SoftWare
THD	Total Harmonic Distortion
TXT	TeleteXT
uP	Microprocessor
VL	Variable Level out: processed audio output toward external amplifier
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
XTAL	Quartz crystal
YPbPr	Component video (Y= Luminance, Pb/Pr= Color difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV)
Y/C	Video related signals: Y consists of luminance signal, blanking level and sync; C consists of color signal.
Y-OUT	Luminance-signal
YUV	Baseband component video (Y= Luminance, U/V= Color difference signals)

9.11 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).

9.11.1 Diagram A2, Type TDA12029H (IC7011)

Block diagram of the “AV-stereo” TV processor with audio DSP



Pin configuration “stereo” and “AV-stereo” versions with Audio DSP

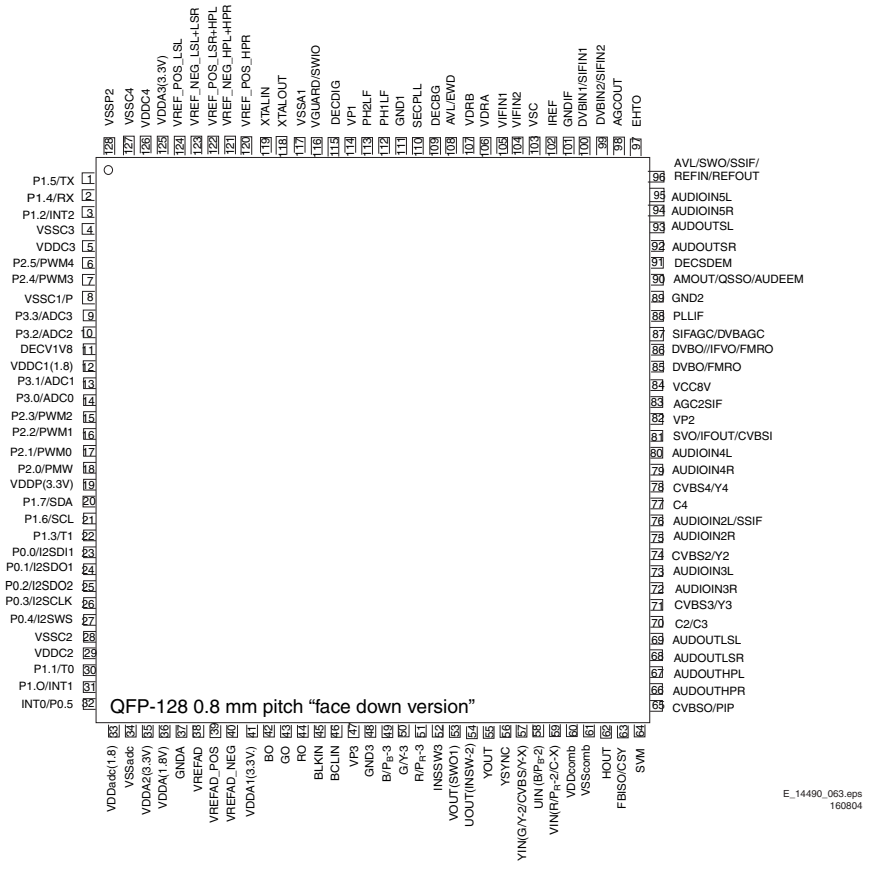
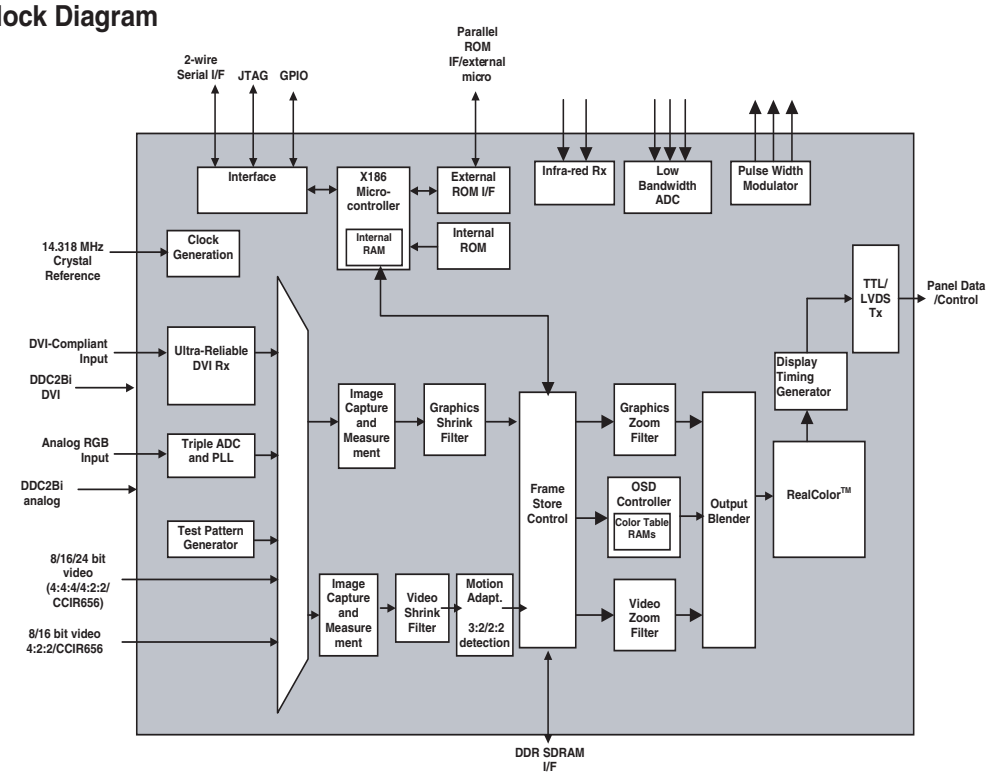


Figure 9-4 Internal Block Diagram and Pin Configuration

9.11.2 Diagram A7, Type GM1501 (IC7401)

Block Diagram



Pin Configuration

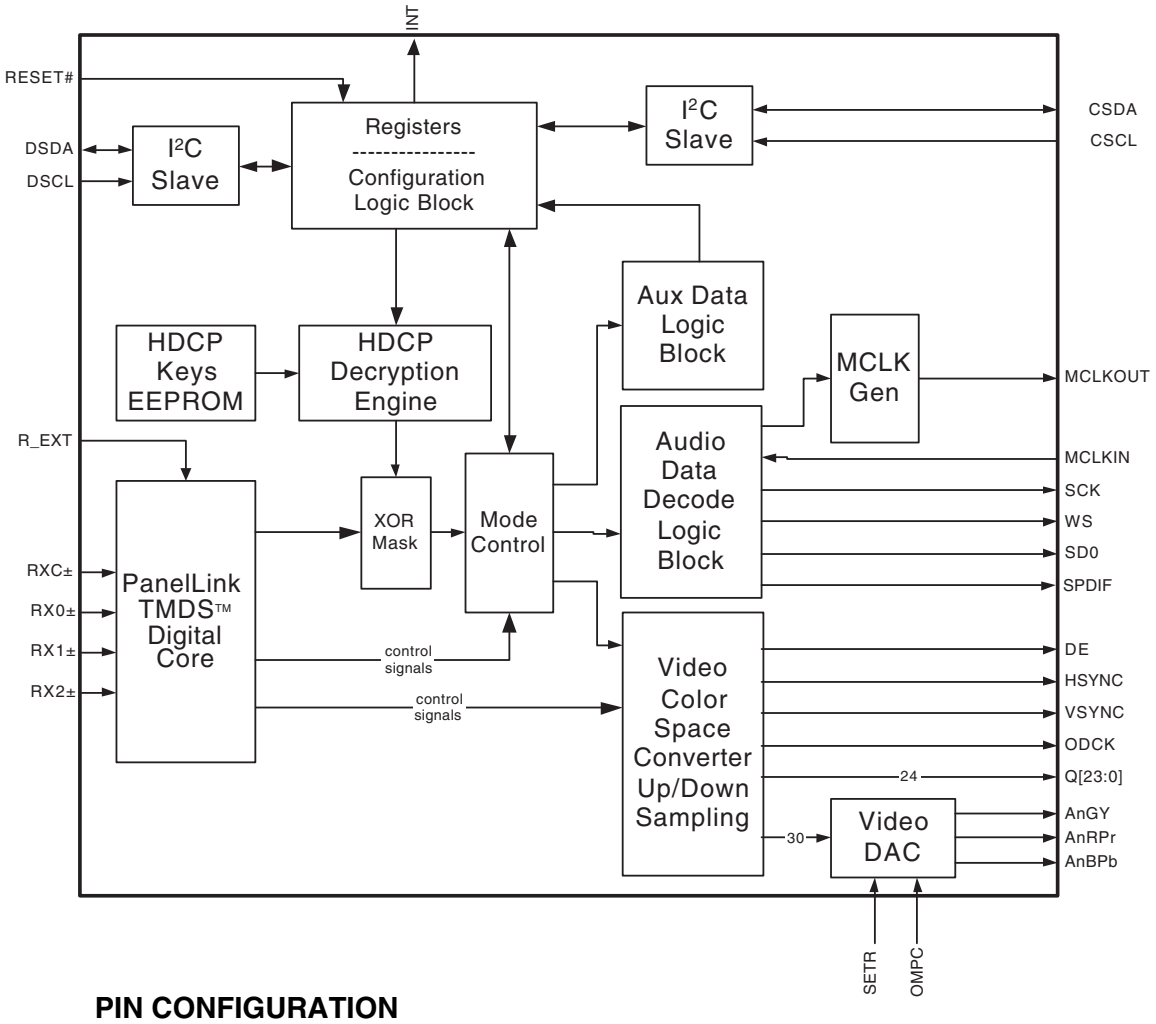
	1	2	3	4	5	6	7	8	9	10	11	12	13
A	NC	ADC_3.3	ADC_1.8	ADC_1.8	ADC_DGND	RXC+	DVI_GND	RX0+	RX1+	RX2+	DVI_GND	LBADC_IN3	D_GND
B	BLUE-	BLUE+	ADC_3.3	ADC_DGND	DVI_GND	RXC-	DVI_GND	RX0-	RX1-	RX2-	REXT	LBADC_IN2	D_GND
C	GREEN-	GREEN+	SOG	ADC_AGND	NC	DVI_3.3	DVI_GND	DVI_3.3	DVI_3.3	DVI_3.3	DVI_3.3	LBADC_IN1	LBADC_33
D	RED-	RED+	ADC_3.3	ADC_AGND	NC	DVI_1.8	DVI_GND	DVI_1.8	DVI_1.8	DVI_1.8	DVI_GND	LBADC_ RETURN	LBADC_GND
E	ADC_AGND	ADC_AGND	ADC_3.3	ADC_AGND									
F	NC	VDDD33_ PLL	VSSA33_ RPLL	VDDA33_ RPLL									
G	VDDA33_ FPLL	VSSD33_ PLL	TCLK	XTAL									
H	VDDD33_ SDDS	VSSA33_ SDDS	VDDA33_ SDDS	VSSA33_ FPLL									
J	VDDD33_ DDDS	VSSA33_ DDDS	VDDA33_ DDDS	VSSD33_ SDDS									
K	RESETn	ACS_ RSET_HD	NC	VSSD33_ DDDS						CORE_1.8	CORE_1.8	D_GND	D_GND
L	OCM_INT2	OCM_INT1	AVSYNC	AHSYNC						D_GND	CORE_1.8	D_GND	D_GND
M	OCM_UDO	OCM_UDI	IR0	IR1						D_GND	D_GND	D_GND	D_GND
N	VGA_SDA	VGA_SCL	DVI_SDA	DVI_SCL						D_GND	D_GND	D_GND	D_GND
P	OCM_CS1n	OCM_CS2n	MSTR_SDA	MSTR_SCL						D_GND	D_GND	D_GND	D_GND
R	ROM_CSn	OCM_REn	OCM_WEn	EXTCLK						D_GND	D_GND	D_GND	D_GND
T	OCMADDR 17	OCMADDR 18	OCMADDR 19	OCM_CS0n						D_GND	CORE_1.8	D_GND	D_GND
U	OCMADDR 13	OCMADDR 14	OCMADDR 15	OCMADDR 16						CORE_1.8	CORE_1.8	D_GND	D_GND
V	OCMADDR 9	OCMADDR 10	OCMADDR 11	OCMADDR 12									
W	OCMADDR 6	OCMADDR 7	OCMADDR 8	IO_3.3									
Y	OCMADDR 3	OCMADDR 4	OCMADDR 5	IO_3.3									
AA	OCMADDR 0	OCMADDR 1	OCMADDR 2	IO_3.3									
AB	OCMDATA13	OCMDATA14	OCMDATA15	IO_3.3									
AC	OCMDATA10	OCMDATA11	OCMDATA12	IO_3.3	GPIO_G09_B2 (DEGRN0)	IO_3.3	DCLK	IO_3.3	GPIO_G07_B2 (DERED4)	IO_3.3	SHIELD[1] (DEGRN3)	LVDSB_3.3	LVDSB_GND
AD	OCMDATA9	OCMDATA6	OCMDATA3	OCMDATA0	GPIO_G09_B3 (DEGRN1)	GPIO_G08_B0 (DORED0)	DEN	GPIO_G08_B5 (DOBLU1)	GPIO_G07_B3 (DERED5)	GPIO_G07_B6 (DERED8)	SHIELD[2] (DEGRN4)	LVDSB_3.3	LVDSB_3.3
AE	OCMDATA8	OCMDATA5	OCMDATA2	GPIO_G09_B0 (DERED0)	GPIO_G09_B4 (DEBLU0)	GPIO_G08_B1 (DORED1)	GPIO_G08_B3 (DOGRN1)	GPIO_G07_B0 (DERED2)	GPIO_G07_B4 (DERED6)	GPIO_G07_B7 (DERED9)	SHIELD[3] (DEGRN5)	BC+ (DEGRN8)	SHIELD[4] (DEBLU2)
AF	OCMDATA7	OCMDATA4	OCMDATA1	GPIO_G09_B1 (DERED1)	GPIO_G09_B5 (DEBLU1)	GPIO_G08_B2 (DOGRN0)	GPIO_G08_B4 (DOBLU0)	GPIO_G07_B1 (DERED3)	GPIO_G07_B5 (DERED7)	SHIELD[0] (DEGRN2)	B3+ (DEGRN6)	B3- (DEGRN7)	BC- (DEGRN9)

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241204

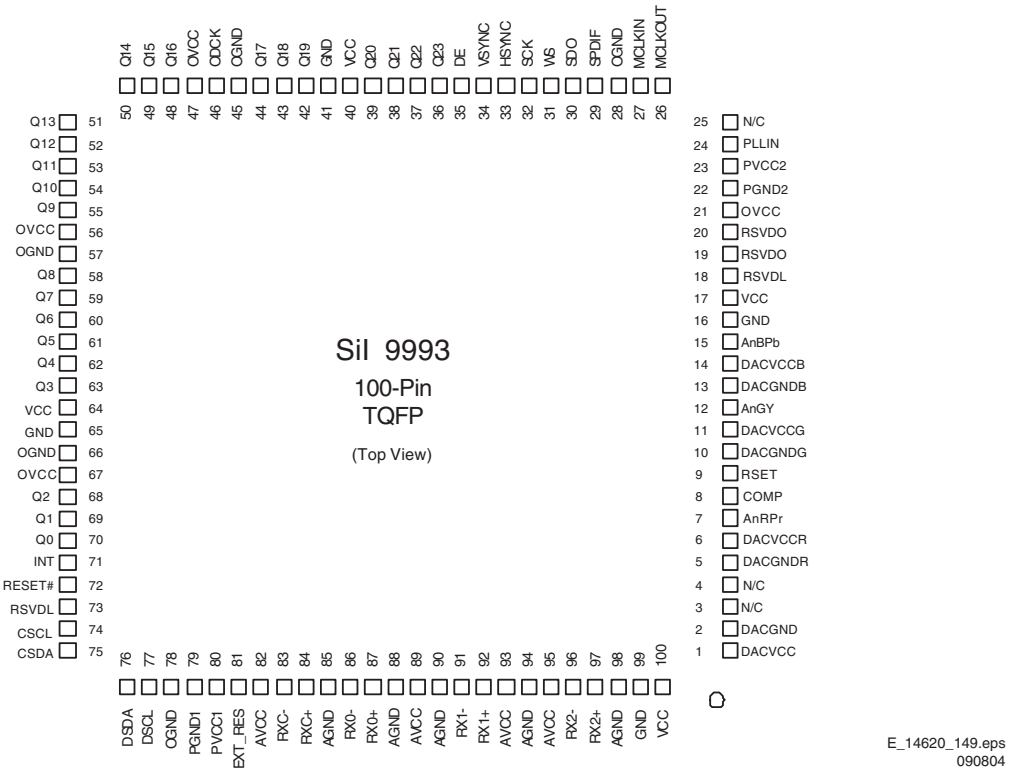
Figure 9-5 Internal Block Diagram and Pin Configuration

9.11.3 Diagram A12, Type Sil9993CT (IC7808)

BLOCK DIAGRAM



PIN CONFIGURATION



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090804

Figure 9-6 Internal Block Diagram and Pin Configuration

10. Spare Parts List

Set Level

Various

1004⚠	9322 206 49682	LCD T296XW01 (AUO)
1004	9322 206 53682	LCD LC300W01 (LPL)
1005	3104 328 30812	LCD Supply US 30"
1006⚠	3104 328 30002	Stand-by / Audio panel
1072	3104 328 34781	LED + Switch Panel
1102⚠	3104 328 32764	Small Signal Panel AUO
1102⚠	3104 328 32771	Small Signal Panel LPL
1114	3104 328 32821	Top control assy
1116	3104 328 26371	Side I/O assy LCD
8302	3104 311 04731	Cable 7p/560/7p
8303⚠	3104 311 06511	Cable 10p/280/10p
8304	3104 311 08271	Cable 4p/340/4p
8305	3104 311 08411	Cable 3p/340/3p
8306⚠	3104 311 01431	Cable 2P3/340/2P3
8306	3104 311 08351	Cable 2P3/340/2P3
8307	3104 311 08371	Cable 4p/340/4p
8309	3104 311 08301	Cable 3p/340/3p
8312	3104 311 06361	Cable 15p/340/15p16
8313	3104 311 08791	Cable 15P/120/15P16
8315	3104 311 06511	Cable 10p/280/10p
8317	3104 311 03611	Cable 12p/280/12p
8320	3104 311 06091	Cable 10p/680/10p
8346	3104 311 07001	Cable 11P/400/11P
8350	3104 311 08611	Cable 31P/120/20P
8352	3104 311 06811	Cable 9P/340/9P
8735	3104 311 07501	Cable 2P3/560/2P
8736	3104 311 07541	Cable 2P3/1200/2P

Small Signal Board [A]

Various

0036	3104 308 12352	Connector plate Cinch
0070	3104 308 12331	Top shielding assy
0071	3104 308 12321	Bottom shielding assy
0108	3111 254 30201	Adhesive foam
0109	3111 254 30201	Adhesive foam
0121	3104 303 10871	EMC foam tuner
0300	2422 486 80938	Socket 32p f PLCC
0328	2422 034 21798	Screwlock
0358	2511 077 00039	Connector 2p
1001	2422 543 01414	Xtal 24.576MHz
1003	3139 188 53051	3D Comb filter
1004	2422 025 15773	Connector 10p f
1175	2422 026 05384	Socket Cinch 6p f
1177	2422 026 05553	Socket phone 1p f
1182	2422 026 05553	Socket phone 1p f
1183	2422 026 05428	Connector 4p f
1251	2422 025 10655	Connector 11p m
1301	2422 025 16835	Connector 3p m
1302	3139 147 21461	Tuner UV1338/A F S H-4
1320	2422 025 10771	Connector 10p m
1328	2422 549 44377	SAW 45.75MHz M1967L
1336	2422 025 10655	Connector 11p m
1401	2422 543 01133	Xtal 14.32MHz 20pF
1402	2422 025 10768	Connector 3p m
1403	2422 025 10771	Connector 10p m
1450	2422 025 18427	Connector 31p f
1681	2422 025 16835	Connector 3p m
1686	2422 026 04754	Connector cinch 2p f
1687	2438 031 00416	Connector 15p f
1688	2422 033 00504	Socket HDMI 19p f
1690	2422 549 00146	Line filter 20V 3A
1691	2422 549 00146	Line filter 20V 3A
1692	2422 549 00146	Line filter 20V 3A
1693	2422 549 00146	Line filter 20V 3A
1752	2422 025 10769	Connector 9p m
1860	2422 549 45325	Bead 67Ω at 100MHz
1861	2422 549 45325	Bead 67Ω at 100MHz
1862	2422 549 45325	Bead 67Ω at 100MHz
1863	2422 549 45325	Bead 67Ω at 100MHz
1864	2422 549 45325	Bead 67Ω at 100MHz
8308	3104 311 07691	Cable 2p3/280/Inlet
8801	3139 131 04021	Flex foil 10p/60/10p

⊣⊢

2000	2020 552 00035	2.2µF 6.3V 10% 0603
2001	2020 552 96718	220nF 10% 6.3V 0402
2002	4822 124 23002	10µF 16V
2003	2238 869 15109	10pF 5% 50V 0402
2004	2020 552 96718	220nF 10% 6.3V 0402
2005	3198 035 71040	100nF 10% 16V 0402
2006	3198 034 06880	6.8pF 1% 50V 0402
2007	3198 034 06880	6.8pF 1% 50V 0402
2008	2020 552 00124	470nF 10% 10V 0603
2009	2020 552 96807	1µF 10% 10V 0603
2010	3198 035 26820	6.8nF 10% 16V 0402
2011	2020 552 96718	220nF 10% 6.3V 0402
2012	4822 124 12095	100µF 20% 16V
2013	3198 035 71040	100nF 10% 16V 0402
2014	3198 035 71040	100nF 10% 16V 0402
2015	3198 035 71040	100nF 10% 16V 0402
2016	3198 035 71040	100nF 10% 16V 0402
2017	3198 035 71040	100nF 10% 16V 0402
2018	3198 035 71040	100nF 10% 16V 0402
2019	4822 124 80151	47µF 16V
2020	2238 869 15101	100pF 5% 50V 0402
2021	2020 552 96628	10nF 10% 16V 0402
2022	3198 035 02210	220pF 5% 50V 0402
2023	3198 035 71040	100nF 10% 16V 0402
2024	4822 124 12095	100µF 20% 16V
2025	3198 035 71040	100nF 10% 16V 0402
2026	3198 035 71040	100nF 10% 16V 0402
2027	3198 035 71040	100nF 10% 16V 0402
2028	2020 552 96628	10nF 10% 16V 0402
2029	3198 035 71040	100nF 10% 16V 0402
2030	3198 035 71040	100nF 10% 16V 0402
2031	3198 035 71040	100nF 10% 16V 0402
2032	3198 035 71040	100nF 10% 16V 0402
2033	2020 552 96718	220nF 10% 6.3V 0402
2034	2020 552 00002	3.3nF 2% 50V 0805
2035	2020 552 96656	10µF 20% 25V 1210
2036	2020 552 96807	1µF 10% 10V 0603
2037	2020 552 96807	1µF 10% 10V 0603
2040	4822 124 23002	10µF 16V
2041	2020 552 96718	220nF 10% 6.3V 0402
2042	2020 552 00002	3.3nF 2% 50V 0805
2043	3198 035 71040	100nF 10% 16V 0402
2044	2020 552 96718	220nF 10% 6.3V 0402
2045	2238 869 15109	10pF 5% 50V 0402
2046	2238 869 15109	10pF 5% 50V 0402
2047	2020 552 96628	10nF 10% 16V 0402
2048	2238 869 15109	10pF 5% 50V 0402
2049	2238 869 15109	10pF 5% 50V 0402
2050	2238 869 15109	10pF 5% 50V 0402
2051	2020 552 00002	3.3nF 2% 50V 0805
2053	2020 552 96618	1nF 10% 50V 0402
2054	2020 552 96632	22nF 10% 16V 0402
2057	2238 869 15109	10pF 5% 50V 0402
2058	2238 869 15109	10pF 5% 50V 0402
2059	2238 869 15109	10pF 5% 50V 0402
2060	3198 035 71040	100nF 10% 16V 0402
2061	4822 124 23002	10µF 16V
2062	2238 869 15109	10pF 5% 50V 0402
2063	3198 017 31540	150nF 10V 0603
2067	2238 869 15109	10pF 5% 50V 0402
2068	2020 552 96718	220nF 10% 6.3V 0402
2069	2238 869 15109	10pF 5% 50V 0402
2071	4822 124 12095	100µF 20% 16V
2072	4822 126 14076	220nF +80/-20% 25V
2073	2020 552 96618	1nF 10% 50V 0402
2074	2020 552 96718	220nF 10% 6.3V 0402
2076	2020 552 96718	220nF 10% 6.3V 0402
2077	2020 552 96834	1µF 20% 6.3V 0402
2078	2238 869 15101	100pF 5% 50V 0402
2079	2238 869 15109	10pF 5% 50V 0402
2080	2238 869 15109	10pF 5% 50V 0402
2081	2238 869 15109	10pF 5% 50V 0402
2082	2020 552 96618	1nF 10% 50V 0402
2083	2020 552 96834	1µF 20% 6.3V 0402
2084	2020 552 96718	220nF 10% 6.3V 0402
2085	2020 552 96618	1nF 10% 50V 0402
2086	2020 552 96618	1nF 10% 50V 0402
2087	2238 869 15109	10pF 5% 50V 0402
2088	2238 869 15109	10pF 5% 50V 0402
2089	2020 552 96618	1nF 10% 50V 0402
2090	2238 869 15109	10pF 5% 50V 0402
2091	2238 869 15109	10pF 5% 50V 0402
2092	2238 869 15109	10pF 5% 50V 0402
2093	2238 869 15109	10pF 5% 50V 0402
2094	2238 869 15109	10pF 5% 50V 0402
2095	2238 869 15109	10pF 5% 50V 0402
2096	2238 869 15109	10pF 5% 50V 0402
2097	2238 869 15109	10pF 5% 50V 0402
2098	2238 869 15109	10pF 5% 50V 0402
2099	2020 552 96618	1nF 10% 50V 0402
2179	5322 126 11583	10nF 10% 50V 0603
2182	4822 126 14241	330pF 0603 50V
2183	3198 017 41050	1µF 10V 0603
2184	4822 126 14241	330pF 0603 50V
2185	3198 017 41050	1µF 10V 0603
2190	4822 124 23002	10µF 16V
2191	3198 017 41050	1µF 10V 0603
2193	4822 126 14241	330pF 0603 50V
2195	4822 126 14241	330pF 0603 50V
2201	4822 126 14491	2.2µF 10V 0805
2225	2238 586 59812	100nF 20% 50V 0603
2227	2238 586 59812	100nF 20% 50V 0603
2228	2238 586 59812	100nF 20% 50V 0603
2231	4822 126 14241	330pF 0603 50V
2232	3198 017 41050	1µF 10V 0603
2233	4822 126 14241	330pF 0603 50V
2234	3198 017 41050	1µF 10V 0603
2238	3198 035 71040	100nF 10% 16V 0402
2240	4822 126 13879	220nF +80-20% 16V
2241	3198 017 41050	1µF 10V 0603
2251	2238 869 15109	10pF 5% 50V 0402
2252	2238 869 15109	10pF 5% 50V 0402
2253	4822 124 23002	10µF 16V
2254	4822 124 23002	10µF 16V
2262	4822 124 80151	47µF 16V
2263	2020 552 96656	10µF 20% 25V 1210
2264	2020 552 96656	10µF 20% 25V 1210
2265	3198 035 02210	220pF 5% 50V 0402
2266	2020 552 96632	22nF 10% 16V 0402
2268	2020 012 93795	470µF 20% 16V
2269	2020 012 93795	470µF 20% 16V
2271	2020 552 96628	10nF 10% 16V 0402
2302	4822 122 33761	22pF 5% 50V
2303	4822 122 33761	22pF 5% 50V
2307	3198 024 44730	47nF 50V 0603
2308	3198 030 82280	2.2µF 20% 50V
2309	2020 021 91871	470µF 20% 16V
2311	3198 030 72290	22µF 20% 35V
2321	5322 126 11583	10nF 10% 50V 0603
2355	3198 030 82280	2.2µF 20% 50V
2356	3198 030 82280	2.2µF 20% 50V
2357	3198 035 71040	100nF 10% 16V 0402
2358	2020 552 96625	3.3nF 10% 50V 0402
2359	2020 552 96628	10nF 10% 16V 0402
2370	2020 552 96834	1µF 20% 6.3V 0402
2371	2020 552 96834	1µF 20% 6.3V 0402
2372	2020 552 96618	1nF 10% 50V 0402
2373	2020 552 96618	1nF 10% 50V 0402
2374	3198 035 71040	100nF 10% 16V 0402
2375	4822 124 12082	10µF 20% 50V
2376	3198 017 41050	1µF 10V 0603
2377	3198 017 41050	1µF 10V 0603
2378	2020 552 96718	220nF 10% 6.3V 0402
2380	4822 124 12095	100µF 20% 16V
2381	3198 035 71040	100nF 10% 16V 0402
2382	2020 021 91871	470µF 20% 16V
2386	3198 017 41050	1µF 10V 0603
2387	4822 126 14324	33pF 5% 50V 0402
2388	4822 126 14324	33pF 5% 50V 0402
2392	3198 017 41050	1µF 10V 0603
2394	3198 035 71040	100nF 10% 16V 0402
2395	3198 035 71040	100nF 10% 16V 0402
2396	4822 124 23002	10µF 16V
2397	2020 552 96834	1µF 20% 6.3V 0402
2398	2020 552 96834	1µF 20% 6.3V 0402
2401	4822 124 80151	47µF 16V
2402	4822 124 80151	47µF 16V
2403	3198 035 71040	100nF 10% 16V 0402
2404	3198 035 71040	100nF 10% 16V 0402
2405	3198 035 71040	100nF 10% 16V 0402
2406	3198 035 71040	100nF 10% 16V 0402
2407	3198 035 71040	100nF 10% 16V 0402
2408	3198 035 71040	100nF 10% 16V 0402
2409	3198 035 71040	100nF 10% 16V 0402
2410	3198 035 71040	100nF 10% 16V 0402
2411	3198 035 71040	100nF 10% 16V 0402
2412	3198 035 71040	100nF 10% 16V 0402
2413	3198 035 71040	100nF 10% 16V 0402
2414	3198 035 71040	100nF 10% 16V 0402
2415	3198 035 71040	100nF 10% 16V 0402
2416	3198 035 71040	100nF 10% 16V 0402
2417	4822 124 80151	47µF 16V
2418	4822 124 80151	47µF 16V
2419	3198 035 71040	100nF 10% 16V 0402
2420	3198 035 71040	100nF 10% 16V 0402
2421	3198 035 71040	100nF 10% 16V 0402
2422	3198 035 71040	100nF 10% 16V 0402
2423	3198 035 71040	100nF 10% 16V 0402
2424	3198 035 71040	100nF 10% 16V 0402
2425	3198 035 71040	100nF 10% 16V 0402
2426	3198 035 71040	100nF 10% 16V 0402
2427	3198 035 71040	100nF 10% 16V 0402
2428	3198 035 71040	100nF 10% 16V 0402

2429	3198 035 71040	100nF 10% 16V 0402
2430	3198 035 71040	100nF 10% 16V 0402
2431	3198 035 71040	100nF 10% 16V 0402
2432	3198 035 71040	100nF 10% 16V 0402
2433	3198 035 71040	100nF 10% 16V 0402
2434	4822 124 80151	47µF 16V
2435	4822 124 80151	47µF 16V
2436	3198 035 71040	100nF 10% 16V 0402
2437	3198 035 71040	100nF 10% 16V 0402
2438	3198 035 71040	100nF 10% 16V 0402
2439	3198 035 71040	100nF 10% 16V 0402
2440	3198 035 71040	100nF 10% 16V 0402
2441	3198 035 71040	100nF 10% 16V 0402
2442	3198 035 71040	100nF 10% 16V 0402
2443	3198 035 71040	100nF 10% 16V 0402
2444	3198 035 71040	100nF 10% 16V 0402
2445	3198 035 71040	100nF 10% 16V 0402
2446	3198 035 71040	100nF 10% 16V 0402
2447	3198 035 71040	100nF 10% 16V 0402
2448	3198 035 71040	100nF 10% 16V 0402
2449	3198 035 71040	100nF 10% 16V 0402
2450	3198 035 71040	100nF 10% 16V 0402
2451	4822 124 80151	47µF 16V
2452	3198 035 71040	100nF 10% 16V 0402
2453	3198 035 71040	100nF 10% 16V 0402
2454	3198 035 71040	100nF 10% 16V 0402
2455	3198 035 71040	100nF 10% 16V 0402
2456	3198 035 71040	100nF 10% 16V 0402
2461	3198 035 71040	100nF 10% 16V 0402
2462	3198 035 71040	100nF 10% 16V 0402
2463	3198 035 71040	100nF 10% 16V 0402
2464	3198 035 71040	100nF 10% 16V 0402
2465	5322 124 41945	22µF 20% 35V
2466	3198 035 71040	100nF 10% 16V 0402
2467	3198 035 71040	100nF 10% 16V 0402
2468	3198 035 71040	100nF 10% 16V 0402
2469	3198 035 71040	100nF 10% 16V 0402
2470	5322 124 41945	22µF 20% 35V
2471	3198 035 71040	100nF 10% 16V 0402
2472	3198 035 71040	100nF 10% 16V 0402
2473	3198 035 71040	100nF 10% 16V 0402
2474	3198 035 71040	100nF 10% 16V 0402
2475	3198 035 71040	100nF 10% 16V 0402
2476	3198 035 71040	100nF 10% 16V 0402
2477	3198 035 71040	100nF 10% 16V 0402
2478	5322 124 41945	22µF 20% 35V
2479	3198 035 71040	100nF 10% 16V 0402
2480	3198 035 71040	100nF 10% 16V 0402
2481	3198 035 71040	100nF 10% 16V 0402
2482	5322 124 41945	22µF 20% 35V
2483	3198 035 71040	100nF 10% 16V 0402
2484	3198 035 71040	100nF 10% 16V 0402
2485	3198 035 71040	100nF 10% 16V 0402
2486	3198 035 71040	100nF 10% 16V 0402
2487	4822 126 14519	22pF 5% 50V 0402
2488	4822 126 14519	22pF 5% 50V 0402
2490	2238 586 59812	100nF 20% 50V 0603
2491	2238 586 59812	100nF 20% 50V 0603
2492	2238 586 59812	100nF 20% 50V 0603
2493	2020 552 96807	1µF 10% 10V 0603
2495	4822 124 80151	47µF 16V
2496	3198 035 71040	100nF 10% 16V 0402
2501	4822 124 80151	47µF 16V
2502	4822 124 11131	47µF 6.3V
2503	3198 035 71040	100nF 10% 16V 0402
2504	3198 035 71040	100nF 10% 16V 0402
2505	3198 035 71040	100nF 10% 16V 0402
2506	3198 035 71040	100nF 10% 16V 0402
2507	3198 035 71040	100nF 10% 16V 0402
2508	3198 035 71040	100nF 10% 16V 0402
2509	3198 035 71040	100nF 10% 16V 0402
2510	3198 035 71040	100nF 10% 16V 0402
2511	3198 035 71040	100nF 10% 16V 0402
2512	3198 035 71040	100nF 10% 16V 0402
2513	3198 035 71040	100nF 10% 16V 0402
2514	3198 035 71040	100nF 10% 16V 0402
2515	3198 035 71040	100nF 10% 16V 0402
2516	3198 035 71040	100nF 10% 16V 0402
2517	3198 035 71040	100nF 10% 16V 0402
2526	5322 124 41945	22µF 20% 35V
2530	4822 124 23002	10µF 16V
2531	3198 035 71040	100nF 10% 16V 0402
2532	3198 035 71040	100nF 10% 16V 0402
2533	3198 035 71040	100nF 10% 16V 0402
2560	3198 035 71040	100nF 10% 16V 0402
2561	4822 124 12095	100µF 20% 16V
2562	3198 035 71040	100nF 10% 16V 0402
2563	3198 035 14720	4.7nF 5% 25V 0402
2564	2020 552 96656	10µF 20% 25V 1210
2580	3198 035 71040	100nF 10% 16V 0402
2581	3198 035 71040	100nF 10% 16V 0402
2582	3198 035 71040	100nF 10% 16V 0402
2583	3198 035 71040	100nF 10% 16V 0402
2584	3198 035 71040	100nF 10% 16V 0402
2585	2238 869 75829	82pF 5% 50V 0402
2586	2238 869 75829	82pF 5% 50V 0402
2587	3198 035 03310	330pF 5% 50V 0402
2588	3198 035 04710	470pF 50V 0402
2605	3198 035 71040	100nF 10% 16V 0402
2606	3198 035 71040	100nF 10% 16V 0402
2607	3198 035 71040	100nF 10% 16V 0402
2608	3198 035 71040	100nF 10% 16V 0402
2609	3198 035 71040	100nF 10% 16V 0402
2610	3198 035 71040	100nF 10% 16V 0402
2611	4822 124 11131	47µF 6.3V
2612	2020 552 96628	10nF 10% 16V 0402
2613	2020 552 96628	10nF 10% 16V 0402
2614	2020 552 96628	10nF 10% 16V 0402
2615	2020 552 96628	10nF 10% 16V 0402
2616	2020 552 96628	10nF 10% 16V 0402
2617	2020 552 96628	10nF 10% 16V 0402
2618	2020 552 96628	10nF 10% 16V 0402
2619	4822 126 14324	33pF 5% 50V 0402
2620	2020 552 96807	1µF 10% 10V 0603
2621	2020 552 96834	1µF 20% 6.3V 0402
2622	2020 552 96834	1µF 20% 6.3V 0402
2623	2020 552 96834	1µF 20% 6.3V 0402
2624	3198 017 44740	470nF 10V 0603
2625	3198 017 44740	470nF 10V 0603
2626	3198 017 44740	470nF 10V 0603
2630	2020 552 96834	1µF 20% 6.3V 0402
2631	2020 552 96834	1µF 20% 6.3V 0402
2632	2020 552 96834	1µF 20% 6.3V 0402
2633	2020 552 96834	1µF 20% 6.3V 0402
2634	2020 552 96834	1µF 20% 6.3V 0402
2635	2020 552 96834	1µF 20% 6.3V 0402
2636	3198 035 71040	100nF 10% 16V 0402
2682	2020 552 94427	100pF 5% 50V
2683	2020 552 94427	100pF 5% 50V
2688	2020 552 94427	100pF 5% 50V
2693	2238 586 59812	100nF 20% 50V 0603
2698	2020 552 94427	100pF 5% 50V
2699	2020 552 94427	100pF 5% 50V
2702	2020 552 96834	1µF 20% 6.3V 0402
2707	2020 021 91871	470µF 20% 16V
2708	2020 552 96834	1µF 20% 6.3V 0402
2710	3198 035 04710	470pF 50V 0402
2711	3198 035 04710	470pF 50V 0402
2713	2238 586 59812	100nF 20% 50V 0603
2714	2020 012 93795	470µF 20% 16V
2715	2020 021 91871	470µF 20% 16V
2719	2238 586 59812	100nF 20% 50V 0603
2720	2238 869 15109	10pF 5% 50V 0402
2743	2020 552 96834	1µF 20% 6.3V 0402
2744	2020 552 96834	1µF 20% 6.3V 0402
2747	2238 869 15101	100pF 5% 50V 0402
2748	2238 869 15101	100pF 5% 50V 0402
2749	2238 869 15101	100pF 5% 50V 0402
2750	2238 869 15101	100pF 5% 50V 0402
2784	4822 126 14241	330pF 0603 50V
2785	4822 126 14241	330pF 0603 50V
2803	4822 124 23237	22µF 6.3V
2806	4822 124 23237	22µF 6.3V
2807	3198 035 71040	100nF 10% 16V 0402
2808	3198 035 71040	100nF 10% 16V 0402
2809	4822 124 23002	10µF 16V
2810	4822 124 23237	22µF 6.3V
2811	2020 552 96618	1nF 10% 50V 0402
2812	3198 035 71040	100nF 10% 16V 0402
2813	4822 124 23002	10µF 16V
2814	3198 035 71040	100nF 10% 16V 0402
2815	2020 552 96618	1nF 10% 50V 0402
2816	3198 035 71040	100nF 10% 16V 0402
2817	2020 552 96618	1nF 10% 50V 0402
2818	4822 124 23002	10µF 16V
2819	3198 035 71040	100nF 10% 16V 0402
2820	2020 552 96618	1nF 10% 50V 0402
2821	2020 552 96618	1nF 10% 50V 0402
2822	2020 552 96618	1nF 10% 50V 0402
2823	2020 552 96618	1nF 10% 50V 0402
2824	3198 035 71040	100nF 10% 16V 0402
2825	2020 552 96618	1nF 10% 50V 0402
2826	2020 552 96618	1nF 10% 50V 0402
2827	2020 552 96618	1nF 10% 50V 0402
2828	2020 552 96618	1nF 10% 50V 0402
2829	2020 552 96618	1nF 10% 50V 0402
2830	2020 552 96618	1nF 10% 50V 0402
2832	2020 552 96618	1nF 10% 50V 0402
2833	4822 124 11131	47µF 6.3V
2834	4822 124 11131	47µF 6.3V
2835	3198 035 71040	100nF 10% 16V 0402
2836	3198 035 71040	100nF 10% 16V 0402
2837	4822 124 23002	10µF 16V
2838	2020 552 96628	10nF 10% 16V 0402
2839	3198 035 74730	47nF 5% 16V 0402
2840	2020 552 96628	10nF 10% 16V 0402
2841	3198 017 41050	1µF 10V 0603
2842	3198 017 41050	1µF 10V 0603
2843	4822 124 11131	47µF 6.3V
2844	3198 035 71040	100nF 10% 16V 0402
2845	3198 035 71040	100nF 10% 16V 0402
2846	3198 035 71040	100nF 10% 16V 0402
2847	3198 017 41050	1µF 10V 0603
2848	3198 017 41050	1µF 10V 0603
2849	2020 552 96628	10nF 10% 16V 0402
2850	3198 017 41050	1µF 10V 0603
2851	3198 017 41050	1µF 10V 0603
2860	2238 869 15109	10pF 5% 50V 0402
2861	2238 869 15109	10pF 5% 50V 0402
2862	2238 869 15109	10pF 5% 50V 0402
2863	2238 869 15109	10pF 5% 50V 0402
2864	2238 869 15109	10pF 5% 50V 0402
2865	2238 869 15109	10pF 5% 50V 0402
2866	2238 869 15109	10pF 5% 50V 0402
2867	2238 869 15109	10pF 5% 50V 0402
2868	2238 869 15109	10pF 5% 50V 0402
2869	2238 869 15109	10pF 5% 50V 0402
2874	2238 869 15109	10pF 5% 50V 0402
2875	2238 869 15109	10pF 5% 50V 0402
2876	2020 552 96628	10nF 10% 16V 0402
2877	2238 869 15109	10pF 5% 50V 0402
2878	2020 552 96628	10nF 10% 16V 0402
2879	2020 552 96628	10nF 10% 16V 0402
2880	2238 869 15109	10pF 5% 50V 0402
2881	2020 552 96628	10nF 10% 16V 0402
2883	2238 869 15109	10pF 5% 50V 0402
2884	2020 552 96628	10nF 10% 16V 0402
2887	2238 869 15109	10pF 5% 50V 0402
2910	3198 035 04710	470pF 50V 0402
2911	3198 030 72290	22µF 20% 35V
2920	4822 124 80151	47µF 16V
2921	4822 124 80151	47µF 16V
2930	2020 021 91871	470µF 20% 16V
2931	3198 035 04710	470pF 50V 0402
2933	2020 021 91871	470µF 20% 16V
2934	2020 552 96793	4.7nF 10% 50V 0402
2935	2020 021 91871	470µF 20% 16V
2953	2020 021 91871	470µF 20% 16V
2955	3198 035 14720	4.7nF 5% 25V 0402
2956	3198 035 02210	220pF 5% 50V 0402
2957	2020 021 91871	470µF 20% 16V
2958	2020 021 91871	470µF 20% 16V
2960	4822 124 80151	47µF 16V
2961	3198 035 71030	10nF 16V 0402
2992	3198 035 71040	100nF 10% 16V 0402
2993	2020 552 96618	1nF 10% 50V 0402
2994	2020 021 91871	470µF 20% 16V
2995	3198 035 71040	100nF 10% 16V 0402
2996	4822 124 80151	47µF 16V

–WW–

3000	3198 031 05620	5.6kΩ 5% 0.01W 0402
3001	2322 702 70398	3.9Ω 5% 0603
3002	4822 117 13601	22kΩ 5% 0402
3003	2322 702 70398	3.9Ω 5% 0603
3004	4822 117 13601	22kΩ 5% 0402
3005	3198 031 05620	5.6kΩ 5% 0.01W 0402
3006	4822 117 13545	100Ω 1% 0402
3007	3198 031 04720	4.7kΩ 5% 0402
3008	3198 031 04730	47Ω 5% 0402
3010	4822 117 13548	1kΩ 5% 0402
3011	4822 117 13543	470Ω 5% 0402
3013	4822 117 13545	100Ω 1% 0402
3015	4822 117 13605	Jumper 0402
3017	4822 117 13605	Jumper 0402
3019	4822 117 13545	100Ω 1% 0402
3020	4822 117 13548	1kΩ 5% 0402
3021	2322 706 72702	2.7kΩ 1% 0402
3022	4822 117 13606	10kΩ 5% 0.01W 0402
3023	4822 117 13601	22kΩ 5% 0402
3024	3198 031 01090	10Ω 5% 0.01W 0402
3025	3198 031 01090	10Ω 5% 0.01W 0402
3026	3198 031 06890	68Ω 5% 0402
3027	3198 031 01090	10Ω 5% 0.01W 0402
3028	4822 117 11297	100kΩ 5% 0.1W
3029	4822 117 13548	1kΩ 5% 0402
3030	4822 117 11297	100kΩ 5% 0.1W
3032	3198 031 02240	220kΩ 5% 0.1W 0402
3035	4822 117 13545	100Ω 1% 0402
3037	3198 031 04730	47Ω 5% 0402
3039	3198 031 06830	68kΩ 5% 0.01W 0402
3048	4822 117 13606	10kΩ 5% 0.01W 0402
3049	4822 117 13545	100Ω 1% 0402
3050	4822 117 13545	100Ω 1% 0402
3051	4822 117 13545	100Ω 1% 0402
3052	4822 117 13605	Jumper 0402
3057	4822 117 13545	100Ω 1% 0402
3058	4822 117 13543	470Ω 5% 0402
3059	4822 117 13548	1kΩ 5% 0402
3060	3198 031 03930	39kΩ 5% 0402

3063	3198 031 06890	68Ω 5% 0402
3064	4822 117 13545	100Ω 1% 0402
3065	3198 031 06810	680Ω 5% 0.01W 0402
3066	3198 031 06890	68Ω 5% 0402
3067	3198 031 01090	10Ω 5% 0.01W 0402
3068	3198 031 06890	68Ω 5% 0402
3069	4822 117 13601	22kΩ 5% 0402
3070	4822 117 13545	100Ω 1% 0402
3071	4822 117 13545	100Ω 1% 0402
3072	3198 031 06890	68Ω 5% 0402
3073	3198 031 01530	15kΩ 5% 0.01W 0402
3074	4822 117 11297	100kΩ 5% 0.1W
3075	3198 031 04720	4.7kΩ 5% 0402
3077	3198 031 04720	4.7kΩ 5% 0402
3078	3198 031 04720	4.7kΩ 5% 0402
3079	3198 031 04720	4.7kΩ 5% 0402
3080	5322 117 13034	1.5kΩ 1% 0.063W 0603
3081	4822 117 13545	100Ω 1% 0402
3082	3198 031 04720	4.7kΩ 5% 0402
3083	3198 031 04720	4.7kΩ 5% 0402
3084	4822 117 13545	100Ω 1% 0402
3085	3198 031 04720	4.7kΩ 5% 0402
3086	4822 117 13602	2.2kΩ 5% 0.01W 0402
3087	4822 117 13606	10kΩ 5% 0.01W 0402
3088	3198 031 03320	3.3kΩ 5% 0402
3089	3198 031 01540	150kΩ 5% 0402
3091	4822 117 13545	100Ω 1% 0402
3092	3198 031 04720	4.7kΩ 5% 0402
3093	3198 031 04720	4.7kΩ 5% 0402
3094	3198 031 01090	10Ω 5% 0.01W 0402
3096	3198 031 03320	3.3kΩ 5% 0402
3097	3198 031 04720	4.7kΩ 5% 0402
3175	4822 051 30759	75Ω 5% 0.062W
3176	4822 051 30331	330Ω 5% 0.062W
3177	4822 051 30331	330Ω 5% 0.062W
3178	4822 051 30759	75Ω 5% 0.062W
3179	4822 051 30759	75Ω 5% 0.062W
3180	4822 051 30331	330Ω 5% 0.062W
3181	4822 051 30331	330Ω 5% 0.062W
3182	4822 051 30151	150Ω 5% 0.062W
3183	4822 117 12925	47kΩ 1% 0.063W 0603
3184	4822 051 30151	150Ω 5% 0.062W
3185	4822 117 12925	47kΩ 1% 0.063W 0603
3186	4822 051 30472	4.7Ω 5% 0.062W
3187	4822 051 30103	10kΩ 5% 0.062W
3188	4822 051 30103	10kΩ 5% 0.062W
3190	4822 051 30479	47Ω 5% 0.062W
3191	4822 051 30759	75Ω 5% 0.062W
3192	4822 051 30759	75Ω 5% 0.062W
3193	4822 117 13632	100kΩ 1% 0603 0.62W
3194	4822 051 30689	68Ω 5% 0.063W 0603
3195	4822 117 13632	100kΩ 1% 0603 0.62W
3196	4822 051 30102	1kΩ 5% 0.062W
3197	4822 117 12891	220kΩ 1%
3198	4822 117 12891	220kΩ 1%
3199	4822 051 30151	150Ω 5% 0.062W
3200	4822 051 30151	150Ω 5% 0.062W
3201	4822 117 13632	100kΩ 1% 0603 0.62W
3202	4822 117 13632	100kΩ 1% 0603 0.62W
3203	4822 051 30102	1kΩ 5% 0.062W
3204	4822 051 30101	100Ω 5% 0.062W
3220	4822 051 30331	330Ω 5% 0.062W
3221	4822 051 30221	220Ω 5% 0.062W
3222	4822 051 30759	75Ω 5% 0.062W
3223	4822 051 30759	75Ω 5% 0.062W
3225	4822 117 13632	100kΩ 1% 0603 0.62W
3226	4822 117 13632	100kΩ 1% 0603 0.62W
3227	4822 051 30472	4.7Ω 5% 0.062W
3228	4822 051 30472	4.7Ω 5% 0.062W
3229	4822 117 13632	100kΩ 1% 0603 0.62W
3230	4822 117 13632	100kΩ 1% 0603 0.62W
3231	4822 051 30151	150Ω 5% 0.062W
3232	4822 117 12925	47kΩ 1% 0.063W 0603
3233	4822 051 30151	150Ω 5% 0.062W
3234	4822 117 12925	47kΩ 1% 0.063W 0603
3235	4822 051 30223	22kΩ 5% 0.062W
3236	4822 051 30223	22kΩ 5% 0.062W
3237	4822 051 30223	22kΩ 5% 0.062W
3238	4822 117 13597	330Ω 5% 0402 0.01W
3239	4822 051 30223	22kΩ 5% 0.062W
3240	4822 117 12864	82kΩ 5% 0.6W
3241	4822 117 12925	47kΩ 1% 0.063W 0603
3242	4822 051 30102	1kΩ 5% 0.062W
3243	4822 051 30103	10kΩ 5% 0.062W
3244	4822 051 30472	4.7Ω 5% 0.062W
3245	4822 051 30103	10kΩ 5% 0.062W
3246	4822 051 30273	27kΩ 5% 0.062W
3247	4822 051 30151	150Ω 5% 0.062W
3248	4822 051 30151	150Ω 5% 0.062W
3251	4822 117 11151	1Ω 5%
3259	4822 117 13606	10kΩ 5% 0.01W 0402
3260	3198 031 06820	6.8kΩ 5% 0.01W 0402
3266	3198 031 04720	4.7kΩ 5% 0402
3267	5322 117 13031	5.6kΩ 1% 0.063W 0603
3268	2322 704 63302	3.3kΩ 1% 0603
3270	4822 117 13602	2.2kΩ 5% 0.01W 0402
3271	3198 031 08210	820Ω 5% 0,5W
3273	3198 031 02240	220kΩ 5% 0.1W 0402
3274	4822 117 13601	22kΩ 5% 0402
3302	4822 051 30101	100Ω 5% 0.062W
3303	4822 051 30101	100Ω 5% 0.062W
3304	4822 117 13606	10kΩ 5% 0.01W 0402
3305	4822 117 13606	10kΩ 5% 0.01W 0402
3309	4822 117 13606	10kΩ 5% 0.01W 0402
3311	4822 051 30008	Jumper 0603
3327	4822 117 13548	1kΩ 5% 0402
3328	4822 117 13545	100Ω 1% 0402
3329	4822 117 13545	100Ω 1% 0402
3340	4822 117 13601	22kΩ 5% 0402
3342	3198 031 01530	15kΩ 5% 0.01W 0402
3343	3198 031 04720	4.7kΩ 5% 0402
3344	4822 117 13548	1kΩ 5% 0402
3345	3198 031 04720	4.7kΩ 5% 0402
3346	2322 706 75603	56kΩ 1% 0402
3347	3198 031 08210	820Ω 5% 0,5W
3348	3198 031 04720	4.7kΩ 5% 0402
3349	3198 031 01820	1.8kΩ 5% 0.01W 0402
3357	4822 117 13548	1kΩ 5% 0402
3358	4822 117 13545	100Ω 1% 0402
3359	3198 031 03910	390Ω 1% 0402
3370	3198 031 06810	680Ω 5% 0.01W 0402
3371	4822 117 13545	100Ω 1% 0402
3372	4822 117 13545	100Ω 1% 0402
3374	5322 117 11726	10Ω 5%
3378	4822 117 13545	100Ω 1% 0402
3380	3198 031 05620	5.6kΩ 5% 0.01W 0402
3381	3198 031 05620	5.6kΩ 5% 0.01W 0402
3382	3198 031 05620	5.6kΩ 5% 0.01W 0402
3383	3198 031 05620	5.6kΩ 5% 0.01W 0402
3386	4822 117 13545	100Ω 1% 0402
3389	4822 117 13545	100Ω 1% 0402
3390	4822 117 13545	100Ω 1% 0402
3391	4822 117 13545	100Ω 1% 0402
3392	4822 117 13545	100Ω 1% 0402
3393	4822 117 13545	100Ω 1% 0402
3394	3198 031 07590	75Ω 5% 0402
3401	2350 035 10229	4 x 22Ω 5% 1206
3402	2350 035 10229	4 x 22Ω 5% 1206
3403	2350 035 10229	4 x 22Ω 5% 1206
3404	2350 035 10229	4 x 22Ω 5% 1206
3405	2350 035 10229	4 x 22Ω 5% 1206
3406	2350 035 10229	4 x 22Ω 5% 1206
3407	2350 035 10229	4 x 22Ω 5% 1206
3408	2350 035 10229	4 x 22Ω 5% 1206
3409	2350 035 10229	4 x 22Ω 5% 1206
3410	2350 035 10229	4 x 22Ω 5% 1206
3411	2350 035 10229	4 x 22Ω 5% 1206
3412	2350 035 10229	4 x 22Ω 5% 1206
3413	2350 035 10229	4 x 22Ω 5% 1206
3414	3198 031 02290	22Ω 5% 0.1W 0402
3415	3198 031 01090	10Ω 5% 0.01W 0402
3416	4822 117 13548	1kΩ 5% 0402
3417	4822 117 13548	1kΩ 5% 0402
3418	3198 031 03910	390Ω 1% 0402
3422	3198 031 02290	22Ω 5% 0.1W 0402
3423	3198 031 03320	3.3kΩ 5% 0402
3424	2322 704 61501	150Ω 1% 0603
3425	4822 117 13606	10kΩ 5% 0.01W 0402
3426	3198 031 03320	3.3kΩ 5% 0402
3428	4822 117 13606	10kΩ 5% 0.01W 0402
3429	4822 117 13606	10kΩ 5% 0.01W 0402
3432	4822 117 13606	10kΩ 5% 0.01W 0402
3433	4822 117 13606	10kΩ 5% 0.01W 0402
3436	4822 117 13606	10kΩ 5% 0.01W 0402
3437	4822 117 13606	10kΩ 5% 0.01W 0402
3438	3198 031 11030	4 x 10kΩ 5% 1206
3439	3198 031 11030	4 x 10kΩ 5% 1206
3440	3198 031 11030	4 x 10kΩ 5% 1206
3441	3198 031 11030	4 x 10kΩ 5% 1206
3442	3198 031 11030	4 x 10kΩ 5% 1206
3443	4822 117 13606	10kΩ 5% 0.01W 0402
3444	4822 051 30103	10kΩ 5% 0.062W
3446	5322 117 13017	100Ω 1% 0.063W 0603
3447	3198 031 02290	22Ω 5% 0.1W 0402
3448	3198 031 01090	10Ω 5% 0.01W 0402
3501	4822 117 12706	10kΩ 1% 0.063W 0603
3502	4822 117 12706	10kΩ 1% 0.063W 0603
3503	2322 704 61501	150Ω 1% 0603
3531	4822 117 13606	10kΩ 5% 0.01W 0402
3532	4822 117 13606	10kΩ 5% 0.01W 0402
3534	4822 117 13548	1kΩ 5% 0402
3536	4822 117 13606	10kΩ 5% 0.01W 0402
3538	3198 031 11030	4 x 10kΩ 5% 1206
3539	3198 031 11030	4 x 10kΩ 5% 1206
3540	3198 031 11030	4 x 10kΩ 5% 1206
3544	3198 031 11030	4 x 10kΩ 5% 1206
3545	3198 031 11030	4 x 10kΩ 5% 1206
3546	3198 031 11030	4 x 10kΩ 5% 1206
3547	3198 031 11030	4 x 10kΩ 5% 1206
3548	4822 117 13606	10kΩ 5% 0.01W 0402
3550	4822 051 30102	1kΩ 5% 0.062W
3553	4822 051 30102	1kΩ 5% 0.062W
3560	4822 117 11297	100kΩ 5% 0.1W
3561	4822 117 11297	100kΩ 5% 0.1W
3562	4822 117 11297	100kΩ 5% 0.1W
3563	4822 117 13548	1kΩ 5% 0402
3564	3198 031 01220	1.2kΩ 5% 0.01W 0402
3565	4822 117 13548	1kΩ 5% 0402
3566	4822 117 13548	1kΩ 5% 0402
3567	4822 117 13548	1kΩ 5% 0402
3568	4822 117 13606	10kΩ 5% 0.01W 0402
3579	4822 117 13548	1kΩ 5% 0402
3580	4822 117 13543	470Ω 5% 0402
3581	3198 031 04730	47Ω 5% 0402
3605	4822 117 13545	100Ω 1% 0402
3606	4822 117 13545	100Ω 1% 0402
3607	4822 117 13545	100Ω 1% 0402
3608	4822 117 13545	100Ω 1% 0402
3609	4822 117 13545	100Ω 1% 0402
3610	4822 117 13601	22kΩ 5% 0402
3612	4822 117 13543	470Ω 5% 0402
3613	3198 031 02290	22Ω 5% 0.1W 0402
3614	3198 031 02290	22Ω 5% 0.1W 0402
3615	3198 031 02290	22Ω 5% 0.1W 0402
3616	3198 031 02290	22Ω 5% 0.1W 0402
3617	3198 031 02290	22Ω 5% 0.1W 0402
3618	3198 031 02290	22Ω 5% 0.1W 0402
3619	3198 031 08210	820Ω 5% 0,5W
3620	4822 117 13632	100kΩ 1% 0603 0.62W
3621	4822 117 13601	22kΩ 5% 0402
3622	4822 117 13601	22kΩ 5% 0402
3623	4822 117 13601	22kΩ 5% 0402
3624	4822 117 13601	22kΩ 5% 0402
3625	4822 117 13601	22kΩ 5% 0402
3626	4822 117 13601	22kΩ 5% 0402
3633	4822 117 13545	100Ω 1% 0402
3634	4822 117 13545	100Ω 1% 0402
3635	4822 117 13545	100Ω 1% 0402
3638	4822 117 13545	100Ω 1% 0402
3639	4822 117 13545	100Ω 1% 0402
3641	4822 117 13597	330Ω 5% 0402 0.01W
3642	4822 117 13597	330Ω 5% 0402 0.01W
3643	4822 117 13597	330Ω 5% 0402 0.01W
3644	4822 117 13597	330Ω 5% 0402 0.01W
3645	4822 117 13597	330Ω 5% 0402 0.01W
3646	4822 117 13597	330Ω 5% 0402 0.01W
3682	4822 051 30222	2.2kΩ 5% 0.062W
3688	4822 051 30222	2.2kΩ 5% 0.062W
3690	4822 051 30221	220Ω 5% 0.062W
3691	4822 051 30759	75Ω 5% 0.062W
3692	4822 051 30759	75Ω 5% 0.062W
3693	4822 051 30103	10kΩ 5% 0.062W
3694	4822 051 30221	220Ω 5% 0.062W
3695	4822 051 30759	75Ω 5% 0.062W
3696	4822 051 30103	10kΩ 5% 0.062W
3697	4822 051 30103	10kΩ 5% 0.062W
3698	4822 051 30223	22kΩ 5% 0.062W
3699	4822 051 30223	22kΩ 5% 0.062W
3700	4822 117 12925	47kΩ 1% 0.063W 0603
3701	4822 117 13548	1kΩ 5% 0402
3702	4822 117 13602	2.2kΩ 5% 0.01W 0402
3703	4822 117 13606	10kΩ 5% 0.01W 0402
3704	4822 117 13543	470Ω 5% 0402
3705	4822 117 13606	10kΩ 5% 0.01W 0402
3711	3198 031 03390	33Ω 1% 0402
3712	4822 117 13606	10kΩ 5% 0.01W 0402
3713	4822 117 13606	10kΩ 5% 0.01W 0402
3716	4822 117 13543	470Ω 5% 0402
3718	3198 031 03390	33Ω 1% 0402
3721	4822 117 13543	470Ω 5% 0402
3723	4822 117 13548	1kΩ 5% 0402
3724	4822 117 13606	10kΩ 5% 0.01W 0402
3728	4822 117 13602	2.2kΩ 5% 0.01W 0402
3729	3198 031 03920	3.9kΩ 5% 0402
3739	4822 117 13601	22kΩ 5% 0402
3740	4822 117 13601	22kΩ 5% 0402
3741	4822 117 11297	100kΩ 5% 0.1W
3742	4822 117 13601	22kΩ 5% 0402
3743	4822 117 13601	22kΩ 5% 0402
3745	4822 117 11297	100kΩ 5% 0.1W
3752	3198 031 01510	150Ω 5% 0.01W 0402
3753	3198 031 01510	150Ω 5% 0.01W 0402
3781	4822 117 12925	47kΩ 1% 0.063W 0603
3785	4822 051 30101	100Ω 5% 0.062W
3786	4822 117 12917	1Ω 5% 0.062W
3787	4822 117 12917	1Ω 5% 0.062W
3789	4822 051 30151	150Ω 5% 0.062W
3790	4822 051 30103	10kΩ 5% 0.062W
3791	4822 051 30102	1kΩ 5% 0.062W
3792	4822 051 30102	1kΩ 5% 0.062W
3801	3198 031 13390	4X 33Ω 5% 1206
3802	3198 031 13390	4X 33Ω 5% 1206

3803	3198 031 13390	4X 33Ω 5% 1206
3804	3198 031 13390	4X 33Ω 5% 1206
3805	3198 031 13390	4X 33Ω 5% 1206
3806	3198 031 13390	4X 33Ω 5% 1206
3807	3198 031 03390	33Ω 1% 0402
3808	3198 031 04720	4.7kΩ 5% 0402
3809	3198 031 04720	4.7kΩ 5% 0402
3810	3198 031 04720	4.7kΩ 5% 0402
3813	3198 031 13390	4X 33Ω 5% 1206
3815	4822 117 13545	100Ω 1% 0402
3816	3198 031 02240	220kΩ 5% 0.1W 0402
3817	3198 031 02240	220kΩ 5% 0.1W 0402
3819	4822 117 13545	100Ω 1% 0402
3821	3198 031 03390	33Ω 1% 0402
3822	3198 031 04720	4.7kΩ 5% 0402
3823	3198 031 04720	4.7kΩ 5% 0402
3824	4822 117 13545	100Ω 1% 0402
3825	4822 117 13545	100Ω 1% 0402
3826	4822 117 12917	1Ω 5% 0.062W
3827	4822 117 12917	1Ω 5% 0.062W
3828	4822 117 13605	Jumper 0402
3829	4822 117 13606	10kΩ 5% 0.01W 0402
3830	3198 031 03390	33Ω 1% 0402
3831	3198 031 03920	3.9kΩ 5% 0402
3832	4822 117 13605	Jumper 0402
3833	4822 117 13606	10kΩ 5% 0.01W 0402
3834	4822 117 13545	100Ω 1% 0402
3835	3198 031 03910	390Ω 1% 0402
3836	4822 117 13606	10kΩ 5% 0.01W 0402
3837	4822 117 13606	10kΩ 5% 0.01W 0402
3838	4822 117 13606	10kΩ 5% 0.01W 0402
3839	4822 117 13606	10kΩ 5% 0.01W 0402
3876	3198 031 06890	68Ω 5% 0402
3877	3198 031 06890	68Ω 5% 0402
3879	3198 031 06890	68Ω 5% 0402
3883	3198 031 06890	68Ω 5% 0402
3886	4822 117 13606	10kΩ 5% 0.01W 0402
3887	4822 117 13606	10kΩ 5% 0.01W 0402
3910	4822 117 13602	2.2kΩ 5% 0.01W 0402
3911	4822 117 13548	1kΩ 5% 0402
3930	4822 117 12917	1Ω 5% 0.062W
3931	4822 117 12917	1Ω 5% 0.062W
3932	2322 704 61002	1kΩ 1%
3933	2322 704 63302	3.3kΩ 1% 0603
3951	4822 117 12917	1Ω 5% 0.062W
3952	4822 117 12917	1Ω 5% 0.062W
3953	2322 704 61002	1kΩ 1%
3954	2322 704 63302	3.3kΩ 1% 0603
3955	4822 117 13606	10kΩ 5% 0.01W 0402
3958	3198 031 01530	15kΩ 5% 0.01W 0402
4004	4822 117 13605	Jumper 0402
4006	4822 117 13605	Jumper 0402
4008	4822 117 13605	Jumper 0402
4017	4822 117 13605	Jumper 0402
4018	4822 117 13605	Jumper 0402
4062	4822 117 13605	Jumper 0402
4175	4822 051 30008	Jumper 0603
4177	4822 051 30008	Jumper 0603
4223	4822 051 30008	Jumper 0603
4327	4822 051 30008	Jumper 0603
4331	4822 051 30008	Jumper 0603
4360	4822 117 13605	Jumper 0402
4361	4822 117 13605	Jumper 0402
4362	4822 117 13605	Jumper 0402
4363	4822 117 13605	Jumper 0402
4444	4822 051 30008	Jumper 0603
4580	4822 117 13605	Jumper 0402
4581	4822 117 13605	Jumper 0402
4583	4822 117 13605	Jumper 0402
4590	4822 117 13605	Jumper 0402
4601	4822 117 13605	Jumper 0402
4602	4822 117 13605	Jumper 0402
4603	4822 117 13605	Jumper 0402
4608	4822 117 13605	Jumper 0402
4708	4822 051 30008	Jumper 0603
4714	4822 117 13605	Jumper 0402
4720	4822 051 30008	Jumper 0603

5001	2422 536 00667	1000µF 20% 7032
5002	4822 157 11716	Bead 30Ω at 100MHz
5003	4822 157 11716	Bead 30Ω at 100MHz
5004	4822 157 11716	Bead 30Ω at 100MHz
5005	4822 157 11716	Bead 30Ω at 100MHz
5006	4822 157 11716	Bead 30Ω at 100MHz
5007	4822 157 11716	Bead 30Ω at 100MHz
5008	4822 157 11716	Bead 30Ω at 100MHz
5060	4822 157 11716	Bead 30Ω at 100MHz
5066	3198 018 51080	1µH 10% 0603
5067	3198 018 51080	1µH 10% 0603
5070	4822 157 11716	Bead 30Ω at 100MHz
5071	2422 549 42896	Bead 120Ω 100MHz
5072	2422 549 42896	Bead 120Ω 100MHz
5251	2422 549 45333	Bead 120Ω 100MHz
5252	2422 549 45333	Bead 120Ω 100MHz
5257	2422 549 45333	Bead 120Ω 100MHz
5258	2422 549 45333	Bead 120Ω 100MHz
5262	2422 535 94134	10µH 20% 0805
5267	2422 536 00339	33µ 20%
5268	2422 535 94995	10µF 20% 10145
5304	4822 157 11499	Bead 60Ω at 100MHz
5309	3198 018 31290	12µH 10%
5321	3198 018 33970	0.39µF 10% 0805
5370	4822 157 11716	Bead 30Ω at 100MHz
5371	4822 157 11716	Bead 30Ω at 100MHz
5372	4822 157 11716	Bead 30Ω at 100MHz
5530	2422 549 45333	Bead 120Ω 100MHz
5560	4822 157 11716	Bead 30Ω at 100MHz
5580	4822 157 71304	1µH 10% 0805
5605	2422 549 45333	Bead 120Ω 100MHz
5607	2422 549 45333	Bead 120Ω 100MHz
5636	2422 549 45333	Bead 120Ω 100MHz
5681	2422 549 45333	Bead 120Ω 100MHz
5682	2422 549 45333	Bead 120Ω 100MHz
5688	2422 549 45333	Bead 120Ω 100MHz
5689	2422 549 45333	Bead 120Ω 100MHz
5690	2422 549 45333	Bead 120Ω 100MHz
5691	2422 549 45333	Bead 120Ω 100MHz
5720	4822 157 11716	Bead 30Ω at 100MHz
5721	4822 157 11716	Bead 30Ω at 100MHz
5722	4822 157 11716	Bead 30Ω at 100MHz
5801	2422 549 42896	Bead 120Ω 100MHz
5802	2422 549 42896	Bead 120Ω 100MHz
5803	2422 549 42896	Bead 120Ω 100MHz
5804	2422 549 42896	Bead 120Ω 100MHz
5805	2422 549 42896	Bead 120Ω 100MHz
5874	2422 549 45333	Bead 120Ω 100MHz
5910	2422 536 00667	1000µF 20% 7032
5920	2422 549 45333	Bead 120Ω 100MHz
5930	2422 535 94134	10µH 20% 0805
5931	2422 536 00689	220µF 20%
5932	2422 535 94134	10µH 20% 0805
5952	2422 535 94134	10µH 20% 0805
5953	2422 536 00689	220µF 20%
5954	2422 535 94134	10µH 20% 0805
5956	2422 549 45333	Bead 120Ω 100MHz
5957	2422 549 45333	Bead 120Ω 100MHz
5984	2422 549 45333	Bead 120Ω 100MHz
5985	2422 549 45333	Bead 120Ω 100MHz
5986	2422 549 45333	Bead 120Ω 100MHz
5987	2422 549 45333	Bead 120Ω 100MHz
5988	2422 549 45333	Bead 120Ω 100MHz
5989	2422 549 45333	Bead 120Ω 100MHz
5990	2422 549 45333	Bead 120Ω 100MHz
5991	2422 549 45333	Bead 120Ω 100MHz
5994	2422 549 45333	Bead 120Ω 100MHz
5996	2422 549 45333	Bead 120Ω 100MHz
5997	2422 549 45333	Bead 120Ω 100MHz
5998	2422 549 45333	Bead 120Ω 100MHz

6001	4822 130 11397	BAS316
6005	9340 553 52115	BAS321
6020	4822 130 11397	BAS316
6021	4822 130 11397	BAS316
6073	4822 130 80622	BAT54
6240	4822 130 11397	BAS316
6259	9322 128 70685	SMSS14
6262	3198 010 10720	SS24
6267	3198 010 10730	SS36
6270	4822 130 10837	UDZS8.2B
6328	4822 130 11416	PDZ6.8B
6329	4822 130 11416	PDZ6.8B
6330	4822 130 11416	PDZ6.8B
6331	4822 130 11416	PDZ6.8B
6563	9322 102 64685	UDZ2.7B
6564	4822 130 11416	PDZ6.8B
6565	4822 130 10838	UDZ3.3B
6604	4822 130 11397	BAS316
6605	4822 130 11397	BAS316
6634	9322 102 64685	UDZ2.7B
6635	9322 102 64685	UDZ2.7B
6638	9322 102 64685	UDZ2.7B
6639	9322 102 64685	UDZ2.7B
6692	4822 130 11397	BAS316
6701	9322 102 64685	UDZ2.7B
6910	5322 130 34337	BAV99
6911	9340 548 71115	PDZ33B
6930	9322 128 70685	SMSS14
6951	9322 128 70685	SMSS14

7001	9339 693 90135	BCP69-25
7002	9340 425 20115	BC847BS
7003	9339 693 90135	BCP69-25
7005	9340 547 13215	BSH103
7011		For SW see item 7050
7012	3198 010 42310	BC847BW
7013	3198 010 42310	BC847BW
7014	3198 010 42310	BC847BW
7015	9322 208 05668	SM NE555D
7016	9322 208 05668	SM NE555D
7017	9322 208 05668	SM NE555D
7018	5322 130 60159	BC846B
7019	5322 130 60159	BC846B
7050	3104 317 08182	SW (check Prod.Surv.)
7051	3104 317 08191	SW (check Prod.Surv.)
7054	3104 317 06681	SW (check Prod.Surv.)
7055	3104 317 07151	SW (check Prod.Surv.)
7070	9340 547 13215	BSH103
7099	4822 209 17226	M24C08-WMN6
7138	5322 130 60159	BC846B
7201	3198 010 42320	BC857BW
7225	3198 010 42310	BC847BW
7226	3198 010 42310	BC847BW
7227	3198 010 42310	BC847BW
7228	3198 010 42310	BC847BW
7240	3198 010 42310	BC847BW
7241	3198 010 42310	BC847BW
7260	9322 139 16668	LF33CPT
7262	9322 202 34668	L5973D
7271	3198 010 42310	BC847BW
7272	3198 010 42310	BC847BW
7370	9340 550 49115	PUMH7
7371	9340 550 49115	PUMH7
7372	9340 550 49115	PUMH7
7376	9340 425 10115	BC857BS
7377	9340 425 10115	BC857BS
7401	9322 206 86671	GM1501-BD
7416	9322 157 51685	SI12301DS
7501	9322 205 70671	K4D263238F-UC50
7530		For SW see item 7051
7531	9322 156 81668	M24C32-WMN6TNKSA
7532	9352 691 71115	NE56610-27GW
7560	9352 334 10118	TDA9178T/N1
7561	3198 010 42310	BC847BW
7562	9322 199 24668	L7808CD2T
7563	4822 209 73852	PMBT2369
7579	4822 130 11155	PDTC114ET
7580	9322 199 16668	M74HC590T
7581	9322 199 16668	M74HC590T
7582	9322 201 05671	CY62256LL-70ZC
7583	9351 870 00118	74HC573PW
7584	9351 870 00118	74HC573PW
7585	3198 010 42310	BC847BW
7604	9352 607 39118	74LVC14APW
7605	4822 209 60792	74HC4053D
7606	9322 199 56668	ADG781BCP
7607	9322 199 80668	SM5301BS-G
7693		For SW see item 7054
7706	9351 742 70118	74HC08PW
7708	9340 425 20115	BC847BS
7710	9340 310 50215	PDTA143ET
7713	3198 010 42310	BC847BW
7714	3198 010 42310	BC847BW
7740	9322 183 05668	TS482ID
7801		For SW see item 7055
7806	9965 000 04199	BSN20
7807	9965 000 04199	BSN20
7808	9322 199 35671	SII9993CTG100
7809	9352 703 94118	UDA1334BT/N2
7810	5322 209 14481	HEF4053BT
7887	3198 010 42310	BC847BW
7910	4822 130 42804	BC817-25
7920	9322 163 24668	L78M08CDT
7930	5322 209 90529	MC34063AD
7952	5322 209 90529	MC34063AD
7954	9322 157 51685	SI12301DS
7955	4822 130 11155	PDTC114ET
7992	9322 142 88668	LF25CDT
7995	9322 189 19668	LD1086D2T18

LCD Supply 30" - 32" [AS]

Various

0040	4822 492 62076	Transistor clamp
0042	3104 301 24291	Clip small SOD113
0043	3104 301 24291	Clip small SOD113
0044	3122 121 67191	Clip small
0045	3122 121 67191	Clip small

0046	3122 121 67191	Clip small
0047	3104 301 24561	Spring
0048	3104 301 24561	Spring
0049	3122 121 67191	Clip small
0051	3104 304 90401	Insulating plate
0052	3104 304 90401	Insulating plate
0053	3104 304 90401	Insulating plate
0054	3104 304 90401	Insulating plate
0305	3104 304 23841	Xtal grommet
1007▲	4822 071 55002	Fuse T5A 250V
1304	2422 025 10647	Connector 4p m
1305	4822 267 10735	Connector 3p
1306▲	2422 025 16374	Connector 2p m
1307	2422 025 10647	Connector 4p m
1308▲	4822 265 20723	Connector 2p
1309	2422 025 11143	Connector 3p m
1400▲	2422 086 00208	Fuse 4A T 250V
1401▲	4822 252 11224	Fuse 1A T 250V
1402	4822 252 60151	Surge protect
1410	4822 265 11253	Fuse holder
1411	4822 265 11253	Fuse holder
1450▲	2422 132 07411	Relay 1p 5V 5A G5PA-1
1M02	2422 025 11244	Connector 7p m

⊣⊢

2000▲	2252 811 95022	1.5nF 20% 250V
2002	4822 124 11767	470µF 20% 25V
2003	4822 124 80061	1000µF 20% 25V
2007	4822 126 14583	470nF 10% 16V 0805
2008	4822 126 14583	470nF 10% 16V 0805
2009	2238 867 18101	100pF 1% 50V 0603
2010	4822 124 40207	100µF 20% 25V
2011	2022 333 00119	10nF 5% 1.6kV
2011	2222 375 24153	15nF 5% 1kV
2012	4822 126 13862	1.5nF 10% 2kV
2012	4822 126 14138	680pF 10% 2kV
2013	4822 126 13862	1.5nF 10% 2kV
2013	4822 126 14138	680pF 10% 2kV
2014▲	4822 126 13451	2.2nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	2238 586 59812	100nF 20% 50V 0603
2017	2022 333 00119	10nF 5% 1.6kV
2017	2222 375 24153	15nF 5% 1kV
2019	5322 126 11583	10nF 10% 50V 0603
2020	2020 021 00012	2200µF 20% 16V
2020	4822 124 12285	2200µF 20% 16V
2021	2020 021 00012	2200µF 20% 16V
2021	4822 124 12285	2200µF 20% 16V
2022	2020 021 00039	1800µF 20% 35V
2022	4822 124 81168	2200 µF 20% 35V
2023	4822 126 14583	470nF 10% 16V 0805
2024	2020 552 96326	220nF 10% 16V
2025	2020 552 96683	220nF 10% 50V
2026	4822 126 14238	2.2nF 50V 0603
2028	5322 126 11578	1nF 10% 50V 0603
2029	5322 126 11578	1nF 10% 50V 0603
2033	2020 552 96683	220nF 10% 50V
2034	2238 867 18101	100pF 1% 50V 0603
2035	2238 867 18101	100pF 1% 50V 0603
2038	2020 021 00039	1800µF 20% 35V
2038	4822 124 81168	2200 µF 20% 35V
2039	4822 126 14583	470nF 10% 16V 0805
2040	4822 126 14249	560pF 10% 50V 0603
2041	2020 552 96683	220nF 10% 50V
2042	2020 552 96683	220nF 10% 50V
2043	2020 552 96683	220nF 10% 50V
2044	5322 126 11578	1nF 10% 50V 0603
2045	5322 126 11578	1nF 10% 50V 0603
2046	3198 017 34730	47nF 16V 0603
2047	5322 126 11583	10nF 10% 50V 0603
2048	5322 126 11578	1nF 10% 50V 0603
2050	5322 126 11578	1nF 10% 50V 0603
2051	2020 552 96683	220nF 10% 50V
2052	2020 552 96683	220nF 10% 50V
2053	2020 552 96683	220nF 10% 50V
2060	4822 126 14238	2.2nF 50V 0603
2061	4822 126 14238	2.2nF 50V 0603
2062	4822 126 14238	2.2nF 50V 0603
2063	4822 126 13881	470pF 5% 50V
2064	4822 126 13881	470pF 5% 50V
2065	4822 126 14238	2.2nF 50V 0603
2071	5322 126 11578	1nF 10% 50V 0603
2072	5322 126 11578	1nF 10% 50V 0603
2077	4822 126 14238	2.2nF 50V 0603
2290	5322 126 11583	10nF 10% 50V 0603
2291	4822 126 13881	470pF 5% 50V
2292	4822 124 12417	2200µF 20% 25V
2293	4822 126 13881	470pF 5% 50V
2294	4822 124 12417	2200µF 20% 25V
2400▲	2222 338 22474	470nF 20% 275V
2401▲	2222 338 22474	470nF 20% 275V
2407▲	2252 811 95017	470pF 10% 250V
2407▲	2252 811 95065	220pF 10% 250V
2503	2020 024 90718	10µF 20% 450V
2803	2222 365 55563	56nF 10% 400V
2804	2222 365 55563	56nF 10% 400V
2815	2020 024 90748	820µF 20% 250V
2816	2020 024 00002	820µF 20% 250V
2816	2020 024 90748	820µF 20% 250V

⊣WW⊢

3000▲	4822 052 10478	4.7Ω 5% 0.33W
3001	4822 051 30101	100Ω 5% 0.062W
3002	4822 051 30223	22kΩ 5% 0.062W
3002	4822 051 30393	39kΩ 5% 0.062W
3003	4822 117 13632	100kΩ 1% 0603 0.62W
3004	4822 051 30273	27kΩ 5% 0.062W
3005	4822 051 30333	33kΩ 5% 0.062W
3006	4822 051 30103	10kΩ 5% 0.062W
3007	4822 051 30103	10kΩ 5% 0.062W
3008	4822 051 30331	330Ω 5% 0.062W
3009	4822 051 30332	3.3Ω 5% 0.062W
3010	4822 051 30471	47Ω 5% 0.062W
3011	4822 051 30471	47Ω 5% 0.062W
3012	4822 051 30153	15kΩ 5% 0.062W
3013	4822 051 30103	10kΩ 5% 0.062W
3014▲	4822 052 10101	100Ω 5% 0.33W
3015▲	4822 052 10479	47Ω 5% 0.33W
3016	4822 051 30332	3.3Ω 5% 0.062W
3017▲	4822 052 10101	100Ω 5% 0.33W
3018▲	4822 052 10479	47Ω 5% 0.33W
3019	4822 051 30332	3.3Ω 5% 0.062W
3020	4822 051 30332	3.3Ω 5% 0.062W
3021	4822 117 12139	22Ω 5% 0.062W
3021	9965 000 23109	22Ω 5% 0603
3022	4822 051 30681	680Ω 5% 0.062W
3023	4822 051 30153	15kΩ 5% 0.062W
3024	2322 704 63303	33kΩ 1% 0603
3025	3198 021 31820	1.8kΩ 5% 0.062W 0603
3025	4822 117 12903	1.8kΩ 1% 0.063W 0603
3026	2120 368 90118	Potm. lin. 470Ω hor.
3026	4822 101 11383	Potm. 470Ω 30% linear
3027	4822 117 13632	100kΩ 1% 0603 0.62W
3028	4822 051 30332	3.3Ω 5% 0.062W
3029	4822 051 30332	3.3Ω 5% 0.062W
3030	4822 051 30183	18kΩ 5% 0.062W
3031	4822 051 30103	10kΩ 5% 0.062W
3032	4822 051 30103	10kΩ 5% 0.062W
3033▲	4822 052 11108	1Ω 5% 0.5W
3034	4822 051 30102	1kΩ 5% 0.062W
3035	4822 051 30332	3.3Ω 5% 0.062W
3040	5322 117 13056	8.2kΩ 1% 0.063W 0603
3041	4822 051 30333	33kΩ 5% 0.062W
3043	4822 051 30109	10Ω 5% 0.062W
3045	4822 117 12139	22Ω 5% 0.062W
3045	9965 000 23109	22Ω 5% 0603
3046	4822 117 12139	22Ω 5% 0.062W
3046	9965 000 23109	22Ω 5% 0603
3047	4822 051 30479	47Ω 5% 0.062W
3048	4822 051 30272	2.7kΩ 5% 0.062W
3050	4822 050 28204	820kΩ 1% 0.6W
3052	2322 704 61603	16kΩ 1% 0603
3052	2322 704 67502	7.5kΩ 1% 0.5W
3053	4822 050 26804	680kΩ 1% 0.6W
3055	4822 051 30221	220Ω 5% 0.062W
3056	4822 051 30221	220Ω 5% 0.062W
3056	4822 117 12968	820Ω 5% 0.62W
3057	4822 051 30221	220Ω 5% 0.062W
3058	4822 053 20565	5.6MΩ 5% 0.25W
3061	4822 051 30683	68kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 117 13632	100kΩ 1% 0603 0.62W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	4822 051 30101	100Ω 5% 0.062W
3068	4822 051 30222	2.2kΩ 5% 0.062W
3070	4822 051 30102	1kΩ 5% 0.062W
3071	4822 051 30103	10kΩ 5% 0.062W
3075	4822 051 30102	1kΩ 5% 0.062W
3089	4822 051 30103	10kΩ 5% 0.062W
3100	4822 051 30102	1kΩ 5% 0.062W
3101	4822 051 30102	1kΩ 5% 0.062W
3292	4822 051 30561	560Ω 5% 0.062W
3400▲	2122 550 00158	VDR 1mA 612V
3401▲	4822 053 21475	4.7MΩ 5% 0.5W
3402▲	4822 053 21475	4.7MΩ 5% 0.5W
3403▲	4822 053 21475	4.7MΩ 5% 0.5W
3404	4822 116 83872	220Ω 5% 0.5W
3450	2322 252 41108	1Ω 10% 7W
3810	2322 257 41123	12kΩ 5% 5W
3999	4822 051 30683	68kΩ 5% 0.062W
9002	4822 051 30008	Jumper 0603
9009	4822 051 30008	Jumper 0603
9030	4822 051 30008	Jumper 0603
9085	4822 051 30008	Jumper 0603

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5001	2422 531 02444	Transformer S13932-04Y
5002▲	3104 308 21231	Transf. 2652.0001A
5005	4822 526 10704	Bead 50 Ω at 100MHz
5007	4822 526 10704	Bead 50 Ω at 100MHz
5008	4822 526 10704	Bead 50 Ω at 100MHz
5009	4822 157 11411	Bead 80Ω at 100MHz
5010	4822 157 11411	Bead 80Ω at 100MHz
5013	4822 526 10704	Bead 50 Ω at 100MHz
5015	4822 157 11411	Bead 80Ω at 100MHz
5016	4822 157 11411	Bead 80Ω at 100MHz
5017	4822 526 10704	Bead 50 Ω at 100MHz
5025	4822 526 10704	Bead 50 Ω at 100MHz
5026	4822 526 10704	Bead 50 Ω at 100MHz
5027	4822 526 10704	Bead 50 Ω at 100MHz
5028	4822 526 10704	Bead 50 Ω at 100MHz
5040	4822 157 11411	Bead 80Ω at 100MHz
5291	2422 536 00776	33µH 10%
5292	2422 536 00776	33µH 10%
5293	2422 536 00776	33µH 10%
5401▲	2422 549 43563	Filt. 23MHz 3A DMF3520
5402▲	2422 549 43563	Filt. 23MHz 3A DMF3520

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6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 80622	BAT54
6005	4822 130 80622	BAT54
6006	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11152	UDZ18B
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	9322 197 30685	SML4744
6012	9322 208 80685	BZG05C15
6013	9322 197 30685	SML4744
6013	9322 208 80685	BZG05C15
6014	9340 548 67115	PDZ22B
6015	4822 130 11397	BAS316
6017	4822 130 11397	BAS316
6020	4822 130 11397	BAS316
6021	9322 206 26687	STPS20H100CT
6022	4822 130 11148	UDZ4.7B
6023	4822 130 11397	BAS316
6025	9322 206 26687	STPS20H100CT
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6044	9322 207 11687	STPS20L45CT
6045	9322 207 11687	STPS20L45CT
6051	4822 130 11397	BAS316
6077	9322 202 55685	BYG22D
6078	9322 202 55685	BYG22D
6079	9322 202 55685	BYG22D
6080	9322 202 55685	BYG22D
6081	9340 548 67115	PDZ22B
6154	9322 099 61685	BYG10J
6155	9322 099 61685	BYG10J
6291	4822 130 11572	STPS8H100F
6293	4822 130 11572	STPS8H100F
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6506▲	4822 130 83147	DF06M
6807▲	9322 199 74682	GBJ6J-B15



7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7004	3198 010 42310	BC847BW
7005	9322 192 18687	STP15NK50ZFP
7005	9322 205 26687	FQPF18N50V2
7006	9322 192 18687	STP15NK50ZFP
7006	9322 205 26687	FQPF18N50V2
7007	3198 010 42320	BC857BW
7008	3198 010 42320	BC857BW
7009	3198 010 42320	BC857BW
7010	9322 125 09668	TL431AID
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7030	3198 010 42310	BC847BW

3D Comb Filter [CB]

Various

1801	2422 025 15773	Connector 10P f
1883	2422 543 01288	Xtal 20MHz

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2800	4822 122 33761	22pF 5% 50V
2801	4822 122 33761	22pF 5% 50V
2802	4822 124 80151	47µF 16V
2803	2238 586 59812	100nF 20% 50V 0603
2816	4822 122 33761	22pF 5% 50V
2817	4822 122 33761	22pF 5% 50V
2829	4822 122 33761	22pF 5% 50V
2833	2238 586 59812	100nF 20% 50V 0603
2834	4822 124 80151	47µF 16V
2835	4822 124 12084	1µF 20% 50V
2836	4822 124 23002	10µF 16V
2837	2238 586 59812	100nF 20% 50V 0603
2839	4822 122 33761	22pF 5% 50V
2840	2238 586 59812	100nF 20% 50V 0603
2841	2238 586 59812	100nF 20% 50V 0603
2842	2238 586 59812	100nF 20% 50V 0603
2843	2238 586 59812	100nF 20% 50V 0603
2844	2238 586 59812	100nF 20% 50V 0603
2845	2238 586 59812	100nF 20% 50V 0603
2846	2238 586 59812	100nF 20% 50V 0603
2847	2238 586 59812	100nF 20% 50V 0603
2848	4822 124 80151	47µF 16V
2849	2238 586 59812	100nF 20% 50V 0603
2851	4822 126 14491	2.2µF 10V 0805
2852	4822 124 12095	100µF 20% 16V
2853	2238 586 59812	100nF 20% 50V 0603
2855	2238 586 59812	100nF 20% 50V 0603
2856	4822 124 80151	47µF 16V
2861	2238 586 59812	100nF 20% 50V 0603
2862	4822 126 14043	1µF +80-20% 16V 0805
2863	3198 016 31020	1nF 25V 0603
2864	4822 122 33761	22pF 5% 50V
2866	2020 012 93761	330µF 6.3V
2870	2238 586 59812	100nF 20% 50V 0603
2871	4822 124 23002	10µF 16V
2872	4822 124 23002	10µF 16V
2874	2238 586 59812	100nF 20% 50V 0603
2875	4822 122 33761	22pF 5% 50V
2877	4822 122 33761	22pF 5% 50V
2878	4822 122 33761	22pF 5% 50V
2879	4822 122 33761	22pF 5% 50V
2881	2238 586 59812	100nF 20% 50V 0603
2882	2238 586 59812	100nF 20% 50V 0603
2883	4822 122 33761	22pF 5% 50V
2884	4822 122 33761	22pF 5% 50V
2885	2238 586 59812	100nF 20% 50V 0603
2886	2238 586 59812	100nF 20% 50V 0603
2887	2238 586 59812	100nF 20% 50V 0603
2888	2238 586 59812	100nF 20% 50V 0603
2889	4822 124 23002	10µF 16V
2890	2238 586 59812	100nF 20% 50V 0603
2891	4822 124 23002	10µF 16V
2892	5322 126 11583	10nF 10% 50V 0603
2893	3198 016 31510	150pF 10% 50V 0603
2894	3198 016 31510	150pF 10% 50V 0603
2895	5322 126 11583	10nF 10% 50V 0603
2896	4822 124 23002	10µF 16V
2897	3198 016 31510	150pF 10% 50V 0603

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3801	4822 051 30339	33Ω 5% 0.062W
3802	4822 051 30008	Jumper 0603
3803	4822 051 30102	1kΩ 5% 0.062W
3804	4822 051 30479	47Ω 5% 0.062W
3805	4822 051 30101	100Ω 5% 0.062W
3806	4822 051 30121	120Ω 5% 0.062W
3807	4822 051 30121	120Ω 5% 0.062W
3808	4822 051 30121	120Ω 5% 0.062W
3809	4822 051 30331	330Ω 5% 0.062W
3810	4822 051 30562	5.6kΩ 5% 0.063W 0603
3811	4822 051 30561	560Ω 5% 0.062W
3812	4822 051 30109	10Ω 5% 0.062W
3813	4822 051 30272	2.7kΩ 5% 0.062W
3814	4822 051 30109	10Ω 5% 0.062W
3815	4822 117 12903	1.8kΩ 1% 0.063W 0603
3816	4822 051 30479	47Ω 5% 0.062W
3817	4822 051 30102	1kΩ 5% 0.062W
3818	4822 051 30008	Jumper 0603
3819	4822 051 30479	47Ω 5% 0.062W
3820	4822 051 30331	330Ω 5% 0.062W
3821	4822 051 30181	180Ω 5% 0.062W
3822	4822 051 30121	120Ω 5% 0.062W
3823	4822 051 30121	120Ω 5% 0.062W
3824	4822 051 30331	330Ω 5% 0.062W
3825	4822 051 30562	5.6kΩ 5% 0.063W 0603
3826	4822 051 30561	560Ω 5% 0.062W
3827	4822 051 30109	10Ω 5% 0.062W
3828	4822 051 30272	2.7kΩ 5% 0.062W
3829	4822 051 30109	10Ω 5% 0.062W
3830	4822 051 30562	5.6kΩ 5% 0.063W 0603
3832	4822 051 30123	12kΩ 5% 0.1W
3833	4822 051 30109	10Ω 5% 0.062W
3834	4822 051 30471	47Ω 5% 0.062W
3835	4822 051 30471	47Ω 5% 0.062W
3836	4822 051 30109	10Ω 5% 0.062W
3837	4822 051 30561	560Ω 5% 0.062W
3838	4822 051 30102	1kΩ 5% 0.062W
3839	4822 051 30561	560Ω 5% 0.062W
3841	4822 117 12968	820Ω 5% 0.62W
3842	4822 051 30332	3.3Ω 5% 0.062W
3843	4822 051 30152	1.5Ω 5% 0.062W
3844	4822 051 30109	10Ω 5% 0.062W
3847	4822 051 30123	12kΩ 5% 0.1W
3855	4822 117 11151	1Ω 5%
3860	4822 051 30471	47Ω 5% 0.062W
3861	4822 051 30472	4.7Ω 5% 0.062W
3862	4822 051 30273	27kΩ 5% 0.062W
3863	4822 051 30102	1kΩ 5% 0.062W
3864	4822 051 30221	220Ω 5% 0.062W
3865	4822 051 30222	2.2kΩ 5% 0.062W
3866	4822 117 12891	220kΩ 1%
3867	4822 051 30471	47Ω 5% 0.062W
3875	4822 051 30221	220Ω 5% 0.062W
3876	4822 051 30151	150Ω 5% 0.062W
3878	4822 117 13632	100kΩ 1% 0603 0.62W
3879	4822 117 13632	100kΩ 1% 0603 0.62W
3881	4822 051 30479	47Ω 5% 0.062W
3882	4822 051 30479	47Ω 5% 0.062W
3883	4822 051 30102	1kΩ 5% 0.062W
3884	4822 051 30221	220Ω 5% 0.062W
3890	4822 051 30152	1.5Ω 5% 0.062W
3891	4822 051 30109	10Ω 5% 0.062W
3892	4822 051 30272	2.7kΩ 5% 0.062W
3893	4822 051 30471	47Ω 5% 0.062W
3894	4822 051 30471	47Ω 5% 0.062W
3895	4822 051 30102	1kΩ 5% 0.062W
3896	4822 051 30101	100Ω 5% 0.062W

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5801	4822 157 11506	Bead 120Ω at 100MHz
5802	2422 549 44784	Filt. 14.3MHz 4FUS
5804	2422 549 44784	Filt. 14.3MHz 4FUS
5806	2422 549 44784	Filt. 14.3MHz 4FUS
5832	4822 157 11506	Bead 120Ω at 100MHz
5835	4822 157 11506	Bead 120Ω at 100MHz
5840	4822 157 11506	Bead 120Ω at 100MHz
5841	4822 157 11506	Bead 120Ω at 100MHz
5849	4822 157 11506	Bead 120Ω at 100MHz
5851	4822 157 71314	10µH 5% 1210
5852	4822 157 71314	10µH 5% 1210
5855	4822 157 71314	10µH 5% 1210
5856	2422 536 00215	10µH 5%
5860	4822 157 11506	Bead 120Ω at 100MHz
5870	4822 157 71314	10µH 5% 1210
5888	2422 536 00215	10µH 5%
5889	4822 157 11506	Bead 120Ω at 100MHz
5890	4822 157 71314	10µH 5% 1210
5891	3198 018 61590	15µF 5% 1008

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6875	4822 130 11528	1PS76SB10
6876	4822 130 81289	BAS17



7800	3198 010 42310	BC847BW
7801	3198 010 42320	BC857BW
7802	4822 130 62755	BF570
7803	3198 010 42320	BC857BW
7807	3198 010 42320	BC857BW
7808	3198 010 42310	BC847BW
7809	3198 010 42310	BC847BW
7812	4822 130 42131	BF550
7816	3198 010 42310	BC847BW
7817	3198 010 42320	BC857BW
7818	4822 130 62755	BF570
7823	9322 170 65671	UPD64083GF
7837	3198 010 42320	BC857BW
7851	9322 142 88668	LF25CDT
7860	3198 010 42310	BC847BW
7861	3198 010 42320	BC857BW
7862	3198 010 42310	BC847BW
7875	9322 163 48668	LM809M3X-3.08
7890	3198 010 42310	BC847BW

Side I/O [D]

Various

0206	3104 308 10671	Side I/O bracket LCD 30"
0900	2422 026 05133	Connector SVHS 4p f
0901	4822 267 10975	Sock CINCH f YeWhRd
0902	4822 267 31014	Socket head phone
0936	2422 025 12485	Connector 11p m
1100	3139 188 52541	Side I/O Panel
1900	2422 026 05133	Connector SVHS 4p f
1901	4822 267 10975	Sock CINCH f YeWhRd
1902	4822 267 31014	Socket head phone
1936	2422 025 12485	Connector 11p m
8936	3104 311 06121	Cable 11p/560/11p

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2903	5322 122 32531	100pF 5% 50V
2904	5322 122 32531	100pF 5% 50V
2905	4822 122 33177	10nF 20% 50V
2905	5322 122 32654	22nF 10% 63V 0805
2906	4822 122 33177	10nF 20% 50V
2906	5322 122 32654	22nF 10% 63V 0805

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3901	4822 117 11373	100Ω 1% 0805
3902	4822 116 52201	75Ω 5% 0.5W
3903	4822 117 11373	100Ω 1% 0805
3904	4822 116 52201	75Ω 5% 0.5W
3905	4822 050 11002	1kΩ 1% 0.4W
3906	4822 050 11002	1kΩ 1% 0.4W
3908	4822 050 11002	1kΩ 1% 0.4W
3910	4822 116 52276	3.9Ω 5% 0.5W
3911	4822 050 21003	10kΩ 1% 0.6W
3912	4822 050 21003	10kΩ 1% 0.6W
4901	4822 051 20008	Jumper 0805
4903	4822 051 20008	Jumper 0805

Top Control [E]

Various

0053	3104 308 10551	TC assy knob R LCD 30"
0055	3104 308 10561	TC assy knob L LCD 30"
0057	3104 304 25831	TC frame LCD 30"
0058	3104 308 10571	TC assy knob M LCD 30"
0345	4822 267 10459	Connector 3p
1014	3104 328 25451	Top control LCD
1701	2422 128 02778	Tact switch
1702	2422 128 02778	Tact switch
1703	2422 128 02778	Tact switch
1704	2422 128 02778	Tact switch
1705	2422 128 02778	Tact switch
8345	3104 311 07211	Cable 3P/560/3P

⊣W⊢

3001	4822 051 20391	390Ω 5% 0.1W
3003	4822 117 13528	200Ω 1% 0.125W 0805
3005	4822 117 11951	2kΩ 1% 0.1W
3009	4822 117 11534	1.1kΩ 1% 0.1W
3011	4822 117 10845	620Ω 1% 0.1W
3999	4822 051 20471	470Ω 5% 0.1W
9001	4822 051 20008	Jumper 0805
9003	4822 051 20008	Jumper 0805
9005	4822 051 20008	Jumper 0805
9006	4822 051 20008	Jumper 0805

LED + Switch [J]

Various

0320	2422 025 16545	Connector 10p m
1101	2422 128 03123	Switch 2p 2pos 30V

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2107	4822 124 12095	100µF 20% 16V
2120	3198 030 71090	10µF 20% 35V
2126	4822 126 14583	470nF 10% 16V 0805

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3101	4822 051 30151	150Ω 5% 0.062W

3103	4822 051 30331	330Ω 5% 0.062W
3105	4822 051 30681	680Ω 5% 0.062W
3106	4822 051 30151	150Ω 5% 0.062W
3107	4822 051 30471	47Ω 5% 0.062W
3108	4822 051 30103	10kΩ 5% 0.062W
3109	4822 051 30101	100Ω 5% 0.062W
3120	4822 051 30472	4.7Ω 5% 0.062W
3121	4822 051 30103	10kΩ 5% 0.062W
3122	4822 051 30332	3.3Ω 5% 0.062W
3123	4822 051 30332	3.3Ω 5% 0.062W
3124	4822 051 30102	1kΩ 5% 0.062W
3126	2322 702 60335	3.3MΩ 5% 0603
3127	2322 702 60335	3.3MΩ 5% 0603
3128	4822 051 30472	4.7Ω 5% 0.062W
4101	4822 051 30008	Jumper 0603
4107	4822 051 30008	Jumper 0603
4108	4822 051 30008	Jumper 0603
4111	4822 051 30008	Jumper 0603

5100	2422 549 43769	Bead 30Ω at 100MHz

6101	4822 130 11564	UDZ3.9B
6103	4822 130 83915	TLMV3100
6105	4822 130 11564	UDZ3.9B
6127	9322 140 63685	TEMD5000

7103	3198 010 42320	BC857BW
7105	3198 010 42320	BC857BW
7107	9322 206 81667	TSOP34836YA1
7120	5322 209 82941	LM358D

LCD Stand-by / Audio [SA]

Various

0040	4822 492 62076	Transistor clamp
0050	4822 492 62076	Transistor clamp
0260	4822 404 31443	Relief
0341	3104 301 24561	Spring
1304	2422 025 10647	Connector 4p m
1305	4822 267 10735	Connector 3p
1306▲	2422 025 16374	Connector 2p m
1307	2422 025 10647	Connector 4p m
1309	2422 025 11143	Connector 3p m
1312	2422 025 18166	Connector 16p m
1313	2422 025 18166	Connector 16p m
1315	2422 025 10771	Connector 10p m
1317	2422 025 10772	Connector 12p m
1735	2422 025 10768	Connector 3p m
1735	4822 267 10918	Connector 3p
1736	2422 025 10768	Connector 3p m
1739	2422 025 10769	Connector 9p m
1M02	2422 025 11244	Connector 7p m
1M03	2422 025 10771	Connector 10p m
1M10	2422 025 09406	Connector 4p m
1M46	2422 025 10655	Connector 11p m

2101	4822 121 51598	2.2nF 5% 400V
2102	4822 124 40207	100µF 20% 25V
2103	2020 552 94427	100pF 5% 50V
2105	2020 552 94427	100pF 5% 50V
2107	2020 024 90718	10µF 20% 450V
2108	2020 024 90718	10µF 20% 450V
2109	2022 552 05679	1µF 10% 16V 0805
2110	2022 552 05679	1µF 10% 16V 0805
2111	4822 121 43526	47nF 5% 250V
2112	5322 126 11583	10nF 10% 50V 0603
2123	2238 586 59812	100nF 20% 50V 0603
2124	4822 124 40248	10µF 20% 63V
2129	5322 126 11578	1nF 10% 50V 0603
2131	2238 586 15641	22nF 10% 50V 0603
2132	4822 124 40207	100µF 20% 25V
2140	4822 124 40248	10µF 20% 63V
2141	4822 126 14583	470nF 10% 16V 0805
2144	2022 552 05679	1µF 10% 16V 0805
2145	4822 126 13881	470pF 5% 50V
2149	2022 552 05679	1µF 10% 16V 0805
2150	4822 124 12379	220µF 25V
2152▲	4822 121 70162	10nF 5% 400V
2153	5322 126 11582	6.8nF 10% 63V
2154	3198 017 31530	15nF 20% 50V 0603
2160	4822 124 21913	1µF 20% 63V
2163	4822 124 40207	100µF 20% 25V
2506▲	2252 811 95017	470pF 10% 250V
2507	4822 126 13682	100pF 5% 1kV
2508	4822 124 40764	22µF 100V
2510	2020 021 91668	2200µF 20% 10V
2511	4822 124 12379	220µF 25V
2513	4822 126 10206	2.2nF 10% 500V
2515	4822 126 14238	2.2nF 50V 0603
2533	4822 124 40207	100µF 20% 25V
2534	2022 552 05679	1µF 10% 16V 0805
2535	5322 126 11583	10nF 10% 50V 0603
2536	5322 126 11583	10nF 10% 50V 0603
2537	4822 126 14238	2.2nF 50V 0603
2538	5322 126 11583	10nF 10% 50V 0603
2539	2022 552 05679	1µF 10% 16V 0805
2540	5322 126 11583	10nF 10% 50V 0603
2544	5322 126 11583	10nF 10% 50V 0603
2701	4822 124 12379	220µF 25V
2702	5322 126 11578	1nF 10% 50V 0603
2704	5322 126 11578	1nF 10% 50V 0603
2705	2020 552 96684	470nF 10% 25V 0805
2706	2222 580 15649	100nF 10% 50V 0805
2707	4822 126 14585	100nF 10% 0805 50V
2708	2020 552 96326	220nF 10% 16V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	5322 126 11578	1nF 10% 50V 0603
2712	2020 552 96683	220nF 10% 50V
2713	2020 552 96684	470nF 10% 25V 0805
2714	3198 017 33330	33nF 20% 16V 0603
2715	5322 126 11578	1nF 10% 50V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	4822 122 33761	22pF 5% 50V
2719	5322 126 11578	1nF 10% 50V 0603
2720	2020 552 96326	220nF 10% 16V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2725	2020 552 94427	100pF 5% 50V
2726	3198 017 33330	33nF 20% 16V 0603
2727	5322 126 11578	1nF 10% 50V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2764	4822 126 14491	2.2µF 10V 0805
2766	4822 126 14491	2.2µF 10V 0805
2768	4822 124 40255	100µF 20% 63V
2769	4822 124 40255	100µF 20% 63V
2777	2020 552 96683	220nF 10% 50V
2778	4822 124 40769	4.7µF 20% 100V
2779	2020 552 96683	220nF 10% 50V
2780	2020 552 96683	220nF 10% 50V
2781	2020 552 96683	220nF 10% 50V
2783	4822 124 41751	47µF 20% 50V
2785	4822 124 12379	220µF 25V
2786	2238 586 15641	22nF 10% 50V 0603
2786	4822 124 12379	220µF 25V
2788	4822 124 40255	100µF 20% 63V
2789	2020 552 96683	220nF 10% 50V
2790	4822 124 40255	100µF 20% 63V

3100	4822 051 30101	100Ω 5% 0.062W
3101	4822 053 20475	4.7MΩ 5% 0.25W
3102	2312 915 11002	1kΩ 1% 0.5W
3102	3198 039 10020	1kΩ 1% 0.5W
3103	2312 915 11002	1kΩ 1% 0.5W
3103	3198 039 10020	1kΩ 1% 0.5W
3104	4822 051 30479	47Ω 5% 0.062W
3105	4822 051 30221	220Ω 5% 0.062W
3106	4822 051 30391	390Ω 5% 0.062W
3107	4822 051 30391	390Ω 5% 0.062W
3108	4822 053 10478	4.7Ω 5% 1W
3109	4822 051 30391	390Ω 5% 0.062W
3110	4822 051 30391	390Ω 5% 0.062W
3111	4822 053 10152	1.5kΩ 5% 1W
3112	4822 051 30391	390Ω 5% 0.062W
3113	4822 117 12139	22Ω 5% 0.062W
3113	9965 000 23109	22Ω 5% 0603
3114	4822 051 30221	220Ω 5% 0.062W
3117	4822 051 30479	47Ω 5% 0.062W
3122	4822 051 30471	47Ω 5% 0.062W
3123	4822 051 30109	10Ω 5% 0.062W
3124	4822 051 30339	33Ω 5% 0.062W
3125	4822 117 12971	15Ω 5% 0603 0.62W
3126	4822 051 30103	10kΩ 5% 0.062W
3127	4822 051 30562	5.6kΩ 5% 0.063W 0603
3128	4822 117 13608	4.7Ω 5% 0603 0.62W
3132	4822 051 30333	33kΩ 5% 0.062W
3134	4822 051 30102	1kΩ 5% 0.062W
3135	4822 051 30331	330Ω 5% 0.062W
3138	4822 051 30105	1MΩ 5% 0.062W
3140	4822 051 30223	22kΩ 5% 0.062W
3141	4822 051 30471	47Ω 5% 0.062W
3142	4822 051 30123	12kΩ 5% 0.1W
3145	4822 051 30472	4.7Ω 5% 0.062W
3146	4822 051 30479	47Ω 5% 0.062W
3147	4822 051 30223	22kΩ 5% 0.062W
3148	4822 051 30479	47Ω 5% 0.062W
3149	4822 051 30103	10kΩ 5% 0.062W
3150	4822 051 30101	100Ω 5% 0.062W
3152	4822 051 30102	1kΩ 5% 0.062W
3153	4822 051 30223	22kΩ 5% 0.062W
3155	4822 050 21003	10kΩ 1% 0.6W
3156	4822 051 30102	1kΩ 5% 0.062W
3157	4822 051 30223	22kΩ 5% 0.062W
3158	4822 051 30479	47Ω 5% 0.062W
3159	4822 051 30479	47Ω 5% 0.062W
3160	4822 051 30102	1kΩ 5% 0.062W
3161	4822 051 30123	12kΩ 5% 0.1W
3171	4822 051 30101	100Ω 5% 0.062W
3172	4822 051 30333	33kΩ 5% 0.062W
3175	4822 051 30103	10kΩ 5% 0.062W
3176	4822 051 30103	10kΩ 5% 0.062W
3509	4822 053 10222	2.2kΩ 5% 1W
3511	4822 051 30683	68kΩ 5% 0.062W
3512	4822 051 30471	47Ω 5% 0.062W
3513	4822 051 30333	33kΩ 5% 0.062W
3515	4822 117 13632	100kΩ 1% 0603 0.62W
3516	4822 051 30472	4.7Ω 5% 0.062W
3517	4822 051 30223	22kΩ 5% 0.062W
3528	4822 051 30472	4.7Ω 5% 0.062W
3529	4822 051 30101	100Ω 5% 0.062W
3530	4822 051 30223	22kΩ 5% 0.062W
3531	4822 051 30153	15kΩ 5% 0.062W
3532	4822 051 30472	4.7Ω 5% 0.062W
3533	4822 051 30152	1.5Ω 5% 0.062W
3534	4822 051 30103	10kΩ 5% 0.062W
3535	4822 051 30222	2.2kΩ 5% 0.062W
3536	4822 051 30103	10kΩ 5% 0.062W
3538	4822 051 30101	100Ω 5% 0.062W
3539	4822 051 30471	47Ω 5% 0.062W
3540	4822 051 30222	2.2kΩ 5% 0.062W
3541	4822 051 30222	2.2kΩ 5% 0.062W
3542	4822 051 30103	10kΩ 5% 0.062W
3544	4822 051 30221	220Ω 5% 0.062W
3560	4822 051 30682	6.8Ω 5% 0.062W
3561	4822 051 30392	3.9Ω 5% 0.063W 0603
3562	4822 117 13608	4.7Ω 5% 0603 0.62W
3701	4822 051 30103	10kΩ 5% 0.062W
3702	4822 051 30682	6.8Ω 5% 0.062W
3703	4822 051 30333	33kΩ 5% 0.062W
3704	4822 117 10833	10kΩ 1% 0.1W
3705	4822 051 20828	8.2Ω 5% 0.1W
3706	4822 051 30472	4.7Ω 5% 0.062W
3707	4822 051 30683	68kΩ 5% 0.062W
3708	4822 051 30563	56kΩ 5% 0.062W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 051 30223	22kΩ 5% 0.062W
3711	4822 050 21204	120kΩ 1% 0,6W
3712	4822 051 30103	10kΩ 5% 0.062W
3713	2312 915 11202	1.2kΩ 1% 0.5W
3714	4822 117 12925	47kΩ 1% 0.063W 0603
3715	4822 117 12925	47kΩ 1% 0.063W 0603
3716	4822 117 12925	47kΩ 1% 0.063W 0603
3717	4822 117 13632	100kΩ 1% 0603 0.62W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3721	4822 051 30472	4.7Ω 5% 0.062W
3722	4822 051 30683	68kΩ 5% 0.062W
3723	4822 051 30563	56kΩ 5% 0.062W
3724	4822 117 11503	220Ω 1% 0.1W
3725	4822 051 30223	22kΩ 5% 0.062W
3726	4822 117 11503	220Ω 1% 0.1W
3727	4822 117 11503	220Ω 1% 0.1W
3743	4822 117 11449	2.2kΩ 5% 0.1W 0805
3746	4822 051 30223	22kΩ 5% 0.062W
3747	4822 050 21004	100kΩ 1% 0.6W
3747	4822 050 24703	47kΩ 1% 0.6W
3747	4822 117 12925	47kΩ 1% 0.063W 0603
3748	4822 051 30471	47Ω 5% 0.062W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3756	4822 117 11449	2.2kΩ 5% 0.1W 0805
3757	4822 117 11449	2.2kΩ 5% 0.1W 0805
3759	4822 051 30332	3.3Ω 5% 0.062W
3760	4822 051 30332	3.3Ω 5% 0.062W
3761	4822 051 10102	1kΩ 2% 0.25W
3761	4822 051 20109	10Ω 5% 0.1W
3762	4822 051 30222	2.2kΩ 5% 0.062W
3763	4822 051 30222	2.2kΩ 5% 0.062W
3764	4822 051 10102	1kΩ 2% 0.25W
3764	4822 051 20109	10Ω 5% 0.1W
3765	4822 051 30103	10kΩ 5% 0.062W
3765	4822 117 13632	100kΩ 1% 0603 0.62W
3766	4822 051 30103	10kΩ 5% 0.062W
3766	4822 117 13632	100kΩ 1% 0603 0.62W
3767	4822 051 30103	10kΩ 5% 0.062W
3767	4822 117 13632	100kΩ 1% 0603 0.62W

3768	4822 051 30103	10kΩ 5% 0.062W
3768	4822 117 13632	100kΩ 1% 0603 0.62W
3790	4822 051 30222	2.2kΩ 5% 0.062W
3790	4822 051 30682	6.8Ω 5% 0.062W
3791	4822 051 30222	2.2kΩ 5% 0.062W
3791	4822 051 30682	6.8Ω 5% 0.062W
3792	4822 051 30153	15kΩ 5% 0.062W
3792	4822 051 30183	18kΩ 5% 0.062W
3792	4822 051 30682	6.8Ω 5% 0.062W
3793	4822 051 30153	15kΩ 5% 0.062W
3793	4822 051 30183	18kΩ 5% 0.062W
3793	4822 051 30682	6.8Ω 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3999	4822 051 30472	4.7Ω 5% 0.062W
9020	4822 051 30008	Jumper 0603
9717	4822 051 30008	Jumper 0603
9737	4822 051 30008	Jumper 0603

5102	4822 526 10704	Bead 50 Ω at 100MHz
5103	4822 526 10704	Bead 50 Ω at 100MHz
5104	4822 157 11411	Bead 80Ω at 100MHz
5105	4822 157 11716	Bead 30Ω at 100MHz
5106	3198 018 31090	10µH 10% 0805
5108	4822 526 10704	Bead 50 Ω at 100MHz
5110	4822 157 71736	10µH 5%
5500▲	3104 308 21181	Transf. BS25320-00
5500▲	8204 000 76901	Transformer BS25320-00
5504	2422 536 00776	33µH 10%
5505	4822 157 11411	Bead 80Ω at 100MHz
5506	4822 157 11411	Bead 80Ω at 100MHz
5507	2422 536 00433	15µH 10%
5701	2422 536 00385	68µH 10%
5701	2422 536 00951	68µH 20% LHL10
5702	2422 536 00385	68µH 10%
5702	2422 536 00951	68µH 20% LHL10
5703	4822 157 11716	Bead 30Ω at 100MHz
5705	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz
5711	4822 157 11411	Bead 80Ω at 100MHz
5712	4822 157 11411	Bead 80Ω at 100MHz
5730	2422 549 00112	Line filt. 50V 3A
5731	2422 549 00112	Line filt. 50V 3A

6103▲	4822 130 10871	SBYV27-200
6104	9340 548 69115	PDZ27B
6105	4822 130 11522	UDZ15B
6106	9340 548 66115	PDZ20B
6108	4822 130 80622	BAT54
6114▲	4822 130 10871	SBYV27-200
6115	4822 130 80622	BAT54
6116	3198 020 55680	BZX384-C5V6
6120	4822 130 11397	BAS316
6121	4822 130 11397	BAS316
6122	9322 129 34685	BZM55-C3V9
6130	9340 548 61115	PDZ12B
6132	4822 130 11416	PDZ6.8B
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316
6140	4822 130 41487	BYV95C
6142	4822 130 80622	BAT54
6144	4822 130 11397	BAS316
6147	9322 200 23685	SML4736
6147	9322 208 44685	BZG05C6V8
6148	4822 130 11397	BAS316
6149	3198 020 55680	BZX384-C5V6
6150	9340 292 50135	BZG03-C200
6151	9340 548 71115	PDZ33B
6153	9340 292 50135	BZG03-C200
6156	4822 130 11397	BAS316
6504	9340 418 70133	BYV27-600
6505	9322 161 78682	SB360L-7024
6511	9340 548 61115	PDZ12B
6531	4822 130 11522	UDZ15B
6532	4822 130 11397	BAS316
6540	4822 130 80622	BAT54
6562	9340 548 67115	PDZ22B
6701	4822 130 11397	BAS316
6702	4822 130 11551	UDZS10B
6703	4822 130 11551	UDZS10B
6704	4822 130 11397	BAS316



7100	3198 010 42320	BC857BW
7101	9340 219 30115	BC817-25W
7102	4822 130 11417	STP3NB60FP
7102	9322 160 34687	FQPF3N60
7102	9322 194 27687	STP3NK60ZFP
7105	3198 010 42320	BC857BW
7131	9340 557 69127	PHX9NQ20T
7140	3198 010 42310	BC847BW
7150▲	9322 149 04682	TCET1102
7501▲	9322 149 04682	TCET1102
7505	3198 010 42320	BC857BW
7506	3198 010 42310	BC847BW
7507	3198 010 42310	BC847BW
7508	3198 010 42310	BC847BW
7509	3198 010 42310	BC847BW
7511	9337 331 10215	BST82
7512	9340 422 80115	PMSTA42
7531	9340 436 50115	BSP030
7532	3198 010 42310	BC847BW
7560	9340 219 30115	BC817-25W
7700	9322 163 86682	TDA7490L
7701	3198 010 42310	BC847BW
7701	5322 130 60159	BC846B
7703	3198 010 42310	BC847BW
7703	5322 130 60159	BC846B
7704	3198 010 42310	BC847BW
7704	5322 130 60159	BC846B
7705	3198 010 42310	BC847BW
7705	5322 130 60159	BC846B
7706	3198 010 42320	BC857BW
7706	4822 130 60373	BC856B
7707	3198 010 42310	BC847BW
7707	5322 130 60159	BC846B
7708	3198 010 42310	BC847BW
7709	3198 010 42310	BC847BW
7709	5322 130 60159	BC846B
7710	3198 010 42310	BC847BW
7710	5322 130 60159	BC846B
7711	3198 010 42310	BC847BW

11. Revision List

Manual xxxx xxx xxxx.0
- First release.

Manual xxxx xxx xxxx.1
- Update of manual including:
  - Text chapters are updated and minor corrections are made.
  - Blockdiagrams are added.
  - Schematics are updated and minor corrections are made.

Manual xxxx xxx xxxx.2
- Update of manual including:
  - Text chapters are updated and minor corrections are made.
  - Blockdiagrams and schematics are updated and minor corrections are made.
  - Chapter 8 “Alignments”: White Tone Alignment updated.
  - Chapter 10 “Spare Parts” updated

Manual xxxx xxx xxxx.3
- Chapter 1:
  PWB CB (3D Comb filter) added to “Chassis overview”.
- Chapter 7 “Circuit Diagrams and PWB layouts”:
  To improve readability, the PWB layout of the SA panel is splitted in 2 parts.
- Chapter 8 “Alignments”:
  - Default values of White Tone Alignment added.
  - Backlight Voltage Alignment added.
- Chapter 9: Lip sync description added.
- All chapters: small textual and graphical improvements.

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