Colour Television — Chassis

EM5.2E

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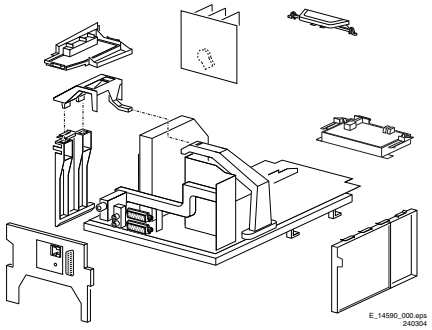

Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

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	:	CRT, Real Flat
Screen sizes	:	28” (70 cm), 16:9
	:	29” (72 cm), 4:3
	:	32" (82 cm), 16:9
Tuning system	:	PLL
Colour systems	:	PAL B/G, D/K, I
	:	SECAM B/G, D/K, L/L’
Video playback	:	NTSC 3.58
	:	NTSC 4.43
	:	NTSC Play Back
Channel selections	:	100 presets
	:	UHF
	:	VHF
	:	Hyper-band
	:	S-band
Aerial input	:	75 ohm, Coax
	:	IEC-type

1.1.2 Sound

Sound systems	:	FM/FM B/G, Czech
	:	NICAM B/G, D/K, I, L
Maximum power	:	4 x 15 W rms (int.)

1.1.3 Miscellaneous

Mains voltage	:	220 - 240 V_ac
Mains frequency	:	50 / 60 Hz
Ambient temperature	:	+5 to +45 °C
Maximum humidity	:	90 % R.H.
Power consumption		
- Normal operation	:	≈ 130 W
- Standby	:	< 1 W

1.2 Connection Overview

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 Top Control and Front / Side Connections

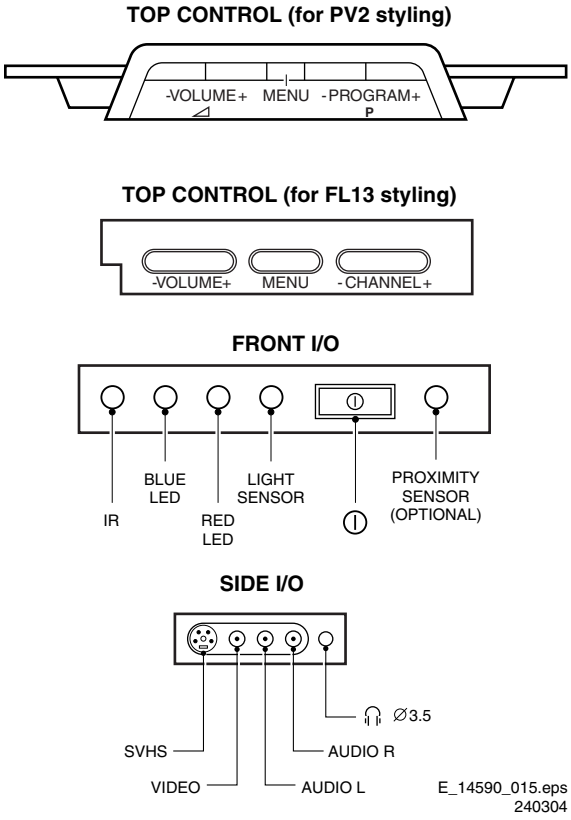


Figure 1-1 Top control and Front / Side connections

S-Video: In

1	- Ground	Gnd	⏚
2	- Ground	Gnd	⏚
3	- Y	1 V_pp / 75 ohm	⊕
4	- C	0.3 V_pp / 75 ohm	⊕

Cinch: In

Ye - Video - CVBS	1 V_pp / 75 ohm	⊕◎
Wh - Audio - L	0.5 V_rms / 10 kohm	⊕◎
Rd - Audio - R	0.5 V_rms / 10 kohm	⊕◎

Mini Jack: Headphone - Out

- Headphone	32 - 600 ohm / 10 mW	3.5mm

1.2.2 Rear Connections

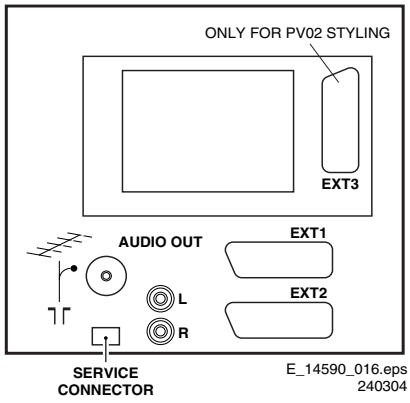


Figure 1-2 Rear View

Aerial - In

- IEC-type	Coax, 75 ohm	

Cinch: Audio - Out

Re - Audio - R	0.5 V_rms / 1 kohm	
Wh - Audio - L	0.5 V_rms / 1 kohm	

External 1: RGB/YUV and CVBS - In/Out

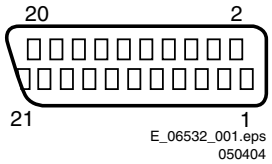


Figure 1-3 SCART connector

1	- Audio - R	0.5 V_rms / 1 kohm	
2	- Audio - R	0.5 V_rms / 10 kohm	
3	- Audio - L	0.5 V_rms / 1 kohm	
4	- Audio - gnd	Ground	
5	- Blue - gnd	Ground	
6	- Audio - L	0.5 V_rms / 10 kohm	
7	- Blue/U - in	0.7 V_pp / 75 ohm	
8	- CVBS - status	0 - 2 V: INT	
		4.5 - 7 V: EXT 16:9	
		9.5 - 12 V: EXT 4:3	
9	- Green - gnd	Ground	
10	- n.c.		
11	- Green/Y - in	0.7 V_pp / 75 ohm	
12	- n.c.		
13	- Red - gnd	Ground	
14	- FBL - gnd	Ground	
15	- Red/V - in	0.7 V_pp / 75 ohm	
16	- Status / FBL	0 - 0.4 V: INT	
		1 - 3 V: EXT / 75 ohm	
17	- Video	Ground	
18	- Video	Ground	
19	- CVBS - out	1 V_pp / 75 ohm	
20	- CVBS - in	1 V_pp / 75 ohm	
21	- Shielding	Ground	

External 2: CVBS and SVHS - In (for video recorder)

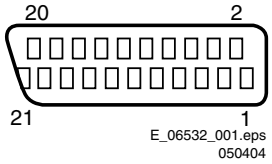


Figure 1-4 SCART connector

1	- Audio - R	0.5 V_rms / 1 kohm	
2	- Audio - R	0.5 V_rms / 10 kohm	
3	- Audio - L	0.5 V_rms / 1 kohm	
4	- Audio - gnd	Ground	
5	- Blue - gnd	Ground	
6	- Audio - L	0.5 V_rms / 10 kohm	
7	- C - out	0.7 V_pp / 75 ohm	
8	- CVBS - status	0 - 2 V: INT	
		4.5 - 7 V: EXT 16:9	
		9.5 - 12 V: EXT 4:3	
9	- Green - gnd	Ground	
10	- Easylink	(P50)	
11	- n.c.		
12	- n.c.		
13	- Red - gnd	Ground	
14	- FBL - gnd	Ground	
15	- C - in	0.7 V_pp / 75 ohm	
16	- n.c.		
17	- Video	Ground	
18	- Video	Ground	
19	- CVBS - out	1 V_pp / 75 ohm	
20	- Y / CVBS - in	1 V_pp / 75 ohm	
21	- Shielding	Ground	

External 3: RGB and CVBS - In (depends on type number)

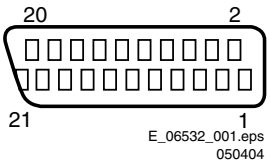


Figure 1-5 SCART connector

1	- n.c.		
2	- Audio - R	0.5 V_rms / 10 kohm	
3	- n.c.		
4	- Audio - gnd	Ground	
5	- Blue - gnd	Ground	
6	- Audio - L	0.5 V_rms / 10 kohm	
7	- Blue - in	0.7 V_pp / 75 ohm	
8	- CVBS - status	0 - 1.3 V: INT	
		4.5 - 7 V: EXT 16:9	
		9.5 - 12 V: EXT 4:3	
9	- Green - gnd	Ground	
10	- n.c.		
11	- Green - in	0.7 V_pp / 75 ohm	
12	- n.c.		
13	- Red - gnd	Ground	
14	- FBL - gnd	Ground	
15	- Red - in	0.7 V_pp / 75 ohm	
16	- Status / FBL	0 - 0.4 V: INT	
		1 - 3 V: EXT / 75 ohm	
17	- Video	Ground	
18	- Video	Ground	
19	- n.c.		
20	- CVBS - in	1 V_pp / 75 ohm	
21	- Shielding	Ground	

1.3 Chassis Overview

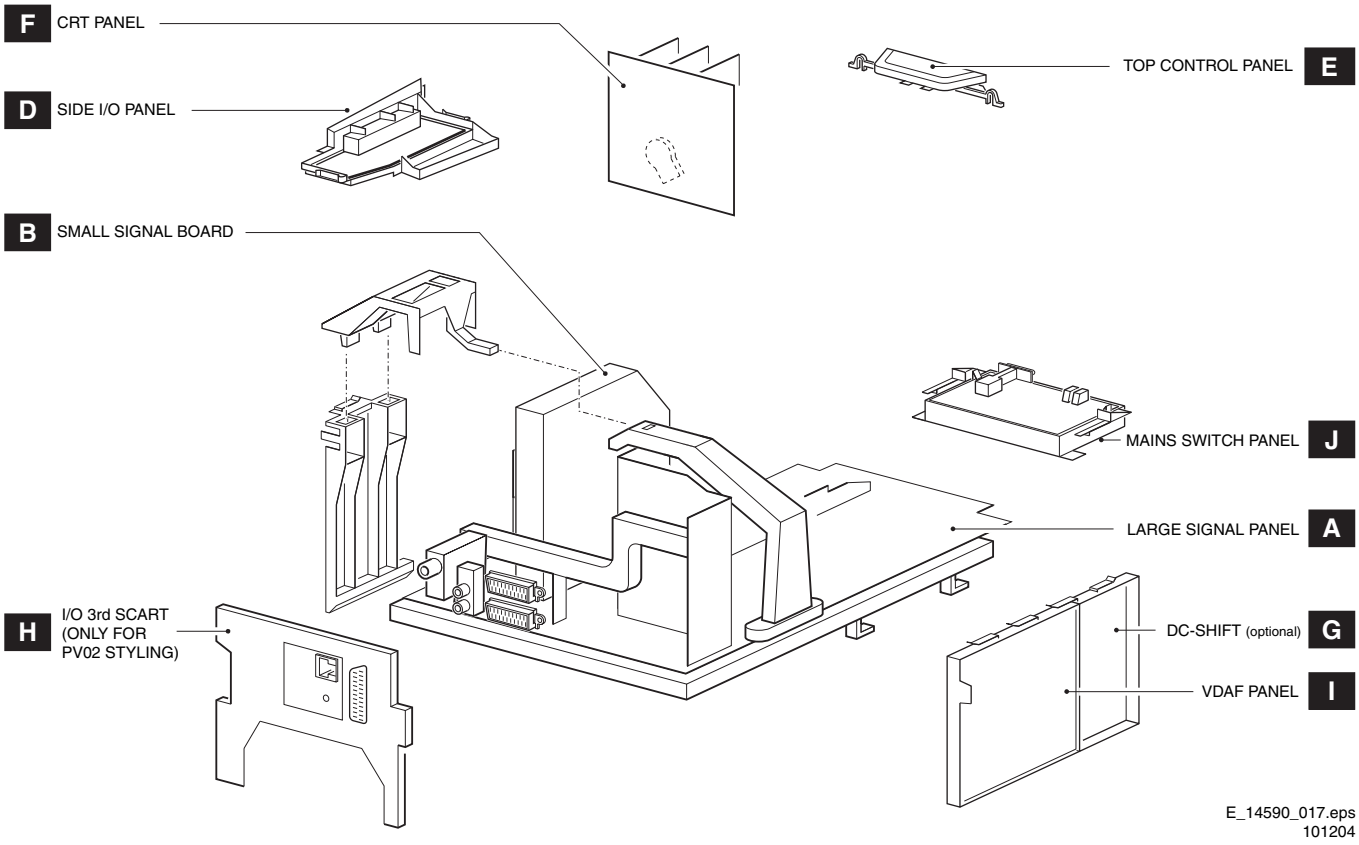


Figure 1-6 PWB location

3. Directions for Use

You can download this information from the following website:
http://www.philips.com/support

4. Mechanical Instructions

Index of this chapter:

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

4.1 Service Connector (for ComPair)

For service diagnostics with ComPair, it is not necessary to disassemble the set. You only have to connect the ComPair interface box via the appropriate cable, to the service connector on the rear of the set (see figure "Rear connections" in chapter "Technical specifications, ..."), and start the program (see also chapter "Service Modes .... ").

4.2 Set Disassembly

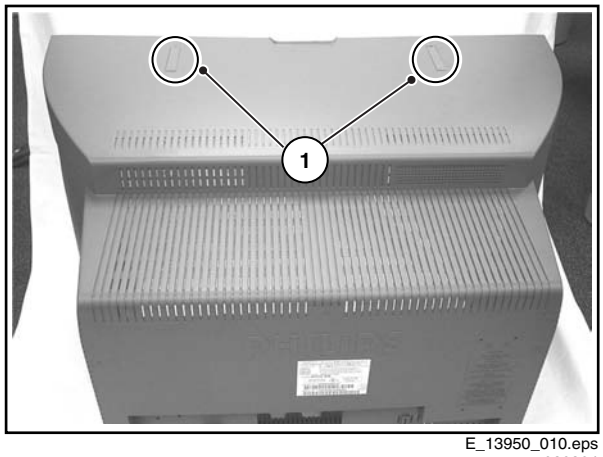
Follow the disassemble instructions in described order.

4.2.1 Rear Cover Removal

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

For PV02 styling (for 9319 sets)

1. Manually unlock and remove the two plastic cover cups (1) (if present) on the top of TV.
2. Remove all the fixation screws of the rear cover.
3. Remove the rear cover.



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030304

Figure 4-1 Rear cover (PV02 styling)

For FL13B styling (for 9309 and 9009 sets)

1. Remove all screws. If you do not remove them, you cannot access the clips.
2. Tilt the set a little forward, so that you can release the two clickfit clamps that are located at the bottomplate of the set.
3. Four openings (1) can be found at the top. The openings are very small (2).
   Note: Some sets only have the two inner openings.
4. Underneath every opening there is a clip. Push this clip down with a very thin piece of metal (3), until you hear a click.
   Caution: do **not** use a screwdriver, this will damage the cabinet.
5. When all four clips are pushed down, the back cover can be removed.

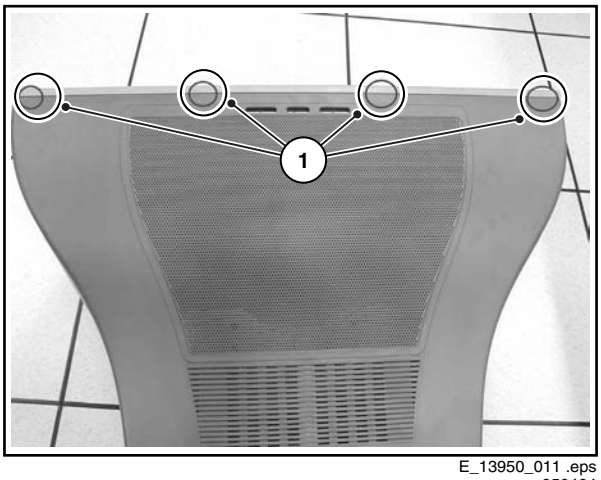

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Figure 4-2 Rear cover (FL13B styling)

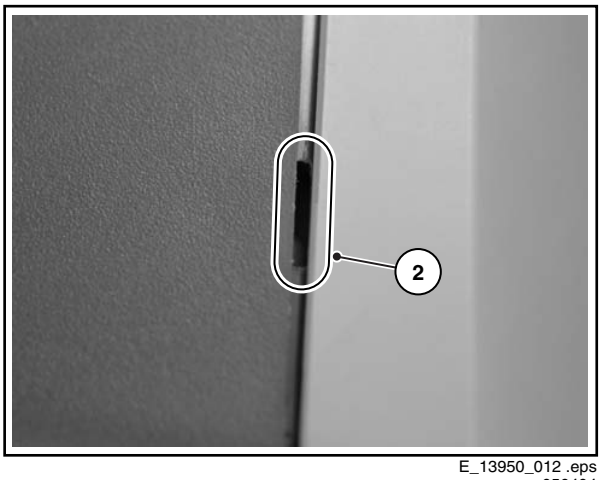

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Figure 4-3 Opening

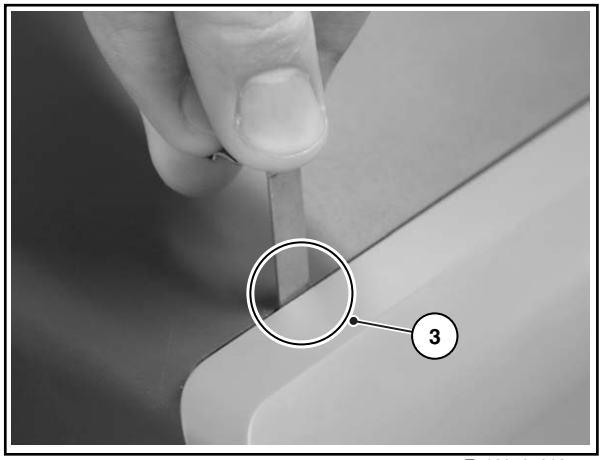

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Figure 4-4 Pushing clips down

4.3 Service Positions

This chassis has several predefined service positions, for better accessibility. They are explained below in more detail.

4.3.1 Solder Side 'I/O 3rd SCART' panel (for PV02 styling - 9319 sets)

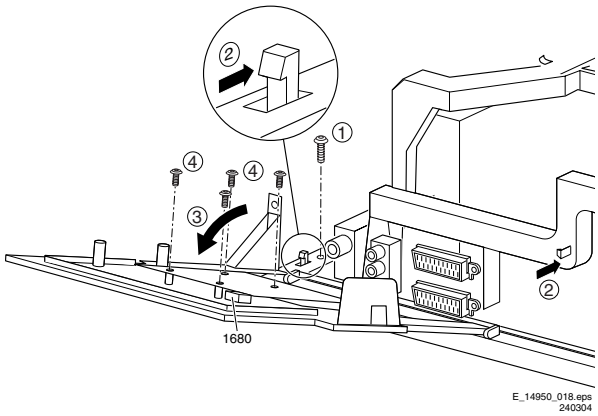


Figure 4-5 Service position 1

To remove or access the 'I/O 3rd SCART' panel, do the following:

1. Remove the fixation screw (1) (if present).
2. Release the two pegs (2).
3. At the same time, pull the complete module away from the LSP bracket (3). It hinges in the LSP bracket.
4. To remove the panel, disconnect the flat-cables, and remove the four panel screws (4).

4.3.2 Component Side LSP

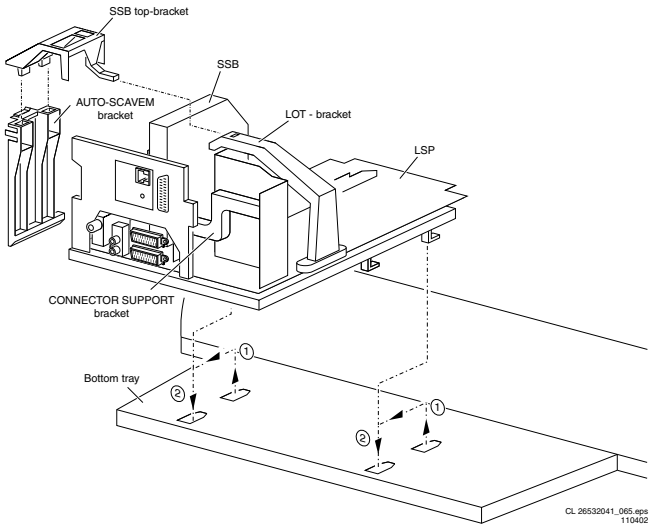


Figure 4-6 Service position 2

For better accessibility of the LSP, do the following (see figure above):

1. Remove the LSP-bracket from the bottom tray by pulling it backwards.
2. Hook the bracket in the first row of fixation holes of the bottom tray. In other words, reposition the bracket from (1) to (2).

4.3.3 Solder Side LSP

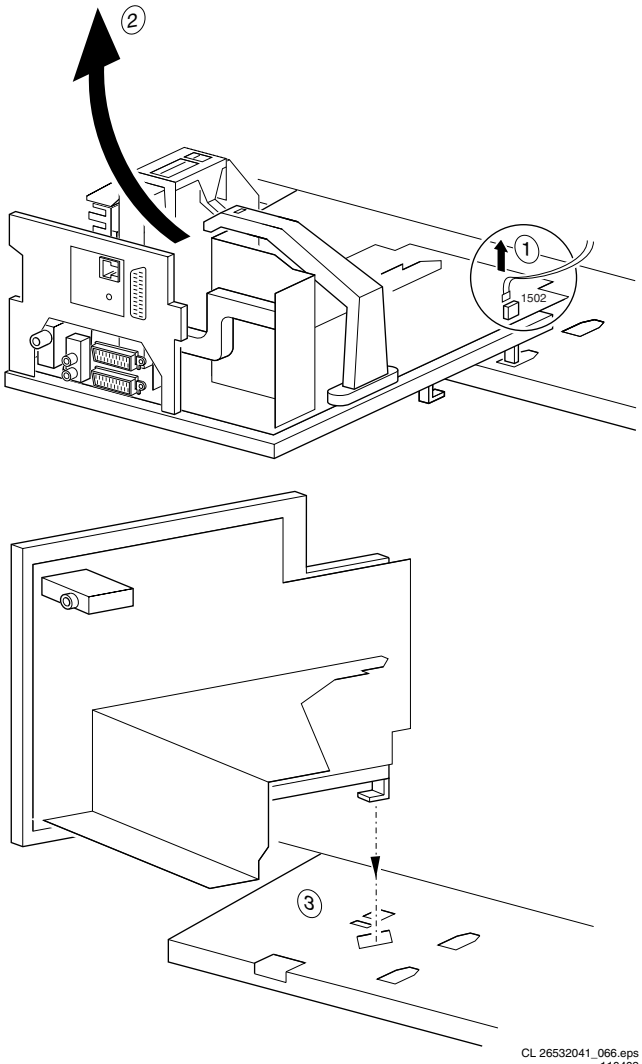


Figure 4-7 Service position 3

To get access to the bottom side (solder side) of the LSP, do the following (see figure above):

1. Remove the DAF-module (see paragraph 'DAF Assy/ Panel' below).
2. To disconnect the degaussing coil from the LSP, remove the cable from connector 1502 (1).
3. Release the wiring from their fixation clamps, in order to get room for repositioning the LSP.
4. Flip the LSP 90 degrees clockwise (2), and place it in the fixation hole at the left side of the bottom tray (3).

4.3.4 Small Signal Board (SSB)

Caution:
Always switch the set completely “OFF” (disconnected the mains cord) before you remove or replace the SSB.
As the 5V2 standby voltage is always present (while the set is switched “ON”, in “standby” or in “Protection” mode) on the SIMM connector, it is very risky to remove the SSB in this situation, because the risk of short circuiting is very great.

In fact, there is no predefined service position for the SSB. Most test points are located on the A-side (side that is facing the tuner). If you have to replace ICs, you must take the complete SSB module out of the SIMM-connector.
Note: For good access to the A-side, it is necessary to remove the Auto-SCAVEM bracket (at the left side of the SSB). Remove the two fixation screws at the bottom by the Auto-

SCAVEM bracket. Lift the Auto-SCAVEM bracket slightly up, and at the same time bend the top a little away from the tuner. Now, push the bracket into the direction of the CRT, and lift it out of the LSP-bracket.

To get access to the SSB test points, do the following:

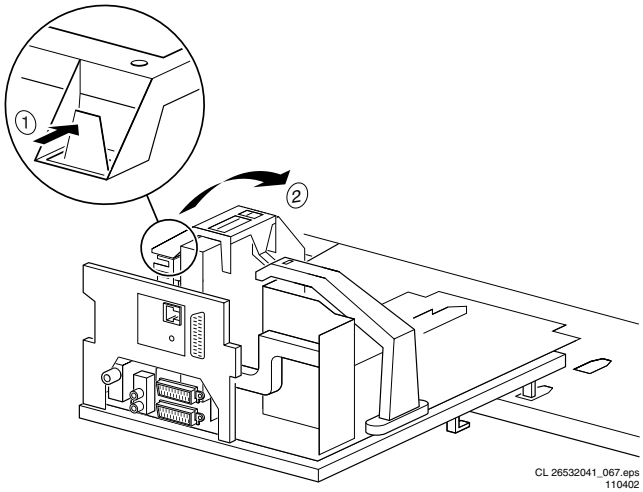


Figure 4-8 SSB removal (part 1)

1. Put the LSP in service position 2 (as described above).
2. Release the two clamps at the top of the SSB bracket (1) and pull the bracket upward (2) (it hinges in the bracket at the LOT side).
3. Now you can remove the complete SSB bracket.

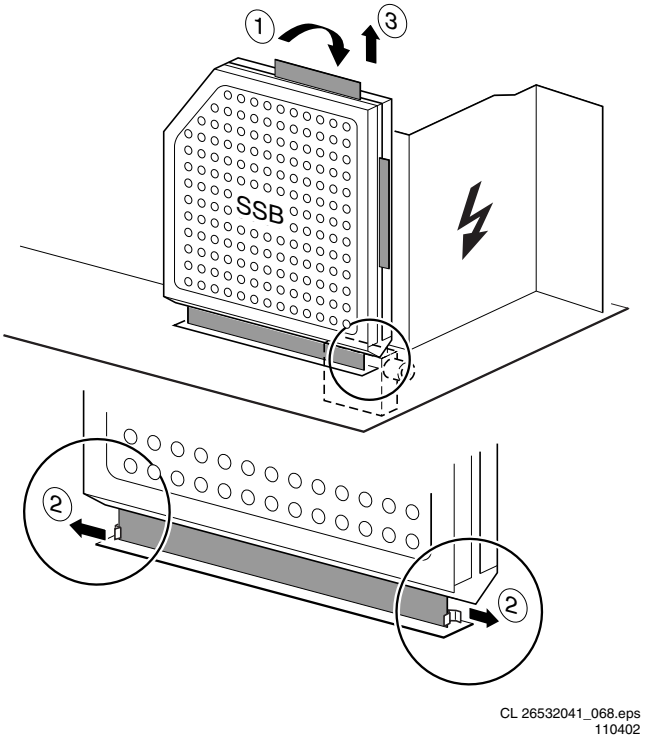


Figure 4-9 SSB removal (part 2)

1. Push the top of the SSB towards the LOT (1).
2. Due to the pressure, the two metal clamps at both sides of the SIMM-connector will release (2).
3. Take the complete SSB out (3).

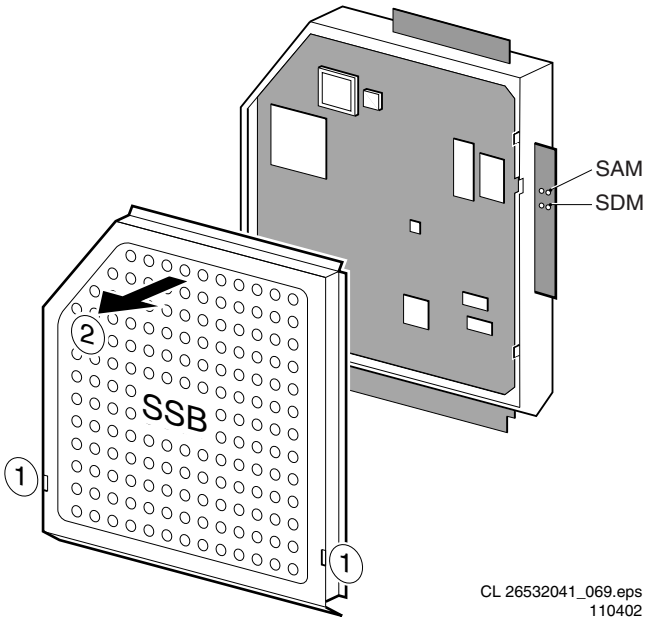


Figure 4-10 SSB removal (part 3)

1. Once you have taken out the SSB, remove the shieldings (2). Sometimes it is necessary to unsolder some solder-tags first (1).
2. Now re-place the SSB module in the SIMM-connector in reverse order.

Notes:
- For better access to the SSB, it is possible to order an “extension tool” under number **9965 000 14526**.
- If necessary for the measurement, you can put the LSP in “Service position 2” (as described above).

4.4 Assies/Panels Removal

Sometimes, it can be necessary to swap a complete assy or Printed Wiring Board (PWB). How that can be done is explained below.

4.4.1 Top Control Assy/Panel

Notes:
- PV02 styling: assy is mounted in the front cabinet;
- FL13B styling: assy is mounted in the rear cover.

1. Remove the two fixation screws.
2. Push the assy a little bit upwards, and then pull it backwards to release it from the front hinge.
3. Lift the panel from its bracket, while releasing the four fixation clamps.

4.4.2 Side-I/O Assy/Panel

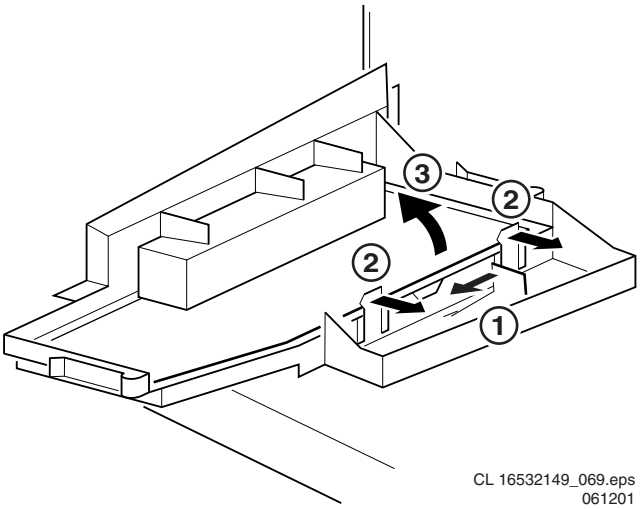


Figure 4-11 Side I/O assy/panel

1. Release the snap-hook (1) with your finger.
2. At the same time, pull the assy backwards (2).
3. Release the two fixation clamps on the right side of the bracket (the panel hinges at the left side).
4. Remove the panel from the bracket (3).

4.4.3 Mains Switch Assy/Panel

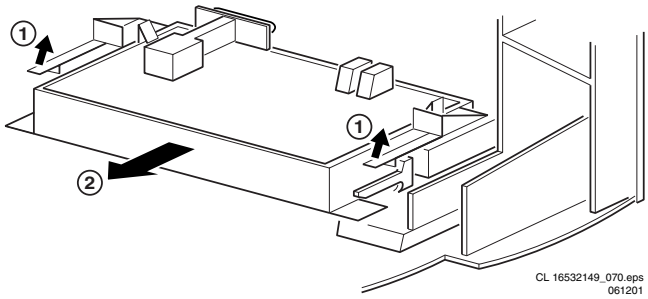


Figure 4-12 Mains switch assy/panel

1. Release the two fixation clamps (rather difficult to reach), by pushing them upwards (1). At the same time, pull the complete assy backwards (2).
   Note: be aware that the degaussing coil can hamper this.
2. Release the two fixation clamps on the two sides of the bracket (the panel hinges at the connector side).
3. Remove the panel from the bracket.
4. When the light guide (sitting in the cabinet, in front of the LEDs) is defective, you can replace it by pushing it forwards at the left side (it hinges at the right side, seen from the rear).

4.4.4 DAF Assy/Panel

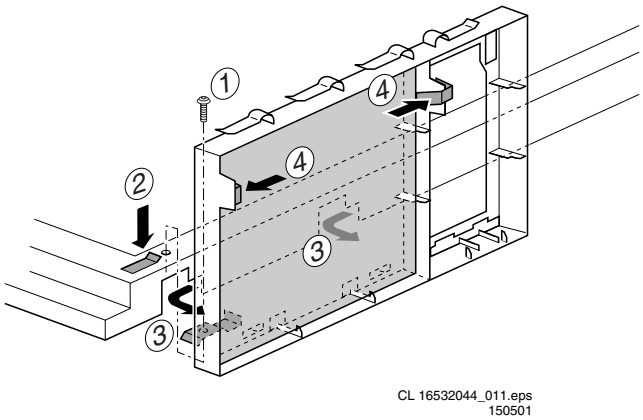


Figure 4-13 DAF-module

1. Remove the fixation screw (1) (if present).
2. Push down the fixation clamp (2), and pull the complete bracket at the same time away from the CRT (3). The module is now free from the LSP-bracket.
3. Release the fixation clamps (4), in order to remove the panel from its bracket.

4.4.5 Small Signal Board (SSB)

See paragraph “Small Signal Board (SSB)” above.

4.4.6 Large Signal Panel (LSP)

1. Remove the “I/O 3rd SCART” assy (for PV02 styling) (see paragraph “I/O 3rd SCART” above).
2. Remove the DAF assy (see paragraph “DAF Assy/Panel” above).
3. Remove the SSB bracket and the SSB (see paragraph “Small Signal Board (SSB)’”above).
4. Remove the two fixation screws at the bottom by the Auto-SCAVEM bracket. Lift the Auto-SCAVEM bracket slightly up, and at the same time bend the top a little away from the tuner. Now, push the bracket into the direction of the CRT, and lift it out of the LSP-bracket.
5. Remove the two fixation screws at the bottom by the LOT bracket. Lift the LOT bracket from the right side slightly up, and at the same time release it from the fastening at the top, and remove the LOT bracket.
6. Disconnect the necessary cables.
7. Remove the two fixation screws. One screw is located nearby the SIMM-connector and the second screw is located nearby the degaussing coil.
8. Release the fixation clamps on the left side and on the topside of the LSP-bracket (the panel hinges at the right side).
9. Remove the panel from the bracket.

4.5 Set Re-assembly

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

Note: be sure that, before the rear cover is mounted:

- The mains cord is mounted correctly in its guiding brackets.
- All wires/cables are returned in their original positions. This is very important due to the large “hot” area of the set

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points

The chassis is equipped with test points printed on the circuit board assemblies. They refer to the diagram letters.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Minimum requirements: a Pentium processor, Windows 95/ 98, and a CD-ROM drive (see also paragraph "ComPair").

Note: In this chassis, two LED configurations are possible: with bicoloured LED (red/green) or with separate blue and red LEDs. The bicoloured version is the one we know from EM5E. The version with blue LED works slightly different. The blue LED is controlled by software (via ON_OFF_LED). The red LED will light in anti-phase to the blue one, but with a time delay. This means that if the blue LED is blinking fast, the red LED will stay off. But after the blue LED is "OFF" long enough, the red LED will go "ON".
So take care: In certain service modes (e.g. blinking LED, stepwise start-up, etc.) you must observe the blue LED and ignore the red LED.

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections.
- To start the blinking LED procedure.

Specifications
- Tuning frequency: 475.25 MHz for PAL/SECAM.
- Colour system: SECAM L for France or PAL B/G for the rest of Europe.
- All picture settings at 50 % (brightness, colour, contrast).
- All sound settings at 50 %, except volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Blue mute.
  - Automatic volume limiter (AVL).
  - Auto switch-off (when no video signal was received for 10 minutes).
  - Skip/blank of non-favourite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to enter SDM
- Use one of the following methods:
- Use the standard RC-transmitter and key in the code **"062596"**, directly followed by the "MENU" button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it off, push the "MENU" button again.
- When you shorten for a moment the two solder pads on the 'external part' of the SSB print, with the indication "SDM". Activation can be performed in all modes, except when the set has a problem with the main-processor.
  Caution: If the SDM is entered via the pins, all the software-controlled protections are de-activated.
- Use the DST-emulation feature of ComPair.
- Use the "DEFAULT" button on the Dealer Service Tool (RC7150).

After entering this mode, "SDM" will appear in the upper right corner of the screen.

How to navigate
When you press the "MENU" button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to exit SDM
Use one of the following methods:
- Switch the set to STANDBY via the RC-transmitter.
- Press the "EXIT" button on the DST.
- Via a standard customer RC-transmitter: key in **"00"**-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

Specifications
- Operation hours counter.
- Software version.
- Option settings.
- Error buffer reading and erasing.
- Software alignments.

How to enter SAM
Use one of the following methods:
- Via a standard RC transmitter: key in the code **"062596"** directly followed by the "OSD [i+]" button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing any digit key on the RC.
- Short for a moment the two solder pads on the 'external part' of the SSB print, with the indication SAM. Depending on the software version it is possible that the service warning will appear, you can continue by pressing any digit key on the RC.
- Use the DST-emulation feature of ComPair.
- Press the ALIGN button on the DST while the set is in the normal operation

After entering this mode, "SAM" will appear in the upper right corner of the screen.

Contents of SAM:

- **OPERATION HOURS.** Displays the accumulated total of operation hours (not the standby hours).
- **HARDWARE INFO**
  - **ROM VERSION.** Displays the date of the software and the software version of the ROM (**Example:** EM53EU1-1.0_01234 = AAABBC-X.Y_NNNNN).
    - **AAA**= the chassis name.
    - **BB**= the region: EU= Europe, AP= Asia Pacific PAL/Multi, AN= Asia Pacific NTSC, US= USA, LT= LATAM.
    - **C**= the language cluster number.
    - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
    - **NNNNN**= last five digits of 12nc code software.
  - **FBX VERSION.** The 12NC-number of the build in Feature Box software.
- **ERRORS** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **DEFECTIVE MODULE.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message "UNKNOWN" here.
- **RESET ERROR BUFFER.** When you press the "OK" button, the error buffer is reset.
- **ALIGNMENTS.** This will activate the "ALIGNMENTS" sub-menu.
- **DEALER OPTIONS.** Extra features for the dealers.
- **SERVICE OPTIONS.** Extra features for Service.
- **INITIALISE NVM.** When an NVM was corrupted (or replaced) in the former EM3 chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all pre-sets and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognises a corrupted NVM, the "INITIALISE NVM" line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, before initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialise the NVM (same as in the past, however now it happens conscious).
- **STORE.** All options and alignments are stored when pressing the "OK"-button
- **FUNCTIONAL TEST.** All devices are tested via the "OK" button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **DAILY MENUS.** With the "OK" button, you can go to the normal user menu. SAM is still active in the background. With the "MENU" button, you return from the user menu to SAM menu. This feature can be helpful to quickly change some settings in the user menu.
- **SW MAINTENANCE**
  - **UPGRADE.** Not applicable for this chassis
  - **EVENTS.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
  - **BDM INFO.** Broadcast Debug Menu info. The purpose of this menu is to debug the broadcast, NOT the TV. The menu gives an overview of what is received on the current preset. Following items are displayed:

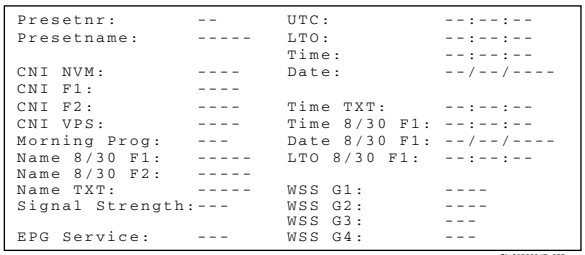


Figure 5-1 Broadcast debug menu overview.

Table 5-1 Broadcast debug menu explanation

Item	Source	Description
Presetnr	Set	Presetnumber of the current selected preset.
Presetname	Set	Presetname of the current selected preset.
CNI NVM	Broadcaster	CNI number stored in NVM for the current preset.
CNI F1	Broadcaster	CNI number from transmitted Packet 8/30 Format 1.
CNI F2	Broadcaster	CNI number from transmitted Packet 8/30 Format 2.
CNI VPS	Broadcaster	CNI number from transmitted VPS line.
Morning Prog	Broadcaster	"ARD" or "ZDF" according to dedicated bit in 8/30 Format 1.
Name 8/30 F1	Broadcaster	Name extracted from status message of 8/30 Format 1.
Name 8/30 F2	Broadcaster	Name extracted from status message of 8/30 Format 2.
Name TXT	Broadcaster	Name extracted from TXT header.
Signal Strength	FBX	Noise figure measured for selected preset.
EPG Service	Set	EPG Service stored in NVM for current preset displayed as "TXT", "MCP", "SCP", "OCP".
UTC	Set	UTC (Universal Time Code formerly known as Greenwich Mean Time) used in the set.
LTO	Set	LTO (Local Time Offset) used in the set. Used by EPG for all Nextview displays. (= Time TXT header - Time 8/30 F1)
Time	Set	Current time running in the set. Was extracted at startup, then maintained by software.
Date	Set	Current date running in the set. Was extracted at startup, then maintained by software.
Time TXT	Broadcaster	TXT header time from the selected preset.
Time 8/30 F1	Broadcaster	UTC time from 8/30 Format 1.
Date 8/30 F1	Broadcaster	Date from 8/30 Format 1.
LTO 8/30 F1	Broadcaster	LTO from 8/30 Format 1.
WSS G1	Broadcaster	WSS Group 1 (Aspect Ratio) bits 0 1 2 3
WSS G2	Broadcaster	WSS Group 2 (Enhanced Services) bits 4 5 6 7
WSS G3	Broadcaster	WSS Group 3 (Subtitles) bits 8 9 10
WSS G4	Broadcaster	WSS Group 4 (Reserved) bits 11 12 13

How to navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
  - (De) activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.

How to exit SAM

Use one of the following methods:

- Press the "MENU" button on the RC-transmitter, or
- Switch the set to STANDBY via the RC-transmitter, or
- Press the "EXIT" button on the DST.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer. The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to enter CSM

Use one of the following methods:

- Press the "MUTE" button on the RC-transmitter simultaneously with the "MENU" button on the TV (top control) for at least 4 seconds.
- Key in the code "123654" via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to navigate

By means of the "CURSOR-DOWN/UP" knob on the RC-transmitter, you can navigate through the five menus.

Contents of CSM

Customer Service Menu 1

- **SOFTWARE VERSION (Example: EM53EU1-1.0_01234).** Displays the build in software version. In case of field problems related to software, software flash-RAM pos.7006 must be changed by a new one. Do this via soldering. You will find details of the software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication. This publication is generated four times a year.
- **FEATURE BOX.** The 12NC-number of the build in Feature Box software
- **SET TYPE.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set.
- **CODE 1.** Gives the latest 5 errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 3-digit number. When less than 10 errors occur, the rest of the buffer is empty (000). See also paragraph "Error Codes" for a description.
- **CODE 2.** Gives the first 5 errors of the error buffer. See also paragraph Error Codes for a description.
- **VOLUME.** Gives the last status of the volume as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.
- **BRIGHTNESS.** Gives the last status of the brightness as set by the customer. The value can vary from 0 (brightness is minimum) to 100 (brightness is maximum). Brightness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "BRIGHTNESS".
- **CONTRAST.** Gives the last status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 100 (contrast is maximum). Contrast values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "CONTRAST".
- **COLOUR.** Gives the last status of the colour saturation, as set by the customer. The value can vary from 0 (colour is minimum) to 100 (colour is maximum). Colour values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "COLOUR".
- **HUE.** Only relevant for NTSC-signals (e.g. some NTSC-DVD-discs).

Customer Service Menu 2

- **SHARPNESS.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "SHARPNESS".
- **HEADPHONE VOLUME.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Headphone volume values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "SOUND" and "HEADPHONE VOLUME".
- **SURROUND MODE.** Indicates the by the customer selected surround mode (or automatically chosen mode). In case the set is a Non-Dolby set, there will be displayed **"0"**. If it is a Dolby-set then is displayed: "STEREO", "3 STEREO", "HALL", "3DSURROUND", "DOLBY PRO LOGIC" or "DOLBY DIGITAL". These settings can be influenced after pressing the "MENU" button and selecting "SOUND" and SURROUND MODE". It can also have been selected automatically by signalling bits (internal software).
- **TUNER FREQUENCY.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys for fine tune after opening the installation menu and selecting "INSTALL" and "MANUAL INSTALL".
- **DIGITAL OPTION.** Gives the selected digital mode, "100 HZ", "DIGITAL SCAN", "NATURAL MOTION", "DOUBLE LINES", or "PIXEL PLUS". Change via "MENU", "PICTURE", "DIGITAL OPTIONS".
- **CENTRE TRIM.** Indicates the difference between main volume and volume of centre speaker. Change via: "MENU", "SETUP", "SPEAKERS", and "CENTRE VOLUME" (not available when "Surround Mode" is set to "STEREO" or "HALL"). The value can vary from "-10" to "+10"
- **TV SYSTEM.** Gives information about the video system of the selected transmitter.
  - **BG:** PAL BG signal received.
  - **DK:** PAL DK signal received.
  - **I:** PAL I signal received.
  - **L/La:** SECAM L/La signals received.
  - **M:** NTSC M signal received with video carrier on 38.9 MHz.

Customer Service Menu 3

- **BALANCE.** Indicates the balance settings, between "-50" and "+50". Change via "MENU", "SOUND", and "BALANCE". Not applicable for Dolby Pro Logic sets.
- **CENTRE MODE.** Indicates if centre mode is set "ON" or "OFF". When centre mode is on, all TV speakers are used as one centre speaker. Change Centre mode via "MENU", "SETUP", "SPEAKERS", and "CENTRE MODE".
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), "OFF", "MINIMUM", "MEDIUM", or "MAXIMUM". Change via "MENU", "PICTURE", "DNR"
- **NOISE FIGURE.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127

(average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
- **SOURCE.** Indicates which source is used and the video/ audio signal quality of the selected source. (**Example:** Tuner, Video/NICAM) Source: "TUNER", "EXT1", "EXT2", "EXT3", "EXT4", "SIDE", "AV1", "AV2", "AV3" or "AV4". Video signal quality: "VIDEO", "S-VIDEO", "RGB 1FH", "YPBPR 1FH 480P", "YPBPR 1FH 576P", "YPBPR 1FH 1080I", "YPBPR 2FH 480P", "YPBPR 2FH 576P", "YPBPR 2FH 1080I", "RGB 2FH 480P", "RGB 2FH 576P" or "RGB 2FH 1080I". Audio signal quality: "STEREO", "SPDIF 1", "SPDIF 2" or "SPDIF".
- **AUDIO SYSTEM.** Gives information about the audio system of the selected transmitter: "ANALOGUE MONO", "ANALOGUE STEREO", "PCM 2/0", "DD 1/0", "DD 2/0 LtRt", "DD 2/0 L0R0", "DD 2/1", "DD 2/2", "DD 3/0", "DD 3/ 1", "DD 3/2", "DD 1+1", "MPEG 1/0", "MPEG 2/0", "MPEG 2/0 LtRt", "MPEG 2/1", "MPEG 2/2", "MPEG 3/0", "MPEG 3/1", "MPEG 3/2", "MPEG 1+1" or "MPEG 2+2".
- **TUNED BIT.** Gives information about the tuning method of the stored pre-set. If a channel is found via "automatic installation", you will see the value "Off". When you change this (automatically found) frequency via "fine tune" adjustment (installation menu - manual installation), the displayed value will change to "On". Therefore, when you see the value "On" in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **SURROUND SPEAKERS.** Indicates if the surround speakers are present, "YES" or "NO". Change via "MENU", "SETUP", "SPEAKERS", and "SURROUND SPEAKERS".
- **ON TIMER.** Indicates if the "On Timer" is set "ON" or "OFF" and if the timer is "ON" also displays start time, start day and program number. Change via "MENU", "TV", "FEATURES", and "ON TIMER".
- **PRESET LOCK.** Indicates if the selected preset has a child lock: "LOCKED" or "UNLOCKED". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "CUSTOM LOCK".

Customer Service Menu 4
- **CHILD LOCK.** Indicates the last status of the general child lock: "UNLOCK", "LOCK", or "CUSTOM LOCK". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "LOCK".
- **AGE LOCK.** Indicates the last status of the EPG rating for child lock: "OFF", "4 YEARS", "6 YEARS", "8 YEARS", "10 YEARS", "12 YEARS", "14 YEARS" or "16 YEARS". This is only displayed if child lock is set to "CUSTOM LOCK"
- **LOCK AFTER.** Indicates at what time the child lock is set: "OFF" or e.g. "18:45" (lock time). This is only displayed if child lock is set to "CUSTOM LOCK"
- **CATEGORY LOCK.** Indicates the last status of the EPG theme childlock: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES". This is only displayed if child lock is set to "CUSTOM LOCK". It is possible that more than one value is shown.
- **PROGRAM CATEGORY.** Indicates the theme of the selected transmitter: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES".
- **TV RATINGS LOCK.** Only applicable for US.
- **MOVIE RATINGS LOCK.** Only applicable for US.
- **V-CHIP TV STATUS.** Only applicable for US.

Customer Service Menu 5
- **V-CHIP MOVIE STATUS.** Only applicable for US.
- **OPTIONS 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **OPTIONS 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): "ON" or "OFF". Change via "MENU", "TV", "SOUND", "AVL"
- **DELTA VOLUME.** Indicates the last status of the delta volume for the selected preset as set by the customer: from "-12" to "+12". Change via "MENU", "TV", "SOUND", "DELTA VOLUME".
- **SURROUND TRIM L.** Indicates the last status of "SURROUND LEFT VOLUME" as set by the customer: from "-10" to "+10". Only available in Digital Dolby sets. Change via "MENU", "SETUP", "SPEAKERS", "SURROUND L VOLUME.
- **SURROUND TRIM R.** Indicates the last status of "Surround Right Volume" as set by the customer: from "-10" to "+10". Only available in Digital Dolby sets. Change via "MENU", "SETUP", "SPEAKERS", "SURROUND R VOLUME.
- **FRONT SPKR DIST.** Indicates the last status of the distance to the front speakers as set by the customer: "1m", "2m", or "3m",.... Change via "MENU", "SETUP", "SPEAKERS", "TO FRONT".
- **SURR. SPKR DIST.** Indicates the last status of the distance to the surround speakers as set by the customer: "1m", "2m", or "3m",. Change via "MENU", "SETUP", "SPEAKERS", "TO SURROUND".

How to exit CSM

Use one of the following methods:
- After you press a key on the RC-transmitter (with exception of the "CHANNEL", "VOLUME" and digit (0-9) keys), or
- After you switch the TV-set "OFF" with the mains switch.

5.3 Problems and Solving Tips (related to CSM)

Note: Below described problems are all related to the TV settings. The procedures to change the value (or status) of the different settings are described above. New value(s) are automatically stored.

5.3.1 Picture Problems

Snowy/noisy picture
1. Check line 24 "Noise Figure". In case the value is 127 or higher, and the value is also high on other programs, check the aerial cable/aerial system. For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
2. Check lines 11 "Sharpness" and 24 "Noise Figure". In case the value of line 11 is 3 or 4 and the value of line 24 is high (127 or higher), decrease the "Sharpness" value.

Picture too dark
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, increase the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check line 7 "Brightness" and 8 "Contrast". If the value of line 7 is low (< 10) or the value of line 8 is low (< 10), increase the "Brightness" or the "Contrast" value.

Picture too bright
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, decrease the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check lines 7 "Brightness" and 8 "Contrast". If the value of line 7 is high (> 40) or the value of line 8 is high (> 50). Decrease the "Brightness" value or increase the "Contrast" value.

White line around picture elements and text
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, decrease the "Sharpness" value. The new value is automatically stored (in "personal" pre-set) for all TV channels.
2. Check line 11 "Sharpness". Decrease the "Sharpness" value. The new value is automatically stored for all TV channels.

No picture
Check line 27 "Tuned bit". In case the value is "No", install the required program again. Open the installation menu and perform manual installation.

Blue picture
No proper signal is received. Check the aerial cable/aerial system.

Blue picture and/or unstable picture
A scrambled or decoded signal is received.

Black and white picture
Check line 9 "Colour". In case the value is low (< 10), increase the "Colour" value. The new value is automatically stored for all TV channels.

No colours/colour lines around picture elements or colours not correct or unstable picture
1. Check line 20 "TV System". If a "strange" system pops up, something has gone wrong during installation. Re-install the channel.
2. In case line 20 is "L", the installed system for this pre-set is "France", while "West Europe" is required. Install the required program again: open the installation menu and perform manual installation. Select system "West Europe".

Menu text not sharp enough
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case picture improves, decrease the contrast value. The new value(s) are automatically stored for all TV channels.
2. Check line 8 "Contrast". The value of line 8 is high (> 50). Decrease the contrast value.

5.3.2 Sound Problems

No sound from left and right speaker
Check line 6 "Volume". The value is low. Increase the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

Sound too loud for left and right speaker
Check line 6 "Volume". The value is high. Decrease the value of " Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

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 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 faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding 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 level. ComPair can access the I^2C bus of the television. ComPair can send and receive I^2C 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 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 extends. When this is not the case, ComPair will guide you through the faultfinding 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 faultfinding 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 Dealer Service Tool (DST).
- If both ComPair and 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 Stepwise Start-up

Under normal circumstances, a fault in the power supply, or an error during start-up, will switch the television to protection mode. ComPair can take over the initialisation of the television. In this way, it is possible to distinguish which part of the start-up routine (hence which circuitry) is causing the problem. Take notice that the transition between two steps can take some time, so give the set some time to reach a stable state. During the transition time the LED can blink strangely.

Stepwise start- up explanation
This is realised via ComPair and is very helpful when a protection is activated (see also chapter "Protections").

Table 5-2 Stepwise start-up table

State	Description mode	Display LED	Enabled protection
0	Low power standby: 5V2/3V3 present, uP in standby-mode	On	None
1	High power Standby: TV-set in standby-mode	Wait 1s, flash 1 x	None
2	Main Power On: HOP in standby, 5V/8V present, I²C protections on, SSB is powered by standby-supply (5V/8V). Degaussing (12 s) has been activated, MSP is reset.	Wait 1s, flash 2 x	4 & 5
3	Initialized (Semi standby): most IC's are initialized, HOP still in standby	Wait 1s, flash 3 x	Plus 1, 6 & 18
4	HOP: HOP fully powered and working, EHT is present, rest of IC's initialized, black current stabilisation is off, picture is still blanked	Wait 1s, flash 4 x	Plus 2 & 16
5	On: TV-set operates, black current stabilisation is on, picture is unblanked.	Wait 1s, flash 5 x	

Note (*):
- When the set is in stepwise mode and, due to stepping-up, a protection is activated, the set will really go into protection (blinking LED). The set will not leave the stepwise-mode however. If state X is the state where the set went to protection, stepwise start-up will return to state X-1. At state (X-1) diagnostic measurements can be performed. Also, in the short time the set is in state X but not yet in protection, you can also do some measurements.

5.4.4 How To Connect

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

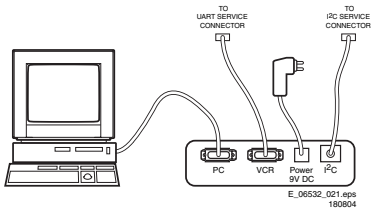


Figure 5-2 ComPair interface connection

5.4.5 How To Order

ComPair order codes (EU/AP/LATAM):
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002, 3122 785 60110 (year 2003).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- Additional ComPair interface cable: 3139 131 03791.

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

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to read the Error Buffer

Use one of the following methods:
- On screen via the SAM (only if you have a picture).
  Examples:
  - **0 0 0 0 0:** No errors detected
  - **6 0 0 0 0:** Error code 6 is the last and only detected error
  - **9 6 0 0 0:** Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.5.3 How to clear the Error Buffer

Use one of the following methods:
- By activation of the "RESET ERROR BUFFER" command in the SAM menu.
- With a normal RC, key in sequence "MUTE" followed by **"062599"** and "OK".
- When you transmit the commands "DIAGNOSE" - "99" - "OK" with ComPair (or with a DST).
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information.

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

There are various errors:
- I²C device errors.
- I²C bus errors.
- Protection errors.
- Errors not related to an I²C device, but of importance:
  - **BLACK CURRENT LOOP (ERROR 28):** detection of a continuous fail of the black current stabilisation loop of the HOP.
  - **FEM (ERROR 26):** at start-up, after initialisation of the PICNIC, the presence of the FALCONIC can be checked.
  - **EAGLE (ERROR 27):** at start-up, after initialisation of the PICNIC, the presence of the Eagle can be checked.

Table 5-3 Error table.

Error	Device	Description	Def. item	Defect. module indication	Diagram
1	M24C32	NVM, spontaneous blinking error 1	7011	Control	B5a
2	Hfail Protection	Horizontal Flyback protection	/	Horizontal Flyback	/
3	SAA4978	PICNIC	7713	Feature Box	B3a
4	Supply 5V	5V protection	/	+5V Supply	B5a
5	Supply 8V	8V protection	/	+8V Supply	B5a
6	Slow I^2C bus blocked	Spontaneous blinking error 6	/	Slow I^2C Blocked	/
7	TDA9330	HOP High-end Output Processor	7301	Video Controller	B4
8	TDA932x	HIP High-end Input Processor	7323	Chroma IF IO	B2
12	TDA9178	Topic	7302	Video Controller	B4
13	UV1318/...	Tuner protection	1200	Tuner	A8
14	MSPxxxx	ITT sound processor	7651	Audio module	B6a
16	FBX	Feature Box Protection	/	+3V (Fbx) Supply	B3
18	Fast I^2C bus blocked	Spontaneous blinking error 18	/	Fast I^2C Blocked	/
26	SAA4998	FEM	7760	+3V (Fbx) Supply	B3b
27	T6TX5EF	Eagle	7724	+3V (Fbx) Supply	B3c
28	Black current loop	Black current loop	/	Video Controller	/
32	M29W400BT	Flash Ram (EPG)	7012	EPG Memory	B5a

Note:
Error codes 1, 6, or 18 are protection codes and in this case, supplies of some circuits will be switched "OFF". Also, in protection, the LED will blink the number of times equivalent to the most recent error code.

5.6 The Blinking LED Procedure

5.6.1 Introduction

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

When the SDM is entered, the front LED will show (blink) the contents of the error-buffer. Error-codes = 10 are shown as follows:
- A long blink of 750 ms (which is an indication of the decimal digit),
- A pause of 1.5 s,
- "n" short blinks (where "n" = 1 - 9),
- When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
- The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the red front LED will show:
- 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
- 2 short blinks followed by a pause of 3 s,
- 9 short blinks followed by a pause of 3 s,
- 6 short blinks followed by a pause of 3 s,
- 1 long blink of 3 s to finish the sequence,
- The sequence starts again.

Note: If errors 1, 6 or 18 occur, the LED always gives the last occurred error even if the set is NOT in service mode.

5.6.2 How to Enter

Use one of the following methods:
- Enter the SDM (only via soldering pads marked "SDM" on SSB). The blinking red front LED will show the entire contents of the error buffer (this works in "normal operation" mode and in "protection" mode).
- Transmit the commands "MUTE" - **"062500"** - "OK" with a normal RC. The complete error buffer is shown. Take notice that it takes some seconds before the blinking led LED starts.
- Transmit the commands "MUTE" - **"06250x"** - "OK" with a normal RC (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking led LED starts.
- "DIAGNOSE X" with the DST (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... When x = 0 all errors are shown.

5.7 Protections

5.7.1 Introduction

This chassis has only one microprocessor (OTC), which remains active during Standby. This because power of the microprocessor and the attached memory chip set is coming from the 3V3 supply, which is derived from the 5V Standby-circuitry. Therefore, in both Power-on as in Standby mode, the microprocessor is connected to this power supply.

If a fault situation is detected, an error code will be generated and if necessary, the set is put in protection mode. The protection mode is indicated by the blinking of the front LED at a frequency of 3 Hz (or by a coded blinking in special cases). In some error cases however, the microprocessor does not put the set in the protection mode (this is the case with the - hardware - loudspeaker protection of the audio amplifier).

The content of the error buffer can be read via the service menu (SAM), the blinking LED procedure or via DST/ComPair.

To get a quick diagnosis, this chassis has three service-modes implemented:
- The **Customer Service Mode (CSM).**
- The **Service Default Mode (SDM).** Start-up of the set in a predefined way.
- The **Service Alignment Mode (SAM).** In this mode, items of the set can be adjusted via a menu.

You can enter both SDM and SAM modes via the 'service pads' on the SSB, via an RC-transmitter (DST or standard RC), or via ComPair. It is not possible to enter the SAM in "standby"; the TV has to be in "normal operation" mode.

The "Protection Diagram" shows the structure of the protection system. See diagram below.

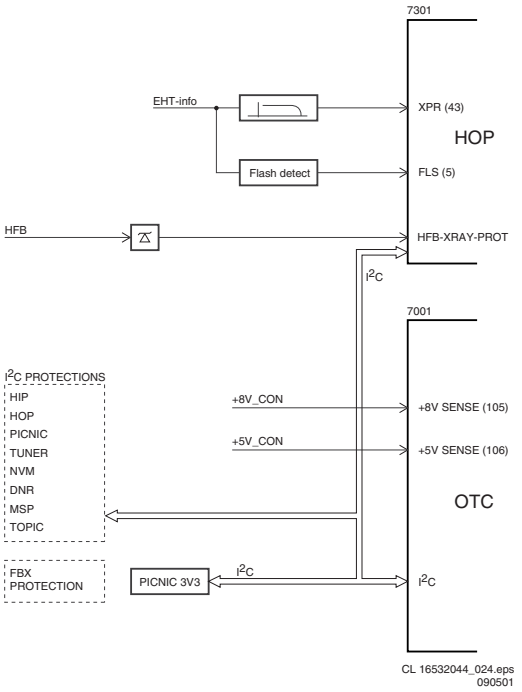


Figure 5-3 Protection diagram

There are several types of protections:
- I^2C related protections.
- OTC related protections (via polling on I/O pins or via algorithms).
- HOP related protections (mainly for deflection items).
- Hardware errors that are not sensed by the OTC (e.g. vertical flyback protection, bridge coil protection, E/W protection, arcing protection).

All protections are explained below.

5.7.2 I2C Related Protections

In normal operation, some registers of the I^2C controlled ICs are refreshed every 200 ms. During this sequence, the I^2C busses and the I^2C ICs are checked.
An I^2C protection will take place if the SDA and SCL lines are short-circuited to ground, or to each other. An I^2C error will also occur, if the power supply of the IC is missing (e.g. FBX_PROT (error 16)).

5.7.3 OTC Related Protections

If a protection is detected at an OTC input, the OTC will start to scan all protection inputs every 200 ms for 5 times. If the protection on one of the inputs is still active after 1 s, the microprocessor will put the set in the protection mode.
Before the scanning is started, a so-called "ESD refresh" is carried out. This is done, because the interrupt on one of the inputs is possibly caused either by a flash or by ESD. As a flash or ESD can influence IC settings, the HIP, MSP, 3D Comb (US only) and wireless module are initialised again, to ensure the normal picture and sound conditions of the set.

8 V and 5 V protection: The microprocessor senses the presence of the 8 V and 5 V (via the "+5V_CON" and "+8V_CON" lines). If one (or both) of these voltages is (are) not present, an error code is stored in the error buffer of the NVM, and the set is put in the protection mode.

5.7.4 HOP Related Protections

Every 200 ms, the status register of the HOP is read by the OTC (via the I^2C bus). If a protection signal is detected on one of the inputs of the HOP, the relevant error bit in the HOP register is set to "high". If this error bit is still "high" after 1 s, the OTC will store the error code in the error buffer of the NVM and, depending on the relevancy of the error bit, the set will either go into the protection mode or not.

The following protections are implemented:
- **HFB (Horizontal Flyback):** If the horizontal flyback is not present, this is detected via the HOP (HFB_X-RAY_PROT). One status bit is set to "high". The error code is stored in the error buffer and the set will go into the protection mode.
- **XPR (X-ray protection):** If the HFB pulses are too low (level detection), the HOP will detect this via the XPR-bit. The error will be logged in the error buffer and the set will go into protection mode.

Note: Both errors will be logged as HFB-failure.

5.7.5 Hardware Related Protections

Due to the architecture ("hot" deflection), some protections cannot be sensed by the microprocessor. Three of these protections will lead to a protection on set level (Standby mode and blinking LED), while another will only lead to a circuit protection.

TV-set Protection
The following fault conditions will lead to a "complete" set protection:
- **BRIDGECOIL protection:** This is sensed via the "EW" signal going to the base of TS7652 (via R3495 and D6499). In a normal situation, the voltage on C2498 (diagram A4) is high and TS7652 is conducting. When bridge coil 5422 (diagram A3) is short circuited, the voltage on C2498 changes to low, which will block TS7652. In this case, also TS7641 will block and the voltage on 2642 will rise until TS7443 is forced in conduction. The "SUP-ENABLE" signal (in normal operating condition -20 V) is shorted now to ground level, which will force the Main Power Supply to Standby mode.
- **ARC protection:** If there are "open" connections (e.g. bad solder joints) in the high-energy deflection circuitry, this can lead to damaging effects (read: fire). For that reason, the E/W current is sensed (via 3479//3480). If this current becomes too high, the "thyristor" circuit (TS7653 and TS7654) is triggered. TS7442 is switched "on" and TS7443 is forced into conduction. . The "SUP-ENABLE" signal is shorted now to ground level, which will force the Main Power Supply to Standby mode.
- **NON_VFB (No vertical Flyback) protection:** If the frame stage generates no pulses, TS7641 will block. TS7443 is now switched "on", which will lead to Standby mode. Therefore, in normal operation condition, TS7641 and TS7652 are conducting, while TS7443 is blocked.

Circuit Protection
The following fault condition will lead to a "partly" set protection:
- **PROT1 (DC) protection:** When a DC-voltage (positive or negative) is sensed on one of the loudspeaker outputs, the protection circuit (TS7704, 7705, 7706 and 7707 in diagram A6) will put the IC7700 in Standby mode (via tri-state input pin 6). For more details, see chapter "Circuit Descriptions".

5.8 Repair tips

5.8.1 Miscellaneous

The relay you hear when you switch the set "on" (from Standby or via the mains switch), is from the degaussing circuitry. It is not used for switching the Power Supply (as done in the MG-chassis).

Take care not to touch the "hot" heatsink while disconnecting the SSB, despite the fact that the mains cord is out of the mains socket. There can still be an annoying rest-voltage on the heatsink for a short while. This, because the discharge resistors 3502 and 3503 (on the LSP between hot and cold part) are not stuffed for Europe. Instead, discharge resistors 3066 and 3057 on the Mains Switch panel are used, but because they are located before the Mains switch, they only discharge when this switch is "on".
Advice: when you remove the SSB, disconnect the Mains cord, but keep the Mains Switch "on".

Do not try to measure on the SSB side, which is facing the 'hot' heatsink. This is dangerous. Most service test points are guided to the 'tuner' side and are indicated by the 'service' printing.
Where the circuitry was too "crowded" for service printing, you can find the correct location on the "test point overviews" in this manual.
A very large part of the LSP is "**hot**", such as:
- The primary part of the Standby Supply.
- The whole Main supply (except for the secondary Audio supply).
- And the complete deflection circuitry (so notice that the deflection coil is hot!).

5.8.2 Start-up Sequence

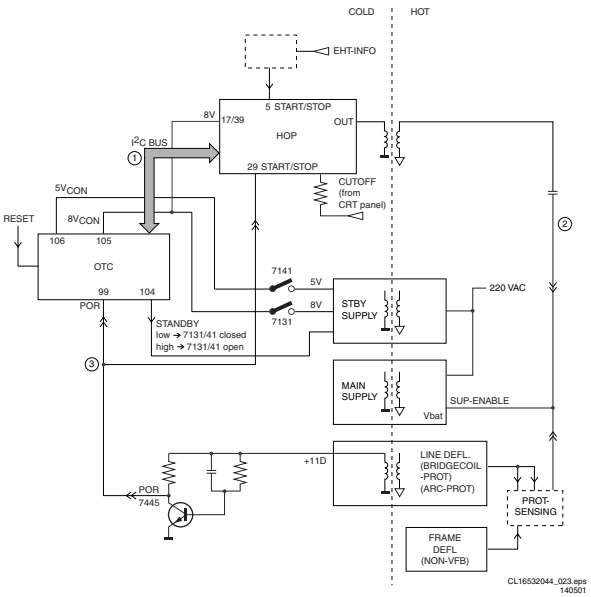


Figure 5-4 Start-up circuitry

The start up sequence differs from other sets (e.g. MG-sets or EM2E-sets, but is same as in EM3E-set):
1. When the set is switched "on", the 5 and 8 V lines ("+5V_CON" and "+8V_CON") of the standby power supply are activated.
2. After the OTC senses them, the P will address the HOP via the I^2C-bus, to start the drive [1].
3. Via the "SUP-ENABLE" signal, the Main Supply is switched "on" and will deliver the V_BAT to the Line deflection stage [2].
4. EHT generation is now started.
5. The OTC will un-blank the picture.
6. When you switch "off" the set, this is done in a controlled way via the POR signal [3].

Note: Standby is not directly achieved via the Standby line of the microprocessor, but indirectly via the HOP circuitry.

5.8.3 ComPair

This chassis does not have an IR transmitting LED (as in MG-sets). Therefore, a "Service" (ComPair) connector is implemented at the rear side of the set, which is directly accessible (as in A10-, EM2E-, EM3E and EM5E-sets). In addition to this, there is also a blinking LED procedure to show the contents of the error buffer.

When you use ComPair, you have the possibility to activate a "stepwise start-up" mode. With this mode, you can initiate the start-up sequence step by step. This also means that in certain steps, some protections are not activated. This is sometimes very convenient during repair.

5.8.4 Protections

Activating SDM via the "service pads" will overrule the processor-controlled protections, but not the hardware protections. This means, that the A/D-input protections (5 and 8 V) and the I^2C "not-acknowledging" info of the feature box (FBX) and of the Tuner are overruled.
Caution: When doing this, the service technician must know what he is doing, as it could lead to damaging the set.

The "ARC"- and/or "BRIDGECOIL" protection are hardly ever triggered, however:
- When you suspect the "ARC" protection, look for bad solder joints and smell. By interrupting resistor 3497, this protection is disabled (special attention needed!).
- When you suspect the "BRIDGECOIL" protection, which can also be due to a too wide picture amplitude, shorten G and S of the E/W MOSFET 7480. This will disable the protection. You will now have minimal horizontal amplitude. Re-align the horizontal amplitude in the SAM menu and remove the G/S short of TS7480.

5.8.5 Main Supply

The simplest way is, to replace the components of the Main Supply with repair kit 3122 785 90310.

More detailed way:
1. Replace FET 7504 and zener 6505.
2. Remove the SSB panel.
3. Short B and E of TS7529, in order to put the Main Supply in "on"-mode (TS7529 is blocking then).
   Caution: To prevent that R3403 and TS7443 will be damaged, **first disable the HW-protection of the deflection circuit.** Therefore short circuit C2642 on the LSP (diagram A4).
4. Attach a load of 500 O to V_BAT capacitor C2515 (the supply can not work without a minimum load).
5. Use a variac, and slowly increase the V_MAINS. Measure over sensing resistors R3514//15, if a nice sawtooth voltage becomes available.
6. Also measure the V_BAT. This may never exceed +141 V. If it does, there is something wrong in the feedback circuitry (e.g. regulator 7506).

Note: Be careful when measuring on the gate of FET TS7504. This circuitry is very high ohmic and can easily be damaged (first connect ground to measuring equipment, than measure the gate).

5.8.6 Standby Supply

The simplest way is to replace the components of the Standby Supply with repair kit 3122 785 90460.

5.8.7 Line Deflection

The simplest way is to replace the components of the Line Deflection circuitry with repair kit 3122 785 90330.

5.8.8 Frame Deflection

Caution: When the Frame Deflection circuitry is suspected, one must be careful. Because there is a DC-voltage on the frame deflection, **the beam current could damage the CRT neck, leading to a defective CRT.**

To prevent this from happening, you must:

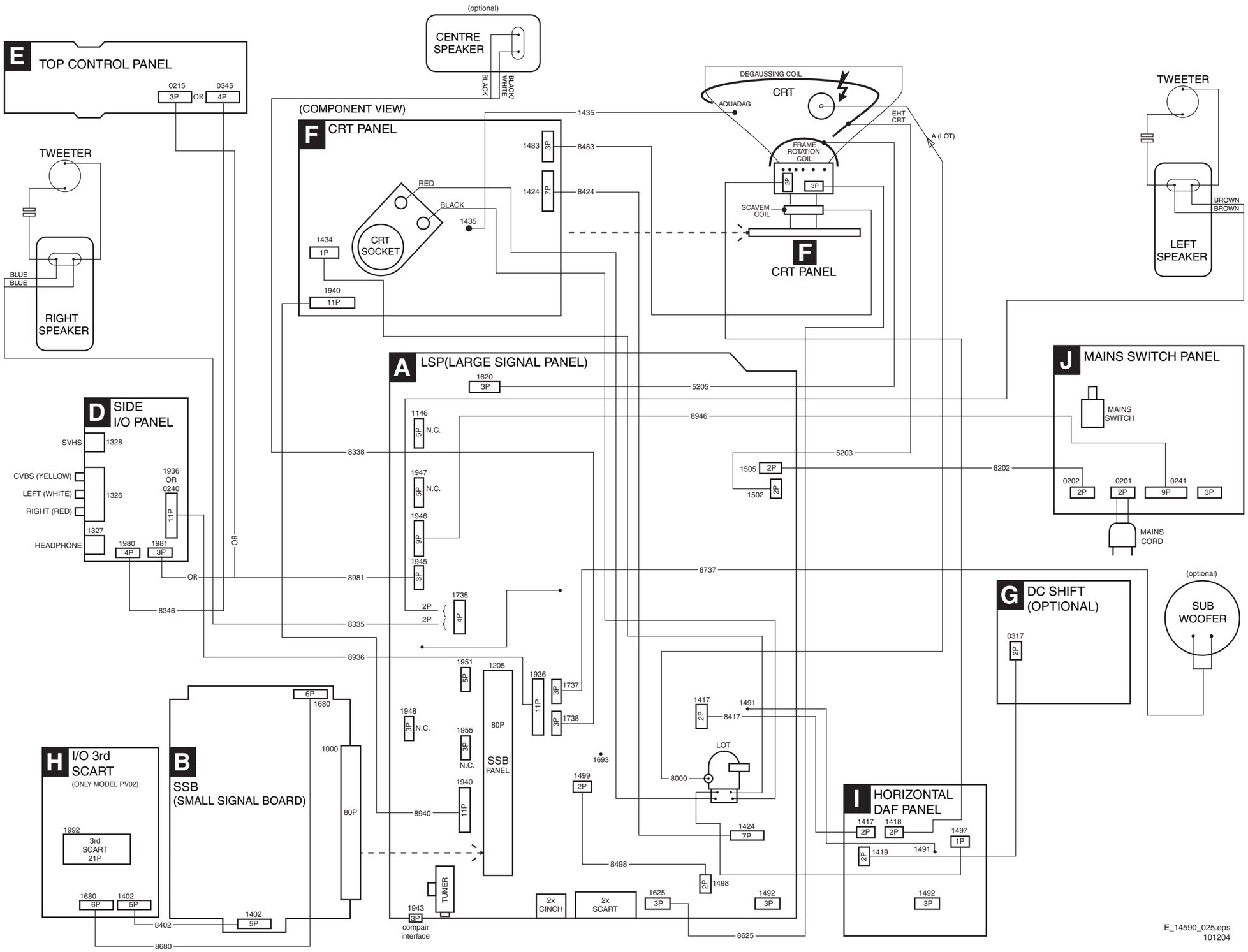
1. Interrupt the resistors 3403 and 3404 on the CRT panel (diagram F1), in order to remove the "filament" voltage from the tube (no beam current, so no chance of destroying the CRT).
2. Interrupt resistor 3403 on the LSP (diagram A4) to disable the "SUP-ENABLE" line.
3. Measure with a multi-meter, or better with a oscilloscope, the functionality of the Frame stage.
4. After you have found the cause, exchange the defective component (e.g. TDA8177), and re-solder the interrupted resistors.

Table 5-4 Repair Tips

Phenomenon	Possible Cause	Repair tip
No picture, no LED.	Standby Supply defective.	Measure circuitry (see diagram A2). Start at test-point A19. When the Mains switch is 'on', this voltage must always be available
No picture, no LED.	Bad connection of SSB in SIMM-connector.	In case of a bad connection, it can happen that there is no picture, and that the Standby LED is not controllable. Re-place the SSB.
No picture, LED blinking at 3 Hz.	Set is in protection due to various causes. For error codes see error-code list.	You have no picture, so: - Read the error buffer via ComPair (error buffer is accessible when set is in protection, compare-file will guide you to this) - Read the blinking LED information via standard remote command <mute>06250X<ok> - Or you read the error code sequence via standard remote command <mute>062500<ok>. When you have found the error, check the circuitry related to the supply voltage and I^2C-communication or the circuitry that triggers the protection.
No picture, LED blinking with code 6-6-6 or 18-18-18.	No communication on slow I^2C- or fast I^2C-bus.	As processor cannot communicate with one of the 2 busses it the standby-led spontaneously starts blinking 6-6-6... or 18-18-18... If in the error buffer somewhere is an error 6 or 18, these will have the highest priority starting the mentioned blinking. Measure dependent of the error on the I^2C-bus which device is loading the bus. (Use I^2C -overview)
No picture, LED blinking with code 1-1-1.	No communication on NVM- I^2C bus to the uP.	As the uP cannot communicate with the NVM I^2C bus, it spontaneously starts blinking 1-1-1. **Note:** when there is no access to the NVM, a lot of picture setting can go wrong.
No picture, no sound. Set is making audible squeaking sound	Supply is possibly in hiccup-mode, which is audible via a squeaking supply transformer.	Possible causes: - V_{BAT} is shorted (caused by short circuited line transistor 7421), or - Sound winding is shorted (amplifier is shortening the power supply lines), or - D6514 is shorted (due to a too high V_{BAT}). Remove excessive load, to see what causes the failure, or check feedback circuit. See repair tip 'Main Power Supply' (supply needs a minimal load).
No picture, no sound. Power LED works fine	Supply does not work correctly.	If e.g. V_{BAT} is only about 90 V, it is possible that the regulator IC (7506) is defective.
No RC-reception. LED does not echo RC-commands.	uP circuitry or RC-receiver is defective.	In case the set does react on a local keyboard operation, you must check the RC-receiver circuitry.
Relay (degaussing) is not audible, when set is switched from 'off' or 'standby' to 'on'.	uP is not working correctly.When pin 115 is low, the degaussing must be activated.	Check RESET-circuitry on diagram B5. Check the level on pin 115 when you switch the set 'on'. Signal must be low initially and go to high after approx. 12 s.
Picture is rotated.	Rotation circuitry on diagram A5, or related supply to it, malfunctions.	Measure test points on diagram A5.
Picture is continuously switching 'off' and 'on', showing heavy 'switch' spots (set does not go into protection).	200 V is missing on CRT panel.	Probably a bad connection from LSP connector 1424 to CRT connector 1424 (diagram F), or an interruption of the 200 V supply line (e.g. R3341 on circuit F is interrupted).
Picture is not sharp.	Focus is possibly mis-aligned or SCAVEM-circuitry does not work correctly.	Re-align the 'focus' potmeter on the Line Output Transformer, or check the SCAVEM circuitry on the CRT-panel (diagram F). It is also possible that the DAF circuitry is defective (see diagram I). Check the Vdc values.
Picture is not synchronised.	The sync is derived in the HIP from x-tal 1305 and/or 1308.	Maybe the crystals 1305 and/or 1308 are making a bad contact.
Picture is distorted.	Check video-path in Service Default Mode.	Investigate whether there is an error code present in the error buffer. In case there is one, check the I^2C -bus and/or supply lines (see overview supply lines). Measure and check signal path Tuner-HIP-PICNIC-HOP-RGB amplifier.In case it is a geometry issue, check on diagram A4 opto-coupler 7482, Opamps 7440/7450 and the Frame circuitry alignments or a possible corrupted NVM (7011) on diagram B5.
No menu, no OSD.	Probably a defective uP.	Measure test points B61to B64 on diagram B5.
How to measure on IC's		It is advisable to measure both on the pins itself and the solder pads on the PWB. This to find possible solder faults.

6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram



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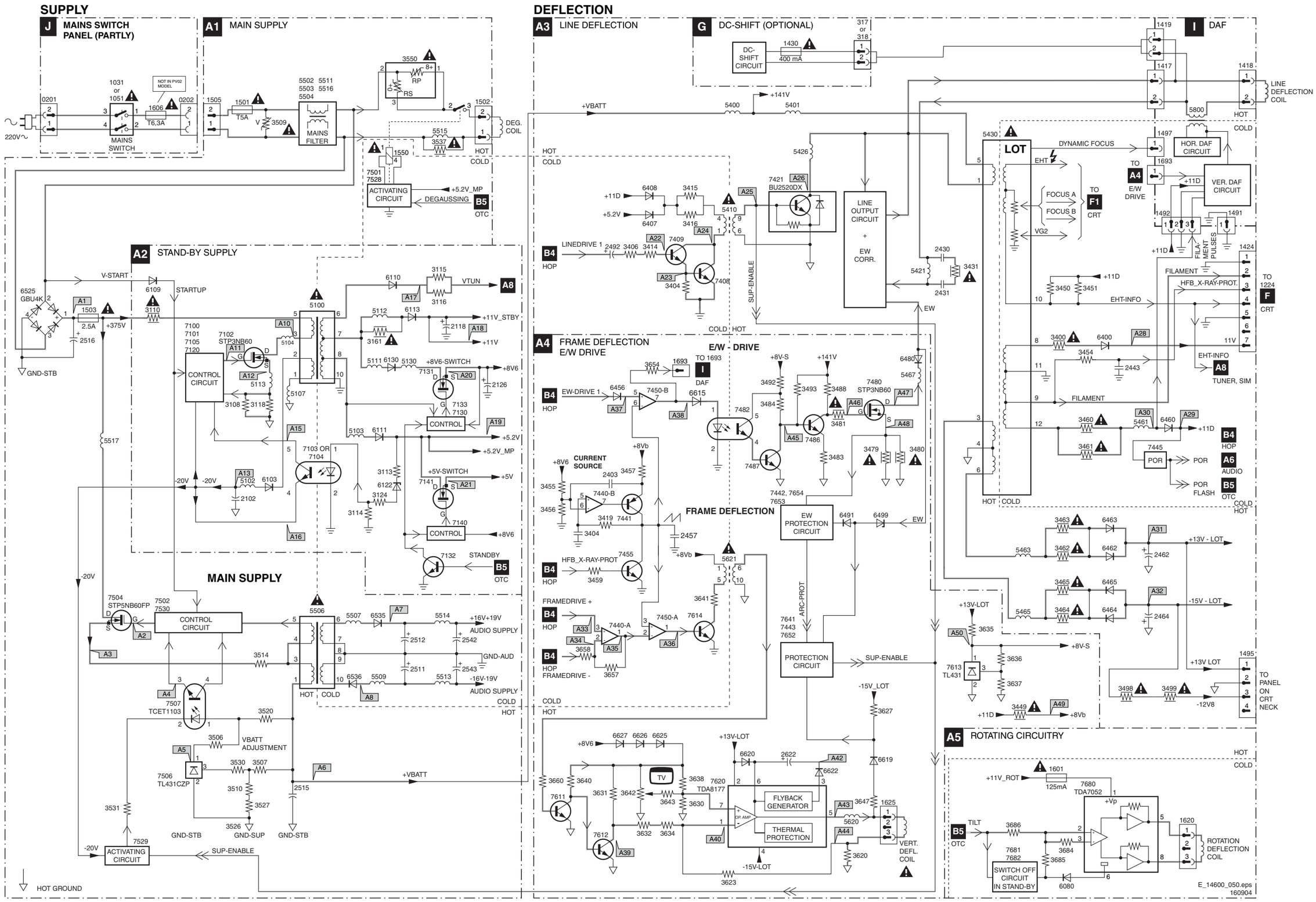
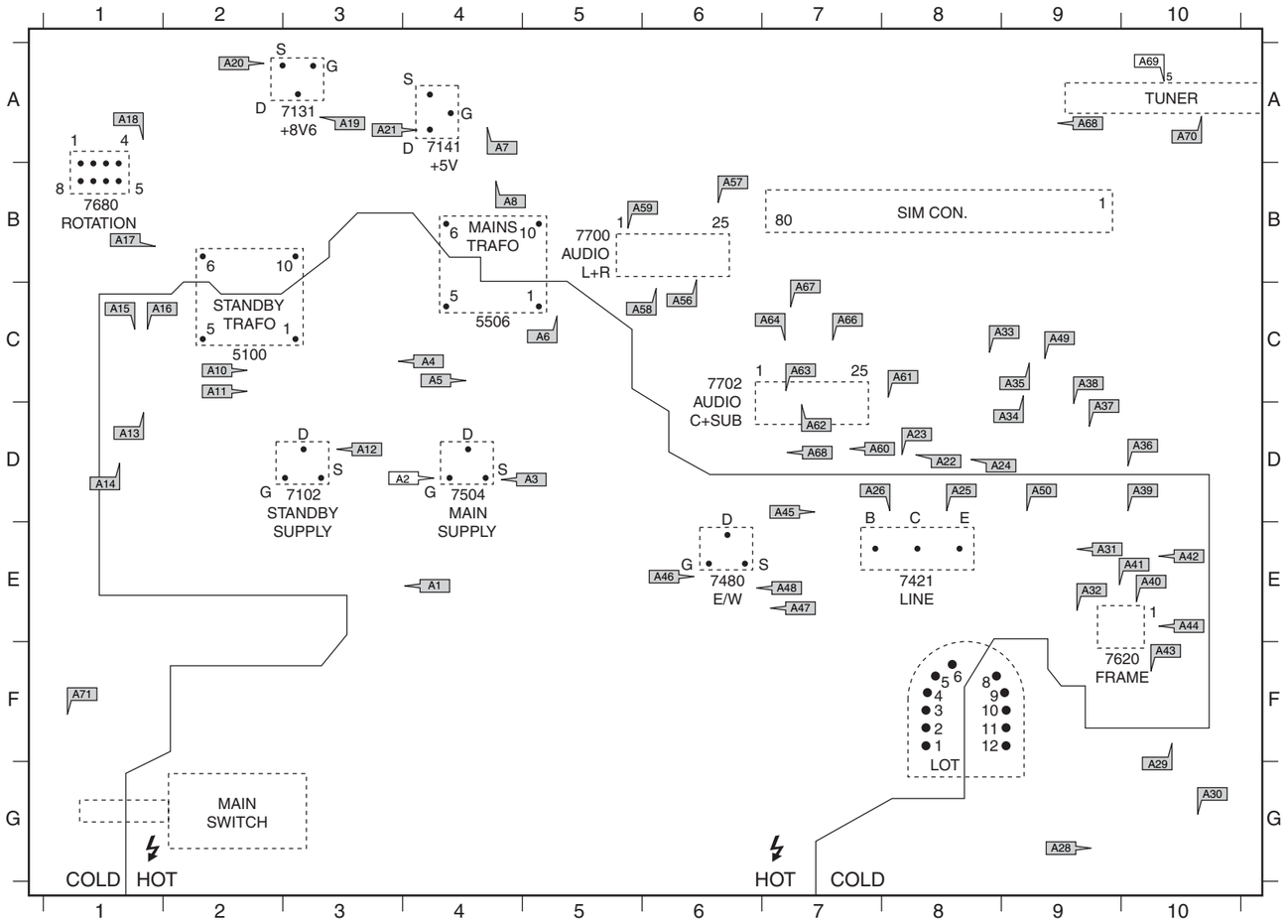
Block Diagram Supply and Deflection



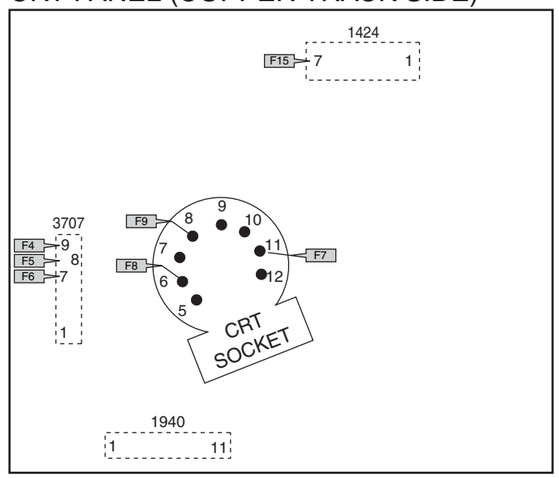
Testpoint Overview LSP and CRT Panel

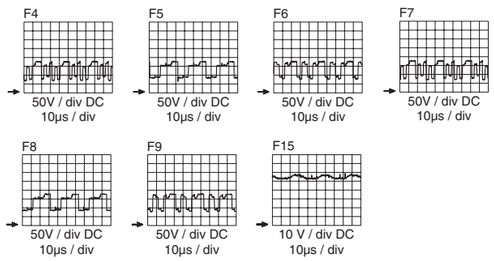
LSP COPPER TRACK SIDE

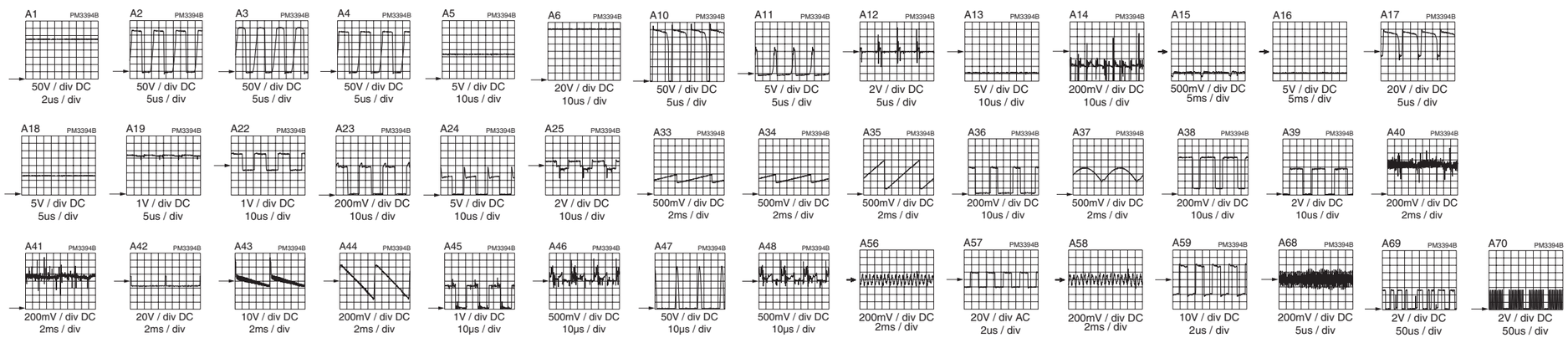


A1	E4	A58	C6
A3	D4	A59	B5
A4	C4	A60	D7
A5	C4	A61	C8
A6	C5	A62	D7
A7	A4	A63	D7
A8	B4	A64	C7
A10	C2	A66	C7
A11	C2	A67	C7
A12	D3	A70	A10
A13	D1	A71	F1
A14	D1	A88	A9
A15	C1		
A16	C1		
A17	B1		
A18	A1		
A19	A3		
A20	A2		
A21	A3		
A22	D8		
A23	D8		
A24	D8		
A25	D8		
A26	D7		
A28	G9		
A29	G10		
A30	G10		
A31	E9		
A32	E9		
A33	C8		
A34	D9		
A35	C9		
A36	D10		
A37	D9		
A38	C9		
A39	D10		
A40	E10		
A41	E10		
A42	E10		
A43	F10		
A44	E10		
A45	D7		
A46	E6		
A47	E7		
A48	E7		
A49	C9		
A50	D9		
A56	C6		
A57	B6		

CRT PANEL (COPPER TRACK SIDE)







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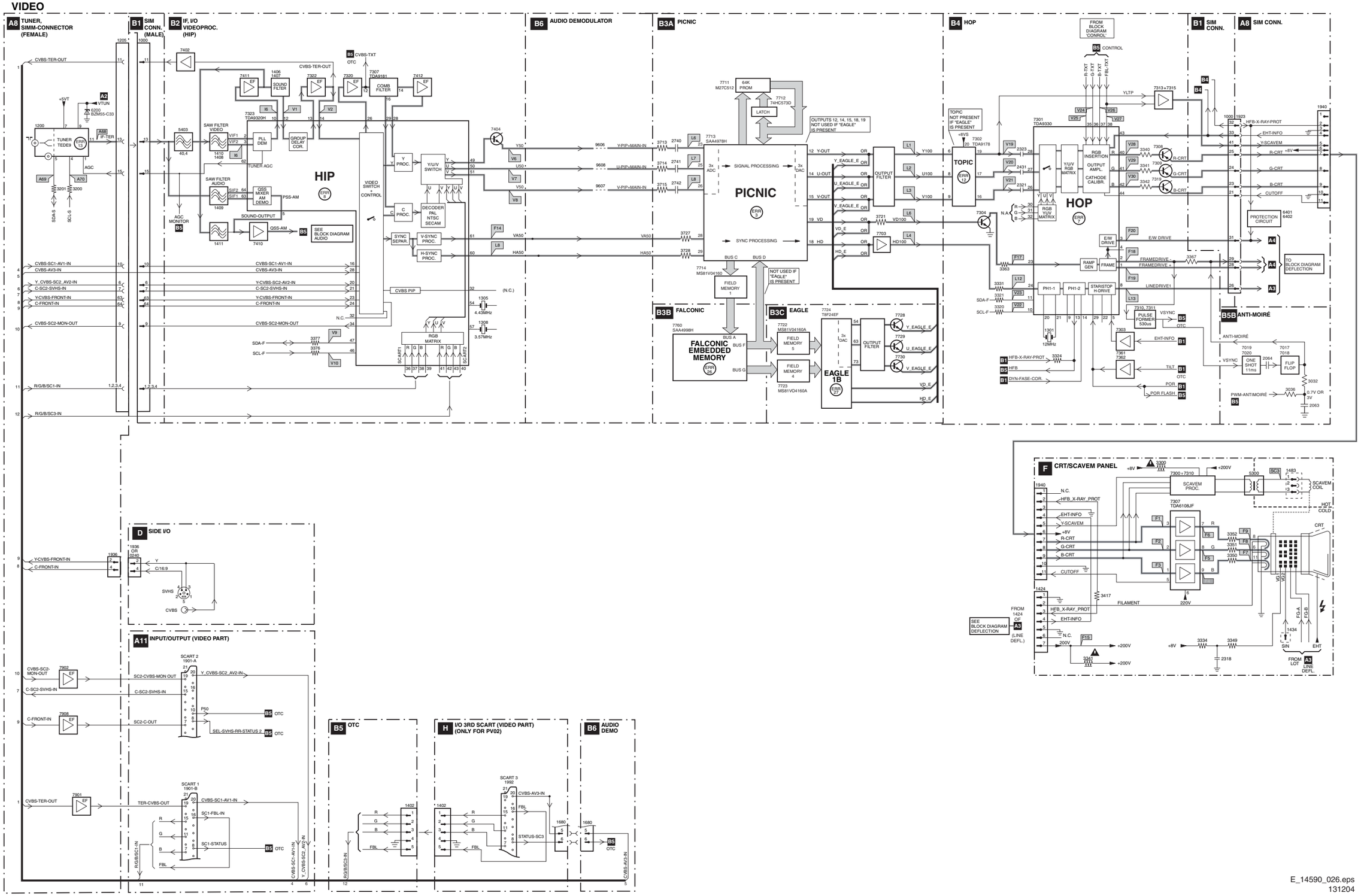
Block Diagram Video

VIDEO



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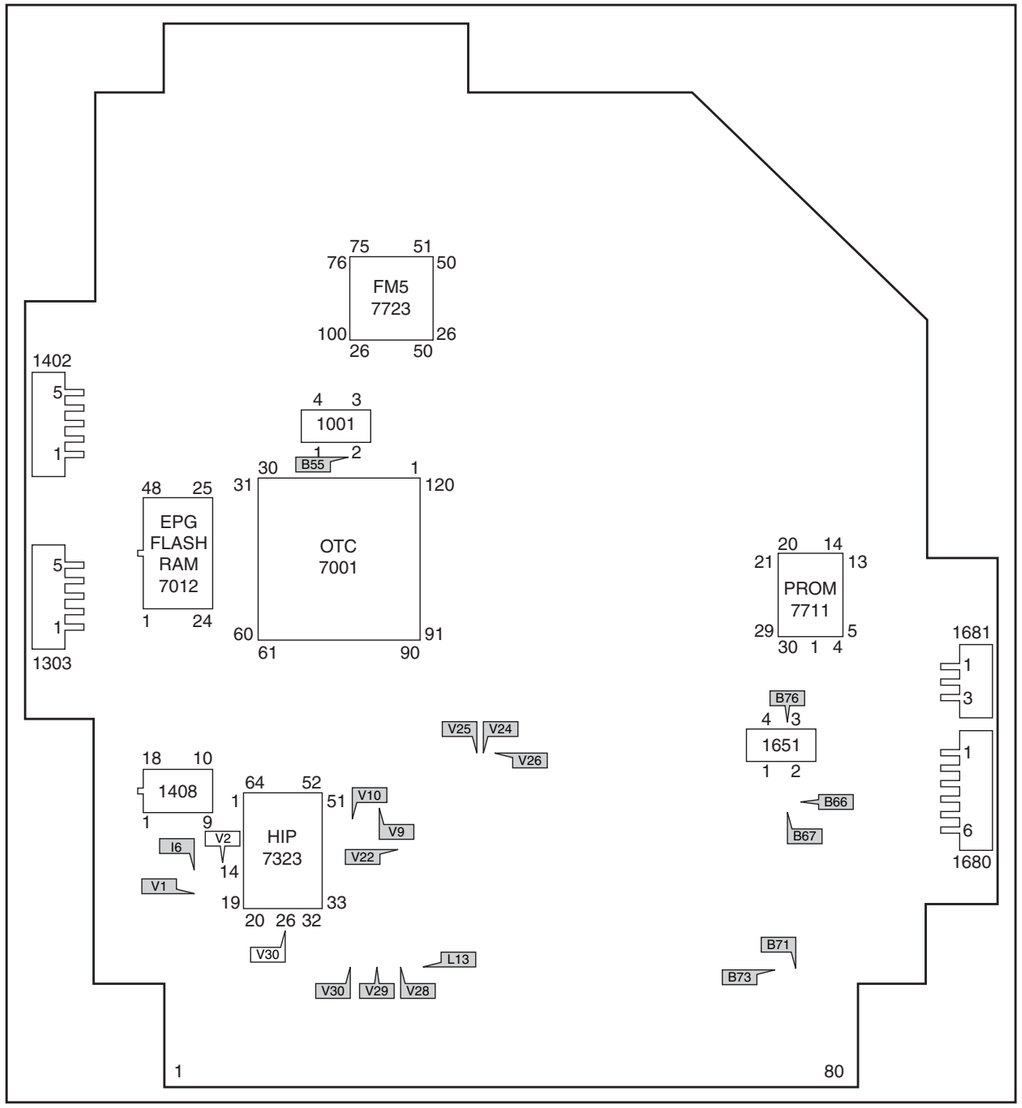
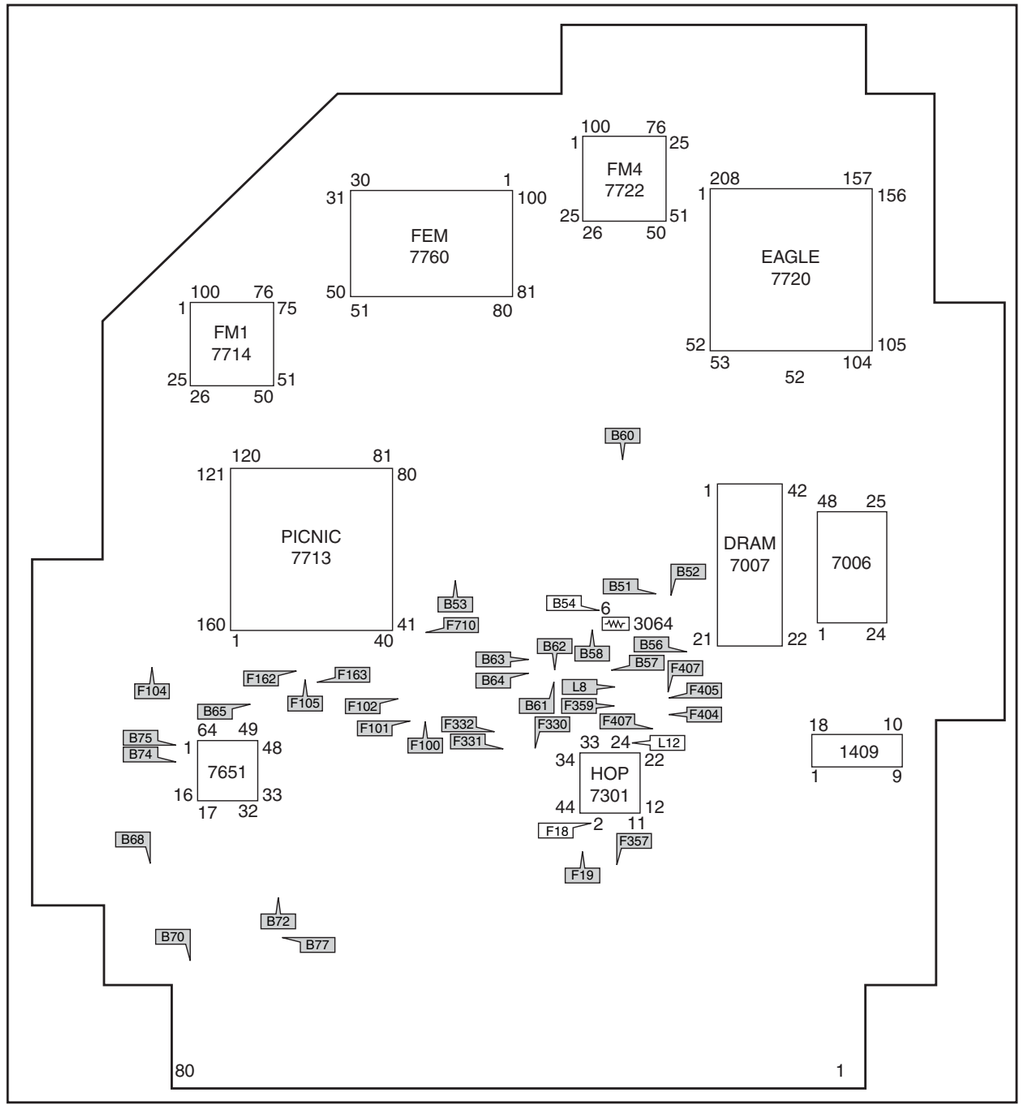
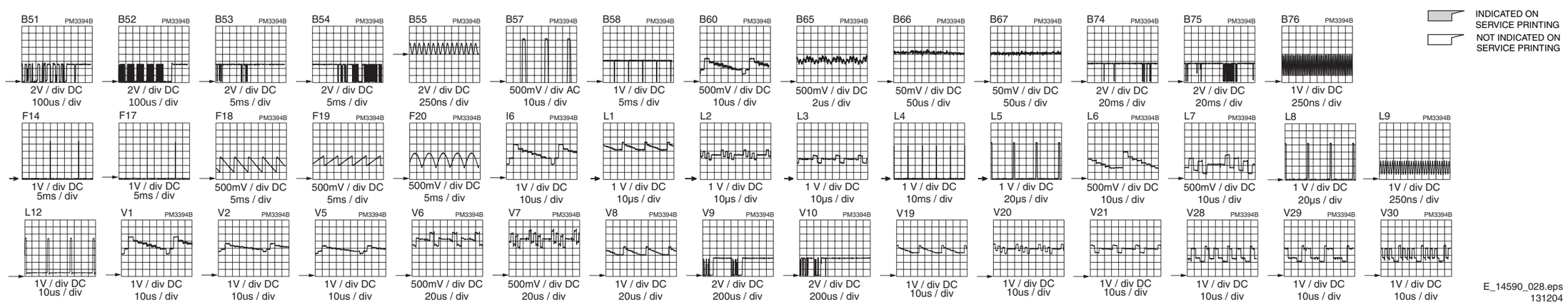
Testpoint Overview Small Signal Board

SSB SIDE A



SSB SIDE Z





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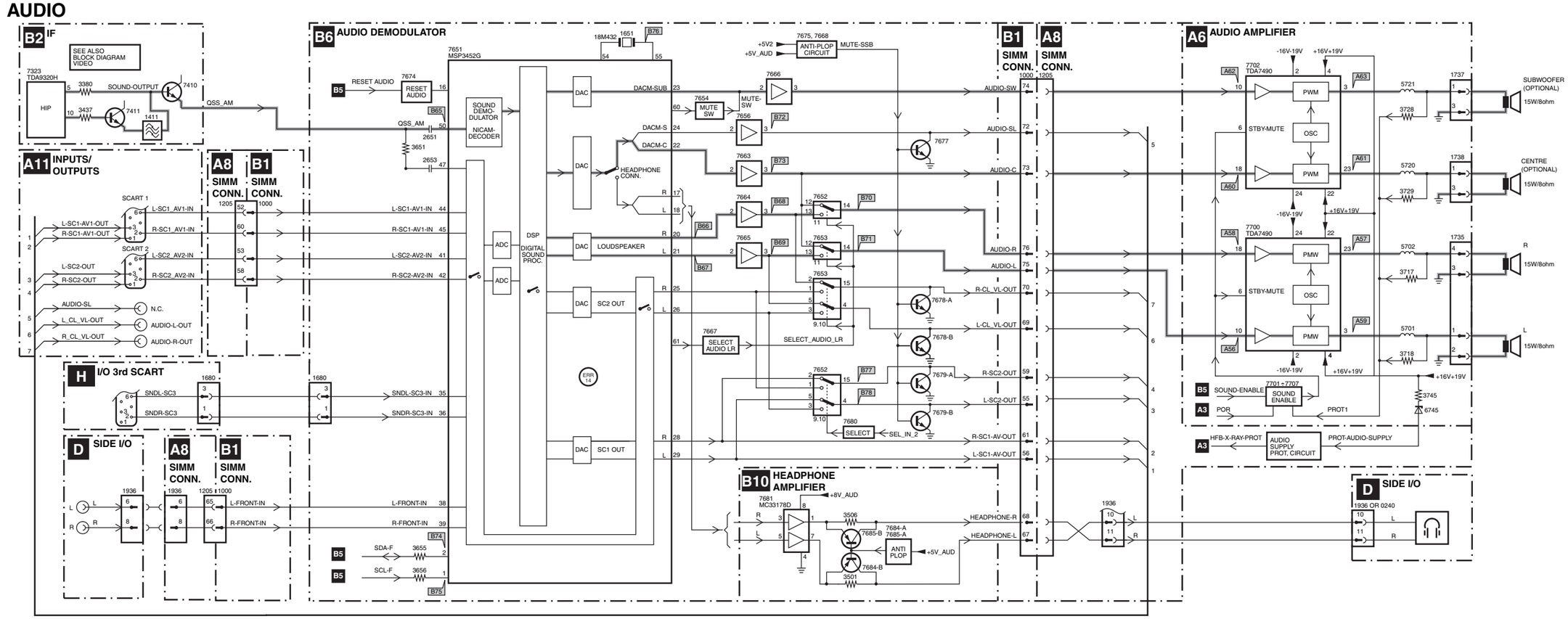
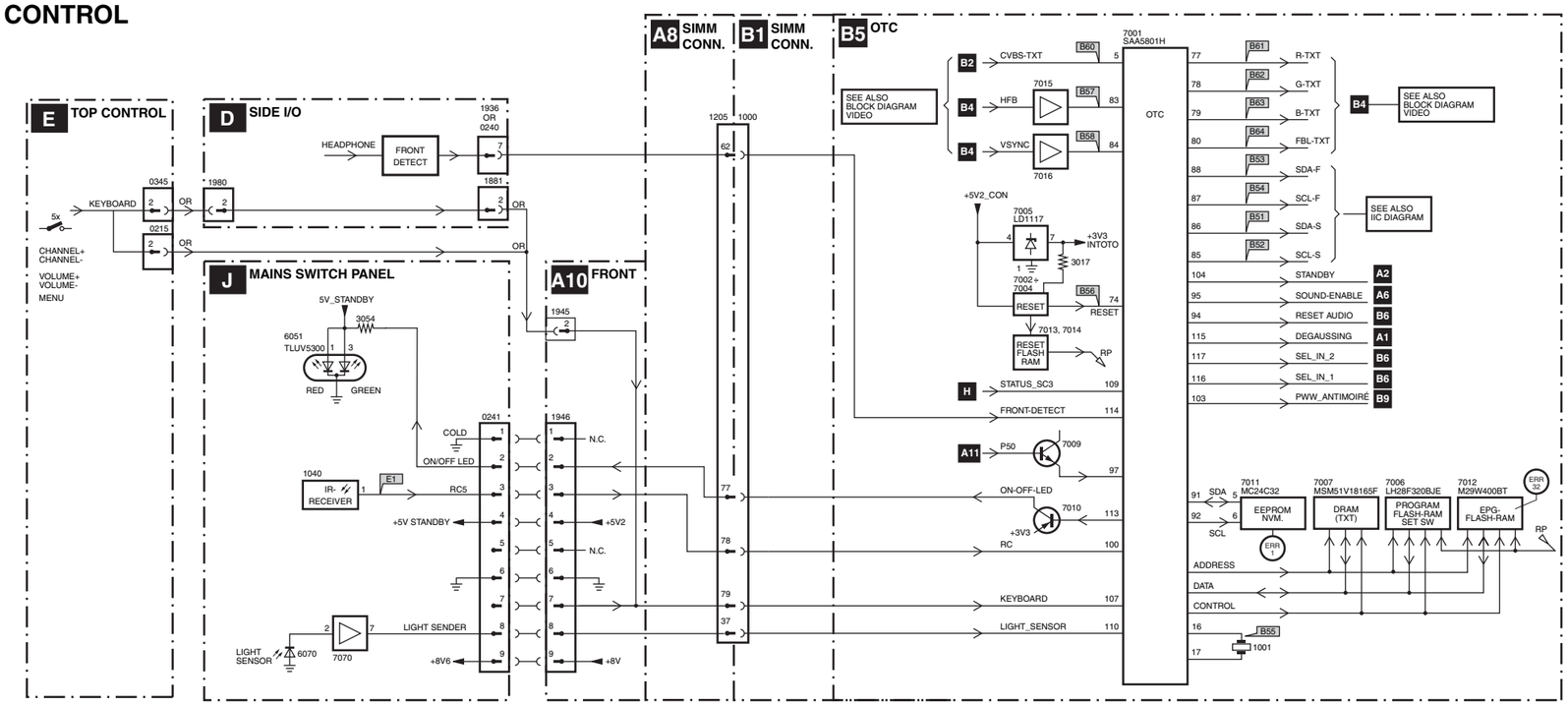
131204

Block Diagram Audio 1 (Exclusive Wireless Audio Details)

AUDIO

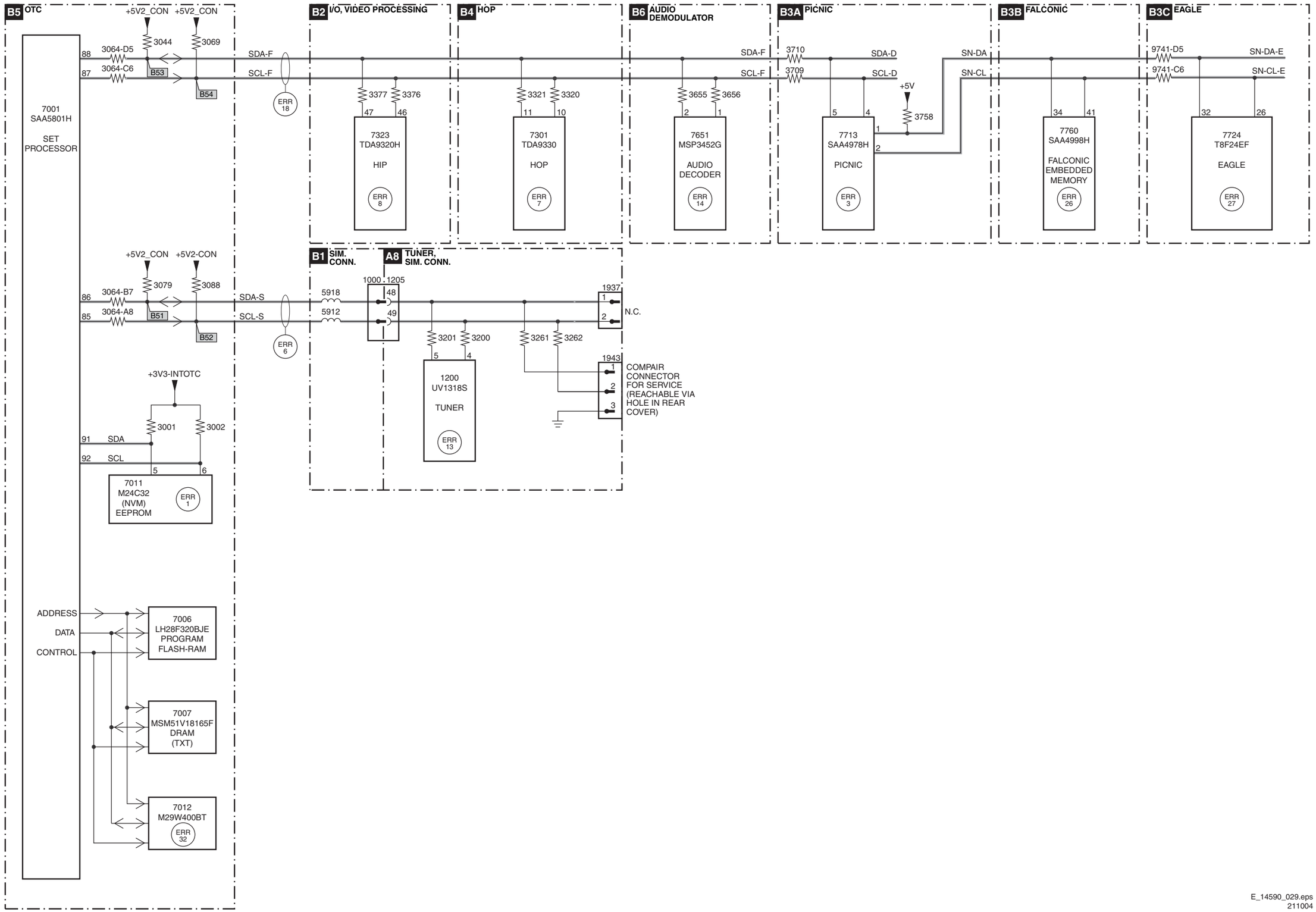


CONTROL



I2C IC's overview

IIC



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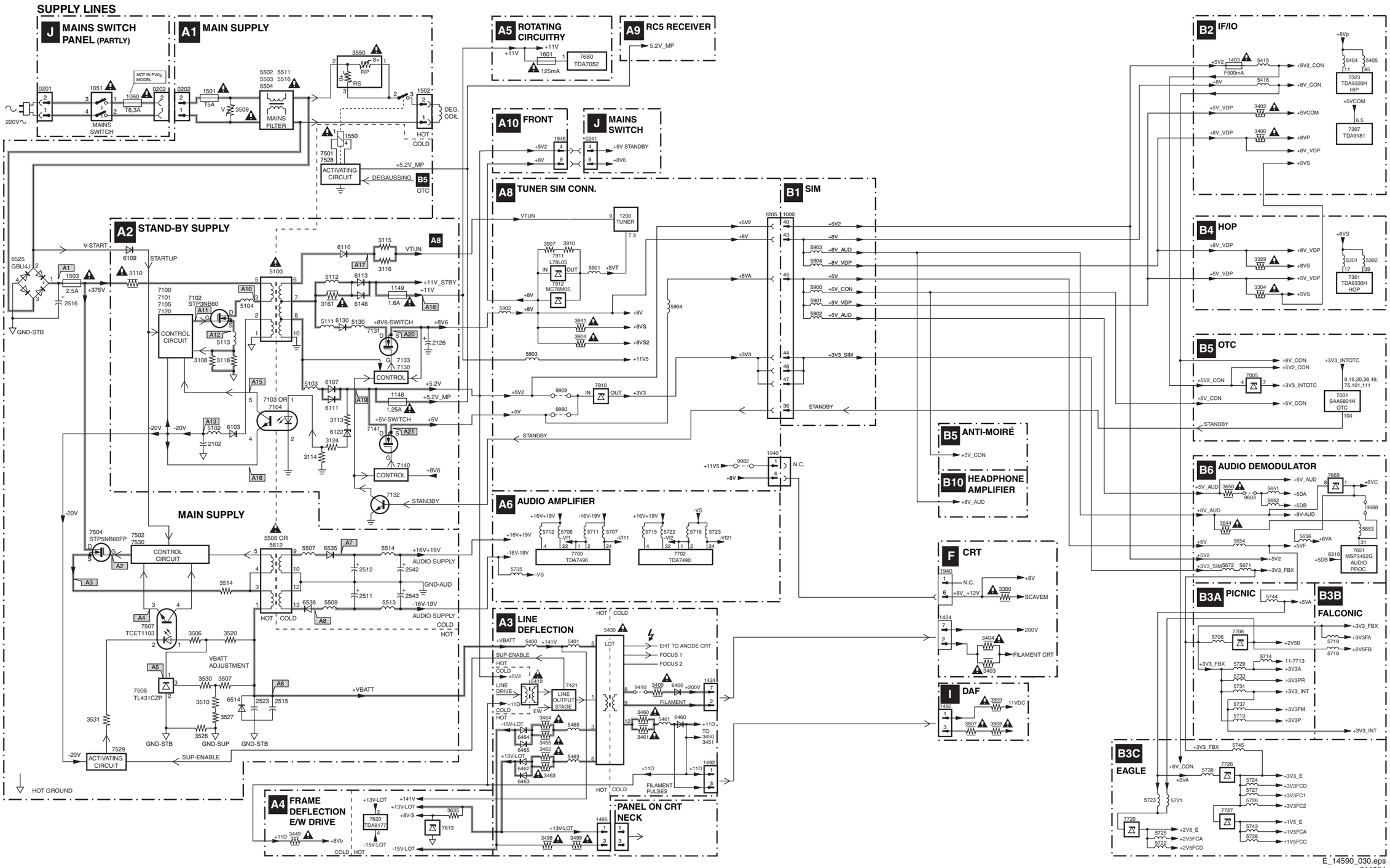
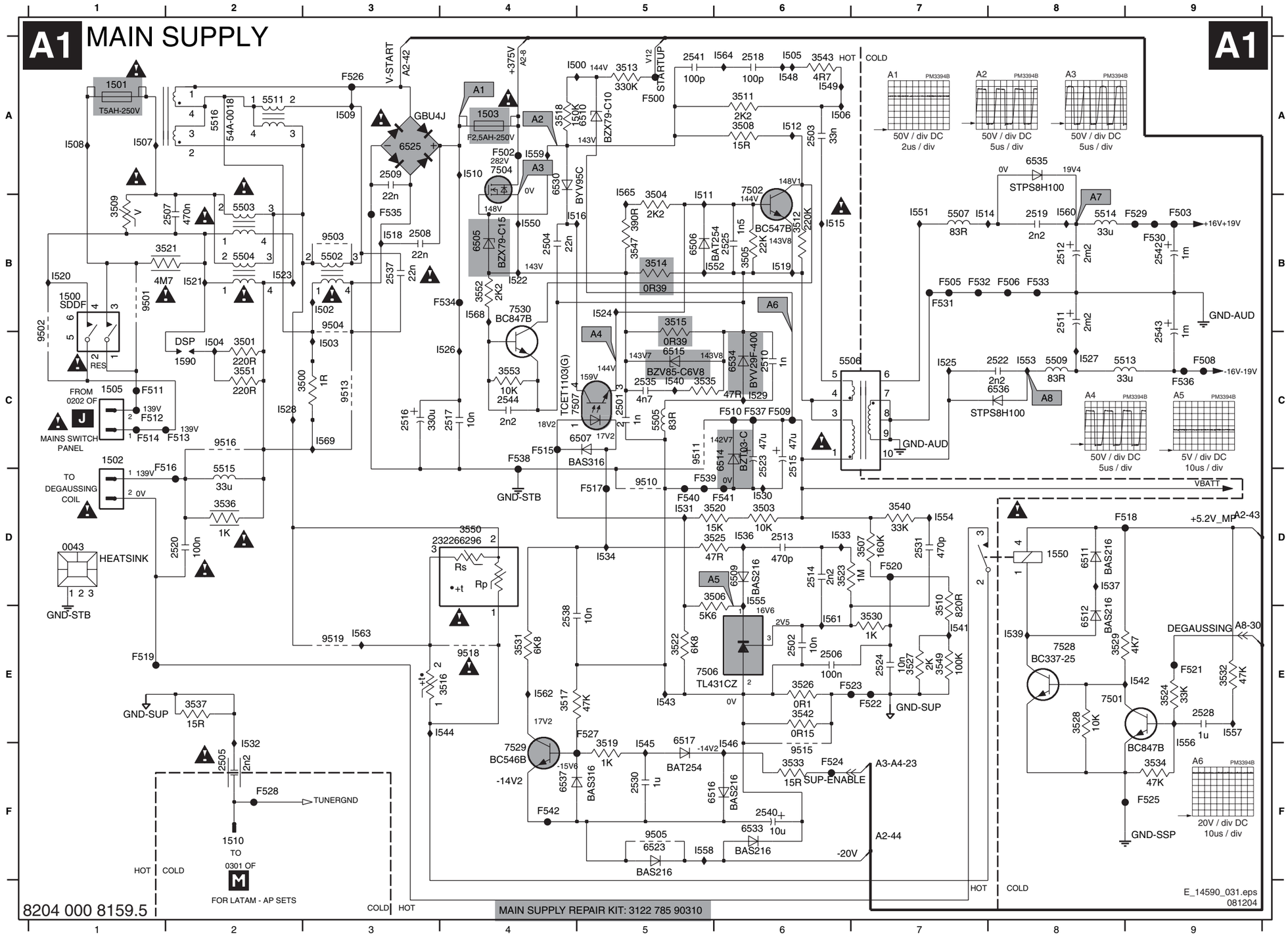
Supply Lines Overview



7. Circuit Diagrams and PWB Layouts

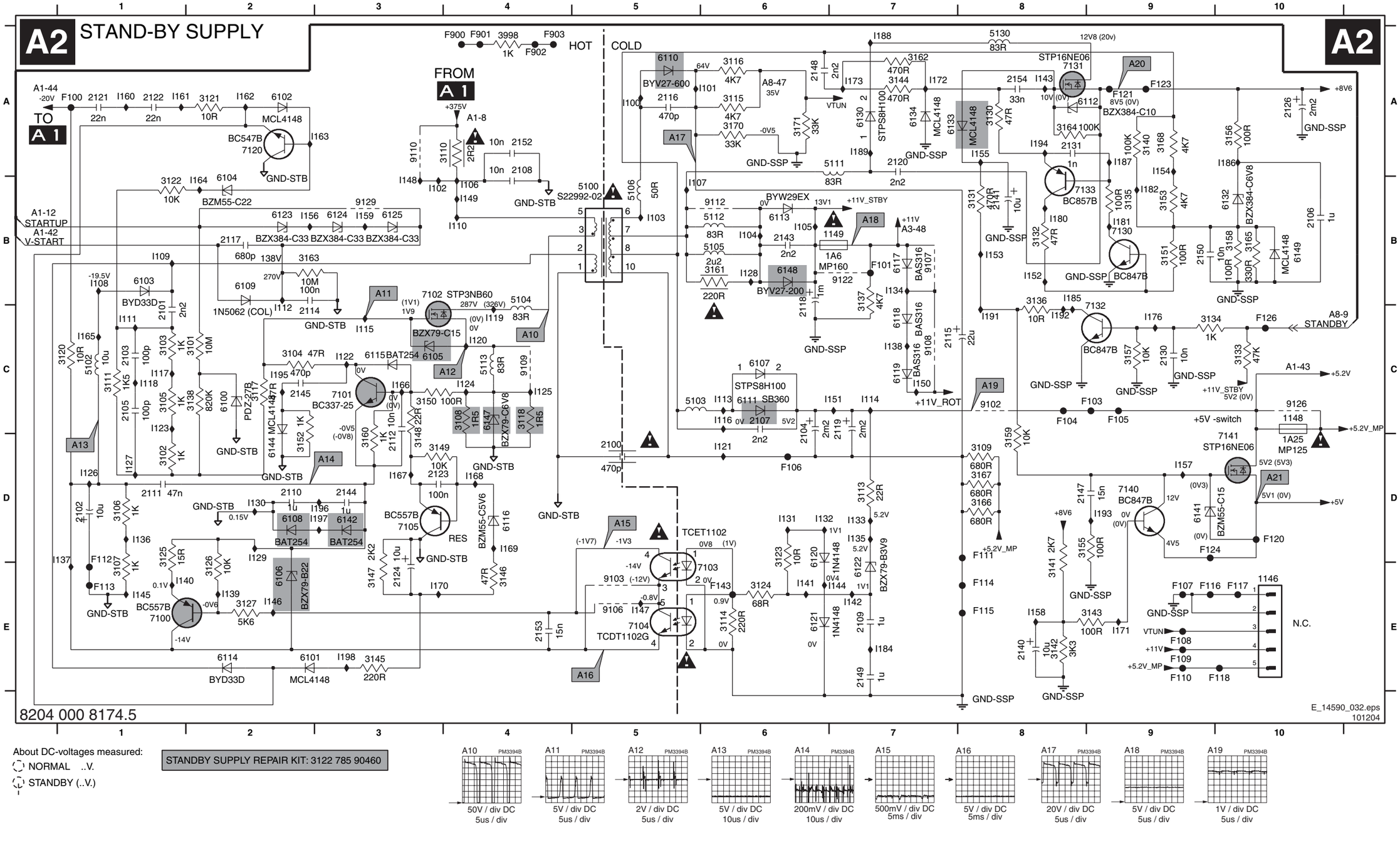
Large Signal Panel: Main Supply



0043 D1	3529 E8	F505 B7	I540 C5	
1500 B1	3530 E7	F506 B8	I541 E7	
1501 A1	3531 E4	F508 C9	I542 E9	
1502 C1	3532 E9	F509 C6	I543 E5	
1503 A4	3533 F6	F510 C6	I544 E4	
1505 C1	3534 F9	F511 C1	I545 F5	
1510 F2	3535 C5	F512 C1	I546 F6	
1550 D8	3536 D2	F513 C2	I548 A6	
1590 C2	3537 E2	F514 C1	I549 A6	
2501 C5	3540 D7	F515 C4	I550 B4	
2502 E6	3542 E6	F516 D1	I551 B7	
2503 A6	3543 A6	F517 D5	I552 B6	
2504 B4	3547 B5	F518 D9	I553 C8	
2505 F2	3549 E7	F519 E1	I554 D7	
2506 E6	3550 D4	F520 D7	I555 D6	
2507 B2	3551 C2	F521 E9	I556 E9	
2508 B3	3552 B4	F522 E7	I557 E9	
2509 A3	3553 C4	F523 E6	I558 F5	
2510 C6	5502 B3	F524 F6	I559 A4	
2511 B8	5503 B2	F525 F9	I560 B8	
2512 B8	5504 B2	F526 A3	I561 E6	
2513 D6	5505 C5	F527 E5	I562 E4	
2514 D6	5506 C6	F528 F2	I563 E3	
2515 C6	5507 B7	F529 B9	I564 A6	
2516 C3	5509 C8	F530 B9	I565 A5	
2517 C4	5511 A2	F531 B7	I568 B4	
2518 A6	5513 C8	F532 B7	I569 C3	
2519 B8	5514 B8	F533 B8		
2520 D2	5515 D2	F534 B4		
2522 C8	5516 A2	F535 B3		
2523 C6	6505 B4	F536 C9		
2524 E7	6506 B5	F537 C6		
2525 B6	6507 C5	F538 C4		
2528 E9	6509 D6	F539 D5		
2530 F5	6510 A5	F540 D5		
2531 D7	6511 D8	F541 D6		
2535 C5	6512 E8	F542 F4		
2537 B3	6514 C6	I500 A4		
2538 E4	6515 C5	I502 B3		
2540 F6	6516 F6	I503 C3		
2541 A5	6517 E5	I504 C2		
2542 B9	6523 F5	I505 A6		
2543 C9	6525 A3	I506 A6		
2544 C4	6530 A4	I507 A1		
3500 C3	6533 F6	I508 A1		
3501 C2	6534 C6	I509 A3		
3503 D6	6535 A8	I510 A4		
3504 B5	6536 C8	I511 B5		
3505 B6	6537 F4	I512 A6		
3506 D6	7501 E8	I514 B7		
3507 D7	7502 A6	I515 B6		
3508 A6	7504 A4	I516 B4		
3509 B1	7506 E5	I518 B3		
3510 D7	7507 C5	I519 B6		
3511 A6	7528 E8	I520 B1		
3512 B6	7529 F4	I521 B2		
3513 A5	7530 B4	I522 B4		
3514 B5	9501 B1	I523 B2		
3515 B5	9502 B1	I524 B5		
3516 E3	9503 B3	I525 C7		
3517 E4	9504 B3	I526 C4		
3518 A4	9505 F5	I527 C8		
3519 F5	9510 D5	I528 C2		
3520 D6	9511 C5	I529 C6		
3521 B2	9513 C3	I530 D6		
3522 E5	9515 F6	I531 D5		
3523 D6	9516 C2	I532 F2		
3524 E9	9518 E4	I533 D6		
3525 D6	9519 E3	I534 D5		
3526 E6	F500 A5	I536 D6		
3527 E7	F502 A4	I537 D8		
3528 E8	F503 B9	I539 E8		

Large Signal Panel: Stand-by Supply

1146 E10	2109 E7	2122 A1	2148 A6	3107 E1	3121 A2	3135 B9	3148 D3	3161 B6	5102 C1	6103 B1	6115 C3	6132 B10	7103 E5	9106 E5	F104 C8	F116 E9	F903 A4	I111 C1	I123 C1	I135 D7	I147 E5	I159 B3	I171 E9	I189 A7
1148 C10	2110 D2	2123 D3	2149 E7	3108 C4	3122 B1	3136 B8	3149 D3	3162 A7	5103 C5	6104 B2	6116 D4	6133 A7	7104 E5	9107 B7	F105 C9	F117 E10	I100 A5	I112 C2	I124 C4	I136 D1	I148 B3	I160 A1	I172 A7	I191 C8
1149 B7	2111 D1	2124 E3	2150 B9	3109 D8	3123 D6	3137 B7	3150 C3	3163 B2	5104 B4	6105 C3	6117 B7	6134 A7	7105 D3	9108 C7	F106 D6	F118 E10	I101 A6	I113 C6	I125 C4	I137 D1	I149 B4	I161 A1	I173 A7	I192 C8
2100 D5	2112 D3	2126 A10	2152 A4	3110 A4	3124 E6	3138 C2	3151 B9	3164 A8	5105 B6	6106 E2	6118 C7	6141 D9	7120 A2	9109 C4	F107 E9	F120 D10	I102 B3	I114 C7	I126 D1	I138 C7	I150 C7	I162 A2	I176 C9	I193 D9
2101 C1	2114 C2	2130 C9	2153 E4	3111 C1	3125 D1	3140 A9	3152 D2	3165 B10	5106 B5	6107 C6	6119 C7	6142 D3	7130 B9	9110 A3	F108 E9	F121 A9	I103 B5	I115 C3	I127 D1	I139 E2	I151 C7	I163 A3	I180 B8	I194 A8
2102 D1	2115 C7	2131 A8	2154 A8	3113 D7	3126 E2	3141 E8	3153 B9	3166 D8	5111 A7	6108 D2	6120 D6	6144 D2	7131 A8	9112 B6	F109 E9	F123 A9	I104 B6	I116 C6	I128 B6	I140 E1	I152 B8	I164 B2	I181 B9	I195 C2
2103 C1	2116 A5	2140 E8	3101 C2	3114 E6	3127 E2	3142 E8	3155 D8	3167 D8	5112 B6	6109 B2	6121 E6	6147 C4	7132 C9	9122 B7	F110 E9	F124 D9	I105 B6	I117 C1	I129 D2	I141 E6	I153 B8	I165 C1	I182 B9	I196 D3
2104 C6	2117 B2	2141 B8	3102 D1	3115 A6	3130 A8	3143 E9	3156 A10	3168 A9	5113 C4	6110 A5	6122 E7	6148 B6	7133 B9	9126 C10	F111 D8	F126 C10	I106 B4	I118 C1	I130 D2	I142 E7	I154 A9	I166 C3	I184 E7	I197 D3
2105 C1	2118 C6	2143 B6	3103 C1	3116 A6	3131 B8	3144 A7	3157 C9	3170 A6	5130 A8	6111 C6	6123 B2	6149 B10	7140 D9	9129 B3	F112 D1	F143 E6	I107 B5	I119 C4	I131 D6	I143 A8	I155 A8	I167 D3	I185 B8	I198 E3
2106 B10	2119 C7	2144 D3	3104 C2	3117 C2	3132 B8	3145 E3	3158 B10	3171 A6	6100 C2	6112 A9	6124 B3	7100 E1	7141 D10	F100 A1	F113 E1	F900 A4	I108 B1	I120 C4	I132 D6	I144 E7	I156 B2	I168 D4	I186 A10	
2107 C6	2120 A7	2145 C2	3105 C1	3118 C4	3133 C10	3146 E4	3159 D8	3998 A4	6101 E2	6113 B6	6125 B3	7101 C3	9102 C8	F101 B7	F114 E8	F901 A4	I109 B1	I121 D6	I133 D7	I145 E1	I157 D9	I169 D4	I187 A9	
2108 A4	2121 A1	2147 D8	3106 D1	3120 C1	3134 C9	3147 E3	3160 D3	5100 B5	6102 A2	6114 E2	6130 A7	7102 B3	9103 E5	F103 C9	F115 E8	F902 A4	I110 B4	I122 C3	I134 B7	I146 E2	I158 E8	I170 E3	I188 A7	

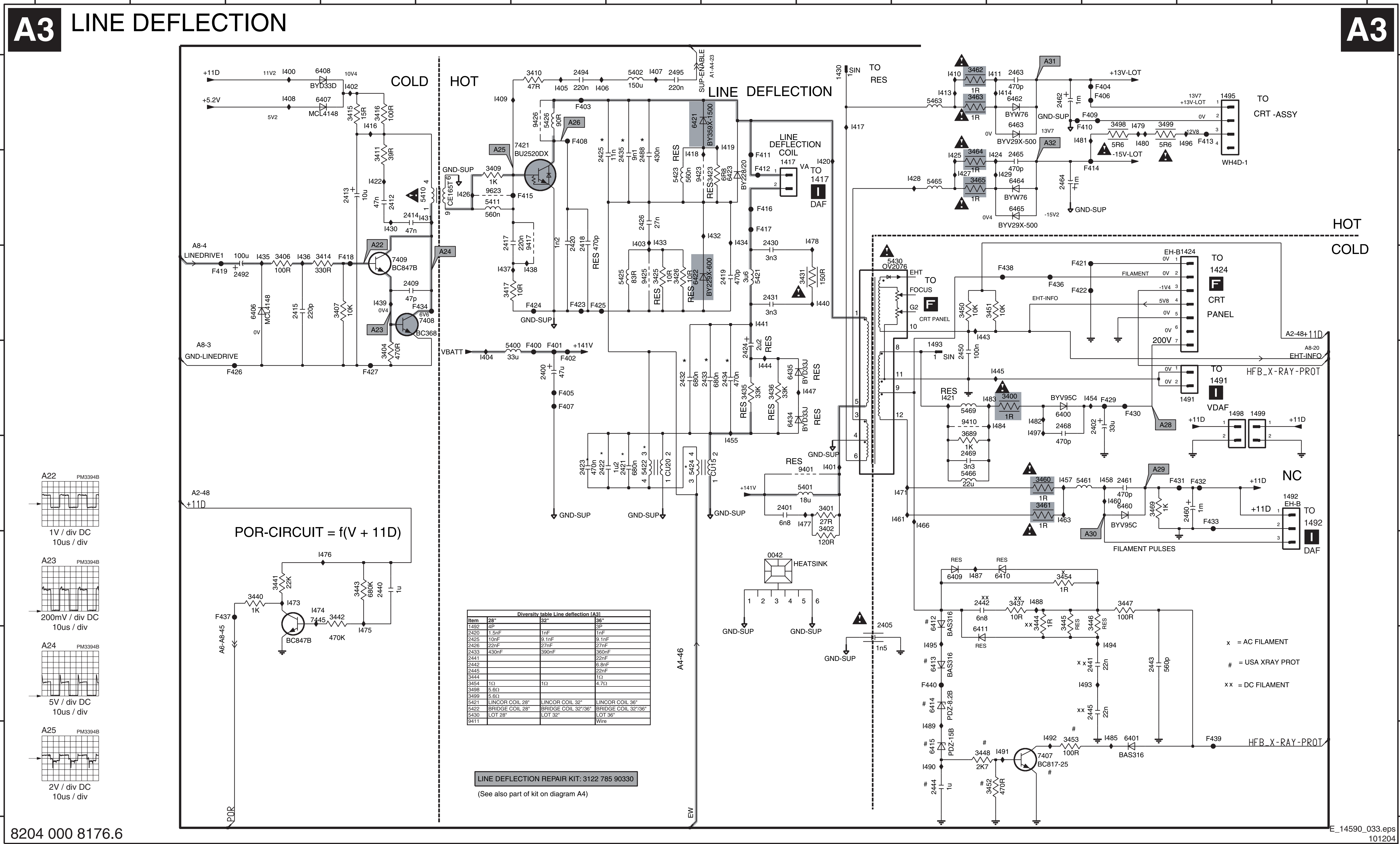


About DC-voltages measured:
- NORMAL ..V.
- STANDBY (..V.)

STANDBY SUPPLY REPAIR KIT: 3122 785 90460

Large Signal Panel: Line Deflection

0042 F8	1498 D13	2413 B4	2422 E6	2433 D8	2445 G12	2468 D11	3402 F9	3415 A4	3436 D8	3446 F12	3460 E11	3499 A12	5422 E7	5465 B10	6409 F10	6422 C7	6465 B11	9417 B6	F403 A6	F411 B8	F419 C2	F429 D12	F438 C11	I405 A6	I414 A11	I424 B11	I432 B8	I440 C9	I457 E11	I474 F3	I482 D11	I491 H11
1417 B8	1499 D13	2414 B4	2423 E6	2434 D8	2450 D10	2469 E10	3404 D4	3416 A4	3437 F11	3447 F12	3461 E11	3689 E10	5423 B7	5466 E10	6410 F11	6423 B8	7407 H11	9423 B7	F404 A12	F412 B8	F421 C11	F430 D12	F439 H13	I406 A6	I416 A4	I425 B10	I433 B7	I441 C8	I458 E12	I475 G4	I483 D11	I492 H11
1424 C13	2400 D6	2415 C3	2424 D8	2435 B7	2460 E13	2488 B7	3406 C3	3417 C5	3440 F3	3448 H10	3462 A10	5400 D6	5424 E7	5469 D10	6411 G10	6434 D8	7408 C5	9425 C7	F405 D6	F413 A13	F422 C11	F431 E13	F440 G10	I407 A7	I417 A9	I426 B5	I434 B8	I443 C10	I460 E12	I476 F4	I484 D11	I493 G12
1430 A9	2401 E8	2417 B5	2425 B6	2440 F4	2461 E12	2492 C3	3407 C4	3423 B8	3441 F3	3450 C10	3463 A10	5401 E9	5425 C7	6400 D11	6412 F10	6435 D8	7409 C4	9426 A6	F406 A12	F414 B12	F423 C6	F432 E13	I400 A3	I408 A3	I418 B7	I427 B10	I435 C3	I444 D8	I461 E10	I477 E9	I485 H12	I494 G12
1491 D13	2402 D12	2418 B6	2426 B7	2441 G12	2462 A11	2494 A6	3409 B5	3425 C7	3442 F4	3451 C11	3464 B10	5402 A7	5426 A6	6401 H12	6413 G10	6460 E12	7421 A6	9623 B5	F407 D6	F415 B6	F424 C6	F433 E13	I401 E9	I409 A5	I419 A8	I428 B10	I436 C3	I445 D11	I463 E11	I478 B9	I487 F10	I495 G10
1492 E14	2405 G9	2419 C8	2430 B8	2442 F10	2463 A11	2495 A7	3410 A6	3426 C7	3443 F4	3452 H11	3465 B10	5410 B5	5430 C10	6406 C3	6414 G10	6462 A11	7445 F3	F400 D6	F408 A6	F416 B8	F425 C6	F434 C5	I402 A4	I410 A10	I420 B9	I429 B11	I437 C5	I447 D9	I466 E10	I479 A12	I488 F11	I496 A13
1493 D10	2409 C4	2420 B6	2431 C8	2443 G12	2464 B11	3400 D11	3411 B4	3431 C9	3444 F11	3453 H11	3469 E12	5411 B5	5461 E12	6407 A4	6415 H10	6463 A11	9401 E9	F401 D6	F409 A12	F417 B8	F426 D3	F436 C11	I403 B7	I411 A11	I421 D10	I430 B4	I438 C6	I454 D12	I471 E10	I480 A12	I489 H10	I497 D11
1495 A13	2412 B4	2421 E7	2432 D7	2444 H10	2465 B11	3401 E9	3414 C4	3435 D8	3445 F11	3454 F11	3498 A12	5421 C8	5463 A10	6408 A4	6421 A7	6464 B11	9410 D10	F402 D6	F410 A12	F418 C4	F427 D4	F437 F2	I404 D5	I413 A10	I422 B4	I431 B5	I439 C4	I455 E8	I473 F3	I481 A11	I490 H10	



Diversity table Line deflection [A3]			
Item	28"	32"	36"
1492	4P		3P
2420	1.5nF	1nF	1nF
2425	10nF	9.1nF	9.1nF
2426	22nF	27nF	27nF
2433	430nF	390nF	360nF
2441			22nF
2442			6.8nF
2445			22nF
3444			1Ω
3454	1Ω	1Ω	4.7Ω
3498	5.6Ω		
3499	5.6Ω		
5421	LINCOR COIL 28"	LINCOR COIL 32"	LINCOR COIL 36"
5422	BRIDGE COIL 28"	BRIDGE COIL 32"/36"	BRIDGE COIL 32"/36"
5430	LOT 28"	LOT 32"	LOT 36"
9411			Wire

LINE DEFLECTION REPAIR KIT: 3122 785 90330

(See also part of kit on diagram A4)

8204 000 8176.6

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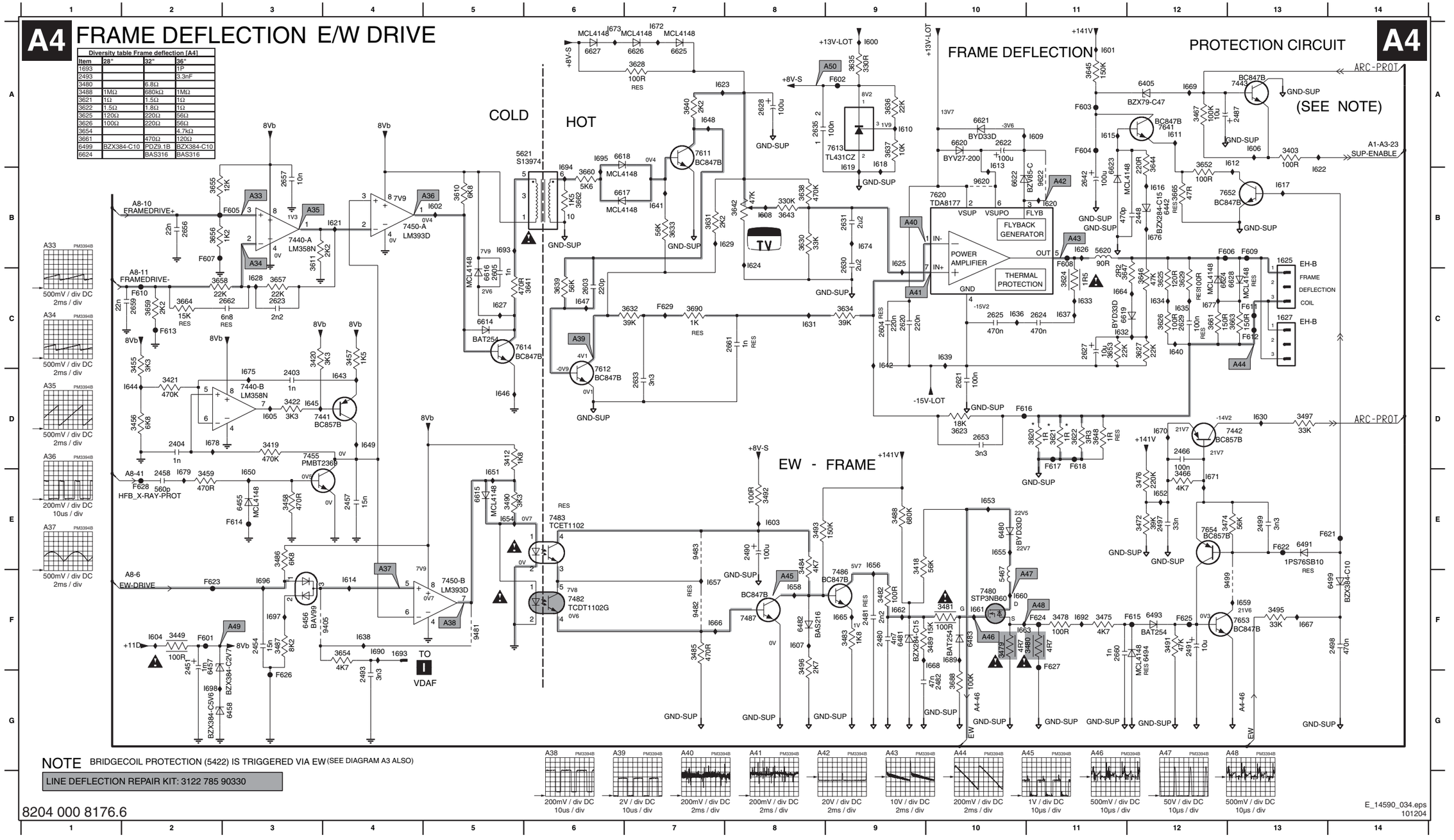
101204

Large Signal Panel: Frame Deflection E/W Drive

1625 B13	2481 F9	2620 C9	2635 A8	3419 D3	3472 E12	3486 E3	3611 B3	3631 B7	3643 B8	3658 C2	5621 A5	6493 F12	6623 A11	7450-B F5	7641 A12	F602 A9	F614 E3	F628 E2	I610 A9	I622 B13	I634 C12	I646 D5	I658 F8	I670 D12	I692 F11
1627 C13	2482 G10	2621 D10	2642 B11	3420 C3	3474 E13	3487 F3	3620 D11	3632 C7	3644 A12	3659 C2	6405 A12	6494 F12	6624 C12	7455 D3	7652 B13	F603 A11	F615 F12	F629 C7	I611 A12	I623 A7	I635 C12	I647 C6	I659 F13	I671 E12	I693 B5
1693 F4	2487 A13	2622 A10	2653 D10	3421 D2	3475 F11	3488 E9	3621 D11	3633 B7	3645 A11	3660 B6	6442 B12	6499 F14	6625 A7	7480 F10	7653 F13	F604 A11	F616 D10	I600 A9	I612 A13	I624 B8	I636 C10	I648 A7	I660 F10	I672 A7	I694 A6
2403 D3	2490 E8	2623 C3	2656 B2	3422 D3	3476 E12	3489 F10	3622 D11	3634 C9	3646 C12	3661 C12	6455 E3	6614 C5	6626 A7	7482 F6	7654 E12	F605 B3	F617 D11	I601 A11	I613 A10	I625 B9	I637 C11	I649 D4	I661 F10	I673 A6	I695 A6
2404 D2	2491 F12	2624 C11	2657 B3	3449 F2	3478 F11	3490 E5	3623 D10	3635 A9	3647 C12	3662 B6	6456 F3	6615 E5	6627 A6	7483 E6	9405 F4	F606 B12	F618 D11	I602 B5	I614 F4	I626 B11	I638 F4	I650 E3	I662 F9	I674 B9	I696 F3
2448 B12	2493 G4	2625 C10	2659 C2	3455 C2	3479 F10	3491 F12	3624 C11	3636 A9	3648 D11	3663 C13	6457 F2	6616 C5	6628 C13	7486 F9	9481 F5	F607 B2	F621 E13	I603 E8	I615 A11	I627 C5	I639 C10	I651 E5	I663 F10	I675 D3	I697 F3
2451 F2	2497 E12	2627 C11	2660 F11	3456 D2	3480 F11	3492 E8	3625 C12	3637 A9	3652 A12	3664 C2	6458 G3	6617 B6	7440-A B3	7487 F8	9482 F7	F608 B11	F622 E13	I604 F2	I616 B12	I628 C3	I640 C12	I652 E12	I664 C11	I676 B12	I698 G2
2454 F3	2498 F14	2628 A8	2661 C8	3457 C4	3481 F10	3493 E8	3626 C12	3638 B8	3653 C11	3665 B12	6480 E10	6618 A6	7440-B D3	7611 A7	9483 E7	F609 B13	F623 F2	I605 D3	I617 B13	I629 B8	I641 B7	I653 E10	I665 F9	I677 C12	
2457 E4	2499 E13	2629 C12	2662 C3	3458 E3	3482 F9	3495 F13	3627 C12	3639 C6	3654 F4	3688 G10	6481 F9	6619 C11	7441 D3	7612 D6	9499 F13	F610 C2	F624 F11	I606 A13	I618 A9	I630 D13	I642 C9	I654 E5	I666 F7	I678 D2	
2458 E2	2603 C6	2630 B9	3403 A13	3459 E2	3483 F9	3496 F8	3628 A7	3640 A7	3655 B2	3690 C7	6482 F8	6620 A10	7442 D13	7613 A9	9620 B10	F611 C13	F625 F12	I607 F8	I619 A9	I631 C8	I643 D4	I655 E10	I667 F13	I679 E2	
2466 D12	2604 C9	2631 B9	3412 D5	3466 E12	3484 F8	3497 D13	3629 C12	3641 C6	3656 B2	5467 F10	6483 F10	6621 A10	7443 A13	7614 C5	9622 B11	F612 C13	F626 G3	I608 B8	I620 B11	I632 C11	I644 D2	I656 E9	I668 F10	I689 F10	
2480 F9	2605 C5	2633 D7	3418 E9	3467 A12	3485 F7	3610 B5	3630 B8	3642 B8	3657 C3	5620 B11	6491 E13	6622 B10	7450-A B4	7620 B10	F601 F2	F613 C2	F627 F11	I609 A11	I621 B4	I633 C11	I645 D3	I657 F7	I669 A12	I690 F4	



NOTE BRIDGECOIL PROTECTION (5422) IS TRIGGERED VIA EW (SEE DIAGRAM A3 ALSO)

LINE DEFLECTION REPAIR KIT: 3122 785 90330

8204 000 8176.6

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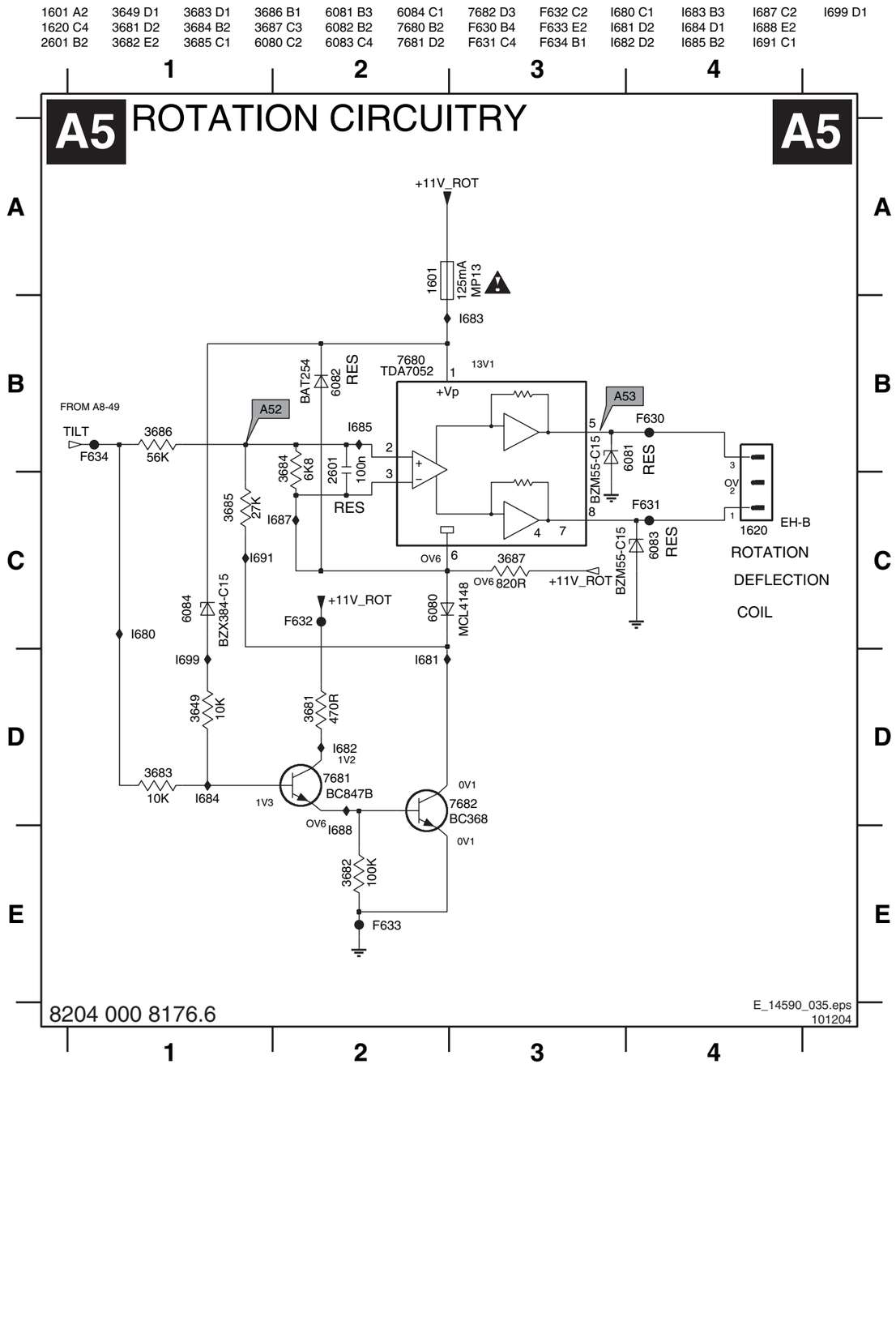
Large Signal Panel: Rotation Circuitry

1601 A2 3649 D1 3683 D1 3686 B1 6081 B3 6084 C1 7682 D3 F632 C2 I680 C1 I683 B3 I687 C2 I699 D1
1620 C4 3681 D2 3684 B2 3687 C3 6082 B2 7680 B2 F630 B4 F633 E2 I681 D2 I684 D1 I688 E2
2601 B2 3682 E2 3685 C1 6080 C2 6083 C4 7681 D2 F631 C4 F634 B1 I682 D2 I685 B2 I691 C1



Personal Notes:

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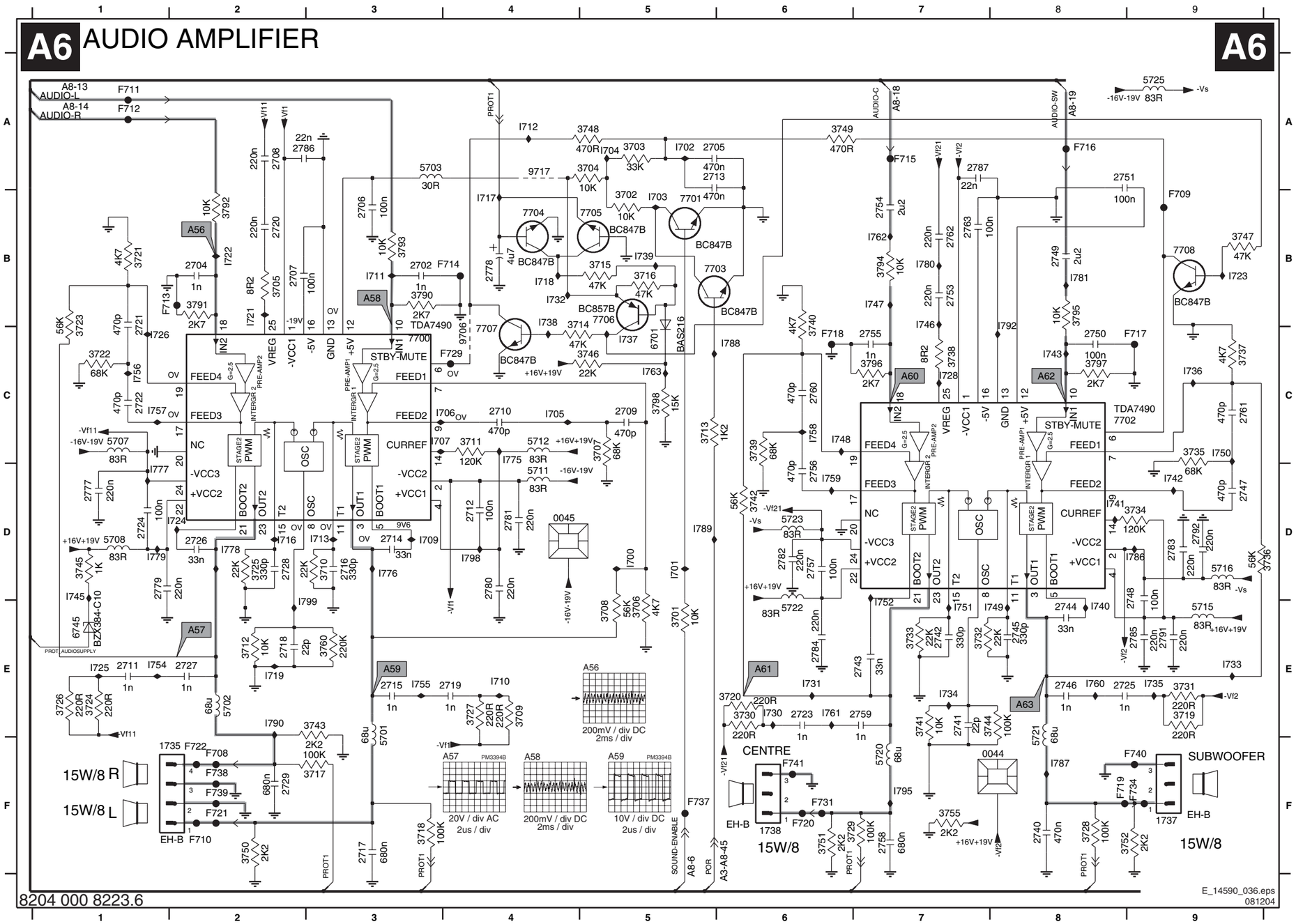
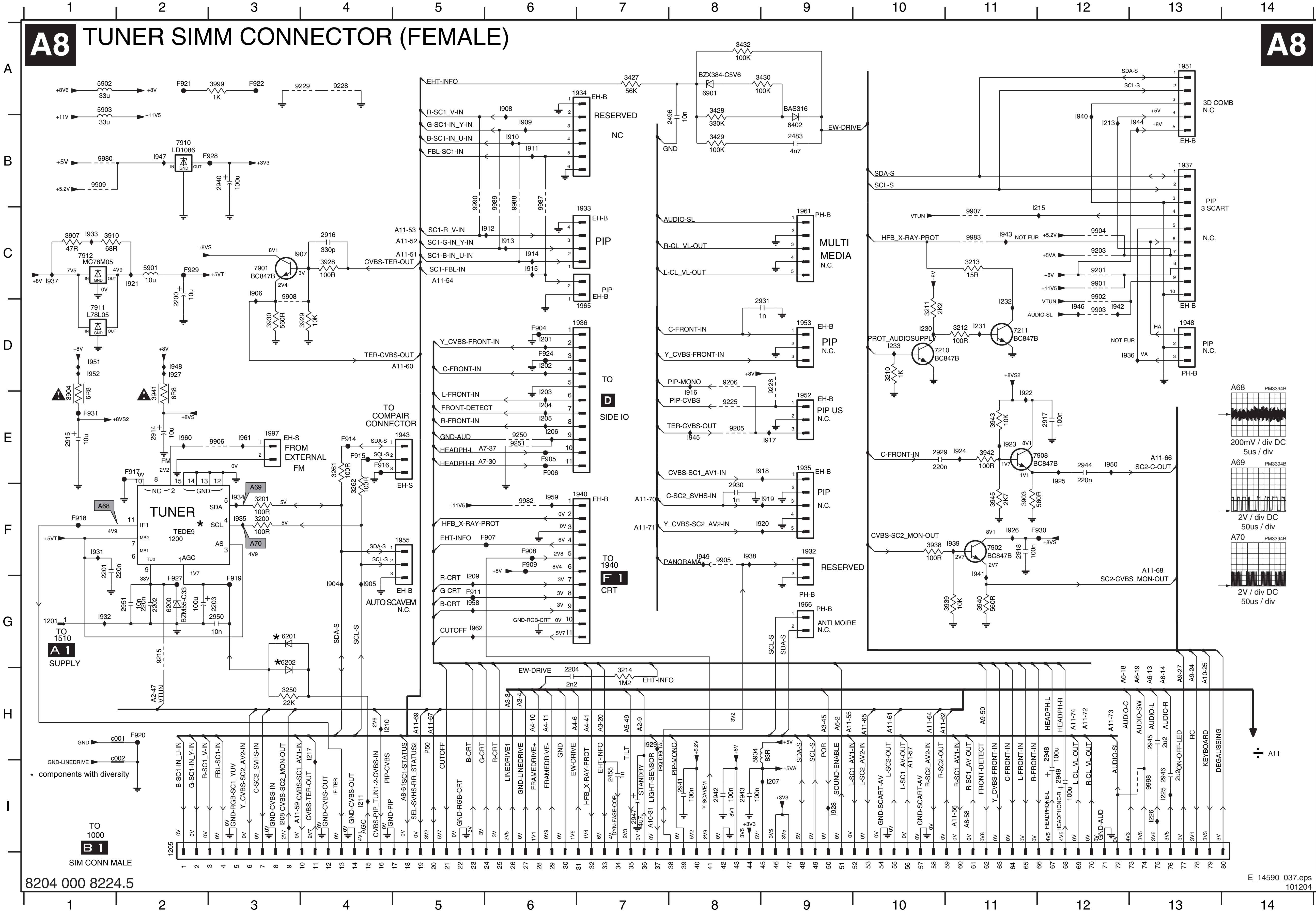
131004

Large Signal Panel: Audio Amplifier



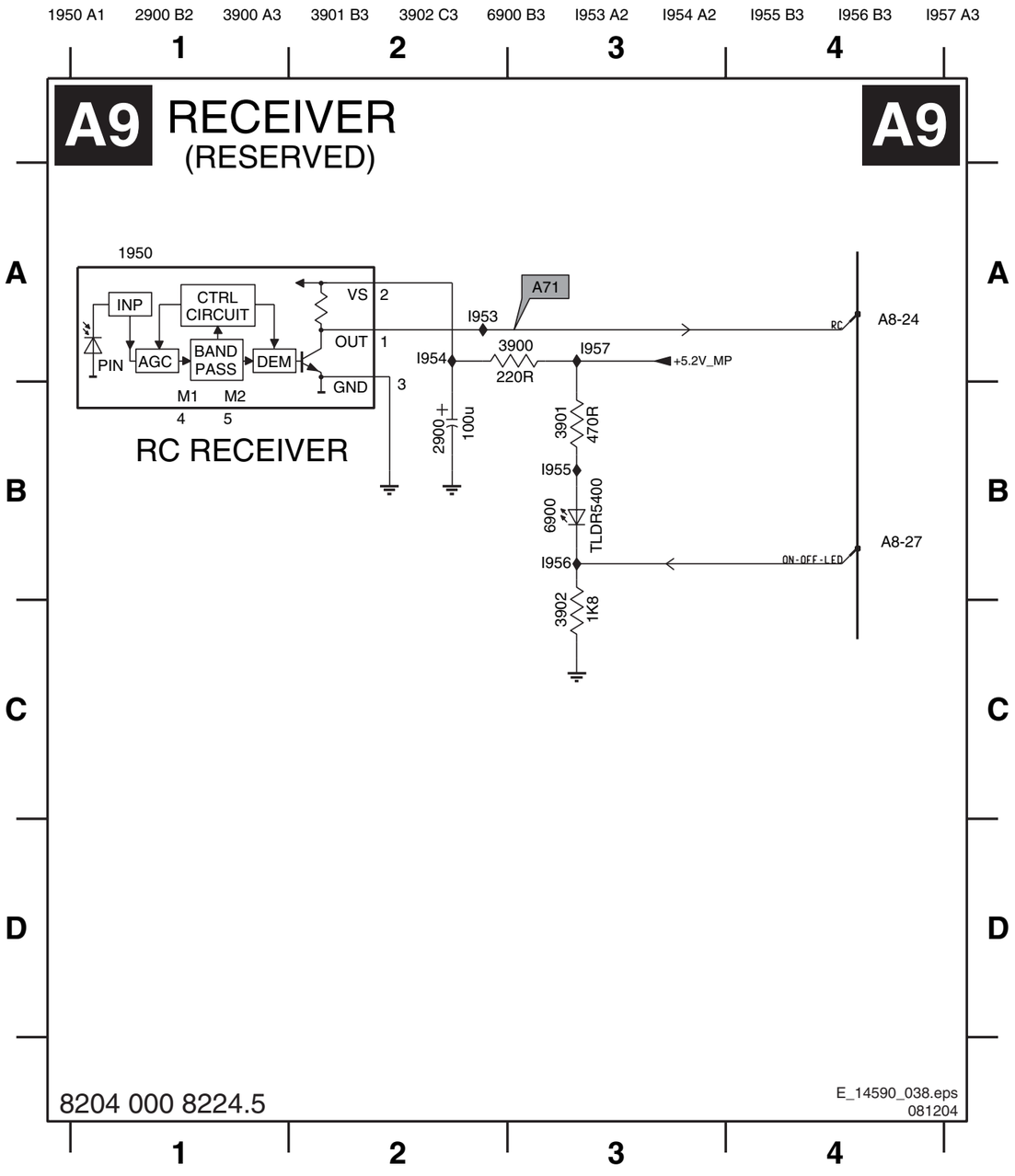
0044 F7	2783 D9	3790 B3	I702 A5	I786 D9
0045 E5	2784 E6	3791 B2	I703 B5	I787 F8
1735 F2	2785 E9	3792 B2	I704 A5	I788 C6
1737 F9	2786 A2	3793 B3	I705 C4	I789 D5
1738 F6	2787 A7	3794 B7	I706 C4	I790 E2
2702 B3	2791 E9	3795 B8	I707 C3	I792 B8
2704 B2	2792 D9	3796 C7	I709 D3	I795 F7
2705 A5	3701 E5	3797 C8	I710 E4	I798 D4
2706 B3	3702 B5	3798 C5	I711 B3	I799 E3
2707 B2	3703 A5	5701 E3	I712 A4	
2708 A2	3704 A5	5702 E2	I713 D3	
2709 C5	3705 B2	5703 A3	I716 D2	
2710 C4	3706 E5	5707 C1	I717 B4	
2711 E1	3707 C5	5708 D1	I718 B4	
2712 D4	3708 E5	5711 D4	I719 E2	
2713 A5	3709 E4	5712 C4	I721 B2	
2714 D3	3710 D3	5715 E9	I722 B2	
2715 E3	3711 C4	5716 D9	I723 B9	
2716 D3	3712 E2	5720 F7	I724 D2	
2717 F3	3713 C5	5721 E8	I725 E1	
2718 E2	3714 C4	5722 E6	I726 C1	
2719 E4	3715 B5	5723 D6	I728 C7	
2720 B2	3716 B5	5725 A9	I730 E6	
2721 B1	3717 F3	6701 C5	I731 E6	
2722 C1	3718 F3	6745 E1	I732 B4	
2723 E6	3719 E9	7700 C3	I733 E9	
2724 D1	3720 E6	7701 B5	I734 E7	
2725 E8	3721 B1	7702 C8	I735 E9	
2726 D2	3722 C1	7703 B5	I736 C9	
2727 E2	3723 B1	7704 B4	I737 C5	
2728 D2	3724 E1	7705 B5	I738 B4	
2729 F2	3725 D2	7706 B5	I739 B5	
2740 F8	3726 E1	7707 C4	I740 E8	
2741 E7	3727 E4	7708 B9	I741 D8	
2742 E7	3728 F8	9706 C4	I742 D9	
2743 E7	3729 F7	9717 A4	I743 C8	
2744 E8	3730 E6	F708 F2	I745 D1	
2745 E8	3731 E9	F709 B9	I746 B7	
2746 E8	3732 E7	F710 F2	I747 B7	
2747 D9	3733 E7	F711 A1	I748 C6	
2748 D8	3734 D9	F712 A1	I749 E8	
2749 B8	3735 C9	F713 B2	I750 C9	
2750 C8	3736 D9	F714 B4	I751 E7	
2751 A8	3737 C9	F715 A7	I752 E7	
2753 B7	3738 C7	F716 A8	I754 E1	
2754 B7	3739 C6	F717 C9	I755 E3	
2755 C7	3740 B6	F718 C6	I756 C1	
2756 D6	3741 E7	F719 F8	I757 C1	
2757 D6	3742 D6	F720 F6	I758 C6	
2758 F7	3743 E3	F721 F2	I759 D6	
2759 E7	3744 E8	F722 F2	I760 E8	
2760 C6	3745 D1	F729 C4	I761 E6	
2761 C9	3746 C5	F731 F6	I762 B7	
2762 B7	3747 B9	F734 F9	I763 C5	
2763 B7	3748 A5	F737 F5	I775 C4	
2777 D1	3749 A6	F738 F2	I776 D3	
2778 B4	3750 F2	F739 F2	I777 D1	
2779 D1	3751 F6	F740 F9	I778 D2	
2780 D4	3752 F9	F741 F6	I779 D1	
2781 D4	3755 F7	I700 D5	I780 B7	
2782 D6	3760 E3	I701 D5	I781 B8	

Large Signal Panel: Tuner SIMM Connector (Female)

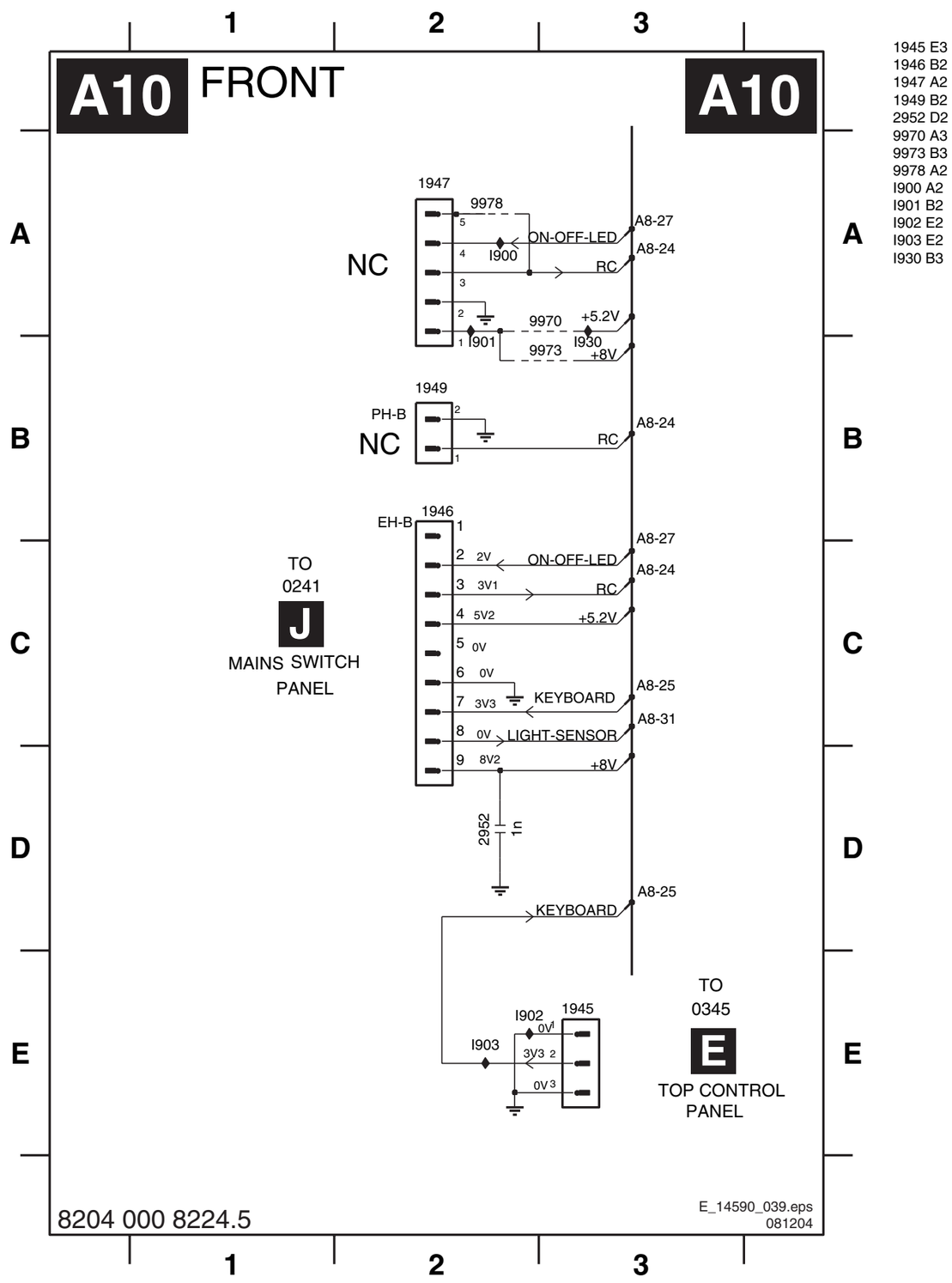


1200 F2	9909 B1
1201 G1	9980 B1
1205 I2	9982 F6
1932 F9	9983 C11
1933 B6	9987 B6
1934 A6	9988 B6
1935 E9	9989 B6
1936 D6	9990 B5
1937 B13	9998 I13
1940 F6	F904 D6
1943 E5	F905 E6
1948 D13	F906 E6
1951 A13	F907 F6
1952 E9	F908 F6
1953 D9	F909 F6
1955 F5	F911 G5
1961 C9	F914 E4
1965 D6	F915 E4
1966 G9	F916 E4
1997 E3	F917 E2
2200 D2	F918 F1
2201 F1	F919 G3
2202 G2	F920 H2
2203 G3	F921 A2
2455 I7	F922 A3
2483 B9	F924 D6
2496 B8	F927 G2
2914 E2	F928 B3
2915 E1	F929 C2
2916 C4	F930 F12
2917 E12	F931 E1
2918 F11	I201 D6
2929 E10	I202 D6
2930 F8	I203 E6
2931 D9	I204 E6
2940 B3	I205 E6
2941 I8	I206 E6
2942 I8	I207 I9
2943 I8	I208 I3
2944 E12	I209 G5
2945 H13	I210 H4
2946 I13	I211 I4
2947 I7	I213 B12
2948 H12	I215 C12
2949 I12	I217 H4
2950 G3	I225 I13
2951 G2	I226 I13
3200 F3	I230 D10
3201 F3	I231 D11
3210 D10	I232 D11
3211 D10	I233 D10
3212 D11	I904 G4
3213 C11	I905 G4
3250 H3	I906 C3
3261 E4	I907 C4
3262 F4	I908 A6
3427 A7	I909 B6
3428 A8	I910 B6
3429 B8	I911 B6
3430 A9	I912 C6
3432 A8	I913 C6
3903 F11	I914 C6
3904 E1	I915 C6
3907 C1	I916 E8
3910 C1	I917 E9
3928 C4	I918 E9
3929 D4	I919 F9
3930 D3	I920 F9
3938 F10	I921 C2
3939 G11	I922 E11
3940 G11	I923 E11
3941 E2	I924 E11
3942 E11	I925 E12
3943 E11	I926 F11
3945 F11	I927 D2
3999 A3	I928 I9
5901 C2	I929 H7
5902 A1	I931 F1
5903 A1	I932 G1
5904 H8	I933 C1
6200 G2	I934 F3
6201 G3	I935 F3
6202 G3	I936 D12
6402 B9	I937 C1
6901 A8	I938 F8
7210 D10	I939 F11
7211 D11	I940 B12
7901 C3	I941 F11
7902 F11	I942 D12
7908 E11	I943 C11
7910 B2	I944 B13
7911 D1	I945 E8
7912 C1	I946 D12
9201 C12	I947 B2
9203 C12	I948 D2
9205 E8	I949 F8
9206 D8	I950 E12
9215 G2	I951 D1
9225 E8	I952 D1
9226 D9	I958 G5
9228 A4	I959 F6
9229 A4	I960 E2
9250 E6	I961 E3
9251 E6	I962 G5
9901 C12	c001 H2
9902 C12	c002 I2
9903 D12	
9904 C12	
9905 F8	
9906 E3	
9907 C11	
9908 C3	

Large Signal Panel: Receiver



Large Signal Panel: Front



Large Signal Panel: Inputs/Outputs

A11 INPUTS/OUTPUTS

A11

(SCART1)

1901-B

A8-58 R-SC1_AV-OUT — 3960 150R — I986 — 3959 150R — F999 — 1B

A8-57 L-SC1_AV-OUT — 3993 150R — I997 — 3992 150R — F996 — 3B

2997 330p — 2996 330p

2B — F995 — 3995 1K — 2999 100p — A8-56 R-SC1_AV1-IN

4B

5B

A8-51 SC1-B-IN_U-IN — I994 — 3987 100R — I993 — 7B

6950 PDZ-6.8B — 3985 75R — F989 — 9B

6B — F993 — 3989 1K — I995 — A8-55 L-SC1_AV1-IN

8B — F990 — 3986 3K9 — SC1-STATUS — I992 — A11-61

1910 — INPUTs — F988 — 11B

2992 330p — 3984 8K2 — 2991 100p

12B — 3979 75R — 3980 100R — SC1-G-IN_Y-IN — A8-52

6953 PDZ-6.8B

14B

15B — F985 — 3978 100R — SC1-R_V-IN — A8-53

16B — F983 — 3976 100R — SC1-FBL-IN — A8-54

17B

3974 75R — 3973 75R — 6954 PDZ-6.8B

18B

6955 PDZ-6.8B

A11-60 TER-CVBS-OUT — 3972 75R — 6951 PDZ-6.8B — F980 — 19B

20B — F979 — 3968 75R — 6956 PDZ-6.8B — 3970 100R — A8-59 CVBS-SC1_AV1-IN

21B

(SCART2)

1901-A

A-62 R-SC2-OUT — 3997 150R — I998 — 3996 150R — F997 — 1A

A-61 L-SC2-OUT — 3991 150R — I996 — 3990 150R — F994 — 3A

2994 330p — 2995 330p

2A — F998 — 3994 1K — 2998 100p — A8-64 R-SC2_AV2-IN

4A

5A

A8-66 SC2-C-OUT — I999 — 7A

6957 PDZ-6.8B — 6A — F992 — 3988 1K — 2993 100p — A8-65 L-SC2_AV2-IN

8A — F991

A8-67 P50 — 6958 PDZ-6.8B — 3983 100R — F987 — 9A

10A — 3982 3K9 — 2990 330p — 3981 8K2 — BZX284-C12 6960 — A8-69 SEL-SVHS-RR_STATUS2

1911

11A

12A

F986 — 13A

14A

15A — F984 — 3977 100R — A8-70 C-SC2_SVHS-IN

16A — 3975 75R — 6961 PDZ-6.8B

17A

2985 390p

18A

A8-68 SC2-CVBS_MON-OUT — 3971 75R — F982 — 19A

6959 PDZ-6.8B — I987

20A — F981 — 3969 100R — A8-71 Y_CVBS-SC2_AV2-IN

3967 75R — 6962 PDZ-6.8B

21A

1902-B — 1902-C — 1902-A — AUDIO - L OUT

F978 — AUDIO - R OUT — F977 — AUDIO -SURROUND OUT — F976

3966 150R — I991 — 3965 150R — 330p 2989 — A8-72 R-CL_VL-OUT

3964 150R — I990 — 3963 150R — 3n3 2988 — A8-73 AUDIO-SL

3962 150R — I989 — 3961 150R — 330p 2987 — I988 — A8-74 L-CL_VL-OUT

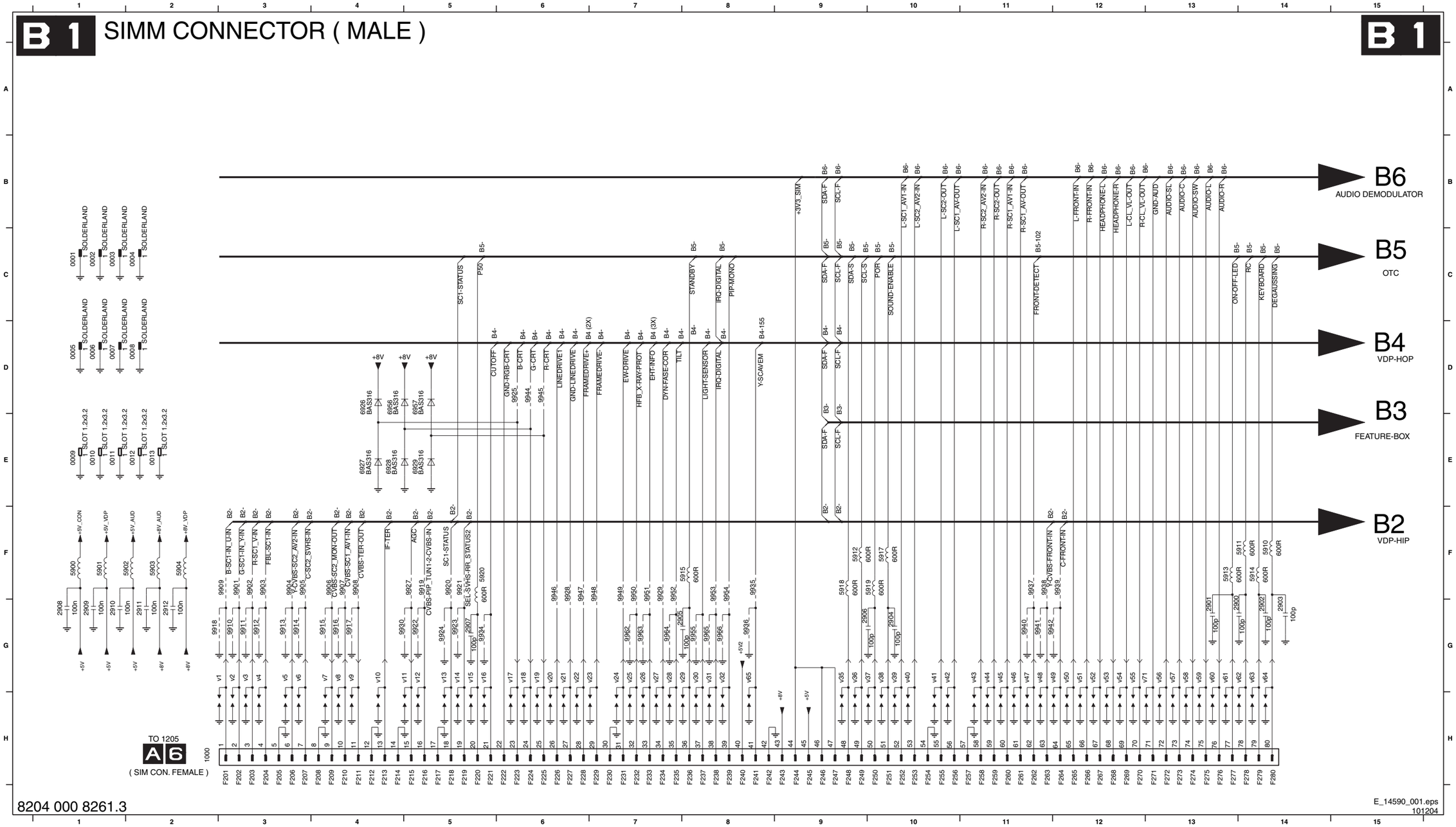
E_14590_040.eps
071204

8204 000 8077.7

1901-A A6 3996 A6
1901-B A2 3997 A5
1902-A D2 6950 A1
1902-B D1 6951 C1
1902-C D2 6953 B4
1910 B3 6954 C3
1911 B7 6955 C4
2985 C5 6956 C3
2987 E2 6957 A5
2988 E2 6958 B5
2989 D3 6959 C5
2990 B7 6960 B8
2991 B4 6961 C8
2992 B3 6962 C8
2993 A7 F976 D2
2994 A5 F977 D1
2995 A6 F978 D1
2996 A2 F979 C3
2997 A1 F980 C2
2998 A7 F981 C7
2999 A3 F982 C6
3959 A2 F983 C3
3960 A1 F984 B7
3961 E3 F985 B3
3962 E2 F986 B6
3963 E3 F987 B6
3964 E2 F988 B3
3965 D3 F989 B2
3966 D2 F990 A3
3967 C7 F991 A7
3968 C3 F992 A7
3969 C7 F993 A3
3970 C3 F994 A6
3971 C5 F995 A3
3972 C1 F996 A2
3973 C3 F997 A6
3974 C3 F998 A7
3975 C7 F999 A2
3976 C4 I986 A1
3977 B7 I987 C5
3978 B3 I988 E2
3979 B3 I989 E2
3980 B3 I990 E2
3981 B8 I991 D3
3982 B7 I992 B3
3983 B6 I993 A2
3984 B4 I994 A1
3985 B2 I995 A3
3986 A3 I996 A6
3987 A1 I997 A2
3988 A7 I998 A6
3989 A3 I999 A5
3990 A6
3991 A5
3992 A2
3993 A1
3994 A7
3995 A3

Small Signal Board: SIMM Connector (Male)

v1 G3	v6 G3	v11 G5	v16 G5	v21 G6	v26 G7	v31 G8	v38 G10	v43 G11	v48 G11	v53 G12	v58 G13	v63 G14	0002 C1	0007 D1	0012 E2	2902 G14	2907 G5	2912 G2	5904 F2	5914 F14	5920 F5	6956 D4	9904 F3	9909 F3	9914 G3	9919 F5	9924 G5	9930 G5	9938 F11	9944 D6	9949 F7	9954 F8	9965 G8
v2 G3	v7 G4	v12 G5	v17 G6	v22 G6	v27 G7	v32 G8	v39 G10	v44 G11	v49 G12	v54 G12	v59 G13	v64 G14	0003 C1	0008 D2	0013 E2	2903 G14	2908 G1	5900 F1	5910 F14	5915 F8	6926 D4	6957 D5	9905 F3	9910 G3	9915 G4	9920 F5	9925 D6	9934 G5	9939 F12	9945 D6	9950 F7	9955 G8	9966 G8
v3 G3	v8 G4	v13 G5	v18 G6	v23 G7	v28 G7	v35 G9	v40 G10	v45 G11	v50 G12	v55 G12	v60 G13	v65 G8	0004 C2	0009 E1	1000 H2	2904 G10	2909 G1	5901 F1	5911 F14	5917 F10	6927 E4	9901 F3	9906 F4	9911 G3	9916 G4	9921 F5	9927 F5	9935 F8	9940 G11	9946 F6	9951 F7	9962 G7	
v4 G3	v9 G4	v14 G5	v19 G6	v24 G7	v29 G8	v36 G9	v41 G10	v46 G11	v51 G12	v56 G13	v61 G13	v71 G12	0005 D1	0010 E1	2900 G14	2905 G8	2910 G1	5902 F2	5912 F9	5918 F9	6928 E4	9902 F3	9907 F4	9912 G3	9917 G4	9922 G5	9928 F6	9936 G8	9941 G11	9947 F6	9952 F7	9963 G7	
v5 G3	v10 G4	v15 G5	v20 G6	v25 G7	v30 G8	v37 G10	v42 G10	v47 G11	v52 G12	v57 G13	v62 G14	0001 C1	0006 D1	0011 E1	2901 G13	2906 G9	2911 G2	5903 F2	5913 F13	5919 F10	6929 E5	9903 F3	9908 F4	9913 G3	9918 G2	9923 G5	9929 F7	9937 F11	9942 G12	9948 F7	9953 F8	9964 G7	



Small Signal Board: IF. I/O Video Processing

B2 IF, I/O VIDEOPROCESSING

B2

B1÷B10

HIP

IF DEM TUNERAGC

LUMA & CHROMA PROC.

I/O SWITCH

7323 TDA9320H

7307 TDA9181

1409-A OFWK3953L SAW-FILTER AUDIO

1409-B OFWK3953L

1410-A OFWK9656L SAW-FILTER-VIDEO

1410-B OFWK9656L

1408-A OFWK3953L SAW-FILTER VIDEO

1408-B OFWK3953L

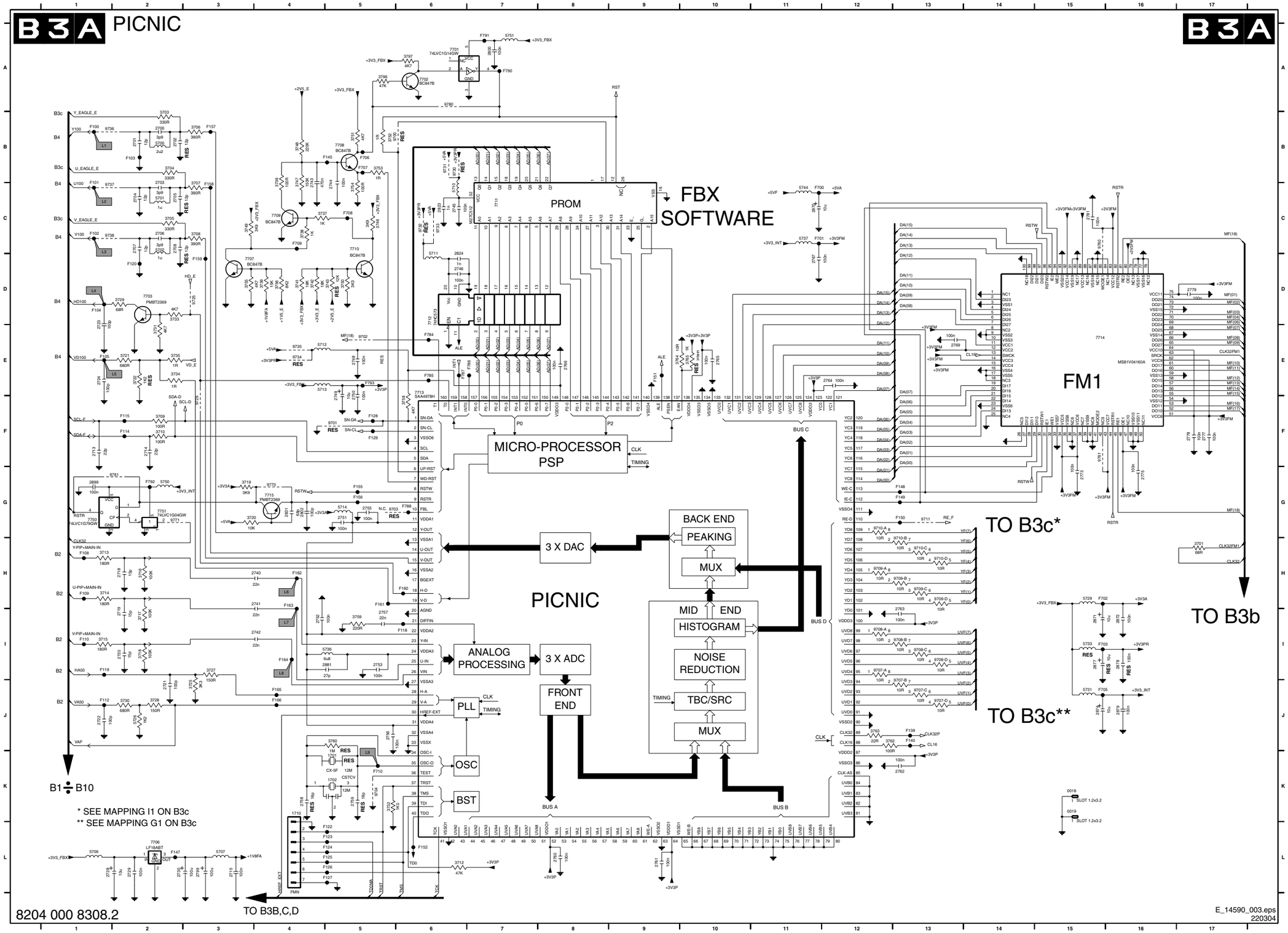
COIL 40.4 SUPPRESSION

8204 000 8260.3

E_14590_002.eps 101204

1303	B13	3410	E3
1305	E11	3411	C2
1306	E12	3412	E12
1307	E12	3414	D2
1308	E13	3415	A5
1403	A1	3416	D5
1406	E5	3417	G5
1407	E5	3418	D7
1408-A	F4	3419	E5
1408-B	G3	3420	G6
1409-A	C4	3421	F5
1409-B	C3	3423	H1
1410-A	E4	3433	G1
1410-B	E3	3434	E2
1411	G6	3435	G5
2302	H14	3436	E6
2305	C11	3437	D7
2316	C11	3439	E6
2322	C11	3441	B5
2327	D12	3444	B11
2335	G9	3445	F6
2337	G9	3446	F8
2339	H8	3447	B11
2350	A11	3448	B12
2351	A11	3449	B12
2352	A11	3450	E14
2353	I12	3451	F14
2354	G12	3452	F14
2355	C12	3456	G5
2356	F11	3457	H5
2357	F11	3460	D13
2358	F11	3461	D14
2359	F11	3462	D14
2360	F12	3463	B5
2361	F13	3468	H11
2362	F13	3473	F7
2364	C12	3474	F6
2365	F7	3475	C11
2366	F8	5309	B14
2368	F8	5310	B14
2369	F8	5311	B14
2370	F8	5312	F14
2371	B10	5401	D2
2372	A10	5402	E5
2373	B8	5403	H2
2374	B8	5404	B7
2375	B8	5405	B7
2376	B7	5406	E6
2377	B6	5408	C6
2378	B7	5409	G8
2379	F12	5411	C1
2380	F12	5415	A2
2381	F12	5416	A3
2382	F12	5417	G7
2383	D12	6402	E2
2384	F7	6403	D2
2385	G13	6404	G2
2387	H9	6405	E2
2388	A11	7307	G11
2389	B12	7320	F9
2390	B1	7322	E7
2391	B3	7323	D9
2394	B6	7401	E2
2399	F7	7402	H7
2401	C6	7403	D2
2402	G2	7404	D12
2403	C7	7405	H1
2404	C7	7406	F5
2405	D1	7407	F5
2406	G2	7408	A12
2407	G3	7409	A12
2408	H3	7410	G5
2409	C7	7411	D6
2411	D6	7412	F14
2412	C1	7413	D13
2413	D5	9318	G11
2417	E7	9319	G11
2418	D7	9322	F8
2419	D7	9324	G11
2420	G8	9401	F3
2421	F14	9402	E3
2422	E13	9403	E2
2423	F14	9405	E2
2424	G11	9406	F13
2425	B1	9407	A4
2426	C13	9408	H7
2427	C14	9410	A4
2428	C14	9412	F6
3301	I12	9413	F6
3303	H10	9414	E7
3370	F9	9415	C3
3371	H9	9416	D5
3372	H9	9417	D6
3373	C12	9418	E5
3374	C12	9419	E7
3375	C12	9420	F6
3376	A10	F354	B14
3377	A10	F355	B14
3378	B10	F356	B14
3379	D11	F400	G3
3380	B7	F401	D7
3381	H8	F402	C7
3382	F7	F403	C7
3385	G7	F404	E12
3389	F9	F405	D11
3393	F11	F406	D12
3400	B5	F407	B10
3401	B7	F408	B11
3402	B1	F409	C5
3403	G7	F410	C5
3404	I6	F411	C4
3405	H5	F412	C4
3406	G2	F413	B6
3407	F2	F414	D5
3409	G2	F415	H8
		F417	F8

Small Signal Board: PICNIC



0018 K15
0019 K15
1701 K5
1702 K5
1710 K4
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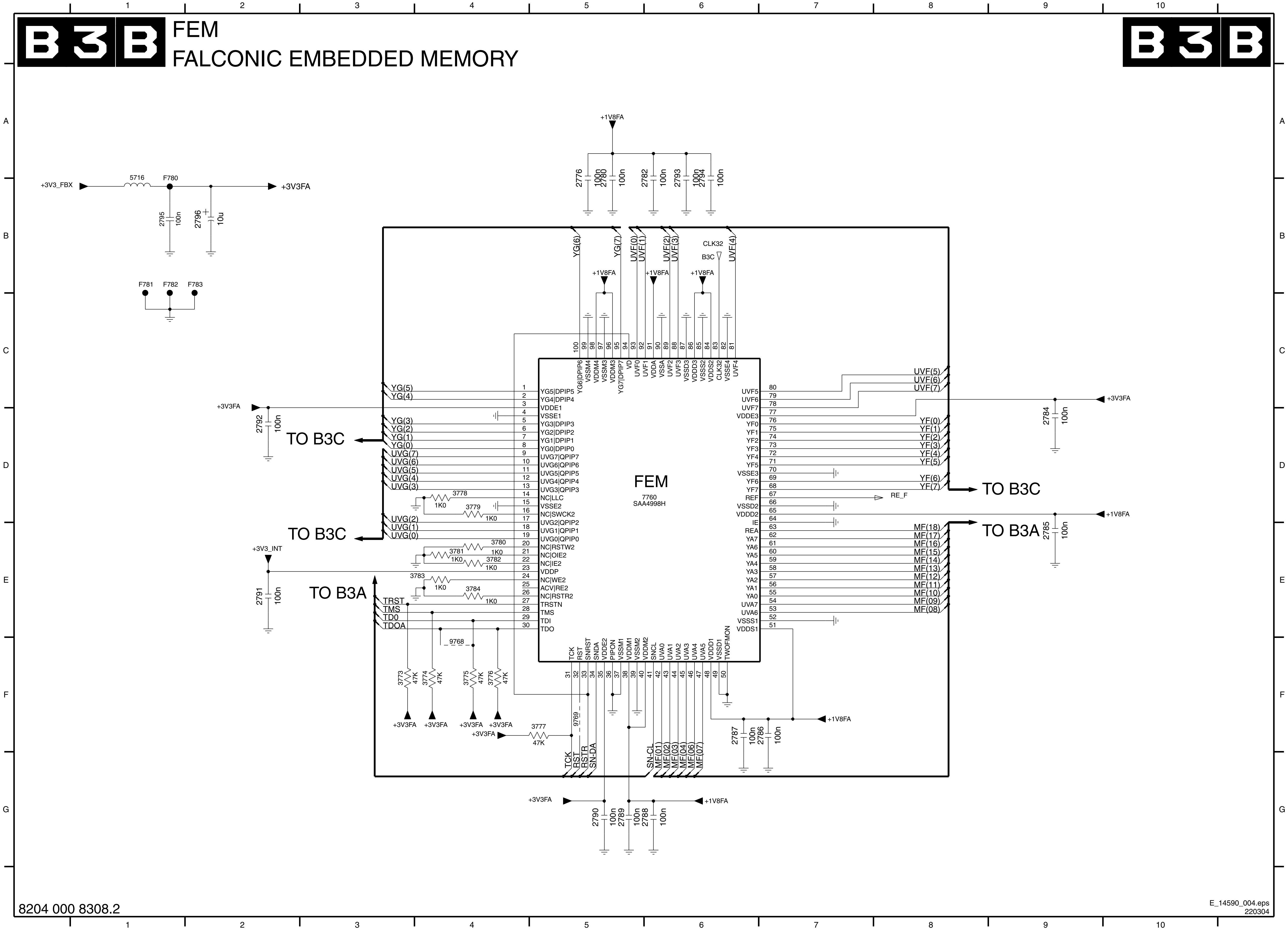
2701 B2
2702 B2
2703 C2
2704 C2
2705 C2
2706 C2
2707 C2
2708 C2
2713 F1
2714 F2
2715 L3
2718 H2
2719 I2
2720 I2
2721 J2
2722 J1
2723 E1
2724 E1
2728 L1
2729 L2
2730 L2
2740 H4
2741 H4
2742 I4
2743 C4
2744 C5
2745 C6
2746 D6
2748 E5
2749 F5
2750 E5
2751 G5
2752 I4
2753 I5
2755 G5
2756 J5
2757 I5
2758 K4
2759 K5
2760 L8
2761 L9
2762 K13
2763 I13
2764 E12
2765 E10
2766 E8
2767 D11
2769 E13
2773 G15
2775 G16
2777 F17
2778 F17
2779 D17
2781 C15
2799 L3
2800 A7
2802 G4
2823 C6
2824 D6
2831 G4
2870 C11
2871 I15
2872 I16
2874 J15
2877 I15
2878 I16
2879 J16
2881 I5
2899 G1
3701 H17
3703 B2
3704 B2
3705 C2
3706 B3
3707 C3
3708 C3
3709 F2
3710 F2
3712 L6
3713 H1
3714 H1
3715 I1
3716 H2
3717 I2
3718 I2
3719 G3
3720 G3
3721 E2
3722 E2
3725 J3
3726 J2
3727 I3
3728 J2
3729 D2
3730 J2
3731 E2
3732 K5
3733 D2
3734 E2
3735 E2
3736 B4
3737 C4
3738 C4
3739 D4
3741 D4
3742 D4
3743 D5
3746 C5
3747 B4
3748 B4
3749 C3
3750 D5
3751 B5
3752 B5
3753 B5
3754 C5
3755 D3
3756 D4
3758 F6
3759 I5
3760 J5
3762 J12
3763 J12
3764 E9
3765 E10
3796 A5
3797 A6
5700 B2
5701 C2
5702 C2
5706 L1
5707 L3
5710 C6
5711 D6
5712 E4
5713 E4
5714 G5
5729 H15
5731 J15
5733 I15
5736 I5
5737 C11
5744 C11
5750 G2
5751 A7
7701 A6
7702 A6
7703 D2
7706 L2
7707 D4
7708 B5
7709 C4
7710 C5
7711 C7
7712 E6
7713 E6
7714 E15
7715 G4
7750 G1
7751 G2
9700 B6
9701 F5
9702 E5
9703 G5
9704 K5
9707-A I12
9707-B J13
9707-C J13
9707-D J13
9708-A I12
9708-B I13
9708-C I13
9708-D I13
9709-A H12
9709-B H13
9709-C H13
9709-D H13
9710-A G12
9710-B H13
9710-C H13
9710-D H13
9711 G13
9725 D3
9726 F3
9730 B6
9731 B6
9732 C6
9733 C6
9734 E4
9735 E4
9736 B1
9737 C1
9738 C1
9760 C15
9761 F15
9770 G4
9771 G2
9780 A6
9781 G2
F100 B1
F101 C1
F102 C1
F103 B2
F104 D1
F105 E1
F108 H1
F109 H1
F110 I1
F112 J1
F114 F2
F115 F2
F118 I6
F119 I1
F120 D2
F122 L5
F123 L5
F124 L5
F125 L5
F126 L5
F127 L5
F128 F5
F129 F5
F139 J13
F140 J13
F145 B5
F147 L2
F148 G13
F149 G13
F150 G13
F152 L6
F155 G5
F156 G5
F157 B3
F158 C3
F159 D3
F160 H6
F161 H5
F162 H4
F163 H4
F164 I4
F165 J4
F166 J4
F700 C11
F701 C11
F702 H15
F703 I5
F705 J15
F708 C5
F709 C4
F710 K5
F784 E6
F785 E6
F786 E7
F787 E6
F788 G6
F790 A7
F791 A7
F792 G2
F793 E5

Small Signal Board: FEM Falconic Embedded Memory



2776	A5
2780	A5
2782	A6
2784	D9
2785	E9
2786	F7
2787	F6
2788	G6
2789	G5
2790	G5
2791	E2
2792	D2
2793	A6
2794	A6
2795	B1
2796	B2
3773	F3
3774	F4
3775	F4
3776	F4
3777	F5
3778	D4
3779	D4
3780	E4
3781	E4
3782	E4
3783	E4
3784	E4
5716	B1
7760	D6
9768	F4
9769	F5
F780	B1
F781	B1
F782	B1
F783	B2

Small Signal Board: Eagle

B3C EAGLE

TO B3B

FM4 FIELD MEMORY

FM5 FIELD MEMORY

EAGLE - IC

SEE MAPPING D12

SEE MAPPING A11

B1÷B10

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2709 C6	3793 A6	F762 I7	
2710 D6	3794 A9	F763 I9	
2711 E7	3795 E6	F764 I12	
2712 A8	3800 G7	F765 I8	
2716 D7	3801 G10	F766 I10	
2717 I7	3802 G7	F767 I13	
2725 I7	3803 G7	F768 G10	
2726 I7	3804 C13	F769 D7	
2727 I9	3805 I10	F770 D7	
2731 A10	3806 I12		
2732 A12	3807 I6		
2733 B12	3808 I9		
2734 D13	3809 I11		
2735 G11	3810 I6		
2736 I9	3811 I8		
2737 I12	3812 I8		
2738 I12	3813 I9		
2739 I12	3814 I10		
2747 A9	3815 I10		
2754 A12	3816 I11		
2768 A9	3817 I13		
2770 E14	3818 I13		
2771 E14	3819 F12		
2772 E14	3820 F12		
2774 C14	3821 G7		
2783 H11	3822 H7		
2801 C13	3823 H7		
2803 B14	3824 H7		
2804 A14	3825 G7		
2805 F13	3826 G7		
2806 A13	3827 G7		
2807 A13	3705 H12		
2808 A12	5722 B14		
2809 E5	5723 A12		
2810 A4	5724 F13		
2811 E5	5725 A14		
2812 F5	5726 E5		
2813 A3	5727 D5		
2814 H12	5728 C14		
2815 I7	5738 G12		
2816 I10	5739 I7		
2817 C1	5740 I9		
2818 I12	5741 I12		
2820 E2	5742 E13		
2821 D3	5743 B14		
2822 D3	5745 F14		
2825 D4	7720 A13		
2826 F5	7722 B3		
2827 H6	7723 G3		
2828 H9	7724 C10		
2829 F3	7725 A6		
2830 H10	7726 G13		
2832 F4	7727 E14		
2833 G5	7728 H6		
2835 I4	7729 H9		
2838 I3	7730 H11		
2839 I6	7731 I6		
2840 I9	7732 I8		
2841 I11	7733 I11		
2843 H1	9740 F6		
2845 C5	9741-A F6		
2846 C5	9741-B G6		
2847 A12	9741-C G6		
2848 B7	9741-D F6		
2851 A11	9744 B13		
2853 E13	9745 B13		
2854 E13	9746 C13		
2855 F7	9747 C14		
2857 F12	9750 E6		
2859 G10	9753 E7		
2860 G11	9754 A8		
2861 B7	9762 A3		
2864 C13	9763 D3		
2865 D13	9764 F3		
2866 G10	9765 I3		
2867 E6	9766 G10		
2875 G12	F711 A8		
2876 G13	F712 A1		
2880 G13	F713 A9		
2884 C14	F714 A8		
2885 I10	F715 A8		
2886 F7	F716 B5		
2887 F7	F717 D5		
2888 G7	F718 D1		
2889 G8	F719 F1		
2890 G9	F720 A6		
2891 G9	F721 F5		
2892 G7	F722 H5		
2893 G8	F723 I1		
2894 G9	F724 A8		
2895 G10	F725 A8		
2896 G8	F726 A8		
2897 G9	F727 A8		
2898 G7	F728 A8		
3711 E7	F729 I6		
3744 A5	F731 I11		
3745 B6	F750 A14		
3757 A8	F751 A14		
3771 F6	F752 B14		
3772 F6	F753 B14		
3785 H6	F754 C12		
3786 H8	F755 C14		
3787 H11	F756 D5		
3788 I6	F757 E14		
3789 I9	F758 E5		
3790 I11	F759 F13		
3791 I7	F760 F13		
3792 C12	F761 H11		

Small Signal Board: HOP

B 4 HOP

B 4

B1÷ B10

HOP

ONLY FOR NO HOP

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101204

0014 I10	3343 D12	7318 E10
1301 G4	3344 D10	7319 C12
1304 G3	3345 D9	7340 C13
2301 C2	3346 C9	7361 I7
2303 E9	3347 D9	7362 H7
2304 G7	3348 D9	7375 B9
2306 H9	3349 F2	9302 A3
2307 F4	3350 B11	9303 A4
2308 G9	3351 B10	9304 A4
2309 D3	3352 A11	9305 A4
2310 E3	3353 A11	9308 B4
2311 H5	3354 A12	9309 B4
2312 F9	3355 B8	9310 B4
2313 F9	3356 B13	9311 I1
2314 E2	3357 B13	9312 I1
2315 E2	3358 A12	9313 F13
2317 F3	3359 B11	9314 B13
2318 F3	3360 A8	9315 B13
2319 F11	3361 G7	9316 C12
2320 G3	3362 G11	9421 B10
2321 B3	3363 F3	C001 H12
2323 B4	3364 F10	F301 E2
2324 I6	3365 F13	F303 F4
2325 G5	3366 G11	F304 I12
2326 E12	3367 F11	F305 G5
2328 B7	3368 E13	F306 G5
2329 B6	3383 B12	F307 G7
2330 A6	3384 C12	F309 D11
2331 B6	3386 F12	F310 D10
2332 E2	3387 G2	F311 D8
2333 D10	3388 C11	F312 E3
2334 E8	3390 D9	F314 D9
2336 E8	3391 G12	F315 D8
2338 C13	3394 E9	F316 D9
2340 I11	3395 C3	F317 E9
2342 A8	3396 D3	F319 B12
2343 A10	3397 D2	F320 A11
2344 H3	3398 D3	F321 F3
2345 H2	3399 C13	F326 B7
2346 H2	3442 E12	F329 H9
2347 H2	3443 E13	F330 B4
2348 H1	3453 C2	F331 B4
2349 H1	3454 B1	F332 B3
2363 F3	3455 C1	F333 C2
2386 G11	3459 B12	F334 C2
2392 G12	3465 B10	F335 B3
2393 E13	3467 A9	F338 E3
2395 D3	3470 B9	F339 E4
2396 D3	3471 A9	F340 F12
2397 D3	3472 I6	F347 D12
2398 A3	5301 E2	F348 G3
2429 B4	5302 E2	F349 H3
2431 B3	5303 G1	F350 H3
3302 C4	5304 H1	F351 H3
3304 I11	5305 H1	F352 H3
3305 C3	5306 H1	F353 H3
3306 E9	5307 H1	F357 E8
3307 E9	5308 H1	F358 E4
3308 E9	6301 E12	F359 F4
3310 E9	6302 I3	F360 F10
3311 G7	6303 H9	F361 F11
3312 E11	6304 H9	F362 H3
3313 E11	6306 I5	F363 H5
3314 G8	6307 I5	F364 F4
3315 G8	6308 C2	F365 E10
3316 H10	6309 D11	F366 A8
3317 G9	6310 D9	F367 B7
3318 G9	6311 D12	F368 B11
3319 E12	6312 H8	c200 F3
3320 D3	6313 H9	
3321 E3	6314 H9	
3322 D12	6316 C9	
3323 H5	6317 E12	
3324 I5	6319 D9	
3325 A10	6320 I2	
3326 H5	6321 I3	
3327 G6	6322 I2	
3328 F9	6334 H5	
3329 E2	7301 B4	
3330 A8	7302 A1	
3331 G3	7303 G8	
3332 A7	7304 F2	
3333 G3	7305 B9	
3334 I5	7306 A10	
3335 A7	7308 B12	
3336 H6	7309 B13	
3337 A13	7310 G12	
3338 B13	7311 F11	
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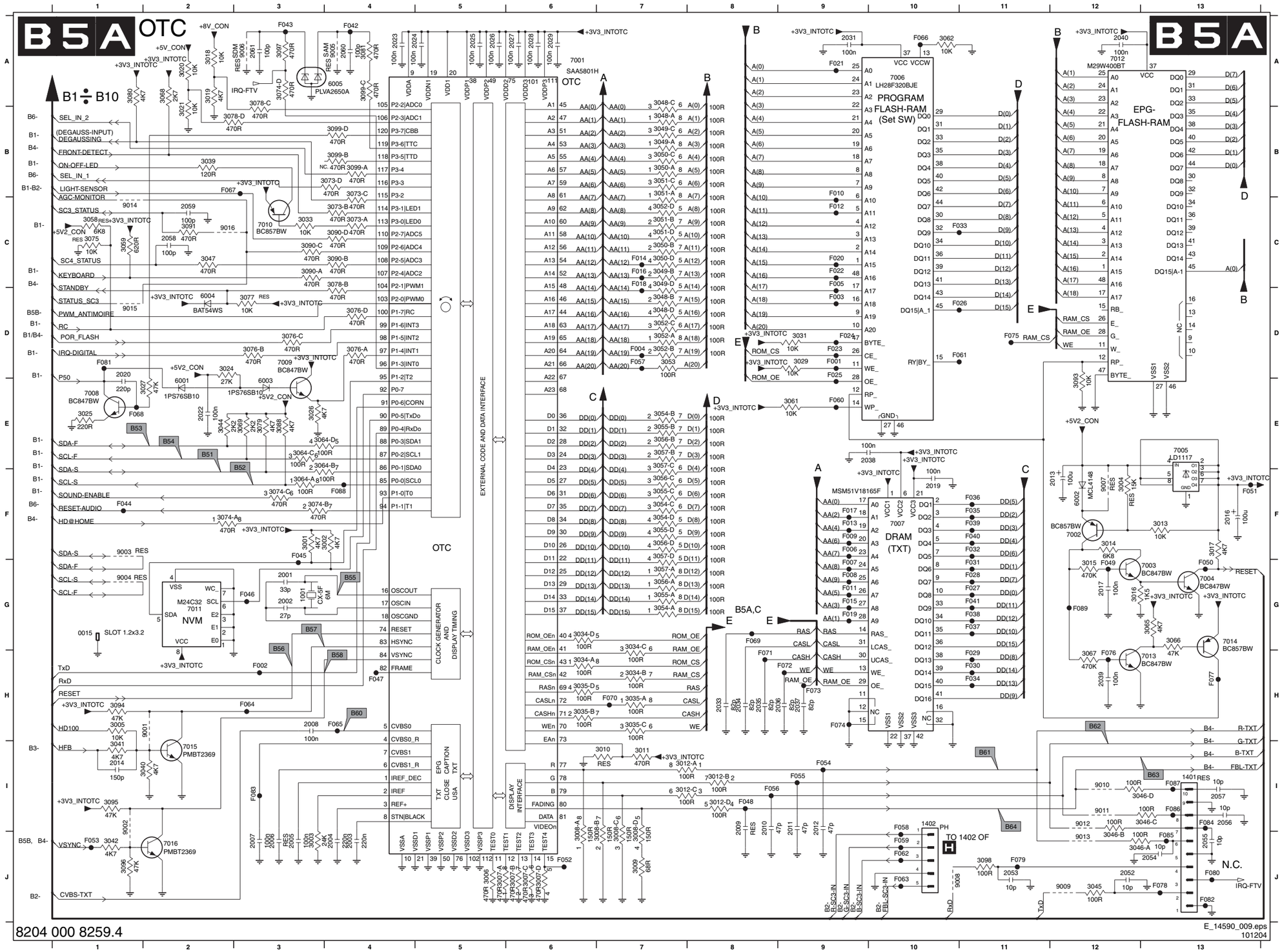

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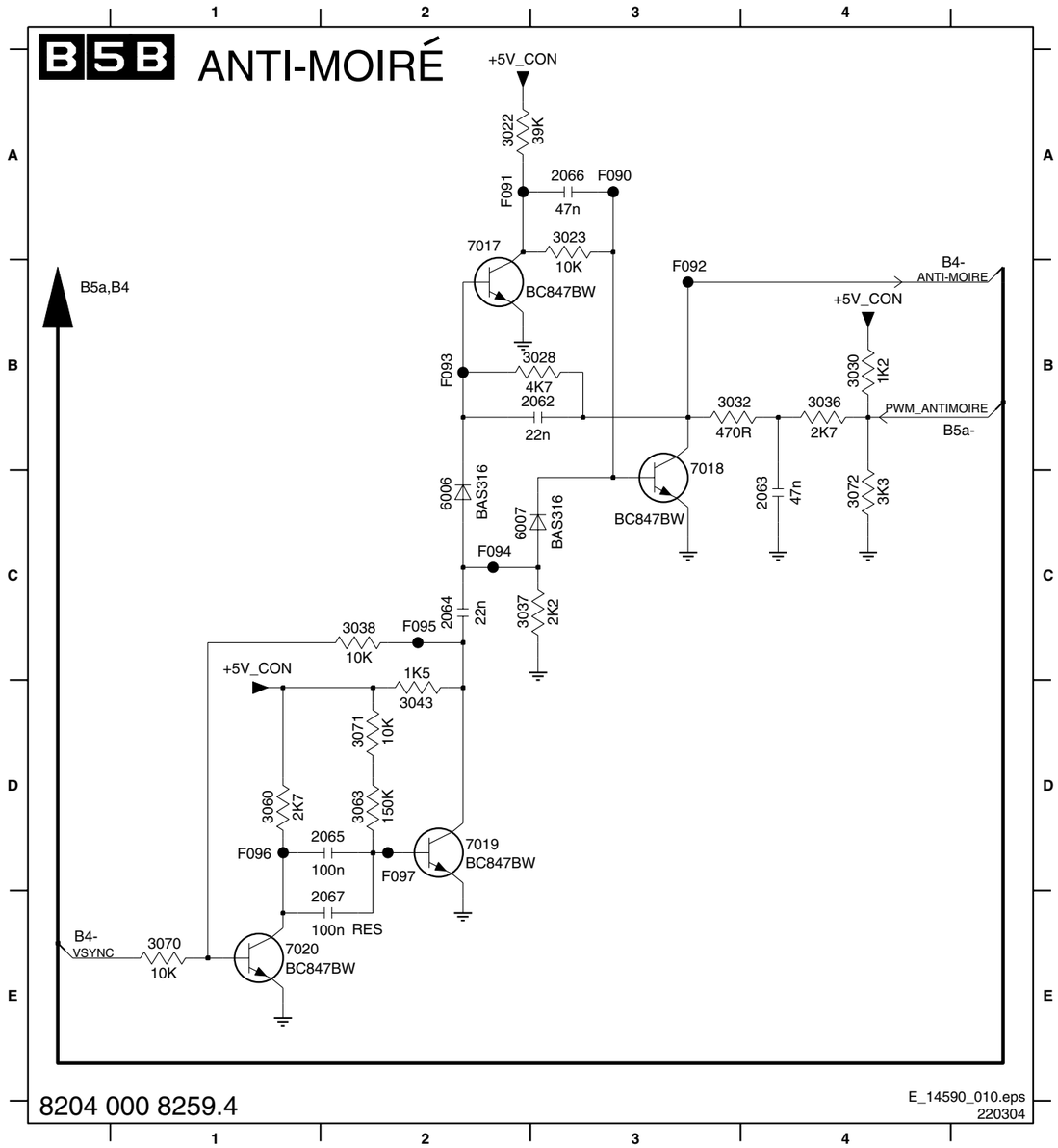
1001 G3	3041 I1	6001 E2	F059 J10
1401 I13	3042 J1	6002 F12	F060 E9
1402 I10	3044 E2	6003 E3	F061 D11
2001 G3	3045 J12	6004 D2	F062 J10
2002 G3	3046-A J12	6005 A4	F063 J10
2003 J4	3046-B J12	7001 A6	F064 H3
2004 J4	3046-C I13	7002 F12	F065 H4
2005 J3	3046-D I13	7003 G13	F066 A10
2006 J3	3047 C2	7004 G13	F067 B3
2007 J3	3048-A B7	7005 E13	F068 E1
2008 H3	3048-B D7	7006 A10	F069 G8
2009 I8	3048-C A7	7007 F10	F070 H7
2010 I8	3048-D D7	7008 E1	F071 H8
2011 I9	3049-A B7	7009 D3	F072 H9
2012 I9	3049-B C7	7010 C3	F073 H9
2013 F12	3049-C B7	7011 G2	F074 H9
2014 I1	3049-D C7	7012 A12	F075 D11
2016 F13	3050-A B7	7013 H13	F076 H12
2017 G12	3050-B C7	7014 G13	F077 H13
2019 F10	3050-C B7	7015 I2	F078 J13
2020 D1	3050-D C7	7016 J2	F079 J11
2022 E2	3051-A B7	9001 H2	F080 J13
2023 A4	3051-B C7	9002 I1	F081 D1
2024 A5	3051-C B7	9003 F1	F082 J13
2025 A5	3051-D C7	9004 G1	F083 I3
2026 A5	3052-A D7	9005 A4	F084 I13
2027 A6	3052-B D7	9006 A3	F085 J13
2028 A6	3052-C D7	9007 F12	F086 I13
2029 A6	3052-D C7	9008 J10	F087 I13
2031 A9	3053 D7	9009 J12	F088 F4
2033 H8	3054-A G7	9010 I12	F089 G12
2034 H8	3054-B E7	9011 I12	
2035 H8	3054-C F7	9012 I12	
2036 H9	3054-D F7	9013 J12	
2037 H9	3055-A G7	9014 C1	
2038 E9	3055-B E7	9015 D1	
2039 H12	3055-C F7	9016 C2	
2040 A12	3055-D F7	F001 D9	
2052 J12	3056-A G7	F002 H3	
2053 J11	3056-B E7	F003 D9	
2054 J13	3056-C F7	F004 D7	
2055 J13	3056-D F7	F005 C9	
2056 I13	3057-A G7	F006 F9	
2057 I13	3057-B E7	F007 G9	
2058 C2	3057-C E7	F008 G9	
2059 C2	3057-D F7	F009 F9	
2060 A4	3058 C1	F010 B9	
2061 A3	3059 C1	F011 G9	
3001 F3	3061 E9	F012 C9	
3002 F4	3062 A10	F013 F9	
3003 J3	3064-A F3	F014 C7	
3004 F12	3064-B E4	F015 G9	
3005 H1	3064-C E3	F016 C7	
3006 J5	3064-D E4	F017 F9	
3007-A J5	3065 G13	F018 C7	
3007-B J6	3066 G13	F019 G9	
3007-C J6	3067 H12	F020 C9	
3007-D J6	3068 A2	F021 A9	
3008-A I6	3069 E3	F022 C9	
3008-B I7	3073-A C4	F023 D9	
3008-C I7	3073-B C4	F024 D9	
3008-D I7	3073-C B4	F025 D9	
3009 J7	3073-D B4	F026 D11	
3010 I7	3074-A F2	F027 G11	
3011 I7	3074-B F3	F028 G11	
3012-A I7	3074-C F3	F029 H11	
3012-B I8	3074-D A3	F030 H11	
3012-C I7	3075 C1	F031 G11	
3012-D I8	3076-A D4	F032 F11	
3013 F13	3076-B D3	F033 C11	
3014 F12	3076-C D3	F034 H11	
3015 G12	3076-D D4	F035 F11	
3016 G12	3077 D3	F036 F11	
3017 F13	3078-B C4	F037 G11	
3018 A2	3078-C A3	F038 G11	
3019 A2	3078-D B3	F039 F11	
3020 A2	3079 E3	F040 F11	
3021 B2	3080 A1	F041 G11	
3024 D2	3081 A4	F042 A4	
3025 E1	3088 E3	F043 A3	
3026 E3	3090-A C3	F044 F1	
3027 E2	3090-B C4	F045 F3	
3029 D9	3090-C C3	F046 G3	
3031 D9	3090-D C4	F047 H4	
3033 C3	3091 C2	F048 I8	
3034-A H6	3093 E12	F049 G12	
3034-B H7	3094 H1	F050 G13	
3034-C G7	3095 I1	F051 F13	
3034-D G6	3096 J1	F052 J6	
3035-A H7	3097 A3	F053 J1	
3035-B H6	3098 J11	F054 I9	
3035-C H7	3099-A B4	F055 I9	
3035-D H6	3099-B B4	F056 I8	
3039 B2	3099-C A4	F057 D7	

Small Signal Board: Anti Moiré

2062 B3	2065 D2	3022 A2	3030 B4	3037 C2	3060 D1	3071 D2	6007 C2	7019 D2	F091 A2	F094 C2	F097 D2	
2063 C4	2066 A3	3023 A3	3032 B3	3038 C2	3063 D2	3072 C4	7017 A2	7020 E1	F092 B3	F095 C2		
2064 C2	2067 E2	3028 B3	3036 B4	3043 D2	3070 E1	6006 C2	7018 C3	F090 A3	F093 B2	F096 D1		



Personal Notes:

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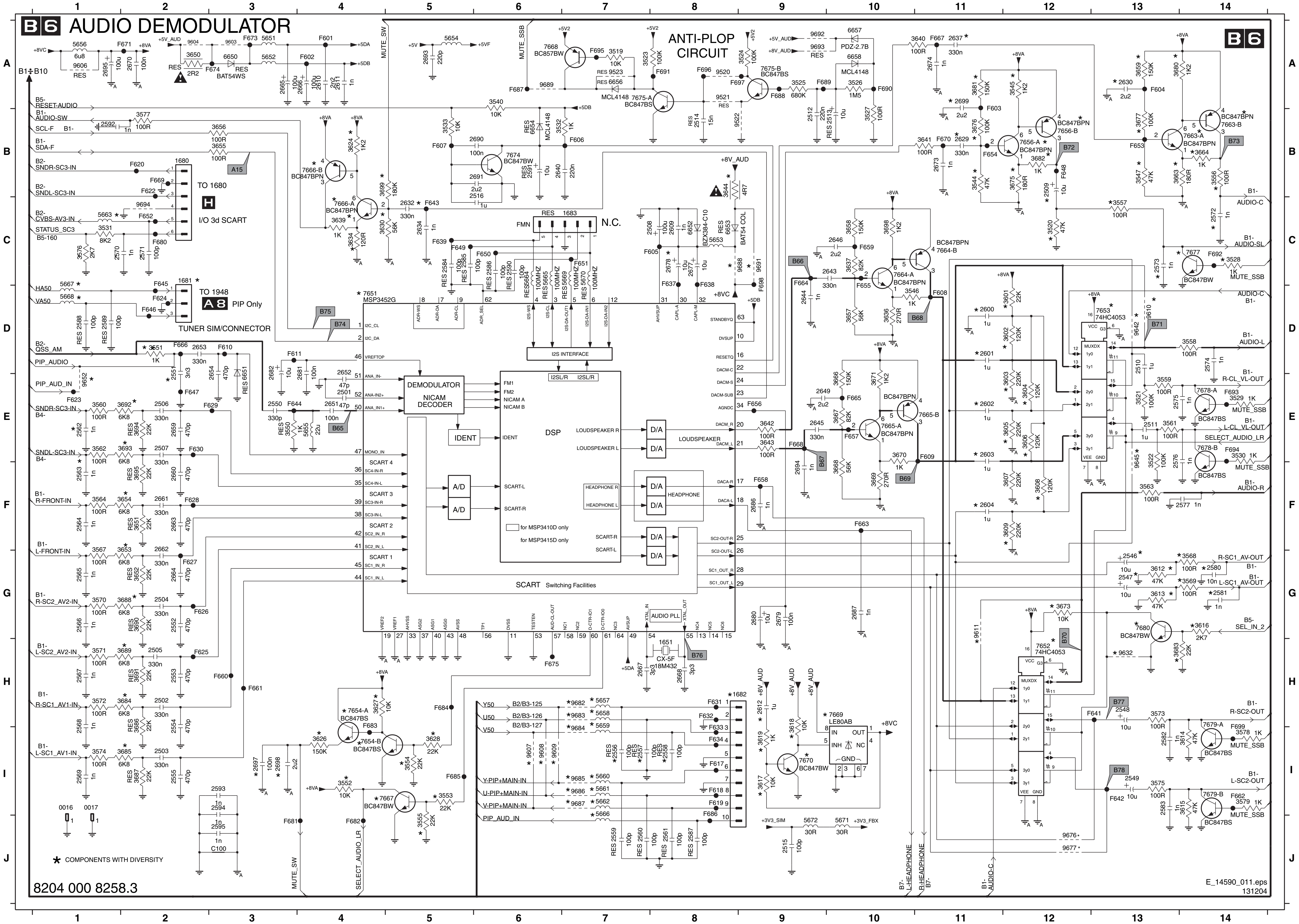
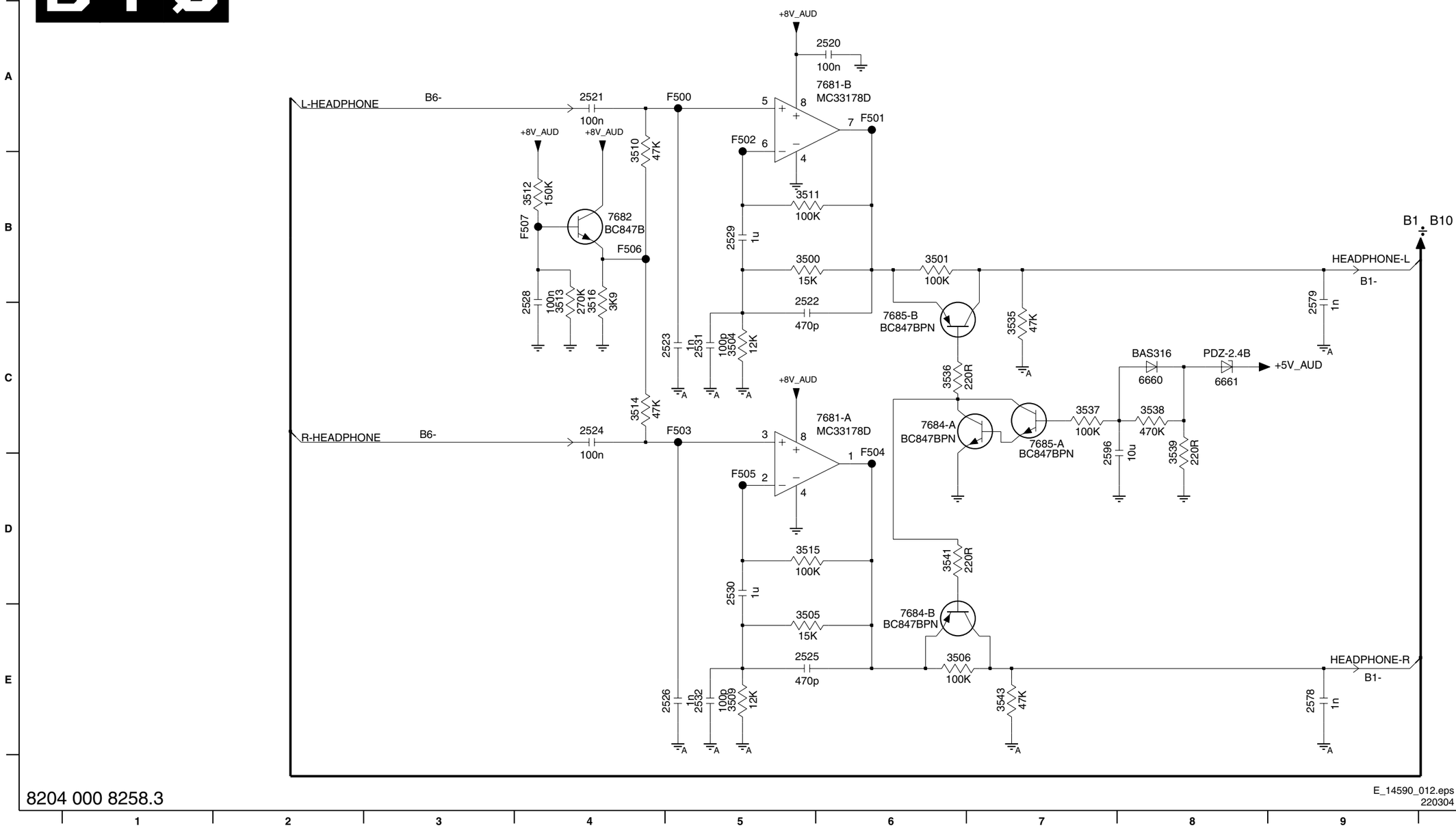


0016 I1	3527 B10	5672 J9	F675 H6
0017 I1	3528 C14	6650 A3	F680 C2
1651 H8	3529 E14	6651 D3	F681 J3
1680 B2	3530 E14	6652 C8	F682 J4
1681 C2	3531 C1	6653 C8	F683 I4
1682 H8	3532 B6	6654 B6	F684 H5
1683 C7	3533 B5	6656 A7	F685 I5
2501 E4	3540 A6	6657 A10	F686 J8
2502 H2	3544 B11	6658 A10	F687 A6
2503 I2	3545 A12	7651 D4	F688 A9
2504 G2	3546 D10	7652 H12	F689 A9
2505 H2	3547 B13	7653 D13	F690 A10
2506 E2	3550 E3	7654-A H4	F691 A8
2507 E2	3551 D2	7654-B I4	F692 C14
2508 C8	3552 I4	7656-A B12	F693 E14
2509 B12	3553 I5	7656-B B12	F694 E14
2510 D13	3554 I5	7663-A B14	F695 A7
2511 E13	3555 J5	7663-B B14	F696 A8
2512 B9	3556 B14	7664-A C10	F697 A8
2513 B10	3557 C13	7664-B C11	F698 C9
2514 B8	3558 D14	7665-A E10	F699 I14
2515 J9	3559 E13	7665-B E11	
2516 C6	3560 E1	7666-A C4	
2546 G13	3561 E13	7666-B B4	
2547 G13	3562 E1	7667 I5	
2548 H13	3563 F13	7668 A6	
2549 I13	3564 F1	7669 H10	
2550 E3	3567 G1	7670 I9	
2551 D2	3568 G14	7674 B6	
2552 G2	3569 G14	7675-A A8	
2553 H2	3570 G1	7675-B A9	
2554 H2	3571 H1	7677 C14	
2555 I2	3572 H1	7678-A E14	
2556 I7	3573 H13	7678-B E14	
2557 I7	3574 I1	7679-A H14	
2558 I8	3575 I13	7679-B I14	
2559 J7	3576 C1	7680 G13	
2560 J7	3577 B2	9520 A8	
2561 J8	3578 I14	9521 A8	
2562 E1	3579 I14	9522 B9	
2563 F1	3601 D12	9523 A7	
2564 F1	3602 D12	9603 A3	
2565 G1	3603 E12	9604 A2	
2566 G1	3604 E12	9606 A1	
2567 H1	3605 E12	9607 I6	
2568 H1	3606 E12	9608 I6	
2569 I1	3607 F12	9609 I6	
2570 C1	3608 F12	9610 D13	
2571 C2	3609 F12	9611 G11	
2572 C14	3612 G13	9632 H13	
2573 C13	3613 G13	9642 D13	
2574 D14	3614 I14	9645 E13	
2575 E13	3615 I14	9652 E1	
2576 E13	3616 G14	9676 J12	
2577 F14	3617 I9	9677 J12	
2580 G14	3618 H9	9682 H7	
2581 G14	3619 I9	9683 H7	
2582 I13	3624 B4	9684 I7	
2583 I13	3626 I4	9685 I7	
2584 C5	3627 H4	9686 I7	
2585 C5	3628 I5	9687 I7	
2586 C6	3630 C4	9688 C8	
2587 J8	3634 C4	9689 A6	
2588 D1	3636 D10	9691 C9	
2589 D1	3637 C10	9692 A9	
2590 C6	3639 C4	9693 A9	
2591 B6	3640 A11	9694 C2	
2592 B1	3641 B11	C100 J3	
2593 I3	3642 E9	F601 A4	
2594 I3	3643 E9	F602 A4	
2595 J3	3644 B8	F603 B11	
2600 D11	3650 A2	F604 A13	
2601 D11	3651 F2	F605 C8	
2602 E11	3652 G2	F606 B7	
2603 E11	3653 G2	F607 B5	
2604 F11	3654 F2	F608 D11	
2609 C8	3655 B3	F609 E11	
2610 A4	3656 B3	F610 D3	
2611 A4	3657 D10	F611 D3	
2612 H9	3658 C10	F617 I8	
2629 B11	3659 A13	F618 I8	
2630 A13	3663 B13	F619 I8	
2632 C5	3664 B14	F620 B2	
2634 C5	3666 E10	F622 B2	
2637 A11	3667 E10	F623 E1	
2640 B6	3668 F10	F624 D2	
2643 C10	3669 F10	F625 H2	
2644 D9	3670 E10	F626 G2	
2645 E9	3671 E10	F627 G2	
2646 C10	3673 G12	F628 F2	
2649 E9	3675 B12	F629 E3	
2651 E4	3676 B11	F630 E2	
2652 E4	3677 B13	F631 H8	
2653 D2	3680 A13	F632 H8	
2654 D3	3681 A11	F633 I8	
2659 E2	3682 B12	F634 I8	
2660 F2	3683 H13	F637 C8	
2661 F2	3684 H2	F638 C8	
2662 G2	3685 I2	F639 C5	
2663 F2	3686 H2	F641 H13	
2664 G2	3687 I2	F642 I13	
2665 A3	3688 G2	F643 C5	
2666 A4	3689 H2	F644 E3	
2667 H7	3690 G2	F645 D2	
2668 H8	3691 H2	F646 D2	
2670 A2	3692 E2	F647 E2	
2673 B11	3693 E2	F648 B12	
2674 A11	3694 E2	F649 C5	
2677 C8	3695 F2	F650 C6	
2678 C8	3698 C10	F651 C7	
2679 G9	3699 B4	F652 C2	
2680 G9	5651 A3	F653 B13	
2681 D4	5652 A3	F654 B11	
2682 D3	5653 C8	F655 D10	
2686 F9	5654 A5	F656 E9	
2687 G10	5655 E4	F657 E10	
2690 B6	5656 A1	F658 F9	
2691 B6	5657 H7	F659 C10	
2693 A5	5658 H7	F660 H3	
2694 F9	5659 I7	F661 H3	
2695 A1	5660 I7	F662 I14	
2697 I3	5661 I7	F663 F10	
2698 I3	5662 I7	F664 C9	
2699 A11	5663 C1	F665 E10	
3519 A7	5664 C6	F666 D2	
3520 C12	5665 C6	F667 A11	
3521 E13	5666 J7	F668 E9	
3522 E13	5667 D1	F669 B2	
3523 A7	5668 D1	F670 B11	
3524 A9	5669 C7	F671 A2	
3525 A9	5670 C7	F673 A3	
3526 A10	5671 J10	F674 A3	

Small Signal Board: Headphone Amplifier

B10 HEADPHONE-AMPLIFIER



2520 A6
2521 A4
2522 C5
2523 C5
2524 C4
2525 E5
2526 E5
2528 B4
2529 B5
2530 D5
2531 C5
2532 E5
2578 E9
2579 B9
2596 C7
3500 B5
3501 B6
3504 C5
3505 E5
3506 E6
3509 E5
3510 A4
3511 B5
3512 B4
3513 B4
3514 C4
3515 D5
3516 B4
3535 C7
3536 C6
3537 C7
3538 C8
3539 C8
3541 D6
3543 E7
6660 C8
6661 C8
7681-A C6
7681-B A6
7682 B4
7684-A C6
7684-B E6
7685-A C7
7685-B C6
F500 A5
F501 A6
F502 A5
F503 C5
F504 D6
F505 D5
F506 B4
F507 B4

8204 000 8258.3

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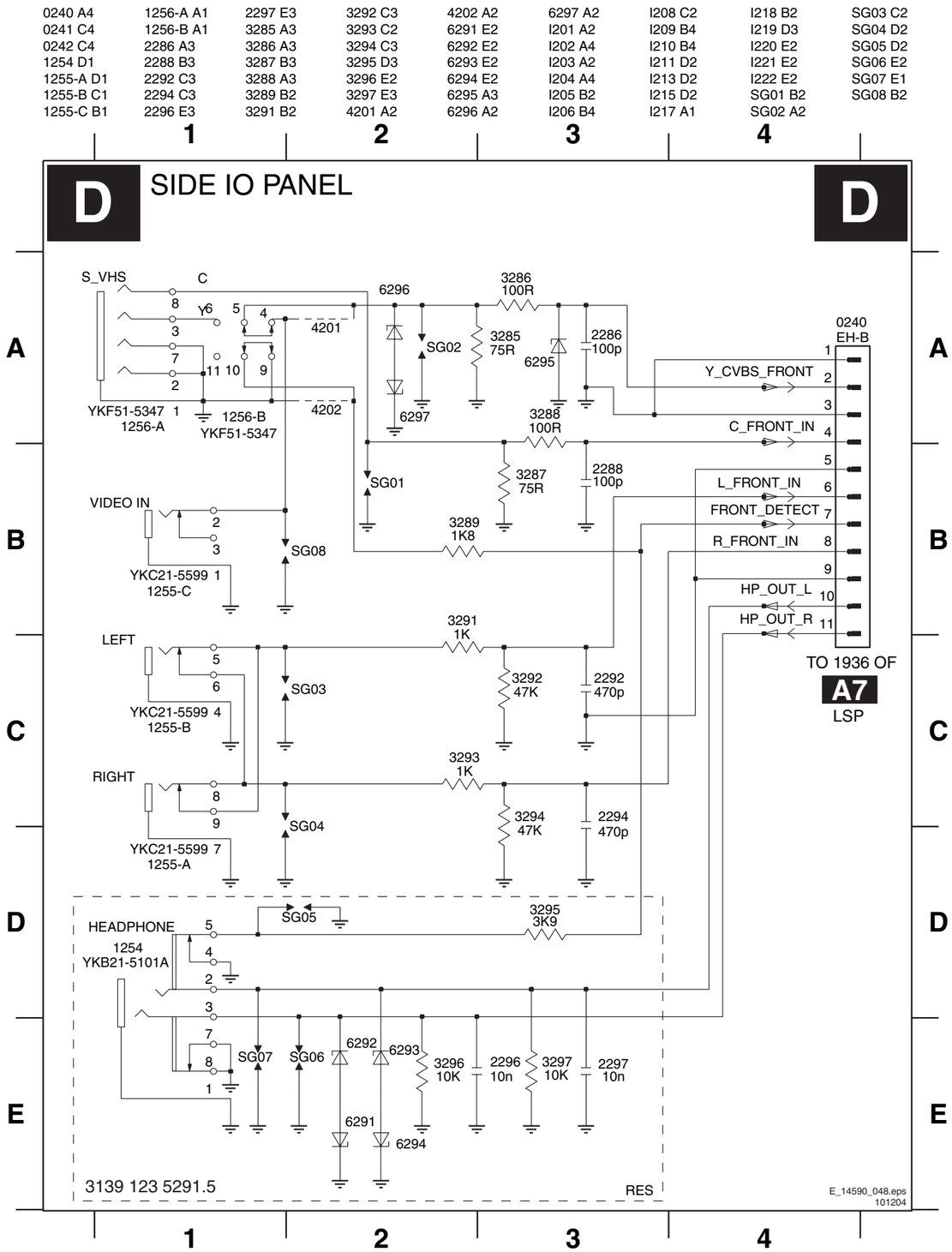
220304

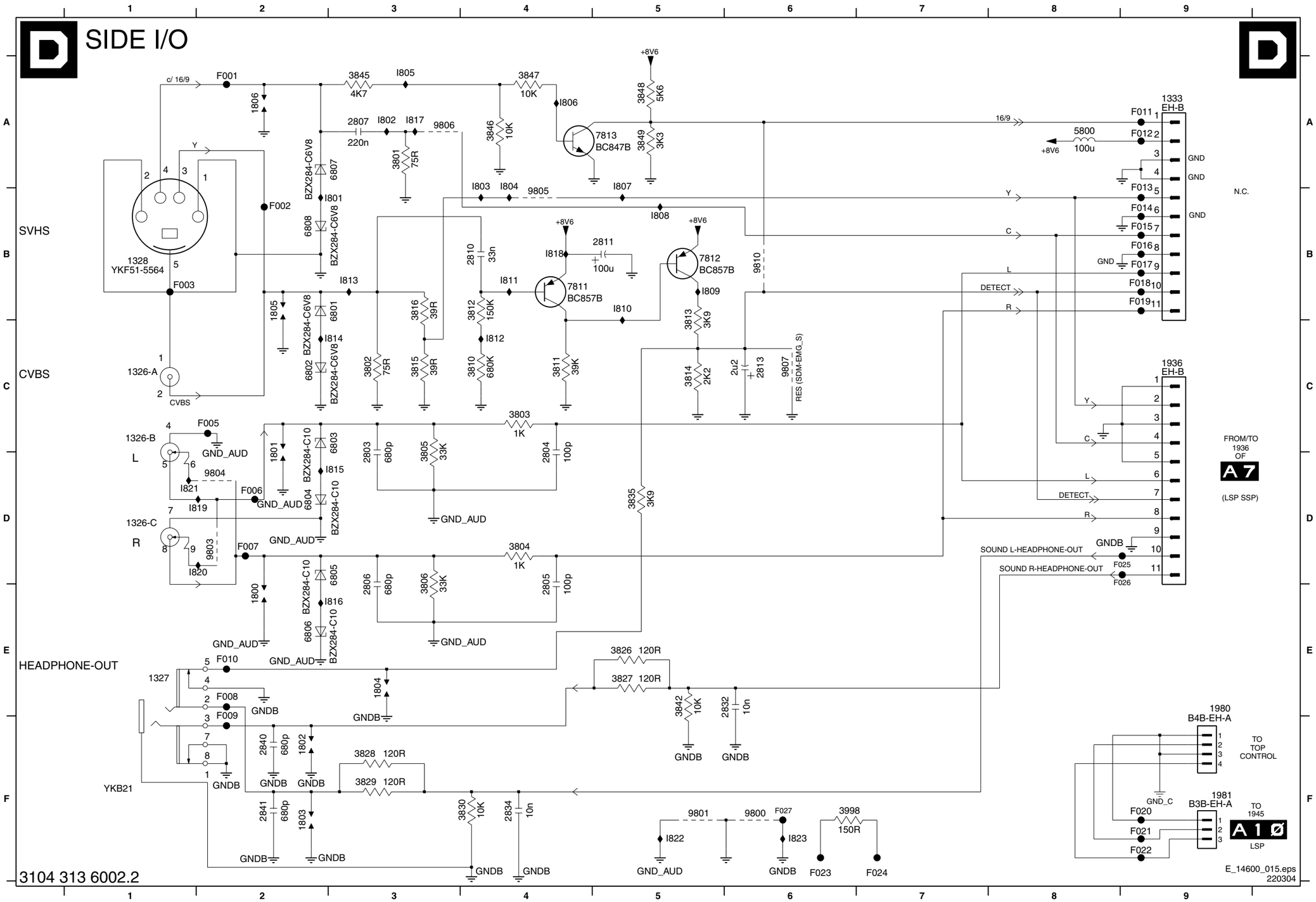
Side I/O Panel (PV02 Styling)



Personal Notes:

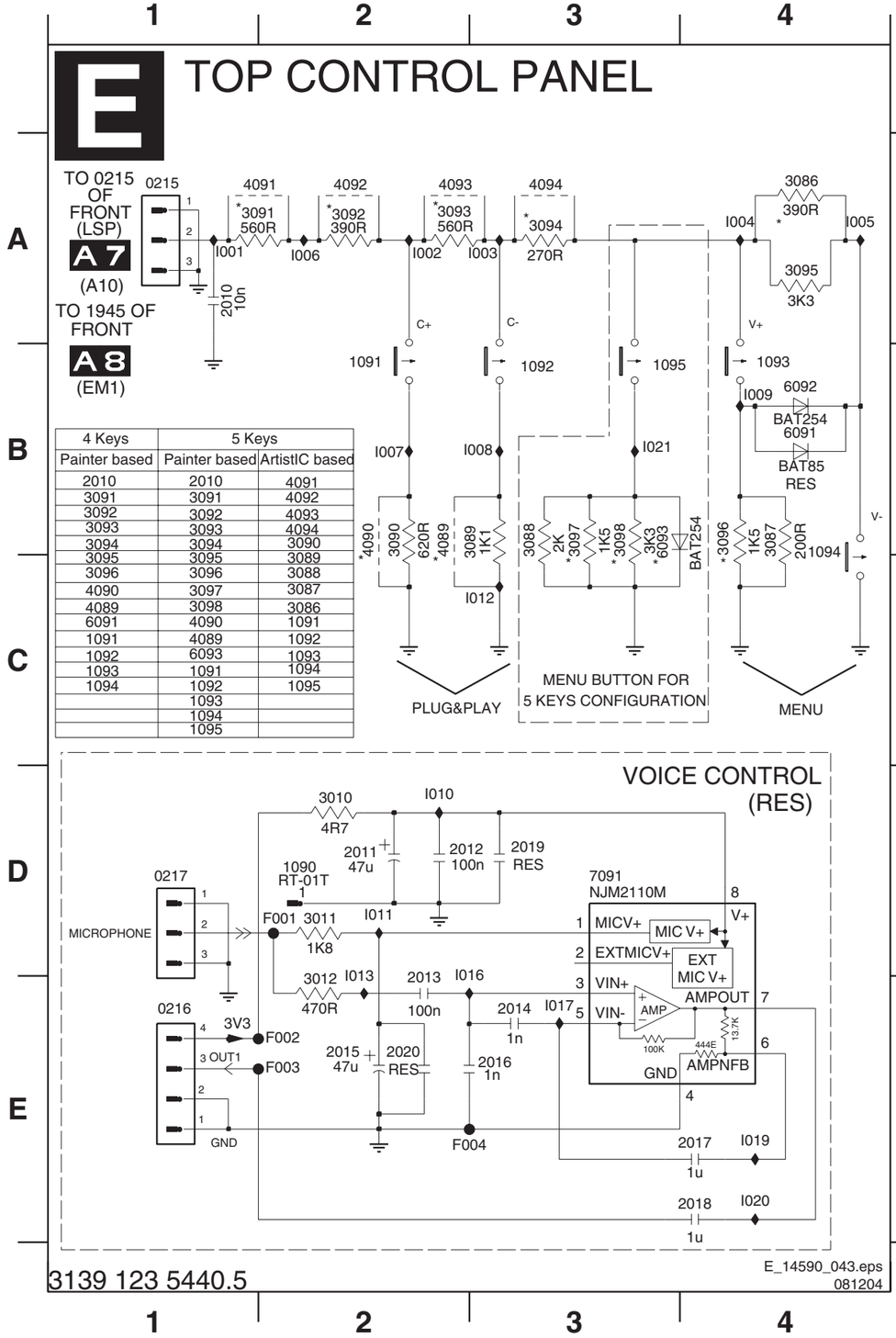
E_06532_012.eps
131004

Side IO Panel (FL13B Styling)



1326-A C1	F006 D2
1326-B C1	F007 D2
1326-C D1	F008 E2
1327 E1	F009 F2
1328 B1	F010 E2
1333 A9	F011 A9
1800 E2	F012 A9
1801 D2	F013 B9
1802 F2	F014 B9
1803 F2	F015 B9
1804 E3	F016 B9
1805 B2	F017 B9
1806 A2	F018 B9
1936 C9	F019 B9
1980 E9	F020 F9
1981 F9	F021 F9
2803 D3	F022 F9
2804 D4	F023 F6
2805 E4	F024 F7
2806 E3	F025 D9
2807 A3	F026 E9
2810 B4	F027 F6
2811 B5	I801 B3
2813 C6	I802 A3
2832 E6	I803 A4
2834 F4	I804 A4
2840 F2	I805 A3
2841 F2	I806 A4
3801 A3	I807 A5
3802 C3	I808 B5
3803 C4	I809 B5
3804 D4	I810 B5
3805 C3	I811 B4
3806 D3	I812 C4
3810 C4	I813 B3
3811 C4	I814 C3
3812 B4	I815 D3
3813 B5	I816 E3
3814 C5	I817 A3
3815 C3	I818 B4
3816 B3	I819 D2
3826 E5	I820 D2
3827 E5	I821 D1
3828 F3	I822 F5
3829 F3	I823 F6
3830 F4	
3835 D5	
3842 E5	
3845 A3	
3846 A4	
3847 A4	
3848 A5	
3849 A5	
3998 F6	
5800 A8	
6801 B3	
6802 C2	
6803 C3	
6804 D2	
6805 D3	
6806 E2	
6807 A3	
6808 B2	
7811 B4	
7812 B5	
7813 A5	
9800 F6	
9801 F5	
9803 D2	
9804 D2	
9805 B4	
9806 A3	
9807 C6	
9810 B6	
F001 A2	
F002 B2	
F003 B1	
F005 C2	

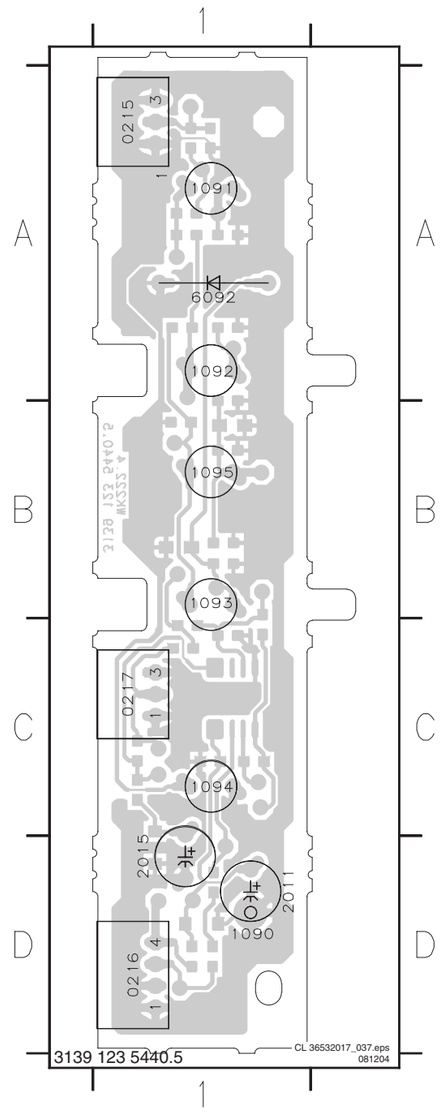
Top Control Panel (PV02 Styling)



0215 A1
0216 E1
0217 D1
1090 D2
1091 B2
1092 B3
1093 B4
1094 B4
1095 B3
2010 A1
2011 D2
2012 D2
2013 E2
2014 E3
2015 E2
2016 E3
2017 E4
2018 E4
2019 D3
2020 E2
3010 D2
3011 D2
3012 E2
3086 A4
3087 B4
3088 B3
3089 B3
3090 B2
3091 A1
3092 A2
3093 A2
3094 A3
3095 A4
3096 B4
3097 B3
3098 B3
4089 B2
4090 B2
4091 A2
4092 A2
4093 A2
4094 A3
6091 B4
6092 B4
6093 B3
7091 D3
F001 D2
F002 E2
F003 E2
F004 E2
I001 A1
I002 A2
I003 A3
I004 A4
I005 A4
I006 A2
I007 B2
I008 B3
I009 B4
I010 D2
I011 D2
I012 C3
I013 D2
I016 D2
I017 E3
I019 E4
I020 E4
I021 B3

4 Keys	5 Keys	
Painter based	Painter based	ArtistIC based
2010	2010	4091
3091	3091	4092
3092	3092	4093
3093	3093	4094
3094	3094	3090
3095	3095	3089
3096	3096	3088
4090	3097	3087
4089	3098	3086
6091	4090	1091
1091	4089	1092
1092	6093	1093
1093	1091	1094
1094	1092	1095
	1093	
	1094	
	1095	

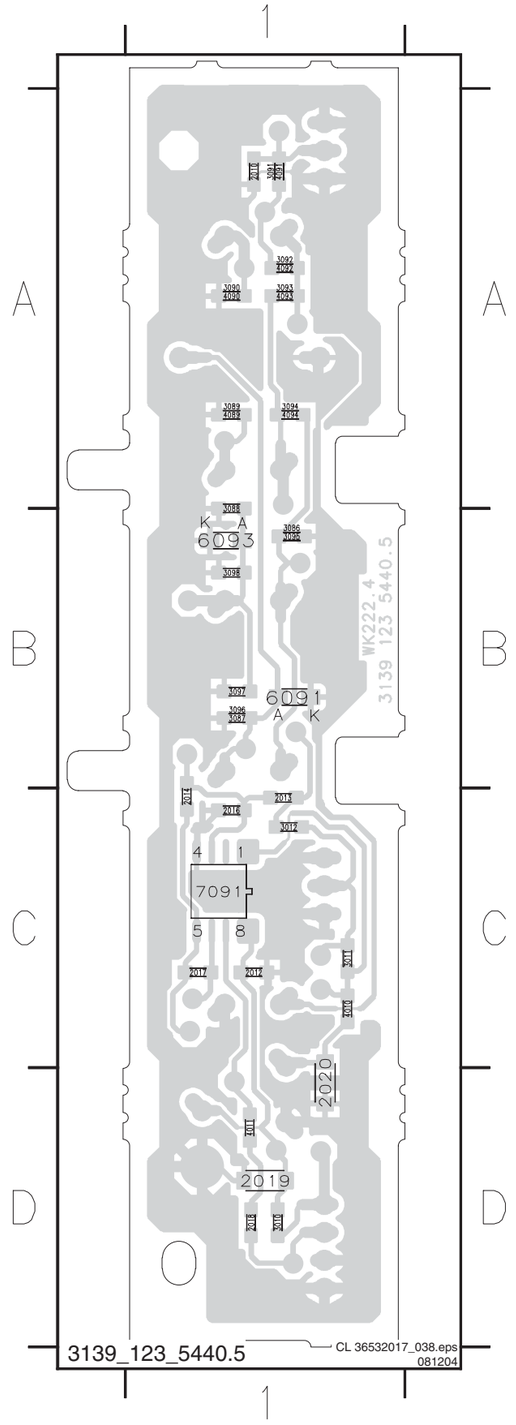
Layout Top Control Panel (PV02 Styling) (Top Side)



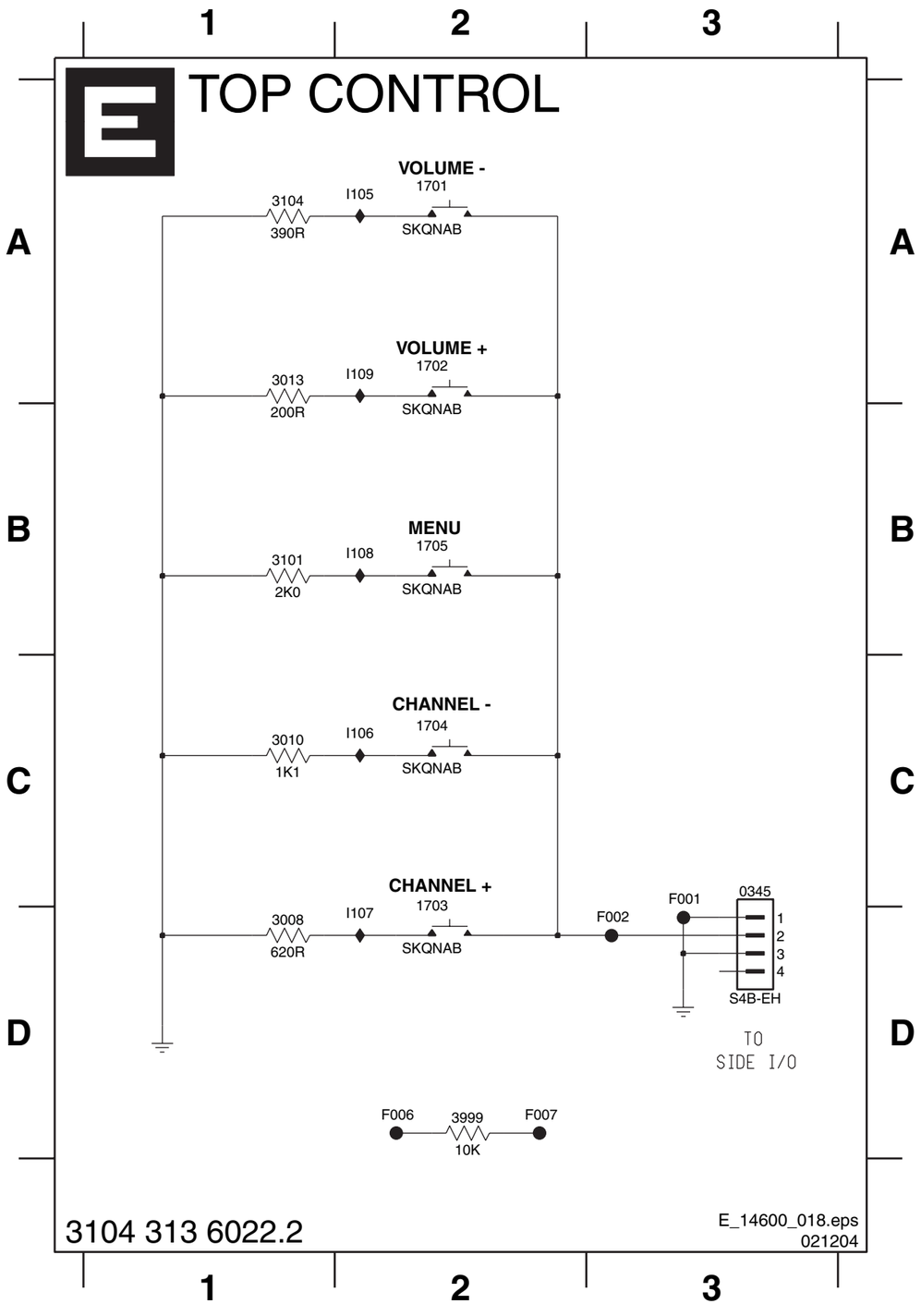
0215 A1
0216 D1
0217 C1
1090 D1
1091 A1
1092 A1
1093 B1
1094 C1
1095 B1
2011 D1
2015 D1
6092 A1

Layout Top Control Panel (PV02 Styling) (Bottom Side)

2010 A1	2018 D1	3086 B1	3092 A1	3098 B1	4092 A1
2012 C1	2019 D1	3087 B1	3093 A1	4010 C1	4093 A1
2013 C1	2020 D1	3088 A1	3094 A1	4011 D1	4094 A1
2014 C1	3010 D1	3089 A1	3095 B1	4089 A1	6091 B1
2016 C1	3011 C1	3090 A1	3096 B1	4090 A1	6093 B1
2017 C1	3012 C1	3091 A1	3097 B1	4091 A1	7091 C1



Top Control Panel (FL13B Styling)



0345 C3
1701 A2
1702 A2
1703 C2
1704 B2
1705 B2
3008 C1
3010 B1
3013 A1
3101 B1
3104 A1
3999 D2
F001 C3
F002 C3
F006 D2
F007 D2
I105 A2
I106 B2
I107 C2
I108 B2
I109 A2

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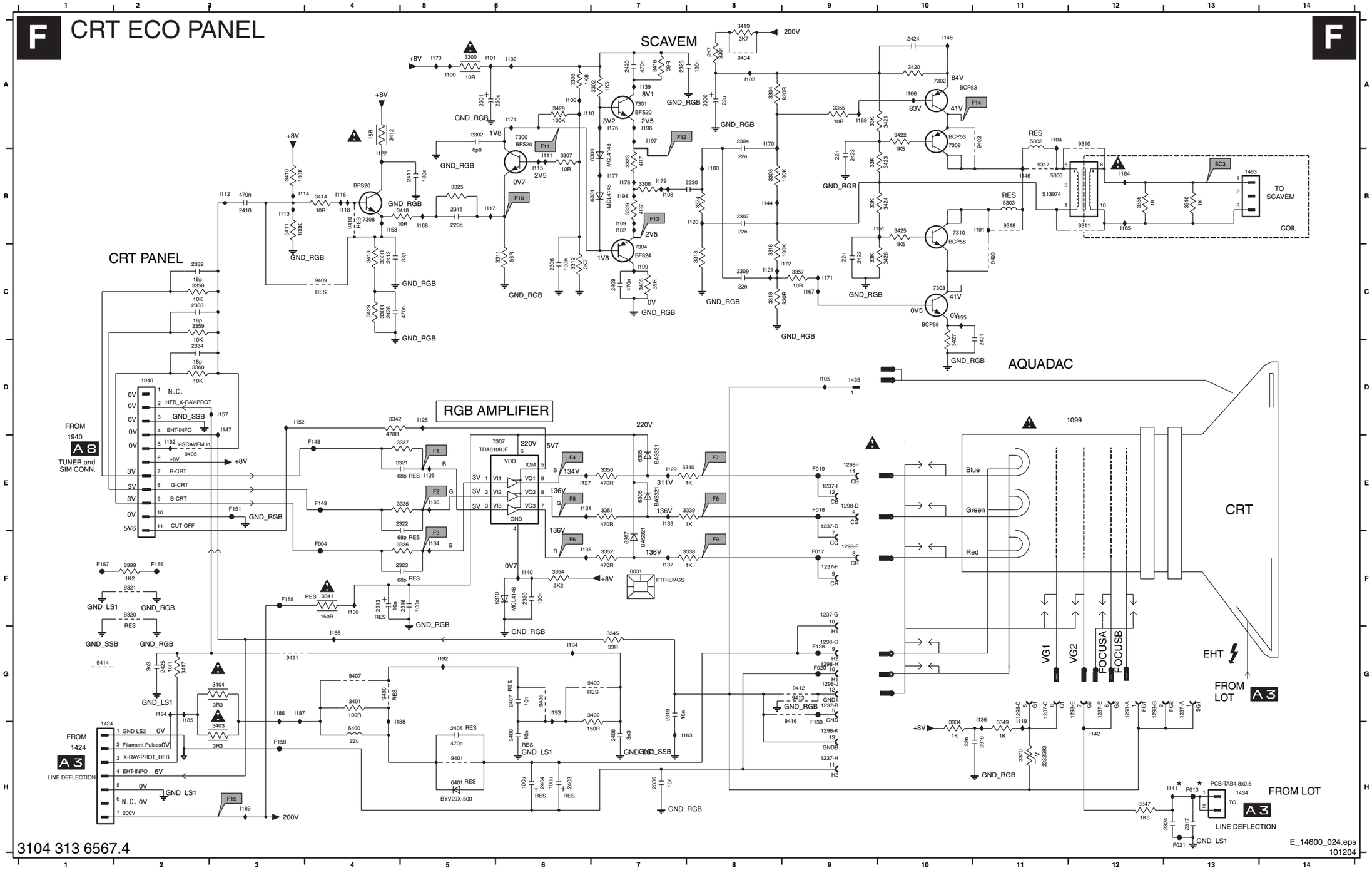
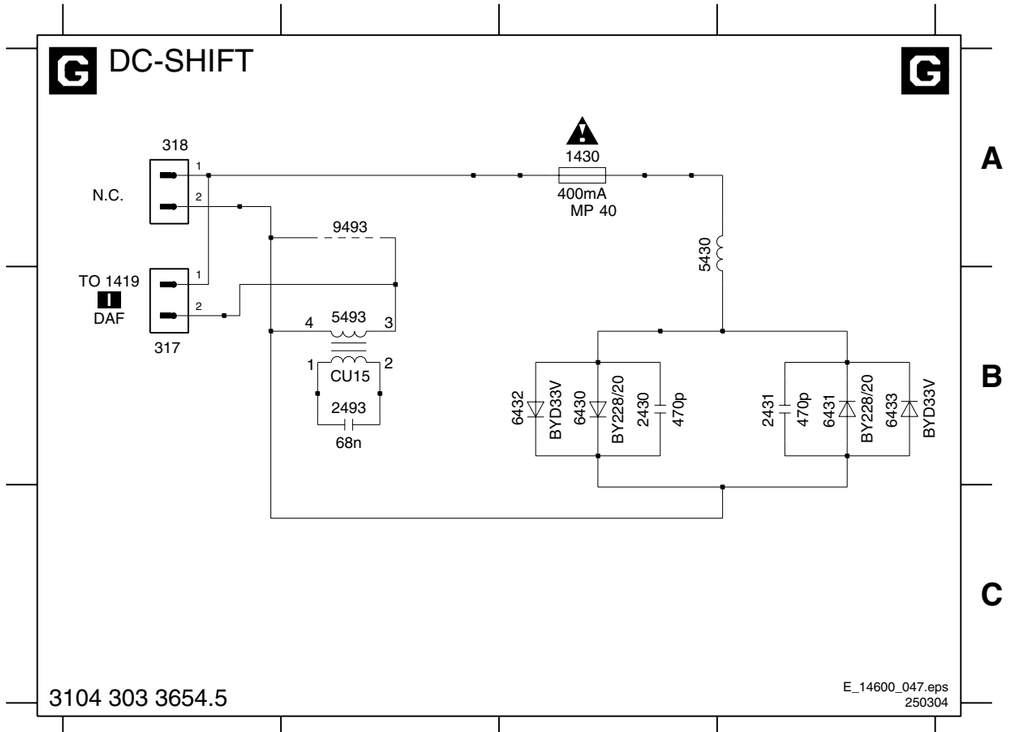
CRT Panel

0031 F7	1298-B G12	1434 H13	2313 F4	2325 A7	2408 H7	2426 C4	3312 C6	3337 E5	3352 F7	3403 H3	3419 A8	3999 F2	6401 H5	9311 B12	9406 G6	F013 H13	F155 F3	I108 B7	I119 G11	I134 F5	I147 D3	I165 B12	I177 B7	I191 B11
1237-A G13	1298-C G11	1435 D9	2315 B5	2330 B8	2409 C7	3300 A5	3316 C8	3338 F8	3354 F6	3404 G3	3420 A10	5300 B11	7300 A6	9317 B11	9407 G4	F017 F9	F156 F2	I109 B7	I120 B8	I135 F6	I148 A10	I166 A10	I178 B7	I192 G5
1237-B G9	1298-D E9	1483 B13	2316 F5	2332 C2	2410 B3	3301 A8	3318 C8	3339 E8	3355 A9	3405 C7	3421 A10	5302 A11	7301 A7	9318 B11	9408 G4	F018 E9	F157 F1	I110 A6	I121 C8	I136 G11	I151 B10	I167 C9	I179 B7	I193 G6
1237-C G11	1298-E G12	1940 D2	2317 H13	2333 C2	2411 B5	3302 A7	3319 C8	3340 E8	3356 B12	3410 B3	3422 A10	5303 B11	7302 A10	9320 F2	9409 C4	F019 E9	F158 H3	I111 B6	I122 B4	I137 F7	I152 D3	I168 B5	I180 B8	I194 G6
1237-D E9	1298-F F9	2300 A8	2318 H11	2334 D2	2412 C4	3303 A6	3323 B7	3341 F4	3357 C9	3411 B3	3423 B10	5400 H4	7303 C10	9321 F2	9410 B4	F020 G9	I100 A5	I112 B3	I125 D5	I138 F4	I153 B4	I169 A9	I182 B7	I196 A7
1237-E G12	1298-G G9	2301 A5	2319 G7	2336 H7	2420 A7	3304 A8	3324 B8	3342 D4	3358 C2	3412 A4	3424 B10	6300 B7	7304 C7	9400 G7	9411 G3	F021 H13	I101 A5	I113 B3	I126 E5	I139 A7	I155 C10	I170 A8	I184 G2	I197 A7
1237-F F9	1298-H G9	2302 A5	2320 F6	2403 H6	2421 C11	3306 B7	3325 B5	3345 G7	3359 C2	3413 C4	3425 B10	6301 B7	7307 E5	9401 H5	9412 G9	F128 G9	I102 A6	I114 B3	I127 E6	I140 F6	I156 G4	I171 C9	I185 G2	I198 B7
1237-G F9	1298-I E9	2304 A8	2321 E5	2404 H6	2422 C9	3307 B6	3329 B7	3347 H12	3360 D2	3414 B4	3426 C10	6305 E7	7308 B4	9402 A11	9413 G9	F130 H9	I103 A8	I115 B6	I129 E7	I141 H13	I157 D3	I172 C9	I186 G3	I199 C7
1237-H H9	1298-J G9	2306 C6	2322 E5	2405 H5	2423 B9	3308 B8	3334 H10	3349 H11	3370 H11	3416 A7	3427 D10	6306 E7	7309 A10	9403 C11	9414 G1	F148 E4	I104 A11	I116 B4	I130 E5	I142 H12	I162 E2	I173 A5	I187 G3	
1237-I E9	1298-K H9	2307 B8	2323 F5	2406 H6	2424 A10	3310 B13	3335 E5	3350 E7	3401 G4	3417 G2	3428 A6	6307 F7	7310 B10	9404 A8	9416 H9	F149 E4	I105 D9	I117 B5	I131 E6	I144 B8	I163 H8	I174 A6	I188 G4	
1298-A G12	1424 H1	2309 C8	2324 H13	2407 G6	2425 G2	3311 C6	3336 F5	3351 E7	3402 G7	3418 B5	3429 C4	6310 F6	9310 A12	9405 E2	F004 F4	F151 E3	I106 A6	I118 B4	I133 E7	I146 B11	I164 B12	I176 A7	I189 H3	

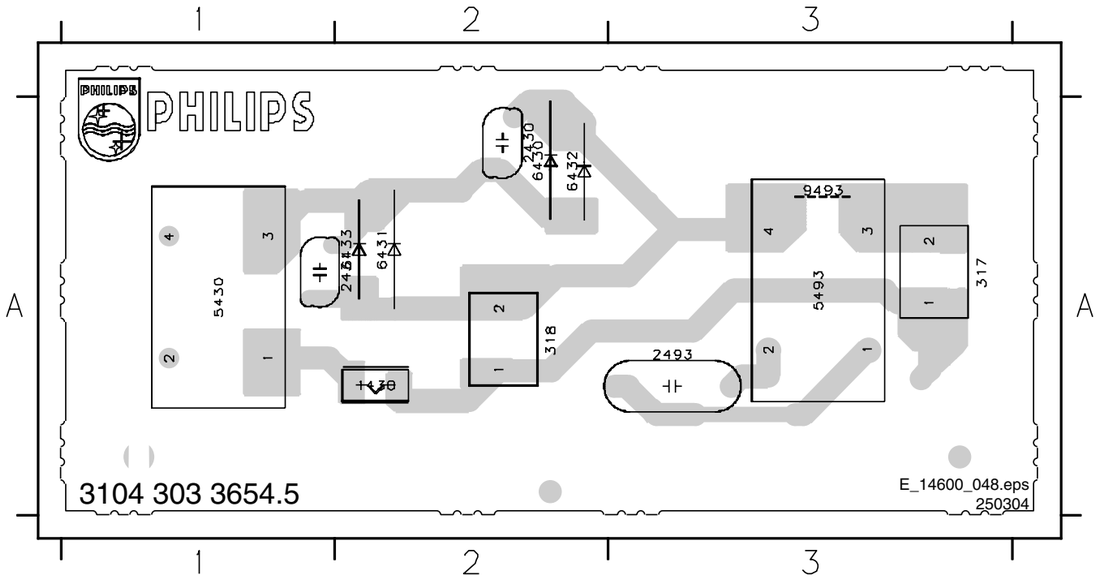


DC Shift Panel



Layout DC Shift Panel

317	A3	2430	A2	5430	A1	6431	A2	9493	A3
318	A2	2431	A1	5493	A3	6432	A2		
1430	A2	2493	A3	6430	A2	6433	A2		



Personal Notes:

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I/O 3rd Scart (PV02 Styling)

I/O 3rd SCART

3rd SCART

WIRELESS TRANSMITTER

SURROUND JACK

TO 1402 OF B5

FROM / TO 1680 OF B6

FROM 1937 A8

TUNER / SIM CONNECTOR

I/O EXPANDER

7501 PCF8574T

INTERRUPT LOGIC

LP FILTER

INPUT FILTER

I²C BUS CONTROL

SHIFT REGISTER

8 BIT I/O PORTS

POWER-ON RESET

8204 000 6582.4

E_14590_044.eps 081204

1201 F8
1272 F12
1339 E13
1402 C6
1500 A3
1501 B2
1502 B3
1503 E12
1504 G3
1505 F3
1506 E4
1507 D3
1508 C4
1680 H1
1690 A12
1937 H8
1952 F12
1992 A2
2500 A5
2502 H2
2503 H2
2504 A4
2506 G2
2507 G2
2508 B5
2509 B4
2510 H9
2511 G11
2513 E11
2514 I3
2515 C9
2516 E10
2517 B11
3500 G1
3501 A4
3502 A5
3503 A8
3504 A5
3505 G1
3506 A8
3507 B4
3508 B5
3509 B5
3510 B7
3511 B7
3512 F5
3513 A10
3514 A10
3515 D8
3516 E7
3517 D11
3518 D11
3519 C8
3520 H3
3521 I3
3522 C9
3523 C9
3524 D9
3525 D9
3526 D2
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3528 B11
3529 H10
3530 G10
3531 H10
3532 G11
3533 G4
3534 H10
3535 H10
3538 C5
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3540 D4
3541 D4
3542 E5
3543 E4
3544 E4
3545 F4
3546 I6
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6507 C2
6509 C5
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7505 E8
7506 B9
7507 D10
7508 H10
7509 H11
7515 E10
9501 D8
9502 B9
9503 D11
9504 D11
9505 F10
9506 I10
9509 D12
9510 E12
9525 G12
9530 H12
9532 H12
9533 I12
9541 F12
F500 B2
F501 B2
F502 B2
F504 A11
F511 D2
F512 H2
F514 H2
F516 I2
F518 I2
F525 I8
F531 C6
F532 C3
F533 C6
F534 C6
F535 C6
F536 D3
F537 D3
F539 E6
I500 G1
I501 G1
I502 H7
I503 A4
I504 B2
I505 A5
I506 G1
I507 A8
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I521 B8
I522 A12
I523 D12
I524 I6
I525 E8
I526 I8
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I529 H4
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I533 C10
I534 H6
I535 C9
I536 H9
I537 H2
I538 H2
I539 G10
I540 H8
I541 A7
I542 D12
I543 A9
I544 C8
I545 C2
I546 H8
I547 H13
I548 H12
I549 B3
I552 D11
I553 D13
I554 E13
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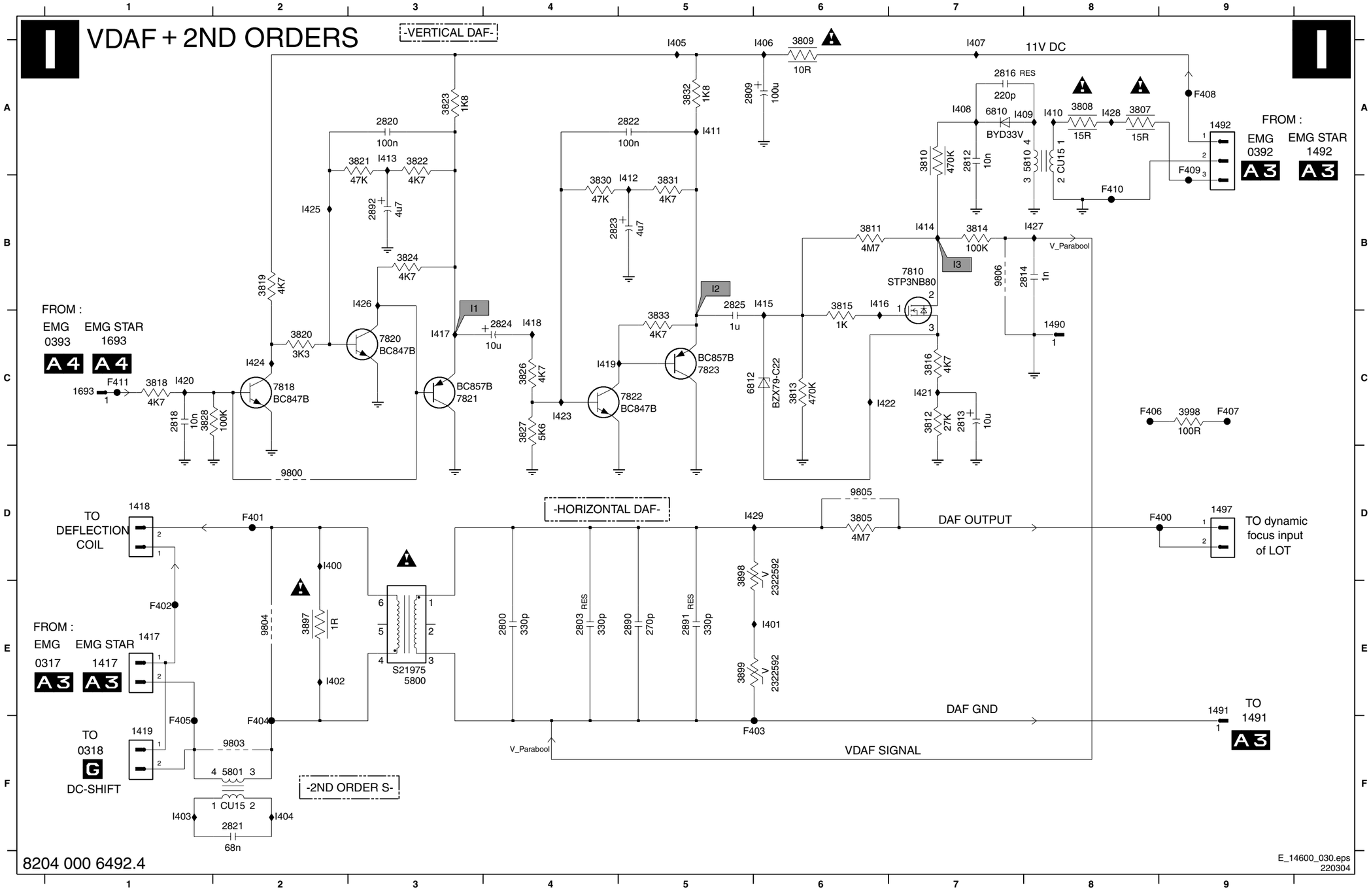
I563 G11
I564 H10
I565 H10
I566 G11
I567 F11
I568 F12

VDAF Panel + 2nd Orders



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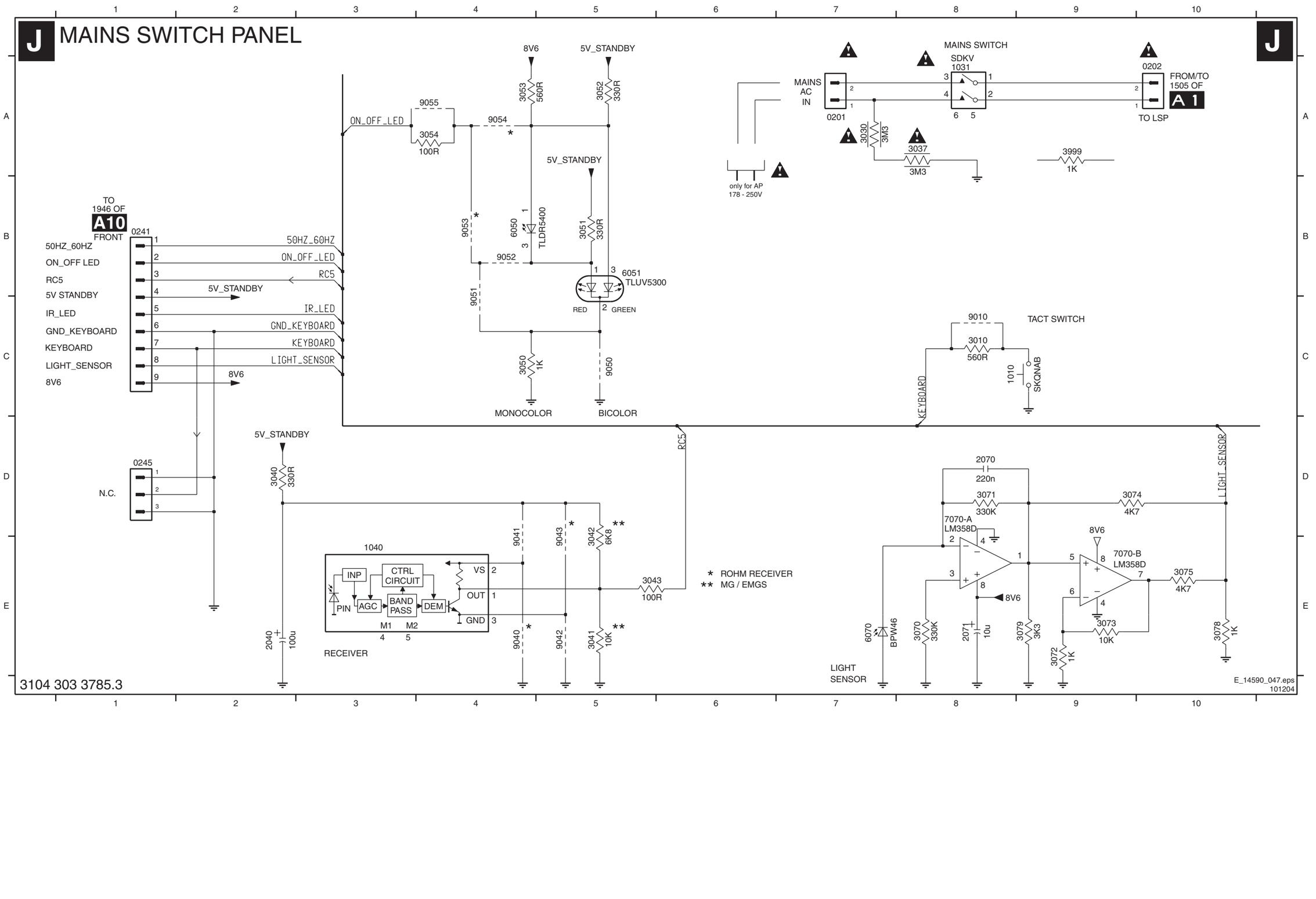
1419	F1	7821	C3
1490	C8	7822	C5
1491	E9	7823	C5
1492	A9	9800	D2
1497	D9	9803	F2
1693	C1	9804	E2
2800	E4	9805	D6
2803	E4	9806	B7
2809	A5	F400	D9
2812	A7	F401	D2
2813	C7	F402	E1
2814	B8	F403	F6
2816	A7	F404	F2
2818	C1	F405	F1
2820	A3	F406	C8
2821	F2	F407	C9
2822	A5	F408	A9
2823	B4	F409	A9
2824	C4	F410	B8
2825	B5	F411	C1
2890	E5	I400	D2
2891	E5	I401	E6
2892	B3	I402	E2
3805	D6	I403	F1
3807	A8	I404	F2
3808	A8	I405	A5
3809	A6	I406	A6
3810	A7	I407	A7
3811	B6	I408	A7
3812	C7	I409	A7
3813	C6	I410	A8
3814	B7	I411	A5
3815	B6	I412	B5
3816	C7	I413	A3
3818	C1	I414	B7
3819	B2	I415	B6
3820	C2	I416	B6
3821	A3	I417	C3
3822	A3	I418	C4
3823	A3	I419	C4
3824	B3	I420	C1
3826	C4	I421	C7
3827	C4	I422	C6
3828	C1	I423	C4
3830	B4	I424	C2
3831	B5	I425	B2
3832	A5	I426	B3
3833	C5	I427	B8
3897	E2	I428	A8
3898	D5	I429	D6
3899	E5		
3998	C9		
5800	E3		
5801	F2		
5810	A8		
6810	A7		
6812	C6		
7810	B7		

Mains Switch Panel (PV02 Styling)

0201 A7 0245 D1 1040 E3 2071 E8 3037 A8 3042 E5 3051 B5 3054 A4 3072 E9 3075 E10 3999 A9 6070 E7 9010 C8 9042 E5 9051 C4 9054 A4
0202 A10 1010 C8 2040 E2 3010 C8 3040 D2 3043 E5 3052 A5 3070 E8 3073 E9 3078 E10 6050 B4 7070-A D8 9040 E4 9043 E5 9052 B4 9055 A4
0241 B1 1031 A8 2070 D8 3030 A7 3041 E5 3050 C4 3053 A4 3071 D8 3074 D9 3079 E9 6051 B5 7070-B E9 9041 E4 9050 C5 9053 B4



Mains Switch Panel (FL13B Styling)

MAINS SWITCH PANEL

* BLUE LED FUNCTION

HOT MAINS SWITCH

COLD

TO 1946 A1Ø LSP

TO 1505 A1 LSP

TO LSP

1040 RC5-RECEIVER

7070-1 LM358D

7070-2 LM358D

7075 P87LPC760BN MICROCONTROLLER

ROHM RECEIVER

MG

E_14600_036.eps 220304

3104 313 6036.3

0201 B10	F001 B2
0202 B12	F002 B2
0241 B2	F003 B2
1001 A11	F004 B2
1002 A12	F005 B2
1040 E6	F006 C2
1051 B11	F007 C2
1060 B11	F008 C2
1070 H4	F009 C2
2020 H4	F010 B10
2021 G3	F011 B10
2022 H6	F012 B11
2023 H3	F013 B11
2024 E3	F014 C12
2040 F6	F015 C13
2060 B6	F016 B12
2070 E10	I002 C10
2071 F10	I003 C10
3020 E2	I004 B8
3021 F1	I005 H3
3022 H1	I006 C9
3023 I3	I007 E7
3024 H5	I008 F8
3025 G6	I009 B5
3026 G6	I010 C5
3027 E3	I011 C5
3028 E3	I012 B9
3030 E4	I013 B6
3031 E4	I014 B6
3032 E5	I015 E10
3033 E5	I016 E9
3034 E3	I017 F9
3040 E8	I018 F10
3041 F8	I019 F11
3042 E8	I020 C8
3043 F8	I021 B7
3045 H3	I022 C8
3050 C8	I023 F8
3051 B9	I024 F8
3052 B8	I025 E1
3053 B8	I026 E2
3054 B7	I027 E3
3057 C10	I028 E3
3060 C5	I029 E3
3061 B5	I030 H3
3062 B5	I031 H4
3063 B6	I032 F4
3064 A7	I033 E4
3066 B10	I034 E4
3070 F9	I035 E5
3071 E10	I036 E5
3072 F11	I037 H1
3073 F11	I038 I2
3074 E11	I039 G6
3075 F12	I040 I3
3078 F12	I041 H4
3079 F10	I042 H5
3082 I8	I043 H5
3083 H9	I044 H6
3084 H9	I051 E4
3085 I9	I055 H8
3086 G9	I056 I8
3087 H9	I057 H9
3088 H9	I058 H8
3089 G10	I059 H9
3090 H10	I060 H10
3091 H11	I061 H10
3999 C12	I062 G3
5020 G2	I063 G3
6050 B8	I064 G2
6051 C9	I065 D2
6060 B6	I066 D2
6061 B6	I067 D2
6070 F9	
6080 H5	
6081 E2	
6082 E2	
7060 C5	
7061 B7	
7065 E2	
7066 E4	
7067 E5	
7068 H4	
7069 H6	
7070-1 E9	
7070-2 F11	
7075 G2	
7080 H8	
7081 G9	
7082 H10	
7083 H11	
9040 F8	
9041 E8	
9042 F8	
9043 E8	
9044 B11	
9050 C9	
9051 C8	
9052 C8	
9053 B8	
9054 B8	
9055 B7	
9063 D2	
9064 D2	
9065 B3	
9066 I9	
9067 G9	
9097 D11	
9098 C11	
9099 C11	

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V_ac / 50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use the cooling fins/plates as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform the alignments.

Perform all electrical adjustments with the following start settings (for all CRTs):

- Set LIGHT SENSOR "off", by setting ACTIVE CONTROL to "off" with the remote control.
- Set CONTRAST to "75", BRIGHTNESS to "42" and COLOUR to "54" (via PICTURE menu).
- Set COLOUR ENHANCEMENT to "off" (via PICTURE menu).
- Set DIGITAL OPTIONS to "Pixel Plus" (via PICTURE menu), unless otherwise stated (for sets without "Pixel Plus" (= Eagle), set to "Natural Motion").
- Set DYNAMIC CONTRAST to "off" (via PICTURE menu).
- Set CATHODE DRIVE at "15" (via SAM - Alignments - General - Drive - Cathode).

8.1.2 Adjustment Sequence

Use the following adjustment sequence:

1. Set the correct TV-set "options" (after storing, restart the set!).
2. Rough adjustment of "Vg2".
3. Rough adjustment of "Focus".
4. Rough adjustment of "Geometry".
5. Allow the set to warm up.
6. Accurate adjustment of "Vg2" and "Focus".
7. Accurate adjustment of "Geometry".
8. Software alignments (cut-off, cathode drive, peak white, white drive, etc).

8.2 Hardware Alignments

Note: The Service Alignment Mode (SAM) is described in chapter 5 of the Service Manual. Menu navigation is done with the "CURSOR UP, DOWN, LEFT or RIGHT" keys of the remote control (RC) transmitter.

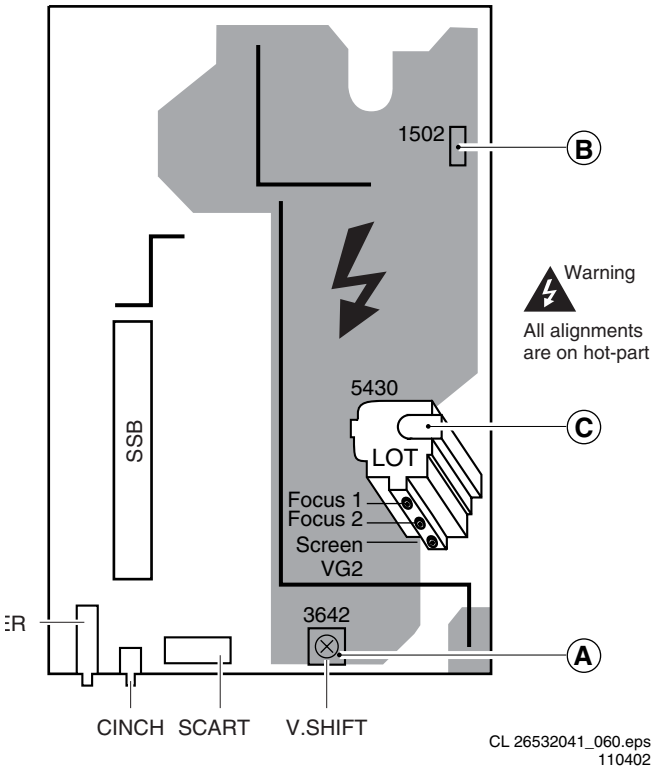


Figure 8-1 Top-view LSP

8.2.1 Vg2 Adjustment

In the frame-blanking period of the R, G, and B signals applied to the CRT, the "HOP" video processor inserts a measuring pulse with different DC levels. Measure the black level pulse during the vertical flyback at the RGB cathodes of the CRT.

1. Go, via the MENU key, to the normal user menu, select "PICTURE", and set "CONTRAST" and "BRIGHTNESS" to "**0**".
2. Activate the SAM.
3. Connect the RF output of a pattern generator to the antenna input. Test pattern is a "black" picture (blank screen on CRT without any OSD info).
4. Set the channel of the oscilloscope to 20 V/div and the time base to 20 us/div. Use external triggering on the vertical pulse
   Caution: use a trigger point at the "**cold**" side!.
5. Ground the scope at the CRT panel ("**cold**" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see diagram F).
6. Measure the cut-off pulse during first full line after the frame blanking. You will see two pulses, one being the cut-off pulse and the other being the white drive pulse. Choose the one with the lowest value; this is the cut-off pulse.
7. Select the cathode with the highest V_dc value for the alignment. Adjust the V_CUTOFF of this gun with the SCREEN (lower) potentiometer on the LOT to the correct DC-value, tolerance is +/- 3 V_dc (align the Vg2 potmeter first till the flyback lines are just visible and then slowly turn back until they are gone).
   - 28 inch (16:9):
     - Philips (LPD): 160 V.
   - 29 inch (4:3):
     - Philips (LPD): 160 V.
     - Samsung: 160 V.
   - 32 inch (16:9):
     - Philips (LPD): 160 V.
     - Panasonic (MEC): 170 V.

8. Restore "CONTRAST" to "75" and "BRIGHTNESS" to "42".

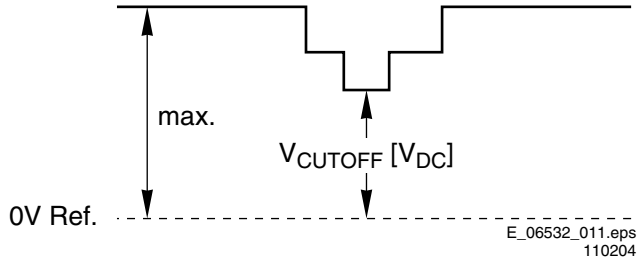


Figure 8-2 Waveform Vg2 alignment

8.2.2 Focus alignment

Notes:
- Tune the set to a "circle with crosshatch" test pattern (use an external video pattern generator).
- Choose picture mode "NATURAL" with the "SMART PICTURE" button on the remote control transmitter.
- **ELDOR** LOT outline:
  - Focus 1 (F1) = Static alignment (black wire).
  - Focus 2 (F2) = Dynamic alignment (red wire).

Focus method for Philips 32 inch tube with bleeder gun
You can recognize a CRT with bleeder gun by its type number.
Example:
- W76ERF**052**X044= with bleeder gun
- W76ERF**042**X044= with standard gun.

You can also recognize it by the **ceramic** rectangular plate (this is the bleeder resistance) you will see inside the gun (viewed from above).

1. Start the alignment with the STATIC focus (upper potmeter) turned to the **left** and the DYNAMIC focus (middle potmeter) to the **right**.
2. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
3. Adjust the STATIC focus until the vertical lines at the sides of the screen have minimum width, without introducing a visible haze.
4. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
5. Check overall spot performance and repeat steps 3 and 4 to achieve the best result.

Focus method for all other tubes
1. Start with the STATIC and DYNAMIC focus potentiometers on the LOT at **midway**.
2. Adjust the STATIC focus until the vertical lines at the sides of the screen have minimum width, without introducing a visible haze.
3. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
4. Check overall spot performance and repeat steps 2 and 3 to achieve the best result: a compromise between minimal visible haze at the middle of the screen and sharp lines at the edges of the screen.

8.3 Software Alignments

8.3.1 Introduction

With the software alignments, it is possible to align the Geometry, White Tone, and Tuner IF settings.
Put the set in the SAM (see chapter 5). The SAM menu will now appear on the screen. Select, via **ALIGNMENTS**, one of the sub-menus. They are explained below in the sequence of the sub-menus.

Notes:
- All changes to menu items and alignments are stored automatically, except the option codes. They must be stored manually.
- If the OPTION CODES have been changed **and stored**, the set has to be switched "OFF" and "ON" using the mains switch to activate the new settings (when switching via Standby, the option code settings are NOT read by the microprocessor).
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.

8.3.2 GENERAL

VG2 TEST PATTERN
In this sub-menu, you can turn "On" the OSD feedback for the Vg2 alignment (see chapter 8.2.1).

ADJUST PEAK WHITE LIMITER
Fixed setting: "9".

EHT COMPENSATION
Enter value "9" for the 28, 29 and 32 inch picture tubes
Enter value "10" for the 36 inch picture tubes.

SOFT CLIPPER
Fixed setting: “Pwl + 0%”

LUMA GAIN
Fixed setting is “1”.

IF AFC
Supply, via an external video generator (e.g. PM5518), a TV signal with strength of at least 1 mV and a frequency of 475.25 MHz. Use system BG if possible, otherwise match the system of your generator with the received signal in the set.

Alignment procedure:
1. Go to the user "Installation" menu.
2. Select "Manual Installation".
3. Tune the TV-set to the system and frequency described above via "Search" - "475" - "OK".
4. If the frequency, showed in the line "Fine tune", is between 475.18 MHz and 475.31 MHz, you **do not** need to re-adjust the "IF AFC".
5. If not, adjust the frequency in the "Fine tune" line to 475.25 MHz and "Store" the program (this is **very important** because this will disable the AFC algorithm).
6. Now go to the SAM and select ALIGNMENTS - GENERAL - IF AFC.
7. During the IF AFC parameter adjustment, one can see OSD feedback in the top of the screen.
8. This OSD feedback can give 4 kind of messages:

Table 8-1 OSD feedback of AFC alignment

AFC-window	AFC-frequency vs. reference
Out	High
In	High
In	Low
Out	Low

1. The first item (IN or OUT) informs you whether you are in or out the AFC-window.
2. The second item (HIGH or LOW) informs you about whether the AFC-frequency is too high or too low.
3. First, you must align the IF AFC parameter such that you come into the AFC-window (= IN).
4. Then you must look for the point where the IF AFC parameter changes from HIGH to LOW. This level is the value you are looking for.
5. After adjustment, STORE the value.
6. Now return to the user "Installation" menu.
7. Select "Manual Installation" - "Search" - "475" - "OK" and "Store". This will set the AFC "ON" again.

Service tip: If you do not trust the frequency accuracy of your service generator, connect it to a "good" TV set and check it with the "Fine tune"-line.

IF LPRIME AFC
Use the same procedure as for the IF AFC alignment, but set the video generator to SECAM L/L' (only necessary for countries that have or can receive this system).

TUNER AGC
1. Set the external pattern generator to a colour bar video signal and connect the RF output to the aerial input. Set the amplitude to 10 mV and set the frequency to 475.25 MHz.
2. Connect a DC multimeter between pin 1 and the shielding of the Tuner (item 1200 on the LSP).
3. Adjust the TUNER AGC value (default value is 25) with the LEFT/RIGHT cursor keys until the voltage at pin 1 of the tuner lies between 3.8 and 2.3 V.
4. STORE the alignment.

TUNER AGC TUNER 2 (only for sets with DW/PIP)
Use the same procedure as described above (under TUNER AGC) with the set switched to the DW source. Measure on pin 1 of the DW Tuner (this is only applicable for sets with 2-tuner DW execution).

BLEND INTENSITY
Use this alignment when you replace the microcontroller or the HOP. It aligns the level of transparency of the menu-picture blended into the main-picture.
Position the "BRIGHTNESS", "CONTRAST", and "COLOUR" setting in the middle position (via the user PICTURE menu).
1. Apply a signal with a 100 % white video-pattern.
2. Connect an oscilloscope to pin 8 of connector 1298 of the CRT panel and measure the Red output level.
3. Align the BLEND INTENSITY parameter such, that the blended signal is 65 % of the black-white amplitude. In practice, this is about 1.3 V (blended signal) versus 2 V (full white signal).
4. The parameter can be adjusted in between **"0"** and **"31"**.

8.3.3 DRIVE (Colour Alignments)

Note: Switch off all (available) colour-influencing features (e.g. set the TV in ECO-mode).

Method 1 (with colour analyser):
1. Set, via the user menu, the "Contrast" to "100".
2. In SAM, select TEST PATTERN and turn it ON. During the following alignments, you will see a white block in the middle of the screen. Measure with the colour analyser on this area.
3. Set, via the user menu, the "Brightness" to a value between 3.0 and 5.0 Nit (rough setting).
4. Select CATHODE and enter the value "15" (for all picture tubes).
5. Set the RED, GREEN and BLUE default values to "32".
6. RED BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
7. GREEN BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
8. Select a COLOR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
9. Adjust the white level via RED, GREEN, and BLUE, according to the values in table "White levels".

Table 8-2 White levels

ColourTemp. (K)	Cool (10200)	Normal (8700)	Warm (6500)
X	280	289	313
Y	287	299	329

Method 2 (without colour analyser):
If you do not have a colour analyser, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).
1. Set, via the user menu, the "Contrast" to "100".
2. Select CATHODE and enter the value "15" (for all picture tubes).
3. RED BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
4. GREEN BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
5. Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
6. Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.

Table 8-3 Tint settings

	Δ Cool	Normal	Δ Warm
R	-1	37	+ 3
G	0	30	0
B	+ 4	31	- 10

8.3.4 LUM. DEL. (Luminance Delay)

With this alignment, you place the luminance information exactly on the chrominance information (brightness is pushed onto the colour). Use a colour bar/grey scale pattern as test signal.
- **LUM. DELAY PAL BG:** Apply a PAL BG colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = ”8”.
- **LUM. DELAY PAL I:** Apply a PAL I colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = “10”.
- **LUM. DELAY SECAM:** Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = “9”.
- **LUM. DELAY BYPASS:** apply a NTSC colour bar/ greyscale pattern as a test signal. Adjust this value until the transients of the colour and black & white part of the test area are at the same position. Default value = “7”.

8.3.5 GEO-NOR (Normal Geometry)

Note: Use for all geometry alignments an **external** pattern generator with a geometry pattern (e.g. crosshatch).

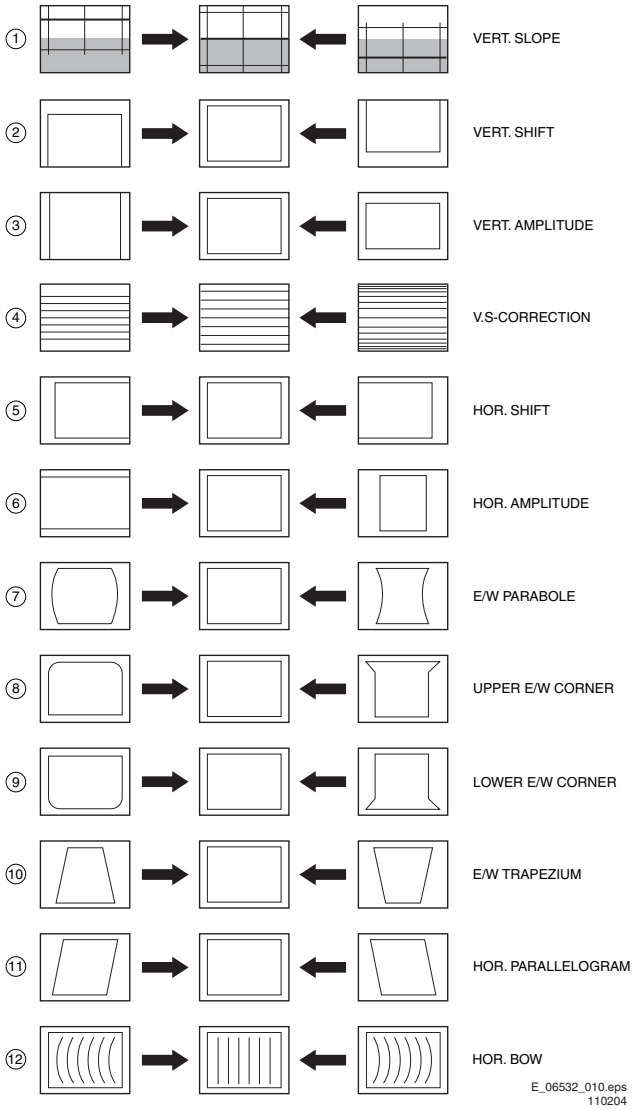


Figure 8-3 Geometry Alignments

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the INSTALLATION menu, choose SETUP, press OK, and choose PICTURE TILT. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

V. SLOPE

Align the zero crossing of the frame deflection to the mechanical middle of the picture tube.

1. First, set the start conditions for 16:9 sets according to the table “Vertical S-Correction default value”. Position the boundary-stripes of the test pattern on the edges of the picture tube.
2. Align V. SLOPE (during alignment, the lower half of the picture is blanked) such, that the middle line of the test pattern is matched with the edge of the pattern transient in the middle of the picture.
3. Repeat the alignment if necessary.

Table 8-4 Vertical S-Correction default value

Picture Tube	V. S-Correction default value
28" RF 16:9 Mk2	16
29" RF 4:3	32
32" RF 16:9	16
32" RF 16:9 Bleeder	16
32" RF 16:9 EMEC	27
32" RF 16:9 DOD-2	20

V. SHIFT AND V. AMPLITUDE (vertical alignment)

Align the vertical centre and height of the picture.

1. Use V. AMPLITUDE to align the vertical amplitude so that the entire test pattern is visible.
2. Set V. SHIFT to value "32".
3. Connect a voltmeter (V_dc) between R3624 and "hot" ground.
4. Adjust the DC voltage to **"0"** with potmeter R3642 (see figure 8-1).
5. Use V. SHIFT again to align the test pattern roughly vertically in the middle.
6. Repeat the alignment if necessary.

V. S-CORRECTION

Align for equal blocks on top, middle, and bottom of the picture tube.

Align V. S-CORRECTION such that a block at the top (or bottom) of the picture has the same height as a block in the middle of the picture.

H. SHIFT AND H. AMPLITUDE (horizontal alignment)

1. Use H. AMPLITUDE to align the horizontal amplitude so that the entire test pattern is visible.
2. Use H. SHIFT to align the picture horizontally in the middle.
3. Repeat the H. AMPLITUDE alignment if necessary.

Note: In case the horizontal linearity in wide-screen mode is out of tolerance, add a "DC-shift correction" panel (3104 328 06230) to connector 1419 of the DAF-panel [diagram I]. On the DC-shift panel, cut diode **6433** for correction to the right or diode **6432** for correction to the left.

Caution: Be sure to switch "OFF" the set first. *Never* plug in a not pre-aligned module in a playing set!

EAST/WEST ALIGNMENT

1. Use EAST/WEST PARABOLA to align the vertical lines until straight.
2. Use UPPER EAST/WEST CORNER to align the vertical lines in the upper corners until straight.
3. Use LOWER EAST/WEST CORNER to align the vertical lines in the lower corners until straight.
4. Use EAST/WEST TRAPEZIUM to align for a rectangular.
5. Use HORIZONTAL BOW to correct the E/W parabola such, that it becomes symmetrical.
6. Use HORIZONTAL PARALLELOGRAM to align for straight vertical lines if necessary.

Repeat steps 1 to 6 if necessary.

8.3.6 GEO-4:3 (4:3 geometry alignment in 16:9 sets)

1. Use EAST/WEST PARABOLA to align the vertical lines until straight.
2. Use UPPER EAST/WEST CORNER to align the vertical lines in the upper corners until straight.
3. Use LOWER EAST/WEST CORNER to align the vertical lines in the lower corners until straight.

8.3.7 GEO-SW (Super Wide geometry alignment in 16:9 sets)

You only need to set the following values (if the normal geometry alignment has been performed correctly):
1. V. S-CORRECTION: enter value of the NORMAL GEOMETRY alignment.
2. H. AMPLITUDE: enter value of the NORMAL GEOMETRY alignment subtracted by "1".
3. EAST/WEST PARABOLA: enter value of the NORMAL GEOMETRY alignment.

8.3.8 GEO-100HZ (Digital Scan geometry alignment)

As all alignments are done in Pixel Plus mode (at 75 Hz), the 100 Hz mode needs an extra alignment:
- Select GEO-100HZ. The set automatically switches to 100 Hz mode.
- V. SLOPE: match the middle line of the test pattern with the upper edge of this blanking picture.
- After the alignment, return to the previous menu. The set automatically returns to "Pixel Plus" mode.

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.
- You can set the "hardware related" options via the SAM - ALIGNMENTS - OPTIONS or OPTION NUMBERS menu.
- You can set the "software related" options via the SAM - DEALER OPTIONS menu.

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

8.4.2 DEALER OPTIONS

Select this sub-menu to set the initialisation codes (= options) of the set via text menu's.

Table 8-5 Dealer options overview

Menu name	Subjects	Options	Physically in set
Personal Options	Picture Mute	Yes	Picture mute active in case no picture detected
		No	Noise in case of no picture detected
	Virgin Mode	Yes	TV starts up once with language selection menu after mains switch on for the first time (virgin mode)
		No	TV does not starts up once with language selection menu after mains switch on for the first time (virgin mode)
	Auto Store Mode	None	Autostore mode disabled (not in installation menu)
		PDC-VPS	Autostore mode via ATS (PDC/VPS) enabled
		TXT page	Autostore mode via ACI enabled
		PDC-VPS-TXT	Autostore mode via ACI or ATS enabled
	TXT Preference	TOP	Preference to TOP Teletext
		FLOF	Preference to FLOF Teletext

8.4.3 SERVICE OPTIONS

Select this sub-menu to set the initialisation codes (= options) of the set via text menu's.

Table 8-6 Option overview

Menu-item	Subjects	Options	Description
Dual screen	PIP/Dual Screen	Yes	Feature present.
		No	Feature not present.
	Text/EPG	Yes	Feature present.
		No	Feature not present.
	DS/PIP Tuner	Yes	Only selectable if Dual Screen option is "on"
		No	Feature not present.
Teletext	Flash RAM	Yes	Feature present.
		No	Feature not present.
	NexTView	None	Feature not present.
		Textguide only	Feature present, but only as text guide.
		Nextview 2c3	Feature present, for countries that support this.
Picture Tube	CRT Type	4 by 3	4:3 picture tube.
		16 by 9	16:9 picture tube.
	Picture Rotation	Yes	Frame rotation circuitry present.
		No	Frame rotation circuitry not present .
	CRT size	28 / 32 / 36 29 / 34 / 38	CRT size (in inches).MEC= Panasonic, II= Mark 2
	Anti MoirÈ filter	Yes	Feature present.
		No	Feature not present.
Video repro	Featurebox type	1050i/1250i	HD input
		Eagle 1B	Eagle present (Pixel Plus).
		Eagle 1C	Eagle present (Pixel Plus 2).
	Lightsensor	Yes	Feature present.
		No	Feature not present.
	3D Combfilter	Yes	Feature present.
		No	Feature not present.
	Picture improvement	Yes	LTP (TOPIC) present.
		No	LTP (TOPIC) not present.
	Auto Scavem	Yes	Feature present.
		No	Feature not present.
	Signalling bits	Yes	For 16:9 sets
		No	For 4:3 sets
	Impr. Noise Red.	Yes	Columbus present
		No	Columbus not present
	Pixel Plus version	1	Sets without Columbus but with Eagle (1B)
		2	Sets with Columbus and Eagle (1C)
Source Selection	AV3 2fH	Yes	Not selectable yet
		No	Feature not present.
	AV4 2fH	Yes	Not selectable yet
		No	Feature not present.
	EXT4 1fH	Yes	Not selectable yet
		No	Feature not present.
	EXT3 1fH	Yes	Feature present.
		No	Feature not present.
Audio Repro	Dolby	None	Set without Dolby
		Pro Logic	Set with Dolby ProLogic
		Virtual	Sets with Virtual Dolby
	Rear speakers	Speakerless	Virtual Dolby (without rear speakers)
		Cordless	Wireless active surroundbox present
	Subwoofer present	Yes	Feature present
		No	Feature not present
	Acoustic system	None, FL9-DAS, FL11, FL12, PV02, FL13, Soft Designline, Tech Designline.	Indicates the cabinet styling
	AVL	On	Automatic Volume Limiter 'on'
		Off	Automatic Volume Limiter 'off'
Miscellaneous	Home Cinema	Yes	Set with Home Cinema Link (EU only)
		No	Set without Home Cinema Link
	Integrated RC	Yes	Feature present.
		No	Feature not present.
	Tuner type	UV1316	Set with Philips tuner.
		TEDE9	Set with Alps tuner.
	Integrated Radio	Yes	Feature present.
		No	Feature not present.
	P50 DVD menu line	Yes	Feature present (only in sets with Home Cinema).
		No	Feature not present.
Option no.	Group 1		Group 1 option code overview (see CRT sticker).
	Group 2		Group 2 option code overview (see CRT sticker).

8.4.4 OPT. NO. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).

An option number (or option byte) represents a number of different options. When you change these numbers directly, you can set all options very fast. All options are controlled via eight option numbers.
When the EAROM is replaced, all options will require a re-setting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a CRT sticker inside the TV set.

Example: The CRT sticker in the 28PW9502/12 gives the following option numbers (**Note:** this is just an example):
12660 16672 49984 00000
04118 00001 00032 18250
The first line (group 1) indicates options 1 to 4, the second line (group 2) options 5 to 8 (see tables below).
Every 5-digit number represents 16 bits (so maximum number can be 65536 if all options are set).
When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.

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

Index of this chapter:

Note:

- Only **new** circuits, compared to its predecessor the EM5.1E, are described here. For the other circuit descriptions (e.g. the large signal part), see the EM5.1E manual (available under order code 3122 785 13420).
- 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 diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

This chassis contains, compared to its predecessor, the following new feature/component:

- FEM (Falconic Embedded Memories): is a new Falconic with internal Field memories and jagged line removal.

The chassis consists of a full sized LSP/SSP combination and a smaller double sided four layer SSB, which is mounted on the SSP using a 80-fold SIMM connector. The main functionalities are:

- LSP: supply, deflection, and sound amplification.
- SSP: tuner input, SIMM interface, I/O, and interface provisions for extended functions such as PIP.
- SSB: core TV functionalities, being TXT/control, video and audio decoding, feature box, video featuring, and sync/ geometry control.

The LSP (single sided) is built up very conventional, with hardly any surface mounted components on the copper side. Similar with the EM3 (but different as with the MG-chassis), the EM5 LSP has a very large 'hot' part, including both deflection coils.

The SSB is a high tech module (four layer, 2 sides reflow technology, full SMC) with very high component density and complete shielding for EMC-reasons. Despite this, it is designed in such a way, that repair on component level is possible. To achieve this, attention was paid to:

- The position of service test lands: most of them are at the Tuner side.
- Accessibility (Tuner side). If there are still problems with the accessibility, one can order an extension board (see parts list).
- Clearance around surface mounted ICs (for replacing).
- Detailed diagnostics and fault finding is possible via ComPair.

The availability of Double Window (DW) or Picture In Picture (PIP) depends on the model range. There are two different executions, depending on the number of tuners:

- One Tuner: The TV has only one tuner (on the LSP), so the PIP-picture can be either from this tuner or from an external AV-source.
- Two Tuners: In this case there are two separate tuners, so the main picture and the DW picture are independently selectable. The IF signal from the main tuner is processed on the SSB, while the IF signal from the second tuner is processed by a second BOCMA video processor on the DW-panel. The source selection is done via an I/O expander.

9.2 Block Diagram

For the block diagram see chapter 6 “Wiring Diagram, Block Diagrams, and Overviews”.

The Tuner (item 1200) is a PLL tuner and delivers the IF-signal, via audio & video SAW-filters, to the HIP (High-end Input Processor). The HIP has the following functions:

- IF modulation.
- Video source- and record select.
- Colour decoder.
- Synchronisation.

Attached to the HIP is the 2D Comb filter is used to separate chroma and luminance components out of a CVBS signal.

Three SCART-connectors are available:

- SCART1 is fully equipped,
- SCART2 is meant for VCR. Pin 10 is used for Easylink (P50) and there is a possibility for Y/C in. The CVBS-out on pin 19 is meant for WYSIWYR (What You See Is What You Record).
- SCART3 (if available) is a RGB/CVBS and audio L/R input. It can be used as second tuner input, in case of a 1-Tuner DW/PIP set.

After the HIP, we come to the part that is called the Feature box (diagram B3x):

- For Digital Scan, the PICNIC is required.
- For Natural Motion, the FALCONIC (or FEM) is required.
- For Pixel Plus, the EAGLE is required.

The HIP delivers YUV and sync signals to the PICNIC. This IC takes care of:

- Analogue to Digital conversion and vice versa.
- 50 to 100 Hz conversion.
- Panorama mode.
- Noise reduction.
- Dynamic contrast.

After the PICNIC, the (now 2fH) YUV-signals are fed to the FALCONIC (or FEM) for “Natural Motion” followed by the Eagle for “Pixel Plus” enhancement. The processed YUV signals (from Eagle or PICNIC) are, together with the sync-signals from the PICNIC, then fed to the HOP (High-end Output Processor). This IC handles the video control and geometry part. The RGB-signals for TXT/OSD (from the microprocessor) are also inserted via the HOP. The video part delivers the RGB signals to the CRT-panel and the geometry part delivers the H-drive, V-drive, and a drive-signal for rotation.

Both deflection circuits are “hot” and located on the LSP. They are driven by the HOP. To make a galvanic separation, the Line Drive is driven via transformer 5410 and the Frame Drive via transformer 5621.The horizontal output stage generates some supply voltages and the EHT-, focus- and Vg2-voltages.

The RGB amplifiers on the CRT-panel are supplied with 200 V from the LOT.
The Scavem circuit modulates transitions of the Luminance (Y) signal on the horizontal deflection current, giving a sharper picture.

The sound part is built around the MSP34xx (Multi-channel Sound Processor) for IF sound detection, sound control and source selection. Dolby decoding is also done by the MSP. Amplification is done via a “class D” integrated power amplifier IC, the TDA7490.

The microprocessor, called OTC (OSD, Teletext and Control) takes care of the analogue TXT input- and output processing. The OTC, ROM, and RAM are supplied with 3.3 V, which is derived from the +5V2.
The NVM (Non Volatile Memory) is used to store the settings, one Flash-RAM contains the set software, the other Flash-RAM (7012) is for EPG, and the DRAM is used for storing the Teletext pages.

There is a separate Standby Supply, in order to reduce the Standby power consumption. During Standby, the Main Supply is switched “off” (via TS7529).
A relay (1550) is used to switch the degaussing circuit. It is switched “on” after set start-up and switched “off” by the uP after 12 s.
The Main Supply, an SMPS based on the “down-converter” principle, generates the 141 V (V_BAT) and the +/- 16 V for the audio part.
Note: Voltage V_BAT is not mains isolated (“hot”), but is alignment free.

9.3 Feature Box

The key components of the FBX are the following ICs:
9.4 PICNIC
9.5 FEM (Falconic Embedded Memory)
9.6 Eagle

9.4 PICNIC

All FBX versions have the PICNIC as basic IC. All functions located in the PICNIC are therefore basic functions, and will be described briefly. These functions are completely controlled by the built-in microprocessor.

- **Clamp.** In the PICNIC, three analogue clamp circuits are integrated that assure a well defined DC level for the luminance (Y) and colour-difference (U, V) input signals.
- **AGC.** The AGC in the PICNIC consists of a digital controlled analogue variable gain amplifier with a gain range of 9.3 dB, and an algorithm that uses input derived from histogram data and the overflow detection. It is designed to assure an optimal ADC input range, for all input signals, and so having minimal quantisation noise.
- **Analogue pre and post filters.** The pre filters of the Feature Box are always the integrated filters of the PICNIC. The internal post filters of the PICNIC are never used.
- **ADC/DAC.** Analogue to Digital conversion is done with three identical 9-bit ADCs, and the Digital to Analogue conversion uses three identical 10-bit DACs. The Y signal is mapped on 9 bits for black-to-white range and has room for over- and undershoots by means of the 10th bit at the output DACs. The U and V channels are processed in 9-bit accuracy up to the CTI circuit that has a gain of 2, resulting in a 10-bit output that suits the 10 bit DACs.
- **Time Base Correction.** The Time Base Correction circuit simulates a fast acquisition line locked clock, while the actual system clock is locked to the input line frequency with a very large time constant. In this way the typical VCR problems linked to a one clock Feature Box can be solved, particularly the deflection circuit (in case of CRT) driven by the Feature Box can profit from this feature.
- **VCR detection.** The VCR detection of the PICNIC is an algorithm that detects the phase jumps (which occurs for instance with VCRs) to be able to correct the picture deviations. This detection is done by monitoring the PLL circuit in the PICNIC by the on-board microprocessor on several parameters.
- **Peaking.** The two dimensional peaking can boost or attenuate higher frequencies in both vertical and horizontal direction. The lowest setting is a 2D low pass. The higher settings make sharpening, but the resulting overshoots can clip relatively fast compared to the dynamic peaking, because there is no room for overshoot above white and under black. This peaking is done on field base.
- **Digital Noise Reduction (DNR).** The PICNIC accommodates three noise reduction circuits:
  - **Clinic.** This "clamp noise reduction" circuit consists of an adaptive temporal field recursive filter. It corrects the DC level of each line, when it is varying from field to field in the line segments with likely the least movement. It can be used to correct clamp errors that cannot be restored by conventional clamp circuits. The filter is completely autonomous for the user, who can only switch it “on” or “off”.
  - **Limeric.** This spatial noise reduction circuit is targeted for reduction of the mid frequency noise spectrum, where adaptive filtering combines pixels around the centre pixel and pixels from the lines above in a recursive way. The quantity of noise reduction is user defined.
  - **2D Coring.** This circuit attacks spatial noise in a very drastic way without distinguishing noise from wanted resolution. It shaves away small details of any kind, depending on the amplitude of the detail and the user setting. So, it is advised to use this feature only at the lowest settings.
- **Histogram Modification.** Using histogram modification techniques in PICNIC, the contrast of the overall picture may be improved. From a TV scene, the distribution of all luminance values is taken (histogram). This histogram is used to calculate an optimal transfer curve for the particular scene, which is used to process the video digitally resulting in a picture with improved contrast (called “Dynamic Contrast”).
- **Auto Picture Control.** The PICNIC is prepared to make several APC functions in co-operation with the main software. This is made by giving relevant video quality data to main, and by giving several control ‘handles’ to main microprocessor. In this way, automatic picture quality settings depending on customer settings and video data can be made. The following items are prepared in the AutoTV:
  - **Automatic Picture Control.** This feature controls the settings for DNR, Limeric, coring, sharpness and histogram modification as a function of the noise figure and signal steepness information extracted from the PICNIC and from external information such as ambient light.
  - **Automatic Aspect Ratio Adaptation.** This AARA feature uses data from the black bar detection circuit to adapt vertical and horizontal amplitude to an aspect ratio belonging to the display and does not show black bars. This is done by the control software. Auto Format is controlled via main software by reading out the black bar information from the FBX.
- **Field Rate Upconversion.** In order to remove large area flicker from the TV screen, the field-rate of the video is doubled by the Feature Box. A 50/60 Hz video input is converted to 100/120 Hz. The line frequency (16 kHz) is also doubled (32 kHz). When the video input contains fields A, B etc..., the conversion provides an AABB sequence scanning on the display. The actual up-conversion is done in the first Field Memory (FM1) by reading it twice at double speed, while writing once.
- **Input Phase.** The horizontal phase of the input video acquisition can be shifted to allow compensation for processing delay of other components in front of the Feature Box.
- **Miscellaneous Features.** To be sure that On Screen Display (OSD) is always readable, even when no video signal is received, the feature box can be switched to stable OSD mode. Free running but stable horizontal and vertical deflection drive signals will be generated, so that OSD information and PIP can be displayed jitter free, and thus clearly readable on the screen. Specially for tuning purposes and smooth channel switching a stable OSD mode is implemented that uses the horizontal time base

correction combined with a slow PLL, and a small vertical catch window. This mode enables undisturbed reading of OSD while the set is tuning.

9.5 FEM (Falconic Embedded Memory)

The FEM IC (SAA4998) is the successor of the SAA4993H, and adds ”jagged line removal” and “embedded field memories” as new/improved features.

9.5.1 Motion Estimation/Compensation

The FEM utilizes a high quality motion estimator. The motion estimation is applied to eliminate the motion blur of current 100 Hz TV sets and to eliminate the motion judder of movies. This judder is visible on all television sets and even in a cinema. Particularly for movies (with only 25 pictures/second), the increased number of pictures helps to smoothen the motion. These improvements a.o. lead to a picture performance improvement on a global scale, with an optimal quality independent from the received standard (50/60 Hz and/or video/film) or display mode (field doubling/de-interlaced 1fV). Especially film judder removal from a 60 Hz input source, the so-called 3-2 pull down film mode, makes the FEM globally applicable.

9.5.2 4:2:2 processing

The colour data path in the FEM is implemented in 4:2:2 bandwidth (as in PICNIC). The 4:2:2 mode requires an Field Memory (FM1) of 16 bits wide.

9.5.3 Upconversion

The FEM is always used in combination with the Eagle. Therefore, the output is always adapted to the input of the Eagle. This 2fV/4fH signal is motion compensated. Only 3 out of 4 fields are correct motion compensated. The Eagle will only use these three correct motion compensated fields.

9.5.4 Dynamic Noise Reduction

For signals that have been affected by noise, improvement can be achieved by combining of the pixel values of the current and past fields of video. This is however only possible for those picture areas in which no movement occurs. If movement occurs in some area, only the information from the current field of video may be displayed for that area to prevent smearing, so noise reduction is not effective there.
To reduce loss of detail, the high frequencies can be bypassed. This can be done because the human eye is more sensitive to noise with low frequencies. The movement detection is implemented in the luminance channel and in the colour channel to reduce artefacts such as smearing.

9.5.5 Vertical Peaking

The vertical peaking circuit in FEM works on de-interlaced data, resulting in a double resolution (compared to PICNIC) high vertical frequency enhancement.

9.5.6 EDDI

EDDI is an Edge Dependent De-Interlacer. This improved de-interlacer, results in smaller jagged lines for video input sources (not for film sources!).

9.5.7 Strobe

Having a FEM in the data path, it is easy to create a still picture or freeze feature. A frame can be frozen once, or, using the strobe feature, repetitively after a certain programmable interval of time. The Eagle is used to make “still pictures”.

9.6 Eagle

The Eagle has the following features:

- **Vertical upscaler.** Two fully programmable vertical upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the colour difference signals. However, the number of output lines is never allowed to exceed 1024 lines per field including blanking. This means that 1050i/1250i is still possible.
- **Vertical Zoom.** The vertical zooming is done with the vertical upscaler of the Eagle instead of using the FEM upscaling. Zoom factors varying from 1 to 8 can be selected. Vertical compression is possible in 1fV up to a factor of 2.
- **Interlacer and horizontal upscaler.** Two fully programmable horizontal upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the colour difference signals.
- **Continuous horizontal zoom/compression.** The horizontal zooming is done with the interlacer and horizontal upscaler of the Eagle instead of the PICNIC upscaling. In the Eagle, a digital sample rate converter can provide horizontal video compression up to 50 %, and up to 8 times zoom. In compress mode, a part of the screen remains unused. In this case, parts of the display can be filled in with a grey value, a colour, or other signal source that bypasses the Feature Box (TXT or another compressed picture).
- **Panorama.** A panoramic horizontal distortion on the picture can be applied to make a screen-fitting picture, without having black side panels, or lost video. This is mainly used to fit 4:3 pictures in a 16:9 display with a resulting correct aspect ratio in the middle of the screen and stretched video at the left and right sides. The inverse feature is called “amaronap” and can also be applied.
- Sub pixel **Luminance Transient Improvement** (LTI): The Eagle contains a horizontal and a vertical sub pixel LTI.
- **Peaking**: In the Eagle both horizontal and vertical luminance peaking is implemented. The horizontal peaking equals the peaking of the PICNIC. The vertical peaking is an addition of two fixed and one 9-taps fully programmable peaking filters.
  - Horizontal luminance peaking: Peaking in Eagle can be used in two ways:
    a. The first way is to give the luminance a linear boost of the higher frequency ranges, which makes no distinction between small and large details or edges.
    b. The other way is to use the peaking dynamically, in order to boost smaller details and provide less gain on large details and edges. The effect is detail enhancement without creation of unnatural large over- and undershoots on large details and edges.
  - Vertical luminance peaking: There are three vertical peaking filters. Two fixed vertical peaking filter and one fully programmable vertical peaking filter. The three filters all have their separate gain setting before the results are added. To avoid excessive gain settings a high peak suppression can be set to avoid excessive output results.
- **Colour dependent sharpness** (CDS): The colour dependent sharpness circuit increases the luminance sharpness in saturated red and magenta parts. The reduction of the normal peaking can be switched “on/off”.

The below given colour features are implemented in all Eagle chips:

- **Digital Colour Transient Improvement** (DCTI): DCTI equals the PICNIC DCTI implementation with improved control range. The DCTI is done with Eagle i.s.o. PICNIC.

- **Skin tone correction**: The idea of Skin tone correction is to correct UV components corresponding to skin towards an “ideal” skin tone axis.
- **Blue Stretch**: This feature makes it possible to shift colours near white towards more bluish coloured white.
- **Green Enhancement**: This feature makes it possible to shift low saturated green colours towards more saturated green colours.
- **Colour Dependent Peaking** (CDP): When using luminance peaking, the viewer has the impression that the colour performance is somewhat lower then in the picture generated without the luminance peaking circuit. This impression is normal because no action was done in the colour channel to compensate for the change in the luminance channel. Locally, at the edge position the contrast has been increased without increase of the saturation at this point. That is why the viewer perceives less colour. To give the viewer the same colour impression as on the original picture, a correction to the colour has to be done at the same place where a change was made in the luminance. This is CDP.
- **Skin Tone Dependent Peaking** (STDP): The horizontal and vertical peaking can be reduced in skin tone areas to avoid that people become too old. Attenuation can be applied to both horizontal and vertical peaking.

9.7 Abbreviation list

2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
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 sets directly from 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
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AR	Aspect Ratio: 4 by 3 or 16 by 9
Artistic	See OTC 2.5: main processor
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars but without throwing away video information
ATV	See Auto TV
AUDIO_C	Audio Centre
AUDIO_L	Audio Left
AUDIO_R	Audio Right
AUDIO_SL	Audio Surround Left
AUDIO-SR	Audio surround right
AUDIO_SW	Audio Subwoofer
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
BC-PROT	Protection signal to the uP for a too high Beam Current.
BG	System B and G
BLC-INFO	Black Current Info
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
BOCMA	BiMOS One Chip Mid-end Architecture: integrated video and chroma decoder
CL	Constant Level: audio output to connect with an external amplifier
ComPair	Computer aided rePair
CRT	Cathode Ray Tube or picture tube
CSM	Customer Service Mode
CTI	Colour Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-TER	CVBS terrestrial
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DC-filament	Filament supply voltage
DFU	Direction For Use: description for the end user
DNR	Digital Noise Reduction: noise reduction feature of the box
DPL	Dolby ProLogic
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode
DVD	Digital Versatile Disc
DYN-FASE-COR	Dynamic phase correction, to correct the phase of the H-drive
Eagle	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical direction, CTI and other colour features
EHT	Extra High Tension
EHT-INFO	Extra High Tension information, used for contrast reduction, vertical and horizontal amplitude correction, beam current protection, and flash detection.
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EW	East West, related to horizontal deflection of the set
EW-DRIVE	The drive signal for the EW-transistor
EXT	External (source), entering the set via SCART or via cinches
FALCONIC	SAA4992H, Feature Box IC performing Digital Natural Motion, 3DNR, and vertical zoom and vertical peaking
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-PIP	The fast blanking signal for PIP
FBL-TXT	The fast blanking signal for TXT. It has a higher priority than FBL-PIP
FBSCO	Fixed Beam Current Switch Off, a 140 V dip detection to activate the black switch off circuit
FBX	Feature Box: part of small signal / separate module which contains 100 Hz processing, extra featuring and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle)
FDS	Full Dual Screen
FILAMENT	Filament of CRT
FLASH	Flash memory
FM	Field Memory or Frequency Modulation
G-TXT	Green teletext
GND-DRIVE	A separate ground for the line drive towards the line driver
HA50	Horizontal Acquisition 1fh: horizontal sync pulse coming out of the HIP
HD100	Horizontal Drive 2fh: horizontal sync pulse coming out of the feature-box
HD at HOME	A signal from the OTC, to switch the HOP to the Pixel Plus standard (75 Hz frame)
HFB	Horizontal Flyback Pulse: horizontal sync pulse from large signal deflection
HIP	High-end video Input Processor (TDA9320): video and chroma decoder of EM5E
HOP	High-end video Output Processor (TDA9330): video, sync, and geometry controller of EM5E
HP	Headphone
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
Last Status	The settings last chosen by the customer, 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
LDP	Line Deflection Protection signal, derived from the EW-current and voltage
LED	Light Emitting Diode

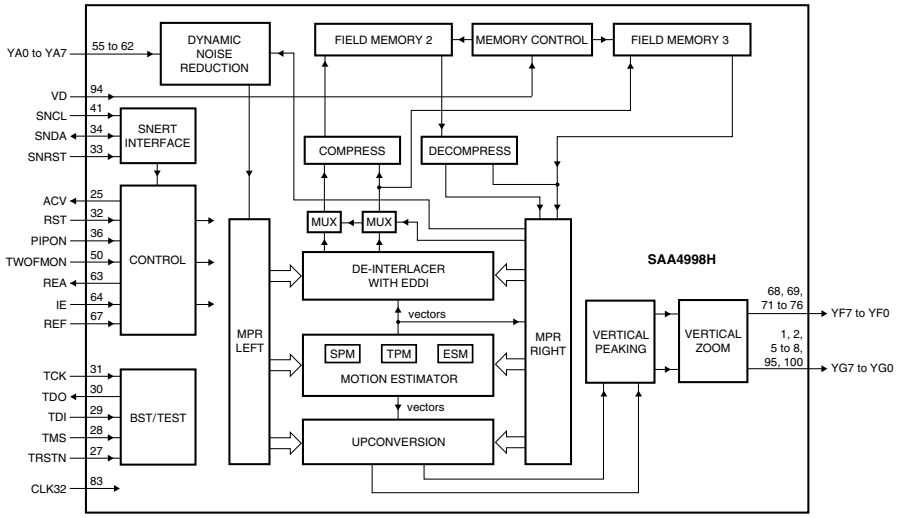
LINE DRIVE	Line drive signal (for the Line transistor)
LNA	Low Noise Adapter
LORE	LOcal REgression based noise reduction
LSP	Large signal panel
MSP	Multi-standard Sound Processor: ITT sound decoder of EM5E
MUTE	Mute-Line
NC	Not Connected
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
OTC	On screen display Teletext and Control; also named Artistic (SAA5800)
P50	Project 50 communication: protocol between TV and peripherals
PCB	Printed Circuit Board
PICNIC	Peripheral Integrated Combined Network IC (SAA4978): main IC for 100 Hz featuring and feature processing
PIP	Picture In Picture
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTP	Picture Tube Panel
RAM	Random Access Memory
R-TXT	Red teletext
RC	Remote Control
RC5 / RC6	Signal protocol from the remote control receiver
RESET	Reset signal
RGB-PIP	RGB-input for PIP
RGB-TXT	RGB-input for Teletext and OSD
RGB-VC	RGB-input to the Picture Tube Panel
ROM	Read Only Memory
SAM	Service Alignment Mode
SC	Sandcastle: two-level pulse derived from sync signals
S/C	Short Circuit
SCAVEM	Scan Velocity Modulation
SCL-F	Clock signal on fast I2C bus
SD	Standard Definition
SDA-F	Data signal on fast I2C bus
SIF	Sound Intermediate Frequency
SIMM	80-fold connector between LSP and SSB
SNERT	Synchronous No parity Eight bit Reception and Transmit
SSB	Small Signal Board
STBY	Standby
SW	Subwoofer
SWAN	Spatial Weighted Averaging Noise reduction
TXT	Teletext
TXT-DS	Teletext Dual Screen
TXT-KILL	To kill the TXT picture to insert a PIP. It has a higher priority than FBL-TXT.
uP	Microprocessor
U100	U from Feature Box
V100	V from Feature Box
VA50	Vertical Acquisition 1Fh
VBAT	Main supply for deflection (mostly 141 V)
VD100	Vertical Drive 2fh: vertical sync pulse from deflection
VDPOS	One of the symmetrical drive signals for the DC frame output stage.
VDNEG	One of the symmetrical drive signals for the DC frame output stage.
VDS	Virtual Dolby Surround
VFB	Vertical Flyback Pulse: vertical sync pulse coming from the Feature Box
VL	Variable Level out: processed audio output towards external amplifier
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
X-RAY-PROT	A protection signal for too high X-ray radiation
XTAL	Quartz crystal
Y100	Y from Feature Box
Y-OUT	Luminance-signal to HOP IC
YUV-Feat	The YUV input for the main picture, coming from the Feature box or the HIP

9.8 IC Data Sheets

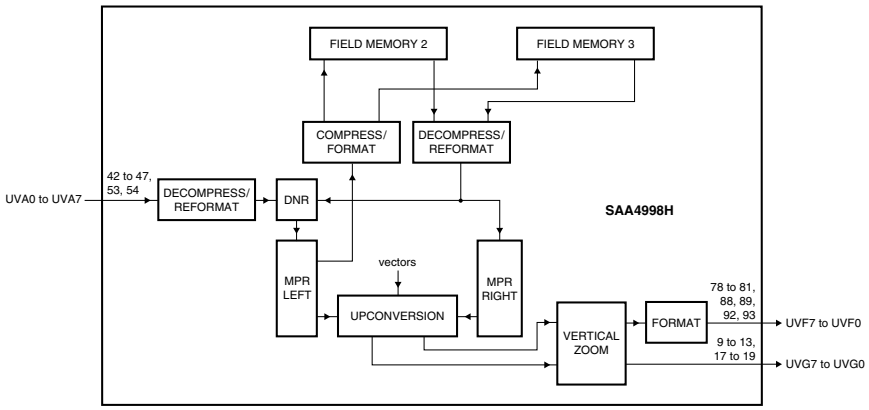
In this paragraph, the internal block diagrams and pinning are given of ICs that are drawn as a 'black box' in the electrical diagrams (with the exception of 'memory' and 'logic' ICs).

9.8.1 Diagram B3B, SAA4998 (IC7760)

Block diagram of the luminance part in full FALCONIC mode.



Block diagram of the chrominance part in full FALCONIC mode.



Pin configuration

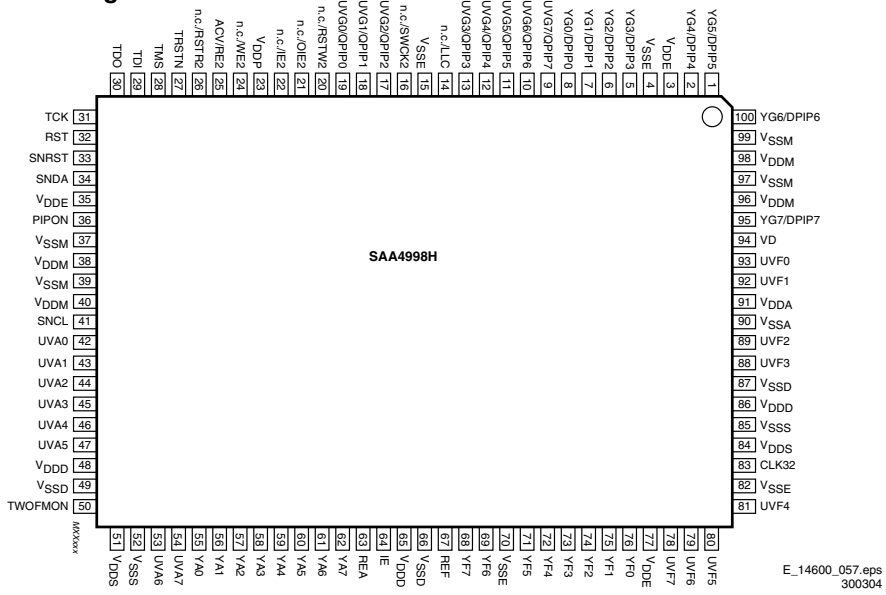


Figure 9-1 Internal Block Diagram and Pin Configuration

10. Spare Parts List

Set Level

Various

0010	3104 308 10801	Back cover assy
0020	3104 304 25722	Bracket Deg.coil
0021	3104 304 25712	Corner bracket deg.coil
0024	4822 404 31341	Coil clamp
0038	3104 304 24911	SSB bracket top
0044	3139 124 40421	Screw A02-32WSEF
0070	4822 402 11183	Mains cord holder
0290▲	3111 254 23481	Coil & clamp
1099▲	9301 899 90301	CRT W66ERF042X044
1099▲	9301 924 90314	CRT W76ERF062X044
1099▲	9301 965 70314	CRT A68ERF142X044/M
1116	3104 328 30551	Side I/O assy
1180	3104 328 12141	DC-shift assy
8190▲	4622 007 51622	Mainscord UK
8190	4622 009 50531	Mains cord EU 2m
8190▲	4822 321 11425	Mains cord EU

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5203▲	2422 549 44244	Degausing coil 47858 32"
5203▲	2422 549 44621	Degausing coil 28"
5203	3104 308 20381	Degausing coil 10019 29"
5205	3104 308 20961	Coil canceller
5205	3128 138 60661	Coil canceller

Set Level

Various

0018▲	4822 404 31363	Mains cord relief
0018▲	4822 466 11453	Mains cord block
0061▲	4822 321 11139	Mainscord EU 2m
0061▲	4822 321 11499	Mains cord EU 2m

Large Signal Panel [A]

Various

0011	3104 308 78231	Transistor cooling clip
0020	4822 492 70789	Fix transistor
0030	3104 304 23001	LSP chassisframe
0037	3104 304 24891	LOT bracket
0050	3104 304 90361	Insulating plate
0050	4822 466 93461	Insulating plate 20 X 25
0065	3104 304 22031	LOT spacer
0066	3104 304 23051	Conn. support EMGS
0067	3104 304 23061	Conn. part EMGS
0072	3104 304 24901	SSB bracket bot.
0080	4822 492 70789	Fix transistor
0086	4822 256 91879	Plastic holder
0124	3104 300 40441	PT screw K40 X 30
0125	3104 304 90361	Insulating plate
0250	3104 308 78181	Cable clamp twist lock
0262	3104 304 10722	Cable clamp
0264	3104 304 10661	Cable clamp
0265	3104 304 10661	Cable clamp
0320	4822 255 41371	Transistor clamp
0341	4822 492 63524	Transistor clamp
0395	4822 492 70789	Fix transistor
0396	4822 492 70789	Fix transistor
0505	4822 492 62076	Transistor clamp
1200	3139 147 19341	Tuner UV1318S/A I-3
1200	3139 147 19361	Tuner UV1318S/A I U-3
1205	2422 025 17242	Connector 80p f SIMM
1417	4822 265 20723	Connector 2p
1424	2422 025 11244	Connector 7p m
1491	4822 267 10973	Connector 1p
1498	2422 025 04849	Connector 2p m
1499	2422 025 04849	Connector 2p m
1501▲	4822 070 35002	Fuse 5A
1502	4822 267 10774	Connector 2p male (red)
1503▲	4822 070 12502	Fuse 2.5A
1505▲	2422 025 16374	Connector 2p m
1511	4822 265 11253	Fuse holder
1512	4822 265 11253	Fuse holder
1520	3104 301 24181	Spring for Bracket
1521	3104 301 24181	Spring for Bracket
1522	4822 255 41371	Transistor clamp
1550▲	2422 132 07411	Relay 1p 5V 5A
1590	4822 252 60151	Surge protect
1601▲	2422 086 10919	Fuse 65V 125mA
1620	4822 267 10735	Connector 3p
1625	2422 025 16382	Connector 3p m
1735	4822 267 10565	Connector 4p
1901	4822 267 10771	Socket 2 x SCART
1902	4822 267 10982	Connector 2p
1936▲	2422 025 12485	Connector 11p m
1940▲	2422 025 12485	Connector 11p m
1943	4822 267 10748	Connector 3p
1945	4822 267 10735	Connector 3p
1946▲	4822 265 41391	Connector 9p
1955	4822 267 10735	Connector 3p
8000▲	3104 311 03272	Cable 640mm EHT
8193▲	4822 320 20216	Cable focus 364 mm
8194▲	4822 320 20189	Cable 440mm HT-focus
8417▲	3104 311 04561	Cable 2P3/400/2P3
8424▲	3104 311 02991	Cable 7p/560/7p Wh
8498▲	3104 311 04531	Cable 2P/400/2P
8625▲	3104 311 03101	Cable 3p/560/3p Bk
8625▲	3104 311 03331	Cable 2p/560/2p3 Bk
8936	3104 311 05271	Cable 11p/820/11p
8940	3104 311 06611	Cable 11p/480/11p ferr.

⊣⊢

2100▲	2252 811 95021	1nF 10% 250V
2100	4822 126 13841	1nF 20% 250V
2101	4822 121 51598	2.2nF 5% 400V
2102	4822 124 40248	10µF 20% 63V
2103	2020 552 94427	100pF 5% 50V
2104	4822 123 14025	2200µF 20% 16V
2105	2020 552 94427	100pF 5% 50V
2106	4822 126 13751	47nF 10% 63V
2107	4822 121 43855	3.3nF 5% 400V
2108	4822 121 70162	10nF 5% 400V
2109	4822 126 14472	1µF 10% 10V 0805
2110	4822 126 14472	1µF 10% 10V 0805
2111	4822 121 43526	47nF 5% 250V
2112	5322 126 11583	10nF 10% 50V 0603
2114▲	2222 338 22104	100nF 20% 275V
2115	4822 124 40764	22µF 100V
2116	4822 126 13682	100pF 5% 1kV
2117	2020 558 90556	680pF 10% 1kV
2118	4822 124 80061	1000µF 20% 25V
2119	4822 123 14025	2200µF 20% 16V
2120	4822 126 11524	1.5nF 10% 1kV
2126	4822 123 14025	2200µF 20% 16V
2130	5322 126 11583	10nF 10% 50V 0603
2131	4822 126 13881	470pF 5% 50V
2140	4822 124 40248	10µF 20% 63V
2141	4822 124 40248	10µF 20% 63V
2144	4822 126 14472	1µF 10% 10V 0805
2145	4822 126 13881	470pF 5% 50V
2147	3198 017 31530	15nF 20% 50V 0603
2148	4822 126 10206	2.2nF 10% 500V
2149	4822 126 14472	1µF 10% 10V 0805
2150	5322 126 11583	10nF 10% 50V 0603
2152	4822 121 70162	10nF 5% 400V
2154	3198 017 33330	33nF 20% 16V 0603
2154	4822 126 14549	33nF 16V 0603
2200	4822 124 40248	10µF 20% 63V
2201	4822 126 13879	220nF +80-20% 16V
2202	4822 126 13473	220nF +80%/-20% 50V
2203	4822 124 80195	470µF 20% 10V
2400	2020 021 91445	47µF 20% 200V
2401	4822 121 42077	6.8nF 10% 400V
2402	2020 012 93596	22µF 20% 250V
2402	2020 012 93771	33µF 20% 250V
2402	4822 124 12373	47µF 20% 250V
2403	2238 916 15641	22nF 10% 25V 0603
2404	2238 916 15641	22nF 10% 25V 0603
2412	3198 024 44730	47nF 50V 0603
2413	4822 124 12255	10µF 20% 50V
2414	3198 024 44730	47nF 50V 0603
2415	4822 126 13883	220pF 5% 50V
2417	4822 126 14076	220nF +80/-20% 25V
2419	4822 126 14237	470pF 10% 2kV
2420	4822 121 70581	1.5nF 5% 2kV
2420	4822 121 70595	1.2nF 5% 2kV
2421	2022 333 00091	680nF 10% 250V
2421	2038 301 00312	1.2µF 5% 250V
2425	4822 121 10526	9.1nF 5% 2kV
2425	4822 121 70435	10nF 5% 2kV
2426	2222 375 90345	20nF 5% 630V
2426	4822 121 10653	22nF 5% 630V
2426	4822 121 10658	24nF 5% 630V
2430	4822 126 10206	2.2nF 10% 500V
2431	4822 126 10206	2.2nF 10% 500V
2433	2022 333 00163	360nF 5% 250V
2433	4822 121 10518	390nF 5% 250V
2433	4822 121 42634	560nF 5% 250V
2440	2022 552 05679	1µF 10% 16V 0805
2443	9965 000 09661	470pF 50V 10%
2448	5322 122 32268	470pF 5% 50V 0805 NP0
2450	5322 121 42578	100nF 5% 250V
2451	2020 012 93757	1000µF 20% 10V
2454	3198 017 31530	15nF 20% 50V 0603
2455	5322 126 11578	1nF 10% 50V 0603
2457	2020 552 96804	15nF 10% 50V 0805
2458	4822 126 14241	330pF 0603 50V
2460	4822 124 81144	1000µF 16V
2462	4822 124 80061	1000µF 20% 25V
2463	4822 122 31177	470pF 10% 500V
2464	4822 124 80061	1000µF 20% 25V
2465	4822 122 31177	470pF 10% 500V
2466	2238 586 59812	100nF 20% 50V 0603
2468	4822 122 31177	470pF 10% 500V
2480	5322 126 11582	6.8nF 10% 63V
2482	3198 017 34730	47nF 16V 0603
2483	4822 126 14238	2.2nF 50V 0603
2483	5322 126 11579	3.3nF 10% 63V
2490	9965 000 14169	100µF 10V 20%
2491	4822 124 81151	22µF 50V
2492	9965 000 14169	100µF 10V 20%
2494	2020 552 96326	220nF 10% 16V
2494	2238 780 15654	220nF 10% 16V 0805
2495	2020 552 96326	220nF 10% 16V
2495	2238 780 15654	220nF 10% 16V 0805
2497	4822 126 12105	33nF 5% 50V 0805
2499	5322 126 11579	3.3nF 10% 63V
2501	4822 126 13449	1nF 10% 2kV
2503	5322 121 42489	33nF 5% 250V
2504	2238 916 15641	22nF 10% 25V 0603
2505▲	2020 554 90173	2.2nF 20% 250V
2506	5322 121 42386	100nF 5% 63V
2507▲	2222 338 22474	470nF 20% 275V
2508▲	2222 338 23223	22nF 20% 275V
2509▲	2222 338 23223	22nF 20% 275V
2510	4822 126 13449	1nF 10% 2kV
2511	4822 124 12417	2200µF 20% 25V
2512	4822 124 12417	2200µF 20% 25V
2513	4822 126 13881	470pF 5% 50V
2514	4822 126 14238	2.2nF 50V 0603
2515	4822 124 80096	47µF 200V
2516	2020 024 90743	220µF 20% 400V
2517	4822 121 70162	10nF 5% 400V
2518	4822 122 31211	100pF 10% 500V
2519	4822 126 10206	2.2nF 10% 500V
2520▲	2222 338 22104	100nF 20% 275V
2522	4822 126 10206	2.2nF 10% 500V
2525	4822 126 14247	1.5nF 50V 0603
2528	4822 126 14472	1µF 10% 10V 0805
2530	4822 126 14472	1µF 10% 10V 0805
2531	4822 122 31177	470pF 10% 500V
2535	4822 126 13193	4.7nF 10% 63V
2537▲	2222 338 23223	22nF 20% 275V
2538	4822 122 33177	10nF 20% 50V
2540	4822 124 40248	10µF 20% 63V
2541	4822 122 31211	100pF 10% 500V
2542	4822 124 80061	1000µF 20% 25V
2543	4822 124 80061	1000µF 20% 25V
2544	4822 126 14238	2.2nF 50V 0603
2601	2238 586 59812	100nF 20% 50V 0603
2603	4822 126 13883	220pF 5% 50V
2604	4822 126 13473	220nF +80%/-20% 50V
2605	4822 126 13883	220pF 5% 50V
2620	4822 126 13473	220nF +80%/-20% 50V
2621	2238 586 59812	100nF 20% 50V 0603
2622	4822 124 40255	100µF 20% 63V
2623	4822 126 14238	2.2nF 50V 0603
2624	4822 121 51319	1µF 10% 63V
2625	4822 121 51319	1µF 10% 63V
2627	5322 124 40641	10µF 20% 100V
2628	4822 124 40255	100µF 20% 63V
2630	4822 126 14491	2.2µF 10V 0805
2631	4822 126 14491	2.2µF 10V 0805
2633	5322 126 11579	3.3nF 10% 63V
2635	2238 586 59812	100nF 20% 50V 0603
2642	4822 124 40255	100µF 20% 63V
2653	2238 586 15628	2.7nF 10% 50V 0603
2653	5322 126 11579	3.3nF 10% 63V
2656	2238 916 15641	22nF 10% 25V 0603
2657	2238 916 15641	22nF 10% 25V 0603
2659	2238 916 15641	22nF 10% 25V 0603
2660	5322 126 11578	1nF 10% 50V 0603
2702	3198 016 31020	1nF 25V 0603
2704	3198 016 31020	1nF 25V 0603
2705	4822 126 13482	470nF +80%/-20% 16V
2706	4822 126 14585	100nF 10% 0805 50V

2707	4822 126 14076	220nF +80/-20% 25V
2708	4822 126 14076	220nF +80/-20% 25V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	3198 016 31020	1nF 25V 0603
2712	2020 552 96683	220nF 10% 50V
2713	4822 126 14076	220nF +80/-20% 25V
2714	3198 017 33330	33nF 20% 16V 0603
2714	4822 126 14549	33nF 16V 0603
2715	3198 016 31020	1nF 25V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	2222 867 15339	33pF 5% 50V 0603
2719	3198 016 31020	1nF 25V 0603
2720	4822 126 14076	220nF +80/-20% 25V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2724	2020 552 96683	220nF 10% 50V
2726	3198 017 33330	33nF 20% 16V 0603
2726	4822 126 14549	33nF 16V 0603
2727	3198 016 31020	1nF 25V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2730	4822 126 14505	4.7nF 10% 2KV
2777	2020 552 96684	470nF 10% 25V 0805
2778	4822 124 41751	47µF 20% 50V
2779	2020 552 96684	470nF 10% 25V 0805
2780	2020 552 96684	470nF 10% 25V 0805
2781	2020 552 96684	470nF 10% 25V 0805
2786	2238 916 15641	22nF 10% 25V 0603
2914	4822 124 40248	10µF 20% 63V
2915	4822 124 12255	10µF 20% 50V
2917	4822 126 14585	100nF 10% 0805 50V
2929	4822 126 13879	220nF +80-20% 16V
2940	9965 000 14169	100µF 10V 20%
2941	4822 126 14585	100nF 10% 0805 50V
2942	4822 126 14585	100nF 10% 0805 50V
2943	4822 126 14585	100nF 10% 0805 50V
2944	4822 126 13879	220nF +80-20% 16V
2945	4822 126 14491	2.2µF 10V 0805
2946	4822 126 14491	2.2µF 10V 0805
2947	2020 012 93843	4.7µF 20% 50V
2948	9965 000 14169	100µF 10V 20%
2949	9965 000 14169	100µF 10V 20%
2950	5322 126 11583	10nF 10% 50V 0603
2951	5322 126 11583	10nF 10% 50V 0603
2952	5322 126 11578	1nF 10% 50V 0603
2985	4822 126 14315	390pF 5% 50V 0603
2987	5322 122 31863	330pF 5% 63V 0805
2989	5322 122 31863	330pF 5% 63V 0805
2990	5322 122 31863	330pF 5% 63V 0805
2991	5322 122 32531	100pF 5% 50V
2992	5322 122 31863	330pF 5% 63V 0805
2993	5322 122 32531	100pF 5% 50V
2994	5322 122 31863	330pF 5% 63V 0805
2995	5322 122 31863	330pF 5% 63V 0805
2996	5322 122 31863	330pF 5% 63V 0805
2997	5322 122 31863	330pF 5% 63V 0805
2998	5322 122 32531	100pF 5% 50V
2999	5322 122 32531	100pF 5% 50V

–WW–

3101	4822 053 20106	10MΩ 5% 0.25W
3101	4822 053 20225	2.2MΩ 5% 0.25W
3102	2312 915 11002	1kΩ 1% 0.5W
3103	2312 915 11002	1kΩ 1% 0.5W
3104	4822 116 52195	47Ω 5% 0.5W
3105	4822 050 11002	1kΩ 1% 0.4W
3106	4822 116 52256	2.2kΩ 5% 0.5W
3107	4822 116 52256	2.2kΩ 5% 0.5W
3108	2122 101 02083	1.5Ω 5% 0.5W
3111	4822 053 10152	1.5kΩ 5% 1W
3113	4822 116 52186	22Ω 5% 0.5W
3114	4822 116 83872	220Ω 5% 0.5W
3115	4822 116 52257	22kΩ 5% 0.5W
3116	4822 116 52257	22kΩ 5% 0.5W
3117	4822 116 52195	47Ω 5% 0.5W
3118	2122 101 02083	1.5Ω 5% 0.5W
3120	4822 051 20109	10Ω 5% 0.1W
3123	4822 051 30109	10Ω 5% 0.062W
3124	4822 116 52199	68Ω 5% 0.5W
3125	4822 116 52182	15Ω 5% 0.5W
3126	4822 050 21003	10kΩ 1% 0.6W
3127	4822 116 52289	5.6kΩ 5% 0.5W
3130	4822 051 30479	47Ω 5% 0.062W
3131	4822 051 30471	47Ω 5% 0.062W
3132	4822 051 20479	47kΩ 5% 0.1W
3133	4822 117 10834	47kΩ 1% 0.1W
3134	4822 051 30102	1kΩ 5% 0.062W
3135	4822 051 30101	100Ω 5% 0.062W
3136	4822 051 30109	10Ω 5% 0.062W
3137	4822 050 24702	4.7kΩ 1% 0.6W
3138	4822 051 20824	820kΩ 5% 0,1W
3140	4822 051 20223	22kΩ 5% 0.1W
3141	4822 116 52263	2.7kΩ 5% 0.5W
3142	4822 051 30332	3.3Ω 5% 0.062W
3143	4822 051 30101	100Ω 5% 0.062W
3144	4822 116 83883	470Ω 5% 0.5W
3150	4822 117 11373	100Ω 1% 0805
3151	4822 051 30109	10Ω 5% 0.062W
3152	4822 051 30102	1kΩ 5% 0.062W
3153	4822 051 20472	4.7kΩ 5% 0.1W
3155	4822 051 30101	100Ω 5% 0.062W
3156	5322 117 13017	100Ω 1% 0.063W 0603
3157	4822 051 30103	10kΩ 5% 0.062W
3158	2322 704 64709	47Ω 1% 0.063W 0603
3159	4822 051 30103	10kΩ 5% 0.062W
3160	4822 051 30102	1kΩ 5% 0.062W
3161▲	4822 052 10221	220Ω 5% 0.33W
3162	4822 116 83883	470Ω 5% 0.5W
3163	4822 053 20106	10MΩ 5% 0.25W
3164	4822 117 13632	100kΩ 1% 0603 0.62W
3165	4822 051 30331	330Ω 5% 0.062W
3168	4822 051 20472	4.7kΩ 5% 0.1W
3170	4822 116 52291	56kΩ 5% 0.5W
3200	4822 117 11373	100Ω 1% 0805
3201	4822 117 11373	100Ω 1% 0805
3210	4822 051 30102	1kΩ 5% 0.062W
3211	4822 051 30222	2.2kΩ 5% 0.062W
3212	4822 051 30101	100Ω 5% 0.062W
3213	4822 116 52182	15Ω 5% 0.5W
3250	4822 051 20223	22kΩ 5% 0.1W
3261	4822 117 11373	100Ω 1% 0805
3262	4822 117 11373	100Ω 1% 0805
3400▲	4822 052 11108	1Ω 5% 0.5W
3401	2120 105 93473	27Ω 5% 3W
3402	4822 053 10121	120Ω 5% 1W
3403	4822 116 52175	100Ω 5% 0.5W
3404	4822 051 30471	47Ω 5% 0.062W
3406	4822 117 11373	100Ω 1% 0805
3407	4822 051 30103	10kΩ 5% 0.062W
3409	4822 050 11002	1kΩ 1% 0.4W
3410	4822 051 20479	47kΩ 5% 0.1W
3411	2122 101 02111	39Ω 5% 0.5W
3412	4822 117 11817	1.2kΩ 1% 0.0625W
3414	4822 051 30331	330Ω 5% 0.062W
3415	3198 012 31590	15Ω 5% 3W
3417	4822 116 52176	10Ω 5% 0.5W
3418	2312 915 16803	68kΩ 1% 0.5W
3418	4822 050 25603	56kΩ 1% 0.6W
3419	4822 051 30474	470kΩ 5% 0.062W
3420	4822 051 30332	3.3Ω 5% 0.062W
3421	4822 051 30474	470kΩ 5% 0.062W
3422	4822 051 30332	3.3Ω 5% 0.062W
3423	4822 053 10688	6.8Ω 5% 1W
3425	4822 116 52176	10Ω 5% 0.5W
3426	4822 116 52176	10Ω 5% 0.5W
3427	4822 051 30334	330kΩ 5% 0.062W
3427	4822 051 30684	680kΩ 5% 0.062W
3429	3198 021 32250	2.2MΩ 5% 0603
3429	4822 051 30105	1MΩ 5% 0.062W
3431▲	2306 207 03151	150Ω 5% 0.5W
3440	4822 051 30102	1kΩ 5% 0.062W
3441	4822 051 30223	22kΩ 5% 0.062W
3442	4822 051 30474	470kΩ 5% 0.062W
3443	4822 051 30684	680kΩ 5% 0.062W
3447	4822 117 11373	100Ω 1% 0805
3449▲	4822 052 10101	100Ω 5% 0.33W
3450	4822 050 21003	10kΩ 1% 0.6W
3450	4822 116 52238	12kΩ 5% 0.5W
3451	4822 050 21003	10kΩ 1% 0.6W
3451	4822 116 52238	12kΩ 5% 0.5W
3454	4822 051 20108	1Ω 5% 0.1W
3455	5322 117 13056	8.2kΩ 1% 0.063W 0603
3456	4822 117 12903	1.8kΩ 1% 0.063W 0603
3457	4822 051 30152	1.5Ω 5% 0.062W
3458	4822 051 30471	47Ω 5% 0.062W
3459	4822 051 30272	2.7kΩ 5% 0.062W
3460▲	4822 052 10108	1Ω 5% 0.33W
3461▲	4822 052 10108	1Ω 5% 0.33W
3462▲	4822 052 11108	1Ω 5% 0.5W
3463▲	4822 052 11108	1Ω 5% 0.5W
3464▲	4822 052 11108	1Ω 5% 0.5W
3465▲	4822 052 11108	1Ω 5% 0.5W
3466	4822 051 30472	4.7Ω 5% 0.062W
3467	4822 117 13632	100kΩ 1% 0603 0.62W
3472	4822 051 30393	39kΩ 5% 0.062W
3474	4822 051 30563	56kΩ 5% 0.062W
3475	4822 051 30472	4.7Ω 5% 0.062W
3476	4822 116 83874	220kΩ 5% 0.5W
3478	4822 116 52175	100Ω 5% 0.5W
3479▲	4822 052 10478	4.7Ω 5% 0.33W
3480▲	4822 052 10478	4.7Ω 5% 0.33W
3480▲	4822 052 10688	6.8Ω 5% 0.33W
3481▲	2322 750 61001	100Ω 5% 1206
3482	4822 051 30221	220Ω 5% 0.062W
3483	4822 117 12903	1.8kΩ 1% 0.063W 0603
3485	4822 051 30471	47Ω 5% 0.062W
3486	2322 704 67502	7.5kΩ 1% 0.5W
3487	5322 117 13056	8.2kΩ 1% 0.063W 0603
3488	4822 050 21005	1MΩ 1% 0.6W
3488	4822 050 26804	680kΩ 1% 0.6W
3489	4822 051 30103	10kΩ 5% 0.062W
3490	4822 051 30332	3.3Ω 5% 0.062W
3491	4822 117 12925	47kΩ 1% 0.063W 0603
3492	4822 116 52175	100Ω 5% 0.5W
3493	4822 050 21504	150kΩ 1% 0.6W
3496	4822 051 30272	2.7kΩ 5% 0.062W
3497	4822 051 30333	33kΩ 5% 0.062W
3501	4822 116 83872	220Ω 5% 0.5W
3503	4822 050 21003	10kΩ 1% 0.6W
3504	4822 051 30222	2.2kΩ 5% 0.062W
3505	4822 116 52257	22kΩ 5% 0.5W
3506	4822 051 30562	5.6kΩ 5% 0.063W 0603
3507	4822 050 21604	160kΩ 1% 0.6W
3508	4822 116 52182	15Ω 5% 0.5W
3509▲	2122 550 00158	VDR 1mA 612V
3510	4822 117 11454	820Ω 1% 0.1W
3511	4822 053 11222	2.2kΩ 5% 2W
3512	4822 117 12891	220kΩ 1%
3513▲	2322 193 53474	470kΩ 5% 0,5W
3513	4822 116 52272	330k 5% 0.5W
3514	2322 193 53397	0.39Ω 5% 0.6W
3515	2322 193 53397	0.39Ω 5% 0.6W
3517	4822 117 10834	47kΩ 1% 0.1W
3518	4822 116 52245	150kΩ 5% 0.5W
3519	4822 051 30102	1kΩ 5% 0.062W
3520	4822 053 11223	22kΩ 5% 2W
3520	4822 053 11333	33kΩ 5% 2W
3521▲	4822 053 21475	4.7MΩ 5% 0.5W
3522	4822 117 11507	6.8kΩ 1% 0.1W
3523	4822 051 20105	1MΩ 5% 0.1W
3524	4822 051 30333	33kΩ 5% 0.062W
3525	4822 051 30479	47Ω 5% 0.062W
3526	4822 116 83303	0.1Ω 2W
3527	4822 117 11951	2kΩ 1% 0.1W
3528	4822 051 30103	10kΩ 5% 0.062W
3529	4822 051 30472	4.7Ω 5% 0.062W
3530	4822 051 30102	1kΩ 5% 0.062W
3531	4822 117 11507	6.8kΩ 1% 0.1W
3532	4822 117 12925	47kΩ 1% 0.063W 0603
3533	4822 116 52182	15Ω 5% 0.5W
3534	4822 117 12925	47kΩ 1% 0.063W 0603
3535	4822 051 30479	47Ω 5% 0.062W
3536	4822 052 10102	1kΩ 5% 0.33W
3537	4822 116 52182	15Ω 5% 0.5W
3540	4822 050 23303	33kΩ 1% 0.6W
3543	4822 050 24708	4.7Ω 1% 0.6W
3547	4822 051 30008	Jumper 0603
3549	2322 704 62204	220kΩ 1% 0.063W 0603
3550▲	2122 663 00018	4.7Ω 20%
3551	4822 116 83872	220Ω 5% 0.5W
3552	4822 051 30222	2.2kΩ 5% 0.062W
3553	4822 051 30103	10kΩ 5% 0.062W
3610	4822 051 30223	22kΩ 5% 0.062W
3611	4822 051 30222	2.2kΩ 5% 0.062W
3620	2122 101 02083	1.5Ω 5% 0.5W
3620	4822 050 21808	1.8Ω 1% 0,6W
3620	4822 116 80176	1Ω 5% 0.5W
3621	2122 101 02083	1.5Ω 5% 0.5W
3621	4822 116 80176	1Ω 5% 0.5W
3622	2122 101 02083	1.5Ω 5% 0.5W
3622	4822 050 21808	1.8Ω 1% 0,6W
3623	4822 116 52251	18kΩ 5% 0.5W
3623	4822 116 52257	22kΩ 5% 0.5W
3624▲	4822 052 10158	1.5Ω 5% 0.33W
3625	4822 116 52219	330Ω 5% 0.5W
3625	4822 116 83872	220Ω 5% 0.5W
3626	4822 116 52219	330Ω 5% 0.5W
3626	4822 116 83872	220Ω 5% 0.5W
3627	4822 051 20223	22kΩ 5% 0.1W
3630	4822 051 30333	33kΩ 5% 0.062W
3631	4822 051 30222	2.2kΩ 5% 0.062W
3632	4822 051 30393	39kΩ 5% 0.062W
3633	4822 051 30563	56kΩ 5% 0.062W
3634	4822 116 83882	39kΩ 5% 0.5W
3635	4822 116 52219	330Ω 5% 0.5W
3636	4822 051 30223	22kΩ 5% 0.062W
3637	4822 051 30103	10kΩ 5% 0.062W
3638	4822 051 30474	470kΩ 5% 0.062W
3639	4822 051 30563	56kΩ 5% 0.062W
3640	4822 051 30222	2.2kΩ 5% 0.062W
3641	4822 116 83883	470Ω 5% 0.5W
3642	4822 101 11193	47kΩ 30% 0.1W
3643	4822 051 30334	330kΩ 5% 0.062W
3644	4822 051 30221	220Ω 5% 0.062W
3645	4822 116 52245	150kΩ 5% 0.5W
3646	4822 117 12925	47kΩ 1% 0.063W 0603
3647	4822 051 20228	2.2Ω 5% 0.1W
3649	4822 051 30103	10kΩ 5% 0.062W

3653	4822 051 20223	22kΩ 5% 0.1W
3655	4822 051 30123	12kΩ 5% 0.1W
3656	4822 117 11817	1.2kΩ 1% 0.0625W
3657	4822 051 30223	22kΩ 5% 0.062W
3658	4822 051 30223	22kΩ 5% 0.062W
3659	4822 051 30222	2.2kΩ 5% 0.062W
3660	4822 051 30562	5.6kΩ 5% 0.063W 0603
3661	4822 116 52219	330Ω 5% 0.5W
3661	4822 116 83883	470Ω 5% 0.5W
3662	4822 051 30152	1.5Ω 5% 0.062W
3665	4822 051 30479	47Ω 5% 0.062W
3681	4822 116 52207	1.2kΩ 5% 0.5W
3682	4822 117 13632	100kΩ 1% 0603 0.62W
3683	4822 051 30103	10kΩ 5% 0.062W
3684	4822 051 30682	6.8Ω 5% 0.062W
3685	4822 051 30273	27kΩ 5% 0.062W
3686	4822 051 30563	56kΩ 5% 0.062W
3687	4822 116 52207	1.2kΩ 5% 0.5W
3688	4822 051 20684	680kΩ 5% 0.1W
3690	4822 051 30109	10Ω 5% 0.062W
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	2322 704 65102	5.1kΩ 1% 0603
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 117 12706	10kΩ 1% 0.063W 0603
3713	4822 116 83884	47kΩ 5% 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	2322 704 65102	5.1kΩ 1% 0603
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
3745	4822 051 30102	1kΩ 5% 0.062W
3746	4822 051 30223	22kΩ 5% 0.062W
3748	4822 051 30008	Jumper 0603
3749	4822 116 83883	470Ω 5% 0.5W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3760	4822 117 12891	220kΩ 1%
3790	4822 051 30272	2.7kΩ 5% 0.062W
3791	4822 051 30272	2.7kΩ 5% 0.062W
3792	4822 051 30103	10kΩ 5% 0.062W
3793	4822 051 30103	10kΩ 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3903	4822 051 20561	560Ω 5% 0.1W
3904⚠	4822 052 10688	6.8Ω 5% 0.33W
3907	4822 051 20479	47kΩ 5% 0.1W
3910	4822 117 12521	68Ω 1% 0.1W
3928	4822 051 30008	Jumper 0603
3938	4822 117 11373	100Ω 1% 0805
3939	4822 051 30103	10kΩ 5% 0.062W
3940	4822 051 20561	560Ω 5% 0.1W
3941⚠	4822 052 10688	6.8Ω 5% 0.33W
3942	4822 117 11373	100Ω 1% 0805
3943	4822 051 30103	10kΩ 5% 0.062W
3945	4822 117 12955	2.7kΩ 1% 0.1W 0805
3959	4822 117 10353	150Ω 1% 0.1W
3960	4822 117 10353	150Ω 1% 0.1W
3961	4822 117 10353	150Ω 1% 0.1W
3962	4822 117 10353	150Ω 1% 0.1W
3965	4822 117 10353	150Ω 1% 0.1W
3966	4822 117 10353	150Ω 1% 0.1W
3967	4822 116 52201	75Ω 5% 0.5W
3968	4822 116 52201	75Ω 5% 0.5W
3969	4822 051 20008	Jumper 0805
3970	4822 051 20008	Jumper 0805
3971	4822 116 52201	75Ω 5% 0.5W
3972	2122 101 02073	82Ω 5% 0.5W
3973	4822 116 52201	75Ω 5% 0.5W
3974	4822 116 52201	75Ω 5% 0.5W
3975	4822 116 52201	75Ω 5% 0.5W
3976	4822 117 11373	100Ω 1% 0805
3977	4822 117 11373	100Ω 1% 0805
3978	4822 117 11373	100Ω 1% 0805
3979	4822 116 52201	75Ω 5% 0.5W
3980	4822 117 11373	100Ω 1% 0805
3981	4822 051 20822	8.2kΩ 5% 0.1W
3982	4822 051 20392	2.9kΩ 5% 0.1W
3983	4822 116 52175	100Ω 5% 0.5W
3984	4822 051 20822	8.2kΩ 5% 0.1W
3985	4822 116 52201	75Ω 5% 0.5W
3986	4822 116 52276	3.9Ω 5% 0.5W
3987	4822 116 52175	100Ω 5% 0.5W
3988	4822 051 10102	1kΩ 2% 0.25W
3989	4822 050 11002	1kΩ 1% 0.4W
3990	4822 117 10353	150Ω 1% 0.1W
3991	4822 117 10353	150Ω 1% 0.1W
3992	4822 117 10353	150Ω 1% 0.1W
3993	4822 116 83868	150Ω 5% 0.5W
3994	4822 051 10102	1kΩ 2% 0.25W
3995	4822 051 10102	1kΩ 2% 0.25W
3996	4822 117 10353	150Ω 1% 0.1W
3997	4822 117 10353	150Ω 1% 0.1W
9101	3198 036 90010	Wire 0.58mm
9102	3198 036 90010	Wire 0.58mm
9103	4822 051 20008	Jumper 0805
9105	4822 051 20008	Jumper 0805
9107	4822 051 30008	Jumper 0603
9108	4822 051 30008	Jumper 0603
9128	4822 051 30008	Jumper 0603
9200	4822 051 20008	Jumper 0805
9202	4822 051 30008	Jumper 0603
9203	4822 051 30008	Jumper 0603
9204	4822 051 30008	Jumper 0603
9207	4822 051 30008	Jumper 0603
9208	4822 051 20008	Jumper 0805
9209	4822 051 20008	Jumper 0805
9210	4822 051 30008	Jumper 0603
9211	4822 051 30008	Jumper 0603
9212	4822 051 20008	Jumper 0805
9214	4822 051 20008	Jumper 0805
9215	4822 051 20008	Jumper 0805
9216	4822 051 20008	Jumper 0805
9217	4822 051 20008	Jumper 0805
9218	4822 051 20008	Jumper 0805
9219	4822 051 20008	Jumper 0805
9221	4822 051 20008	Jumper 0805
9222	4822 051 20008	Jumper 0805
9251	4822 051 30008	Jumper 0603
9260	3198 036 90010	Wire 0.58mm
9261	4822 051 20008	Jumper 0805
9262	4822 051 20008	Jumper 0805
9263	4822 051 20008	Jumper 0805
9264	4822 051 20008	Jumper 0805
9418	4822 051 20008	Jumper 0805
9421	4822 051 20008	Jumper 0805
9422	4822 051 30008	Jumper 0603
9424	4822 051 30008	Jumper 0603
9427	4822 051 30008	Jumper 0603
9428	4822 051 30008	Jumper 0603
9429	4822 051 30008	Jumper 0603
9430	4822 051 30008	Jumper 0603
9431	4822 051 30008	Jumper 0603
9432	4822 051 30008	Jumper 0603
9433	4822 051 30008	Jumper 0603
9434	4822 051 30008	Jumper 0603
9435	4822 051 30008	Jumper 0603
9436	4822 051 30008	Jumper 0603
9437	4822 051 30008	Jumper 0603
9438	4822 051 30008	Jumper 0603
9440	4822 051 30008	Jumper 0603
9441	4822 051 30008	Jumper 0603
9443	4822 051 30008	Jumper 0603
9481	4822 051 30008	Jumper 0603
9483	4822 051 30008	Jumper 0603
9499	4822 051 30008	Jumper 0603
9505	4822 051 20008	Jumper 0805
9560	4822 051 30008	Jumper 0603
9561	4822 051 20008	Jumper 0805
9621	4822 051 30008	Jumper 0603
9624	4822 051 30008	Jumper 0603
9676	4822 051 30008	Jumper 0603
9677	4822 051 20008	Jumper 0805
9702	4822 051 30008	Jumper 0603
9703	3198 036 90010	Wire 0.58mm
9704	4822 051 20008	Jumper 0805
9705	4822 051 20008	Jumper 0805
9706	4822 051 30471	47Ω 5% 0.062W
9707	4822 051 30008	Jumper 0603
9713	4822 051 30008	Jumper 0603
9714	4822 051 20008	Jumper 0805
9716	4822 051 20008	Jumper 0805
9717	4822 051 30008	Jumper 0603
9908	4822 051 30008	Jumper 0603
9927	4822 051 20008	Jumper 0805
9928	4822 051 20008	Jumper 0805
9929	3198 036 90010	Wire 0.58mm
9960	4822 051 30008	Jumper 0603
9961	3198 036 90010	Wire 0.58mm
9962	4822 051 30008	Jumper 0603
9966	4822 051 30008	Jumper 0603
9979	4822 051 20008	Jumper 0805
9981	4822 051 20008	Jumper 0805
9985	4822 051 30008	Jumper 0603
9986	4822 051 20008	Jumper 0805
9987	4822 051 20008	Jumper 0805
9988	4822 051 20008	Jumper 0805
9989	4822 051 20008	Jumper 0805
9990	4822 051 20008	Jumper 0805
9991	4822 051 20008	Jumper 0805
9992	4822 051 20008	Jumper 0805
9993	4822 051 20008	Jumper 0805
9994	4822 051 20008	Jumper 0805
9996	3198 036 90010	Wire 0.58mm
9997	4822 051 20008	Jumper 0805

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5100⚠	3104 308 20431	Transf. BS25126-03
5102	2422 535 94639	10µH 20%
5103	4822 526 10704	Bead 50 Ω at 100MHz
5104	4822 157 11411	Bead 80Ω at 100MHz
5105	2422 535 94632	1µH 30%
5106	4822 526 10704	Bead 50 Ω at 100MHz
5111	4822 157 11411	Bead 80Ω at 100MHz
5113	4822 157 11411	Bead 80Ω at 100MHz
5113	4822 526 10704	Bead 50 Ω at 100MHz
5130	4822 157 11411	Bead 80Ω at 100MHz
5400	4822 157 11869	33µH 10%
5401	2422 536 00059	12µH 10%
5402	3198 018 21510	150µH 10%
5410⚠	3128 138 39091	Transformer CE165T
5411	4822 157 71097	0.56µH 10%
5421	3104 308 20591	Linearity coil 32"
5421	3104 308 20611	Linearity coil 5µH 30"
5421	3128 138 56152	Linearity coil (28")
5422	3104 308 20671	Bridge coil BC21215-01
5422	3104 308 20752	Bridge coil BC21237-0
5423	4822 157 71097	0.56µH 10%
5425	4822 157 11411	Bead 80Ω at 100MHz
5426	4822 157 70826	2.4µH
5430⚠	3104 308 20491	LOT 1392.9014A
5430⚠	3104 308 20941	LOT 1392.3001B
5461	4822 157 11411	Bead 80Ω at 100MHz
5463	4822 157 11411	Bead 80Ω at 100MHz
5465	4822 157 11411	Bead 80Ω at 100MHz
5467	4822 157 11411	Bead 80Ω at 100MHz
5469	4822 157 11411	Bead 80Ω at 100MHz
5503⚠	2422 549 44877	Filter 45mH DMF2845H
5505	4822 157 11411	Bead 80Ω at 100MHz
5506⚠	2422 531 02501	Transf. S30940-04
5507	4822 157 11411	Bead 80Ω at 100MHz
5509	4822 157 11411	Bead 80Ω at 100MHz
5511	3104 308 20511	Filter mains 40mH
5513	4822 157 11869	33µH 10%
5514	4822 157 11869	33µH 10%
5515	4822 157 11869	33µH 10%
5620	4822 157 11771	0.09µH 10%
5621⚠	3104 308 20571	Transf. S13974-03
5701	2422 536 00385	68µH 10%
5702	2422 536 00385	68µH 10%
5703	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
5901	4822 157 11299	10µH 5%
5902	4822 157 11869	33µH 10%
5903	4822 157 10359	33µH
5904	4822 157 11411	Bead 80Ω at 100MHz

⊣⊳⊢

6080	4822 130 11397	BAS316
6082	4822 130 80622	BAT54
6084	4822 130 11522	UDZ15B
6100	9340 548 69115	PDZ27B
6103	4822 130 41601	BYV95A
6105	4822 130 34281	BZX79-B15
6106	3198 010 52290	BZX79-B22
6108	4822 130 11528	1PS76SB10
6109	4822 130 31083	BYW55
6110	9340 418 70133	BYV27-600
6111	9322 161 78682	SB360L-7024
6112	4822 130 11551	UDZS10B
6115	4822 130 11397	BAS316
6115	4822 130 11528	1PS76SB10
6120	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6122	3198 010 53980	BZX79-B3V9
6123	9340 548 71115	PDZ33B
6124	9340 548 71115	PDZ33B
6125	9340 548 71115	PDZ33B
6130	4822 130 11596	BYW29EX-200
6132	9322 171 80685	BZX384-B6V8
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316

6141	4822 130 11522	UDZ15B
6142	4822 130 11528	1PS76SB10
6144	4822 130 11397	BAS316
6147	4822 130 34278	BZX79-B6V8
6148	5322 130 31938	BYV27-200
6149	4822 130 11397	BAS316
6200	9340 548 71115	PDZ33B
6201	4822 130 11397	BAS316
6202	4822 130 11397	BAS316
6400	4822 130 70055	BYV27-400
6405	4822 130 34383	BZX79-B47
6406	4822 130 11397	BAS316
6407	4822 130 11397	BAS316
6408	4822 130 41601	BYV95A
6421	4822 130 10753	BY359X-1500
6422	4822 130 10218	BY229X-800
6442	4822 130 11522	UDZ15B
6455	4822 130 11397	BAS316
6456	5322 130 34337	BAV99
6457	9322 102 64685	UDZ2.7B
6458	3198 020 55680	BZX384-C5V6
6460	4822 130 41487	BYV95C
6462	9322 192 67682	BYW76-PK1
6464	9322 192 67682	BYW76-PK1
6465	3139 120 52021	BYV29X-500
6480	4822 130 41601	BYV95A
6481	4822 130 11522	UDZ15B
6482	4822 130 11397	BAS316
6483	4822 130 80622	BAT54
6493	4822 130 80622	BAT54
6505	4822 130 34281	BZX79-B15
6506	4822 130 80622	BAT54
6509	4822 130 11397	BAS316
6510	4822 130 61219	BZX79-B10
6511	4822 130 11397	BAS316
6512	4822 130 11397	BAS316
6514	5322 130 31932	BZT03-C200
6515	4822 130 33657	BZV85-C6V8
6516	4822 130 11397	BAS316
6517	4822 130 80622	BAT54
6525▲	3198 010 10640	Bridge cell GBU4K
6530	4822 130 41487	BYV95C
6534	9322 165 72687	DTV1500MFP
6535	4822 130 11572	STPS8H100F
6536	4822 130 11572	STPS8H100F
6537	4822 130 11397	BAS316
6614	4822 130 11528	1PS76SB10
6615	4822 130 11397	BAS316
6616	4822 130 11397	BAS316
6617	4822 130 11397	BAS316
6618	4822 130 11397	BAS316
6619	4822 130 41601	BYV95A
6620	4822 130 10871	SBYV27-200
6621	4822 130 41601	BYV95A
6622	5322 130 32296	BZV85-C10
6623	4822 130 11397	BAS316
6624	4822 130 11397	BAS316
6625	4822 130 11397	BAS316
6626	4822 130 11397	BAS316
6627	4822 130 11397	BAS316
6701	4822 130 11397	BAS316
6745	4822 130 11551	UDZS10B
6950	4822 130 11416	PDZ6.8B
6951	4822 130 11416	PDZ6.8B
6953	4822 130 11416	PDZ6.8B
6954	4822 130 11416	PDZ6.8B
6955	4822 130 11416	PDZ6.8B
6956	4822 130 11416	PDZ6.8B
6957	4822 130 11416	PDZ6.8B
6958	4822 130 11416	PDZ6.8B
6959	4822 130 11416	PDZ6.8B
6960	9340 548 61115	PDZ12B
6961	4822 130 11416	PDZ6.8B
6962	4822 130 11416	PDZ6.8B

7100	4822 130 44568	BC557B
7101	4822 130 40981	BC337-25
7102	4822 130 11417	STP3NB60FP
7103▲	9322 149 04682	TCET1102
7130	5322 130 60159	BC846B
7131	4822 130 11336	STP16NE06FP
7132	5322 130 60159	BC846B
7133	4822 130 60373	BC856B
7140	5322 130 60159	BC846B
7141	4822 130 11336	STP16NE06FP
7210	5322 130 60159	BC846B
7211	4822 130 42804	BC817-25
7408	5322 130 44647	BC368
7409	5322 130 60159	BC846B
7421	9340 210 30127	BU2520DX
7440	4822 209 70672	LM358N SEL.
7441	4822 130 60373	BC856B
7442	4822 130 60373	BC856B
7443	5322 130 60159	BC846B
7445	5322 130 60159	BC846B
7450	5322 209 61472	LM393M
7450	5322 209 70225	LM393D
7455	4822 209 73852	PMBT2369
7480	4822 130 11417	STP3NB60FP
7482▲	4822 130 11418	TCDT1102G
7486	5322 130 60159	BC846B
7487	5322 130 60159	BC846B
7501	5322 130 60159	BC846B
7502	4822 130 40959	BC547B
7504	9322 194 28687	STP5NK40ZFP
7506	4822 209 14933	TL431IZ
7507▲	9322 149 04682	TCET1102
7528	4822 130 40981	BC337-25
7529	4822 130 44461	BC546B
7530	5322 130 60159	BC846B
7611	5322 130 60159	BC846B
7612	5322 130 60159	BC846B
7613	4822 209 14933	TL431IZ
7614	5322 130 60159	BC846B
7620	4822 209 90009	TDA8177
7641	5322 130 60159	BC846B
7653	5322 130 60159	BC846B
7654	4822 130 60373	BC856B
7680	4822 209 60956	TDA7052/N2
7681	5322 130 60159	BC846B
7682	5322 130 44647	BC368
7700	9322 163 86682	TDA7490L
7701	5322 130 60159	BC846B
7703	5322 130 60159	BC846B
7704	5322 130 60159	BC846B
7705	5322 130 60159	BC846B
7706	4822 130 60373	BC856B
7707	5322 130 60159	BC846B
7902	5322 130 60159	BC846B
7908	5322 130 60159	BC846B
7910	9322 166 03682	LD1085V36
7911	4822 209 72042	L78L05ACZ

Small Signal Board [B]

Various

0072	3104 301 24191	Frame SSB A-side
0073	3104 301 24211	Cover SSB A-side
0074	3104 301 24221	Cover SSB Z-side
0075	3104 301 24201	Frame SSB Z-side
1001	2422 543 89022	Xtal 6MHz 20p
1301	2422 540 98456	Resonator 12MHz
1305	2422 543 01184	Xtal 4.433619MHz 20p
1308	2422 543 01183	Xtal 3.579545MHz 16p
1402	2422 025 16966	Connector 5p m SMD
1403▲	2422 086 11092	Fuse 500mA 50V F SMD
1407	2422 549 44324	Filt. 5.5/5.74MHz
1408	2422 549 44372	SAW 38.9MHz K3953L
1409	2422 549 44369	SAW 38.9MHz K9656L
1651	2422 543 89019	Xtal 18.432MHz 12p
1680	2422 025 16961	Connector 6p m SMD
1702	2422 540 98456	Resonator 12MHz
8402▲	3104 311 06411	Cable assy + ferr.
8680▲	3104 311 06421	Cable assy + ferr.

2001	2222 867 15339	33pF 5% 50V 0603
2002	4822 126 11669	27pF 5% 50V 0603
2003	4822 126 13879	220nF +80-20% 16V
2004	4822 126 13879	220nF +80-20% 16V
2005	2238 586 59812	100nF 20% 50V 0603
2006	2238 586 59812	100nF 20% 50V 0603
2007	2238 586 59812	100nF 20% 50V 0603
2008	2238 586 59812	100nF 20% 50V 0603
2010	4822 126 11785	47pF 5% 50V 0603
2011	4822 126 11785	47pF 5% 50V 0603
2012	4822 126 11785	47pF 5% 50V 0603
2013	4822 124 12095	100µF 20% 16V
2016	4822 124 12095	100µF 20% 16V
2017	2238 586 59812	100nF 20% 50V 0603
2019	2238 586 59812	100nF 20% 50V 0603
2020	4822 126 13883	220pF 5% 50V
2022	2238 586 59812	100nF 20% 50V 0603
2023	2238 586 59812	100nF 20% 50V 0603
2024	2238 586 59812	100nF 20% 50V 0603
2025	2238 586 59812	100nF 20% 50V 0603
2026	2238 586 59812	100nF 20% 50V 0603
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2238 586 59812	100nF 20% 50V 0603
2031	2238 586 59812	100nF 20% 50V 0603
2033	4822 126 14226	82pF 5% 50V 0603
2034	4822 126 14226	82pF 5% 50V 0603
2035	4822 126 14226	82pF 5% 50V 0603
2036	4822 126 14226	82pF 5% 50V 0603
2037	4822 126 14226	82pF 5% 50V 0603
2038	2238 586 59812	100nF 20% 50V 0603
2039	2238 586 59812	100nF 20% 50V 0603
2040	2238 586 59812	100nF 20% 50V 0603
2302	2238 586 59812	100nF 20% 50V 0603
2303	2022 552 05679	1µF 10% 16V 0805
2304	4822 122 33741	10pF 10% 50V
2305	2238 586 59812	100nF 20% 50V 0603
2306	4822 126 13881	470pF 5% 50V
2307	2238 586 59812	100nF 20% 50V 0603
2308	4822 122 33741	10pF 10% 50V
2312	2020 552 96659	33µF 5% 50V 1206
2313	2020 552 96685	100nF 5% 25V 1206
2314	4822 124 12095	100µF 20% 16V
2315	2238 586 59812	100nF 20% 50V 0603
2316	2238 586 59812	100nF 20% 50V 0603
2317	2022 552 05679	1µF 10% 16V 0805
2318	2238 916 15641	22nF 10% 25V 0603
2319	4822 126 14247	1.5nF 50V 0603
2320	4822 122 33741	10pF 10% 50V
2321	2238 586 59812	100nF 20% 50V 0603
2322	2238 586 59812	100nF 20% 50V 0603
2323	2238 586 59812	100nF 20% 50V 0603
2324	5322 126 11583	10nF 10% 50V 0603
2325	2238 586 59812	100nF 20% 50V 0603
2326	5322 126 11583	10nF 10% 50V 0603
2327	4822 051 30759	75Ω 5% 0.062W
2328	4822 122 33761	22pF 5% 50V
2329	2238 586 59812	100nF 20% 50V 0603
2330	2238 586 59812	100nF 20% 50V 0603
2331	2238 586 59812	100nF 20% 50V 0603
2332	2238 586 59812	100nF 20% 50V 0603
2333	4822 126 14491	2.2µF 10V 0805
2334	4822 126 14491	2.2µF 10V 0805
2336	4822 126 14491	2.2µF 10V 0805
2338	2238 586 59812	100nF 20% 50V 0603
2340	4822 124 12095	100µF 20% 16V
2350	2238 586 59812	100nF 20% 50V 0603
2351	2238 586 59812	100nF 20% 50V 0603
2352	2238 586 59812	100nF 20% 50V 0603
2353	2238 586 59812	100nF 20% 50V 0603
2354	2238 586 59812	100nF 20% 50V 0603
2355	4822 051 30759	75Ω 5% 0.062W
2356	2238 586 59812	100nF 20% 50V 0603
2357	2238 586 59812	100nF 20% 50V 0603
2358	5322 126 11579	3.3nF 10% 63V
2359	4822 122 33752	15pF 5% 50V
2360	3198 016 31280	1.2pF 0.25pF 50V 0603
2361	3198 016 31280	1.2pF 0.25pF 50V 0603
2362	4822 126 11663	12pF 5% 50V 0603
2363	4822 126 13881	470pF 5% 50V
2364	4822 051 30759	75Ω 5% 0.062W
2365	2238 586 59812	100nF 20% 50V 0603
2366	2238 586 59812	100nF 20% 50V 0603
2367	2238 586 59812	100nF 20% 50V 0603
2368	2238 586 59812	100nF 20% 50V 0603
2369	2238 586 59812	100nF 20% 50V 0603
2370	2238 586 59812	100nF 20% 50V 0603
2371	4822 126 13193	4.7nF 10% 63V
2372	4822 126 14043	1µF +80-20% 16V 0805
2373	2238 586 59812	100nF 20% 50V 0603
2374	4822 126 14491	2.2µF 10V 0805
2375	2238 916 15641	22nF 10% 25V 0603
2376	2238 586 59812	100nF 20% 50V 0603
2377	4822 124 12095	100µF 20% 16V
2378	2238 586 59812	100nF 20% 50V 0603
2383	4822 051 30759	75Ω 5% 0.062W
2384	2238 586 59812	100nF 20% 50V 0603
2385	2238 586 59812	100nF 20% 50V 0603
2386	4822 126 13883	220pF 5% 50V
2390	2238 586 59812	100nF 20% 50V 0603
2391	2238 586 59812	100nF 20% 50V 0603
2392	4822 126 13193	4.7nF 10% 63V
2394	4822 126 14491	2.2µF 10V 0805
2404	2022 552 05615	2.2µF 10% 6.3V 0805
2404	2022 552 05679	1µF 10% 16V 0805
2405	4822 126 13193	4.7nF 10% 63V
2406	4822 126 13883	220pF 5% 50V
2407	4822 126 14221	68pF 5% 50V NP0 0603
2408	3198 016 32780	2.7pF 10% 50V 0603
2409	4822 126 14491	2.2µF 10V 0805
2411	2238 586 59812	100nF 20% 50V 0603
2412	4822 126 13193	4.7nF 10% 63V
2417	3198 017 44740	470nF 10V 0603
2418	4822 126 13956	6.8pF 5% 63V 0603
2420	3198 016 31510	150pF 10% 50V 0603
2420	4822 122 33753	150pF 5% NP0 50V
2422	2238 586 59812	100nF 20% 50V 0603
2424	2238 586 59812	100nF 20% 50V 0603

2425	4822 124 12095	100µF 20% 16V
2431	2238 586 59812	100nF 20% 50V 0603
2501	4822 126 11785	47pF 5% 50V 0603
2502	2022 552 05679	1µF 10% 16V 0805
2502	4822 126 14107	330nF +-80/-20% 25V
2503	2022 552 05679	1µF 10% 16V 0805
2503	4822 126 14107	330nF +-80/-20% 25V
2504	2022 552 05679	1µF 10% 16V 0805
2504	4822 126 14107	330nF +-80/-20% 25V
2505	2022 552 05679	1µF 10% 16V 0805
2505	4822 126 14107	330nF +-80/-20% 25V
2506	2022 552 05679	1µF 10% 16V 0805
2506	4822 126 14107	330nF +-80/-20% 25V
2507	2022 552 05679	1µF 10% 16V 0805
2507	4822 126 14107	330nF +-80/-20% 25V
2508	4822 124 12095	100µF 20% 16V
2510	2022 552 05679	1µF 10% 16V 0805
2511	2022 552 05679	1µF 10% 16V 0805
2512	4822 126 13879	220nF +80-20% 16V
2513	4822 124 12084	1µF 20% 50V
2515	2020 552 94427	100pF 5% 50V
2516	2020 552 96221	10µF 20% 6.3V 0805
2520	2238 586 59812	100nF 20% 50V 0603
2521	2238 586 59812	100nF 20% 50V 0603
2522	4822 126 13881	470pF 5% 50V
2523	3198 016 31020	1nF 25V 0603
2524	2238 586 59812	100nF 20% 50V 0603
2525	4822 126 13881	470pF 5% 50V
2526	3198 016 31020	1nF 25V 0603
2528	4822 126 14585	100nF 10% 0805 50V
2529	4822 126 14472	1µF 10% 10V 0805
2530	4822 126 14472	1µF 10% 10V 0805
2546	4822 124 23002	10µF 16V
2547	4822 124 23002	10µF 16V
2548	4822 124 23002	10µF 16V
2549	4822 124 23002	10µF 16V
2550	2020 552 94427	100pF 5% 50V
2552	4822 126 13881	470pF 5% 50V
2553	4822 126 13881	470pF 5% 50V
2554	4822 126 13881	470pF 5% 50V
2555	4822 126 13881	470pF 5% 50V
2562	3198 016 31020	1nF 25V 0603
2563	3198 016 31020	1nF 25V 0603
2564	3198 016 31020	1nF 25V 0603
2565	3198 016 31020	1nF 25V 0603
2566	3198 016 31020	1nF 25V 0603
2567	3198 016 31020	1nF 25V 0603
2568	3198 016 31020	1nF 25V 0603
2569	3198 016 31020	1nF 25V 0603
2570	3198 016 31020	1nF 25V 0603
2571	2020 552 94427	100pF 5% 50V
2571	4822 051 30759	75Ω 5% 0.062W
2574	3198 016 31020	1nF 25V 0603
2575	3198 016 31020	1nF 25V 0603
2576	3198 016 31020	1nF 25V 0603
2577	3198 016 31020	1nF 25V 0603
2578	2020 552 94427	100pF 5% 50V
2579	2020 552 94427	100pF 5% 50V
2580	3198 016 31020	1nF 25V 0603
2581	3198 016 31020	1nF 25V 0603
2582	3198 016 31020	1nF 25V 0603
2583	3198 016 31020	1nF 25V 0603
2593	3198 016 31020	1nF 25V 0603
2594	3198 016 31020	1nF 25V 0603
2595	3198 016 31020	1nF 25V 0603
2609	3198 016 31020	1nF 25V 0603
2610	4822 126 14238	2.2nF 50V 0603
2611	3198 016 31020	1nF 25V 0603
2634	3198 016 31020	1nF 25V 0603
2640	4822 126 13879	220nF +80-20% 16V
2643	2022 552 05679	1µF 10% 16V 0805
2643	4822 126 14107	330nF +-80/-20% 25V
2644	3198 016 31020	1nF 25V 0603
2645	2022 552 05679	1µF 10% 16V 0805
2645	4822 126 14107	330nF +-80/-20% 25V
2646	4822 126 14491	2.2µF 10V 0805
2649	4822 126 14491	2.2µF 10V 0805
2651	2238 586 59812	100nF 20% 50V 0603
2652	4822 126 11785	47pF 5% 50V 0603
2653	2022 552 05679	1µF 10% 16V 0805
2653	4822 126 14107	330nF +-80/-20% 25V
2654	4822 126 13881	470pF 5% 50V
2659	4822 126 13881	470pF 5% 50V
2660	4822 126 13881	470pF 5% 50V
2661	2022 552 05679	1µF 10% 16V 0805
2661	4822 126 14107	330nF +-80/-20% 25V
2662	2022 552 05679	1µF 10% 16V 0805
2662	4822 126 14107	330nF +-80/-20% 25V
2663	4822 126 13881	470pF 5% 50V
2664	4822 126 13881	470pF 5% 50V
2665	4822 124 12095	100µF 20% 16V
2666	4822 124 12095	100µF 20% 16V
2667	3198 016 33380	3.3pF 50V 0603
2668	3198 016 33380	3.3pF 50V 0603
2670	2238 586 59812	100nF 20% 50V 0603
2673	3198 016 31020	1nF 25V 0603
2674	3198 016 31020	1nF 25V 0603
2677	4822 124 23002	10µF 16V
2678	4822 124 23002	10µF 16V
2679	2238 586 59812	100nF 20% 50V 0603
2680	4822 124 23002	10µF 16V
2681	2238 586 59812	100nF 20% 50V 0603
2682	4822 124 23002	10µF 16V
2686	3198 016 31020	1nF 25V 0603
2687	3198 016 31020	1nF 25V 0603
2690	2238 586 59812	100nF 20% 50V 0603
2693	4822 126 13883	220pF 5% 50V
2694	3198 016 31020	1nF 25V 0603
2695	4822 124 12095	100µF 20% 16V
2701	4822 126 11663	12pF 5% 50V 0603
2704	4822 126 11663	12pF 5% 50V 0603
2707	4822 126 11663	12pF 5% 50V 0603
2709	4822 126 13879	220nF +80-20% 16V
2710	4822 126 13879	220nF +80-20% 16V
2711	2238 586 59812	100nF 20% 50V 0603
2712	2238 586 59812	100nF 20% 50V 0603
2713	4822 122 33761	22pF 5% 50V
2714	4822 122 33761	22pF 5% 50V
2715	2238 586 59812	100nF 20% 50V 0603
2716	2238 586 59812	100nF 20% 50V 0603
2717	4822 126 11663	12pF 5% 50V 0603
2718	4822 122 33752	15pF 5% 50V
2719	4822 122 33752	15pF 5% 50V
2720	4822 122 33752	15pF 5% 50V
2721	2020 552 94427	100pF 5% 50V
2722	2020 552 94427	100pF 5% 50V
2723	2020 552 94427	100pF 5% 50V
2724	2020 552 94427	100pF 5% 50V
2725	4822 126 11663	12pF 5% 50V 0603
2726	4822 126 11669	27pF 5% 50V 0603
2727	4822 126 11663	12pF 5% 50V 0603
2728	2020 021 91554	10µF 20% 16V
2729	2238 586 59812	100nF 20% 50V 0603
2730	2020 021 91557	100µF 20% 16V
2731	4822 126 13879	220nF +80-20% 16V
2732	4822 126 13879	220nF +80-20% 16V
2733	4822 126 13879	220nF +80-20% 16V
2734	4822 126 13879	220nF +80-20% 16V
2735	4822 126 13879	220nF +80-20% 16V
2736	4822 126 11669	27pF 5% 50V 0603
2737	4822 126 11663	12pF 5% 50V 0603
2738	4822 126 11663	12pF 5% 50V 0603
2739	4822 126 11669	27pF 5% 50V 0603
2740	2238 916 15641	22nF 10% 25V 0603
2741	2238 916 15641	22nF 10% 25V 0603
2742	2238 916 15641	22nF 10% 25V 0603
2743	2238 586 59812	100nF 20% 50V 0603
2744	2238 586 59812	100nF 20% 50V 0603
2745	2238 586 59812	100nF 20% 50V 0603
2746	2238 586 59812	100nF 20% 50V 0603
2747	4822 126 13879	220nF +80-20% 16V
2748	2238 586 59812	100nF 20% 50V 0603
2749	2020 021 91554	10µF 20% 16V
2750	2238 586 59812	100nF 20% 50V 0603
2751	2238 586 59812	100nF 20% 50V 0603
2752	2238 586 59812	100nF 20% 50V 0603
2753	2238 586 59812	100nF 20% 50V 0603
2754	4822 126 13879	220nF +80-20% 16V
2755	2238 586 59812	100nF 20% 50V 0603
2756	2238 586 59812	100nF 20% 50V 0603
2757	2238 916 15641	22nF 10% 25V 0603
2760	2238 586 59812	100nF 20% 50V 0603
2761	2238 586 59812	100nF 20% 50V 0603
2762	2238 586 59812	100nF 20% 50V 0603
2763	2238 586 59812	100nF 20% 50V 0603
2764	2238 586 59812	100nF 20% 50V 0603
2765	2238 586 59812	100nF 20% 50V 0603
2766	2238 586 59812	100nF 20% 50V 0603
2767	2238 586 59812	100nF 20% 50V 0603
2768	2238 586 59812	100nF 20% 50V 0603
2769	2238 586 59812	100nF 20% 50V 0603
2770	2020 021 91554	10µF 20% 16V
2771	2238 586 59812	100nF 20% 50V 0603
2772	2020 021 91557	100µF 20% 16V
2773	2238 586 59812	100nF 20% 50V 0603
2774	4822 126 13879	220nF +80-20% 16V
2775	2238 586 59812	100nF 20% 50V 0603
2776	2238 586 59812	100nF 20% 50V 0603
2777	2238 586 59812	100nF 20% 50V 0603
2778	2238 586 59812	100nF 20% 50V 0603
2779	2238 586 59812	100nF 20% 50V 0603
2780	2238 586 59812	100nF 20% 50V 0603
2781	2238 586 59812	100nF 20% 50V 0603
2782	2238 586 59812	100nF 20% 50V 0603
2783	2238 586 59812	100nF 20% 50V 0603
2784	2238 586 59812	100nF 20% 50V 0603
2785	2238 586 59812	100nF 20% 50V 0603
2786	2238 586 59812	100nF 20% 50V 0603
2787	2238 586 59812	100nF 20% 50V 0603
2788	2238 586 59812	100nF 20% 50V 0603
2789	2238 586 59812	100nF 20% 50V 0603
2790	2238 586 59812	100nF 20% 50V 0603
2791	2238 586 59812	100nF 20% 50V 0603
2792	2238 586 59812	100nF 20% 50V 0603
2793	2238 586 59812	100nF 20% 50V 0603
2794	2238 586 59812	100nF 20% 50V 0603
2795	2238 586 59812	100nF 20% 50V 0603
2796	2020 021 91554	10µF 20% 16V
2799	2020 021 91557	100µF 20% 16V
2800	2238 586 59812	100nF 20% 50V 0603
2801	2238 586 59812	100nF 20% 50V 0603
2803	2238 586 59812	100nF 20% 50V 0603
2804	2238 586 59812	100nF 20% 50V 0603
2805	2238 586 59812	100nF 20% 50V 0603
2806	2020 021 91557	100µF 20% 16V
2807	2238 586 59812	100nF 20% 50V 0603
2808	2020 021 91554	10µF 20% 16V
2809	2238 586 59812	100nF 20% 50V 0603
2810	2238 586 59812	100nF 20% 50V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	2238 586 59812	100nF 20% 50V 0603
2813	2238 586 59812	100nF 20% 50V 0603
2814	2238 586 59812	100nF 20% 50V 0603
2815	4822 126 14223	2.2pF 10% 50V 0603
2816	4822 126 14223	2.2pF 10% 50V 0603
2817	2238 586 59812	100nF 20% 50V 0603
2818	4822 126 14223	2.2pF 10% 50V 0603
2820	2238 586 59812	100nF 20% 50V 0603
2821	2238 586 59812	100nF 20% 50V 0603
2822	2238 586 59812	100nF 20% 50V 0603
2823	5322 126 11578	1nF 10% 50V 0603
2824	5322 126 11578	1nF 10% 50V 0603
2825	2238 586 59812	100nF 20% 50V 0603
2826	2238 586 59812	100nF 20% 50V 0603
2827	2238 586 59812	100nF 20% 50V 0603
2828	2238 586 59812	100nF 20% 50V 0603
2829	2238 586 59812	100nF 20% 50V 0603
2830	2238 586 59812	100nF 20% 50V 0603
2832	2238 586 59812	100nF 20% 50V 0603
2833	2238 586 59812	100nF 20% 50V 0603
2835	2238 586 59812	100nF 20% 50V 0603
2838	2238 586 59812	100nF 20% 50V 0603
2843	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	2238 586 59812	100nF 20% 50V 0603
2851	2238 586 59812	100nF 20% 50V 0603
2853	4822 126 13879	220nF +80-20% 16V
2854	4822 126 13879	220nF +80-20% 16V
2855	2238 586 59812	100nF 20% 50V 0603
2857	2238 586 59812	100nF 20% 50V 0603
2859	4822 126 13879	220nF +80-20% 16V
2860	2238 586 59812	100nF 20% 50V 0603
2861	4822 126 13879	220nF +80-20% 16V
2864	2238 586 59812	100nF 20% 50V 0603
2865	2238 586 59812	100nF 20% 50V 0603
2866	4822 126 13879	220nF +80-20% 16V
2867	4822 126 13879	220nF +80-20% 16V
2870	2020 021 91554	10µF 20% 16V
2871	2020 021 91554	10µF 20% 16V
2872	2238 586 59812	100nF 20% 50V 0603
2874	2020 021 91554	10µF 20% 16V
2875	2020 021 91554	10µF 20% 16V
2876	2238 586 59812	100nF 20% 50V 0603
2879	2238 586 59812	100nF 20% 50V 0603
2880	2020 021 91557	100µF 20% 16V
2881	4822 126 11669	27pF 5% 50V 0603
2884	4822 126 13879	220nF +80-20% 16V
2885	4822 126 11663	12pF 5% 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	2238 586 59812	100nF 20% 50V 0603
2890	2238 586 59812	100nF 20% 50V 0603
2891	2238 586 59812	100nF 20% 50V 0603
2892	2238 586 59812	100nF 20% 50V 0603
2893	2238 586 59812	100nF 20% 50V 0603
2894	2238 586 59812	100nF 20% 50V 0603
2895	2238 586 59812	100nF 20% 50V 0603
2896	2238 586 59812	100nF 20% 50V 0603
2897	2238 586 59812	100nF 20% 50V 0603
2898	2238 586 59812	100nF 20% 50V 0603
2899	2238 586 59812	100nF 20% 50V 0603
2908	2238 586 59812	100nF 20% 50V 0603
2909	2238 586 59812	100nF 20% 50V 0603
2910	2238 586 59812	100nF 20% 50V 0603
2911	2238 586 59812	100nF 20% 50V 0603
2912	3198 017 44740	470nF 10V 0603

-WW-		
3001	4822 051 30472	4.7Ω 5% 0.062W
3002	4822 051 30472	4.7Ω 5% 0.062W
3003	4822 117 13525	24kΩ 1% 0.62W 0603
3005	4822 051 30103	10kΩ 5% 0.062W
3006	4822 051 30471	47Ω 5% 0.062W
3007	3198 031 14710	4 x 470Ω 5% 1206
3008	4822 117 13526	150Ω 5% 0.63W
3009	2322 702 60829	82Ω 5% 0603
3011	4822 051 30471	47Ω 5% 0.062W
3012	3198 031 11010	4 x 100Ω 5% 1206
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 051 30682	6.8Ω 5% 0.062W
3015	4822 051 30474	470kΩ 5% 0.062W
3016	4822 051 30152	1.5Ω 5% 0.062W
3017	4822 051 30472	4.7Ω 5% 0.062W
3018	4822 051 30103	10kΩ 5% 0.062W
3019	4822 051 30472	4.7Ω 5% 0.062W
3020	4822 051 30103	10kΩ 5% 0.062W
3021	4822 051 30103	10kΩ 5% 0.062W
3024	4822 051 30273	27kΩ 5% 0.062W
3025	4822 051 30221	220Ω 5% 0.062W
3026	4822 051 30472	4.7Ω 5% 0.062W
3027	4822 117 12925	47kΩ 1% 0.063W 0603
3029	4822 051 30103	10kΩ 5% 0.062W
3031	4822 051 30103	10kΩ 5% 0.062W
3033	4822 051 30103	10kΩ 5% 0.062W
3034	3198 031 11010	4 x 100Ω 5% 1206
3035	3198 031 11010	4 x 100Ω 5% 1206
3039	4822 051 30181	180Ω 5% 0.062W
3040	4822 051 30472	4.7Ω 5% 0.062W
3041	4822 051 30472	4.7Ω 5% 0.062W
3042	4822 051 30472	4.7Ω 5% 0.062W
3044	4822 051 30272	2.7kΩ 5% 0.062W
3048	3198 031 11010	4 x 100Ω 5% 1206
3049	3198 031 11010	4 x 100Ω 5% 1206
3050	3198 031 11010	4 x 100Ω 5% 1206
3051	3198 031 11010	4 x 100Ω 5% 1206
3052	3198 031 11010	4 x 100Ω 5% 1206
3053	4822 051 30101	100Ω 5% 0.062W
3054	3198 031 11010	4 x 100Ω 5% 1206
3055	3198 031 11010	4 x 100Ω 5% 1206
3056	3198 031 11010	4 x 100Ω 5% 1206
3057	3198 031 11010	4 x 100Ω 5% 1206
3059	2322 704 66201	620Ω 1% 0603
3061	4822 051 30103	10kΩ 5% 0.062W
3062	4822 051 30103	10kΩ 5% 0.062W
3064	3198 031 11010	4 x 100Ω 5% 1206
3065	4822 051 30472	4.7Ω 5% 0.062W
3066	4822 117 12925	47kΩ 1% 0.063W 0603
3067	4822 051 30474	470kΩ 5% 0.062W
3068	4822 051 30272	2.7kΩ 5% 0.062W
3069	4822 051 30272	2.7kΩ 5% 0.062W
3073	3198 031 14710	4 x 470Ω 5% 1206
3074	3198 031 14710	4 x 470Ω 5% 1206
3076	3198 031 14710	4 x 470Ω 5% 1206
3078	3198 031 14710	4 x 470Ω 5% 1206
3079	4822 051 30472	4.7Ω 5% 0.062W
3080	4822 051 30472	4.7Ω 5% 0.062W
3081	4822 051 30008	Jumper 0603
3088	4822 051 30472	4.7Ω 5% 0.062W
3090	3198 031 14710	4 x 470Ω 5% 1206
3093	4822 051 30103	10kΩ 5% 0.062W
3094	4822 117 12925	47kΩ 1% 0.063W 0603
3095	4822 117 12925	47kΩ 1% 0.063W 0603
3096	4822 117 12925	47kΩ 1% 0.063W 0603
3097	4822 051 30008	Jumper 0603
3099	3198 031 14710	4 x 470Ω 5% 1206
3301	4822 117 13632	100kΩ 1% 0603 0.62W
3302	4822 051 30102	1kΩ 5% 0.062W
3303	4822 117 13632	100kΩ 1% 0603 0.62W
3304▲	2322 750 63908	3.9Ω 5% Fuse 1206
3306	4822 051 30221	220Ω 5% 0.062W
3307	4822 051 30183	18kΩ 5% 0.062W
3308	4822 051 20154	150kΩ 5% 0.1W
3310	4822 051 30563	56kΩ 5% 0.062W
3311	4822 117 13632	100kΩ 1% 0603 0.62W
3312	4822 117 13632	100kΩ 1% 0603 0.62W
3313	4822 117 13632	100kΩ 1% 0603 0.62W
3314	4822 051 30103	10kΩ 5% 0.062W
3315	4822 051 30102	1kΩ 5% 0.062W
3316	4822 117 10834	47kΩ 1% 0.1W
3317	4822 051 30221	220Ω 5% 0.062W
3318	4822 051 30102	1kΩ 5% 0.062W
3319	4822 051 30221	220Ω 5% 0.062W
3320	4822 051 30101	100Ω 5% 0.062W
3321	4822 051 30101	100Ω 5% 0.062W
3322	4822 051 10102	1kΩ 2% 0.25W
3324	4822 051 30472	4.7Ω 5% 0.062W
3327	4822 117 13632	100kΩ 1% 0603 0.62W
3328	4822 051 30393	39kΩ 5% 0.062W
3329▲	4822 117 13568	6.8Ω 5% 1206
3331	4822 051 30102	1kΩ 5% 0.062W
3333	4822 051 30102	1kΩ 5% 0.062W
3334	4822 051 30102	1kΩ 5% 0.062W
3336	4822 051 30102	1kΩ 5% 0.062W
3338	4822 051 30008	Jumper 0603
3340	4822 051 30101	100Ω 5% 0.062W
3341	4822 051 30101	100Ω 5% 0.062W
3342	4822 051 30101	100Ω 5% 0.062W
3343	4822 051 20683	68kΩ 5% 0.1W
3344	4822 051 30222	2.2kΩ 5% 0.062W
3345	4822 051 30103	10kΩ 5% 0.062W
3346	4822 051 30333	33kΩ 5% 0.062W
3347	4822 051 30223	22kΩ 5% 0.062W
3348	4822 051 30222	2.2kΩ 5% 0.062W
3349	4822 051 30472	4.7Ω 5% 0.062W
3357	4822 051 30008	Jumper 0603
3362	4822 051 30684	680kΩ 5% 0.062W
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30103	10kΩ 5% 0.062W
3365	4822 051 30103	10kΩ 5% 0.062W
3366	4822 051 30221	220Ω 5% 0.062W
3367	4822 051 30221	220Ω 5% 0.062W
3368	3198 021 32250	2.2MΩ 5% 0603
3370	4822 051 30101	100Ω 5% 0.062W
3371	4822 051 30479	47Ω 5% 0.062W
3372	4822 051 30471	47Ω 5% 0.062W
3373	4822 051 30008	Jumper 0603
3374	4822 051 30008	Jumper 0603
3375	4822 051 30008	Jumper 0603
3376	4822 051 30101	100Ω 5% 0.062W
3377	4822 051 30101	100Ω 5% 0.062W
3378	4822 051 30153	15kΩ 5% 0.062W
3379	4822 051 30008	Jumper 0603
3379	4822 051 30101	100Ω 5% 0.062W
3380	4822 051 30101	100Ω 5% 0.062W
3382	4822 051 30561	560Ω 5% 0.062W
3384	4822 051 30008	Jumper 0603
3385	4822 051 30471	47Ω 5% 0.062W
3386	4822 051 30223	22kΩ 5% 0.062W
3390	4822 051 30221	220Ω 5% 0.062W
3391	4822 051 30472	4.7Ω 5% 0.062W
3393	4822 117 13632	100kΩ 1% 0603 0.62W
3394	4822 051 30472	4.7Ω 5% 0.062W
3400▲	4822 117 11152	4.7Ω 5%
3402▲	2322 750 63908	3.9Ω 5% Fuse 1206
3403	4822 051 30101	100Ω 5% 0.062W
3404	4822 051 30561	560Ω 5% 0.062W
3405	4822 051 30102	1kΩ 5% 0.062W
3406	2322 702 60279	27Ω 5% 0.1W 0603
3408	4822 051 30101	100Ω 5% 0.062W
3411	4822 051 30272	2.7kΩ 5% 0.062W
3412	4822 051 30102	1kΩ 5% 0.062W
3414	4822 051 30472	4.7Ω 5% 0.062W
3415	4822 051 30222	2.2kΩ 5% 0.062W
3418	4822 051 30391	390Ω 5% 0.062W
3419	4822 051 30339	33Ω 5% 0.062W
3435	4822 051 30472	4.7Ω 5% 0.062W
3436	4822 051 30221	220Ω 5% 0.062W
3437	4822 051 30471	47Ω 5% 0.062W
3439	4822 051 30471	47Ω 5% 0.062W
3441	4822 051 30562	5.6kΩ 5% 0.063W 0603
3445	4822 051 30271	270Ω 5% 0.062W
3446	4822 051 30101	100Ω 5% 0.062W
3463	4822 051 30472	4.7Ω 5% 0.062W
3468	4822 117 13632	100kΩ 1% 0603 0.62W
3472	4822 051 30223	22kΩ 5% 0.062W
3500	4822 051 30153	15kΩ 5% 0.062W
3501	2422 549 43769	Bead 30Ω at 100MHz
3504	4822 051 30123	12kΩ 5% 0.1W
3505	4822 051 30153	15kΩ 5% 0.062W
3506	2422 549 43769	Bead 30Ω at 100MHz
3509	4822 051 30123	12kΩ 5% 0.1W
3510	4822 117 12925	47kΩ 1% 0.063W 0603
3511	4822 117 13632	100kΩ 1% 0603 0.62W
3512	4822 051 30154	150kΩ 5% 0.062W
3513	4822 117 12889	270kΩ 1% 0.063W 0603
3514	4822 117 12925	47kΩ 1% 0.063W 0603
3515	4822 117 13632	100kΩ 1% 0603 0.62W
3516	4822 051 30392	3.9Ω 5% 0.063W 0603
3519	4822 051 30103	10kΩ 5% 0.062W
3521	4822 117 13632	100kΩ 1% 0603 0.62W
3522	4822 117 13632	100kΩ 1% 0603 0.62W
3523	4822 117 13632	100kΩ 1% 0603 0.62W
3524	4822 117 13632	100kΩ 1% 0603 0.62W
3525	4822 051 30684	680kΩ 5% 0.062W
3526	4822 051 30105	1MΩ 5% 0.062W
3527	4822 051 30101	100Ω 5% 0.062W
3529	4822 051 30103	10kΩ 5% 0.062W
3530	4822 051 30103	10kΩ 5% 0.062W
3531	5322 117 13056	8.2kΩ 1% 0.063W 0603
3532	4822 051 30102	1kΩ 5% 0.062W
3533	4822 051 30103	10kΩ 5% 0.062W
3540	4822 051 30103	10kΩ 5% 0.062W
3546	4822 051 30102	1kΩ 5% 0.062W
3552	4822 051 30103	10kΩ 5% 0.062W
3558	4822 051 30101	100Ω 5% 0.062W
3559	4822 051 30101	100Ω 5% 0.062W
3560	4822 051 30101	100Ω 5% 0.062W
3561	4822 051 30101	100Ω 5% 0.062W
3562	4822 051 30101	100Ω 5% 0.062W
3563	4822 051 30101	100Ω 5% 0.062W
3564	4822 051 30101	100Ω 5% 0.062W
3567	4822 051 30101	100Ω 5% 0.062W
3568	4822 051 30101	100Ω 5% 0.062W
3569	4822 051 30101	100Ω 5% 0.062W
3570	4822 051 30101	100Ω 5% 0.062W
3571	4822 051 30101	100Ω 5% 0.062W
3572	4822 051 30101	100Ω 5% 0.062W
3573	4822 051 30101	100Ω 5% 0.062W
3574	4822 051 30101	100Ω 5% 0.062W
3575	4822 051 30101	100Ω 5% 0.062W
3576	4822 051 30272	2.7kΩ 5% 0.062W
3578	4822 051 30103	10kΩ 5% 0.062W
3579	4822 051 30103	10kΩ 5% 0.062W
3612	4822 117 12925	47kΩ 1% 0.063W 0603
3613	4822 117 12925	47kΩ 1% 0.063W 0603
3614	4822 117 12925	47kΩ 1% 0.063W 0603
3615	4822 117 12925	47kΩ 1% 0.063W 0603
3616	4822 051 30272	2.7kΩ 5% 0.062W
3636	4822 051 30271	270Ω 5% 0.062W
3637	4822 117 12864	82kΩ 5% 0.6W
3640	4822 051 30101	100Ω 5% 0.062W
3641	4822 051 30101	100Ω 5% 0.062W
3642	4822 051 30101	100Ω 5% 0.062W
3643	4822 051 30101	100Ω 5% 0.062W
3644▲	4822 117 11152	4.7Ω 5%
3653	4822 051 30008	Jumper 0603
3654	4822 051 30008	Jumper 0603
3655	4822 051 30101	100Ω 5% 0.062W
3656	4822 051 30101	100Ω 5% 0.062W
3657	4822 051 30563	56kΩ 5% 0.062W
3658	4822 051 30154	150kΩ 5% 0.062W
3666	4822 051 30154	150kΩ 5% 0.062W
3667	4822 117 12864	82kΩ 5% 0.6W
3668	4822 051 30563	56kΩ 5% 0.062W
3669	4822 051 30271	270Ω 5% 0.062W
3670	4822 051 30102	1kΩ 5% 0.062W
3671	4822 117 11817	1.2kΩ 1% 0.0625W
3673	4822 051 30103	10kΩ 5% 0.062W
3683	4822 051 30223	22kΩ 5% 0.062W
3684	4822 051 30008	Jumper 0603
3685	4822 051 30008	Jumper 0603
3688	4822 051 30008	Jumper 0603
3689	4822 051 30008	Jumper 0603
3692	4822 051 30008	Jumper 0603
3693	4822 051 30008	Jumper 0603
3698	4822 117 11817	1.2kΩ 1% 0.0625W
3701	4822 051 30689	68Ω 5% 0.063W 0603
3703	5322 117 13047	330Ω 1% 0.063W 0603
3704	5322 117 13047	330Ω 1% 0.063W 0603
3705	5322 117 13047	330Ω 1% 0.063W 0603
3709	4822 051 30101	100Ω 5% 0.062W
3710	4822 051 30101	100Ω 5% 0.062W
3711	4822 117 12925	47kΩ 1% 0.063W 0603
3712	4822 117 12925	47kΩ 1% 0.063W 0603
3713	4822 051 30181	180Ω 5% 0.062W
3714	4822 051 30181	180Ω 5% 0.062W
3715	4822 051 30181	180Ω 5% 0.062W
3716	4822 117 13632	100kΩ 1% 0603 0.62W
3717	4822 117 13632	100kΩ 1% 0603 0.62W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3721	4822 117 12917	1Ω 5% 0.062W
3725	4822 051 30332	3.3Ω 5% 0.062W
3726	4822 117 11817	1.2kΩ 1% 0.0625W
3727	4822 051 30151	150Ω 5% 0.062W
3728	4822 051 30151	150Ω 5% 0.062W
3729	4822 051 30689	68Ω 5% 0.063W 0603
3730	4822 051 30681	680Ω 5% 0.062W
3731	4822 051 30472	4.7Ω 5% 0.062W
3732	4822 051 30102	1kΩ 5% 0.062W
3733	4822 051 30472	4.7Ω 5% 0.062W
3735	4822 051 30008	Jumper 0603
3736	4822 051 30101	100Ω 5% 0.062W
3737	4822 051 30102	1kΩ 5% 0.062W
3738	4822 051 30102	1kΩ 5% 0.062W
3739	4822 051 30123	12kΩ 5% 0.1W
3742	4822 051 30223	22kΩ 5% 0.062W
3743	4822 051 30183	18kΩ 5% 0.062W
3744	4822 051 30222	2.2kΩ 5% 0.062W
3745	4822 051 30102	1kΩ 5% 0.062W
3746	5322 117 13042	3.9kΩ 1% 0.063W 0603
3747	4822 051 30154	150kΩ 5% 0.062W
3748	4822 117 12891	220kΩ 1%
3749	5322 117 13042	3.9kΩ 1% 0.063W 0603
3750	5322 117 13042	3.9kΩ 1% 0.063W 0603
3751	4822 051 30472	4.7Ω 5% 0.062W
3752	4822 051 30008	Jumper 0603

3753	4822 051 30008	Jumper 0603
3754	4822 051 30101	100Ω 5% 0.062W
3755	4822 051 30472	4.7Ω 5% 0.062W
3756	4822 051 30103	10kΩ 5% 0.062W
3757	4822 051 30479	47Ω 5% 0.062W
3758	4822 051 30472	4.7Ω 5% 0.062W
3759	4822 051 30221	220Ω 5% 0.062W
3762	4822 051 30101	100Ω 5% 0.062W
3763	4822 117 12139	22Ω 5% 0.062W
3763	9965 000 23109	22Ω 5% 0603
3764	4822 051 30109	10Ω 5% 0.062W
3771	4822 051 30121	120Ω 5% 0.062W
3772	4822 051 30101	100Ω 5% 0.062W
3773	4822 117 12925	47kΩ 1% 0.063W 0603
3774	4822 117 12925	47kΩ 1% 0.063W 0603
3775	4822 117 12925	47kΩ 1% 0.063W 0603
3776	4822 117 12925	47kΩ 1% 0.063W 0603
3777	4822 117 12925	47kΩ 1% 0.063W 0603
3778	4822 051 30102	1kΩ 5% 0.062W
3779	4822 051 30102	1kΩ 5% 0.062W
3780	4822 051 30102	1kΩ 5% 0.062W
3781	4822 051 30102	1kΩ 5% 0.062W
3782	4822 051 30102	1kΩ 5% 0.062W
3783	4822 051 30102	1kΩ 5% 0.062W
3784	4822 051 30102	1kΩ 5% 0.062W
3785	4822 117 13577	330Ω 1% 1.25W 0805
3786	4822 117 13577	330Ω 1% 1.25W 0805
3787	4822 117 13577	330Ω 1% 1.25W 0805
3788	5322 117 13036	1.2kΩ 1% 0.063W 0603
3789	2322 704 61501	150Ω 1% 0603
3790	2322 704 65601	560Ω 1% 0.063W 0603
3791	5322 117 13049	470Ω 1% 0.063W 0603
3792	4822 051 30102	1kΩ 5% 0.062W
3793	4822 051 30222	2.2kΩ 5% 0.062W
3794	4822 051 30109	10Ω 5% 0.062W
3795	4822 051 30689	68Ω 5% 0.063W 0603
3796	4822 117 12925	47kΩ 1% 0.063W 0603
3797	4822 051 30472	4.7Ω 5% 0.062W
3800	2322 704 61501	150Ω 1% 0603
3801	4822 051 30102	1kΩ 5% 0.062W
3802	2322 704 61501	150Ω 1% 0603
3803	2322 704 61501	150Ω 1% 0603
3804	4822 051 30102	1kΩ 5% 0.062W
3805	5322 117 13049	470Ω 1% 0.063W 0603
3806	5322 117 13049	470Ω 1% 0.063W 0603
3807	2322 704 62701	270Ω 1% 0603
3807	5322 117 13045	270Ω 1% 0.063W 0603
3808	5322 117 13057	820Ω 1% 0.063W 0603
3809	2322 704 61801	180Ω 1% 0.063W 0603
3810	4822 051 30391	390Ω 5% 0.062W
3811	4822 051 30759	75Ω 5% 0.062W
3812	4822 051 30759	75Ω 5% 0.062W
3813	4822 051 30391	390Ω 5% 0.062W
3814	4822 051 30759	75Ω 5% 0.062W
3815	4822 051 30759	75Ω 5% 0.062W
3816	4822 051 30391	390Ω 5% 0.062W
3817	4822 051 30759	75Ω 5% 0.062W
3818	4822 051 30759	75Ω 5% 0.062W
3819	4822 051 30759	75Ω 5% 0.062W
3820	4822 051 30759	75Ω 5% 0.062W
3821	4822 051 30759	75Ω 5% 0.062W
3822	4822 051 30759	75Ω 5% 0.062W
3823	4822 051 30759	75Ω 5% 0.062W
3824	4822 051 30759	75Ω 5% 0.062W
3825	2322 704 61501	150Ω 1% 0603
3826	2322 704 61501	150Ω 1% 0603
3827	2322 704 61501	150Ω 1% 0603
9015	4822 051 30008	Jumper 0603
9302	4822 051 30008	Jumper 0603
9303	4822 051 30008	Jumper 0603
9304	4822 051 30008	Jumper 0603
9314	4822 051 30008	Jumper 0603
9315	4822 051 30008	Jumper 0603
9316	4822 051 30008	Jumper 0603
9318	4822 051 30008	Jumper 0603
9322	4822 051 30008	Jumper 0603
9406	4822 051 30008	Jumper 0603
9410	4822 051 30008	Jumper 0603
9413	4822 051 30008	Jumper 0603
9416	4822 051 30008	Jumper 0603
9417	4822 051 30008	Jumper 0603
9418	4822 051 30008	Jumper 0603
9419	4822 051 30008	Jumper 0603
9420	4822 051 30008	Jumper 0603
9520	4822 051 30008	Jumper 0603
9522	4822 051 30008	Jumper 0603
9603	4822 051 30008	Jumper 0603
9604	4822 051 30008	Jumper 0603
9607	4822 051 30008	Jumper 0603
9608	4822 051 30008	Jumper 0603
9609	4822 051 30008	Jumper 0603
9610	4822 051 30008	Jumper 0603
9642	4822 051 30008	Jumper 0603
9645	4822 051 30008	Jumper 0603
9688	4822 051 30008	Jumper 0603
9689	4822 051 30008	Jumper 0603
9691	4822 051 30008	Jumper 0603
9692	4822 051 30008	Jumper 0603
9694	4822 051 30008	Jumper 0603
9702	4822 051 30008	Jumper 0603
9704	4822 051 30008	Jumper 0603
9725	4822 051 30008	Jumper 0603
9731	4822 051 30008	Jumper 0603
9733	4822 051 30008	Jumper 0603
9735	4822 051 30008	Jumper 0603
9736	4822 051 30008	Jumper 0603
9737	4822 051 30008	Jumper 0603
9738	4822 051 30008	Jumper 0603
9740	4822 051 30008	Jumper 0603
9741	2350 035 10689	4 x 68Ω 5%
9744	4822 051 30008	Jumper 0603
9747	4822 051 30008	Jumper 0603
9754	4822 051 30008	Jumper 0603
9760	4822 051 30008	Jumper 0603
9761	4822 051 30008	Jumper 0603
9762	4822 051 30008	Jumper 0603
9763	4822 051 30008	Jumper 0603
9764	4822 051 30008	Jumper 0603
9765	4822 051 30008	Jumper 0603
9769	4822 051 30008	Jumper 0603
9770	4822 051 30008	Jumper 0603
9771	4822 051 30008	Jumper 0603
9901	4822 051 30008	Jumper 0603
9902	4822 051 30008	Jumper 0603
9903	4822 051 30008	Jumper 0603
9904	4822 051 30008	Jumper 0603
9905	4822 051 30008	Jumper 0603
9906	4822 051 30008	Jumper 0603
9907	4822 051 30008	Jumper 0603
9908	4822 051 30008	Jumper 0603
9909	4822 051 30008	Jumper 0603
9919	4822 051 30008	Jumper 0603
9920	4822 051 30008	Jumper 0603
9921	4822 051 30008	Jumper 0603
9925	4822 051 30008	Jumper 0603
9927	4822 051 30008	Jumper 0603
9928	4822 051 30008	Jumper 0603
9929	4822 051 30008	Jumper 0603
9935	4822 051 30008	Jumper 0603
9937	4822 051 30008	Jumper 0603
9938	4822 051 30008	Jumper 0603
9939	4822 051 30008	Jumper 0603
9941	4822 051 30759	75Ω 5% 0.062W
9942	4822 051 30759	75Ω 5% 0.062W
9944	4822 051 30008	Jumper 0603
9945	4822 051 30008	Jumper 0603
9946	4822 051 30008	Jumper 0603
9947	4822 051 30008	Jumper 0603
9948	4822 051 30008	Jumper 0603
9949	4822 051 30008	Jumper 0603
9950	4822 051 30008	Jumper 0603
9951	4822 051 30008	Jumper 0603
9952	4822 051 30008	Jumper 0603
9953	4822 051 30008	Jumper 0603
9954	4822 051 30008	Jumper 0603

5301	4822 157 11876	6.8µH 10% 0805
5302	4822 157 11876	6.8µH 10% 0805
5401	3198 018 56880	6.8µH 10% 0603
5403	2422 549 00195	Bead 40.4MHz
5403	2422 549 44461	Trimmer 40MHz 5CCE
5404	2422 535 95427	Bead 120Ω at 100MHz
5405	2422 535 95427	Bead 120Ω at 100MHz
5406	4822 157 10586	2.2µH 10% 0805
5408	2422 549 44983	Trimmer 78MHz 5CCB
5409	2422 549 42896	Bead 120Ω 100MHz
5411	3198 018 32770	0.27µH 10% 0805
5415	4822 157 11716	Bead 30Ω at 100MHz
5416	4822 157 11716	Bead 30Ω at 100MHz
5651	2422 549 43769	Bead 30Ω at 100MHz
5652	2422 549 43769	Bead 30Ω at 100MHz
5653	2422 549 43769	Bead 30Ω at 100MHz
5654	4822 157 11716	Bead 30Ω at 100MHz
5655	4822 157 11828	22µH 20% 0805
5656	4822 157 11876	6.8µH 10% 0805
5663	4822 051 30008	Jumper 0603
5671	4822 157 11716	Bead 30Ω at 100MHz
5672	4822 157 11716	Bead 30Ω at 100MHz
5700	3198 018 31580	1.5µH 10% 0805
5701	3198 018 31080	1µF 10% 0805
5701	4822 157 71304	1µH 10% 0805
5702	3198 018 31080	1µF 10% 0805
5702	4822 157 71304	1µH 10% 0805
5705	4822 156 21729	Bead 1kΩ 100MHz 0805
5706	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11716	Bead 30Ω at 100MHz
5710	4822 156 21729	Bead 1kΩ 100MHz 0805
5711	4822 156 21729	Bead 1kΩ 100MHz 0805
5712	4822 156 21729	Bead 1kΩ 100MHz 0805
5713	4822 157 11716	Bead 30Ω at 100MHz
5714	4822 157 11716	Bead 30Ω at 100MHz
5716	4822 157 11716	Bead 30Ω at 100MHz
5722	4822 156 21729	Bead 1kΩ 100MHz 0805
5723	4822 157 11716	Bead 30Ω at 100MHz
5724	4822 156 21729	Bead 1kΩ 100MHz 0805
5725	4822 157 71206	Bead 600Ω 100MHz
5726	4822 156 21729	Bead 1kΩ 100MHz 0805
5727	4822 156 21729	Bead 1kΩ 100MHz 0805
5728	4822 157 11716	Bead 30Ω at 100MHz
5729	4822 157 11716	Bead 30Ω at 100MHz
5731	4822 157 11716	Bead 30Ω at 100MHz
5736	4822 157 11876	6.8µH 10% 0805
5737	4822 157 11716	Bead 30Ω at 100MHz
5738	4822 157 11716	Bead 30Ω at 100MHz
5739	4822 157 10586	2.2µH 10% 0805
5740	4822 157 10586	2.2µH 10% 0805
5741	4822 157 10586	2.2µH 10% 0805
5742	4822 157 11716	Bead 30Ω at 100MHz
5743	4822 156 21729	Bead 1kΩ 100MHz 0805
5744	4822 157 11716	Bead 30Ω at 100MHz
5750	4822 157 11716	Bead 30Ω at 100MHz
5751	4822 157 11716	Bead 30Ω at 100MHz
5900	4822 157 11716	Bead 30Ω at 100MHz
5901	4822 157 11716	Bead 30Ω at 100MHz
5902	4822 157 11716	Bead 30Ω at 100MHz
5903	4822 157 11716	Bead 30Ω at 100MHz
5904	4822 157 11716	Bead 30Ω at 100MHz
5910	2422 549 43062	Bead 600Ω at 100MHz
5911	2422 549 43062	Bead 600Ω at 100MHz
5912	2422 549 43062	Bead 600Ω at 100MHz
5913	2422 549 43062	Bead 600Ω at 100MHz
5914	2422 549 43062	Bead 600Ω at 100MHz
5915	2422 549 43062	Bead 600Ω at 100MHz
5917	2422 549 43062	Bead 600Ω at 100MHz
5918	2422 549 43062	Bead 600Ω at 100MHz
5919	2422 549 43062	Bead 600Ω at 100MHz
5920	2422 549 43062	Bead 600Ω at 100MHz

6001	4822 130 80622	BAT54
6002	4822 130 11397	BAS316
6003	4822 130 80622	BAT54
6004	4822 130 80622	BAT54
6005	4822 130 11422	PLVA2650A
6303	9322 150 18685	BZX384-C47
6304	4822 130 11397	BAS316
6306	3198 020 55680	BZX384-C5V6
6307	4822 130 80622	BAT54
6309	4822 130 11397	BAS316
6310	4822 130 11416	PDZ6.8B
6311	9340 548 67115	PDZ22B
6312	4822 130 11397	BAS316
6313	9340 548 67115	PDZ22B
6314	4822 130 11397	BAS316
6317	4822 130 11397	BAS316
6319	4822 130 11397	BAS316
6334	4822 130 11397	BAS316
6403	9340 552 30115	BA591
6652	4822 130 11551	UDZS10B
6657	4822 130 10838	UDZ3.3B
6658	4822 130 11397	BAS316
6926	4822 130 11397	BAS316
6927	4822 130 11397	BAS316
6928	4822 130 11397	BAS316
6929	4822 130 11397	BAS316
6956	4822 130 11397	BAS316
6957	4822 130 11397	BAS316

7001	9352 684 81557	SAA5801H/015
7002	3198 010 42320	BC857BW
7003	3198 010 42310	BC847BW
7004	3198 010 42310	BC847BW
7005	9322 116 74668	LD1117D33
7006		For SW see item 7098
7007	9322 200 55668	IS41LV16100-50K
7008	3198 010 42310	BC847BW
7009	3198 010 42310	BC847BW
7010	3198 010 42320	BC857BW
7011	9322 156 81668	M24C32-WMN6TNKSA
7013	3198 010 42310	BC847BW
7014	3198 010 42320	BC857BW
7015	4822 209 73852	PMBT2369
7016	4822 209 73852	PMBT2369
7098	3104 317 06851	SW (check Prod.Surv.)

7301	9352 681 65518	TDA9330N3
7303	3198 010 42320	BC857BW
7304	9340 310 30215	PDTC144ET
7307	9352 630 99118	TDA9181T
7310	3198 010 42310	BC847BW
7311	3198 010 42320	BC857BW
7312	9340 310 30215	PDTC144ET
7318	3198 010 42320	BC857BW
7320	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	9352 625 24518	TDA9321H/N2
7402	3198 010 42310	BC847BW
7403	5322 130 60159	BC846B
7404	3198 010 42310	BC847BW
7407	4822 130 60373	BC856B
7410	3198 010 42310	BC847BW
7411	5322 130 60159	BC846B
7651	9322 180 61702	MSP3411G-FH-B8-V3
7652	9351 869 40118	74HC4053PW
7664	9340 425 30115	BC847BPN
7665	9340 425 30115	BC847BPN
7668	3198 010 42320	BC857BW
7674	3198 010 42310	BC847BW
7675	9340 425 20115	BC847BS
7678	9340 425 20115	BC847BS
7679	9340 425 20115	BC847BS
7680	3198 010 42310	BC847BW
7681	9322 060 73668	MC33178DR2
7682	5322 130 60159	BC846B
7701	3198 010 70400	74LVC1G14GW
7702	5322 130 60159	BC846B
7703	4822 209 73852	PMBT2369
7706	9322 179 78668	LF18ABDT
7707	5322 130 60159	BC846B
7708	5322 130 60159	BC846B
7709	5322 130 60159	BC846B
7710	5322 130 60159	BC846B
7711		For SW see item 7999
7712	9351 870 00118	74HC573PW
7713	9352 688 09557	SAA4978H/V204
7714	9965 000 02179	MS81V04160-25TB
7720	9322 160 50668	LD1117DT25
7722	9965 000 02179	MS81V04160-25TB
7723	9965 000 02179	MS81V04160-25TB
7724	9322 188 08702	T8F24EF-0002
7725	4822 209 73852	PMBT2369
7726	4822 209 17398	LD1117DT33
7727	9322 170 14668	LF15ABDT
7728	5322 130 42718	BFS20
7729	5322 130 42718	BFS20
7730	5322 130 42718	BFS20
7731	5322 130 42718	BFS20
7732	5322 130 42718	BFS20
7733	5322 130 42718	BFS20
7750	9352 686 75125	74LVC1G79GW
7751	9352 684 56115	74LVC1G04GW
7760	9352 730 86557	SAA4998H/V1
7999	3104 317 05311	SW (check Prod.Surv.)

Side I/O Panel FL13B [D]

Various

1326	4822 267 10975	Soc. Cinch f YeWhRd
1327	4822 267 31014	Soc. headphone
1328	2422 026 05133	Connector SVHS 4p f
1936▲	2422 025 12485	Connector 11p m
1980	4822 267 10565	Connector 4p
1981	4822 267 10735	Connector 3p
8936▲	3104 311 05271	Cable 11p/820/11p
8981	3104 301 07761	Cable 3p/680/3p

⊣⊢

2803	5322 126 10733	680pF 5% 50V
2804	5322 122 32531	100pF 5% 50V
2805	5322 122 32531	100pF 5% 50V
2806	5322 126 10733	680pF 5% 50V
2807	4822 126 14076	220nF +80/-20% 25V
2813	4822 124 22652	2.2µF 20% 50V
2832	5322 122 31863	330pF 5% 63V 0805
2834	5322 122 31863	330pF 5% 63V 0805
2840	4822 122 33177	10nF 20% 50V
2841	4822 122 33177	10nF 20% 50V

⊣WW⊢

3803	4822 050 11002	1kΩ 1% 0.4W
3804	4822 050 11002	1kΩ 1% 0.4W
3814	4822 117 10833	10kΩ 1% 0.1W
3816	4822 051 20008	Jumper 0805
3826	4822 116 52199	68Ω 5% 0.5W
3827	4822 116 52199	68Ω 5% 0.5W
3828	4822 116 52199	68Ω 5% 0.5W
3829	4822 116 52199	68Ω 5% 0.5W
3830	4822 050 21003	10kΩ 1% 0.6W
3835	4822 116 52175	100Ω 5% 0.5W
3842	4822 050 21003	10kΩ 1% 0.6W
9801	4822 051 20008	Jumper 0805
9803	4822 051 20008	Jumper 0805
9804	4822 051 20008	Jumper 0805
9805	4822 051 20008	Jumper 0805
9806	4822 051 20008	Jumper 0805
9809	4822 051 20008	Jumper 0805

⊣▷⊢

6801	4822 130 11416	PDZ6.8B
6802	4822 130 11416	PDZ6.8B
6803	4822 130 11551	UDZS10B
6804	4822 130 11551	UDZS10B
6805	4822 130 11551	UDZS10B
6806	4822 130 11551	UDZS10B
6807	4822 130 11416	PDZ6.8B
6808	4822 130 11416	PDZ6.8B

Side I/O Panel PV2 [D]

Various

0240▲	2422 025 12485	Connector 11p m
0306	3139 124 31651	Side I/O bracket
1016	3104 328 31832	Side I/O assy
1254	4822 267 31014	Soc. headphone
1255	4822 265 11606	Connector 3p
1256	2422 026 04926	Soc. Mini-DIN 4p f

⊣⊢

2250	5322 122 32654	22nF 10% 63V 0805
2251	5322 122 32654	22nF 10% 63V 0805
2286	4822 122 33642	150pF 5% 50V
2288	4822 122 33642	150pF 5% 50V
2292	5322 122 32311	470pF 10% 100V
2294	5322 122 32311	470pF 10% 100V
2296	4822 126 13512	330pF 10% 50V
2297	4822 126 13512	330pF 10% 50V

⊣WW⊢

3291	4822 050 11002	1kΩ 1% 0.4W
3292	4822 117 10834	47kΩ 1% 0.1W
3293	4822 050 11002	1kΩ 1% 0.4W
3294	4822 117 10834	47kΩ 1% 0.1W
3295	4822 116 52175	100Ω 5% 0.5W
3296	4822 117 10833	10kΩ 1% 0.1W
3297	4822 117 10833	10kΩ 1% 0.1W
3298	4822 051 30339	33Ω 5% 0.062W
3299	4822 051 30339	33Ω 5% 0.062W
4201	4822 051 20008	Jumper 0805
4241	4822 051 20008	Jumper 0805

⊣▷⊢

6291	9340 548 61115	PDZ12B
6292	9340 548 61115	PDZ12B
6293	9340 548 61115	PDZ12B
6294	9340 548 61115	PDZ12B
6296	9340 548 61115	PDZ12B
6297	9340 548 61115	PDZ12B

Top Control Panel FL13B [E]

Various

0345	4822 267 10567	Connector 4p
1701	4822 276 13775	Switch 1p 0.1A 12V
1702	4822 276 13775	Switch 1p 0.1A 12V
1703	4822 276 13775	Switch 1p 0.1A 12V
1704	4822 276 13775	Switch 1p 0.1A 12V
1705	4822 276 13775	Switch 1p 0.1A 12V
8346	3104 311 06391	Cable 4p/1000/4p

⊣WW⊢

3008	4822 117 10845	620Ω 1% 0.1W
3010	4822 117 11534	1.1kΩ 1% 0.1W
3013	4822 117 13528	200Ω 1% 0.125W 0805
3101	4822 117 11951	2kΩ 1% 0.1W
3104	4822 051 20391	390Ω 5% 0.1W
3999	4822 117 10833	10kΩ 1% 0.1W

Top Control Panel PV2 [E]

Various

0002	3139 188 68771	Top control assy
0135	3104 311 01401	Cable 3P/1500/3P Wh
0215	4822 267 10748	Connector 3p
1091	4822 276 13775	Switch 1p 0.1A 12V
1092	4822 276 13775	Switch 1p 0.1A 12V
1093	4822 276 13775	Switch 1p 0.1A 12V
1094	4822 276 13775	Switch 1p 0.1A 12V
1095	4822 276 13775	Switch 1p 0.1A 12V

⊣⊢

2010	4822 122 33177	10nF 20% 50V

⊣WW⊢

3088	4822 117 11951	2kΩ 1% 0.1W
3089	4822 117 11534	1.1kΩ 1% 0.1W
3090	4822 117 10845	620Ω 1% 0.1W
3091	4822 051 30008	Jumper 0603
3092	4822 051 30008	Jumper 0603
3093	4822 051 30008	Jumper 0603
3094	4822 051 30008	Jumper 0603
3095	4822 051 30391	390Ω 5% 0.062W
3096	4822 117 13528	200Ω 1% 0.125W 0805

CRT Panel [F]

Various

0032	4822 492 70788	Fix IC
1298▲	2422 500 80063	Connector CRT 10p f
1298▲	2422 500 80078	Socket CRT 11p f v
1424	2422 025 11244	Connector 7p m
1434	4822 267 10973	Connector 1p
1483	4822 267 10735	Connector 3p
1940▲	2422 025 12485	Connector 11p m
8483▲	3104 311 03111	Cable 3p/340/3p ferrite

⊣⊢

2300	2020 012 93596	22µF 20% 250V
2301	4822 124 40196	220µF 20% 16V
2302	4822 126 13956	6.8pF 5% 63V 0603
2304	4822 121 41856	22nF 5% 250V
2306	2238 586 59812	100nF 20% 50V 0603
2307	4822 121 41856	22nF 5% 250V
2309	3198 017 42230	22nF 50V 0603
2313	4822 124 11565	10µF 20% 250V
2315	4822 126 13883	220pF 5% 50V
2316	2222 365 45104	100nF 10% 250V
2318	5322 122 32654	22nF 10% 63V 0805
2319	4822 121 43693	10nF 100V
2320	2238 586 59812	100nF 20% 50V 0603
2324	4822 121 70581	1.5nF 5% 2kV
2324	4822 121 70594	1nF 5% 2kV
2325	2238 586 59812	100nF 20% 50V 0603
2330	4822 157 11499	Bead 60Ω at 100MHz
2332	4822 126 14507	18pF 5% 50V 0603
2333	4822 126 14507	18pF 5% 50V 0603
2334	4822 126 14507	18pF 5% 50V 0603
2409	3198 017 44740	470nF 10V 0603
2410	3198 017 44740	470nF 10V 0603
2411	4822 126 14585	100nF 10% 0805 50V
2412	2222 867 15339	33pF 5% 50V 0603
2420	3198 017 44740	470nF 10V 0603
2422	4822 121 41856	22nF 5% 250V
2423	4822 121 41856	22nF 5% 250V
2425	4822 126 13883	220pF 5% 50V
2426	4822 126 14583	470nF 10% 16V 0805

⊣WW⊢

3300▲	4822 052 10109	10Ω 5% 0.33W
3301	4822 053 12272	2.7kΩ 5% 3W
3302	4822 051 30102	1kΩ 5% 0.062W
3303	4822 051 30183	18kΩ 5% 0.062W
3304	4822 117 11454	820Ω 1% 0.1W
3306	4822 117 13608	4.7Ω 5% 0603 0.62W
3307	4822 051 30109	10Ω 5% 0.062W
3308	4822 117 10837	100kΩ 1% 0.1W
3310	4822 051 10102	1kΩ 2% 0.25W

3311	4822 051 30569	56Ω 5% 0.062W
3312	4822 051 30222	2.2kΩ 5% 0.062W
3316	4822 117 10837	100kΩ 1% 0.1W
3318	4822 051 30008	Jumper 0603
3319	4822 117 12968	820Ω 5% 0.62W
3323	4822 050 24708	4.7Ω 1% 0.6W
3329	4822 050 24708	4.7Ω 1% 0.6W
3334	4822 050 11002	1kΩ 1% 0.4W
3335	4822 117 12968	820Ω 5% 0.62W
3336	4822 117 12968	820Ω 5% 0.62W
3337	4822 117 12968	820Ω 5% 0.62W
3338	3198 013 01020	1kΩ 20% 0.5W
3339	3198 013 01020	1kΩ 20% 0.5W
3340	3198 013 01020	1kΩ 20% 0.5W
3341▲	2306 207 03151	150Ω 5% 0.5W
3342	4822 116 83883	470Ω 5% 0.5W
3345	4822 116 52191	33Ω 5% 0.5W
3347	3198 013 01520	1.5kΩ 20% 0.5W
3349	3198 013 01020	1kΩ 20% 0.5W
3350	4822 116 83883	470Ω 5% 0.5W
3351	4822 116 83883	470Ω 5% 0.5W
3352	4822 116 83883	470Ω 5% 0.5W
3354	4822 051 30222	2.2kΩ 5% 0.062W
3355	4822 117 13608	4.7Ω 5% 0603 0.62W
3356	4822 051 10102	1kΩ 2% 0.25W
3357	4822 117 13608	4.7Ω 5% 0603 0.62W
3358	4822 051 30103	10kΩ 5% 0.062W
3359	4822 051 30103	10kΩ 5% 0.062W
3360	4822 051 30103	10kΩ 5% 0.062W
3370▲	4822 117 13016	VDR 1mA/50V
3401	4822 116 52175	100Ω 5% 0.5W
3403▲	4822 052 11108	1Ω 5% 0.5W
3405	2122 101 02111	39Ω 5% 0.5W
3410	4822 117 13632	100kΩ 1% 0603 0.62W
3411	4822 117 13632	100kΩ 1% 0603 0.62W
3412▲	2322 750 61509	15Ω 5% 1206
3413	4822 117 13577	330Ω 1% 1.25W 0805
3414	4822 051 30109	10Ω 5% 0.062W
3416	2122 101 02111	39Ω 5% 0.5W
3417	4822 051 30109	10Ω 5% 0.062W
3418	4822 051 30008	Jumper 0603
3419	4822 053 12272	2.7kΩ 5% 3W
3420	4822 051 30109	10Ω 5% 0.062W
3421	4822 051 20333	33kΩ 5% 0.1W
3422	4822 051 30152	1.5Ω 5% 0.062W
3423	4822 051 20333	33kΩ 5% 0.1W
3424	4822 051 20333	33kΩ 5% 0.1W
3425	4822 051 30152	1.5Ω 5% 0.062W
3426	4822 051 20333	33kΩ 5% 0.1W
3427	4822 051 30109	10Ω 5% 0.062W
3428	4822 117 13632	100kΩ 1% 0603 0.62W
3429	4822 117 13577	330Ω 1% 1.25W 0805
3999	4822 051 30103	10kΩ 5% 0.062W
3999	4822 051 30223	22kΩ 5% 0.062W
3999	4822 051 30333	33kΩ 5% 0.062W
9300	3198 036 90010	Wire 0.58mm
9301	3198 036 90010	Wire 0.58mm
9302	3198 036 90010	Wire 0.58mm
9303	3198 036 90010	Wire 0.58mm
9304	3198 036 90010	Wire 0.58mm
9306	3198 036 90010	Wire 0.58mm
9307	3198 036 90010	Wire 0.58mm
9312	3198 036 90010	Wire 0.58mm
9313	3198 036 90010	Wire 0.58mm
9314	3198 036 90010	Wire 0.58mm
9315	3198 036 90010	Wire 0.58mm
9317	3198 036 90010	Wire 0.58mm
9318	3198 036 90010	Wire 0.58mm
9320	3198 036 90010	Wire 0.58mm
9401	3198 036 90010	Wire 0.58mm
9402	2238 930 11523	10pF 5% 200V 0805
9403	2238 930 11523	10pF 5% 200V 0805
9413	4822 051 20008	Jumper 0805

5300▲	3104 308 20571	Transf. S13974-03
5400	4822 157 11869	33µH 10%

6300	4822 130 11397	BAS316
6301	4822 051 20479	47kΩ 5% 0.1W
6305	9340 553 52115	BAS321
6306	9340 553 52115	BAS321
6307	9340 553 52115	BAS321
6310	4822 130 11397	BAS316

7300	5322 130 42718	BFS20
7301	5322 130 42718	BFS20
7302	5322 130 62804	BCP53
7303	5322 130 63033	BCP56
7304	4822 130 60383	BF824
7307	9352 561 40112	TDA6108
7308	5322 130 42718	BFS20
7309	5322 130 62804	BCP53
7310	5322 130 63033	BCP56

DC Shift Panel [G]

Various

0317	4822 265 20723	Connector 2p
0318	4822 265 20723	Connector 2p
1430	2422 086 10581	Fuse 400mA 65V
8317	3104 311 01421	Cable 2P3/220/2P3 Wh

2430	4822 122 31177	470pF 10% 500V
2431	4822 122 31177	470pF 10% 500V

5430	3128 138 38911	DC-shift coil CU15

6432	9340 317 00133	BYD33V
6433	9340 317 00133	BYD33V

I/O 3rd SCART [H]

Various

0043	3104 304 21311	Coverplate SCART
1402	4822 267 10596	Connector 5p
1680	4822 265 31067	Connector 7p m
1992	2422 025 16725	Connector SCART f m Bk

2500	2020 552 95344	680nF 20-80% 16V 0805
2504	2020 552 94427	100pF 5% 50V
2508	2020 552 95344	680nF 20-80% 16V 0805
2509	2020 552 94427	100pF 5% 50V

3501	4822 051 30102	1kΩ 5% 0.062W
3502	4822 051 30008	Jumper 0603
3507	4822 051 30102	1kΩ 5% 0.062W
3508	4822 051 30008	Jumper 0603
3512	4822 051 30008	Jumper 0603
3526	4822 051 30101	100Ω 5% 0.062W
3538	4822 051 30008	Jumper 0603
3540	4822 051 30008	Jumper 0603
3542	4822 051 30008	Jumper 0603
3544	4822 051 30008	Jumper 0603
3999	4822 051 30392	3.9Ω 5% 0.063W 0603
9514	4822 051 30008	Jumper 0603
9515	4822 051 30008	Jumper 0603
9523	4822 051 30008	Jumper 0603
9525	4822 051 30008	Jumper 0603
9528	4822 051 30008	Jumper 0603
9529	4822 051 30008	Jumper 0603
9541	4822 051 30008	Jumper 0603
9542	4822 051 30008	Jumper 0603

6500	4822 130 11416	PDZ6.8B
6501	4822 130 11416	PDZ6.8B
6502	4822 130 11416	PDZ6.8B
6503	4822 130 11416	PDZ6.8B
6506	4822 130 11416	PDZ6.8B
6507	9340 548 61115	PDZ12B
6509	4822 130 11416	PDZ6.8B
6510	4822 130 11416	PDZ6.8B
6511	4822 130 11416	PDZ6.8B
6512	4822 130 11416	PDZ6.8B

DAF Panel [I]

Various

0034	3104 304 23041	DAF bracket EMGS
1417	4822 265 20723	Connector 2p
1418	2422 025 16374	Connector 2p m
1419	4822 265 20723	Connector 2p
1491▲	3104 311 02452	Cable f-hook/340/1p
1497	4822 267 10973	Connector 1p
8418	3104 311 01951	Cable 2p3/560/2p4 Bk

2800	2222 375 90495	330pF 5% 2kV
2800	2222 375 90498	470pF 5% 2kV
2821	2222 479 90166	68pF 5% 400V
2890	2222 375 90276	220pF 5% 2kV

3998	4822 116 52213	180Ω 5% 0.5W
3998	4822 116 83876	270Ω 5% 0.5W

5800▲	4822 148 81242	Coil CU20C2
5801	3128 138 38881	Transformer CU15 B

Mains Switch Panel FL13B [J]

Various

0046	3104 304 23471	Bracket mains unit FL11
0151	4822 256 91766	LED holder
0160	4822 256 91766	LED holder
0170	4822 256 10562	Photo diode holder
0201▲	2422 025 16268	Connector 2p m
0202▲	2422 025 16268	Connector 2p m
0241	2422 025 06354	Connector 9p m
1040	9322 185 95667	TSOP4836
1051▲	2422 128 02924	Switch power 2p
8202	3104 311 02571	Cable 2p3/680/2p3 Bk
8946	3104 311 04981	Cable 9p/820/9p

2040	4822 124 41584	100µF 20% 10V
2060	4822 124 81151	22µF 50V
2070	3198 017 44740	470nF 10V 0603
2071	4822 124 40248	10µF 20% 63V

3040	4822 117 13577	330Ω 1% 1.25W 0805
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30682	6.8Ω 5% 0.062W
3043	4822 051 30471	47Ω 5% 0.062W
3052	4822 051 30331	330Ω 5% 0.062W
3057▲	4822 053 21335	3.3MΩ 5% 0.5W
3060	4822 051 30103	10kΩ 5% 0.062W
3061	4822 117 13577	330Ω 1% 1.25W 0805
3062	4822 117 11373	100Ω 1% 0805
3063	4822 051 30103	10kΩ 5% 0.062W
3064	4822 117 11373	100Ω 1% 0805
3066▲	4822 053 21335	3.3MΩ 5% 0.5W
3070	4822 051 30155	1.5MΩ 5% 0.062W
3071	4822 051 30155	1.5MΩ 5% 0.062W
3072	4822 051 30102	1kΩ 5% 0.062W
3073	4822 051 30332	3.3Ω 5% 0.062W
3074	4822 051 30103	10kΩ 5% 0.062W
3075	4822 051 30472	4.7Ω 5% 0.062W
3078	4822 051 30332	3.3Ω 5% 0.062W
3999	4822 051 30472	4.7Ω 5% 0.062W
9008	4822 051 30008	Jumper 0603
9010	4822 051 30008	Jumper 0603
9040	4822 051 30008	Jumper 0603
9043	4822 051 30008	Jumper 0603
9050	4822 051 30008	Jumper 0603
9051	4822 051 30008	Jumper 0603
9052	4822 051 30008	Jumper 0603
9067	4822 051 30008	Jumper 0603

6050	9322 110 34682	TLDR5400
6060	9322 191 72682	VS LTL353UBJ

6061	4822 130 11397	BAS316
6070	4822 130 11595	BPW46

7060	5322 130 60159	BC846B
7061	5322 130 60159	BC846B
7070	5322 209 82941	LM358D

Mains Switch Panel - PV2 [J]

Various

0040	3139 177 74141	Mainsknob assy
0046	3139 124 30431	Fr. interface bracket
0151	4822 256 91766	LED holder
0170	4822 256 10562	Photo diode holder
0201	2422 025 16268	Connector 2p m
0202	2422 025 16268	Connector 2p m
0241	2422 025 06354	Connector 9p m
1031	2422 128 02972	Switch power 2p 8/128A
1040	9322 155 82667	TSOP2236
8202	4822 320 12513	Wiring VH 2p 480
8946	3104 311 02911	Cable 9p/680/9p Wh

2040	4822 124 41584	100µF 20% 10V
2070	3198 017 44740	470nF 10V 0603
2071	4822 124 40248	10µF 20% 63V

3030	4822 053 21335	3.3MΩ 5% 0.5W
3037	4822 053 21335	3.3MΩ 5% 0.5W
3040	4822 051 30331	330Ω 5% 0.062W
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30682	6.8Ω 5% 0.062W
3043	4822 051 30101	100Ω 5% 0.062W
3053	4822 051 30561	560Ω 5% 0.062W
3070	4822 051 30155	1.5MΩ 5% 0.062W
3071	4822 051 30155	1.5MΩ 5% 0.062W
3072	4822 051 30102	1kΩ 5% 0.062W
3073	4822 051 30332	3.3Ω 5% 0.062W
3074	4822 051 30103	10kΩ 5% 0.062W
3075	4822 051 30472	4.7Ω 5% 0.062W
3078	4822 051 30332	3.3Ω 5% 0.062W
3999	4822 051 30152	1.5Ω 5% 0.062W
3999	4822 051 30222	2.2kΩ 5% 0.062W
9001	4822 051 20008	Jumper 0805
9004	4822 051 20008	Jumper 0805
9005	4822 051 20008	Jumper 0805
9006	4822 051 20008	Jumper 0805
9007	4822 051 20008	Jumper 0805
9008	4822 051 20008	Jumper 0805
9041	4822 051 30008	Jumper 0603
9042	4822 051 30008	Jumper 0603
9050	4822 051 30008	Jumper 0603
9052	4822 051 30008	Jumper 0603
9053	4822 051 30008	Jumper 0603
9055	4822 051 30008	Jumper 0603

6051	4822 209 72895	TLUV5320
6070	4822 130 11595	BPW46

7070	5322 209 82941	LM358D