

Service Service Service



Service Manual

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1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

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

Notes:

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

1.1 Technical Specifications

1.1.1 Vision

Display type	: 3 x CRT,
	: Rear Projection TV
Screen size	: 51" (129.5 cm), 16:9
	: 60" (152.5 cm), 16:9
Resolution (Hor. Res.)	: > 1000 lines
Viewing angle (HxV degrees)	: 160x30
Tuning system	: PLL
TV Colour systems	: ATSC
	: NTSC M/N 3.58
	: Clear QAM
Video playback	: NTSC M/N 3.58, 4.43
	:
Supported video formats	: 640x480i - 1fH
	: 640x480p - 2fH
	: 1920x1080i - 2fH
Presets/channels	: 181, Full-Cable
Tuner bands	: VHF
	: UHF
	: S-band
	: Hyper-band

1.1.2 Sound

Sound systems	: FM-mono
	: AV Stereo
	: AC-3 Dolby Digital
	: BTSC
Maximum power (W_{RMS})	:
51 inch	: 2 x 5
60 inch	: 2 x 10

1.1.3 Miscellaneous

Power supply:	
- Mains voltage (V_{AC})	:
51 inch	: 90 - 140 / 110
60 inch	: 90 - 140
- Mains frequency (Hz)	: 60
Ambient conditions:	
- Temperature range (°C)	: +5 to +40
- Maximum humidity	: 90% R.H.
Power consumption (values are indicative)	
- Normal operation (W)	: ≈ 255
- Stand-by (W)	: < 1
Dimensions (WxHxD cm)	:
51 inch	: 125 x 140 x 62
60 inch	: 143.5 x 150.7 x 68.3
Weight (kg)	:
51 inch	: 83.7
60 inch	: 87

1.2 Connection Overview

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

1.2.1 Front / Side Connections



Figure 1-1 Front and Side I/O

1.2.2 Rear Connections

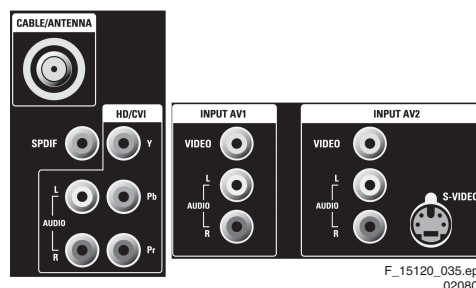


Figure 1-2 Rear I/O

Aerial - In

- F-type (US) Coax, 75 ohm



Cinch: Video CVBS - In, Audio - In

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



Cinch: Video YPbPr - In

Gn - Video Y 1 V_{PP} / 75 ohm
Bu - Video Pb 0.7 V_{PP} / 75 ohm
Rd - Video Pr 0.7 V_{PP} / 75 ohm



SVHS (Hosiden): Video Y/C - In

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



HDMI: Digital Video, Digital Audio - In

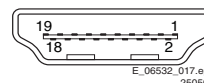


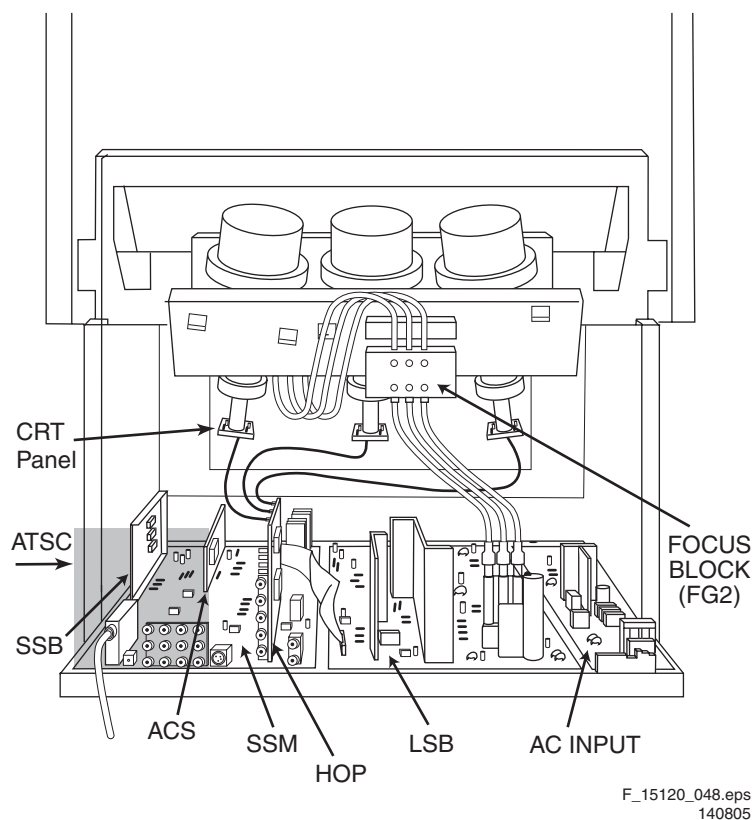
Figure 1-3 HDMI (type A) connector

1 - D2+ Data channel
2 - Shield Gnd
3 - D2- Data channel



4 - D1+	Data channel	⊕	18 - +5V		⊕
5 - Shield	Gnd	⊥	19 - HPD	Hot Plug Detect	⊕
6 - D1-	Data channel	⊕	20 - Ground	Gnd	⊥
7 - D0+	Data channel	⊕			
8 - Shield	Gnd	⊥			
9 - D0-	Data channel	⊕	Service Connector (ComPair)		
10 - CLK+	Data channel	⊕	1 - SDA-S	I ² C Data (0 - 5 V)	⊕
11 - Shield	Gnd	⊥	2 - SCL-S	I ² C Clock (0 - 5 V)	⊕
12 - CLK-	Data channel	⊕	3 - Ground	Gnd	⊥
13 - n.c.					
14 - n.c.			Cinch: S/PDIF - Out		
15 - DDC_SCL	DDC clock	⊕	Bk - Coaxial	0.4 - 0.6V _{PP} / 75 ohm	⊕
16 - DDC_SDA	DDC data	⊕			
17 - Ground	Gnd	⊥			

1.3 Chassis Overview



F_15120_048.eps
140805

Figure 1-4 PWB locations

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Maintenance Instructions
- 2.3 Warnings
- 2.4 Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Due to the chassis concept, a very large part of the circuitry (incl. deflection) is 'hot'. Therefore, connect the set to the mains via an isolation transformer.
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

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

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current is flowing. In particular this is valid for the:
 1. Pins of the line output transformer (LOT).
 2. Fly-back capacitor(s).
 3. S-correction capacitor(s).
 4. Line output transistor.
 5. Pins of the connector with wires to the deflection coil.
 6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the mains cord for external damage.
- Check the strain relief of the mains cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets that have an isolated power supply). Do this as follows:
 1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
 2. Turn on the main power switch (keep the mains cord unplugged!).
 3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection of the set. The reading should be between 4.5 MΩ and 12 MΩ.
 4. Switch the TV 'off' and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to prevent the possibility of the customer touching any internal parts.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.

- The maintenance inspection includes the following actions:
 1. Perform the 'general repair instruction' noted above.
 2. Clean the power supply and deflection circuitry on the chassis.
 3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in Fig. 2-1, to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_{DC}). Discharge until the meter reading is 0 V (after approx. 30 s).

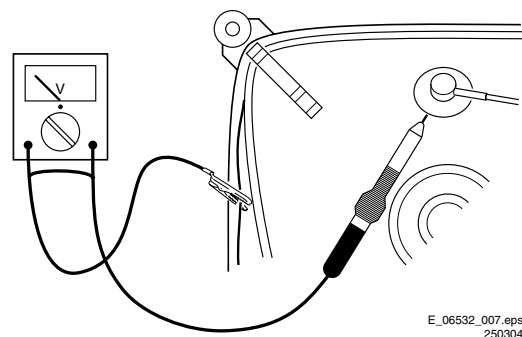


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this potential. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and ground cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- Together with the deflection unit and any multi-pole unit, flat square picture tubes form an integrated unit. The deflection and the multi-pole units are set optimally at the factory. We do not recommend adjusting this unit during repair.
- Be careful during measurements in the high voltage section and on the picture tube.
- Never replace modules or other components while the unit is 'on'.
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.4 Notes

2.4.1 General

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

- Where necessary, measure the waveforms and voltages with (⏏) and without (⏏) aerial signal. Measure the voltages in the power supply section both in normal operation (Ⓜ) and in standby (Ⓜ). These values are indicated by means of the appropriate symbols.
- The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

- Manufactured under license from Dolby Laboratories. 'Dolby', 'Pro Logic' and the 'double-D symbol', are trademarks of Dolby Laboratories.



Figure 2-2 Dolby PL symbol

3. Directions for Use

You can download this information from the following websites:

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

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

4. Mechanical Instructions

Index of this chapter:

- 4.1 Disassembly Procedures
- 4.2 Service Position
- 4.3 Picture Tube Replacement
- 4.4 Set Re-assembly

Notes:

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

4.1 Disassembly Procedures

All numbers, found in the following text, refer to the drawing below and apply to both the 43" and 55" models.

Note:

- Not all shown items are available for all models.
- If you are servicing a PWB or speaker, you do not need to remove the plastic Upper Back Cover (4).

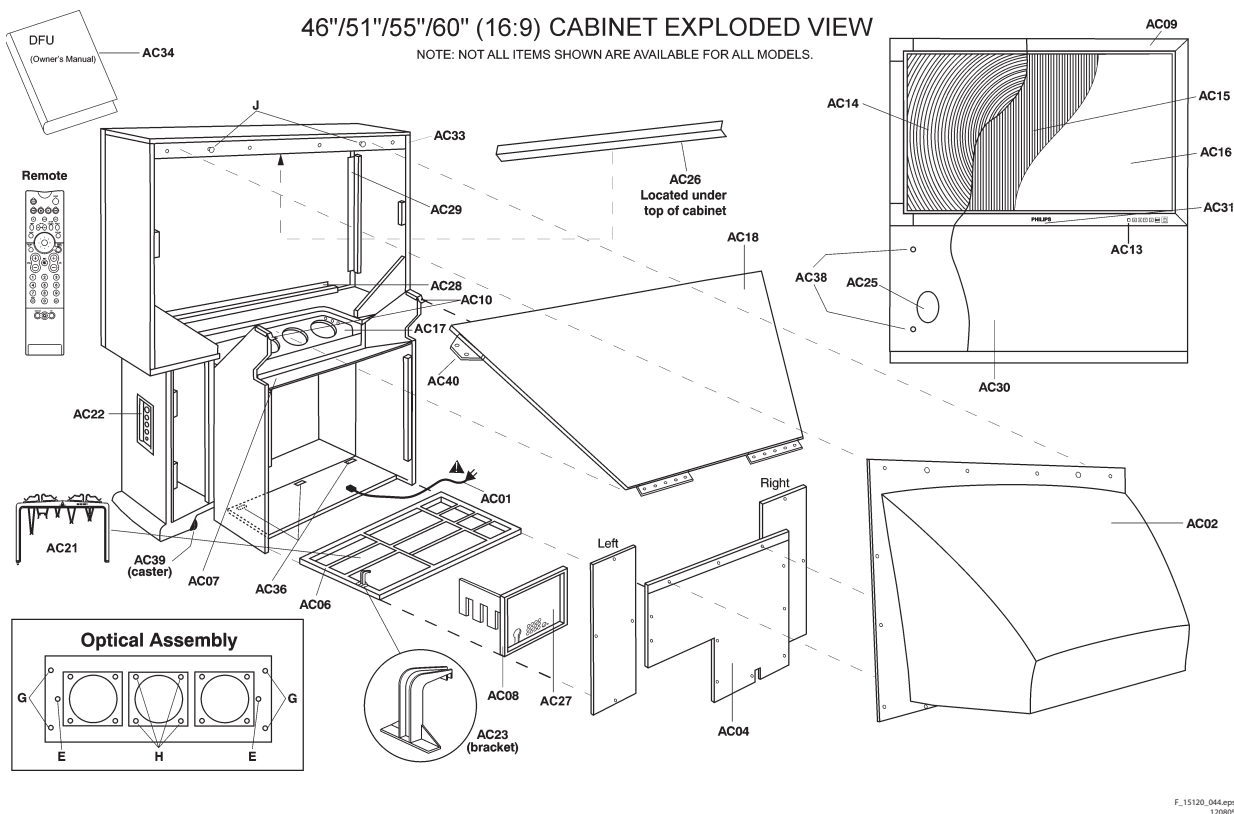


Figure 4-1 Exploded view 51" cabinet

4.1.1 Lower Center Back Cover Removal (86)

1. Remove all screws (B and C).
2. Remove the Lower Center Back Cover.

4.1.2 Side Back Cover Removal

Remove all screws (F) from each of the Side Back Covers (some prying may be necessary to dislodge covers).

Note: This allows access to the Side Jack Panel and to the Left and the Right Speakers.

4.1.3 Large Signal Board Removal (LSB)

Note: See for the location of the **panels** figure "PWB location" in Chapter 1 "Technical Specifications, Connection Facilities, and Chassis Overview".

1. Disconnect all cables.
2. Remove three screws from the center of the PWB and pull three tabs on the right of the bracket.
3. Lift the right side of the LSB and slide the panel up and out.

4.1.4 AC Input Panel Removal

1. Disconnect all cables.
2. Remove four screws from the PWB.
3. Lift the AC Input Panel up and out.

4.1.5 Small Signal Module Removal (SSM)

1. Remove three screws along the rear of the chassis frame.
2. Remove two screws, which hold the chassis frame and are located between the LSB and SSB panels.
3. Remove one screw, which holds the chassis frame and is located between the Input Power and LSB panels.
4. Remove the rear Jack Panel cover (76).
5. Slide the Chassis assembly rearward to allow access to the Module Bracket.
6. Remove the screws, which secure the Module Bracket, and release the cables.
7. Remove two screws from the centre of the SSM PWB.
8. Pull three tabs on the right of the panel bracket.
9. Lift the right side of the SSM, then move the SSM to the right to remove it.

4.1.6 Side Jack Panel Removal

1. Remove the Left Side Back Cover (see procedure above excluding the Module Bracket removal).
2. Remove two screws from the panel.
3. Slide the Side Jack Panel PWB out of the bracket.

4.1.7 PIP Panel Removal (if present)

1. Remove the rear Jack Panel cover (76).
2. Remove three screws from the PIP panel.

4.1.8 Small Signal Board Removal (SSB)

First, remove the Module Bracket (see the chapter "Small Signal Module Removal").

1. Release the metal retainer clips, located at the front and rear edges of the SIMM connector.
2. Tilt the SSB to the right and then pull it up.

4.1.9 Convergence Panel Removal (ACS)

First, remove the Module Bracket (see the chapter "Small Signal Module Removal").

1. Carefully pull the ACS panel upward to separate it from the SSM connectors.
2. Disconnect the cable assemblies.

4.1.10 Wide Band Video Panel Removal (HOP)

First, remove the Module Bracket (see the chapter "Small Signal Module Removal").

1. Remove the rear Jack Panel cover (76).
2. Disconnect the ribbon cable connectors.
3. Carefully separate the HOP panel from the SSM connectors.

4.1.11 Front Control Panel and Left or Right Speaker Removal (5)

1. Remove the Left and Right Side Back Covers.
2. Remove the two screws (on either side) of the speaker location.
3. Release two tabs on either side of the speaker baffle and pull the baffle forwards.
4. Loosen the ribbon cable and the grounding wire to allow working space.
5. Remove two screws to remove the Front Control Panel (4527).
6. Remove four screws each to remove the speakers (5208/5206).

4.1.12 Upper Back Cover Removal (4)

1. Remove all screws (A and B).
2. Lift the cover up to dislodge from pegs (J) and remove the cover.

4.1.13 Plastic Light Barrier Removal (Optical Assembly)

Remove two screws (E) (one each at either end of the plastic light barrier).

4.1.14 Mirror Mounting Board Removal (57)

Remove all screws, located in the mirror mounting board brackets, and remove the board.

Note: Take care **not** to place fingerprints or smudges on the mirror.

4.1.15 Complete Optical Assembly or Individual CRT Assembly Removal

1. Remove the Plastic Light Barrier.
2. Disconnect the CRT panels, 2nd anode leads (at HVT), and the yoke connectors from assemblies to be removed.
3. To remove the complete Optical Assembly, remove four screws (G) and lift the assembly up and out.
4. To remove individual CRT assemblies, remove four screws (H) from the desired assembly and lift the assembly up and out.

Caution: Do not disturb the focus assembly wing nuts, as this will misadjust mechanical focus.

4.2 Service Position

1. Remove the Side Back Covers.
2. Remove the Front Speaker Baffle.
3. Remove the Front Control Panel.
4. Route the ribbon cable and the wire through opening and into the back of the unit.
5. Reconnect the ribbon cable to the Front Control Panel.
6. Remove the Side Jack Panel to allow room for cable movement.
7. Remove the rear Jack Panel cover (76).
8. Being careful with the PIP Panel, pull the Chassis Frame out and tilt up.
9. Place the Chassis Frame on the bottom board of the PTV.

4.3 Picture Tube Replacement

Replacement of the cathode ray tube (CRT) and/or optical system components of a Projection TV (PTV) can be easily accomplished by following general guidelines. Use care when working around the CRT and optical systems of the PTV. The PTV light path encompasses a number of precision optical components. These include lenses, mirrors, the lenticular screen, and Fresnel lens. The PTV incorporates three separate CRTs, representing green, red, and blue outputs. Each CRT uses an independent deflection/convergence yoke, magnetic centring ring, coupler, C-element lens, and output lens (A/B lens). Each tube is mechanically fastened to a coupler which houses fluid (a glycol-type substance) used to cool the high temperatures generated by the small (7") CRTs. The fluid also provides an optical characteristic supporting the optical system of the PTV. When replacement of a CRT or optical component is required, caution must be exercised in preventing fluid spillage. The technician must carefully reassemble the CRT/optical components, ensuring a proper seal of the coupling fluid. Use only factory original coupling fluid.

Caution: Do not use or add water as an alternative to the prescribed coupling fluid.

Note: Upon completion of CRT/optical assembly repair, the centring, convergence, grey scale, mechanical and electrical focus adjustments are required. If more than one assembly requires repair, it is recommended the service technician fully complete one assembly at a time, using the existing assemblies as a reference for the alignment of the centring and convergence.

The following procedure should be used when performing repairs on the CRT/optical assemblies of the Projection TV.

4.3.1 Disassembly Procedure**A. Removal of a single CRT/Lens Assembly from the light rack**

1. Remove AC power from the PTV.
2. Remove the upper and lower back covers (1/4" screws).

3. Remove the barrier board and the shield cover from around the lens assemblies (1/4" screws).
4. Carefully remove the CRT Socket Board from the CRT of the CRT/optical assembly being serviced.
5. Remove the yoke and convergence plugs, of the CRT/optical assembly being serviced, from the Large Signal Module.
6. Remove the high voltage anode lead from the HV splitter block on the Large Signal Module of the CRT/optical assembly being serviced. Remove ground lug connectors from the coupler frame.
7. Remove the four 1/4" screws that secure the CRT/lens assembly to the light rack. These four screws are located in each corner, on the top of the coupler assembly.
Caution: Do not remove the bolts with pressure springs or the inverted Torx screws of the CRT/lens assembly. The removal of these components could result in fluid spillage into the PTV cabinet.
8. Carefully remove the CRT/Lens assembly from the PTV cabinet.

4.3.2 Servicing the CRT/Lens Assembly

Warning: Coupling fluid is a poisonous solution containing a high concentration of ethylene glycol. Do not leave exposed fluid unattended. Prevent children or pets from coming into contact with the fluid. Clean up spills immediately.

Caution: Do not attempt any repairs on the CRT/optical block assembly without first removing the CRT coupling fluid. Removal of the delta output lens will result in spillage of the coupling fluid.

B. Removing the PTV Coupling Fluid

All repairs made to the CRT/optical block assembly require the removal of the coupling fluid. The following procedure describes how to remove the PTV coupling fluid.

1. Lay the CRT assembly on its side with the plug pointing up.
2. Remove the plug (X8).
3. Remove some of the fluid from the coupler to prevent spillage when the CRT is removed. An empty coupling fluid bottle with a cone top is recommended to lower the fluid level within the coupler. Squeeze and hold the bottle and insert the tip of the cap into the drain hole of the coupler. Loosen the grip on the bottle, allowing the fluid to be pulled up into the bottle. Save the fluid.
4. Reinstall the plug (X8).
5. Stand the CRT assembly up with the neck of the CRT pointing up.
6. With an awl or marking pen, outline the edges of the CRT onto the coupler.
Note: The correct positioning of the CRT to the coupler is critical to the optimum performance of the optical system.
7. Remove the four CRT mounting bolts (A) (with springs and spacers) and remove the mounting bracket (D).
8. Remove the four CRT mounting ear screws.
Note: The CRT mounting ear screws are not used on some assemblies.
9. Gently remove any metal shavings from around the screw holes. Do not allow the metal shavings to get into the fluid. Note the position of the high voltage anode cap with respect to the coupler.
10. Carefully remove the CRT from the coupler. Wipe any excess fluid from the faceplate of the CRT. Set the CRT aside.
11. Use an empty coupling fluid bottle to extract the remainder of the fluid from the coupler.
Note: Complete removal of the coupling fluid is not necessary when only replacing the CRT.
12. Clean any remaining fluid from the coupler and the CRT gasket channel using absorbent tissue. Refer to "C". Cleaning the Coupler, C-element Lens, and CRT Faceplate procedure if the fluid is discoloured or contaminated.

13. Make all necessary repairs.

C. Cleaning the Coupler, C-Element Lens, and CRT Faceplate

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Using denatured alcohol on a cloth made of 100% cotton or a lens cleaning tissue, gently clean the C-element (fisheye) lens, coupler and the CRT faceplate. Thoroughly clean the coupler assembly, including the expansion chamber bladder, and allow to fully dry.
Caution: Do not use soap or detergent type substances to clean the coupler and its related assemblies. Water can be used as an alternative to denatured alcohol, but the assemblies must be completely dry before reassembly of the coupler and the addition of the coupling fluid. A hair dryer may be used to dry the coupler and its assemblies before reassembly. If contaminated fluid is discovered, the coupler and its related assemblies must be completely disassembled and cleaned to prevent a reoccurrence.
3. Replace the CRT and C-element lens gaskets.
4. Reassemble the C-element lens and the output lens to the coupler.
5. Refer to "Replacing the CRT Coupling Fluid" upon completion of necessary repairs and cleaning of the optical/coupler assemblies.

D. Replacement of the CRT

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Remove the plastic protective coating (if present) from the faceplate of the replacement CRT.
3. Refer to "Replacing the CRT Coupling Fluid" to complete the CRT replacement.

E. Repair or Replacement of the Optical/Coupler Assembly

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Remove the four inverted-type Torx screws, which secure the Delta output lens to the coupler. An inverted-type Torx socket can be purchased using part number 4835 395 17303.
3. Removal of the Delta output lens will allow access to the C-element lens, C-element gasket, coupler, and its assemblies.
4. Refer to "Replacing the CRT Coupling Fluid" upon completion of necessary repairs to the optical/coupler assemblies.

F. Replacing the PTV Coupling Fluid

Notes:

- Before replacing the CRT coupling fluid, ensure the expansion chamber bladder is fully collapsed. This can be easily inspected by viewing the bladder through the small hole on the expansion chamber assembly. If the rubber of the bladder is not easily visible through the small hole, then the bladder may be considered collapsed and fluid can be added. If the rubber of the expansion chamber bladder is visible at the hole of the expansion chamber, then replacement of the expansion chamber bladder is required.
 - The CRT coupling fluid is critical to the optical performance of the PTV. Use only part number 4835 310 67032 (3 bottle kit) or 4835 310 67031 (1 bottle) to ensure the optical integrity and performance reliability of the PTV when replacing the CRT coupling fluid.
1. Reinstall the CRT gasket into the gasket channel of the coupler. Confirm the placement of the CRT, C-element lens, and vent plug gaskets.
 2. Place the CRT onto the coupler with the high voltage anode lead positioned as marked in step 10 of procedure B.
 3. Carefully position the CRT onto the coupler, using the outline defined in step 6 of procedure B as a reference.

4. Start the CRT mounting ear screws but do not tighten them.
5. Tighten the CRT mounting ear screws in a star pattern (like tightening lug nuts on the wheel of a car). Make sure the CRT does not shift position from the outline defined in step B6.
Caution: do not over tighten the CRT ear screws (the CRT mounting ear screws are not used on some assemblies).
6. Install the CRT mounting bracket and start the four CRT mounting bracket bolts with springs.
7. Tighten the bolts in a star pattern.
8. Lay the CRT assembly on its side with the plug pointing up.
9. Remove the plug.
10. Using the PTV coupling fluid bottle with the cone top, refill the coupler with fluid through the drain access hole.
Completely fill the coupler chamber so the fluid is level with the top of the coupler at the plug. Wipe any excess fluid from around the coupler.
11. Reinstall the plug and check for any fluid leaks.
12. Install the repaired CRT/optical block assembly into the PTV and perform any necessary adjustments.

4.4 Set Re-assembly

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

Note: While re-assembling, make sure that all cables are placed and connected in their original position

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

- 5.1 Test Conditions
- 5.2 Service Modes
- 5.3 Problems and Solving Tips (related to CSM)
- 5.4 ComPair
- 5.5 Error Codes
- 5.6 The "Blinking LED" Procedure
- 5.7 Trouble Shooting Tips

5.1 Test Conditions

The chassis is equipped with test points printed on the circuit board assemblies. They refer to the diagram letters. The numbering is in a logical sequence for diagnostics. Always start diagnosing (within a functional block), in the sequence of the relevant test points for that block.

Measurements should be performed 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").

5.2.1 Service Default Mode (SDM)

Introduction

The Service Default Mode (SDM) is a technical aid for the service technician. The Service Default Mode (SDM) establishes fixed, repeatable settings of customer controls, which allow consistent measurements to be made. The SDM also initiates the blinking LED procedure and, if necessary, overrides the 5 V protection.

The SDM places the set in the following pre-defined conditions:

- Tuning frequency set to 475.25MHz.
- Volume level set to 25% (of the maximum volume level).
- Other picture and sound settings set to 50% (mid-range).

The following functions are turned OFF while in SDM:

- Timer
- Sleep timer

The following functions are disabled during SDM (and enabled after leaving SDM):

- Parental lock
- Blue mute
- Hospitality Mode
- No-ident Timer (normally the set is automatically switched off when no video signal (IDENT) is received for 15 minutes).

All other controls operate normally.

How to enter SDM

To enter the Service Default Mode, press the following key sequence on the remote control transmitter

"0-6-2-5-9-6"-MENU. Do not allow the display to time out between entries while keying the sequence.

Upon entry into the Service Default Mode, the letters "SDM" will be displayed at the upper right corner of the screen.

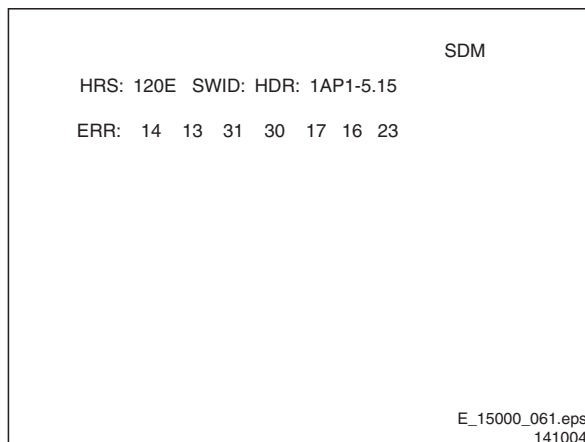


Figure 5-1 SDM menu

Special SDM functions

- Access to normal user menu: Pressing the "MENU" button on the remote control switches between the SDM and the normal user menus (with the SDM mode still active in the background).

How to exit SDM

To exit the Service Default Mode, press the Power (standby) button.

Note: To save the error codes, unplug the AC power cord without turning off the set. When the power is turned back on, the Service Default Mode will still be active.

5.2.2 Service Alignment Mode (SAM)

The Service Alignment Mode (SAM) is used to align the set and/or adjust the option settings and to display/clear the error code buffer values.

How to enter SAM

- To enter the Service Alignment Mode (SAM), press the following key sequence on the remote transmitter: **"0-6-2-5-9-6"-[I+]**. Do not allow the display to time out between entries. After entering SAM with this method a service warning will appear on the screen, 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" the following menu structure will appear on the screen:

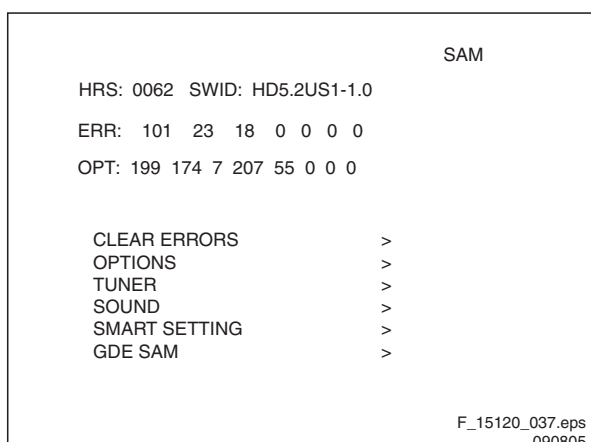


Figure 5-2 SAM menu

Contents of SAM

- **OPERATION HOURS.** Displays the accumulated total of operation hours (not the standby hours).
- **SOFTWARE INFO**
 - **SWID** Displays the SW version of the software.
example: HD5.2US1-1.00
 - **AP1** = 2 letter and 1 digit combination to indicate the software type and supported languages:
 - **AP** = Asian Pacific.
 - **1** = Main SW language version number.
 - **5.15** = Sub version number.
- **ERRORS** (followed by maximal 7 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **OPTION BYTES.** See chapter 8.
- **SUB MENU**
 - Clear Errors
 - Erases the contents of the error buffer. Select the CLEAR ERRORS menu item and press the LEFT or RIGHT cursor key. The contents of the error buffer are cleared.
 - The functionality of the OPTIONS and ALIGNMENTS (TUNER, WHITE TONE, GEOMETRY, SOUND, and SMART SETTING) sub-menus are described in the service adjustments.
 - The functionality of the OPTIONS and ALIGNMENTS (TUNER, WHITE TONE, GEOMETRY, SOUND, and SMART SETTING) sub-menus are described in the service adjustments.

How to navigate

Menu items may be selected using the cursor UP/DOWN keys. The selected item will be highlighted.

When not all menu items will fit on the screen, pressing the cursor UP/DOWN keys on the remote transmitter will display the next/previous menu items.

With the cursor LEFT/RIGHT keys, it is possible to:

- Activate/deactivate the selected menu item (e.g. TUNER)
- Change the value of the selected menu item (e.g. VER-SLOPE)
- Activate the selected submenu (e.g. SERV-BLK)

Access to normal user menu

Pressing the "MENU" button on the remote control switches between the SAM and the normal user menus (with the SAM mode still active in the background). Pressing the "MENU" key in a submenu will return the screen to the previous menu.

Menu and Sub-menu Definitions

Clear Errors: Erases the contents of the error buffer. Select the CLEAR ERRORS menu item and press the LEFT or RIGHT cursor key. The contents of the error buffer are cleared.

The functionality of the OPTIONS and ALIGNMENTS (TUNER, WHITE TONE, GEOMETRY, SOUND, and SMART SETTING) sub-menus are described in the "Alignments" section (chapter 8).

How to exit SAM

To exit the Service Alignment Mode, press the Power (Standby) button.

Note: To save the error codes, unplug the AC power cord without turning off the set. When the power is turned back on, the Service Alignment Mode will still be active.

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 then 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.

There are 2 pages in the CSM. the second page is accessed by pressing the 'channel down' button on the remote control or keyboard. Press 'channel up' to view the previous page. The second page shows the status of the ATSC module, like channel input, RF channel selected, channel information, type and status.

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.

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

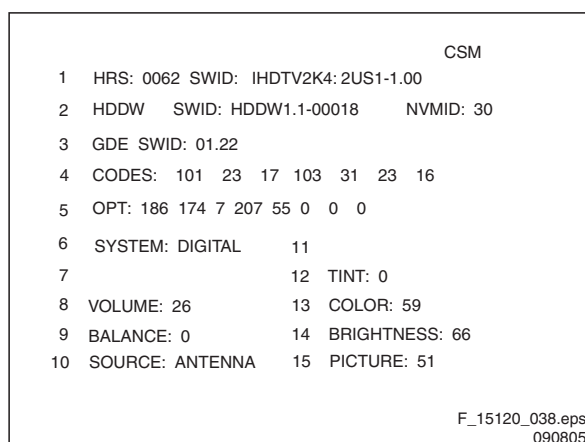


Figure 5-3 CSM menu

Contents of CSM**Customer Service Menu 1**

- **Line 1 :** "HRS : nnnn" and SWID : "2US1-1.00"
 - HRS: Indicates the accumulated total of operational hours. (Shown in hexadecimal format.) (Standby hours are not counted as operating hours).

- SWID: Software identification of the main micro controller (2US1-1.00)
- US1 is 2 letter and 1 digit combination to indicate the software type and the supported languages.
- **Line 2** : "HDDW SWID: HDDW1.1-00018" AND "NVMID: 30";
 - HDDW SWID: Software identification of DW module.
 - NVMID: Software identification of the NVM.
- **Line 3**: "GDE SWID: 01.22"; Software identification of GDE engine.
- **Line 4** : "CODES : xx xx xx xx xx xx xx "; Error code buffer (see explanation of error codes above) Displays the last 7 errors of the error code buffer.
- **Line 5** : "OPT xxx xxx xxx xxx xxx xxx xxx"; Option bytes. Option bits control software and hardware functionality. An option byte or option number represents 8 of those bits. Each option number is displayed as a number between 0 and 255. The set may not work correctly when an incorrect option code is set. See Service Adjustments for more information on correct option settings
- **Line 6**: "SYSTEM : AUTO"; Indicates which Colour and sound system is installed for this preset: NTSC/PAL/SECAM. Complaints that may be caused by an incorrect system setting: no color / colours not correct / unstable picture /noise in picture. To change the system setting of a preset: Press the "MENU" button on the remote control
 - Select the INSTALL sub menu
 - Select the MANUAL STORE sub menu
 - Select and change the SYSTEM setting until picture and sound are correct
 - Select the STORE menu item
- **Line 7** : Line 7 through 15 show the status of customer controls and signal source selected.
- **Line 8**: "VOLUME"; Value indicates level at CSM entry.
- **Line 9** : "BALANCE"; Value indicates level at CSM entry.
- **Line 10** : "SOURCE :"; Indicates which SOURCE is installed for this preset. AV1, AV2, SVHS2, Channel number (8)
- **Line 11**: Line 7 through 15 show the status of customer controls and signal source selected..
- **Line 12** : "TINT"; Value indicates level at CSM entry.
- **Line 13** : "COLOUR"; Value indicates level at CSM entry.
- **Line 14** : "BRIGHTNESS"; Value indicates level at CSM entry.
- **Line 15** : "PICTURE"; Value indicates level at CSM entry.

How to exit CSM

Use one of the following methods:

- Press a key on the remote control transmitter with exception of the 'CHANNEL', 'VOLUME' and digit (0-9) keys)
- Press the 'POWER' button on the remote control transmitter or on the TV set.

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 high on other programs, check the aerial cable/aerial system.
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 'Smart Picture' button on the RC-transmitter. 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 'Smart Picture' button on the RC-transmitter. 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 'Smart Picture' button on the Remote Control. 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 'On', 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

Check line 20 'TV System'. If a "strange" system pops up, something has gone wrong during installation. Re-install the channel.

Menu text not sharp enough

1. Press 'Smart Picture' button on the RC-transmitter. 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 'LS 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 I²C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I²C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS232) cable.

For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatic (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I²C/UART level. ComPair can access the I²C/UART bus of the television. ComPair can send and receive I²C/UART commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I²C/UART busses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the fault finding process.

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

Beside fault finding, ComPair provides some **additional features** like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the (European) Dealer Service Tool (DST).
- If both ComPair and Force/SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.

Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*

- Click on the “Panel” hyperlink to automatically show the PWB with a highlighted capacitor C2568.

- Click on the “Schematic” hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 How To Connect

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

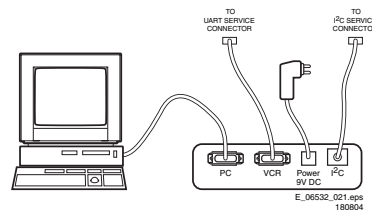


Figure 5-4 ComPair interface connection

5.4.4 How To Order

ComPair order codes (US):

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

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

5.5 Error Codes

5.5.1 Introduction

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

5.5.2 How to read the error buffer

Use one of the following methods:

- On screen via the SAM (only possible when you have a picture). Examples:
 - ERR: 0 0 0 0 0 0** : No errors detected.
 - ERR: 6 0 0 0 0 0** : Error code 6 is the last and only detected error.
 - ERR: 9 6 0 0 0 0** : Error code 6 was first detected and error code 9 is the last detected (newest) error.
- Via the "blinking LED" procedure, if no picture is available. See explanation of "The blinking LED procedure" below.

5.5.3 How to clear the error buffer

The error code buffer will be cleared in the following cases:

- By activating "CLEAR ERRORS" in the SAM menu.
- By exiting SDM or SAM with the "Standby" command on the remote control.
- Upon automatic reset, when the content has not changed for 50 consecutive hours.

Note: By leaving SDM or SAM via the Mains switch, the error buffer will not be reset.

5.5.4 Error codes

In case of non-intermittent faults, clear the error buffer before starting the repair. This to ensure that "old" error codes are no longer present. Before clearing the buffer, write down the content, as the history can give you valuable information. If possible, check the entire content 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).

Table 5-1 Error Code Table

Error number	Explanation
0	No error
1	FBX 3V3 protection
2	No Horizontal Flyback protection
3	Vertical Output Failure (GDE)
4	+5V protection active
5	HOP POR not successful
6	General I2C error main I2C bus
7	DAC Initialisation failure (GDE)
8	(not applicable)
9	HCS-GDE communication failure
10	NVM communication failure
11	NVM Id error
12	Main uP Internal RAM test failure
13	Main tuner I2C failure
14	Sound I2C failure
15	SRAM test failure
16	(not applicable)
17	(not applicable)
18	(not applicable)
19	(not applicable)
20	(not applicable)
21	(not applicable)
22	(not applicable)
23	Bocma IC TDA888xx on DW panel error
24	
25	
26	
27	Virtual Dolby error
30	HIP I/O-video processing error
31	Feature Box error
32	
33	
34	
35	
100	
101	No Ack or response from GDE
102	HCS encountered errors
103	Sony A/V Switch I2C communication failure
104	GDE non-critical error
105	Change Display Config Exit did not occur
106	I'm alive' not received in time
107	Reserved for future error codes
108	Reserved for future error codes
109	Reserved for future error codes
110	Reserved for future error codes
111	Reserved for future error codes
112	Reserved for future error codes
113	Reserved for future error codes
114	Reserved for future error codes
115	Reserved for future error codes
116	Reserved for future error codes
117	Reserved for future error codes
118	Reserved for future error codes
119	Reserved for future error codes

Note: Error codes 1,2, 3, and 4 are protection codes, and in this case, the 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.

Table 5-2 Error Code Table GDE

Error	Error Name	Description
A	Vertical Output Failure	This error indicates the Vertical Deflection pulse received at pin 9 on the TDA933x is not correct. This can be caused by a failure in the HOP board or the Scan Board.
B	Horizontal Flyback Failure	This error indicates the Horizontal Flyback pulse received at pin 13 on the TDA933x is not correct. This can be caused by a failure in the HOP board or the Scan Board.
C	HOP Initialization Failure	This error indicates the TDA933x was not initialized correctly during ACS board power up. This can be caused by an error on the ACS board, the HOP board or the Small Signal Carrier board.
D	DAC Initialization Failure	This error indicates the TDA8444 was not initialized correctly during ACS board power up. This can be caused by an error on the ACS board, the HOP board or the Small Signal Carrier board.
E	Auto Convergence Failure	This error indicates an error during the Auto Convergence process.
F	Set References Failure	This error indicates there was an error while setting the reference values.
G	Sensor Pattern Failure	This error indicates there is an error in a sensor or an error occurred while walking a pattern across a sensor.
H	General Initialization Failure	This error indicates a general initialization software failure. This error is caused by the ACS board.
I	HOP IIC Error	This error indicates there was an IIC error while accessing the HOP. This can be caused by an error on the ACS board, the HOP board or the Small Signal Carrier.
J	DAC IIC Error	This error indicates there was an IIC error while accessing the DAC. This can be caused by an error on the ACS board, the HOP board or the Small Signal Carrier.
K	ST2050A IIC Error	This error indicates there was an IIC error while accessing the ST2050A. This can be caused by an error on the ACS board.
L	Main EEPROM IIC Error	This error indicates there was an IIC error while accessing the main EEPROM on the ACS board. This can be caused by an error on the ACS board.
M	EEPROM Factory Service 1 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 1. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
N	EEPROM Factory Service 2 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 2. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
O	EEPROM Factory Service 3 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 3. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
P	EEPROM Customer Data 1 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 1. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
Q	EEPROM Customer Data 2 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 2. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
R	EEPROM Customer Data 3 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 3. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
S	EEPROM Factory Service 4 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 4. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
T	EEPROM Factory Service 5 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 5. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
U	EEPROM Factory Service 6 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM factory/service area 6. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
V	EEPROM Customer Data 4 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 4. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
W	EEPROM Customer Data 5 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 5. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
X	EEPROM Customer Data 6 Failure	This error indicates there was a data integrity failure when accessing the main EEPROM customer data area 6. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.
Y	EEPROM Scratch Pad Failure	This error indicates there was a data integrity failure when accessing the main EEPROM scratch pad area. This error is caused by corrupted EEPROM data that does not match the data integrity CRC.

5.6 The "Blinking LED" Procedure

5.6.1 Introduction

The contents of the error buffer can also be made visible through the "blinking LED" procedure. This is especially useful when there is no picture.

When the SDM is entered, the LED will blink the number of times equal to the value of the error code.

- The ON/OFF indicator going out for 500 ms precedes all error code sequences. (There is a possibility of up to 10.)
- After the 500 ms delay, the ON/OFF indicator will slowly flash the first number of the first code.
- This immediately follows by rapid flashes for the second number in the first code. If an error code is smaller than 10, the ON/OFF indicator will rapidly flash 1-9 times to indicate the code. (EXP. Six rapid flashes indicate an error code of 6.)
- There will be a delay of approximately 3 seconds between codes.
- For error codes of 10 and higher, the ON/OFF indicator will slowly flash the correct number of times to indicate the first digit, and will then rapidly flash the correct number of times to indicate the second digit. (EXP. Three slow flashes followed by six rapid flashes indicate an error code of 36.)
- When all error-codes are displayed, the sequence is finished and the ON/OFF indicator turns OFF for 300 ms. At this point the sequence will begin again as indicated by the ON/OFF indicator turning ON for 300 ms and repeating all error codes.

Example: 112 024 036 0 0

After entering SDM:

- The sequence will begin by the ON/OFF indicator turning off for 500 ms.
- Then slowly blink 11 times followed by two rapid blinks (indicating error code 112).
- Next the LED will pause for 300 ms followed by 2 slow blinks follow by 4 rapid blinks, (indicating error code 024).
- Next the LED will pause for 300 ms, then slowly blink 3 times followed by 6 rapid blinks (indicating error code 36).
- Then pause 300 ms ending the sequence in this example.
- If there were error codes in positions 4 and 5, those sequences would also be given.

Note: If errors 1, 2, 3, or 4 occur, the LED **always** blinks indicating the last error that occurred, even if the set is **not** in service mode.

5.7 Trouble Shooting Tips

5.7.1 Introduction

Before the set can be repaired to a component level, it is necessary to determine which board is defective. The Wiring interconnect diagram is a useful tool for this (see chapter 6).

5.7.2 Dead set

The Standby Power supply and Rectifiers are located on the Input panel. Control for power On/Off is performed by the Microprocessor located on the SSB. This Processor is powered by the 5 Volt standby voltage from the Input Panel. For a Dead Set condition, check the 5 Volt standby supply on Pin 1 of 1102. If this voltage is present, check the Standby line on Pin 3. This line will be approximately 2.6 Volts in standby and zero Volts when the set is turned "on". If the Standby line goes Low, check the 130 Volt source on Pin 8 of connector 1518. If this voltage is present, the Full Power supply on located on the Large Signal panel is working. If the Picture is not present but audio is, the High voltage or video drive circuits may have failed.

Checking the Screen voltage from the Focus G2 block will indicate whether the High voltage circuit is working or not. Horizontal and Vertical drive from the HOP panel must be present for the High voltage to be present. Horizontal drive should be present on Pin 9 of 1510 and Vertical drive should be present on Pin 3.

5.7.3 No Picture

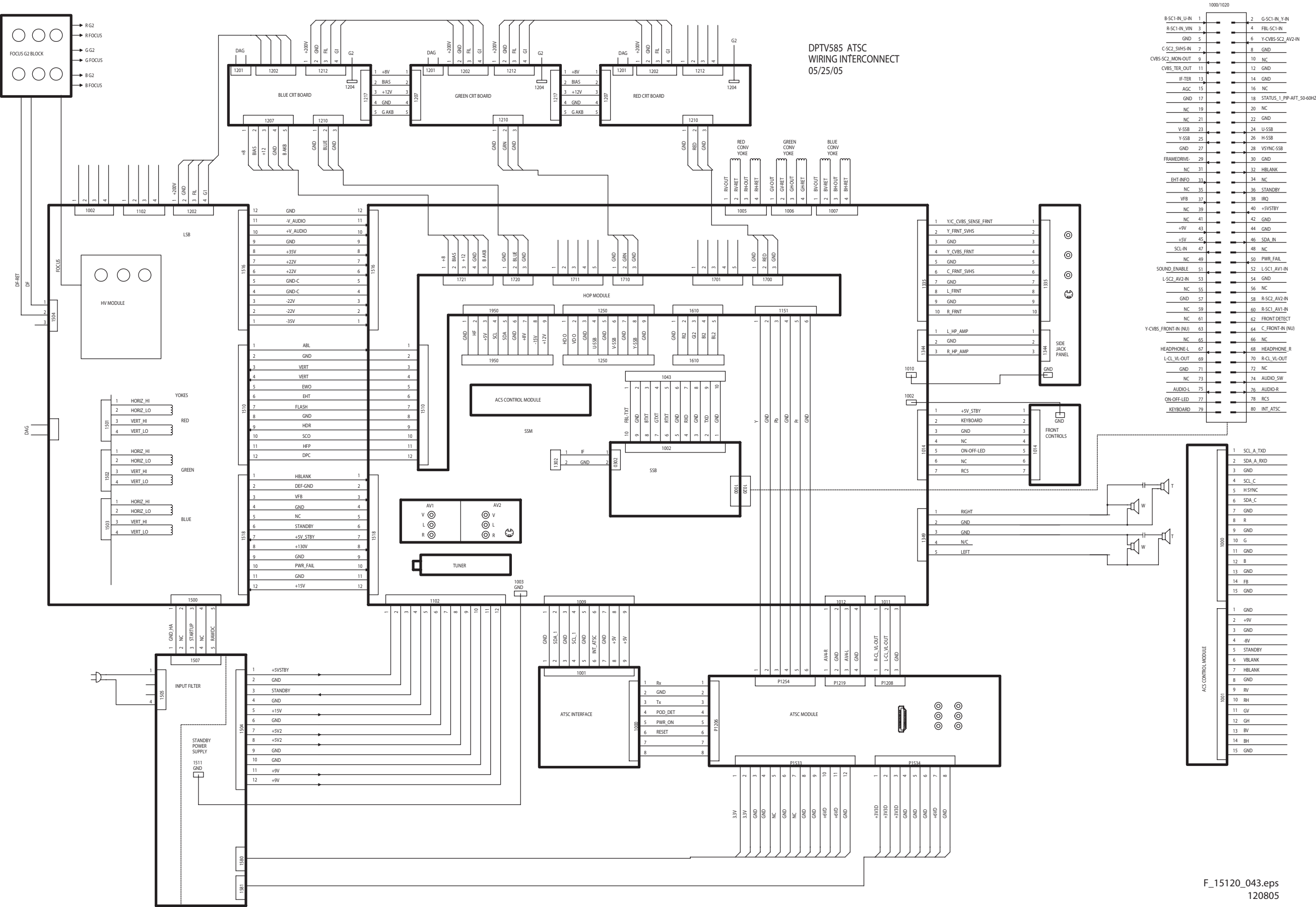
If Audio is present but there is no Picture, press the Index button on the Remote control. If OSD is present, High voltage is working and the CRT drive circuits are working. If the signal is NTSC, YUV from the SSM is fed to the HOP on connector 1250. YUV from the SSB can be checked on Pins 25, 24, and 23 of connector 1020.

5.7.4 No Audio

The Audio amplifier is located on the SSM. The Audio is powered by a supply located on the Large Signal panel. This voltage can be checked on Pins 10 and 11 of connector 1516. These voltages will measure a plus 23 and a minus 23 Volts. Speaker output can be checked on connector 1349. A Centre Channel Amp switch panel will be present on the Core models

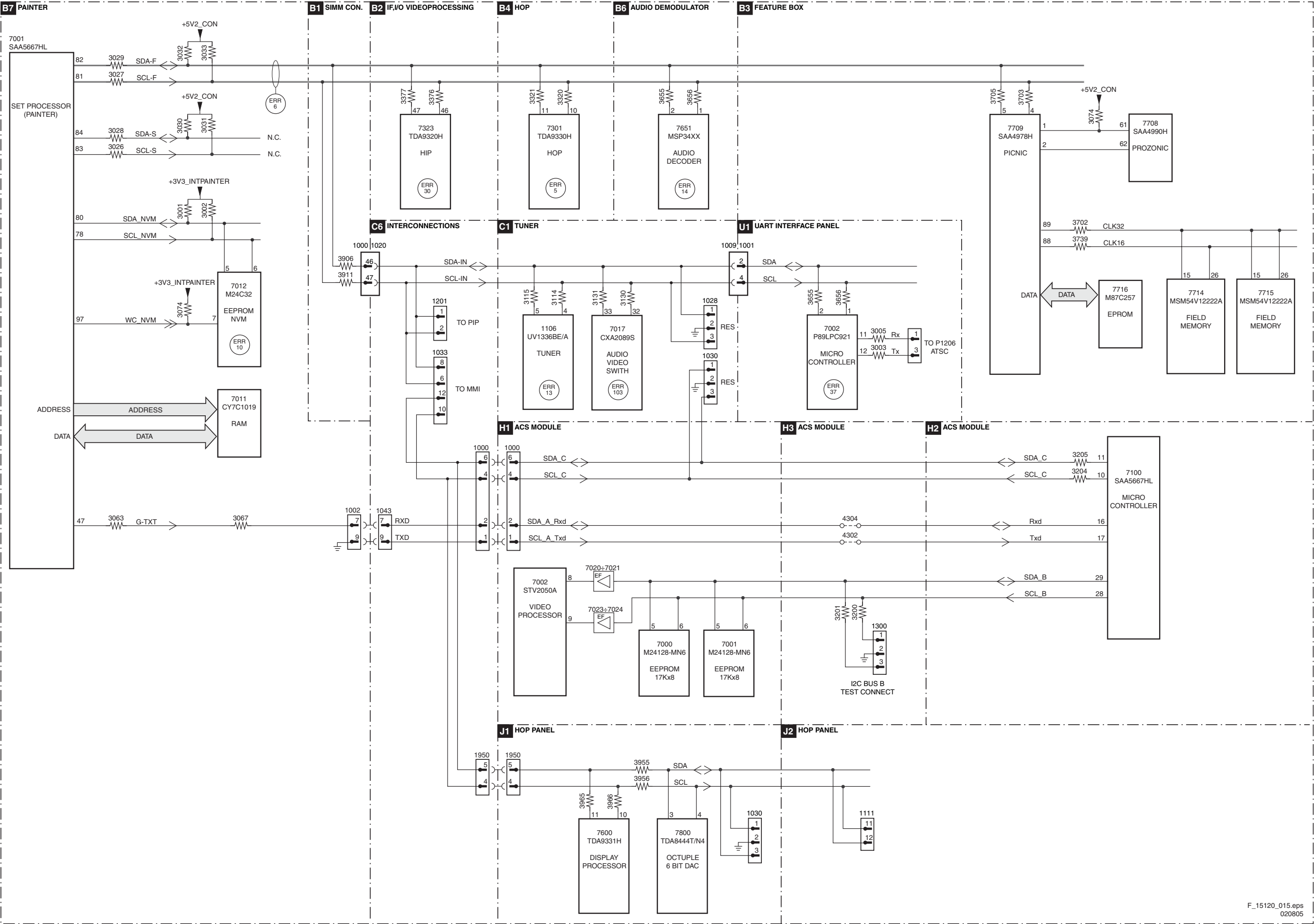
6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram

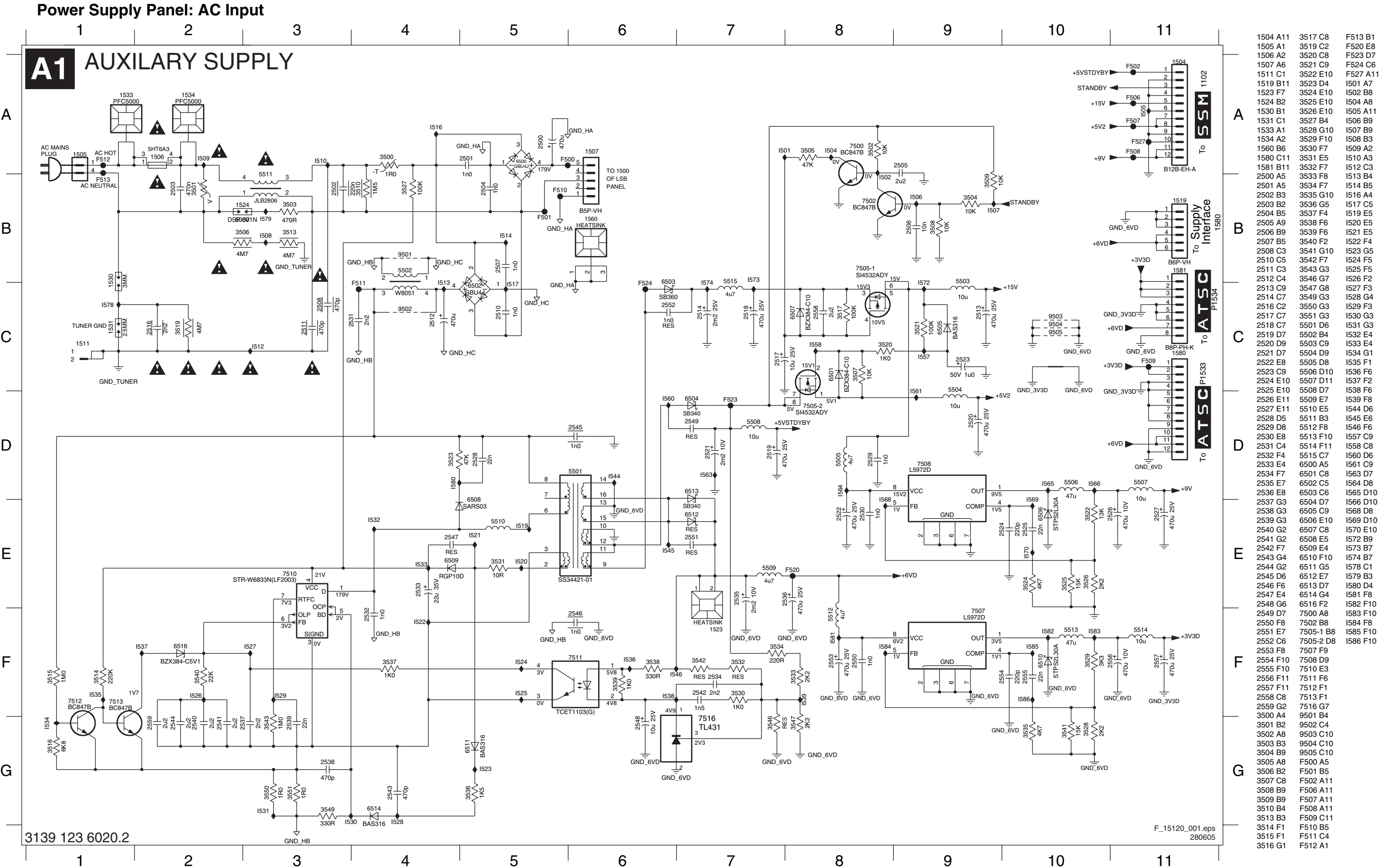


I2C Overview

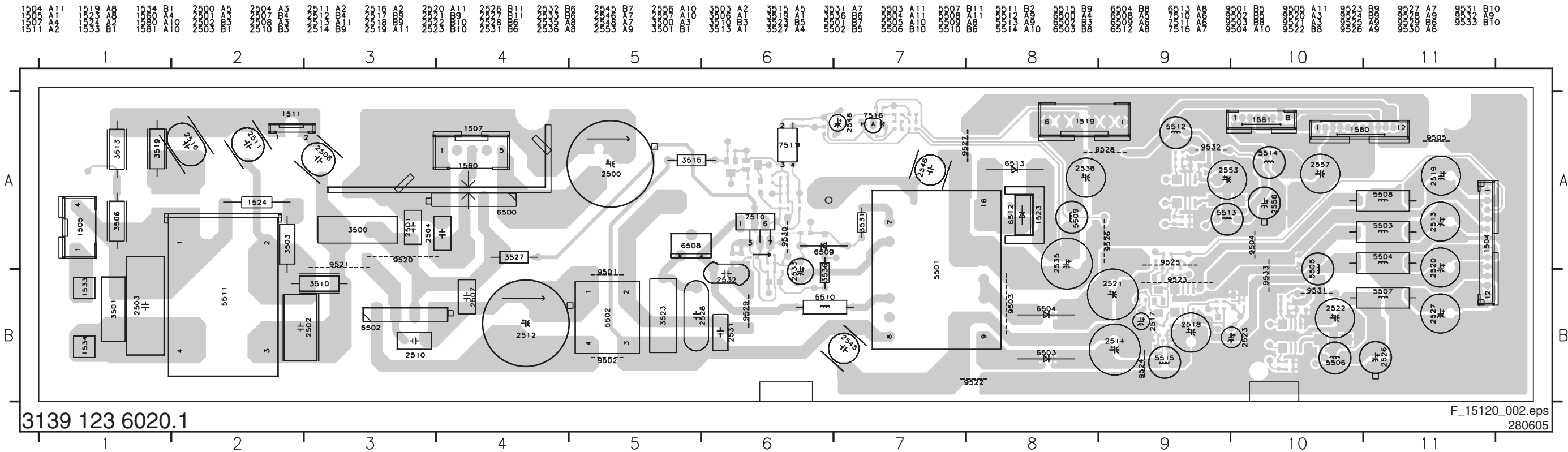
I2C



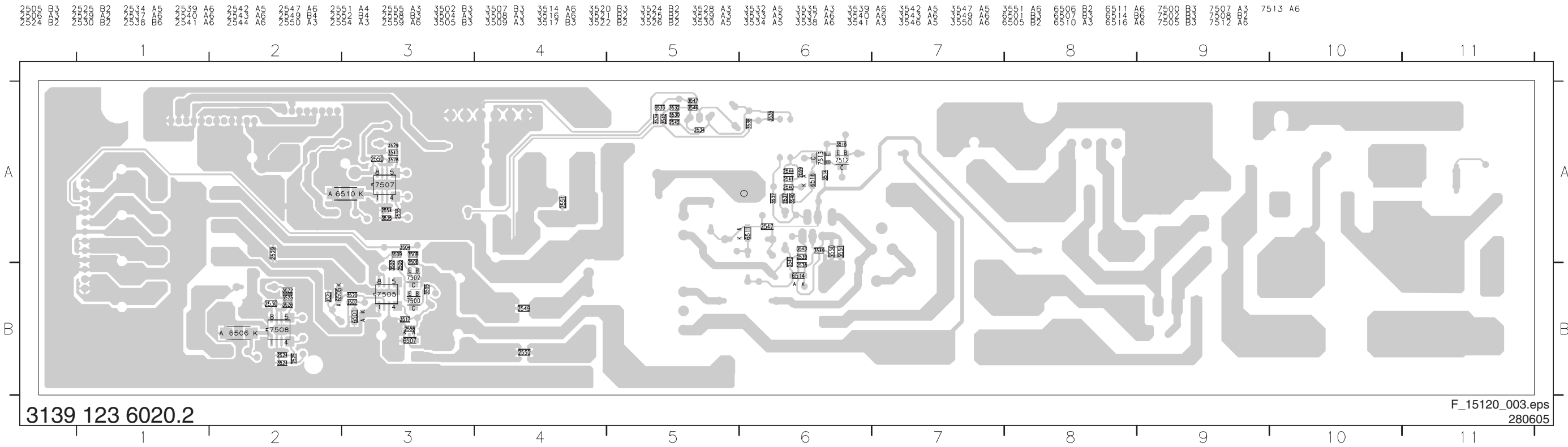
7. Circuit Diagrams and PWB Layouts



Layout Power Supply Panel (Top Side)

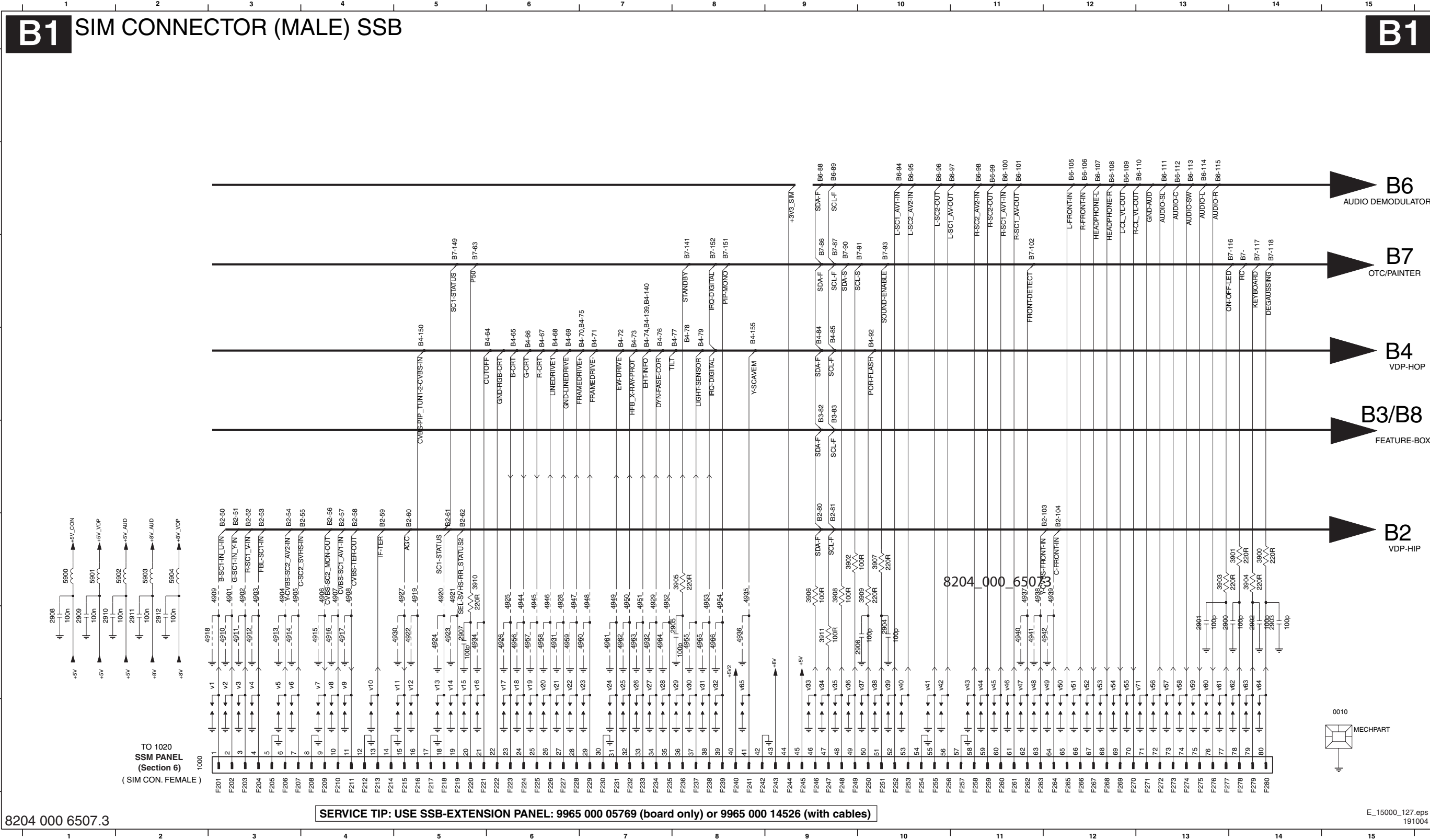


Layout Power Supply Panel (Bottom Side)



SSB: SIM 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	1000 H2	2904 G10	2909 G1	3901 F14	3906 F14	3911 G14	4905 F3	4910 G3	4915 G4	4920 F5	4925 F6	4930 G5	4936 G8	4941 G11	4947 F6	4952 F7	4957 G6	4962 G7	5900 F1
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	2900 G13	2905 G8	2910 G1	3902 F9	3907 F10	4901 F3	4906 F4	4911 G3	4916 G4	4921 F5	4926 G6	4931 G6	4937 F11	4942 G12	4948 F7	4953 F8	4958 G6	4963 G7	5901 F1
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	2901 G13	2906 G10	2911 G2	3903 F13	3908 F9	4902 F3	4907 F4	4912 G3	4917 G4	4922 G5	4927 F5	4932 G7	4938 F11	4944 F6	4949 F7	4954 F8	4959 G6	4964 G7	5902 F2
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	2902 G14	2907 G5	2912 G2	3904 F14	3909 F10	4903 F3	4908 F4	4913 G3	4918 G3	4923 G5	4928 F6	4934 G5	4939 F12	4945 F6	4950 F7	4955 G8	4960 G7	4965 G8	5903 F2
v5 G3	v10 G4	v15 G5	v20 G6	v25 G7	v30 G8	v37 G10	v42 G10	v47 G11	v52 G12	v57 G13	v62 G14	0010 H15	2903 G14	2908 G1	3900 F14	3905 F8	3910 F5	4904 F3	4909 F3	4914 G3	4919 F5	4924 G5	4929 F7	4935 F8	4940 G11	4946 F6	4951 F7	4956 G6	4961 G7	4966 G8	5904 F2

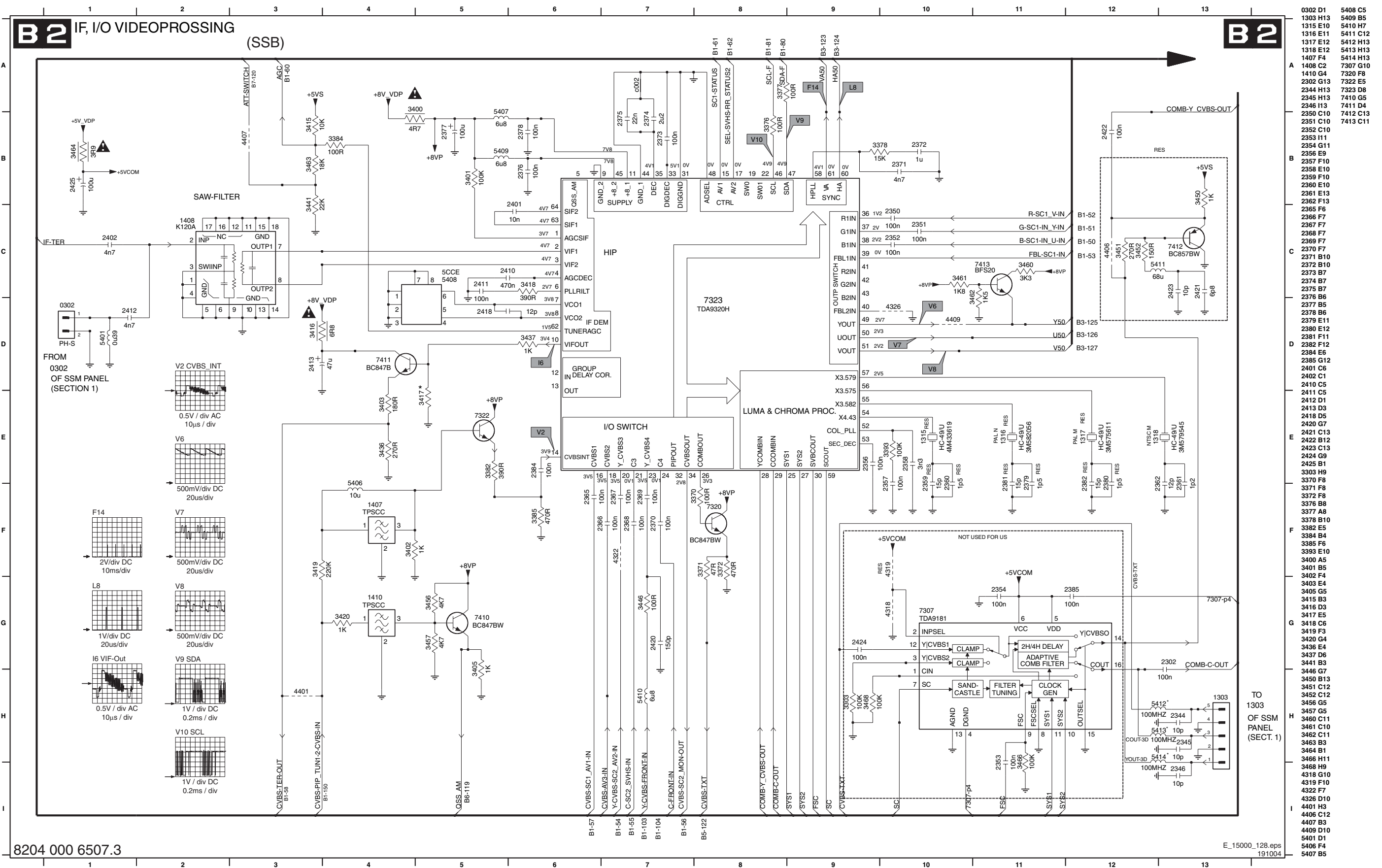


8204 000 6507.3

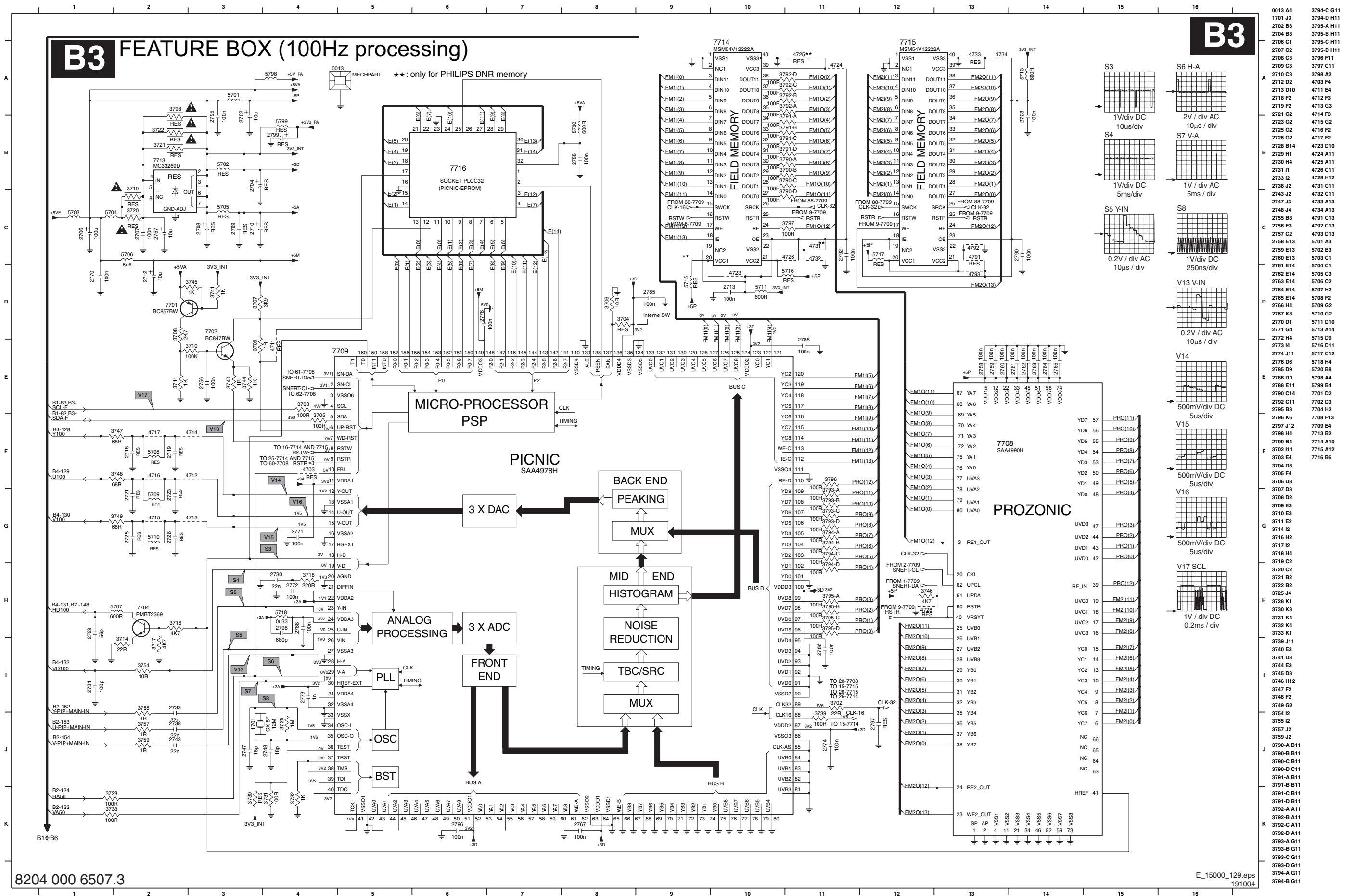
SERVICE TIP: USE SSB-EXTENSION PANEL: 9965 000 05769 (board only) or 9965 000 14526 (with cables)

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191004

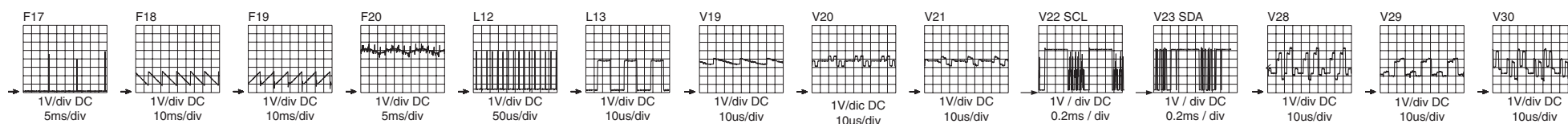
SSB: IF, I/O Videoprocessing



SSB: Feature Box (100Hz Processing)

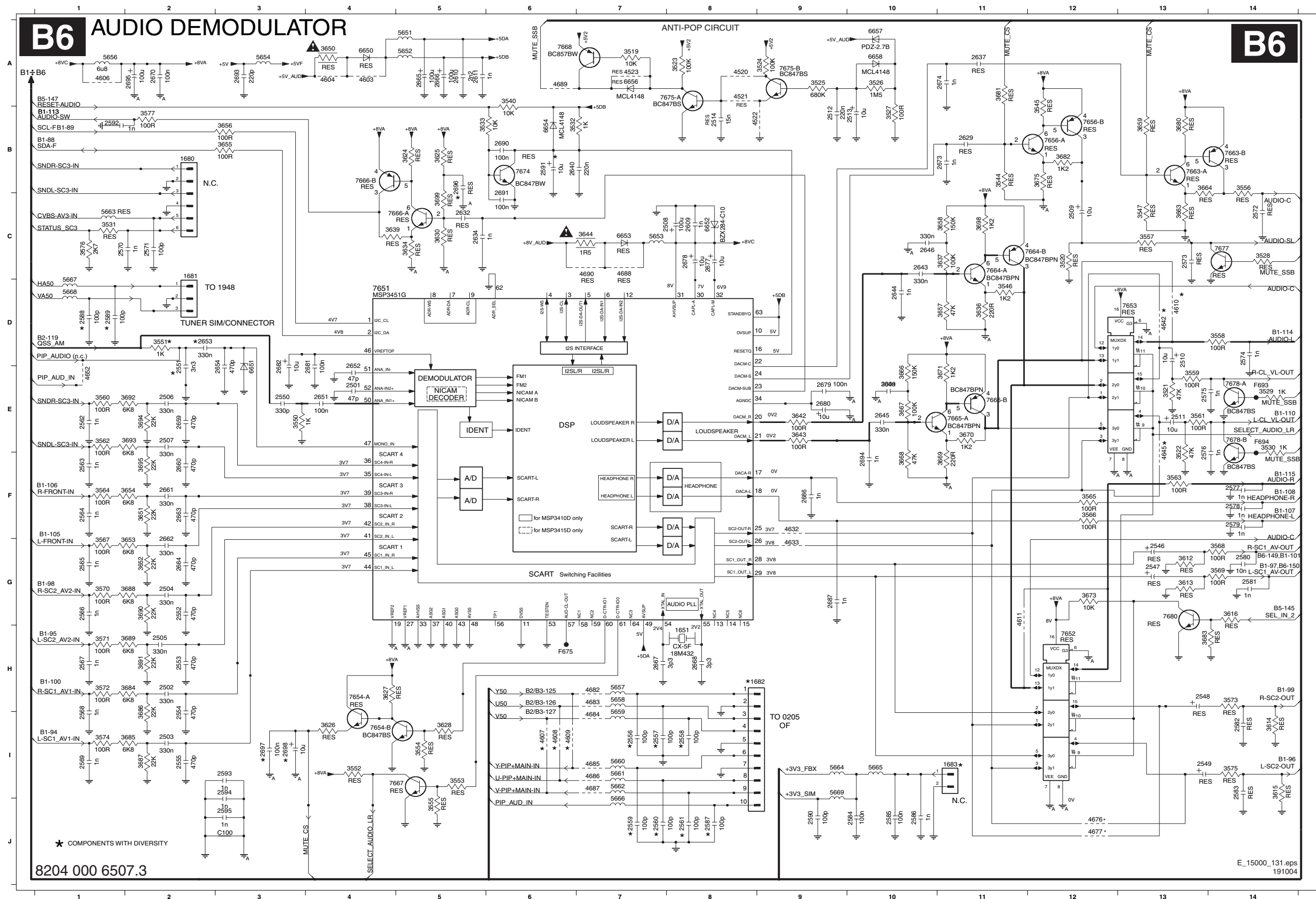


B 4 HOP

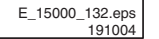


A	0011 I7	3340 B9	7302 A1
	1301 G4	3341 C9	7303 G8
	1304 H3	3342 C9	7304 G2
	2300 I11	3343 D12	7305 B8
	2301 B2	3344 D10	7306 A9
	2303 E8	3345 D8	7308 H6
	2304 G7	3346 C8	7309 G10
	2306 H9	3347 D8	7310 F12
	2307 F3	3348 D9	7311 G11
	2308 G8	3350 B10	7312 D10
B	2309 D3	3351 B9	7313 A11
	2310 E3	3352 A9	7314 A10
	2311 H5	3353 A11	7315 B11
	2313 F8	3354 A11	7317 E10
	2314 E1	3355 A7	7318 D9
	2315 E2	3358 A12	7324 G6
	2317 E3	3359 B9	7340 B12
	2318 E3	3360 A7	7375 A8
	2319 G10	3362 G10	C001 H12
	2320 H3	3363 F2	
C	2321 B3	3364 G11	
	2322 B3	3365 G11	
	2323 B3	3366 F9	
	2324 H6	3367 F9	
	2325 G5	3368 F12	
	2328 B7	3369 F12	
	2329 B6	3373 A8	
	2330 A6	3374 A8	
	2331 B6	3375 E12	
	2332 E2	3386 G12	
D	2333 D10	3387 G11	
	2334 E8	3388 F11	
	2335 H6	3389 D10	
	2336 E8	3390 D9	
	2338 G11	3391 G12	
	2339 E11	3392 E10	
	2340 I12	3394 D8	
	2341 E1	3395 C3	
	2342 A7	3396 D2	
	2343 A9	3397 D2	
E	2347 I2	3398 D2	
	2348 I2	3399 B12	
	2349 I2	3453 C2	
	2363 F3	3454 B1	
	2395 D3	3455 C1	
	2396 D2	3458 F2	
	2397 D3	3459 B12	
	2398 I10	3465 B9	
	2399 A2	3467 B8	
	2426 H2	3469 D11	
F	2427 H2	3470 E11	
	2428 I2	3472 E10	
	2429 A4	4302 A3	
	3300 H11	4303 A3	
	3301 A9	4304 A3	
	3302 C3	4305 A4	
	3304 H12	4307 B9	
	3305 C2	4308 B4	
	3306 E8	4309 B4	
	3307 E9	4310 B4	
G	3308 E9	4311 I9	
	3309 E11	4312 I9	
	3310 E8	4313 G13	
	3311 G7	4369 F13	
	3312 F12	5301 E2	
	3313 A7	5302 E2	
	3314 G7	5303 H10	
	3315 G8	5304 H2	
	3316 H9	5305 H2	
	3317 G9	5306 I2	
H	3318 F8	5307 I2	
	3319 A7	5308 I2	
	3320 D2	5309 I2	
	3321 D2	6303 H8	
	3322 D12	6304 H9	
	3323 H5	6306 I5	
	3324 I4	6307 I5	
	3325 G5	6308 C2	
	3326 G5	6309 D11	
	3327 G5	6310 D10	
I	3328 F8	6311 D12	
	3329 E1	6312 G7	
	3330 G9	6313 H8	
	3331 G3	6314 H9	
	3332 B7	6315 I6	
	3333 G3	6316 I6	
	3334 H4	6317 E12	
	3335 G6	6318 E11	
	3336 G5	6319 D8	
	3337 H5	6321 C8	
3338 H6	6334 H4		
3339 C3	7301 B3		

SSB: Audio Demodulator

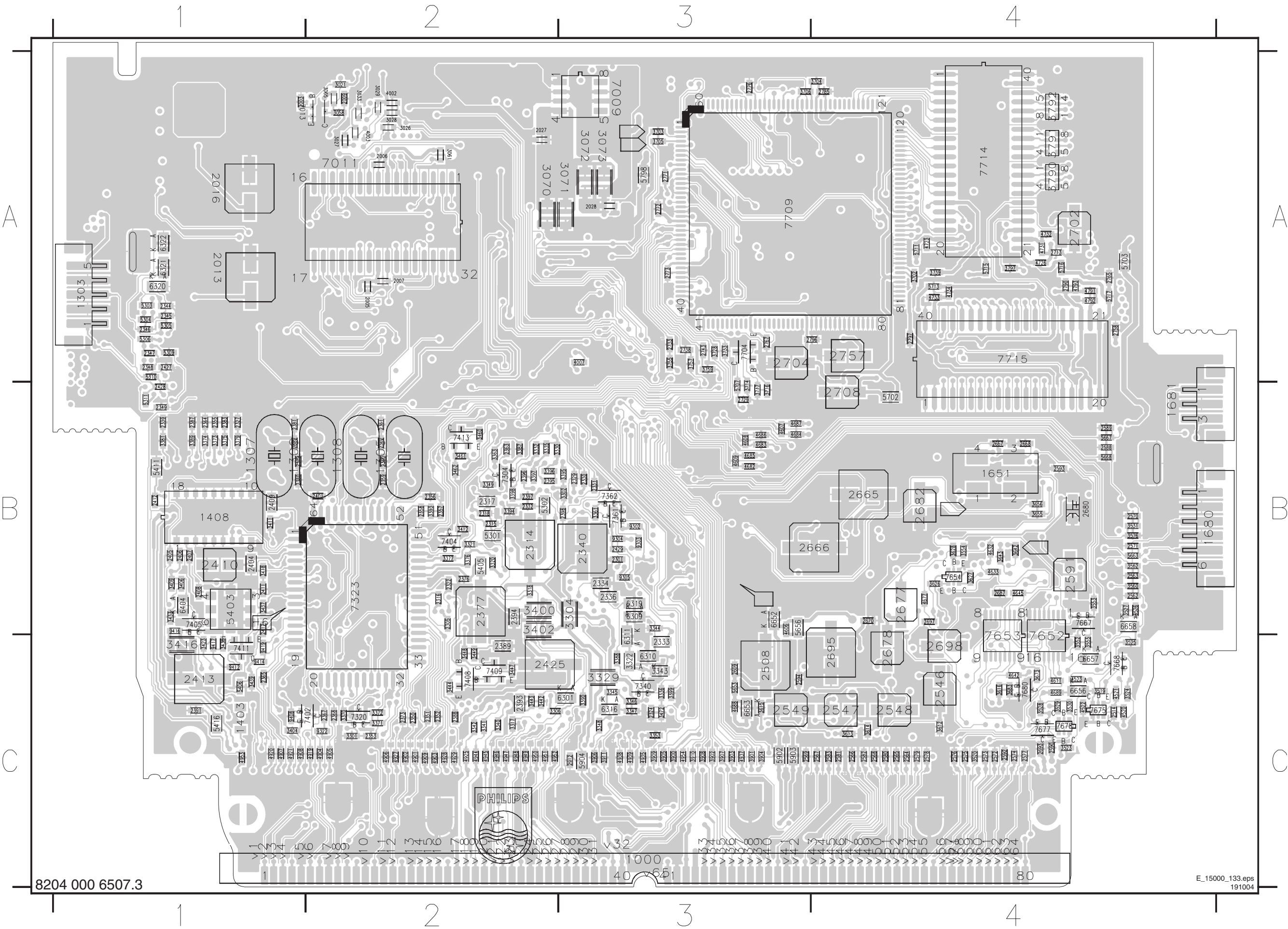


B 7 PAINTER



1002 H1	3056 G4
1001 C10	3057 G4
1002 B9	3058 B10
1003 B1	3059 E5
2001 D10	3060 C5
2002 D10	3061 A7
2003 B9	3062 F9
2004 D10	3063 G9
2005 G8	3064 G9
2006 B13	3065 B10
2007 B13	3066 G10
2008 G7	3067 G10
2009 B10	3068 G10
2010 G9	3069 G11
2011 G9	3070 E1
2012 G10	3071 F1
2013 B1	3072 E2
2014 B1	3073 E2
2015 B2	3074 B7
2016 B3	3076 G7
2017 D2	3077 H7
2020 C6	4002 A8
2022 G5	4003 A8
2023 G10	4004 G4
2024 G10	4005 H3
2025 G11	4006 C5
2026 H10	4007 C5
2027 F1	6001 G5
2028 F2	6002 G6
2030 C9	6003 B1
2031 F5	7001 C7
2032 G7	7002 C1
2033 H7	7003 D2
3001 G13	7004 D3
3002 G13	7005 B2
3003 G8	7006 G3
3004 G8	7007 H3
3005 G9	7008 G6
3006 E10	7009 E2
3007 F10	7010 G5
3008 G3	7011 B13
3009 H3	7012 F12
3010 H3	7013 B9
3011 G3	
3012 C6	
3013 C2	
3014 C2	
3015 D1	
3016 D2	
3017 C3	
3018 F7	
3019 D5	
3020 D6	
3021 B9	
3022 G5	
3023 G5	
3024 G6	
3025 G6	
3026 B8	
3027 B9	
3028 B8	
3029 B8	
3030 B9	
3031 B9	
3032 B9	
3033 B9	
3034 E10	
3035 B10	
3039 C6	
3040 D6	
3041 D6	
3042 D5	
3043 E5	
3044 E5	
3045 F6	
3048 C6	
3049 B6	
3050 E6	
3051 F8	
3052 B11	
3053 B11	
3054 B1	

Layout SSB (Top Side)



Mapping Layout SSB (Top Side)

1000	C3	2428	B1	3317	C2	3616	C4	4935	C3	9302	B3
1303	A1	2429	B3	3318	B2	3626	B4	4937	C3	9303	B3
1403	C1	2508	B3	3320	B2	3627	B4	4938	C3	9304	B3
1408	B1	2514	C4	3321	B2	3628	B4	4939	C3	9305	B3
1651	B4	2546	C4	3322	C3	3642	B4	4944	C2	9322	C2
1680	B4	2547	C4	3329	C3	3643	B4	4945	C2	9408	C1
1681	B4	2548	C4	3330	B2	3655	B4	4946	C2	9412	C1
2003	A1	2549	C3	3332	B2	3656	B4	4947	C2	9414	C1
2005	A2	2562	B4	3335	B2	3673	C4	4948	C2	9416	B1
2006	A2	2563	B4	3336	C3	3683	C4	4949	C2	9417	C1
2007	A2	2564	C4	3340	C2	3702	A4	4950	C2	9419	C1
2009	A2	2565	C4	3341	C2	3703	A3	4951	C2		
2013	A1	2566	C4	3342	C2	3704	A4	4952	C2		
2016	A1	2567	C4	3343	C3	3705	A3	4953	C1		
2027	A2	2568	C4	3344	B3	3706	A3	4954	C3		
2028	A3	2569	C3	3345	C3	3714	B3	5301	B2		
2301	B3	2570	B4	3346	C3	3716	B3	5302	B2		
2305	B2	2571	B4	3347	C3	3717	B3	5303	A1		
2314	B2	2572	C4	3348	C3	3728	A3	5304	A1		
2315	B2	2573	C4	3349	B2	3733	A3	5305	A1		
2316	B2	2574	C4	3353	C3	3739	A4	5306	A1		
2317	B2	2575	C4	3361	B3	3755	A3	5309	A1		
2318	B2	2576	C4	3363	B2	3757	A3	5310	A1		
2322	B2	2577	C4	3370	C2	3759	A3	5311	B1		
2324	C3	2578	C4	3371	C2	3790	A4	5403	B1		
2327	B1	2579	C4	3372	C2	3791	A4	5405	B2		
2329	B3	2580	C4	3373	B1	3792	A4	5406	C1		
2330	B3	2581	C4	3374	B1	3797	A4	5411	B1		
2331	B3	2582	C4	3375	B1	3900	C3	5416	C1		
2332	B2	2583	C4	3376	B2	3901	C3	5653	C3		
2333	C3	2588	B4	3377	B2	3902	C3	5656	B3		
2334	B3	2589	B4	3379	B1	3903	C3	5663	B4		
2336	B3	2590	C4	3381	B1	3904	C3	5667	B4		
2339	B1	2591	B4	3387	B2	3905	C3	5668	B4		
2340	B3	2592	C4	3388	C3	3906	C3	5702	B4		
2344	A1	2593	B4	3389	B1	3907	C3	5703	A4		
2345	A1	2594	C3	3390	C3	3908	C3	5707	B3		
2346	A1	2609	C3	3393	B2	3909	C3	5711	A4		
2347	A1	2665	B4	3394	B2	3910	C3	5713	A4		
2348	A1	2666	B3	3395	B3	3911	C3	5715	A4		
2349	B1	2667	B4	3396	B2	4002	A2	5716	A4		
2350	C2	2668	B4	3397	B2	4003	A2	5717	A4		
2351	C2	2670	B4	3398	B2	4007	A3	5798	A3		
2352	C2	2677	B4	3399	C3	4520	C4	5902	C3		
2353	C2	2678	C4	3400	C3	4521	C4	5903	C3		
2355	B1	2680	B4	3402	B2	4522	C4	5904	C3		
2356	B2	2682	B4	3404	C1	4523	C4	6301	C2		
2357	B2	2687	B4	3406	B1	4606	B3	6309	B3		
2358	B2	2693	C4	3409	B1	4607	B3	6310	C3		
2359	B2	2695	C4	3411	B1	4608	B3	6311	C3		
2360	B2	2697	B4	3412	B2	4609	B3	6316	C3		
2361	B2	2698	B4	3416	C1	4611	C4	6319	B3		
2362	B2	2702	A4	3418	B1	4632	B4	6320	A1		
2363	B2	2704	B3	3423	C1	4633	B4	6321	A1		
2364	B1	2708	B4	3433	B1	4642	C4	6322	A1		
2365	C1	2713	A4	3436	C1	4645	B4	6404	B1		
2367	C2	2729	B3	3437	B1	4677	B4	6652	B3		
2368	C2	2733	A3	3439	C1	4682	B3	6653	C3		
2373	C2	2738	A3	3442	C2	4683	B3	6656	C4		
2376	B2	2743	A3	3443	C2	4684	B3	6657	C4		
2377	B2	2757	A4	3444	C2	4685	B3	6658	B4		
2379	B1	2758	A4	3447	C2	4686	B3	7009	A3		
2380	B1	2765	A4	3448	C2	4687	B3	7011	A2		
2381	B1	2767	A3	3449	C2	4688	C3	7013	A1		
2382	B1	2771	A3	3460	B2	4689	C4	7304	B2		
2383	B1	2772	A3	3461	B2	4723	A4	7320	C2		
2387	B1	2773	A3	3462	B2	4726	A4	7323	C2		
2388	C2	2776	A3	3472	C3	4731	A4	7340	C3		
2389	C2	2785	A4	3519	C4	4732	A4	7361	B3		
2391	C1	2790	A4	3520	C4	4733	A4	7362	B3		
2393	C2	2796	A4	3523	C4	4734	A4	7402	C1		
2394	B2	2797	A4	3524	C4	4791	A4	7404	B2		
2395	B2	2912	C3	3525	C4	4792	A4	7405	B1		
2396	B2	3021	A2	3526	B4	4793	A4	7408	C2		
2397	B2	3026	A2	3527	B4	4901	C2	7409	C2		
2398	B3	3027	A2	3528	C4	4902	C2	7411	C1		
2401	B2	3028	A2	3529	C4	4903	C2	7413	B2		
2404	B1	3029	A2	3530	C4	4904	C2	7652	B4		
2405	B1	3033	A2	3531	B4	4905	C2	7653	B4		
2406	B1	3058	A2	3552	C4	4906	C2	7654	B4		
2407	B1	3061	A2	3553	B4	4907	C1	7667	B4		
2408	B1	3065	A2	3554	B4	4908	C1	7668	C4		
2409	B1	3070	A2	3555	C4	4909	C2	7675	C4		
2410	B1	3071	A3	3560	B4	4919	C2	7677	C4		
2411	B1	3072	A3	3562	B4	4920	C1	7678	C4		
2412	B1	3073	A3	3576	B4	4921	C1	7680	C4		
2413	C1	3301	C2	3612	C4	4925	C2	7704	A3		
2417	B1	3302	B3	3613	C4	4927	C2	7709	A4		
2425	C3	3304	B3	3614	C4	4928	C2	7714	A4		
2427	A1	3306	C2	3615	C3	4929	C2	7715	A4		

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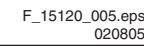
Mapping Layout SSB (Bottom Side)

1001	A4	2510	C1	2905	C2	3355	C2	3652	B1	4923	C4	7305	C2
1002	A4	2511	C1	2906	C2	3358	B2	3653	B1	4924	C4	7306	C2
1003	A4	2512	C1	2907	C2	3359	C2	3654	B1	4926	C3	7307	C3
1301	B3	2513	C1	2908	C3	3360	C2	3657	B1	4930	C3	7310	C3
1304	A4	2550	B1	2909	C2	3362	B3	3658	C1	4931	C3	7311	C2
1305	B3	2551	B2	2910	C2	3364	B3	3659	B1	4932	C3	7312	B3
1306	B4	2552	B1	2911	C2	3365	C3	3663	B1	4934	C2	7313	C2
1307	B4	2553	B1	3001	A3	3366	B3	3664	B1	4936	C2	7314	C2
1308	B3	2554	B1	3002	A3	3367	B3	3666	C1	4940	C2	7315	C2
1406	C4	2555	B1	3003	A3	3368	B2	3667	C1	4941	C2	7318	B3
1407	C4	2556	B1	3004	A3	3378	B3	3668	C1	4942	C2	7322	C4
1409	B4	2557	B1	3005	A3	3380	B3	3669	B1	4955	C2	7375	C2
1410	B4	2558	B1	3006	A3	3382	C4	3670	C1	4956	C3	7401	B4
1411	B3	2559	B1	3007	A3	3385	C4	3671	C1	4957	C3	7403	B4
1682	B1	2560	B1	3008	A4	3386	C2	3675	B1	4958	C3	7406	B4
1683	B1	2561	B1	3009	A2	3391	C3	3680	B1	4959	C3	7407	B4
1701	A2	2584	B1	3010	A2	3401	B4	3681	B1	4960	C3	7410	B3
2001	A4	2585	B1	3011	A4	3403	C4	3682	B1	4961	C3	7412	C3
2002	A4	2586	B1	3012	A3	3405	C3	3684	B1	4962	C3	7651	B1
2004	A4	2587	C1	3013	A4	3407	B4	3685	B1	4963	C3	7656	B1
2008	A3	2595	C1	3014	A4	3408	B3	3686	B1	4964	C3	7663	B1
2010	A3	2610	B1	3015	A4	3410	B4	3687	B1	4965	C4	7664	C1
2011	A3	2611	B1	3016	A4	3414	B3	3688	B1	4966	C2	7665	C1
2012	A3	2629	B1	3017	A4	3415	B3	3689	B1	5307	A4	7666	C1
2014	A4	2632	C1	3018	A3	3417	B4	3690	B1	5308	B4	7674	B1
2015	A4	2634	B1	3019	A3	3419	C4	3691	B1	5312	C3	7701	A1
2017	A4	2637	B1	3020	A3	3420	B3	3692	B1	5401	B3	7702	A2
2020	A3	2640	B1	3022	A3	3421	B4	3693	B1	5402	C4	7708	A1
2022	A3	2643	B1	3023	A3	3434	B4	3694	B1	5404	B4	7713	A1
2023	A4	2644	B1	3024	A3	3435	C4	3695	B1	5408	B4	7716	A2
2024	A4	2645	B1	3025	A3	3441	B3	3698	C1	5409	C3	9308	B3
2025	A4	2646	C1	3030	A3	3445	B4	3699	C1	5415	C4	9309	B3
2026	A4	2649	C1	3031	A3	3446	C3	3707	A2	5417	C4	9310	B3
2030	A4	2651	B1	3032	A3	3450	B3	3708	A1	5651	C2	9311	B3
2031	B3	2652	B1	3034	A3	3451	C4	3709	A2	5652	C2	9312	B3
2032	A4	2653	B2	3035	A3	3452	C3	3710	A2	5654	C1	9313	C2
2033	A4	2654	B1	3039	A3	3453	B2	3711	A2	5657	B1	9318	C3
2302	C3	2659	B1	3040	A3	3454	B2	3718	A2	5658	B1	9319	C3

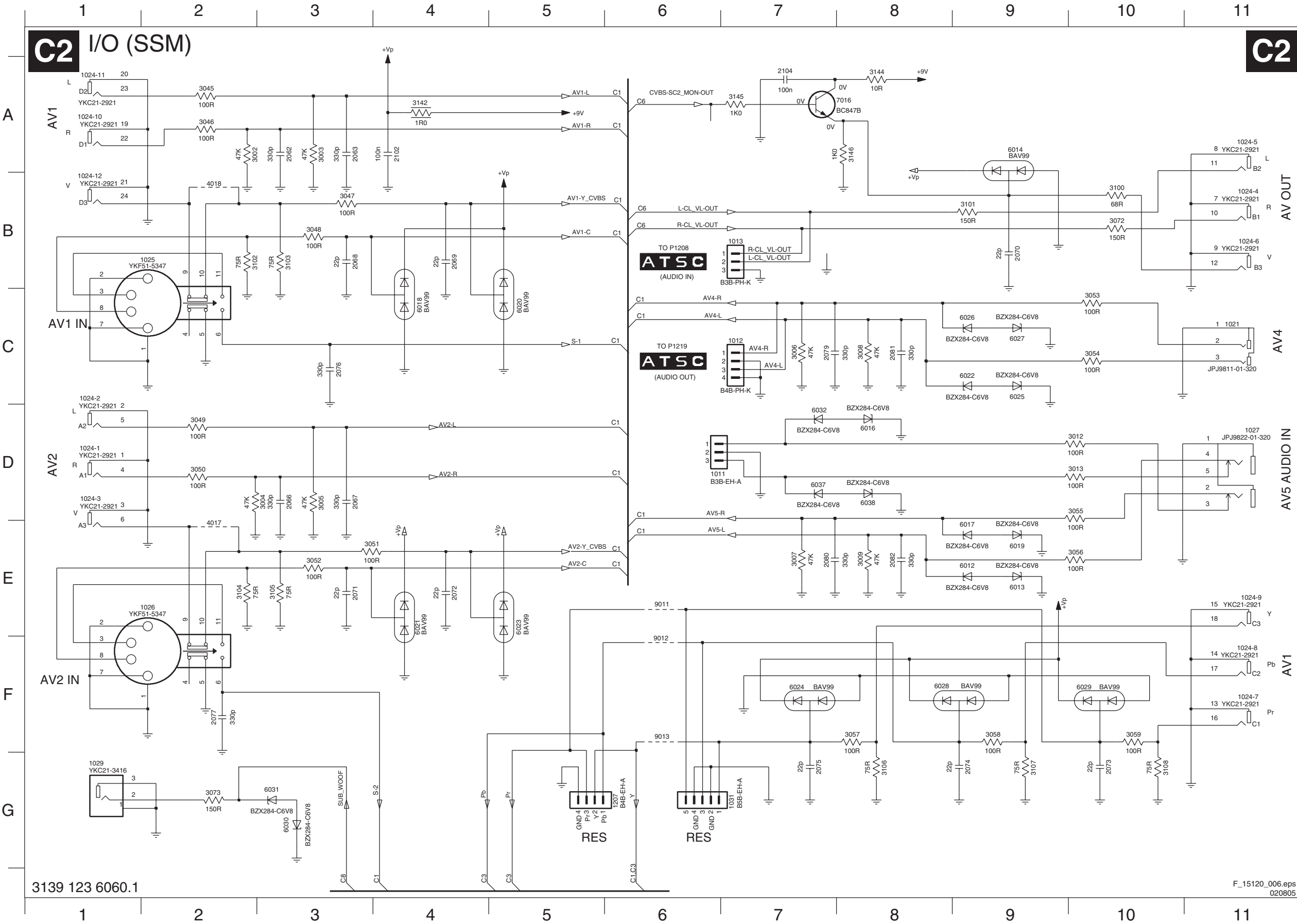
4



C1 TUNER (SSM)

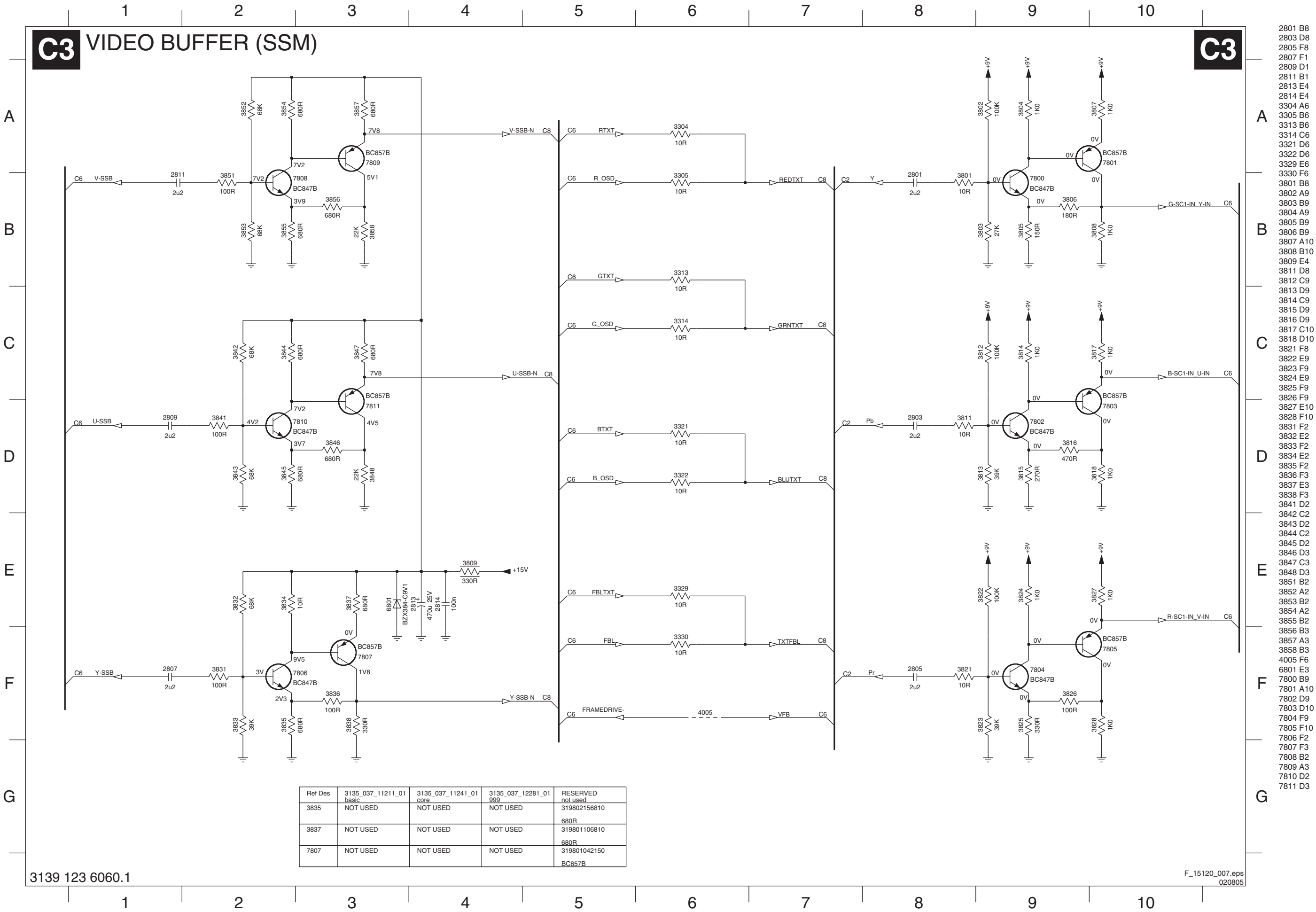


SSM: I/O's



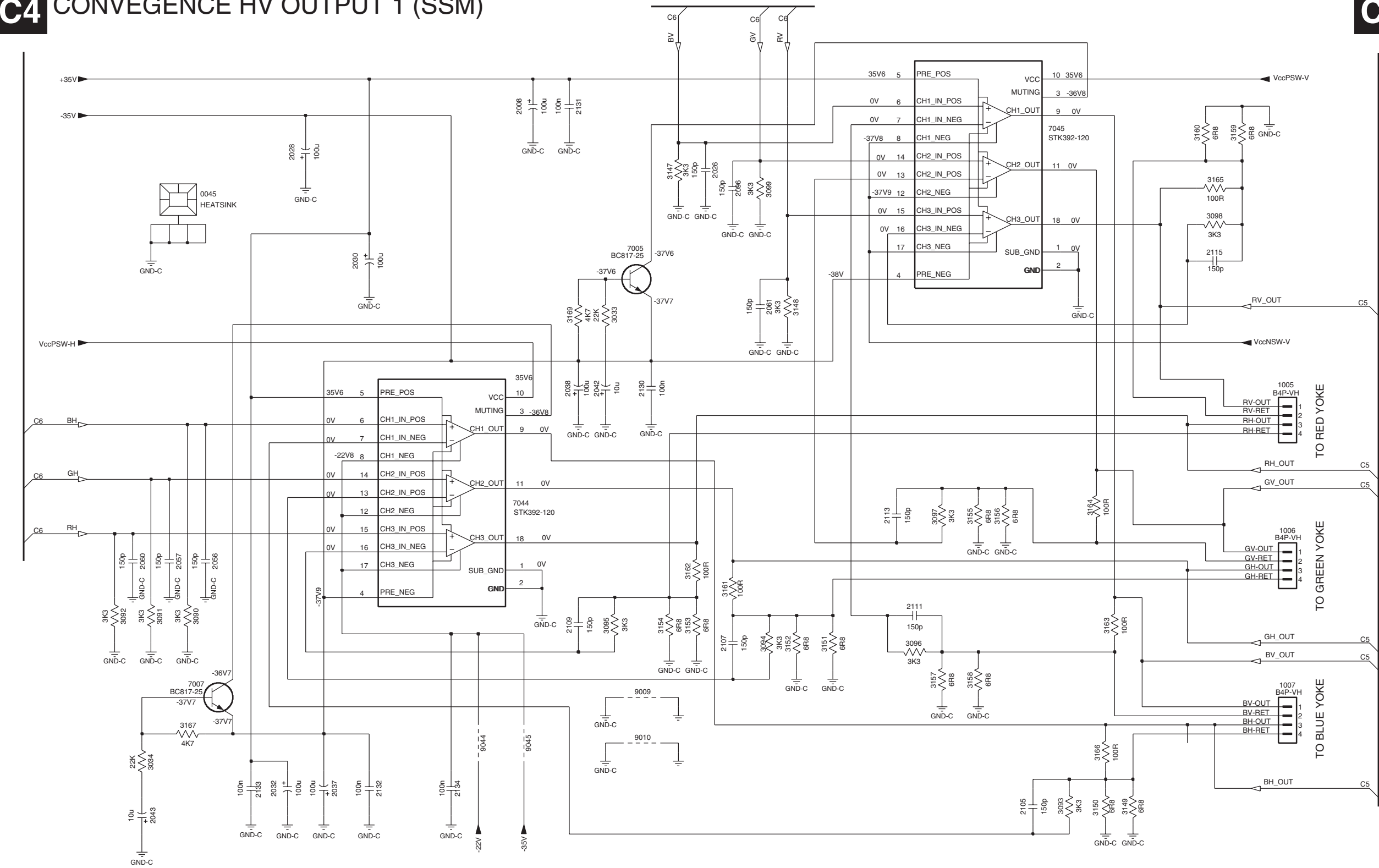
- | | |
|------------|----------|
| 1011 D6 | 6019 E9 |
| 1012 C7 | 6020 C5 |
| 1013 B7 | 6021 E4 |
| 1021 C11 | 6022 C9 |
| 1024-1 D1 | 6023 E5 |
| 1024-10 A1 | 6024 F7 |
| 1024-11 A1 | 6025 C9 |
| 1024-12 B1 | 6026 C9 |
| 1024-2 C1 | 6027 C9 |
| 1024-3 D1 | 6028 F8 |
| 1024-4 B11 | 6029 F10 |
| 1024-5 A11 | 6030 G3 |
| 1024-6 B11 | 6031 G3 |
| 1024-7 F11 | 6032 D7 |
| 1024-8 F11 | 6037 D7 |
| 1024-9 E11 | 6038 D8 |
| 1025 B2 | 7016 A7 |
| 1026 E2 | 9011 E6 |
| 1027 D11 | 9012 F6 |
| 1029 G1 | 9013 F6 |
| 1031 G7 | |
| 1207 G6 | |
| 2062 A3 | |
| 2063 A3 | |
| 2066 D3 | |
| 2067 D3 | |
| 2068 B3 | |
| 2069 B4 | |
| 2070 B9 | |
| 2071 E3 | |
| 2072 E4 | |
| 2073 G10 | |
| 2074 G9 | |
| 2075 G7 | |
| 2076 C3 | |
| 2077 F2 | |
| 2079 C7 | |
| 2080 E7 | |
| 2081 C8 | |
| 2082 E8 | |
| 2102 A4 | |
| 2104 A7 | |
| 3002 A2 | |
| 3003 A3 | |
| 3004 D3 | |
| 3005 D3 | |
| 3006 C7 | |
| 3007 E7 | |
| 3008 C8 | |
| 3009 E8 | |
| 3012 D10 | |
| 3013 D10 | |
| 3045 A2 | |
| 3046 A2 | |
| 3047 B3 | |
| 3048 B3 | |
| 3049 D2 | |
| 3050 D2 | |
| 3051 E3 | |
| 3052 E3 | |
| 3053 C10 | |
| 3054 C10 | |
| 3055 D10 | |
| 3056 E10 | |
| 3057 F8 | |
| 3058 F9 | |
| 3059 F10 | |
| 3072 B10 | |
| 3073 G2 | |
| 3100 B10 | |
| 3101 B9 | |
| 3102 B2 | |
| 3103 B3 | |
| 3104 E2 | |
| 3105 E3 | |
| 3106 G8 | |
| 3107 G9 | |
| 3108 G10 | |
| 3142 A4 | |
| 3144 A8 | |
| 3145 A7 | |
| 3146 A8 | |
| 4017 E2 | |
| 4018 B2 | |
| 6012 E9 | |
| 6013 E9 | |
| 6014 A9 | |
| 6016 D8 | |
| 6017 E9 | |
| 6018 C4 | |

SSM: Video Buffer



SSM: Convergence HV Output 1

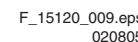
C4 CONVEGENCE HV OUTPUT 1 (SSM)



Ref Des	3135_037_11211_01 basic	3135_037_11241_01 core	3135_037_12281_01 999	RESERVED not used
9009	NOT USED	NOT USED	NOT USED	319803690010
9010	NOT USED	NOT USED	NOT USED	319803690010

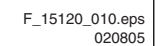
- 0045 B2
- 1005 D11
- 1006 E11
- 1007 F11
- 2008 A5
- 2026 B6
- 2028 B3
- 2030 C3
- 2032 G3
- 2037 G3
- 2038 D5
- 2042 D5
- 2043 G2
- 2056 E2
- 2057 E2
- 2060 E2
- 2061 C7
- 2096 B6
- 2105 G9
- 2107 F6
- 2109 F5
- 2111 E8
- 2113 E7
- 2115 C10
- 2130 D6
- 2131 A5
- 2132 G3
- 2133 G3
- 2134 G4
- 3033 C5
- 3034 G2
- 3090 E2
- 3091 E2
- 3092 E1
- 3093 G9
- 3094 F7
- 3095 F5
- 3096 F8
- 3097 E8
- 3098 B10
- 3099 B7
- 3147 B6
- 3148 C7
- 3149 G9
- 3150 G9
- 3151 F7
- 3152 F7
- 3153 F6
- 3154 F6
- 3155 E8
- 3156 E8
- 3157 F8
- 3158 F8
- 3159 B10
- 3160 B10
- 3161 E6
- 3162 E6
- 3163 F9
- 3164 E9
- 3165 B10
- 3166 G9
- 3167 F2
- 3169 C5
- 7005 C5
- 7007 F2
- 7044 E5
- 7045 B9
- 9009 F6
- 9010 F6
- 9044 F4
- 9045 F5

C5 CONVERGENCE HV OUTPUT 2 (SSM)



A	2035 B6	7004 E2
	2040 E5	7006 E6
	2044 F1	7008 C3
	2047 D3	7009 B3
	2050 D10	7010 B8
	2052 F10	7011 C8
	2055 G6	7012 E8
	2058 D8	7013 F8
	2059 G6	7014 E6
	2150 B3	7015 C6
B	2152 C3	7018 B7
	2153 D2	7019 B7
	2154 D3	7020 B9
	2156 B9	7021 B3
	2157 C9	7022 F9
	2159 D8	7023 E2
	2160 E9	7024 E1
	2161 F9	9040 B10
	3019 F6	9041 F9
	3020 E5	9042 B4
C	3031 D5	
	3032 C6	
	3035 B5	
	3036 F6	
	3037 E5	
	3038 C6	
	3041 G8	
	3042 B5	
	3043 B6	
	3044 B5	
D	3060 D6	
	3061 F8	
	3062 D6	
	3063 C7	
	3064 E7	
	3065 G8	
	3066 F7	
	3067 F1	
	3074 F7	
	3077 E8	
E	3078 F1	
	3079 B7	
	3080 B7	
	3081 D3	
	3082 D10	
	3083 E10	
	3084 D9	
	3085 B4	
	3086 E10	
	3110 D1	
F	3112 D2	
	3132 F2	
	3133 F2	
	3134 E1	
	3135 G2	
	3136 G2	
	3137 G2	
	3168 D2	
	3170 C7	
	3190 B2	
G	3191 B3	
	3192 B3	
	3193 C4	
	3194 D2	
	3195 C3	
	3196 B8	
	3197 B8	
	3198 B9	
	3199 B8	
	3200 C8	
	3201 C9	
	3202 E9	
	6006 C9	
	6007 C3	
	6008 E10	
	6033 F2	
	6035 F1	
	6039 G1	
	6040 C5	
	6041 C5	
	6042 B5	
	6043 C6	
	6044 D7	
	6045 D5	
	6046 E5	
	6047 E5	
	6048 D6	
	6049 E6	
	6050 G1	
	6051 G1	
	7001 E6	

C6 INTERCONNECTIONS (SSM)



0101 E8	9018 D5
0102 D8	9019 D3
0103 D7	9020 F5
0104 G8	9030 B7
0105 G9	9031 B7
1000 A6	9032 B8
1001 A11	9033 B9
1014 H4	
1020-A C4	
1020-B C4	
1033 H6	
1043 A1	
1200 C2	
1201 F1	
1272 C1	
1516 F11	
1518 D11	
1681 G1	
1950 A9	
2001 E7	
2002 H3	
2003 E8	
2004 D9	
2005 C8	
2006 B9	
2007 C8	
2010 E8	
2011 D9	
2012 H2	
2024 D1	
2027 C7	
2029 H2	
2031 B3	
2033 E9	
2034 E2	
2036 A10	
2039 C9	
2041 A9	
2045 C2	
2046 B4	
2048 B4	
2049 A10	
2053 G7	
2054 G7	
2097 G8	
2098 G9	
3001 E1	
3010 B4	
3014 E1	
3017 B3	
3018 C1	
3025 G3	
3039 B4	
3068 A4	
3069 A3	
3070 B3	
3071 B5	
3111 D5	
3182 C5	
3183 C6	
4004 F5	
4006 D5	
4007 F5	
4008 D5	
4009 D5	
4010 C2	
4015 B3	
5000 A9	
5001 A10	
5002 F10	
5003 F10	
5004 F10	
5005 G2	
5006 G2	
5008 H2	
5009 B2	
5010 B3	
5011 C8	
6001 E7	
6002 C8	
6003 C7	
6004 E2	
6005 F9	
6009 D2	
6015 F7	
6036 D9	
7025 B4	
7026 A5	
7101 E8	
7102 C8	
7103 C7	
7104 G7	
7105 G9	
9007 D3	
9016 D3	
9017 D1	

SSM: Audio Amplifier

C7 AUDIO AMPLIFIER (SSM)

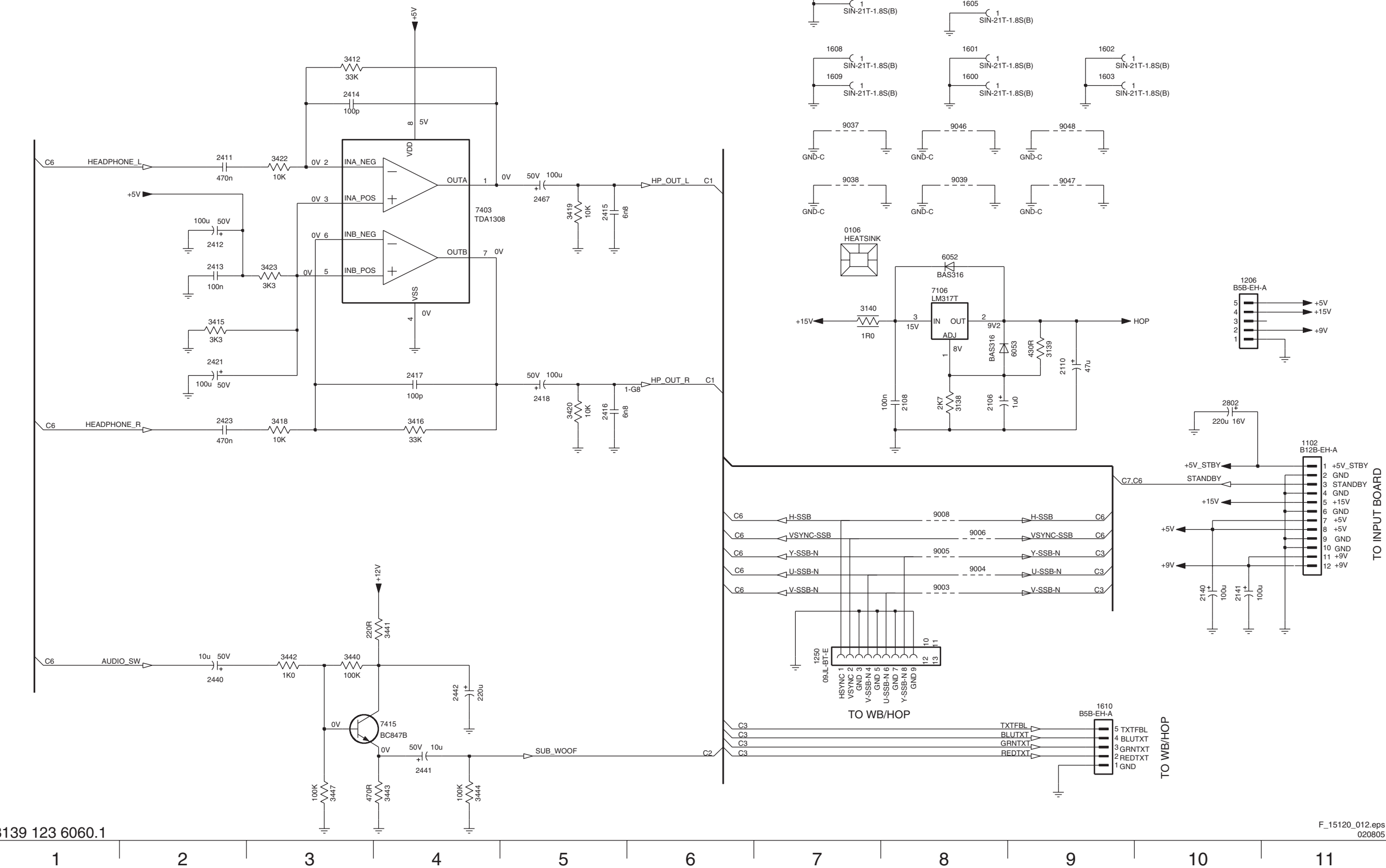
Item	51"	60"
2730	2200 uF 16V	2200 uF 25V
2731	2200 uF 16V	2200 uF 25V
7700	TDA7490L	TDA7490

Ref Des	3135_037_11211_01 basic	3135_037_11241_01 core	3135_037_12281_01 999	RESERVED not used
4019	NOT USED	NOT USED	319802190020	NOT USED

1110 F5 5710 E8
1349 D11 5711 F7
1700 F9 5712 G7
1701 F9 5713 F8
1702 C9 5714 F8
2701 D2 5715 E10
2702 C2 5716 C9
2703 D2 6702 A8
2704 E2 7700 D5
2705 C3 7701 B3
2706 F3 7704 B11
2707 F3 7705 B10
2708 F3 7706 B7
2709 C4 7707 B6
2710 C4 7708 B9
2711 F6 7710 B6
2712 C5 7711 B8
2713 C8
2714 D6
2715 D6
2716 D8
2718 D3
2719 D7
2720 F3
2721 F4
2722 E4
2723 C6
2724 G7
2725 C6
2726 E6
2727 F6
2728 E7
2730 G8
2731 G7
2732 G7
2733 G7
2735 B5
2736 D9
2737 D9
2763 E9
2773 B10
2774 B11
2775 B10
2776 B10
2777 D9
2778 B10
2780 G8
2781 G9
2782 D2
2783 D2
3701 B2
3702 B3
3703 C3
3704 C3
3705 E3
3706 B4
3707 C4
3708 B4
3709 D7
3710 D8
3711 C4
3712 D3
3713 B8
3714 B7
3715 A9
3716 A7
3717 C9
3718 C10
3719 B9
3720 B9
3721 F4
3722 F4
3723 F5
3724 F7
3725 D7
3726 B9
3727 C2
3730 B10
3731 B11
3732 C10
3733 D10
3789 C8
3790 D2
3791 E2
3792 D2
3793 D2
3794 B7
3795 B8
3796 C9
3797 B6
3798 B5
3799 A7
4019 B7
5701 C7
5702 E7
5709 E8

SSM: Headphone Amplifier

C8 HEADPHONE AMPLIFIER (SSM)



3139 123 6060.1

F_15120_012.eps
020805

C8

- 0106 C7
- 1102 D11
- 1206 C10
- 1250 F7
- 1600 B8
- 1601 A8
- 1602 A9
- 1603 B9
- 1604 A8
- 1605 A8
- 1606 A7
- 1607 A7
- 1608 A7
- 1609 B7
- 1610 F9
- 2106 D8
- 2108 D8
- 2110 D9
- 2140 F10
- 2141 F10
- 2411 B2
- 2412 C2
- 2413 C2
- 2414 B3
- 2415 C5
- 2416 D5
- 2417 D4
- 2418 D5
- 2421 D2
- 2423 D2
- 2440 F2
- 2441 G4
- 2442 F4
- 2467 B5
- 2802 D10
- 3138 D8
- 3139 D9
- 3140 C7
- 3412 A3
- 3415 C2
- 3416 D4
- 3418 D3
- 3419 C5
- 3420 D5
- 3422 B3
- 3423 C3
- 3440 F3
- 3441 F4
- 3442 F3
- 3443 G4
- 3444 G4
- 3447 G3
- 6052 C8
- 6053 D9
- 7106 C8
- 7403 C4
- 7415 G4
- 9003 F8
- 9004 E8
- 9005 E8
- 9006 E8
- 9008 E8
- 9037 B7
- 9038 B7
- 9039 B8
- 9046 B8
- 9047 B9
- 9048 B9

Mapping SSM C1-C8 Part 1

C10 SMALL SIGNAL MODULE (AP)

REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE
0001	7-G5	1606	8-F2	2060	4-F1	2160	5-G11	3058	2-H10	3333	5-F2	3440	8-B11		
0045	4-C2	1607	88-F2	2061	4-D8	2161	5-H11	3059	2-H12	3341	5-F7	3441	88-B11		
0101	6-G10	1608	88-G2	2062	2-B3	2111	8-B2	3060	5-F8	3342	5-G4	3442	88-B10		
0102	6-E10	1609	88-H2	2063	4-B4	2112	88-C2	3061	5-F9	3343	5-G5	3443	88-B10		
0103	6-F8	1610	8-I12	2064	4-B8	2113	88-C3	3062	5-F7	3344	5-G6	3444	88-B10		
0104	6-G8	1611	8-J2	2065	4-B8	2114	88-C4	3063	5-F7	3345	5-G7	3445	88-B10		
0105	6-I11	1681	7-I12	2066	2-F3	2115	88-C5	3064	5-F7	3346	5-G8	3446	88-B10		
0106	8-C8	1700	7-H11	2067	2-F4	2116	88-C6	3065	5-F7	3347	5-G9	3447	88-B10		
1000	6-A8	1701	7-G11	2068	2-F4	2117	88-C7	3066	5-F7	3348	5-G10	3448	88-B10		
1001	6-B13	1702	7-C10	2069	2-C5	2118	88-C8	3067	5-F7	3349	5-G11	3449	88-B10		
1002	1-H6	1950	6-A10	2070	2-C10	2119	88-C9	3068	5-F7	3350	5-G12	3450	88-B10		
1003	1-H6	2000	6-F3	2071	2-C10	2120	88-C10	3069	5-F7	3351	5-G13	3451	88-B10		
1005	4-F13	2001	6-F3	2072	2-C10	2121	88-C11	3070	5-F7	3352	5-G14	3452	88-B10		
1006	4-F13	2002	6-J3	2073	2-C10	2122	88-C12	3071	5-F7	3353	5-G15	3453	88-B10		
1007	4-H13	2003	6-F10	2074	2-I10	2123	88-C13	3072	5-F7	3354	5-G16	3454	88-B10		
1008	1-A10	2004	6-D10	2075	2-I8	2124	88-C14	3073	5-F7	3355	5-G17	3455	88-B10		
1009	1-G2	2005	6-D9	2076	2-D4	2125	88-C15	3074	5-F7	3356	5-G18	3456	88-B10		
1010	1-F6	2006	6-C10	2077	2-H3	2126	88-C16	3075	5-F7	3357	5-G19	3457	88-B10		
1011	2-E8	2007	6-D9	2078	2-F4	2127	88-C17	3076	5-F7	3358	5-G20	3458	88-B10		
1014	6-A8	2008	4-B6	2079	2-D9	2128	88-C18	3077	5-F7	3359	5-G21	3459	88-B10		
1015	1-H7	2009	8-G11	2080	2-D9	2129	88-C19	3078	5-F7	3360	5-G22	3460	88-B10		
1016	1-F8	2010	6-F9	2081	2-D9	2130	88-C20	3079	5-F7	3361	5-G23	3461	88-B10		
1017	1-C10	2011	6-D10	2082	2-F3	2131	88-C21	3080	5-F7	3362	5-G24	3462	88-B10		
1018	1-D10	2012	6-D10	2083	2-F3	2132	88-C22	3081	5-F7	3363	5-G25	3463	88-B10		
1020-A	6-C4	2013	1-G4	2084	1-G4	2133	88-C23	3082	5-F7	3364	5-G26	3464	88-B10		
1020-B	6-C4	2014	1-G4	2085	1-G4	2134	88-C24	3083	5-F7	3365	5-G27	3465	88-B10		
1021	2-D13	2015	1-G4	2086	1-G4	2135	88-C25	3084	5-F7	3366	5-G28	3466	88-B10		
1022-A	1-G4	2016	1-G4	2087	1-G4	2136	88-C26	3085	5-F7	3367	5-G29	3467	88-B10		
1022-B	1-G4	2017	1-G4	2088	1-G4	2137	88-C27	3086	5-F7	3368	5-G30	3468	88-B10		
1022-C	1-G4	2018	1-G4	2089	1-G4	2138	88-C28	3087	5-F7	3369	5-G31	3469	88-B10		
1022-D	1-G4	2019	1-G4	2090	1-G4	2139	88-C29	3088	5-F7	3370	5-G32	3470	88-B10		
1022-E	1-G4	2020	1-G4	2091	1-G4	2140	88-C30	3089	5-F7	3371	5-G33	3471	88-B10		
1022-F	1-G4	2021	1-G4	2092	1-G4	2141	88-C31	3090	5-F7	3372	5-G34	3472	88-B10		
1022-G	1-G4	2022	1-G4	2093	1-G4	2142	88-C32	3091	5-F7	3373	5-G35	3473	88-B10		
1022-H	1-G4	2023	1-G4	2094	1-G4	2143	88-C33	3092	5-F7	3374	5-G36	3474	88-B10		
1022-I	1-G4	2024	1-G4	2095	1-G4	2144	88-C34	3093	5-F7	3375	5-G37	3475	88-B10		
1022-J	1-G4	2025	1-G4	2096	1-G4	2145	88-C35	3094	5-F7	3376	5-G38	3476	88-B10		
1022-K	1-G4	2026	1-G4	2097	1-G4	2146	88-C36	3095	5-F7	3377	5-G39	3477	88-B10		
1022-L	1-G4	2027	1-G4	2098	1-G4	2147	88-C37	3096	5-F7	3378	5-G40	3478	88-B10		
1022-M	1-G4	2028	1-G4	2099	1-G4	2148	88-C38	3097	5-F7	3379	5-G41	3479	88-B10		
1022-N	1-G4	2029	1-G4	2100	1-G4	2149	88-C39	3098	5-F7	3380	5-G42	3480	88-B10		
1022-O	1-G4	2030	1-G4	2101	1-G4	2150	88-C40	3099	5-F7	3381	5-G43	3481	88-B10		
1022-P	1-G4	2031	1-G4	2102	1-G4	2151	88-C41	3100	5-F7	3382	5-G44	3482	88-B10		
1022-Q	1-G4	2032	1-G4	2103	1-G4	2152	88-C42	3101	5-F7	3383	5-G45	3483	88-B10		
1022-R	1-G4	2033	1-G4	2104	1-G4	2153	88-C43	3102	5-F7	3384	5-G46	3484	88-B10		
1022-S	1-G4	2034	1-G4	2105	1-G4	2154	88-C44	3103	5-F7	3385	5-G47	3485	88-B10		
1022-T	1-G4	2035	1-G4	2106	1-G4	2155	88-C45	3104	5-F7	3386	5-G48	3486	88-B10		
1022-U	1-G4	2036	1-G4	2107	1-G4	2156	88-C46	3105	5-F7	3387	5-G49	3487	88-B10		
1022-V	1-G4	2037	1-G4	2108	1-G4	2157	88-C47	3106	5-F7	3388	5-G50	3488	88-B10		
1022-W	1-G4	2038	1-G4	2109	1-G4	2158	88-C48	3107	5-F7	3389	5-G51	3489	88-B10		
1022-X	1-G4	2039	1-G4	2110	1-G4	2159	88-C49	3108	5-F7	3390	5-G52	3490	88-B10		
1022-Y	1-G4	2040	1-G4	2111	1-G4	2160	88-C50	3109	5-F7	3391	5-G53	3491	88-B10		
1022-Z	1-G4	2041	1-G4	2112	1-G4	2161	88-C51	3110	5-F7	3392	5-G54	3492	88-B10		
1022-AA	1-G4	2042	1-G4	2113	1-G4	2162	88-C52	3111	5-F7	3393	5-G55	3493	88-B10		
1022-AB	1-G4	2043	1-G4	2114	1-G4	2163	88-C53	3112	5-F7	3394	5-G56	3494	88-B10		
1022-AC	1-G4	2044	1-G4	2115	1-G4	2164	88-C54	3113	5-F7	3395	5-G57	3495	88-B10		
1022-AD	1-G4	2045	1-G4	2116	1-G4	2165	88-C55	3114	5-F7	3396	5-G58	3496	88-B10		
1022-AE	1-G4	2046	1-G4	2117	1-G4	2166	88-C56	3115	5-F7	3397	5-G59	3497	88-B10		
1022-AF	1-G4	2047	1-G4	2118	1-G4	2167	88-C57	3116	5-F7	3398	5-G60	3498	88-B10		
1022-AG	1-G4	2048	1-G4	2119	1-G4	2168	88-C58	3117	5-F7	3399	5-G61	3499	88-B10		
1022-AH	1-G4	2049	1-G4	2120	1-G4	2169	88-C59	3118	5-F7	3400	5-G62	3500	88-B10		
1022-AI	1-G4	2050	1-G4	2121	1-G4	2170	88-C60	3119	5-F7	3401	5-G63	3501	88-B10		
1022-AJ	1-G4	2051	1-G4	2122	1-G4	2171	88-C61	3120	5-F7	3402	5-G64	3502	88-B10		
1022-AM	1-G4	2052	1-G4	2123	1-G4	2172	88-C62	3121	5-F7	3403	5-G65	3503	88-B10		
1022-AN	1-G4	2053	1-G4	2124	1-G4	2173	88-C63	3122	5-F7	3404	5-G66	3504	88-B10		
1022-AO	1-G4	2054	1-G4	2125	1-G4	2174	88-C64	3123	5-F7	3405	5-G67	3505	88-B10		
1022-AP	1-G4	2055	1-G4	2126	1-G4	2175	88-C65	3124	5-F7	3406	5-G68	3506	88-B10		
1022-AQ	1-G4	2056	1-G4	2127	1-G4	2176	88-C66	3125	5-F7	3407	5-G69	3507	88-B10		
1022-AR	1-G4	2057	1-G4	2128	1-G4	2177	88-C67	3126	5-F7	3408	5-G70	3508	88-B10		
1022-AS	1-G4	2058	1-G4	2129	1-G4	2178	88-C68	3127	5-F7	3409	5-G71	3509	88-B10		
1022-AT	1-G4	2059	1-G4	2130	1-G4	2179	88-C69	3128	5-F7	3410	5-G72	3510	88-B10		
1022-AU	1-G4	2060	1-G4	2131	1-G4	2180	88-C70	3129	5-F7	3411	5-G73	3511	88-B10		
1022-AV	1-G4	2061	1-G4	2132	1-G4	2181	88-C71	3130	5-F7	3412	5-G74	3512	88-B10		
1022-AW	1-G4	2062	1-G4	2133	1-G4	2182	88-C72	3131	5-F7	3413	5-G75	3513	88-B10		
1022-AX	1-G4	2063	1-G4	2134	1-G4	2183	88-C73	3132	5-F7	3414	5-G76	3514	88-B10		
1022-AY	1-G4	2064	1-G4	2135	1-G4	2184	88-C74	3133	5-F7	3415	5-G77	3515	88-B10		
1022-AZ	1-G4	2065	1-G4	2136	1-G4	2185	88-C75	3134	5-F7	3416	5-G78	3516	88-B10		
1022-BA	1-G4	2066	1-G4	2137	1-G4	2186	88-C76	3135	5-F7	3417	5-G79	3517	88-B10		
1022-BB	1-G4	2067	1-G4	2138	1-G4	2187	88-C77	3136	5-F7	3418	5-G80	3518	88-B10		
1022-BB	1-G4	2068	1-G4	2139	1-G4	2188	88-C78	3137	5-F7	3419	5-G81	3519	88-B10		
1022-BB	1-G4	2069	1-G4	2140	1-G4	2189	88-C79	3138	5-F7	3420	5-G82	3520	88-B10		
1022-BB	1-G4	2070	1-G4	2141	1-G4	2190	88-C80	3139	5-F7	3421	5-G83	3521	88-B10		
1022-BB	1-G4	2071	1-G4	2142	1-G4	2191	88-C81	3140	5-F7	3422	5-G84	3522	88-B10		
1022-BB	1-G4	2072	1-G4	2143	1-G4	2192	88-C82	3141	5-F7	3423	5-G85	3523	88-B10		
1022-BB	1-G4	2073	1-G4	2144	1-G4	2193	88-C83	3142	5-F7	3424	5-G86	3524	88-B10		
1022-BB	1-G4	2074	1-G4	2145	1-G4	2194	88-C84	3143	5-F7	3425	5-G87	3525	88-B10		
1022-BB	1-G4	2075	1-G4	2146	1-G4	2195	88-C85	3144	5-F7	3426	5-G88	3526	88-B10		
1022-BB	1-G4	2076	1-G4	2147	1-G4	2196	88-C86	3145	5-F7	3427	5-G89	3527	88-B10		
1022-BB	1-G4	2077	1-G4	2148	1-G4	2197	88-C87	3146	5-F7	3428	5-G90	3528	88-B10		
1022-BB	1-G4	2078	1-G4	2149	1-G4	2198	88-C88	3147	5-F7	3429	5-G91	3529	88-B10		
1022-BB	1-G4	2079	1-G4	2150	1-G4	2199	88-C89	3148	5-F7	3430	5-G92	3530	88-B10		
1022-BB	1-G4	2080	1-G4	2151	1-G4	2200	88-C90	3149	5-F7	3431	5-G93	3531	88-B10		
1022-BB	1-G4	2081	1-G4	2152	1-G4	2201	88-C91	3150	5-F7	3432					

Mapping SSM C1-C8 Part 2

C11 SMALL SIGNAL MODULE (AP)

REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE	REFDES	SH- ZONE
3827	3-G12	6004	6-F2	7021	5-C4	9037	8-12	F228	2-A2	F701	7-C1	I151	1-A3
3828	3-H12	6005	5-H10	7022	5-G10	9038	8-12	F229	2-A2	F702	7-F2	I152	1-B4
3831	3-H13	6006	5-D11	7023	5-F2	9039	8-12	F230	2-A2	F703	7-F2	I153	1-B4
3832	3-G3	6007	5-D4	7024	5-F2	9040	5-B12	F231	2-A2	F704	7-D11	I154	1-A4
3833	3-G3	6008	5-F12	7025	5-H11	9041	5-H11	F232	2-A2	F705	7-E11	I155	1-A5
3834	3-G3	6010	1-F3	7026	5-A5	9042	5-C5	F233	2-A2	F706	7-F11	I156	1-B5
3835	3-H3	6011	1-F3	7027	4-C2	9044	4-H5	F234	2-A2	F707	7-F11	I157	1-A7
3836	3-H4	6012	2-F10	7044	4-A4	9045	4-H5	F235	2-A2	F708	7-F10	I158	1-B7
3837	3-H4	6013	2-F10	7045	4-B10	9046	8-14	F236	2-A2	F709	7-F10	I159	1-B7
3838	3-H4	6014	2-B10	7101	6-F9	9047	8-14	F237	2-A2	F710	7-F10	I160	1-C7
3841	3-H4	6015	2-H8	7102	6-D10	9048	8-14	F238	2-A2	F800	8-F2	I161	1-D7
3842	3-H4	6016	2-H8	7103	6-D8			F239	2-A2	F801	8-F2	I162	1-F7
3843	3-H4	6017	2-F10	7104	6-H8			F240	2-A2	F802	8-F2	I163	1-F8
3844	3-H4	6018	2-F10	7105	6-H10			F241	2-A2	F803	8-F2	I164	1-F8
3845	3-H4	6019	2-F10	7106	8-D9			F242	2-A2	F804	8-F2	I165	1-F8
3846	3-H4	6020	2-C5	7208	1-F10			F243	2-A2	F805	8-F2	I166	1-G10
3847	3-H4	6021	2-G4	7209	1-F9			F244	2-A2	F806	8-F2	I167	1-G10
3848	3-H4	6022	2-D10	7403	8-C4			F245	2-A2	F807	8-F2	I168	1-G12
3849	3-H4	6023	2-C5	7415	8-C11			F246	2-A2	F808	8-F2	I169	1-G12
3850	3-H4	6024	2-H8	7700	7-F5			F247	2-A2	F809	8-F2	I170	1-G12
3851	3-H4	6025	2-D10	7701	7-C3			F248	2-A2	F810	8-F2	I171	1-C12
3852	3-H4	6026	2-D10	7704	7-B13			F249	2-A2	F811	8-F2	I172	1-C6
3853	3-H4	6027	2-D10	7705	7-B11			F250	2-A2	F812	8-F2	I173	1-F10
3854	3-H4	6028	2-H10	7706	7-B8			F251	2-A2	F813	8-F2	I174	1-B10
3855	3-H4	6029	2-H11	7707	7-C8			F252	2-A2	F814	8-F2	I175	1-B10
3856	3-H4	6030	2-A12	7708	7-C8			F253	2-A2	F815	8-F2	I176	1-B10
3857	3-H4	6031	2-A12	7710	7-B7			F254	2-A2	F816	8-F2	I177	1-B13
3858	3-H4	6032	2-H3	7711	7-C9			F255	2-A2	F817	8-F2	I178	1-B13
3859	3-H4	6033	2-H3	7800	7-B11			F256	2-A2	F818	8-F2	I179	1-B13
3860	3-H4	6034	2-H3	7801	7-B11			F257	2-A2	F819	8-F2	I180	1-B13
3861	3-H4	6035	2-H3	7802	7-B11			F258	2-A2	F820	8-F2	I181	1-B13
3862	3-H4	6036	2-H3	7803	7-B11			F259	2-A2	F821	8-F2	I182	1-B13
3863	3-H4	6037	2-H3	7804	7-B11			F260	2-A2	F822	8-F2	I183	1-B13
3864	3-H4	6038	2-H3	7805	7-B11			F261	2-A2	F823	8-F2	I184	1-B13
3865	3-H4	6039	2-H3	7806	7-B11			F262	2-A2	F824	8-F2	I185	1-B13
3866	3-H4	6040	2-H3	7807	7-B11			F263	2-A2	F825	8-F2	I186	1-B13
3867	3-H4	6041	2-H3	7808	7-B11			F264	2-A2	F826	8-F2	I187	1-B13
3868	3-H4	6042	2-H3	7809	7-B11			F265	2-A2	F827	8-F2	I188	1-B13
3869	3-H4	6043	2-H3	7810	7-B11			F266	2-A2	F828	8-F2	I189	1-B13
3870	3-H4	6044	2-H3	7811	7-B11			F267	2-A2	F829	8-F2	I190	1-B13
3871	3-H4	6045	2-H3	7812	7-B11			F268	2-A2	F830	8-F2	I191	1-B13
3872	3-H4	6046	2-H3	7813	7-B11			F269	2-A2	F831	8-F2	I192	1-B13
3873	3-H4	6047	2-H3	7814	7-B11			F270	2-A2	F832	8-F2	I193	1-B13
3874	3-H4	6048	2-H3	7815	7-B11			F271	2-A2	F833	8-F2	I194	1-B13
3875	3-H4	6049	2-H3	7816	7-B11			F272	2-A2	F834	8-F2	I195	1-B13
3876	3-H4	6050	2-H3	7817	7-B11			F273	2-A2	F835	8-F2	I196	1-B13
3877	3-H4	6051	2-H3	7818	7-B11			F274	2-A2	F836	8-F2	I197	1-B13
3878	3-H4	6052	2-H3	7819	7-B11			F275	2-A2	F837	8-F2	I198	1-B13
3879	3-H4	6053	2-H3	7820	7-B11			F276	2-A2	F838	8-F2	I199	1-B13
3880	3-H4	6054	2-H3	7821	7-B11			F277	2-A2	F839	8-F2	I200	1-B13
3881	3-H4	6055	2-H3	7822	7-B11			F278	2-A2	F840	8-F2	I201	1-B13
3882	3-H4	6056	2-H3	7823	7-B11			F279	2-A2	F841	8-F2	I202	1-B13
3883	3-H4	6057	2-H3	7824	7-B11			F280	2-A2	F842	8-F2	I203	1-B13
3884	3-H4	6058	2-H3	7825	7-B11			F281	2-A2	F843	8-F2	I204	1-B13
3885	3-H4	6059	2-H3	7826	7-B11			F282	2-A2	F844	8-F2	I205	1-B13
3886	3-H4	6060	2-H3	7827	7-B11			F283	2-A2	F845	8-F2	I206	1-B13
3887	3-H4	6061	2-H3	7828	7-B11			F284	2-A2	F846	8-F2	I207	1-B13
3888	3-H4	6062	2-H3	7829	7-B11			F285	2-A2	F847	8-F2	I208	1-B13
3889	3-H4	6063	2-H3	7830	7-B11			F286	2-A2	F848	8-F2	I209	1-B13
3890	3-H4	6064	2-H3	7831	7-B11			F287	2-A2	F849	8-F2	I210	1-B13
3891	3-H4	6065	2-H3	7832	7-B11			F288	2-A2	F850	8-F2	I211	1-B13
3892	3-H4	6066	2-H3	7833	7-B11			F289	2-A2	F851	8-F2	I212	1-B13
3893	3-H4	6067	2-H3	7834	7-B11			F290	2-A2	F852	8-F2	I213	1-B13
3894	3-H4	6068	2-H3	7835	7-B11			F291	2-A2	F853	8-F2	I214	1-B13
3895	3-H4	6069	2-H3	7836	7-B11			F292	2-A2	F854	8-F2	I215	1-B13
3896	3-H4	6070	2-H3	7837	7-B11			F293	2-A2	F855	8-F2	I216	1-B13
3897	3-H4	6071	2-H3	7838	7-B11			F294	2-A2	F856	8-F2	I217	1-B13
3898	3-H4	6072	2-H3	7839	7-B11			F295	2-A2	F857	8-F2	I218	1-B13
3899	3-H4	6073	2-H3	7840	7-B11			F296	2-A2	F858	8-F2	I219	1-B13
3900	3-H4	6074	2-H3	7841	7-B11			F297	2-A2	F859	8-F2	I220	1-B13
3901	3-H4	6075	2-H3	7842	7-B11			F298	2-A2	F860	8-F2	I221	1-B13
3902	3-H4	6076	2-H3	7843	7-B11			F299	2-A2	F861	8-F2	I222	1-B13
3903	3-H4	6077	2-H3	7844	7-B11			F300	2-A2	F862	8-F2	I223	1-B13
3904	3-H4	6078	2-H3	7845	7-B11			F301	2-A2	F863	8-F2	I224	1-B13
3905	3-H4	6079	2-H3	7846	7-B11			F302	2-A2	F864	8-F2	I225	1-B13
3906	3-H4	6080	2-H3	7847	7-B11			F303	2-A2	F865	8-F2	I226	1-B13
3907	3-H4	6081	2-H3	7848	7-B11			F304	2-A2	F866	8-F2	I227	1-B13
3908	3-H4	6082	2-H3	7849	7-B11			F305	2-A2	F867	8-F2	I228	1-B13
3909	3-H4	6083	2-H3	7850	7-B11			F306	2-A2	F868	8-F2	I229	1-B13
3910	3-H4	6084	2-H3	7851	7-B11			F307	2-A2	F869	8-F2	I230	1-B13
3911	3-H4	6085	2-H3	7852	7-B11			F308	2-A2	F870	8-F2	I231	1-B13
3912	3-H4	6086	2-H3	7853	7-B11			F309	2-A2	F871	8-F2	I232	1-B13
3913	3-H4	6087	2-H3	7854	7-B11			F310	2-A2	F872	8-F2	I233	1-B13
3914	3-H4	6088	2-H3	7855	7-B11			F311	2-A2	F873	8-F2	I234	1-B13
3915	3-H4	6089	2-H3	7856	7-B11			F312	2-A2	F874	8-F2	I235	1-B13
3916	3-H4	6090	2-H3	7857	7-B11			F313	2-A2	F875	8-F2	I236	1-B13
3917	3-H4	6091	2-H3	7858	7-B11			F314	2-A2	F876	8-F2	I237	1-B13
3918	3-H4	6092	2-H3	7859	7-B11			F315	2-A2	F877	8-F2	I238	1-B13
3919	3-H4	6093	2-H3	7860	7-B11			F316	2-A2	F878	8-F2	I239	1-B13
3920	3-H4	6094	2-H3	7861	7-B11			F317	2-A2	F879	8-F2	I240	1-B13
3921	3-H4	6095	2-H3	7862	7-B11			F318	2-A2	F880	8-F2	I241	1-B13
3922	3-H4	6096	2-H3	7863	7-B11			F319	2-A2	F881	8-F2	I242	1-B13
3923	3-H4	6097	2-H3	7864	7-B11			F320	2-A2	F882	8-F2	I243	1-B13
3924	3-H4	6098	2-H3	7865	7-B11			F321	2-A2	F883	8-F2	I244	1-B13
3925	3-H4	6099	2-H3	7866	7-B11			F322	2-A2	F884	8-F2	I245	1-B13
3926	3-H4	6100	2-H3	7867	7-B11			F323	2-A2	F885	8-F2	I246	1-B13
3927	3-H4	6101	2-H3	7868	7-B11			F324	2-A2	F886	8-F2	I247	1-B13
3928	3-H4	6102	2-H3	7869	7-B11			F325	2-A2	F887	8-F2	I248	1-B13
3929	3-H4	6103	2-H3	7870	7-B11			F326	2-A2	F888	8-F2	I249	1-B13
3930	3-H4	6104	2-H3	7871	7-B11			F327	2-A2	F889	8-F2	I250	1-B13
3931	3-H4	6105	2-H3	7872	7-B11			F328	2-A2	F890	8-F2	I251	1-B13
3932	3-H4	6106	2-H3	7873	7-B11			F329	2-A2	F891	8-F2	I252	1-B13
3933	3-H4	6107	2-H3	7874	7-B11			F330	2-A2	F892	8-F2	I253	1-B13
3934	3-H4	6108	2-H3	7875	7-B11			F331	2-A2	F893	8-F2	I254	1-B13
3935	3-H4	6109	2-H3	7876	7-B11			F332	2-A2	F894	8-F2	I255	1-B13
3936	3-H4	6110	2-H3	7877									

1 2 3 4

C12 SMALL SIGNAL MODULE (AP)

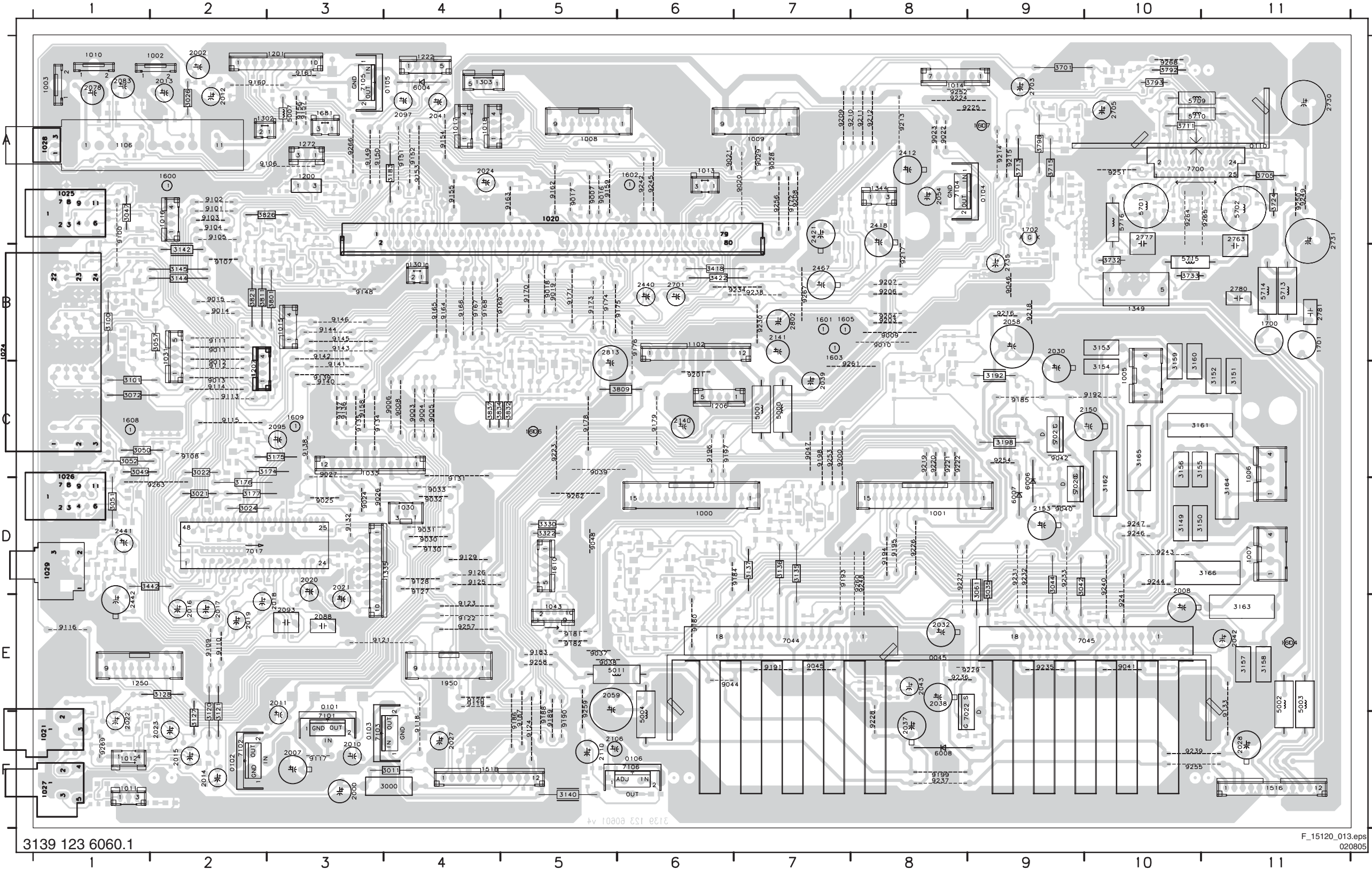
REFDES	SH-ZONE
I640	6-D12
I702	7-H3
I703	7-D7
I704	7-G3
I705	7-H4
I707	7-D3
I708	7-F2
I709	7-B4
I710	7-D4
I711	7-C2
I713	7-C3
I714	7-B3
I717	7-C5
I718	7-C4
I719	7-C7
I720	7-C8
I721	7-E8
I722	7-E8
I723	7-D8
I724	7-D9
I725	7-B10
I726	7-B10
I727	7-B10
I728	7-C10
I729	7-C11
I730	7-B13
I735	7-H9
I736	7-E8
I738	7-D4
I739	7-F7
I742	7-H9
I743	7-F9
I744	7-H10
I745	7-G10
I746	7-G8
I747	7-G7
I750	7-F3
I751	7-G4
I800	8-F8
I801	8-F8
I805	8-F7
I806	8-F7
I807	8-F6
I809	8-D5
I810	8-F3
I811	8-F2
I813	8-B5
I814	8-C3
I815	8-A3
I816	8-B5
I819	8-B10
I820	8-C11
I821	8-C11
I822	8-C10

E_15000_022.eps
191004

This image shows a full page of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. In the bottom right corner, there is small black text that reads "E_06532_012.eps" and "131004".

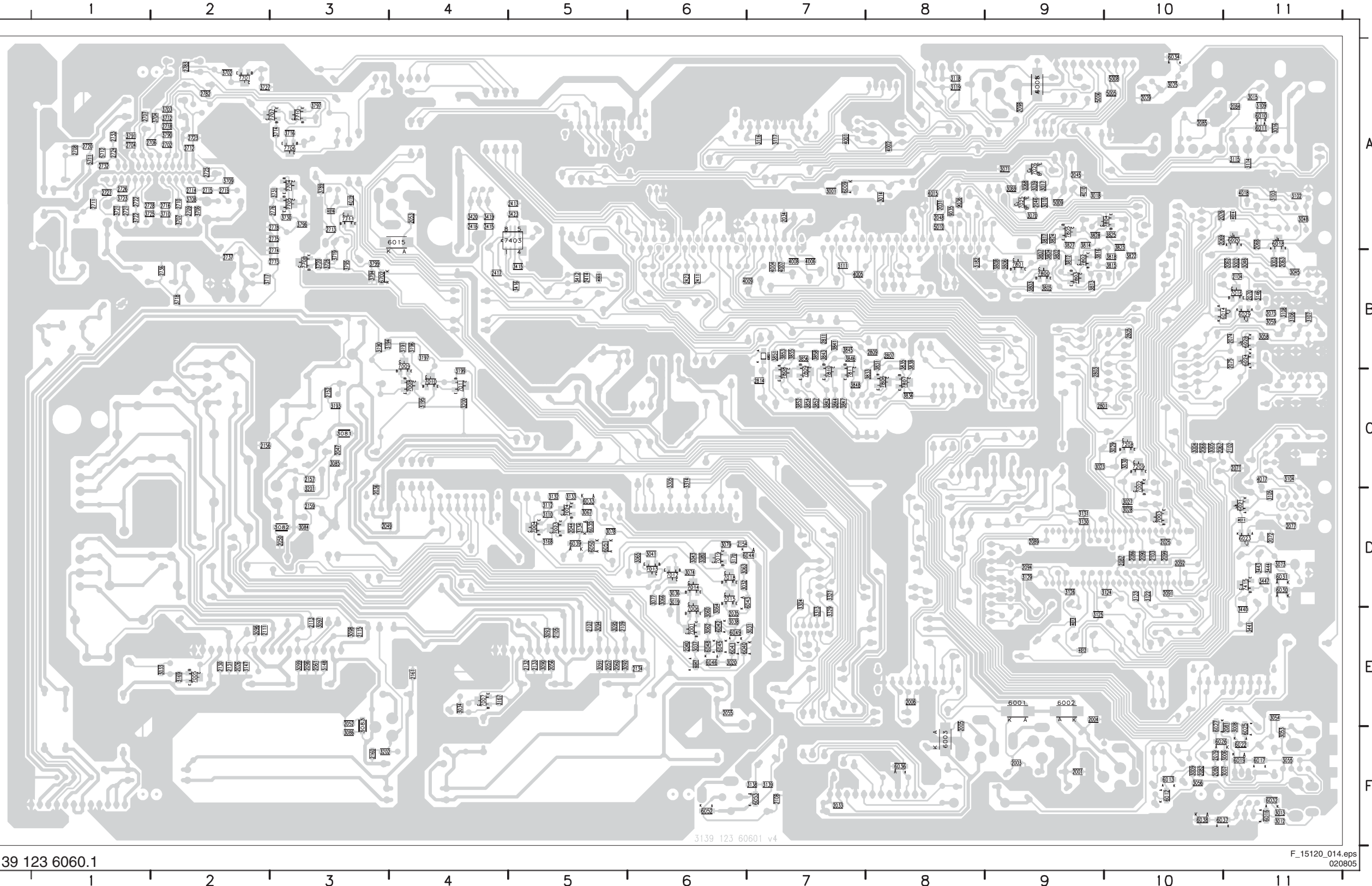
Layout SSM (Top Side)

0045 E8	1012 F1	1106 A1	1603 B7	2012 A2	2039 C7	2412 A8	3000 F4	3120 F2	3157 E11	3418 B6	3832 C5	6006 D9	9006 C4	9025 D3	9048 D5	9118 F4	9137 C3	9157 A3	9176 B6	9196 C6
0101 E3	1013 A6	1200 A3	1604 E11	2013 A2	2041 A4	2418 A8	3011 F4	3121 F2	3158 E11	3422 B6	3834 C4	6007 D9	9007 A5	9026 D3	9100 A1	9119 E4	9138 C3	9158 C3	9178 C5	9197 C6
0102 F2	1014 A8	1201 A3	1605 B7	2014 F2	2042 E11	2421 A7	3021 D2	3127 F2	3159 E10	3442 D2	3837 C4	6008 F8	9008 C4	9027 C3	9101 A1	9120 E4	9139 C3	9159 A5	9179 C6	9198 C7
0103 F3	1015 B3	1206 C6	1606 C5	2015 F2	2043 F8	2440 B6	3022 C2	3128 E2	3160 C10	3701 A9	5000 C7	7017 D2	9009 B8	9028 A7	9102 A2	9121 E3	9140 C3	9160 A2	9180 F6	9199 F8
0104 A9	1016 A2	1207 C2	1607 A9	2016 E2	2054 A8	2441 D1	3024 D2	3135 D7	3161 C10	3705 A11	5001 C7	7020 D9	9010 B8	9029 A7	9103 A2	9122 E4	9141 C3	9161 A3	9181 F5	9200 C7
0105 A4	1017 A4	1222 A4	1608 C1	2017 E2	2058 B9	2442 E1	3026 A2	3136 D7	3162 D10	3711 A10	5002 F11	7021 C9	9011 B2	9030 D4	9104 A2	9123 E4	9142 B3	9162 A5	9182 F5	9201 C6
0106 F6	1018 A4	1250 E1	1609 C3	2018 E3	2059 E5	2467 B7	3035 D9	3137 D7	3163 F11	3713 A9	5003 F11	7022 F8	9012 C2	9031 D4	9105 A2	9124 F5	9143 B3	9163 A5	9183 F5	9203 B8
0110 A11	1020 A5	1272 A3	1610 D5	2019 E2	2078 A1	2701 B6	3042 D9	3140 F5	3164 D11	3715 A9	5004 F6	7044 E7	9013 C2	9032 D4	9106 A3	9125 D4	9144 B3	9164 B4	9184 D7	9204 B8
1000 D6	1021 F1	1301 B4	1681 A3	2020 D3	2083 A1	2703 A9	3044 D9	3142 B2	3165 C10	3724 A11	5007 A3	7045 E10	9014 B2	9033 D4	9107 B2	9126 D4	9145 B3	9165 B4	9185 C9	9206 B8
1001 D8	1025 A1	1302 A2	1700 B11	2021 D3	2088 F3	2705 A10	3047 A1	3144 B2	3166 D11	3732 B10	5011 E5	7101 F3	9015 B2	9037 F5	9108 C2	9127 D4	9146 B3	9166 B4	9186 F5	9207 B8
1002 A2	1026 C1	1303 A4	1701 B11	2022 F1	2093 E3	2730 A11	3049 C1	3145 B2	3174 C3	3733 B10	5011 A10	7102 F2	9016 A5	9038 F5	9109 E2	9128 D4	9148 B3	9167 B4	9187 F5	9208 A7
1003 A1	1027 F1	1335 D4	1702 A9	2023 F2	2095 C3	2731 A11	3050 C1	3149 D10	3175 C3	3792 A10	5012 A11	7103 F3	9017 A5	9039 C5	9110 E2	9129 D4	9149 A3	9168 B4	9188 F5	9209 A7
1005 C10	1028 A1	1344 A8	1950 E4	2024 A4	2097 A4	2735 B9	3051 D1	3150 D10	3176 D2	3793 A10	5013 A3	7104 A8	9018 B5	9040 D9	9111 B2	9130 D4	9150 A3	9169 B4	9189 F5	9210 A7
1006 C11	1029 D1	1349 B10	2000 F3	2027 F4	2100 F5	2763 A11	3052 D2	3151 C11	3177 C2	3798 A9	5013 A10	7105 A3	9019 B5	9041 F10	9112 C2	9131 D4	9151 A4	9170 B5	9190 F5	9211 A8
1007 D11	1030 D4	1516 F11	2002 A2	2028 F1	2110 F5	2777 A10	3057 B2	3152 C11	3178 C2	3801 B3	5014 B11	7106 F6	9020 A7	9042 C5	9113 C2	9132 D4	9152 A4	9171 B9	9191 F7	9212 A8
1008 A5	1031 B2	1518 F4	2007 F3	2030 B9	2141 C7	2780 B11	3061 D2	3153 B10	3179 C2	3809 C5	5015 B10	7700 A10	9021 A7	9044 F9	9114 C2	9133 E11	9153 A4	9172 A9	9192 C10	9213 A8
1009 A7	1033 C3	1600 A2	2008 D10	2032 F8	2141 C7	2781 B11	3072 C1	3154 C10	3198 C2	3811 B2	5015 B10	9003 C4	9022 A8	9045 F9	9115 C2	9134 C3	9154 A4	9173 B5	9193 D7	9214 A9
1010 A1	1043 E5	1601 B7	2010 F3	2037 F8	2150 C10	2802 B7	3100 B1	3155 C10	3322 D5	3821 B2	5016 A10	9004 C4	9023 A8	9046 B9	9116 F1	9135 C3	9155 A4	9174 B5	9194 D8	9215 A9
1011 F1	1102 B6	1602 A6	2011 E3	2038 E8	2153 D9	2813 B5	3101 C1	3156 C10	3330 D5	3826 A2	6004 A4	9005 C4	9024 D3	9047 C7	9117 F3	9136 C3	9156 A3	9175 B6	9195 D8	9216 B9



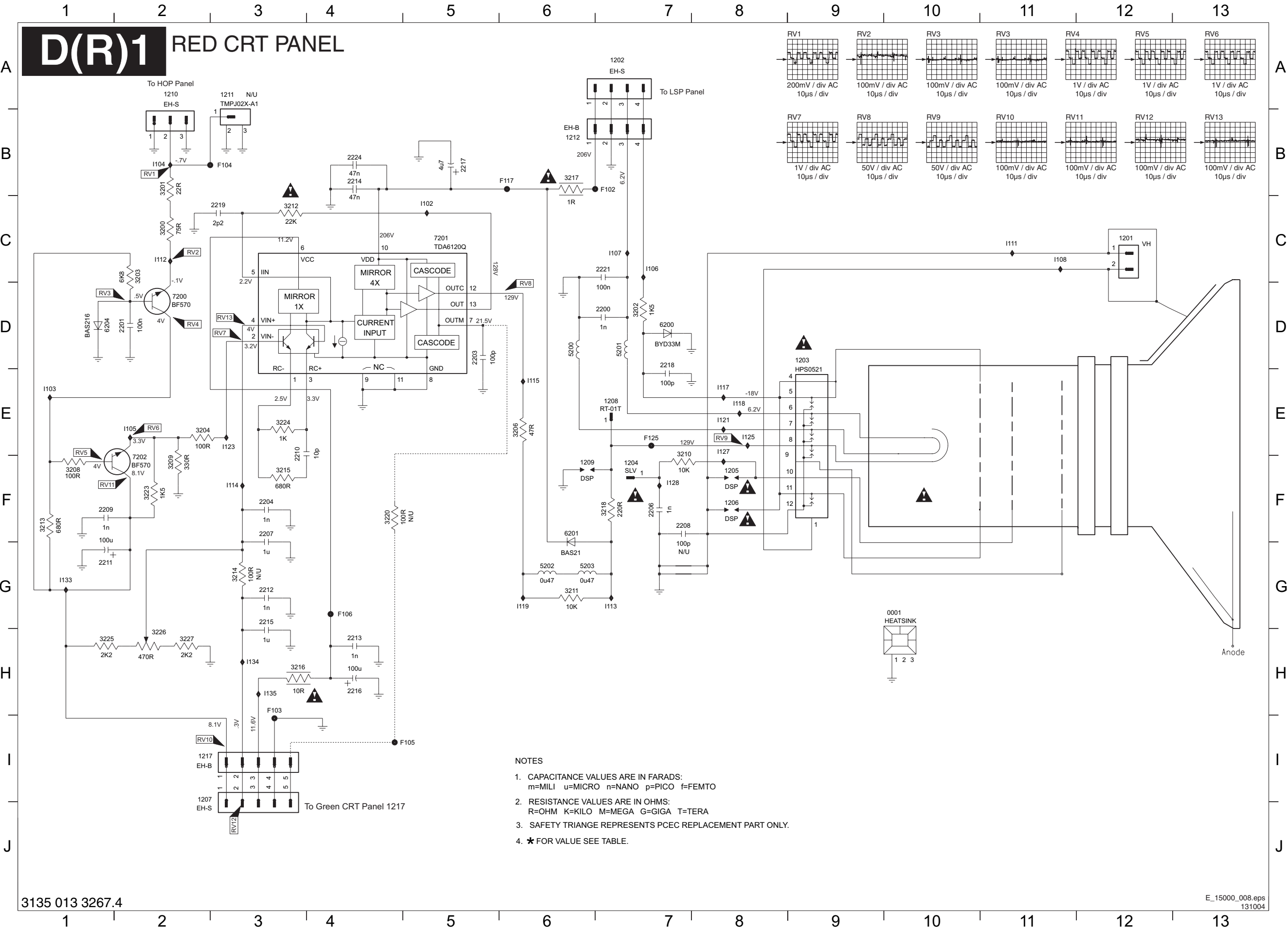
Layout SSM (Bottom Side)

2001 F9	2049 D3	2074 B11	2099 D10	2157 C3	2712 A2	2737 B2	3005 C10	3029 C10	3058 B11	3081 C3	3105 D11	3129 D9	3194 B3	3423 A5	3719 B3	3803 B9	3831 B8	3857 C7	4018 A11	6015 A4
2003 F9	2050 D3	2075 B11	2102 C11	2159 D3	2713 A3	2773 B3	3006 F11	3030 C10	3059 B11	3082 D3	3106 B11	3130 D9	3195 C4	3440 E11	3720 B3	3804 B9	3833 C8	3858 B7	4019 A3	6016 F11
2004 E9	2052 E3	2076 A10	2103 D10	2160 F3	2714 A2	2774 B3	3007 F11	3031 E7	3060 E6	3083 E3	3107 B11	3131 D9	3196 B4	3441 E11	3721 A1	3805 B9	3835 B8	4001 A7	5005 A10	6017 F11
2005 E8	2053 A4	2077 D11	2104 B11	2161 E4	2715 A2	2775 A3	3008 F11	3032 D6	3062 E6	3084 D3	3108 B11	3132 D5	3197 B4	3443 D11	3722 A1	3806 B9	3836 C8	4002 A8	5006 A9	6018 A11
2006 E8	2055 E6	2079 F10	2105 E5	2411 B6	2716 A2	2776 A3	3009 F10	3033 E2	3063 D6	3085 C3	3109 A11	3133 D5	3199 C4	3444 D11	3723 A1	3807 B9	3838 B8	4003 B5	5008 A10	6019 F11
2025 D10	2056 E5	2080 F10	2107 E5	2413 A5	2718 A2	2778 A3	3010 A9	3034 E4	3064 E6	3086 F3	3110 D5	3134 D5	3200 C4	3447 D11	3725 A1	3808 B9	3841 B7	4004 B7	5009 A9	6020 A11
2026 E2	2057 E5	2081 F11	2108 F7	2414 B5	2719 A2	2782 A2	3012 F11	3036 D6	3065 D6	3090 E5	3111 B7	3138 F7	3201 D3	3702 A2	3726 B3	3812 B9	3842 C7	4005 B7	5010 A8	6021 D11
2029 A10	2060 E5	2082 F10	2109 E5	2415 A4	2720 A1	2783 A2	3013 F11	3037 E6	3066 D6	3091 E5	3112 D5	3139 F7	3202 F3	3703 A2	3727 A2	3813 B9	3843 B7	4006 B7	5711 A1	6022 F11
2031 A8	2061 E3	2084 A11	2111 E2	2416 A4	2721 A1	2801 C9	3014 A8	3038 E6	3067 D5	3092 E5	3114 A11	3146 B11	3304 D7	3704 A2	3730 A3	3814 A9	3844 C7	4007 B7	5712 A1	6023 D11
2033 F7	2062 B11	2085 A10	2113 E3	2417 B4	2722 A1	2803 C9	3015 A11	3039 A9	3068 A9	3093 E5	3115 A11	3147 E2	3305 C6	3706 A2	3731 A3	3815 B10	3845 B7	4008 B7	6001 E9	6024 B11
2034 A7	2063 B11	2086 A10	2115 E3	2423 B6	2723 A2	2805 B10	3016 A11	3041 D6	3069 A9	3094 E5	3116 A7	3148 E3	3313 E7	3707 A2	3789 A3	3816 B9	3846 B7	4009 B7	6002 E9	6025 F11
2035 E6	2066 C10	2087 D10	2130 E2	2702 A2	2724 A1	2807 B8	3017 A9	3043 D6	3070 A9	3095 E5	3117 A7	3167 E4	3314 C6	3708 A2	3790 A2	3817 A9	3847 C7	4010 A9	6003 F8	6026 F10
2036 D3	2067 C10	2089 D9	2131 E2	2704 A1	2725 A2	2809 B8	3018 A9	3045 B11	3071 A9	3096 E2	3118 A8	3168 D5	3321 D7	3709 A2	3791 A1	3818 B10	3848 C7	4011 D11	6005 A9	6027 E10
2040 E6	2068 A11	2090 D10	2132 E5	2706 A2	2726 A1	2811 B7	3019 D6	3046 B11	3073 D11	3097 E3	3119 A8	3169 E2	3329 E7	3710 A2	3794 B3	3822 B10	3851 B7	4012 E9	6009 A7	6028 B11
2044 D5	2069 A10	2091 D10	2133 E5	2707 A1	2727 A1	2814 C7	3020 E6	3048 A11	3074 D6	3098 E3	3122 D10	3170 D6	3412 B5	3712 A2	3795 B3	3823 A10	3852 C7	4013 E9	6010 A11	6029 B11
2045 A9	2070 B11	2092 D10	2134 E6	2708 A1	2728 A1	3001 A7	3023 C9	3053 F11	3077 D6	3099 E3	3123 D10	3182 B8	3415 B5	3714 A3	3796 A3	3824 A9	3853 B7	4014 A11	6011 A11	6030 D11
2046 A9	2071 C11	2094 D9	2152 C3	2709 A2	2732 A1	3002 B11	3025 A10	3054 E11	3078 D5	3102 A11	3124 D10	3190 B3	3416 B5	3716 A3	3797 A3	3825 A10	3854 C7	4015 A8	6012 F10	6031 D11
2047 C3	2072 D11	2096 E3	2154 D6	2710 A2	2733 A1	3003 B11	3027 D10	3055 F11	3079 D6	3103 A11	3125 E9	3191 B4	3419 A4	3717 B2	3799 B3	3827 A9	3855 B7	4016 A3	6013 F10	6032 F11
2048 A8	2073 B11	2098 A9	2156 C2	2711 A1	2736 B2	3004 C10	3028 D10	3056 F10	3080 D6	3104 C11	3126 D9	3193 C3	3420 A4	3718 B2	3802 B9	3828 A9	3856 B7	4017 C11	6014 B10	6033 D5



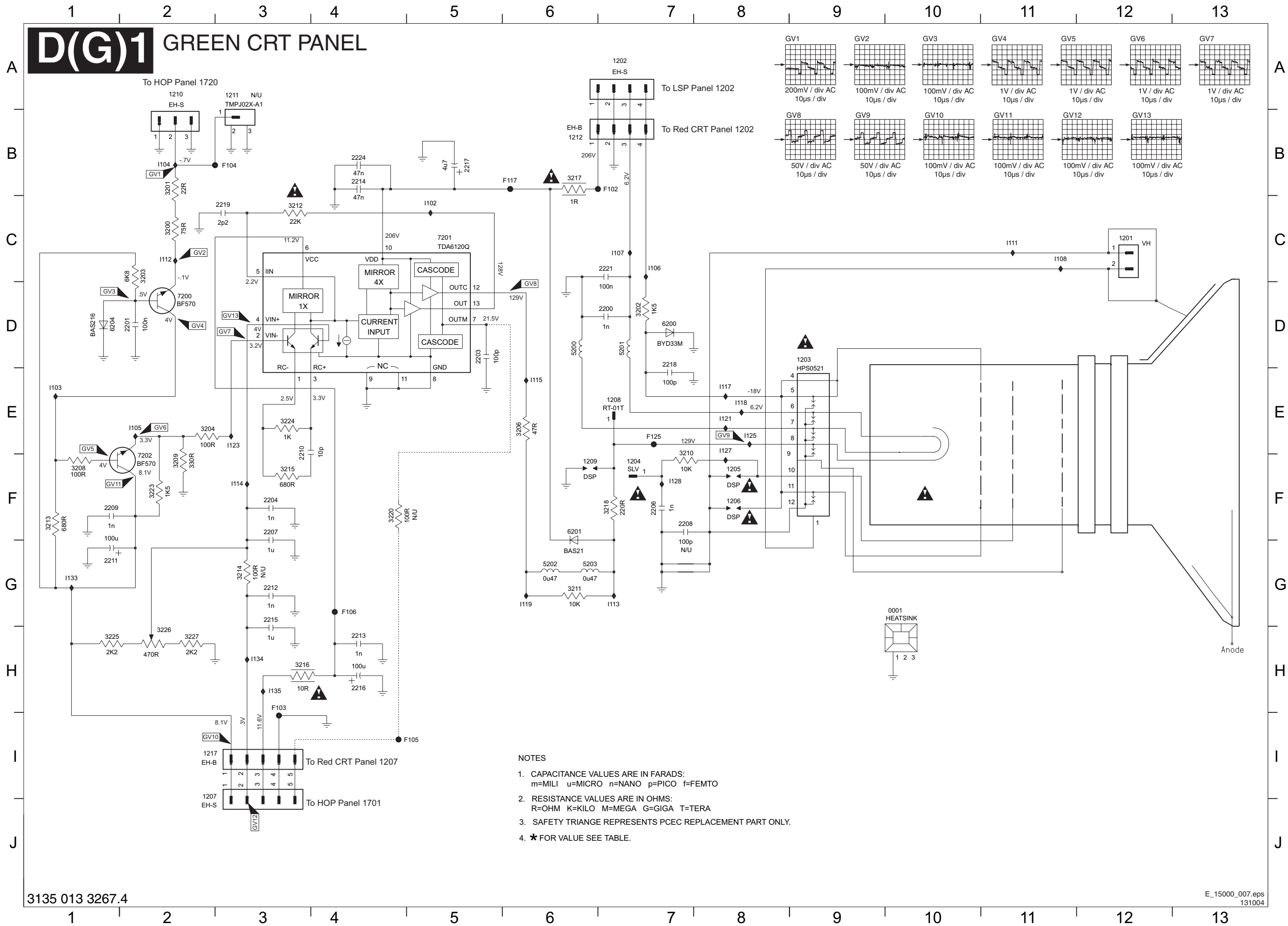
6015 A4	6016 F11	6017 F11	6018 A11	6019 F11	6020 A11	6021 D11	6022 F11	6023 D11	6024 B11	6025 F11	6026 F10	6027 E10	6028 B11	6029 B11	6030 D11	6031 D11	6032 F11	6033 D5	6034 A10	6035 D5	6036 F8	6037 F10	6038 F10	6039 D5	6040 E6	6041 E6	6042 E6	6043 D7	6044 D7	6045 E6	6046 E6	6047 E6	6048 E6	6049 E6	6050 D5	6051 D5	6052 F6	6053 F7	6702 B3	6801 B7	7001 E6	7002 C10	7003 D10	7004 D5	7005 E2	7006 E6	7007 E4	7008 C4	7009 B4	7010 C4	7011 C4	7012 D6	7013 D6	7014 D6	7015 D6	7016 B11	7018 D6	7019 D6	7023 D5	7024 D5	7025 A9	7026 A9	7208 C10	7209 C10	7403 A5	7415 D11	7701 A2	7704 A3	7705 A3	7706 A3	7707 A3	7708 B3	7710 A3	7711 A3	7800 B9	7801 B9	7802 B9	7803 B9	7804 A10	7805 A9	7806 C8	7807 C8	7808 C7	7809 C7	7810 C7	7811 C7	9035 A8	9036 A8
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CRT Panel: Red



CRT Panel: Green

D(G)1 GREEN CRT PANEL

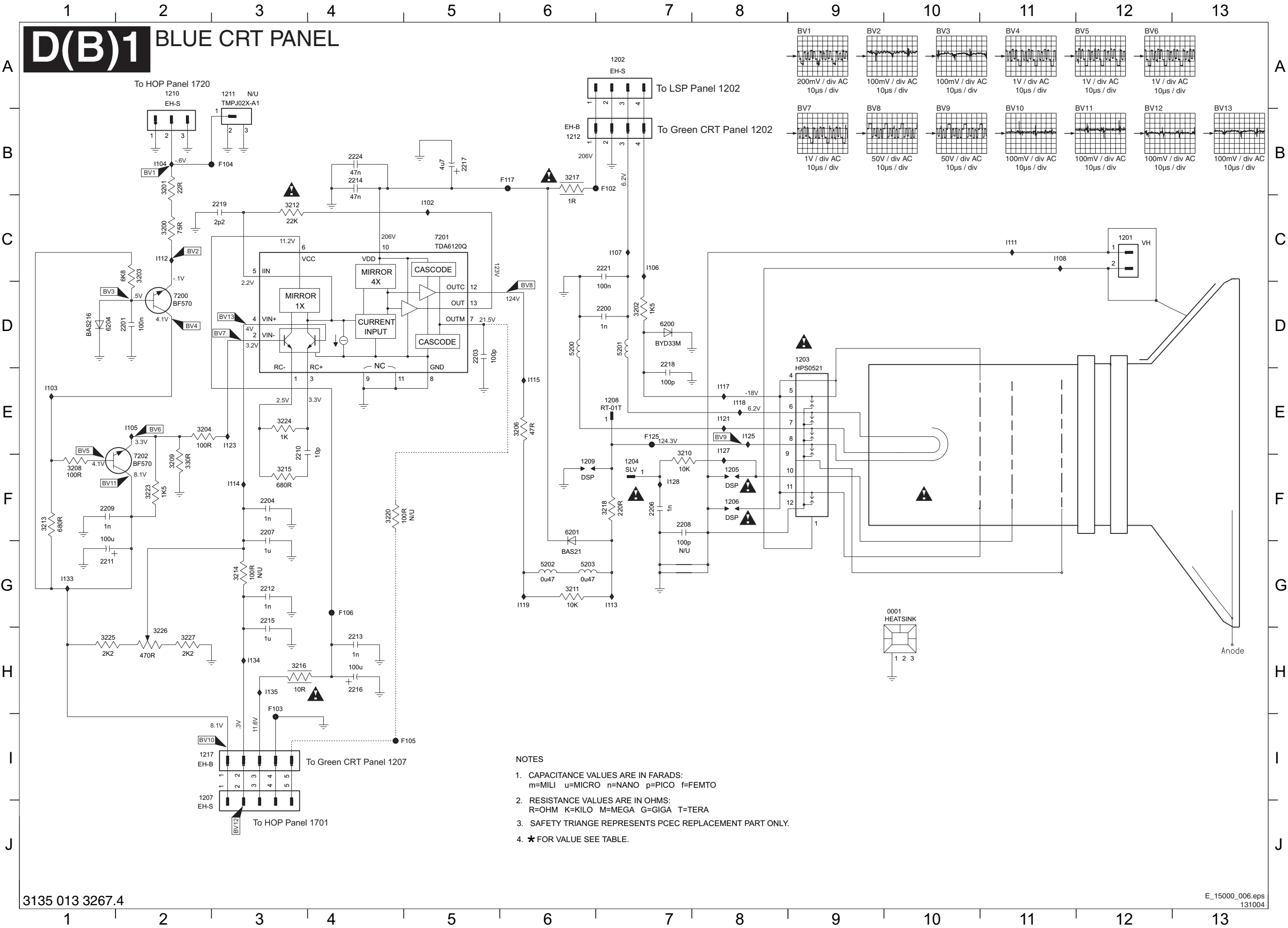


NOTES

1. CAPACITANCE VALUES ARE IN FARADS:
m=MILI u=MICRO n=NANO p=PICO f=FEMTO
2. RESISTANCE VALUES ARE IN OHMS:
R=OHM K=KILO M=MEGA G=GIGA T=TERA
3. SAFETY TRIANGLE REPRESENTS PCEC REPLACEMENT PART ONLY.
4. * FOR VALUE SEE TABLE.

CRT Panel: Blue

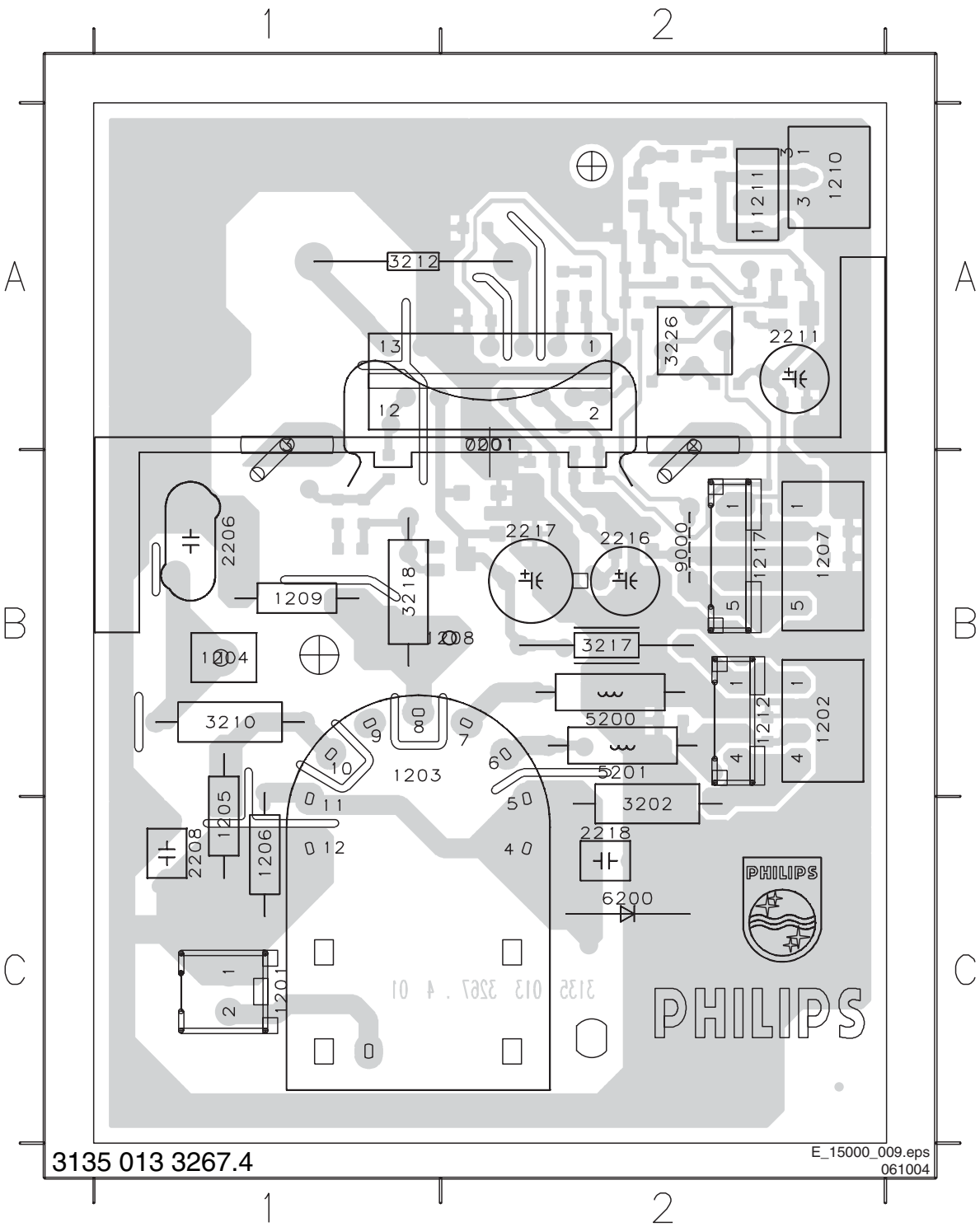
D(B)1 BLUE CRT PANEL



NOTES

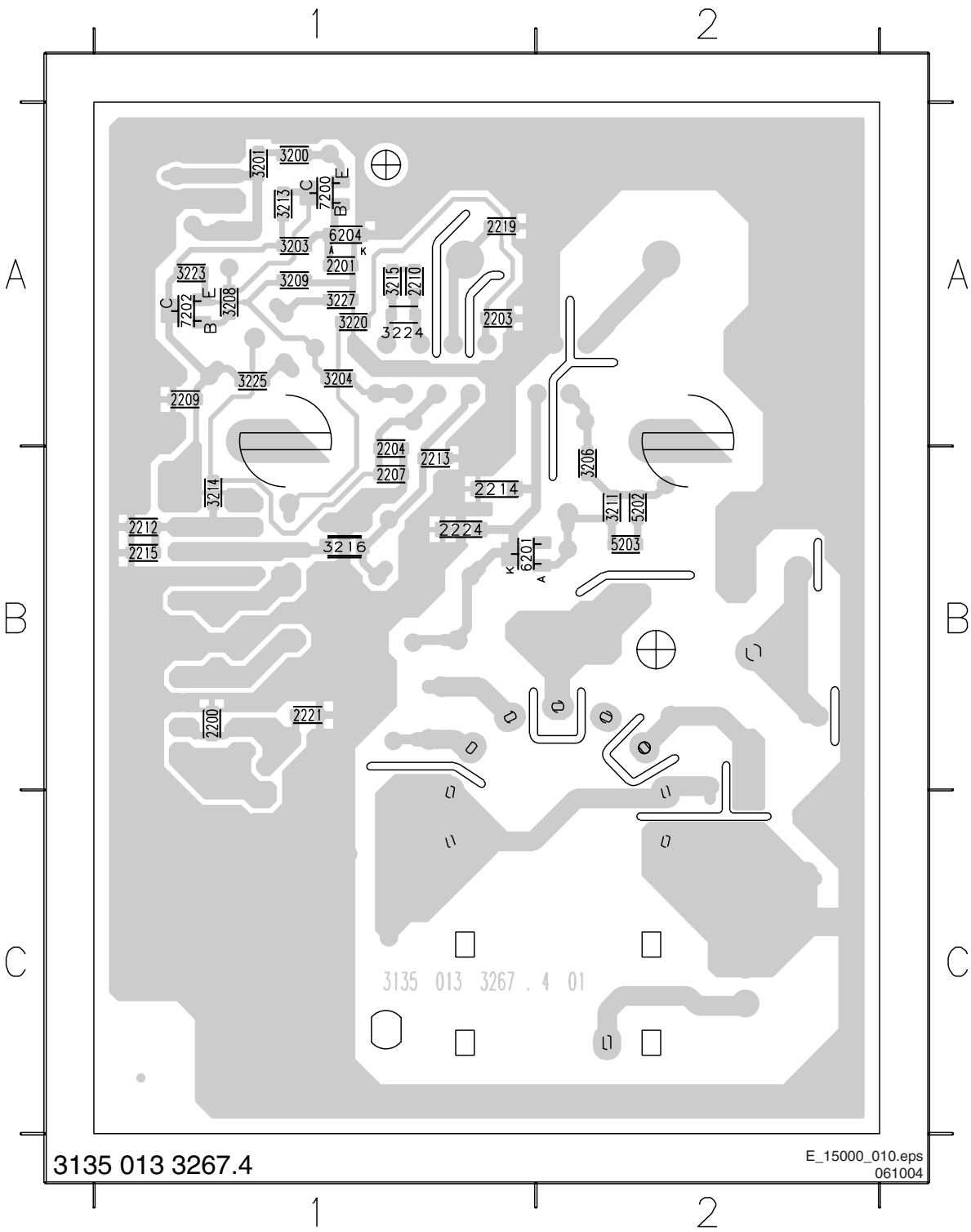
1. CAPACITANCE VALUES ARE IN FARADS:
m=MILI u=MICRO n=NANO p=PICO f=FEMTO
2. RESISTANCE VALUES ARE IN OHMS:
R=OHM K=KILO M=MEGA G=GIGA T=TERA
3. SAFETY TRIANGLE REPRESENTS PCEC REPLACEMENT PART ONLY.
4. ★ FOR VALUE SEE TABLE.

Layout CRT Panel (Top Side)



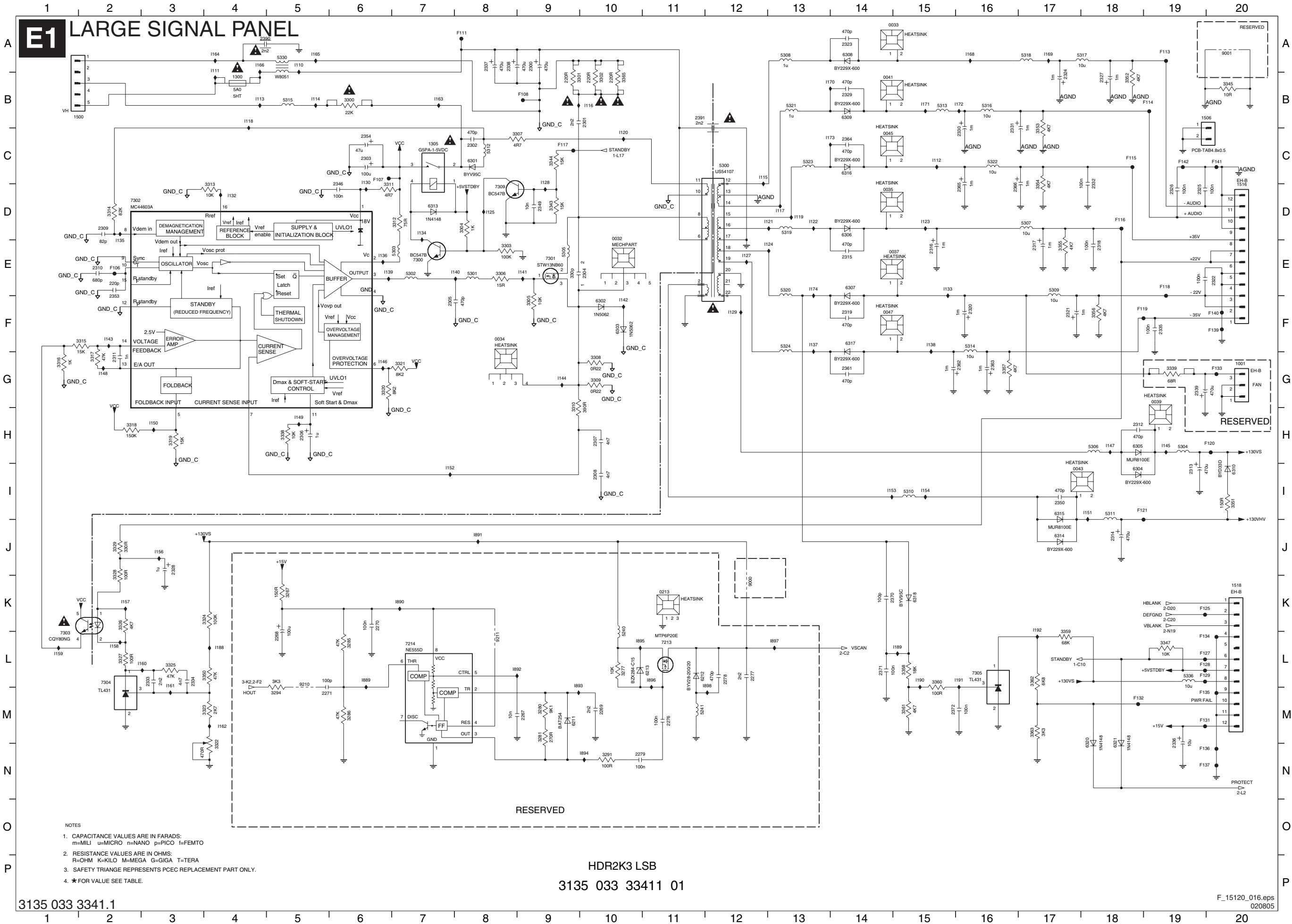
- 0001 A2
- 1201 C1
- 1202 B2
- 1203 B1
- 1204 B1
- 1205 C1
- 1206 C1
- 1207 B2
- 1208 B2
- 1209 B1
- 1210 A2
- 1211 A2
- 1212 B2
- 1217 B2
- 2206 B1
- 2208 C1
- 2211 A2
- 2216 B2
- 2217 B2
- 2218 C2
- 3202 C2
- 3210 B1
- 3212 A1
- 3217 B2
- 3218 B1
- 3226 A2
- 5200 B2
- 5201 B2
- 6200 C2
- 7201 A2
- 9000 B2

Layout CRT Panel (Bottom Side)

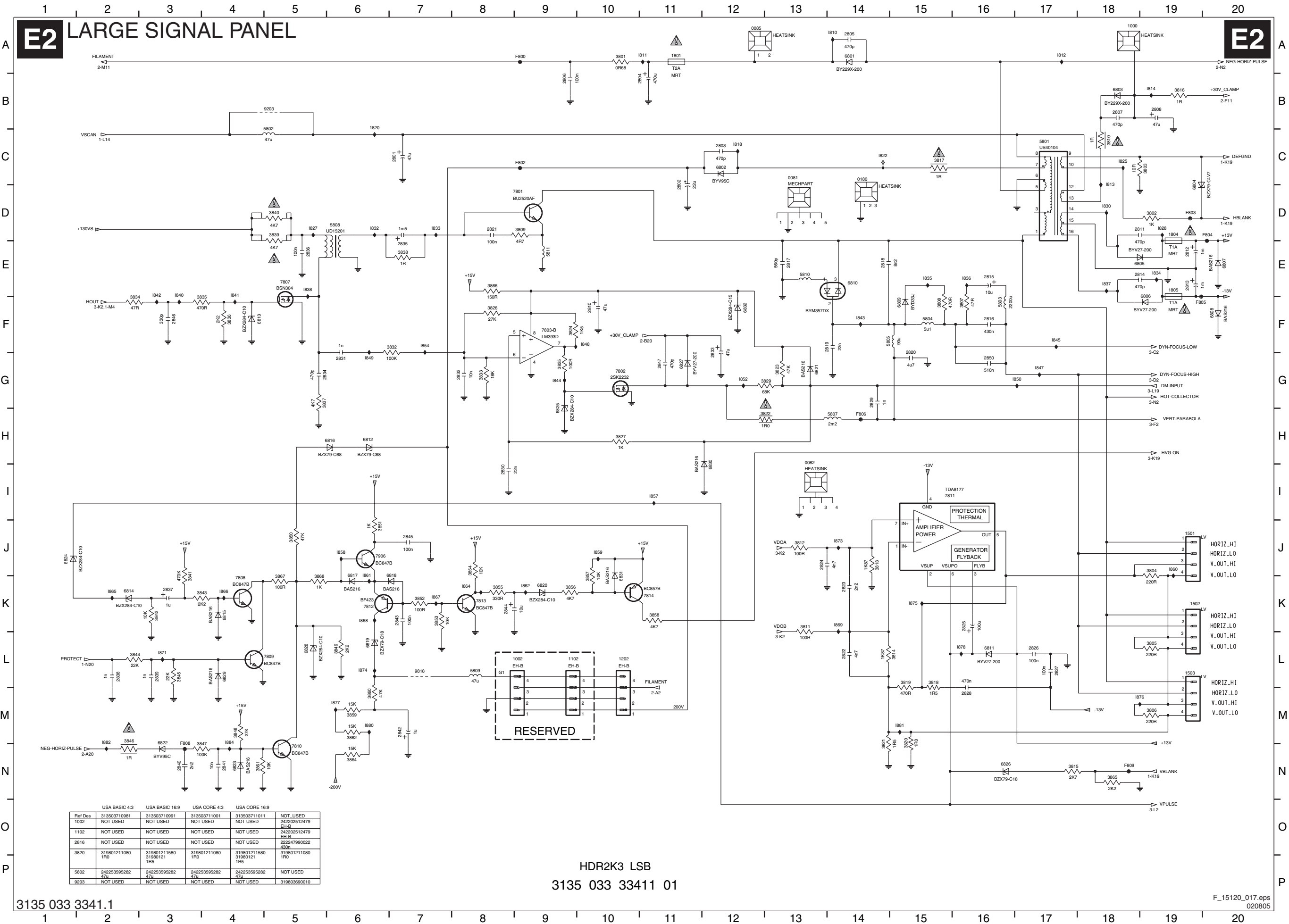


- 2200 B1
- 2201 A1
- 2203 A1
- 2204 B1
- 2207 B1
- 2209 A1
- 2210 A1
- 2212 B1
- 2213 B1
- 2214 B1
- 2215 B1
- 2219 A1
- 2221 B1
- 2224 B1
- 3200 A1
- 3201 A1
- 3203 A1
- 3204 A1
- 3206 B2
- 3208 A1
- 3209 A1
- 3211 B2
- 3213 A1
- 3214 B1
- 3215 A1
- 3216 B1
- 3220 A1
- 3223 A1
- 3224 A1
- 3225 A1
- 3227 A1
- 5202 B2
- 5203 B2
- 6201 B1
- 6204 A1
- 7200 A1
- 7202 A1

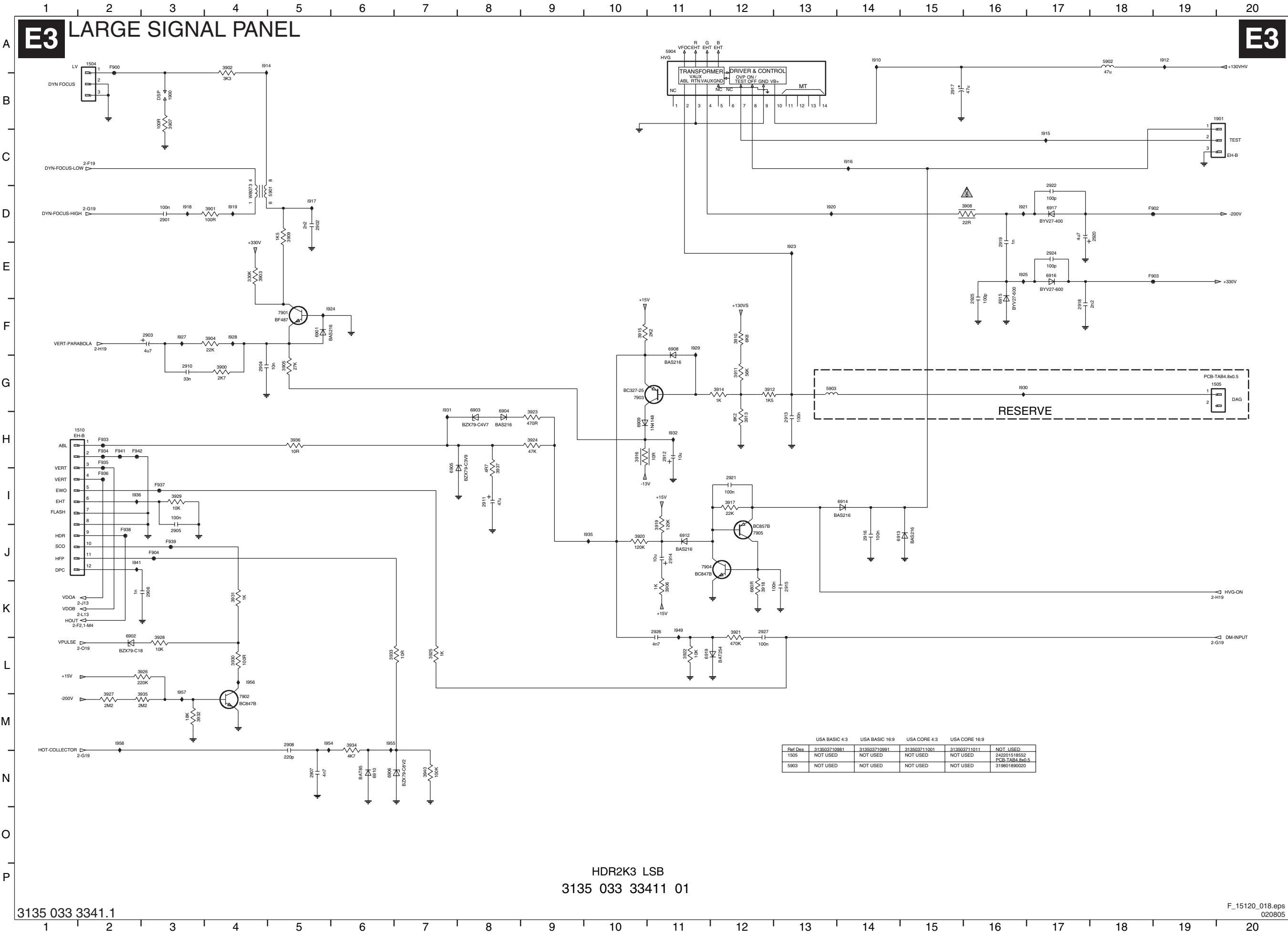
Large Signal Panel



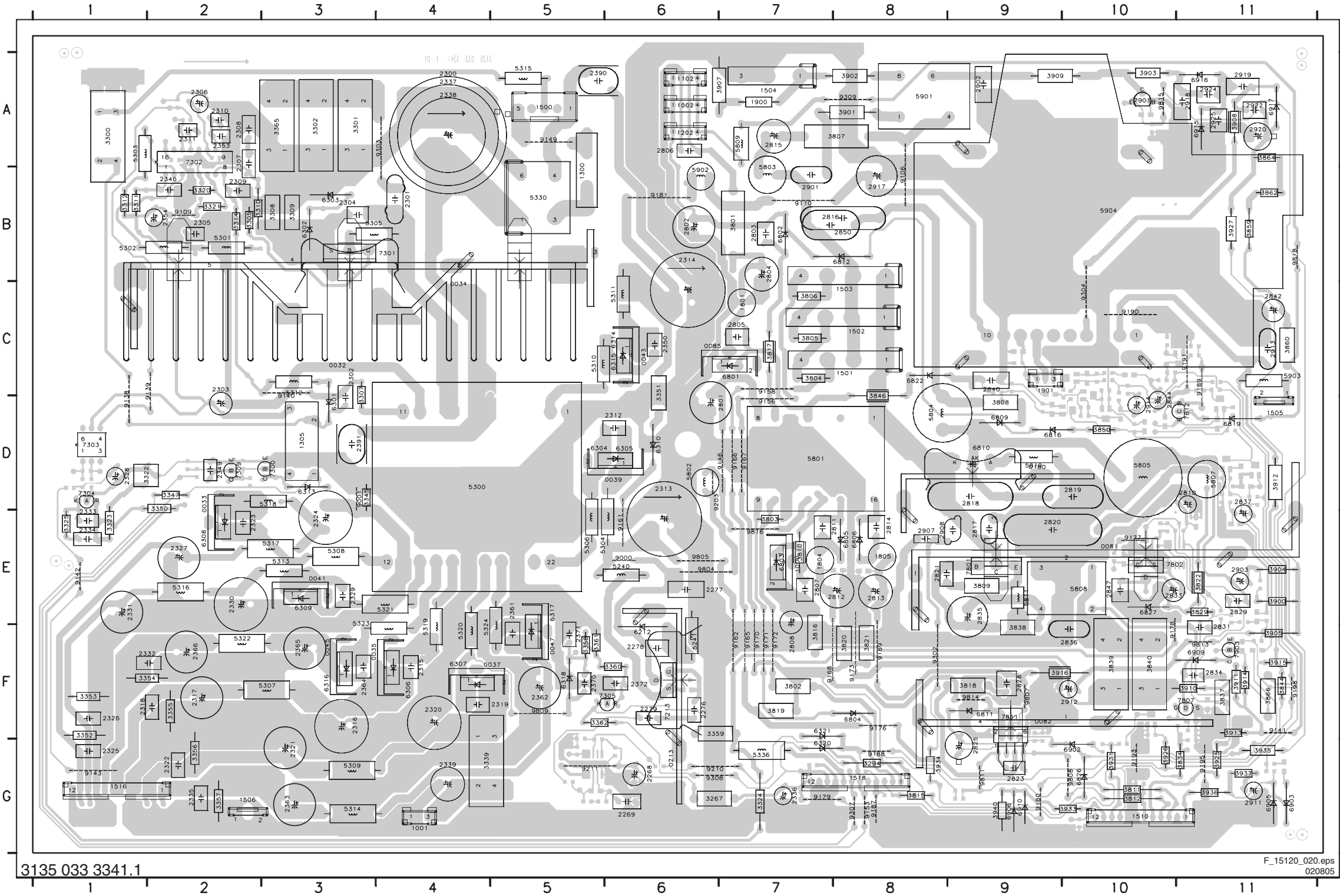
Large Signal Panel



Large Signal Panel

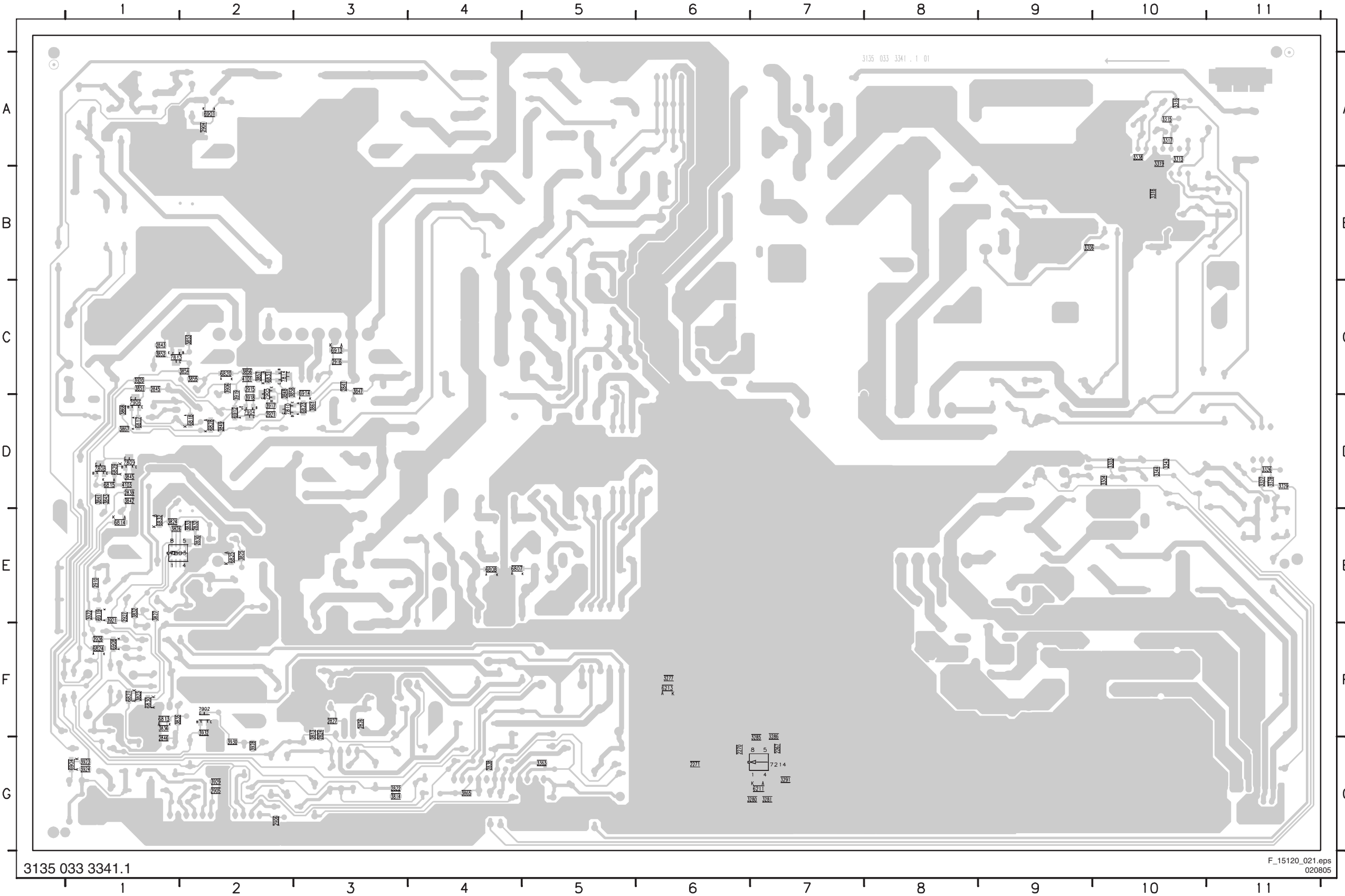


Layout Large Signal Panel (Top Side)



0032 C3	2802 B6	3817 C7	6313 D3	9808 G10
0033 D2	2803 B7	3818 F9	6314 C6	9809 F5
0034 C4	2804 B7	3819 F7	6315 C6	9810 G9
0035 F3	2805 C7	3820 F8	6316 F3	9811 G9
0037 F5	2806 A5	3821 F8	6317 F5	9812 F8
0039 D6	2807 E7	3822 E11	6318 F5	9813 F11
0041 E3	2808 F7	3823 E11	6320 G7	9814 F9
0043 C6	2810 D11	3834 G11	6321 F7	9815 A10
0045 F3	2811 E8	3837 F11	6801 C7	9816 E7
0047 F5	2812 E8	3838 F9	6802 B7	9818 B11
0081 F10	2813 E8	3839 F10	6803 E7	
0082 F9	2814 E8	3840 F10	6804 F8	
0085 C6	2815 A7	3844 F11	6805 E8	
0180 D9	2816 B7	3846 D8	6806 E8	
0213 G6	2817 E9	3850 D10	6809 D9	
1000 E7	2818 D9	3859 B11	6810 D9	
1001 G4	2819 D10	3860 C11	6811 F9	
1002 A6	2820 E9	3862 B11	6812 B8	
1102 A6	2821 E8	3864 A11	6816 D9	
1202 A6	2823 G9	3866 F11	6819 D11	
1300 B5	2825 G9	3900 E11	6822 C8	
1305 D3	2828 F9	3901 A8	6826 G10	
1500 A5	2829 E11	3902 A8	6827 E10	
1501 C8	2831 F11	3903 A10	6902 G10	
1502 C8	2833 E10	3904 E11	6903 G11	
1503 C8	2834 F11	3905 F11	6909 F11	
1504 A7	2835 E9	3907 A7	6906 G9	
1505 D11	2836 F10	3908 A11	6909 F11	
1506 G2	2837 D11	3909 A9	6910 G9	
1510 G10	2840 C9	3910 F11	6915 A11	
1516 G1	2842 C11	3911 F11	6916 A11	
1518 C8	2844 D10	3912 D11	6917 A11	
1801 C7	2847 F10	3913 F10	7213 F6	
1804 E7	2850 B8	3914 F11	7300 D3	
1805 E8	2901 B7	3915 F11	7301 B4	
1900 A7	2902 A9	3916 F9	7302 A2	
1901 C9	2903 E11	3925 G11	7303 D1	
2268 G6	2907 E8	3926 G10	7304 D1	
2269 G6	2908 E8	3927 E11	7305 F10	
2276 F6	2911 G11	3928 G10	7309 D2	
2277 E6	2912 F10	3933 G10	7801 E9	
2278 F6	2913 C11	3934 G8	7802 E10	
2279 F6	2914 D10	3935 G11	7807 F11	
2300 A4	2917 B8	3936 G11	7811 F9	
2301 B4	2918 A11	3937 G11	7812 D11	
2302 C3	2919 A11	3940 G9	7901 A11	
2303 C3	2920 A11	5240 E6	7903 F11	
2304 B3	2922 A11	5241 F6	9000 E6	
2305 B2	2924 A11	5300 D4	9001 D3	
2306 A2	2925 A11	5301 B2	9106 B8	
2307 A2	3267 G6	5302 B1	9109 B7	
2308 A2	3294 G8	5303 A1	9110 B7	
2309 B2	3300 A1	5304 C5	9138 A1	
2310 A1	3301 A3	5305 B3	9139 C2	
2311 A2	3302 A3	5306 E5	9140 D3	
2312 D6	3305 B2	5307 F3	9141 F11	
2313 D6	3307 C3	5308 E3	9142 E1	
2314 B6	3308 B3	5309 G3	9143 G1	
2315 F4	3309 B3	5310 C5	9146 D7	
2316 F2	3310 B2	5311 C6	9149 A6	
2317 F2	3311 G11	5312 C3	9153 C8	
2318 F1	3312 B1	5313 E3	9156 D7	
2319 F5	3314 B2	5314 G3	9158 C7	
2320 F4	3320 B2	5315 A5	9161 E6	
2321 G3	3321 B2	5316 E2	9162 F7	
2322 G2	3322 D1	5317 E3	9165 F7	
2323 E2	3323 E1	5318 D3	9166 D7	
2324 E3	3324 G7	5319 F4	9167 D7	
2325 G1	3325 E1	5320 F4	9168 F7	
2326 F1	3329 G4	5321 E4	9169 F8	
2327 E2	3345 D3	5322 F2	9170 F7	
2328 D1	3347 D2	5323 E3	9171 F7	
2329 E3	3350 D2	5324 F4	9172 F7	
2330 E2	3351 G6	5330 B5	9173 F8	
2331 E1	3352 F1	5336 G7	9176 F8	
2332 F1	3353 F1	5801 F7	9177 E10	
2333 E1	3354 F1	5802 D6	9178 F10	
2334 E1	3355 F2	5803 B7	9179 G7	
2335 G2	3356 G2	5804 D8	9180 G9	
2336 G7	3357 G2	5805 D10	9181 B6	
2337 A4	3358 F5	5807 D11	9187 G8	
2338 A4	3359 F6	5808 E10	9188 C8	
2339 G4	3360 F6	5809 A7	9189 C11	
2346 B2	3361 F5	5810 D9	9190 C10	
2349 D2	3362 F5	5811 E9	9191 C11	
2350 C6	3365 A3	5901 A8	9193 G10	
2353 A2	3801 B7	5902 B6	9195 G11	
2354 B2	3802 F7	5903 C11	9198 F11	
2361 E5	3803 E7	5904 B10	9203 D6	
2362 F5	3804 C7	6212 F6	9210 G6	
2363 G3	3805 C7	6301 D3	9211 F5	
2364 F3	3806 C7	6302 B3	9302 F8	
2365 F3	3807 A8	6303 B3	9303 A4	
2366 F2	3808 D9	6304 D5	9304 C10	
2370 F5	3809 E9	6305 D6	9307 G8	
2371 F5	3810 E7	6306 F4	9308 G6	
2372 F6	3811 G10	6307 F4	9309 A8	
2390 A5	3812 G10	6308 E2	9804 E6	
2391 D3	3815 G8	6309 E3	9805 E6	
2801 D7	3816 F7	6310 D6	9807 F9	

Layout Large Signal Panel (Bottom Side)



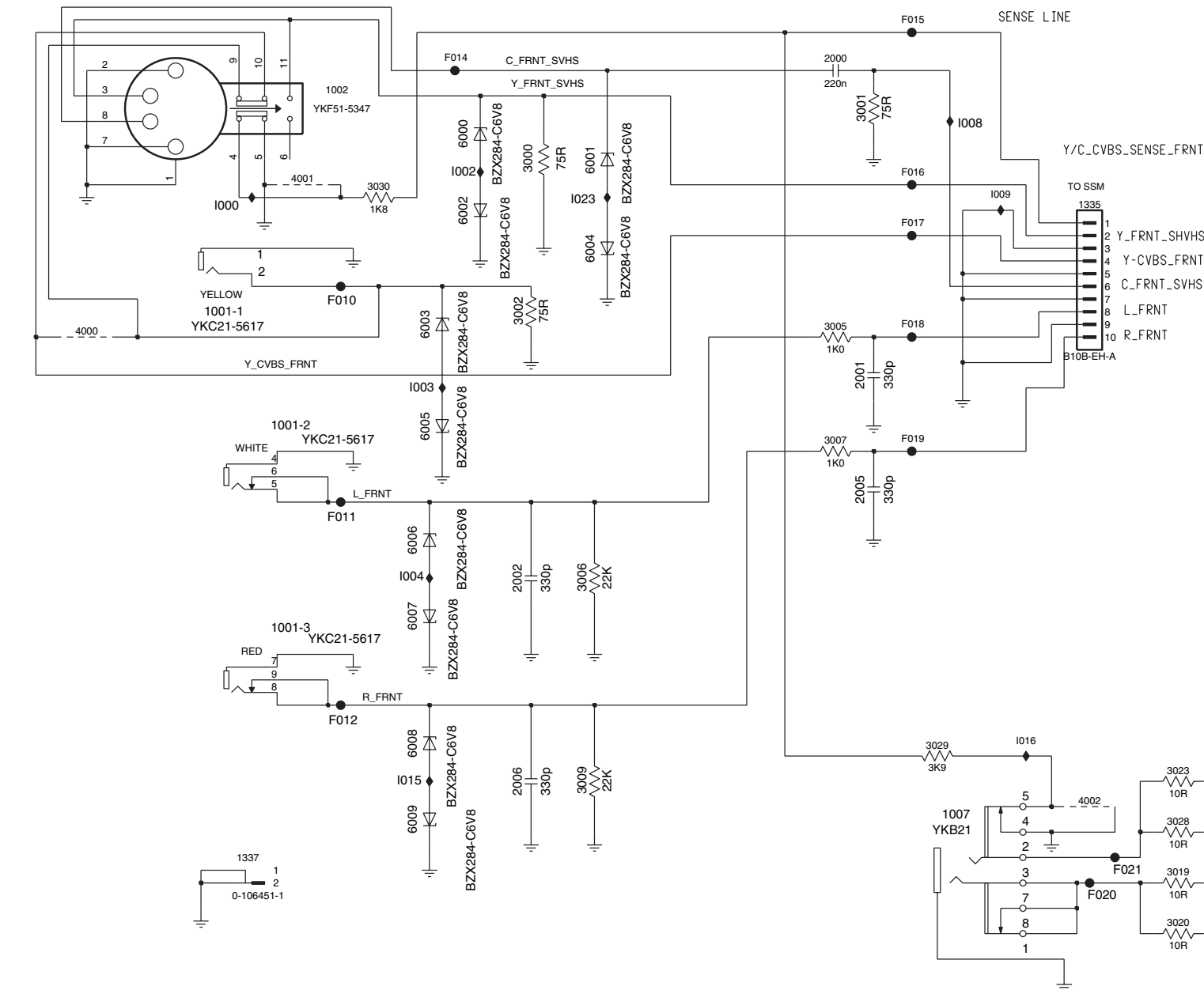
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2270	G6	6820	C2
2271	G6	6821	F1
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2826	F3	6825	E2
2827	F3	6828	D2
2830	E2	6829	D1
2832	E2	6830	F1
2838	G4	6831	C2
2839	D1	6832	E1
2841	C3	6901	A2
2843	C1	6904	G1
2845	C1	6908	F1
2846	G1	6912	D2
2904	A2	6913	C3
2905	G2	6914	C3
2906	G2	6919	E1
2910	E1	7214	G7
2915	C2	7803	E1
2916	C3	7808	D1
2921	D2	7809	D1
2926	F1	7810	D2
2927	E1	7813	C1
3277	F6	7814	C2
3280	G7	7902	F2
3281	G7	7904	D2
3285	G7	7905	C2
3286	F7	7906	D1
3291	G7		
3303	D10		
3304	D10		
3306	B9		
3313	A10		
3315	A10		
3316	A10		
3317	A10		
3318	B10		
3319	A10		
3326	D11		
3327	D11		
3328	D11		
3329	D11		
3338	A10		
3343	D10		
3344	D10		
3363	G5		
3813	F3		
3814	G3		
3823	F1		
3824	E1		
3825	E2		
3826	E1		
3827	E1		
3832	E1		
3833	E2		
3835	F1		
3836	F1		
3841	D1		
3842	D1		
3843	D1		
3845	D1		
3847	C3		
3848	C2		
3849	D2		
3851	C1		
3852	C1		
3853	C2		
3854	C2		
3855	C2		
3856	C2		
3857	C2		
3858	C2		
3861	D3		
3865	G4		
3867	D1		
3868	D1		
3906	C2		
3917	D2		
3918	D2		
3919	D2		
3920	C1		
3921	E1		
3922	E1		
3923	C1		
3924	G1		
3928	G2		
3929	G2		
3930	G2		
3932	F2		
4101	C2		
4103	D1		
6211	G7		
6213	F6		
6807	E4		
6808	E4		
6813	F1		
6814	E1		
6815	D1		
6817	D1		

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Side Jack Panel

G1 Side Jack Panel



Ref Des	3135_037_05461	3135_037_10581	3135_037_11961	3135_037_12131	3135_037_12321	RESERVED
1002	242202604926 YKF51-5347	242202604926 YKF51-5347	242202604926 YKF51-5347	242202604926 YKF51-5347	NOT USED	NOT USED
1007	242202604747 YKB21	242202604747 YKB21	NOT USED	242202604747 YKB21	NOT USED	NOT USED
1344	241202000725 B3B-EH-A	241202000725 B3B-EH-A	NOT USED	241202000725 B3B-EH-A	NOT USED	NOT USED
2000	223891019854	223891019854	223891019854	223891019854	NOT USED	NOT USED
2008	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	319801706820 6n8
2009	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	319801706820 6n8
3000	319802157590	319802157590	319802157590	319802157590	NOT USED	NOT USED
3001	319802157590	319802157590	319802157590	319802157590	NOT USED	NOT USED
3019	319802151090	319802151090	NOT USED	319802151090	NOT USED	NOT USED
3020	319802151090	319802151090	NOT USED	319802151090	NOT USED	NOT USED
3023	319802151090	319802151090	NOT USED	319802151090	NOT USED	NOT USED
3026	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	319802151030 10K
3027	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	319802151030 10K
3028	319802151090	319802151090	NOT USED	319802151090	NOT USED	NOT USED
3029	319802153920	319802153920	NOT USED	NOT USED	319802153920	NOT USED
3030	319802151820	319802151820	319802151820	319802157590 31980215	319802151820	NOT USED
4000	NOT USED	NOT USED	NOT USED	NOT USED	319802190020	NOT USED
4001	NOT USED	NOT USED	NOT USED	NOT USED	319802190020	NOT USED
4002	NOT USED	NOT USED	NOT USED	NOT USED	319802190020	NOT USED
6000	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	NOT USED
6001	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	NOT USED
6002	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	NOT USED
6004	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	NOT USED
6010	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	934038640115 BZX284-C6V8	NOT USED	NOT USED
6011	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	934038640115 BZX284-C6V8	NOT USED	NOT USED
6012	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	934038640115 BZX284-C6V8	NOT USED	NOT USED
6013	934038640115 BZX284-C6V8	934038640115 BZX284-C6V8	NOT USED	934038640115 BZX284-C6V8	NOT USED	NOT USED

NOTES

- CAPACITANCE VALUES ARE IN FARADS:
m=MILI u=MICRO n=NANO p=PICO f=FEMTO
- RESISTANCE VALUES ARE IN OHMS:
R=OHM K=KILO M=MEGA G=GIGA T=TERA
- SAFETY TRIANGLE REPRESENTS PCEC REPLACEMENT PART ONLY.
- FOR VALUE SEE TABLE.

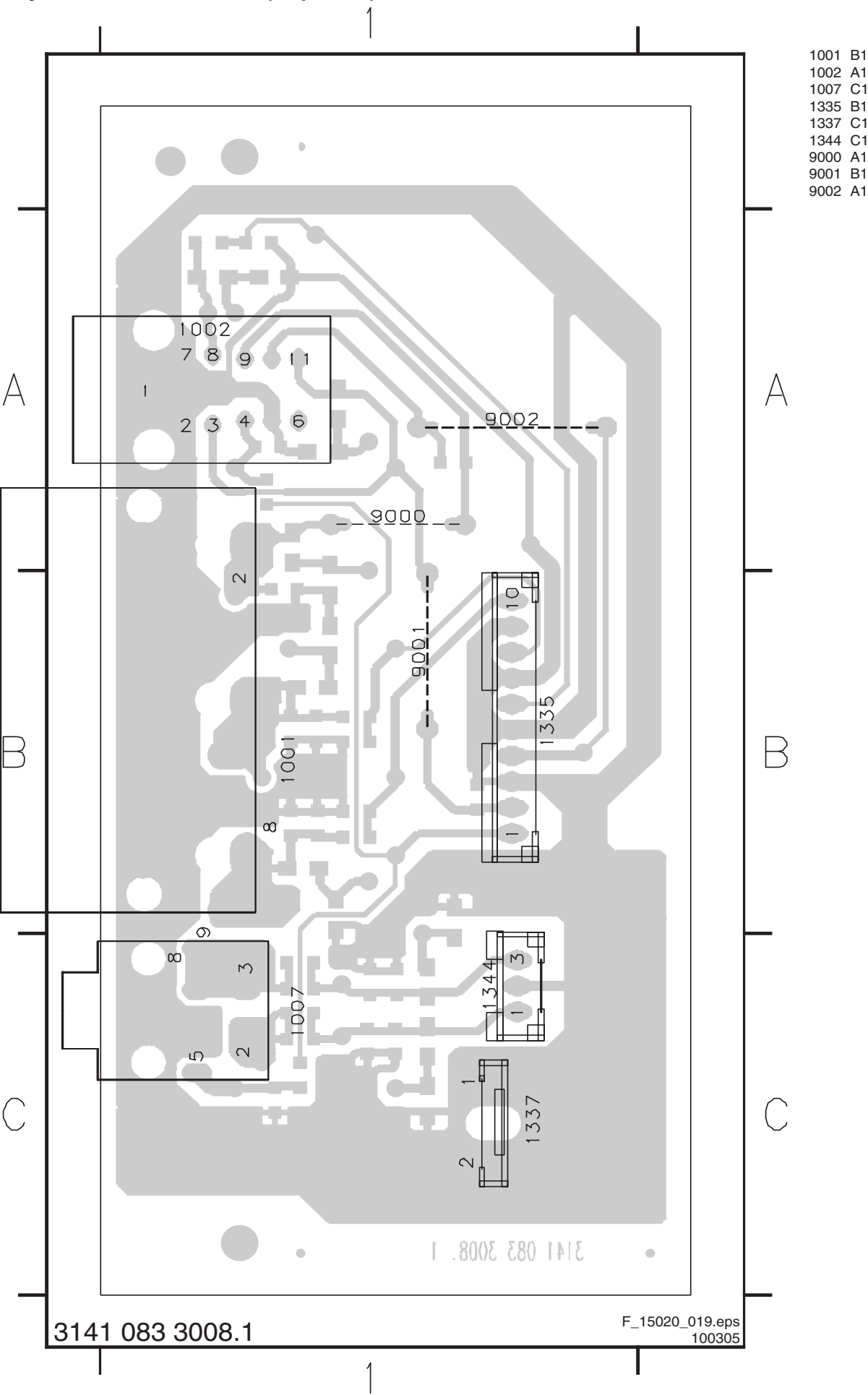
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1000	X					
1002		X				
1007				X		
1344			X			
2000					X	
2008						X
RESERVED						X

3141 083 3008.1

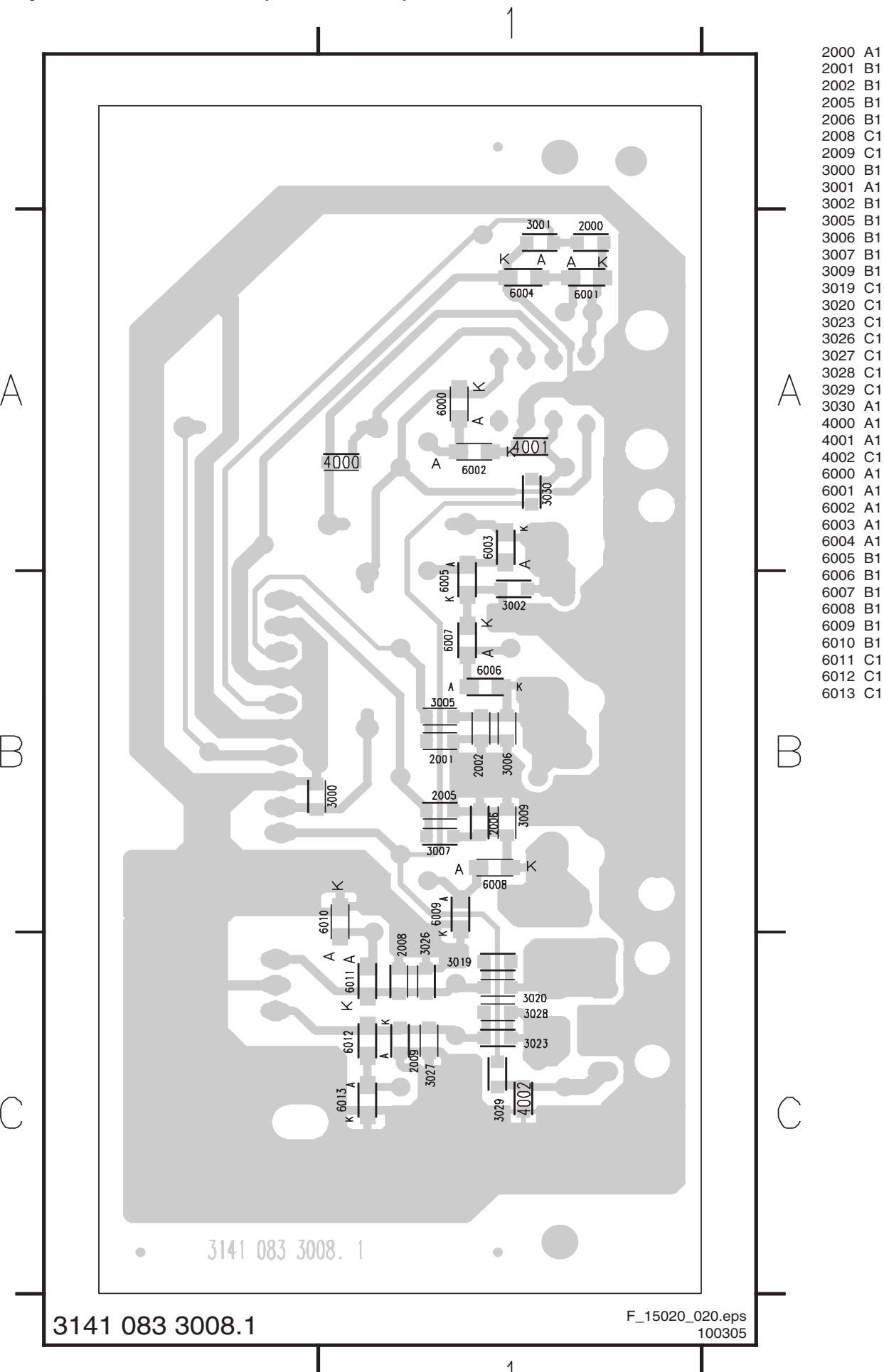
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1001-1 B2
1001-2 C2
1001-3 D2
1002 A2
1007 E6
1335 B7
1337 E2
1344 F10
2000 A5
2001 C5
2002 D3
2005 C5
2006 E3
2008 F8
2009 F9
3000 A3
3001 A5
3002 B3
3005 B5
3006 D4
3007 C5
3009 E4
3019 E7
3020 F7
3023 E7
3026 F8
3027 F9
3028 E7
3029 E6
3030 B3
4000 B1
4001 A2
4002 E7
6000 A3
6001 A4
6002 B3
6003 B3
6004 B4
6005 C3
6006 D3
6007 D3
6008 E3
6009 E3
6010 F8
6011 F8
6012 E9
6013 F9
F010 B2
F011 C2
F012 E2
F014 A3
F015 A6
F016 A6
F017 B6
F018 B6
F019 C6
F020 F7
F021 E7
F022 F10
F023 E10
I000 B2
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I009 B6
I015 E3
I016 E6
I021 F8
I022 F9
I023 B4

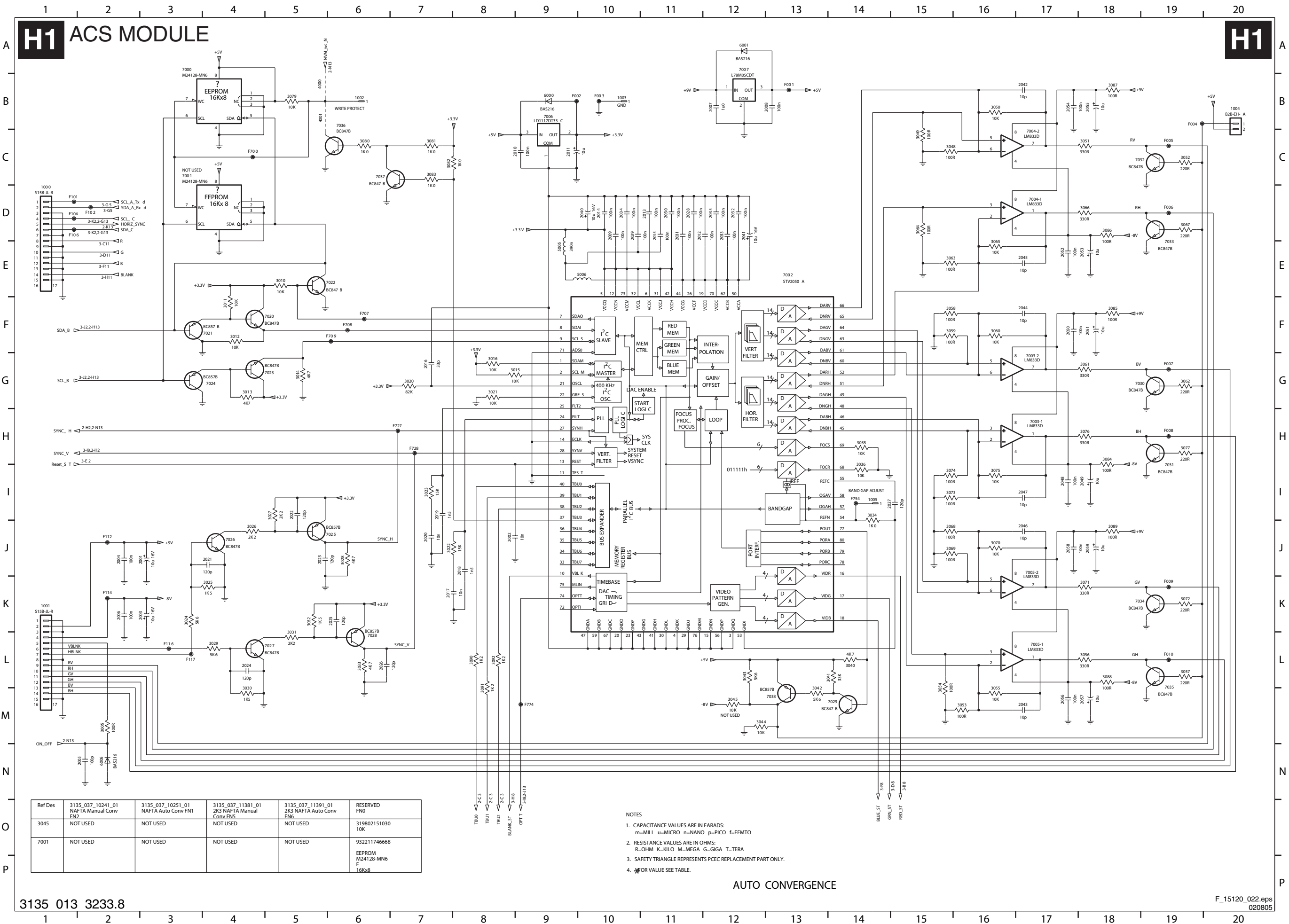
Layout Side Jack Panel (Top Side)



Layout Side Jack Panel (Bottom Side)



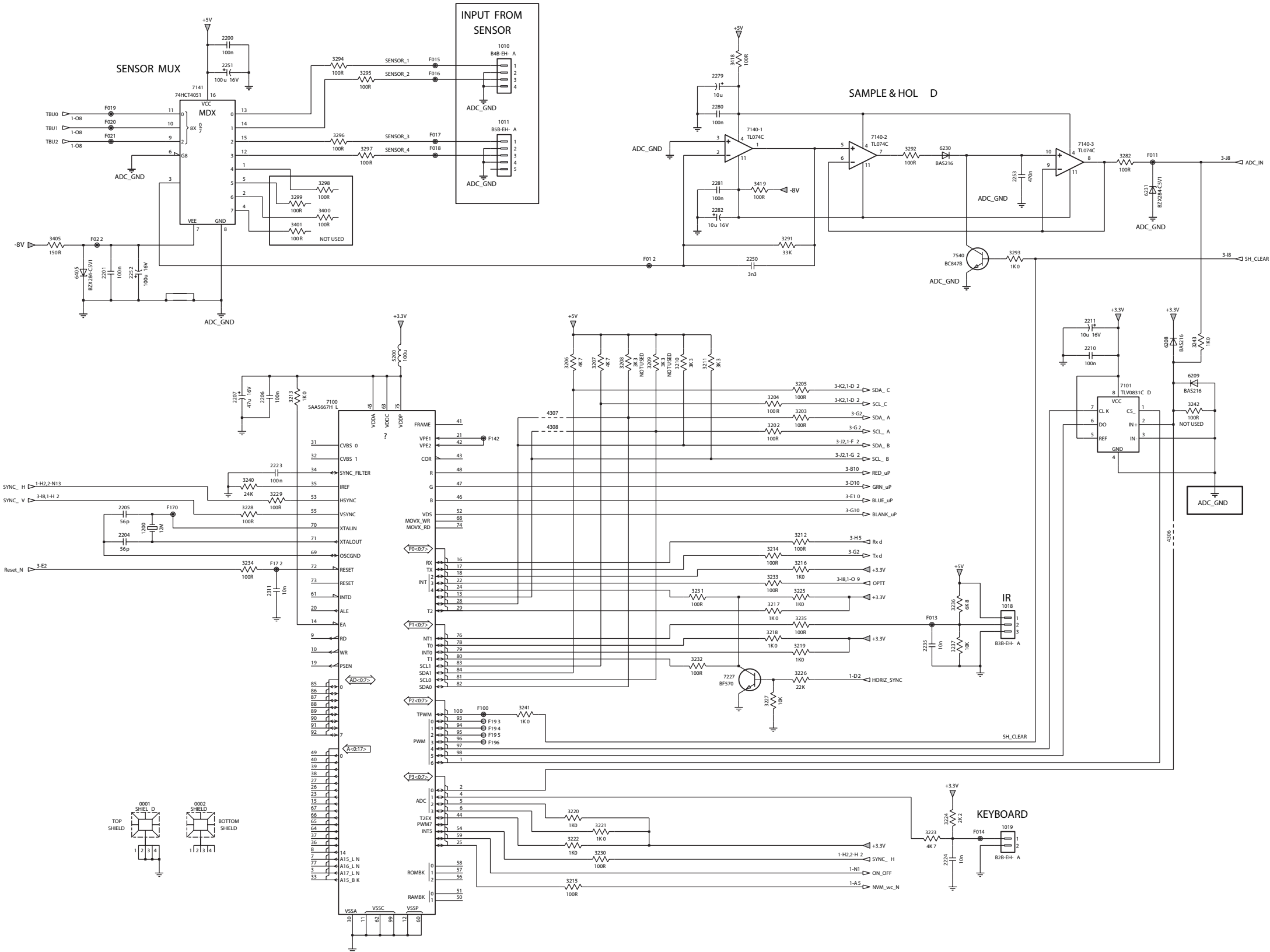
ACS Module



ACS Module

H2 ACS MODULE

H2

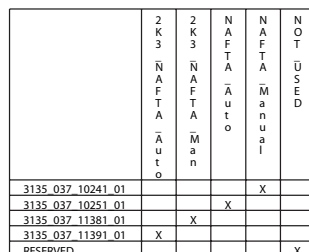


AUTO CONVERGENCE
3135 013 32338

3135 013 3233.8

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H3 ACS MODULE



SHEET 2					
Ref De s	3135_037_10241_01 NAFTA Manual Conv FNU	3135_037_10251_01 NAFTA Auto Conv FN 1	3135_037_11381_01 2K3 NAFTA Manual Conv FNS	3135_037_11391_01 2K3 NAFTA Auto Conv FNB	RESERVED FNO
1010	NOT USED	242202512479 R68-EH- A	NOT USED	242202512479 R68-EH- A	NOT USED
1011	NOT USED	242202512481 R58-EH- A	NOT USED	242202512481 R58-EH- A	NOT USED
2200	NOT USED	319802321040 100n	NOT USED	319802321040 100n	NOT USED
2201	NOT USED	319802321040 100n	NOT USED	319802321040 100n	NOT USED
2210	NOT USED	319802321040 100n	NOT USED	319802321040 100n	NOT USED
2211	NOT USED	319803041090 10u 16V	NOT USED	319803041090 10u 16V	NOT USED
2250	NOT USED	319801703320 3n3	NOT USED	319801703320 3n3	NOT USED
2251	NOT USED	319803041010 100u 16V	NOT USED	319803041010 100u 16V	NOT USED
2252	NOT USED	319803041010 100u 16V	NOT USED	319803041010 100u 16V	NOT USED
2253	NOT USED	319801724740 420n	NOT USED	319801724740 420n	NOT USED
2279	NOT USED	319803041090 10u	NOT USED	319803041090 10u	NOT USED
2280	NOT USED	319802321040 100n	NOT USED	319802321040 100n	NOT USED
2281	NOT USED	319802321040 100n	NOT USED	319802321040 100n	NOT USED
2282	NOT USED	319803041090 10u 16V	NOT USED	319803041090 10u 16V	NOT USED
3208	NOT USED	NOT USED	NOT USED	NOT USED	319802153320 3K3
3209	NOT USED	NOT USED	NOT USED	NOT USED	319802153320 3K3
3241	NOT USED	319802151020 1K0	NOT USED	319802151020 1K0	NOT USED
3242	NOT USED	NOT USED	NOT USED	NOT USED	319802151010 100R
3243	NOT USED	319802151020 1K0	NOT USED	319802151020 1K0	NOT USED
3282	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3291	NOT USED	319802153330 33K	NOT USED	319802153330 33K	NOT USED
3292	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3293	NOT USED	319802151020 1K0	NOT USED	319802151020 1K0	NOT USED
3294	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3295	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3296	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3297	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3298	NOT USED	NOT USED	NOT USED	NOT USED	319802151010 100R
3299	NOT USED	NOT USED	NOT USED	NOT USED	319802151010 100R
3400	NOT USED	NOT USED	NOT USED	NOT USED	319802151010 100R
3401	NOT USED	NOT USED	NOT USED	NOT USED	319802151010 100R
3405	NOT USED	319802151510 150R	NOT USED	319802151510 150R	NOT USED
3418	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
3419	NOT USED	319802151010 100R	NOT USED	319802151010 100R	NOT USED
6208	NOT USED	934025530115 BAS216	NOT USED	934025530115 BAS216	NOT USED
6209	NOT USED	934025530115 BAS216	NOT USED	934025530115 BAS216	NOT USED
6230	NOT USED	934025530115 BAS216	NOT USED	934025530115 BAS216	NOT USED
6231	NOT USED	934038610115 82X284-CSV_1	NOT USED	934038610115 82X284-CSV_1	NOT USED
6405	NOT USED	934038610115 82X284-CSV_1	NOT USED	934038610115 82X284-CSV_1	NOT USED
7101	NOT USED	932217307668 TL0831C_D	NOT USED	932217307668 TL0831C_D	NOT USED
7140-1	NOT USED	932201584668 TL074C	NOT USED	932201584668 TL074C	NOT USED
7140-2	NOT USED	932201584668 TL074C	NOT USED	932201584668 TL074C	NOT USED
7140-3	NOT USED	932201584668 TL074C	NOT USED	932201584668 TL074C	NOT USED
7141	NOT USED	933715300118 74HC14051 MOX	NOT USED	933715300118 74HC14051 MOX	NOT USED

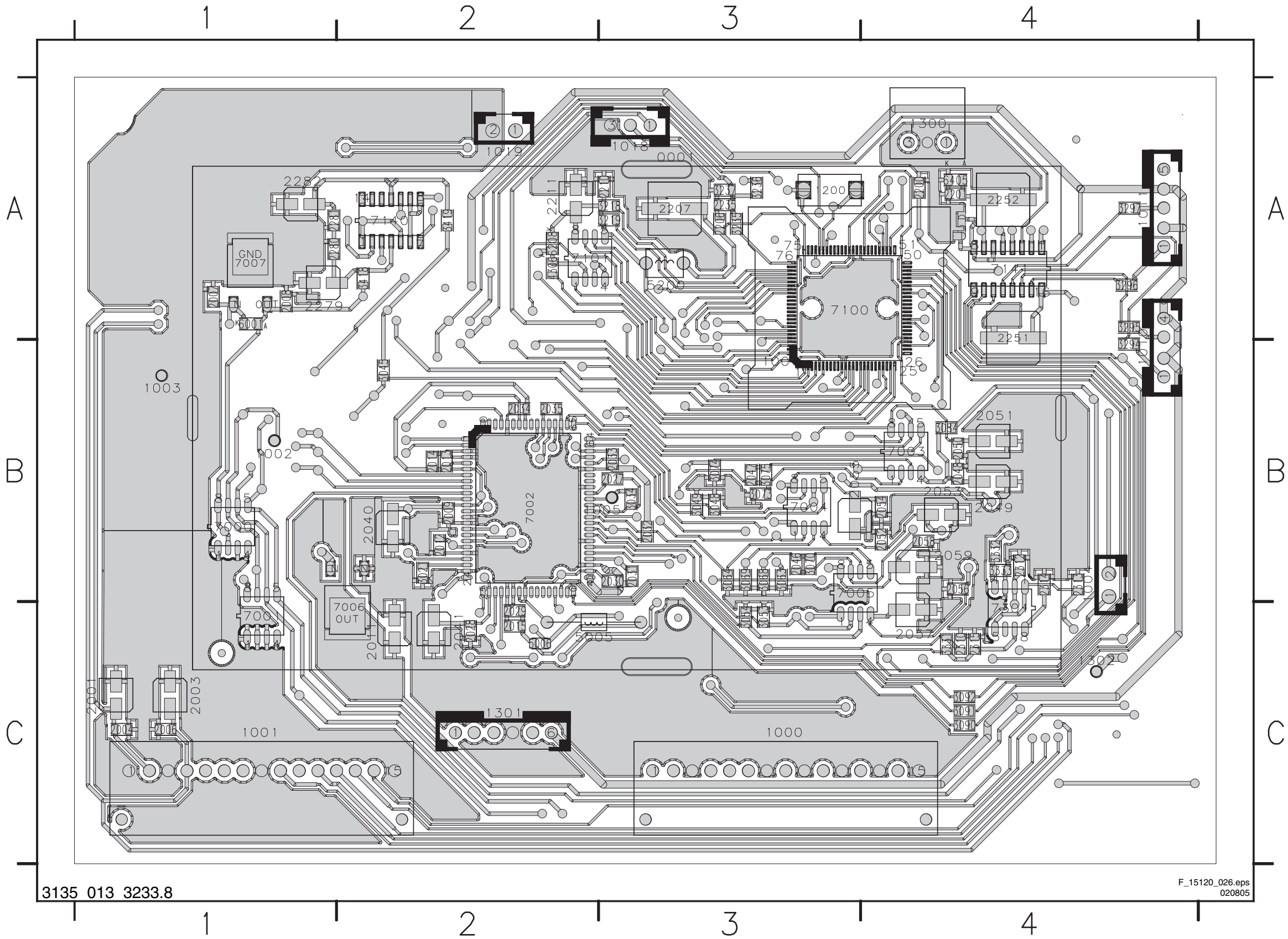
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H4 ACS MODULE: MAPPING

REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE		
0001	2-M3	2200	2-B5	3059	1-F15	3240	2-H5	6405	2-F3	F018	2-C7		
0002	2-M4	2201	2-F33	3060	1-F16	3241	2-L8	7000	1-B4	F019	1-C3		
1000	1-D1	2204	2-T3	3061	1-G17	3242	2-G17	7001	1-D4	F020	2-C33		
1001	1-K1	2205	2-T3	3062	1-G19	3243	2-T17	7002	1-T11	F021	2-C33		
1002	1-B6	2206	2-G5	3063	1-F16	3244	2-D16	7003-1	1-H16	F022	2-F3		
1003	1-B10	2207	2-F16	3064	1-F16	3245	2-F16	7003-2	1-G16	F023	1-C11		
1004	1-B20	2210	2-F16	3065	1-F16	3246	2-F16	7004-1	1-D16	F024	1-F11		
1005	1-T14	2211	2-F16	3066	1-F16	3247	2-F16	7004-2	1-C16	F025	1-F11		
1010	2-B8	2223	2-H5	3067	1-D19	3248	2-B6	7005-1	1-L16	F026	3-H11		
1011	2-N8	2224	2-N14	3068	1-L15	3249	2-B6	7005-2	1-K16	F027	3-J33		
1018	2-M14	2225	2-K14	3069	1-L15	3250	2-B6	7006	1-C9	F028	1-L16		
1019	2-M14	2225	2-F11	3070	1-L15	3251	2-C6	7007	1-B12	F029	2-L8		
1200	2-L14	2251	2-B5	3071	1-K17	3252	2-D6	7014	3-B9	F030	1-D1		
1300	3-J5	2252	2-F3	3072	1-K19	3253	2-D6	7015	3-D9	F031	1-D2		
1301	3-T10	2253	2-D15	3073	1-L15	3254	2-B10	7016	3-F9	F032	1-D1		
1302	3-C33	2254	2-B11	3074	1-L15	3255	2-B10	7017	3-H9	F033	1-D1		
2001	1-J33	2255	2-C6	3075	1-L15	3256	2-D10	7020	3-F4	F034	1-D2		
2002	1-J33	2256	2-D11	3076	1-H17	3257	2-C10	7021	1-F16	F035	1-L16		
2003	1-K33	2257	2-D11	3077	1-H19	3258	2-C10	7022	1-F16	F036	1-L16		
2004	1-J33	2258	2-F3	3078	1-B5	3259	2-D10	7023	1-G4	F037	1-L16		
2005	1-N33	2259	2-J5	3079	1-O	3260	2-H10	7024	1-G3	F038	1-H8		
2006	1-K33	2260	2-B4	3080	1-O	3261	2-H10	7025	1-J5	F039	1-L16		
2007	1-BB	2261	2-C6	3081	1-L15	3262	2-H10	7026	1-J4	F040	1-L16		
2008	1-BB	2262	2-C6	3082	1-L15	3263	2-H10	7027	1-L4	F041	1-L16		
2009	1-D10	2263	2-F6	3083	1-L15	3264	2-H10	7028	1-L6	F042	1-L16		
2010	1-C3	2264	2-H4	3084	1-L15	3265	2-H10	7029	1-M14	F043	1-L16		
2011	1-C3	2265	2-H4	3085	1-L15	3266	2-H10	7030	1-G19	F044	1-L16		
2012	1-D10	2266	2-L14	3086	1-L15	3267	2-H10	7031	1-H19	F045	1-L16		
2013	1-D10	2267	2-L14	3087	1-L15	3268	2-H10	7032	1-C19	F046	1-L16		
2014	1-D10	2268	2-M25	3088	1-L15	3269	2-H10	7033	1-D19	F047	1-L16		
2015	1-D10	2269	2-L14	3089	1-L15	3270	2-H10	7034	1-K19	F048	1-L16		
2016	1-G7	2270	2-F4	3090	1-L15	3271	2-H10	7035	1-L19	F049	1-L16		
2017	1-K7	2271	2-F4	3091	1-L15	3272	2-H10	7036	1-C6	F050	1-L16		
2018	1-L14	2272	2-G4	3092	3-J4	3273	2-L14	7037	1-C7	F051	1-H7		
2019	1-L14	2273	2-G5	3093	3-J4	3274	2-L14	7038	1-M13	F052	1-L14		
2020	1-L14	2274	2-G8	3094	3-J4	3275	2-L14	7039	2-K7	F053	1-M9		
2021	1-L14	2275	2-G8	3095	3-J4	3276	2-L14	7100	2-G16	F054			
2022	1-L14	2276	2-G7	3096	3-J4	3277	2-L14	7101	2-C11				
2023	1-L14	2277	2-G8	3097	3-J4	3278	2-L14	7140-1	2-C12				
2024	1-L14	2278	2-G7	3098	3-J4	3279	2-L14	7140-2	2-D15				
2025	1-L14	2279	2-G7	3099	3-J4	3280	2-L14	7140-3	2-D4				
2026	1-L14	2280	2-K3	3100	3-J4	3281	2-L14	7141	2-K11				
2027	1-L14	2281	2-K4	3101	3-J4	3282	2-L14	7227	2-C5				
2028	1-L14	2282	2-L1	3102	3-J4	3283	2-L14	7301	2-E14				
2029	1-L14	2283	2-L1	3103	3-J4	3284	2-L14	7540					
2030	1-L14	2284	2-L1	3104	3-J4	3285	2-L14						
2031	1-L14	2285	2-L1	3105	3-J4	3286	2-L14						
2032	1-L14	2286	2-L1	3106	3-J4	3287	2-L14						
2033	1-L14	2287	2-L1	3107	3-J4	3288	2-L14						
2034	1-L14	2288	2-L1	3108	3-J4	3289	2-L14						
2035	1-L14	2289	2-L1	3109	3-J4	3290	2-L14						
2040	1-L14	2290	2-L1	3110	3-J4	3291	2-L14						
2041	1-L14	2291	2-L1	3111	3-J4	3292	2-L14						
2042	1-L14	2292	2-L1	3112	3-J4	3293	2-L14						
2043	1-L14	2293	2-L1	3113	3-J4	3294	2-L14						
2044	1-L14	2294	2-L1	3114	3-J4	3295	2-L14						
2045	1-L14	2295	2-L1	3115	3-J4	3296	2-L14						
2046	1-L14	2296	2-L1	3116	3-J4	3297	2-L14						
2047	1-L14	2297	2-L1	3117	3-J4	3298	2-L14						
2048	1-L14	2298	2-L1	3118	3-J4	3299	2-L14						
2049	1-L14	2299	2-L1	3119	3-J4	3300	2-L14						
2050	1-L14	2300	2-L1	3120	3-J4	3301	2-L14						
2051	1-L14	2301	2-L1	3121	3-J4	3302	2-L14						
2052	1-L14	2302	2-L1	3122	3-J4	3303	2-L14						
2053	1-L14	2303	2-L1	3123	3-J4	3304	2-L14						
2054	1-L14	2304	2-L1	3124	3-J4	3305	2-L14						
2055	1-L14	2305	2-L1	3125	3-J4	3306	2-L14						
2056	1-L14	2306	2-L1	3126	3-J4	3307	2-L14						
2057	1-L14	2307	2-L1	3127	3-J4	3308	2-L14						
2058	1-L14	2308	2-L1	3128	3-J4	3309	2-L14						
2059	1-L14	2309	2-L1	3129	3-J4	3310	2-L14						

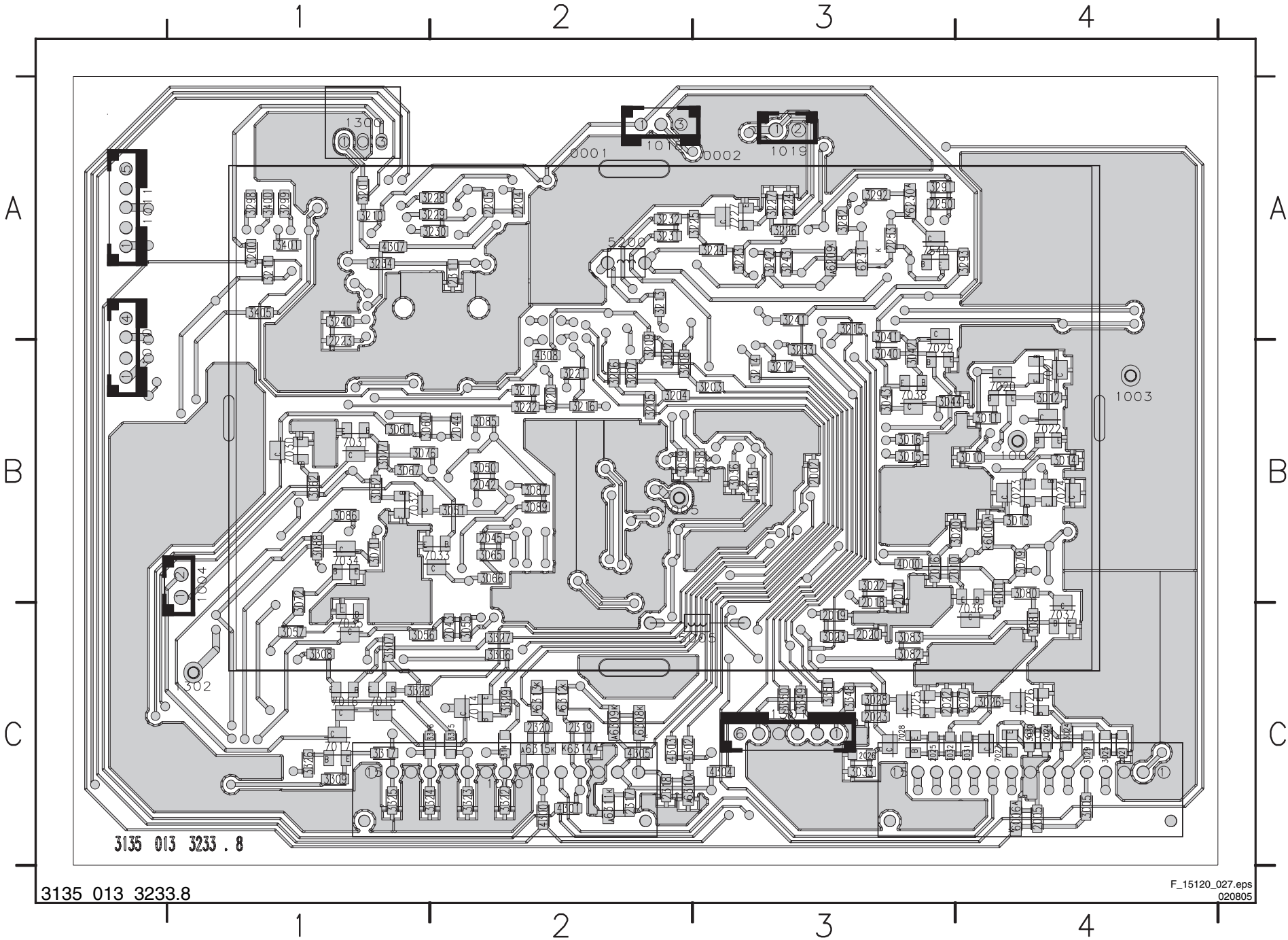
F_15120_025.eps
020805

Layout ACS Panel (Top Side)



0001	A3	2053	B4
1000	C3	2054	B4
1001	C1	2055	B3
1002	B1	2056	B4
1003	B1	2057	C4
1004	B4	2058	B4
1005	B3	2059	B4
1010	B4	2200	A4
1011	A4	2201	A4
1018	A3	2206	A3
1019	A2	2207	A3
1200	A3	2210	A3
1300	A4	2211	A2
1301	C2	2235	A3
1302	C4	2251	A4
2001	C1	2252	A4
2003	C1	2279	A1
2004	C1	2280	A1
2006	C1	2281	A1
2007	A1	2282	A1
2008	A1	2310	C4
2009	B2	2312	B4
2011	C2	2313	B4
2012	B2	2314	B4
2013	B2	2315	C4
2014	B2	3021	B2
2015	C2	3034	B3
2027	B3	3045	B2
2028	C2	3048	B3
2029	C2	3049	B3
2030	B3	3053	C3
2031	B3	3054	C3
2032	B3	3063	B3
2033	B3	3064	B3
2034	B2	3068	B3
2035	B2	3069	B3
2040	B2	3070	B3
2041	C2	3073	B3
2046	B3	3074	B3
2047	B3	3075	B3
2048	B4	3084	B4
2049	B4	3090	C4
2050	B4	3091	C4
2051	B4	3092	C4
2052	B4	3218	A3

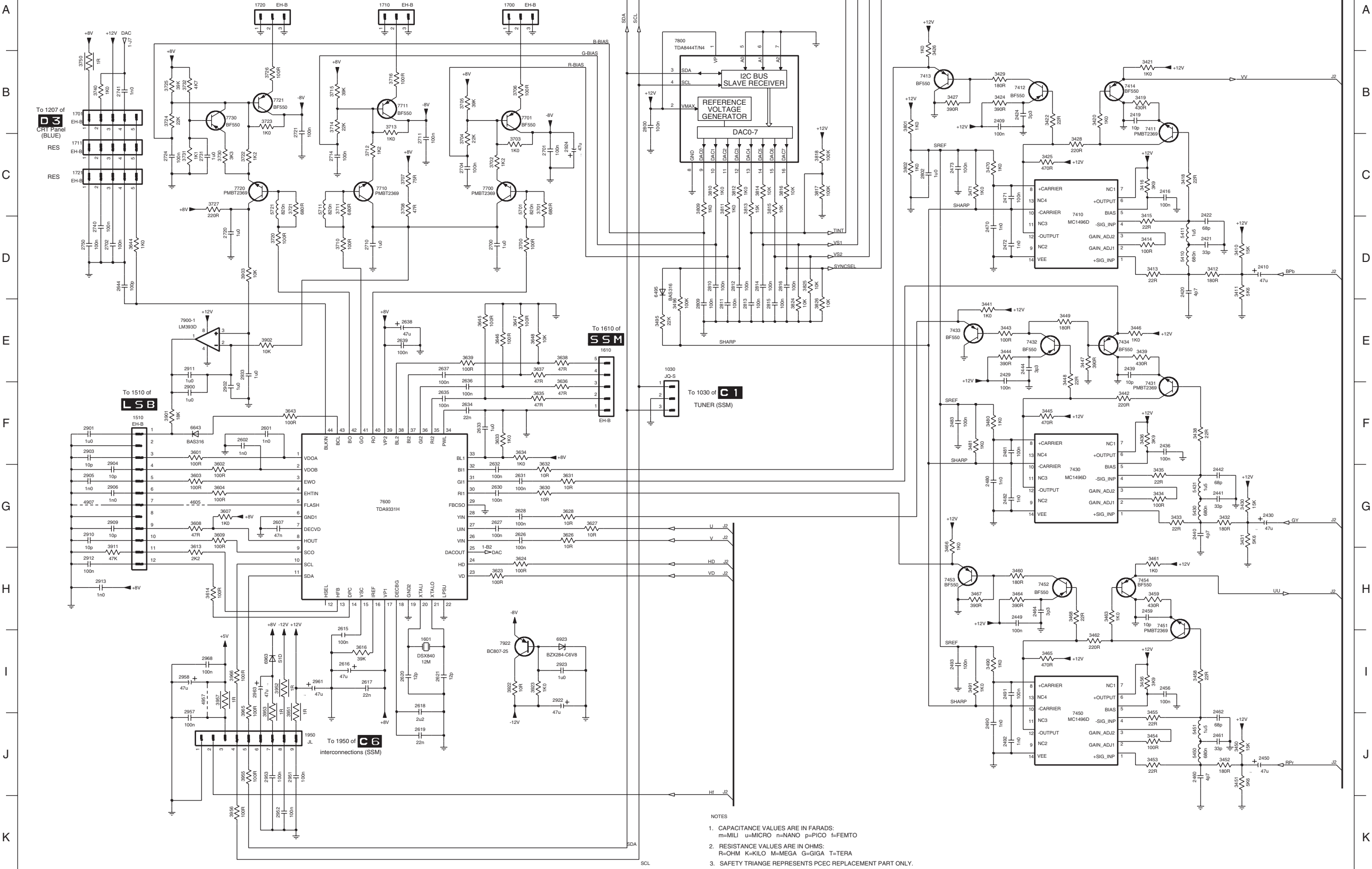
Layout ACS Panel (Bottom Side)



2002	B3	3029	C4	3205	B2	3317	C1	7022	B4
2005	C4	3030	C4	3206	B2	3322	C2	7023	B4
2010	B3	3031	C4	3207	B2	3323	C2	7024	B4
2016	B3	3032	C3	3208	B2	3324	C1	7025	C3
2017	B3	3033	C3	3209	B2	3325	C1	7026	C4
2018	B3	3035	B3	3210	A1	3326	C1	7027	C4
2019	C3	3036	B3	3211	A1	3327	C2	7028	C3
2020	C3	3040	B3	3212	B3	3328	C1	7029	B3
2021	C4	3041	A3	3213	A2	3329	C2	7030	B1
2022	C3	3042	B3	3214	B3	3348	C3	7031	B1
2023	C3	3043	B3	3215	A3	3349	C3	7032	B1
2024	C4	3044	B3	3216	B2	3350	C3	7033	B2
2025	C3	3050	B2	3217	B2	3351	C3	7034	B1
2026	C3	3051	B2	3220	B2	3400	A1	7035	C1
2042	B2	3052	B1	3221	B2	3401	A1	7036	C4
2043	C2	3055	C2	3222	B2	3405	A1	7037	C4
2044	B2	3056	C1	3223	A3	4000	B3	7038	B3
2045	B2	3057	C1	3224	A3	4001	B4	7227	A3
2204	A2	3058	B3	3225	A3	4300	C2	7540	A3
2205	A2	3059	B2	3226	A3	4301	C2		
2223	B1	3060	B1	3227	A3	4302	C2		
2224	A3	3061	B1	3228	A2	4303	C2		
2250	A3	3062	B1	3229	A2	4304	C3		
2253	A3	3065	B2	3230	A2	4305	C2		
2311	A2	3066	B2	3231	A2	4307	A1		
2317	C2	3067	B1	3232	A2	4308	B2		
2318	C2	3071	B1	3233	B3	6000	B4		
2319	C2	3072	B1	3234	A1	6006	C4		
2320	C2	3076	B1	3240	A1	6209	A3		
3005	C4	3077	B1	3241	A3	6230	A3		
3010	B4	3079	B4	3242	A3	6231	A3		
3011	B4	3080	B4	3243	A3	6308	C2		
3012	B4	3081	C4	3282	A3	6309	C2		
3013	B4	3082	C3	3291	A3	6310	C2		
3014	B4	3083	C3	3292	A3	6311	C2		
3015	B3	3085	B2	3293	A4	6312	C2		
3016	B3	3086	B1	3298	A1	6313	C2		
3020	B4	3087	B2	3299	A1	6314	C2		
3022	B3	3088	B1	3306	C2	6315	C2		
3023	C3	3089	B2	3307	C1	7014	C2		
3024	C4	3200	A1	3308	C1	7015	C1		
3025	C4	3201	A1	3309	C1	7016	C1		
3026	C4	3202	B2	3314	C2	7017	C1		
3027	C4	3203	B3	3315	C2	7020	B4		
3028	C3	3204	B2	3316	C2	7021	B4		

HOP Panel

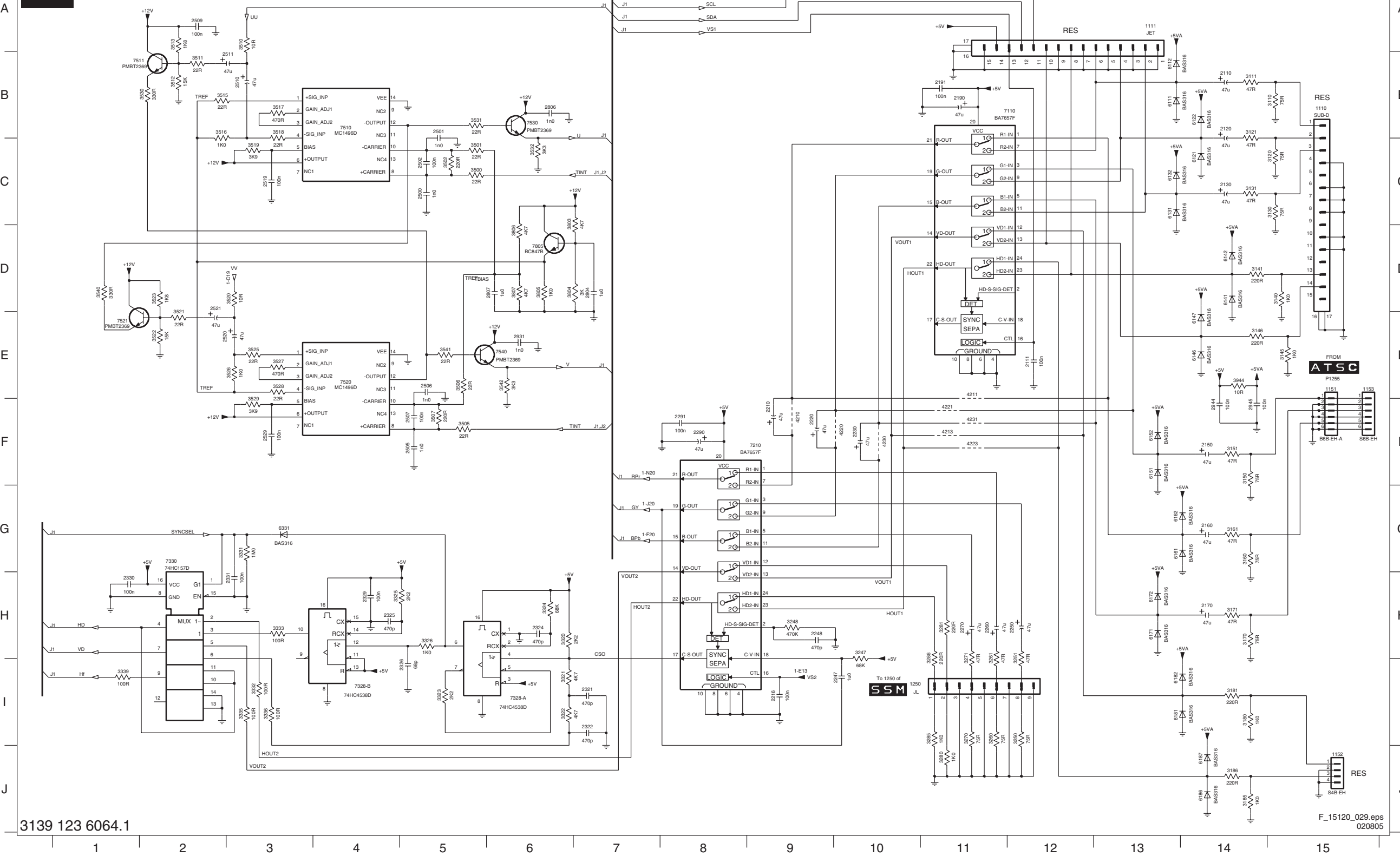
J1 HOP PANEL



- NOTES
- CAPACITANCE VALUES ARE IN FARADS:
m=MILI u=MICRO n=NANO p=PICO f=FEMTO
 - RESISTANCE VALUES ARE IN OHMS:
R=OHM K=KILO M=MEGA G=GIGA T=TERA
 - SAFETY TRIANGLE REPRESENTS PCEC REPLACEMENT PART ONLY.
 - ★ FOR VALUE SEE TABLE.

HOP Panel

J2 HOP PANEL



3139 123 6064.1

F_15120_029.eps
020805

1110 B15
1111 A13
1151 E15
1152 J15
1153 E15
1250 I10
2110 B14
2111 E12
2120 B14
2130 C14
2150 F14
2160 G14
2170 H14
2190 B11
2191 B11
2210 F9
2216 I9
2220 F9
2230 F10
2231 F10
2248 H9
2250 H12
2260 H11
2270 H11
2290 F8
2291 F8
2321 I7
2322 I7
2324 H6
2325 H4
2326 I5
2329 H4
2330 H1
2331 H3
2500 C5
2501 B5
2502 C5
2505 F5
2506 E5
2507 F5
2509 A2
2510 B3
2511 B3
2519 C3
2520 E3
2521 D2
2529 F3
2804 D7
2806 B6
2807 D6
2931 E6
2944 F14
2945 F14
3110 B15
3111 B14
3120 C15
3121 B14
3130 C15
3131 C14
3140 D15
3141 D14
3145 E15
3146 E14
3150 F14
3151 F14
3160 G14
3161 G14
3170 H14
3171 H14
3180 I14
3181 I14
3185 J14
3186 J14
3247 H10
3248 H9
3250 I12
3251 H12
3260 I11
3261 H11
3270 I11
3280 J11
3281 H11
3285 I11
3286 H11
3320 H6
3321 I6
3322 I6
3323 I5
3324 H6
3325 H4
3326 H5
3331 G3
3332 I3
3333 H3
3335 I3
3336 I3
3339 I1
3500 C5
3501 C5
3502 C5
3505 F5
3506 E5
3507 F5
3510 A3
3511 B2
3512 B2
3513 A2
3515 B2
3516 B2
3517 B3
3518 B3
3519 C3
3520 D3
3521 E2
3522 E2
3523 D2
3525 E3
3526 E3
3527 E3

3528 E3
3529 F3
3530 B2
3531 B5
3532 C6
3540 D1
3541 E5
3542 E6
3803 C6
3804 D6
3805 D6
3806 D6
3807 D6
3944 E14
4210 F9
4211 E11
4213 F11
4220 F10
4221 F11
4223 F11
4230 F10
4231 F11
6111 B13
6112 B13
6121 C14
6122 B14
6131 C13
6141 D14
6142 D14
6146 E15
6147 E14
6151 F13
6152 F13
6161 G3
6162 G13
6171 H13
6172 H13
6181 I13
6182 I13
6186 J14
6187 J14
6331 G3
7110 B12
7210 F9
7328-A I6
7328-B I4
7330 G2
7510 B4
7511 B1
7520 E4
7521 E1
7530 B6
7540 E6
7805 D6

1	2	3	4	5	6	7
J3 HDR2K4 HOP 28KHZ AP AUG						
N3 HOP DB15			N3 HOP W/O DB15		RESERVED	
Ref Des	3135_037_12781_01	3135_037_12791_01	RESERVED			
1030	NOT USED	NOT USED	242202517535 JQ-S			
2603	NOT USED	NOT USED	NOT USED			
2604	NOT USED	NOT USED	NOT USED			
2605	NOT USED	NOT USED	NOT USED			
2608	NOT USED	NOT USED	NOT USED			
2900	NOT USED	NOT USED	319801721050			
3611	NOT USED	NOT USED	1u0			
3613	319802152220 2K2	319802152220 2K2	NOT USED			
3617	NOT USED	NOT USED	NOT USED			
3618	NOT USED	NOT USED	NOT USED			
3619	NOT USED	NOT USED	NOT USED			
3620	NOT USED	NOT USED	NOT USED			
3621	NOT USED	NOT USED	NOT USED			
3625	NOT USED	NOT USED	NOT USED			
3629	NOT USED	NOT USED	NOT USED			
3616	NOT USED	NOT USED	319802151030 10K			
3817	NOT USED	NOT USED	319802151040 100K			
3818	NOT USED	NOT USED	319802151040 100K			
3826	NOT USED	NOT USED	319802151030 10K			
4957	NOT USED	NOT USED	319802190020			
7601	NOT USED	NOT USED	NOT USED			
7602	NOT USED	NOT USED	NOT USED			
7605-1	NOT USED	NOT USED	NOT USED			
7605-2	NOT USED	NOT USED	NOT USED			
SHEET 1						
J3 HDR2K4 HOP 28KHZ AP AUG						
N3 HOP DB15			N3 HOP W/O DB15		RESERVED	
Ref Des	3135_037_12781_01	3135_037_12791_01	RESERVED			
1110	242202516857 SUB-D	NOT USED	NOT USED			
1111	NOT USED	NOT USED	242202517519 JET			
2110	319803044790 47u	NOT USED	NOT USED			
2120	319803044790 47u	NOT USED	NOT USED			
2130	319803044790 47u	NOT USED	NOT USED			
2210	319803044790 47u	NOT USED	NOT USED			
2220	319803044790 47u	NOT USED	NOT USED			
2230	319803044790 47u	NOT USED	NOT USED			
3110	319802157590 75R	NOT USED	NOT USED			
3111	319802154790 47R	NOT USED	NOT USED			
3120	319802157590 75R	NOT USED	NOT USED			
3121	319802154790 47R	NOT USED	NOT USED			
3130	319802157590 75R	NOT USED	NOT USED			
3131	319802154790 47R	NOT USED	NOT USED			
3140	319802151020 1K0	NOT USED	NOT USED			
3141	319802152210 220R	NOT USED	NOT USED			
3145	319802151020 1K0	NOT USED	NOT USED			
3146	319802152210 220R	NOT USED	NOT USED			
3250	NOT USED	NOT USED	319802157590 75R			
3260	NOT USED	NOT USED	319802157590 75R			
3270	NOT USED	NOT USED	319802157590 75R			
3280	NOT USED	NOT USED	319802151020 1K0			
3285	NOT USED	NOT USED	319802151020 1K0			
3332	NOT USED	NOT USED	319802151010 100R			
3333	NOT USED	NOT USED	319802151010 100R			
3335	NOT USED	NOT USED	319802151010 100R			
3336	NOT USED	NOT USED	319802151010 100R			
4210	NOT USED	319802190020	NOT USED			
4211	NOT USED	319802190020	NOT USED			
4213	NOT USED	319802190020	NOT USED			
4220	NOT USED	319802190020	NOT USED			
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4230	NOT USED	319802190020	NOT USED			
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6111	319801010630 BAS316	NOT USED	NOT USED			
6112	319801010630 BAS316	NOT USED	NOT USED			
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6142	319801010630 BAS316	NOT USED	NOT USED			
6146	319801010630 BAS316	NOT USED	NOT USED			
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6331	NOT USED	NOT USED	319801010630 BAS316			
7110	932211562668 BA7657F	NOT USED	NOT USED			
SHEET 2						
J3 HDR2K4 HOP 28KHZ AP AUG						

3135 033 3429.2

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. In the bottom right corner, there is small black text that reads "E_06532_012.eps" and "131004".

E_06532_012.eps
131004

Mapping HOP Panel Part 1

J4 HDR2K4 HOP 28KHZ AP AUG

REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE	REFDES	SH-ZONE
1030	1-G10	2472	1-E15	2811	1-F11	3326	2-K6	3495	1-F10	3700	1-E8	4605	1-I3	7710	1-D6
1110	2-B19	2473	1-D14	2812	1-F11	3331	2-K6	3496	1-F11	701	1-D8	4907	1-I1	7711	1-B6
1111	2-B19	2480	1-I15	2813	1-F11	3332	2-K6	3500	1-D7	702	1-D8	4957	1-M3	7720	1-D4
1150-A	2-B19	2481	1-I15	2814	1-F11	3333	2-K6	3501	1-D7	703	1-D8	5410	1-F18	7721	1-B4
1150-B	2-B19	2482	1-I15	2815	1-F11	3334	2-K6	3502	1-D7	704	1-D8	5411	1-E18	7730	1-C3
1150-C	2-B19	2483	1-I15	2816	1-F11	3335	2-K6	3503	1-D7	705	1-B7	5430	1-J18	7800	1-C11
1180-A	2-B19	2490	1-N15	2817	1-F11	3336	2-K6	3504	1-G7	706	1-B8	5431	1-J18	7805	2-D9
1180-B	2-B19	2491	1-M15	2818	1-F11	3337	2-K6	3505	1-B6	707	1-D8	5450	1-N18	7900-1	1-F3
1250	2-L14	2492	1-N15	2819	1-F11	3338	2-K6	3506	1-B6	708	1-D8	5451	1-N18	7922	1-L8
1550	2-L14	2493	1-M14	2820	1-F11	3339	2-K6	3507	1-B6	710	1-D8	5701	1-D8		
1601	1-I12	2494	1-M14	2821	1-F11	3340	2-K6	3508	1-B6	711	1-D8	5711	1-D5		
1610	1-G9	2500	2-D6	2822	1-F11	3341	2-K6	3509	1-B6	712	1-D8	5721	1-D4		
1700	1-A8	2501	2-C6	2823	1-F11	3342	2-K6	3510	1-B6	713	1-D8	6111	2-C17		
1701	1-C2	2502	2-H6	2824	1-F11	3343	2-K6	3511	1-B6	714	1-D8	6112	2-B17		
1710	1-A6	2505	2-H6	2825	1-F11	3344	2-K6	3512	1-B6	715	1-D8	6121	2-D17		
1720	1-A4	2506	2-G6	2826	1-F11	3345	2-K6	3513	1-B6	716	1-D8	6131	2-D17		
1950	2-N4	2507	2-A3	2827	1-F11	3346	2-K6	3514	1-B6	717	1-D8	6141	2-D17		
2110	2-B19	2509	2-B3	2828	1-F11	3347	2-K6	3515	1-B6	718	1-D8	6151	2-D17		
2111	2-G15	2510	2-B3	2829	1-F11	3348	2-K6	3516	1-B6	719	1-D8	6161	2-D17		
2120	2-I15	2511	2-D4	2830	1-F11	3349	2-K6	3517	1-B6	720	1-D8	6171	2-D17		
2130	2-I15	2512	2-D4	2831	1-F11	3350	2-K6	3518	1-B6	721	1-D8	6181	2-D17		
2140	2-I15	2513	2-D4	2832	1-F11	3351	2-K6	3519	1-B6	722	1-D8	6191	2-D17		
2150	2-I15	2514	2-D4	2833	1-F11	3352	2-K6	3520	1-B6	723	1-D8	6201	2-D17		
2160	2-I15	2515	2-D4	2834	1-F11	3353	2-K6	3521	1-B6	724	1-D8	6211	2-D17		
2170	2-I15	2516	2-D4	2835	1-F11	3354	2-K6	3522	1-B6	725	1-D8	6221	2-D17		
2180	2-I15	2517	2-D4	2836	1-F11	3355	2-K6	3523	1-B6	726	1-D8	6231	2-D17		
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J5 HDR2K4 HOP 28KHZ AP AUG

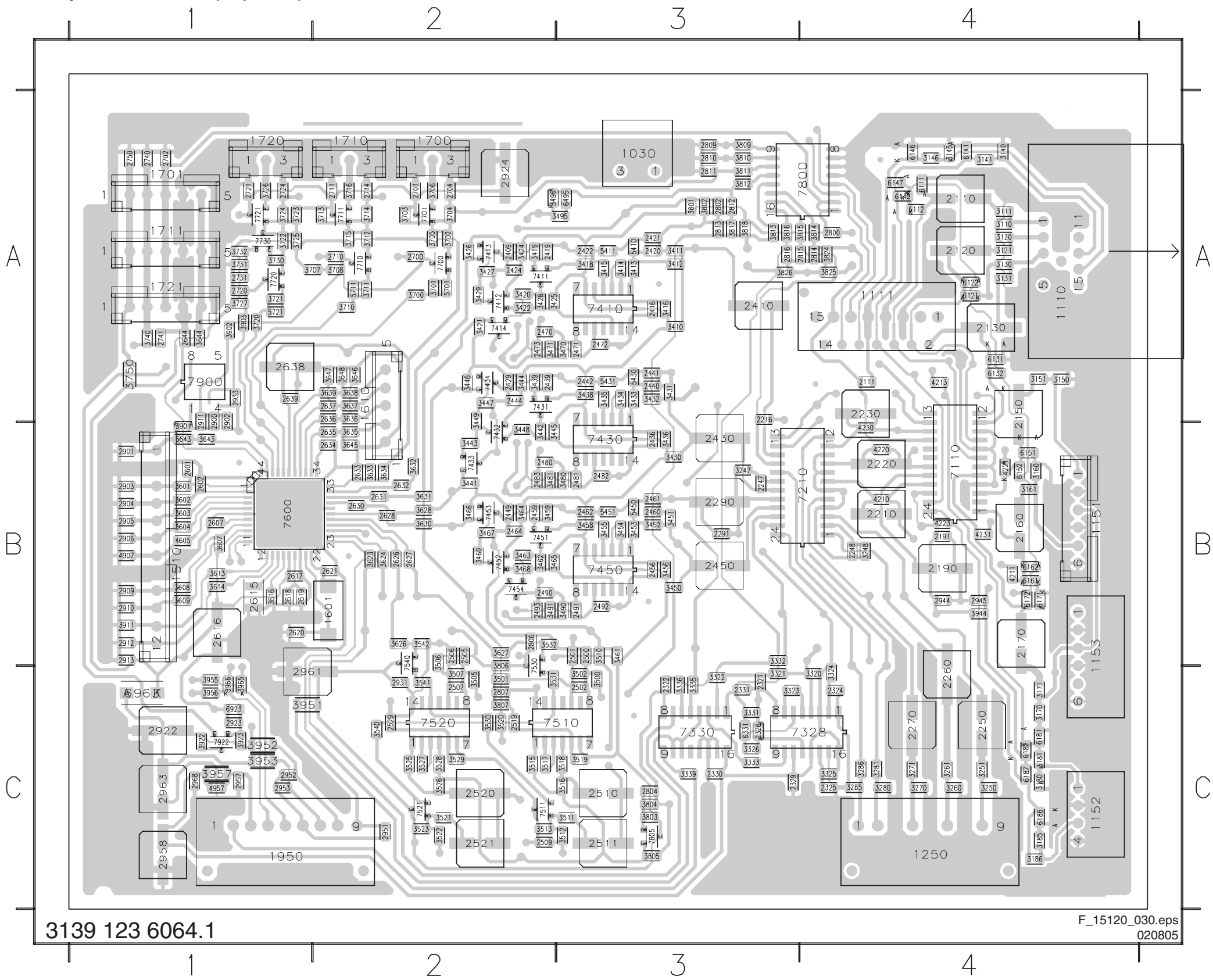
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F807	2-E7
F809	1-E10
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F811	1-E10
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F815	1-E13
F816	1-E13
F901	1-H3
F902	1-H2
F903	1-I3
F904	1-I3
F905	1-I3
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F911	1-J3
F912	1-J3
F951	1-L5
F952	1-L4
F953	2-G18
F954	1-N4
F955	1-N4
F956	1-L8
F957	1-L3
F958	1-N4
F959	1-N5
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191004

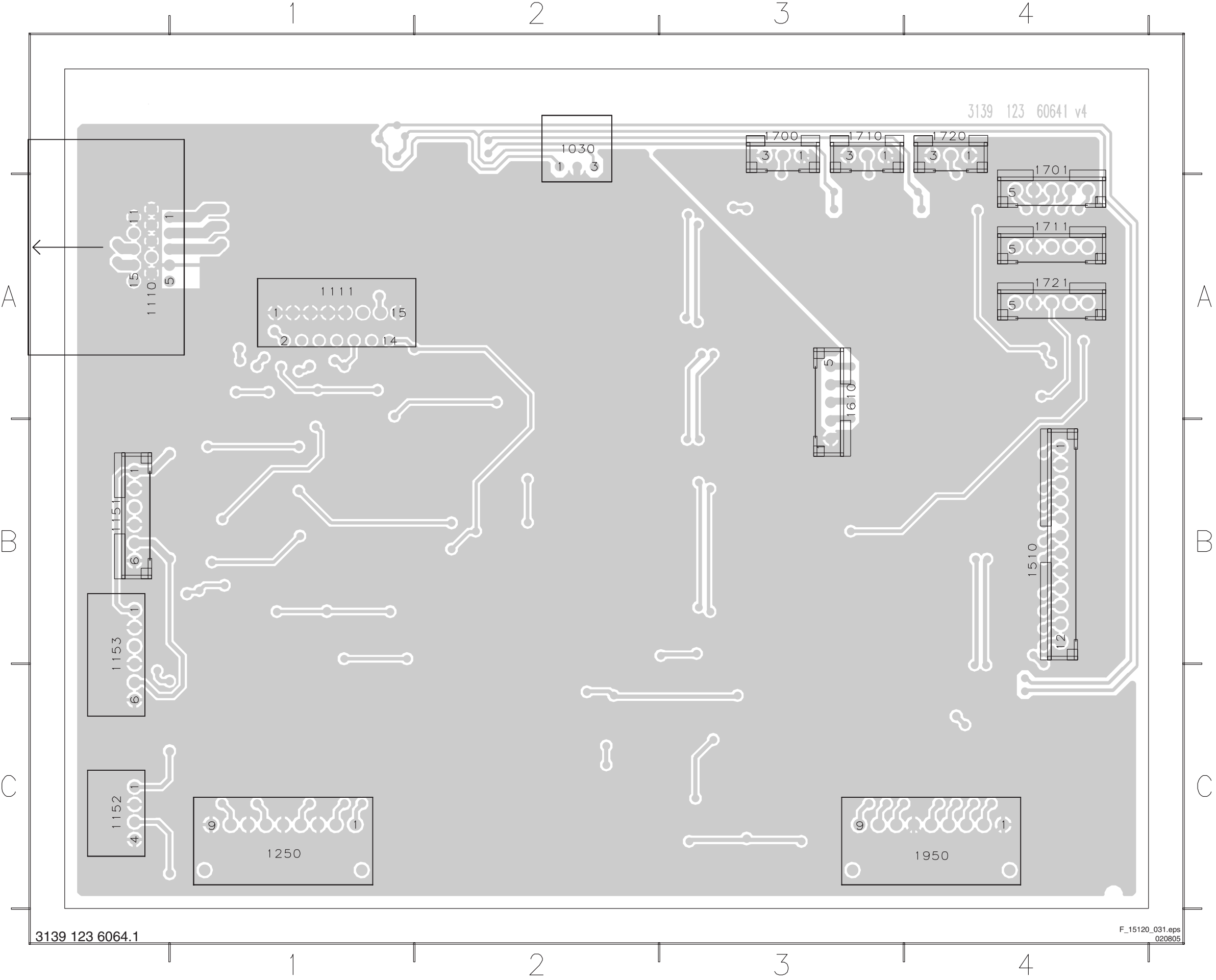
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Layout HOP Panel (Top Side)

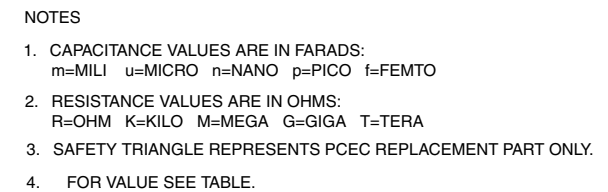


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1152	C4	2529	C2	3150	A4	3470	A3	3724	A1	7110	B4
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1250	C4	2602	B1	3160	B4	3480	B3	3726	A1	7328	C4
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1601	B2	2615	B1	3170	C4	3490	B3	3730	A1	7410	A3
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2110	A4	2628	B2	3251	C4	3507	C2	3805	C3	7434	A2
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2324	C4	2731	A1	3410	A3	3540	C2	3944	B4	7900	A1
2325	C4	2740	A1	3411	A3	3541	C2	3951	C1	7922	C1
2326	C3	2741	A1	3412	A3	3542	B2	3952	C1		
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2441	A3	2902	A1	3431	A3	3631	B2	4957	C1		
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2456	B3	2909	B1	3436	B3	3636	A2	5450	B3		
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2507	C2	3121	A4	3462	B2	3714	A2	6186	C4		
2509	C2	3130	A4	3463	B2	3715	A2	6187	C4		
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Layout HOP Panel (Bottom Side)



K1 KEYBOARD/LIGHT SENSOR AP



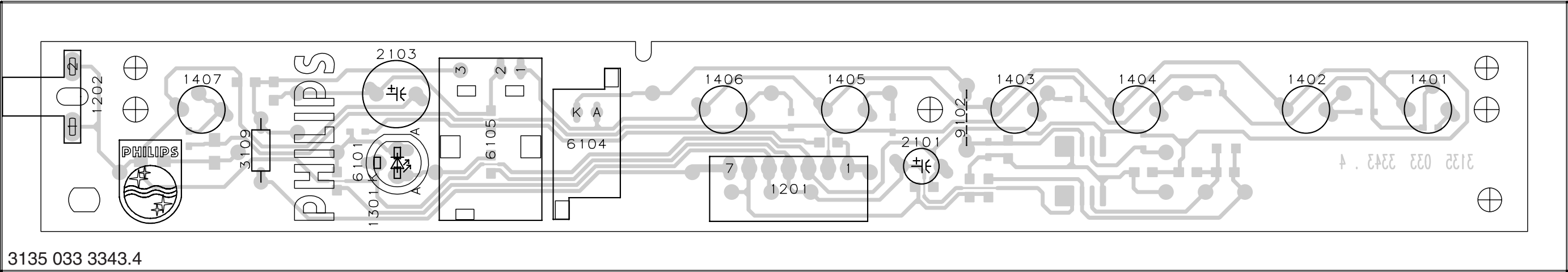
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1404	1-C99		
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1406	1-C10		
1407	1-C11		
2101	1-F2		
2102	1-F3		
2103	1-F5		
2104	1-F5		
3100	1-B88		
3101	1-B88		
3102	1-B99		
3103	1-B99		
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3106	1-B11		
3107	1-H3		
3108	1-I33		
3109	1-I33		
3110	1-F3		
3111	1-F5		
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3114	1-I33		
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3118	1-C66		
3121	1-B55		
3122	1-B44		
4100	1-B77		
4120	1-B44		
6101-1	1-C4		
6101-2	1-C4		
6102	1-B7		
6103	1-C7		
6104	1-C2		
6105	1-H1		
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7000-2	1-F5		
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I002	1-H3		
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I004	1-I2		
I005	1-I2		
I006	1-F3		
I007	1-F3		
I008	1-F33		
I009	1-F33		
I010	1-I44		
I011	1-F6		
I012	1-F6		
I013	1-B77		
I014	1-B88		
I015	1-B99		
I016	1-B99		
I017	1-B10		
I018	1-B10		
I019	1-I1		
I020	1-A7		
I021	1-B3		
I022	1-B4		

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. In the bottom right corner, there is small black text that reads "E_06592_012.eps" and "131004".

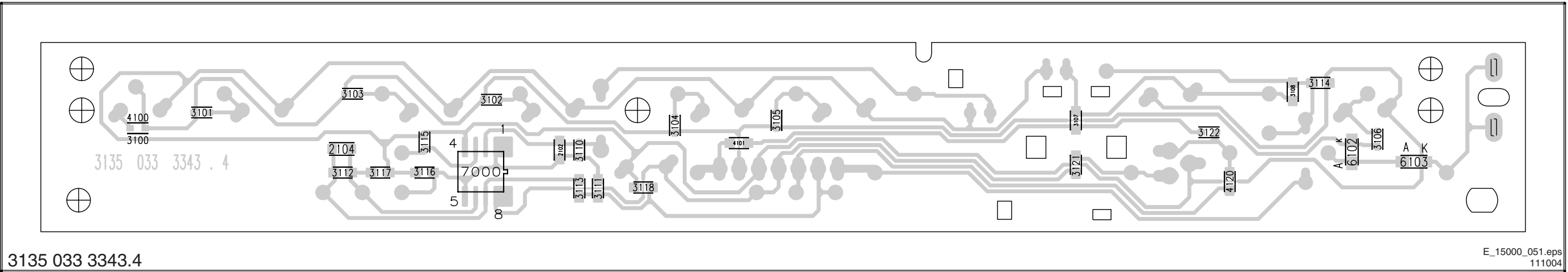
E_06592_012.eps
131004

Layout Keyboard Panel (Top and BottomSide)

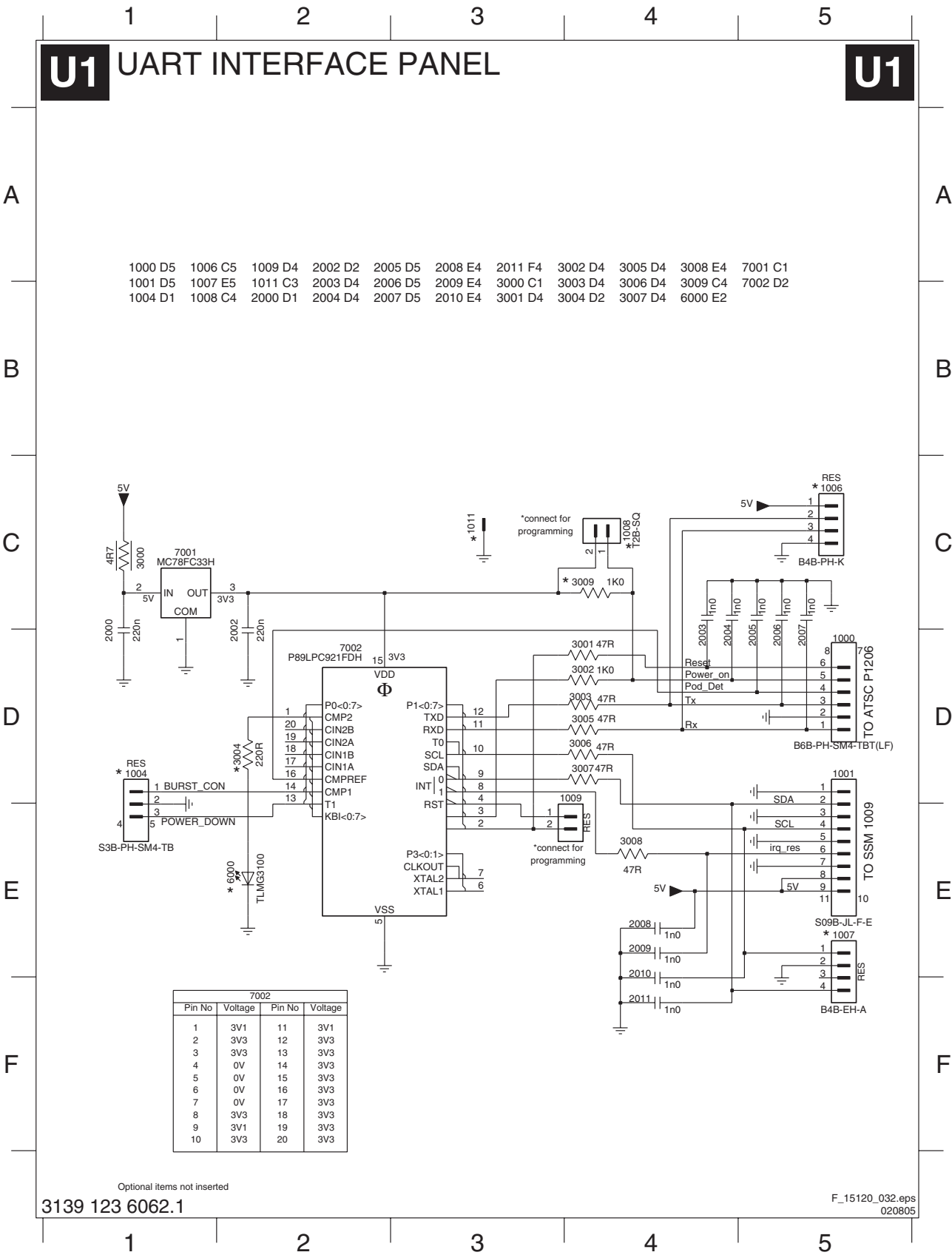
1201 -- 1202 -- 1301 -- 1401 -- 1402 -- 1403 -- 1404 -- 1405 -- 1406 -- 1407 -- 2101 -- 2103 -- 3109 -- 6101 -- 6104 -- 6105 -- 9102 --



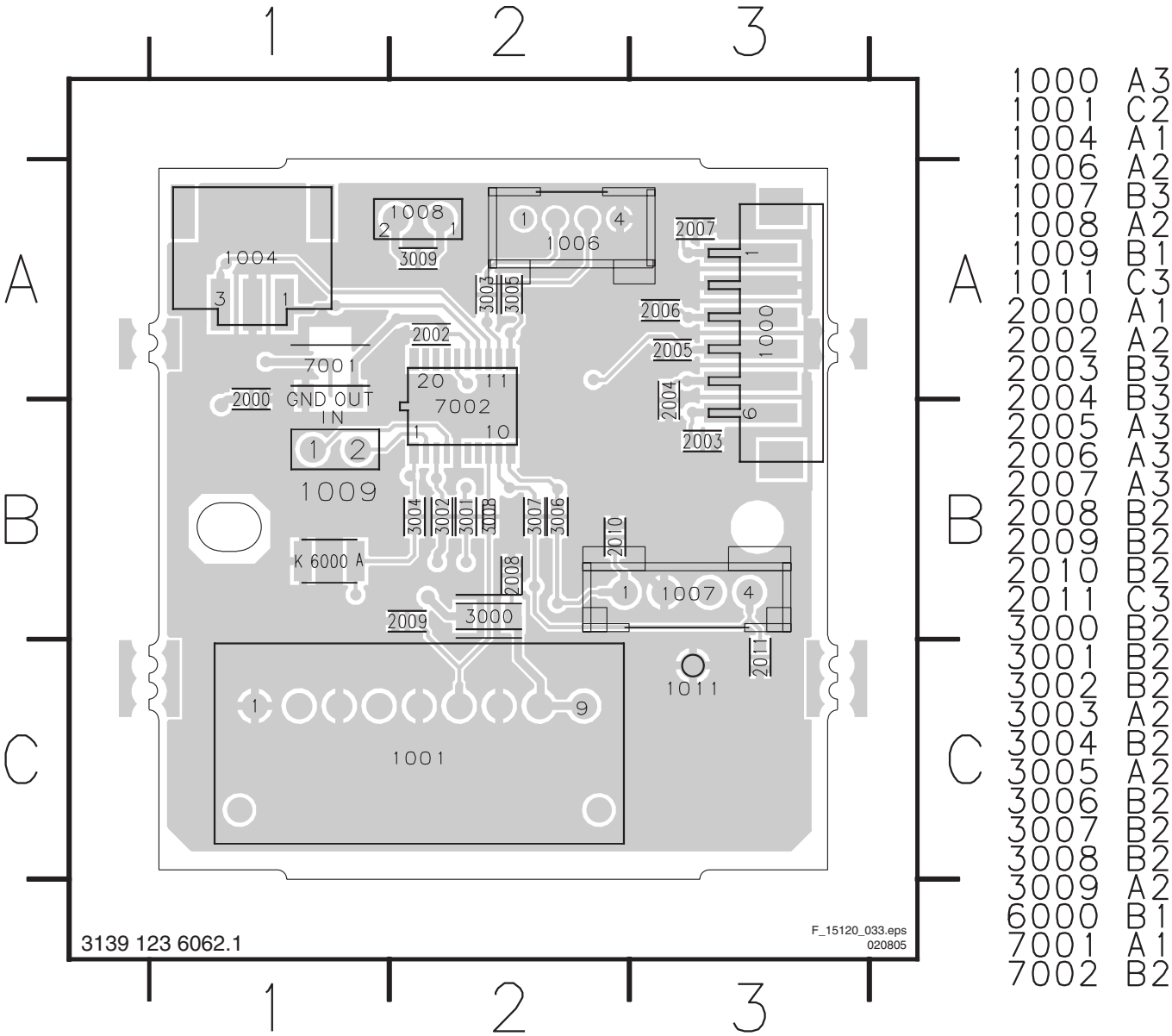
2102 -- 3100 -- 3102 -- 3104 -- 3106 -- 3108 -- 3111 -- 3113 -- 3115 -- 3117 -- 3121 -- 4100 -- 4120 -- 6103 --
2104 -- 3101 -- 3103 -- 3105 -- 3107 -- 3110 -- 3112 -- 3114 -- 3116 -- 3118 -- 3122 -- 4101 -- 6102 -- 7000 --



UART Interface Module



Layout UART Interface Modukle



8. Alignments

Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware alignments
- 8.3 Software Alignments
- 8.4 Convergence and Geometry Adjustments
- 8.5 Option Settings

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage: according to countries standard ($\pm 10\%$).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 10 to 20 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: $R_i > 10\text{ Mohm}$, $C_i < 20\text{ pF}$.
- Use an isolated trimmer/screwdriver to perform the alignments.

8.2 Hardware alignments

8.2.1 VG2 Set-up

Preferred Method

1. Connect a Black Level signal to the aerial input of the set.
2. Preset all G2 controls on the Focus/G2 Combo Block to minimum (fully CCW).
3. Connect an Oscilloscope to the Collector of the output transistor on the Green CRT board. Set the probe to $\times 10$.
4. Adjust the Green G2 control until the Black Level is at 200 V.
5. Repeat steps 3 and 4 for the Red and Blue CRTs.

Alternate Method

1. Connect a Black Level signal to the aerial input of the set.
2. Preset all G2 controls on the Focus/G2 Combo Block to minimum (fully CCW).
3. Turn each G2 control clockwise until each CRT is barely illuminated.

8.2.2 Focus adjustment

Note: Before beginning the following adjustment procedures set the customer picture, sharpness, brightness, and tint controls to midrange and the customer colour control to minimum.

Electrical Focus Adjustment

1. Remove the back cover of the set and the light shield, then turn the set on and inject a crosshatch pattern signal into the antenna terminal.
Note: The crosshatch pattern will appear clearer if the front of the screen is covered with a dark cloth.
2. Cover two of the CRT output lenses with cardboard pieces (or other non-conductive opaque material) to observe the magnified reflection of the other picture tube on the backside of the viewing screen.
3. Adjust the CRTs focus control (located on the Screen/Focus Control Block) for the sharpest raster image.
4. Confirm correct focus by viewing the screen from the front of the set.

5. Repeat steps two through four to adjust the focus of the two remaining CRTs.

Note: Before beginning the following adjustment procedures set the customer picture, sharpness, brightness, and tint controls to midrange and the customer colour control to minimum.

Optical Focus Adjustment

1. Remove the back cover of the set and the light shield, then turn these on and inject an NTSC crosshatch pattern signal into the antenna terminal.
Note: The crosshatch pattern will appear clearer if the front of the screen is covered with a dark cloth.
2. Cover two of the CRT output lenses with cardboard pieces (or other non-conductive, opaque material) and observe the magnified reflection of the other picture tube on the backside of the viewing screen.
3. Loosen the "lens retaining wing nuts" on the CRT Focus Assembly.
4. Move the wing nut in the slot of the uncovered lens to locate the optimum optical focus viewing the picture from the back side of the screen), then re-tighten the wing nut.
5. Confirm correct focus by viewing the screen from the front of the set.
6. Repeat steps two through five to adjust the focus of the two remaining CRTs.

8.3 Software Alignments

With the software alignments, it is possible to align e.g. Geometry, White Tone, and Tuner IF settings.

Put the set in the SAM (see chapter 5 "Service Modes, Error Codes, and Faultfinding"). The SAM menu will now appear on the screen. Select, via the cursor, one of the sub-menus.

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: "0-6-2-5-9-6"-[i+]. Do not allow the display to time out while entering the key sequence. The following menu will appear:

Table 8-1 Alignments menu and default values

Alignments	Item	Default
General	Luma gain	3
	IF AFC	80
	IF Lprime AFC	80
	Tuner AGC	20
	Tuner AGC Tuner 2	8
	Blend Intensity	16
Lum. Delay	Lum. Delay Pal B/G	11
	Lum. Delay Pal I	8
	Lum. Delay Secam	8
	Lum. Delay Bypass	11
GDE SAM	See menu on screen	

8.3.1 General

LUMA GAIN

Fixed setting of "2".

IF AFC

Supply, via a service generator or via off-air, a TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz (PAL) or 61.25 MHz (NTSC).

Alignment procedure:

1. During the IF AFC-parameter adjustment, one can see OSD feedback on the screen.
2. The OSD feedback can give 4 kinds of messages:
3. The first item (IN/OUT) informs you whether you are in or out of the AFC-window.
4. The second item (HIGH/LOW) informs you whether the AFC-frequency is too high or too low.

Table 8-2 OSD feedback of AFC alignment

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

1. Adjust the IF AFC parameter until the **first** value is within the AFC window (= IN).
2. Next, adjust the IF AFC parameter until the **second** value is LOW.

IF LPRIME AFC

Same procedure as described above but with other signal source (SECAM L').

TUNER AGC

1. Connect the RF output of a video pattern generator to the antenna input.
2. From the generator, input a PAL B/G TV signal with a signal strength of approximately 2 mV and a frequency of 475.25 MHz (PAL) or 61.25 MHz (NTSC).
3. Measure the DC voltage on pin 1 of the (main) Tuner. You can adjust this voltage by adjusting the TUNER AGC item in the SAM menu. Alignment is correct when the DC voltage is just below 3.5 V.

IF AFC TUNER 2 (if present)

Use the same procedure as described above (under IF AFC) with the set switched to the DW source.

IF LPRIME AFC TUNER 2 (if present)

Use the same procedure as described above (under IF LPRIME AFC) with the set switched to the DW source.

TUNER AGC TUNER 2

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.

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 (in the customer "Picture" menu).

1. Apply a signal with a 100 % white video pattern (white raster).
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 so that the blended signal is 65 % of the black-white amplitude. This will be about 1.3 V (blended signal) versus 2 V (full white signal).
4. The parameter can be adjusted from 0 to 31.

8.3.2 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 is "9".
- **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 is "9".
- **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 is "11".
- **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 and white part of the test area are at the same position. Default value is "10".

8.3.3 GDE SAM

Specifications:

- Set display mode in service mode.
- Service blanking.
- Set geometry.
- Preset picture.
- Set white tone.
- Convergence disable for setting geometry.

The GDE SAM mode (GDE = Generic Display Engine), allows the Service Technician to set Geometry and White Tone (Grey Scale). This mode is controlled by the GDE microprocessor located on the ASC module. These settings are stored in an EEPROM located on the ASC module. The GDE SAM displays the Software version of the GDE microprocessor and the GDE Errors.

There are three settings for Geometry in the 4x3 aspect ratio sets and two for the 16x9 aspect ratio sets.

The signal for the 480p mode can be applied to the set via the HD YPbPr inputs or from the SSB when the set is in the NTSC mode. All Geometry alignments for this mode should be done with an NTSC signal selected.

Adjustments for the 1080i should be done with an HD 1080i signal applied to the set. The 4x3 aspect ratio sets have both a Full and Compressed mode that requires alignment.

The Service Blanking selection (SERV BLANK) will blank the bottom half of the picture. This selection is useful when adjusting the Yokes to level the picture.

The Clamp Pulse should be set to Normal for a 480p or NTSC signal. It should be set to 1080i for an HD signal.

The Convergence Processor selection will enable or disable Convergence drive. Convergence should be disabled when performing Centering or Geometry alignments.

8.4 Convergence and Geometry Adjustments**8.4.1 Introduction**

If the ACS module has been replaced, the following adjustments will be required in the order as shown:

1. Geometry.
2. Convergence.
3. Grey Scale (White Tone).

If the Large Signal Board (LSB) has been changed the following adjustment are required:

1. Geometry.
2. Convergence.

If one or more CRTs have been replaced:

1. Geometry.
2. Convergence.

3. Grey Scale (White Tone).

If the SSM (Small Signal Module) has been changed:

1. Convergence.

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[i+]**. Do not allow the display to time out while entering the key sequence.

Cursor down to the Alignments level and then Cursor right to locate the GDE SAM. Press the OK button to enter the GDE SAM mode.

Note: Read the complete following text before starting the alignments.

8.4.2 Screen Centring

If one or more CRTs are replaced, it will be necessary to perform Screen Centring.

1. Place the Convergence Template on the TV screen or place a string from corner to corner to determine the screen centre.
2. Apply a centre cross pattern to the TV.
3. Enter the SAM mode, described in the Geometry section and disable Convergence.
4. Cover the Red and Blue CRTs.
5. Using the Centring rings on the Green CRT, centre the cross onto the centre of the template.
6. Uncover the Red CRT and centre the Red onto the Green cross.
7. Follow the same procedure with the Blue CRT.

Note: Only perform the Screen Centring for the first mode to be adjusted. Do **not** repeat the adjustment for the other modes.

8.4.3 Geometry Alignment

The Geometry alignment data is stored in the NVM, located on the ACS module. Whenever the ACS module or the Large Signal Board (LSB) have been changed, a Geometry alignment will be necessary. The Geometry Alignment is performed in the GDE SAM alignment mode. Make sure the set is in the mode in which you wish to align before entering the SAM mode. Use the AV button on the Remote to select the input with a signal, applied after entering the SAM mode.

Apply a crosshatch pattern to the set. Cursor Down to CONV PROC in the menu and press the Right Cursor button to select. This will disable the Convergence drive. Select GEOMETRY in the menu and enter the following default values for the mode being adjusted.

Table 8-3 Geometry Default Values

	480p	1080i (full)				
Wide blank	7	7				
Horizontal Shift	21	21				
Horizontal Para	8	8				
E-W Width	30	30				
E-W Para	31	31				
E-W Trap	31	31				
Horizontal Bow	7	7				
Vertical Slope	36	36				
Vertical Ampl	47	47				
S Correction	31	31				
Vertical Shift	31	31				
Fast Blank	0	0				

After entering the default values, the E-W WIDTH, VERTICAL SLOPE, and VERTICAL AMP should be the only settings requiring further adjustment.

Note: Perform (and store) Convergence alignment after any changes to the Geometry.

8.4.4 Convergence Mode

There are two new screen sizes for the AP region incorporating a Digital Convergence system using 208 adjustment points. The Convergence Processor is located on the ACS (Automatic Convergence System) module. The Convergence drive circuits are located on the SSP (Small Signal Panel). Data for the Convergence and Geometry settings are stored in the EEPROM located on the ACS module.

If the CRTs, the Large Signal Panel (LSP), or the Small Signal Module (SSM) are changed, a complete Geometry and Convergence alignment will be necessary.

If the ACS module, the Small Signal Panel (SSP), or CRTs are changed, a complete Convergence alignment will be necessary.

To obtain the correct Geometry during Convergence, a template must be used. There are eight Geometry and Convergence settings, stored in the EEPROM on the ACS Module.

- 51 inch 16x9 aspect ratio - Use Template ST4183
- 60 inch 4x3 aspect ratio - Use Template ST4182

8.4.5 Convergence Alignment

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[i+]**. Do not allow the display to time out while entering the key sequence.

Make sure that a signal is applied to the set for the mode being adjusted.

Make sure that the set is in the mode you wish to adjust before entering the Convergence Alignment mode.

8.4.7 Touch Up Convergence

When making minor Convergence corrections, move the Cursor to the location to be adjusted then press the MENU button to adjust that location. When in the adjustment mode, press the MENU button a second time if it is desired to change the step size of the adjustment. When making minor Convergence corrections, you may adjust the following:

- RED TO GREEN
- BLUE TO GREEN
- SP RED
- MP RED
- SP BLUE
- MP BLUE

8.4.8 Green Geometry

Important: Do not make changes to the Green Geometry **without** placing a Template over the screen.

The Green Geometry must be done first when performing a complete convergence alignment. A Screen Template is necessary to obtain the correct geometry. Failure to use the Screen Template or mis-adjustment of the convergence will result in reduced life of the Convergence amplifiers.

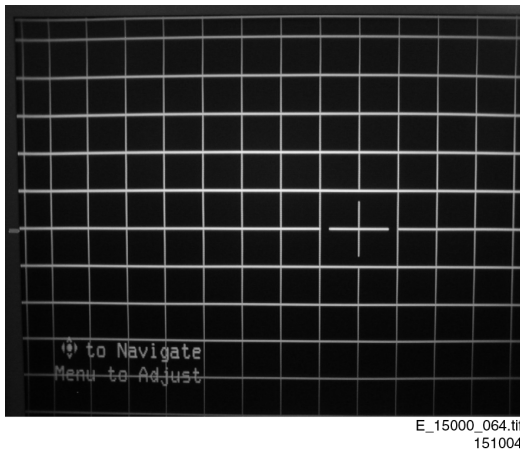


Figure 8-3 Screen shot of "Green geometry" adjustment

Place the Screen template on the TV screen. Select GREEN in the selection menu. The Cursor will appear in the centre of the screen as shown in the picture.

When the ACS module has been replaced, it would be advisable to load Default settings. Press the MENU button to adjust, and then use the Cursor buttons to move the Green cross onto the Template.

The adjustment of the cross has two-step sizes: large and small. Press the MENU button to toggle between the two. After a point has been adjusted, press the Index button to return to Navigate. When Default settings have been loaded, the left most line that is not visible should be adjusted first. Adjust the Vertical line 0 while observing line 1 to make line 1 parallel with the left edge of the screen. The adjustment should only be made in small steps.

Do not adjust any one point more than 1/4 the distance of one grid in each pass. After the left most line is adjusted, start at the centre left of the screen and work to the right, aligning the Horizontal lines. When adjusting the Horizontal lines, best results are obtained when working from left to right.

After the Centre line is adjusted, go to the next line down until all of the lines have been adjusted, then work from the centre up to adjust the Horizontal lines. Using the same method, work from centre out to adjust the Vertical lines. At least three passes will be necessary to complete the alignment. Press the Index button to return to the selection menu.

When the GREEN geometry is complete, STORE the data. Remove the template from the screen. Select RED TO GREEN in the selection menu. Using the same method that was used to adjust the Green Grid to the Template, adjust the Red Grid onto the Green Grid. If the set is a later production, select SP RED to centre the Red grid onto the Green grid. Exit this mode by pressing the MENU button. Then select the MP RED to adjust the Red onto the Green using the 35-point adjustment. When this is complete, select the RED TO GREEN to perform the 208-point adjustment.

When the RED TO GREEN is complete, select the BLUE TO GREEN, using the same alignment method as the RED TO GREEN.

Select STORE to save your the alignments after adjusting each colour. Each time data is stored; the Intellisense circuit will recalculate the position of the four sensors in the set.

Exiting the Convergence Mode without saving will cause the alignments to be lost.

Repeat the adjustment for each of the remaining modes.

8.4.9 Grey Scale Alignment

1. Place the input to the RGB (AUX 5) or YPbPr (AUX 4) mode. Connect a Computer or Computer monitor generator to the AUX 5 input or a Component Generator to AUX 4.
2. Preset the G2 controls counter clockwise.
3. Turn the Green G2 clockwise to make the menu visible.
4. Enter the SAM mode by entering **0-6-2-5-9-6-[i+]** on the Remote Control. Select the GDE mode and select WHITE TONE.
5. Preset the following registers: Use the Cursor Right-Left buttons to set the value. Use the Cursor Up-Down buttons to select the register. Press the MENU button to exit the WHITE TONE menu.
 - NORMAL RED CUT-OFF: "14"
 - NORMAL GREEN CUT-OFF: "35"
 - NORMAL BLUE CUT-OFF: "6"
 - NORMAL RED DRIVE: "44"
 - NORMAL GREEN DRIVE: "56"
 - NORMAL BLUE DRIVE: "43"
6. Set the BRIGHTNESS, PICTURE, and SHARPNESS to their midpoint position. Select a Black Raster pattern on the computer or computer monitor generator.
7. Connect an Oscilloscope, set to measure DC, to each cathode to determine the dominant (lowest) colour.
8. Adjust the SUB BRIGHTNESS control to set the Black Level equal to 180 Volts on the Oscilloscope.
9. Move the probe to the remaining cathodes and adjust the corresponding cut-off registers to make the black part of the waveform at 180 Volts.
10. Set the corresponding G2 control to just make cut-off for the black part of the waveform for that tube.
11. Remove the Oscilloscope probe.
12. Apply a Greyscale pattern to the set.
13. Adjust the Drive Controls to achieve the proper white balance. At least one drive should remain 3F.
14. The following Drives and Cut-offs should be set as listed. These are in the WHITE TONE menu.
 - COOL CUT-OFF RED: "0"
 - COOL CUT-OFF GREEN: "0"
 - COOL CUT-OFF BLUE: "0"
 - COOL DRIVE RED: "-9"
 - COOL DRIVE GREEN: "-7"
 - COOL DRIVE BLUE: "0"
 - WARM CUT-OFF RED: "0"
 - WARM CUT-OFF GREEN: "0"
 - WARM CUT-OFF BLUE: "0"
 - WARM DRIVE RED: "0"
 - WARM DRIVE GREEN: "0"

- WARM DRIVE BLUE: “-8”
- 15.Press the MENU button to return to the SAM menu. Exit the Service mode by turning the set ”off”.

8.5 Option Settings

8.5.1 Introduction

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

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

8.5.2 DEALER OPTIONS

Table 8-4 Dealer options

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

8.5.3 SERVICE OPTIONS

Table 8-5 Service options

Menu name	Dual screen	TXT/EPG Dual Screen	Yes/No
Service Options	Video repro	Lightsensor	Yes/No
		2D Combfilter	Yes/No
		Pixel Plus	Yes/No
	Miscellaneous	Tuner Type	TEDE9/UV1316
	Opt. No.	Group 1	
		Group 2	

8.5.4 Option Codes

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[i+]**. Do not allow the display to time out while entering the key sequence.

Cursor to the OPT. NO. in the SERVICE OPTIONS level. Locate the “option code label” on the inside right panel of the unit and enter the correct codes for the model being serviced.

- Example**
- Group 1: 49483 32801 33055 32793
 - Group 2: 39897 32768 32768 00000

Note: Remember to cursor to the STORE OPTIONS level and select “OK” to save these changes

9. Circuit Descriptions, List of Abbreviations, and IC Data Sheets

Index of this chapter:

- 9.1 Introduction
- 9.2 Power Supplies
- 9.3 Video
- 9.4 Audio
- 9.5 Control/OSD
- 9.6 List of Abbreviations
- 9.7 IC Data Sheets

9.1 Introduction

This new chassis is being introduced for the Nafta region (USA and Canada) in 2005/2006 model year. The table below lists the Model and Chassis numbers.

Table 9-1 Model and chassis overview

Model	Chassis	Aspect Ratio	Destination
51MP6100D/37	DPTV585	16x9	USA/Canada
51PP9100D/37	DPTV585	16x9	USA/Canada
60PP9100D/37	DPTV585	16x9	USA/Canada

This chassis is derived from a previous introduced chassis but is prepared for ATSC reception. The chassis has NTSC and ATSC tuning capability. The digital broadcast formats it tunes are 8VSB and QAM. The set has the capability of displaying the 1080i, 480p, 480i and 720p high definition component analogue inputs. All are converted and displayed as 1080i. The 1fH RF inputs can be NTSC. The 1fH AV inputs can be YPbPr-component, composite, or SVHS and are displayed as 480p.

Some of the highlights are:

- TV-off air systems (NTSC).
- NTSC (3.58 - 4.5 MHz).
- HD signal inputs are analogue.
- Component in.
- ATSC digital in (8VSB and QAM).

The sets have 1fH multi-system composite, SVHS, and component inputs. The External 1fH or TV RF signals are fed to the Picnic and Eagle circuits, where the user can select between 100 Hz Digital Scan or Double lines.

External input systems:

- NTSC 3.58 MHz
- 480p, 480i, 1080i, 720p component input

All of the sets, based on the PEMG and have a 16x9 aspect ratio. There are eight different scan modes with each requiring separate geometry and convergence settings. Each of the modes has separate geometry and convergence data, stored in the NVM, located on the ACS (Automatic Convergence System) module.

Sound System processing is performed on the SSB (Small Signal Board). This is a multi-system sound decoding processor. The audio amplifier is located on the SSM (Small Signal Module). This is a digital amplifier; 10 Watt (2 x 5 Watts) for the 51" and 20 Watt (2 x 10 Watts) for the 60". There is also a Headphone output, located on the Side Jack Panel. The headphone amplifier is located on the SSM.

Sound system:

- 51": 10 W (2x5W) Audio.
- 60": 20 W (2x10W) Audio.
- Headphone Out.
- Speaker "on"/Off.

9.2 Power Supplies

The Rectifiers and Standby Supplies are located on the AC Input Panel. The Main Power Supply is located on the Large Signal Board (LSB).

In the table below, the models are listed with their respective voltage requirements. Auto Multi Voltage sets have a voltage range of 90 to 140 V.

Table 9-2 Voltage range overview

Model	Voltage Range
51MP6100D/37	90 - 140V nominal 110 V
51PP9100D/37	90 - 140V nominal 110 V
60PP9100D/37	90 - 140V nominal 110 V

9.2.1 Overall Power Supply Block

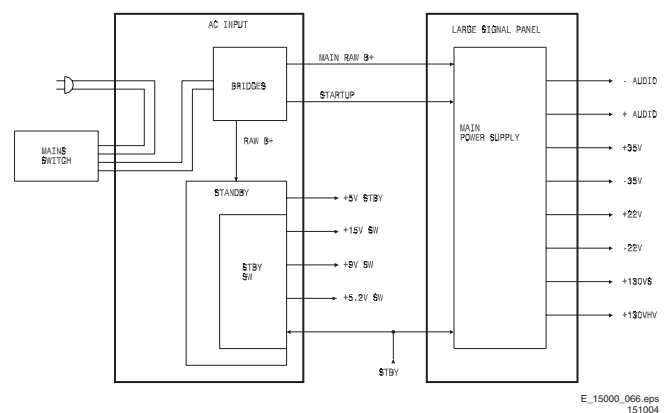


Figure 9-1 Power supply block diagram

The bridge rectifiers and Standby supply are located on the AC Input Panel. The Main Power supply is located on the Large Signal panel. A mains switch switches the AC power to the bridge rectifier, located on the AC Input panel. This switch must be turned "on", to place the set in the Standby mode. The Standby supply produces a +5 Volt standby voltage. In the Standby mode, the set consumes less than 1 W of power. When the set is turned "on", the microprocessor on the SSB causes the STANDBY line to go "low", switching the Standby supply to produce +15 V, +9 V, and +5.2 V sources. It also turns the Main Power supply "on", which produces the Audio, +35, -35, +22, -22, +130 V_S, and +130 V_HV supplies. The +130 V_S supply is for the Horizontal Output section. The +130 V_HV supplies power to the High Voltage section.

9.2.2 AC Input Board

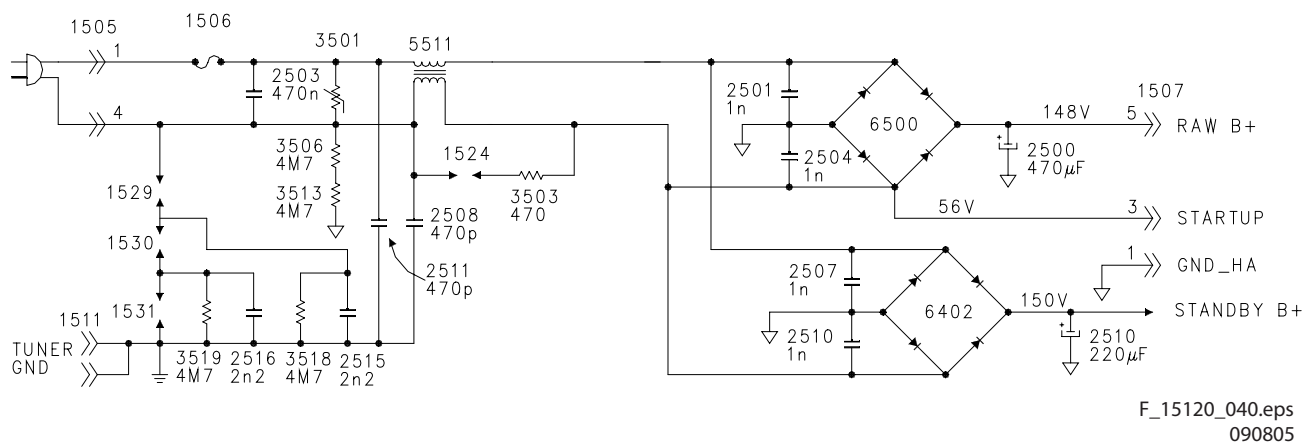


Figure 9-2 AC input board

The AC Input circuit is located on the AC Input panel. AC power is connected to the AC Input panel via connector 1505. A 6.3 Amp Fuse, 1506 provides overcurrent protection. The Neutral side of the AC line is connected to a series of Spark Gaps, 1529, 1530, and 1531 to the Tuner Ground to protect the set from voltage surges. AC voltage is fed to Bridge rectifiers 6500

and 6402. Bridge 6500 provides the RAW B+ to the Main Power supply located on the LSB. The Neutral side of the AC line is also connected to the STARTUP for the Main supply. This provides the Startup voltage for the Main supply. Bridge 6502 provides the Raw DC for the Standby supply.

9.2.3 Standby Power Supply

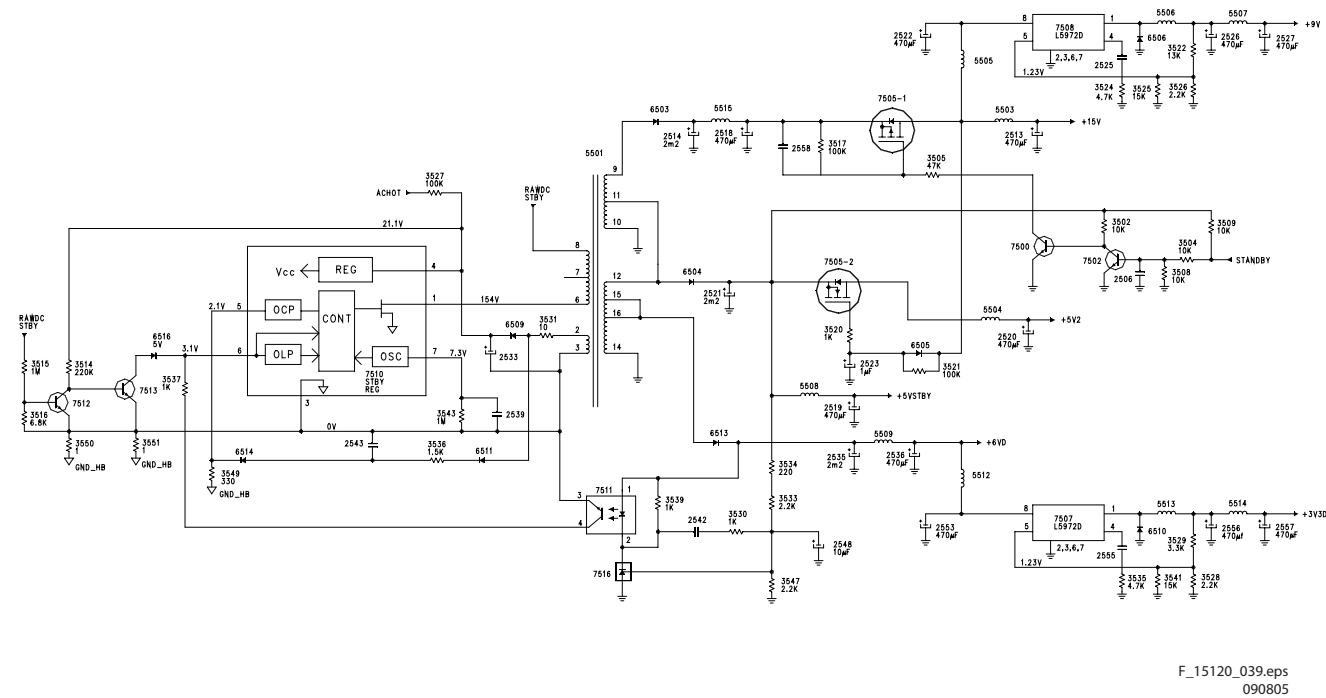


Figure 9-3 Standby power supply circuit

When power is applied to the set, Capacitor 2533 begins charging via startup Resistor 3527. When the voltage on Pin 4 of 7510 reaches approximately 19 volts, the IC begins switching Pin 1 of 7510. When Pin 1 goes Low, current flows through the windings of 5501 via Pins 8 and 6. Energy is coupled to the secondary windings. Operating voltage for the Standby supply after startup is supplied by windings connected to Pins 2 and 3. The +5STDBY is the reference supply for the regulation circuit. The +5STDBY supply is fed to the input of Shunt Regulator 7516 which drives Optoisolator 7511. If the 5-volt supply

increases, 7511 will turn on harder, reducing the feedback voltage on Pin 6 of 7510. If the 5 volt supply decreases, the voltage on Pin 6 will increase, causing the internal switch of 7510 to stay on longer.

Over voltage protection is accomplished by monitoring the voltage on Pin 5 of 7510. Voltage from Pin 2 of 5501 is rectified by Diode 6511 and is fed to Pin 5 via diode 6514. If this voltage goes above a certain level, 7510 will turn Off. If the DC voltage feeding 7510 decreases, the Feedback voltage on Pin 6 will increase. To prevent the IC from being overdriven, the voltage on Pin 6 is limited to 5 volts. In normal operation, DC from the

bridge rectifier is fed to the base of 7512, keeping it turned On. This keeps Transistor 7513 turned Off. If the DC voltage drops to approximately 75 volts, Transistor 7512 will turn Off, Transistor 7513 will turn On, putting the anode of Zener 6516 to ground, clamping the voltage on Pin 6 at 5 volts.

The Standby supply produces the +5STDBY, +6VD supplies when power is applied to the set. The +6VD supply feeds 7507 which produces a +3V3D supply. When the set is turned On, the Standby line from the microprocessor on the SSB goes Low. Transistor 7502 turns Off, turning Transistor 7500 On. 7500 turns Transistor 7505-1 On, switching the +15 volt supply On. The +15 volt supply also feed regulator 7508 to produce the +9 volt supply. Transistor 7505-2 also turns On, switching the +5V2 supply On.

Under voltage Detection

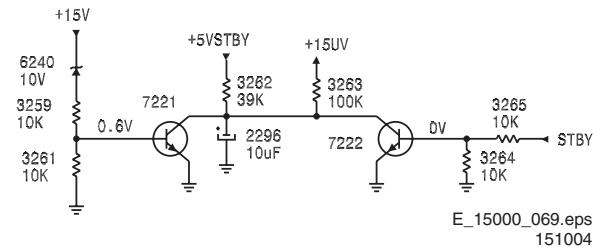


Figure 9-4 Under voltage detection circuit

If the 15-Volt supply drops below 11.2 Volts, transistor 7221 will turn "off". The 5-Volt standby supply will be applied to the base of 7220 (Figure " Standby power supply circuit") via resistors 3262 and 3263. This will cause the +15UV line to go "high". In the Standby mode, the Standby line is "high" turning transistor 7222 "on". When the set is turned "on", 7222 turns "off". Capacitor 2296 provides a delay to prevent the +15UV line from going "high" before the +15V supply turns "on".

This circuit can be defeated by grounding the base of transistor 7220. When repairs are complete, this jumper should be removed.

9.2.4 Main Power Supply

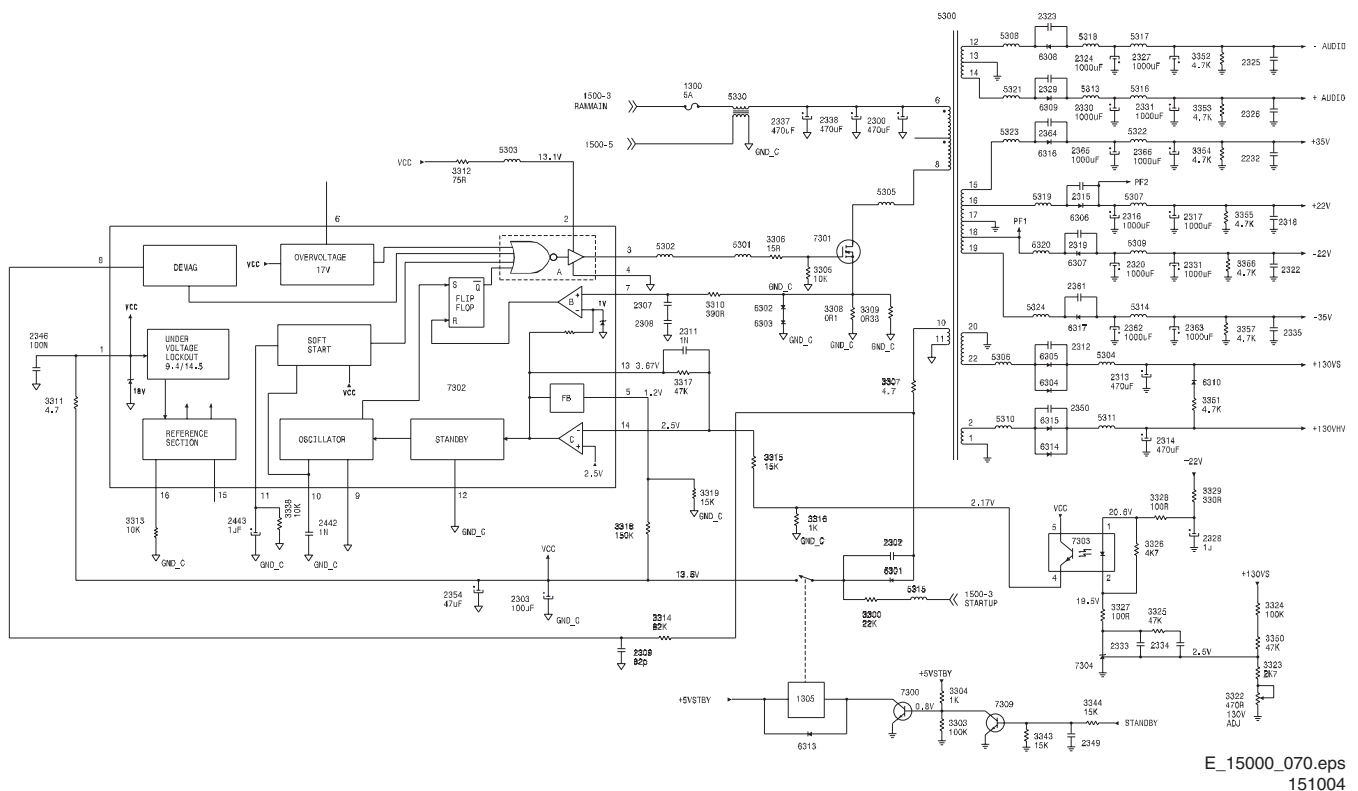


Figure 9-5 Main power supply circuit

The Main Power supply is located on the Large Signal panel. The Main B+ voltage from the Input panel is applied to the Main Power switching transistor, 7301, via Pins 6 and 8 of transformer 5300. This voltage is protected by fuse 1300 and filtered by choke 5330. The Standby line goes "low" when the set is turned "on". Transistor 7309 is turned "off", which turns 7300 "on". This turns relay 1305 "on". The Start-up voltage is applied to capacitor 2303 via resistor 3300. When 2303 charges to 14.5 Volts, the under-voltage lockout of 7302 connected to pin 1 is turned "on". Drive is output on pin 3 to the switching FET, 7301. This signal drives 5300 to produce the Main Power supply voltages. IC 7302 will continue to drive

5300 until the charges on capacitor 2303 drop below 9.4 Volts. The Under voltage Lockout of 7302 will then turn the output on pin 3 "off" until 2303 again charges to 14.5 Volts. After several start-up cycles, the operating voltage for 7302 is supplied by pin 10 of 5300.

Regulation is accomplished by monitoring the 130V_S supply via resistors 3324, 3350, 3323, and 3322. The feedback voltage is applied to the Shunt Regulator 7304, which drives the feedback opto-isolator 7303. The feedback voltage is applied to pin 14 of 7302. The voltage is fed to comparator "C" which is referenced to 2.5 Volts. This output of this comparator

sets the reference voltage for comparator "B", which is compared with the voltage on the source of 7301. This voltage is developed when 7301 turns "on", causing current to flow through resistors 3308 and 3309. If 7301 fails, Resistors 3308 and 3309 should be replaced. These are one percent tolerance resistors.

The Main Power supply produces: +130 V, +35 V, +22 V, -22 V, -35 Volt, a plus audio supply, and a minus audio supply. The Audio supply is a plus and minus 23 Volts. This supplies the digital audio amplifier located on the SSM (Small Signal Module).

When troubleshooting, notice that the Hot Ground for the Main Power supply is separated from the main Hot Ground on the AC Input Panel by Choke 5330. To ensure correct readings, use the Hot Ground in the Main power supply. If the power supply is overloaded or the operating voltage is missing, the voltage on pin 1 of the IC should be changing between 9.4 and 14.5 Volts. Each time the voltage reaches 14.5 Volts, drive should appear on pin 3 of the IC. If a voltage is present on pin 1 that is greater than 14.5 Volts and there is no drive on pin 3, the IC should be replaced. If drive is present on pin 3, check for drive on the Drain of 7301. If drive is present here, check for a short on the 130 Volt lines, a problem in the feedback circuit, or a problem with the operating voltage.

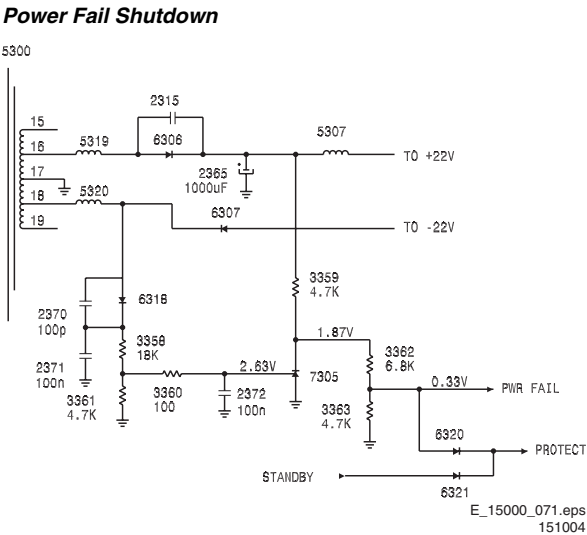


Figure 9-6 Power fail shutdown circuit

The +22 Volt supply is rectified by 6306 and the -22 Volt supply is rectified by 6307. The voltage on pin 18 of 5300 is monitored to detect a failure of the AC supply to the set. This circuit signals the microprocessor in the event that AC is removed from the set while it is turned "on". The voltage from pin 18 is rectified by 6318 and is applied to the Shunt Regulator 7305. Shunt Regulator 7305 is turned "on", keeping the Power Fail and Protect lines Low. When AC is removed while the set is "on", 7305 will turn "off" fast. This is because the filter capacitor for the input to 7305 is small. When 7305 turns "off", the Power Fail line goes "high" from the voltage on the +22 Volt line. The microprocessor will shut the set down while it still has voltage to operate.

9.3 Video

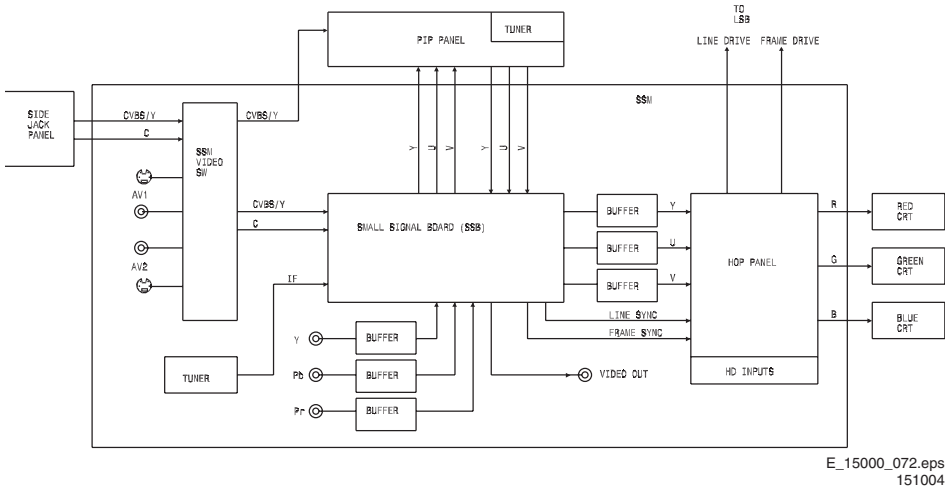


Figure 9-7 Video signal block diagram

- The HDR2004 is a multi-system PTV. It will accept:
- RF inputs from NTSC, PAL, or SECAM.
 - Composite or SVHS inputs from NTSC, PAL, or SECAM sources.
 - Component YPbPr inputs from 1fh NTSC, PAL, or SECAM.
 - YPbPr or RGB inputs from 480p, 576p, or 1080i sources.

Composite Video or SVHS YC from the Side Jack panel is fed to the video switch, located on the SSM (Small Signal Module). The SSM video switch selects between the composite inputs or SVHS inputs of the Side Jack panel or the inputs, located on the SSM. AV1 and AV2 inputs are located on the SSM. AV3 is

the Side Jack panel input. Selected composite video or YC is fed to the SSB (Small Signal Board), which plugs into the SSM. PAL, SECAM, or NTSC component video YPbPr is buffered and fed to the SSB. Selected composite video is fed to the PIP panel for the PIP window picture information. IF from the tuner located on the SSM is fed to the SSB. Composite video from the SSB, which is developed from the main Tuner, is fed to the Video Output jack on the SSM. Switching "on" the PIP panel selects between video from the Tuner on the PIP panel or selected Video from the SSM. YUV for the main picture from the SSB is fed to the PIP panel for the Picture in Picture information to be inserted. After insertion of the PIP information, the YUV signal is fed back to the SSB. A line

doubler circuit on the SSB, called the Feature Box, changes the interlaced 625 or 525 signal to a Progressive Scan 480p, 576p, 100Hz, or 120 Hz signal. This YUV signal is buffered and fed to the SSM where it is buffered before being fed to the HOP (High end Output Processor) panel. The HOP panel has the HD input jacks and DB15 RGB input. These inputs can be either 480p, 576p, or 1080i. The Video processing circuits on this panel perform the Colour, Tint, Brightness, and Contrast adjustments for the video. Signal selections between the signal from the SSB and the HD inputs are performed on the HOP panel. Sync processing and selection is also performed on the HOP panel. Red, Green, and Blue drive from the HOP panel is fed to the three CRT panels.

There are two sets of connectors, labelled YPbPr. The one on the SSM is for NTSC signal levels only. The one on the HOP is for 1080i, 576p, or 480p Progressive Scan only.

1fH Horizontal (Line) and Vertical (Frame) drive from the SSB is fed to the HOP via the SSM. The HOP panel selects between the sync from the SSB or the external HD inputs. These signals are processed on the HOP before being sent to the LSB.

9.3.1 Side Jack Panel

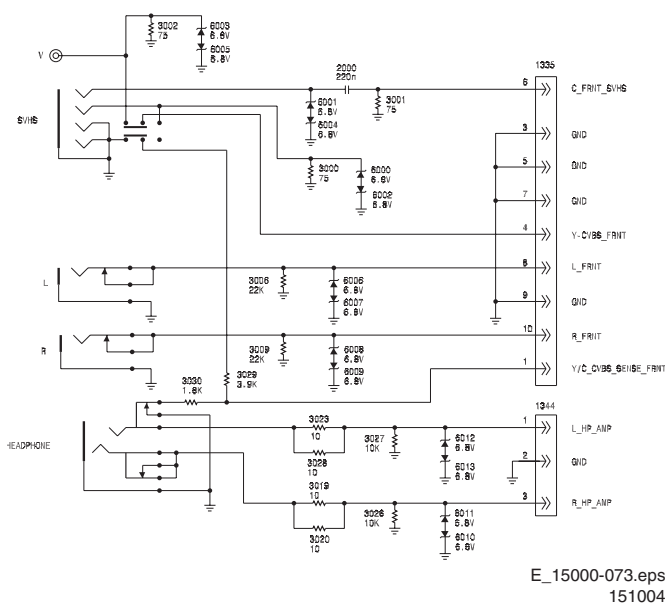


Figure 9-8 Side Jack circuit

The Side Jack panel has a composite Video and SVHS input. When there is a connector in the SVHS input, the composite input is muted. Resistors 3001, 3002, and 3000 on the Video, Y, and C lines provide 75-ohm impedance matching. If a cable is plugged into the SVHS connector, the line connecting resistor, 3029, to ground is removed causing the voltage on the Y/C_CVBS_SENSE_FRNT line to increase. This signals the microprocessor to switch the video switching circuits from composite video to YC In.

There is also a left and right channel audio input.

9.3.2 SSM composite Inputs

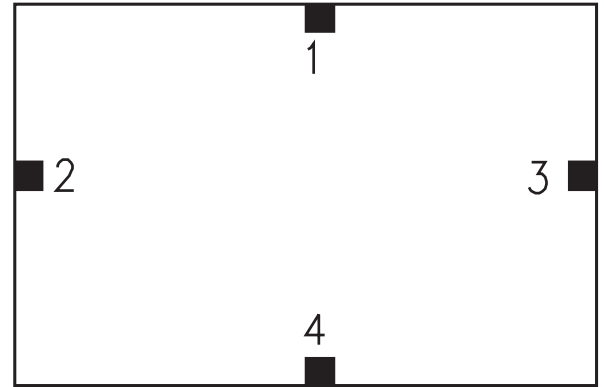


Figure 9-9 CVBS (composite) video inputs

The composite inputs are located on the SSM. There are two composite or SVHS inputs. A connector in the SVHS inputs will mute the composite inputs when the cable is plugged into the SVHS input. A connector in the SVHS inputs will cause a voltage change on the SEL-SVHS-RR_STATUS2 line. This will signal the microprocessor that something is connected to that input.

9.3.3 SSM Video Switching

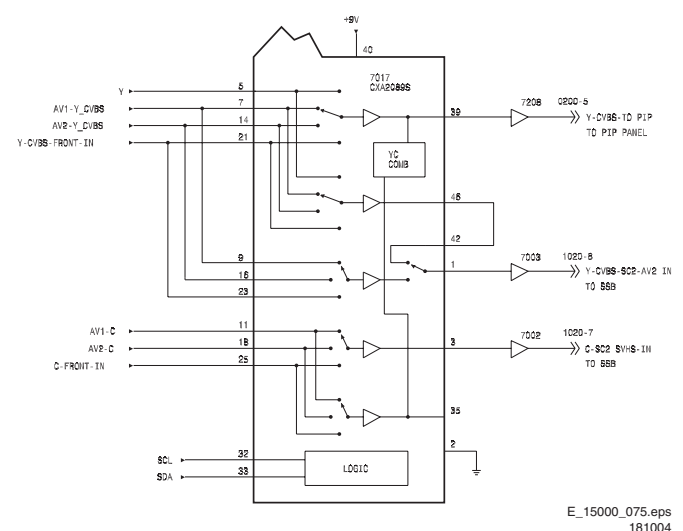


Figure 9-10 Video switching on SSM

IC 7017, located on the SSM, performs the Video and Audio switching for the composite inputs to the SSM. Selected Y or composite video is output on pin 1 before being fed to the SSB. Selected C is output on pin 3 and is fed to the SSB. Selected composite Video for the PIP window is output on pin 39 and fed to the PIP panel. If an SVHS source is selected for the PIP window, the YC is combined in 7017 and output on pin 39. IC 7017 is controlled by the microprocessor via the I2C SDA and SCL lines on pins 33 and 32.

9.3.4 SSB Video Switching

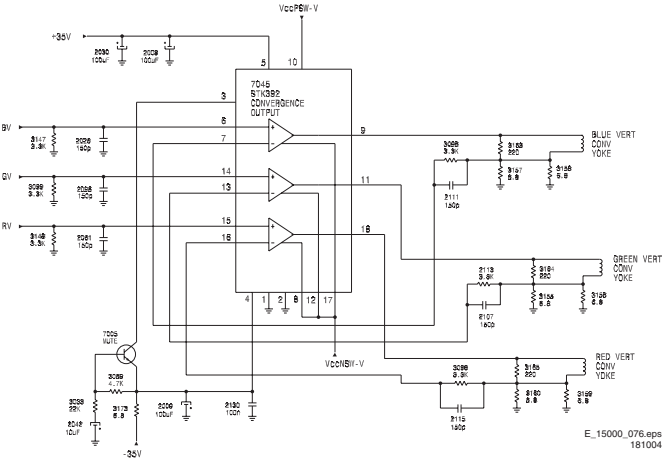


Figure 9-11 Video switching on SSB

Selected composite video from the SSM is fed to the HIP 7323, located on the SSB. IF from the main Tuner, located on the SSM, is fed to the SSB via connector 1020 to the switchable SAW filters 1408 and 1410. Refer to Figure "SAW filter switching circuit" for description of the SAW circuits. IF from the SAW filters is then fed to Pins 2 and 3 of 7323. composite Video is output on pin 10 and is buffered by 7411. Video is then fed to the switchable Sound traps. Refer to Figure "Sound trap switching circuit" for a description of the Sound Traps. Output from the Sound traps is buffered by 7322 and fed to pin 14 of 7323. IC 7323 then selects between the Tuner Video and selected composite Video or Luminance from the SSM on pin 20. If the signal selected is composite video, it is output on pin 26 and buffered by 7320. It is then fed to the Three Line Comb filter, 7307. Luminance is output on pin 14 and fed back to 7323 on pin 28. Chroma is output on pin 16 and fed to pin 29. The internal Chroma switch selects between the output of the Comb filter or external Chroma on pin 21. Selected Chroma is fed to the internal Demodulator, which outputs UV to the YUV switch. Selected Luminance is fed to the internal Delay and to the YUV switch.

The YUV switch selects between the YUV from the internal decoder and YUV from the YPbPr inputs located on the SSM. The microprocessor, located on the SSB, via the I2C buss, SDA-F and SCL-F, controls the HIP 7323. The YPbPr signals for NTSC are fed through buffer amplifiers on the SSM before being fed to the SSB. The selected YUV signal is output on Pins 49, 50, and 51 to the PIP/DW circuit via connector 1682.

The Y or Luminance signal is fed to the internal Sync Separator to develop Line and Frame sync. This sync is output on pin 60 and 61. pin 60 is the Line sync while pin 61 is the Frame sync. Line sync is also output on pin 59 to synchronize the Three Line Comb filter. When the Component input is selected by the YUV switch (a DVD player for example), the Y signal is selected by 7017 on the SSM and fed to pin 20 of 7323. The selected Y signal is then fed to the internal Sync Separator.

9.3.5 SAW Filter Switching

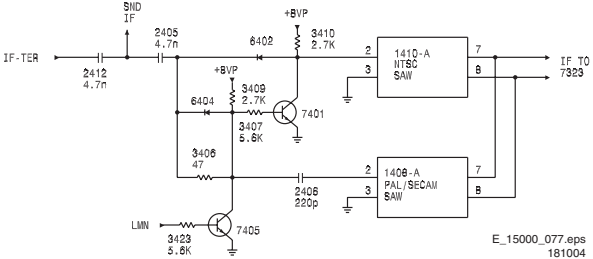


Figure 9-12 SAW filter switching circuit

The HDR2K3 AP set has a Multi-System tuning system. Since NTSC uses a 6 MHz bandwidth and PAL/SECAM uses an 8 MHz bandwidth, it is necessary to have separate SAW filters. The LMN line switches between PAL/SECAM and NTSC.

The LMN line goes "high" in the NTSC mode. Transistor 7405 turns "on" causing a short at the junction of resistor 3406 and capacitor 2406, removing the signal to the PAL/SECAM SAW filter (item 1408-A). Transistor 7401 is turned "off". Diode 6402 is forward biased via resistors 3410 and 3406, causing signal to be applied to pin 2 of 1410-A, and the NTSC SAW filter.

The LMN line goes "low" in the PAL/SECAM mode. Transistor 7405 turns "off", allowing signal to be applied to pin 2 of 1408-A, the PAL/SECAM SAW filter. Transistor 7401 is biased "on" via resistors 3409 and 3407. This prevents the signal from reaching pin 2 of 1410-A.

9.3.6 3D Comb Filter

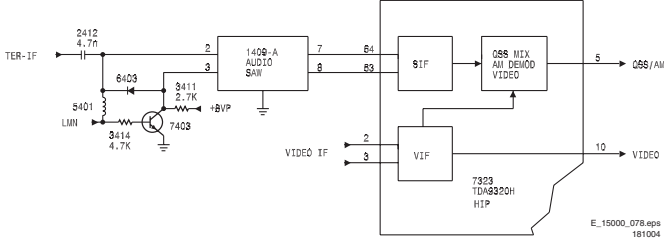


Figure 9-13 3D Comb Filter circuit

The 3D Comb Filter is used in NTSC only sets. This is a separate PC board, which plugs into the System board. The video signal is buffered by 7008 and 7009. Transistors 7010, 7015, 7016, and 7017 separate the Sync from the composite video. The Sync is fed to pin 76 of 7023. The composite video is buffered by 7011 and fed to a 6 MHz filter, 5006. This prevents any high frequency signals from causing any problems with the A/D conversion. The signal from 5006 is buffered by 7012 and fed to pin 88 of 7023. A full frame 3D YC separation is performed by the YCS circuit. The Y and C signals are buffered and fed to 6 MHz filters, 5003 and 5004. The YC signals are then fed back to the SSB via the SSM.

9.3.7 Sound Trap Switching

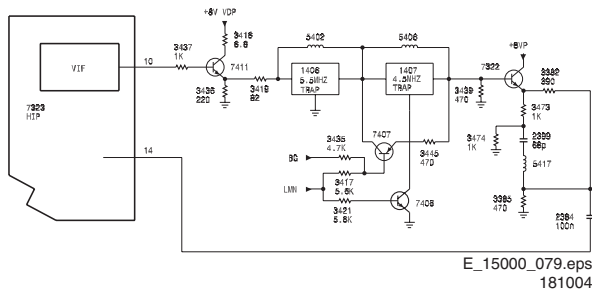


Figure 9-14 Sound trap switching circuit

Composite video is output on pin 10 of 7323 and buffered by transistor 7411. The signal is then applied to the 5.5 MHz trap, 1406. In the PAL/SECAM mode, the LMN line is Low, switching transistor 7407 "on", causing the signal to bypass 1407, the 4.5 MHz filter. The video is then buffered by transistor 7322 before being applied to pin 14 of 7323.

In the NTSC mode, the LMN line goes "high" and transistor 7406 turns "on", switching the 4.5 MHz SAW filter "on". Transistor 7407 is turned "off".

9.3.8 1fH Component Buffer Amplifiers

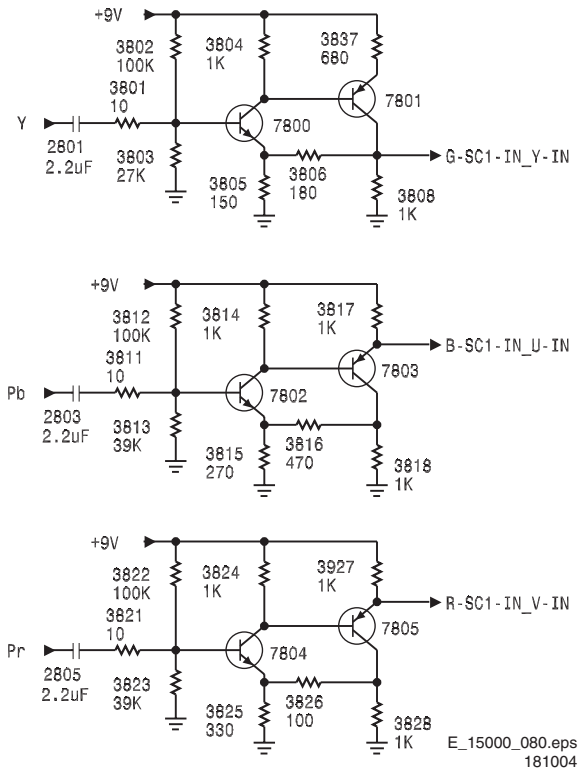


Figure 9-15 Component (YPbPr) buffers

The Y signal is buffered by transistors 7800 and 7801. This is an impedance matching and YPbPr to YUV circuit. This circuit does not invert the signal. The Pb signal is amplified by 7802 and buffered by 7803. The Pr signal is amplified by 7804 and buffered by 7805. The Pb and Pr signals are inverted.

9.3.9 Feature Box

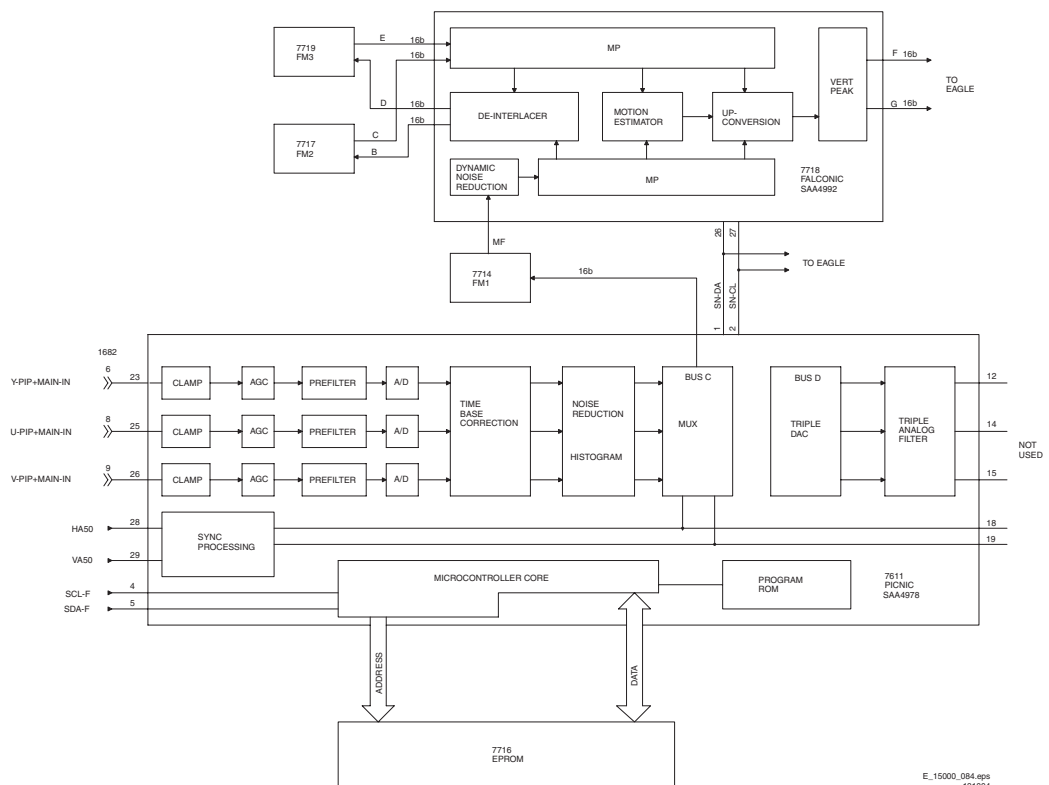


Figure 9-16 FBX block diagram

The circuit located on the SSB labelled the Feature Box performs the digitising, line doubling, and picture resizing. The main functions are performed by 7611, PICNIC (PICture improvement Network IC), and 7718, FALCONIC (Field And Line Converter and Noise reduction IC). The PICNIC IC performs the A/D Analogue-to-Digital conversion while the FALCONIC performs the Line Doubling. The FALCONIC also performs the Super Zoom, Panoramic, 4:3, Movie Expand 14:9, Movie Expand 16:9, 16:9 Subtitle, and Widescreen picture format conversions.

The YUV signal is fed to the PICNIC on Pins 23, 25, and 26. Horizontal and Vertical Sync is fed to the IC on Pins 28 and 29. The signals are fed to a Clamping circuit to limit the sampling range, an AGC, and a Prefilter circuit. It is then fed to a triple A/D converter, Time Base Corrector, Noise Reduction and Histogram circuit, and a Multiplexer. The Prefilter circuit limits the bandwidth of the signals to prevent aliasing. Aliasing shows up as artefacts in the picture, which is caused by under sampling. The Multiplexer combines the three data streams.

Data is output from the PICNIC to FM1 (Field Memory), IC 7714. The Fields are ready by 7718 to the Dynamic Noise Reduction circuit and to the processor. The De-Interlace writes the Field data to Field Memory 2, 7717 and Field Memory 2, 7719. The Processor then reads the Field memories to convert the signal to a progressive scan signal. A Motion Estimator processes moving blocks in the picture to produce a natural motion. The processors resize the picture to fit the format selected by the user. However the picture appears to be formatted, the output is always a 480P or 576P format. The Signal is output on two 16-bit busses, F and G, to the Eagle processor.

The FALCONIC is controlled by the microprocessor in the PICNIC. The PICNIC is controlled by the Fast clock and data line from the OTC. The PICNIC communicates with the FALCONIC and the Eagle via the SNERT interface. SNERT is a No parity Eight-bit Reception and Transmission interface. Horizontal and Vertical sync is output on Pins 18 and 19.

9.3.11 ATSC module

9.3.10 Eagle

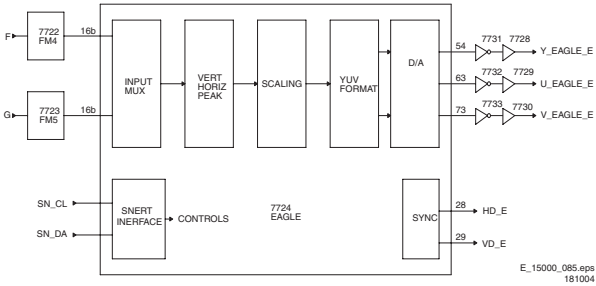


Figure 9-17 Eagle

The Eagle circuit provides Skin tone correction, Blue stretch, and Green Enhancement. In versions, equipped with the Pixel Plus feature, the Eagle IC performs the corrections for this mode.

The video frames are sent to FM4 and FM5, 7722 and 7723, memories from the FALCONIC IC. These memory ICs hold the frame data until they are required for processing by the Eagle. The Input Multiplexer selects which frame is to be read. The Vertical and Horizontal Peaking circuit sharpens the edges and adds blue pixels to enhance the picture. This circuit is part of the Pixel Plus processing.

The Scaling circuit scales the picture to a 100 Hz Digital Scan, 75 Hz Digital Scan, 576 progressive, or 480p progressive. If the input signal is from an NTSC source, only 75 Hz or 480p is available. The signal is converted to an analogue format and output on Pins 54, 63, and 73. Sync is output on Pins 28 and 29. The signal is then fed to a buffer circuit on the SSM and then to the HOP. The Eagle is controlled by the microprocessor in the PICNIC IC via the SNERT interface. The Eagle outputs an analogue YUV signal to the SSM (Small Signal Module).

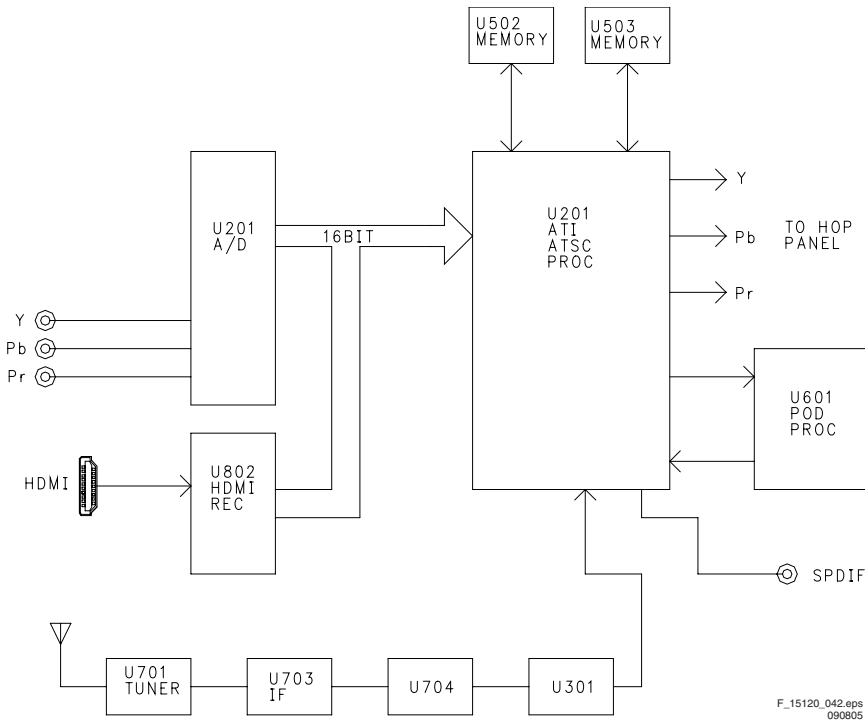


Figure 9-18 ATSC module

Component video from the YPbPr input is fed to U1201, switch. The YPbPr input on the ATSC module can be 480i, 480p, 720p, or 1080i. The A/D, U201 shares a 16bit bus with the HDMI receiver. Only the Philips version has the HDMI input. The Customer selected signal is fed to U201, the ATSC processor. The ATSC processor enhances and rescales the signals from these inputs. The ATSC tuner, U701, is fed to the IF section, U703, and then to filters U704 and U703. The ATSC processor can decode either 8VSB terrestrial, 64QAM, or 256QAM signals.

The output of the ATSC processor is fed to the POD processor IC. Most of the POD processing circuit is not present since this set does not have that feature. Two memory ICs, U502 and U503 stores the picture information while the video is being processed. The analog YPbPr 1080i signals are output to the HOP module.

9.3.12 SSM HOP Buffer Amplifiers

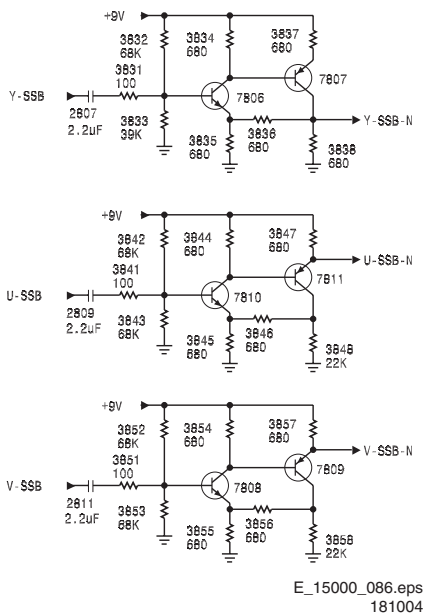


Figure 9-19 SSM YUV-bufferers

The Y-SSB, U-SSB, and V-SSB signals are fed to buffer amplifiers, located on the SSM. Transistors 7806 and 7807 buffer the Y signal. The U signal is buffered and inverted by transistors 7810 and 7811. The V signal is buffered and inverted by transistors 7808 and 7809. The YUV signal is then fed to the HOP panel via connector 1250.

9.3.13 HOP RGB/YUV Switching

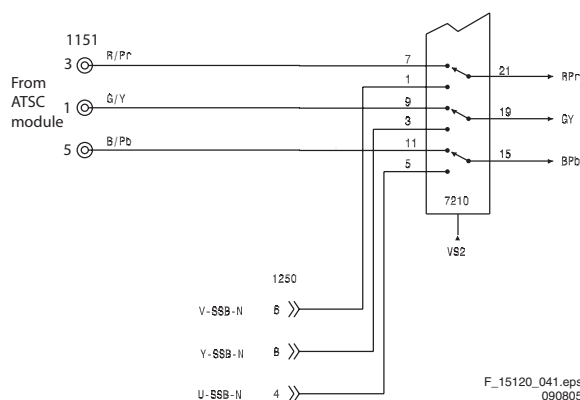


Figure 9-20 RGB/YUV switching

The input to the HOP panel can be RGB or YPbPr via the cinch connectors. The RGB or YPbPr signal can be either 480p, 720p progressive scan or 480i, 1080i interlaced.

IC7210 selects between the output of the ATSC panel and the YUV signal from the SSM.

The switch is controlled by the VS2 switching signal.

9.3.14 HOP Signal Processing

The Y/G, B/Pb, and R/Pr signals are fed to their respective sharpness controls. If the input is a YUV signal, the Y signal is fed to pin 28 of 7600. The U and V signals are fed to the Tint Control circuit and then to Pins 27 and 26 of 7600. If the input is RGB, the signals are fed to Pins 31, 32, and 30 of 7600 to an RGB to YUV converter. When RGB input is used, there is no Tint control available for the signal.

The input selector switch in 7600 selects between the YUV on Pins 28, 27, and 26 or the output of the internal RGB/YUV converter. The signal is fed to the RGB insertion circuits where the OSD is inserted. The signal is then fed to a White Point circuit and then to the Output Amplifier. The White Point and Output Amplifier have the Drive controls and Cut-off controls. Input from the ABL line on Pins 43 makes adjustments in the brightness levels to adjust for changes in beam current. The AKB pulses from the CRTs are fed to pin 44 to the Cathode Calibration circuit. The Cathode Calibration circuit adjusts the Cut-off levels of the CRTs to maintain the correct grey scale tracking. When the set is first turned "on", a calibration pulse is output on the RGB lines. The Cathode Calibration circuit monitors this pulse on the AKB line to set the Black level and the maximum drive voltage for the cathode. Once the Calibration has taken place, the Output Amplifiers switches to the RGB drive signal as the output.

Horizontal and Vertical Sync is fed to 7600 on Pins 23 and 24. IC 7600 processes the sync to provide the geometry for the picture. Horizontal drive is output to the sweep circuit on pin 8. Vertical drive is output on Pins 1 and 2. East West drive is output on pin 3. Sandcastle (SCO) is output on pin 9. Horizontal Feedback (HFB) from the sweep circuit is fed into the Phase Loop to phase correct the Horizontal drive.

IC 7600 is controlled by the microprocessor via the I2C buss on Pins 10 and 11. Geometry and Drive settings are stored in the Memory IC located on the HOP panel.

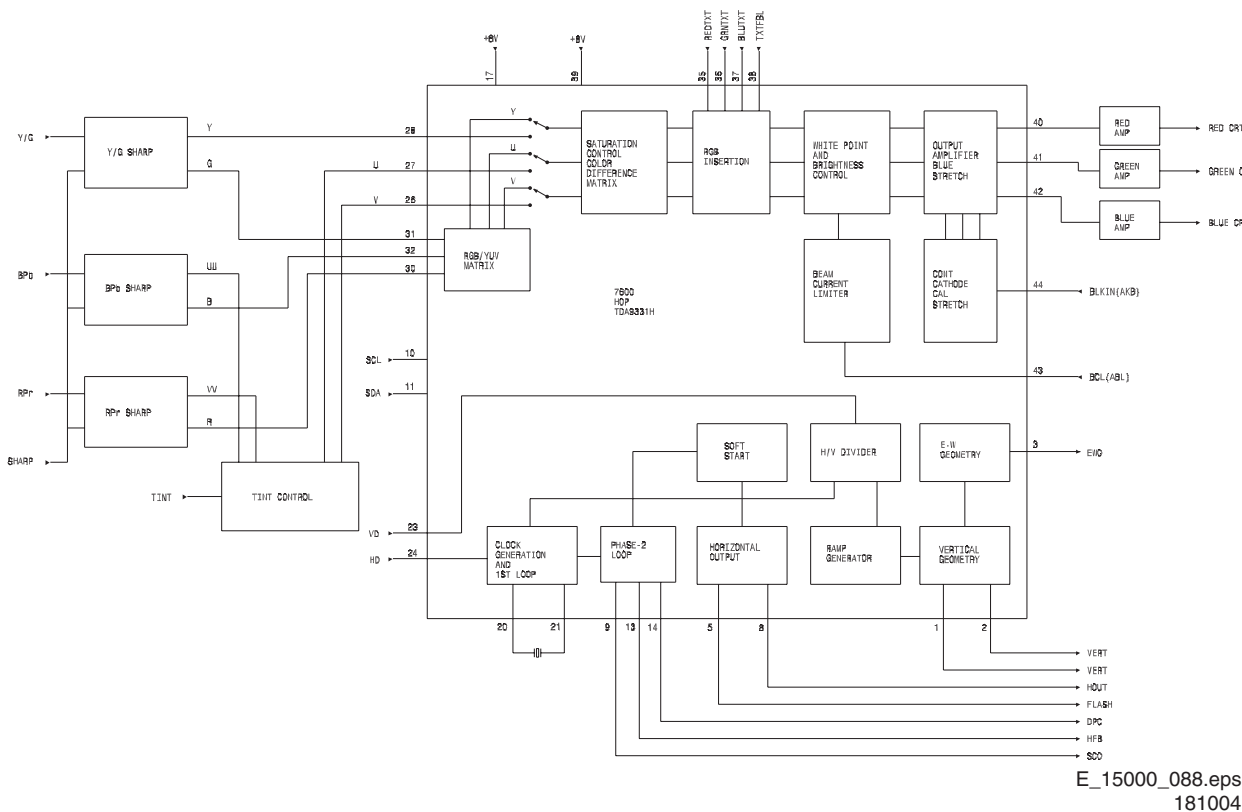


Figure 9-21 HOP signal processing

9.3.15 HOP Sharpness Control

signal, it is amplified by 7412 and buffered by 7413. If the input was a U signal, it is buffered by 7414.

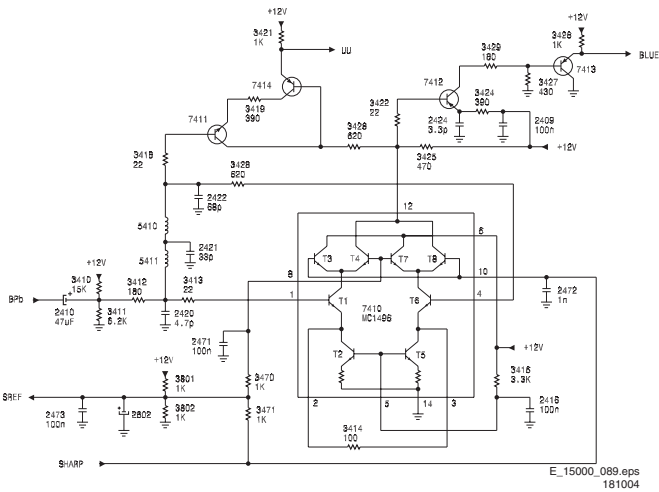


Figure 9-22 HOP sharpness control

The Sharpness controls for the YUV/RGB signals are located on the HOP panel. Since all three circuits are basically the same, only the Blue one will be discussed.

The Blue signal is fed to pin 1 of 7410. It is also fed to a Low Pass filter consisting of 5411 and 5410. This path is amplified by transistor 7411. The Low Pass filter blocks the higher frequencies as well as shifting the phase of the signal. The output of the Low Pass filter is also fed to pin 4 of 7410. The mixing of these two-phase shifted signals only allows the High frequency component to be amplified and output on pin 12. The gain of the High frequency component is controlled by the Sharpness voltage, which is applied to Pins 8 and 10. The two signals are combined at pin 12 of the IC. If the input was a Blue

9.3.16 HOP Tint Control

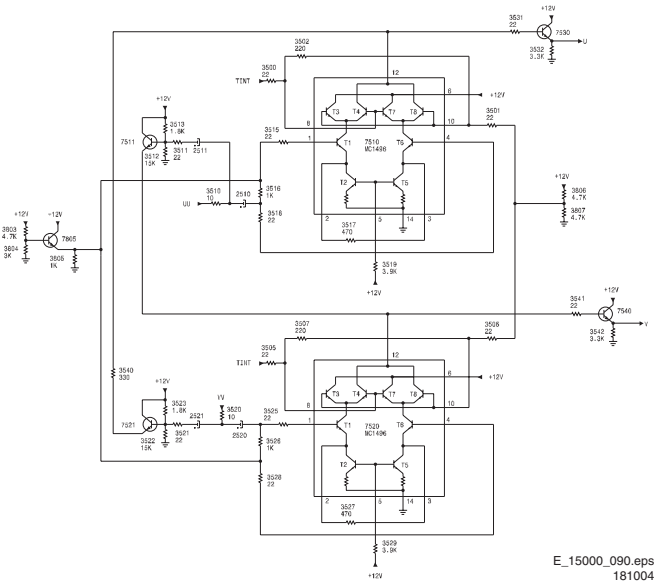


Figure 9-23 HOP tint control

IC 7510 amplifies the U signal while 7520 amplifies the V signal. The Tint control voltage changes the balance between the U and V signals to change, causing the tint of the picture to change.

9.3.17 HOP RGB Amplifiers

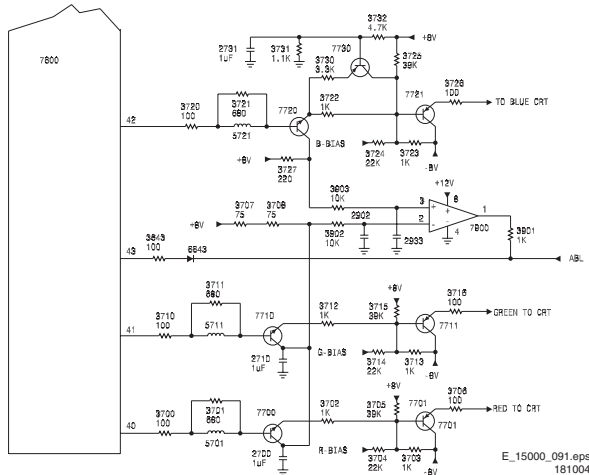


Figure 9-24 HOP RGB amplifiers

The output of 7600 is fed to the RGB amplifiers before being fed to the CRTs. Transistors 7720 and 7721 buffer the Blue output on pin 42. The B-BIAS control voltage controls the gain of this circuit. Transistor 7730 provides an additional voltage gain for the signal.

Items 7710 and 7711 buffer the Green output from pin 41 of 7600. The G-BIAS controls the gain of the circuit.

The Red output from pin 40 of 7600 is buffered by 7700 and 7701. The R-BIAS controls the gain of the circuit.

The drive of the Red and Green outputs is compared with the Blue drive by 7900-A. The difference signal is fed back to 7600 via the ABL line. If the Blue CRT is driven harder than the Green and Red CRTs, the inverting input on pin 2 will become greater than the non-inverting input on pin 3, resulting in the output on pin 1 to go Low. The ABL line will go Low, causing 7600 to reduce the drive to all of the CRTs. This circuit prevents the Blue tube from being over-driven.

9.3.18 HOP Analogue Control

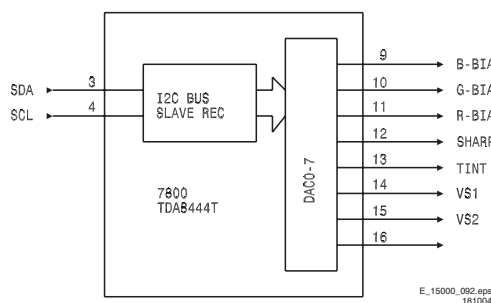


Figure 9-25 IC7800 HOP analogue control

IC 7800 develops the analogue control voltage for the HOP panel. The I2C bus controls the IC. This IC is located on the HOP panel.

9.3.19 CRT Panel

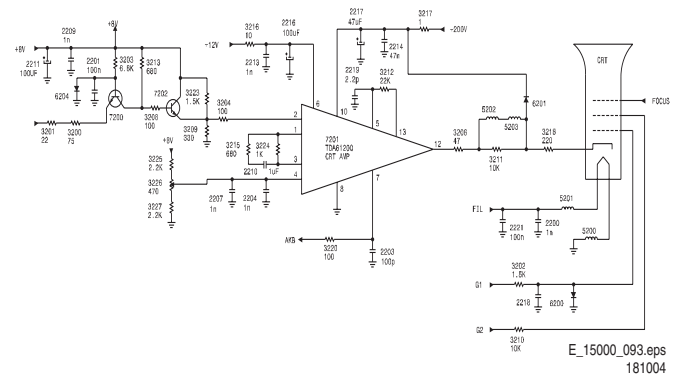


Figure 9-26 RGB amplifiers on CRT panel

The Red, Green, and Blue signals from the HOP panel are fed to their respective CRT panel. The signal is fed to the emitter of 7200 and then to 7202 on each panel. The output of 7202 is fed to pin 2 of 7201, which drives the cathode of the CRT. The AKB drive is output on pin 7 and fed to the HOP panel.

9.3.20 HOP Sync Switching and Processing

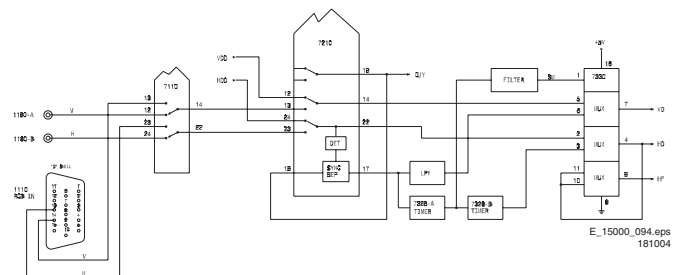


Figure 9-27 HOP sync processing

Horizontal and Vertical Sync from the SSB is fed to the HOP panel via the SSM panel, when NTSC is used as the signal source. In sets with the D Shell RGB input, 7110 switches between the Vertical and Horizontal Sync on the cinch connectors or the Sync from Pins 13 and 14 of the D Shell connector. IC 7210 selects between the output of 7110 and the Sync from the SSB. For separate Horizontal and Vertical Sync, the output of 7210 is fed to the multiplexer IC 7330, which is used as a switch. In the case of Sync on Y or Sync on Green, pin 19 of 7210 is fed to pin 18 of 7210 to a Sync Separator. If separate Horizontal Sync is present, the internal detector in 7210 turns the Sync Separator "off". The Sync output on pin 17 is fed to a Low Pass Filter, which separates the Vertical Sync. The Timer IC 7328 detects the Horizontal Sync and feeds it to 7330. The detected Horizontal Sync from 7328 is fed to pin 1 of 7330 to switch the IC to the pin 6 and 3 inputs.

9.3.21 Line Output

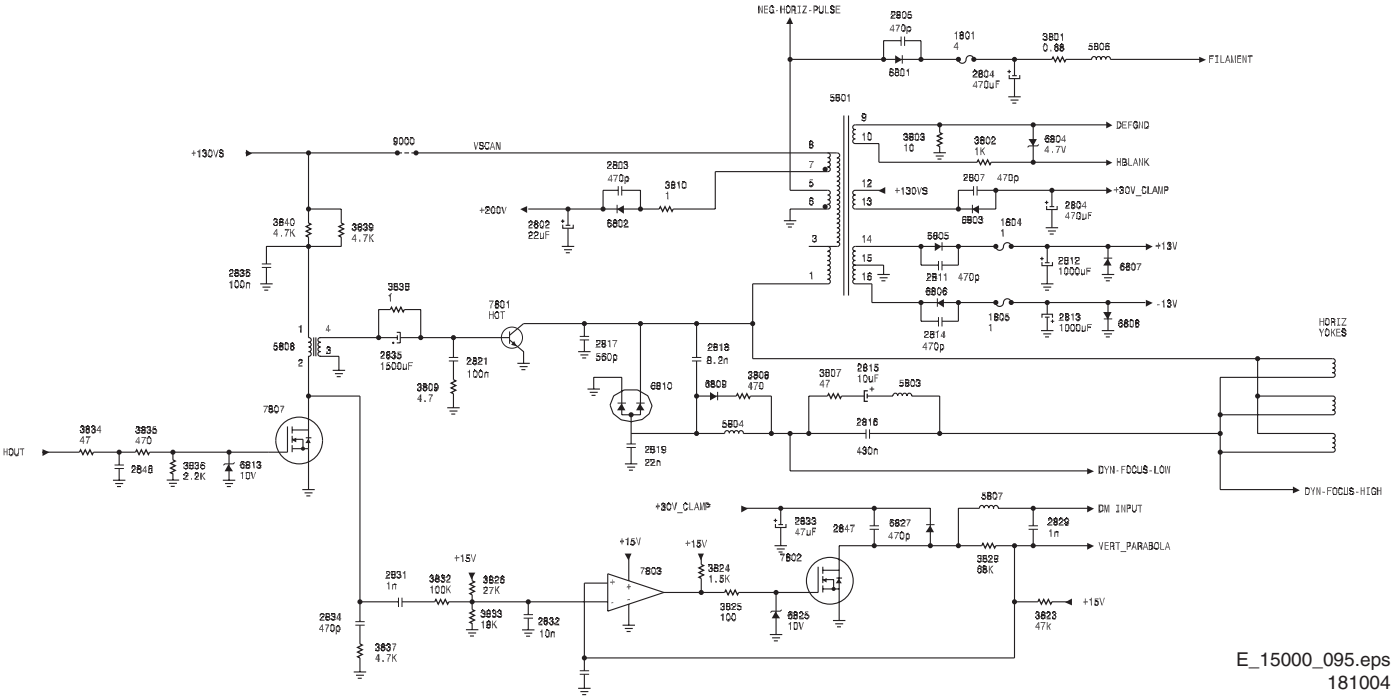


Figure 9-28 Line output circuit

Horizontal drive from the HOP panel is fed to 7807 on the Large Signal panel. Transistor 7807 drives the Horizontal Output Transistor 7801, which drives the Yokes and the Horizontal Output Transformer 5801. Transformer 5801 produces plus and minus 13-Volt supplies for the Vertical Output circuit. It also produces a 200-Volt source and Filament voltage for the CRT panels. The output of 7807 also drives 7803 and 7802, which drives the Dynamic Focus circuit.

9.3.22 Frame Amplifier

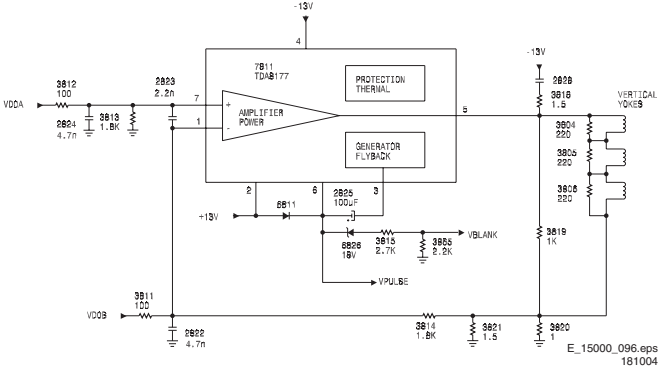


Figure 9-29 Frame circuit

The Vertical drive from the HOP panel drives the Vertical Output IC 7811. This IC is located on the Large Signal panel. Drive is fed to pin 7 and is output on pin 5 to drive the three Vertical Yokes. This IC is powered by the plus and minus 13-Volt supplies from the Horizontal Output circuit. A Vertical pulse on pin 6 is fed to the sweep failure detection circuit. If there is a failure in the Horizontal or Vertical sweep, the High Voltage will be shut down.

9.3.23 High Voltage Circuit

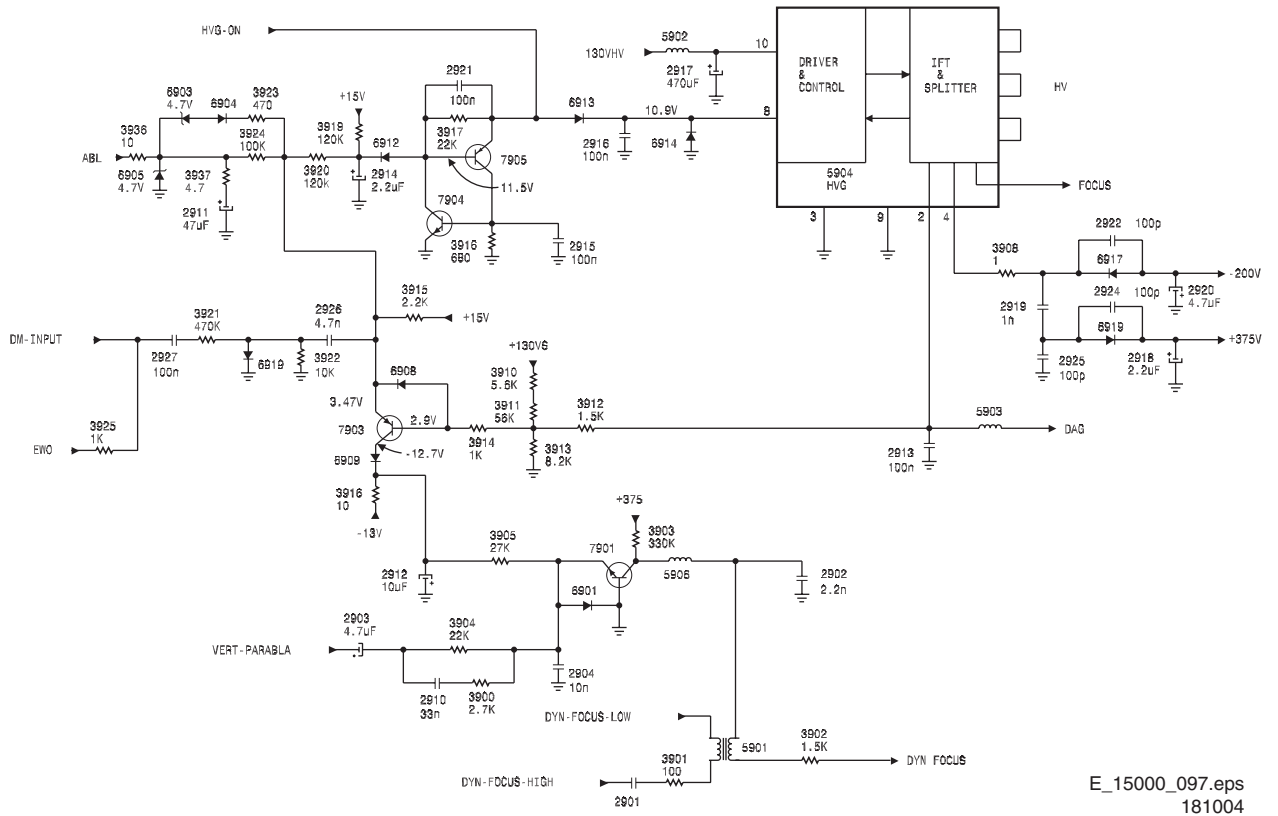


Figure 9-30 High voltage circuit

The High Voltage module is an integrated High Voltage supply with its own switching power supply. When the set is turned "on", 11.5 volts from the Sweep Failure detection circuit is fed to diode 6913 and to pin 8 of the High Voltage module. A supply voltage of 130 volts is also fed to pin 10 of the module. The Module then outputs High voltage to the three CRTs. It also outputs Focus voltage to the Focus G2 block. Output on pin 4 is rectified by 6917 to produce a negative 200 Volt source for the CRT G1 voltage. The voltage is also rectified by 6919 to

produce a 375 Volt source for the Dynamic Focus drive. The DAG line along with the output on pin 2 is connected to 7903 to produce the ABL voltage for the set. If an over-current condition should develop with the drive, the ABL voltage will go Low, turning 7905 "on", latching 7904, which will remove drive to pin 8 of the HVG. This will cause the High voltage to shut "off". Vertical Parabola drive is fed to 7901 to produce the Vertical component of the Dynamic Focus drive.

9.3.24 Shutdown

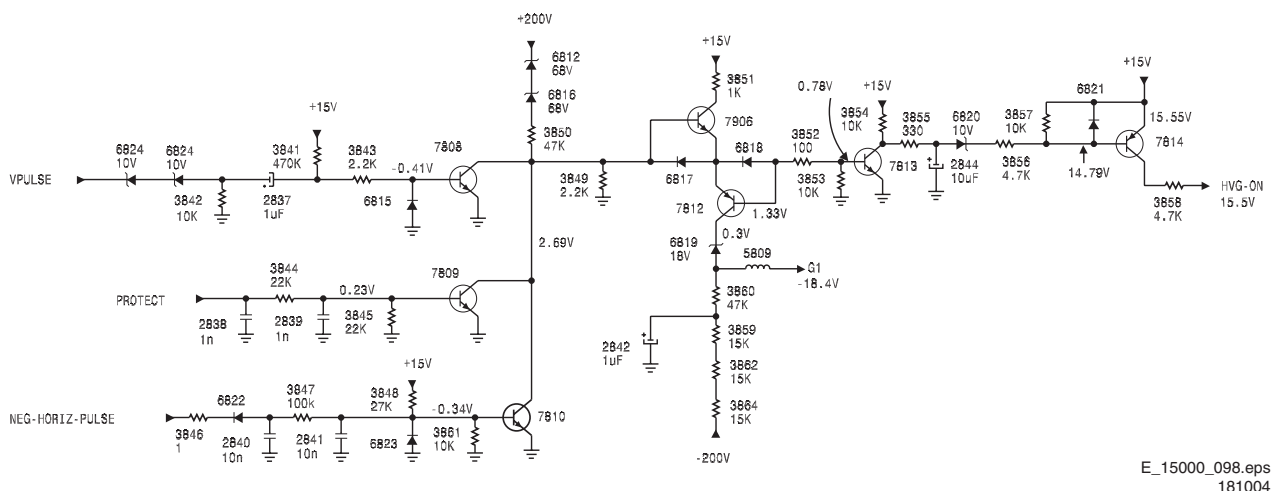


Figure 9-31 Blanking and HV-protection circuit

The Shutdown circuit will shut the High voltage "off" if the Horizontal or Vertical Sweep should fail. It will also shut the High voltage "off" if the Power Fail line goes "high" or the +200 Volt source should fail.

The Vertical pulse is fed to zener diodes 6824 and 6814, which keeps capacitor 2837 charged. This pulse is rectified by 6815 to keep the base of 7808 at a negative voltage. This keeps the

transistor turned "off". In the same manner, the Negative Horizontal pulses keep the base of 7810 at a negative voltage to keep it turned "off". The Protect line is normally Low, keeping 7809 turned "off". The +200-volt source is fed through zener diodes 6812 and 6816, resistor 3850, the base-emitter of 7906, the base emitter of 7812 to keep transistor 7813 turned "on". This turns transistor 7814 "on", which switches the "on" voltage to the High Voltage module. The conduction of 7812 keeps the voltage on the G1 line at approximately - 18 Volts, which turns the CRTs "on". If the Vertical Pulse should fail, transistor 7808 will turn "on", which will turn 7906, 7812, 7813, and 7814 "off". This will turn the HVG module "off". In addition when 7812 turns "off", the G1 voltage will go to -200 Volts, blanking the CRTs. The same sequence will occur if Horizontal should fail, the Protect line should go "high", or the +200 Volt source should fail.

9.3.25 Convergence

The Convergence system is split into two sections. The convergence signal processor is located on the ACS (Auto Convergence System) module. The output amplifiers are located on the SSM (Small Signal Module).

Convergence processor

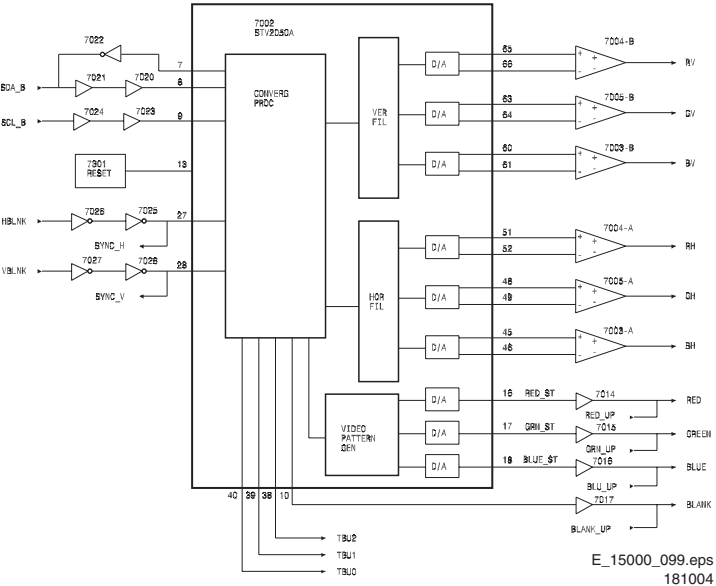


Figure 9-32 Convergence signal processor

The Convergence data is stored in the EEPROM, 7000. The microprocessor located on the ASC module reads 1,971 bytes of data from 7000 and writes it to the Convergence Processor, 7002. Horizontal sync is inverted by 7026, buffered by 7025, and fed to pin 27 of 7002. Vertical sync is inverted by 7027, buffered by 7028, and fed to pin 28 of 7002. The data is processed to produce the desired convergence correction waveforms, which are output on six DACs. During the convergence adjustment procedure, a 180-point alignment grid is output on Pins 16, 17, and 18. This signal is mixed with the OSD to be displayed on the screen. In the 4x3 aspect ratio set, there are three sets of convergence data. In sets with a 16x9 aspect ratio, there are two sets of convergence data. The set will require convergence alignment for each set of convergence data. The correct mode must be selected and the signal for that mode must be applied to the set during the convergence alignment. The output of the DACs is fed to six op-amps before being fed to the Power Amplifiers located on the SSM. When screen centring is being performed, it is necessary to disable the convergence drive waveform. A High on pin 77 turns transistor 7029 "on", turning 7038 "on", which turns transistors 7032, 7033, 7030, 7031, 7034, and 7035 "on". This mutes the correction drive signal to the Power Amplifiers.

Convergence Horizontal Output

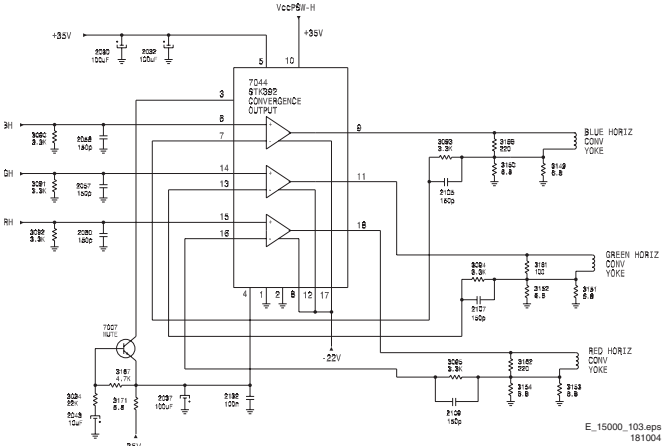


Figure 9-33 Convergence horizontal output circuit

IC 7044 amplifies the Horizontal convergence waveforms. The correction waveforms are fed to the IC on Pins 6, 14, and 15. They are output to the Convergence Yokes on Pins 9, 11, and 18. The IC is powered by four supply inputs. A +35 Volt supply is fed to pin 5, a -35 Volt supply is fed to pin 4, and a -22 Volt supply is fed to pin 8, 12, and 17. The supply fed to pin 10 is normally a +22 Volt supply. During signal peak drives, the voltage on pin 10 is increased to +35 Volts. Feedback sense voltage is developed across the 6.8 ohm resistors on the return side of each yoke. Transistor 7007 is part of a Soft Start circuit. When the set is turned "on", Transistor 7007 turns "on" until capacitor 2043 is fully charged. While 7007 is being turned "on", a negative voltage is placed on pin 3 muting the output of the IC. A 220-ohm snubber resistor is across each of the yoke windings. This resistor will overheat if the unit is operated with the Convergence Yokes unplugged.

Convergence Vertical Output

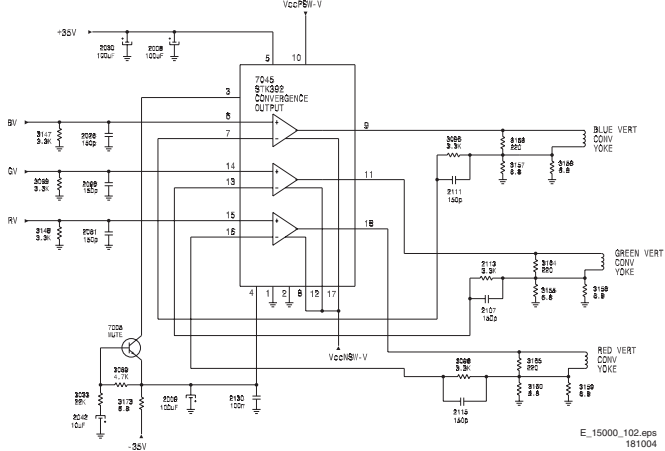


Figure 9-34 Convergence vertical output circuit

IC 7045 amplifies the Vertical convergence waveforms. The correction waveforms are fed to the IC on Pins 6, 14, and 15. Output is on Pins 9, 11, and 18 to the Vertical Convergence yokes. Feedback sense voltage is developed across the 6.8-ohm resistors on the return side of each yoke. A Snubber resistor is across each yoke. These resistors will overheat if the circuit is operated without the Convergence Yokes being plugged in. The IC is powered by four supplies, +35 Volt, -35 Volt, VccPSW-V, and VCCNSW-V. The VccPSW-V supply is normally at +22 volts. The BV_OUT, GV_OUT, and RV_OUT lines are connected to a Vertical Power up circuit, which senses the drive to the Convergence Yokes. If the drive to the yokes reaches 10 to 12 Volts, the Vertical Power up circuit will switch the VccPSW-V supply to +35 Volts. If the Vertical Power

up circuit senses a negative 10 to 12 volt drive to the Vertical Convergence yokes, the VccNSW-V supply will switch from -22 Volts to -35 Volts. As with the Horizontal drive circuit, 7005 mutes the output of 7045 during power up.

9.4 Audio

9.4.1 Overall Audio Block

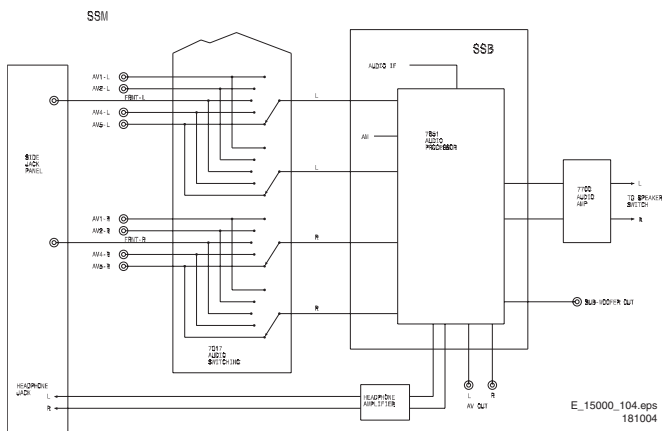


Figure 9-35 Overall Audio Block

IC 7017, located on the SSM, selects Left and Right channels of audio and feeds them to the Audio Processor, 7651, located on the SSB panel. The Audio processor selects between the two audio channels from the SSM or internally decoded audio from selected audio IF on the SSB. The Processor outputs line level Left and Right monitor audio, and line level Sub Woofer out. These jacks are located on the SSM. It also outputs Left and Right audio to the Audio Amplifier, located on the SSM.

9.4.3 Audio Amplifier

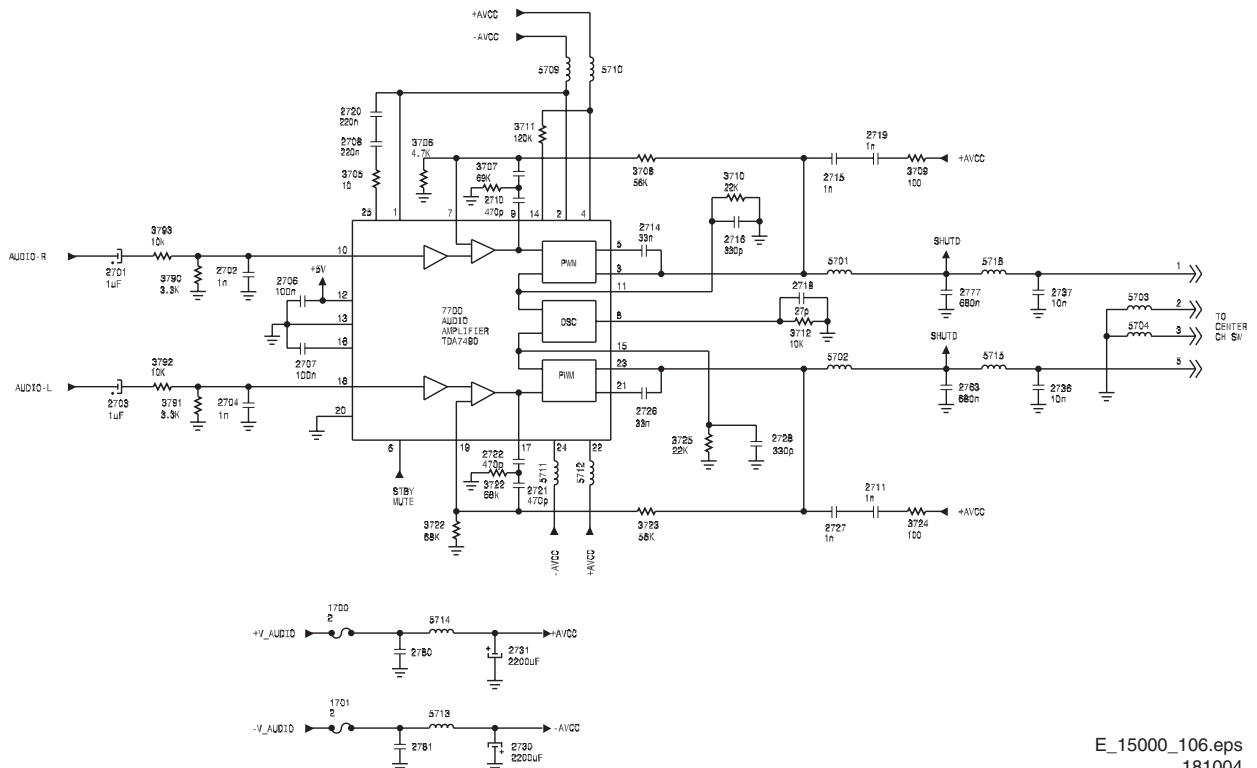


Figure 9-37 Audio Amplifier

Left and Right audio is output to a Headphone Amplifier located on the SSM. The output of the Headphone Amplifier is fed to the Side Jack Panel.

9.4.2 Audio Processor

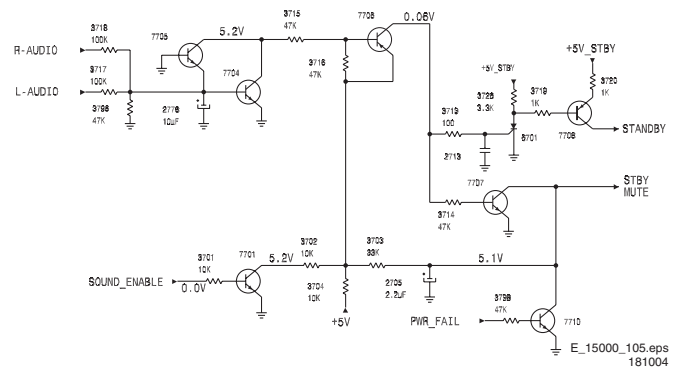


Figure 9-36 Audio Processor

Audio processing is performed by 7651, which is located on the SSB. QSS Audio IF is fed to pin 50 of the IC. If the RF signal source is SECAM, the AM audio is fed to pin 47. Selected AV audio is fed to Pins 42, 41, 45, and 44. The Demodulator detects and decodes the signal before feeding it to the processing section. The selected AV audio is fed to two A/D converters and then to the processing section. The Sound processing includes Volume, Equalizer, balance, Loudness, Incredible Sound, and Virtual Dolby. After processing, the Audio signal is fed to six D/A converters. The Main Speaker Audio is output on Pins 20 and 21. Headphone Audio is output on Pins 17 and 18 before being fed to an amplifier on the SSM. AV out Audio is output on Pins 25 and 26.

The Audio Amplifier is located on the SSM. The output power for the Audio Amplifier is 10 Watts per channel for the Basic and Basic Plus versions. The Core Version has an output of 15 Watts per channel. IC 7700 is the Audio output IC. This is a class D amplifier. Left and Right Audio from the SSB is fed to Pins 10 and 18 of the IC. The output stages are basically switch mode circuits, driven by the audio input signal. The frequency of the output is keep at 200 kHz by an internal 200 kHz oscillator. The pulse width of the output is determined by the signal level of the input signal. The Right Channel pulse width signal is output on pin 3. The output is filtered by 5701, 2777, 2776, 2717, 5716, and 2737. The amplified audio is output on connection 1349. In the same manner, Left audio is output on pin 23. The IC is powered by +19 and -19 Volt supplies. The supplies are protected by fuses 1700 and 1701. The Supply voltage for the Core version is 4 volts higher than the Basic and Basic plus version. The extra supply voltage is needed to produce the additional 5 Watts per channel output.

Muting and volume control for the audio takes place in the Audio Signal processor on the SSB. The STBY MUTE line on pin 6 goes to 2.5 Volts to mute the audio when the set is turned "on" or "off". This line goes "low" to place the amplifier in a Standby mode if a DC voltage is detected on the Audio Output lines.

9.4.4 Shutdown Mute

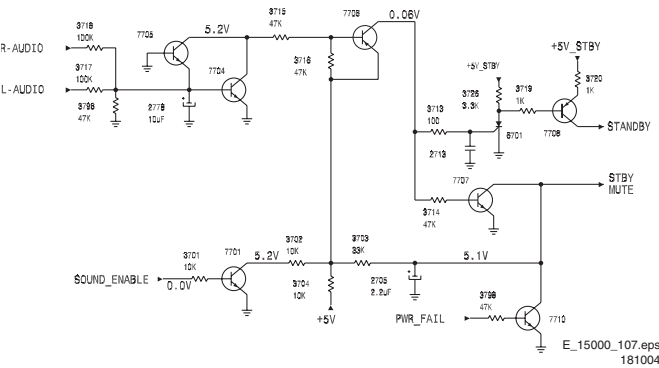


Figure 9-38 Shutdown Mute

The Audio Amplifier will be placed in a Standby mode and the set will shut down if a DC voltage is detected on the Speaker Output lines. The Left and Right audio output lines are connected to the base of 7704 and the emitter of 7705 via resistors 3718 and 3717. Filter capacitor 2778 filters out the AC component of the waveform. If the DC voltage goes positive, 7704 will turn "on". If the voltage goes negative, 7705 will turn "on". This turns 7706 "on" which turns 7707 "on". This causes the Front Detect line to go Low, preventing the microprocessor from receiving any commands. It also turns SCR 6701 "on", turning transistor 7708 "on", causing the Standby line to go "high". If this SCR is turned "on", it will be necessary to remove power from the set to reset the circuit. This will turn the set "off". Transistor 7707 also turns "on", causing the Standby-Mute line to go Low. This places the Audio Output IC in a Standby mode.

9.5 Control/OSD

9.5.1 Microprocessor

The HDR2K3 has two microprocessors. The microprocessor, OTC, located on the SSB, 7001, is the main processor for the set. When Power is applied to the set and the Mains switch is turned "on", the processor monitors the Keyboard and IR receiver located on the Sensor Board. This IC controls the functions on the SSB, Video switching on the SSM, and the PIP/DW panel. A ROM located inside the IC has the Startup program. The main program to run the processors is located in

If the Power Fail line should go "high", 7710 will turn "on", causing the Standby-Mute line to go Low.

9.4.5 Centre Channel Amp Switch

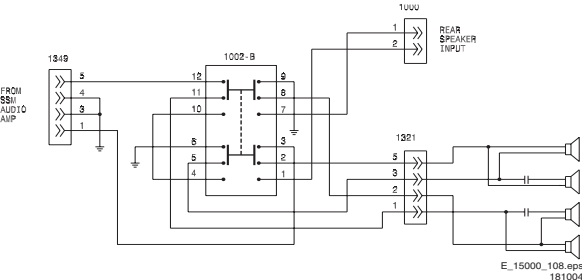


Figure 9-39 Centre Channel Amp Switch

The Core versions have a Centre Channel amp switch, located on the rear of the set. The Output of the Audio Amplifier on the Basic and Basic Plus versions are fed directly to the speakers. In the Core sets, the Output is fed to the Centre Channel amp switch before being fed to the speakers. When the Centre Channel amp switch is placed in the External position, the Left and Right speakers in the set are placed in series with the external speaker input. In cases where the Customer has a separate sound system, this switch allows the speakers in the set to be used as the centre output.

9.4.6 Headphone Amplifier

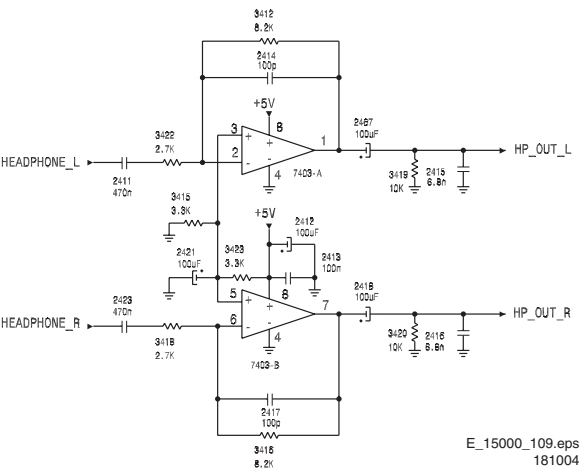


Figure 9-40 Headphone Amplifier

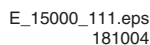
IC 7403 is the Amplifier for the Headphone output. The volume control for the Headphone output is on the Audio Signal processor located on the SSB. The Headphone Amplifier is located on the SSM. The output of the amplifier on Pins 1 and 7 is sent to the Headphone Jack, located on the Side Jack panel.

the Program Flash RAM, 7006. IC 7012 is used by the OTC for temporary storage. IC 7007 is used to store data for Teletext. There are three I2C busses, a fast bus, F, a slow bus, S, and a TX bus to communicate with the microprocessor on the ACS module. The NVM 7011 stores settings such as customer preferences, OPT numbers, Tuner settings, and Error codes. composite video is fed to pin 5 for decoding Teletext and Closed Caption information. In the Standby mode, Power is not applied to the processor on the ACS module.



The IR Receiver, 6105, receives commands from the remote control.

9.5.2 Front Control Panel



The Front Control panel has the Power LED, Keyboard, IR Receiver, and Light Sensor. The Keyboard is a resistor ladder. The voltage changes value depending on which selection is made. The voltage on this line will be 3.3 volts if no buttons are selected. The two-colour LED indicates the status of the set. In the Standby mode, the ON_OFF_LED line is High and the +9-volt source is turned "off". In this case, the RED LED is lit. When the set is turned "on", the +9-volt source is switched "on", turning the Green section of the LED "on". The LED then turns Yellow. When the set is fully "on", the ON_OFF_LED line goes Low, turning the Red LED "off". The indicator is now Green.

E_15000_112.eps
181004

The Light Sensor, 6104, is amplified by two op amps in 7000. This circuit senses the ambient light and outputs a voltage on pin 7 of 7000. This voltage is fed to the OTC, which makes changes in the picture brightness to compensate for changes in the ambient light.

The Light Sensor, 6104, is amplified by two op amps in 7000. This circuit senses the ambient light and outputs a voltage on pin 7 of 7000. This voltage is fed to the OTC, which makes changes in the picture brightness to compensate for changes in the ambient light.

9.5.4 I2C interconnect

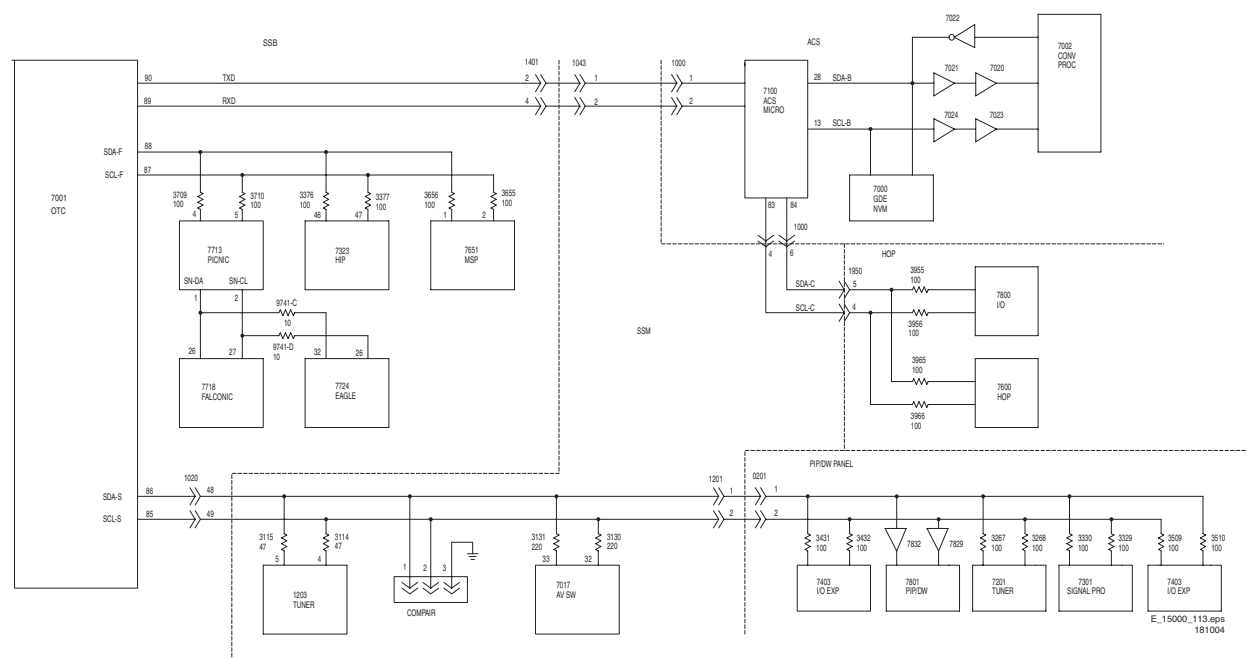


Figure 9-44 I2C interconnect

The OTC communicates with the set via three I2C busses. SDA-F, Fast bus communicates with the PICNIC, HIP, and MSP (Audio Processor). The SN-DA line from the PICNIC communicates with the FALCONIC and EAGLE. The SDA-S Slow bus communicates with the Tuner, AV Switch, and ComPair connector on the SSM. It also communicates with the PIP-DW board.

The TXD and RXD lines communicate with the microprocessor on the ACS module. The microprocessor on the ACS communicates with the GDE NVM, Convergence Processor, and the HOP panel.

In the SAM (Service Alignment Mode), the menus are generated by 7001, except those in the GDE SAM. The GDE SAM menus are generated by IC 7100 on the ACS module.

The Convergence Alignment menus are generated by 7100, while the Convergence Alignment grid is generated by IC 7002. The OSD signals from 7001 on the SSB are fed to the SSM (Small Signal Module) via connector 1002 and 1043. The OSD signals from the Convergence Processor, 7002, are buffered by 7014 through 7017 before being mixed with the signals from the ACS microprocessor, 7100. They are fed to the SSM via connector 1000. The signals from the ACS and SSB are mixed and fed to the HOP panel and HOP IC, 7600, via connector 1610. The HOP IC, 7600, mixes the OSD signal with the video signal before feeding it to the CRTs.

9.5.5 On-Screen Display

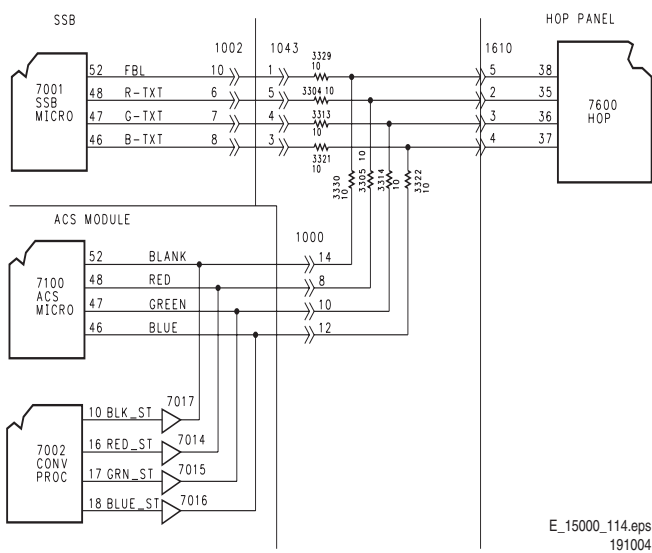


Figure 9-45 On-Screen Display

Signal for the OSD (On-Screen Display) comes from three different sources. IC 7001, which is located on the SSB (Small Signal Board), generates all of the customer menus except for Convergence.

9.6 List of Abbreviations

16:9-ARFRONT	16:9 aspect ratio input from side jack panel	DAC-HOP	Digital analogue converter HOP IC
50Hz/60Hz	50Hz/60Hz AC frequency	DC_PROT/	DC protection (for supply)
6-CHANNEL DAC	6-Channel DAC	AUDIO_SR	Filament supply voltage
ACS	Auto Convergence System	DC-filament	DC protection
AFC	Automatic Frequency Control	DC-PROT	Detect signal side I/O (side jack panel) input
AGC	Automatic Gain Control	DETECT	Directions For Use: owner's manual
AM-FM	Amplitude Modulation/Frequency Modulation	DFU	Digital In 1
AM-SOUND	Amplitude modulated sound signal	DIG_IN1	Digital In 2
AP	Asia Pacific	DIG_IN2	Digital in/out
AR	Aspect Ratio: 4 by 3 or 16 by 9	DIGITAL I/O	Digital out
ATV	See Auto TV	DIG-OUT	Monochrome TV system. Sound carrier distance is 6.5 MHz
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way	D/K	Dynamic Noise Reduction
AUDIO_C	Audio Centre	DNR	Dual Sound Audio Left
AUDIO_L	Audio Left	DS-AUDIO-L	Dual Sound Audio Right
AUDIO_R	Audio Right	DS-AUDIO-R	Digital Signal Processing
AUDIO_SL	Audio surround Left	DSP	Dealer Service Tool: special remote control designed for service technicians
AUDIO_SW	Audio Subwoofer	DST	DUET-IC
AUDIO-L-PROC	Audio left processed	DUET	Digital Versatile Disc
AUDIO-R-PROC	Audio right processed	DVD	Dynamic phase correction
AUDIO-SR	Audio surround right	DYN-FASE-COR	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical directions, CTI, and other colour features
AUX-SUPPLY	Auxiliary supply	Eagle	Extra high-tension information
BC-PROT	Beam current protection	EHT-INFO	Electronic Program Guide (= NexTVView)
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz	EPG	East-west drive signal
BLC-INFO	Black current information	EW-DRIVE	Field and line rate converter IC. SAA4992H, feature box IC which performs Digital Natural Motion, 3DNR vertical zoom, and vertical peaking
B-SC1-IN	Blue SCART1 in	FALCONIC	Fixed beam current switch off
B-SC2-IN	Blue SCART2 in	FBCSO	Fast Blanking Dual Screen out
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries	FBL-DS-OUT	Fast Blanking Full Dual Screen
B-TXT	Blue teletext	FBL-FDS	Fast Blanking PIP
B-vc	Blue from video-controller	FBL-PIP	Fast blanking signal for SCART1 in
C	Centre	FBL-SC1-IN	Fast blanking signal for SCART2 in
C/16/9	Chrominance input	FBL-SC2-IN	Fast Blanking Teletext
C-7-OUT	Chrominance on pin 7 SCART (variant)	FBL-TXT	Full Dual Screen (same as FDW)
CBA	Circuit Board Assembly	FDS	Full Dual Screen - Left out
CENTER	Centre speaker	FDSL-OUT	Full Dual Screen - Right out
C-FRONT	Chrominance front input	FDSR-OUT	Full Dual Window (same as FDS)
CL_DS_L	Constant Level Dual Screen Left	FDW	U from Feature Box
CL_DS_R	Constant Level Dual Screen Right	FEAT-U	V from Feature Box
CL_L	Constant Level Left	FEAT-V	Y from Feature Box
CL_L_OUT	Constant Level Left out	FEAT-Y	Filament of CRT
CL_R	Constant Level Right	FILAMENT	Filament protection
CL-R-OUT	Constant Level Right out	FILAMENT-PROT	Flash memory
CODEC	Coding/Decoding	FLASH	Field Memory or Frequency Modulation
COMP	Compander ON/OFF	FM	Frequency Modulation Sound
CORDL_L	Cordless Left	FM SOUND	Frame rotation
CORDL_R	Cordless Right	FRAME ROTATION	Frame rotation plus
CORE TOP LEVEL	Core Top Level	FRAME-ROT +	Front input chrominance (SVHS)
CRT	Cathode Ray Tube	FRONT-C	Front input detection
CSM	Customer Service Mode	FRONT-DETECT	Front input luminance or CVBS (SVHS)
C-UI	Chrominance UI	FRONT-Y_CVBS	Generic Display Engine
CVBS	Composite Video Blanking Signal	GDE	Signal Ghost cancellation in
CVBS_Y-UI	CVBS Y UI	GHOST-IN	Green SCART1 in
CVBS-PIP-DS	CVBS Picture In Picture dual Screen	G-SC1-IN	Green SCART2 in
CVBS-SC1-IN	CVBS SCART1 in	G-SC2-IN	Green teletext
CVBS-SC2 OUT	CVBS SCART2 out	G-TXT	Green from video-controller
CVBS-SC2-IN	CVBS SCART2 in	G-vc	Horizontal Acquisition
CVBS-SC3-IN	CVBS SCART3 in	HA	Horizontal Sync (diversity)
CVBS-SC4-IN	CVBS SCART4 in	HA1	Horizontal Sync from HIP-IC to FDS
CVBS-TER	CVBS terrestrial	HA-D	Horizontal drive coming from PICNIC
CVBS-TXT-DS-OUT	CVBS teletext Dual Screen out	HD	Horizontal deflection signal needed for DC-shift circuitry
CVBS-TXT-OUT	CVBS teletext out	Hdefl-1in	Horizontal deflection linearity
CVBS-Y-FRONT	CVBS luminance front input	Hdefl-lin	

HEATER	Heater (Filament)	NTSC	National Television Standard Committee. Colour system mainly used in North America and Japan. Colour carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
HFB	Horizontal flyback	NVM	Non-Volatile Memory
HFB+13V	Non-rectified output 13V-winding LOT	O/C	Open Circuit
HFB-D	Horizontal flyback to FDS	ON/OFF LED	On/off control signal for the LED
HIP	High-end Input Processor	OSD	On Screen Display
HOP	High-end Output Processor	OTC	OSD, Teletext Controller
HOSD PIP	Horizontal OSD PIP	OUT-1	Y-output POPOV (Double Window PIP IC)
HP	Headphone	OUT-2	V-output POPOV (Double Window PIP IC)
HS-DS	Horizontal sync input POPOV (Double Window PIP IC)	OUT-3	U-output POPOV (Double Window PIP IC)
I	Monochrome TV system. Sound carrier distance is 6.0 MHz	OVERRULE-TXT	Override Teletext
I2C	Integrated IC bus	P50_OUT	Easy link data line from SCART2
I2S	Integrated IC Sound bus	PAL	Phase Alternating Line. Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
I2S-CL	I2S bus clock	PCB	Printed Circuit Board (CBA)
I2S-DSP-IN	I2S digital signal processor in	PD	Power Down
I2S-DSP-OUT	I2S digital signal processor out	PICNIC	Picture Improved Combined Network IC
I2S-DSP-OUT1	Serial-DSP-bus-out1	PILOT	Pilot Signal
I2S-WS	I2S bus Word Stroke	PILOTMUTE	Pilot Mute signal
IN-C_IN-R-SC2	Either Chrominance-in SCART2 or Red-in SCART pin 15	PIP	Picture In Picture
IN-FRONT-SNDL	Sound left front in	PIP-B	Picture In picture Blue
IN-FRONT-SNDR	Sound right front in	PIP-FBL	PIP Fast Blanking
IN-SC1-B	In SCART1 blue	PIP-G	Picture In Picture Green
IN-SC1-G	In SCART1 green	PIP-R	Picture In Picture Red
IN-SC1-R	In SCART1 red	PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
IN-SC1-SNDL	In SCART1 sound left	POPOV	Double Window PIP IC
IN-SC1-SNDR	In SCART1 sound right	POR	Power On Reset, signal to reset the P
IN-SC2-B	In SCART2 blue	Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
IN-SC2-CVBS_Y	In SCART2 CVBS or luminance (SVHS)	POWER-DOWN	Power Down Mute
IN-SC2-FBL	In SCART2 fast blanking	MUTE	Power "on" Mute
IN-SC2-G	In SCART2 green	POWER-ON MUTE	Right Audio
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.	RAM	Random Access Memory
IN-UI-B	B input from UI	RC5	RC5 signal from the remote control receiver
IN-UI-FBL	Fast Blanking input from UI	RESET	Reset signal
IN-UI-G	G input from UI	RESET-AUDIO	Reset signal for audio IC MSP3410
IN-UI-R	R input from UI	RESET-AUDIO-INV	Reset signal for audio IC MSP3410 inverted
IO-BUS	In/out - Bus	RESET-FLASH	Reset signal flash memory
IR-LED	Drive signal for the service infrared LED	RF	Right output (no companding)
KEYBOARD	Top controls	ROM	Read "on"ly Memory
L	Left Audio	R-SC1-IN	Red SCART1 in
LDP	Line Deflection Protection	R-TXT	Red teletext
LED	Light Emitting Diode	R-VC	Red from video-controller
LINE-DRIVE	Line drive signal	S/C	Short Circuit
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I	SAM	Service Alignment Mode
LMN	System L, M, N	SC2-B-IN	SCART2 blue in
LNA	Low noise adapter	SC2-C-IN	SCART2 chrominance in
LS CORRECTION	Picture with corrections	SC2FH_IFH	Sandcastle 1fH/2fH
LSB	Large Signal Board	SC2-G-IN	SCART2 green in
LV-	Frame coil sink signal to the N/S correction circuitry	SC2-R-IN C-IN	Red in SCART2 or chrominance in
LV+	Frame coil drive signal from the frame output stage	Scavem	Scan Velocity Modulation
MCADDEC_RESET	Reset signal (Master reset)	SCAVEM-SW	Scavem- switch
MCS-MPEG	Multi Channel Sound - MPEG	SCL	Serial Clock I2C
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz	SCL-F	Clock line of the I2C-bus fast (for TXT)
MSP-CLOCK	Clock signal multi-standard sound processor	SCL-S	Clock line of the I2C-bus slow
MUP	Microcomputer		
MUTE	Mute-Line		
N52502	CAD naming referring to other sub-schedule		
NC	Not Connected		
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.		

SDA	Serial Data I2C	STANDARD-FM-1	Standard Frequency Modulation 1
SDA-F	Data line of the I2C-bus fast (for TXT)	STANDARD-FM-2	Standard Frequency Modulation 2
SDA-S	Data line of the I2C-bus slow	STANDBY	Standby
SDM	Service Default Mode	STATUS1/2/3	Status signal from Euro-connector 1, 2 or 3 to the uP, signal (1.29-3.31V is 16:9 signal, 3.32-5.0V is 4:3 signal)
SECAM	SEquence Couleur Avec Memoire. Colour system mainly used in France and East Europe. Colour carriers= 4.406250 MHz and 4.250000 MHz	STBY	Standby
		STEREO	Stereo
SEL_SOFAC_0	Selection-signal for SOFAC 0	SUBCAR	Sub carrier
SEL_SOFAC_1	Selection-signal for SOFAC 1	SUB-H	Horizontal Sync Sub-TV-Program (via FDS)
SEL_TO-MCS_LR	Selection switch MCS Left Right	SUB-V	Vertical Sync Sub-TV-Program (via FDS)
SELECT TO EXT2	Selection of External 2 input	SUBWOOFER	Subwoofer speaker
SELECT_TO_CORD L_1	Selection signal for Cordless 1	SURROUND-LEFT	Surround Left
SELECT_TO_MCS_ CINCH_0	Selection-signal for MCS Cinch 0	SURROUND-RIGHT	Surround Right
SELECT_TO_MCS_ CINCH_1	Selection-signal for MCS Cinch 1	SW	Subwoofer
SELECT-AUDIO		SYNC-SELECT	Synchronization selection
CINCH1	Selection of audio via cinch input 1	TOPIC	The Outmost Picture Improvement IC
SELECT-AUDIO- CINCH2	Selection of audio via cinch input 2	TRIG	Triggering
SELECT-AUDIO-LR	Selection of audio left and right	TUNED	Tuned-flag coming from the IF-IC TDA1597
SELECT- TO_CORDL_0	Selection signal for Cordless 0	UB-DEC	U-input for FDS
SERVICE-DEFAULT	Service pin to activate SDM	U-DEC	U-dec (input signal for PICNIC)
SERVICE-MODE	Service pin to activate SAM	U-DS-1FH	U Dual Screen 1 x Horizontal Frequency
SIF	Sound Intermediate frequency	U-DS-2FH	U Dual Sound 2 x Horizontal Frequency
SIFM	Sound intermediate frequency (Mono)	U-DS-OUT	U Dual Screen out
SL	Surround Left	uP	Microprocessor
SL-ST	Sliding stereo of the Stereo Demodulator IC TDA1578A	UF-DEC	U-MAIN input POPOV (Double Window PIP IC)
SNDL-CL_VL-OUT	Sound left constant level -variable level out	U-FEAT	U-feature-box (output signal from PICNIC)
SNDL-CL-VL-OUT	Sound L constant level, variable level out	UF-SUB	U-SUB input POPOV (Double Window PIP IC)
SNDL-FRONT-IN	Sound left front in	UI	Universal Interface
SNDL-HEADPH-OUT	Sound left headphone out	U-OUT	U-signal to HOP IC
SNDL-SC1-IN	Sound left SCART1 in	U-SUB	U-output of HIP-IC on FDS
SNDL-SC1-OUT	Sound left SCART1 out	VA	Vertical Acquisition
SNDL-SC2-IN	Sound left SCART2 in	VA1	Vertical Sync (diversity)
SNDL-SC2-OUT	Sound left SCART2 out	VB-DEC	V-input for FDS
SNDL-SC3-IN	Sound left SCART3 in	VD	Vertical Drive coming from PICNIC
SNDL-SC4-IN	Sound left SCART4 in	VD-D	Vertical sync to FDS
SNDL-UI-IN	Sound left UI IN	V-DEC	V-dec (input signal for PICNIC)
SNDR-CL-VL-OUT	Sound R constant level, variable level out	VDEFL-1	Vertical deflection connection 1
SNDR-FRONT-IN	Sound right front in	VDEFL-2	Vertical deflection connection 2
SNDR-HEADPH-OUT	Sound right headphone out	VDNEG	Negative vertical drive signal
SNDR-SC1-IN	Sound right SCART1 in	VDPOS	Positive vertical drive signal
SNDR-SC1-OUT	Sound right SCART1 out	+VD-switched	Only for VGA sets (VD-switched i.s.o. Vbat.
SNDR-SC2-IN	Sound right SCART2 out	V-DS-1FH	V Dual Screen 1 X Horizontal Frequency
SNDR-SC2-OUT	Sound right SCART2 out	V-DS-2FH	V Dual Screen 2 X Horizontal Frequency
SNDR-SC3-IN	Sound right SCART3 in	V-DS-OUT	V Dual Screen out
SNDR-SC4-IN	Sound Right SCART4 IN	VFB	Vertical flyback pulse
SNDR-SC4-IN	Sound right SCART4 in	VF-DEC	V-MAIN input POPOV (Double Window PIP IC)
SNDS-CL-VL-OUT	Sound surround constant level, variable level out	V-FEAT	V-feature-box (output signal from PICNIC)
SNDS-VL-OUT	Surround sound left variable level out	VF-SUB	V-SUB input POPOV (Double Window PIP IC)
SNDS-VR-OUT	Surround sound right variable level out	VGA-B	VGA Blue
SOFAC	Sound and Fading Control	VGA-FBL	VGA Fast-blanking
SOUND L- HEADPHONE-OUT	Sound left headphone out	VGA-G	VGA Green
SOUND R- HEADPHONE-OUT	Sound right headphone out	VGA-R	VGA Red
SOUND-ENABLE	Sound Enable	VL_L	Variable level Left
SOUND-SELECT	Sound signal Selection	VL_R	Variable level Right
SPDIF	Sony Philips Digital Interface Format	VL_SL	Variable level - Surround Left
SPDIF_IN1	SPDIF In 1	VL_SR	Variable level - Surround Right
SPDIF_IN2	SPDIF In 2	VL_SW	Variable Level Sub-Woofers
SS LEFT	Surround Sound Left	VL_SW_DBE	Variable Level - Subwoofer- Dynamic Bass Enhancement
SS RIGHT	Surround Sound Right	VLL_C	Variable level Centre
SSB	Small Signal Board		
SSM	Small Signal Module		

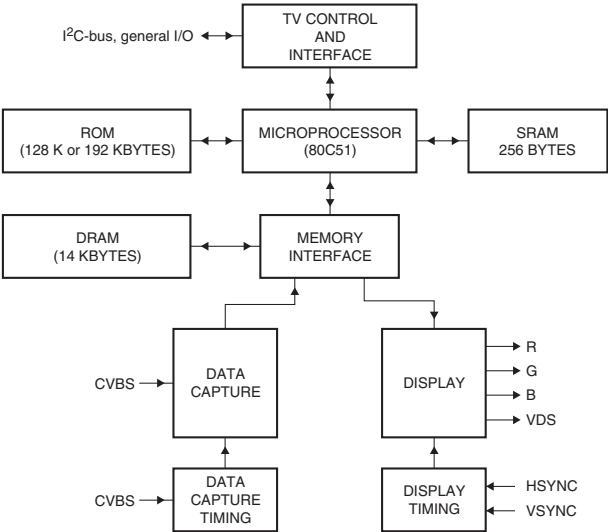
V-OUT	V-signal to HOP-IC
VOUT_C	V-out Centre
VOUT_L	V-out Left
VOUT_R	V-out Right
VOUT_SL	V-out Surround Left
VOUT_SR	V-out Surround Right
VOUT-SW	V-out Subwoofer
VREG	Opto-coupler feedback signal
VS-DS	Main, Vertical sync input POPOV (Double Window PIP IC)
V-SUB	V-output of HIP-IC on FDS
X-RAY-PROT	X-Ray Protection
X-tal	Crystal
Y_CVBS-SC2-IN	Luminance or CVBS SCART2 in
YB-DEC	Y-input for FDS
Y-DEC	Luminance-dec (input signal for PICNIC)
Y-DS-1FH	Y Dual Screen 1 X Horizontal Frequency
Y-DS-2FH	Y-Dual Screen 2 x Horizontal Frequency
Y-DS-OUT	Y Dual Screen out
YF-DEC	Y-MAIN input POPOV (Double Window PIP IC)
Y-FEAT	Luminance -feature-box (output signal from PICNIC)
YF-SUB	Y-SUB input POPOV (Double Window PIP IC)
Y-OUT	Luminance-signal to HOP-IC
Y-SUB	Y-output of HIP-IC on FDS
YUV-SELECT-2FH	YUV selection 2 x Horizontal Frequency

9.7 IC Data Sheets

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

9.7.1 Diagram B7, SAA5667HL (IC7001)

Internal Block Diagram



Pin Configuration

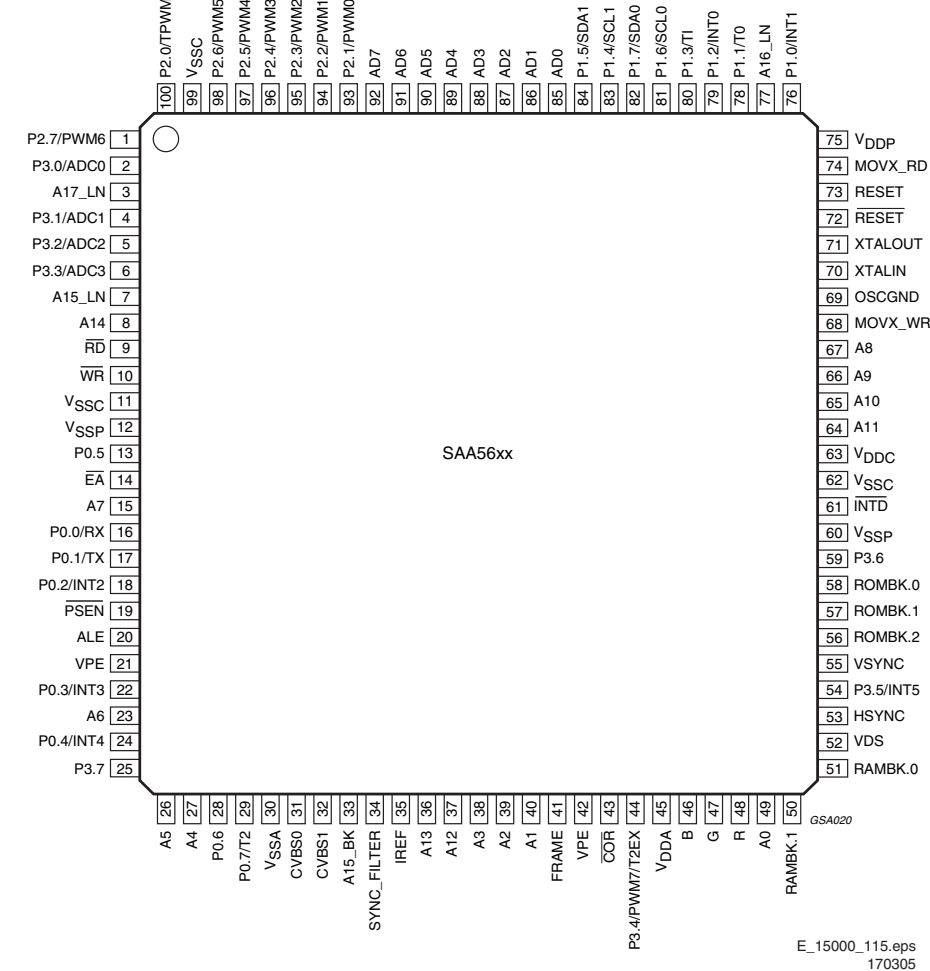


Figure 9-46 Internal Block Diagram and Pin Configuration

9.7.2 Diagram E1, MC44603A (IC7302)

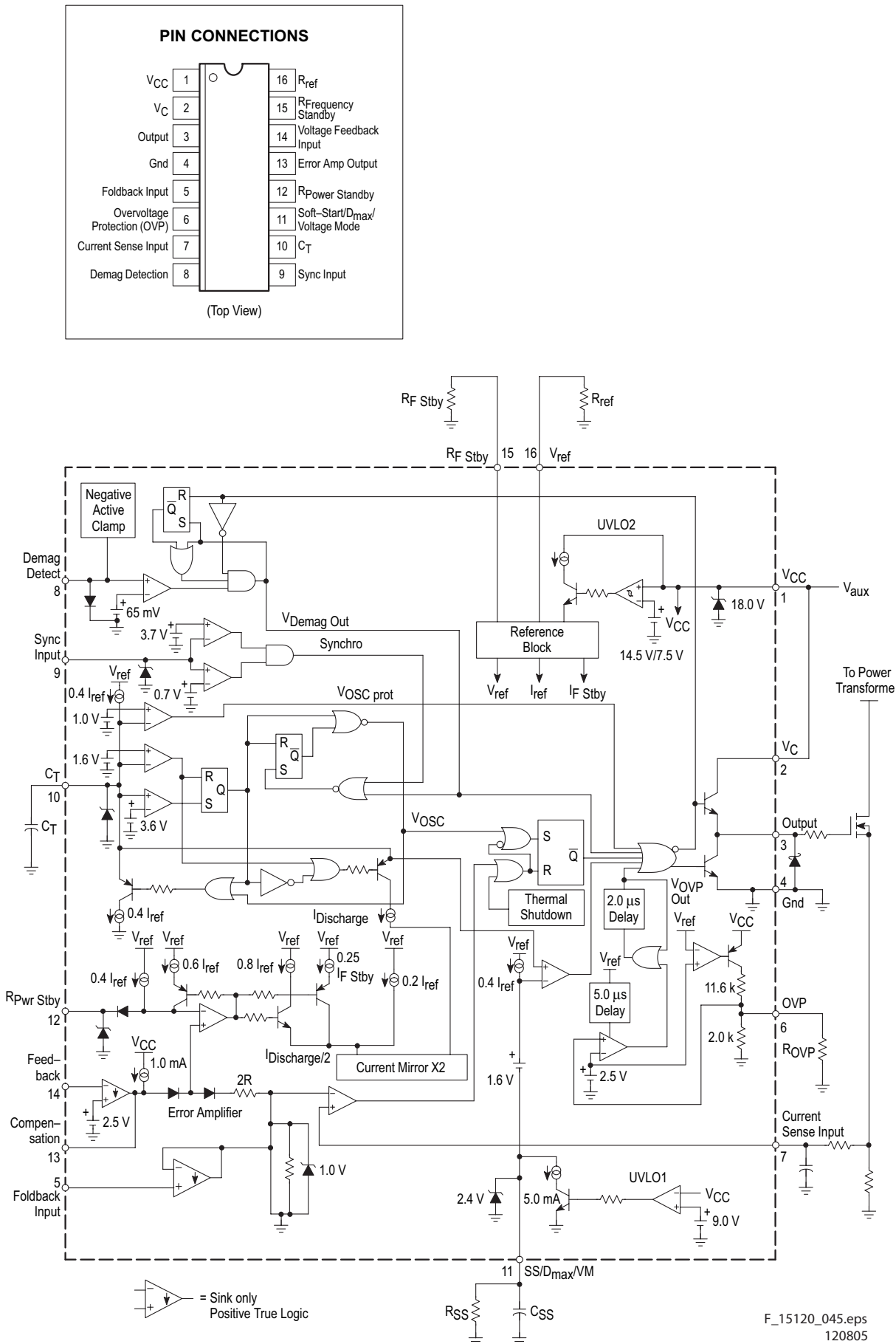


Figure 9-47 Internal Block Diagram and Pin Configuration

9.7.3 Diagram H1, STV2050 (IC7002)

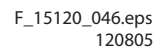


Figure 9-48 Internal Block Diagram and Pin Configuration

51MP6100D/37 - Manual no. DPTV585

CABINET PARTS (51MP6100D/37)

CABINET PARTS (51MP6100D/37)			
0032	Screen Frame	3139	177 96481
0034	Fresnel Lens	3135	033 20701
0035	Lenticular Lens.	3135	033 20331
0066	Magnavox Wordmark.	3141	050 00431
0079	Screen Retainer, Horizontal.	3135	034 05471
0080	Screen Retainer, Vertical.	3135	034 04451
0086	Lower Back	3139	123 01361
0095	Screen Retainer, Horizontal.	3135	034 05471
0167	DFU - English.	3139	125 34821
0171	DFU - Spanish.	3139	125 34921
0172	DFU - French	3139	125 34811
0175	Connection Guide - English.	3139	125 35101
0176	Connection Guide - Spanish.	3139	125 35091
0177	Connection Guide - French.	3139	125 35081
0934	Cabinet Assy 51MP6100D/37.	3121	237 55911
0037	Mirror, 2nd Surface	3135	034 90171
0077	Side Jack Panel Assy	3139	177 96491
0078	Housing Control.	3139	177 92752
0121	Button Housing Assy.	3135	037 54312
5213	Speaker, 8ohm, 15w Fullrange	2422	264 00484
CBA	ATSC Module.	3139	267 11061
1186	Remote Transmitter	3139	238 10931
8190	Power Cord	2422	070 98164

PHILIPS OPTICAL ASSY

PHILIPS OPTICAL ASSY			
CBA	Magnavox Optical Assy.	3139	177 92811
0920	Philips optical Assy	3121	237 55931
0093	Coupler.	3135	011 01936
0094	Coupler, Green	3135	011 04283
0097	C Element lens, Clear.	3135	034 04411
0099	Delta Lens 250	3135	037 50711
0148	Ethylene Glycol Coolant.	3135	010 02041
S 1097	CRT P16LXL00RFA(U)	9322	194 69682
S 1098	CRT P16LXL00HHA(U)	9322	194 70682
S 1099	CRT P16LXL00BMB(U)	9322	194 71682
1183	Focus Pot, 100m 15kv	2422	549 45941
S 5201	Deflection Yoke.	2422	549 00388
S 5202	Deflection Yoke.	2422	549 00388
S 5203	Deflection Yoke.	2422	549 00388

KIMBALL OPTICAL ASSY

KIMBALL OPTICAL ASSY			
CBA	Kimball Optical Assy	3121	237 55181
0040	Rail 50" TO 55".	3135	011 03641
0041	Support Rail Common.	3135	011 02171
0091	Focus Control Bracket.	3135	034 00772
0102	CRT Support Bracket, Metal.	3135	011 02371
0105	Coupler Cap.	3135	034 02561
0144	Coupler Diaphragm	3135	013 01061
0146	Vent Plug.	3135	034 02551
0147	Vent Plug Seal	3135	013 01231
0149	CRT Seal	3135	013 02321
0150	Lens Seal.	3135	013 02632
0151	CRT Pad.	3135	014 02811

KEYBOARD

KEYBOARD			
CBA	Keyboard Assy.	3139	267 14831
1001	Switch, Tactile.	2422	128 02742
1002	Switch, Tactile.	2422	128 02742
1003	Switch, Tactile.	2422	128 02742
1004	Switch, Tactile.	2422	128 02742
1006	Switch, Tactile.	2422	128 02742
1007	Switch, Tactile.	2422	128 02742
2003	Cap, 100n, 10%, 16v, Ceramic	3198	017 01040
2004	Cap, 100u, 20%, 16v, Electrolytic.	3198	028 21010
3008	Res, 33 ohm, 5%, 1/10W, Metalized Glass	3198	021 53390
3010	Res, 1K5, 1%, 1/8W, Metalized Glass.	2322	734 61502
3011	Res, 750 ohm, 1%, 1/8W, Metalized Glass	2322	734 87501
3012	Res, 2K, 1%, 1/8W, Metalized Glass	2322	734 62002
3013	Res, 270 ohm, 1%, 1/8W, Metalized Glass	2322	734 62701
3015	Res, 2K7, 1%, 1/8W, Metalized Glass.	2322	734 62702
3017	Res, 3K9, 1%, 1/8W, Metalized Glass.	2322	734 63902
3020	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198	021 54710
3025	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198	021 53310
6009	Zener Diode, 6.8 volt.	9340	386 40115
6011	Zener Diode, 6.8 volt.	9340	386 40115
6013	Zener Diode, 6.8 volt.	9340	386 40115
6014	Zener Diode, 6.8 volt.	9340	386 40115
6015	Zener Diode, 6.8 volt.	9340	386 40115
6016	Zener Diode, 6.8 volt.	9340	386 40115
1200	LED Holder	3135	034 00711
1214	Connector, 7 Pin	2422	025 12491
1215	Connector, 1 Pin	2422	015 18551
6002	LED.	9322	224 59682
6005	IR Receiver.	9322	152 44687

SIDE JACK PANEL

SIDE JACK PANEL

S = Safety Part Be sure to use exact replacement part.

CBA	Side Jack Panel Assy	3135	037 12321
2001	Cap, 330p, 5%, 50v, Ceramic.	3198	016 03310
2002	Cap, 330p, 5%, 50v, Ceramic.	3198	016 03310
2005	Cap, 330p, 5%, 50v, Ceramic.	3198	016 03310
2006	Cap, 330p, 5%, 50v, Ceramic.	3198	016 03310
3002	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198	021 57590
3005	Res, 1K, 5%, 1/10W, Metalized Glass.	3198	021 51020
3006	Res, 22K, 5%, 1/10W, Metalized Glass	3198	021 52230
3007	Res, 1K, 5%, 1/10W, Metalized Glass.	3198	021 51020
3009	Res, 22K, 5%, 1/10W, Metalized Glass	3198	021 52230
3029	Res, 3K9, 5%, 1/10W, Metalized Glass	3198	021 53920
3030	Res, 1K8, 5%, 1/10W, Metalized Glass	3198	021 51820
4000	Res, Zero ohm, "Chip" Jumper	3198	021 90020
4001	Res, Zero ohm, "Chip" Jumper	3198	021 90020
4002	Res, Zero ohm, "Chip" Jumper	3198	021 90020
6003	Zener Diode, 6.8 volt.	9340	386 40115
6005	Zener Diode, 6.8 volt.	9340	386 40115
6006	Zener Diode, 6.8 volt.	9340	386 40115
6007	Zener Diode, 6.8 volt.	9340	386 40115
6008	Zener Diode, 6.8 volt.	9340	386 40115
6009	Zener Diode, 6.8 volt.	9340	386 40115
9000	Wire Jumper.	3198	036 90010
9001	Wire Jumper.	3198	036 90010
9002	Wire Jumper.	3198	036 90010
1001	SOC CINCH H 3P F YEWHRD B	2422	026 04756
1335	Connector, 10 Pin.	2422	025 12484
1337	Connector, 1 Pin	2422	015 18552

CRT PANEL

CRT PANEL			
CBA	CRT Board Assy	3135	037 10081
0931	ACI,HDR CRT Brd.	3135	018 50341
1205	Surge Protector, DSP-152M-A21F A.	2422	549 43675
S 1206	Surge Protector, DSP-301N-A21F A	2422	549 43073
S 1209	Surge Protector, DSP-301N-A21F A	2422	549 43073
2200	Cap, 1n, 10%, 50v, Ceramic	3198	017 01020
2201	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023 21040
2203	Cap, 100p, 5%, 50v, Ceramic.	3198	016 01010
2204	Cap, 1n, 10%, 50v, Ceramic	3198	017 01020
2207	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017 21050
2209	Cap, 1n, 10%, 50v, Ceramic	3198	017 01020
2210	Cap, 10p, 5%, 50v, Ceramic	3198	016 01090
2211	Cap, 100u, 20%, 25v, Electrolytic.	3198	025 31010
2212	Cap, 1n, 10%, 50v, Ceramic	3198	017 01020
2213	Cap, 1n, 10%, 50v, Ceramic	3198	017 01020
2214	Cap, 47n, 10%, 250v, Ceramic	2020	557 90733
2215	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017 21050
2216	Cap, 100u, 20%, 25v, Electrolytic.	3198	025 31010
2217	Cap, 4u7, 20%, 250v, Electrolytic.	2020	012 93293
2218	Cap, 100p, 10%, 1000v, Ceramic	2020	558 90522
2219	Cap, 2p2, 11%, 50v, Ceramic.	3198	016 02280
2221	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023 21040
2224	Cap, 47n, 10%, 250v, Ceramic	2020	557 90733
3200	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198	021 57590
3201	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021 52290
3202	Res, 1K5, 20%, 1/2W, Carbon Film	2120	103 90016
3203	Res, 6K8, 5%, 1/10W, Metalized Glass	3198	021 56820
3204	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021 51010
3206	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021 54790
3208	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021 51010
3209	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198	021 53310
3210	Res, 10K, 20%, 1/2W, Carbon Film	2120	103 90029
3211	Res, 10K, 5%, 1/10W, Metalized Glass	3198	021 51030
3213	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198	021 56810
3215	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198	021 56810
3216	Res, 10 ohm, 5%, 1/8W, Metalized Glass	2322	750 61009
3217	Res, 1 ohm, 5%, 1/3W, Metal Film	2322	205 33108
3218	Res, 220 ohm, 20%, 1/2W, Carbon Film	2120	103 90018
3223	Res, 1K5, 5%, 1/10W, Metalized Glass	3198	021 51520
3224	Res, 1K, 5%, 1/10W, Metalized Glass.	3198	021 51020
3225	Res, 1K2, 5%, 1/10W, Metalized Glass	3198	021 51220
3226	Res. Trim. Carbon Linear 470 ohm	2120	368 90118
3227	Res, 1K5, 5%, 1/10W, Metalized Glass	3198	021 51520
5200	Fixed, Inductor, 100MHZ, 80 ohm.	3198	018 90020
5201	Fixed, Inductor, 100MHZ, 80 ohm.	3198	018 90020
5202	Coil, 470n	3198	018 34770
5203	Coil, 470n	3198	018 34770
6200	Diode, Rectifier PR2007G.	9322	196 90673
6201	Diode, Signal, BAS21	9335	020 40215
6204	Diode, Signal, BAS316.	3198	010 10630
7200	Transistor, NPN, BF570	9338	144 20215
7202	Transistor, NPN, BF570	9338	144 20215
1201	Connector, 2 Pin	2422	025 10646
1202	Connector, 4 Pin	2422	025 12489
1203	Socket, CRT V 10 Pin	2422	500 80037
1204	Connector, 1 Pin	2422	024 00628
1207	Connector, 5 Pin	2422	025 06353
1208	Connector, 1 Pin	2422	034 20021
1210	Connector, 3 Pin	2422	025 09191
1212	Connector, 4 Pin	2422	025 12479
1217	Connector, 5 Pin	2422	025 12481
2206	Cap, 1n, 10%, 2000v, Ceramic	2020	558 90487

51MP6100D/37 (continued)

3212	Res, 22K, 5%, 2 1/2W, Metal Film . . .	2322	195	63223
7201	IC TDA6120Q/N2	9352	626	34112

MAIN CHASSIS

	MAIN CHASSIS			
	CBA Chassis Assy	3139	267	10721
	CBA SSM Assy	3139	267	10701
S 1700	Fuse, T2A, 250V	2422	086	10783
S 1701	Fuse, T2A, 250V	2422	086	10783
1702	Thyristor BT169B	9338	268	50126
2000	Cap, 10u, 20%, 100v, Electrolytic . . .	3198	025	71090
2001	Cap, 100n, +80/-20%, 50v, Ceramic . .	2020	552	95499
2003	Cap, 100n, +80/-20%, 25v, Ceramic . .	3198	023	21040
2004	Cap, 100n, +80/-20%, 25v, Ceramic . .	3198	023	21040
2005	Cap, 100n, +80/-20%, 25v, Ceramic . .	3198	023	21040
2006	Cap, 100n, +80/-20%, 25v, Ceramic . .	3198	023	21040
2007	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2008	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2010	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2011	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2013	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2016	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2017	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2018	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2019	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2020	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2021	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2022	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2023	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2024	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2025	Cap, 1u, +80/-20%, 16v, Ceramic	3198	017	21050
2026	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2027	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2028	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2030	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2032	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2033	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2034	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2036	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2037	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2039	Cap, 10u, 20%, 50v, Electrolytic	3198	025	51090
2041	Cap, 10u, 20%, 50v, Electrolytic	3198	025	51090
2042	Cap, 10u, 20%, 50v, Electrolytic	3198	025	51090
2043	Cap, 10u, 20%, 50v, Electrolytic	3198	025	51090
2049	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2055	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2056	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2057	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2060	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2061	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2062	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2063	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2066	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2067	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2069	Cap, 22p, 5%, 50v, Ceramic	3198	016	02290
2071	Cap, 22p, 5%, 50v, Ceramic	3198	016	02290
2072	Cap, 22p, 5%, 50v, Ceramic	3198	016	02290
2076	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2077	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2078	Cap, 100u, 20%, 25v, Electrolytic . . .	3198	025	31010
2083	Cap, 220u, 20%, 16v, Electrolytic . . .	3198	025	22210
2084	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2085	Cap, 47n, +80/-20%, 50v, Ceramic	3198	017	24730
2086	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2088	Cap, 100n, 10%, 50v, Polyester	3198	014	01040
2089	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2090	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2092	Cap, 470n, +80/-20%, 16v, Ceramic . . .	3198	017	24740
2093	Cap, 470n, 10%, 50v, Polyester	3198	014	04740
2094	Cap, 470n, +80/-20%, 16v, Ceramic . . .	3198	017	24740
2095	Cap, 22u, 20%, 50v, Electrolytic	3198	025	52290
2096	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2097	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2098	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2099	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2102	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2020	552	95499
2103	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2105	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2106	Cap, 1u, 20%, 50v, Electrolytic	3198	028	51080
2107	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2108	Cap, 100n, 10%, 16v, Ceramic	3198	017	01040
2109	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2110	Cap, 47u, 20%, 16v, Electrolytic	3198	028	24790
2111	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2113	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2115	Cap, 150p, 5%, 50v, Ceramic	2020	552	94291
2130	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2238	580	19812
2131	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2238	580	19812
2132	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2238	580	19812
2133	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2238	580	19812
2134	Cap, 100n, +80/-20%, 50v, Ceramic . . .	2238	580	19812
2140	Cap, 100u, 20%, 25v, Electrolytic . . .	3198	025	31010

2141	Cap, 100u, 20%, 25v, Electrolytic . . .	3198	025	31010
2150	Cap, 100u, 20%, 50v, Electrolytic . . .	2020	012	92656
2156	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2701	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2702	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2703	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2704	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2705	Cap, 1u, 20%, 50v, Electrolytic	3198	025	51080
2706	Cap, 100n, 10%, 16v, Ceramic	3198	017	01040
2707	Cap, 100n, 10%, 16v, Ceramic	3198	017	01040
2708	Cap, 220n, +80/-20%, 25v, Ceramic . . .	3198	023	22240
2709	Cap, 470p, 5%, 50v, Ceramic	3198	016	04710
2710	Cap, 470p, 5%, 50v, Ceramic	3198	016	04710
2711	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2712	Cap, 220n, +80/-20%, 50v, Ceramic . . .	2238	580	19814
2713	Cap, 100n, 10%, 16v, Ceramic	3198	017	01040
2714	Cap, 33n, 10%, 50v, Ceramic	3198	017	03330
2715	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2716	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2718	Cap, 22p, 5%, 50v, Ceramic	3198	016	02290
2719	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2720	Cap, 220n, +80/-20%, 25v, Ceramic . . .	3198	023	22240
2721	Cap, 470p, 5%, 50v, Ceramic	3198	016	04710
2722	Cap, 470p, 5%, 50v, Ceramic	3198	016	04710
2723	Cap, 470n, 10%, 25v, Ceramic	2020	552	96684
2724	Cap, 220n, +80/-20%, 50v, Ceramic . . .	2238	580	19814
2725	Cap, 470n, 10%, 25v, Ceramic	2020	552	96684
2726	Cap, 33n, 10%, 50v, Ceramic	3198	017	03330
2727	Cap, 1n, 5%, 50v, Ceramic	3198	016	01020
2728	Cap, 330p, 5%, 50v, Ceramic	3198	016	03310
2732	Cap, 470n, 10%, 25v, Ceramic	2020	552	96684
2733	Cap, 470n, 10%, 25v, Ceramic	2020	552	96684
2735	Cap, 10u, 20%, 50v, Electrolytic	3198	029	51090
2736	Cap, 10n, +80/-20%, 50v, Ceramic	3198	017	21030
2737	Cap, 10n, +80/-20%, 50v, Ceramic	3198	017	21030
2763	Cap, 680n, 10%, 50v, Polyester	3198	014	06840
2773	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2774	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2775	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2776	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2777	Cap, 680n, 10%, 50v, Polyester	3198	014	06840
2778	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2780	Cap, 100n, 10%, 50v, Polyester	3198	014	01040
2781	Cap, 100n, 10%, 50v, Polyester	3198	014	01040
2802	Cap, 220u, 20%, 16v, Electrolytic	3198	025	22210
2807	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2809	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2811	Cap, 2u2, +80/-20%, 10v, Ceramic	3198	017	22250
2814	Cap, 100n, 10%, 16v, Ceramic	3198	017	01040
3001	Res, 47K, 5%, 1/10W, Metalized Glass . .	3198	021	54730
3002	Res, 47K, 5%, 1/10W, Metalized Glass . .	3198	021	54730
3003	Res, 47K, 5%, 1/10W, Metalized Glass . .	3198	021	54730
3004	Res, 47K, 5%, 1/10W, Metalized Glass . .	3198	021	54730
3005	Res, 47K, 5%, 1/10W, Metalized Glass . .	3198	021	54730
3014	Res, 2K2, 5%, 1/10W, Metalized Glass . .	3198	021	52220
3015	Res, 15K, 5%, 1/10W, Metalized Glass . .	3198	021	51530
3021	Res, 1K, 5%, 1/6W, Carbon Film	3198	011	01020
3022	Res, 4K7, 5%, 1/6W, Carbon Film	3198	011	04720
3026	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3027	Res, 10 ohm, 5%, 1/10W, Metalized Glass .	3198	021	51090
3028	Res, 10 ohm, 5%, 1/10W, Metalized Glass .	3198	021	51090
3033	Res, 22K, 1%, 1/8W, Metalized Glass . . .	2322	734	62203
3034	Res, 22K, 1%, 1/8W, Metalized Glass . . .	2322	734	62203
3045	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3046	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3047	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3049	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3050	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3051	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3052	Res, 100 ohm, 5%, 1/6W, Carbon Film . .	3198	011	01010
3090	Res, 3K3, 5%, 1/10W, Metalized Glass . .	3198	021	53320
3091	Res, 3K3, 5%, 1/10W, Metalized Glass . .	3198	021	53320
3092	Res, 3K3, 5%, 1/10W, Metalized Glass . .	31		

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3125	Res, 1K2, 5%, 1/10W, Metalized Glass .	3198 021 51220	4006	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3126	Res, 1K2, 5%, 1/10W, Metalized Glass .	3198 021 51220	4007	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3127	Res, 1K2, 5%, 1/6W, Carbon Film. . . .	3198 011 01220	4009	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3128	Res, 1K2, 5%, 1/6W, Carbon Film. . . .	3198 011 01220	4011	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3129	Res, 1K2, 5%, 1/10W, Metalized Glass .	3198 021 51220	4012	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3130	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198 021 52210	4013	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3131	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198 021 52210	4014	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3138	Res, 2K7, 1%, 1/8W, Metalized Glass. .	2322 734 62702	4015	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3139	Res, 430 ohm, 1%, 1/8W, Metalized Glass	2322 734 64301	4016	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3140	Res, 1 ohm, 5%, 1/3W, Metal Film . . .	2322 205 33108	4018	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3142	Res, 1 ohm, 5%, 1/3W, Metal Film . . .	2322 205 33108	4019	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3147	Res, 3K3, 5%, 1/10W, Metalized Glass .	3198 021 53320	5000	Coil, 10u.	2422 535 95363
3148	Res, 3K3, 5%, 1/10W, Metalized Glass .	3198 021 53320	5001	Coil, 10u.	2422 535 95363
3167	Res, 4K7, 5%, 1/8W, Metalized Glass. .	2322 730 61472	5002	Coil, 10u.	2422 535 95363
3169	Res, 4K7, 5%, 1/8W, Metalized Glass. .	2322 730 61472	5003	Coil, 10u.	2422 535 95363
3176	Res, 4K7, 5%, 1/6W, Carbon Film. . . .	3198 011 04720	5004	Coil, 10u.	2422 535 95363
3177	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	5007	Coil, 5u6.	3198 018 15680
3182	Res, 10K, 5%, 1/10W, Metalized Glass .	3198 021 51030	5011	Coil, 10u.	2422 535 95363
3183	Res, 15K, 5%, 1/6W, Carbon Film. . . .	3198 011 01530	5709	Wire Jumper.	3198 036 90010
3304	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5710	Wire Jumper.	3198 036 90010
3305	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5711	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3313	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5712	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3314	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5713	Coil, 10u.	2422 535 95363
3321	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5714	Coil, 10u.	2422 535 95363
3322	Res, 10 ohm, 5%, 1/6W, Carbon Film . .	3198 011 01090	5715	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
3329	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5716	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
3330	Res, 10 ohm, 5%, 1/6W, Carbon Film . .	3198 011 01090	6001	Diode, Rect, SM S1D	9322 128 69685
3701	Res, 10K, 5%, 1/6W, Carbon Film. . . .	3198 011 01030	6002	Diode, Rect, SM S1D	9322 128 69685
3702	Res, 6K8, 5%, 1/10W, Metalized Glass .	3198 021 56820	6003	Diode, Rect, SM S1D	9322 128 69685
3703	Res, 33K, 5%, 1/10W, Metalized Glass .	3198 021 53330	6004	Diode, Rect, BYV95A	9335 000 90133
3704	Res, 10K, 5%, 1/10W, Metalized Glass .	3198 021 51030	6005	Diode, Rect, SM S1D	9322 128 69685
3705	Res, 10 ohm, 5%, 1/6W, Carbon Film . .	3198 011 01090	6009	Diode, Signal, BAS216.	9340 255 30115
3706	Res, 5K6, 5%, 1/10W, Metalized Glass .	3198 021 55620	6010	Diode, Signal, BAS216.	9340 255 30115
3707	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	6011	Diode, Signal, BAS216.	9340 255 30115
3708	Res, 56K, 5%, 1/10W, Metalized Glass .	3198 021 55630	6020	Diode, Signal, BAV99	9332 153 70215
3709	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	6021	Diode, Signal, BAV99	9332 153 70215
3710	Res, 22K, 5%, 1/10W, Metalized Glass .	3198 021 52230	6023	Diode, Signal, BAV99	9332 153 70215
3711	Res, 120K, 5%, 1/4W, Carbon Film . . .	2120 101 74124	6034	Zener Diode, 33 volt.	9340 388 00115
3712	Res, 10K, 5%, 1/10W, Metalized Glass .	3198 021 51030	6036	Zener Diode, 4.7 volt.	3198 020 54780
3713	Res, 100 ohm, 5%, 1/6W, Carbon Film. .	3198 011 01010	6052	Diode, Signal, BAS316.	3198 010 10630
3714	Res, 47K, 5%, 1/10W, Metalized Glass .	3198 021 54730	6053	Diode, Signal, BAS316.	3198 010 10630
3715	Res, 47K, 5%, 1/6W, Carbon Film. . . .	3198 011 04730	6702	Zener Diode, 5.1 volt.	9340 386 10115
3716	Res, 47K, 5%, 1/10W, Metalized Glass .	3198 021 54730	7002	Transistor, NPN, BC847B.	3198 010 42030
3717	Res, 150K, 5%, 1/10W, Metalized Glass. .	3198 021 51540	7003	Transistor, NPN, BC847B.	3198 010 42030
3718	Res, 150K, 5%, 1/10W, Metalized Glass. .	3198 021 51540	7005	Transistor, NPN, BC817-25.	3198 010 43230
3719	Res, 1K, 5%, 1/10W, Metalized Glass. . .	3198 021 51020	7007	Transistor, NPN, BC817-25.	3198 010 43230
3720	Res, 1K, 5%, 1/10W, Metalized Glass. . .	3198 021 51020	7701	Transistor, NPN, BC847B.	3198 010 42030
3721	Res, 5K6, 5%, 1/10W, Metalized Glass .	3198 021 55620	7704	Transistor, NPN, BC847B.	3198 010 42030
3722	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	7705	Transistor, NPN, BC847B.	3198 010 42030
3723	Res, 56K, 5%, 1/10W, Metalized Glass .	3198 021 55630	7706	Transistor, PNP, BC857B.	3198 010 42150
3724	Res, 100 ohm, 5%, 1/6W, Carbon Film. .	3198 011 01010	7707	Transistor, NPN, BC847B.	3198 010 42030
3725	Res, 22K, 5%, 1/10W, Metalized Glass .	3198 021 52230	7708	Transistor, PNP, BC857B.	3198 010 42150
3726	Res, 3K3, 5%, 1/10W, Metalized Glass .	3198 021 53320	7710	Transistor, NPN, BC847B.	3198 010 42030
3730	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7806	Transistor, NPN, BC847B.	3198 010 42030
3731	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7808	Transistor, NPN, BC847B.	3198 010 42030
3732	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	7809	Transistor, PNP, BC857B.	3198 010 42150
3733	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	7810	Transistor, NPN, BC847B.	3198 010 42030
3790	Res, 4K7, 5%, 1/10W, Metalized Glass .	3198 021 54720	7811	Transistor, PNP, BC857B.	3198 010 42150
3791	Res, 4K7, 5%, 1/10W, Metalized Glass .	3198 021 54720	9003	Wire Jumper.	3198 036 90010
3792	Res, 10K, 5%, 1/6W, Carbon Film. . . .	3198 011 01030	9004	Wire Jumper.	3198 036 90010
3793	Res, 10K, 5%, 1/6W, Carbon Film. . . .	3198 011 01030	9005	Wire Jumper.	3198 036 90010
3796	Res, 10K, 5%, 1/10W, Metalized Glass .	3198 021 51030	9006	Wire Jumper.	3198 036 90010
3797	Res, 180K, 5%, 1/10W, Metalized Glass. .	2120 108 91721	9007	Wire Jumper.	3198 036 90010
3798	Wire Jumper.	3198 036 90010	9008	Wire Jumper.	3198 036 90010
3799	Res, 47K, 5%, 1/10W, Metalized Glass .	3198 021 54730	9014	Wire Jumper.	3198 036 90010
3809	Res, 330 ohm, 5%, 1/3W, Metal Film . .	2322 205 33331	9015	Wire Jumper.	3198 036 90010
3831	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	9017	Wire Jumper.	3198 036 90010
3832	Res, 68K, 5%, 1/6W, Carbon Film. . . .	3198 011 06830	9020	Wire Jumper.	3198 036 90010
3833	Res, 39K, 5%, 1/10W, Metalized Glass .	3198 021 53930	9026	Wire Jumper.	3198 036 90010
3834	Res, 10 ohm, 5%, 1/6W, Carbon Film . .	3198 011 01090	9027	Wire Jumper.	3198 036 90010
3836	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	9028	Wire Jumper.	3198 036 90010
3838	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198 021 53310	9029	Wire Jumper.	3198 036 90010
3841	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	9030	Wire Jumper.	3198 036 90010
3842	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	9031	Wire Jumper.	3198 036 90010
3843	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	9035	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3844	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9036	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3845	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9037	Wire Jumper.	3198 036 90010
3846	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9038	Wire Jumper.	3198 036 90010
3847	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9040	Wire Jumper.	3198 036 90010
3848	Res, 22K, 5%, 1/10W, Metalized Glass .	3198 021 52230	9041	Wire Jumper.	3198 036 90010
3851	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	9042	Wire Jumper.	3198 036 90010
3852	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	9044	Wire Jumper.	3198 036 90010
3853	Res, 68K, 5%, 1/10W, Metalized Glass .	3198 021 56830	9100	Wire Jumper.	3198 036 90010
3854	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9101	Wire Jumper.	3198 036 90010
3855	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9102	Wire Jumper.	3198 036 90010
3856	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9103	Wire Jumper.	3198 036 90010
3857	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	9104	Wire Jumper.	3198 036 90010
3858	Res, 22K, 5%, 1/10W, Metalized Glass .	3198 021 52230	9105	Wire Jumper.	3198 036 90010
4001	Res, Zero ohm, "Chip" Jumper	3198 021 90020	9106	Wire Jumper.	3198 036 90010
4002	Res, Zero ohm, "Chip" Jumper	3198 021 90020	9107	Wire Jumper.	3198 036 90010
4003	Res, Zero ohm, "Chip" Jumper	3198 021 90020	9108	Wire Jumper.	3198 036 90010
4005	Res, Zero ohm, "Chip" Jumper	3198 021 90020	9109	Wire Jumper.	3198 036 90010

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

9110	Wire Jumper.	3198 036 90010	9210	Wire Jumper.	3198 036 90010
9111	Wire Jumper.	3198 036 90010	9211	Wire Jumper.	3198 036 90010
9112	Wire Jumper.	3198 036 90010	9212	Wire Jumper.	3198 036 90010
9113	Wire Jumper.	3198 036 90010	9213	Wire Jumper.	3198 036 90010
9114	Wire Jumper.	3198 036 90010	9214	Wire Jumper.	3198 036 90010
9115	Wire Jumper.	3198 036 90010	9215	Wire Jumper.	3198 036 90010
9116	Wire Jumper.	3198 036 90010	9217	Wire Jumper.	3198 036 90010
9117	Wire Jumper.	3198 036 90010	9218	Wire Jumper.	3198 036 90010
9118	Wire Jumper.	3198 036 90010	9219	Wire Jumper.	3198 036 90010
9119	Wire Jumper.	3198 036 90010	9220	Wire Jumper.	3198 036 90010
9120	Wire Jumper.	3198 036 90010	9221	Wire Jumper.	3198 036 90010
9121	Wire Jumper.	3198 036 90010	9222	Wire Jumper.	3198 036 90010
9122	Wire Jumper.	3198 036 90010	9223	Wire Jumper.	3198 036 90010
9123	Wire Jumper.	3198 036 90010	9224	Wire Jumper.	3198 036 90010
9124	Wire Jumper.	3198 036 90010	9225	Wire Jumper.	3198 036 90010
9125	Wire Jumper.	3198 036 90010	9226	Wire Jumper.	3198 036 90010
9126	Wire Jumper.	3198 036 90010	9227	Wire Jumper.	3198 036 90010
9127	Wire Jumper.	3198 036 90010	9228	Wire Jumper.	3198 036 90010
9128	Wire Jumper.	3198 036 90010	9229	Wire Jumper.	3198 036 90010
9129	Wire Jumper.	3198 036 90010	9230	Wire Jumper.	3198 036 90010
9130	Wire Jumper.	3198 036 90010	9231	Wire Jumper.	3198 036 90010
9131	Wire Jumper.	3198 036 90010	9232	Wire Jumper.	3198 036 90010
9132	Wire Jumper.	3198 036 90010	9233	Wire Jumper.	3198 036 90010
9133	Wire Jumper.	3198 036 90010	9234	Wire Jumper.	3198 036 90010
9134	Wire Jumper.	3198 036 90010	9235	Wire Jumper.	3198 036 90010
9135	Wire Jumper.	3198 036 90010	9237	Wire Jumper.	3198 036 90010
9136	Wire Jumper.	3198 036 90010	9238	Wire Jumper.	3198 036 90010
9137	Wire Jumper.	3198 036 90010	9239	Wire Jumper.	3198 036 90010
9138	Wire Jumper.	3198 036 90010	9240	Wire Jumper.	3198 036 90010
9139	Wire Jumper.	3198 036 90010	9241	Wire Jumper.	3198 036 90010
9140	Wire Jumper.	3198 036 90010	9242	Wire Jumper.	3198 036 90010
9141	Wire Jumper.	3198 036 90010	9243	Wire Jumper.	3198 036 90010
9142	Wire Jumper.	3198 036 90010	9244	Wire Jumper.	3198 036 90010
9143	Wire Jumper.	3198 036 90010	9245	Wire Jumper.	3198 036 90010
9144	Wire Jumper.	3198 036 90010	9246	Wire Jumper.	3198 036 90010
9145	Wire Jumper.	3198 036 90010	9247	Wire Jumper.	3198 036 90010
9146	Wire Jumper.	3198 036 90010	9248	Wire Jumper.	3198 036 90010
9148	Wire Jumper.	3198 036 90010	9249	Wire Jumper.	3198 036 90010
9149	Wire Jumper.	3198 036 90010	9250	Wire Jumper.	3198 036 90010
9150	Wire Jumper.	3198 036 90010	9251	Wire Jumper.	3198 036 90010
9151	Wire Jumper.	3198 036 90010	9252	Wire Jumper.	3198 036 90010
9152	Wire Jumper.	3198 036 90010	9254	Wire Jumper.	3198 036 90010
9153	Wire Jumper.	3198 036 90010	9255	Wire Jumper.	3198 036 90010
9154	Wire Jumper.	3198 036 90010	9256	Wire Jumper.	3198 036 90010
9155	Wire Jumper.	3198 036 90010	9257	Wire Jumper.	3198 036 90010
9156	Wire Jumper.	3198 036 90010	9258	Wire Jumper.	3198 036 90010
9157	Wire Jumper.	3198 036 90010	9259	Wire Jumper.	3198 036 90010
9158	Wire Jumper.	3198 036 90010	9260	Wire Jumper.	3198 036 90010
9159	Wire Jumper.	3198 036 90010	9261	Wire Jumper.	3198 036 90010
9160	Wire Jumper.	3198 036 90010	9263	Wire Jumper.	3198 036 90010
9161	Wire Jumper.	3198 036 90010	9264	Wire Jumper.	3198 036 90010
9162	Wire Jumper.	3198 036 90010	9265	Wire Jumper.	3198 036 90010
9163	Wire Jumper.	3198 036 90010	9266	Wire Jumper.	3198 036 90010
9164	Wire Jumper.	3198 036 90010	9268	Wire Jumper.	3198 036 90010
9165	Wire Jumper.	3198 036 90010			
9166	Wire Jumper.	3198 036 90010			
9167	Wire Jumper.	3198 036 90010			
9168	Wire Jumper.	3198 036 90010			
9169	Wire Jumper.	3198 036 90010			
9170	Wire Jumper.	3198 036 90010			
9171	Wire Jumper.	3198 036 90010			
9172	Wire Jumper.	3198 036 90010			
9173	Wire Jumper.	3198 036 90010			
9174	Wire Jumper.	3198 036 90010			
9175	Wire Jumper.	3198 036 90010			
9176	Wire Jumper.	3198 036 90010			
9178	Wire Jumper.	3198 036 90010			
9179	Wire Jumper.	3198 036 90010			
9181	Wire Jumper.	3198 036 90010			
9182	Wire Jumper.	3198 036 90010			
9183	Wire Jumper.	3198 036 90010			
9185	Wire Jumper.	3198 036 90010			
9186	Wire Jumper.	3198 036 90010			
9187	Wire Jumper.	3198 036 90010			
9188	Wire Jumper.	3198 036 90010			
9189	Wire Jumper.	3198 036 90010			
9190	Wire Jumper.	3198 036 90010			
9191	Wire Jumper.	3198 036 90010			
9192	Wire Jumper.	3198 036 90010			
9193	Wire Jumper.	3198 036 90010			
9194	Wire Jumper.	3198 036 90010			
9195	Wire Jumper.	3198 036 90010			
9196	Wire Jumper.	3198 036 90010			
9197	Wire Jumper.	3198 036 90010			
9199	Wire Jumper.	3198 036 90010			
9201	Wire Jumper.	3198 036 90010			
9203	Wire Jumper.	3198 036 90010			
9204	Wire Jumper.	3198 036 90010			
9206	Wire Jumper.	3198 036 90010			
9207	Wire Jumper.	3198 036 90010			
9208	Wire Jumper.	3198 036 90010			
9209	Wire Jumper.	3198 036 90010			

SSM PANEL

1000	Connector, 5 Pin	2422 025 16976
1001	Connector, 5 Pin	2422 025 16976
1002	Connector, 1 Pin	2422 015 18552
1003	Connector, 1 Pin	2422 015 18552
1005	Connector, 4 Pin	2422 025 10647
1006	Connector, 4 Pin	2422 025 10647
1007	Connector, 4 Pin	2422 025 10647
1009	Connector, 9 Pin	2422 025 16049
1010	Connector, 1 Pin	2422 015 18552
1012	4 Pin Board Connector	2422 025 09406
1013	Connector, 3 Pin	2422 025 10768
1014	Connector, 7 Pin	2422 025 11244
1020	Connector, 80 pin	2422 025 16599
1024	Socket	2422 026 05716
1026	Socket 10 Pin	2422 026 04926
1028	Connector, 3 Pin	2422 025 09191
1030	Connector, 3 Pin	2422 025 11117
1043	Connector, 10 Pin	2422 025 16587
1102	Connector, 2 Pin	2422 025 08333
1106	Tuner	3139 147 23541
1250	Connector, 9 Pin	2422 025 16049
1302	Connector, 2 Pin	2422 025 09405
1335	Connector, 10 Pin	2422 025 12484
1349	Connector, 5 Pin	2422 025 15832
1410	Cable, 1 pin	3135 031 00531
1411	Cable, 1 pin	3135 031 00521
1412	Cable, 1 pin	3135 031 00601
1516	Connector, 2 Pin	2422 025 08333
1518	Connector, 2 Pin	2422 025 08333
1610	Connector, 5 Pin	2422 025 12481
1950	Connector, 9 Pin	2422 025 16049
2059	Cap, 470u, 20%, 50v, Electrolytic	3198 026 54710
2730	Cap, 2u2, 20%, 16v, Electrolytic	2020 021 91763
2731	Cap, 2u2, 20%, 16v, Electrolytic	2020 021 91763
2813	Cap, 470u, 20%, 25v, Electrolytic	3198 026 34710

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3000	Res, 22K, 5%, 1 1/3W, Metal Film . . .	3198	012	22230
3149	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3150	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3151	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3152	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3153	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3154	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3155	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3156	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3157	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3158	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3159	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3160	Res, 6R8, 5%, 1W, Metal Film . . .	2120	106	90297
3161	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
3162	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
3163	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
3164	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
3165	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
3166	Res, 100 ohm, 5%, 3W, Metal Film . . .	2120	105	93449
5701	Inductor, Fixed, 68uh, 20% . . .	2422	536	00951
5702	Inductor, Fixed, 68uh, 20% . . .	2422	536	00951
7017	IC CXA2089S . . .	9322	162	27682
7044	IC TF STK392-120 . . .	9322	123	44682
7045	IC TF STK392-120 . . .	9322	123	44682
7101	IC L7912CV . . .	9337	107	20682
7102	IC L7908CV . . .	9322	069	79682
7103	IC L7812CV . . .	9335	040	20682
7105	IC L7805CV . . .	9335	202	90682
7106	IC LM317T . . .	9337	220	80682
7700	IC TDA7490L . . .	9322	163	86682

ATSC PANEL

CBA	LSM Assy . . .	3139	267	14811
S 1801	Fuse, T2A, 250V . . .	2422	086	10783
S 1804	Fuse, T1A, 250V . . .	2422	086	10779
S 1805	Fuse, T1A, 250V . . .	2422	086	10779
S 1900	Surge Protector . . .	2422	549	43675
2302	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2303	Cap, 100u, 20%, 25v, Electrolytic . . .	2020	012	92639
2304	Cap, 330p, 10%, 1000v, Ceramic . . .	2020	558	90554
2305	Cap, 470p, 10%, 50v, Ceramic . . .	3198	019	14710
2306	Cap, 1u, 20%, 50v, Electrolytic . . .	3198	025	51080
2307	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	019	14720
2308	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	019	14720
2309	Cap, 82p, 5%, 50v, Ceramic . . .	3198	019	08290
2310	Cap, 680p, 10%, 50v, Ceramic . . .	3198	019	16810
2311	Cap, 1n, 10%, 50v, Ceramic . . .	3198	019	11020
2312	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2315	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2318	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2319	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2322	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2323	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2325	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2326	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2328	Cap, 1u, 20%, 50v, Electrolytic . . .	3198	025	51080
2329	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2332	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2334	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	019	14720
2335	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2336	Cap, 10u, 20%, 50v, Electrolytic . . .	3198	025	51090
2346	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2349	Cap, 10n, +80/-20%, 50v, Ceramic . . .	3198	019	21030
2350	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2353	Cap, 220p, 10%, 50v, Ceramic . . .	3198	019	12210
2354	Cap, 47u, 20%, 25v, Electrolytic . . .	3198	025	34790
2361	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2364	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90471
2370	Cap, 100p, 10%, 500v, Ceramic . . .	3198	019	41010
2371	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2372	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2803	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2805	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2806	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2807	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2808	Cap, 47u, 20%, 50v, Electrolytic . . .	3198	025	54790
2810	Cap, 47u, 20%, 25v, Electrolytic . . .	3198	025	34790
2811	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2814	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2821	Cap, 100n, 10%, 50v, Polyester . . .	3198	014	01040
2822	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	017	04720
2823	Cap, 2n2, 10%, 50v, Ceramic . . .	3198	019	12220
2824	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	017	04720
2825	Cap, 100u, 20%, 50v, Electrolytic . . .	3198	025	51010
2826	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2827	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2828	Cap, 470n, 10%, 63v, Metalized Polyester . . .	2222	365	75474
2829	Cap, 1n, 10%, 500v, Ceramic . . .	3198	019	41020
2830	Cap, 22n, 10%, 50v, Ceramic . . .	3198	017	02230
2831	Cap, 1n, 10%, 500v, Ceramic . . .	3198	019	41020
2832	Cap, 10n, 10%, 50v, Ceramic . . .	3198	017	01030

2833	Cap, 47u, 20%, 50v, Electrolytic . . .	3198	025	54790
2834	Cap, 470p, 10%, 500v, Ceramic . . .	3198	019	44710
2837	Cap, 1u, 20%, 50v, Electrolytic . . .	3198	025	51080
2838	Cap, 1n, 10%, 50v, Ceramic . . .	3198	017	01020
2839	Cap, 1n, 10%, 50v, Ceramic . . .	3198	017	01020
2840	Cap, 2n2, 10%, 1000v, Ceramic . . .	3198	019	52220
2841	Cap, 10n, 10%, 50v, Ceramic . . .	3198	017	01030
2843	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
2844	Cap, 10u, 20%, 50v, Electrolytic . . .	3198	025	51090
2845	Cap, 100n, +80/-20%, 25v, Ceramic . . .	3198	023	21040
2846	Cap, 330p, 10%, 50v, Ceramic . . .	3198	017	03310
2847	Cap, 470p, 10%, 1000v, Ceramic . . .	2020	558	90555
2902	Cap, 2n2, 10%, 1000v, Ceramic . . .	3198	019	52220
2903	Cap, 4u7, 20%, 50v, Electrolytic . . .	3198	025	54780
2904	Cap, 10n, 10%, 50v, Ceramic . . .	3198	017	01030
2905	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
2906	Cap, 1n, 10%, 50v, Ceramic . . .	3198	017	01020
2907	Cap, 4n7, 10%, 250v, Metalized Polyester . . .	2222	370	35472
2910	Cap, 33n, 10%, 50v, Ceramic . . .	3198	017	03330
2911	Cap, 47u, 20%, 25v, Electrolytic . . .	3198	025	34790
2912	Cap, 10u, 20%, 50v, Electrolytic . . .	3198	025	51090
2914	Cap, 10u, 20%, 50v, Electrolytic . . .	3198	025	51090
2915	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
2916	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
2918	Cap, 2n2, 10%, 1000v, Ceramic . . .	3198	019	52220
2919	Cap, 1n, 10%, 1000v, Ceramic . . .	3198	019	61020
2920	Cap, 4u7, 20%, 250v, Electrolytic . . .	2020	012	93293
2921	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
2922	Cap, 100p, 10%, 1000v, Ceramic . . .	3198	019	51010
2924	Cap, 100p, 10%, 1000v, Ceramic . . .	3198	019	51010
2925	Cap, 100p, 10%, 1000v, Ceramic . . .	3198	019	51010
2926	Cap, 4n7, 10%, 50v, Ceramic . . .	3198	017	04720
2927	Cap, 100n, 10%, 16v, Ceramic . . .	3198	017	01040
3303	Res, 100K, 5%, 1/10W, Metalized Glass . . .	3198	021	51040
3304	Res, 1K, 5%, 1/10W, Metalized Glass . . .	3198	021	51020
3305	Res, 10K, 5%, 1/6W, Carbon Film . . .	3198	011	01030
3306	Res, 15 ohm, 5%, 1/10W, Metalized Glass . . .	3198	021	51590
3307	Res, 4R7, 5%, 1/6W, Carbon Film . . .	3198	011	04780
3310	Res, 390 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	03910
3311	Res, 4R7, 5%, 1/6W, Carbon Film . . .	3198	011	04780
3312	Res, 75 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	07590
3313	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198	021	51030
3314	Res, 82K, 5%, 1/6W, Carbon Film . . .	3198	011	08230
3315	Res, 15K, 5%, 1/10W, Metalized Glass . . .	3198	021	51530
3316	Res, 1K, 5%, 1/10W, Metalized Glass . . .	3198	021	51020
3317	Res, 47K, 5%, 1/10W, Metalized Glass . . .	3198	021	54730
3318	Res, 150K, 5%, 1/10W, Metalized Glass . . .	3198	021	51540
3319	Res, 15K, 5%, 1/10W, Metalized Glass . . .	3198	021	51530
3322	Res, Trim. Carbon Linear 470 ohm . . .	2120	368	90118
3323	Res, 2K7, 1%, 3/5W, Metal Film . . .	2312	915	12702
3324	Res, 100K, 1%, 3/5W, Metal Film . . .	2312	915	11004
3325	Res, 47K, 5%, 1/6W, Carbon Film . . .	3198	011	04730
3326	Res, 4K7, 5%, 1/10W, Metalized Glass . . .	3198	021	54720
3327	Res, 100 ohm, 5%, 1/10W, Metalized Glas . . .	3198	021	51010
3328	Res, 100 ohm, 5%, 1/10W, Metalized Glas . . .	3198	021	51010
3329	Res, 330 ohm, 5%, 1/10W, Metalized Glas . . .	3198	021	53310
3343	Res, 15K, 5%, 1/10W, Metalized Glass . . .	3198	021	51530
3344	Res, 15K, 5%, 1/10W, Metalized Glass . . .	3198	021	51530
3345	Res, 10 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	01090
3347	Res, 10K, 5%, 1/6W, Carbon Film . . .	3198	011	01030
3350	Res, 47K, 1%, 3/5W, Metal Film . . .	2312	915	14703
3352	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3353	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3354	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3355	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3356	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3357	Res, 4K7, 1%, 3/5W, Metal Film . . .	2312	915	14702
3358	Res, 18K, 5%, 1/6W, Carbon Film . . .	3198	011	01830
3360	Res, 100 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	01010
3361	Res, 4K7, 5%, 1/6W, Carbon Film . . .	3198	011	04720
3362	Res, 6K8, 5%, 1/6W, Carbon Film . . .	3198	011	06820
3363	Res, 3K3, 5%, 1/10W, Metalized Glass . . .	3198	021	53320
3803	Res, 10 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	01090
3804	Res, 220 ohm, 1%, 3/5W, Metal Film . . .	2312	915	12201
3805	Res, 220 ohm, 1%, 3/5W, Metal Film . . .	2312	915	12201
3806	Res, 220 ohm, 1%, 3/5W, Metal Film . . .	2312	915	12201
3810	Res, 1 ohm, 5%, 1/3W, Metal Film . . .	2322	205	33108
3811	Res, 100 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	01010
3812	Res, 100 ohm, 5%, 1/6W, Carbon Film . . .	3198	011	01010
3813	Res, 1K87, 1%, 1/8W, Metalized Glass . . .	2322	734	61872
3814	Res, 1K87, 1%, 1/8W, Metalized Glass . . .	2322	734	61872
3815	Res, 2K7, 5%, 1/6W, Carbon Film . . .	3198	011	02720
3817	Res, 1 ohm, 5%, 1/3W, Metal Film . . .	2322	205	33108
3822	Res, 1 ohm, 5%, 1/3W, Metal Film . . .	2322	205	33108
3823	Res, 47K, 5%, 1/10W, Metalized Glass . . .	3198	021	54730
3824	Res, 1K5, 5%, 1/10W, Metalized Glass . . .	3198	021	51520
3825	Res, 100 ohm, 5%, 1/10W, Metalized Glas . . .	3198	021	51010
3826	Res, 27K, 5%, 1/10W, Metalized Glass . . .	3198	021	52730
3827	Res, 1K, 5%, 1/10W, Metalized Glass . . .	3198	021	51020
3829	Res, 68K, 5%, 1/6W, Carbon Film . . .	3198	011	06830
3832	Res, 100K, 5%, 1/10W, Metalized Glass . . .	3198	021	51040
3833	Res, 18K, 5%, 1/10W, Metalized Glass . . .	3198	021	51830

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3834	Res, 47 ohm, 5%, 1/6W, Carbon Film . . .	3198 011 04790	5324	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
3835	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198 021 54710	5336	Coil, 10u.	2422 535 95363
3836	Res, 2K2, 5%, 1/10W, Metalized Glass . .	3198 021 52220	5809	Coil, 47u.	3198 018 24790
3841	Res, 470K, 5%, 1/10W, Metalized Glass . .	3198 021 54740	5810	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
3842	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	5811	Fixed, Inductor, 100MHZ, 50R.	3198 018 90010
3843	Res, 2K2, 5%, 1/10W, Metalized Glass . . .	3198 021 52220	5903	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
3844	Res, 22K, 5%, 1/6W, Carbon Film.	3198 011 02230	6301	Diode, Rect, BYV95C	9335 001 80133
3845	Res, 22K, 5%, 1/10W, Metalized Glass . . .	3198 021 52230	6302	Diode, Rect, 1N5062	9330 764 50133
3846	Res, 1 ohm, 5%, 1/3W, Metal Film	2322 205 33108	6303	Diode, Rect, 1N5062	9330 764 50133
3847	Res, 100K, 5%, 1/10W, Metalized Glass . . .	3198 021 51040	6310	Diode, Rect, BYV95A	9335 000 90133
3848	Res, 27K, 5%, 1/10W, Metalized Glass . . .	3198 021 52730	6313	Diode, Signal, 1N4148.	9330 839 90133
3849	Res, 2K2, 5%, 1/10W, Metalized Glass . . .	3198 021 52220	6318	Diode, Rect, BYV95C	9335 001 80133
3850	Res, 47K, 5%, 1/6W, Carbon Film.	3198 011 04730	6320	Diode, Signal, 1N4148.	9330 839 90133
3851	Res, 1K, 5%, 1/10W, Metalized Glass. . . .	3198 021 51020	6321	Diode, Signal, 1N4148.	9330 839 90133
3852	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	6802	Diode, Rect, BYV95C	9335 001 80133
3853	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6804	Zener Diode, 4.7 volt.	3198 010 24780
3854	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6805	Diode, Rect, BYV27-200.	9335 526 80133
3855	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198 021 53310	6806	Diode, Rect, BYV27-200.	9335 526 80133
3856	Res, 4K7, 5%, 1/10W, Metalized Glass . . .	3198 021 54720	6807	Diode, Signal, BAS216.	9340 255 30115
3857	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6808	Diode, Signal, BAS216.	9340 255 30115
3858	Res, 4K7, 5%, 1/10W, Metalized Glass . . .	3198 021 54720	6809	Diode, Rect, BYV95C	9335 001 80133
3859	Res, 15K, 5%, 1/6W, Carbon Film.	3198 011 01530	6811	Diode, Rect, BYV27-200.	9335 526 80133
3861	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6812	Zener Diode, 68 volt	3198 010 26890
3862	Res, 15K, 5%, 1/6W, Carbon Film.	3198 011 01530	6813	Zener Diode, 10 volt	9340 386 80115
3864	Res, 15K, 5%, 1/6W, Carbon Film.	3198 011 01530	6814	Zener Diode, 10 volt	9340 386 80115
3865	Res, 2K2, 5%, 1/10W, Metalized Glass . . .	3198 021 52220	6815	Diode, Signal, BAS216.	9340 255 30115
3867	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	6816	Zener Diode, 68 volt	3198 010 26890
3868	Res, 1K, 5%, 1/10W, Metalized Glass. . . .	3198 021 51020	6817	Diode, Signal, BAS216.	9340 255 30115
3900	Res, 2K7, 5%, 1/6W, Carbon Film.	3198 011 02720	6818	Diode, Signal, BAS216.	9340 255 30115
3901	Res, 100 ohm, 20%, 1/2W, Carbon Film . . .	2120 103 90057	6819	Zener Diode, 18 volt	3198 010 21890
3902	Res, 1K5, 20%, 1/2W, Carbon Film	2120 103 90016	6820	Zener Diode, 10 volt	9340 386 80115
3903	Res, 330K, 5%, 1/4W, Metalized Glass . . .	2322 241 53334	6821	Diode, Signal, BAS216.	9340 255 30115
3904	Res, 22K, 5%, 1/6W, Carbon Film.	3198 011 02230	6822	Diode, Rect, BYV95C	9335 001 80133
3905	Res, 27K, 5%, 1/6W, Carbon Film.	3198 011 02730	6823	Diode, Signal, BAS216.	9340 255 30115
3906	Res, 1K, 5%, 1/10W, Metalized Glass. . . .	3198 021 51020	6824	Zener Diode, 10 volt	9340 386 80115
3907	Res, 100 ohm, 20%, 1/2W, Carbon Film . . .	2120 103 90057	6825	Zener Diode, 10 volt	9340 386 80115
3908	Res, 22 ohm, 5%, 1/3W, Metal Film	2322 205 33229	6826	Zener Diode, 18 volt	3198 010 21890
3909	Res, 1K5, 20%, 1/2W, Carbon Film	2120 103 90016	6827	Diode, Rect, BYV27-200.	9335 526 80133
3910	Res, 6K8, 5%, 1/6W, Carbon Film.	3198 011 06820	6828	Zener Diode, 10 volt	9340 386 80115
3911	Res, 56K, 1%, 3/5W, Metal Film	2312 915 15603	6829	Diode, Signal, BAS216.	9340 255 30115
3912	Res, 1K5, 20%, 1/2W, Carbon Film	2120 103 90016	6830	Diode, Signal, BAS216.	9340 255 30115
3913	Res, 8K2, 5%, 1/6W, Carbon Film.	3198 011 08220	6831	Diode, Signal, BAS216.	9340 255 30115
3914	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	6832	Zener Diode, 15 volt	9340 387 20115
3915	Res, 2K2, 5%, 1/6W, Carbon Film.	3198 011 02220	6901	Diode, Signal, BAS216.	9340 255 30115
3916	Res, 10 ohm, 5%, 1/3W, Metal Film	2322 205 33109	6902	Zener Diode, 18 volt	3198 010 21890
3917	Res, 22K, 5%, 1/10W, Metalized Glass . . .	3198 021 52230	6903	Zener Diode, 4.7 volt.	3198 010 24780
3918	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	6904	Diode, Signal, BAS216.	9340 255 30115
3919	Res, 120K, 5%, 1/8W, Metalized Glass . . .	2322 730 61124	6905	Zener Diode, 3.9 volt.	3198 010 23980
3920	Res, 120K, 5%, 1/8W, Metalized Glass . . .	2322 730 61124	6906	Zener Diode, 8.2 volt.	3198 010 28280
3921	Res, 470K, 5%, 1/10W, Metalized Glass. . .	3198 021 54740	6908	Diode, Signal, BAS216.	9340 255 30115
3922	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6909	Diode, Signal, 1N4148.	3198 010 10010
3923	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198 021 54710	6910	Diode, Signal, BAT85	9336 247 60133
3924	Res, 47K, 5%, 1/10W, Metalized Glass . . .	3198 021 54730	6912	Diode, Signal, BAS216.	9340 255 30115
3925	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	6913	Diode, Signal, BAS216.	9340 255 30115
3926	Res, 220K, 5%, 1/6W, Carbon Film	3198 011 02240	6914	Diode, Signal, BAS216.	9340 255 30115
3927	Res, 2M2, 5%, 1/4W, Metalized Glass. . . .	2322 241 53225	6915	Diode, Rect, BYV27-600.	9340 418 70133
3928	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6916	Diode, Rect, BYV27-600.	9340 418 70133
3929	Res, 10K, 5%, 1/10W, Metalized Glass . . .	3198 021 51030	6917	Diode, Rect, BYV27-400.	9340 366 90133
3930	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	6919	Diode, Signal, BAT254.	9340 393 00115
3931	Res, 1K, 5%, 1/6W, Carbon Film	3198 011 01020	7300	Transistor, NPN, BC547B.	3198 020 40030
3932	Res, 18K, 5%, 1/10W, Metalized Glass . . .	3198 021 51830	7304	IC TL431BCLP	9322 115 98676
3933	Res, 10 ohm, 5%, 1/6W, Carbon Film	3198 011 01090	7305	IC TL431BCLP	9322 115 98676
3934	Res, 4K7, 5%, 1/6W, Carbon Film.	3198 011 04720	7309	Transistor, NPN, BC547B.	3198 020 40030
3935	Res, 2M2, 5%, 1/4W, Metalized Glass. . . .	2322 241 53225	7803	IC, LM393D	9339 849 10668
3936	Res, 10 ohm, 5%, 1/6W, Carbon Film	3198 011 01090	7807	FET POW BSN304	9340 235 30126
3937	Res, 4R7, 5%, 1/6W, Carbon Film.	3198 011 04780	7808	Transistor, NPN, BC847B.	3198 010 42030
3940	Res, 100K, 5%, 1/6W, Carbon Film	3198 011 01040	7809	Transistor, NPN, BC847B.	3198 010 42030
4101	Res, Zero ohm, "Chip" Jumper	3198 021 90020	7810	Transistor, NPN, BC847B.	3198 010 42030
4103	Res, Zero ohm, "Chip" Jumper	3198 021 90020	7812	Transistor, PNP, BF423	9332 593 60126
5301	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7813	Transistor, NPN, BC847B.	3198 010 42030
5302	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7814	Transistor, PNP, BC857B.	3198 010 42150
5303	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7902	Transistor, NPN, BC847B.	3198 010 42030
5304	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7903	Transistor, PNP, BC327-25.	3198 020 43430
5305	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7904	Transistor, NPN, BC847B.	3198 010 42030
5306	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	7905	Transistor, PNP, BC857B.	3198 010 42150
5307	Coil, 10u.	2422 535 95363	7906	Transistor, NPN, BC847B.	3198 010 42030
5308	Coil, 1u	2422 535 95387	9000	Wire Jumper.	3198 036 90010
5309	Coil, 10u.	2422 535 95363	9106	Wire Jumper.	3198 036 90010
5310	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9109	Wire Jumper.	3198 036 90010
5311	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9110	Wire Jumper.	3198 036 90010
5312	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9138	Wire Jumper.	3198 036 90010
5313	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9139	Wire Jumper.	3198 036 90010
5314	Coil, 10u.	2422 535 95363	9140	Wire Jumper.	3198 036 90010
5315	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9141	Wire Jumper.	3198 036 90010
5316	Coil, 10u.	2422 535 95363	9142	Wire Jumper.	3198 036 90010
5317	Coil, 10u.	2422 535 95363	9143	Wire Jumper.	3198 036 90010
5318	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9146	Wire Jumper.	3198 036 90010
5319	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9149	Wire Jumper.	3198 036 90010
5320	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9153	Wire Jumper.	3198 036 90010
5321	Coil, 1u	2422 535 95387	9156	Wire Jumper.	3198 036 90010
5322	Coil, 10u.	2422 535 95363	9158	Wire Jumper.	3198 036 90010
5323	Fixed, Inductor, 100MHZ, 80 ohm.	3198 018 90020	9161	Wire Jumper.	3198 036 90010

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

9162	Wire Jumper.	3198 036 90010	2917	Cap, 47u, 20%, 200v, Electrolytic.	2020 012 93486
9165	Wire Jumper.	3198 036 90010	3300	Res, 22K, 5%, 5W, Metal Film	2322 257 41223
9166	Wire Jumper.	3198 036 90010	3301	Res, 220 ohm, 5%, 5W, Wire Wound	2322 251 41221
9167	Wire Jumper.	3198 036 90010	3302	Res, 220 ohm, 5%, 5W, Wire Wound	2322 251 41221
9168	Wire Jumper.	3198 036 90010	3308	Res, 0R22, 5%, 3/5W, Metal Film	3198 012 12270
9169	Wire Jumper.	3198 036 90010	3309	Res, 0R22, 5%, 3/5W, Metal Film	3198 012 12270
9170	Wire Jumper.	3198 036 90010	3351	Res, 150 ohm, 5%, 1W, Metal Film	3198 012 11510
9171	Wire Jumper.	3198 036 90010	3359	Res, 68K, 5%, 1W, Metal Film	2322 193 53683
9172	Wire Jumper.	3198 036 90010	3365	Res, 220 ohm, 5%, 5W, Wire Wound	2322 251 41221
9173	Wire Jumper.	3198 036 90010	3801	Res, 0R68, 5%, 2 1/2W, Metal Film	3198 012 36870
9176	Wire Jumper.	3198 036 90010	3802	Res, 1K, 5%, 1W, Metal Film	3198 012 11020
9177	Wire Jumper.	3198 036 90010	3807	Res, 47 ohm, 5%, 2 1/2W, Metal Film	3198 012 34790
9178	Wire Jumper.	3198 036 90010	3808	Res, 470 ohm, 5%, 1W, Metal Film	3198 012 14710
9179	Wire Jumper.	3198 036 90010	3809	Res, 4R7, 5%, 1W, Metal Film	3198 012 14780
9180	Wire Jumper.	3198 036 90010	3816	Res, 1 ohm, 5%, 1W, Metal Film	3198 012 11080
9181	Wire Jumper.	3198 036 90010	3818	Res, 1R5, 5%, 1W, Metal Film	3198 012 11580
9187	Wire Jumper.	3198 036 90010	3819	Res, 470 ohm, 5%, 1W, Metal Film	3198 012 14710
9188	Wire Jumper.	3198 036 90010	3820	Res, 1R5, 5%, 1W, Metal Film	3198 012 11580
9189	Wire Jumper.	3198 036 90010	3821	Res, 1R5, 5%, 1W, Metal Film	3198 012 11580
9190	Wire Jumper.	3198 036 90010	3837	Res, 4K7, 5%, 1W, Metal Film	3198 012 14720
9191	Wire Jumper.	3198 036 90010	3838	Res, 1 ohm, 5%, 1W, Metal Film	3198 012 11080
9193	Wire Jumper.	3198 036 90010	3839	Res, 4K7, 5%, 5W, Metal Film	2322 257 41472
9195	Wire Jumper.	3198 036 90010	3840	Res, 4K7, 5%, 5W, Metal Film	2322 257 41472
9198	Wire Jumper.	3198 036 90010	3860	Res, 47K, 5%, 1W, Metal Film	3198 012 14730
9302	Wire Jumper.	3198 036 90010	3866	Res, 150 ohm, 5%, 1W, Metal Film	3198 012 11510
9303	Wire Jumper.	3198 036 90010	5300	Transformer, US54304-00 B.	2422 531 00024
9304	Wire Jumper.	3198 036 90010	S 5330	Mains Filter	2422 549 44041
9307	Wire Jumper.	3198 036 90010	5801	Transformer, US40104-01 B.	2422 531 02512
9308	Wire Jumper.	3198 036 90010	5802	Coil, 47u.	2422 535 95282
9309	Wire Jumper.	3198 036 90010	5803	Coil, 2u2.	2422 535 91014
9804	Wire Jumper.	3198 036 90010	5804	Coil, 5u1.	2422 549 45206
9805	Wire Jumper.	3198 036 90010	5805	Coil, 90u.	2422 536 00272
9807	Wire Jumper.	3198 036 90010	5807	Coil, 2u2.	2422 535 91014
9808	Wire Jumper.	3198 036 90010	5808	Transformer, Driver, UD15201-05 B.	2422 531 02554
9809	Wire Jumper.	3198 036 90010	5901	Transformer, DAF, W8073-001 Y.	2422 531 02434
9811	Wire Jumper.	3198 036 90010	5902	Coil, 47u.	2422 535 95282
9813	Wire Jumper.	3198 036 90010	5904	High Voltage Generator.	3122 268 32943
9814	Wire Jumper.	3198 036 90010	6304	Diode, Rect, BY229X-600	9340 380 20127
9815	Wire Jumper.	3198 036 90010	6306	Diode, Rect, BY229X-600	9340 380 20127
9816	Wire Jumper.	3198 036 90010	6307	Diode, Rect, BY229X-600	9340 380 20127
9818	Wire Jumper.	3198 036 90010	6308	Diode, Rect, BY229X-600	9340 380 20127
			6309	Diode, Rect, BY229X-600	9340 380 20127
			6314	Diode, Rect, BY229X-600	9340 380 20127
			6316	Diode, Rect, BY229X-600	9340 380 20127
			6317	Diode, Rect, BY229X-600	9340 380 20127
			6801	Diode, Rect, BY229X-200	9340 380 00127
			6803	Diode, Rect, BY229X-200	9340 380 00127
			6810	Diode, Rect, BYM357DX	9340 560 29127
			7301	FET Power, STW13NB60	9322 121 46687
			7302	IC MC44603APG.	9322 108 36682
			7303	Optic Coupler, CQY80NG	9338 941 50682
			7801	Transistor, NPN, BU2520AF.	9340 153 80127
			7802	FET Power, 2SK2232	9322 135 90687
			7811	IC, E-STV8172A	9322 205 56682
			7901	Transistor, NPN, BF487	9337 626 60112

LARGE SIGNAL PANEL

	LARGE SIGNAL PANEL	
1000	HEATSINK TO-220	3135 011 03291
1202	Connector, 4 Pin	2422 025 12479
S 1300	Fuse, T5A, 250V.	2422 093 00035
1305	Relay, 1P 5V 5A.	2422 132 07314
1500	Connector, 5 Pin	2422 025 11472
1501	Connector, 4 Pin	2422 025 16153
1502	Connector, 4 Pin	2422 025 16153
1503	Connector, 4 Pin	2422 025 16153
1504	Connector, 3 Pin	2422 025 14409
1505	Connector, 1 Pin	2422 015 18552
1506	Connector, 1 Pin	2422 015 18552
1510	Connector, 2 Pin	2422 025 08333
1516	Connector, 2 Pin	2422 025 08333
1518	Connector, 2 Pin	2422 025 08333
1901	Connector, 3 Pin	2412 020 00725
2301	Cap, 2n2, 10%, 2000v, Ceramic	2020 558 90559
2313	Cap, 470u, 20%, 200v, Electrolytic	2020 021 91321
2314	Cap, 470u, 20%, 200v, Electrolytic	2020 021 91321
2316	Cap, 1000u, 20%, 50v, Electrolytic	2020 021 91415
2317	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2320	Cap, 1000u, 20%, 50v, Electrolytic	2020 021 91415
2321	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2324	Cap, 1000u, 20%, 50v, Electrolytic	2020 021 91415
2327	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2330	Cap, 1000u, 20%, 50v, Electrolytic	2020 021 91415
2331	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2338	Cap, 470u, 20%, 200v, Electrolytic	2020 021 91321
2362	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2363	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2365	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
2366	Cap, 1000u, 20%, 50v, Electrolytic	2020 012 93471
S 2390	Cap, 2n2, 20%, v, Ceramic	2020 554 90173
2801	Cap, 47u, 20%, 160v, Electrolytic	2020 012 93545
2802	Cap, 22u, 20%, 250v, Electrolytic	2020 012 93386
2804	Cap, 470u, 20%, 35v, Electrolytic	3198 026 44710
2812	Cap, 1000u, 20%, 16v, Electrolytic	3198 026 21020
2813	Cap, 1000u, 20%, 16v, Electrolytic	3198 026 21020
2815	Cap, 10u, 20%, 250v, Electrolytic	2020 012 93495
2816	Cap, 430n, 5%, 250v, Metalized Polyprop	2222 479 90022
2817	Cap, 560p, 10%, 2000v, Ceramic	2020 558 90484
2818	Cap, 8n2, 5%, 2000v, Polypropylene	2222 375 90173
2819	Cap, 22n, 5%, 630v, Polypropylene	2222 375 90219
2820	Cap, 4u7, 10%, 100v, Metalized Polyeste	2222 368 90178
2835	Cap, 1m5, 20%, 35v, Electrolytic	2020 021 91429
2836	Cap, 100n, 10%, 250v, Metalized Polyest	2222 368 90177
2901	Cap, 100n, 10%, 250v, Metalized Polyest	2222 368 90177
2908	Cap, 220p, 10%, 2000v, Ceramic	2020 558 90478
2913	Cap, 100n, 10%, 250v, Metalized Polyest	2222 368 90177

AUX SUPPLY

	AUX SUPPLY	
CBA	Aux PS Assy.	3139 267 10611
1524	Surge Protector, DSP-501N-A21F	2422 549 42349
1533	Fuse Socket.	2422 090 01101
1534	Fuse Socket.	2422 090 01101
2501	Cap, 1n, 10%, 1000v, Ceramic	3198 019 61020
2504	Cap, 1n, 10%, 1000v, Ceramic	3198 019 61020
2506	Cap, 10n, 10%, 50v, Ceramic	3198 017 31030
2507	Cap, 1n, 10%, 1000v, Ceramic	3198 019 61020
2510	Cap, 1n, 10%, 1000v, Ceramic	3198 019 61020
2523	Cap, 1u, 20%, 50v, Electrolytic	3198 025 51080
2524	Cap, 220p, 10%, 50v, Ceramic	3198 017 32210
2525	Cap, 22n, 10%, 25v, Ceramic	3198 017 32230
2526	Cap, 470u, 20%, 10v, Electrolytic	2020 021 91569
2529	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2530	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2531	Cap, 2n2, 10%, 500v, Ceramic	3198 019 42220
2533	Cap, 22u, 20%, 35v, Electrolytic	3198 028 42290
2534	Cap, 2n2, 10%, 50v, Ceramic	3198 017 32220
2537	Cap, 2n2, 10%, 50v, Ceramic	3198 017 32220
2538	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710
2539	Cap, 22n, 10%, 25v, Ceramic	3198 017 32230
2540	Cap, 2u2, 10%, 10v, Ceramic	2020 552 00132
2541	Cap, 2u2, 10%, 10v, Ceramic	2020 552 00132
2543	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710
2544	Cap, 2u2, 10%, 10v, Ceramic	2020 552 00132
2550	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2554	Cap, 220p, 10%, 50v, Ceramic	3198 017 32210
2555	Cap, 22n, 10%, 25v, Ceramic	3198 017 32230
2556	Cap, 470u, 20%, 10v, Electrolytic	2020 021 91569
2558	Cap, 2u2, 10%, 10v, Ceramic	2020 552 00132
2559	Cap, 2u2, 10%, 10v, Ceramic	2020 552 00132
3502	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
3503	Res, 100 ohm, 20%, 1/2W, Carbon Film	2120 103 90057
3504	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3505	Res, 100K, 5%, 1/16W, Metalized Glass.	3198 021 31040
3506	Res, 4M7, 5%, 1/2W, Metalized Glass.	2322 242 13475
3508	Res, 4K7, 5%, 1/16W, Metalized Glass.	3198 021 34720
3509	Res, 10K, 5%, 1/16W, Metalized Glass.	3198 021 31030
3510	Res, 1M5, 5%, 1/2W, Metalized Glass.	2322 242 13155
3513	Res, 4M7, 5%, 1/2W, Metalized Glass.	2322 242 13475
3514	Res, 220K, 5%, 1/16W, Metalized Glass.	3198 021 32240
3515	Res, 1M, 5%, 1/4W, Metalized Glass.	2322 241 53105
3516	Res, 6K8, 5%, 1/16W, Metalized Glass.	3198 021 36820
3517	Res, 47K, 5%, 1/16W, Metalized Glass.	3198 021 34730
3519	Res, 4M7, 5%, 1/2W, Metalized Glass.	2322 242 13475
3520	Res, 1K, 5%, 1/16W, Metalized Glass.	3198 021 31020
3521	Res, 100K, 5%, 1/16W, Metalized Glass.	3198 021 31040
3522	Res, 13K, 1%, 1/10W, Metalized Glass.	2120 108 94141
3524	Res, 4K7, 5%, 1/16W, Metalized Glass.	3198 021 34720
3525	Res, 15K, 5%, 1/16W, Metalized Glass.	3198 021 31530
3526	Res, 2K2, 1%, 1/16W, Metalized Glass.	2322 704 62202
3527	Res, 100K, 5%, 1/4W, Metalized Glass.	2322 241 53104
3528	Res, 2K2, 1%, 1/16W, Metalized Glass.	2322 704 62202
3529	Res, 3K3, 1%, 1/16W, Metalized Glass.	2322 704 73302
3531	Res, 10 ohm, 5%, 1/6W, Carbon Film.	3198 011 01090
3533	Res, 2K2, 1%, 1/16W, Metalized Glass.	2322 704 62202
3534	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210
3535	Res, 4K7, 5%, 1/16W, Metalized Glass.	3198 021 34720
3536	Res, 1K5, 5%, 1/6W, Carbon Film.	3198 011 01520
3537	Res, 1K, 5%, 1/16W, Metalized Glass.	3198 021 31020
3538	Res, 330 ohm, 5%, 1/16W, Metalized Glas	3198 021 33310
3539	Res, 1K, 5%, 1/16W, Metalized Glass.	3198 021 31020
3540	Res, 22K, 5%, 1/16W, Metalized Glass.	3198 021 32230
3541	Res, 15K, 5%, 1/16W, Metalized Glass.	3198 021 31530
3543	Res, 1M, 1%, 1/16W, Metalized Glass.	2322 704 61005
3547	Res, 2K2, 1%, 1/16W, Metalized Glass.	2322 704 62202
3549	Res, 330 ohm, 5%, 1/16W, Metalized Glas	3198 021 33310
3550	Res, RLC20 0R47, 1%	2120 108 00212
3551	Res, RLC20 0R47, 1%	2120 108 00212
5503	Coil, 10u.	2422 535 95363
5504	Coil, 10u.	2422 535 95363
5507	Coil, 10u.	2422 535 95363
5508	Coil, 10u.	2422 535 95363
5510	Fixed, Inductor, 100MHZ, 80 ohm. . . .	3198 018 90020
6501	Zener Diode, 10 volt	3198 020 51090
6505	Diode, Signal, BAS316.	3198 010 10630
6506	Diode, Rect, SM STPS2L3A.	9322 165 17668
6507	Zener Diode, 10 volt	3198 020 51090
6509	Diode, Rect, RGP10D	9337 516 60673
6510	Diode, Rect, SM STPS2L3A.	9322 165 17668
6511	Diode, Signal, BAS316.	3198 010 10630
6514	Diode, Signal, BAS316.	3198 010 10630
6516	Zener Diode, 5.1 volt.	3198 020 55180
7500	Transistor, NPN, BC847B.	3198 010 42030
7502	Transistor, NPN, BC847B.	3198 010 42030
7505	FET Power, SI4532ADY-E3.	9322 194 73668
7507	IC SM L5972D	9322 190 76668
7508	IC SM L5972D	9322 190 76668
7512	Transistor, NPN, BC847B.	3198 010 42030
7513	Transistor, NPN, BC847B.	3198 010 42030
7516	IC, TL431ACZ	3198 010 70500
9501	Wire Jumper.	3198 036 90010
9502	Wire Jumper.	3198 036 90010
9504	Wire Jumper.	3198 036 90010
9505	Wire Jumper.	3198 036 90010
9520	Wire Jumper.	3198 036 90010
9521	Wire Jumper.	3198 036 90010
9522	Wire Jumper.	3198 036 90010
9523	Wire Jumper.	3198 036 90010
9524	Wire Jumper.	3198 036 90010
9525	Wire Jumper.	3198 036 90010
9526	Wire Jumper.	3198 036 90010
9527	Wire Jumper.	3198 036 90010
9528	Wire Jumper.	3198 036 90010
9529	Wire Jumper.	3198 036 90010
9530	Wire Jumper.	3198 036 90010
9531	Wire Jumper.	3198 036 90010
9532	Wire Jumper.	3198 036 90010
9533	Wire Jumper.	3198 036 90010

AC INPUT PANEL

	AC INPUT PANEL	
1504	Connector, 2 Pin	2422 025 08333
1505	Connector, 4 Pin	2422 025 15503
S 1506	Fuse, T6A3, 250V	2422 086 00194
1507	Connector, 5 Pin	2422 025 11472
1511	Connector, 1 Pin	2422 015 18552
1580	Connector, 12P M 2.00.	2422 025 10772
1581	Connector, 8 Pin	2422 025 08151
2500	Cap, 470u, 20%, 200v, Electrolytic . . .	2020 021 91321
2502	CAP MKP 275V S 220N PM20 B	2222 338 22224
2503	Cap, 470n, 20%, 275V, Metalized Polyp.	2222 338 22474
S 2508	Cap, 470p, 10%, v, Ceramic	2020 554 90169
S 2511	Cap, 470p, 10%, v, Ceramic	2020 554 90169
2512	Cap, 470u, 20%, 200v, Electrolytic . .	2020 021 91321
2513	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710

2514	Cap, 2u2, 20%, 25v, Electrolytic . . .	3198 026 32220
S 2516	Safety Cap, 2n2, 20%, 250v, Ceramic. .	2020 554 90201
2518	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
2519	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
2520	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
2521	Cap, 2u2, 20%, 10v, Electrolytic . . .	2020 021 91668
2522	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
2527	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
2528	Cap, 22n, 5%, 630v, Polypropylene. . .	2222 375 90219
2532	Cap, 1n, 10%, 2000v, Ceramic	3198 019 71020
2535	Cap, 2u2, 20%, 10v, Electrolytic . . .	2020 021 91668
2536	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
S 2545	Safety Cap, 1n, 20%, 250v, Ceramic . .	2020 554 90198
S 2546	Safety Cap, 1n, 20%, 250v, Ceramic . .	2020 554 90198
2553	Cap, 1000u, 20%, 25v, Electrolytic . . .	3198 026 31020
2557	Cap, 470u, 20%, 25v, Electrolytic. . .	3198 026 34710
3500	NTC Thermistor, DC B57364 5W1 S 1R0 PM2	2122 612 00081
3501	VDR DC 1MA/423V S MAX 775V B	2122 550 00147
3523	Res, 47K, 5%, 2 1/2W, Metal Film . . .	3198 012 34730
5501	Transformer, S34421-01 B	2422 531 00086
5505	Coil, 4u7.	2422 535 95272
5506	Coil, 47u.	2422 535 95282
5509	Coil, 4u7.	2422 535 95272
5511	Mains Filter, 8mh.	2422 549 44591
5512	Coil, 4u7.	2422 535 95272
5513	Coil, 47u.	2422 535 95282
5514	Coil, 4u7.	2422 535 95272
5515	Coil, 4u7.	2422 535 95272
6500	Diode, Bridge Rect, 6BU4JL-7002 . . .	9322 132 55667
6502	Diode, Bridge Rect, 6BU4JL-7002 . . .	9322 132 55667
6503	Diode, Rect, SB360	3198 010 10700
6504	Diode, Rect, SB340L-7024.	9322 161 76682
6508	IC SARS03(LF4)	9322 185 09682
6513	Diode, Rect, SB340L-7024.	9322 161 76682
7510	IC STR-W6833N.	9322 223 02682
7511	OPTCP TCET1103(G)	9322 140 14667

HOP PANEL

	HOP PANEL	
CBA	HOP Board Assy	3139 267 10711
1601	Crystal Resonator, 12MHZ, 20P,	2422 543 01095
2111	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2150	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2160	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2170	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2190	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2191	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2216	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2247	Cap, 2u2, +80/-20%, 10v, Ceramic . . .	3198 017 22250
2248	Cap, 470p, 5%, 50v, Ceramic.	3198 016 04710
2250	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2260	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2270	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2290	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2291	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2321	Cap, 470p, 5%, 50v, Ceramic.	3198 016 04710
2322	Cap, 470p, 5%, 50v, Ceramic.	3198 016 04710
2324	Cap, 470p, 5%, 50v, Ceramic.	3198 016 04710
2325	Cap, 470p, 5%, 50v, Ceramic.	3198 016 04710
2326	Cap, 68p, 5%, 50v, Ceramic	3198 016 06890
2329	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2330	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2331	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2409	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2410	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2416	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2420	Cap, 4p7, 5%, 50v, Ceramic	3198 016 04780
2421	Cap, 33p, 5%, 50v, Ceramic	3198 016 03390
2422	Cap, 68p, 5%, 50v, Ceramic	3198 016 06890
2429	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2430	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2436	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2440	Cap, 4p7, 5%, 50v, Ceramic	3198 016 04780
2441	Cap, 33p, 5%, 50v, Ceramic	3198 016 03390
2442	Cap, 68p, 5%, 50v, Ceramic	3198 016 06890
2449	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2450	Cap, 47u, 20%, 16v, Electrolytic . . .	3198 030 44790
2456	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2460	Cap, 4p7, 5%, 50v, Ceramic	3198 016 04780
2461	Cap, 33p, 5%, 50v, Ceramic	3198 016 03390
2462	Cap, 68p, 5%, 50v, Ceramic	3198 016 06890
2470	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2471	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2472	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2473	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2480	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2481	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2482	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2483	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2490	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020
2491	Cap, 100n, +80/-20%, 25v, Ceramic. . .	3198 023 21040
2492	Cap, 1n, 10%, 50v, Ceramic	3198 017 01020

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

2493	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3151	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2500	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3160	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198	021	57590
2501	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3161	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2502	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3170	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198	021	57590
2505	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3171	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2506	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3180	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2507	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3181	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2509	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3185	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2510	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3186	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2511	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3247	Res, 56K, 5%, 1/10W, Metalized Glass. .	3198	021	55630
2519	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3248	Res, 470K, 5%, 1/10W, Metalized Glass. .	3198	021	54740
2520	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3251	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2521	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3261	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2529	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3271	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
2601	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3281	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2602	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3286	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2607	Cap, 47n, 10%, 25v, Ceramic.	3198	023	04730	3320	Res, 2K2, 5%, 1/10W, Metalized Glass .	3198	021	52220
2615	Cap, 100n, 5%, 16v, Polypropyl	2020	319	90005	3321	Res, 4K7, 5%, 1/10W, Metalized Glass .	3198	021	54720
2616	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3322	Res, 4K7, 5%, 1/10W, Metalized Glass .	3198	021	54720
2617	Cap, 22n, 10%, 50v, Ceramic.	3198	017	02230	3323	Res, 2K2, 5%, 1/10W, Metalized Glass .	3198	021	52220
2618	Cap, 22u, +80/-20%, 10v, Ceramic	3198	017	22250	3324	Res, 68K, 5%, 1/10W, Metalized Glass .	3198	021	56830
2619	Cap, 22n, 10%, 50v, Ceramic.	3198	017	02230	3325	Res, 2K2, 5%, 1/10W, Metalized Glass .	3198	021	52220
2620	Cap, 12p, 5%, 50v, Ceramic	3198	016	01290	3326	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2621	Cap, 12p, 5%, 50v, Ceramic	3198	016	01290	3331	Res, 1M, 5%, 1/10W, Metalized Glass. .	3198	021	51050
2626	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3332	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2627	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3333	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2628	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3335	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2630	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3336	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2631	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3339	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2632	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3410	Res, 15K, 5%, 1/10W, Metalized Glass .	3198	021	51530
2633	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3411	Res, 5K6, 5%, 1/10W, Metalized Glass .	3198	021	55620
2634	Cap, 22n, 10%, 50v, Ceramic.	3198	017	02230	3412	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2635	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3413	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2636	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3414	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2637	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3415	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2638	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3416	Res, 3K9, 5%, 1/10W, Metalized Glass .	3198	021	53920
2639	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3418	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2644	Cap, 100p, 5%, 50v, Ceramic.	3198	016	01010	3419	Res, 430 ohm, 1%, 1/8W, Metalized Glass	2322	734	64301
2700	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3420	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2701	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3421	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2702	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3422	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2704	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3424	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2710	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3425	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198	021	54710
2711	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3426	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2714	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3427	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2720	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3428	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2721	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3429	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2724	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3430	Res, 15K, 5%, 1/10W, Metalized Glass .	3198	021	51530
2731	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3431	Res, 5K6, 5%, 1/10W, Metalized Glass .	3198	021	55620
2740	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3432	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2741	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3433	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2750	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3434	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2800	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3435	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2802	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3436	Res, 3K9, 5%, 1/10W, Metalized Glass .	3198	021	53920
2804	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3438	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2806	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3439	Res, 430 ohm, 1%, 1/8W, Metalized Glass	2322	734	64301
2807	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3441	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2809	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3442	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2810	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3443	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2811	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3444	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2812	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3445	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198	021	54710
2813	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3446	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2814	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3447	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2815	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3448	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2816	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3449	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2901	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3450	Res, 15K, 5%, 1/10W, Metalized Glass .	3198	021	51530
2902	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3451	Res, 5K6, 5%, 1/10W, Metalized Glass .	3198	021	55620
2903	Cap, 10p, 5%, 50v, Ceramic	3198	016	01090	3452	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2904	Cap, 10p, 5%, 50v, Ceramic	3198	016	01090	3453	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2905	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3454	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
2906	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3455	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2909	Cap, 10p, 5%, 50v, Ceramic	3198	016	01090	3456	Res, 3K9, 5%, 1/10W, Metalized Glass .	3198	021	53920
2910	Cap, 10p, 5%, 50v, Ceramic	3198	016	01090	3458	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2911	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3459	Res, 430 ohm, 1%, 1/8W, Metalized Glass	2322	734	64301
2912	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3460	Res, 180 ohm, 5%, 1/10W, Metalized Glas	3198	021	51810
2913	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3461	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2922	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3462	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198	021	52210
2923	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3463	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2924	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3464	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2931	Cap, 1n, 10%, 50v, Ceramic	3198	017	01020	3465	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198	021	54710
2933	Cap, 1u, +80/-20%, 16v, Ceramic.	3198	017	21050	3466	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2944	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3467	Res, 390 ohm, 5%, 1/10W, Metalized Glas	3198	021	53910
2945	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3468	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290
2951	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3470	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2952	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3471	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2953	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3480	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2957	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3481	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2958	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3490	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2961	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3491	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
2963	Cap, 47u, 20%, 16v, Electrolytic	3198	030	44790	3495	Res, 22K, 5%, 1/10W, Metalized Glass .	3198	021	52230
2968	Cap, 100n, +80/-20%, 25v, Ceramic.	3198	023	21040	3496	Res, 100K, 5%, 1/10W, Metalized Glass. .	3198	021	51040
3150	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198	021	57590	3500	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198	021	52290

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3501	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3805	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3502	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198 021 52210	3806	Res, 4K7, 5%, 1/10W, Metalized Glass.	3198 021 54720
3505	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3807	Res, 4K7, 5%, 1/10W, Metalized Glass.	3198 021 54720
3506	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3809	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3507	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198 021 52210	3810	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3510	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	3811	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3511	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3812	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3512	Res, 15K, 5%, 1/10W, Metalized Glass.	3198 021 51530	3813	Res, 15K, 5%, 1/10W, Metalized Glass.	3198 021 51530
3513	Res, 1K8, 5%, 1/10W, Metalized Glass.	3198 021 51820	3814	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3515	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3815	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3516	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	3824	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3517	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198 021 54710	3825	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3518	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3901	Res, 18K, 5%, 1/10W, Metalized Glass.	3198 021 51830
3519	Res, 3K9, 5%, 1/10W, Metalized Glass.	3198 021 53920	3902	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3520	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	3903	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030
3521	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3911	Res, 47K, 5%, 1/10W, Metalized Glass.	3198 021 54730
3522	Res, 15K, 5%, 1/10W, Metalized Glass.	3198 021 51530	3922	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090
3523	Res, 1K8, 5%, 1/10W, Metalized Glass.	3198 021 51820	3923	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020
3525	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3944	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090
3526	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	3951	Res, 1 ohm, 5%, 1/8W, Metalized Glass.	2322 750 61008
3527	Res, 470 ohm, 5%, 1/10W, Metalized Glas	3198 021 54710	3952	Res, 1 ohm, 5%, 1/8W, Metalized Glass.	2322 750 61008
3528	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3953	Res, 1 ohm, 5%, 1/8W, Metalized Glass.	2322 750 61008
3529	Res, 3K9, 5%, 1/10W, Metalized Glass.	3198 021 53920	3955	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010
3530	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198 021 53310	3956	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010
3531	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	3957	Res, 1 ohm, 5%, 1/8W, Metalized Glass.	2322 750 61008
3532	Res, 3K3, 5%, 1/10W, Metalized Glass.	3198 021 53320	3965	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010
3540	Res, 330 ohm, 5%, 1/10W, Metalized Glas	3198 021 53310	3966	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010
3541	Res, 22 ohm, 5%, 1/10W, Metalized Glass	3198 021 52290	4210	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3542	Res, 3K3, 5%, 1/10W, Metalized Glass.	3198 021 53320	4211	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3601	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	4213	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3602	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	4220	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3603	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	4221	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3604	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	4223	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3607	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	4230	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3608	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	4231	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3609	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	4605	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3613	Res, 2K2, 5%, 1/10W, Metalized Glass.	3198 021 52220	4907	Res, Zero ohm, "Chip" Jumper	3198 021 90020
3614	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	5410	Coil, 680n	3198 018 36870
3616	Res, 39K, 1%, 1/10W, Metalized Glass.	2120 108 92633	5411	Coil, 1u5.	3198 018 31580
3623	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	5430	Coil, 680n	3198 018 36870
3624	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	5431	Coil, 1u5.	3198 018 31580
3626	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5450	Coil, 680n	3198 018 36870
3627	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5451	Coil, 1u5.	3198 018 31580
3628	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5701	Coil, 820n	3198 018 38270
3630	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5711	Coil, 820n	3198 018 38270
3631	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	5721	Coil, 820n	3198 018 38270
3632	Res, 10 ohm, 5%, 1/10W, Metalized Glass	3198 021 51090	6331	Diode, Signal, BAS316.	3198 010 10630
3633	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	6495	Diode, Signal, BAS316.	3198 010 10630
3634	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	6643	Diode, Signal, BAS316.	3198 010 10630
3635	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	6923	Zener Diode, 6.8 volt.	9340 386 40115
3636	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	6963	Diode, Rect, SM S1D	9322 128 69685
3637	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	7210	IC, SM BA7657F	9322 115 62668
3638	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	7328	IC SM 74HC4538D.	9337 149 10653
3639	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7330	IC SM 74HC157D	9337 137 40653
3643	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7410	IC, MC1496DG	9339 656 40668
3645	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7411	Transistor, NPN, BF570	9338 144 20215
3646	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7412	Transistor, PNP, BF550	9334 509 00215
3647	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7413	Transistor, PNP, BF550	9334 509 00215
3648	Res, 10K, 5%, 1/10W, Metalized Glass.	3198 021 51030	7414	Transistor, PNP, BF550	9334 509 00215
3700	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7430	IC, MC1496DG	9339 656 40668
3701	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	7431	Transistor, NPN, BF570	9338 144 20215
3702	Res, 1K2, 5%, 1/10W, Metalized Glass.	3198 021 51220	7432	Transistor, PNP, BF550	9334 509 00215
3703	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	7433	Transistor, PNP, BF550	9334 509 00215
3704	Res, 22K, 5%, 1/10W, Metalized Glass.	3198 021 52230	7434	Transistor, PNP, BF550	9334 509 00215
3705	Res, 39K, 5%, 1/10W, Metalized Glass.	3198 021 53930	7450	IC, MC1496DG	9339 656 40668
3706	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7451	Transistor, NPN, BF570	9338 144 20215
3707	Res, 75 ohm, 5%, 1/10W, Metalized Glass	3198 021 57590	7452	Transistor, PNP, BF550	9334 509 00215
3708	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198 021 54790	7453	Transistor, PNP, BF550	9334 509 00215
3710	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7454	Transistor, PNP, BF550	9334 509 00215
3711	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	7510	IC, MC1496DG	9339 656 40668
3712	Res, 1K2, 5%, 1/10W, Metalized Glass.	3198 021 51220	7511	Transistor, NPN, BF570	9338 144 20215
3713	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	7520	IC, MC1496DG	9339 656 40668
3714	Res, 22K, 5%, 1/10W, Metalized Glass.	3198 021 52230	7521	Transistor, NPN, BF570	9338 144 20215
3715	Res, 39K, 5%, 1/10W, Metalized Glass.	3198 021 53930	7530	Transistor, NPN, BF570	9338 144 20215
3716	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7540	Transistor, NPN, BF570	9338 144 20215
3720	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7600	IC, TDA9332H/N3.	9352 708 53557
3721	Res, 680 ohm, 5%, 1/10W, Metalized Glas	3198 021 56810	7700	Transistor, NPN, BF570	9338 144 20215
3722	Res, 1K2, 5%, 1/10W, Metalized Glass.	3198 021 51220	7701	Transistor, PNP, BF550	9334 509 00215
3723	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	7710	Transistor, NPN, BF570	9338 144 20215
3724	Res, 22K, 5%, 1/10W, Metalized Glass.	3198 021 52230	7711	Transistor, PNP, BF550	9334 509 00215
3725	Res, 39K, 5%, 1/10W, Metalized Glass.	3198 021 53930	7720	Transistor, NPN, BF570	9338 144 20215
3726	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198 021 51010	7721	Transistor, PNP, BF550	9334 509 00215
3727	Res, 220 ohm, 5%, 1/10W, Metalized Glas	3198 021 52210	7730	Transistor, PNP, BF550	9334 509 00215
3730	Res, 1K2, 5%, 1/10W, Metalized Glass.	3198 021 51220	7800	IC, TDA8444T/N4.	9350 897 50118
3731	Res, 1K5, 5%, 1/10W, Metalized Glass.	3198 021 51520	7805	Transistor, NPN, BC847B.	9335 895 90215
3732	Res, 4K7, 5%, 1/10W, Metalized Glass.	3198 021 54720	7900	IC, LM393D	9339 849 10668
3740	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	7922	Transistor, PNP, BC807-25.	9336 285 70215
3750	Res, 1 ohm, 5%, 1/8W, Metalized Glass.	2322 750 61008	1151	Connector, 6 Pin	2422 025 12482
3801	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	1152	Connector, 4 Pin	2422 025 12489
3802	Res, 1K, 5%, 1/10W, Metalized Glass.	3198 021 51020	1153	Connector, 6 Pin	2422 025 10738
3803	Res, 4K7, 5%, 1/10W, Metalized Glass.	3198 021 54720	1250	Connector, 9 Pin	2422 025 16046
3804	Res, 3K, 1%, 1/8W, Metalized Glass.	2322 734 63002	1510	Connector, 2 Pin	2422 025 08333

S = Safety Part Be sure to use exact replacement part.

1610	Connector,	5 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2422	025	12481
1700	Connector,	3 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2412	020	00725
1701	Connector,	5 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2422	025	12481
1710	Connector,	3 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2412	020	00725
1711	Connector,	5 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2422	025	12481
1720	Connector,	3 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2412	020	00725
1721	Connector,	5 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2422	025	12481
1950	Connector,	9 Pin	.	.	.	.	.	.	.	.	.	.	.	.	.	2422	025	16046

CBA	ACS Assy		3139	267	14911
1200	Crystal Resonator, 12Mhz, 20P,		2422	543	01095
2001	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2002	Cap, 10n, 10%, 50v, Ceramic.		3198	017	01030
2003	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2004	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2005	Cap, 100p, 5%, 50v, Ceramic.		3198	016	01010
2006	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2007	Cap, 1u, +80/-20%, 16v, Ceramic.		3198	017	21050
2008	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2009	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2010	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2011	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2012	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2013	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2014	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2015	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2016	Cap, 33p, 5%, 50v, Ceramic		3198	016	03390
2017	Cap, 10n, 10%, 50v, Ceramic.		3198	017	01030
2018	Cap, 1n5, 10%, 50v, Ceramic.		3198	017	01520
2019	Cap, 1n5, 10%, 50v, Ceramic.		3198	017	01520
2020	Cap, 10n, 10%, 50v, Ceramic.		3198	017	01030
2021	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2022	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2023	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2024	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2025	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2026	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2027	Cap, 120p, 5%, 50v, Ceramic.		3198	016	01210
2028	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2029	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2030	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2031	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2032	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2033	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2034	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2035	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2040	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2041	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2042	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2043	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2044	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2045	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2046	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2047	Cap, 10p, 5%, 50v, Ceramic		3198	016	01090
2048	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2049	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2050	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2051	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2052	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2053	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2054	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2055	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2056	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2057	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2058	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2059	Cap, 10u, 20%, 16v, Electrolytic		3198	030	041090
2204	Cap, 56p, 5%, 50v, Ceramic		3198	016	05690
2205	Cap, 56p, 5%, 50v, Ceramic		3198	016	05690
2206	Cap, 100n, +80/-20%, 25v, Ceramic.		3198	023	21040
2207	Cap, 47u, 20%, 16v, Electrolytic				

3016	Res,	10K	5%,	1/10W,	Metalized Glass	3198	021	51030
3020	Res,	82K,	5%,	1/10W,	Metalized Glass	3198	021	58230
3021	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3022	Res,	15K,	5%,	1/10W,	Metalized Glass	3198	021	51530
3023	Res,	15K,	5%,	1/10W,	Metalized Glass	3198	021	51530
3024	Res,	5K6,	5%,	1/10W,	Metalized Glass	3198	021	55620
3025	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3026	Res,	2K2,	5%,	1/10W,	Metalized Glass	3198	021	52220
3027	Res,	2K2,	5%,	1/10W,	Metalized Glass	3198	021	52220
3028	Res,	4K7,	5%,	1/10W,	Metalized Glass	3198	021	54720
3029	Res,	5K6,	5%,	1/10W,	Metalized Glass	3198	021	55620
3030	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3031	Res,	2K2,	5%,	1/10W,	Metalized Glass	3198	021	52220
3032	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3033	Res,	4K7,	5%,	1/10W,	Metalized Glass	3198	021	54720
3034	Res,	1K,	1%,	1/8W,	Metalized Glass	2322	734	61002
3035	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3036	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3048	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3049	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3050	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3051	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3053	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3054	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3055	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3056	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3058	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3059	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3060	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3061	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3063	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3064	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3065	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3066	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3068	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3069	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3070	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3071	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3073	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3074	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3075	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3076	Res,	330 ohm,	5%,	1/10W,	Metalized Glas	3198	021	53310
3079	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3080	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3081	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3082	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3083	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3084	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3085	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3086	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3087	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3088	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3089	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3090	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3091	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3092	Res,	1K5,	5%,	1/10W,	Metalized Glass	3198	021	51520
3200	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3201	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3202	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3203	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3204	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3205	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3206	Res,	4K7,	5%,	1/10W,	Metalized Glass	3198	021	54720
3207	Res,	4K7,	5%,	1/10W,	Metalized Glass	3198	021	54720
3210	Res,	3K3,	5%,	1/10W,	Metalized Glass	3198	021	53320
3211	Res,	3K3,	5%,	1/10W,	Metalized Glass	3198	021	53320
3212	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3213	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3214	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3215	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3216	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3217	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3218	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3219	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3220	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3221	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3222	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3223	Res,	4K7,	5%,	1/10W,	Metalized Glass	3198	021	54720
3224	Res,	2K2,	5%,	1/10W,	Metalized Glass	3198	021	52220
3225	Res,	1K,	5%,	1/10W,	Metalized Glass	3198	021	51020
3226	Res,	22K,	5%,	1/10W,	Metalized Glass	3198	021	52230
3227	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030
3228	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3229	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3230	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3231	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3232	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3233	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3234	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3235	Res,	100 ohm,	5%,	1/10W,	Metalized Glas	3198	021	51010
3236	Res,	6K8,	5%,	1/10W,	Metalized Glass	3198	021	56820
3237	Res,	10K,	5%,	1/10W,	Metalized Glass	3198	021	51030

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3240	Res, 24K, 1%, 1/8W, Metalized Glass. .	2322	734	62403
3298	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3299	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3306	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3307	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3308	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3309	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3314	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
3315	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
3316	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
3317	Res, 47 ohm, 5%, 1/10W, Metalized Glass	3198	021	54790
3326	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
3327	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
3328	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
3329	Res, 1K, 5%, 1/10W, Metalized Glass. .	3198	021	51020
3331	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3332	Res, 10K, 5%, 1/10W, Metalized Glass. .	3198	021	51030
3333	Res, 2K2, 5%, 1/10W, Metalized Glass. .	3198	021	52220
3348	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3349	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3350	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3351	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3400	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
3401	Res, 100 ohm, 5%, 1/10W, Metalized Glas	3198	021	51010
4000	Res, Zero ohm, "Chip" Jumper	3198	021	90020
4001	Res, Zero ohm, "Chip" Jumper	3198	021	90020
4302	Res, Zero ohm, "Chip" Jumper	3198	021	90020
4304	Res, Zero ohm, "Chip" Jumper	3198	021	90020
4307	Res, Zero ohm, "Chip" Jumper	3198	021	90020
4308	Res, Zero ohm, "Chip" Jumper	3198	021	90020
5006	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198	018	90060
6000	Diode, Signal, BAS216.	9340	255	30115
6001	Diode, Signal, BAS216.	9340	255	30115
6006	Diode, Signal, BAS216.	9340	255	30115
6308	Diode, Signal, BAS216.	9340	255	30115
6309	Diode, Signal, BAS216.	9340	255	30115
6310	Diode, Signal, BAS216.	9340	255	30115
6311	Diode, Signal, BAS216.	9340	255	30115
6312	Diode, Signal, BAS216.	9340	255	30115
6313	Diode, Signal, BAS216.	9340	255	30115
6314	Diode, Signal, BAS216.	9340	255	30115
6315	Diode, Signal, BAS216.	9340	255	30115
7001	IC SM M24128-BWMN6P (ST00) R	9322	209	39668
7002	IC SM STV2050A (ST00) Y	9322	169	57671
7003	IC SM LM833D (ST00) R	9322	068	82668
7004	IC SM LM833D (ST00) R	9322	068	82668
7005	IC SM LM833D (ST00) R	9322	068	82668
7006	IC SM LD1117DT33C (ST00) R	9322	119	88668
7007	IC SM L78M05CDT (ST00) R	9322	104	47668
7014	Transistor, NPN, BC847B.	3198	010	42030
7015	Transistor, NPN, BC847B.	3198	010	42030
7016	Transistor, NPN, BC847B.	3198	010	42030
7017	Transistor, NPN, BC847B.	3198	010	42030
7020	Transistor, NPN, BC847B.	3198	010	42030
7021	Transistor, PNP, BC857B.	3198	010	42150
7022	Transistor, NPN, BC847B.	3198	010	42030
7023	Transistor, NPN, BC847B.	3198	010	42030
7024	Transistor, PNP, BC857B.	3198	010	42150
7025	Transistor, PNP, BC857B.	3198	010	42150
7026	Transistor, NPN, BC847B.	3198	010	42030
7027	Transistor, NPN, BC847B.	3198	010	42030
7028	Transistor, PNP, BC857B.	3198	010	42150
7036	Transistor, NPN, BC847B.	3198	010	42030
7037	Transistor, NPN, BC847B.	3198	010	42030
7100	IC, SAA5677/HL/M1	9352	692	99557
7227	Transistor, NPN, BF570	9338	144	20215
7301	IC, TPS3707-33D	9322	173	08668
1000	Connector, 5 Pin	2422	025	16977
1001	Connector, 5 Pin	2422	025	16977
1002	Connector, 1 Pin	2422	034	20021
1003	Connector, 1 Pin	2422	034	20021
1005	Connector, 1 Pin	2422	034	20021
1300	Connector, 3 Pin	2422	025	17535
1302	Connector, 1 Pin	2422	034	20021
5005	Coil, 390n	2422	535	94119
5200	Coil, 100u	2422	535	94279

INTERFACE BOARD

INTERFACE BOARD				
CBA	UART Interface Board Assy.	3139	267	10341
0602	HDPTV2K5 BRIDGEIC BUART.	3139	127	04131
2000	Cap, 220n, +80/-20%, 16v, Ceramic. . .	3198	017	42240
2002	Cap, 220n, +80/-20%, 16v, Ceramic. . .	3198	017	42240
3000	Res, 47, 5%, 1/8W, Metalized Glass. . .	2322	750	64708
3001	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790
3002	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198	021	31020
3003	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790
3004	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198	021	32210
3005	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790
3006	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790
3007	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790
3008	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198	021	34790

6000	LED, TLMG3100	9322	085	77685
7001	IC, MC78FC33H.	9322	119	42685
7002	IC, P89LPC921FDH	9352	737	87529

SSB PANEL

SSB PANEL				
1185	SSB Panel Assy	3139	267	14921
0302	Connector, 2 Pin	2422	025	18748
0601	HDPTV2K5 2US1 SSB SW	3139	127	04142
1407	Ceramic Filter, 4MHZ5 TPSCC*MB BS R .	2422	549	44043
1408	SAW Filter, 45MHZ75 OFWM1967L R. . .	2422	549	44377
1651	Crystal Resonator, 18M432 12P CX-5F R	2422	543	89019
1681	Connector, 3 Pin	2422	025	18738
2003	Cap, 2n2, 10%, 50v, Ceramic.	3198	017	32220
2005	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2006	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2007	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2009	Cap, 470p, 5%, 50v, Ceramic.	3198	016	34710
2013	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2016	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2027	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2028	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2300	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2314	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2315	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2324	Cap, 10n, 10%, 50v, Ceramic.	3198	017	31030
2340	Cap, 10u, 20%, 16v, Electrolytic. . .	3198	030	41090
2341	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2350	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2351	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2352	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2353	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2356	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2357	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2358	Cap, 3n3, 10%, 50v, Ceramic.	3198	017	33320
2365	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2366	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2367	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2368	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2373	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2376	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2377	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2401	Cap, 10n, 10%, 50v, Ceramic.	3198	017	31030
2411	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2418	Cap, 12p, 5%, 50v, Ceramic.	3198	016	31290
2508	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2562	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2563	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2564	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2565	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2566	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2567	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2568	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2569	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2570	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2571	Cap, 100p, 5%, 50v, Ceramic.	3198	016	31010
2574	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2575	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2576	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2577	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2578	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2579	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2593	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2594	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2609	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2665	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2666	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2667	Cap, 3p3, 8%, 50v, Ceramic.	3198	016	33380
2668	Cap, 3p3, 8%, 50v, Ceramic.	3198	016	33380
2670	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2677	Cap, 10u, 20%, 16v, Electrolytic. . .	3198	030	41090
2678	Cap, 10u, 20%, 16v, Electrolytic. . .	3198	030	41090
2680	Cap, 10u, 20%, 20v, Electrolytic. . .	3198	032	55130
2682	Cap, 10u, 20%, 16v, Electrolytic. . .	3198	030	41090
2687	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2693	Cap, 220p, 5%, 50v, Ceramic.	3198	016	32210
2695	Cap, 100u, 20%, 16v, Electrolytic. . .	3198	030	41010
2702	Cap, 10u, 20%, 16v, Electrolytic. . .	2020	021	91854
2704	Cap, 10u, 20%, 16v, Electrolytic. . .	2020	021	91854
2708	Cap, 10u, 20%, 16v, Electrolytic. . .	2020	021	91854
2713	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2729	Cap, 56p, 5%, 50v, Ceramic.	3198	016	35690
2733	Cap, 22n, 10%, 25v, Ceramic.	3198	017	32230
2738	Cap, 22n, 10%, 25v, Ceramic.	3198	017	32230
2743	Cap, 22n, 10%, 25v, Ceramic.	3198	017	32230
2758	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2765	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2767	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2771	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2772	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040
2773	Cap, 1n, 5%, 25v, Ceramic.	3198	016	31020
2776	Cap, 100n, 10%, 16v, Ceramic.	3198	017	31040

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

2785	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	4520	Res, Zero ohm, "Chip" Jumper	3198 021 90030
2790	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	4522	Res, Zero ohm, "Chip" Jumper	3198 021 90030
2796	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	4607	Res, Zero ohm, "Chip" Jumper	3198 021 90030
2912	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	4608	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3021	Res, 22K, 5%, 1/16W, Metalized Glass	3198 021 32230	4609	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3026	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4611	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3027	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4632	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3028	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4633	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3029	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4642	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3033	Res, 2K2, 5%, 1/16W, Metalized Glass	3198 021 32220	4645	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3058	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710	4688	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3061	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030	4689	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3065	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030	4723	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3070	Res, 1R5, 5%, 1/8W, Metalized Glass	2322 750 61508	4726	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3071	Res, 1R5, 5%, 1/8W, Metalized Glass	2322 750 61508	4732	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3300	Res, 3R9, 5%, 1/8W, Metalized Glass	2322 750 63908	4734	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3304	Res, 3R9, 5%, 1/8W, Metalized Glass	2322 750 63908	4792	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3317	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4793	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3329	Res, 6R8, 5%, 1/8W, Metalized Glass	2322 750 66808	4901	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3337	Res, 33K, 5%, 1/16W, Metalized Glass	3198 021 33330	4902	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3370	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4903	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3371	Res, 47 ohm, 5%, 1/16W, Metalized Glass	3198 021 34790	4904	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3372	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710	4905	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3376	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4906	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3377	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4907	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3393	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040	4908	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3400	Res, 4R7, 5%, 1/8W, Metalized Glass	2322 750 64708	4909	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3402	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020	4919	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3403	Res, Zero ohm, "Chip" Jumper	3198 021 90030	4920	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3418	Res, 390 ohm, 5%, 1/16W, Metalized Glas	3198 021 33910	4921	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3419	Res, 330 ohm, 5%, 1/16W, Metalized Glas	3198 021 33310	4925	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3436	Res, 270 ohm, 5%, 1/16W, Metalized Glas	3198 021 32710	4927	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3437	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020	4928	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3458	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720	4929	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3460	Res, 3K3, 5%, 1/16W, Metalized Glass	3198 021 33320	4935	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3461	Res, 1K8, 5%, 1/16W, Metalized Glass	3198 021 31820	4937	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3462	Res, 1K2, 5%, 1/16W, Metalized Glass	3198 021 31220	4938	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3464	Res, 3R9, 5%, 1/8W, Metalized Glass	2322 750 63908	4939	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3519	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030	4944	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3523	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040	4945	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3524	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040	4946	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3525	Res, 680K, 5%, 1/16W, Metalized Glass	3198 021 36840	4947	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3526	Res, 1M, 5%, 1/16W, Metalized Glass	3198 021 31050	4948	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3527	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4949	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3529	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020	4950	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3530	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020	4951	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3531	Res, 8K2, 5%, 1/16W, Metalized Glass	3198 021 38220	4952	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3560	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4953	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3562	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4954	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3576	Res, 2K7, 5%, 1/16W, Metalized Glass	3198 021 32720	5301	Coil, 6u8.	3198 018 36880
3642	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5303	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3643	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5406	Coil, 15u.	3198 018 31590
3655	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5409	Inductor, Fixed, 100mhz, 120ohm	2422 535 95427
3656	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5653	Inductor, Fixed, 100mhz 30ohm	2422 549 43769
3702	Res, 22 ohm, 5%, 1/16W, Metalized Glass	3198 021 32290	5656	Coil, 6u8.	3198 018 36880
3703	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5663	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3705	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5667	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3706	Res, 10 ohm, 5%, 1/16W, Metalized Glass	3198 021 31090	5668	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3714	Res, 22 ohm, 5%, 1/16W, Metalized Glass	3198 021 32290	5702	Inductor, Fixed, 100mhz, 120ohm	2422 535 95427
3716	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720	5703	Inductor, Fixed, 100MHZ, 30 ohm	3198 018 90060
3717	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720	5707	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040
3728	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5711	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040
3733	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5713	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040
3739	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5798	Inductor, Fixed, 100MHZ, 30 ohm.	3198 018 90060
3755	Res, Zero ohm, "Chip" Jumper	3198 021 90030	5902	Inductor, Fixed, 100MHZ, 30 ohm.	3198 018 90060
3757	Res, Zero ohm, "Chip" Jumper	3198 021 90030	5903	Inductor, Fixed, 100MHZ, 30 ohm.	3198 018 90060
3759	Res, Zero ohm, "Chip" Jumper	3198 021 90030	5904	Inductor, Fixed, 100MHZ, 30 ohm.	3198 018 90060
3790	Resistor Network, 4X100 ohm, 5%.	3198 031 11010	6319	Diode, Signal, BAS316.	3198 010 10630
3791	Resistor Network, 4X100 ohm, 5%.	3198 031 11010	6652	Zener Diode, 10 volt	3198 020 51090
3792	Resistor Network, 4X100 ohm, 5%.	3198 031 11010	6657	Zener Diode, 2.7 volt.	9340 548 43115
3797	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6658	Diode, Signal, BAS316.	3198 010 10630
3900	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7009	IC SM LD1117D33.	9322 116 74668
3901	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7013	Transistor, NPN, PDMC144EU	3198 010 44330
3902	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7304	Transistor, NPN, PDMC144EU	3198 010 44330
3903	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7320	Transistor, NPN, BC847BW	3198 010 42310
3904	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7323	IC, TDA9321H/N2	9352 625 24518
3905	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7411	Transistor, NPN, BC847B.	3198 010 42030
3906	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7413	Transistor, NPN, BFS20	9330 921 11215
3907	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7668	Transistor, NPN, BC857BW	3198 010 42320
3908	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7675	Transistor, NPN, BC847BS	9340 425 20115
3909	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7678	Transistor, NPN, BC847BS	9340 425 20115
3910	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7704	Transistor, NPN, PMBT2369.	3198 010 43360
3911	Fixed Inductor, 100mhz, 600 ohm.	3198 018 90040	7709	IC, SAA4978H/V204.	9352 688 09557
4007	Res, Zero ohm, "Chip" Jumper	3198 021 90030	7714	IC, MSM54V1222B-25J3.	9322 183 81668
4302	Res, Zero ohm, "Chip" Jumper	3198 021 90030	7715	IC, MSM54V1222B-25J3.	9322 183 81668
4303	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1001	Crystal Resonator, 12mhz, 20P CX-5F R	2422 543 89018
4304	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1002	Connector, 10 Pin.	2422 025 16729
4311	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1003	Fuse, F 500MA 50V UL	2422 086 11092
4313	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1318	Crystal Resonator, 3M579545 16P HC49/U	2422 543 00861
4322	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1410	Ceramic Filter, 4M5 SF5CC*MCC BP R	2422 549 44534
4326	Res, Zero ohm, "Chip" Jumper	3198 021 90030	1701	Crystal Resonator, 12mhz, 20P CX-5F R	2422 543 89018
4409	Res, Zero ohm, "Chip" Jumper	3198 021 90030	2001	Cap, 33p, 5%, 50v, Ceramic	3198 016 33390

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

2002	Cap, 33p, 5%, 50v, Ceramic	3198 016 33390	2709	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2004	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2710	Cap, 10u, 20%, 16v, Electrolytic	2020 021 91854
2008	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2712	Cap, 10u, 20%, 16v, Electrolytic	2020 021 91854
2010	Cap, 47p, 5%, 50v, Ceramic	3198 016 34790	2728	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2011	Cap, 47p, 5%, 50v, Ceramic	3198 016 34790	2730	Cap, 22n, 10%, 25v, Ceramic	3198 017 32230
2012	Cap, 47p, 5%, 50v, Ceramic	3198 016 34790	2731	Cap, 100p, 5%, 50v, Ceramic	3198 016 31010
2014	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2747	Cap, 18p, 5%, 50v, Ceramic	3198 016 31890
2015	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2748	Cap, 18p, 5%, 50v, Ceramic	3198 016 31890
2017	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2755	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2020	Cap, 10n, 10%, 50v, Ceramic	3198 017 31030	2756	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2023	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2759	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2024	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2760	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2025	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2761	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2026	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2762	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2030	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2763	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2031	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2764	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2032	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2766	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2033	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2770	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2302	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2774	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2304	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2786	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2306	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	2788	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2320	Cap, 10p, 5%, 50v, Ceramic	3198 016 31090	2792	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2321	Res, Zero ohm, "Chip" Jumper	3198 021 90030	2795	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2322	Res, Zero ohm, "Chip" Jumper	3198 021 90030	2798	Cap, 680p, 5%, 25v, Ceramic	3198 016 36810
2323	Res, Zero ohm, "Chip" Jumper	3198 021 90030	2799	Cap, 10u, 20%, 16v, Electrolytic	2020 021 91854
2328	Cap, 22p, 5%, 50v, Ceramic	3198 016 32290	2908	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2342	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2909	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2354	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	2910	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2361	Cap, 1p2, 21%, 50v, Ceramic	3198 016 31280	2911	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040
2362	Cap, 12p, 5%, 50v, Ceramic	3198 016 31290	3001	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2369	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3002	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2370	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3006	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2371	Cap, 4n7, 10%, 50v, Ceramic	3198 017 34720	3008	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2372	Cap, 1u, +80/-20%, 16v, Ceramic	3198 017 21050	3009	Res, 47K, 5%, 1/16W, Metalized Glass	3198 021 34730
2374	Cap, 2u2, +80/-20%, 10v, Ceramic	3198 017 22250	3010	Res, 47K, 5%, 1/16W, Metalized Glass	3198 021 34730
2375	Cap, 22n, 10%, 25v, Ceramic	3198 017 32230	3011	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2378	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3012	Res, 2K2, 5%, 1/16W, Metalized Glass	3198 021 32220
2384	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3013	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2385	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3014	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2410	Cap, 1u, 10%, 10v, Ceramic	2020 552 96372	3015	Res, 470K, 5%, 1/16W, Metalized Glass	3198 021 34740
2412	Cap, 4n7, 10%, 50v, Ceramic	3198 017 34720	3016	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2413	Cap, 47u, 20%, 16v, Electrolytic	3198 030 44790	3017	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2420	Cap, 150p, 5%, 50v, Ceramic	3198 016 31510	3018	Res, 24K, 1%, 1/16W, Metalized Glass	2322 704 62403
2422	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3019	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2424	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3030	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2425	Cap, 100u, 20%, 16v, Electrolytic	3198 030 41010	3031	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2501	Cap, 47p, 5%, 50v, Ceramic	3198 016 34790	3032	Res, 2K2, 5%, 1/16W, Metalized Glass	3198 021 32220
2502	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3034	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2503	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3035	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2504	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3039	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2505	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3040	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2506	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3041	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2507	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3042	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2510	Cap, 10u, 20%, 16v, Electrolytic	3198 030 41090	3043	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2511	Cap, 10u, 20%, 16v, Electrolytic	3198 030 41090	3044	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2512	Cap, 470n, +80/-20%, 10v, Ceramic	3198 017 44740	3045	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2550	Cap, 330p, 10%, 50v, Ceramic	3198 017 33310	3048	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2552	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3049	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2553	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3050	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2554	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3051	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2555	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3052	Res, 6K8, 5%, 1/16W, Metalized Glass	3198 021 36820
2584	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3053	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2585	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3056	Res, 47K, 5%, 1/16W, Metalized Glass	3198 021 34730
2586	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3057	Res, 47K, 5%, 1/16W, Metalized Glass	3198 021 34730
2595	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3059	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2610	Cap, 2n2, 10%, 50v, Ceramic	3198 017 32220	3060	Res, 2K7, 5%, 1/16W, Metalized Glass	3198 021 32720
2611	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3062	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2634	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3063	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2640	Cap, 220n, +80/-20%, 16v, Ceramic	3198 017 42240	3064	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2643	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3066	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2644	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3067	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2645	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3068	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2646	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3069	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2649	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3074	Res, 10K, 5%, 1/16W, Metalized Glass	3198 021 31030
2651	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3076	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2652	Cap, 47p, 5%, 50v, Ceramic	3198 016 34790	3077	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2653	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3080	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710
2654	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3303	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040
2659	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3305	Res, Zero ohm, "Chip" Jumper	3198 021 90030
2660	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3311	Res, 33K, 5%, 1/16W, Metalized Glass	3198 021 33330
2661	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3313	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2662	Cap, 330n, +80/-20%, 25v, Ceramic	2222 910 19856	3314	Res, 22K, 5%, 1/16W, Metalized Glass	3198 021 32230
2663	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3315	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2664	Cap, 470p, 10%, 50v, Ceramic	3198 017 34710	3316	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040
2673	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3319	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2674	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3324	Res, 4K7, 5%, 1/16W, Metalized Glass	3198 021 34720
2679	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3332	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2681	Cap, 100n, 10%, 16v, Ceramic	3198 017 31040	3333	Res, 1K, 5%, 1/16W, Metalized Glass	3198 021 31020
2686	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3340	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2691	Res, 100K, 5%, 1/16W, Metalized Glass	3198 021 31040	3341	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2694	Cap, 1n, 5%, 25v, Ceramic	3198 016 31020	3342	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010
2706	Cap, 100u, 20%, 16v, Electrolytic	2020 021 91856	3355	Res, 33K, 5%, 1/16W, Metalized Glass	3198 021 33330

S = Safety Part Be sure to use exact replacement part.

51MP6100D/37 (continued)

3360	Res, 100K, 5%, 1/16W, Metalized Glass.	3198 021 31040	4318	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3368	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	4406	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3373	Res, 100K, 5%, 1/16W, Metalized Glass.	3198 021 31040	4407	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3374	Res, 33K, 5%, 1/16W, Metalized Glass .	3198 021 33330	4603	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3378	Res, 15K, 5%, 1/16W, Metalized Glass .	3198 021 31530	4604	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3382	Res, 390 ohm, 5%, 1/16W, Metalized Glas	3198 021 33910	4610	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3384	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4613	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3385	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710	4652	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3401	Res, 100K, 5%, 1/16W, Metalized Glass.	3198 021 31040	4712	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3405	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	4713	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3415	Res, 8K2, 5%, 1/16W, Metalized Glass .	3198 021 38220	4714	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3416	Res, 6R8, 5%, 1/8W, Metalized Glass. .	2322 750 66808	4715	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3420	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	4716	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3441	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	4717	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3446	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	4724	Res, Zero ohm, "Chip" Jumper	3198 021 90030
3456	Res, 4K7, 5%, 1/16W, Metalized Glass .	3198 021 34720	5401	Coil, 390n	3198 018 33970
3457	Res, 4K7, 5%, 1/16W, Metalized Glass .	3198 021 34720	5407	Inductor, Fixed, 100mhz, 120ohm	2422 535 95427
3463	Res, 18K, 5%, 1/16W, Metalized Glass .	3198 021 31830	5408	Inductor, Variable	2422 549 00231
3467	Res, 10K, 5%, 1/16W, Metalized Glass .	3198 021 31030	5410	Coil, 1u	3198 018 51080
3521	Res, 47K, 5%, 1/16W, Metalized Glass .	3198 021 34730	5651	Inductor, Fixed, 100mhz 30ohm	2422 549 43769
3522	Res, 47K, 5%, 1/16W, Metalized Glass .	3198 021 34730	5652	Inductor, Fixed, 100mhz 30ohm	2422 549 43769
3532	Res, 27K, 5%, 1/16W, Metalized Glass .	3198 021 32730	5654	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3533	Res, 10K, 5%, 1/16W, Metalized Glass .	3198 021 31030	5664	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3540	Cap, 1u, +80/-20%, 10V, Ceramic. . . .	3198 017 41050	5665	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3546	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710	5701	Inductor, Fixed, 100mhz, 600 ohm . . .	3198 018 90080
3550	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	5705	Inductor, Fixed, 100mhz, 120ohm	2422 535 95427
3558	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5706	Coil, 5u6.	3198 018 35680
3559	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5718	Coil, 330n	3198 018 33370
3561	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5720	Fixed Inductor, 100mhz, 600 ohm. . . .	3198 018 90040
3563	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5799	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3564	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5900	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3565	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	5901	Inductor, Fixed, 100MHZ, 30 ohm. . . .	3198 018 90060
3566	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6003	Diode, Signal, BAS316.	3198 010 10630
3567	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6303	Zener Diode, 47 volt	9322 150 18685
3570	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6304	Diode, Signal, BAS316.	3198 010 10630
3571	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6312	Diode, Signal, BAS316.	3198 010 10630
3572	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6313	Zener Diode, 22 volt	3198 020 52290
3574	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	6314	Diode, Signal, BAS316.	3198 010 10630
3636	Res, 270 ohm, 5%, 1/16W, Metalized Glas	3198 021 32710	6315	Diode, Signal, BAS316.	3198 010 10630
3637	Res, 56K, 5%, 1/16W, Metalized Glass .	3198 021 35630	6316	Diode, Signal, BAS316.	3198 010 10630
3644	Res, 4R7, 5%, 1/8W, Metalized Glass. .	2322 750 64708	6654	Diode, Signal, BAS316.	3198 010 10630
3651	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7001	IC, SAA5677/HL/M1.	9352 692 99557
3652	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7002	Transistor, PNP, BC857B.	3198 010 42150
3653	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7003	Transistor, NPN, BC847BW	3198 010 42310
3654	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7004	Transistor, NPN, BC847BW	3198 010 42310
3657	Res, 82K, 5%, 1/16W, Metalized Glass .	3198 021 38230	7005	IC, LD1117D33.	9322 116 74668
3658	Res, 150K, 5%, 1/16W, Metalized Glass.	3198 021 31540	7006	Transistor, NPN, PMBT2369.	3198 010 43360
3666	Res, 150K, 5%, 1/16W, Metalized Glass.	3198 021 31540	7007	Transistor, NPN, PMBT2369.	3198 010 43360
3667	Res, 56K, 5%, 1/16W, Metalized Glass .	3198 021 35630	7012	IC, M24C32-WMN6P	9322 206 23668
3668	Res, 82K, 5%, 1/16W, Metalized Glass .	3198 021 38230	7303	Transistor, NPN, BC857BW	3198 010 42320
3669	Res, 270 ohm, 5%, 1/16W, Metalized Glas	3198 021 32710	7305	Transistor, NPN, BC847BW	3198 010 42310
3670	Res, 470 ohm, 5%, 1/16W, Metalized Glas	3198 021 34710	7307	IC, TDA9181T/N1	9352 630 99518
3671	Res, 680 ohm, 5%, 1/16W, Metalized Glas	3198 021 36810	7322	Transistor, NPN, BC847BW	3198 010 42310
3684	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7375	Transistor, NPN, BC847BW	3198 010 42310
3685	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7410	Transistor, NPN, BC847BW	3198 010 42310
3686	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7651	IC, MSP3421G-FH-B8V3	9322 183 23671
3687	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7664	Transistor, NPN, BC847BPN.	9340 425 30115
3688	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7665	Transistor, NPN, BC847BPN.	9340 425 30115
3689	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7674	Transistor, NPN, BC847CW	9340 217 80115
3690	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7701	Transistor, NPN, BC857BW	3198 010 42320
3691	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7702	Transistor, NPN, BC847BW	3198 010 42310
3692	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7708	IC, SAA4990H /V2	9352 067 50557
3693	Res, 6K8, 5%, 1/16W, Metalized Glass .	3198 021 36820	7799	BSSY SW FBX.	3135 037 12381
3694	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7716	IC, M87C257-90C1F.	9322 130 45668
3695	Res, 22K, 5%, 1/16W, Metalized Glass .	3198 021 32230	7717	IC, M87C257.	3104 317 05901
3698	Res, 680 ohm, 5%, 1/16W, Metalized Glas	3198 021 36810	8302	Cable, 2 pin	3104 311 03031
3707	Res, 3K9, 5%, 1/16W, Metalized Glass .	3198 021 33920	8309	Inductor, Fixed Bead, 100mhz 95 ohm . .	3135 031 10011
3708	Res, 2K7, 5%, 1/16W, Metalized Glass .	3198 021 32720	8000	Cable.	3139 110 27911
3709	Res, Zero ohm, "Chip" Jumper	3198 021 90030	8012	Cable.	3139 131 06281
3710	Res, Zero ohm, "Chip" Jumper	3198 021 90030	8013	Cable.	3139 110 27711
3711	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	8158	Cable.	3135 031 00631
3718	Res, 220 ohm, 5%, 1/16W, Metalized Glas	3198 021 32210	8163	Cable.	3135 010 09161
3725	Res, 1M, 5%, 1/16W, Metalized Glass. .	3198 021 31050	8167	Cable.	3139 131 05881
3731	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010	8168	Cable.	3135 031 00281
3732	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	8169	Cable.	3135 031 00291
3740	Res, Zero ohm, "Chip" Jumper	3198 021 90030	8170	Cable.	3135 031 00541
3741	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	8580	Cable.	3139 131 06151
3744	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020	8581	Cable.	3139 131 06141
3745	Res, 1K, 5%, 1/16W, Metalized Glass. .	3198 021 31020			
3746	Res, 4K7, 5%, 1/16W, Metalized Glass .	3198 021 34720			
3747	Res, 68 ohm, 5%, 1/16W, Metalized Glass	3198 021 36890			
3748	Res, 68 ohm, 5%, 1/16W, Metalized Glass	3198 021 36890			
3749	Res, 68 ohm, 5%, 1/16W, Metalized Glass	3198 021 36890			
3754	Res, 10 ohm, 5%, 1/16W, Metalized Glass	3198 021 31090			
3793	Res, Network, 4X100 ohm, 5%.	3198 031 11010			
3794	Res, Network, 4X100 ohm, 5%.	3198 031 11010			
3795	Res, Network, 4X100 ohm, 5%.	3198 031 11010			
3796	Res, 100 ohm, 5%, 1/16W, Metalized Glas	3198 021 31010			
4308	Res, Zero ohm, "Chip" Jumper	3198 021 90030			
4309	Res, Zero ohm, "Chip" Jumper	3198 021 90030			
4310	Res, Zero ohm, "Chip" Jumper	3198 021 90030			
4312	Res, Zero ohm, "Chip" Jumper	3198 021 90030			

S = Safety Part Be sure to use exact replacement part.

11. Revision List

Manual xxxx xxx xxxx.0

- First release.