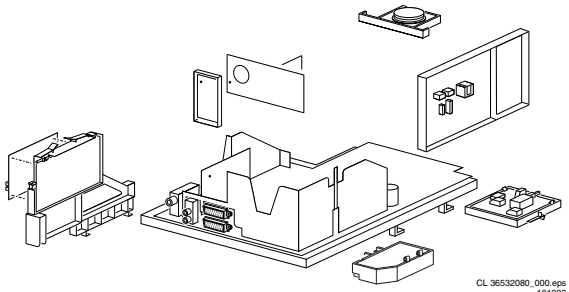
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Service
Service
Service



Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

1.1 Technical Specifications

1.1.1 Vision

Display type	:	Direct View CRT
	:	Real Flat
	:	16:9
Screen size	:	28” (70 cm)
	:	32" (82 cm)
Tuning system	:	PLL
Colour systems	:	PAL: B/G, D/K, I
	:	SECAM: B/G,D/K,L/L’
	:	NTSC: playback only
Channel selections	:	100 presets
	:	UVSH
IF Frequency	:	38.9 MHz
Aerial input	:	75 ohm, IEC-type

1.1.2 Sound

Sound systems	:	Bi NICAM B/G
	:	2CS B/G
	:	FM/FM B/G
	:	NICAM B/G
	:	NICAM D/K
	:	NICAM I
	:	NICAM L
Maximum power	:	2 x 10 W_rms (int.)

1.1.3 Miscellaneous

Mains voltage	:	220 - 240 V
Mains frequency	:	50 / 60 Hz
Ambient temperature	:	+5 to +45 deg. C
Maximum humidity	:	90 % R.H.
Power consumption	:	
- Normal operation	:	≈ 130 W
- Standby	:	< 11 W

1.2 Connections

1.2.1 Front View / Side Connections

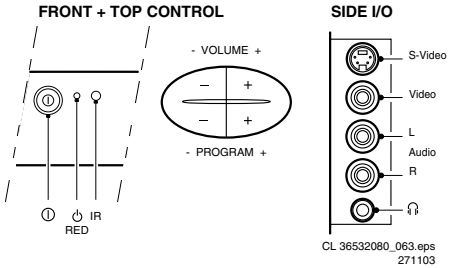


Figure 1-1 Front View and Side I/O

Hosiden: SVHS - In

1 - Y	Ground	
2 - C	Ground	
3 - Y	1 Vpp / 75 ohm	
4 - C	0.3 Vpp / 75 ohm	

Cinch: In

Ye - CVBS	1 Vpp / 75 ohm	
Wh - Audio - L	0.5 V_rms / 10 kohm	
R - Audio - R	0.5 V_rms / 10 kohm	

Mini Jack: Headphone - Out

Bk - Headphone 32 - 600 ohm / 10 mW

1.2.2 Rear Connections

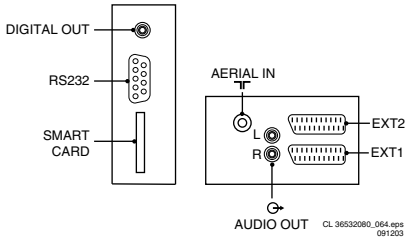


Figure 1-2 Rear View

Aerial - In

- - IEC-type Coax, 75 ohm

Cinch: Audio - Out

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

SCARTs

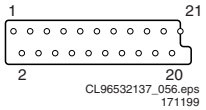


Figure 1-3 SCART connector

Table 1-1 SCART connection overview

Pin	Signal	Signal level	Type	EXT1 CVBS RGB	EXT2 CVBS Y/C
1	Audio - R	0.5 V_rms / 1 kohm		x	x
2	Audio - R	0.5 V_rms / 10 kohm		x	x
3	Audio - L	0.5 V_rms / 1 kohm		x	x
4	Audio - Gnd	Ground		x	x
5	Blue - Gnd	Ground		x	
6	Audio - L	0.5 V_rms / 10 kohm		x	x
7	Blue / U	0.7 V_pp / 75 ohm		x / -	
	C-out	0.3 V_pp / 75 ohm			
8	CVBS-status	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3		x	x
9	Green - Gnd	Ground		x	
10	P50 Easylink				
11	Green / Y	0.7 V_pp / 75 ohm		x / -	
12	N.C.				
13	Red - Gnd	Ground		x	x
14	FBL - Gnd	Ground		x	
15	Red / V	0.7 V_pp / 75 ohm		x / -	
	C-in	0.3 V_pp / 75 ohm			x
16	Status / FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm		x / -	
17	Video - Gnd	Ground		x	x
18	Video - Gnd	Ground		x	x
19	CVBS-out	1 V_pp / 75 ohm		x	x
	Y-out	1 V_pp / 75 ohm			
20	CVBS-in	1 V_pp / 75 ohm		x	x
	Y-in	1 V_pp / 75 ohm			x
21	Shielding	Ground		x	x
x = connected, - = not used					

RS232

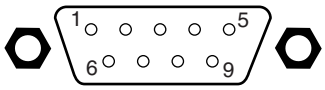


Figure 1-4 RS232 connector (sub-D 9p)

1 - DCD	Data Carrier Detect	⊕
2 - RXD	Received Data	⊕
3 - TXD	Transmitted Data	⊖
4 - DTR	Data Terminal Ready	⊖
5 - Ground		
6 - DSR	Data Set Ready	⊕
7 - RTS	Request To Send	⊖
8 - CTS	Clear To Send	⊕
9 - N.C.		

Digital -out (coaxial)

Bk - S/PDIF ⊖

1.3 Chassis Overview

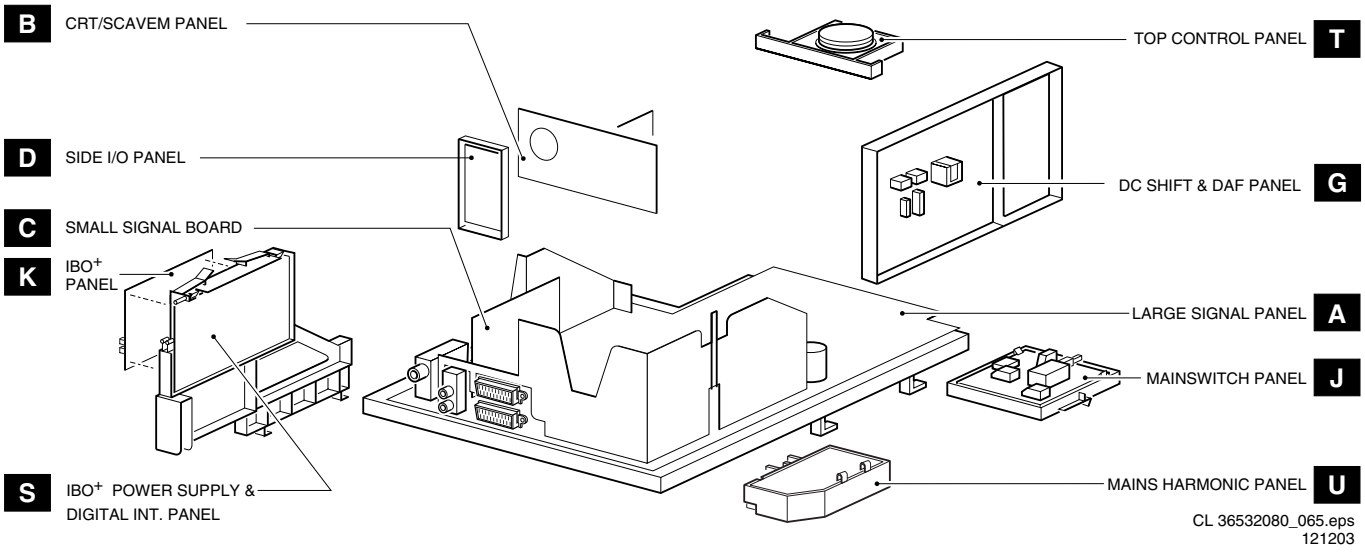


Figure 1-5 PWB location

2. Safety and Maintenance Instructions, Warnings, and 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.

- 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 Mohm and 12 Mohm.
  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.
- The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

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).

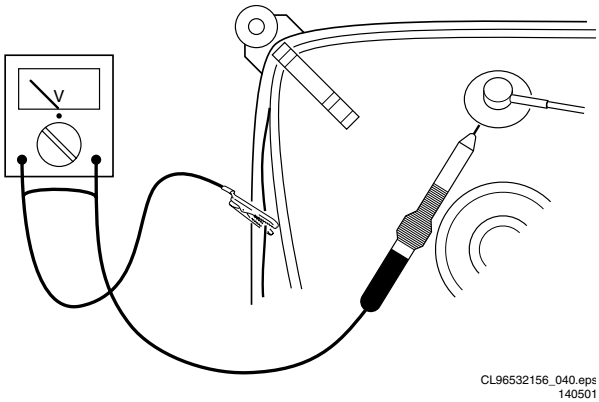


Figure 2-1 Discharge picture tube

- 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 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

2.4.2 Schematic Notes

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

2.4.3 Rework on BGA (Ball Grid Array) ICs

General

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

Device removal

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

Area preparation

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

Device replacement

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

Introduction

Thank you for purchasing this television set.
This handbook has been designed to help you install and operate your TV set.
We would strongly recommend that you read it thoroughly.
We hope this new television meets entirely with your satisfaction.

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DIGITAL MENUS
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Recycling
The materials used in your set are either reusable or can be recycled.
To minimise environmental waste, specialist companies collect used appliances and dismantle them after retrieving any materials that can be used again (ask your dealer for further details).

English

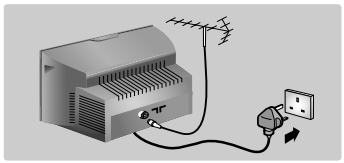
Installing your television set

❶ Positioning the television set



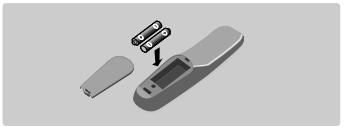
Place your TV on a solid, stable surface, leaving a space of at least 5 cm around the appliance.
To avoid accidents, do not put anything on the set such as a cloth or cover, a container full of liquid (vase) or a heat source (lamp). The set must not be exposed to water.

❷ Connections



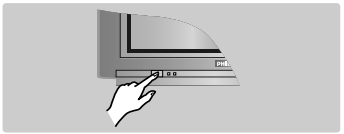
- Insert the aerial plug into the socket at the rear of the set.
- Insert the mains plug into a wall socket (220-240V / 50 Hz).

❸ Remote control



Insert the two R6-type batteries (supplied) making sure that they are the right way round.
The batteries supplied with this appliance do not contain mercury or nickel cadmium. If you have access to a recycling facility, please use this facility (if in doubt, consult your dealer). When the batteries are replaced, use the same type.

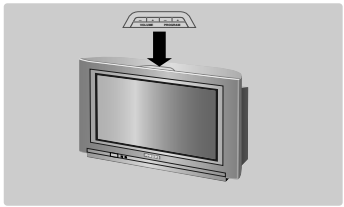
❹ Switching on



To switch on the set, press the on/off key.
A red indicator comes on and the screen lights up. Go straight to the chapter **Switch on for the first time**, on page 4.
If the television remains in standby mode, press P ⊕ on the remote control.
The indicator will flashe when you use the remote control.

The keys on the TV set

The television set has 4 keys which are located on the front or the top of the set depending on the model.



The VOLUME - + (- ◿ +) keys are used to adjust sound levels.
The PROGRAM - + (- P +) keys are used to select the required programmes.
To access the menus, simultaneously hold down the ◿ - and ◿ + keys. The PROGRAM - + keys may then be used to select an adjustment and the - ◿ + keys to make that adjustment.
To exit from the menus, hold down the 2 ◿ - and ◿ + keys.
Note: when the CHILD LOCK function is activated, these keys are unavailable (refer to FEATURES menu on page 14).

The remote control keys

Screen information
In digital mode, press onece to display the information banner, a 2nd time to get more information on the programme and a 3rd time to remove it (see p. 4).
In analogue mode, this displays / removes the programme informations (number, name, time, sound mode). Hold down for 5 seconds to permanently display the analogue programme number on the screen. The volume level and the smart control adjustments are then displayed each time they are used.

Mode selector
To activate the remote control in VCR or DVD mode (see p. 18).

Teletext features (p. 15) and VCR/DVD keys (p.18).

TV Menu
To display or exit from the analogues menus

Select
In digital mode this displays / clears the programme list. Use the ⌃⌄ keys to select a programme and the › (or OK) key to display it.

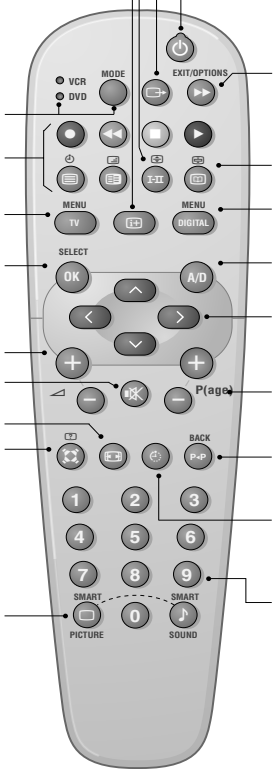
Volume
To adjust the sound level

Mute
To disable or enable the sound.

16:9 formats (p. 16)

Surround sound
To activate / deactivate the Virtual Dolby Surround * effect. In stereo, you can obtain Dolby Surround Pro Logic sound quality. In mono, a stereo spatial effect is simulated.
* *Manufactured under license from Dolby Laboratories. "Dolby" "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.*

Picture and sound settings
Accesses a series of picture and sound settings.
The position PERSONAL *corresponds to the settings stored in the menus.*



Sound mode
To switch from STEREO to MONO or to choose between different languages (Dual I, Dual II, ...).
When the sound mode is switched to MONO, the indication is displayed in red.

Select EXT sockets (see p. 17).

Standby
To set the TV to standby mode. To switch the TV set on again, press P − + or 0 9.

Options menu (see p. 8).

TV guide (see p. 9).
Program list *(analogue mode)*
To display/clear the program list. Use the ⌃⌄ keys to select a programme and › to display it.

Digital Menu
To display or exit from the digital menus (when TV is in digital mode).

Analogue or Digital mode
To switch the television vetween analogue and digital mode.

Cursor
These 4 keys are used to move within the menus or to directly access the 16:9 screen formats (p 16).

Programme selection
To access the next or previous programme (or page in digital menus).

Previous programme
To access the previously viewed programme.

Sleeptimer
To select the length of time before the set automatically switches to standby (from 0 to 240 minutes)

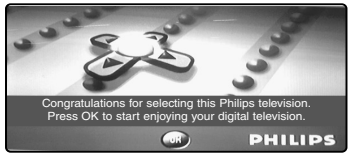
Numerical keys
For direct access to programmes. For a 2 (3) digit programme number, the 2nd (3rd)digit must be entered before the dash disappears.
The number, the name (and the sound mode, in analogue mode) are displayed for a few seconds.

Digital or Analogue channels ?

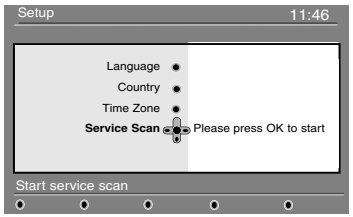
To receive TV channels, your television is equipped with 2 tuners. One is for digital channels, the other is for analogue channels. Use the A/D key of the remote control to swhitch the TV between analogue and digital mode. Then use the P − + or 0 9 keys to select channels.

Switch on for the first time

The first time the TV set is switched on, a **congratulation** message will appear on screen. The language of which changes every 5 seconds.



❶ Press the OK key on the remote control, **the moment your prefered language is visible on the screen**. The **Setup** menu is displayed :



❷ The **language**, corresponding **country** and **time zone** is now preselected according to the opening screen. However, you can still change your preferences before you start a service scan.

❸ With the cursor keys, select **language**, **country** or **Time zone** and check if the adjustment is according to your preferences. If necessary, use the cursor keys to make your adjustment and press OK to exit.
Caution: if you select a wrong country, the channel numbering will not be according to the standard for your country.

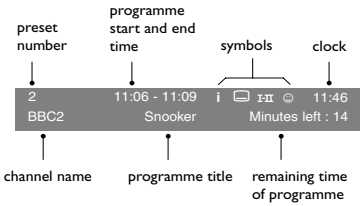
❹ Select **service scan** from the menu and press OK to start the installation. The **service scan** menu is displayed. All the digital and analogue programmes are search for and stored automatically. When the search is complete, the menu will indicate the number of digital services and analogues programmes found.

❺ Press the OK key to start watching TV.
The television then displays the current programme. The installation is now complete.

Understanding the information on the banner

When you select a digital programme, an information banner is displayed for a few secondes at the top of the screen.
You can also use the i+ key of the remote control to display this banner. A second press displays more information about the programme (when available).

Banner description:



The banner contains information on the preset number, channel name, programme duration, transmission clock, programme title and the time remaining of the current programme (if set in the options menu).

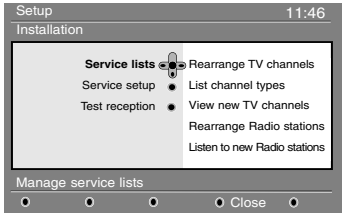
Symbols description :

- **i** more information about this programme is available : press the i+ key to display or remove it.
- subtitling is available : if you want to display them, press the **OPTIONS** key to access the **options** menu and select subtitles.
- **I-II** other audio languages are availables and can be selected in the **options** menu.
- ☺ the selected Favourite list is displayed in the colour of the activated list.

Rearrange TV channels / radio station

This menu allows you to change the order of the stored digital channels or radio station.

1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press › twice to select the **Service lists** menu.



3. Use the ⌃⌄ keys to select **Rearrange TV channels** or **Rearrange radio stations** and press ›.
4. Use the ⌃⌄ keys to select the channel you want to exchange.
5. Press OK to activate.
   If you want to uninstall the selected channel, press the red key.
6. Select (⌃⌄) the new channel number you want to exchange it with.
7. Press OK to confirm. The exchange is done.
8. Repeat the operations 4 to 7 until all the channels are in the required order.
9. Press the DIGITAL MENU key to leave the menu.

View or Listen to new services

This menu allows you to check the availability of new TV channels or new radio stations that have been launched by the broadcaster after the initial installation.

1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press › twice to select the **Service lists** menu.
3. Use the ⌃⌄ keys to select **View new TV channels** or **Listen to new Radio station**.
4. If new services are availables, press › to enter into the list and use the ⌃⌄ keys to move through the list.
5. Press the DIGITAL MENU key to leave the menu.

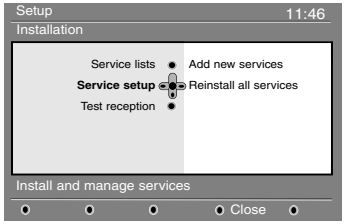
List Channel types

This menu allows you to restore the original list of channels defined by the broadcaster during the initial installation.

1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press › twice to select the **Service lists** menu.
3. Use the ⌃⌄ keys to select **List channel types** and press ›.
4. Select **Original list of channels** and press OK if you want to restore the original list of channels defined by the broadcaster.
   Remark: when this option is set, it is not possible to rearrange TV channels or radio stations.
5. Select **User-definable list of services** and press OK if you want to get your prefered channel list.
6. Press the DIGITAL MENU key to leave the menu.

Add new services

This menu allows you to search for new TV channels or radio stations that have been launched by the broadcaster after the initial installation.



1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press ›.
3. Select **Service setup** (⌄) and press ›.
4. Press › to select **Add new services** and press OK to activate the installation.
   The search begins and only new channels will be stored and added to the **channel list** menu.
   The percentage of the installation that has been completed and the number of channels found is displayed.
5. When the search is complete, select store and press OK to accept the new services.
6. Press the DIGITAL MENU key to leave the menu.

Reinstall all services

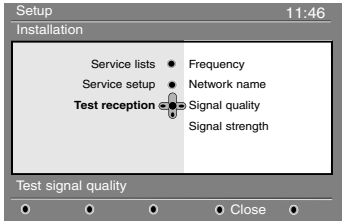
This menu allows you to reinstall all the digital TV channels and radio stations.

1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press ›.
3. Select **Service setup** (⌄) and press ›.
4. Select **Reinstall all services** (⌄) and press ›.
5. Press OK to start the installation.
   A search is then made for all digital services which are then stored automatically.
   When the search is completed, the menu will indicate the number of digital services found.
6. When the search is complete, press OK to store the services.
7. Press the DIGITAL MENU key to leave the menu.

Test reception

This menu allows you to check the strengh of the signal you are receiving through your aerial.

1. From digital mode, press the DIGITAL MENU key to display the setup menu.
2. Use the ⌄ key to select **installation** and press › to display the installation menu.

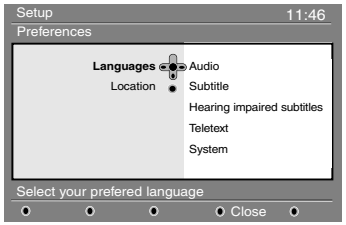


3. Use ⌄ to select **Test reception** and press ›.
   You obtain an indication of the actual programme frequency, the network name, the signal quality and strength.
4. You now have to enter the frequency of the digital channel you want to test.
   Your Tv magazine can provide the list of digital channel numbers. Use the table on page 20 to get the frequency.
5. If the signal quality and strength is poor, a message appears at the bottom of the menu prompting you to enter the frequency between the lower and the higher limit. If after keying the frequency, the reception is still poor, you can try improving, renewing, adjusting or updating the aerial. It is however advisable to contact a specialised aerial installer in order to achieve best results.

Language and location preferences

This menu allows you to select your prefered language for audio, subtitle, teletext and menu and make changes to the location (country and time zone).

1. From digital mode, press the DIGITAL **MENU** key to display the setup menu.
2. Use the ⌄ key to select **preferences** and press ›.



3. Select **Languages** or **Location** (⌄) and press ›.
4. Use the ⌄⌃ keys to select a setting and press › to enter into the sub-menu. Make your adjustment and press OK or ‹ to exit.

Language default settings:

- **Audio**: to select the audio sound language.
- **Subtitle**: to select the subtitle language.
- **Subtitles for hearing impaired**: to activated or deactivate the specific subtitle for hearing impaired (if made available by the broadcaster).
- **Teletext**: to select the teletext language.
- **System**: to select the menu language.

Location settings:

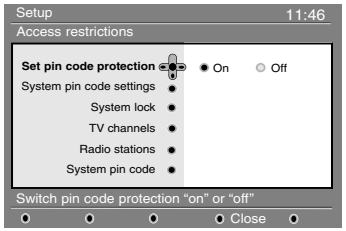
- **Country**: to select the country where you are located.
- **Time zone**: to select the time zone where you are located.
- **Daylight saving time**: to select automatic, manual or no daylight saving time.

5. Press the DIGITAL **MENU** key to leave the menu.

Access restrictions

This menu allows you to setup the access restrictions of the digital channels.

1. From digital mode, press the DIGITAL **MENU** key to display the setup menu.
2. Use the ⌄ key to select **Access restriction** and press ›.



3. Press the › key to enter into the **Set pin code protection** menu.
4. Use the ‹› keys to set to **on** and press OK to exit. You can then access to the other adjustments :

Warning: the moment you use any kind of access restriction, you need to fill in the pin code when you schedule a program for recording.

- **Maturity rating**: select your prefered rating to lock the channel.

Maturity rating will only block certain programmes if the broadcaster providedes with the programme.

- **System lock**: press OK if you want to completely lock the digital tv. To unlock, enter your pin code (or the universal code 0711).
- **TV channels**: select the tv channel you want to lock and press OK.
- **Radio station**: select the radio station you want to lock and press OK.
- **Change pin code**: press › to enter in the menu. Follow the on-screen instruction to change your access code.

The default pin code is 1234. If you have forgotten your personal code, you can reset to the default pin code (1234) by enter the universal code 0711.

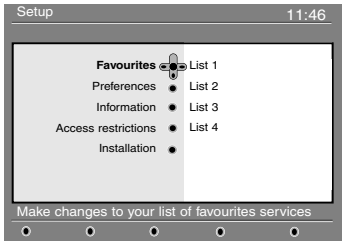
5. Press the DIGITAL **MENU** key to leave the menu.

The TV is equipped with a Common Interface (CI) slot (see p.18). A CI module can enable additional services, for example Pay TV. The Access Restrictions menu will show the CI Access Restrictions when a CI module is installed. The CI module is responsible for the messages and texts on screen. In case of failure or strange behaviour, you must call your CI service provider.

Setting up your favourite list

This menu enables you to create a favourite list with your prefered TV channels and radio stations. For example, each member of your family can create his/her own favourite list.

1. From digital mode, press the DIGITAL **MENU** key to display the setup menu.

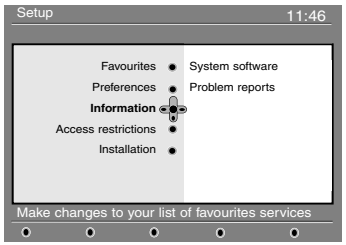


2. Press › to enter into the **favourites** list menu. You have the choice to create 4 different favourite lists.
3. Use the ⌄⌃ keys to select your favourite list : **List 1**, **List 2**, **List 3** or **List 4** and press ›.
4. Use the ⌄⌃ keys to select a setting and press › to enter into the sub-menu.
   - **Name**: use the ‹› keys to move around the name display area (15 characters) and the −P+ keys to select the characters. When the name has been entered, press OK to exit.
   - **Select TV channels**: use the ⌄⌃ keys to select your favourite TV channels and confirm with OK. Press ‹ to exit.
   - **Select radio stations**: use the ⌄⌃ keys to select your favourite radio station and confirm with OK. Press ‹ to exit.
   - **Add all services**: press OK if you want to add all the service into your favourite list.
   - **Remove all services**: press OK if you want to remove all the service from your favourite list.
5. Press the DIGITAL **MENU** key to leave the menu.
6. Your favourite list can be selected using the **options** menu (see next page).

Information

This menu provides informations about the software version, the installation of new software and problem reports.

1. From digital mode, press the DIGITAL **MENU** key to display the setup menu.
2. Use the ⌄ key to select **information** and press ›.



3. Select **Problem reports** and press › to access any reported errors. In the event of a technical problem, your tv service organisation might ask you to tell them if there are any reports and what they say.
4. Select **System software** and press ›. The software version is displayed.
5. You can activate the menu to automatically accept any software update of your digital TV. Normally the product will detect if an update is available while it is in standby mode. Next time the television is turned on a banner will appear at the bottom of the screen indicating new software is available. Selecting OK activates the software download. The software download menu will give a description of the software together with the date and time of the download. This may update certain menus, functions or add new features, but the general way in which the TV operate will not change. Once accepted the download will take place at the designated time and date.

Note: The TV must be put into standby when the download is due in order for it to take place.

6. Press the DIGITAL **MENU** key to leave the menu.

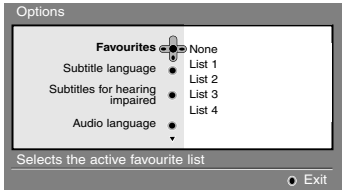
Downloading new software

Whenever a new software is available, **it is advisable to always accept** and download the software. In case new software is available, you will see a message when you switch on the TV.

Using the Options menu

This menu gives you direct access to the: favourite list, the language selection and some other selections.

1. From digital mode, press the **EXIT/OPTIONS** key to display the options menu.
2. Use the ⌄⌃ keys to select a setting and press › to enter the sub-menu.



- **Favourites**: use the ⌄⌃ keys to select your favourite list and confirm with OK.
  The "none" option deactive any favourite list.
  To create your own favourite list, see page 8.
- **Subtitle language**: use the ⌄⌃ keys to temporarily change the language and confirm with OK.
- **Subtitle for hearing impaired**: select **Yes** and confirm with OK to temporaly activate this feature.
- **Audio language**: to temporarily change the audio sound language.
  To permanetly change the audio and subtitle languages, use the Preferences menu (p. 7).
- **Mode**: you can choose to only have **radio** stations, **TV** channels or **services without audio or video.**

Remark: for the UK only, the TV list will contain both radio stations and TV channels.

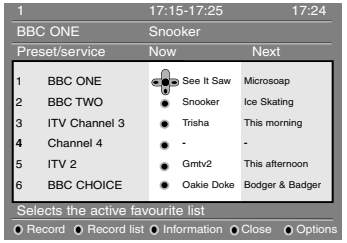
- **Show the remaining play time ?**: select **Yes** and confirm with OK if you want to display the remaining play time when you call the banner.
- **banner duration**: to select the duration for which the banner is visible.

3. Press the **EXIT/OPTIONS** key to leave the menu.

TV guide

The TV guide is an Electronic Service Guide that allows you to look up digital programmes as you would in a newspaper or TV magazine. You can navigate through the list of digital programmes and obtain detailed information on the programmes. You can also program the TV to provide a digital channel to be recorded.

1. From digital mode, press the ▤ key to display the TV guide :



A list with all the installed digital programmes is displayed.

2. Use the ⌃⌄ keys to select a programme.
3. The TV guide features are displayed at the bottom of the screen. Use the coloured keys red, green, yellow, blue or white to activate them :

- **Record** (red key) **:** this feature enables you to program the recording of the video recorder (if it has an EasyLink feature and is connected to EXT2). If your video recorder is not equipped with Easylink, the TV will provide a digital channel to be recorded. You will still have to program your video recorder.
- **Record list** (green key) **:** this menu gives the list of recording schedules. You can check, modify, delete or add a new schedule by using the cursor or coloured keys as indicated on the screen.
- **Information** (yellow key) **:** you can obtain more detailled information on the selected programmes.
- **Close** (blue key) **:** to exit from the TV guide.
- **Options** (white ▶▶ key) **:** with this menu, you can select your favourite list, mode or themes. Themes are areas of interest, you can for example decide to display only : drama, news, movie, ...

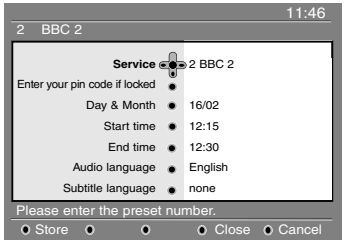
4. Press the ▤ key to leave the menu.

Recording function

This feature enables you to program a digital recording and control the VCR (if it has an EasyLink feature and is connected to EXT2). If your video recorder is not equipped with Easylink, the TV will provide a digital channel to be recorded. You will still need to program your video recorder.

*Important: The video recorder **must be connected to EXT2**. Please note that it is NOT possible to record one digital channel and watch another digital channel at the same time. You can however record a digital channel and watch an analogue channel on your TV, or vice versa. Philips recorders with only the TV link feature do not support easy recording : you wil still have to program your VCR.*

1. From digital mode, press the ▤ key to display the TV guide.
2. Press the **RED** key to call the **Record** menu.



3. Use the ⌄⌃ keys to select a setting and press › to enter into the sub-menu. Make your adjustment and press OK or ‹ to exit.

- **Service :** you can change the number of the programme you want to record. Press OK to confirm.
- **Enter your pin code if locked :** enter your secret code only if you have activated the access restriction feature (see p.7). Press OK to confirm.
- **Day & Month :** enter the date by using the 0 9 or − **P** + keys. Press OK to exit
- **Start time :** enter the start time.
- **End time :** enter the end time.
- **Audio language :** select your language and confirm with OK.
- **Subtitle language :** make your selection and confirm with OK.
- **Subtitle for hearing impaired :** select **Yes** or **No** and confirm with OK.
- **Occurence :** select **Once**, **Daily** or **Weekly** and confirm with OK.

4. Press the **RED** key to store your recording. The TV guide reappears.
   *You can press the **GREEN** key to display the list of recordings you have set.*
5. If your video recorder is not equipped with Easylink feature, remember you still need to program it.
6. If you have finished watching television, you must leave it in standby in order for the recording program to be activated.
   Important: never switch off the TV with the power button when a recording has been programmed, but use the standby key on the remote control.
7. If you wish to continue watching another digital channel after setting a timer, you can do so by changing channels in the normal way.
8. If you are watching another digital channel when the timer is due to start, the timer alarm will sound and present you with the option of switching channels or continuing to watch the current channel.
9. You can also watch analogue channels while recording digital channels. Press the A/D key to switch the TV to analogue mode.
   The moment a timer start, you get a warning message and you can still decide to stop recording.

Automatic tuning of analogue programmes

This menu allows you to automatically search for all the analogue programmes available in your region.

1. From analogue mode, press the TV MENU key to display the main menu.
2. With the cursor, select the **INSTALL** menu then the **AUTO STORE** menu and press ›. The search begins. After several minutes, the



INSTALL menu reappears automatically.

3. If the transmitter or the cable network broadcasts the automatic sort signal, the programmes will be correctly numbered.
4. If this is not the case, the programmes found will be numbered in descending order starting at 99, 98, 97, etc.
   Use the **SORT** menu to renumber them.
   Some transmitters or cable networks broadcast their own sort parameters (region, language, etc.). Where this is the case, make your choice using the ‹ › keys and confirm with ›.
   To exit or interrupt the search, press the MENU key.
   If no picture is found, refer to the chapter entitled Tips on p. 16. See also: EasyLink function, page 9.
5. To exit from the menus, press ⊡.

Sorting analogue programmes

1. Press the TV MENU key to display the main menu.
2. With the cursor, select the **INSTALL** menu, then **SORT**. The **SORT** menu appears. The **FROM** option is activated.



3. Select the programme you wish to renumber using ‹ › keys or 0 to 9.
   Example: to renumber programme 78 as 2 press 7 8.
5. Select **TO** (using ˅ key) and enter the new number with ‹ › keys or 0 to 9 (for the example given, enter 2).
6. Select **EXCHANGE** (˅ key) and press ›. The message **EXCHANGED** appears, the exchange takes place. In our example, programme 78 is renumbered as 2 (and programme 2 as 78).
7. Select the option **FROM** (˄ key) and repeat stages 4 to 6 as many times as there are programmes to renumber.
   See also: EasyLink function, page 9.
8. To exit from the menus, press ⊡.

Manual tuning of analogue programmes

This menu allows you to store the analogue programmes one at time.

1. Press TV MENU.
2. With the cursor, select the **INSTALL** menu then **MANUAL STORE** :



3. **SYSTEM** : select **EUROPE** (automatic detection*) or **WEST EUR** (BG standard), **EAST EUR** (DK standard), **UK** (I standard) or **FRANCE** (LL' standard).
   ** Except for France (standard LL'): select the option FRANCE.*
4. **SEARCH** : If you know the frequency of the programme required, enter its number directly using the 0 9 keys. Alternatively press ›. The search begins. As soon as a programme is found, the search will stop.
   If no programme is found, refer to the Tips chapter on page 19).
5. **FINE TUNE** : if the reception is not satisfactory, try adjusting the frequency using the ‹ › keys.
6. **PROG. NO** : enter the required number with the ‹ › or 0 to 9 keys.
7. **STORE** : press ›. The programme is stored.
   See also: EasyLink function, below.
8. Repeat steps 4 to 7 for each programme to be stored.
9. To quit the menus, press ⊡.

Naming analogue programmes

If required, you can give a name to the first 40 analogue programmes (from 1 to 40) and external connectors.

1. Press TV MENU.
2. With the cursor, select the **INSTALL** menu, then **NAME** (concealed at the bottom of the screen) :



3. Select the programme you wish to name using the keys 0 9 or − P +.
   Note: on installation, the programmes are named automatically when the correct information is transmitted by the broadcaster.
4. Use the ‹ › keys to move within the name display area (5 characters) and the ˄ ˅ keys to choose the characters.
5. When the name has been entered, press TV MENU. The name is stored.
   See also: EasyLink function, below.
6. Repeat steps 3 to 5 for each programme to be named.
7. To exit from the menus, press ⊡.

EasyLink function

If the set is connected (by the EXT2 socket) to a video equipped with the EasyLink function, the language, country and analogue channels found are automatically transmitted to the video recorder at the time of installation.
A message is displayed on-screen during loading. The list of video recorder analogue channels is then the same as those of the set.
You must first check in the menus that the Easylink function is activated :

1. Press TV MENU key.
2. Select **OPTIONS** (˅) and press ›. The **OPTIONS** menu is displayed.
3. Use ˅ key to select **EASY LINK** and press › to set it to **ON**. If your video recorder is not equipped with this function, set to **OFF**.
4. Press ⊡ to exit the menus.
   The EASY LINK setting is set to OFF by default.

Adjusting the picture

❶ Press (TV) MENU then (›).
The **PICTURE** menu appears :



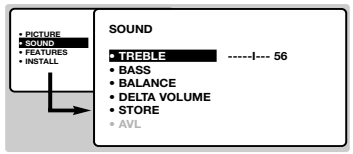
❷ Use (˄)(˅) keys to select a setting and (‹)(›) keys to adjust.
Note: the menu is a scroll-down menu. Keep the key (˅) held down to access the settings hidden at the bottom of the screen.
❸ Once the adjustments have been made, select **STORE** and press (›) to store them.
❹ To exit from the menus, press (⊡).

Description of the settings:

- **BRIGHTNESS**: alters the brightness of the image.
- **COLOUR**: alters the colour intensity.
- **CONTRAST**: alters the variation between light and dark tones.
- **SHARPNESS**: alters the crispness of the image.
- **STORE**: stores the picture settings.
- **COLOUR TEMP** (colour temperature): adjusts the colour temperature of the picture. Three options are available here: **COOL** (blue white), **NORMAL** (balanced) or **WARM** (red white).
- **NR** (Noise Reduction): alleviates fuzziness (snowy picture) in analogue mode. This setting is useful when reception is difficult.
- **CONTRAST +** : automatic adjustment of the picture contrast which permanently sets the darkest part of the picture to black.
Note: settings changed while in the analogue mode will apply to all analogue channels, settings changed while in digital mode will apply to all digital channels.

Adjusting the sound

❶ Press (TV) MENU, select the **SOUND** option (˅) and press (›). The **SOUND** menu appears :



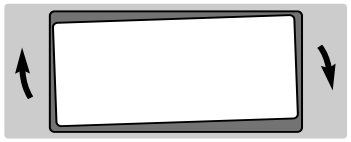
❷ Use the cursor keys to select and adjust.
Note: to access the AVL setting (hidden at the bottom of the screen) hold down (˅) key.
❸ Once the adjustments have been made, select **STORE** and press (›) to store them.
❹ To exit from the menus, press (⊡).

Description of the settings:

- **TREBLE**: alters the level of the high frequency sound.
- **BASS**: alters the level of the low frequency sound.
- **BALANCE**: to balance the sound between the left and right speakers.
- **DELTA VOLUME** (volume difference): allows you to compensate for the volume differences between the different programmes or the EXT sockets. This setting is available for programmes 1 - 40 and the EXT sockets.
- **STORE**: stores the sound settings.
- **AVL** (Automatic Volume Leveller): automatic volume control used to avoid sudden increases in volume, particularly when changing programmes or during advertisements

Rotating the picture

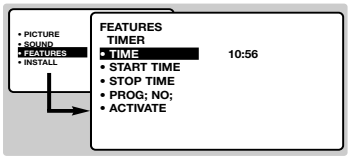
Larger screens are sensitive to variations in the earth's magnetic field. This setting makes it possible to compensate for this phenomenon.



❶ Press (TV) MENU key.
❷ Select **FEATURES** (˅) and press (›).
The **FEATURES** menu appears.
❸ Use (˅) key to select **ROTATION** and use (‹)(›) keys to alter the angle of the image.
❹ Press (⊡) to exit from the menus.

Timer function

This menu allows you to use your TV as an alarm clock.
❶ Press (TV) MENU.
❷ Select **FEATURES** (˅) and press (›) twice.
The **TIMER** menu appears :



❸ Press (›) to enter and exit the sub-menus and use keys (˄)(˅) to adjust:
❹ **TIME**: enter current time.
Note: the time is updated automatically each time the set is switched on using information taken from the digital module.
❺ **START TIME**: enter the start time.
❻ **STOP TIME**: enter the stop time.
❼ **PROG. NO;**: enter the number of the programme required.
❽ **ACTIVATE**: you can set the alarm to be activated :
- **ONCE ONLY** for a one-off alarm,
- **DAILY** for a daily alarm or
- **STOP** to cancel.

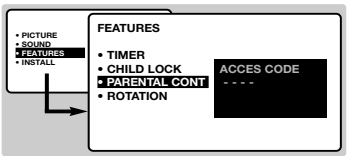
❾ Press (⊡) to exit the menu. If the TV is then put in standby it will automatically switch on at the time programmed. If you leave the TV switched on, it will only change programme at the time indicated.
The combination of the CHILD LOCK and TIMER functions may be used to limit the length of time your television is in use, for example, by your children.

Locking the set

You can bar access to certain programmes or completely lock the set by locking the keys.

Locking programmes

❶ Press (TV) MENU.
❷ Select **FEATURES** (˅) and press (›).
❸ Select **PARENTAL. CONT.** (˅) and press (›).



❹ Enter your confidential access code. The first time, enter the code 0711 then confirm by re-entering 0711. The menu appears.
❺ Press (›) to go into the menu.
❻ Use keys (˄)(˅) to select the required programme and confirm with (›). The symbol 🔒 is displayed alongside the programmes or sockets that have been locked.
❼ Press (⊡) to exit.
To watch a programme which has been locked you will now need to enter the confidential code; otherwise the screen will remain blank.
The INSTALL menu access is also locked.
Caution: in the case of encrypted programmes which use an external decoder, it is necessary to lock the corresponding EXT socket.

To unlock all programmes
Repeat stages ❶ to ❹ above, then select **CLEAR ALL** and press (›).

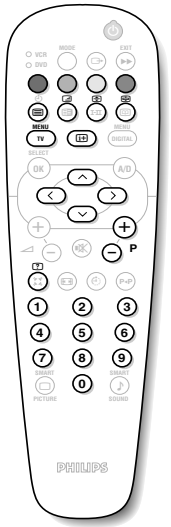
To change the confidential code
Repeat stages ❶ to ❹ above, then:
❺ Select **CHANGE CODE** and enter your own 4-digit number.
❻ Confirm by entering it again.
Your new code will be stored.
❼ Press (⊡) to exit from the menus.
If you have forgotten your confidential code, enter the universal code 0711 twice.

Locking the keys

❶ Press (TV) MENU, select **FEATURES** (˅) and press (›).
❷ Select **CHILD LOCK** (˅) and press (›) to set the lock to **ON**.
❸ Switch off the set and put the remote control out of sight.
The set cannot be used (it can only be switched on using the remote control).
❹ To cancel: switch **CHILD LOCK** to **OFF**.

Analogue Teletext

Teletext is an information system, broadcast by most of analogue TV channels. It also provides subtitles for people with hearing difficulties.



Press :	You will obtain:
Teletext call	To call up or exit from teletext. When first pressed, the main index page appears with a list of the items available. Each page has a corresponding 3-figure number. Some **digital programmes** may also include analogue teletext. If this is the case, it can be accessed by pressing the teletext key for 3 seconds. *If no teletext is available, 100 will appear and the screen will remain blank (in this case, exit from teletext and choose another channel).*
Selecting a page	Use the 0 to 9 or − P + or ^ v keys to enter the page number required . Example: page 120, enter 1 2 0. The number is displayed top left, the counter turns and then the page is displayed. Repeat this operation to view another page. *If the counter continues to search, this means that the page is not transmitted. Select another number.*
Direct access to the items	Coloured areas are displayed at the bottom of the screen. The 4 coloured keys are used to access the items or corresponding pages. *The coloured areas flash when the item or the page is not yet available.*
Contents	This returns you to the contents page (usually page 100).
Direct selection of sub-pages	Certain pages contain sub-pages. For example, if page 120 contains sub-pages 1/3, 2/3 and 3/3, the page number is displayed in green and preceded by the symbols ▶, ◀ or ◀ ▶. Use the keys < > to directly access the sub-pages of your choice.
Text overlaying & double page text	To activate or deactivate teletext overlay on the picture. To activate or deactivate the dual page text display.
Double height teletext	Press this key several times to display the upper, then the lower part of the screen and then return to the normal size teletext page.
Hidden information	To display or hide the concealed information (games solutions).
Favourite pages	Instead of the standard coloured areas displayed at the bottom of the screen, you can store 4 favourite pages on the first 40 channels which can then be accessed using the coloured keys (red, green, yellow, blue). Once set, these favourite pages will become the default every time tetetext is selected. ❶ Press the TV **MENU** key to change to favourite pages mode. ❷ Display the teletext page that you want to store. ❸ Press then the coloured key of your choice. The page is stored. ❹ Repeat steps ❷ and ❸ for the other coloured keys. ❺ Now when you consult teletext, your favourite pages appear in colour at the bottom of the screen. To temporaly retrieve the standard items, press TV **MENU**. *To clear everything, and return the standard items as the default, press for 5 seconds.*

Digital Text

Some digital channels, which you select like any other channel, offer dedicated teletext services (for instance BBCTEXT). Some digital channels also offer information on the programme being broadcast (a message may appear at the bottom of the screen).

❶ To use the digital teletext, follow the instructions on screen.

❷ Depending on the service, you can be asked to use the cursor and **SELECT** keys (OK), the coloured keys, the **TEXT** key ( ) and sometimes the numerical keys.

❸ When you have finished watching teletext, select a different channel with − P + keys or follow the on screen instructions to return to picture. Some digital programmes will require the EXIT function. You can find EXIT under the first menu item of options menu.

16:9 Formats

The pictures you receive may be transmitted in 16:9 format (wide screen) or 4:3 format (conventional screen). 4:3 pictures sometimes have a black band at the top and bottom of the screen (letterbox format). This function allows you to optimise the picture display on screen.

Automatic switching

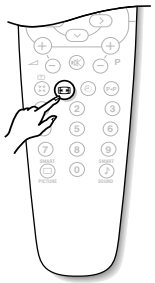
This TV set is also equipped with automatic switching which will select the correct-screen format, provided the specific signals are transmitted with the programmes.

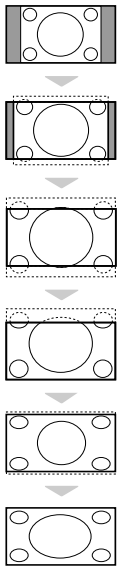
Using the different screen formats

Press the to select the different modes:

4:3, **ZOOM 14:9**, **ZOOM 16:9**, **SUBTITLE ZOOM**, **SUPER ZOOM** and **WIDE SCREEN**.

With analogue programs only, you can access directly these settings with the < and > key.





4:3 Mode
The picture is reproduced in 4:3 format and a black band is displayed on either side of the picture. With analogue programs only, the picture may be progressively enlarged using the ^ v keys.

ZOOM 14:9
The picture is enlarged to 14:9 format, a thin black band remains on both sides of the picture. With analogue programs, the ^ v keys allow you to compress vertically the image to view the top or the bottom of the picture (subtitles).

ZOOM 16:9
The picture is enlarged to 16:9 format. This mode is recommended when displaying pictures which have black bands at the top and bottom (letterbox format). With analogue programs, use the ^ v keys if you wish to display the top or the bottom of the picture.

SUBTITLE ZOOM
This mode is used to display 4:3 pictures using the full surface of the screen leaving the sub-titles visible. With analogue programs, use the ^ v keys to increase or decrease the section at the bottom of the picture.

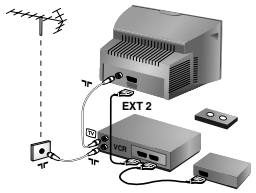
SUPERWIDE
This mode is used to display 4:3 pictures using the full surface of the screen by enlarging the sides of the picture. With analogue programs, the ^ v keys allow you to move the image up or down.

WIDE SCREEN
This mode restores the correct proportions of pictures transmitted in 16:9 using full screen display.
Note: If you display a 4:3 picture in thid mode, it will be enlarged horizontally.

Connecting peripheral equipment

The television has 2 external sockets situated at the back of the set (EXT1 and EXT2).
The EXT1 socket has audio and video inputs/outputs and RGB inputs.
The EXT2 socket has audio and video inputs/outputs and S-VHS inputs.

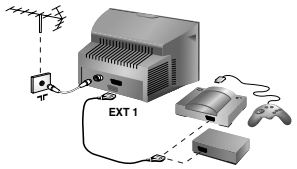
Video recorder



Video recorder (only)
Carry out the connections featured opposite. To record digital programmes from your TV, the VCR must be connected to EXT2.
If your video recorder does not have a euroconnector socket, the only connection possible is via the aerial cable. You will therefore need to tune in your video recorder's test signal and assign it programme number 0 (refer to manual store, p. 12).
To reproduce the video recorder picture, press (0). In this case it will not be possible to record digital channels.

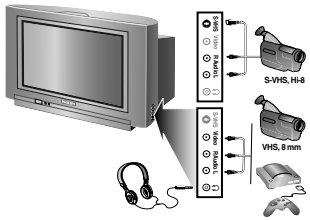
Video recorder with decoder
Connect the decoder to the second euroconnector socket of the video recorder. You will then be able to record scrambled transmissions.

Other equipment



Satellite receiver, decoder, DVD, games, etc.
Carry out the connections featured opposite.
To optimise picture quality, connect the equipment which produces the RGB signals (digital decoder, games, etc.) to EXT1, and the equipment which produces the S-VHS signals (S-VHS and Hi-8 video recorders, certain DVD drives) to EXT2 and all other equipment to either EXT1 or EXT2.

Side connections



Carry out the connections featured opposite.
Using the (⇨) key, select EXT3 for a VHS or 8mm camcorder and S-VHS3 for an S-VHS or Hi-8 camcorder.
For a mono set, connect the sound signal to the AUDIO L (or AUDIO R) input. The sound automatically comes out of the left and right speakers of the TV .

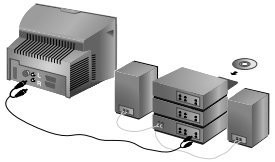
Headphones
The (−) ◿ (+) keys allow you to adjust the volume on the headphones and on the set. Press (OK) if you want to cut off the sound on the set.
The headphones must have an impedance of between 32 and 600 ohms.



To select connected equipment

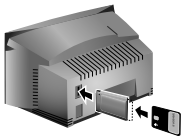
Press the (⇨) key to select EXT1, EXT2, S-VHS2 (S-VHS signals from the EXT2 socket) and EXT3 or S-VHS3 for connections on the front panel.
Most equipment (video recorder, etc) carries out the switching automatically.

Amplifier



To connect to a hi-fi system, use an audio connection cable and connect the "L" and "R" outputs on the TV set to the "AUDIO IN" "L" and "R" input on your hi-fi amplifier.

Common interface



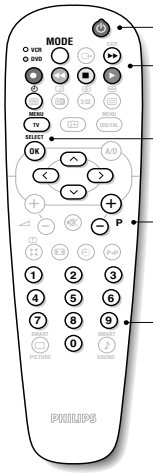
A common interface is available to connect a CAM (conditional access module) and a smartcard. Please contact your service provider to get more information about these modules.
Note: the television should always be switched off before any module is inserted in the common interface slot.

VCR / DVD mode selector

The remote control allows you to control the main functions of your video recorder or DVD.

❶ Press the **MODE** key to select the required mode : **VCR** (video recorder) or **DVD**.
A green indicator lights up to show the selected mode. It returns automatically (TV mode) after 20 seconds without action.

❷ Then press one of the following keys :



standby

● record *,
◀◀ rewind,
■ stop,
▶ play,
▶▶ fast forward,
⏲ programming *,

bring up a menu *
select (⌃⌄) and set (⌃⌄) *
(OK) confirm*

select programme,

enter a number

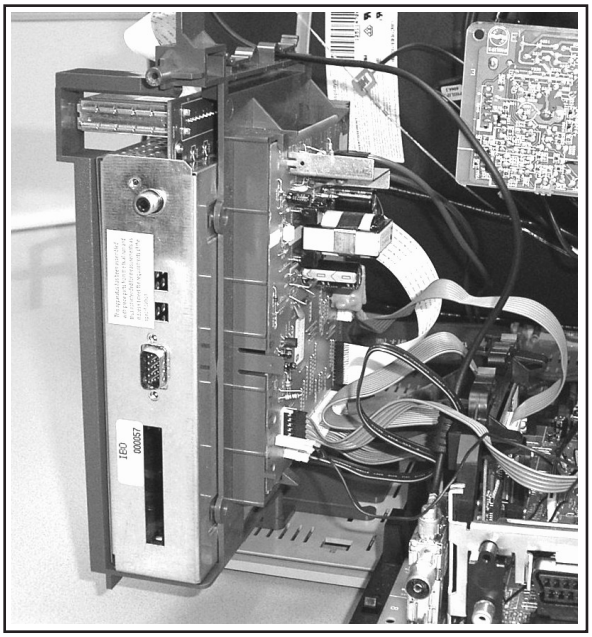
** Some programming functions are not available on all models (cursors, menu, OK key, etc.). For video recorders equipped with the Easylink function : when the set is on standby, pressing the ▶ or (TV) MENU key once switches it on automatically.*
The remote control is compatible with all the video recorders in our range as well as models which use the RC5 signalling standard.

4. Mechanical Instructions

Index of this chapter:
1. IBO+ Assy Removal
2. IBO+ Module Removal
3. IBO+ panel Removal
4. Power Supply Panel Removal
5. Re-Assembly

Notes:
- Only the digital module disassembly is described. For other disassembly instructions, see the Service manual A10E 3122 785 10430.
- Figures can deviate slightly from the actual situation, due to different set executions.

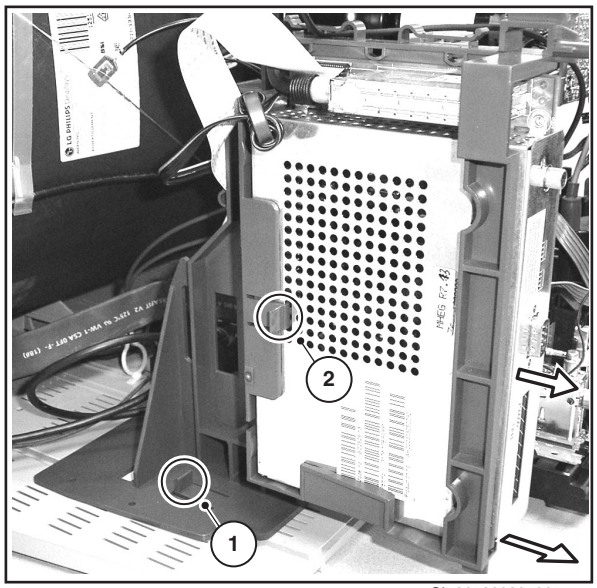
4.1 IBO+ Assy Removal



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271103

Figure 4-1 IBO+ assy

1. Make sure all power-, audio-, video- and coax- cables are unplugged from the set.
2. Before you can access the IBO+ assy, remove the rear cover (see the Service manual A10E 3122 785 10430).
3. Pull up the clip (1) at the left side of the IBO+ bracket and, at the same time, pull the bracket forward until it is released.



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271103

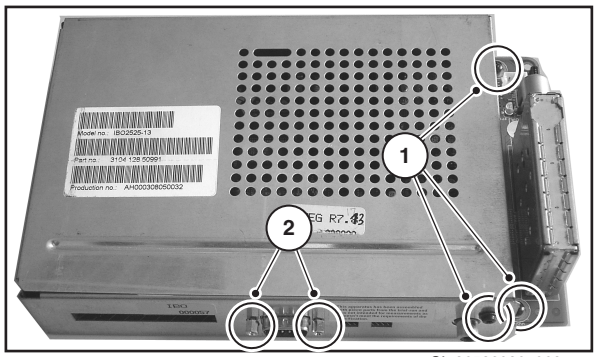
Figure 4-2 IBO+ bracket

4.2 IBO+ Module Removal

1. Disconnect all IBO+ module connectors.
2. Remove the two mounting screws at right side of the IBO+ module.
3. Unlock the clip (2) at the left side of the bracket and pull out the IBO+ module (see figure “IBO+ bracket”)

4.3 IBO+ Panel Removal

1. Unscrew the shield mounting screws (1) and remove the shield.
2. Use a 5 mm socket screwdriver to remove both connector distance bolts (2) from the Sub-D connector.
3. Unscrew the IBO+ panel mounting screws and take out the IBO+ panel.



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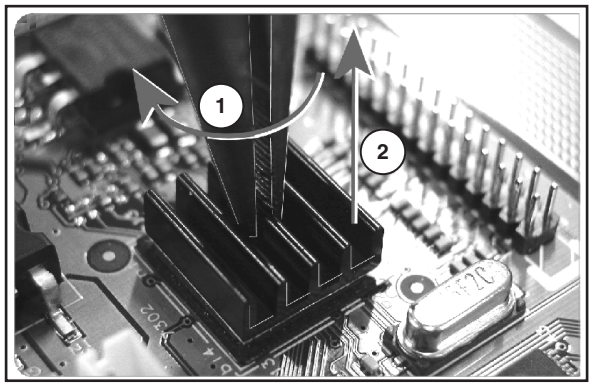
Figure 4-3 IBO+ panel schield

Important: Viper chip heat sink.

- Before you de-solder the viper chip PNX8525 from the board, the heat sink must be removed from the chip. Use a pair of pliers to take off the heat sink by means of a twist- and pull movement (see figure), before you de-solder the

viper chip PNX8525 from the board. Store the heat sink on a safe place, adhesive side up!

- Place the self adhesive heat sink back in place after the chip exchange action has been finished.

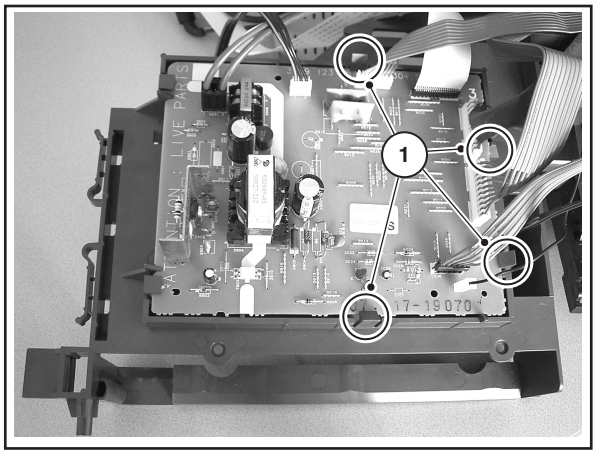


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091203

Figure 4-4 Heat sink removal

4.4 Power Supply Panel Removal

1. Unplug all cables from the Power supply panel.
2. Unlock the four securing clips (1), which hold the panel in place, and take out the Power supply panel.



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271103

Figure 4-5 Power supply panel

4.5 Re-Assembly

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

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:
1. Test points
2. Service Modes
3. ComPair
4. Error Codes
5. The Blinking LED Procedure
6. Protections
7. Troubleshooting Tips
8. Flash-card Handling for SW Downloading

5.1 Test Points

The chassis is equipped with test points printed on the circuit board assemblies. These test points refer to the functional blocks:

Table 5-1 Test point overview

Test point	Cuircuit	Diagram
A1-A2-A3-.....	Audio processing	A6, C6
C1-C2-C3-.....	Control	C8
F1-F2-F3-.....	Frame drive and output	A3
I1-I2-I3-.....	Tuner & IF	A4, C1
I5xx-I6xx-I7xx-.....	IBO+	K, S
L1-L2-L3-....	Line drive and output	A2
P1-P2-P3-.....	Power supply	A1
S1-S2-S3-.....	Synchronisation	C1
V1-V2-V3-.....	Video processing	B, C2, C3

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.

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

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Menu (CSM) is used for communication between dealer and customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements) and the TV chassis. It offers the ability of structured trouble shooting, error code reading, and software version readout.
Minimum requirements: a 486 processor, Windows 3.1 and a CD-ROM drive. A Pentium Processor and Windows 95/98 are also acceptable (see also paragraph “ComPair”).

5.2.1 Service Default Mode (SDM)

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

Specifications
- Tuning frequency: 475.25 MHz.
- Colour system: PAL-BG.
- All picture settings at 50 % (brightness, colour contrast, hue).
- Bass, treble and balance at 50 %; volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
  – (Sleep) timer,
  – Child/parental lock,
  – Blue mute,
  – Hotel/hospitality mode
  – Auto switch-off (when no ‘IDENT’ video signal is received for 15 minutes),
  – Skip / blank of non-favourite presets / channels,
  – Auto store of personal presets,
  – Auto user menu time-out.

How to enter SDM
Use one of the following methods:
- Use a standard customer RC-transmitter and key in the code ‘062596’ directly followed by the MENU button, or
- Short wires 9261 and 9262 on the mono carrier, and apply Mains power. Then press the power button (remove the short after start-up).
  Caution: Entering SDM by shorten wires 9261 and 9262 will override the +5V-protection. Do this only for a short period. When doing this, the service-technician must know exactly what he is doing, as it could lead to damaging the set (in case of SW protections (error 1-4) the set will shutdown after 15 s).
- Or, via ComPair.

After entering SDM, the following screen is visible, with SDM at the upper right side for recognition.

SDM Menu

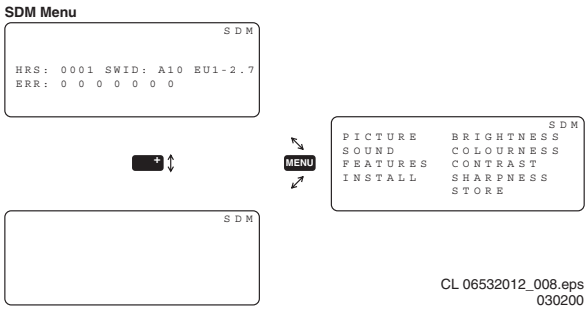


Figure 5-1 Example of SDM menu

Special functions in SDM
- **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)
- **Channel search:** Pressing the “P+” button of the remote control starts a tuning search. Search is indicated by a blinking LED (this stops when a transmitter is found; the transmitter is stored on the highest channel number, typically this is 99 and the TV switches to this preset)
- **Error buffer:** Pressing the OSD button [i+] of the remote control shows/hides the error buffer. OSD can be hidden to prevent interference with oscillogram measurements.
- **Access to SAM:** By pressing the “VOLUME +” and “VOLUME -“ buttons on the local keyboard simultaneously the set switches from SDM to SAM.

How to navigate
Use one of the following methods:
- When you press the MENU button on the remote control, the set will switch between the SDM and the normal user menu (with the SDM mode still active in the background). Return to the SDM screen with the OSD / STATUS button.
- When you press the OSD / STATUS button on the remote control, the menu will show or hide the error buffer. This feature is available to prevent interference during waveform measurements.

- On the TV, press and hold the 'VOLUME down' and press the 'CHANNEL down' for a few seconds, to switch from SDM to SAM and reverse.

How to exit
Switch the set to STANDBY by pressing the power button on the remote control transmitter (if you switch the set “off” by removing the Mains power, the set will return in SDM when Mains power is re-applied). The error buffer is cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To perform alignments.
- To change option settings.
- To display / clear the error code buffer.
- Specifications
- Operation hours counter.
- Software version.
- Option settings.
- Error buffer reading and erasing.
- Software alignments.

How to enter
Use one of the following methods:
- Use a standard customer RC-transmitter and key in the code **‘062596’** directly followed by the OSD / STATUS button [i+], or
- By pressing the “VOLUME +” and “VOLUME -” key on the local keyboard simultaneously, when the set is in SDM, or
- Via ComPair.

The following screen is visible, with SAM at the upper right side for recognition.

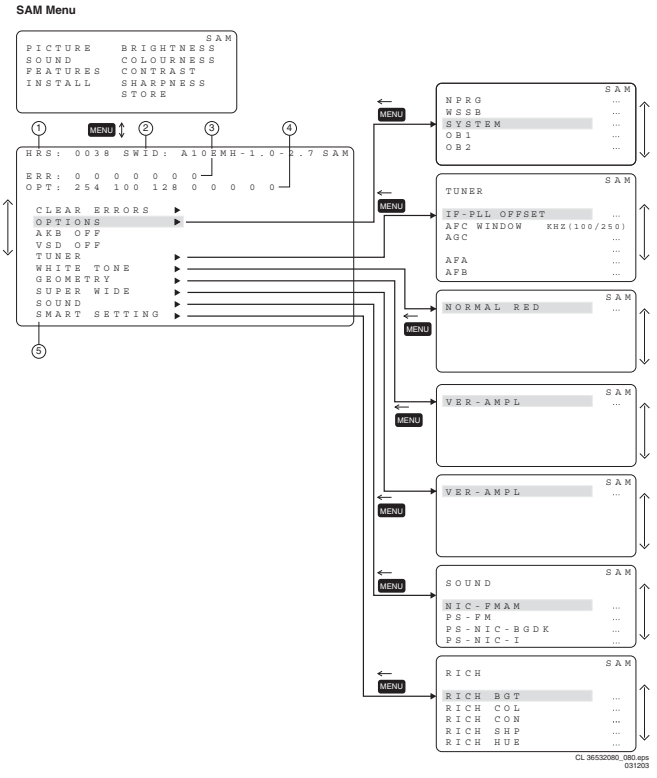


Figure 5-2 Example of SAM menu

1. Operation hours timer (hexadecimal)
2. Software identification of the main micro controller (A10BBC-X.Y)
   - A10 is the chassis name
   - BBC is 2 letter and 1 digit combination to indicate the software type and the supported languages:
   - X = (main version number)
   - Y = (subversion number)
3. Error buffer (7 errors possible)
4. Option bytes (8 codes possible), summary of options are explained below
5. **CLEAR ERRORS**. Erasing the contents of the error buffer. Select the CLEAR ERRORS menu item and press the MENU RIGHT key. The content of the error buffer is cleared.

The functionality of the **OPTIONS** and **ALIGNMENTS** (TUNER, WHITE TONE, GEOMETRY, SOUND and SMART SETTING) sub menus is described in chapter “Alignments”.

How to navigate
Use one of the following methods:
- In SAM, select menu items with the CURSOR UP/DOWN key on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the CURSOR UP/DOWN key to display the next / previous menu items.
- With the CURSOR LEFT/RIGHT keys, it is possible to:
  – (De)activate the selected menu item.
  – Change the value of the selected menu item.
  – Activate the selected submenu.
- When you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the OSD / STATUS button [i+].
- When you press the MENU key in a submenu, you will return to the previous menu.

How to exit
Switch the set to STANDBY by pressing the power button on the remote control (if you switch the set “off” by removing the Mains power, the set will return in SAM when Mains power is re-applied). The error buffer is not cleared.

5.2.3 Customer Service Mode (CSM)

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

How to enter
The CSM will be turned on after pressing the MUTE key on the remote control transmitter and any of the control buttons on the TV for at least 4 seconds simultaneously. This activation only works if there is no menu on the screen.

After switching ON the Customer Service Mode, the following screen will appear:

CSM Menu

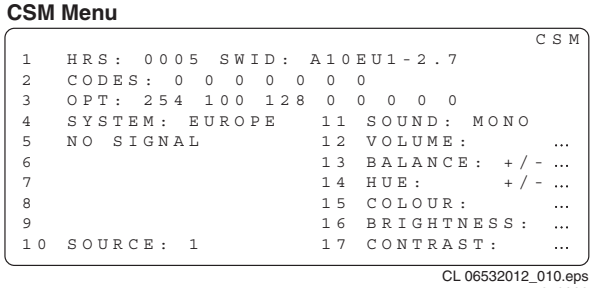


Figure 5-3 Example of CSM Menu

1. **HRS and SWID.** HRS: Hexadecimal counter of operating hours (Standby hours are not counted as operating hours). SWID: Software identification of the main micro controller. See paragraph 5.2. Details on available software versions can be found in the chapter “Software Survey” of the publication “Product Survey - Colour Television”.
2. **CODES.** Error code buffer (see paragraph 5.3). Displays the last 7 errors of the error code buffer.
3. **OPT.** Option bytes. Software and hardware functionality of this chassis is controlled by option bits. An option byte or option number represents 8 of those bits. Each option number is displayed as a decimal number between 0 and 255. The set may not work correctly when an incorrect option code is set. See chapter 8 for more information on correct option settings
4. **SYSTEM.** Indicates which colour and sound system is installed for this preset. Complaints that may be caused by an incorrect system setting: no colours, colours not correct, unstable picture, or 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
5. **NO SIGNAL.** Indicates that the set is not receiving an “ident” signal on the selected source.
   – No or bad antenna signal; connect a proper antenna signal
   – Antenna not connected; connect the antenna
   – No channel / preset is stored at this program number; go to the INSTALL menu and store a proper channel at this program number
   – The tuner is faulty (in this case the CODES line will contain number 13); check the tuner and replace/repair if necessary
   – **Note:** On some models, BLUE MUTE is displayed (if the BM option is ON) when no signal is received.
6. **TIMER ON.** Indicates that the on/off timer is running. Complaints that may be caused by the activation of the sleep timer. Without using the remote control of the local keyboard, the set is switching on from standby, or to a different channel. To switch the activation timer “off”:
   – Select “TIMER” in the “FEATURE” menu
   – Select “ACTIVATE’ in the “TIMER” menu
   – Set to “OFF” with the left/right cursor keys
7. **CHANNEL BLOCKED.** Indicates that all channels are locked except the selected channel. Complaints that may be caused by locked channels are: TV cannot be switched on from standby with the local keyboard buttons, or “P+” and “P-“ buttons on local keyboard do not function. To disable the LOCK feature:
   – Select ”FEATURE” menu (with the Remote Control)
   – Select “LOCK” (with the RC)
   – Set to “OFF”
8. **NOT PREFERED.** Indicates that at least one channel is deleted as a preferred channel (by default, all channels are skipped. Note that “SKIPPED” will always be displayed in CSM unless no channels are skipped. A channel can be added as a selected channel to the list of preferred channels:
   – Select “INSTALL” menu
   – Select “CHANNEL EDIT”
   – Select “ADD/DELETE”
   – Set to “ADD” with the left/right cursor keys
9. **HOTEL MODE.** Indicates that the Hotel mode has been activated.
10. **SOURCE.** Indicates which SOURCE is installed for this preset: EXT1, SVHS2, EXT2, Tuner.
11. **SOUND.** Indicates which sound mode is installed for this preset: Mono, NICAM, Stereo, L1, L2, SAP, Virtual or Digital.
12. **VOLUME.** Value indicates level at entry CSM.
13. **BALANCE.** Value indicates level at entry CSM.
14. **HUE.** Value indicates level at entry CSM.
15. **COLOR.** Value indicates level at entry CSM.
16. **BRIGHTNESS.** Value indicates level at entry CSM.
17. **CONTRAST.** Value indicates level at entry CSM.

How to exit

Use one of the following methods:

- After you press ‘any’ key of the remote control transmitter with exception of the CHANNEL and VOLUME keys.
- After you switch "off" the TV set with the Mains power switch.

5.3 ComPair

5.3.1 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 SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.3.2 Specifications

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

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

- **Automatic** (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I2C level. ComPair can access the I2C bus of the television. ComPair can send and receive I2C 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 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 faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct waveform you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

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

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

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

5.3.3 How To Connect

1. First, install the ComPair Browser software (see the Quick Reference Card for installation instructions).
2. Connect the RS232 interface cable between a free serial (COM) port of your PC and the PC connector (marked with 'PC') of the ComPair interface.
3. Connect the mains adapter to the supply connector (marked with 'POWER 9V DC') of the ComPair interface.
4. Switch the ComPair interface “off”.
5. Switch the television set “off” with the mains switch.
6. Connect the ComPair interface cable between the connector on the rear side of the ComPair interface (marked with 'I2C') and the ComPair connector at the rear side of the TV (situated just below the main aerial input).
7. Plug the mains adapter in a mains outlet, and switch the interface “on”. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second while the green LED remains lit.
8. Start the ComPair program and read the 'Introduction' chapter.

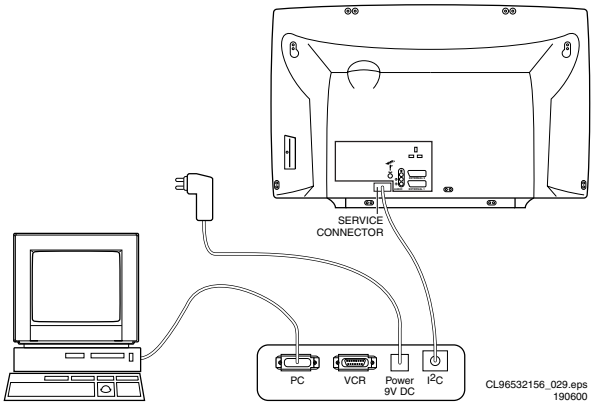


Figure 5-4 ComPair Interface connection

5.3.4 How To Order

ComPair order codes:
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002, 3122 785 60110 (year 2003).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003).
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510 (only for sets with software upgrade facilities).
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.

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

5.4 Errors

5.4.1 Error code buffer

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

5.4.2 How to Read the Error Buffer

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

5.4.3 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:
- By activation of the CLEAR command in the SAM menu:
- When you exit SDM / SAM with the STANDBY command on the remote control (when leaving SDM / SAM, by disconnecting the set from Mains power, the error buffer is not reset).
- When you transmit the command DIAGNOSE-99-OK with ComPair.
- If the content of the error buffer has not changed for 50 hours, it resets automatically.

5.4.4 Error Codes

In case of non-intermittent faults, clear the error buffer before you begin the repair. These to ensure that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

Table 5-2 Error code overview

Error	Error description	Possible defective components
	No error detected	
1	X-ray protection/ EW and/or High beam protection active	LOT, Line deflection circuit, EW-circuit or CRT amplifier circuit, picture tube or +200V missing
2	Vertical protection	Vertical circuit is defective
3	Reserved	
4	5V protection active	+5V supply line is low or short circuit
5	Reserved	
6	General I2C bus error	I2C bus s/c or o/c on uP
7	BC-loop not stabilised	RGB amplifiers, RGB guns or RGB driving signals of BOCMA
8	BOCMA I2C error	IC7301 - TDA8885
9	BOCMA 8V supply failure	IC7301 and R3331
10	NVM I2C error	IC7066 - M24C32
11	NVM identification failure	IC7066 - M24C32
12	Microprocessor internal RAM test failure	IC7064 - SAA5667
13	Main Tuner I2C error	IC1225 - UV13xx / TEDE9
14	Sound processor I2C error	IC7651 - MSP3415 / 3451
15	SRAM I2C error	IC7070 - UPDxxxx
24	IO expander IC (on Dig. Interf. panel)	IC7008 - PCF8574
25	IBO+ microprocessor (Viper)	IC7100 - PNX8525

Error 0 = No error

Error 1 = X-ray protection, E/W protection and/or IBeam. The set is switched to protection; error code 1 is placed in the error buffer; the LED will blink 1 time (repeatedly). If this happens, isolate each circuit to determine the cause. These circuits are:

- X-Ray protection (PROTN). If this protection is active, the most likely cause is the LOT. Detection via pin 3 of the BOCMA (item 7301).
- EW protection (PROT-UP). If this protection is active, the causes could be one of the following;
  - Bad contacts of: horizontal deflection coil, linearity coil 5417, S-correction capacitor 2418/2419, flyback capacitor 2414/2416, or line output stage.
  - Short circuit of: flyback diode 6414, EW transformer (bridge coil) 5478/5479 or 5474/5475/5476 (version dependent), or EW driver 7470.
- High beam current protection (IBEAM). As the name implies, the cause of this protection is a too high beam current (bright screen with flyback lines). Check whether the +200 V supplies to the CRT panel is present. If the voltage is present, the most like cause is the CRT panel or the picture tube. Disconnect the CRT panel to determine the cause. If the +200 V voltage is not present, check R3840 at CRT-panel and R3445 / D6445 at main panel.

Error 2 = Vertical protection (VFB). If this protection is active, the cause could be one of the following (most likely in the vertical output stage):

- 7501 is faulty.
- Poor contact or open circuit of deflection coil.
- +13 V-VERT and/or -13 V not present.

Error 3 = Reserved

Error 4 = +5 V protection. If the 5 V protection is active, the set is switched to protection, error code 4 is placed in the error buffer, and the LED will blink 4 times (repeatedly).
A 5 V failure can cause a drop in the 5 V supply output, resulting in an undefined behaviour of the set. Therefore, all I2C devices connected to the 5 V supply are constantly monitored. When none of these devices respond to the micro controller for a prolonged time, the micro controller assumes that there is a failure in the 5 V supply.
By starting up the set with the service jumpers shorted, the 5 V protection is disabled and it is easier to determine the cause. +5 V protection will be activated when these I2C devices fail (no I2C communication):

- Main Tuner 1125 on main panel.
- ITT sound processor MSP34xx (7064) on the SSB.

The following tips are useful to isolate the problem area after overriding the +5V protection. Determine whether:

- The +5 V source is working properly; isolate coil 5430 and jumper 9044 and measure the +5V
- ITT sound processor circuit is loading the +5 V; isolate coil 5430.
- The tuner is loading the +5 V source; isolate jumper 9044.
- Main tuner circuit is loading the +5 V source; isolate coil 5261.

Caution: Overriding the 5 V protection when there is a 5 V failure can increase the temperature in the set and may cause permanent damage to components. Do not override the 5 V protection for a prolonged time.

Error 5 = Reserved.

Error 6 = General I2C error. This will occur in the following cases:

- SCL or SDA is shorted to ground.
- SCL is shorted to SDA.
- SDA or SCL connection at the micro controller is open circuit.

Error 7 = BC-loop not stabilised (BCF = 1) Black current loop instability protection. The possible cause could be a defect in one or more of the RGB amplifiers, RGB guns or RGB driving signals.

Error 8 = BOCMA IC TDA888xx I2C communication failure. BOCMA (item 7301 on SSB) is corrupted, or the I2C line to the BOCMA is low, or no supply voltage present at pin 14 and/or pin 60 (3V3).

Error 9 = BOCMA IC TDA888xx 8 V failure (SUP bit). No supply voltage at pin 53. Check NFR 3331 and coil 5333.

Error 10 = NVM I2C error. NV memory (item 7066) does not respond to the micro controller.

Error 11 = Micro controller / NV Memory identification error. During the last start-up, the NVM and the micro controller did not recognize each other (e.g. one of them was replaced or the NVM memory has been changed/adapted or lost); therefore, the NVM was loaded with default values.

Error 12 = Microprocessor (item 7064) internal RAM test failure.

Error 13 = Main Tuner I2C failure UV13xx. Tuner (item 1225) is corrupted, or the I2C line to the Tuner is low, or nosupply voltage at pin 9, pin 6 or 7 of the tuner.

Error 14 = Sound processor I2C error (MSP34xx). Sound controller MSP3400 or MSP3410 does not respond to the micro controller.

Error 15 = SRAM IC uPD431000A-B test failure (item 7070).

Error 24 = IO expander IC (IC7008 - PCF8574 on Dig. Interf. panel) I2C communication failure.

Error 25 = IBO+ microprocessor (IC7100 - PNX8525) I2C communication failure.

Note: Error codes 1, 2, and 4 are protection codes and in this case, supply of some circuits will be switched “off”. In addition, in protection, the LED will blink the number of times equivalent to the most recent error code.

5.5 The Blinking LED Procedure

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

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

Example of error buffer: 12 9 6 0 0
After entering SDM:
- 1 long blink of 750 ms followed by a pause of 1.5 s,
- 2 short blinks followed by a pause of 3 s,
- 9 short blinks followed by a pause of 3 s,
- 6 short blinks followed by a pause of 3 s,
- 1 long blink of 3 s to finish the sequence,
- The sequence starts again.

5.6 Protections

If a fault situation is detected an error code will be generated and if necessary, the set will be put in the protection mode. Blinking of the red LED at a frequency of 3 Hz indicates the protection mode. In some error cases, the microprocessor does not put the set in the protection mode. The error codes of the error buffer can be read via the service menu (SAM), the blinking LED procedure or via ComPair. The DST diagnose functionality will force the set into the Service-standby, which is similar to the usual standby mode, however the microprocessor has to remain in normal operation completely.

To get a quick diagnosis the chassis has three service modes implemented:
- The Customer Service Mode (CSM).
- The Service Default Mode (SDM). Start-up of the set in a predefined way.
- The Service Alignment Mode (SAM). Adjustment of the set via a menu and with the help of test patterns.

See for a detailed description: Chapter 9 paragraphs “Deflection” and “Power Supply” of the A10E Service manual.

5.7 Troubleshooting Tips

In this paragraph, some troubleshooting tips for the deflection and power supply circuitry are described.

5.7.1 Deflection Circuit

- Measure if the V_BAT (140 V) is present across 2939/2940 (A1 POWER SUPPLY). If the voltage is not present, disconnect jumper 9936 and 9937 (see A1 Power Supply). The whole Line Deflection stage is now disconnected. If the voltage is present, then the problem might be caused by the deflection circuit. Possibilities:
  - Transistor 7410 is defective.
    Note: If the C and E of 7410 are shorted, hick-up noise can be heard from the power supply circuit
  - The driver circuit around transistor 7481 is faulty
  - No horizontal drive signal coming from the BOCMA IC 7301 pin 56 on the SSB
- To determine whether the fault is present in the line deflection circuit (A2 LINE DEFLECTION) or in the EW circuit/panel (screen size above 21”), insert jumper into position numbers 9409 (in this case the EW protection is disabled). If the basic deflection is working (picture is parabolic distorted), then the fault is located in the EW circuit/panel. If there is no hor. deflection, the fault is present in the basic deflection circuitry.
- Also, take note of protection circuits in the line output stage. If any of these circuits are activated, the set will shut down. Depending on protections, the LED will blink according to the fault defined. In order to determine which protection circuit is active, isolation of circuits is necessary. These protection circuits are:
  - High beam protection: See error “1”.
  - X-ray protection: See error “1”.
- If the high beam protection or the X-ray protection is active, it will switch the set to protection and the SDM is activated. The service LED blinks repetitively 1 time. If this happen, isolate each circuit to determine the cause.

5.7.2 Power Supply

To trouble shoot the A10 SMPS, first check the +5 V_STBY voltage on IC7968, pin 3 / 4. If this voltage is not present, check fuse 1961 and D6961.
If 1906 or D6917 is not open circuit, the problem might be caused on the primary side of the switching supply. Check the output of the bridge diodes at the cathode side of D6912/D6913 or D6915-pin 1 for approximately 300 V_dc. If this voltage is missing, check the bridge diodes and the fuse. If fuse F1900 is found open, check IC7921 (circuit A1) between pins 3 and 2 to make sure that there is no short circuit present.
If the 300 V_dc is present on pin 3 of IC7902, check for a start-up voltage of 16 V on pin 4 of IC7921. If this start-up voltage is not present, check if R3914 is open (a short circuit between pin 4 and 5 will also cause this problem). It is necessary to have a feedback signal from the hot secondary side of switch mode transformer T5912 at pin 8 and pin 9 for the power supply to oscillate. If this start-up voltage is present on pin 4 of IC7902 and the supply is not oscillating, check R3929 and D6929.

The A10 power supply has been designed with Over Voltage Protection (OVP). To determine whether OVP is active, check whether V_BAT (141 V) is present at IC7971 pin 1. If not, check the components D6938, C2939 and C2940 and L5941. If these components are o.k., then check voltage at pin 3 of IC 7942. If this voltage is not present check fuse 1941 and fuse 1942. Replace if necessary.
If the dc-voltage is present at pin 3, replace opto-coupler 7929. Another way to confirm whether OVP is active is to measure the voltage with an oscilloscope at IC7902 pin 4. If the voltage is fluctuating between 11-14 V, then check the components as described in the above mentioned paragraph.

5.7.3 Other Problems (related to CSM)

Picture problems

TV switched off or changed channel without any user action
Set switches off after “TV SWITCHING OFF” was displayed:
“Auto standby” switched the set off because:
- There was no ident signal for more than 15 minutes
- There was no remote control signal received or local key pressed for > 2 hours

See chapter “Alignments” for a description on the options to enable/disable auto standby

Picture too dark or too bright
- Press “Smart Picture” button on the remote control. In case the picture improves, increase / decrease the brightness value or increase / decrease the contrast value. The new “Personal Preference” value is automatically stored after 3 minutes
- After switching on the Customer Service Mode, the picture is OK. Increase / decrease the brightness value or increase

/ decrease the contrast value. The new “Personal Preference” value is automatically stored after 3 minutes

White line around picture elements and text
- Press “Smart Picture” button on the remote control. In case the picture improves, decrease the sharpness value. The new “Personal Preference” value is automatically stored after 3 minutes
- After switching on the Customer Service Mode, the picture is OK. Decrease the sharpness value. The new “Personal Preference” value is automatically stored after 3 minutes

Snowy picture
- Check the “NOT TUNED” section of the Customer Service Mode screen

Snowy picture and/or unstable picture
- A scrambled or decoded signal is received

Black and white picture
- Press “Smart Picture” button on the remote control. In case picture improves, increase the colour value. The new “Personal Preference” value is automatically stored after 3 minutes
- After switching on the Customer Service Mode, the picture is OK. Increase the colour value. The new “Personal Preference” value is automatically stored after 3 minutes

Menu text not sharp enough
- Press “Smart Picture” button on the remote control. In case the picture improves, decrease the contrast value. The new “Personal Preference” value is automatically stored after 3 minutes
- After switching on the Customer Service Mode, the picture is OK. Decrease the contrast value. The new “Personal Preference” value is automatically stored after 3 minutes

Sound Problems

No sound or sound too loud (after channel change / switching on)
- After switching on the Customer Service Mode, the volume is OK. Increase / decrease the volume level. The new “Personal Preference” value is automatically stored after 3 minutes.

5.8 Flash-card Handling For SW Downloading

5.8.1 General

You must NOT:
- Use *Sony* writers.
- Format the cards.
- Use a flash-card from *Apacer*.
- Use flash-cards > 256 MB

You must:
- Use USB writers. Use a PCMCIA card adapter and a laptop.
- Use brands *Kingston* and *Sandisk* for flash-cards.
- Use flash-card of sizes of 32 MB, 64 MB, 128 MB and 256 MB.
- Use a DOS box or Windows Explorer to copy the two images (FCL.IMG and IBOP.IMG) to the flash-card. Those two files form a pair. Always copy **both** images (from the same delivery!). **Make very sure** that the images, which you are trying to install, are made for that particular board model and that particular board version. In addition, the Software version or model **should differ** from the version or model, which is already on the board. If it does not differ, no download will take place (unless the software on the board was faulty).
- In order to make sure that the writing indeed has finished, you must do the following before removing the card: Software “Eject” or “Disconnect” the driver (should be a command of your flash-card writer, which you can see when you right-click on the flash-card drive from the explorer.) If you forget this, not all data is flashed to the card, resulting in incomplete files on the flash-card.

5.8.2 Solving problems

In case of any troubles, first do the following to check whether the copy was good:
1. Remove the flash-card (so that the cache memory is cleared).
2. After 10 seconds, re-insert the flash-card.
3. Open a DOS box and type "fc /b <image on card> <image on harddisk>".
   This command does compare the copy of the image with the original, which should not have any differences.

You put a flash-card in and the system does nothing. The flash-card loader is copying the image to flash. This can take up to 1.5 minutes (for large images).

Whenever you reset the board, an application is launched.
- Press the flash-card firmly into it's slot; if it is not inserted properly the available application will launch
- Check (with an PC / laptop) that the flash-card contains both a FCL.IMG and a IBOP.IMG.
- **Always** copy **both** images as the FCL.IMG and the IBOP.IMG form a pair.

The flash-card images do not download (board keeps on resetting or IBL is launched, or another application is launched from NAND-flash).
- Make sure the Software Version you try to download is different from the one in the box.
- Make sure the Hardware Version is set correctly. L0, L1, and L2 boards all use different flash-card images.
- Make sure the contents of the flash-card are readable (check with NT); try another flash-card and another flash-card writer on another PC to be 100% sure. Do not format the flash-card.

Flashing of NOR-image does not work. Remove the stream server (!).

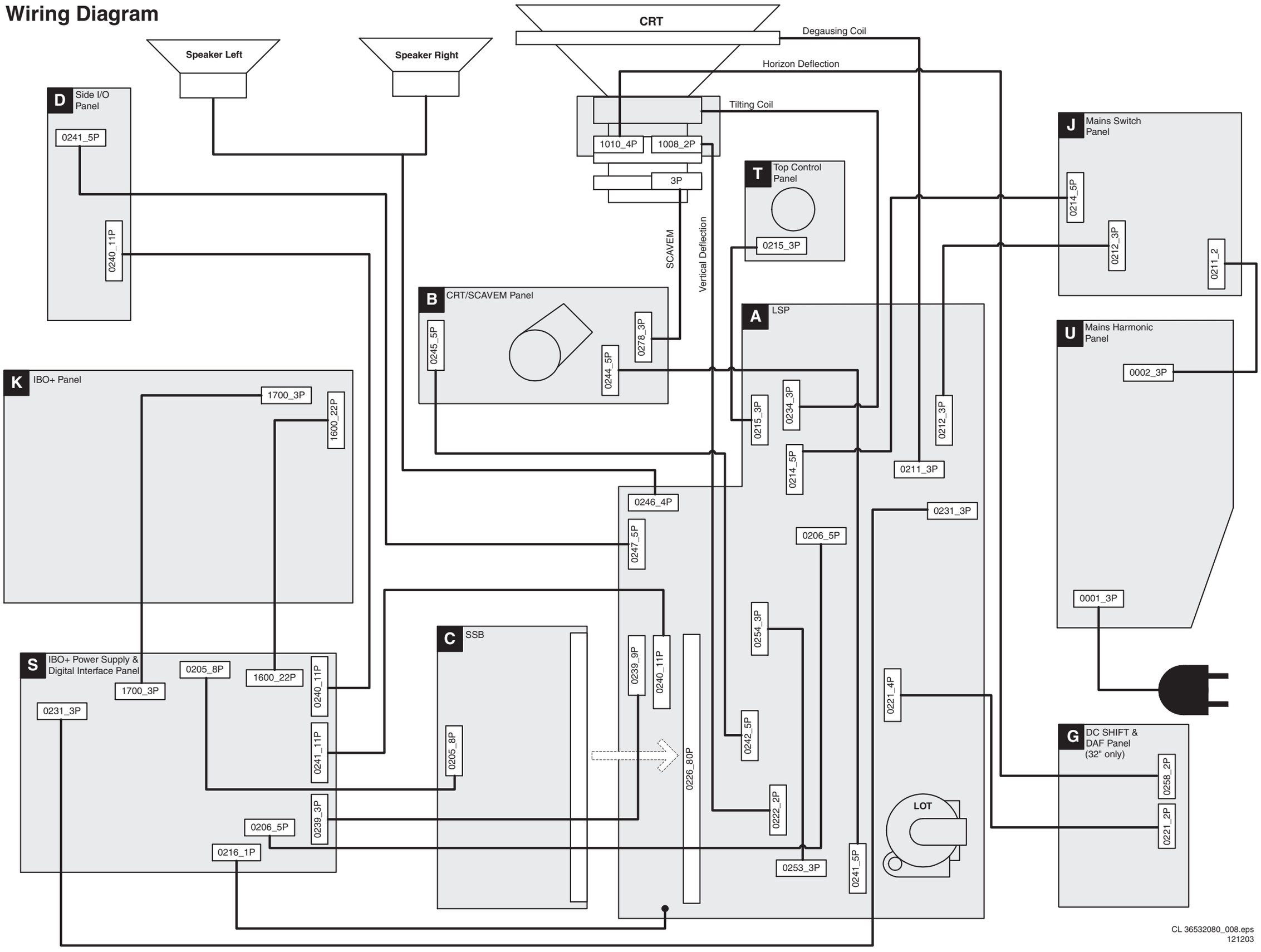
Flashing of NAND-flash does not work. Check the size of the IBOP.IMG image. It should not exceed +/- 15 MB.

Tip: If it is possible, one can remove the shielding from the board. The IBO+ board usually contains two LEDs. During flashing, they are orange. If the flashing succeeded, then the LED will turn GREEN for 10 seconds. If the flashing did not work, then the LED will stay RED for 10 seconds.
With these LEDS, you can see the difference between:
- Board does not even attempt to flash (images already in this board or are not acceptable for this board).
- Board fails the flash-card download (images corrupt; flash-card unreadable: FCL.IMG not consistent with IBOP.IMG).
- Board succeeds (no problem whatsoever)

6. Block Diagrams, Testpoint Overview, and Waveforms

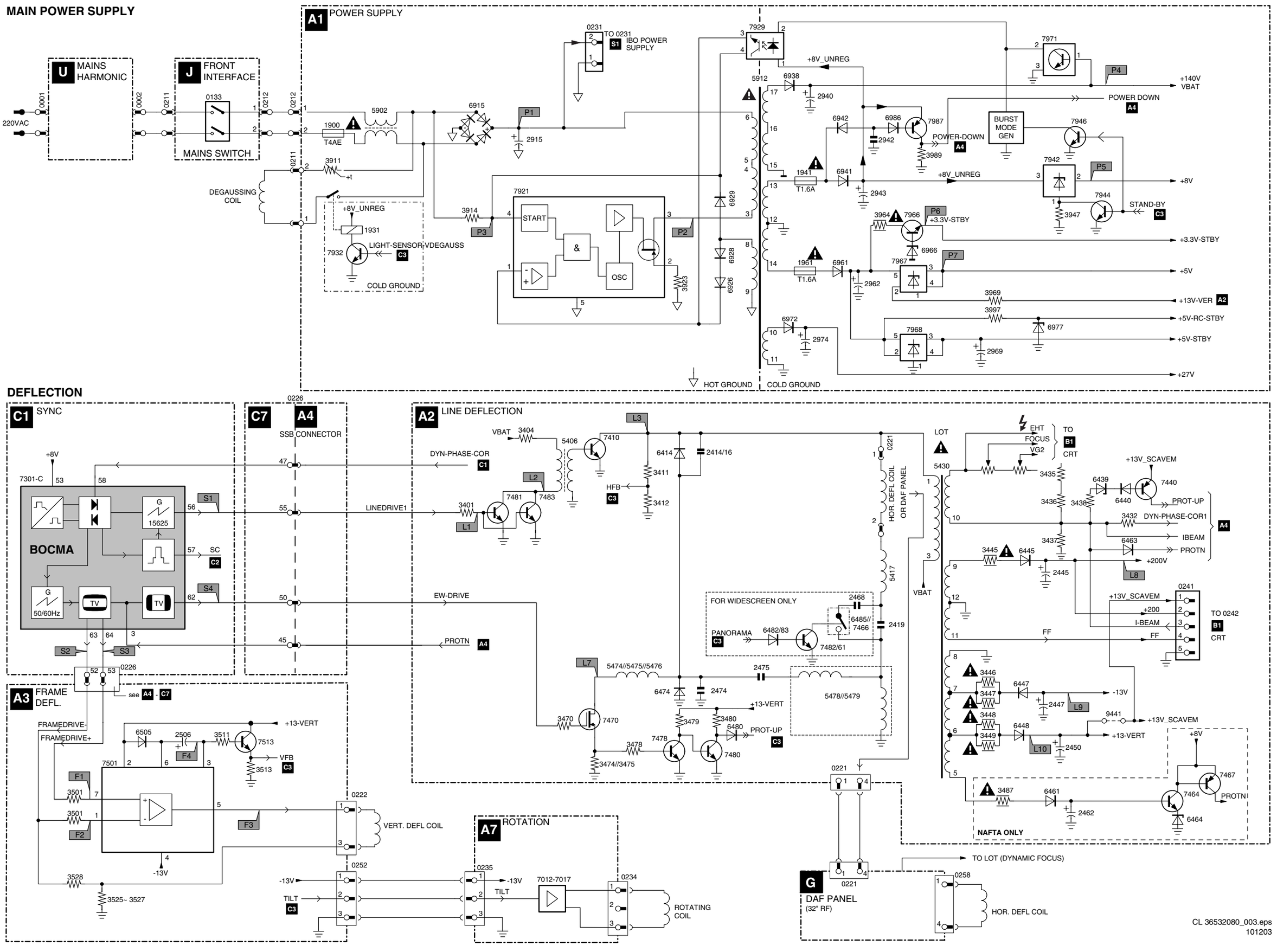
Wiring Diagram

Wiring Diagram



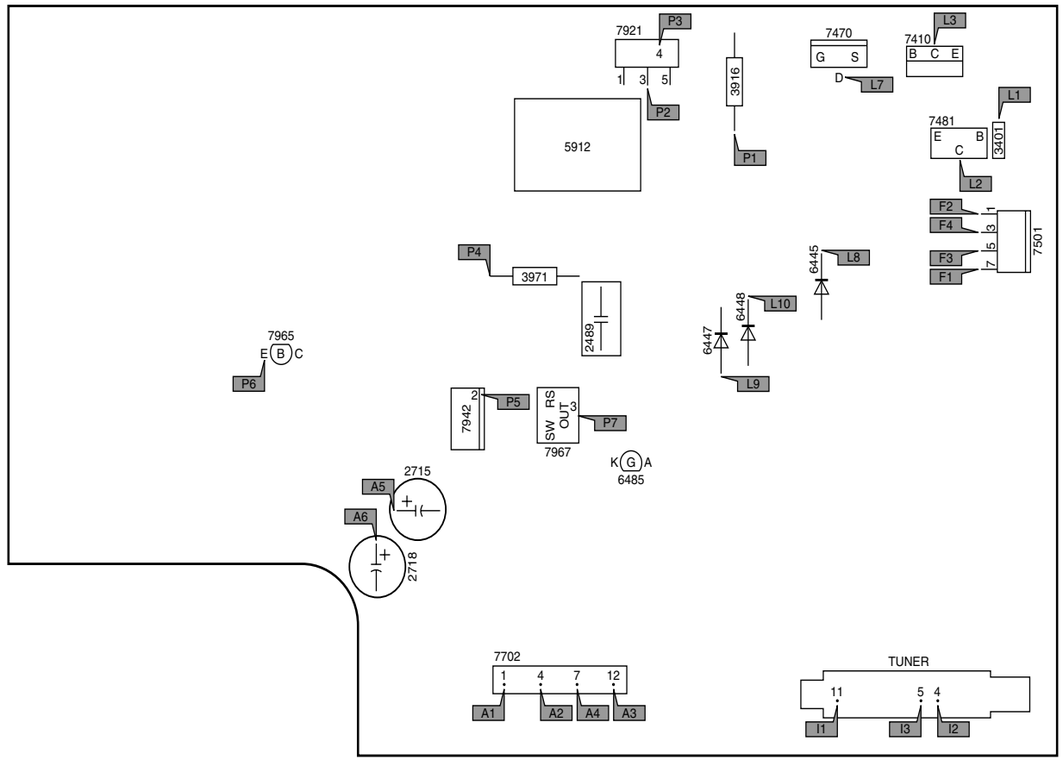
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121203

Block Diagram Main Power Supply

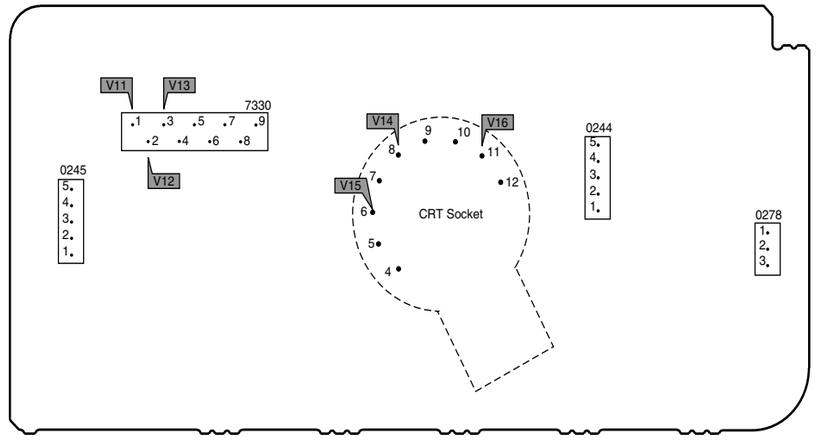


Testpoint Overview LSP, SSB, and CRT Panel

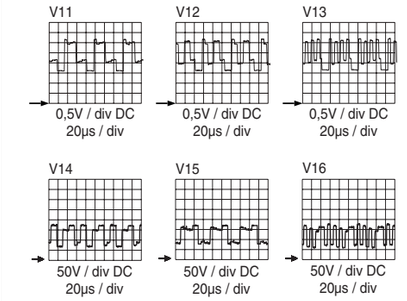
TESTPOINT OVERVIEW LSP (Component Side)



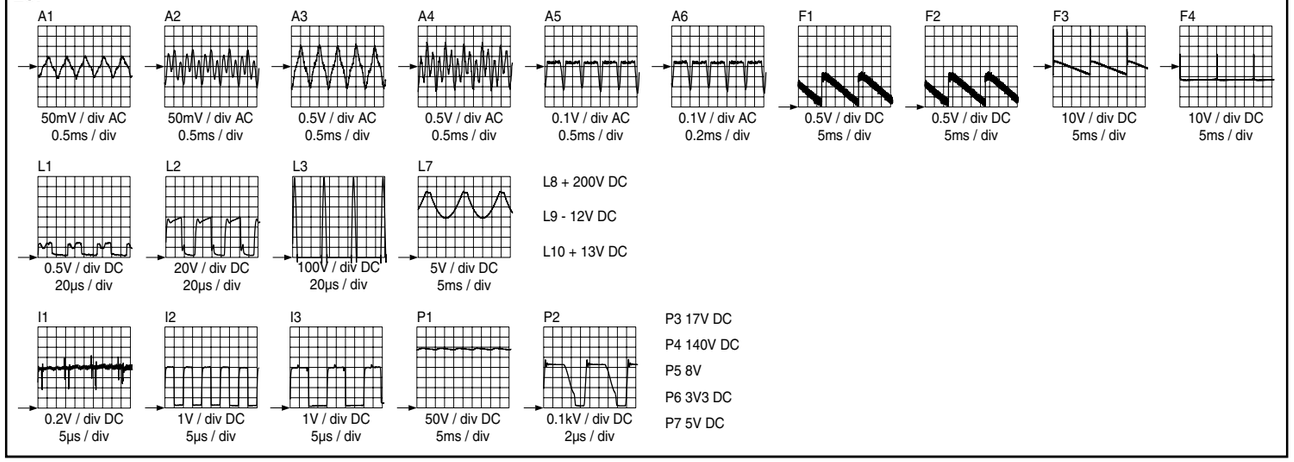
TESTPOINT OVERVIEW CRT (Track Side)



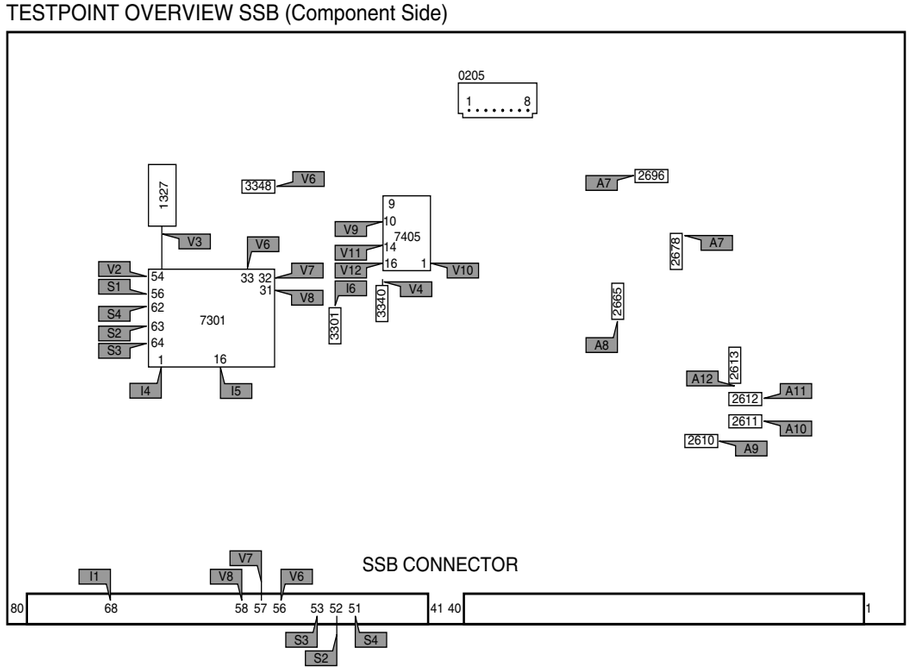
CRT



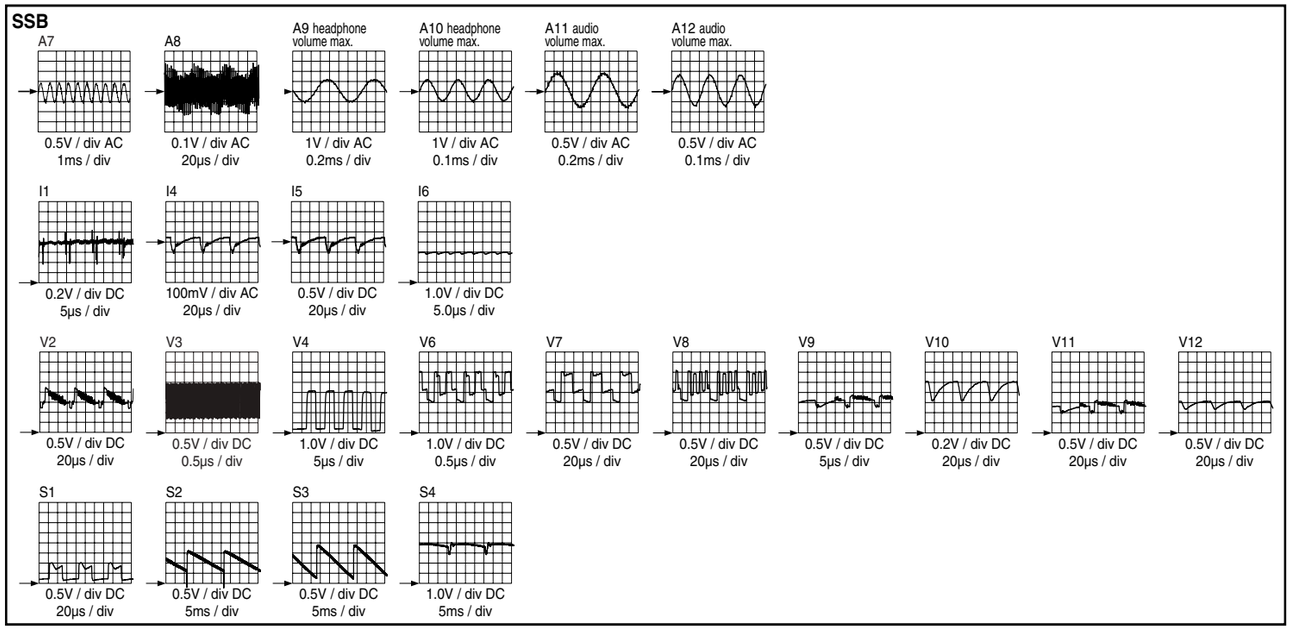
LSP



TESTPOINT OVERVIEW SSB (Component Side)

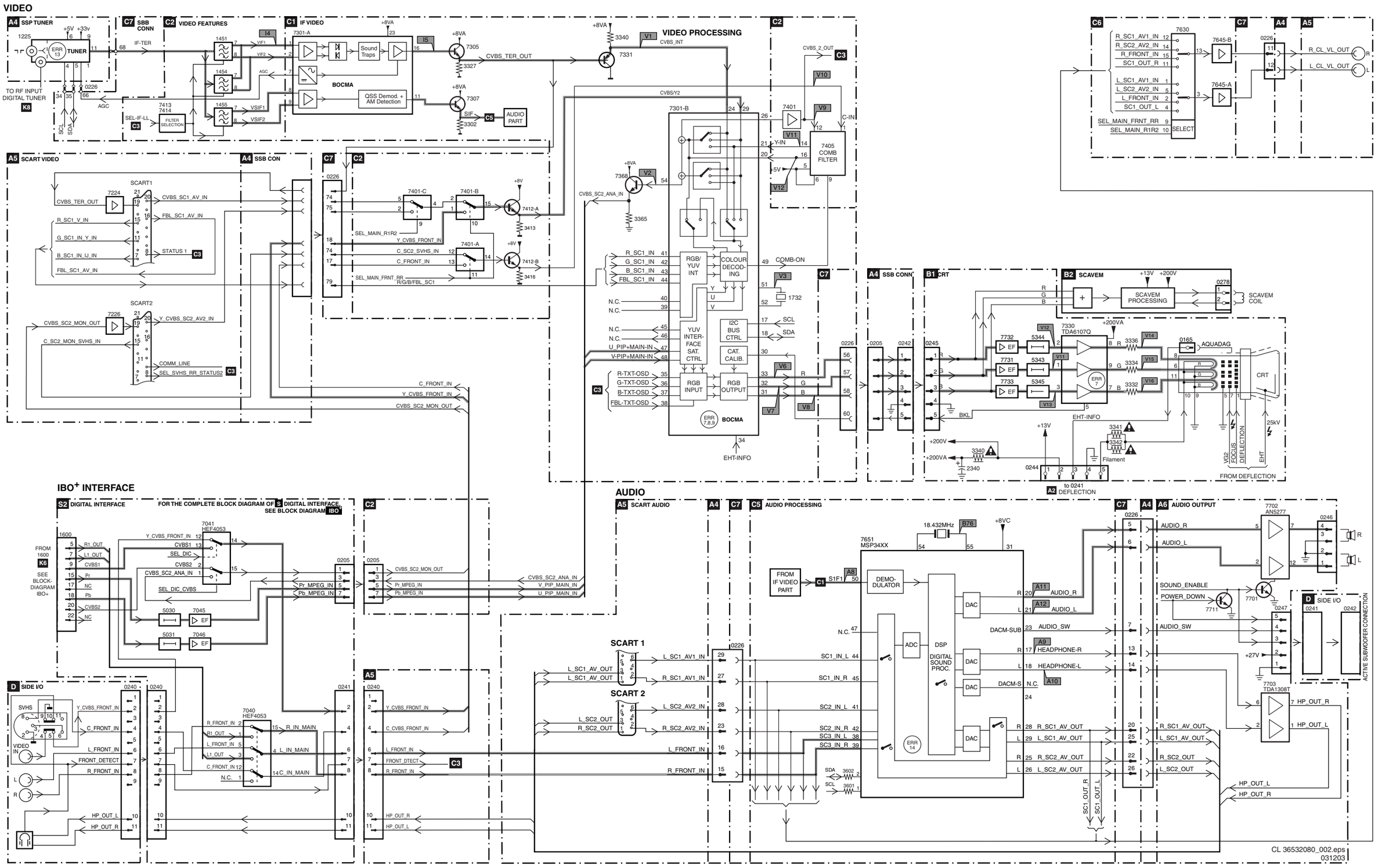


SSB

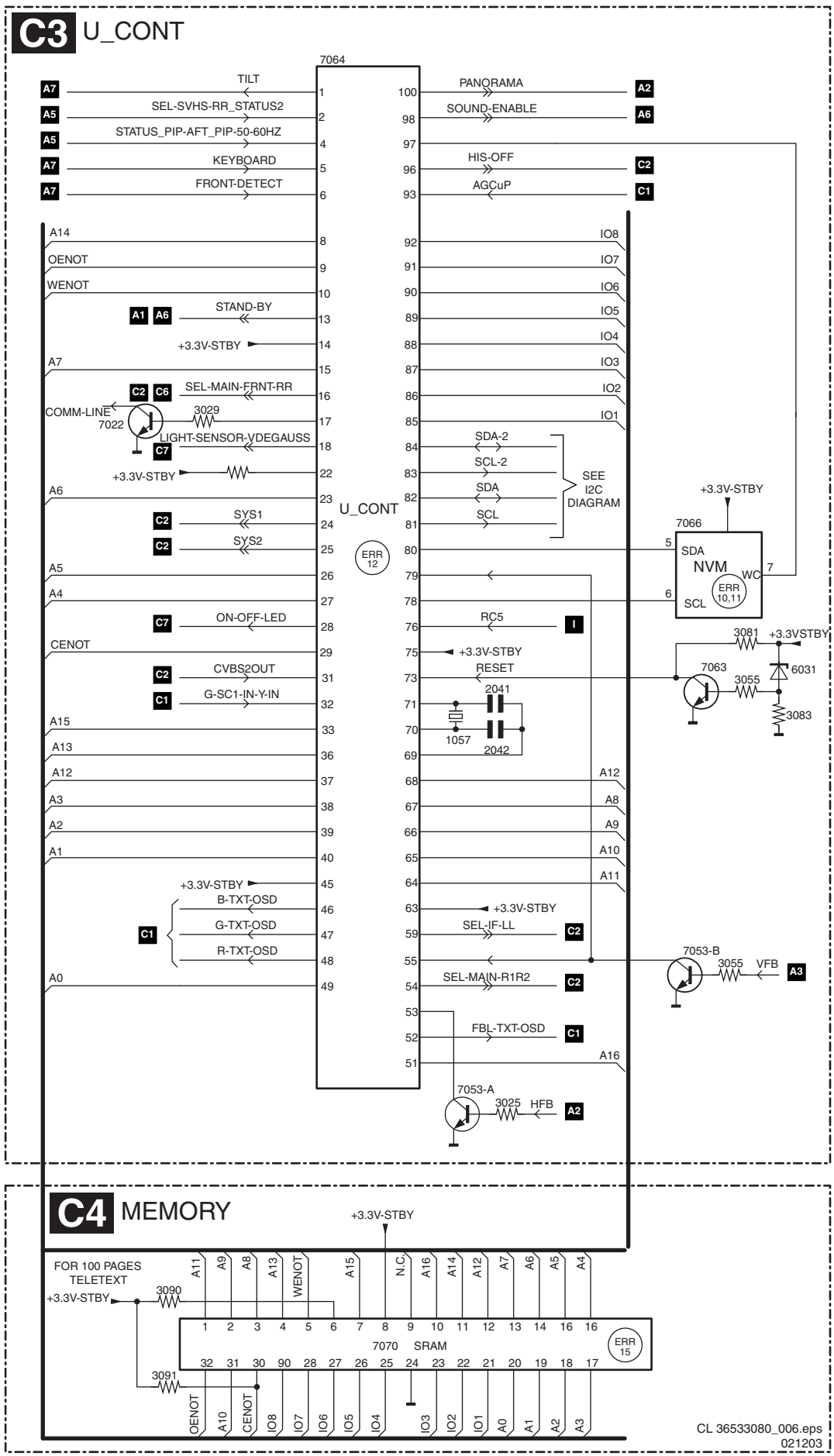


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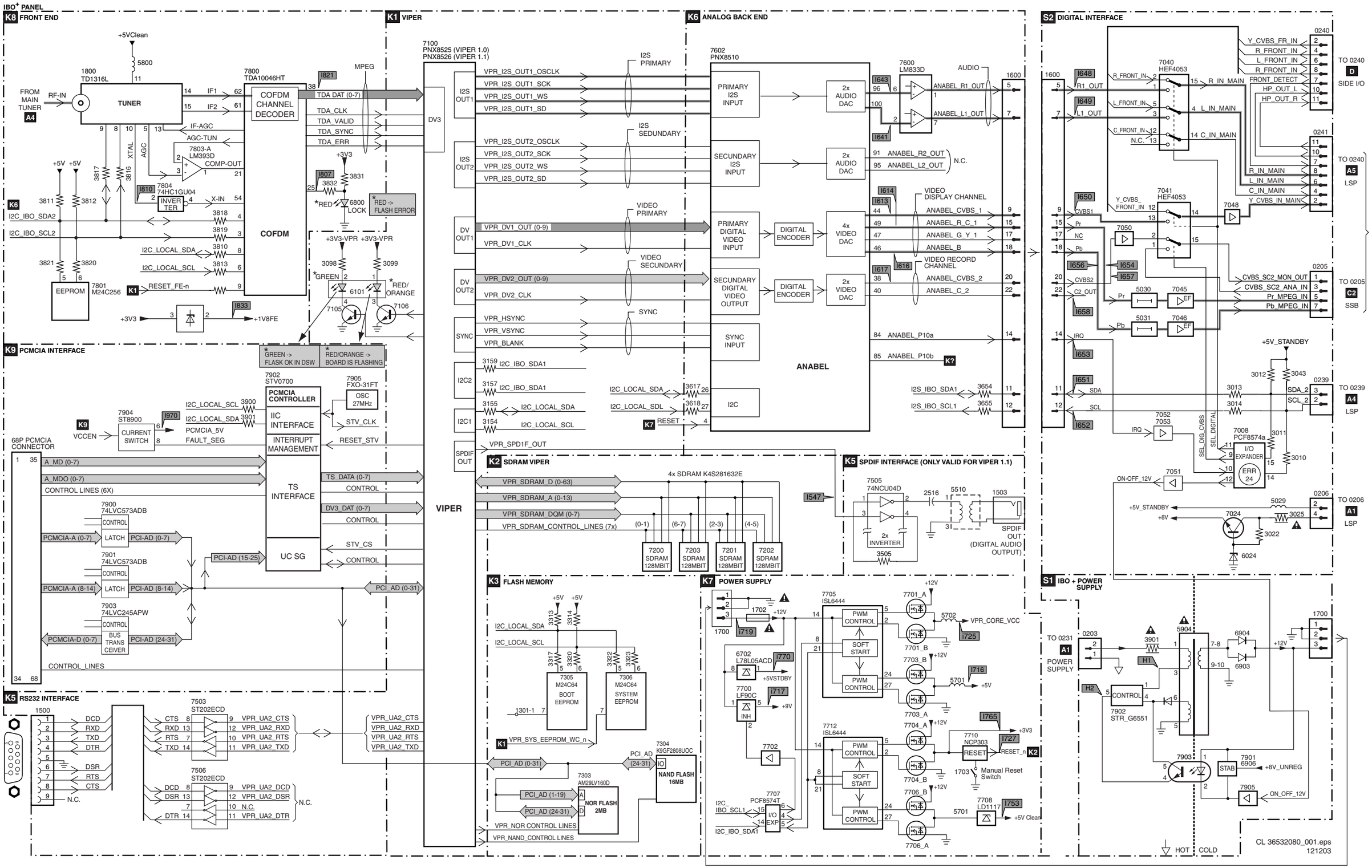
Block Diagram Video



Block Diagram Micro Processor

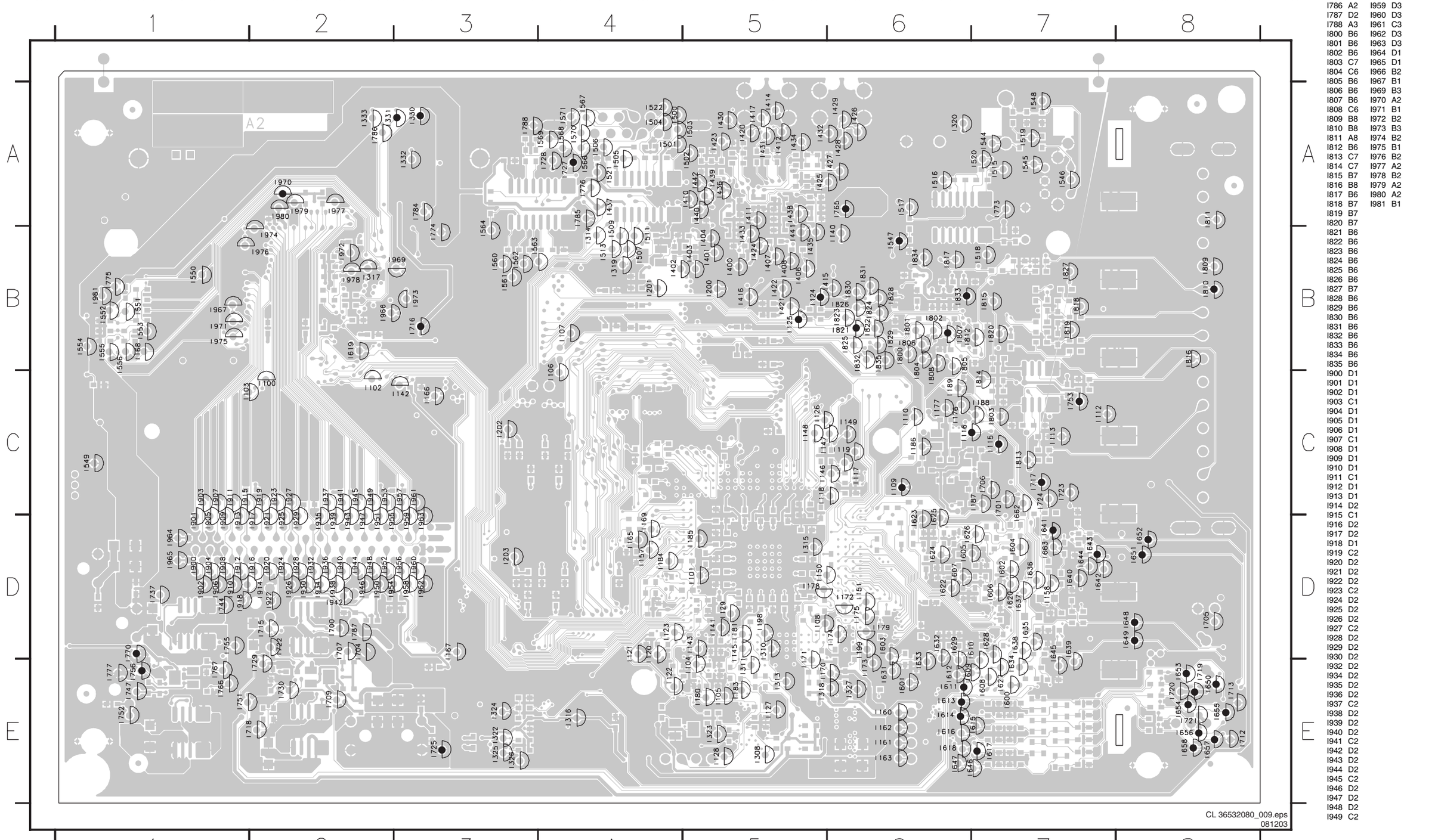


Block Diagram IBO+ Panel



Testpoint Overview IBO+

I100 C2
I101 D5
I102 C2
I103 C1
I104 E5
I105 E5
I106 C4
I107 B4
I108 D5
I109 C6
I110 C6
I112 C7
I113 C7
I115 C7
I116 C6
I117 C6
I118 C5
I119 C6
I120 D4
I121 D4
I122 E4
I123 D4
I124 B5
I125 B5
I126 C5
I127 E5
I128 E5
I129 D5
I140 B6
I141 D5
I142 C3
I143 D5
I145 D7
I146 C5
I147 C5
I148 C5
I149 C6
I150 D5
I151 D6
I157 D4
I158 B1
I160 C6
I161 E6
I162 E6
I163 E6
I165 D4
I166 C3
I167 D3
I168 B1
I169 D4
I170 E5
I171 E5
I172 D6
I173 E6
I174 D6
I175 D6
I176 C6
I177 C6
I178 D5
I179 D6
I180 E5
I181 D5
I183 E5
I184 C6
I185 C7
I186 C6
I187 C7
I188 C7
I189 C6
I198 D5
I199 D6
I200 B5
I201 B4
I202 C3
I203 D3
I300 E5
I308 E5
I310 D5
I311 E5
I313 E5
I314 B4
I315 D5
I316 E4
I317 B2
I318 E5
I319 B4
I320 A6
I322 E3
I323 E3
I324 E3
I325 E3
I326 E3
I327 E6
I330 A3
I331 A2
I332 A3
I333 A2
I400 B5
I401 B5
I402 B4
I403 B5
I404 B5
I405 B5
I406 B5
I407 B5
I408 B5
I410 A5
I411 A5
I412 A5
I414 A5
I415 B5
I416 B5
I417 A5
I420 A5
I421 B5
I422 B5
I423 A5
I424 B5
I425 A5
I426 A6
I427 A6
I428 A6
I429 A6
I430 A5
I431 A5
I432 A5
I433 B5
I434 A5
I435 B5
I436 A5
I437 A4
I438 A5
I439 A5
I440 A5
I441 B5
I442 A5
I500 A4
I501 A4
I502 A5
I503 A5
I504 A4
I505 A4
I506 A4
I507 B4
I509 B4
I511 B4
I513 B4
I515 A7
I516 A6
I517 A6
I518 B7
I519 A7
I520 A7
I521 A4
I522 A4
I527 A5
I528 A5
I544 A7
I545 A7
I546 A7
I547 B6
I548 A7
I549 C1
I550 B1
I551 B1
I552 B1
I553 B1
I554 B3
I555 B1
I556 B1
I560 B3
I561 B3
I562 B3
I563 B3
I564 B3
I566 A4
I567 A4
I568 A4
I569 A4
I570 A4
I571 A4
I600 E7
I601 E6
I602 D7
I603 D6
I604 D7
I605 D6
I606 D7
I607 D6
I608 E7
I609 E6
I610 D6
I611 E6
I612 E6
I613 E6
I614 E6
I615 E7
I616 E6
I617 E7
I618 E6
I619 B2
I620 D7
I622 D6
I623 D6
I624 D6
I625 D6
I626 D6
I627 E7
I628 D7
I629 D6
I631 E6
I632 D6
I633 E6
I634 E7
I635 D7
I636 D7
I637 D7
I638 D7
I639 D7
I640 D7
I641 D7
I642 D7
I643 D7
I644 D7
I645 D7
I646 E6
I647 E6
I648 D8
I649 D8
I650 E8
I651 D8
I652 D8
I653 E8
I654 E8
I655 E8
I656 E8
I657 E8
I658 E8
I662 C7
I663 D7
I700 D2
I701 C7
I704 D2
I705 D8
I706 C7
I707 D2
I709 E2
I712 E8
I713 E8
I715 D2
I716 B3
I717 C7
I718 E1
I720 E8
I721 E8
I722 D2
I723 C7
I724 C7
I725 E3
I727 A4
I728 A4
I729 E2
I730 E2
I737 D1
I744 D1
I747 E1
I751 E1
I752 E1
I753 C7
I755 D1
I756 E1
I765 A6
I766 E1
I767 E1
I770 D1
I773 A7
I774 B3
I775 B1
I776 A4
I777 E1
I780 A3
I784 A4
I785 A4
I786 A2
I787 D2
I788 A3
I800 B6
I801 B6
I802 B6
I803 C7
I804 C6
I805 B6
I806 B6
I807 B6
I808 C6
I809 B8
I810 B8
I811 A8
I812 B6
I813 C7
I814 C7
I815 B7
I816 B8
I817 B6
I818 B7
I819 B7
I820 B7
I821 B6
I822 B6
I823 B6
I824 B6
I825 B6
I826 B6
I827 B7
I828 B6
I829 B6
I830 B6
I831 B6
I832 B6
I833 B6
I834 B6
I835 B6
I900 D1
I901 D1
I902 D1
I903 C1
I904 D1
I905 D1
I906 D1
I907 C1
I908 D1
I909 D1
I910 D1
I911 C1
I912 D1
I913 D1
I914 D2
I915 C1
I916 D2
I917 D2
I918 D1
I919 C2
I920 D2
I921 D2
I922 D2
I923 C2
I924 D2
I925 D2
I926 D2
I927 C2
I928 D2
I929 D2
I930 D2
I932 D2
I934 D2
I935 D2
I936 D2
I937 C2
I938 D2
I939 D2
I940 D2
I941 C2
I942 D2
I943 D2
I944 D2
I945 C2
I946 D2
I947 D2
I948 D2
I949 C2
I950 D2
I951 D2
I952 D2
I953 C2
I954 D2
I955 D2
I956 D3
I957 C3
I958 D3
I959 D3
I960 D3
I961 C3
I962 D3
I963 D3
I964 D1
I965 D1
I966 B2
I967 B1
I969 B3
I970 A2
I971 B1
I972 B2
I973 B3
I974 B2
I975 B1
I976 B2
I977 A2
I978 B2
I979 A2
I980 A2
I981 B1



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I109
1V / div DC
20ns / div

I330
1V / div DC
10µs / div

I331
1V / div DC
10µs / div

I613
200mV / div DC
20µs / div

I614
200mV / div DC
20µs / div

I616
200mV / div DC
20µs / div

I617
500mV / div DC
20µs / div

I650
200mV / div DC
20µs / divv

I651
1V / div DC
20µs / div

I652
1V / div DC
20µs / div

I654
200mV / div DC
20µs / div

I655
500mV / div DC
20µs / div

I656
200mV / div DC
20µs / div

I657
500mV / div DC
20µs / div

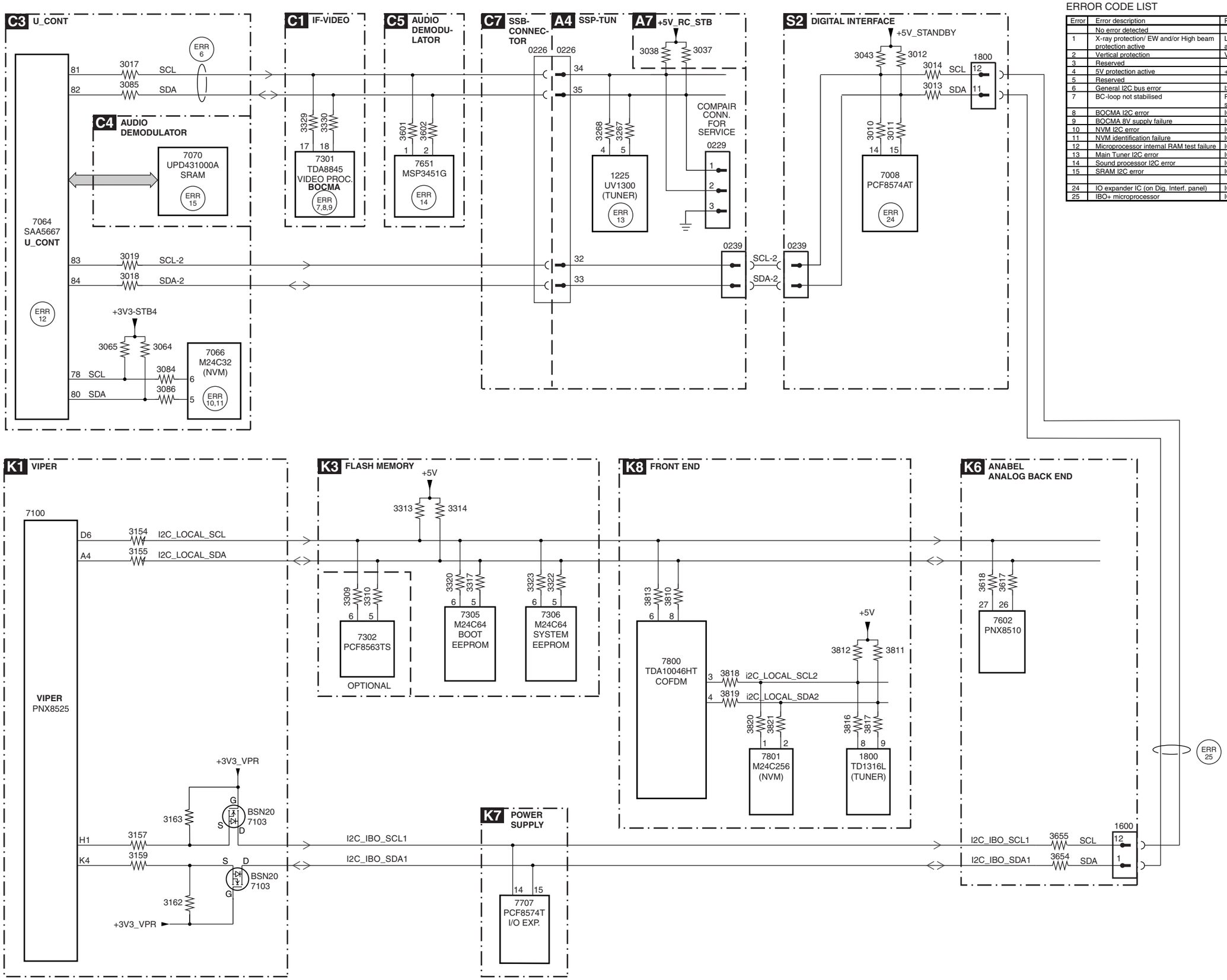
I658
500mV / div DC
20µs / div

I716 = 5V
I717 = 9V
I719 = 11V8
I725 = 1V8
I727 = 3V3
I753 = 5V
I765 = 3V3
I770 = 5V

I807 = 0V
I833 = 1V8
I870 = 4V7

I810
100mV / DIV ac
250ns / div

I^2C IC's Overview

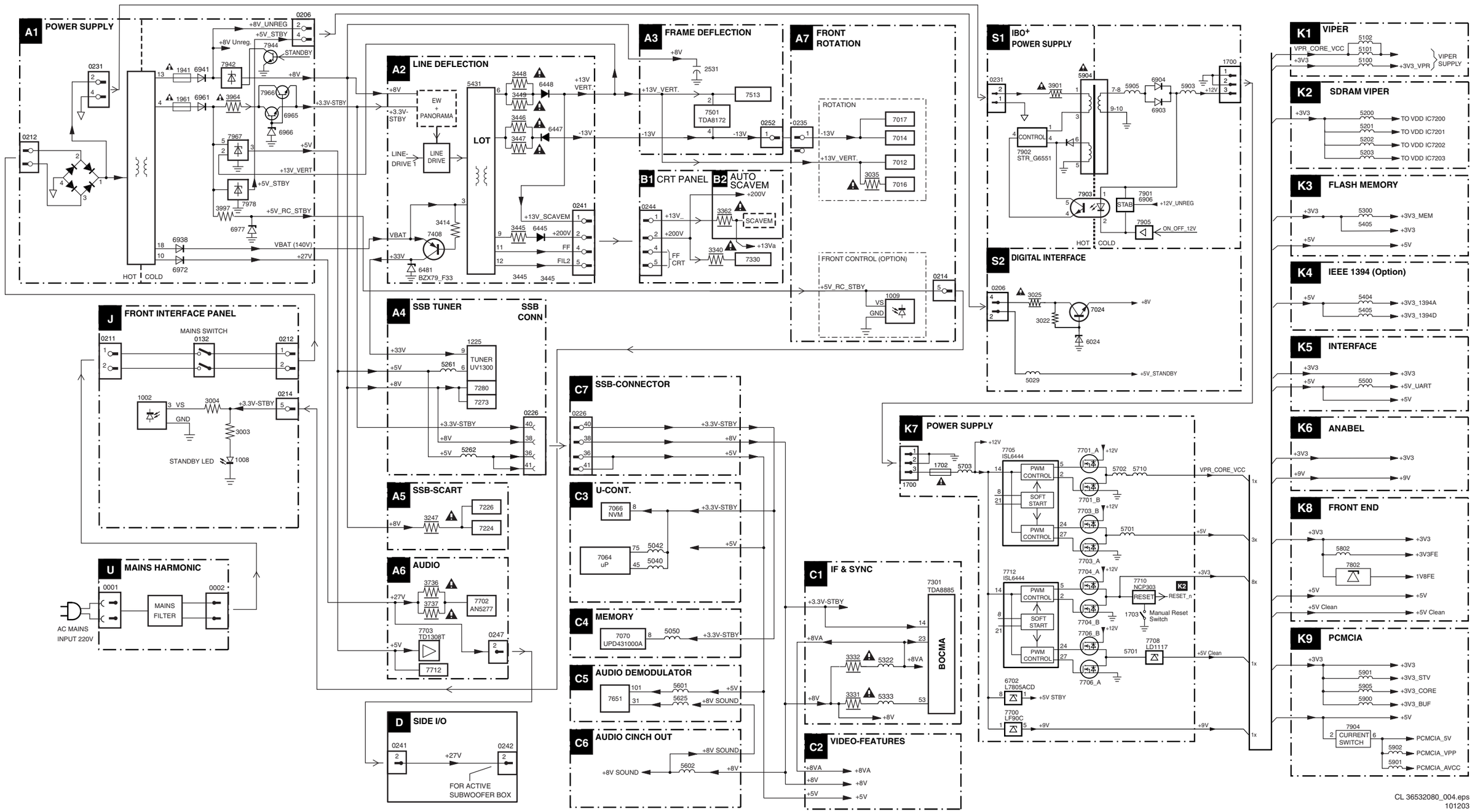


ERROR CODE LIST

Error	Error description	Possible defective components
	No error detected	
1	X-ray protection/ EW and/or High beam protection active	LOT, Line deflection circuit, EW -circuit or CRT amplifier circuit, picture tube or +200V missing
2	Vertical protection	Vertical circuit is defective
3	Reserved	
4	5V protection active	+5V supply line is low or short circuit
5	Reserved	
6	General I2C bus error	I2C bus s/c or o/c on uP
7	BC-loop not stabilised	RGB amplifiers, RGB guns or RGB driving signals of BOCMA
8	BOCMA I2C error	IC7301 - TDA8885
9	BOCMA 8V supply failure	IC7301 and R3331
10	NVM I2C error	IC7066 - M24C32
11	NVM identification failure	IC7066 - M24C32
12	Microprocessor internal RAM test failure	IC7064 - SAA5667
13	Main Tuner I2C error	IC1225 - UV13xx / TEDE9
14	Sound processor I2C error	IC7651 - MSP3415 / 3451
15	SRAM I2C error	IC7070 - UPDxxxx
24	IO expander IC (on Dig. Interf. panel)	IC7008 - PCF8574
25	IBO+ microprocessor	IC7100 - PNX8525

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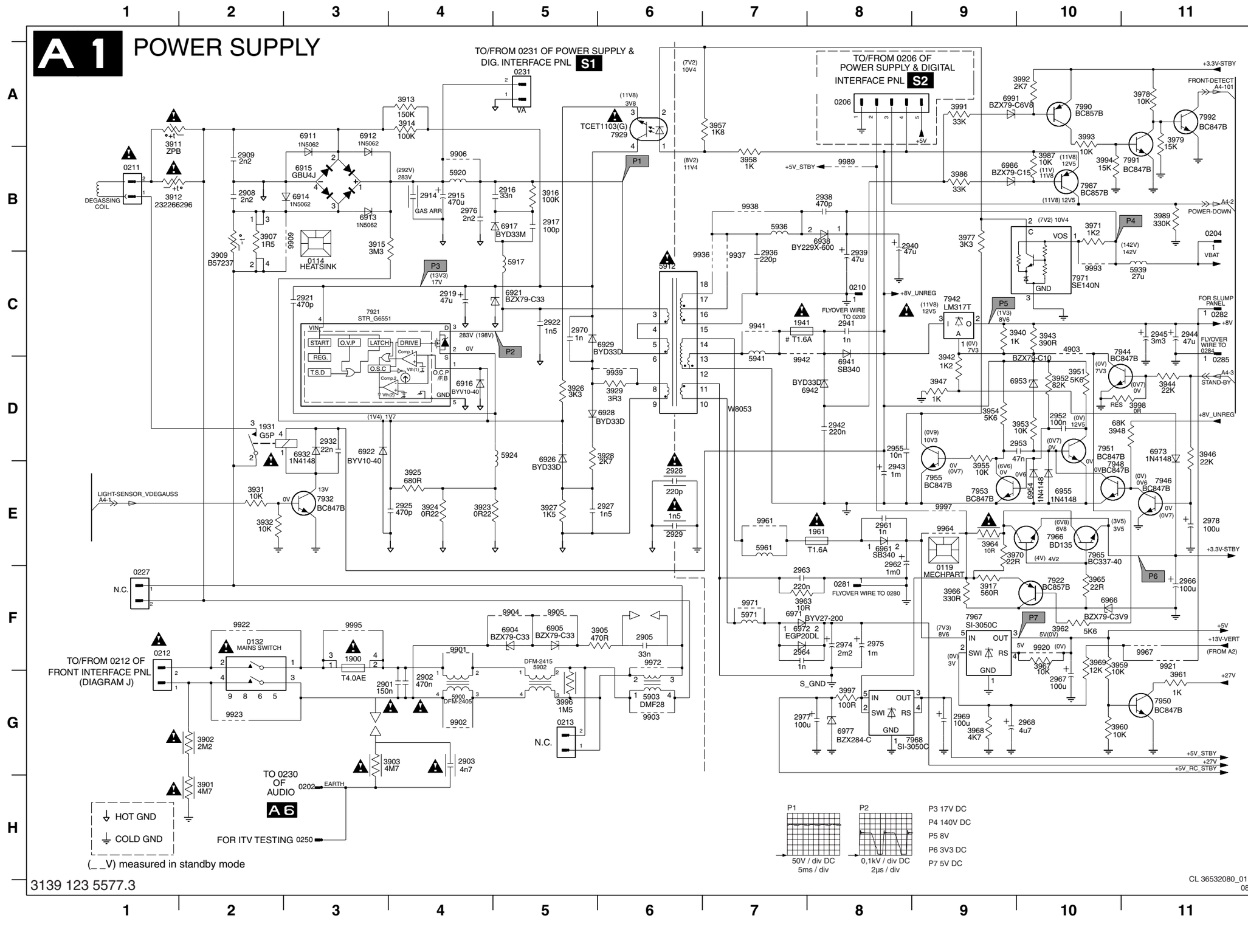
Supply Voltage Diagram



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101203

7. Circuit Diagrams and PWB Layouts

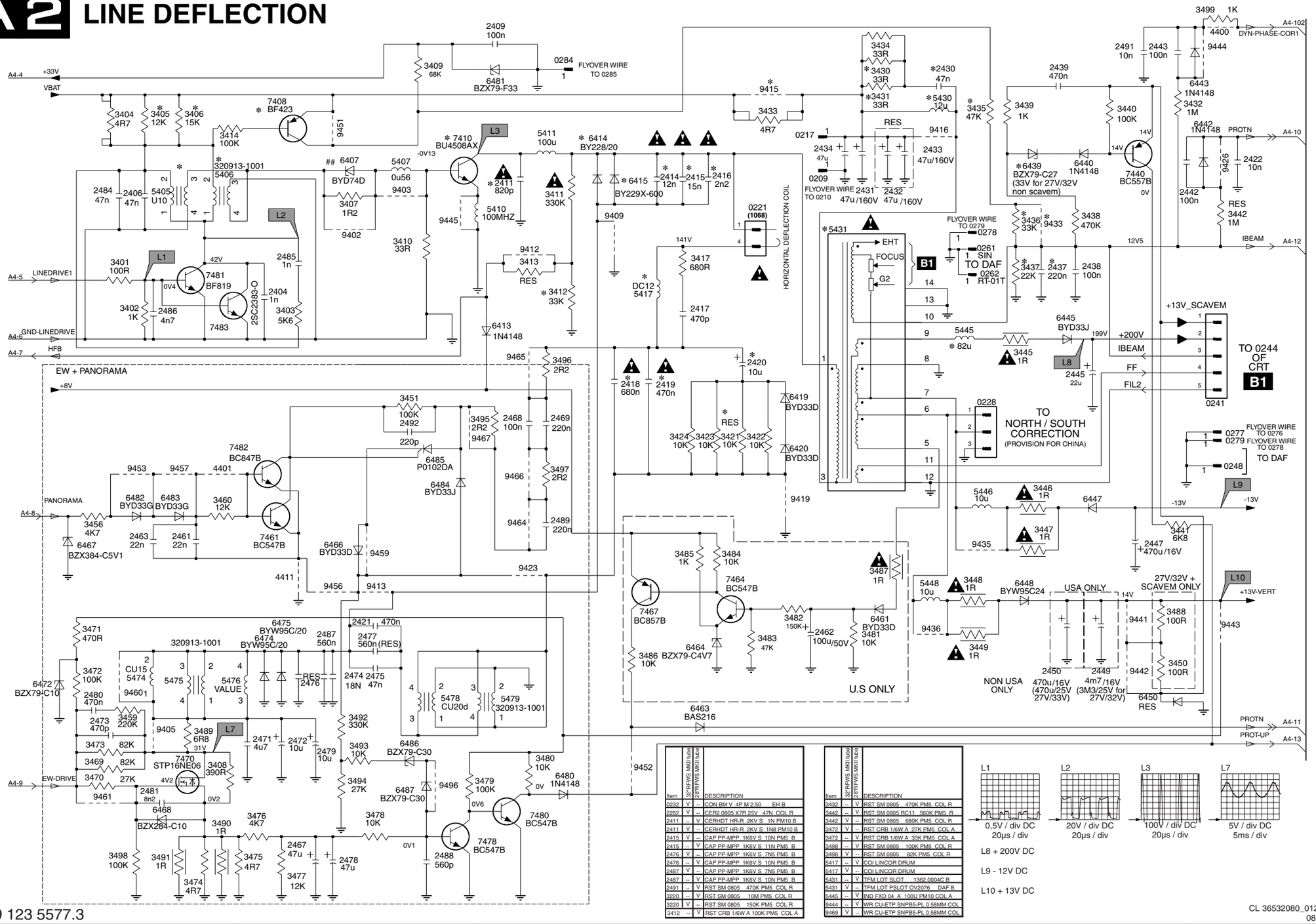
Power supply



0114 C3	3958 B7	9922 F2
0119 F9	3959 F10	9923 G2
0132 F2	3960 G10	9936 C6
0202 H3	3961 G11	9937 C7
0204 B11	3962 F10	9938 B7
0206 A8	3963 F7	9939 D6
0210 C8	3964 E9	9941 C7
0211 B1	3965 F10	9942 D7
0212 F1	3966 F9	9961 E7
0213 G5	3967 F10	9964 E9
0227 F1	3968 G9	9967 F11
0231 A5	3969 F10	9971 F7
0250 H3	3970 E9	9972 F6
0281 F8	3971 B10	9989 B8
0282 C11	3977 B9	9993 C10
0285 D11	3978 A11	9995 F3
1900 F3	3979 A11	9997 E9
1931 D2	3986 B9	
1941 C7	3987 B10	
1961 E8	3989 B11	
2901 G3	3991 A9	
2902 G4	3992 A10	
2903 G4	3993 A10	
2905 F6	3994 B10	
2908 B2	3996 G5	
2909 B2	3997 G8	
2914 B4	3998 D11	
2915 B4	4903 C10	
2916 B5	5900 G4	
2917 B5	5902 F5	
2919 C4	5903 G6	
2921 C3	5912 C6	
2922 C5	5917 C5	
2925 E4	5920 B4	
2927 E6	5924 D5	
2928 E6	5936 B7	
2929 E6	5939 C11	
2932 D3	5941 D7	
2936 B7	5961 E7	
2938 B8	5971 F7	
2939 B8	6904 F5	
2940 B8	6905 F5	
2941 C8	6911 A3	
2942 D8	6912 A3	
2943 E8	6913 B3	
2944 C11	6914 B3	
2945 C11	6915 B3	
2952 D10	6916 D4	
2953 D10	6917 B5	
2955 D8	6921 C5	
2961 E8	6922 D3	
2962 E8	6926 E5	
2963 F7	6928 D6	
2964 F7	6929 C6	
2966 F11	6932 D3	
2967 G10	6938 B8	
2968 G10	6941 D8	
2969 G9	6942 D8	
2970 C5	6953 D10	
2974 F8	6954 E10	
2975 F8	6955 E10	
2976 B4	6961 E8	
2977 G7	6966 F10	
2978 E11	6971 F7	
3901 H2	6972 F7	
3902 G2	6973 D11	
3903 G4	6977 G8	
3905 F6	6986 B9	
3907 B2	6991 A9	
3909 C2	7921 C3	
3911 A1	7922 F10	
3912 B1	7929 A6	
3913 A4	7932 E3	
3914 A4	7942 C9	
3915 B3	7944 C11	
3916 B5	7946 E11	
3917 F9	7948 E11	
3923 E4	7950 G11	
3924 E4	7951 D10	
3925 E4	7953 E9	
3926 D5	7955 E9	
3927 E5	7965 E10	
3928 D6	7966 E10	
3929 D6	7967 F9	
3931 E2	7968 G8	
3932 E2	7971 C10	
3940 C10	7987 B10	
3942 D9	7990 A10	
3943 C10	7991 B11	
3944 D11	7992 A11	
3946 D11	9901 F4	
3947 D9	9902 G4	
3948 D10	9903 G6	
3951 D10	9904 F5	
3952 D10	9905 F5	
3953 D10	9906 B4	
3954 D9	9909 B3	
3955 E9	9920 F10	
3957 A7	9921 F11	

Line deflection

A2 LINE DEFLECTION



Item	32"RFWS MK01tube	28"RFWS MK01tube	DESCRIPTION
0232	V	--	CON BM V 4P M 2.50 EH B
2282	V	--	CER2 0805 X7R 25V 47N COL R
2411	--	V	CERHDT HR-R 2KV S 1N PM10 B
2411	V	--	CERHDT HR-R 2KV S 1N8 PM10 B
2415	V	--	CAP PP-MPP 1K6V S 10N PM5 B
2415	--	V	CAP PP-MPP 1K6V S 11N PM5 B
2476	V	--	CAP PP-MPP 1K6V S 7N5 PM5 B
2476	--	V	CAP PP-MPP 1K6V S 10N PM5 B
2487	V	--	CAP PP-MPP 1K6V S 7N5 PM5 B
2487	--	V	CAP PP-MPP 1K6V S 10N PM5 B
2491	--	V	RST SM 0805 470K PM5 COL R
3220	--	V	RST SM 0805 10M PM5 COL R
3220	V	--	RST SM 0805 150K PM5 COL R
3412	V	--	RST CRB 1/6W A 100K PM5 COL A

Item	32"RFWS MK01tube	28"RFWS MK01tube	DESCRIPTION
3432	--	V	RST SM 0805 470K PM5 COL R
3442	--	V	RST SM 0805 RC11 560K PM5 R
3442	V	--	RST SM 0805 680K PM5 COL R
3472	V	--	RST CRB 1/6W A 27K PM5 COL A
3472	--	V	RST CRB 1/6W A 33K PM5 COL A
3498	--	V	RST SM 0805 100K PM5 COL R
3498	V	--	RST SM 0805 82K PM5 COL R
5417	--	V	COI LINCOR DRUM
5417	V	--	COI LINCOR DRUM
5431	--	V	TFM LOT SLOT 1362.0004C B
5431	V	--	TFM LOT PSLOT OV2076 DAF B
5445	--	V	IND FXD 04 A 100U PM10 COL A
9444	--	V	WR CU-ETP SNPB5-PL 0.58MM COL
9469	V	--	WR CU-ETP SNPB5-PL 0.58MM COL

0209 B7	3442 C11	7461 E3
0217 B7	3445 D9	7464 F7
0221 B7	3446 E9	7467 F6
0228 D9	3447 E9	7470 G2
0241 D11	3448 F9	7478 H5
0248 E11	3449 F9	7480 H5
0261 C9	3450 F10	7481 C2
0262 C9	3451 D4	7482 D2
0277 D11	3456 E1	7483 C2
0278 C9	3459 G2	9402 C3
0279 D11	3460 E2	9403 B4
0284 A5	3469 G1	9405 G2
2404 C3	3470 G1	9409 C6
2406 B2	3471 F1	9412 C5
2409 A5	3472 F1	9413 F4
2411 B5	3473 G1	9415 A7
2414 B6	3474 H2	9416 B8
2415 B6	3475 H3	9419 E7
2416 B7	3476 H3	9423 F5
2417 C6	3477 H3	9426 B11
2418 D6	3478 H4	9433 C9
2419 D6	3479 G5	9435 E9
2420 D7	3480 G5	9436 F8
2421 F4	3481 F8	9441 F10
2422 B11	3482 F7	9442 F10
2430 A8	3483 F7	9443 F11
2431 B8	3484 E7	9444 A11
2432 B8	3485 E6	9445 C4
2433 B8	3486 F6	9451 B3
2434 B7	3487 E8	9452 G6
2437 C9	3488 F10	9453 E2
2438 C10	3489 G2	9456 F3
2439 A9	3490 H2	9457 E2
2442 B10	3491 H2	9459 E4
2443 A10	3492 G4	9460 G2
2445 D10	3493 G4	9461 G1
2447 E10	3494 G4	9464 E5
2449 F10	3495 D5	9465 D5
2450 F9	3496 D5	9466 E5
2461 E2	3497 E5	9467 D5
2462 F7	3498 H2	9496 G4
2463 E2	3499 A11	
2467 H3	4400 A11	
2468 D5	4401 E2	
2469 D5	4411 F3	
2471 G3	5405 B2	
2472 G3	5406 B2	
2473 G1	5407 B4	
2474 F4	5410 B5	
2475 F4	5411 B5	
2476 F3	5417 C6	
2477 F4	5430 B8	
2478 H3	5431 C7	
2479 G3	5445 C9	
2480 G1	5446 E9	
2481 G2	5448 F8	
2484 B1	5474 F2	
2485 C3	5475 F2	
2486 C2	5476 F2	
2487 F3	5478 G4	
2488 H4	5479 G5	
2489 E5	6407 B3	
2491 A10	6413 C5	
2492 D4	6414 B6	
3401 C2	6415 B6	
3402 C2	6419 D7	
3403 C3	6420 D7	
3404 B2	6439 B9	
3405 B2	6440 B10	
3406 B2	6442 B11	
3407 B3	6443 A11	
3408 G2	6445 C9	
3409 A4	6447 E10	
3410 C4	6448 F9	
3411 B5	6450 G10	
3412 C5	6461 F8	
3413 C5	6463 G6	
3414 B2	6464 F6	
3417 C6	6466 E3	
3421 D7	6467 E1	
3422 D7	6468 G2	
3423 D6	6472 F1	
3424 D6	6474 F3	
3430 A8	6475 F3	
3431 B8	6480 G5	
3432 B11	6481 A5	
3433 B7	6482 E2	
3434 A8	6483 E2	
3435 B9	6484 E4	
3436 C9	6485 E4	
3437 C9	6486 G4	
3438 B10	6487 G4	
3439 B9	7408 A3	
3440 B10	7410 B4	
3441 E10	7440 B10	

CL 36532080_012.eps
081203

Frame deflection

A3 FRAME DEFLECTION

+8V
2531 3m3
6505 BYD33D
2506 100u
0232
+13V-VERT
-13V
TO QUADRUPOLE PCB (ON CRT) / TO 0225 OF GEOMAGNETIC CORRECTION PANEL
R (OPTIONAL)
+13V-VERT (DIAGRAM A2)
FRAMEDRIVE+ A4-14
2505 100n
F4
6511 1N4148
3511 4K7
7513 BC847B
2535 1n
VFB
A4-17
3503 1K
3504 2K2
7501 TDA8172
VSUP VSUPO FLYB
FLYBACK GENERATOR
2525 200n
3512 10K
6512 BZX79-C5V6
3513 10K
F1
POWER AMPLIFIER
THERMAL PROTECTION
GND
OUT
IN-
IN+
F3
5521 90n
5523 90n
2503 1n
4502
2533 1n
2521 220n
6522 BYD33D
3523 100R
0222 (M22)
F2
-13V
2536 1n
3521 1R5
2522 100u
3522 10K
2524 100n
VERTICAL DEFLECTION COIL
2501 1n
3501 1K
2534 1n
4503
2523 100n
3524 100R
5524 90n
FRAMEDRIVE- A4-15
3528 2K2
3531 2R2
3527 3R3
3526 3R3
3529 1R5
3530 1R5
3525 2R2
TILT
A4-18
6524 BAS216
6523 BAS216
-13V (DIAGRAM A2)
2532 47u
TO 0235 OF ROTATION
A7
0252

Item	25: RHDS MKII style	25: RHDS MKII style	DESCRIPTION
2525	V	--	CAP POL 50V S 1N PM10 COL A

F1 0,5V / div DC 5ms / div
F2 0,5V / div DC 5ms / div
F3 10V / div DC 5ms / div
F4 10V / div DC 5ms / div

3139 123 5577.3

CL 36532080_013.eps 051203

0222 D7
0232 A6
0252 F7
2501 D3
2503 C2
2505 B3
2506 A4
2521 D5
2522 D5
2523 E4
2524 D6
2525 C4
2531 A2
2532 F6
2533 D2
2534 E3
2535 B6
2536 D4
3501 D3
3503 C3
3504 C3
3511 B5
3512 C5
3513 C6
3521 D4
3522 D5
3523 D6
3524 D6
3525 E6
3526 E5
3527 E4
3528 E4
3529 E5
3530 E5
3531 E4
4502 D2
4503 E3
5521 C5
5523 C6
5524 E6
6505 A4
6511 B5
6512 C6
6522 D5
6523 F4
6524 F4
7501 C3
7513 B6

SSP-Tuner

A 4 SSP-TUNER

TO 0226
OF SSB-CONNECTOR
C7

0226
80 PINS

PROVISION
JOINS TO 0233

TO DIGITAL TUNER
K8

FLYOVER WIRE
TO 0277
0276

1225
UV1300
TUNER
SPLITTER
MT
NC
AS SCL SDA +5 ADC

TO
P36 and P41
OF 0226

5262
12u

0242
B1
TO 0245 OF CRT

TO DEFLECTION

0280
FLYOVER WIRE TO 0281

POWER-DOWN

FOR A10 IBO+ ONLY

0239
TO 0239 OF DIGITAL INTERFACE PNL **S2**

F3 OR **L2**
TO 0201 OF I/O PROCESSING (DW)
TO 0201 OF PIP PANEL

NOT FOR EUROPE

0201

0272
PROVISION FOR FLYOVER
WIRE TO 0226 PIN 39

0273
PROVISION FOR FLYOVER
WIRE TO 2265 PIN 1

0229
TO COMPAIR
(SERVICE)

SERVICE
DEFAULT
MODE

I1: 0.2V / div DC, 5µs / div
I2: 1V / div DC, 5µs / div
I3: 1V / div DC, 5µs / div

3139 123 5577.3

CL 36532080_014.eps
051203

0201 D5
0218 B1
0226 A2
0229 F5
0239 D11
0242 A11
0272 E7
0273 D3
0276 B5
0280 B8
1225 B5
1230 F5
1231 F5
2248 C11
2261 D6
2262 D6
2263 G2
2264 G3
2265 D7
2266 E7
2267 D5
2268 D5
2271 D9
2276 D10
2280 C11
2281 C10
2282 C10
2284 B11
2286 C7
3220 C9
3255 A10
3256 A10
3257 A10
3263 C7
3264 D7
3267 D5
3268 C5
3271 C9
3272 D9
3273 E9
3274 D9
3276 D10
3277 D10
3278 B9
3280 C10
3281 C10
3282 B10
3283 E8
3284 C7
3285 C7
3286 F9
4218 B9
4226 C9
4261 C6
4262 C5
4263 D10
4264 D10
4267 C9
4268 C6
4271 B9
4272 B10
5261 B7
5262 A7
5263 D7
6264 C7
6265 D7
6266 A10
6267 F5
6268 F5
6271 C9
6272 B9
6273 E9
6274 B9
6275 B9
6276 B9
6278 B11
6279 D9
6280 C8
7273 D9
7276 D10
7277 A10
7280 C10
9261 F10
9262 F10

SSP-SCART

A5 SSP_SCART

TO 0200 OF I/O PROCESSING (DW) F3 OR
TO 0200 OF PIP PANEL L2
0200
NOT FOR EUROPE

SCART_1 1260-A
SCART_2 1260-B
ROUTING CONNECTOR VIA CABLE
0253
0254
4225
4220
4235
4236
4242
4243
1270
1223
1224
1226
1227
1228
1269-A RIGHT
1269-B LEFT
0216 TO MULTIMEDIA (INTERFACE NOT DEFINED YET)
0274 PROVISION FOR FLYOVER WIRE TO 2726 PIN 2
0240 TO 0241 OF DIGITAL INTERFACE PNL
0220 TO MULTIMEDIA (INTERFACE NOT DEFINED YET)
0219
S2
0270 FLYOVER WIRE TO 1260-B PIN 21-B
0271 FLYOVER WIRE TO 2246 PIN 2
7226 BC847B
7224 BC847B
8V5
1V3
1V4
1V9
2V

3139 123 5577.3

CL 36532080_015.eps
051203

0200 A6	3234 B9	1213 B10
0216 G4	3236 B10	1214 B10
0219 G9	3237 C9	1215 C10
0220 G8	3238 C10	1216 C10
0240 G6	3239 C9	1217 C10
0253 A4	3241 C10	1218 D11
0254 A4	3242 C9	1219 E11
0270 D10	3243 D10	1220 E11
0271 D11	3244 D10	1221 F11
0274 G5	3245 E10	1222 F11
1201 A2	3246 E10	1223 C1
1202 B2	3247 F2	1224 C2
1203 B2	3248 E10	1226 C11
1204 C2	3249 E10	1227 C11
1205 C2	3251 F10	1228 D11
1206 C2	3252 E10	1260-A A1
1207 D2	3253 F10	1260-B A11
1208 D2	3254 F10	1269-A F11
1209 E2	4220 E9	1269-B F11
1210 E2	4225 A8	1270 B10
1211 F2	4235 F4	2201 B3
1212 F2	4236 E5	2202 F7
1213 B10	4242 E7	2203 B3
1214 B10	4243 F4	2206 C3
1215 C10	5201 G2	2208 C4
1216 C10	5202 G2	2211 C4
1217 C10	6283 D3	2214 D4
1218 D11	6284 E3	2215 A3
1219 E11	6285 E3	2217 D4
1220 E11	6286 E3	2218 E4
1221 F11	6287 E3	2222 E4
1222 F11	6288 D2	2225 F3
1223 C1	6289 D2	2227 F4
1224 C2	6290 D3	2231 B9
1226 C11	6291 C3	2233 B9
1227 C11	6292 D2	2236 C9
1228 D11	7224 E4	2238 C9
1260-A A1	7226 D10	2242 C9
1260-B A11		2244 D9
1269-A F11		2246 D10
1269-B F11		2247 E10
1270 B10		2249 E10
2201 B3		2251 F10
2202 F7		2253 F10
2203 B3		3201 A3
2206 C3		3202 B3
2208 C4		3203 B3
2211 C4		3204 B3
2214 D4		3206 B3
2215 A3		3207 C3
2217 D4		3208 C3
2218 E4		3209 C4
2222 E4		3211 C3
2225 F3		3212 C4
2227 F4		3213 D3
2231 B9		3214 D3
2233 B9		3215 A3
2236 C9		3216 D3
2238 C9		3217 D4
2242 C9		3218 E3
2244 D9		3219 D4
2246 D10		3221 E3
2247 E10		3222 E4
2249 E10		3223 F3
2251 F10		3224 F3
2253 F10		3226 F3
3201 A3		3227 F3
3202 B3		3231 A10
3203 B3		3232 B9
3204 B3		3233 B10
3206 B3		
3207 C3		
3208 C3		
3209 C4		
3211 C3		
3212 C4		
3213 D3		
3214 D3		
3215 A3		
3216 D3		
3217 D4		
3218 E3		
3219 D4		
3221 E3		
3222 E4		
3223 F3		
3224 F3		
3226 F3		
3227 F3		
3231 A10		
3232 B9		
3233 B10		

Audio Amplifier

A6 AUDIO AMPLIFIER

HEADPHONE AMPLIFIER

TO 0202 OF POWER SUPPLY A1

0230

A4-33 HEADPHONE-L

A4-50 HEADPHONE-R

3712 8K2
2714 1n
7703-A TDA1308T
2715 100u
4701
2711 470n
3722 2K7
3714 2K7
4702
470n 2725
3723 3K3
2713 100n
2712 100u
6702 BZX284-C12
+5V_GND
3715 3K3
2726 100u
2724 470n
3718 2K7
0275
PROVISION FOR FLYOVER WIRE TO 0240 PIN 9
7703-B TDA1308T
4703
2716 470n
3719 2K7
4704
2717 1n
3716 8K2
6703 BZX284-C12
2718 100u

SOUND AMPLIFIER

HP-OUT-L → A5-84, A7-86
HP-OUT-R → A5-85, A7-87

3708 100K
6701 1N4148
3709 220R
2708 1u
3721 100K
7710 BC847B
3732 100K
7704 BC847B
3733 560R
2737 100n
2701 2u2
2722 2n2
3724 5K6
7702 AN5277
ATT.
ATT. CON
RIPPLE FILTER
NC1 CH1I RF GNDI CH2I NC2 CH2O MUTE GNDO VCC STBY CH1O
1 2 3 4 5 6 7 8 9 10 11 12
A1 A2 A4 A3
3701 4K7
2719 1n
2702 100u
2738 100n
2703 2u2
2723 2n2
3725 5K6
3702 4K7
2720 1n
3735 4R7
3734 4R7
2729 22n
2704 1m0
2730 22n
2727 22n
2728 22n
2709 1m0
2706 100n
2707 470u
0246
SPK-L
SPK-GND
SPK-R
S_GND
3704 56K
3705 1K8
7701 BC847B
3706 10K
3707 10K
2705 1u
3736 1R5
3737 1R5

A4-35 AUDIO-L
A4-53 AUDIO-R
+27V
A4-30 SOUND-ENABLE
A4-52 AUDIO-SW
A4-54 STAND-BY
A1-100 POWER-DOWN
A4-34 AUDIO-SURR
A4-51 AUDIO-C
3727 10R
3728 10R
3726 10R
3730 27K
7711 BC857B
3731 27K
PROVISION JOINS TO 0218
0233
0225
PROVISION FOR DOLBY PROLOGIC

0247
S_GND
+27V
SOUND-ENABLE
AUDIO-SW
POWER-DOWN
TO SUBWOOFER BOX (IF APPLICABLE)
TO 0241 OF SIDE IO
D

7712 BC857B
3713 1K5
2731 1u
2732 1u
3710 3K9
3711 3K9
3720 1K
2733 10u
3717 1K5
3703 2K2
2734 1n
4716
9718

A1 50mV / div AC 0.5ms / div
A2 50mV / div AC 0.5ms / div
A3 0,5V / div AC 0.5ms / div
A4 0,5V / div AC 0.5ms / div
A5 0,1V / div AC 0.5ms / div
A6 0,1V / div AC 0.2ms / div

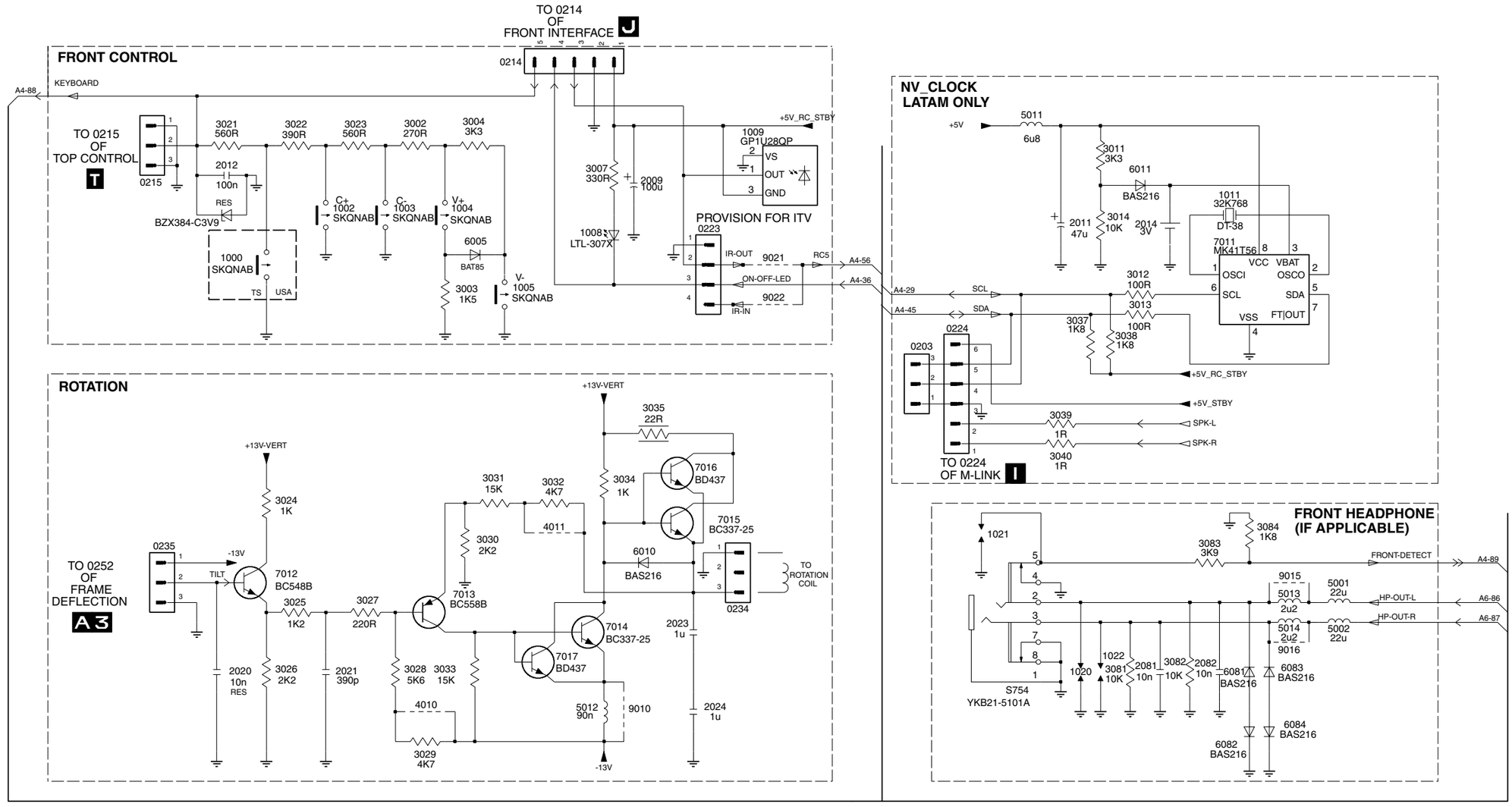
CL 36532080_016.eps 051203

3139 123 5577.3

0225 G2
0230 A1
0233 G2
0246 D10
0247 F10
0275 D4
2701 C6
2702 D8
2703 D6
2704 D9
2705 F8
2706 D10
2707 D10
2708 B7
2709 D10
2711 B2
2712 B5
2713 B4
2714 B4
2715 A5
2716 D2
2717 E3
2718 D5
2719 D7
2720 D7
2722 C7
2723 D7
2724 C3
2725 C3
2726 C4
2727 D9
2728 E9
2729 D8
2730 D8
2731 G6
2732 G6
2733 G8
2734 G9
2737 C6
2738 D6
3701 D7
3702 E7
3703 G9
3704 E7
3705 E8
3706 E7
3707 F7
3708 B7
3709 B7
3710 G7
3711 G7
3712 A3
3713 G7
3714 B3
3715 C4
3716 E3
3717 G8
3718 D3
3719 D3
3720 G8
3721 B6
3722 B2
3723 B4
3724 C7
3725 D7
3726 F2
3727 F2
3728 F2
3730 G3
3731 G3
3732 C6
3733 C7
3734 D9
3735 D9
3736 F5
3737 E5
4701 B2
4702 C2
4703 D2
4704 E2
4716 G9
6701 A8
6702 B4
6703 E4
7701 E7
7702 B8
7703-A B4
7703-B D4
7704 C6
7710 B6
7711 G4
7712 G8
9718 H1

Front control / Rotation / Headphone

A 7 FRONT CONTROL / ROTATION / NV CLOCK / HEADPHONE



3139 123 5577.3

CL 36532080_017.eps 051203

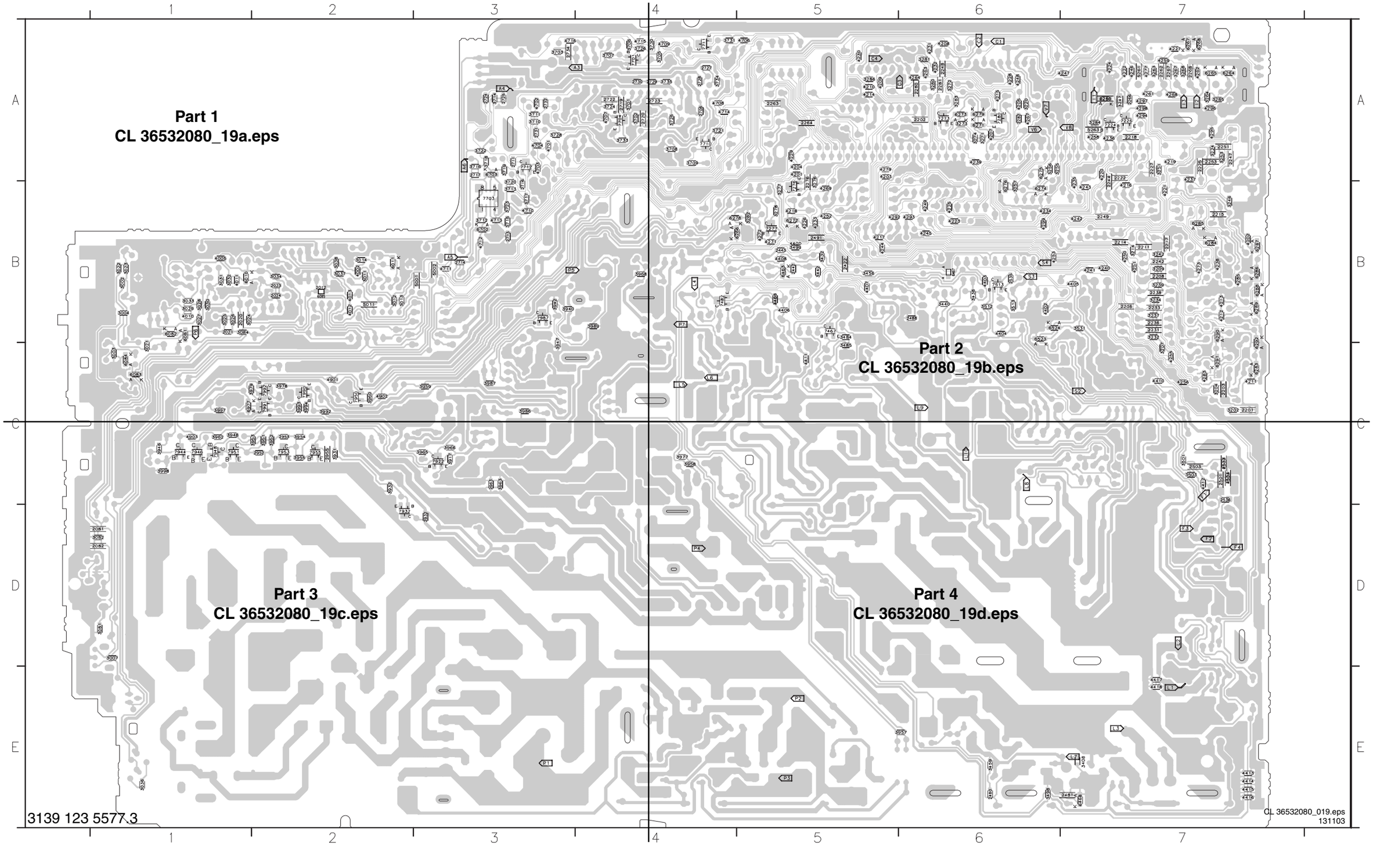
0203 D7 9022 C6
0214 B4 S754 F8
0215 B2
0223 C6
0224 C8
0234 F6
0235 E2
1000 C2
1002 C3
1003 C4
1004 C4
1005 C4
1008 C5
1009 B6
1011 B9
1020 F8
1021 E8
1022 F9
2009 B5
2011 C8
2012 B2
2014 C9
2020 F2
2021 F3
2023 F5
2024 F6
2081 F9
2082 F9
3002 B4
3003 C4
3004 B4
3007 B5
3011 B9
3012 C9
3013 C9
3014 C9
3021 B2
3022 B3
3023 B3
3024 E3
3025 E3
3026 F3
3027 E3
3028 F4
3029 G4
3030 E4
3031 E4
3032 E5
3033 F4
3034 E5
3035 D5
3037 C8
3038 C9
3039 D8
3040 D8
3081 F9
3082 F9
3083 E9
3084 E10
4010 F4
4011 E5
5001 E10
5002 F10
5011 B8
5012 F5
5013 E10
5014 F10
6005 C4
6010 E5
6011 B9
6081 F9
6082 F9
6083 F10
6084 F10
6XXX C2
7011 C9
7012 E3
7013 E4
7014 F5
7015 E6
7016 D6
7017 F5
9010 F5
9015 E10
9016 F10
9021 C6

Layout LSP (Top Side)

| | | |

Layout LSP Overview (Bottom Side)

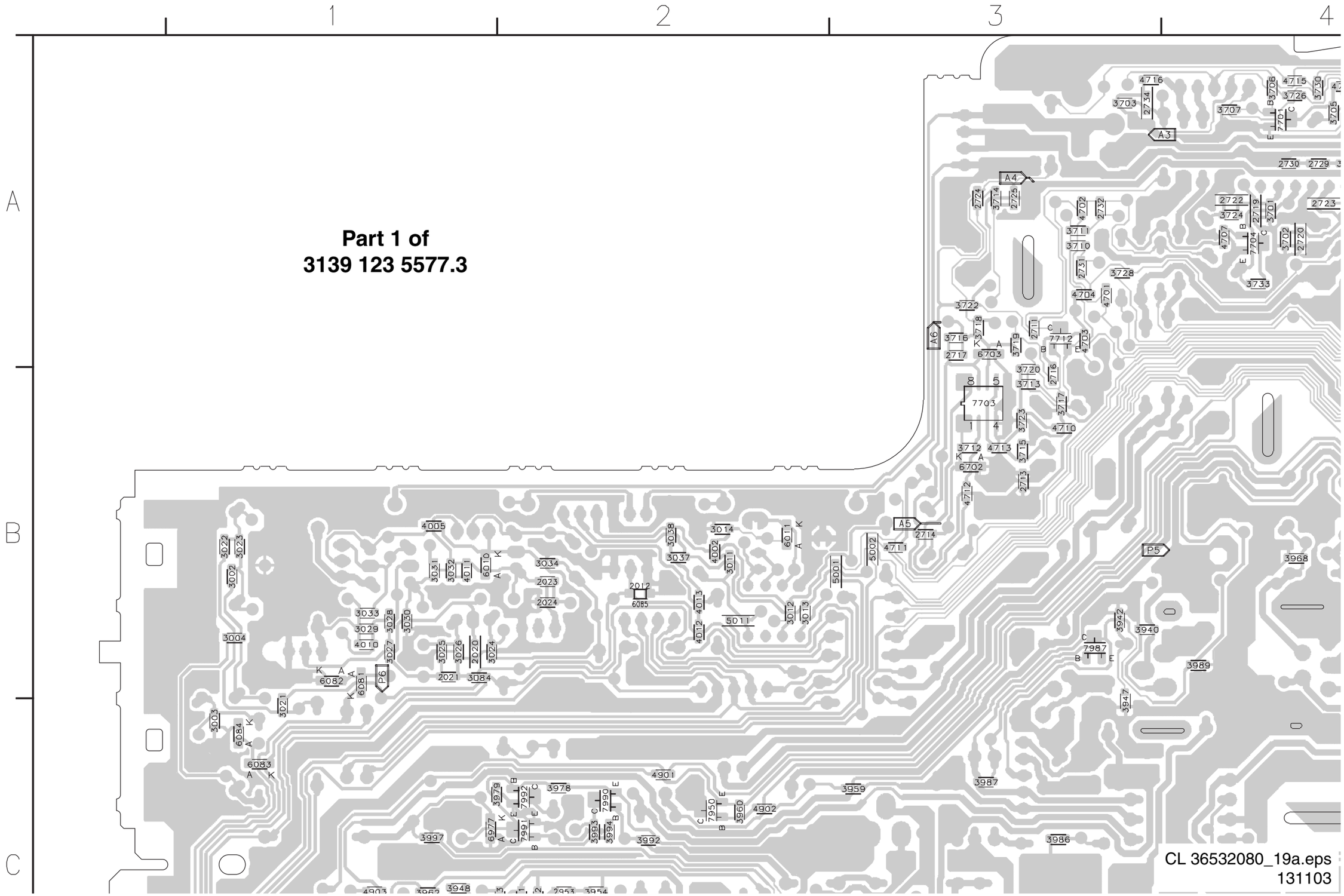
2012 B2	2215 B7	2249 B7	2422 B5	2711 A3	2730 A4	3012 B2	3032 B1	3220 A6	3263 A7	3283 A6	3498 E6	3709 A4	3723 B3	3942 B3	3963 C3	3998 C1	4209 A5	4223 B6	4237 A7	4251 B7	4271 B5	4299 B6	4414 E7	4709 A4	5261 A7	6271 A6	6288 B7	7226 A7	7922 C3	
2020 B1	2217 B7	2251 A7	2442 B5	2713 B3	2731 A3	3013 B2	3033 B1	3224 A7	3264 A7	3284 A7	3499 B5	3710 A3	3724 A4	3946 C1	3965 C3	4002 B2	4210 A5	4224 A7	4238 B7	4252 B5	4272 B5	4400 B5	4415 E7	4710 B3	5263 A7	6272 B5	6289 B7	7273 A6	7932 D2	
2021 B1	2218 A7	2253 A7	2443 B5	2714 B3	2732 A3	3014 B2	3034 B2	3232 B7	3267 A7	3285 A7	3501 C7	3711 A3	3725 A4	3947 C3	3966 C3	4005 B1	4211 C7	4225 B6	4239 A6	4253 B6	4273 B7	4401 B5	4416 E7	4711 B3	6010 B1	6273 A6	6290 B7	7276 B5	7944 C1	
2023 B2	2222 A7	2262 A7	2480 E6	2716 B3	2734 A3	3021 C1	3036 E1	3234 B7	3268 A7	3286 A5	3503 C7	3712 B3	3726 A4	3948 C1	3968 B4	4010 B1	4212 B7	4226 B5	4240 B7	4255 C7	4277 A7	4402 B6	4417 E7	4712 B3	6011 B2	6274 B6	6291 C7	7277 B5	7946 C1	
2024 B2	2225 A7	2263 A5	2481 E7	2717 A3	2932 D3	3022 B1	3037 B2	3237 B7	3271 A6	3408 E7	3512 B6	3713 B3	3728 A3	3951 C2	3977 C4	4011 B1	4213 B7	4227 A7	4241 B7	4256 C7	4279 A5	4403 B6	4418 E7	4713 B3	6081 B1	6275 A6	6292 C7	7280 A6	7948 C1	
2081 D1	2227 A7	2264 A5	2488 B6	2719 A4	2952 C2	3023 B1	3038 B2	3239 B7	3272 A6	3432 B5	3513 B6	3714 A3	3730 A4	3952 C2	3978 C2	4012 B2	4214 A5	4228 A6	4242 B7	4258 A7	4283 C7	4404 B6	4502 C7	4714 A4	6082 B1	6276 B6	6463 B5	7467 B5	7950 C2	
2082 D1	2231 B7	2266 A7	2491 B5	2720 A4	2953 C2	3024 B1	3081 D1	3242 B7	3273 A6	3438 B6	3531 B7	3715 B3	3731 A4	3953 C2	3979 C1	4013 B2	4215 A6	4229 A5	4243 B7	4259 A7	4285 B7	4405 B7	4503 C7	4715 A4	6083 C1	6278 B4	6467 B6	7482 B4	7951 C1	
2201 C7	2233 B7	2267 A7	2501 C7	2722 A4	2955 C2	3025 B1	3082 D1	3246 B7	3274 A6	3440 B6	3701 A4	3716 A3	3733 A4	3954 C2	3986 C3	4201 A5	4216 B7	4230 A5	4244 B5	4261 A7	4292 B5	4406 B5	4701 A3	4716 A3	6084 C1	6279 A6	6468 E7	7513 B6	7953 C2	
2202 A6	2236 B7	2268 A7	2503 C7	2723 A4	2963 C3	3026 B1	3084 B1	3247 A7	3276 B5	3442 B5	3702 A4	3717 B3	3734 A4	3955 C2	3987 C3	4202 B7	4217 B5	4231 A6	4245 B6	4262 A7	4293 B6	4407 B5	4702 A3	4901 C2	6085 B2	6280 A7	6523 B6	7701 A4	7955 C2	
2203 C7	2238 B7	2276 B5	2533 C7	2724 A3	3002 B1	3027 B1	3202 C7	3251 A7	3277 B5	3456 B5	3703 A3	3718 A3	3735 A4	3957 E6	3989 B4	4203 A5	4218 B5	4232 A6	4246 A7	4263 A6	4294 A7	4408 B5	4703 A3	4902 C2	6264 A7	6283 C7	6524 B6	7703 B3	7987 B3	
2206 B7	2242 B7	2280 A6	2534 C7	2725 A3	3003 C1	3028 B1	3204 C7	3253 A7	3278 B5	3459 E6	3705 A4	3719 A3	3917 C3	3958 C4	3992 C2	4204 A5	4219 A7	4233 B5	4247 A7	4264 A6	4295 A7	4410 C7	4704 A3	4903 C1	6265 A7	6284 B7	6702 B3	7704 A4	7990 C2	
2208 B7	2244 B7	2281 A6	2535 B6	2727 A4	3004 B1	3029 B1	3207 C7	3255 A6	3280 A6	3460 B5	3706 A4	3720 B3	3931 C2	3959 C3	3993 C2	4205 A6	4220 A7	4234 B6	4248 A6	4267 A6	4296 A7	4411 C5	4706 A5	5001 B3	6266 B5	6285 B7	6703 A3	7710 A4	7991 C2	
2211 B7	2247 A7	2282 A6	2536 C7	2728 A4	3007 D1	3030 B1	3209 B7	3256 A6	3281 A6	3484 B5	3707 A4	3721 A4	3932 C2	3960 C2	3994 C2	4207 A6	4221 B7	4235 B7	4249 B6	4268 A7	4297 A7	4412 C7	4707 A4	5002 B3	6267 A7	6286 B7	6977 C1	7711 A4	7992 C2	
2214 B7	2248 A6	2286 A7	2706 A4	2729 A4	3011 B2	3031 B1	3214 B7	3257 B6	3282 B5	3485 C5	3708 A4	3722 A3	3940 B3	3962 C1	3997 C1	4208 A6	4222 A7	4236 A7	4250 B7	4269 B5	4298 A7	4413 E7	4708 A4	5011 B2	6268 A7	6287 B7	7224 A7	7712 A3		



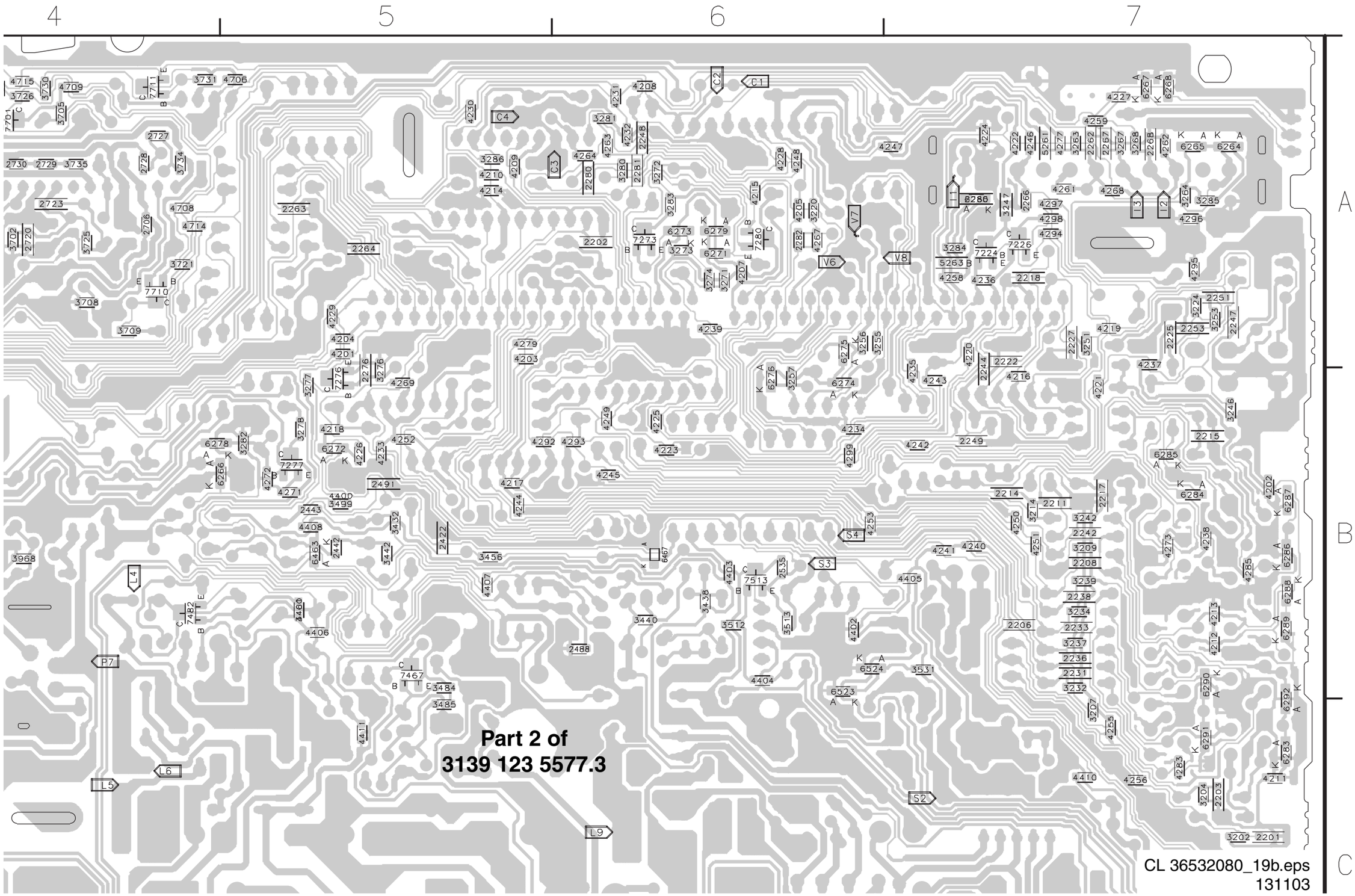
CL 36532080_019.eps
131103

Layout LSP Part 1 (Bottom Side)

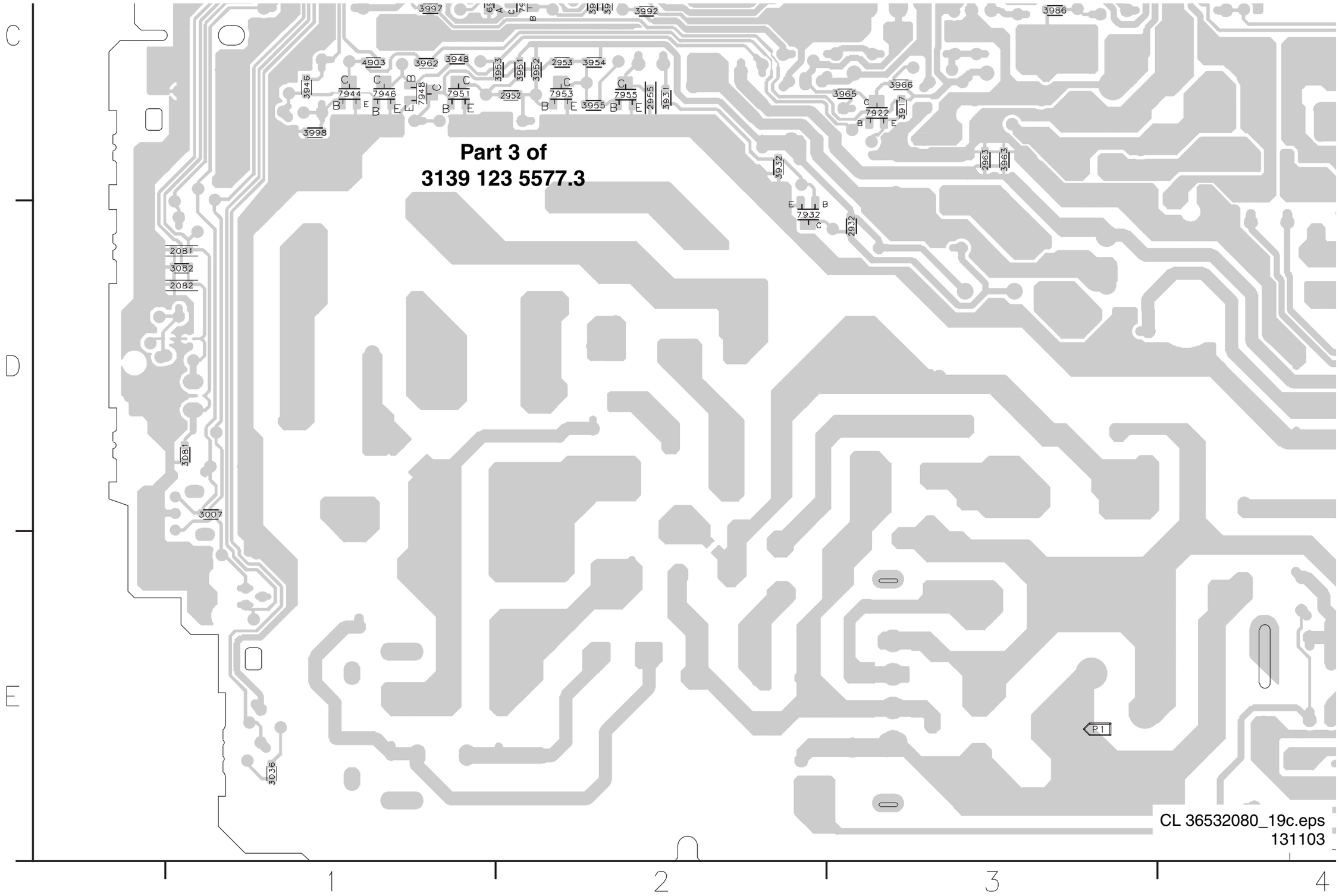
Part 1 of
3139 123 5577.3



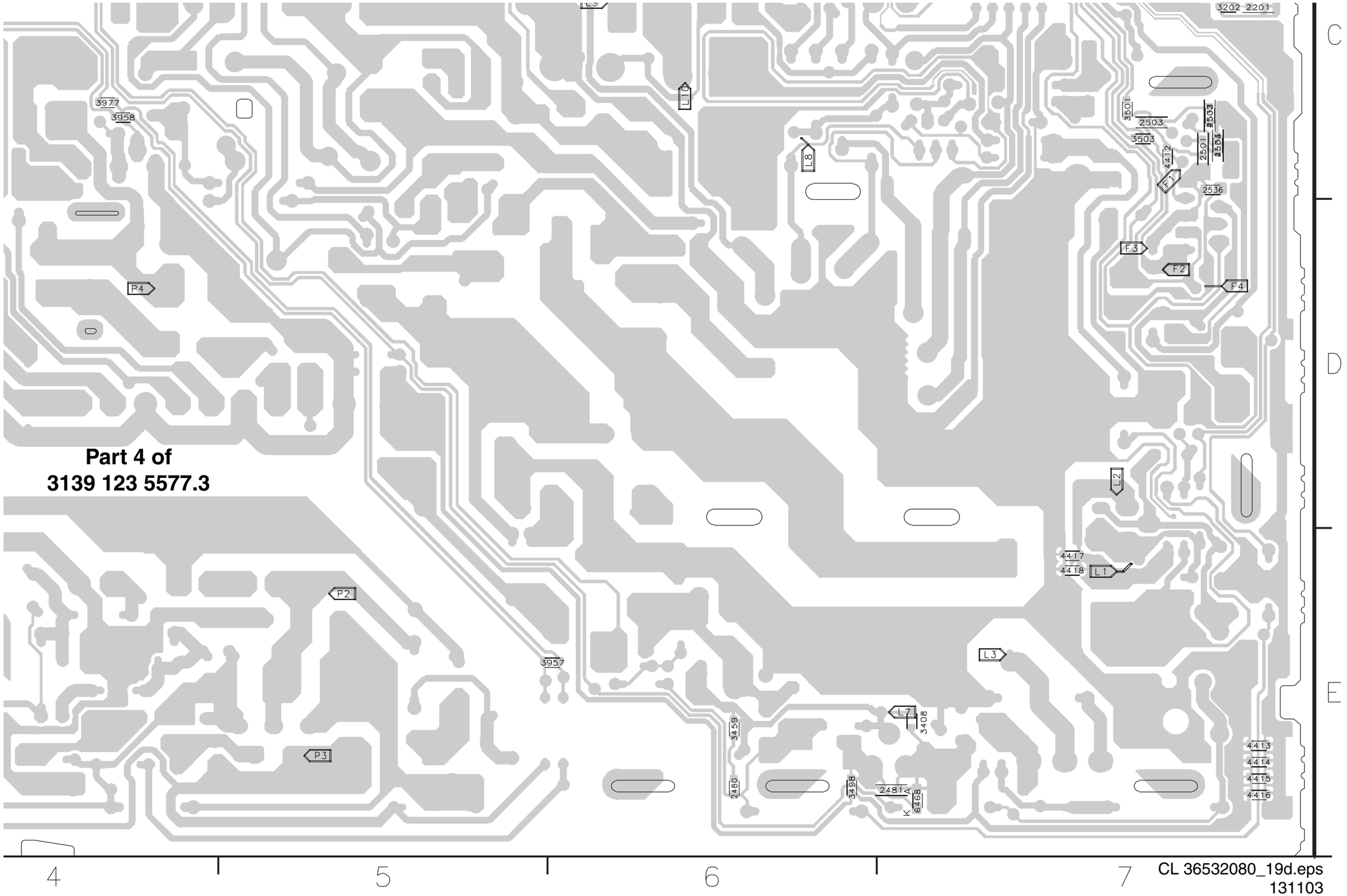
Layout LSP Part 2 (Bottom Side)



Layout LSP Part 3 (Bottom Side)



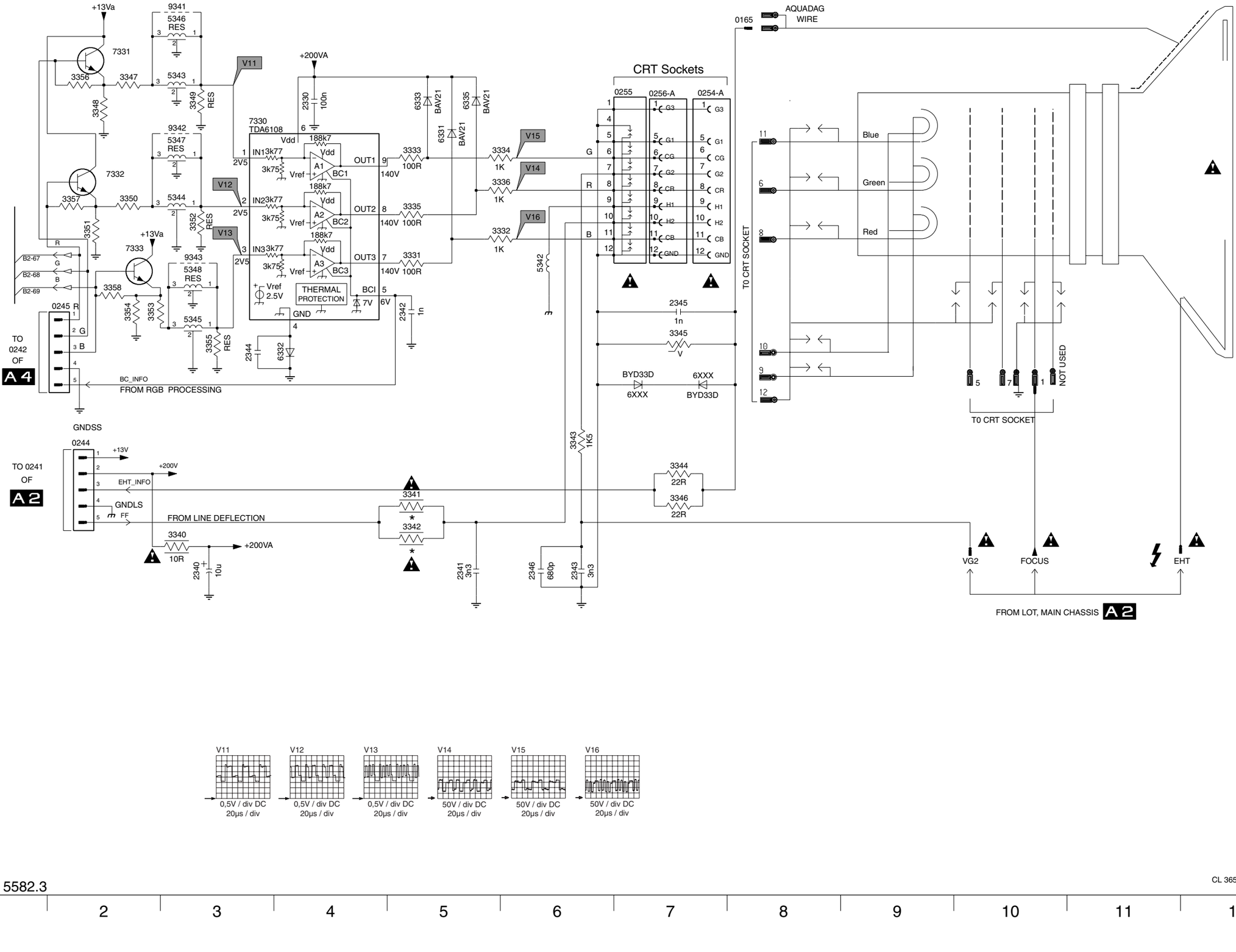
Layout LSP Part 4 (Bottom Side)



CL 36532080_19d.eps
131103

CRT Panel

B1 CRT PANEL

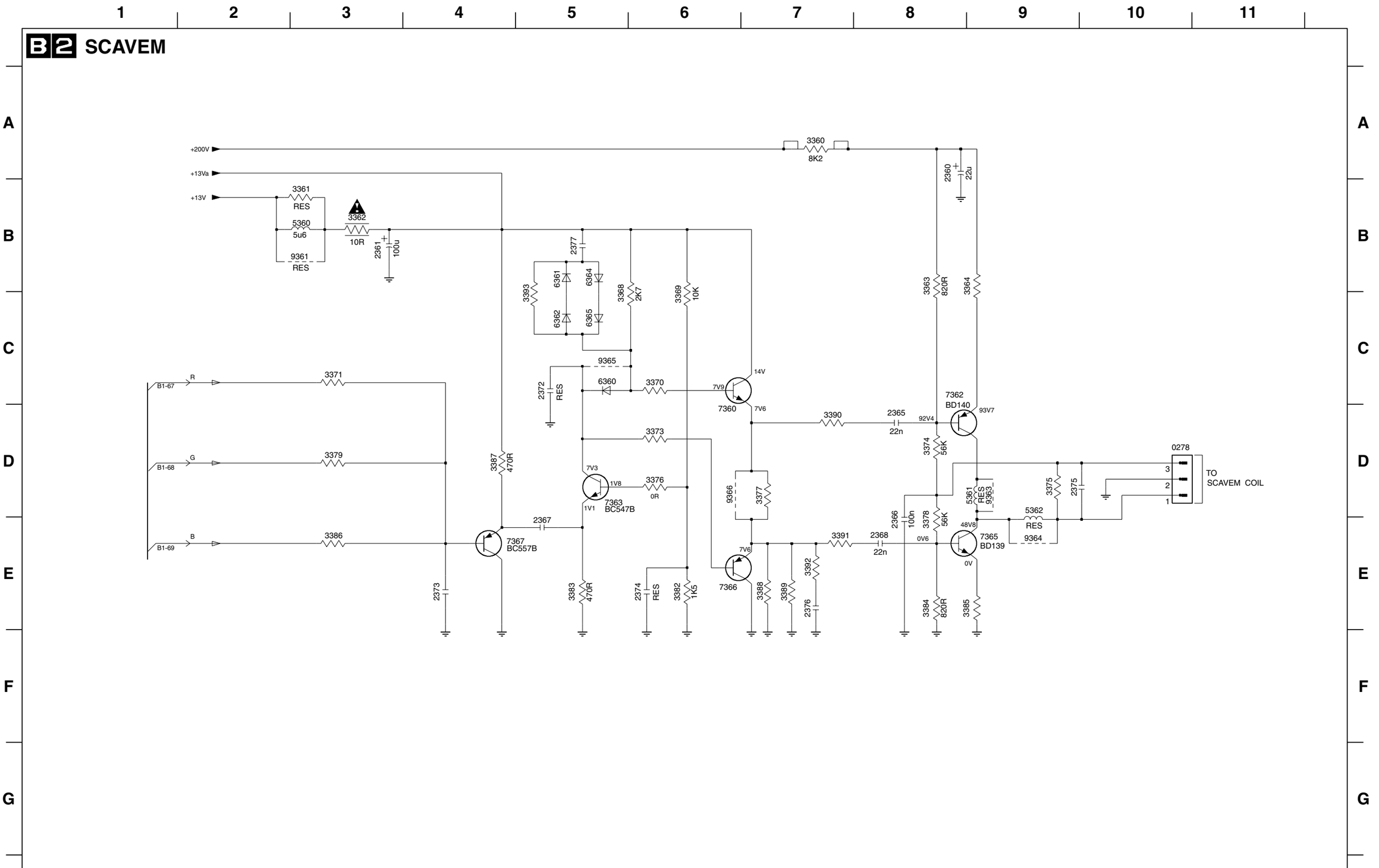


VG2 F10
0165 A8
0244 E2
0245 D2
0254-A B7
0255 B7
0256-A B7
2330 B4
2340 F3
2341 F5
2342 D5
2343 F6
2344 D3
2345 D7
2346 F6
3331 C5
3332 C6
3333 B5
3334 B6
3335 C5
3336 B6
3340 F3
3341 E5
3342 F5
3343 E6
3344 E7
3345 D7
3346 E7
3347 B2
3348 B2
3349 B3
3350 C2
3351 C2
3352 C3
3353 D2
3354 D2
3355 D3
3356 B2
3357 C2
3358 C2
5342 C6
5343 B3
5344 C3
5345 D3
5346 A3
5347 B3
5348 C3
6331 B5
6332 D4
6333 B5
6335 B5
6336 D7
6337 D7
7330 B3
7331 A2
7332 B2
7333 C2
9341 A3
9342 B3
9343 C3

CL 36532080_031.eps
121203

SCAVEM Panel

B2 SCAVEM



0278 D10
2360 A8
2361 B3
2365 D8
2366 E8
2367 E5
2368 E8
2372 C5
2373 E4
2374 E6
2375 D9
2376 E7
2377 B5
3360 A7
3361 B3
3362 B3
3363 B8
3364 B8
3368 C5
3369 C6
3370 C6
3371 C3
3373 D6
3374 D8
3375 D9
3376 D6
3377 D7
3378 E8
3379 D3
3382 E6
3383 E5
3384 E8
3385 E8
3386 E3
3387 D4
3388 E7
3389 E7
3390 D7
3391 E7
3392 E7
3393 C5
5360 B3
5361 D9
5362 D9
6360 C5
6361 B5
6362 C5
6364 B5
6365 C5
7360 D6
7362 C8
7363 D5
7365 E9
7366 E6
7367 E4
9361 B3
9363 D9
9364 E9
9365 C5
9366 D6

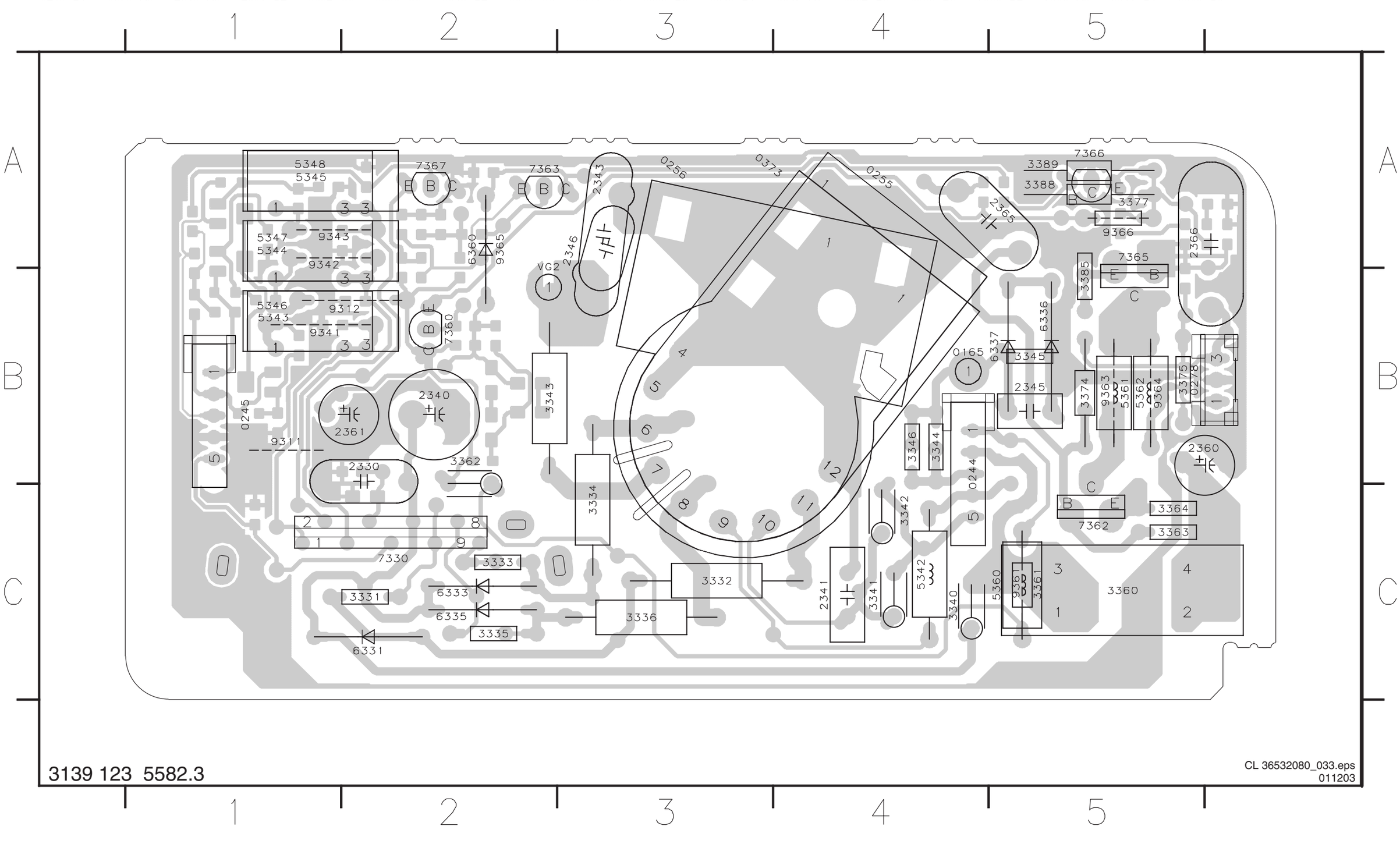
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CL 36532080_032.eps
121203

CRT/SCAVEM Panel (Top Side)

VG2	A2	0255	A4	2330	B2	2345	B5	2365	A5	3333	C2	3340	C4	3344	B4	3361	C5	3374	B5
0165	B4	0256	A3	2340	B2	2346	A3	2366	A5	3334	C3	3341	C4	3345	B5	3362	B2	3375	B5
0244	B4	0278	B5	2341	C4	2360	B5	3331	C2	3335	C2	3342	C4	3346	B4	3363	C5	3377	A5
0245	B1	0373	A3	2343	A3	2361	B2	3332	C3	3336	C3	3343	B2	3360	C5	3364	C5	3385	B5

3388	A5	5344	A1	5348	A1	6331	C2	6337	B5	7362	C5	7367	A2	9342	A1	9364	B5		
3389	A5	5345	A1	5360	C5	6333	C2	6360	A2	7363	A2	9311	B1	9343	A1	9365	A2		
5342	C4	5346	B1	5361	B5	6335	C2	7330	C2	7365	A5	9312	B2	9361	C5	9366	A5		
5343	B1	5347	A1	5362	B5	6336	B5	7360	B2	7366	A5	9341	B1	9363	B5				

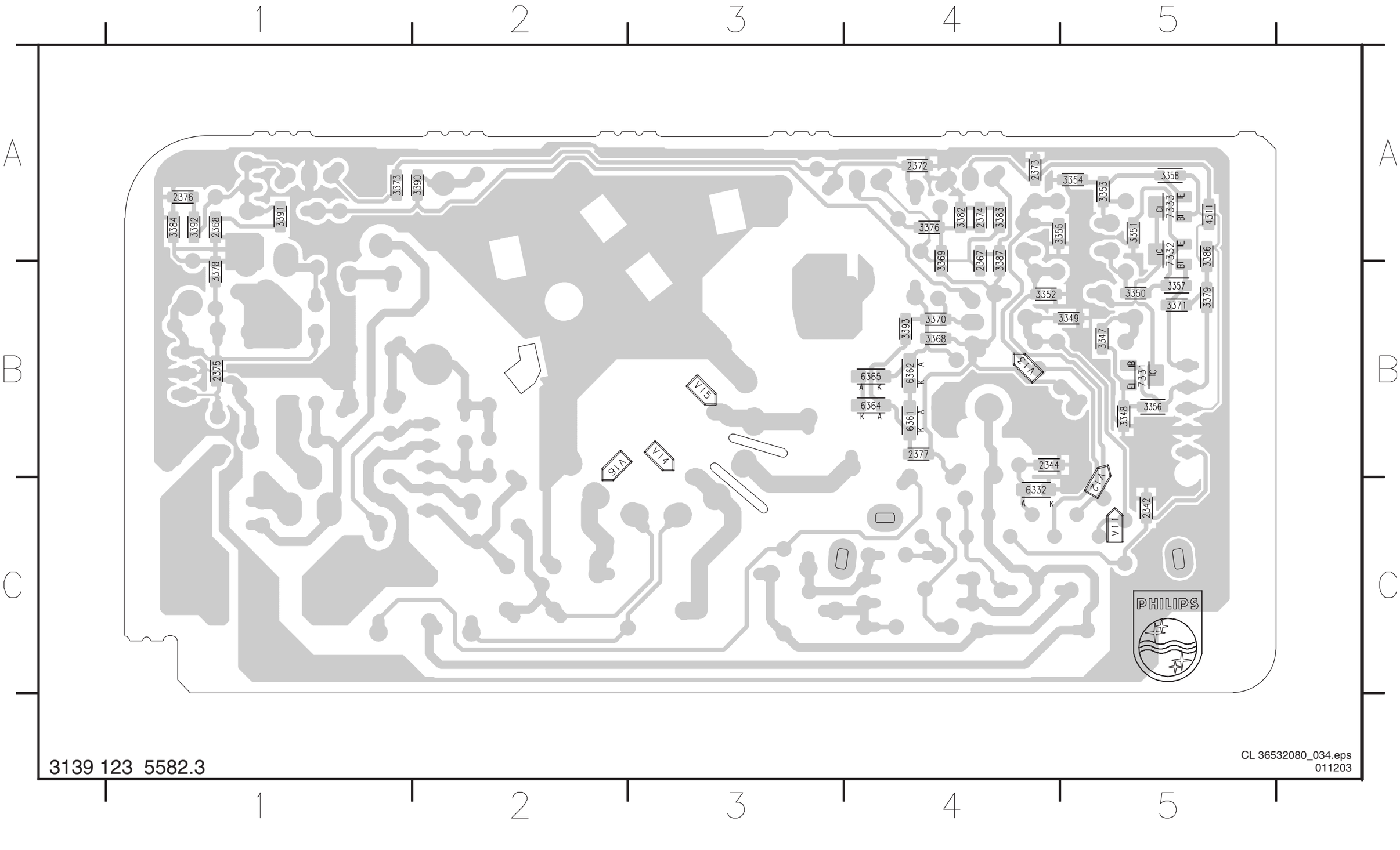


3139 123 5582.3

CL 36532080_033.eps
011203

CRT/SCAVEM Panel (Bottom Side)

2342 C5	2372 A4	2376 A1	3349 B5	3353 A5	3357 B5	3370 B4	3378 B1	3384 A1	3391 A1	6332 C4	6365 B4
2344 B4	2373 A4	2377 B4	3350 B5	3354 A5	3358 A5	3371 B5	3379 B5	3386 A5	3392 A1	6361 B4	7331 B5
2367 A4	2374 A4	3347 B5	3351 A5	3355 A4	3368 B4	3373 A1	3382 A4	3387 A4	3393 B4	6362 B4	7332 A5
2368 A1	2375 B1	3348 B5	3352 B4	3356 B5	3369 A4	3376 A4	3383 A4	3390 A2	4311 A5	6364 B4	7333 A5

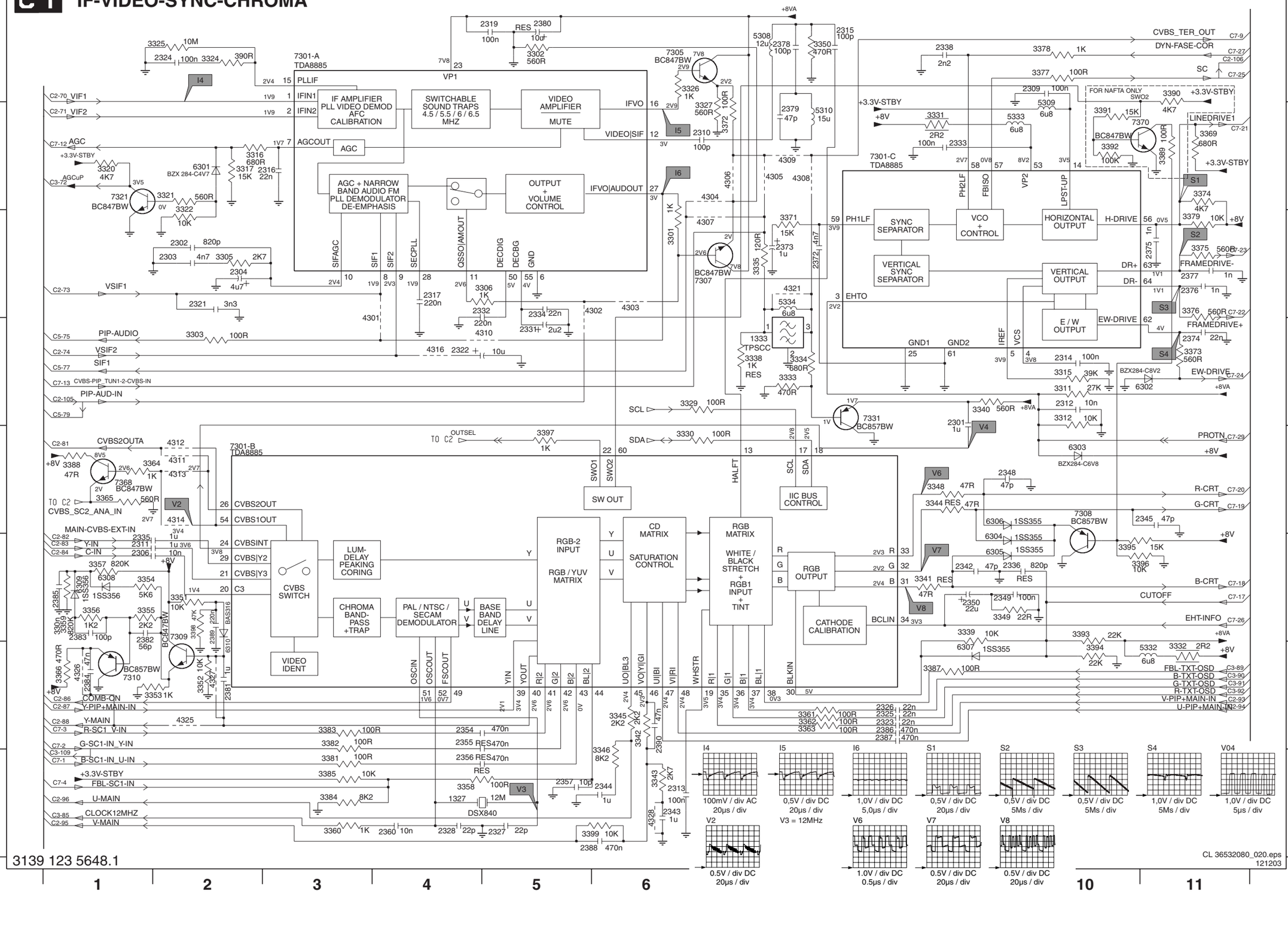


3139 123 5582.3

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011203

SSB: IF-Video-Sync-Chroma

C 1 IF-VIDEO-SYNC-CHROMA



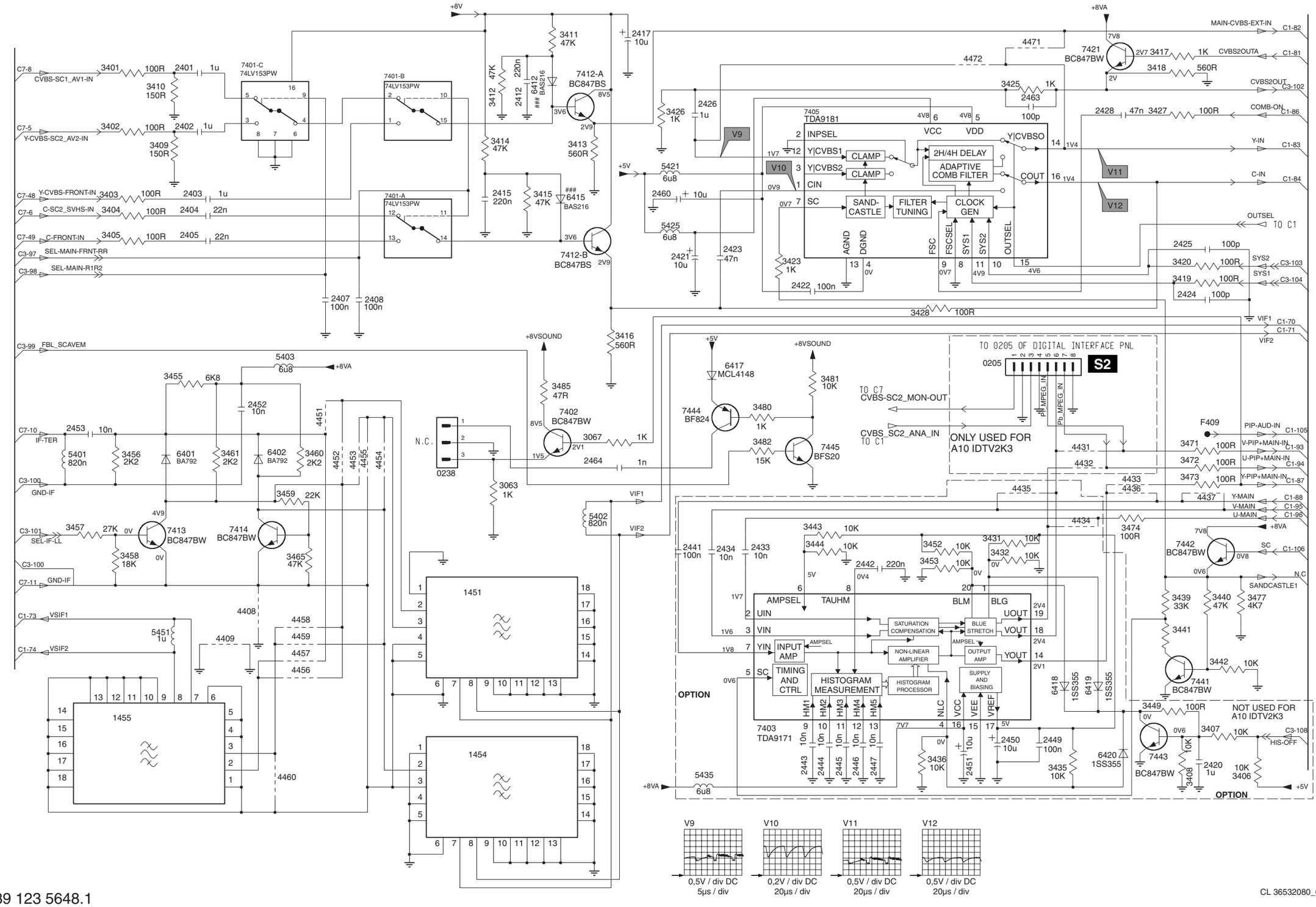
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CL 36532080_020.eps
121203

1327 H4	3350 A8	2309 A10	4303 C6
1333 D7	3351 F2	2310 B7	4304 B7
2301 D9	3352 G2	2311 F1	4305 B7
2302 C2	3353 G2	2312 D10	4306 B7
2303 C2	3354 F1	2313 H6	4307 C7
2304 C2	3355 F1	2314 D10	4308 B7
2306 F1	3356 F1	2315 A8	4309 B7
2309 A10	3357 F1	2316 B3	4310 D5
2310 B7	3358 H4	2317 C4	4311 E2
2311 F1	3359 F1	2319 A5	4312 E2
2312 D10	3360 H3	2321 C2	4313 E2
2313 H6	3361 G7	2322 D4	4314 E2
2314 D10	3362 G7	2323 G8	4316 D4
2315 A8	3363 G7	2324 A2	4321 C7
2316 B3	3364 E1	2325 G8	4325 G2
2317 C4	3365 E1	2326 G8	4326 G1
2319 A5	3366 G1	2327 H5	4327 G2
2321 C2	3369 B11	2328 H4	4328 H6
2322 D4	3371 C7	2331 D5	5308 A7
2323 G8	3372 B7	2332 C4	5309 B10
2324 A2	3373 D11	2333 B9	5310 B8
2325 G8	3374 B11	2334 C5	5332 G11
2326 G8	3375 C11	2335 F1	5333 B9
2327 H5	3376 C11	2336 F9	5334 C7
2328 H4	3377 A10	2338 A9	6301 B2
2331 D5	3378 A10	2342 H4	6302 D11
2332 C4	3379 C11	2344 H6	6303 E10
2333 B9	3381 H3	2345 E11	6304 F9
2334 C5	3382 G3	2348 E9	6305 F9
2335 F1	3383 G3	2349 F9	6306 E9
2336 F9	3384 H3	2350 F9	6307 G9
2338 A9	3385 H3	2354 G4	6308 F1
2342 H4	3387 G9	2355 G4	6309 F1
2343 H6	3388 E1	2356 H4	6310 G2
2344 H6	3389 B11	2357 H5	7301-A A3
2345 E11	3390 A11	2360 H4	7301-B E2
2348 E9	3391 B10	2372 C8	7301-C B8
2349 F9	3392 B10	2373 C7	7305 A6
2350 F9	3393 F10	2374 D11	7307 C6
2354 G4	3394 G10	2375 C11	7308 E10
2355 G4	3395 F10	2376 C11	7309 F2
2356 H4	3396 F11	2377 C11	7310 G1
2357 H5	3397 E5	2378 A7	7321 B1
2360 H4	3398 F2	2379 B7	7331 D8
2372 C8	3399 H5	2380 A5	7368 E1
2373 C7	4301 D3	2381 G2	7370 B10
2374 D11	4302 C6	2382 G1	
2375 C11	4303 C6	2383 F1	
2376 C11	4304 B7	2384 G1	
2377 C11	4305 B7	2385 F1	
2378 A7	4306 B7	2386 G8	
2379 B7	4307 C7	2387 G8	
2380 A5	4308 B7	2388 H5	
2381 G2	4309 B7	2389 F2	
2382 G1	4310 D5	2390 G6	
2383 F1	4311 E2	3301 C6	
2384 G1	4312 E2	3302 A5	
2385 F1	4313 E2	3303 D2	
2386 G8	4314 E2	3305 C2	
2387 G8	4316 D4	3306 C5	
2388 H5	4321 C7	3311 D10	
2389 F2	4325 G2	3312 D10	
2390 G6	4326 G1	3315 D10	
3301 C6	4327 G2	3316 B2	
3302 A5	4328 H6	3317 B2	
3303 D2	5308 A7	3320 B1	
3305 C2	5309 B10	3321 B2	
3306 C5	5310 B8	3322 B2	
3311 D10	5332 G11	3324 A2	
3312 D10	5333 B9	3325 A2	
3315 D10	5334 C7	3326 A6	
3316 B2	6301 B2	3327 B7	
3317 B2	6302 D11	3329 D6	
3320 B1	6303 E10	3330 E6	
3321 B2	6304 F9	3331 B9	
3322 B2	6305 F9	3332 G11	
3324 A2	6306 E9	3333 D7	
3325 A2	6307 G9	3334 D7	
3326 A6	6308 F1	3335 C7	
3327 B7	6309 F1	3338 D7	
3329 D6	6310 G2	3339 F9	
3330 E6	7301-A A3	3340 D9	
3331 B9	7301-B E2	3341 F5	
3332 G11	7301-C B8	3342 G6	
3333 D7	7305 A6	3343 H6	
3334 D7	7307 C6	3344 E9	
3335 C7	7308 E10	3345 G6	
3338 D7	7309 F2	3346 H6	
3339 F9	7310 G1	3348 E9	
3340 D9	7321 B1	3349 F9	
3341 F5	7331 D8		
3342 G6	7368 E1		
3343 H6	7370 B10		
3344 E9			
3345 G6			
3346 H6			
3348 E9			
3349 F9			

SSB: Video Features

C2 **VIDEO_FEATURES**

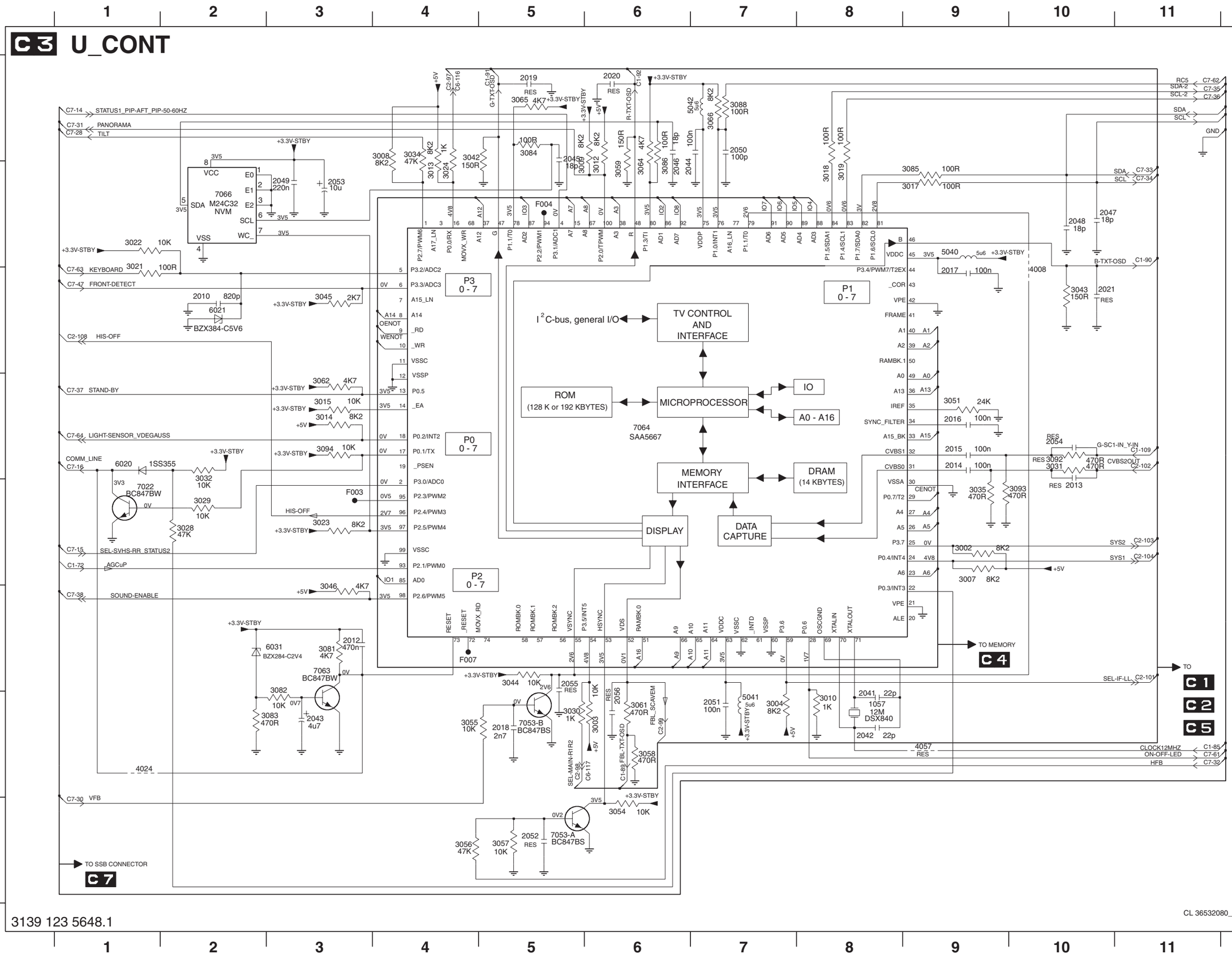


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SSB: U_Cont

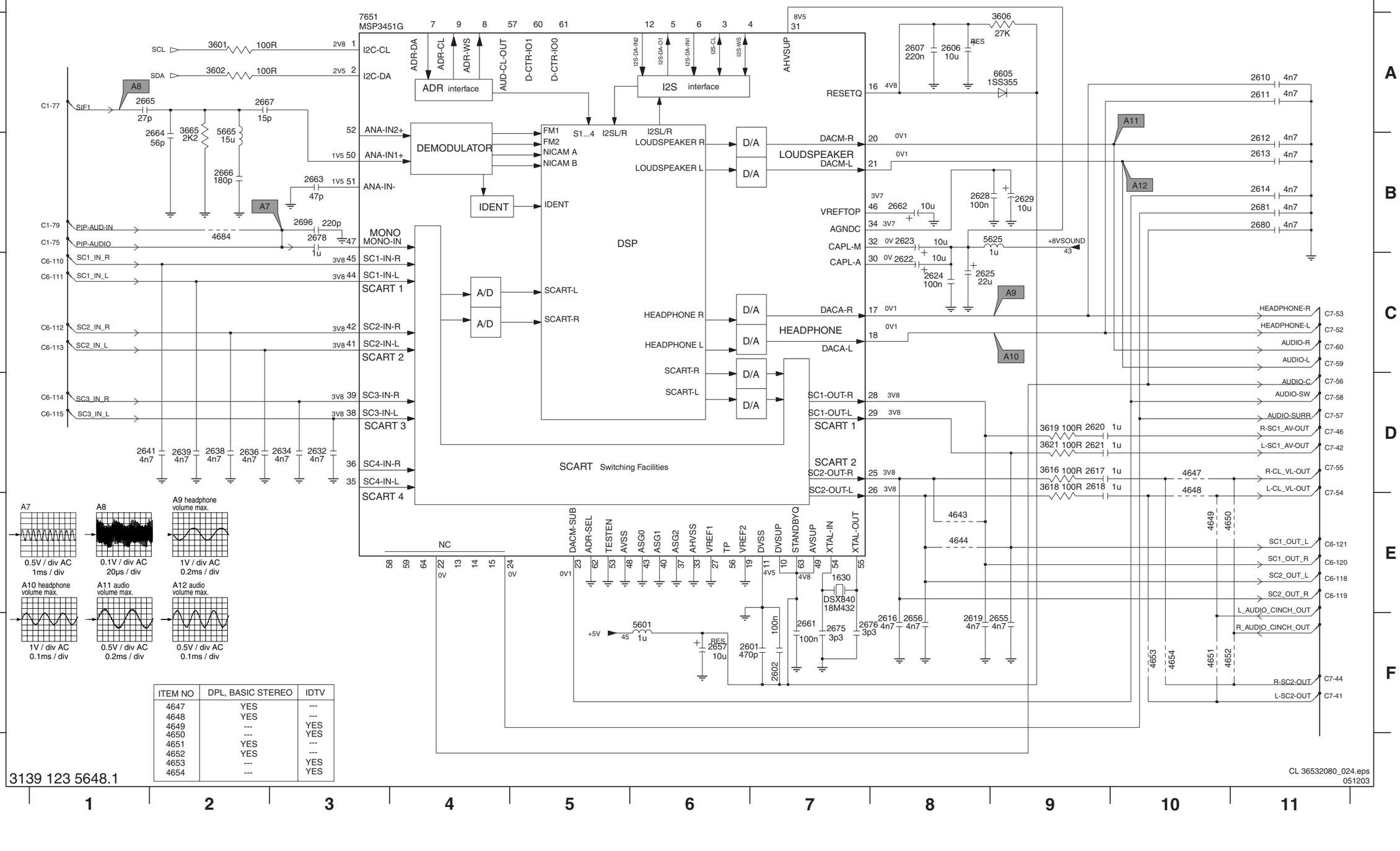
C3 U_CONT



1057 G8
2010 C2
2012 F3
2013 E10
2014 D9
2015 D9
2016 D9
2017 C9
2018 G5
2019 A5
2020 A6
2021 C10
2041 G8
2042 G8
2043 G3
2044 B6
2045 A5
2046 B6
2047 B10
2048 B10
2049 B3
2050 A7
2051 G7
2052 H5
2053 B3
2054 D10
2055 F5
2056 G6
3002 E9
3003 G6
3004 G7
3007 E9
3008 A4
3009 B5
3010 G8
3012 B6
3013 B4
3014 D3
3015 D3
3017 B9
3018 B8
3019 B8
3021 C1
3022 B1
3023 E3
3024 B4
3028 E2
3029 E2
3030 G5
3031 D10
3032 E2
3034 A4
3035 E9
3042 A4
3043 C10
3044 F5
3045 C3
3046 F3
3051 D9
3054 H6
3055 G4
3056 H4
3057 H5
3058 G6
3059 B6
3061 G6
3062 D3
3064 B6
3065 A5
3066 A7
3081 F3
3082 G3
3083 G3
3084 A5
3085 B9
3086 B6
3088 A7
3092 D10
3093 E10
3094 D3
4008 C10
4024 G1
4057 G9
5040 B9
5041 G7
5042 A7
6020 D1
6021 C2
6031 F3
7022 E1
7053-A H5
7053-B G5
7063 F3
7064 D6
7066 B2
F003 E3
F004 B5
F007 F4

SSB: Audio Processing

C5 AUDIO PROCESSING



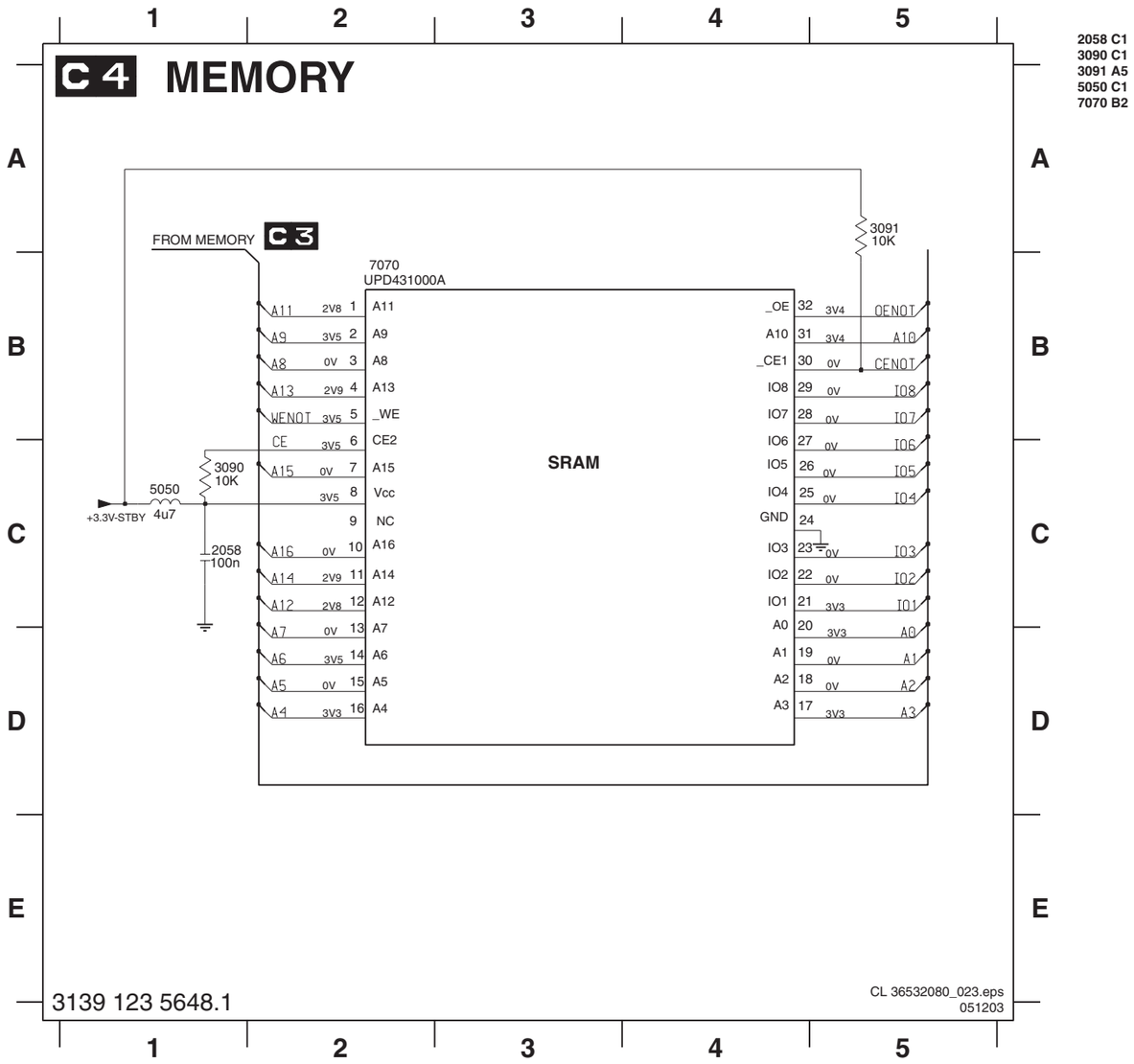
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4648	YES	---
4649	---	YES
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4652	YES	---
4653	---	YES
4654	---	YES

3139 123 5648.1

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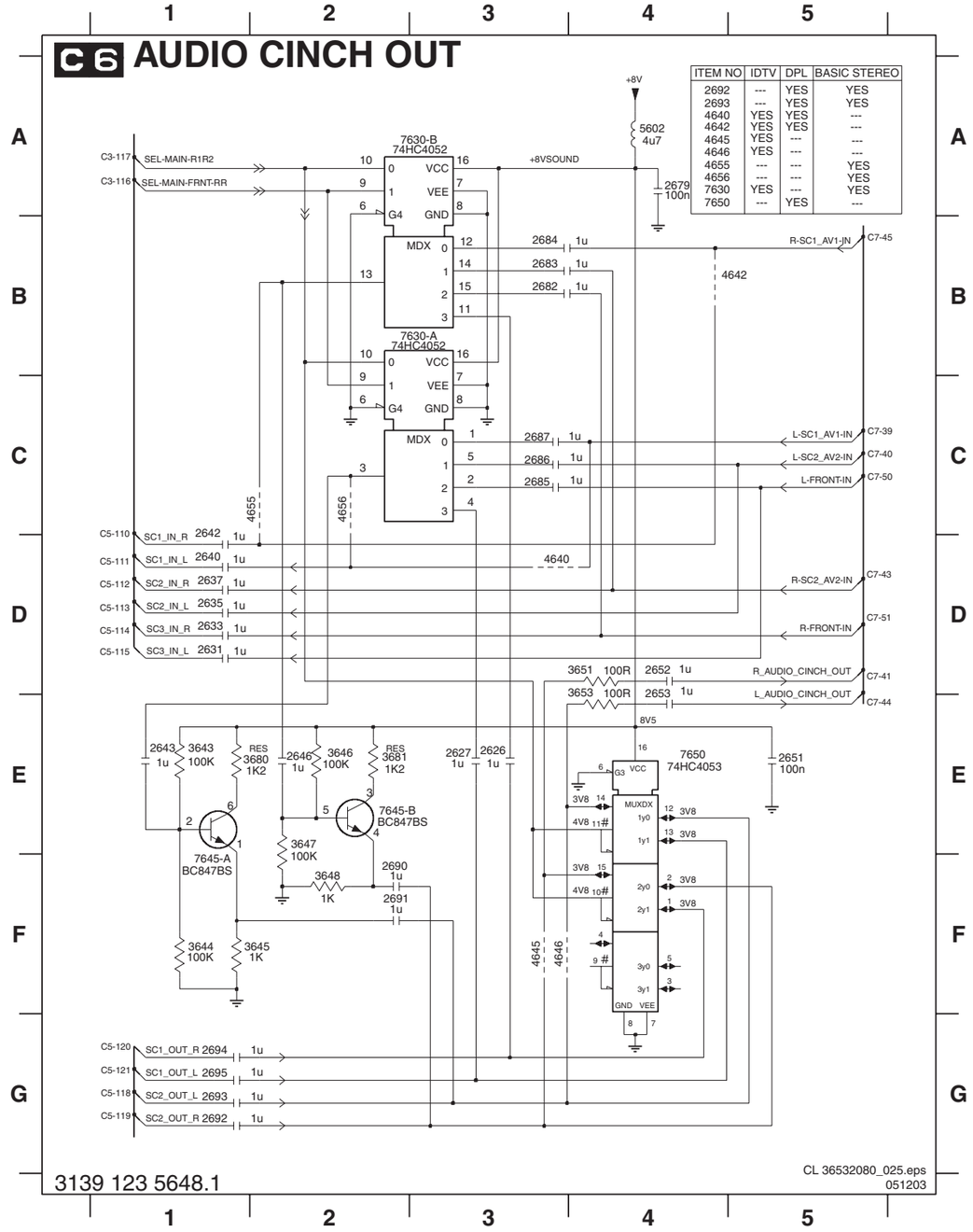
1630 E7
2601 F6
2602 F7
2606 A8
2607 A8
2610 A11
2611 A11
2612 B11
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2614 B11
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2617 D9
2618 D9
2619 F8
2620 D9
2621 D9
2622 C8
2623 B8
2624 C8
2625 C8
2628 B8
2629 B9
2632 D3
2634 D3
2636 D2
2638 D2
2639 D2
2641 D1
2655 F9
2656 F8
2657 F6
2661 F7
2662 B8
2663 B3
2664 A2
2665 A1
2666 B2
2667 A2
2675 F7
2676 F7
2678 B3
2680 B11
2681 B11
2696 B3
3601 A2
3602 A2
3606 A9
3616 D9
3618 D9
3619 D9
3621 D9
3665 A2
4643 E8
4644 E8
4647 D10
4648 E10
4649 E10
4650 E11
4651 F10
4652 F11
4653 F10
4654 F10
4684 B2
5601 F6
5625 B9
5665 A2
6605 A9
7651 A3

SSB: Memory



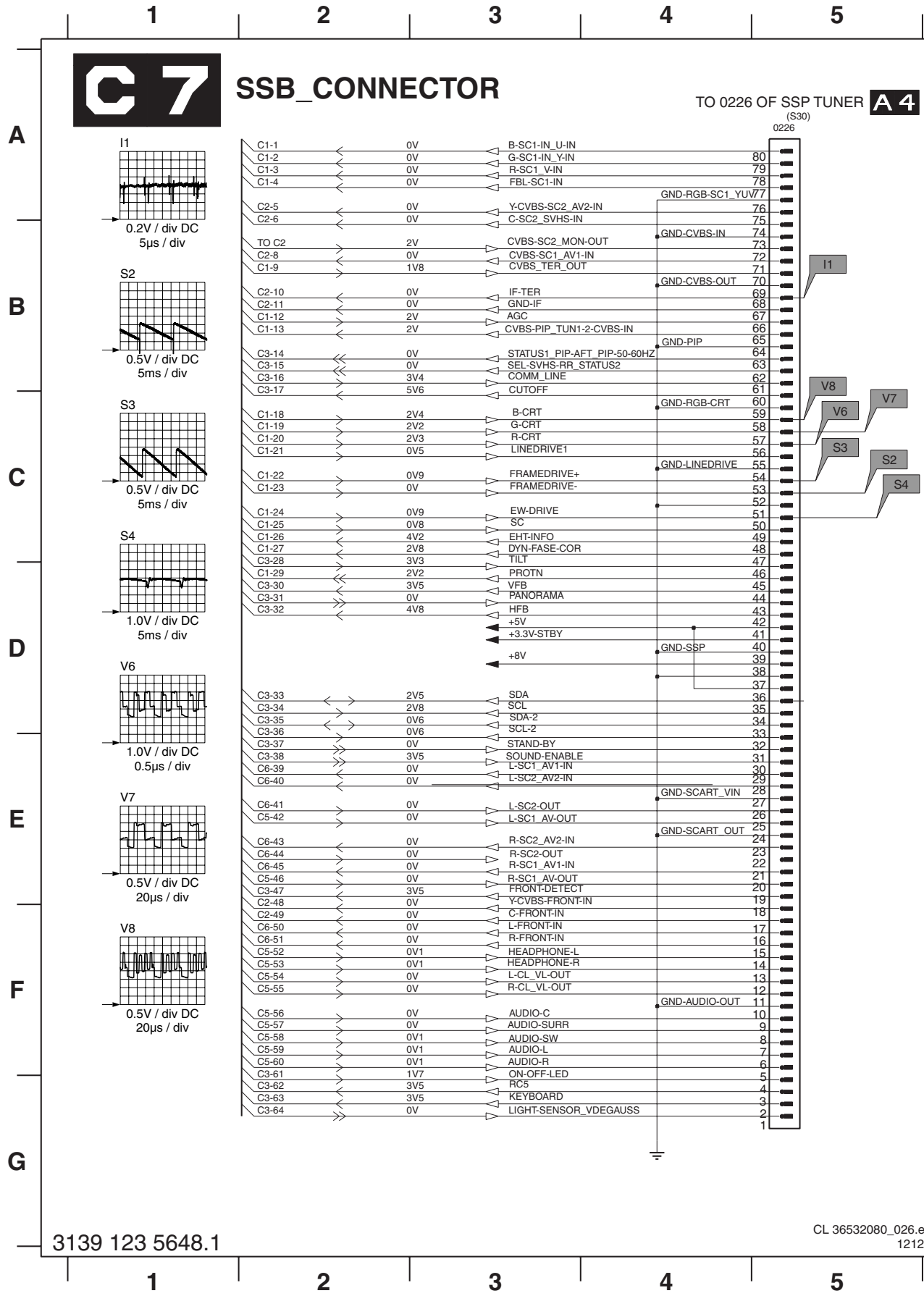
2058 C1
3090 C1
3091 A5
5050 C1
7070 B2

SSB: Audio Cinch Out



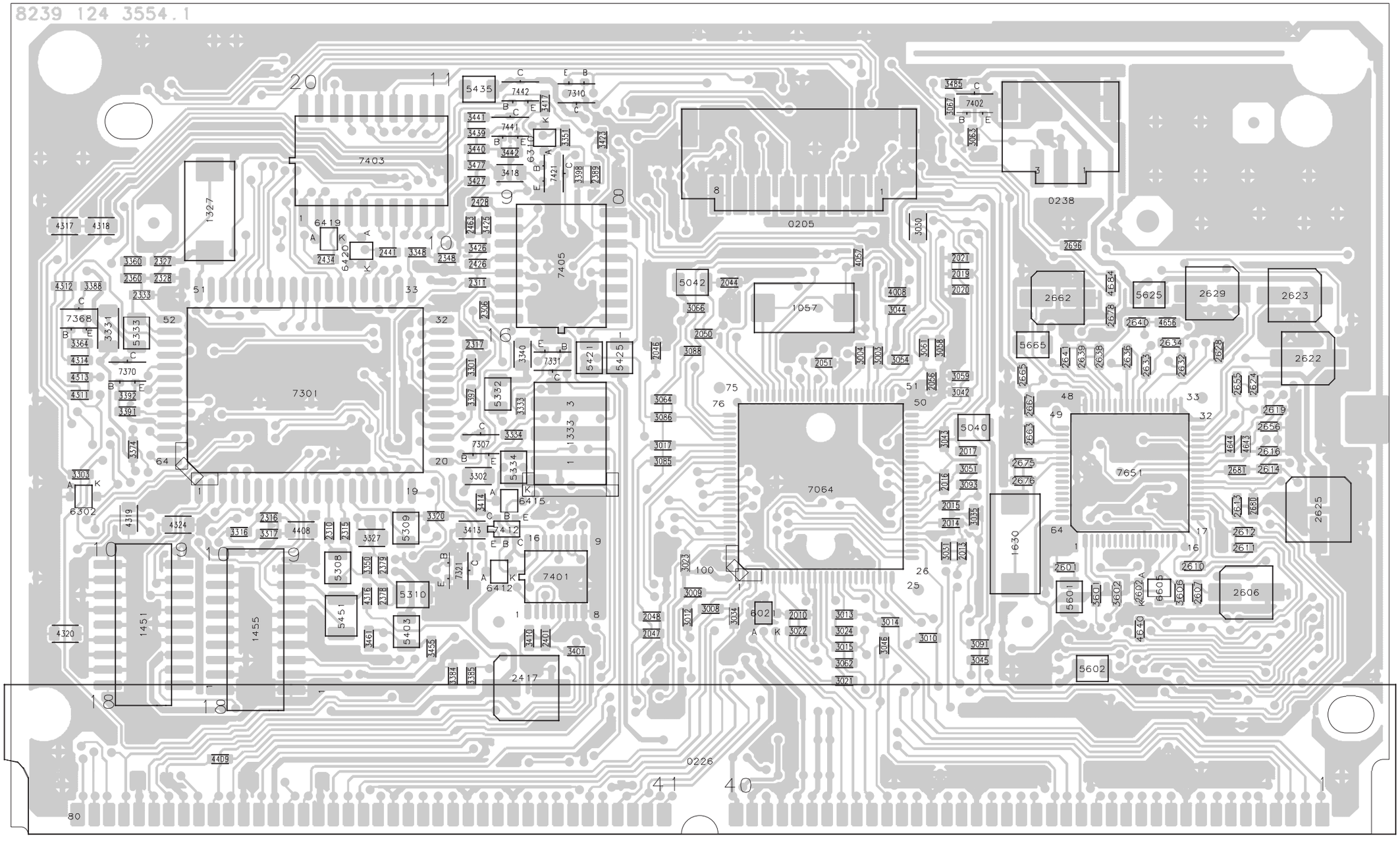
2626 E3
2627 E3
2631 D1
2633 D1
2635 D1
2637 D1
2640 D1
2642 D1
2643 E1
2646 E2
2651 E5
2652 D4
2653 E4
2679 A4
2682 B3
2683 B3
2684 B3
2685 C3
2686 C3
2687 C3
2690 F2
2691 F2
2692 G1
2693 G1
2694 G1
2695 G1
3643 E1
3644 F1
3645 F2
3646 E2
3647 E2
3648 F2
3651 D4
3653 E4
3680 E2
3681 E2
4640 D3
4642 B5
4645 F3
4646 F3
4655 C2
4656 C2
5602 A4
7630-A B2
7630-B A2
7645-A F1
7645-B E2
7650 E4

SSB: Connector



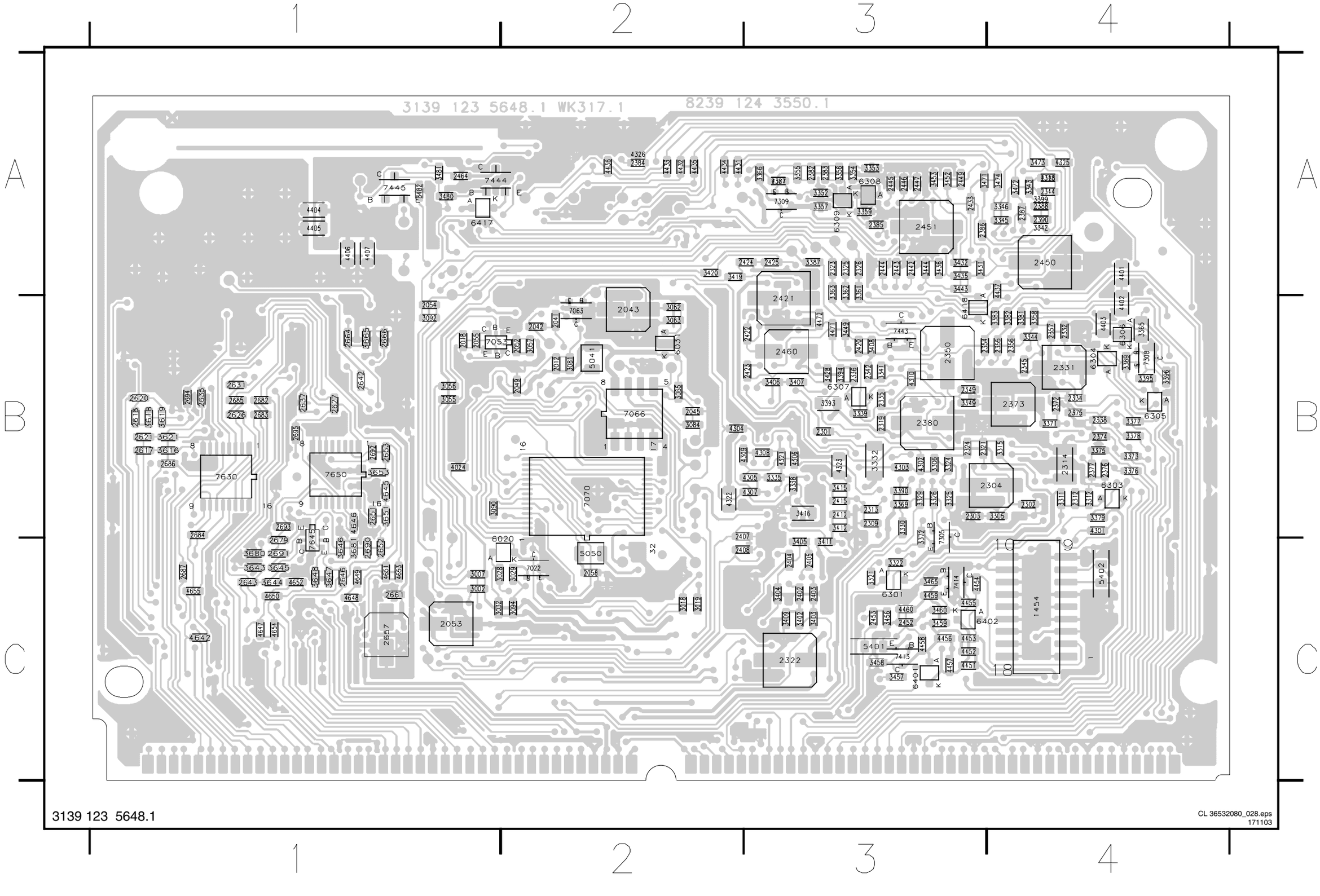
Layout SSB (Top Side)

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0226 C3 1630 C4 2019 B4 2050 B3 2316 B1 2378 C2 2434 B2 2610 C4 2622 B4 2633 B4 2655 B4 2676 B4 3008 C3 3017 B3 3034 C3 3051 B4 3064 B3 3093 B4 3327 B2 3351 A2 3391 B1 3414 B2 3439 A2 3485 A4 4312 B1 4320 C1 4656 B4 5332 B2 5451 C2 6310 A2 7301 B1 7401 C2 7442 A2
0238 A4 2010 C3 2020 B4 2051 B3 2317 B2 2379 C2 2441 B2 2611 C4 2623 B4 2634 B4 2656 B4 2678 B4 3009 C3 3021 C3 3035 B4 3054 B4 3066 B3 3301 B2 3331 B1 3360 B1 3392 B1 3417 A2 3440 A2 3601 C4 4313 B1 4324 B1 4684 B4 5333 B1 5601 C4 6412 C2 7307 B2 7402 A4 7651 B4
1057 B3 2013 C4 2021 B4 2056 B4 2327 B1 2389 A2 2463 A2 2612 B4 2624 B4 2636 B4 2662 B4 2680 B4 3010 C4 3022 C3 3042 B4 3058 B4 3067 A4 3302 B2 3333 B2 3364 B1 3397 B2 3418 A2 3441 A2 3602 C4 4314 B1 4408 B1 5040 B4 5334 B2 5602 C4 6415 B2 7310 A2 7403 A2
1327 A1 2014 B4 2044 B3 2306 B2 2328 B1 2401 C2 2601 C4 2613 B4 2625 B4 2638 B4 2663 B4 2681 B4 3012 C3 3023 C3 3043 B4 3059 B4 3085 B3 3303 B1 3334 B2 3374 B1 3398 A2 3423 A3 3442 A2 3606 C4 4316 C2 4409 C1 5042 B3 5403 C2 5625 B4 6419 A2 7321 C2 7405 B2
1333 B2 2015 B4 2046 B3 2310 B2 2333 B1 2417 C2 2602 C4 2614 B4 2628 B4 2639 B4 2665 B4 2696 B4 3013 C3 3024 C3 3044 B4 3061 B4 3086 B3 3316 B1 3340 B2 3384 C2 3401 C2 3425 A2 3455 C2 4008 B4 4317 A1 4640 C4 5308 C2 5421 B2 5665 B4 6420 B2 7331 B2 7412 B2
1451 C1 2016 B4 2047 C3 2311 B2 2348 B2 2426 B2 2606 C4 2616 B4 2629 B4 2640 B4 2667 B4 3003 B3 3014 C3 3030 A4 3045 C4 3062 C3 3088 B3 3317 B1 3348 B2 3385 C2 3410 C2 3426 B2 3461 C2 4057 B3 4318 A1 4643 B4 5309 B2 5425 B3 6021 C3 6605 C4 7368 B1 7421 A2



Layout SSB (Bottom Side)

1454	C4	2055	B1	2321	B3	2338	B4	2372	B4	2385	A3	2412	B3	2444	A3	2617	B1	2646	C1	2684	B1	3007	C1	3082	B2	3321	C3	3341	B3	3356	A3	3372	B3	3389	B4	3406	B3	3431	A3	3458	C3	3616	B1	3653	B1	4307	B3	4401	A4	4435	A2	4459	C3	4651	C1	6301	C3	6418	B3	7443	B3
2012	B2	2058	C2	2322	C3	2342	B3	2373	B4	2386	A3	2415	B3	2445	A3	2618	B1	2651	B1	2685	B1	3018	C2	3083	B2	3322	C3	3342	A4	3357	A3	3373	B4	3390	B3	3407	B3	3432	A3	3459	C3	3618	B1	3665	B1	4308	B3	4402	B4	4436	A2	4460	C3	4652	C1	6303	B4	7022	C2	7444	A1
2018	B1	2301	B3	2323	A3	2343	A4	2374	B4	2387	A4	2420	B3	2446	A3	2620	B1	2652	C1	2686	B1	3019	C2	3084	B2	3324	B3	3343	A4	3358	B4	3375	B4	3393	B3	3408	B3	3435	A3	3460	C3	3619	B1	3680	C1	4309	B2	4403	B4	4437	A4	4471	B3	4653	C1	6304	B4	7053	B1	7445	A1
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2042	B2	2303	B3	2325	A3	2345	B4	2376	B4	2390	A4	2422	B3	2449	A3	2626	B1	2657	C1	2690	C1	3029	C2	3092	B1	3326	B3	3345	A4	3361	A3	3377	B4	3395	B4	3411	C3	3443	A3	3471	A3	3643	C1	4024	B1	4321	B3	4405	A1	4452	C3	4642	C1	6655	C1	6306	B4	7066	B2	7645	C1
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2053	C1	2314	B4	2335	B3	2356	B4	2383	A3	2407	B2	2442	A3	2460	B3	2642	B1	2682	B1	2695	B1	3065	B2	3312	B4	3338	B3	3354	A3	3369	B3	3383	B4	3404	C3	3420	A2	3456	C3	3481	A1	3648	C1	4305	B3	4327	A3	4433	A2	4457	C3	4649	C1	6020	C2	6402	C4	7413	C3		
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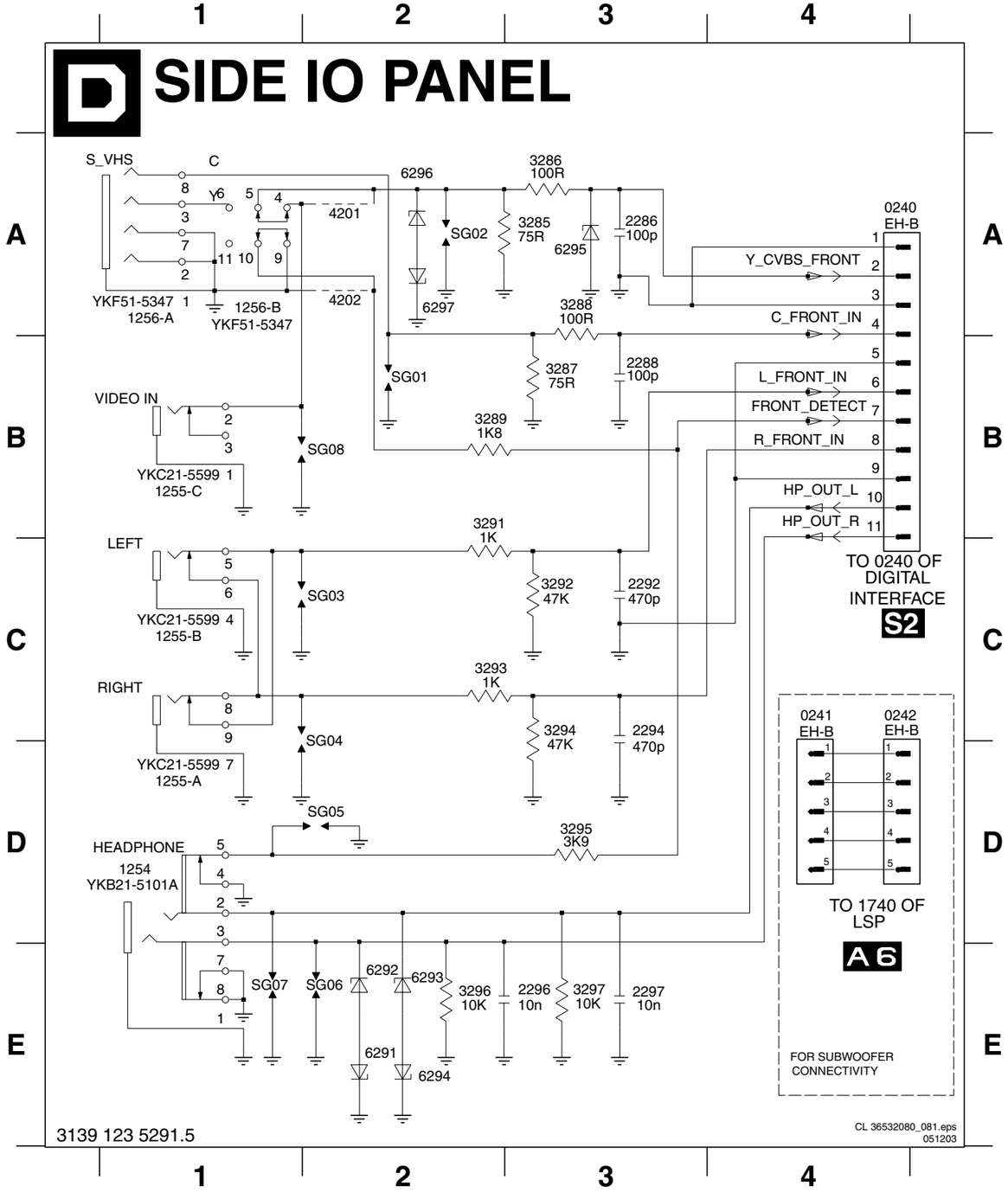


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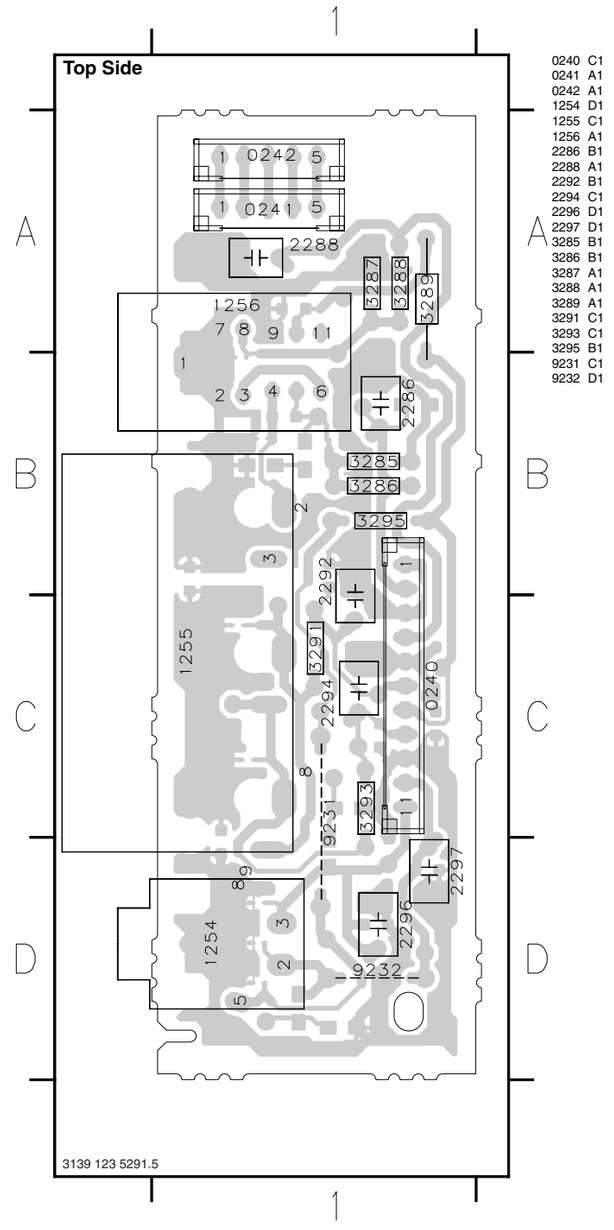
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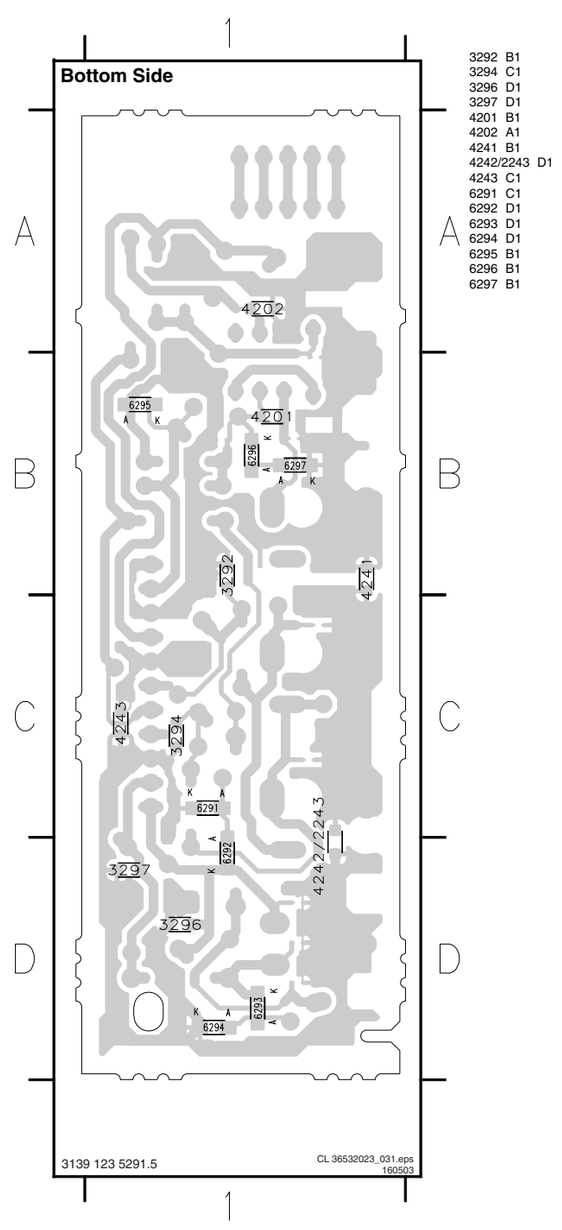
Side I/O Panel

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0241 C4	1256-B A1	3285 A3	3293 C2	6291 E2	
0242 C4	2286 A3	3286 A3	3294 C3	6292 E2	
1254 D1	2288 B3	3287 B3	3295 D3	6293 E2	
1255-A D1	2292 C3	3288 A3	3296 E2	6294 E2	
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1255-C B1	2296 E3	3291 B2	4201 A2	6296 A2	



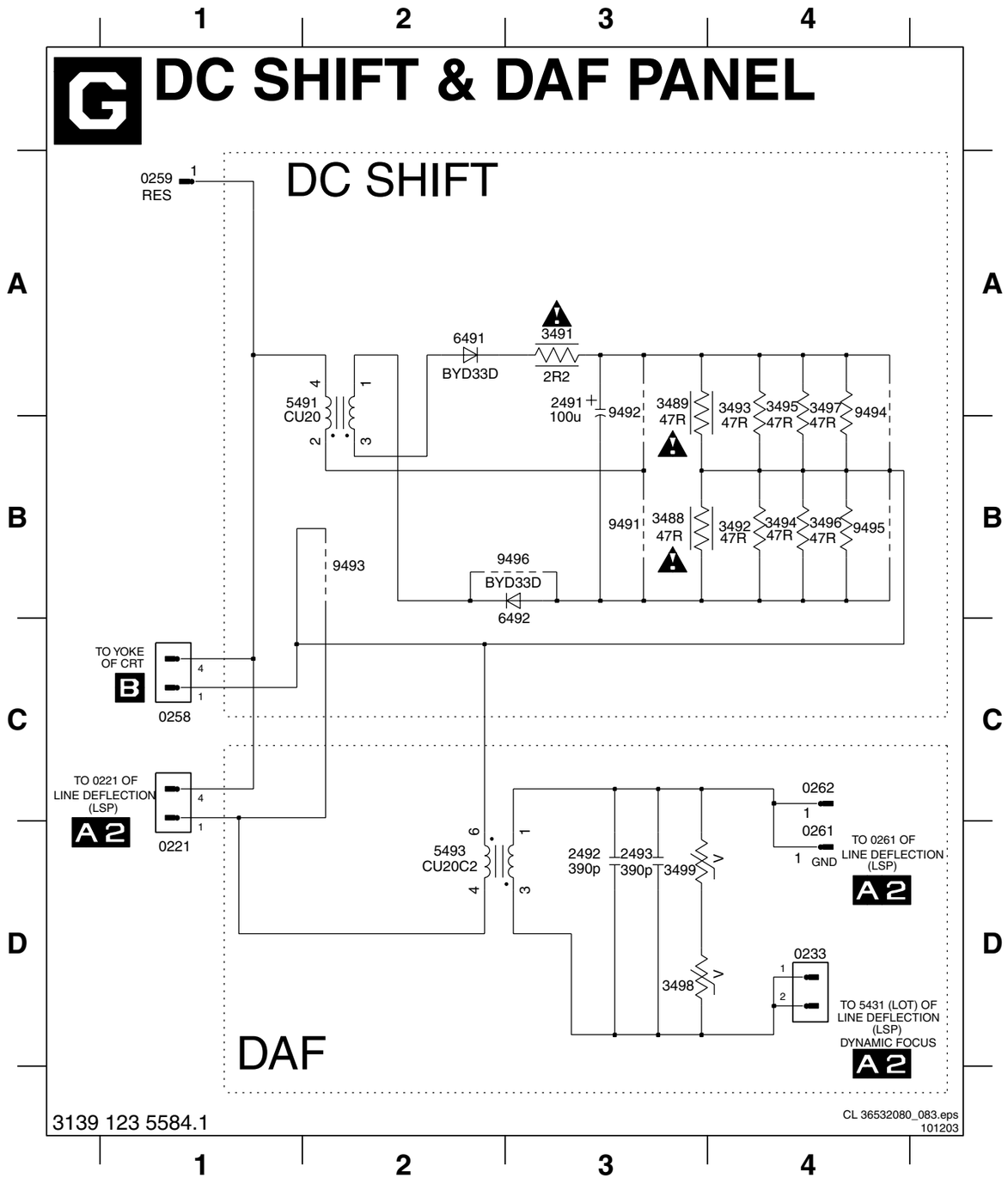
Layout Side I/O Panel





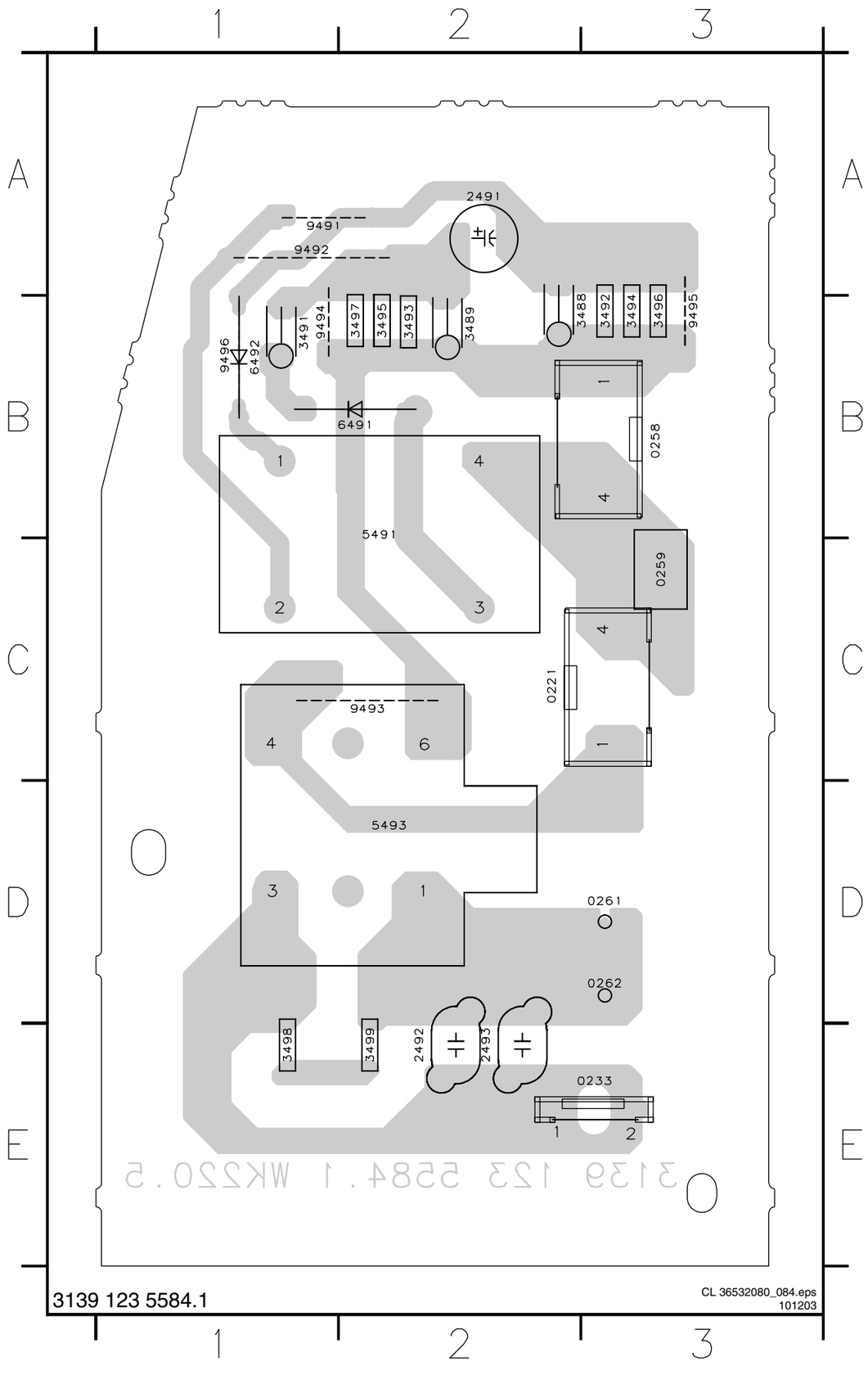
DC Shift & DAF Panel

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0233 D4 0261 D4 2492 D3 3489 A3 3493 A4 3496 B4 3499 D3 6491 A2 9492 A3 9495 B4
0258 C1 0262 C4 2493 D3 3491 A3 3494 B4 3497 A4 5491 A1 6492 B3 9493 B2 9496 B3

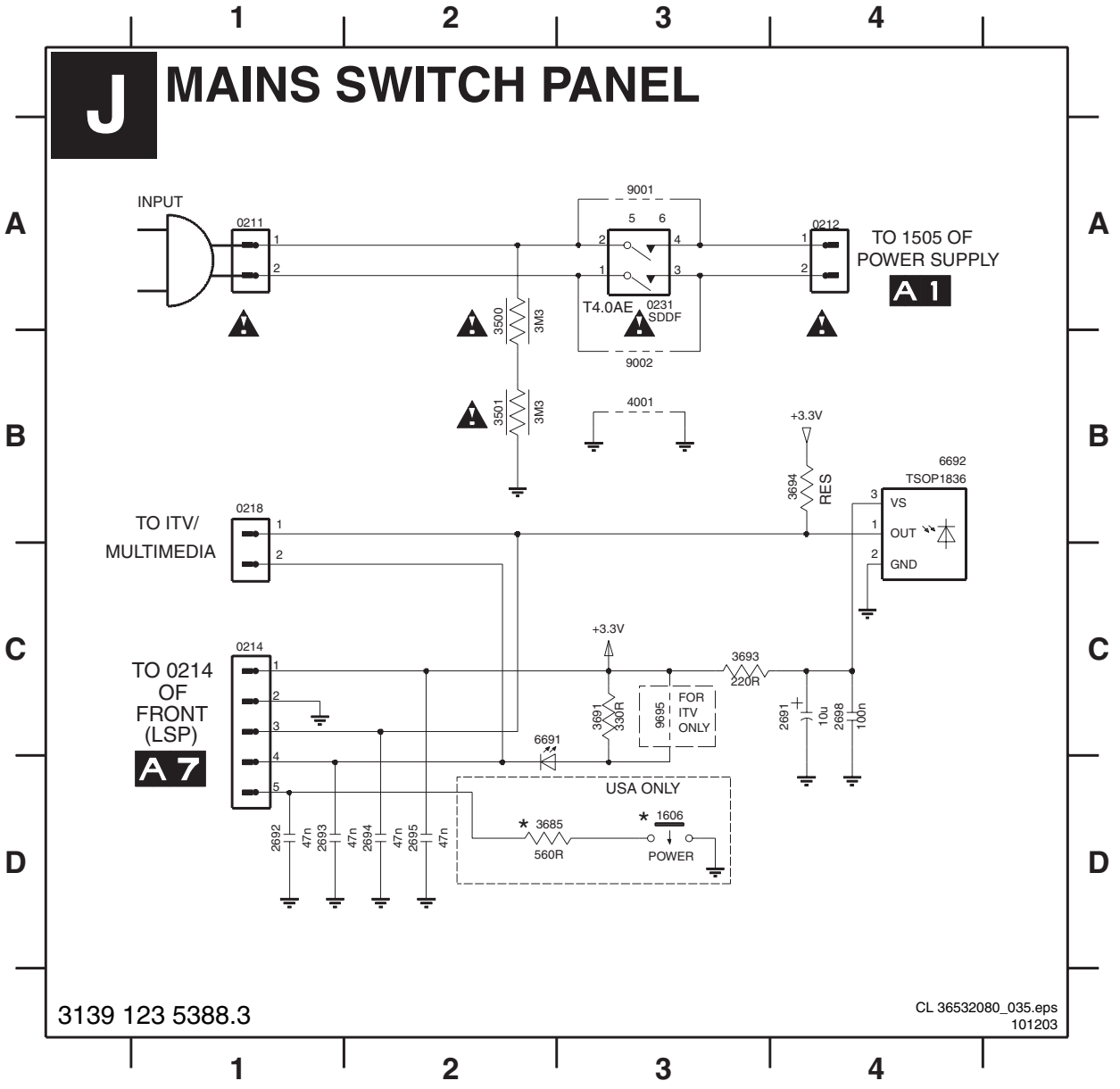


Layout DC Shift & DAF Panel

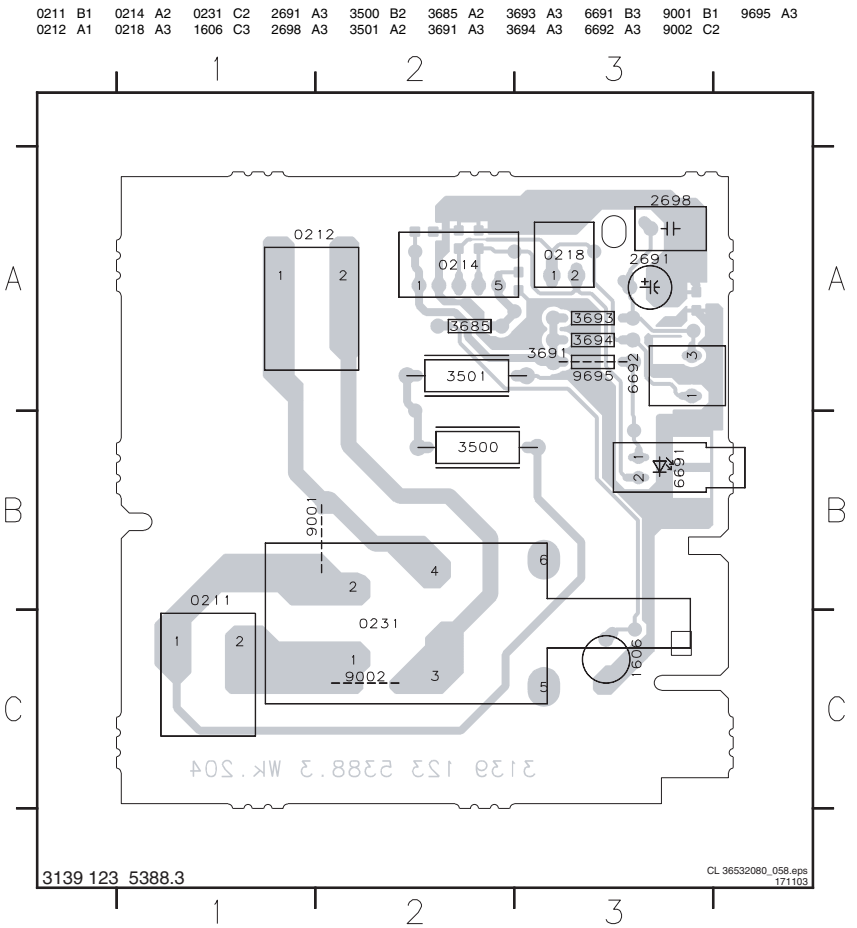
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0262 D3
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2492 E2
2493 E2
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3491 B1
3492 B3
3493 B2
3494 B3
3495 B2
3496 B3
3497 B2
3498 E1
3499 E2
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9493 C2
9494 B1
9495 B3
9496 B1



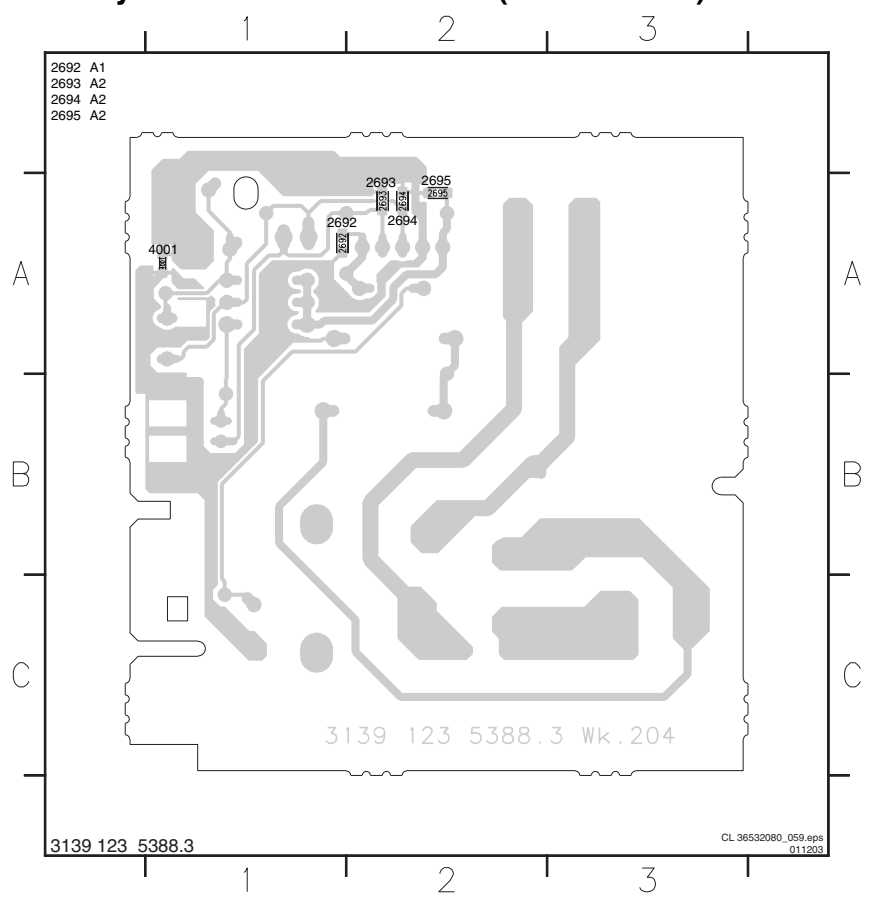
Mains Switch Panel



Layout Mains Switch Panel (Top Side)



Layout Mains Switch Panel (Bottom Side)



IBO+ Panel : Viper

K 1 VIPER

VIPER SUPPLY

VIPER 1.0 VPR_CORE_VCC = +1V8

1.1 VPR_CORE_VCC = +1V2

FOR DEV. ONLY

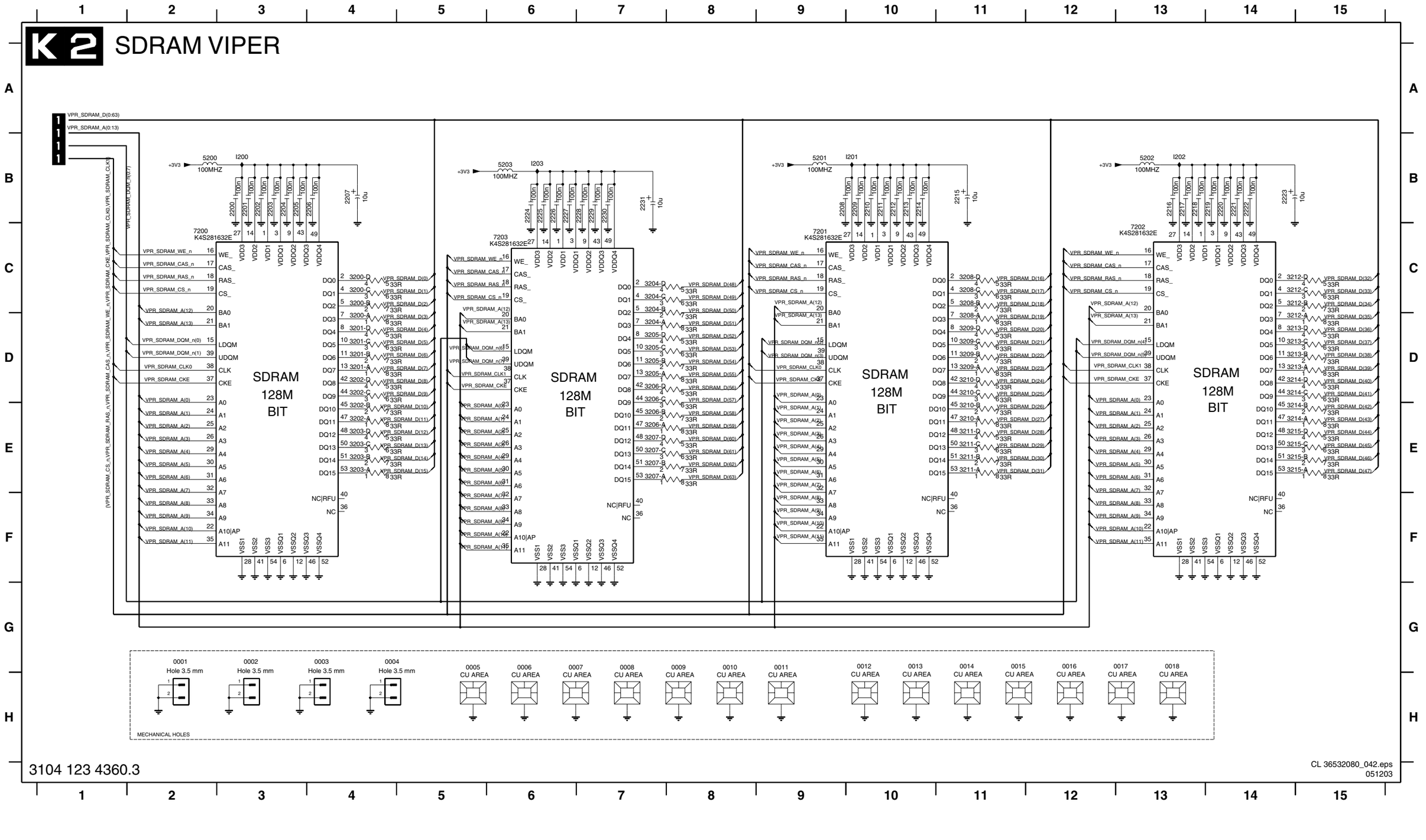
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1111 H13	3160 G11	I187 G12
1112 I9	3161 G13	I188 H13
2100 C7	3162 H12	I189 H13
2101 C7	3163 H12	I198 F11
2102 C7	3164 G1	I199 I7
2103 C5	3165 G1	
2104 C5	3166 G1	
2105 C6	3167 G2	
2106 C6	3168 G2	
2107 C6	3169 G2	
2108 C6	3170 H2	
2109 C6	3171 H12	
2110 C7	3172 H12	
2111 C7	3173 H12	
2112 C7	3174 H2	
2113 C8	3175 H2	
2114 C8	3176 H10	
2115 C8	3177 H1	
2116 C8	3178 H4	
2117 C8	3180 H8	
2118 C9	3181 H2	
2119 D5	3182 H9	
2120 D10	3183 H3	
2121 D5	3184 H2	
2122 D10	3185 I9	
2123 D5	3186 I9	
2124 E10	3187 I4	
2125 E10	3188 I8	
2128 I9	3189 I3	
2129 I10	3190 I10	
2130 B1	3191 I8	
2131 B1	3192 I9	
2132 B2	3193 I3	
3089 A9	3194 I8	
3090 A9	3195 I7	
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3092 A10	3197 I7	
3093 A10	3198 I8	
3094 A10	3199 B11	
3095 C2	4100 G12	
3096 C2	4101 G13	
3097 B2	4102 I4	
3098 C1	5100 A1	
3099 C1	5101 B6	
3100-A A4	5102 C6	
3100-B A4	6101-1 C1	
3100-C A4	6101-2 C1	
3100-D A4	7100 A3	
3101-A A4	7103 G12	
3101-B A4	7104 G13	
3101-C A4	7105 C1	
3101-D A4	7106 C2	
3102-A A4	I100 E2	
3102-B A4	I101 E2	
3102-C A4	I102 E2	
3102-D A4	I103 F2	
3103 A9	I104 G1	
3104 A9	I105 G1	
3105-A A11	I106 H1	
3105-B B11	I107 I1	
3105-C A11	I108 I8	
3105-D B11	I109 H10	
3106 B2	I110 H13	
3107 B11	I112 H13	
3108 B2	I113 I13	
3109 C11	I115 G13	
3114-A F2	I116 G13	
3114-B F2	I117 F11	
3114-C F2	I118 F11	
3115-A F2	I119 F11	
3115-B F2	I120 D2	
3115-C F2	I121 D2	
3115-D F2	I122 D2	
3116-A F2	I123 E2	
3116-B F2	I124 F12	
3116-C F2	I125 F12	
3116-D G2	I126 A3	
3117 A10	I127 C1	
3118 A10	I128 B1	
3119 A11	I129 C2	
3120 A3	I140 G3	
3121 A11	I141 G3	
3122 D1	I142 G3	
3123 D1	I143 G3	
3124 D1	I145 G2	
3125 D1	I146 H2	
3127 D1	I147 H2	
3128 D1	I148 H2	
3129 D1	I149 H2	
3130 D1	I150 H3	
3131 D12	I151 H3	
3132 D12	I157 H4	
3133 D12	I158 I4	
3134 D12	I160 H5	
3135 D12	I161 H5	
3136 E12	I162 H5	
3137 E11	I163 H5	
3138 E11	I165 H4	
3139 E1	I166 I5	
3140 E1	I167 I7	
3141 E1	I168 I7	
3142 E1	I169 I5	
3143 E1	I170 H8	
3144 E1	I171 H8	
3145 E1	I172 H8	
3146 E1	I173 H9	
3147 B1	I174 H9	
3148 C1	I175 H9	
3150 F11	I176 H13	
3151 F11	I177 I13	
3152 F11	I178 I10	
3153 G1	I179 I10	
3154 G11	I180 C3	
3155 G11	I181 C2	
3156 G1	I183 D11	

IBO+ Panel : SDRam Viper

0001 G2	0006 G6	0011 G9	0016 G12	2202 B3	2207 B4	2212 B10	2217 B13	2222 B14	2227 B6	3200-A D4	3201-B D4	3202-C D4	3203-D E4	3205-A D7	3206-B E7	3207-C E7	3208-D C11	3210-A E11	3211-B E11	3212-C C15	3213-D D15	3215-A E15	5201 B9	7202 C13	I203 B6
0002 G3	0007 G6	0012 G10	0017 G12	2203 B3	2208 B9	2213 B10	2218 B13	2223 B14	2228 B7	3200-B C4	3201-C D4	3202-D D4	3204-A D7	3205-B D7	3206-C D7	3207-D E7	3209-A D11	3210-B E11	3211-C E11	3212-D C15	3214-A E15	3215-B E15	5202 B13	7203 C6	
0003 G4	0008 G7	0013 G10	0018 G13	2204 B3	2209 B10	2214 B10	2219 B14	2224 B6	2229 B7	3200-C C4	3201-D D4	3203-A E4	3204-B C7	3205-C D7	3206-D D7	3208-A D11	3209-B D11	3210-C D11	3211-D E11	3213-A D15	3214-B E15	3215-C E15	5203 B6	I200 B3	
0004 G4	0009 G8	0014 G11	2200 B3	2205 B3	2210 B10	2215 B11	2220 B14	2225 B6	2230 B7	3200-D C4	3202-A E4	3203-B E4	3204-C C7	3205-D D7	3207-A E7	3208-B C11	3209-C D11	3210-D D11	3212-A D15	3213-B D15	3214-C D15	3215-D E15	7200 C2	I201 B10	
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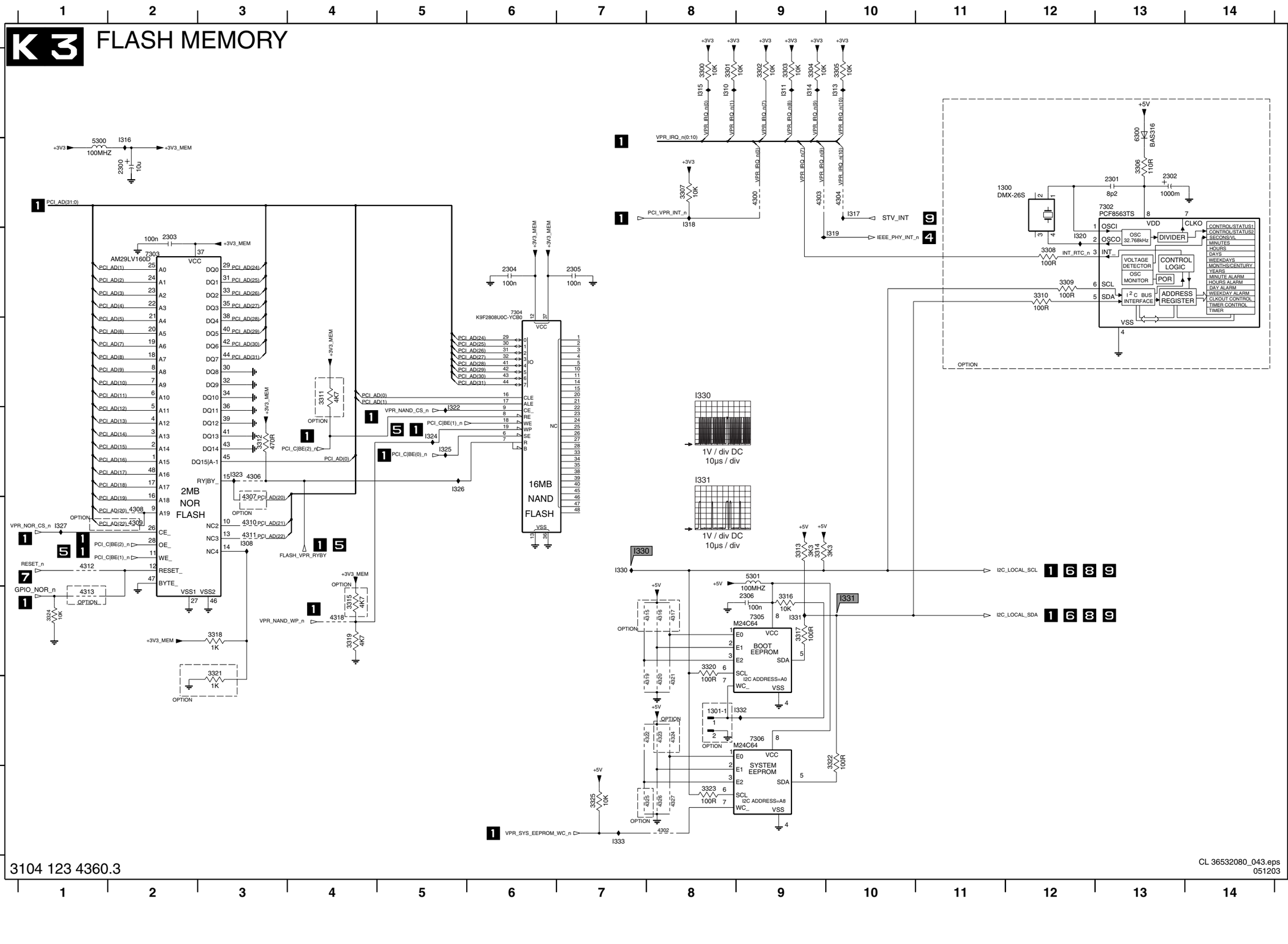


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IBO+ Panel : Flash Memory

K 3 FLASH MEMORY



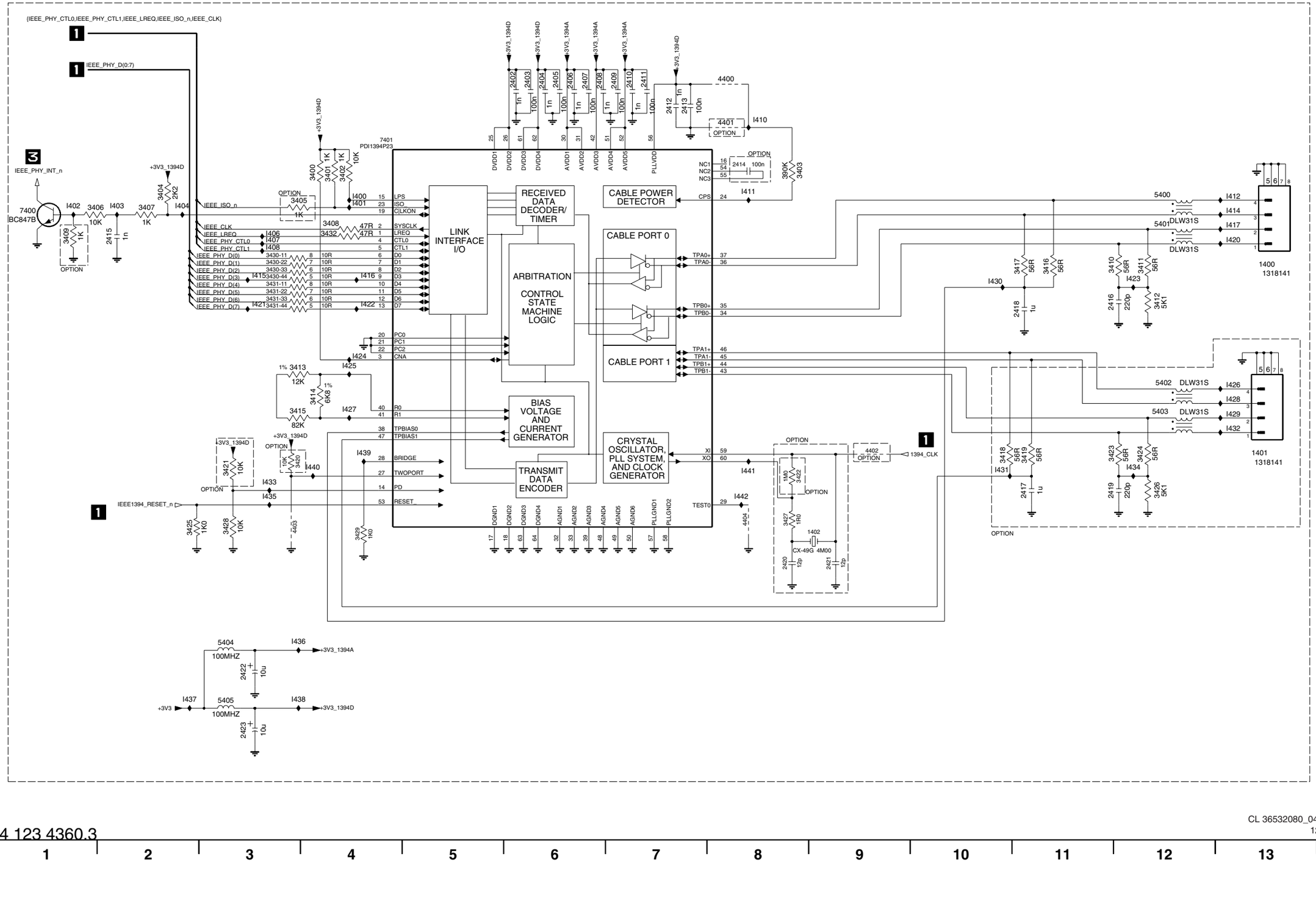
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3302 A9
3303 A9
3304 A9
3305 A10
3306 B13
3307 B8
3308 C12
3309 C12
3310 C12
3311 D4
3312 E3
3313 F9
3314 F9
3315 G4
3316 G9
3317 G9
3318 G3
3319 G4
3320 G8
3321 G3
3322 H10
3323 I8
3324 G1
3325 I7
4300 B9
4302 I8
4303 B9
4304 B10
4306 E3
4307 F3
4308 F2
4309 F2
4310 F3
4311 F3
4312 F1
4313 G1
4315 G7
4316 G8
4317 G8
4318 G4
4319 H7
4320 H8
4321 H8
4322 H7
4323 H8
4324 H8
4325 I7
4326 I8
4327 I8
5300 B1
5301 F9
6300 A13
7302 B13
7303 C2
7304 C6
7305 G9
7306 H9
I308 F3
I310 A8
I311 A9
I313 A10
I314 A9
I315 A8
I316 B2
I317 B10
I318 B8
I319 C10
I320 C12
I322 E5
I323 E3
I324 E5
I325 E5
I326 E5
I327 F1
I330 F7
I331 G9
I332 H9
I333 I7

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051203

IBO+ Panel : Digital Audio/Video Interface

K 4 IEEE 1394 DIGITAL AUDIO/VIDEO INTERFACE

OPTION

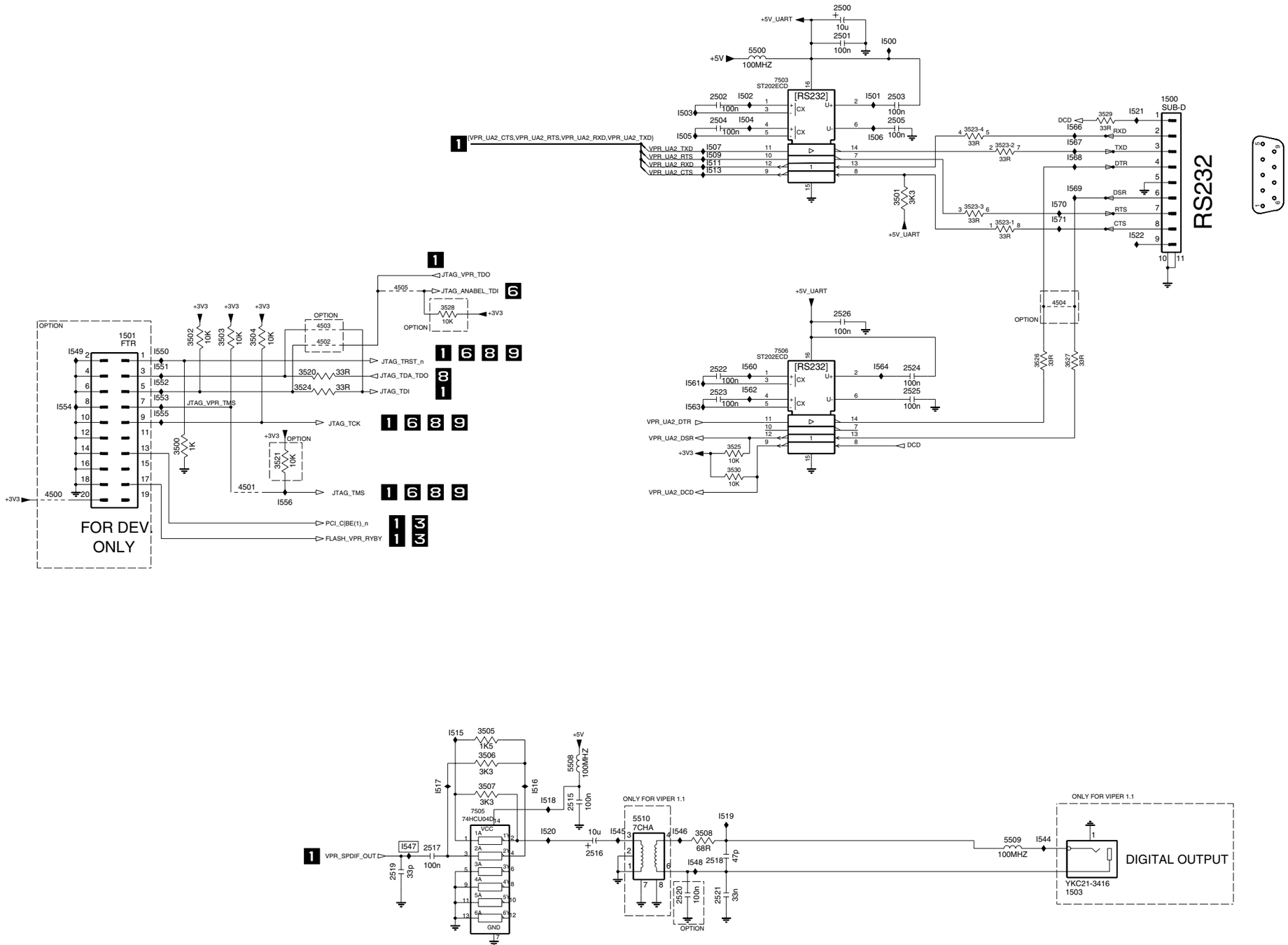


3104 123 4360.3

CL 36532080_044.eps
121203

IBO+ Panel : Interface

K 5 INTERFACE



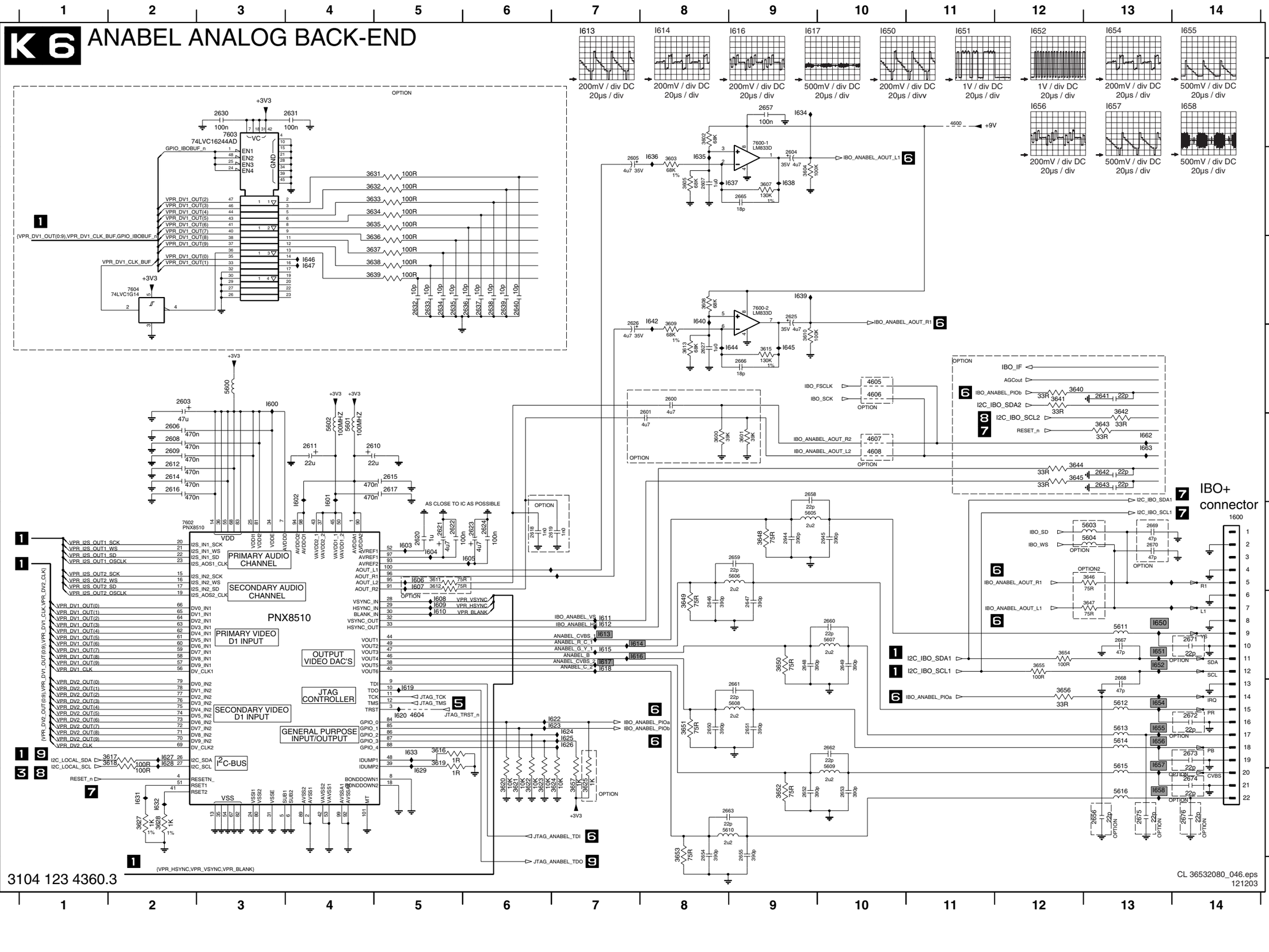
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CL 36532080_045.eps
051203

1500 A12
1501 D2
1503 I11
2500 A9
2501 A9
2502 A8
2503 A9
2504 B8
2505 B9
2515 H7
2516 H7
2517 H5
2518 H8
2519 I5
2520 I8
2521 I8
2522 D8
2523 D8
2524 D10
2525 D10
2526 C9
3500 E3
3501 B10
3502 D3
3503 D3
3504 D4
3505 G6
3506 H6
3507 H6
3508 H8
3520 D4
3521 E4
3523-1 C10
3523-2 B10
3523-3 B10
3523-4 B10
3524 D4
3525 E8
3526 D11
3527 D11
3528 C5
3529 B11
3530 E8
4500 E2
4501 E4
4502 D4
4503 D4
4504 C11
4505 C5
5500 A8
5508 H7
5509 H11
5510 H7
7503 A8
7505 H6
7506 D8
I500 A9
I501 A9
I502 A8
I503 B8
I504 B8
I505 B8
I506 B9
I507 B8
I509 B8
I511 B8
I513 B8
I515 G5
I516 H6
I517 H5
I518 H6
I519 H8
I520 H6
I521 B12
I522 C12
I544 H11
I545 H7
I546 H7
I547 H5
I548 I8
I549 D2
I550 D3
I551 D3
I552 D3
I553 D3
I554 D2
I555 D3
I556 E4
I560 D8
I561 D8
I562 D8
I563 D8
I564 D9
I566 B11
I567 B11
I568 B11
I569 B11
I570 B11
I571 C11

IBO+ Panel : Anabel Analog Back-End

K 6 ANABEL ANALOG BACK-END



1600 F14	3648 F9	2663 I8	4600 A11
2600 D8	3649 G8	2665 B9	4604 H5
2601 E8	3650 G9	2666 D9	4605 D10
2603 D2	3651 H8	2667 G13	4606 D10
2604 B9	3652 I9	2668 H13	4607 E10
2605 B7	3653 I8	2669 F13	4608 E10
2606 E2	3654 G12	2670 F13	5600 D3
2607 B8	3655 G12	2671 G14	5601 E4
2608 E2	3656 H12	2672 H14	5602 E4
2609 E2	3657 I7	2673 H14	5603 F13
2610 E4	4600 A11	2674 I14	5604 F13
2611 E4	4604 H5	2675 I13	5605 F9
2612 E2	4605 D10	2676 I14	5606 F9
2614 E2	4606 D10	3600 E8	5607 G10
2615 E5	4607 E10	3601 E9	5608 H9
2616 E2	4608 E10	3602 A8	5609 I10
2617 E5	5600 D3	3603 B8	5610 I8
2618 F6	5601 E4	3604 B9	5611 G13
2619 F7	5602 E4	3605 B8	5612 H13
2620 F5	5603 F13	3607 B9	5613 H13
2621 F5	5604 F13	3608 C8	5614 H13
2622 F5	5605 F9	3609 D8	5615 I13
2623 F6	5606 F9	3610 D9	5616 I13
2624 F6	5607 G10	3611 F5	7600-1 A9
2625 C9	5608 H9	3612 F5	7600-2 C9
2626 D7	5609 I10	3613 D8	7602 F2
2627 D8	5610 I8	3615 D9	7603 A3
2630 A3	5611 G13	3616 H5	7604 C2
2631 A4	5612 H13	3617 H2	I600 D3
2632 C5	5613 H13	3618 H2	I601 E4
2633 C5	5614 H13	3619 H5	I602 E4
2634 C5	5615 I13	3620 I6	I603 F5
2635 C5	5616 I13	3621 I6	I604 F5
2636 C6	7600-1 A9	3622 I6	I605 F6
2637 C6	7600-2 C9	3623 I6	I606 F5
2638 C6	7602 F2	3624 I7	I607 G9
2639 C6	7603 A3	3625 I7	I608 G5
2640 C6	7604 C2	3627 I2	I609 G5
2641 D13	I600 D3	3628 I2	I610 G5
2642 E13	I601 E4	3631 B4	I611 G7
2643 E13	I602 E4	3632 B4	I612 G7
2644 F9	I603 F5	3633 B4	I613 G7
2645 F10	I604 F5	3634 B4	I614 G7
2646 G8	I605 F6	3635 B4	I615 G7
2647 G9	I606 F5	3636 C4	I616 G7
2648 G9	I607 F5	3637 C4	I617 G7
2649 G10	I608 G5	3638 C4	I618 G7
2650 H8	I609 G5	3639 C4	I619 H5
2651 H9	I610 G5	3640 D12	I620 H5
2652 I9	I611 G7	3641 D12	I622 H7
2653 I10	I612 G7	3642 E13	I623 H7
2654 I8	I613 G7	3643 E13	I624 H7
2655 I9	I614 G7	3644 E12	I625 H7
2656 I13	I615 G7	3645 E12	I626 H7
2657 A9	I616 G7	3646 F13	I627 H2
2658 E9	I617 G7	3647 G13	I628 H2
2659 F9	I618 G7		I629 I5
2660 G10	I619 H5		I631 I2
2661 H9	I620 H5		I632 I2
2662 H10	I622 H7		I633 H5
	I623 H7		I634 A9
	I624 H7		I635 B8
	I625 H7		I636 B8
	I626 H7		I637 B9
	I627 H2		I638 B9
	I628 H2		I639 C9
	I629 I5		I640 C8
	I631 I2		I641 F6
	I632 I2		I642 C8
	I633 H5		I643 F7
	I634 A9		I644 D9
	I635 B8		I645 D9
	I636 B8		I646 C4
	I637 B9		I647 C4
	I638 B9		I648 F13
	I639 C9		I649 G13
	I640 C8		I650 G13
	I641 F6		I651 G13
	I642 C8		I652 G13
	I643 F7		I653 H13
	I644 D9		I654 H13
	I645 D9		I655 H13
	I646 C4		I656 H13
	I647 C4		I657 H13
	I648 F13		I658 I13
	I649 G13		I662 E13
	I650 G13		I663 E13
	I651 G13		
	I652 G13		
	I653 H13		
	I654 H13		
	I655 H13		
	I656 H13		
	I657 H13		
	I658 I13		
	I662 E13		
	I663 E13		

IBO+ Panel : Power Supply

K 7 POWER SUPPLY

I/O EXPANDER

TO 1700 **S1** IBO POWER SUPPLY

** VIPER 1.0 = 330uF/25V

** VIPER 1.1 = 680uF/16V

I716 = 5V
I717 = 9V
I719 = 11V8
I725 = 1V8
I727 = 3V3
I753 = 5V
I765 = 3V3
I770 = 5V

1700 E2 I716 B14
1701-2 B1 I717 C4
1702 E3 I718 B8
1703 G2 I719 E3
2700 D5 I720 E3
2701 D4 I721 E3
2702 A6 I722 C13
2703 C14 I723 D4
2704 A8 I724 D5
2705 A12 I725 C13
2706 A14 I727 F3
2707 D13 I728 F2
2708 A9 I729 D11
2709 A10 I730 D9
2710 D10 I737 H8
2711 E4 I744 H7
2712 H3 I747 G13
2713 H4 I751 G12
2714 G6 I752 G13
2715 H13 I753 G14
2716 H13 I755 H8
2717 H14 I756 H12
2718 F8 I765 I13
2719 F12 I766 I11
2720 A11 I767 I9
2722 F13 I770 H4
2724 I12 I773 I3
2725 F9 I774 I3
2726 F10 I775 I3
2727 G2 I776 I4
2728 I10 I777 H3
2732 D13 I784 I3
2734 I14 I785 I3
2735 C8 I786 I3
2736 H8 I787 I4
2737 I12 I788 H3
2738 D12
2739 I13
2740 D14
2741 E2
2742 C14
2743 H13
2744 E11
3706 A1
3707 A1
3708 A1
3709 D5
3710 D5
3711 B13
3712 C13
3714 B6
3715 C8
3716 C12
3717 B6
3718 D9
3719 D11
3724 C7
3726 C7
3728 H13
3731 H12
3732 H8
3733 G12
3735 F2
3737 I9
3738 I11
3740 H7
3742 H7
3744 H14
3745 H14
3746 I14
4700 B1
4702 B1
4709 C12
4710 D12
4711 D12
4712 C13
5700 A6
5701 B13
5702 D13
5703 E4
5704 H2
5705 F6
5706 G13
5709 I13
5710 C14
5711 D14
5712 I13
5713 A11
5714 E11
5715 I13
6700 A11
6701 F11
6702 G3
7700 C4
7701-A A7
7701-B B7
7702 D4
7703-A B13
7703-B A13
7704-A F6
7704-B G7
7705 A8
7706-A G12
7706-B F13
7707 A3
7708 G14
7710 F2
7712 F8
I700 C12
I701 A2
I704 C13
I705 A2
I706 B2
I707 C8
I709 C7
I712 E2
I713 E2
I715 B12

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IBO+ Panel : Front End

K 8 FRONT END

TUNER

1800 TD1316L

FROM MAIN TUNER A4

RF IN

RF/MOD OUT

MT

LB

MB

HB

OSC

PLL

SCL

SDA

XTAL

IF-OUT

IF-AGC

IF-1

IF-2

RF-OUT

VID

AUD

VMOD

NC

AGC

VTUN

4800 OPTION

I809

5800 +5Vclean

2813 47u 16V

2814 100n

3816 100R

3817 100R

4MHz

I810

I811

I807 = 0V
I833 = 1V8

I810

100mV / DIV ac
250ns / div

+1V8FE

+3V3FE

+3V3

5803

2800 100n

2801 100n

2802 100n

2803 100n

2804 100n

2805 100n

2806 100n

2807 47u 16V

2808 100n

2809 100n

2810 100n

2811 100n

2812 100n

2824 47u 16V

7800 TDA10046HT

VDD33_ADC
VDDA33_ADC
VDD18_PLL_ADC
VDDA18_PLL
VDDA18_OSC
VDDI18_4
VDDI18_3
VDDI18_2
VDDI18_1
VDDE33_3
VDDE33_2
VDDE33_1

+5Vclean

3802 4K7 OPTION

3825 4K7

1

RESET_FE_n

I812

3800 1K0

CLR_
AGC_TUN
AGC_IF
VIP
VIM
XIN
XOUT
GPIO0
GPIO1
GPIO2
GPIO3
SADDR0
SADDR1
SDA
SCL
SDA_TUN
SCL_TUN
TEST

COFDM
CHANNEL DECODER

I2C

MPEG-TS (SERIAL) JTAG

TDO
TDI
TMS
TCK
TRST
ENSERI

JTAG_TDA_TDO
JTAG_STV_TDO
JTAG_TMS
JTAG_TCK
JTAG_TRST_n

4809

4810 4811 4812 4813 OPTION

MPEG-TS (SERIAL)

S_DO
S_OCLK
S_DEN
S_PSYNC
S_UNCOR

I800
I801
I802
I804
I806

MPEG-TS (PARALLEL)

DO0 DO1 DO2 DO3 DO4 DO5 DO6 DO7
OCLK
DEN
PSYNC
UNCOR
SACLK

3828-4 3828-3 3828-2 3828-1 3829-4 3829-3 3829-2 3829-1 3830-1 3830-2 3830-3 3830-4 33R

I821 I822 I823 I824 I826 I828 I830 I831 I825 I829 I832 I835 I834

TDA_DAT(0)
TDA_DAT(1)
TDA_DAT(2)
TDA_DAT(3)
TDA_DAT(4)
TDA_DAT(5)
TDA_DAT(6)
TDA_DAT(7)
TDA_CLK
TDAVALID
TDASYNC
TDA_ERR

{TDA_DAT(0:7),TDA_CLK,TDAVALID,TDASYNC,TDA_ERR}

VSS_ADC
VSS_PLL_ADC
VSSA_ADC
VSSA_OSC
VSS7
VSS8
VSS5
VSS4
VSS3
VSS2
VSS1

8 COMP_OUT

2827 100n

3826 100K

4808 OPTION

I813

4807

I814

2816 100n

3804 100K

3824 1K0

2826 100n

2817 100n

2818 100n

3822 220R

I817

1801 CX-49G 4M00

2829 10p

3808 10K

3809 100K

3821 10p

2819 33p

2820 33p

I803

I805

I807

I808

3831 10K

3832 470R

LOCK

6800 LTL-1CHPE

9

1 3 6

I2C ADDRESS BITS

CA1	CA0	R1	R2
0	0	NC	0E
0	1	NC	NC
1	0	10K	10K
1	1	0E	NC

6 I2C_IBO_SDA2 4805

6 I2C_IBO_SCL2 4806

I818

I819

3810 100R

3813 100R

3818 100R

3819 100R

I2C_LOCAL_SDA

I2C_LOCAL_SCL

3811 2K7

3812 2K7

+5V

+5Vclean

R1 OPTION

R2

3806 4K7

3807 4K7

I816

7803-A LM393D

7803-B LM393D

3827 4K7

2828 100n

3826 100K

2827 100n

4808 OPTION

3838 680K

3839 220K

3840 330R

3841 390R

3801 680K OPTION

3805 100K OPTION

2815 100n

5801

2821 100n

3821 100R

3820 10K

7801 M24C256

4803

4804

3815 10K

I827

+3V3FE

3814 4K7

I820

4802

TEST MODE	OPERATION MODE
JMP	NOT MOUNTED	MOUNTED
4K7	MOUNTED	NOT MOUNTED

EEPROM

5802

2825 100n

7802 LD1117

ADJ

2822 10u 16V

2823 10u 16V

I833

3835 120R

3836 27R

3837 27R

2830

OPTION

3104 123 4360.3

CL 36532080_048.eps
121203

1800 A1
1801 F6
2800 C8
2801 C9
2802 C9
2803 C10
2804 C10
2805 C10
2806 C11
2807 C11
2808 C8
2809 D8
2810 D10
2811 D11
2812 D11
2813 C3
2814 C4
2815 E6
2816 E5
2817 E8
2818 F7
2819 F5
2820 F6
2821 H5
2822 I11
2823 I13
2824 D11
2825 I10
2826 E7
2827 E2
2828 F1
2829 F4
2830 I12
2831 F5
3800 E8
3801 E4
3802 E7
3804 E7
3805 E4
3806 F3
3807 G3
3808 F5
3809 F5
3810 G7
3811 G6
3812 G6
3813 G7
3814 H7
3815 I5
3816 C4
3817 C4
3818 G7
3819 H7
3820 H6
3821 H6
3822 F6
3824 E7
3825 E7
3826 E2
3827 E1
3828-1 G11
3828-2 G11
3828-3 G11
3828-4 G11
3829-1 G11
3829-2 G11
3829-3 G11
3829-4 G11
3830-1 G11
3830-2 G11
3830-3 H11
3830-4 H11
3831 F7
3832 F8
3835 I12
3836 I12
3837 I12
3838 D4
3839 D5
3840 D6
3841 D6
4800 C3
4802 I7
4803 I5
4804 I5
4805 G4
4806 H4
4807 E5
4808 E3
4809 E12
4810 F11
4811 F11
4812 F11
4813 F11
5800 C3
5801 H5
5802 I10
5803 C10
6800 G7
7800 D8
7801 H5
7802 H12
7803-A E1
7803-B H2
7804 D5
I800 F11
I801 F11
I802 F11
I803 F8
I804 F11
I805 F8
I806 F11
I807 F8
I808 G8
I809 C3
I810 C5
I811 C5
I812 E8
I813 E4
I814 E5
I815 E7
I816 G4
I817 F7
I818 G5
I819 H5
I820 H7
I821 G12
I822 G12
I823 G12
I824 G12
I825 G12
I826 G12
I827 I5
I828 G12
I829 G12
I830 G12
I831 G12
I832 G12
I833 I13
I834 H11
I835 H12

IBO+ Panel : PCMCIA Interface

K9 PCMCIA INTERFACE

PCMCIA CONTROLLER

7902 STV0700

I²C INTERFACE

TS INTERFACE

INTERRUPTS MANAGEMENT

UCSG

I970 = 4V7

CURRENT SWITCH

7904 ST890D

7905 FXO-31FT 27MHz

LATCH 7900 74LVC573ADB

LATCH 7901 74LVC573ADB

LATCH 2901 74LVC573ADB

68p PCMCIA CONNECTOR

BUS TRANSCEIVER 7903 74LVC245APW

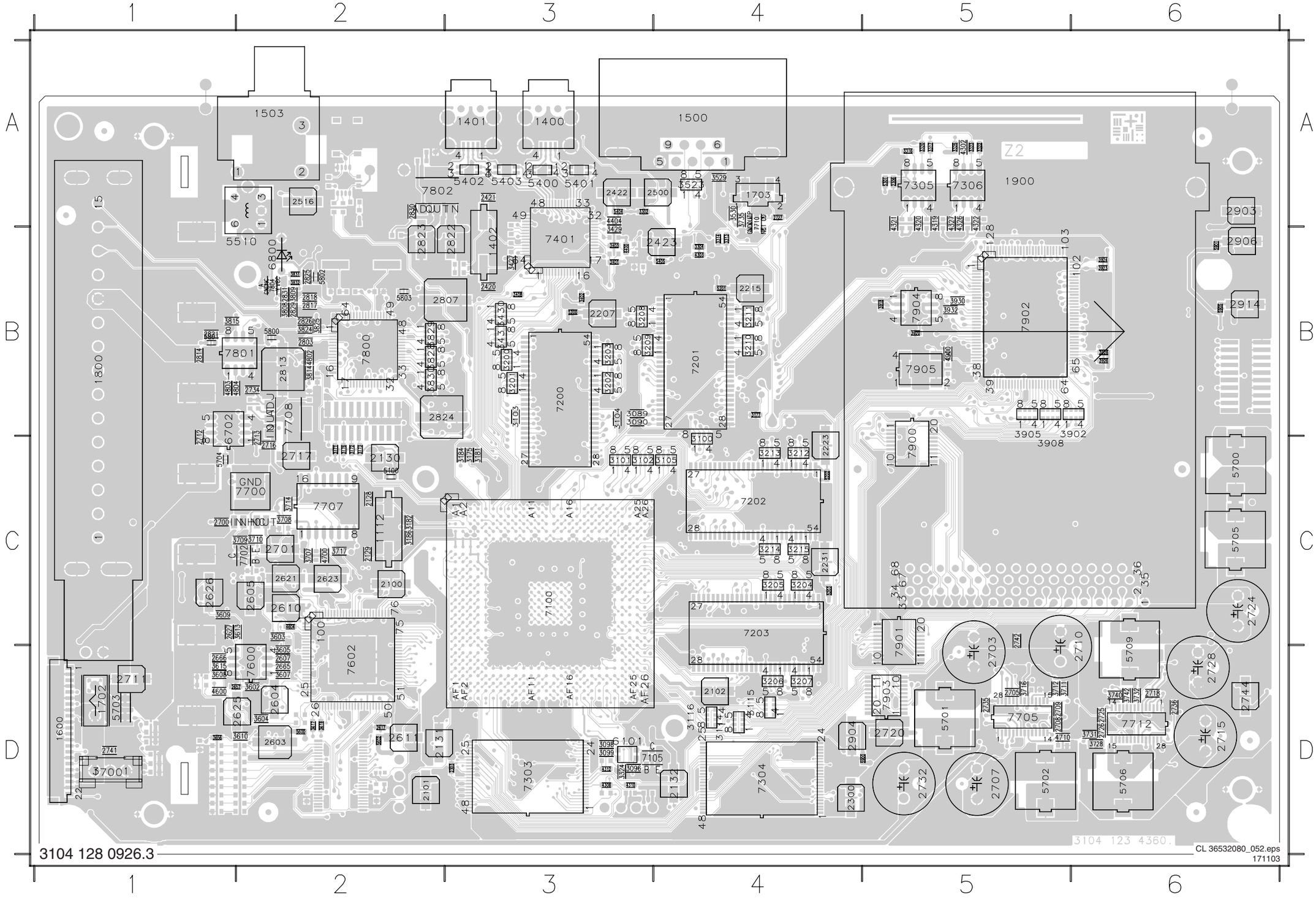
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CL 36532080_049.eps 121203

Layout IBO+ Panel (Top Side)

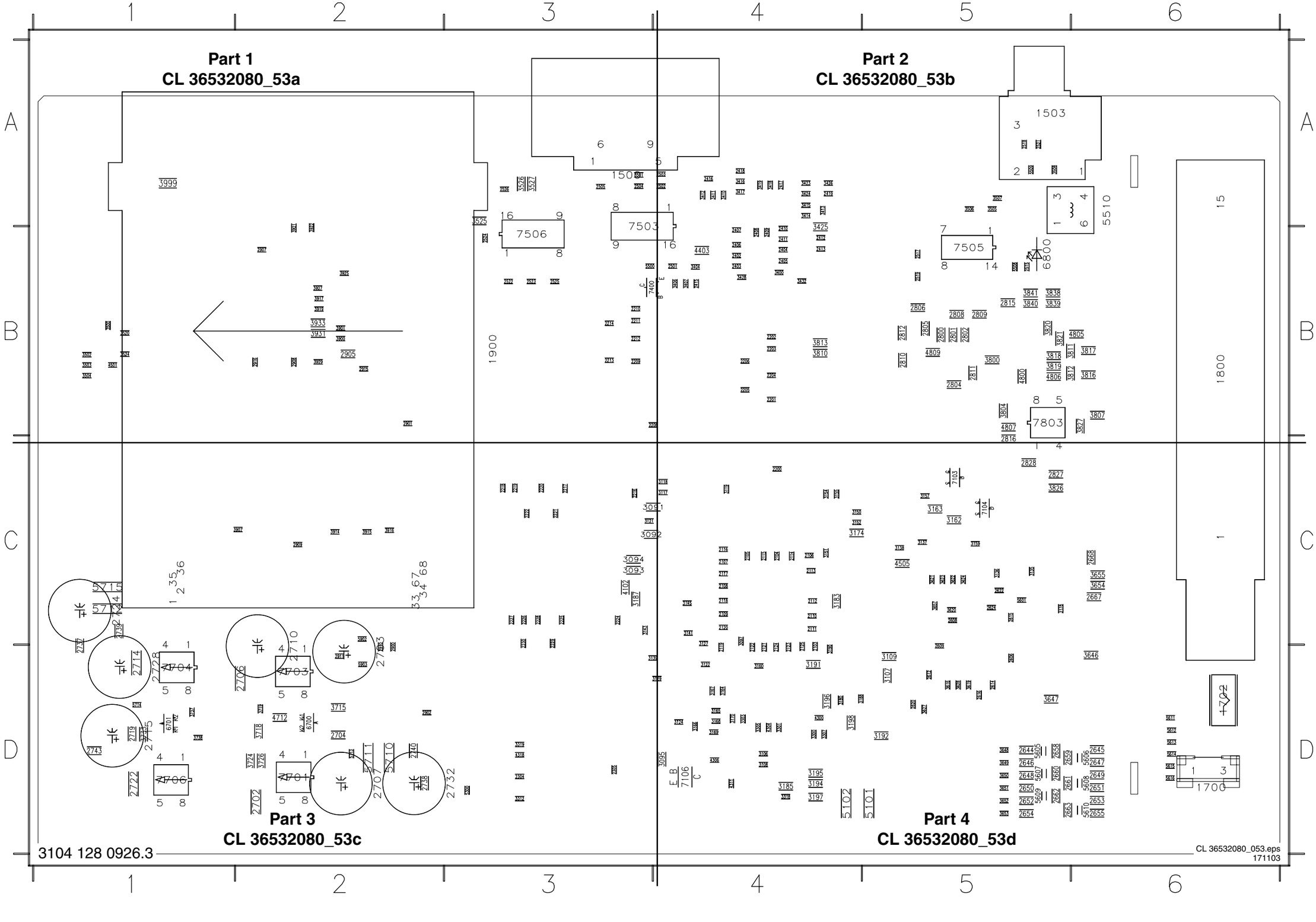
0005 D1 1111 B2 1600 D1 2102 D4 2300 D4 2500 A3 2623 C2 2636 D1 2665 D2 2703 D5 2716 C2 2734 B2 2817 B2 2829 B2 3098 D3 3116 D4 3177 B4 3205 C4 3215 C4 3317 A5 4317 A5
0006 C1 1112 C2 1700 D1 2128 C2 2301 A2 2516 A2 2625 D1 2637 D1 2666 D1 2705 D5 2717 C2 2735 D5 2818 B2 2830 A2 3099 D3 3147 D3 3181 C3 3206 D4 3302 A3 3320 A5 4319 A5
0007 C1 1300 A2 1701 D1 2129 C2 2302 A2 2603 D2 2626 C1 2638 D1 2671 D1 2707 D5 2718 D6 2736 D6 2819 B2 2831 B2 3100 C4 3148 D3 3182 C2 3207 D4 3304 B4 3322 A5 4320 A5
0008 C1 1301 B4 1702 D1 2130 C2 2303 D2 2604 D2 2627 C1 2639 D1 2672 D1 2708 D5 2720 D5 2741 D1 2820 B2 2903 A6 3101 C3 3153 B3 3184 C3 3208 B3 3306 A2 3323 A5 4321 A5
0009 B1 1400 A3 1703 A4 2131 D2 2306 A5 2605 C2 2630 D2 2640 D1 2673 D1 2709 D5 2724 C6 2742 C5 2821 B1 2904 D4 3102 C3 3156 B5 3186 C2 3209 B3 3308 A2 3324 D3 4322 A5
0010 B1 1401 A3 1800 B1 2132 D4 2414 B3 2607 D2 2631 D2 2641 C2 2674 D1 2710 D5 2725 D6 2744 D6 2822 B2 2906 B6 3103 B3 3171 C2 3200 B3 3210 B4 3309 A2 3325 A5 4323 A5
0011 B1 1402 B3 1801 B2 2207 B3 2420 B3 2610 C2 2632 D1 2642 D1 2675 D1 2711 D1 2726 D6 2803 B2 2823 B2 2914 B6 3104 B3 3172 C2 3201 B3 3211 B4 3310 A2 3401 B3 4324 A5
1101 D3 1500 A4 1900 A5 2215 B4 2421 A3 2611 D2 2633 D1 2643 D1 2676 D1 2712 C1 2727 A4 2807 B2 2824 B2 3089 B3 3105 C4 3173 C2 3202 B3 3212 C4 3313 B4 3402 B3 4325 A5
1106 B4 1501 B6 2100 C2 2223 C4 2422 A3 2617 D2 2634 D1 2656 D1 2700 C1 2713 C2 2728 D6 2813 B2 2825 B2 3090 B3 3114 D4 3175 C3 3203 B3 3213 C4 3314 B4 3403 B3 4326 A5
1110 D2 1503 A2 2101 D2 2231 C4 2423 B3 2621 C2 2635 D1 2657 D1 2701 C2 2715 D6 2732 D5 2814 B1 2826 B2 3096 D3 3115 D4 3176 C2 3204 C4 3214 C4 3316 A5 4316 A5

3405 B3 4327 A5
3408 B3 4400 B3
3409 B3 4401 B3
3420 B3 4402 B3
3422 B3 4404 A3
3427 B3 4600 D1
3429 B3 4604 C2
3430 B3 4700 C2
3431 B3 4702 C2
3523 A4 4709 D5
3529 A4 4710 D5
3530 A4 4711 D5
3602 D2 4802 B2
3603 C2 4803 B1
3604 D2 4804 B1
3605 D2 4813 B2
3607 D2 4900 B5
3608 D1 5100 C2
3609 C1 5200 B3
3610 D1 5201 B4
3615 C1 5202 C4
3615 D1 5203 C4
3617 D2 5301 A5
3618 D2 5400 A3
3631 D1 5401 A3
3632 D1 5402 A3
3633 D1 5403 A3
3634 D1 5404 A3
3635 D1 5405 B3
3636 D1 5510 B1
3637 D1 5600 D2
3638 D1 5602 D2
3639 D1 5700 C6
3644 D2 5701 D5
3645 D2 5702 D5
3656 D1 5703 D1
3706 C2 5704 C1
3707 C2 5705 C6
3708 C2 5706 D6
3709 C1 5709 D6
3710 C2 5800 B2
3711 D5 5801 B1
3712 D5 5802 B2
3714 C2 5803 B2
3716 D5 5900 D4
3717 C2 5901 B6
3728 D6 5905 B6
3731 D6 6101 D3
3732 D6 6300 A2
3735 A4 6702 B1
3740 D6 6800 B2
3742 D6 7100 C3
3744 B2 7105 D3
3745 B2 7200 B3
3746 B2 7201 B4
3808 B2 7202 C4
3809 B2 7203 C4
3814 B2 7302 A2
3815 B1 7303 D3
3822 B2 7304 D4
3824 B2 7305 A5
3825 B2 7306 A5
3828 B2 7401 B3
3829 B2 7600 D2
3830 B2 7602 D2
3831 B2 7603 D2
3835 B2 7604 D2
3836 A2 7700 C2
3837 A2 7702 C1
9002 B5 7705 D5
9005 B5 7707 C2
9006 C5 7708 B2
9018 B5 7710 A4
9920 B5 7712 D6
9923 B6 7800 B2
9924 B6 7801 B1
9926 B6 7802 A2
9928 B6 7804 B2
9930 B5 7900 C5
9932 B5 7901 C5
4302 A5 7902 B5
4303 B4 7903 D5
4308 D3 7904 B5
4309 D3 7905 B5
4310 D3
4312 D3
4313 D3
4315 A5



Layout IBO+ Panel (Overview Bottom Side)

2103 D4 2104 C4 2105 C4 2106 C4 2107 C4 2108 C4 2109 C4 2110 C4 2111 C4 2112 C4 2113 C4 2114 C4 2115 C4 2116 C4
2117 C4 2118 C4 2119 D4 2120 C4 2121 D4 2122 D4 2123 D4 2124 D4 2125 D4 2200 C4 2201 B4 2202 B4 2203 B4 2204 B4
2205 B4 2206 B4 2208 B4 2209 B3 2210 B3 2211 B3 2212 B3 2213 B3 2214 B3 2216 C3 2217 C3 2218 C3 2219 C3 2220 C3
2221 C3 2222 C3 2224 C3 2225 C3 2226 C3 2227 C3 2228 C3 2229 C3 2230 C3 2304 D3 2305 D3 2402 B4 2403 B4 2404 B4
2405 B4 2406 B4 2407 B4 2408 B4 2409 B4 2410 B4 2411 B4 2412 B4 2413 B4 2415 B4 2416 A4 2417 A4 2418 A4 2419 A4
2501 B4 2502 A4 2503 A4 2504 A3 2505 A3 2515 B5 2517 B5 2518 A5 2519 B5 2520 A5 2521 A5 2522 B3 2523 B3 2524 B3
2525 B3 2526 A3 2600 D5 2601 C5 2606 D5 2608 C5 2609 D5 2612 D5 2614 D5 2615 C5 2616 D5 2618 C5 2619 C5 2620 D5
2622 C5 2624 D5 2644 D5 2645 D6 2646 D5 2647 D6 2648 D5 2649 D6 2650 D5 2651 D6 2652 D5 2653 D6 2654 D5 2655 D6
2658 D5 2660 D5 2661 D5 2662 D5 2663 D5 2667 C6 2668 C6 2669 C6 2670 D5 2702 D2 2704 D2 2706 D2 2714 D1
2719 D1 2722 D1 2737 D1 2738 D2 2739 C1 2740 D2 2743 D1 2800 B5 2801 B5 2802 B5 2804 B5 2805 B5 2807 B5 2808 B5
2809 B5 2810 B5 2811 B5 2812 B5 2815 B5 2816 C5 2827 C5 2828 C5 2900 D2 2901 B2 2902 D2 2905 B2 2907 B2 2908 B2
2909 C2 2910 D2 2911 D2 2915 B2 2916 B2 3091 C4 3092 C3 3093 C3 3094 C3 3095 D4 3097 C4 3106 D4 3107 D5 3108 D4
3109 D5 3117 C4 3118 C4 3119 C4 3120 C4 3121 C3 3122 D4 3123 D4 3124 D4 3125 D4 3127 C4 3128 D4 3129 D4 3130 D3
3131 D5 3132 D5 3133 C5 3134 C5 3135 C5 3136 C5 3137 C5 3138 C5 3139 D3 3140 D3 3141 C4 3142 C4 3143 C3 3144 C4
3145 C4 3146 C4 3150 C4 3151 C4 3152 C4 3154 C4 3155 C4 3157 C5 3158 C5 3159 C5 3160 D4 3161 C5 3162 C5 3163 C5
3164 D4 3165 D4 3166 D4 3167 D4 3168 D4 3169 D4 3170 D4 3174 C4 3178 C5 3180 D4 3183 C4 3185 D4 3188 D4
3189 D5 3190 D4 3191 D4 3192 D5 3193 D5 3194 D4 3195 D4 3196 D4 3197 D4 3198 D4 3199 C5 3300 D4 3301 D4 3303 D4
3305 D4 3307 D4 3311 D3 3312 D3 3315 D3 3318 D4 3319 D3 3321 D4 3400 B4 3404 B4 3407 B4 3410 A4 3411 A4
3412 A4 3413 A4 3414 A4 3415 A4 3416 A4 3417 A4 3418 A4 3419 A4 3421 B4 3423 A4 3424 A4 3425 B4 3426 A4
3432 B4 3500 B1 3501 A3 3502 B1 3503 B1 3504 B1 3505 A5 3506 A5 3507 A5 3508 A5 3520 B1 3521 B1 3524 D1
3525 A3 3526 A3 3527 A3 3528 C5 3600 D5 3601 D5 3611 C5 3612 C5 3616 D5 3619 D5 3620 D5 3621 C5 3622 C5
3623 C5 3624 C5 3625 C5 3627 D5 3628 D5 3640 C5 3641 B6 3642 B6 3643 B6 3646 D6 3647 D5 3648 D5 3649 D5
3650 D5 3651 D5 3652 D5 3653 D5 3654 C6 3655 C6 3657 C6 3715 D2 3718 D2 3719 D2 3724 D2 3726 D2 3733 D1
3737 D1 3738 D1 3800 B5 3801 B5 3802 B5 3804 B5 3805 C5 3806 B6 3807 B6 3810 B4 3811 B5 3812 B5 3813 B4
3816 B5 3817 B5 3818 B5 3819 B5 3820 B5 3821 B5 3826 C5 3827 B6 3838 B5 3839 B5 3840 B5 3841 B5 3900 B2
3901 B2 3907 C2 3914 C2 3915 C2 3916 C2 3917 B2 3919 B2 3921 B2 3922 B2 3925 B2 3927 B2 3929 B2 3931 B2
3933 B2 3999 A1 4100 C5 4101 C5 4102 C3 4300 D4 4304 D4 4306 D4 4307 D4 4311 D4 4318 D3 4403 B4 4500 B1
4501 B1 4502 B1 4503 B1 4504 A1 4505 C5 4605 C6 4606 C6 4607 C6 4608 C6 4712 D2 4800 B5 4805 B5 4806 B5
4807 B5 4808 B5 4809 B5 4810 B5 4811 B5 4812 B5 5101 D5 5102 D4 5300 D3 5500 B5 5508 B5 5509 A5 5601 C6
5603 D6 5604 D5 5605 D5 5606 D6 5607 D5 5608 D6 5609 D5 5610 D6 5611 D6 5612 D6 5613 D6 5614 D6 5615 D6
5616 D6 5710 D2 5711 D2 5712 C2 5713 D2 5714 D1 5715 C1 5902 C2 5903 D2 6700 D2 6701 D1 7103 C5 7104 C5
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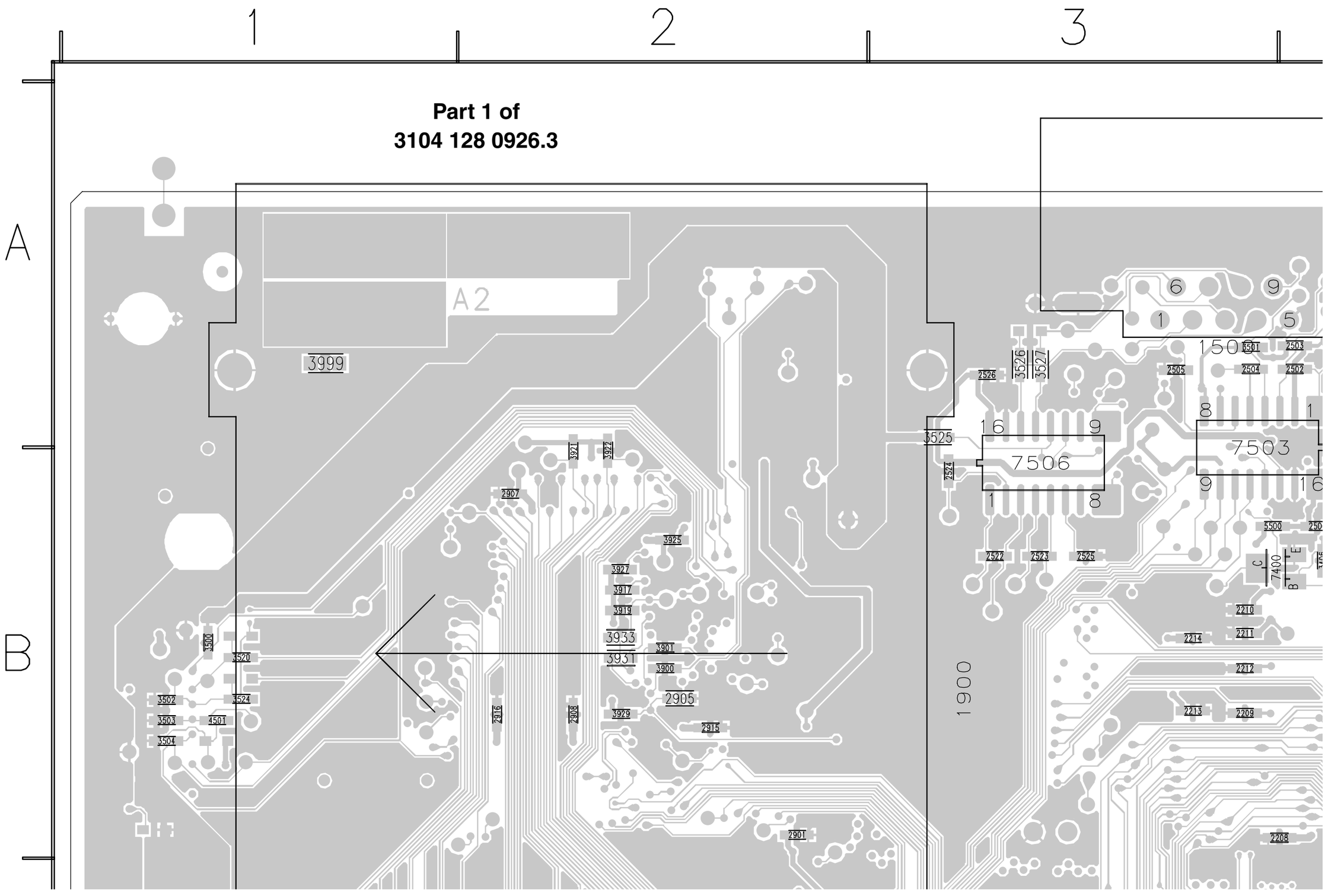


3104 128 0926.3

CL 36532080_053.eps
171103

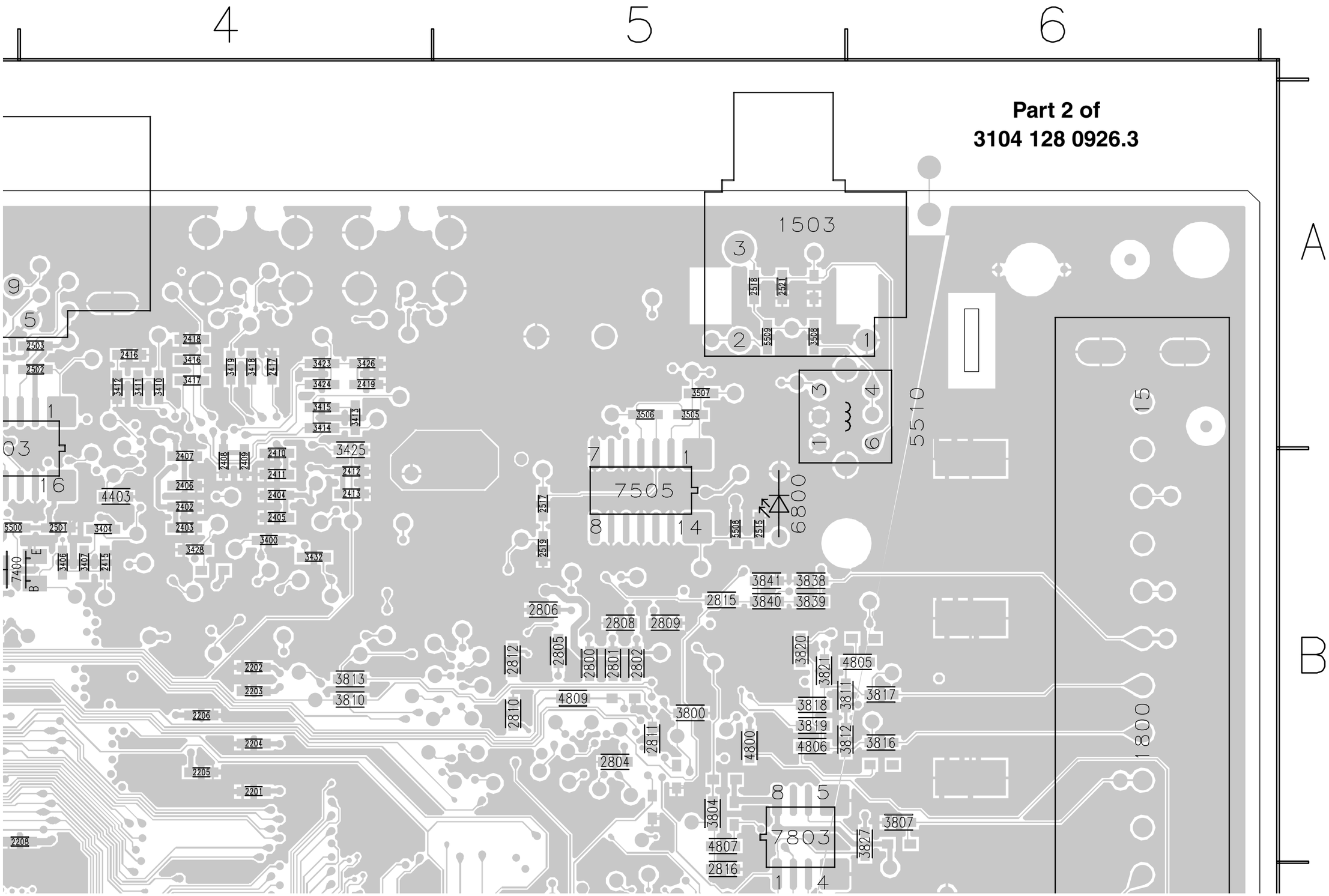
Layout IBO+ Panel (Part 1 Bottom Side)

Part 1 of
3104 128 0926.3



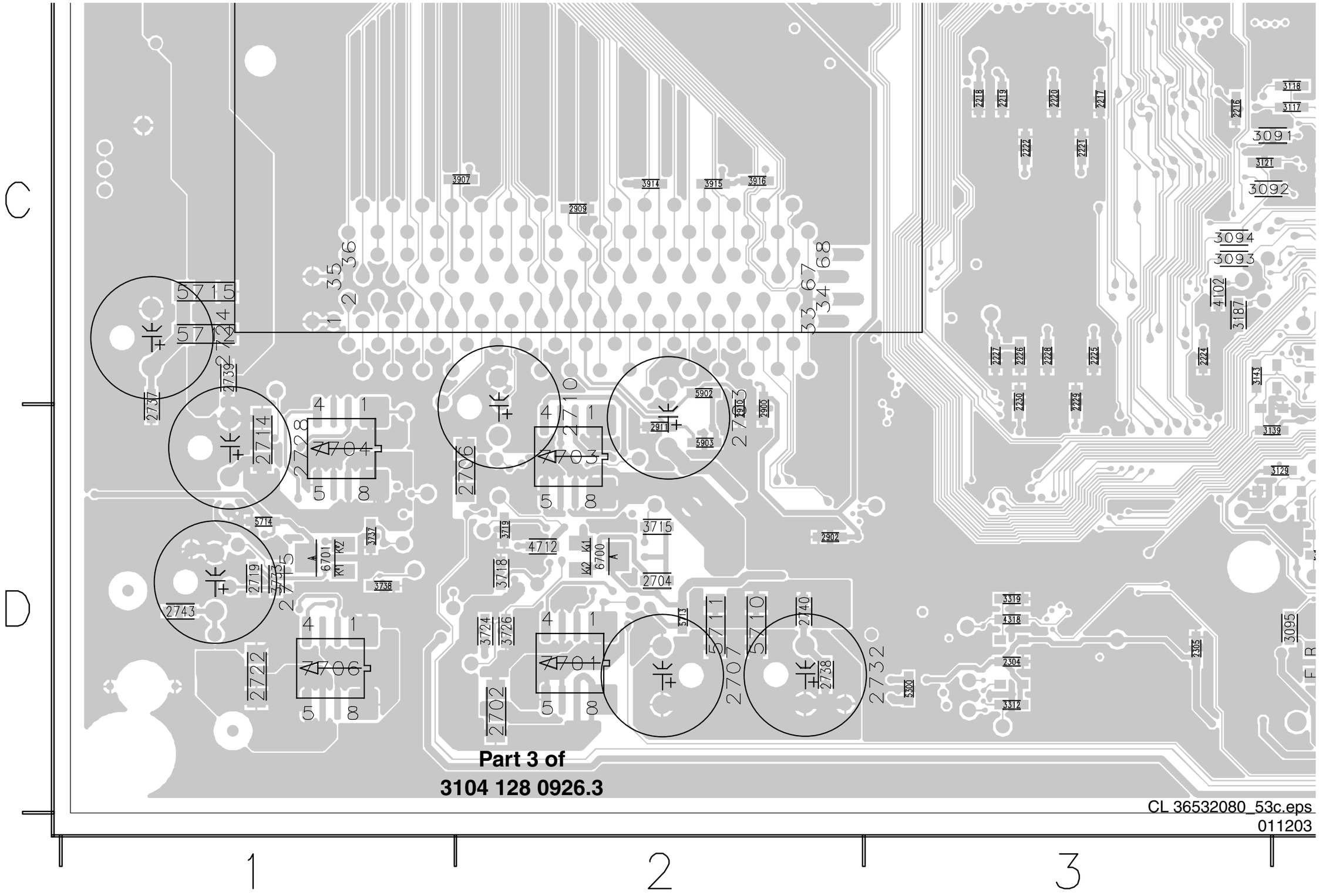
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011203

Layout IBO+ Panel (Part 2 Bottom Side)



CL 36532080_53b.eps
011203

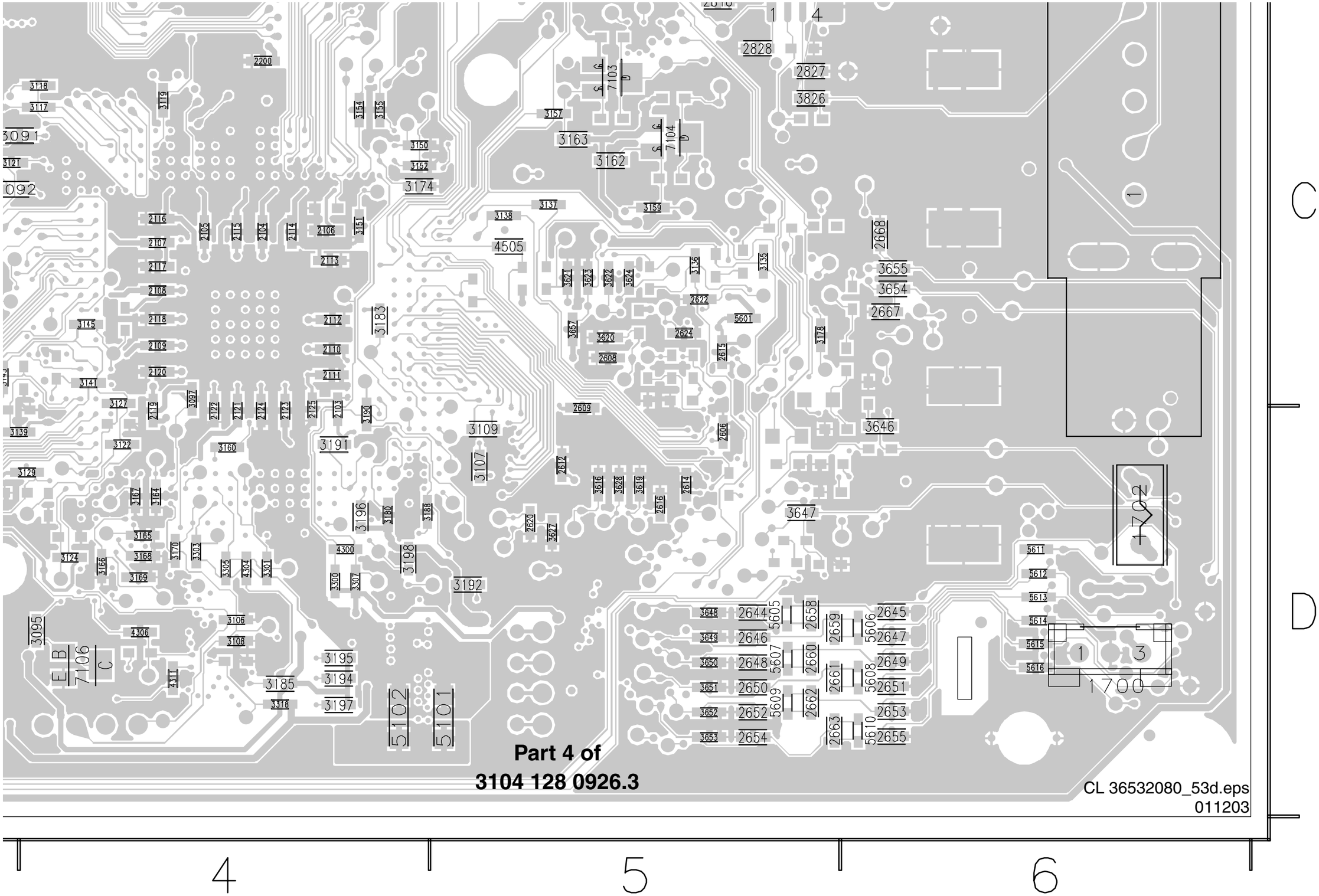
Layout IBO+ Panel (Part 3 Bottom Side)



Part 3 of
3104 128 0926.3

CL 36532080_53c.eps
011203

Layout IBO+ Panel (Part 4 Bottom Side)



Part 4 of
3104 128 0926.3

CL 36532080_53d.eps
011203

IBO+ Interface Panel: IBO+ Power Supply

S 1 IBO+ POWER SUPPLY

TO 0231 OF POWER SUPPLY

0231 A1 I009 C3
1700 B7 I010 C3
2901 B3 I011 B4
2902 B3 I017 F5
2903 D4 I027 B5
2904 D3 I028 B4
2905 B3 I031 D6
2906 C1 I035 E5
2907 C5 I037 E5
2908 C5 I038 E6
2909 E5 I039 D4
2910 E4
2911 C1
2912 C6
3901 B4
3902 B3
3903 C1
3904 B2
3905 B2
3906 C3
3907 D3
3908 D3
3909 B2
3910 D4
3911 E5
3912 D6
3913 E6
3915 D4
3917 F5
3918 F5
5900 A2
5901 C3
5902 C3
5903 B6
5904 B4
5905 B4
5906 A1
5907 B6
6901 B3
6902 B2
6903 C5
6904 B5
6906 E5
7901 E5
7902 C1
7903 E3
7905 F5
9903 C6
F001 A1
F002 A1
F004 A2
F005 A3
F006 B2
F007 B2
F008 B1
F009 C3
F010 C3
F011 E4
F013 F5
F023 B5
F024 B6
F025 E4
F027 E4
F028 F5
F032 D4
F033 F6
F041 C4
I001 A1
I002 A1
I003 B2
I004 B3
I005 B4
I006 B3
I007 B2
I008 C2

3139 123 5579.2

CL 36532080_050.eps
121203

IBO+ Interface Panel: Digital Interface

S2 DIGITAL INTERFACE

TO/FROM 0240 OF A10 SIDE IO D

TO/FROM 0240 OF A10 LSP A5

TO/FROM 1600 OF DIF. MODULE

TO/FROM 0205 OF SSB C2

TO/FROM 0239 OF A10 LSP A4

TO/FROM 0206 OF A10 LSP A1

7008 PCF8574AT

7040-A HEF4053BT

7040-B HEF4053BT

7040-C HEF4053BT

7041-A HEF4053BT

7041-B HEF4053BT

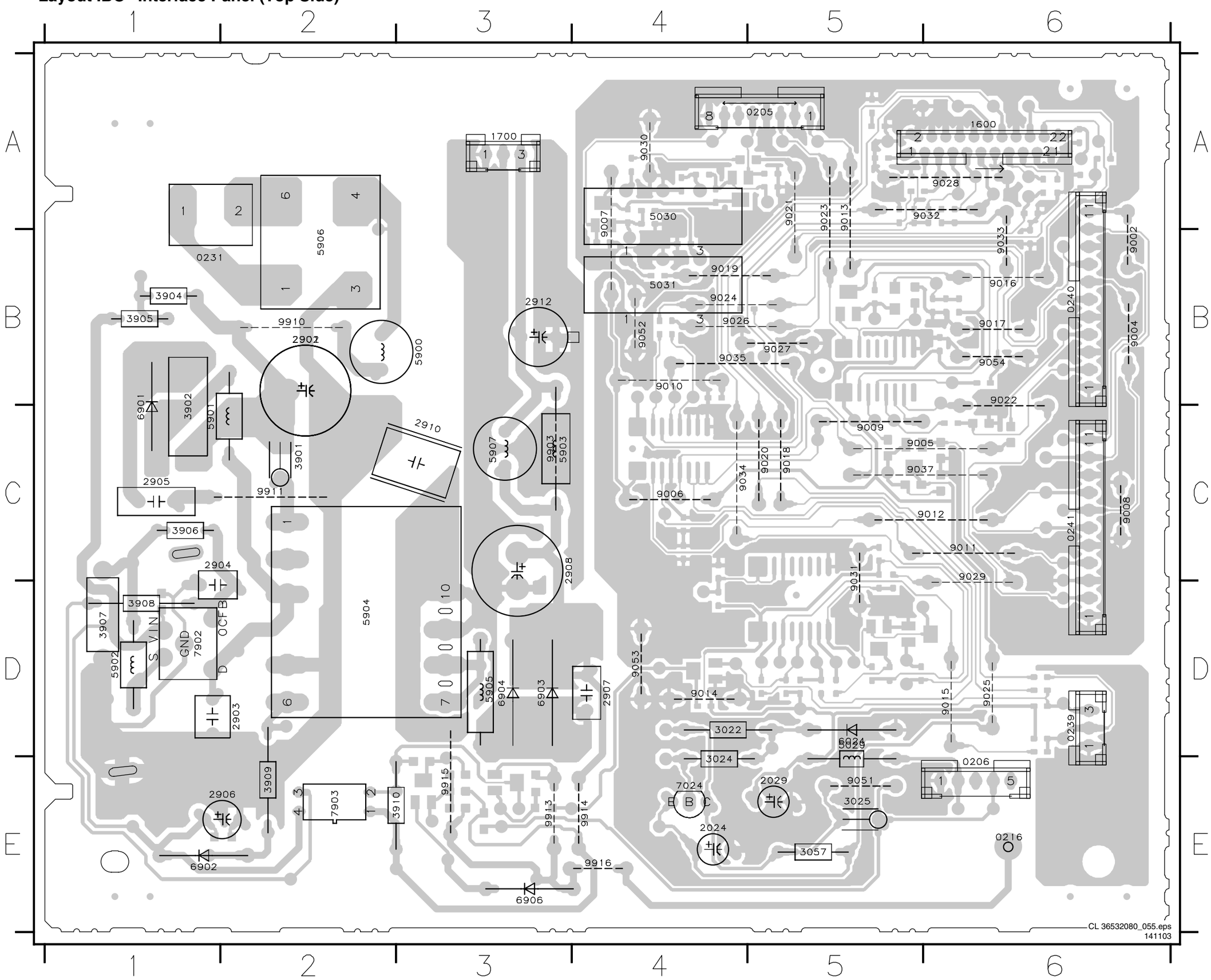
7041-C HEF4053BT

S1

CL 36532080_051.eps
011203

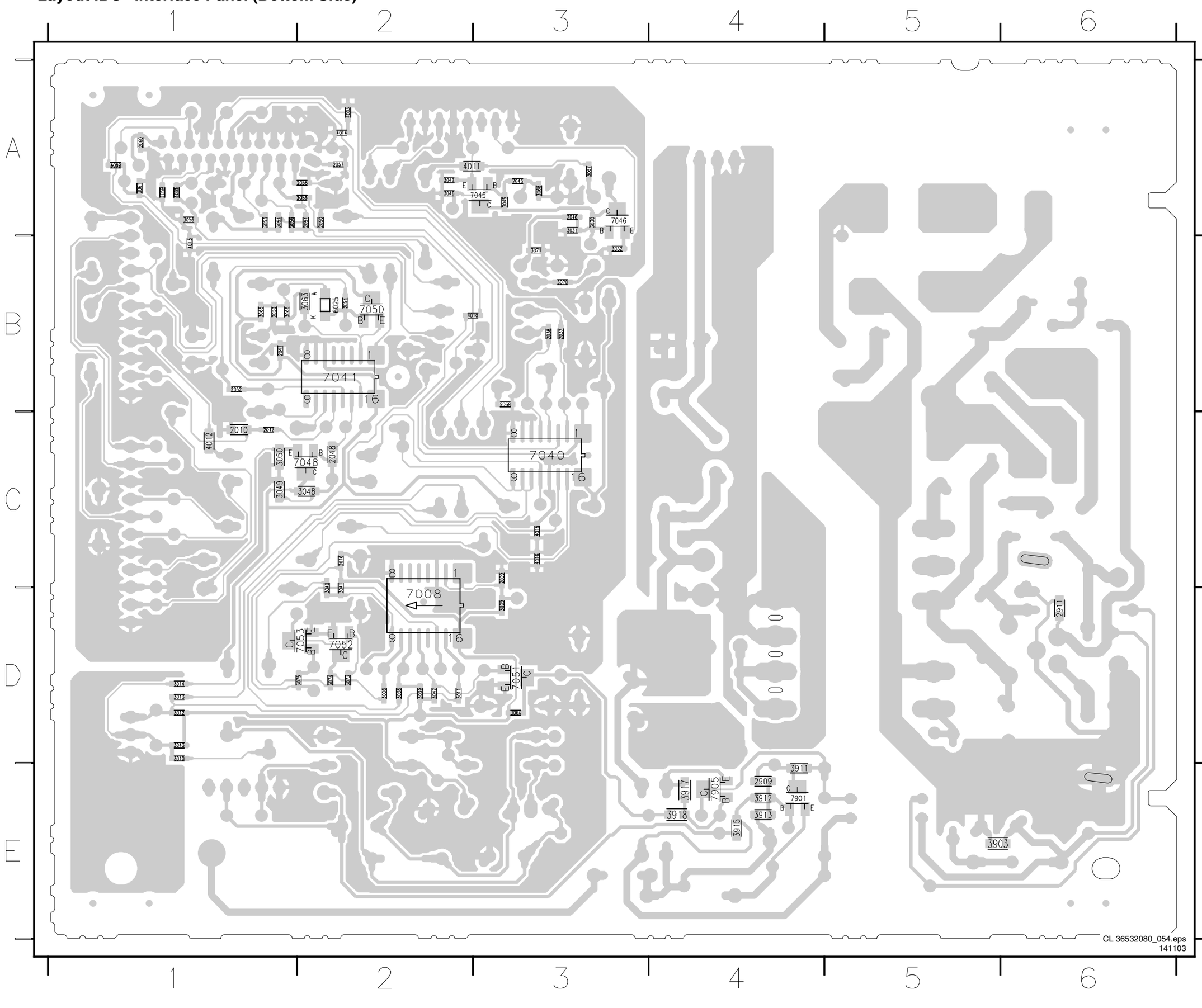
0205 F1
0206 E12
0216 G12
0239 C12
0240 A3
0241 A6
1600 B1
2009 C10
2010 B3
2012 D5
2016 D10
2024 E9
2029 E11
2037 B4
2038 C4
2039 B6
2041 E6
2045 E4
2046 F3
2048 F6
2050 C3
2051 C3
2052 D4
2053 F4
2054 G4
2055 B2
2056 C2
2057 B2
2058 C2
2059 E2
2060 F2
3008 A8
3009 B11
3010 C10
3011 C10
3012 B11
3013 B11
3014 B11
3022 F10
3024 F9
3025 E10
3030 F3
3031 F3
3032 F3
3038 D6
3039 C7
3040 G6
3041 C7
3042 C8
3043 B11
3045 E4
3046 E4
3047 E4
3048 F6
3049 F6
3050 F7
3051 C2
3052 C2
3053 D2
3054 D3
3055 D2
3056 D3
3057 E10
3059 E2
3061 E2
3063 G4
3064 E8
3065 F4
3066 F4
3067 D3
3068 D3
3070 E3
3071 E3
3073 A9
3074 A10
3075 A9
4001 E2
4002 E2
4003 F11
5029 E11
5030 D3
5031 E3
6024 F10
6025 F4
7008 B8
7024 E10
7040-A D5
7040-B B5
7040-C C5
7041-A E5
7041-B G5
7041-C F5
7045 E4
7046 F3
7048 F7
7050 G4
7051 E8
7052 A10
7053 A9
9051 E10
9052 G11
9053 F11
9054 G11

Layout IBO+ Interface Panel (Top Side)



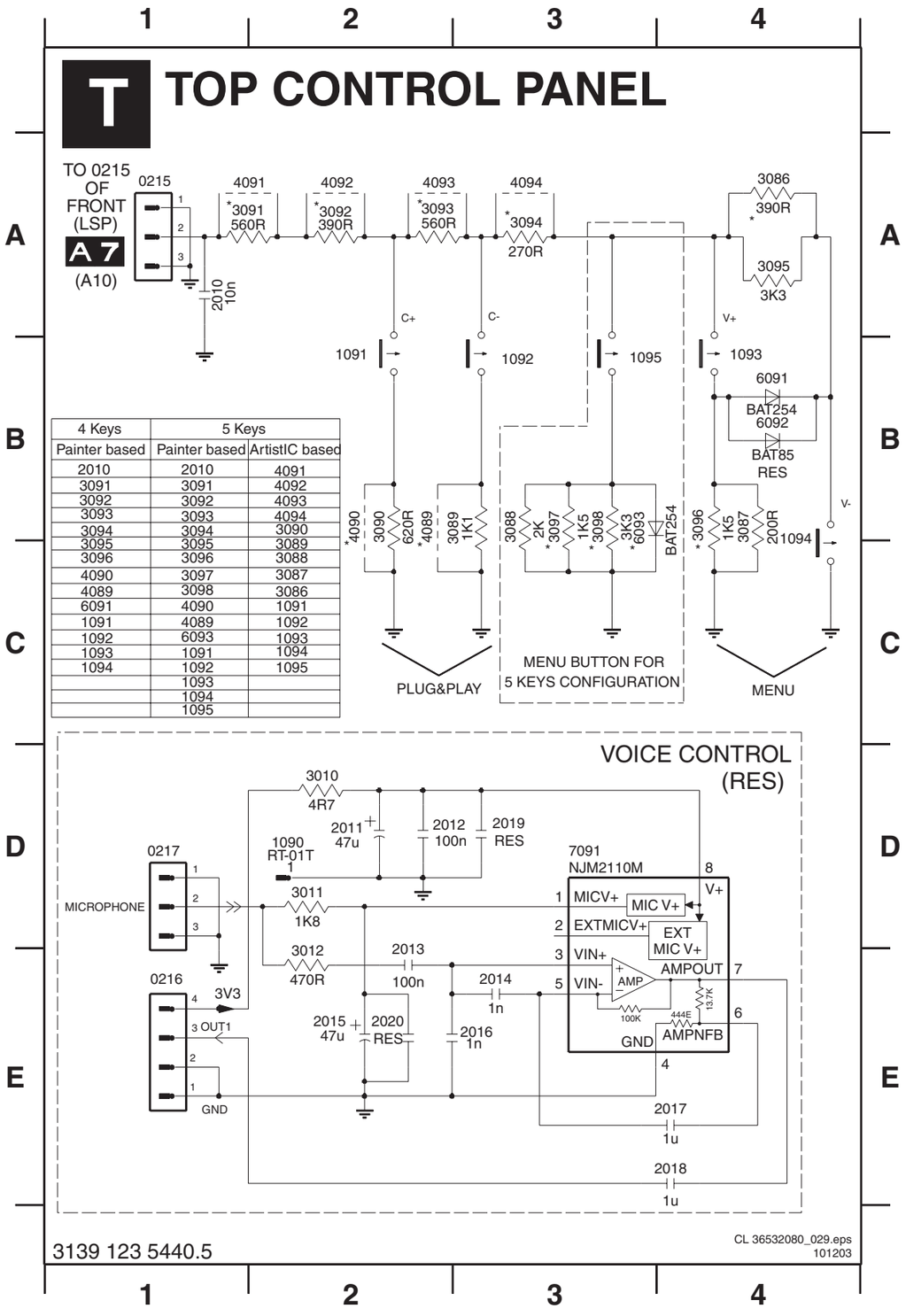
0205 A5
0206 E6
0216 E6
0231 B1
0239 D6
0240 B6
0241 C6
1600 A6
1700 A3
2024 E4
2029 E5
2901 B2
2902 B2
2903 D2
2904 C1
2905 C1
2906 E2
2907 D4
2908 C3
2910 C3
2912 B3
3022 D4
3024 E4
3025 E5
3057 E5
3901 C2
3902 C1
3904 B1
3905 B1
3906 C1
3907 D1
3908 D1
3909 E2
3910 E2
5029 D5
5030 A4
5031 B4
5900 B3
5901 C1
5902 D1
5903 C3
5904 D2
5905 D3
5906 B2
5907 C3
6024 D5
6901 C1
6902 E1
6903 D3
6904 D3
6906 E3
7024 E4
7902 D1
7903 E2
9002 B6
9004 B6
9005 C5
9006 C4
9007 A4
9008 C6
9009 C5
9010 B4
9011 C6
9012 C6
9013 A5
9014 D4
9015 D6
9016 B6
9017 B6
9018 C5
9019 B4
9020 C5
9021 A5
9022 B6
9023 A5
9024 B4
9025 D6
9026 B4
9027 B5
9028 A6
9029 C6
9030 A4
9031 C5
9032 A6
9033 B6
9034 C4
9035 B4
9037 C5
9051 E5
9052 B4
9053 D4
9054 B6
9903 C3
9910 B2
9911 C2
9913 E3
9914 E4
9915 E3
9916 E4

Layout IBO+ Interface Panel (Bottom Side)



2009 C3
2010 C1
2012 C1
2016 C2
2037 B3
2038 B3
2039 B3
2041 B1
2045 A3
2046 A3
2048 C2
2050 A2
2051 A2
2052 B1
2053 B1
2054 B2
2055 A2
2056 A1
2057 A2
2058 A2
2059 A1
2060 A1
2909 E4
2911 D6
3008 D2
3009 D3
3010 D1
3011 D2
3012 D1
3013 D1
3014 D1
3030 A3
3031 A3
3032 B3
3038 D2
3039 D2
3040 D2
3041 D2
3042 D2
3043 D1
3045 A3
3046 A2
3047 A2
3048 C2
3049 C1
3050 C1
3051 A2
3052 A1
3053 A1
3054 A1
3055 A1
3056 A1
3059 A1
3061 A1
3063 B2
3064 D3
3065 B1
3066 B1
3067 A3
3068 A3
3070 B3
3071 B3
3073 D2
3074 D2
3075 D2
3903 E5
3911 E4
3912 E4
3913 E4
3915 E4
3917 E4
3918 E4
4001 A1
4002 A1
4003 A2
4010 B2
4011 A2
4012 C1
4013 B1
4014 A2
4015 C3
4016 C3
6025 B2
7008 D2
7040 C3
7041 B2
7045 A3
7046 A3
7048 C2
7050 B2
7051 D3
7052 D2
7053 D2
7901 E4
7905 E4

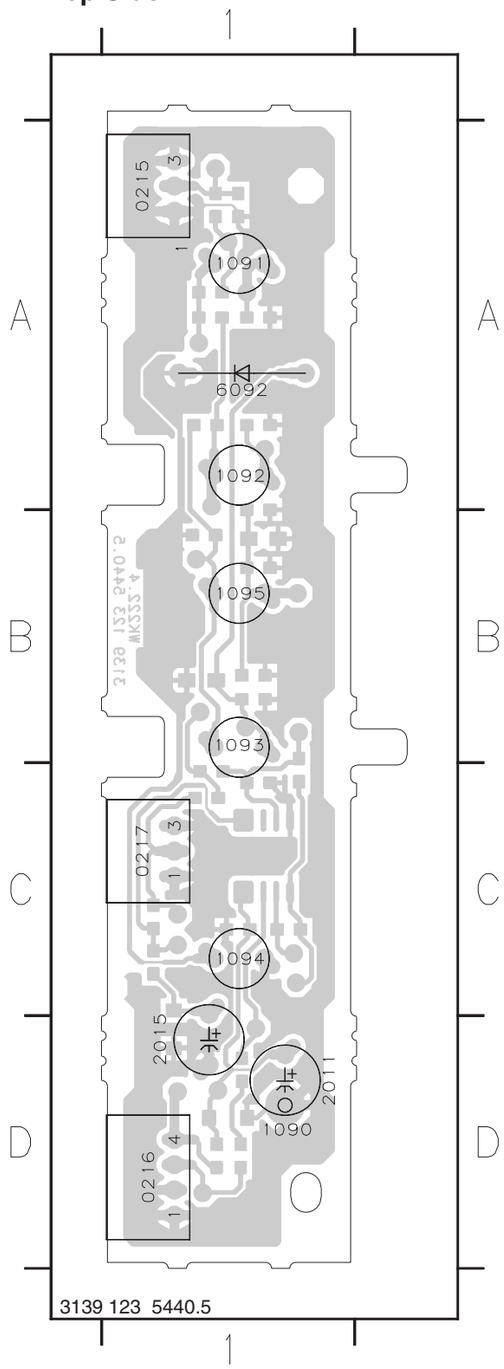
Top Control Panel



0215 A1
0216 E1
0217 D1
1090 D2
1091 B2
1092 B3
1093 B4
1094 B4
1095 B3
2010 A1
2011 D2
2012 D2
2013 E2
2014 E3
2015 E2
2016 E3
2017 E4
2018 E4
2019 D3
2020 E2
3010 D2
3011 D2
3012 E2
3086 A4
3087 B4
3088 B3
3089 B3
3090 B2
3091 A1
3092 A2
3093 A2
3094 A3
3095 A4
3096 B4
3097 B3
3098 B3
4089 B2
4090 B2
4091 A2
4092 A2
4093 A2
4094 A3
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6092 B4
6093 B3
7091 D3

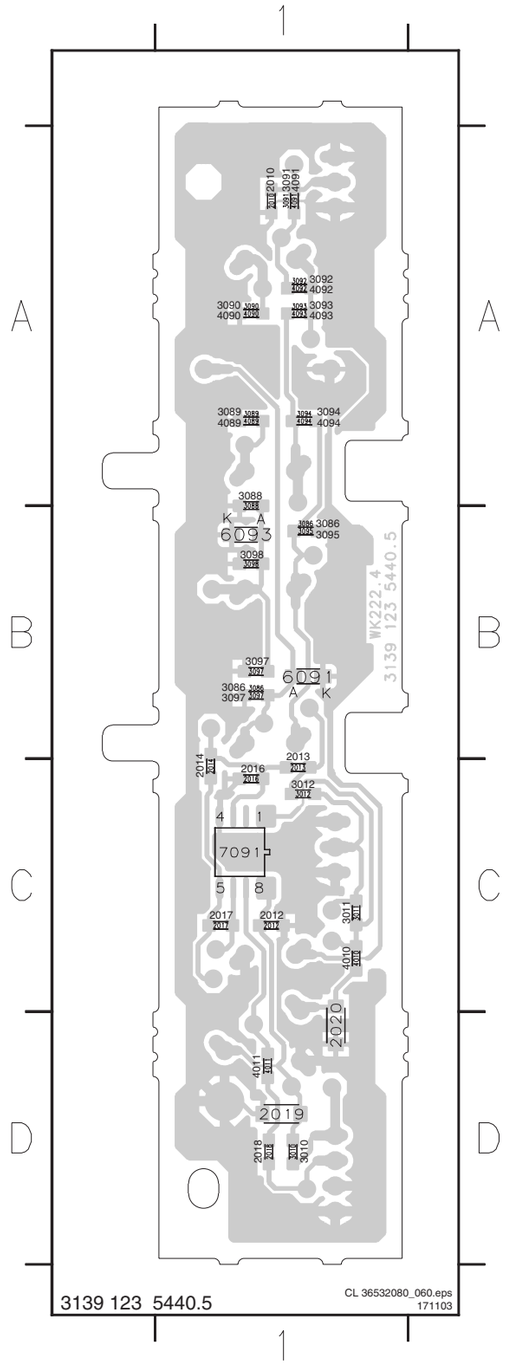
Layout Top Control Panel (Top Side)

Top Side



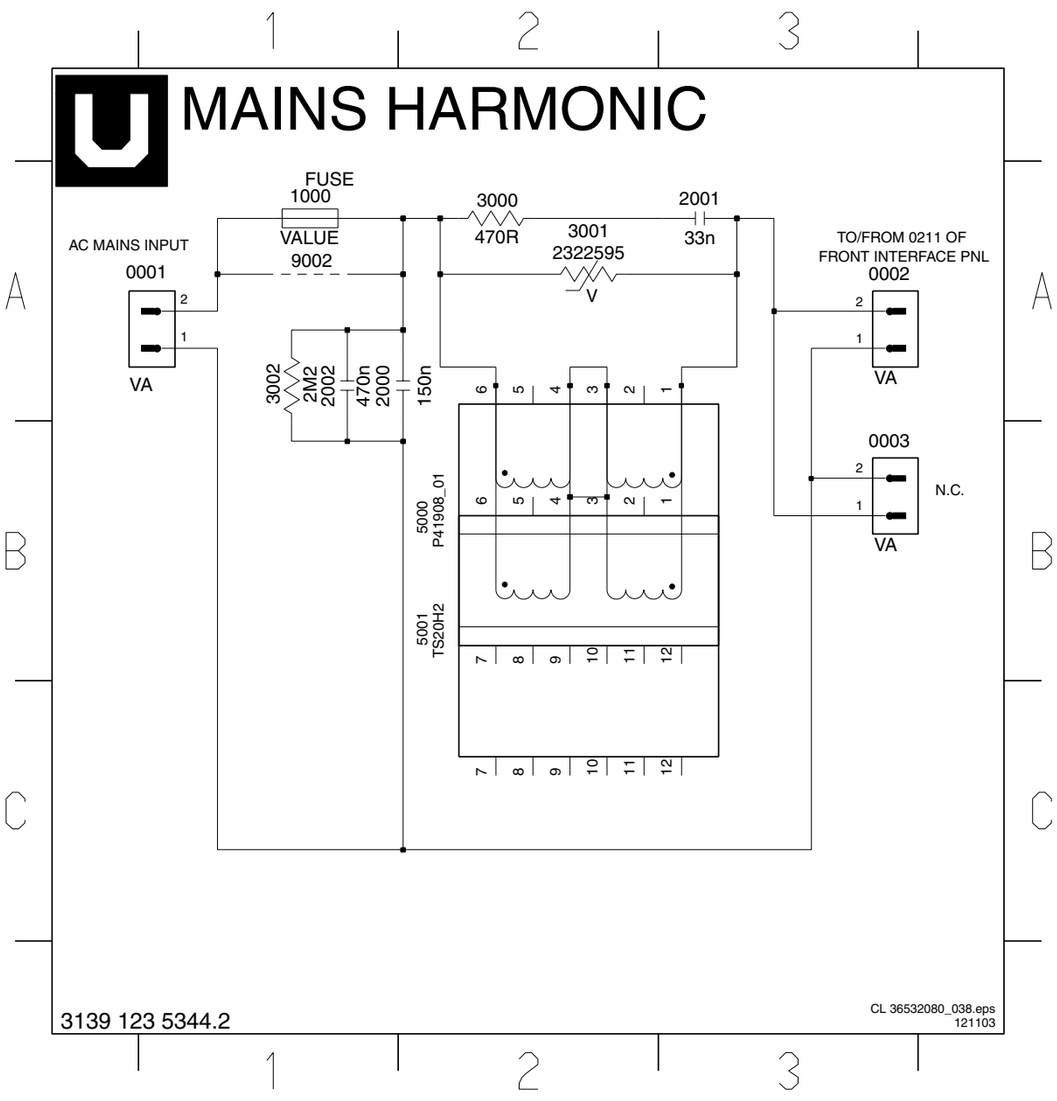
0215 A1
0216 D1
0217 C1
1090 D1
1091 A1
1092 A1
1093 B1
1094 C1
1095 B1
2011 D1
2015 D1
6092 A1

Bottom Side



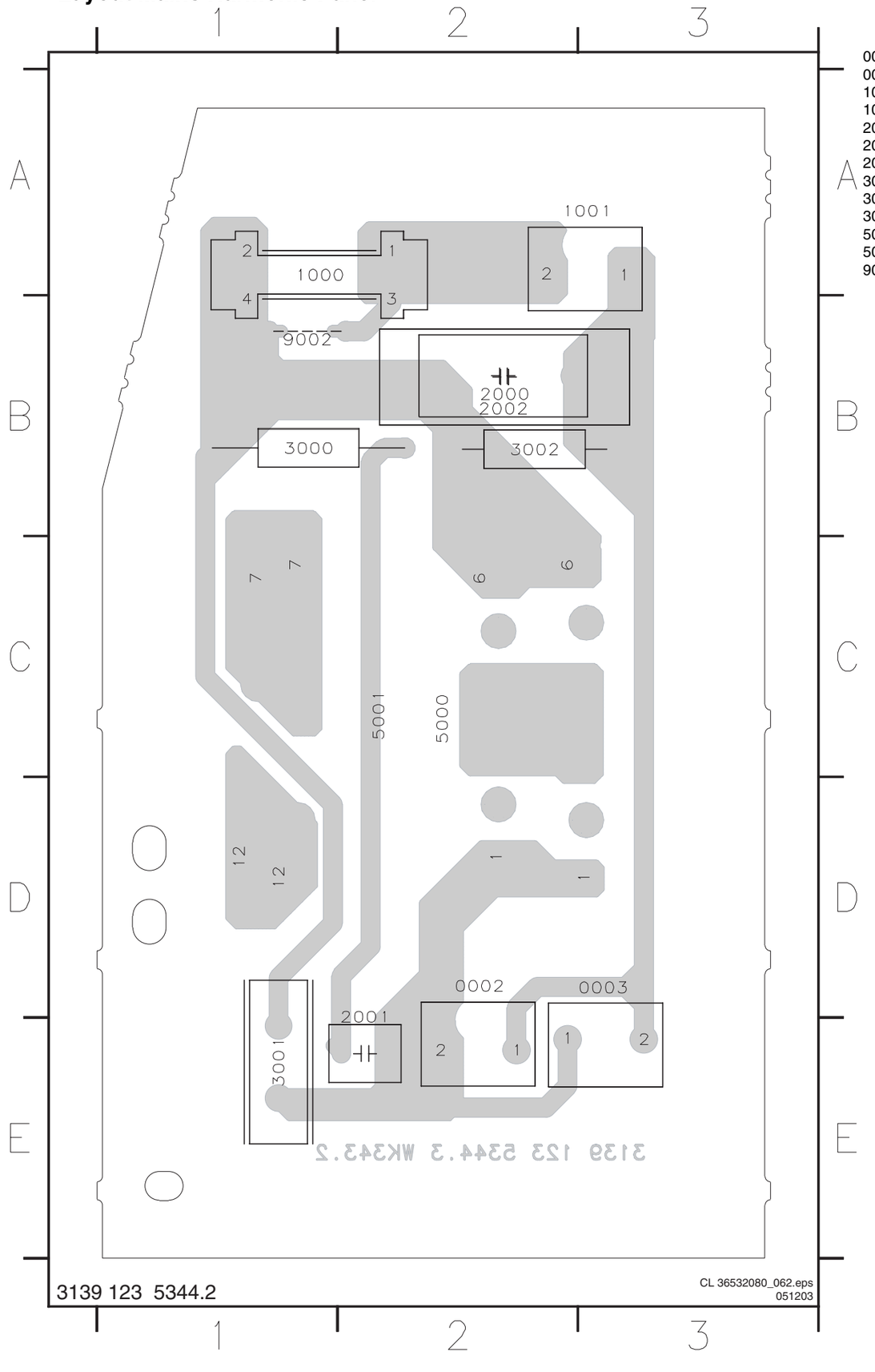
2010 A1
2012 C1
2013 C1
2014 C1
2016 C1
2017 C1
2018 D1
2019 D1
2020 D1
3010 D1
3011 C1
3012 C1
3086 B1
3087 B1
3088 A1
3089 A1
3090 A1
3091 A1
3092 A1
3093 A1
3094 A1
3095 B1
3096 B1
3097 B1
3098 B1
4010 C1
4011 D1
4089 A1
4090 A1
4091 A1
4092 A1
4093 A1
4094 A1
6091 B1
6093 B1
7091 C1

Mains Harmonic Panel



0002 A3
0003 B3
1000 A1
1001 A1
2000 A1
2001 A3
2002 A1
3000 A2
3001 A2
3002 A1
5000 B2
5001 B2
9002 A1

Layout Mains Harmonic Panel



0002 D2
0003 D3
1000 A1
1001 A3
2000 B2
2001 D2
2002 B2
3000 B1
3001 E1
3002 B2
5000 C2
5001 C2
9002 B1

8. Electrical Alignments

Index of this chapter:
1. General alignment conditions
2. Hardware alignments
3. Software alignments
4. Option settings

Notes:
- The Service Alignment Mode (SAM) is described in chapter 5 "Service Modes, Error Codes, and Fault Finding".
- Use the cursor-, menu-, and OK-buttons of the remote control (RC) transmitter for navigation.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:
- Power supply voltage: 230 V_ac / 50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure 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 heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

Perform all electrical adjustments with the following default settings (for all CRTs):
- Choose "Natural" picture mode with the "Smart Picture" button on the remote control.
- Set "Dynamic Contrast" and "Active Control" to "off" (if either one of them is present).
- Set "Brightness" to aligned value unless otherwise specified.

8.2 Hardware Alignments

8.2.1 Vg2 Adjustment

Preferred Method
In the frame-blanking period of the R, G, and B signals applied to the CRT, the video processor inserts a measuring pulse with different DC levels. Measure the black level pulse during the vertical flyback at the RGB cathodes of the CRT.
1. Connect the RF output of a pattern generator to the antenna input. Input a "black" picture (blank screen on CRT without any OSD info) test pattern.
2. Use the MENU key to enter the "user" menu, select "Picture", and set "Brightness" and "Contrast" to minimum.
3. Return to the SAM-menu via the MENU-key. Disable the black current loop by changing 'AKB' to 'OFF'.
4. Set the oscilloscope to 20 V/div and the time base to 20 us/div. Use external triggering on the vertical pulse
   Caution: use a trigger point on the "**cold**" side!
5. Ground the scope on the CRT panel ("**cold**" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see circuit diagram F).
6. Measure at the RGB cathodes of the CRT, the DC-level of the measuring pulse (1st full line after the frame blanking) with respect to earth.
7. Select the pin with the highest level found and adjust V_cutoff by means of the Vg2-potmeter (lowest-one) on the Line Output Transformer (LOT) to 165 +/- 5 V_dc (for all screen sizes).
8. Reset "Contrast" and "Brightness" to their original values.

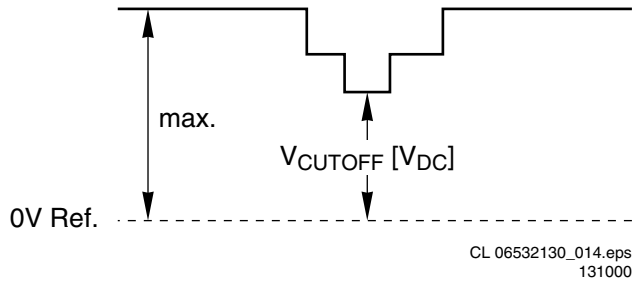


Figure 8-1 Waveform Vg2 alignment

Alternate Method
1. Connect the RF output of a pattern generator to the antenna input. Input a "black" picture (blank screen on CRT without any OSD info) test pattern.
2. Use the MENU key to enter the "user" menu, select "Picture", and set "Brightness" and "Contrast" to minimum.
3. Select any of the AV-sources.
4. Go to the SAM.
5. Set VSD to ON.
6. Adjust Vg2 potmeter of LOT until the horizontal line is just visible.
7. Set VSD to OFF.
8. Exit SAM.

8.2.2 Focus

1. Tune the set to a circle or crosshatch test pattern (use an external video pattern generator).
2. Adjust the first Focus potmeter (upper LOT potmeter) until the horizontal and vertical lines at 1/4 from east and west, at the height of the centre line, are of minimum width without visible haze.
3. Adjust the 2nd Focus potmeter (middle LOT potmeter) until the horizontal and vertical lines at 1/4 from north and south, at the height of the centre line, are of minimum width without visible haze.

Note:
For sets without Double Astigmatic Focus (DAF) panel, there is only one Focus-potmeter on the LOT.
Adjust according to paragraph 8.2.2 point 2.

8.3 Software Alignments

Put the set in the SAM (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. The different alignment parameters are described further on.

Notes:
- All changes to menu items and alignments must be stored manually.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values, so the set must be re-aligned.

SAM Menu

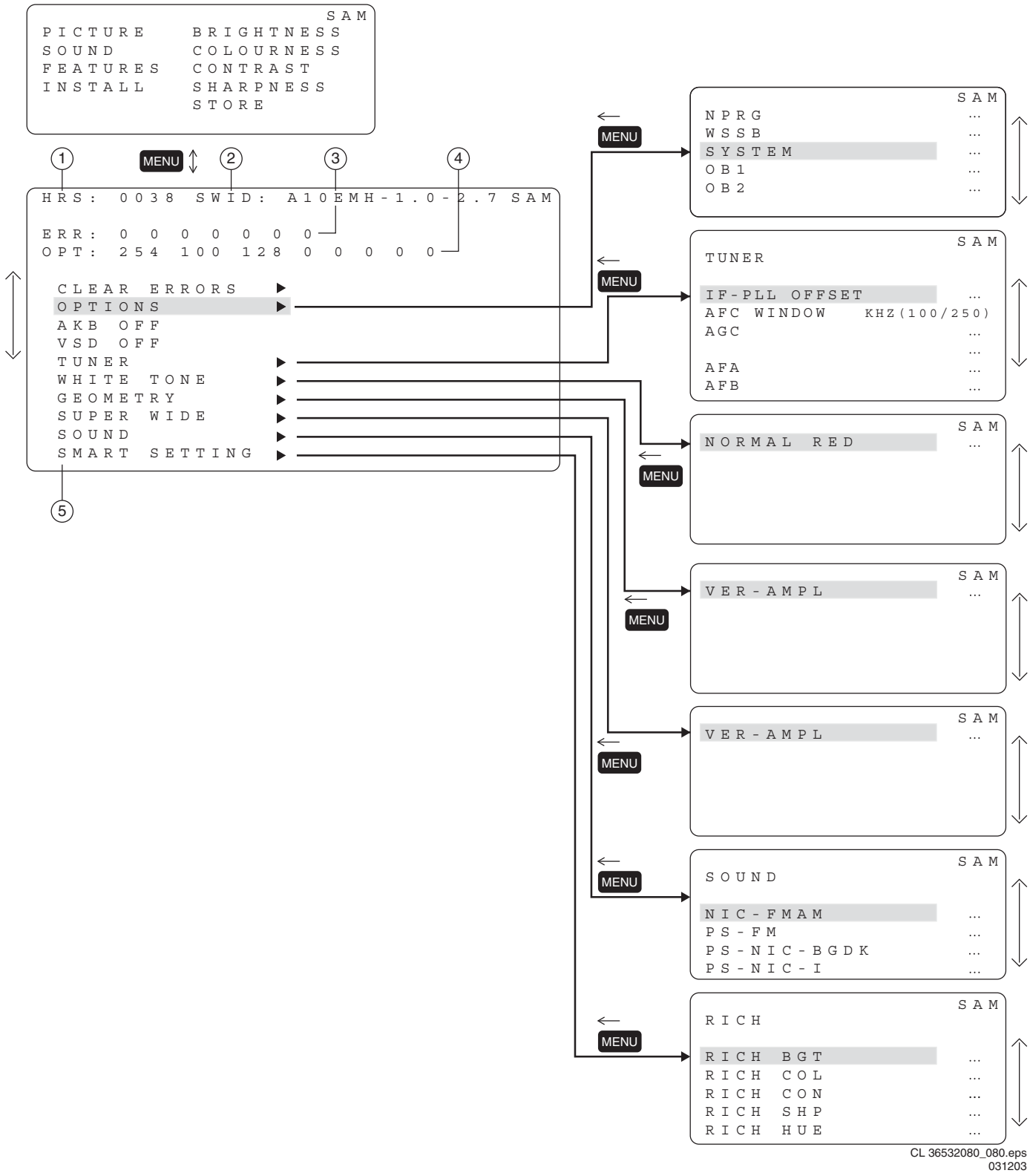


Figure 8-2 Service Alignments Mode screen and structure

8.3.1 TUNER

IF PLL OFFSET
No adjustment needed for this alignment. The default values is “32”.

AFC WINDOW
No adjustment needed for this alignment. The default value is “100 kHz”.

AGC
1. Set an external pattern generator to a colour bar video signal and connect the RF output to the aerial input of the TV. Set the amplitude to 10 mV and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
2. Put the set in the SAM mode.
3. Select via the TUNER menu, the AGC sub-menu.
4. Connect a DC multi-meter to pin 1 of the tuner.
5. Adjust the AGC until the voltage at pin 1 of the tuner is 3.3 V (+/- 0.1 V). The value can be incremented or decremented by pressing the right/left CURSOR button on the RC.

8.3.2 WHITE TONE

In the WHITE TONE sub menu, the colour values for the different colour temperatures can be changed.
The colour temperature mode (NORMAL, DELTA COOL, DELTA WARM) can be selected per colour (R, G, and B) with the RIGHT/LEFT cursor keys. The mode or value can be changed with the UP/DOWN cursor keys.
First, the values for the NORMAL colour temperature must be selected. Then the offset values for the DELTA COOL and DELTA WARM mode can be selected. Note that the alignment values are non-linear.

Alignment
No adjustments needed.
- Set CATHODE DRIVE to “12”
- Set the White Tones to the given default values (see table)

Table 8-1 White tone alignment (default values)

White Point	Normal	Delta Cool	Delta Warm
R	32	0	0
G	32	2	-3
B	32	9	-11

8.3.3 GEOMETRY

The geometry alignments menu contains several items to align the set, in order to obtain correct picture geometry. In widescreen sets, the ‘SUPERWIDE” menu is available for separate alignments of the superwide (panorama) mode.

Notes:
- Set an **external** pattern generator to a crosshatch video signal and connect the RF output to the aerial input of the TV. Set the amplitude at least 1 mV_rms (60 dBuV) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
  Note: Do **not** use the internal test pattern from the GEOMETRY menu!
- Use the default alignment settings, but set "Brightness" to "32".
- For wide screen models, set to "wide screen" mode, for "classic" models, set to "4:3".
- Alignments are saved after returning to the main menu.

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the user MENU, choose FEAUTURES, and select ROTATION. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

Alignment

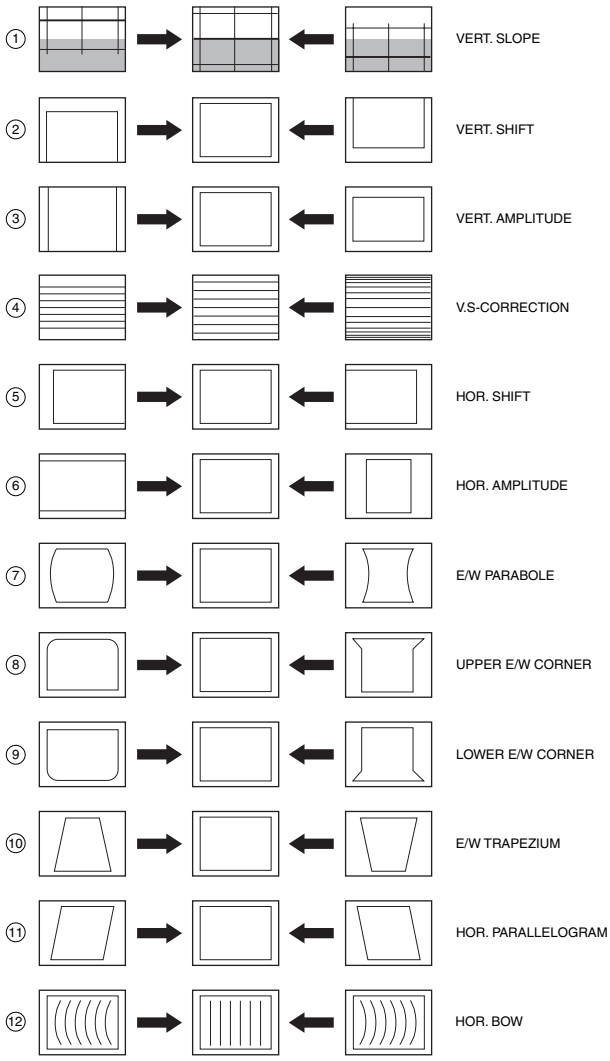


Figure 8-3 Geometry Alignments

1. Set 'Smart Picture' to NATURAL.
2. Activate the SAM-menu (see also chapter 5).
3. Go to sub-menu GEOMETRY. Now the following alignments can be performed (dependent on execution):

Vertical amplitude (VER.AMPL)
Align the picture height so that the complete test pattern is visible. Note that other vertical alignments are not compensated.

Vertical slope (VER.SLOPE)
Align the vertical centre of the picture to the vertical centre of the CRT. This is the first alignment to be performed of the vertical alignments. For an easy alignment set SERV.BLK to ON.

Service blanking (SERV.BLK)
Switch the blanking of the lower half of the screen ON/OFF (to be used in combination with the vertical slope alignment).

Horizontal shift (HOR.SHIFT)
Align the horizontal centre of the picture to the horizontal centre of the CRT.

Horizontal bow (HOR.BOW)
Align straight horizontal lines in the top and the bottom; horizontal rotation around the centre.

Horizontal parallelogram (HOR.PARALLEL)
Align straight vertical lines in the top and the bottom; vertical rotation around the centre.

East West width (EW.WIDTH)
Align the picture width until the complete test pattern is visible.

East West Parabola (EW.PARA)
Align straight vertical lines at the sides of the screen.

East West Trapezium (EW.TRAP)
Align straight vertical lines in the middle of the screen.

East West Upper Corner (EW.UCORN)
Align straight vertical lines in the upper corners of the screen.

East West Lower Corner (EW.LCORN)
Align straight vertical lines in the lower corners of the screen.

Horizontal width at 60Hz input (H60.WIDTH)
Align the picture width for NTSC input, until the complete test pattern is visible.

Horizontal parallelogram at 60Hz input (H60.PARA)
Align straight vertical lines in the top and the bottom for NTSC input with vertical rotation around the centre.

Horizontal shift at 60Hz input (H60.SHIFT)
Align the horizontal centre of the picture to the horizontal centre of the CRT for NTSC input.

Vertical amplitude at 60Hz input (V60.AMPL)
Align the picture height for NTSC input, so that the complete test pattern is visible. Note that other vertical alignments are not compensated.

Vertical S-correction (VER. SCOR)
Align the vertical linearity, meaning that vertical intervals of a grid-pattern must be equal over the entire height.

Vertical shift (VER. SHIFT)
Align the vertical centring so that the test pattern is located vertically in the middle. Repeat the 'vertical amplitude' alignment if necessary.

Vertical zoom (VER.ZOOM)
Not necessary to align. The default value is “25” (and “35” for SUPERWIDE).

Vertical scroll (VER.SCROLL)
Not necessary to align. The default value is “32” (and “33” for SUPERWIDE).

8.3.4 SUPERWIDE

For widescreen sets, the same geometry parameters are available.

8.4 Options

8.4.1 Introduction

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

The correct option values can be found on a sticker on the picture tube (after removal of the rear cover).

Notes:
- After changing the option(s), save them with the STORE command.
- All changes are disregarded when the OPTIONS submenu is left without using 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).

8.4.2 Changing options

Options are used to control the presence / absence of certain features and hardware. There are two ways to change the option settings. All changes in the option settings are saved by selecting STORE and pressing the CURSOR RIGHT key. Some changes will only take affect after the set has been switched OFF and ON with the mains switch (cold start).

Changing multiple options by changing option byte values
Option Bytes (OB) makes it possible to set all options very fast. An option byte represents a number of different options. All options are controlled via eight option bytes (OB1 to OB8). Select an Option Byte you want to change with the CURSOR UP/DOWN keys, and key in the new value. See table for more details. An explanation per option is listed in paragraph "Option Bit Definition".

Changing a single option
It is also possible to change an option one at a time. Therefore, select the option with the CURSOR UP/DOWN keys and change its setting with the LEFT/RIGHT keys.

8.4.3 Option Settings

In the table, you will find the option settings.

Table 8-2 Option bit overview

Byte number	Bit number	Option	28DW6558/01R	28DW6558/05R	32DW6558/01R	32DW6558/05R	Feature	Decimal value
OB1	0	CBFL	1	1	1	1	Comb Filter	1
	1	WSCR	1	1	1	1	Wide Screen	2
	2	AUSB	1	1	1	1	Auto switch to STBY after 4 hrs.	4
	3	AV3	1	1	1	1	External 3 (Side I/O)	8
	4	E149	1	1	1	1	Picture setting for Expand 14:9	16
	5	C169	1	1	1	1	Picture setting for Compress 16:9	32
	6	ROTI	1	1	1	1	Rotation tilt	64
	7	ASBY	0	0	0	0	Auto switch to STBY after 2 hrs.	128
OB2	0	VMOD	0	0	0	0	Virgin Mode	1
	1	PLST	1	1	1	1	Program List	2
	2	ATS	1	1	1	1	Automatic Tuning System	4
	3	ACI	1	1	1	1	Automatic Channel Installation	8
	4	PITN	0	0	0	0	Philips tuner	16
	5	VDBY	1	1	1	1	Virtual Dolby	32
	6	IPMU	1	1	1	1	Incredible Picture via menu	64
	7	IPIX	0	0	0	0	Incredible Picture	128
OB3	0	ROTI	1	1	1	1	Rotation tilt	1
	1	AAVL	1	1	1	1	Automatic Volume Level	2
	2	VMUT	1	1	1	1	Video Mute	4
	3	DNRM	1	1	1	1	DNR Noise Reduction	8
	4	DTXT	1	1	1	1	Dual page Teletext available	16
	5	UKPNP	0	1	0	1	UK Plug and Play	32
	6	FAPG	1	1	1	1	Favourite Page	64
	7	SOSD	0	0	0	0	Smart OSD	128
OB4	0	-					Not used	1
	1	-					Not used	2
	2	NVM	1	1	1	1	Power down circuit to protect NVM	4
	3	INCF	1	1	1	1	Internal Comb Filter	8
	4	WSSB	1	1	1	1	Wide Screen Signal Bit	16
	5	NPRG	0	0	0	0	Max. no. of Programs	32
	6	TMWIN	0	0	0	0	Time Window	64
	7	SNIC	1	1	1	1	Sound IC 3451	128
OB5	0-7	-					Not used	0
OB6	0-7	-					Not used	0
OB7	0-7	-					Not used	0
OB8	0	SYSTEM	EW	EW	EW	EW	Color System	1
	1	SYSTEM	EW	EW	EW	EW	Color System	2
	2	-					Not used	4
	3	-					Not used	8
	4	-					Not used	16
	5	-					Not used	32
	6	-					Not used	64
	7	-					Not used	128
0 = option disabled, 1 = option enabled								

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

The following paragraphs are included:

1. Introduction
2. Block Diagram
3. Front-end
4. Back-end
5. IBOLink Interface
6. Reset and Interrupt Architecture
7. Power
8. I2C Architecture
9. Common Interface
10. UART Interface
11. Start-up Procedure
12. Abbreviation List
13. IC Data Sheets

9.1 Introduction

In this chapter, only components and circuits of the “IBO+” module (Intelligent Bolt On) are described. For the circuit description of the analogue TV chassis, see A10E Service manual: 3122 785 10430.

The “IBO+” module is meant to receive, process, and transfer Digital Video Broadcasting-Terrestrial (DVB-T) signals to the:

- Internal TV interface for audio, video, and control.
- External interfaces as UART and SPDIF.

The “IBO+” is intended for use in combination with an analogue TV chassis, this is visualised in the following block diagram.

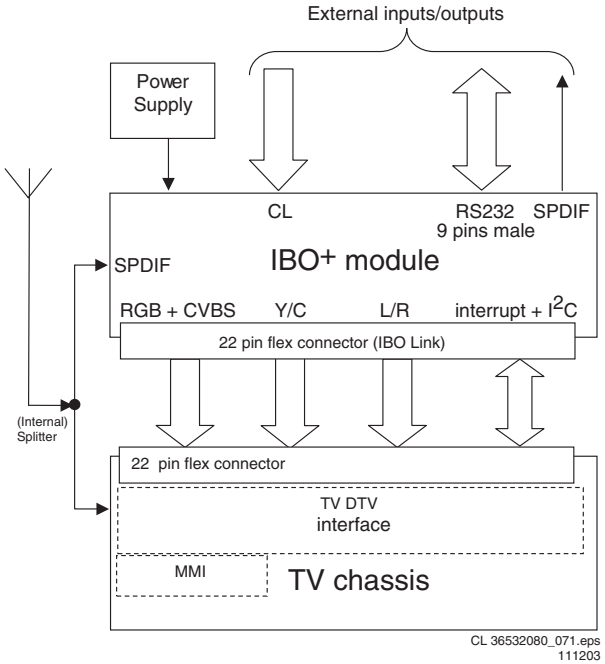


Figure 9-1 “IBO+” in combination with an analogue TV chassis

9.2 Block Diagram

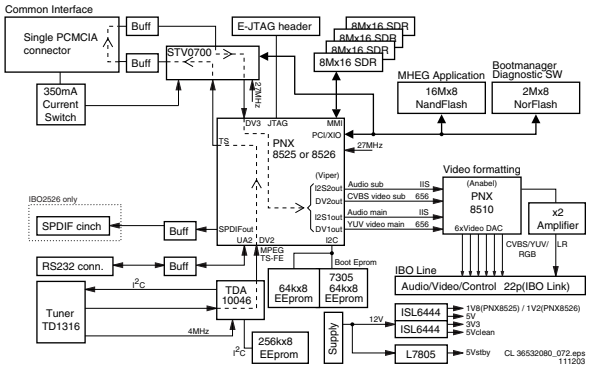


Figure 9-2 “IBO+” block diagram

9.2.1 Tuner

The used tuner (TD1316) is a full band tuner with PLL tuning system. The PLL tuning system is I2C programmable, and allows a tuning step size of 125 kHz/142.86 kHz/166.67 kHz for digital and 62.5 kHz/50 kHz for analogue applications.
Besides a standard IF output for analogue applications, it has a narrow band IF output for digital off-air applications.
The filtering is done by a switchable 7 / 8 MHz SAW filter. An additional IF-amplifier restores the loss of the SAW filter.
The 33 V tuning supply is derived from the single 5V-supply voltage by means of a DC-DC booster. The tuner has an internal AGC detector with software controlled take over point.

9.2.2 TDA10046

This device is a single chip channel receiver for 2k and 8k COFDM modulated signals. The device interfaces directly to an IF signal, and integrates a 10-bit AD converter, an oscillator, and a PLL.
It performs all the COFDM demodulation tasks, from the IF signal to the MPEG2 Transport Stream.
An internal DSP manages the synchronisation, and the control of the demodulation process.

The device is controlled via an I2C bus (called master). The chip provides two switchable I2C busses that are derived from the master:

- A tuner I2C bus to be disconnected from the I2C master when not necessary.
- An EEPROM I2C bus.

The DSP software is fed to the chip via the master I2C bus or via a dedicated EEPROM I2C bus.

9.2.3 PNX852x (Viper)

The Viper is a highly integrated media processor for Digital Television (DTV) systems, where it is responsible for the source decode functions. These functions include

- Conditional access,
- MPEG2 Transport Stream de-mux,
- MPEG2 video decoding,
- Audio decoding and processing,
- Graphics generation,
- Video processing,
- Image composition and display.

The Viper supports a number of peripheral interfaces such as I2C, USB, IDE, and UART.
The Viper is intended to be used with a small companion IC, the PNX8510 called “Anabel”. This chip provides the majority of

analogue video and audio support for the Viper output, and is capable of simultaneously driving two video channels and two stereo audio channels.

Some features of the Viper are:
- 150 MHz MIPS processing core.
- External CPU support via PCI.
- Support for multiple digital video (D1) input streams.
- Support for multiple MPEG2 or DIRECTV Transport Streams (parallel or serial format).
- On-chip conditional access for DVB.
- Simultaneous decode of two SD streams (MPEG2) or one HD MPEG Stream.
- Simultaneous decode of two AC-3 or equivalent audio streams.
- High performance 2D rendering capability.
- 16, 32, and 64 MB Unified Memory Architecture implemented with high speed SDRAM (143 MHz).
- On-chip core peripherals (I2C, UART, USB, etc.).

Note: During production start, the PNX8525 (Viper 1.0) will be implemented. After some time, this device will be replaced by the (pin compatible) PNX8526 (Viper 1.1). Some differences between these devices:
- The PNX8525 does not support S/PDIF.
- The PNX8525 has a core voltage of 1.8 V, the PNX8526 of 1.2 V. The PNX8526 therefore does not require a heat sink.
- They both need different boot software.
- Some hardware modifications must be made to the PWB (see diversity info in the diagrams).

9.2.4 PNX8510 (Anabel)

The Anabel serves as an analogue back-end companion for digital ICs dealing with video and audio processing (as the Viper). It provides two video encoders through two standardised (D1) interfaces.
The Anabel also provides two independent pairs of stereo audio DACs with two corresponding IIS interfaces.

Some features of the Anabel are:
- Six 10-bit video DACs running at up to 135 MHz.
- Four audio DACs arranged as two stereo pairs.
- Two built-in digital video encoders.
- PAL B/G, NTSC-M, SECAM encoding.
- Two 10-bit D1 inputs.
- Two IIS independent audio input ports.
- I2C programmable (slave interface).
- Support for high-resolution video out up to 81 MHz interface clock rate.
- VBI encoding for standard definition video out.
- Teletext insertion for PAL-WST, NTSC-WST, and NABTS.
- Closed caption encoding.
- SCART support with MacroVision copy protection on the RGB lines.

9.2.5 Common Interface (PCMCIA)

This controller includes the necessary I/O's, to interface to the MPEG Transport Stream, generated by the receiver demodulator, and daisy chain it through two independent Common Interface modules and back to the demultiplexer. The I2C bus is used for initialization and module selection.

The device includes a memory mode that allows the use any of the Common Interface slots to read and write an 8-bit PC Card Memory card. This feature gives the receiver:
- Memory extension capability, or
- Software upgrade, or
- Better performance.

9.3 Front-end

The block diagram gives an overview of the Front-end part of the module.

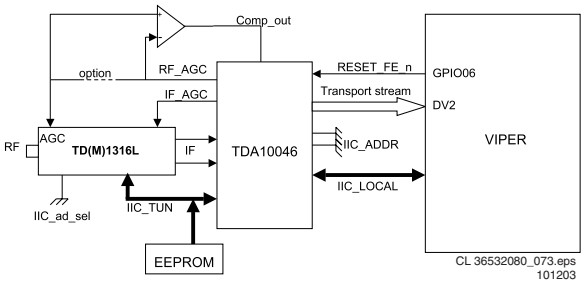


Figure 9-3 Front-end block diagram

9.3.1 Tuner

The used tuner is capable of receiving analogue and digital transmissions.
The tuner is controlled by I2C via the digital demodulator. It is an all band tuner with an internal switchable SAW filter for digital broadcasted signals, which is SW controlled (7 or 8 MHz).
The RF signal is converted to IF, and this signal is passed via the internal switchable SAW filter. This IF signal is amplified, so it can be directly inserted into the digital demodulator.
The RF-signal monitoring is done via the AGC feedback of the digital demodulator. IF-signal monitoring is done also via the demodulator (this is called double AGC loop structure).
The IF_AGC control is done via the TDA10046. The RF_AGC pin tuner is used to monitor the RF AGC level using a voltage comparator. This means that the RF AGC from the tuner has a fixed setting.

9.3.2 Digital Demodulator

The main task for this IC is to convert the IF from the tuner to an MPEG Transport Stream.
The received IF signal is fed into a 10-bits wide DAC. To prevent I2C crosstalk, this IC has a dedicated I2C-bus (I2C_TUN) to communicate to the tuner.
The synchronisation and demodulation function is stored in the DSP of the IC. When the application is started, this info is derived from the external EEPROM. This is done after the reset signal is generated.
This reset signal is derived from the Viper (RESET_FE-n).
The output of the TDA10046 is a parallel 8-bits wide TS, which contains the following signals:
- Data 0...7
- 27 MHz clock
- Valid
- Error

The output is connected to the DV2 input of the Viper.

9.4 Back-end

The block diagram gives an overview of the Back-end part of the module.

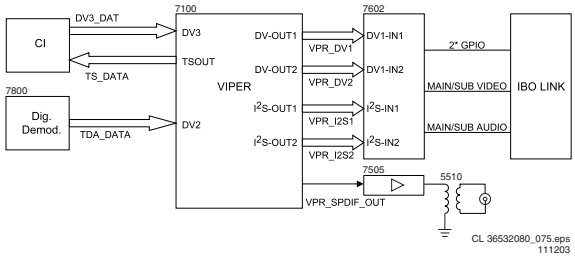


Figure 9-4 Signal routing and Back-end

9.4.1 Signal Routing

The Viper has three DV input interfaces, two of them are used. These DV interfaces are used in parallel mode and used as Transport Stream input. This routing of the streams is done in the Transport Stream Network of the Viper.
The Transport Stream mode is used to transport the TS data, according to MPEG2 standard. This interface operates in three modes namely: 8 bit parallel, single serial, or dual serial mode. In the "IBO+", only 8-bit parallel is supported. The used TS names are TDA_DATA and DV3_DATA.

The Viper has one Transport Stream output interface. This interface supports the common DVB Transport Stream protocol for parallel data transmission (called TS_DATA).

Transport Stream Inputs
The Transport Stream (DV2) received from the Digital Demodulator, will be demultiplexed in the Viper. If a scrambled stream is used, the stream will be routed through the Common Interface (TSOUT), and routed back to the Viper (DV3). These signals are internally processed in the Viper and the outputs are called DV_OUT and I2S_OUT.

Video Outputs
DV_OUT (VPR_DV1 and VPR_DV2) is a 10 bits wide data bus and has one clock signal (acc. CCIR656). This digital YUV is send to the internal encoder of the Anabel IC.

Audio Outputs
The Viper has two audio output interfaces (VPR_I2S1 and VPR_I2S2). Each audio output interface supports two channels (stereo). The I2S output interface can operate in master or slave mode, but is used in master mode only. In the master mode, the Viper will generate the Bit-Clock and Word Select. The Viper generates the over-sampling clock in master mode as well in slave mode.
These I2S outputs go to the Anabel.

The Viper has one SPDIF output interface, which is used to output digital audio data, according to the IEC60958 format specification. This interface is used to output audio data in an SPDIF format to an external device via a SPDIF connector. A buffer is placed to protect the Viper, and the transformer is necessary for galvanic isolation.

Anabel
The Anabel receives its digital information from the Viper. Main video is called DV_OUT1, main audio is called I2S_OUT1. These signals are converted back to analogue audio and video that can be inserted into the analogue TV-set.
Sub video (DV_OUT2) and sub audio (I2S_OUT2) are also converted to analogue, and are intended to be inserted via an external interface of the TV-set (e.g. SCART) towards a video recorder.
Two general I/O pins from the Anabel are controlled via SW.

9.5 IBOLink interface

The IBOLink™ approach is such that the conventional TV microcontroller is re-used when digital functionality is added. In principle, the TV can still operate without the bolt-on module. The IBOLink™ software is added to the TV-set software, and is operating as a software bridge.

The main signal formats on the IBOLink™ interface (22 pins flex connector, item 1600) are:
- CVBS.
- Y/C.
- RGB.
- Baseband audio.
- Control (I2C and IRQ).

9.6 Reset and Interrupt Architecture

9.6.1 Reset Architecture

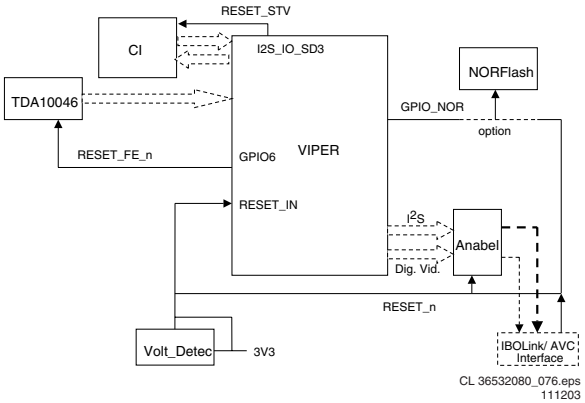


Figure 9-5 Reset block diagram

The "IBO+" system can be reset in several ways:
- By software,
- By hardware, or
- Via the IBOLink™.

The software controlled reset, results in resetting the entire system or resetting one or more functions in the "IBO+" system. The Viper generates the SW reset.

The hardware reset also results in resetting the entire system or resetting one or more functions of the generic module. A hardware-reset is generated by:
- The Power-On-Reset (POR) circuit. Exceeding a certain threshold of power supply voltage will result in a Power-On-Reset.
- The watchdog timer. A system hang-up, observed by the Viper watchdog timer will result in a watchdog reset.

The main Reset or RESET_n controls the following devices: Viper, Anabel, and NOR-flash, and is connected to the IBOLink™, which is connected to the analogue TV processor.

9.7 Power Supply

The system has two power modes:
- One mode is "Power Off": this means no power connected to the module.
- The other mode is of course "Power On": module is fed with the required voltage (+12 Volt).

Power "on" or "off" is controlled via the I/O expander IC7707. This device is controlled by the analogue master.

9.8 I2C Architecture

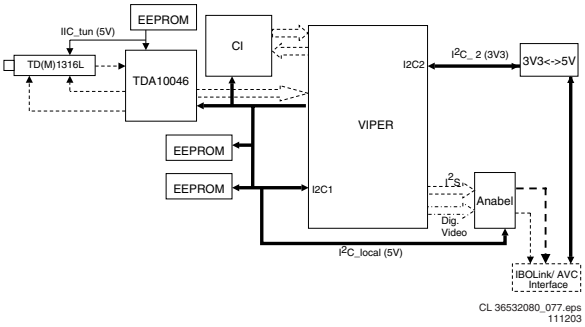


Figure 9-6 I2C block diagram

All devices are used with a clock speed of 400 kHz, via two I2C-busses:

- **I2C1_SCL, I2C1_SDA**: These are the clock and data lines of a **master** bi-directional I2C-bus, named I2C_1 in the block diagrams. The bus is used to drive all the internal ICs of the module.
- **I2C2_SCL, I2C2_SDA**: These are the clock and data lines of the **slave** bi-directional I2C-bus, named I2C_2 in the block diagrams. The bus is connected to the IBOLink™ connector of the module.

The I2C addresses as specified in this document are 8 bit addresses. The 7 most significant bits define the I2C slave address, as specified in the I2C specification. The least significant bit defines the transaction type, issued by the master. This can be either a read access or a write access.

9.9 Common Interface

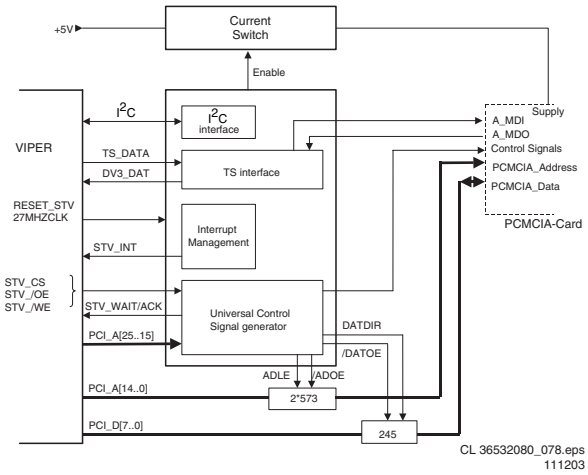


Figure 9-7 CI block diagram

The Common Interface receives encrypted Transport Streams from the Viper. Via the PCMCIA card, these encrypted Transport Streams are decrypted, and transported back to the Viper.

9.10 UART Interface

The UART interfaces (Universal Asynchronous Receiver And Transmitter) are serial interfaces, which are used to transfer data and commands between two devices.
The “IBO+” system uses three UART interfaces from the Viper to communicate between the system and other modules or equipment. These UARTs are further called UART1, UART2, and UART3.

Interfaces UART1 and UART3 are used for debug functionality (for development only).

UART2 is connected via an interface IC to a Sub-D 9-pins (RS232) connector. This UART is used for serial communication with an external device like:

- HW for debug-SW
- Diagnostic SW for Service or Production
- Diagnostic SW for development
- Applications like an external modem

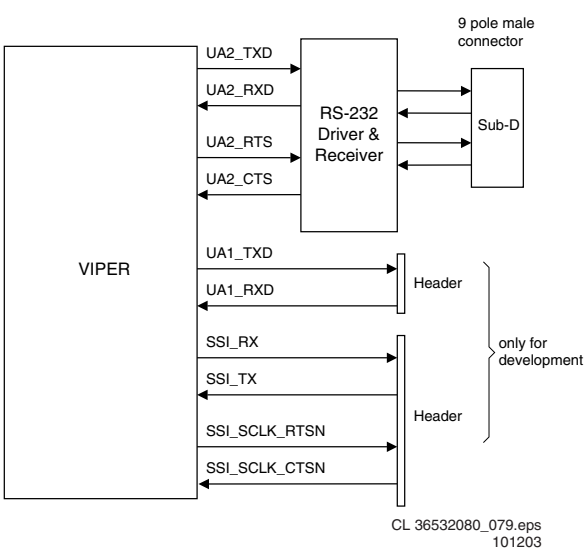


Figure 9-8 UART block diagram

9.11 Start-up Procedure

Below you will find the start-up flow of the “IBO+” module:

1. Check +12V supply voltage (generated by the TV). Measured on pin 4 of connector 1700. If OK, continue. If NOK, check e.g. fuse 1702.
2. The +5V_STBY voltage is generated by the “IBO+” module (via item 6702).
3. The I/O Expander will activate the first voltage regulator (1V8_VPR):
   a. The +5V_STBY is the supply voltage for the I/O Expander (item 7707).
   b. Now the I/O Expander is ready for I2C commands.
   c. Standard I/O Expander output configuration at POR is “high” (so pin 4, 5, and 6 are “high”).
   d. Pin 6 will activate the +9V stabiliser (item 7700).
   e. Pin 4 will activate pin EN1 of IC7705. This will generate the 1V8.
   f. As long as the 1V8 is not ready, pin 15 (PG1= POWER_GOOD_1) will pull pin 5 of IC7707 “low”
4. When the 1V8 is reached, the POWER_GOOD signal will activate the other voltages via the ENABLE pins. In this way, the “IBO+” module can be switched “on/off” via the TV microprocessor (via IC7707).
5. The +3V3 will activate (via pull-up resistor 3735) the RESET_n signal via the voltage monitor IC7710. Now the Viper can start-up (as long as the 3V3 is not ready, the Viper, NOR-flash, and Anabel are in reset mode).
6. The internal 27 MHz oscillator of the Viper is started.
7. The Viper reads the boots-trap options via the GPIO_0, 1, and 2 pins.
8. Dependant of these options, the Viper will read, via the I2C_LOCAL bus, the boot-code from:
   – Its internal memory, or
   – The boot EEPROM (item 7305), or
   – The NOR-flash (item 7303).

9. The Viper now runs the boot-code, and will read the Diagnostic Software (DSW) from the NOR-flash. This code is copied into the Viper's external memory (SDRAM).
10. The DSW is started. Now the following is checked:
    a. **Play mode active?** If YES, the streaming starts. If NO, go to (2).
    b. **GPIO factory bit "low"?** If YES, start the DSW (only for production). If NO, go to (3).
    c. **Service bit "high"?** If YES, start the Service DSW. If NO, go to (4).
    d. **RS232 spacebar active?** If YES, start DSW via the terminal. If NO, go to (5).
    e. **Application download?** If YES, start field loader (via PCMCIA). If NO, got (6).
    f. **Start application** (from NAND-flash).

9.12 Abbreviation List

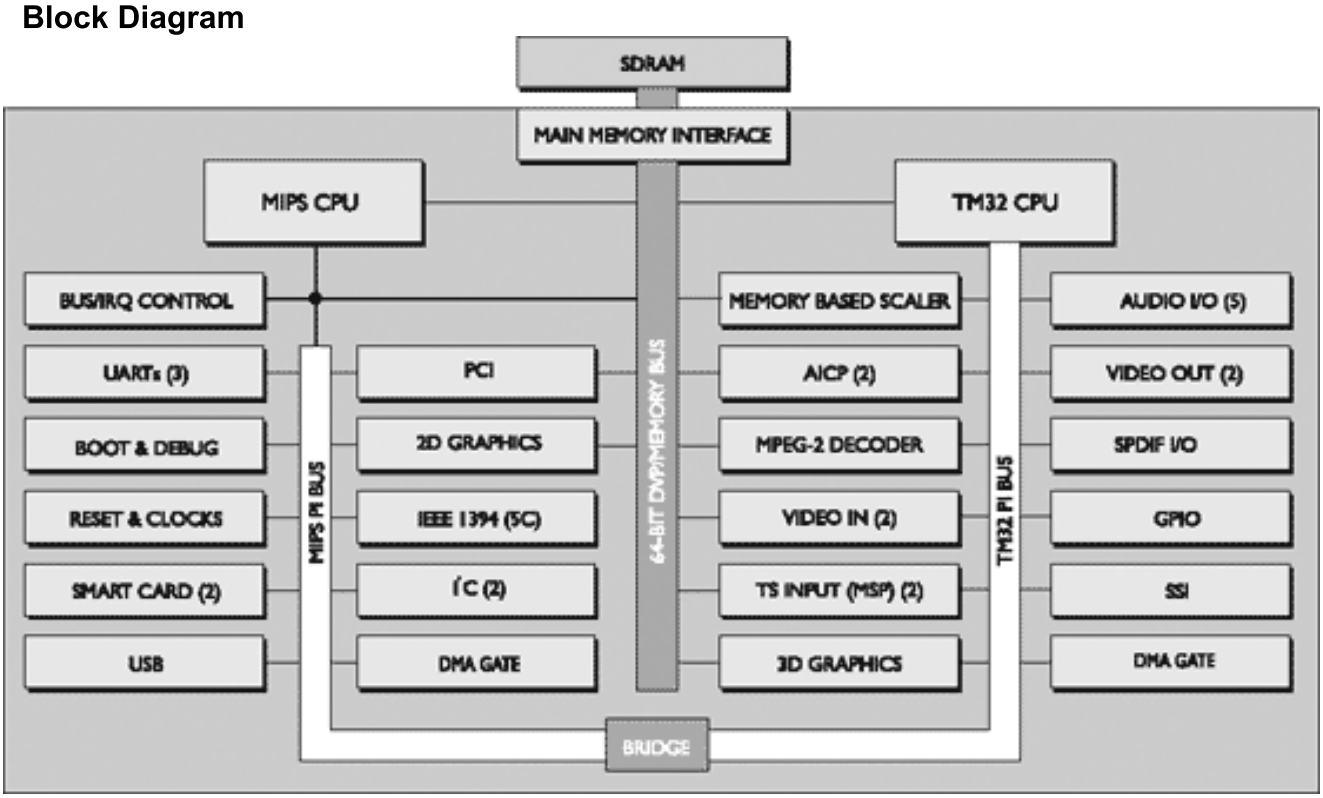
2CS	2 Carrier Stereo
ACI	Automatic Channel Installation: algorithm that installs TV sets directly from cable network by means of a predefined TXT page
ADC	Analogue Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the featurebox
AGE	Automatic Gain Control AGC
AM	Amplitude Modulation
AR	Aspect Ratio: 4 by 3 or 16 by 9
Artistic	see Painter 2.5: main processor
ATV	Analogue Television
AVC	Audio Video Control
AVL	Automatic Volume Level
AWT	Abstract Windowing Toolkit
BER	Bit Error Rate
BG	System B and G
BLKIN	Black current information
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
BOCMA	Bimos one Chip Mid-end Architecture: video and chroma decoder
C-FRONT	Chrominance front input
CI	Common Interface
CL	Constant Level: audio output to connect with an external amplifier
ComPair	Computer aided repair
COFDM	Coded Orthogonal Frequency Division Multiplexing
CRS	Commercial Requirements Specification
CRT	Cathode Ray Tube or picture tube
CSM	Customer Service Mode
CTI	Colour Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
DAC	Digital to Analogue Converter
DES	Descrambler
DFU	Direction For Use: description for the end user
DMA	Direct Memory Access
DNR	Digital Noise Reduction: noise reduction feature of the box
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode
DSW	Diagnostic SoftWare
DVB	Digital Video Broadcasting
DVB-T	DVB-Terrestrial
DVD	Digital Versatile Disc
DYN-PHASE-CORR	Dynamic phase correction
EHT	Extra High Tension
EHT-INFO	Extra High Tension information
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EW	East West, related to horizontal deflection of the set

EXT	External (source), entering the set via SCART or via cinches
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FEC	Forward Error Correction
FIL	Filament supply voltage
FM	Field Memory or Frequency Modulation
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
FRS	Functional Requirements Specification
GPIO	General Purpose Input or Output
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
HA	Horizontal Acquisition: horizontal sync pulse coming out of the BOCMA
HFB	Horizontal Flyback Pulse: horizontal sync pulse from large signal deflection
HP	Headphone
HDD	Hard Disk Drive
HIS	Hardware-Software Interface
HW	Hardware
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.
IBO+	Intelligent Bolt On module (including software)
I2C	Inter IC Circuit
I2S	Inter Integrated Sound
IO-BUS	In/Out - Bus
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LED	Light Emitting Diode
LINE-DRIVE	Line drive signal
LSP	Large signal panel
MAC	Media Access Control
MHP	Multimedia Home Platform
MHEG	Multimedia and Hypermedia Experts Group
MPEG	Motion Pictures Expert Group
MSP	Multi standard Sound Processor: ITT sound decoder of A10E
MUTE	Mute-Line
NC	Not Connected
NICAM	Near Instantaneously Companded Audio Multiplexing
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
P50	Project 50 communication: protocol between TV and peripherals
Painter	On Screen Display, Teletext and Control; also named Artistic (SAA5565)
PCB	Printed Circuit board
PCI	Peripheral Computer Interface
PCMCIA	Personal Computer Memory Card International Association
PLL	Phase Locked Loop
PPV	Pay Per View
PTP	Picture Tube Panel
RAM	Random Access Memory
RC	Remote Control
RC5	RC5 signal from the remote control receiver
RESET	Reset signal
ROM	Read Only Memory
RGB	Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R,G , and B, all colours (Y/C) are reproduced
RTC	Real Time Clock
SAM	Service Alignment Mode
SAW	Surface Acoustic Wave
SC	Sandcastle: pulse derived from sync signals
SCAVEM	Scan Velocity Modulation
S/C	Short Circuit
SC1-OUT	SCART output of the MSP audio IC
SC2-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 Chrominance in
SC2-OUT	SCART output of the MSP audio IC
SFN	Single frequency Network
SIF	Sound Intermediate Frequency
SIMM	Single In-line Memory Module: 80-fold connector between LSP and SSB
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out
SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SNDS-VL-OUT	Surround sound left variable level out
SNDS-VR-OUT	Surround sound right variable level out
SNERT	Synchronous No parity Eight bit Reception and Transmit
S/PDIF	Sony/Philips Digital Interface
SSB	Small Signal Board
STB	Set-top box
STBY	Standby
SW	Subwoofer
TPS	Transmission Parameter Signalling
TXT	Teletext
µP	Microprocessor
UI	User Interface
VBI	Vertical Blanking Interval
VA	Vertical Acquisition
V-BAT	Main supply voltage for deflection (mostly 141 V)
VCR	Video Recorder
VFB	Vertical Flyback Pulse: vertical sync pulse coming from the feature box
VL	Variable Level out: processed audio output towards external amplifier
VLWI	Very Long Word Instruction
VPR	Viper
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
Y-OUT	Luminance-signal

9.13 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).

9.13.1 Diagram K1, PNX8525 (IC7100)

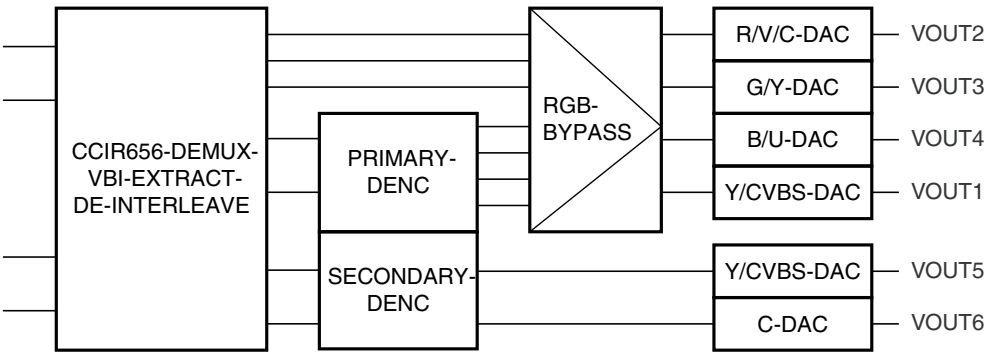


CL 36532080_085.eps
111203

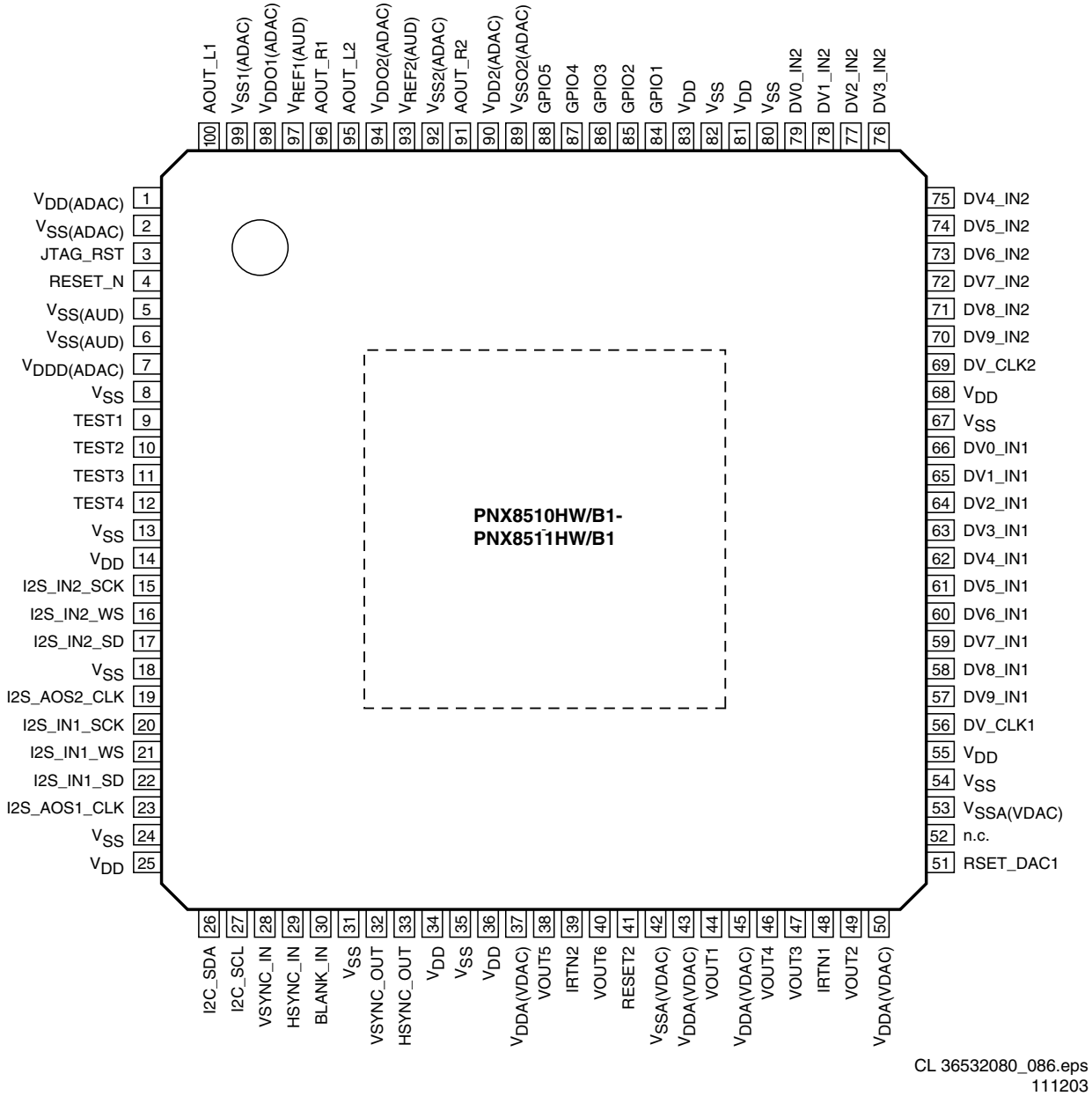
Figure 9-9 Internal Block Diagram

9.13.2 Diagram K6, PNX8510 (IC7602)

Video path block diagram



Pin configuration



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111203

Figure 9-10 Internal Block Diagram and Pin Configuration

9.13.3 Diagram K8, TDA10046 (IC7800)

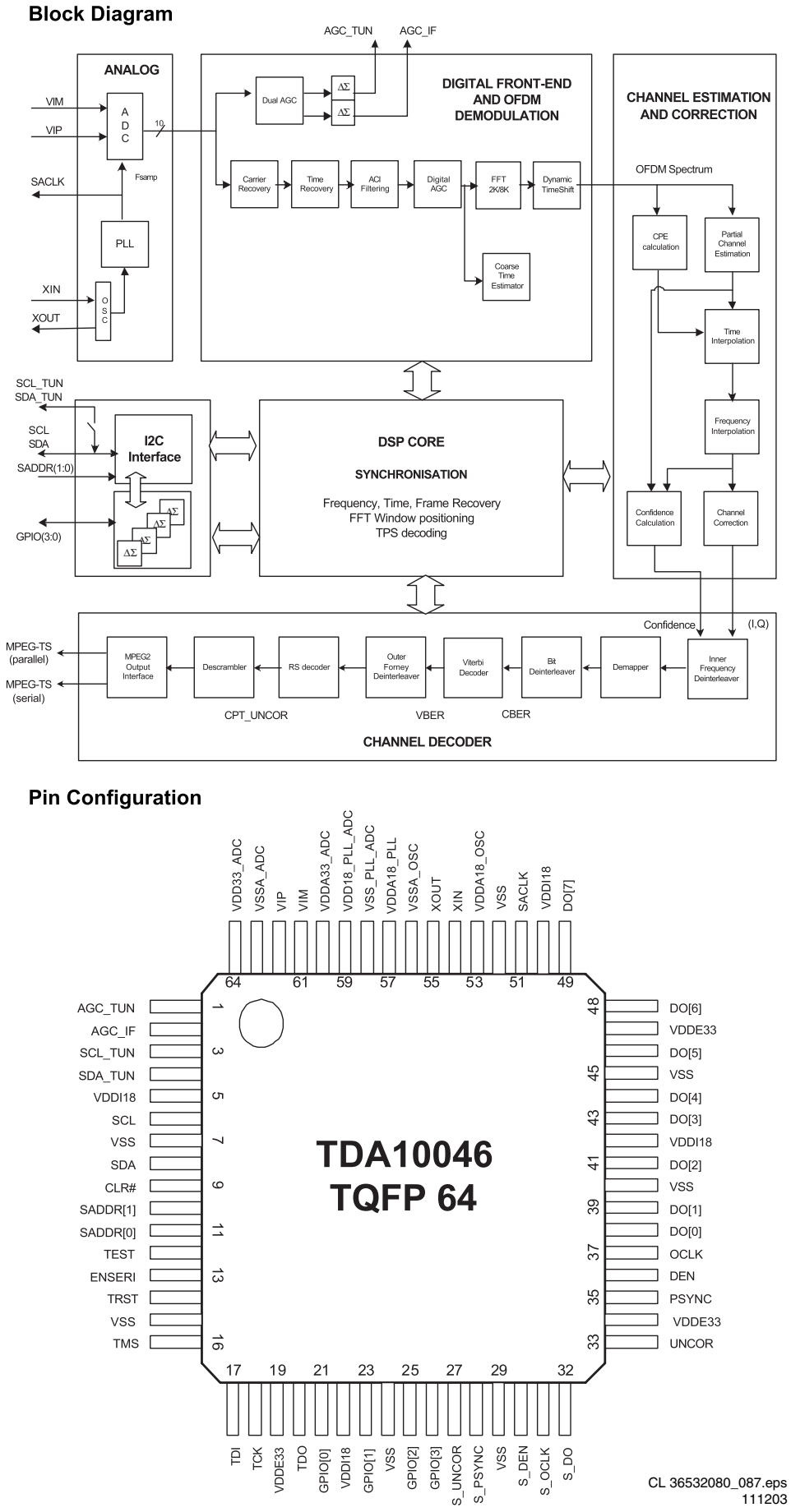


Figure 9-11 Internal Block Diagram and Pin Configuration

10. Spare Parts List

Large Signal Panel [A]

Various

0137	4822 492 70789	Fix transistor
0138	4822 492 70789	Fix transistor
0139	4822 492 70788	Fix IC
0140	4822 492 70789	Fix transistor
0144	4822 492 70789	Fix transistor
0152	3104 311 05491	Cable 5p/680/5p
0169	3104 311 01361	Cable 5p/480/5p
0170	3139 131 00761	Cable 2p/560/2p
0173	3104 311 03281	Cable 3p/340/3p
0179	3104 301 08291	Cable 2p3/560/2p3
0182	3139 131 01211	Cable 2p/560/2p
0184	3139 110 38540	Cable 3p/220/3p
0206	2422 025 15848	Connector 5p m
0211	4822 267 10774	Connector 2p male (red)
0212	4822 265 20723	Connector 2p
0214	4822 267 10734	Connector 5p
0215	2422 025 16382	Connector 3p m
0221	4822 267 10966	Connector 2p
0222	2422 025 10646	Connector 2p m
0226	2422 025 16599	Connector 80p f
0229	2422 025 16601	Connector 3p m
0231	2422 025 16374	Connector 2p m
0232	4822 267 10565	Connector 4p
0234	4822 267 10735	Connector 3p
0235	2422 025 04851	Connector 3p
0239	4822 265 41391	Connector 9p
0240	2422 025 12485	Connector 11p m
0241	4822 265 30735	Connector 5p
0242	4822 265 30735	Connector 5p
0246	4822 267 10565	Connector 4p
0252	2422 025 04851	Connector 3p
0253	4822 267 10735	Connector 3p
0254	4822 267 10735	Connector 3p
0287	3104 311 04252	Cable 3p/340/3p
0289	3104 311 01161	Cable 11p/340/11p
1260	2422 025 16745	Connector 42p f
1269	4822 267 10982	Connector 2p
1931	2422 132 07444	Relay 1p 12V 5A
1941	4822 071 51602	Fuse 1.6A
1961	4822 071 51602	Fuse 1.6A

⊣⊢

2012	4822 130 11564	UDZ3.9B
2020	4822 122 33177	10nF 20% 50V
2021	4822 122 33172	390pF 5% 50V
2023	4822 126 14043	1µF +80-20% 16V 0805
2024	4822 126 14043	1µF +80-20% 16V 0805
2201	5322 122 31863	330pF 5% 63V 0805
2202	4822 126 13692	47pF 1% 63V
2203	5322 122 31863	330pF 5% 63V 0805
2206	5322 122 31863	330pF 5% 63V 0805
2208	5322 122 31863	330pF 5% 63V 0805
2211	5322 122 32658	22pF 5% 50V
2214	5322 122 31863	330pF 5% 63V 0805
2215	5322 122 31863	330pF 5% 63V 0805
2217	5322 122 32658	22pF 5% 50V
2218	5322 122 32658	22pF 5% 50V
2222	5322 122 32658	22pF 5% 50V
2225	5322 122 32658	22pF 5% 50V
2227	4822 122 33575	220pF 5% 63V 0805
2231	5322 122 31863	330pF 5% 63V 0805
2233	5322 122 31863	330pF 5% 63V 0805
2236	5322 122 31863	330pF 5% 63V 0805
2238	5322 122 31863	330pF 5% 63V 0805
2242	5322 122 31863	330pF 5% 63V 0805
2244	5322 122 31863	330pF 5% 63V 0805
2246	4822 124 81286	47µF 20% 16V
2247	5322 122 32658	22pF 5% 50V
2249	4822 122 33575	220pF 5% 63V 0805
2251	5322 122 31863	330pF 5% 63V 0805
2253	5322 122 31863	330pF 5% 63V 0805
2261	4822 124 40196	220µF 20% 16V
2262	5322 122 31647	1nF 10% 63V
2265	4822 124 81044	470µF 20% 6.3V
2266	2238 580 15645	47nF 10% 50V 0805
2271	4822 124 21913	1µF 20% 63V
2276	5322 126 10511	1nF 5% 50V
2280	5322 122 32531	100pF 5% 50V
2281	4822 122 33575	220pF 5% 63V 0805
2282	4822 126 13751	47nF 10% 63V
2284	4822 124 40207	100µF 20% 25V
2404	4822 122 31177	470pF 10% 500V
2406	4822 121 70386	47nF 10% 250V
2409	5322 121 42386	100nF 5% 63V
2411	2020 558 90611	1.8nF 10% 2kV
2411	4822 126 13449	1nF 10% 2kV
2415	4822 121 70434	11nF 5% 1.6kV
2415	4822 121 70617	10nF 5% 1.6kV
2416	4822 126 11503	820pF 10% 2kV
2417	4822 122 31177	470pF 10% 500V
2419	4822 121 10781	470nF 5% 250V
2420	4822 124 41741	2.2µF 20% 350V
2421	2222 479 90022	0.43µF 250V
2422	4822 126 13751	47nF 10% 63V
2430	4822 121 70676	27pF 10% 50V
2434	2020 021 91543	47µF 20% 160V
2437	4822 121 10619	220nF 10% 250V
2439	4822 121 51252	470nF 5% 63V
2442	4822 126 14585	100nF 10% 0805 50V
2445	2020 012 93596	22µF 20% 250V
2447	4822 124 80791	470µF 20% 16V
2450	4822 124 80791	470µF 20% 16V
2461	5322 121 42386	100nF 5% 63V
2463	5322 121 42386	100nF 5% 63V
2469	2222 479 90166	68pF 5% 400V
2473	4822 122 31177	470pF 10% 500V
2475	4822 121 43526	47nF 5% 250V
2476	4822 121 70545	7.5nF 5% 1,6kV
2476	4822 121 70617	10nF 5% 1.6kV
2478	5322 121 10472	47MU/25
2479	4822 124 80341	1µF 20% 160V
2484	4822 121 70386	47nF 10% 250V
2485	4822 126 10206	2,2nF 10% 500V
2487	4822 121 70545	7.5nF 5% 1,6kV
2487	4822 121 70617	10nF 5% 1.6kV
2488	4822 126 14585	100nF 10% 0805 50V
2489	2222 479 90014	0.22µF 250V
2491	4822 051 20474	470kΩ 5% 0.1W
2492	4822 126 12263	220pF 10% 2kV
2501	2238 861 15182	1.8nF 5% 50V 0805
2503	2238 861 15182	1.8nF 5% 50V 0805
2505	5322 121 42386	100nF 5% 63V
2506	2020 021 91677	100µF 20% 50V
2521	4822 121 42408	220nF 5% 63V
2522	4822 124 41407	0.47µF 20% 63V
2523	5322 121 42386	100nF 5% 63V
2524	5322 121 42386	100nF 5% 63V
2525	4822 121 43897	1nF 5% 400V
2531	4822 124 40784	3300µF 20% 16V
2532	4822 124 21913	1µF 20% 63V
2536	4822 126 14335	1nF 10% 0805 100V
2701	5322 124 41379	2.2µF 20% 50V
2702	2020 021 91677	100µF 20% 50V
2703	5322 124 41379	2.2µF 20% 50V
2704	4822 124 12056	1000µF 20% 35V
2705	4822 124 80637	3.3µF 20% 100V
2706	4822 126 14585	100nF 10% 0805 50V
2707	4822 123 14026	470µF 20% 35V
2708	4822 124 21913	1µF 20% 63V
2709	4822 124 12056	1000µF 20% 35V
2711	4822 126 14491	2.2µF 10V 0805
2712	4822 124 40255	100µF 20% 63V
2713	4822 126 14585	100nF 10% 0805 50V
2714	5322 122 32531	100pF 5% 50V
2715	4822 124 40255	100µF 20% 63V
2716	4822 126 14491	2.2µF 10V 0805
2717	5322 122 32531	100pF 5% 50V
2718	4822 124 40255	100µF 20% 63V
2719	5322 122 31647	1nF 10% 63V
2720	5322 122 31647	1nF 10% 63V
2722	4822 122 33127	2.2nF 10% 63V
2723	4822 122 33127	2.2nF 10% 63V
2726	4822 124 40255	100µF 20% 63V
2727	5322 122 32654	22nF10% 63V 0805
2728	5322 122 32654	22nF10% 63V 0805
2729	5322 122 32654	22nF10% 63V 0805
2730	5322 122 32654	22nF10% 63V 0805
2731	4822 126 14043	1µF +80-20% 16V 0805
2732	4822 126 14043	1µF +80-20% 16V 0805
2733	4822 124 11947	10µF 20% 16V
2905	4822 121 70141	33nF 5% 400V
2908	4822 126 14153	2.2nF 10% 1kV
2909	4822 126 12263	220pF 10% 2kV
2915	2020 024 90771	220µF 20% 400V
2919	4822 124 80604	47µF 20% 50V
2921	5322 122 32311	470pF 10% 100V
2922	4822 126 13862	1,5nF 10% 2kV
2925	5322 122 32311	470pF 10% 100V
2927	4822 121 10779	1,5nF 10% 50V
2929	4822 126 14088	2.2nF 20% 250V
2932	5322 122 32654	22nF10% 63V 0805
2936	4822 126 12263	220pF 10% 2kV
2938	4822 122 50116	470pF 10% 1kV
2939	4822 124 42336	47µF 20% 160V
2941	4822 122 31175	1nF 10% 500V
2942	4822 121 42408	220nF 5% 63V
2943	4822 124 40784	3300µF 20% 16V
2945	4822 124 81144	1000µF 16V
2952	4822 126 14585	100nF 10% 0805 50V
2953	4822 126 13751	47nF 10% 63V
2955	4822 122 33336	8.2nF 10%50V
2961	4822 122 31175	1nF 10% 500V
2962	2020 021 91501	4700µF 20% 10V
2963	2238 780 15654	220nF 10% 16V 0805
2964	4822 122 31175	1nF 10% 500V
2966	4822 124 41584	100µF 20% 10V
2967	4822 124 41584	100µF 20% 10V
2968	4822 124 81151	22µF 50V
2969	4822 124 40207	100µF 20% 25V
2970	5322 122 32331	1nF 10% 100V
2974	4822 124 11583	2200µF 20% 35V
2977	4822 124 41584	100µF 20% 10V

⌐WW⌐

3024	4822 051 10102	1kΩ 2% 0.25W
3025	4822 051 20391	390Ω 5% 0.1W
3026	4822 117 11449	2.2kΩ 5% 0.1W 0805
3027	4822 051 20391	390Ω 5% 0.1W
3028	4822 051 20562	5.6kΩ 5% 0.1W 0805
3029	4822 051 20472	4.7kΩ 5% 0.1W
3030	4822 051 20122	1.2kΩ 5% 0.1W
3031	4822 116 83933	15kΩ 1% 0.1W
3032	4822 051 20472	4.7kΩ 5% 0.1W
3033	4822 116 83933	15kΩ 1% 0.1W
3034	4822 117 10833	10kΩ 1% 0.1W
3035	4822 052 10229	22Ω 5% 0.33W
3037	4822 051 20182	1.8kΩ 5% 0.1W
3038	4822 051 20182	1.8kΩ 5% 0.1W
3201	4822 116 83868	150Ω 5% 0.5W
3202	3198 021 52240	220kΩ 5% 0805
3203	4822 116 83868	150Ω 5% 0.5W
3206	4822 116 83868	150Ω 5% 0.5W
3207	3198 021 52240	220kΩ 5% 0805
3208	4822 116 83868	150Ω 5% 0.5W
3211	4822 116 52201	75Ω 5% 0.5W
3212	4822 116 52175	100Ω 5% 0.5W
3213	4822 116 52264	27kΩ 5% 0.5W
3214	4822 117 11507	6.8kΩ 1% 0.1W
3215	4822 116 52175	100Ω 5% 0.5W
3216	4822 116 52201	75Ω 5% 0.5W
3217	4822 116 52175	100Ω 5% 0.5W
3218	4822 116 52201	75Ω 5% 0.5W
3219	4822 116 52175	100Ω 5% 0.5W
3220	4822 051 20106	10MΩ 5% 0.1W
3220	4822 051 20154	150kΩ 5% 0.1W
3221	4822 116 52201	75Ω 5% 0.5W
3222	4822 116 52175	100Ω 5% 0.5W
3223	4822 050 15609	56Ω 1% 0.4W
3224	4822 051 10102	1kΩ 2% 0.25W
3226	4822 116 52201	75Ω 5% 0.5W
3227	4822 116 52176	10Ω 5% 0,5W
3231	4822 116 83868	150Ω 5% 0.5W
3232	3198 021 52240	220kΩ 5% 0805
3233	4822 116 83868	150Ω 5% 0.5W
3236	4822 116 83868	150Ω 5% 0.5W
3237	3198 021 52240	220kΩ 5% 0805
3238	4822 116 83868	150Ω 5% 0.5W
3241	4822 116 52264	27kΩ 5% 0.5W
3242	4822 117 11507	6.8kΩ 1% 0.1W
3243	4822 116 52201	75Ω 5% 0.5W
3244	4822 116 52175	100Ω 5% 0.5W
3245	4822 116 52199	68Ω 5% 0,5W
3246	4822 051 10102	1kΩ 2% 0.25W
3247	5322 117 11726	10Ω 5%
3248	4822 116 52201	75Ω 5% 0.5W
3249	4822 116 52176	10Ω 5% 0,5W
3251	3198 021 52240	220kΩ 5% 0805
3252	4822 116 83868	150Ω 5% 0.5W
3253	3198 021 52240	220kΩ 5% 0805
3254	4822 116 83868	150Ω 5% 0.5W
3255	4822 051 20479	47kΩ 5% 0.1W
3256	4822 051 20479	47kΩ 5% 0.1W
3257	4822 051 20479	47kΩ 5% 0.1W
3263	4822 051 10102	1kΩ 2% 0.25W
3264	4822 117 10833	10kΩ 1% 0.1W
3267	4822 051 20109	10Ω 5% 0.1W
3268	4822 051 20109	10Ω 5% 0.1W
3271	4822 051 20333	33kΩ 5% 0.1W
3272	4822 117 10833	10kΩ 1% 0.1W
3273	4822 051 20223	22kΩ 5% 0.1W

3274	4822 051 20154	150kΩ 5% 0.1W
3276	4822 117 10833	10kΩ 1% 0.1W
3277	4822 117 11373	100Ω 1% 0805
3278	4822 117 11503	220Ω 1% 0.1W
3280	4822 051 20333	33kΩ 5% 0.1W
3281	4822 051 20472	4.7kΩ 5% 0.1W
3282	4822 117 10834	47kΩ 1% 0.1W
3286	4822 051 20182	1.8kΩ 5% 0.1W
3401	4822 116 52175	100Ω 5% 0.5W
3402	4822 050 11002	1kΩ 1% 0.4W
3403	4822 116 52269	3.3kΩ 5% 0.5W
3405	4822 117 12473	4.7kΩ 5% 5W
3409	4822 053 10333	33kΩ 5% 1W
3410	4822 116 52191	33Ω 5% 0.5W
3411	4822 053 21334	330kΩ 5% 0.5W
3412	4822 116 52234	100kΩ 5% 0.5W
3414	4822 116 52234	100kΩ 5% 0.5W
3417	4822 116 52228	680Ω 5% 0.5W
3422	4822 053 10103	10kΩ 5% 1W
3430	4822 053 12339	33Ω 5% 3W
3432	4822 051 20474	470kΩ 5% 0.1W
3435	4822 116 83882	39kΩ 5% 0.5W
3436	4822 116 83882	39kΩ 5% 0.5W
3437	4822 116 52257	22kΩ 5% 0.5W
3438	4822 051 20474	470kΩ 5% 0.1W
3439	4822 050 11002	1kΩ 1% 0.4W
3440	4822 117 10837	100kΩ 1% 0.1W
3441	4822 116 83961	6.8kΩ 5%
3442	4822 051 20564	560kΩ 5% 0.1W
3442	4822 051 20684	680kΩ 5% 0.1W
3445	4822 052 11108	1Ω 5% 0.5W
3446	4822 052 11108	1Ω 5% 0.5W
3447	4822 052 11108	1Ω 5% 0.5W
3448	4822 052 11108	1Ω 5% 0.5W
3449	4822 052 11108	1Ω 5% 0.5W
3456	4822 051 10102	1kΩ 2% 0.25W
3470	4822 116 52264	27kΩ 5% 0.5W
3471	4822 116 83883	470Ω 5% 0.5W
3472	4822 050 23303	33kΩ 1% 0.6W
3472	4822 116 52264	27kΩ 5% 0.5W
3473	4822 116 52234	100kΩ 5% 0.5W
3474	4822 050 24708	4.7Ω 1% 0.6W
3475	4822 050 24708	4.7Ω 1% 0.6W
3476	4822 116 52283	4.7kΩ 5% 0.5W
3477	4822 116 52238	12kΩ 5% 0.5W
3478	4822 050 21003	10kΩ 1% 0.6W
3479	4822 116 52234	100kΩ 5% 0.5W
3480	4822 050 21003	10kΩ 1% 0.6W
3492	4822 053 21334	330kΩ 5% 0.5W
3493	4822 050 21003	10kΩ 1% 0.6W
3494	4822 116 83882	39kΩ 5% 0.5W
3495	3198 012 32280	2.2Ω 5% 3W
3496	3198 012 32280	2.2Ω 5% 3W
3497	3198 012 32280	2.2Ω 5% 3W
3498	4822 117 10837	100kΩ 1% 0.1W
3498	4822 117 11149	82kΩ 1% 0,1W
3501	4822 051 10102	1kΩ 2% 0.25W
3503	4822 051 10102	1kΩ 2% 0.25W
3504	4822 116 52256	2.2kΩ 5% 0.5W
3511	4822 116 52283	4.7kΩ 5% 0.5W
3512	4822 117 10833	10kΩ 1% 0.1W
3513	4822 117 10833	10kΩ 1% 0.1W
3521	4822 052 10158	1.5 5% 0.33W
3522	4822 116 83866	1MΩ 5% 0.5W
3523	4822 116 52175	100Ω 5% 0.5W
3524	4822 116 52175	100Ω 5% 0.5W
3525	5322 116 53564	3.3Ω 5% 0.5W
3526	5322 116 53564	3.3Ω 5% 0.5W
3527	5322 116 53564	3.3Ω 5% 0.5W
3528	4822 116 52256	2.2kΩ 5% 0.5W
3531	4822 051 20688	6.8Ω 5% 0.1W
3701	4822 117 10833	10kΩ 1% 0.1W
3702	4822 117 10833	10kΩ 1% 0.1W
3704	4822 116 52291	56kΩ 5% 0.5W
3705	4822 051 20182	1.8kΩ 5% 0.1W
3706	4822 117 10833	10kΩ 1% 0.1W
3707	4822 117 10833	10kΩ 1% 0.1W
3708	4822 117 10837	100kΩ 1% 0.1W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 117 10833	10kΩ 1% 0.1W
3711	4822 117 10833	10kΩ 1% 0.1W
3712	4822 051 20822	8.2kΩ 5% 0.1W
3713	4822 051 20223	22kΩ 5% 0.1W
3715	4822 051 20332	2.3kΩ 5% 0.1W
3716	4822 051 20822	8.2kΩ 5% 0.1W
3717	4822 117 12955	2.7kΩ 1% 0.1W 0805
3719	4822 117 12955	2.7kΩ 1% 0.1W 0805
3720	4822 051 20332	2.3kΩ 5% 0.1W
3721	4822 117 10837	100kΩ 1% 0.1W
3722	4822 117 12955	2.7kΩ 1% 0.1W 0805
3723	4822 051 20332	2.3kΩ 5% 0.1W
3724	4822 117 11449	2.2kΩ 5% 0.1W 0805
3725	4822 117 11449	2.2kΩ 5% 0.1W 0805
3727	4822 116 52176	10Ω 5% 0,5W
3728	4822 051 20109	10Ω 5% 0.1W
3730	4822 051 20273	27kΩ 5% 0.1W
3731	4822 051 20273	27kΩ 5% 0.1W
3732	4822 116 52234	100kΩ 5% 0.5W
3733	4822 051 20561	560Ω 5% 0.1W
3734	4822 051 20478	4.7Ω 5% 0.1W
3735	4822 051 20478	4.7Ω 5% 0.1W
3736	4822 052 10108	1Ω 5% 0.33W
3737	4822 052 10108	1Ω 5% 0.33W
3905	3198 013 04710	470Ω 20% 0.5W
3907	4822 117 12074	1.5Ω 10% 7W
3911	4822 116 10105	PTC 9Ω 220V
3913	2322 193 53154	150kΩ 5%
3915	4822 053 20335	3.3Ω 5% 0.25W
3917	4822 117 10361	680Ω 1% 0.1W
3923	4822 117 11342	0.33Ω 5% 2W
3924	4822 117 11744	0.22Ω 5% 1W
3925	4822 116 52228	680Ω 5% 0.5W
3926	4822 116 52269	3.3kΩ 5% 0.5W
3928	4822 116 52263	2.7kΩ 5% 0.5W
3931	4822 117 10833	10kΩ 1% 0.1W
3932	4822 117 10833	10kΩ 1% 0.1W
3942	2120 108 92616	1.2kΩ 1%
3943	4822 116 83881	390Ω 5% 0.5W
3944	4822 116 52257	22kΩ 5% 0.5W
3946	4822 051 20223	22kΩ 5% 0.1W
3947	5322 117 12487	1kΩ 1% 0.125W
3948	4822 051 20683	68kΩ 5% 0.1W
3951	4822 051 20562	5.6kΩ 5% 0.1W 0805
3952	4822 117 11149	82kΩ 1% 0,1W
3953	4822 117 10833	10kΩ 1% 0.1W
3954	4822 051 20562	5.6kΩ 5% 0.1W 0805
3955	4822 117 10833	10kΩ 1% 0.1W
3957	4822 051 20182	1.8kΩ 5% 0.1W
3958	4822 051 10102	1kΩ 2% 0.25W
3962	4822 051 20562	5.6kΩ 5% 0.1W 0805
3963	4822 051 20109	10Ω 5% 0.1W
3965	4822 051 20229	22kΩ 5% 0.1W
3966	4822 051 20561	560Ω 5% 0.1W
3967	4822 116 52219	330Ω 5% 0.5W
3968	4822 051 20392	2.9kΩ 5% 0.1W
3969	4822 050 21003	10kΩ 1% 0.6W
3970	4822 053 12229	22Ω 5% 3W
3977	4822 117 12955	2.7kΩ 1% 0.1W 0805
3978	4822 117 10833	10kΩ 1% 0.1W
3979	4822 116 83933	15kΩ 1% 0.1W
3986	4822 051 20333	33kΩ 5% 0.1W
3987	4822 117 10833	10kΩ 1% 0.1W
3989	4822 051 20334	330kΩ 5% 0.1W
3991	4822 116 52257	22kΩ 5% 0.5W
3992	4822 117 10833	10kΩ 1% 0.1W
3993	4822 117 10833	10kΩ 1% 0.1W
3994	4822 116 83933	15kΩ 1% 0.1W
3997	4822 117 11373	100Ω 1% 0805
4xxx	4822 051 20008	Jumper 0805

5012	4822 157 11771	0.09µH 10%
5201	4822 157 11235	22µH 5%
5202	4822 157 11235	22µH 5%
5261	4822 157 11778	5.6µH 0805 10%
5262	4822 157 50943	12µH
5406	4822 142 40351	Transf.
5411	4822 157 11411	Bead 100MHz
5417	4822 157 11673	Linearity coil 32"
5417	4822 157 71914	Linearity coil 28"
5430	4822 157 10359	33µH
5431	2422 531 02556	Tranf. 1362.0004C
5431	3128 138 22381	LOT OV2076
5445	4822 157 50964	100µH
5446	4822 157 11672	12µH 5%
5448	4822 157 11672	12µH 5%
5474	4822 157 62828	Choke coil CU15
5478	2422 531 02419	Bridge coil C946-01
5521	4822 157 11771	0.09µH 10%
5523	4822 157 11771	0.09µH 10%
5524	4822 157 11771	0.09µH 10%
5900	4822 157 11523	Line filter 5mH/2A
5902	4822 157 11122	Line filter 15mH
5903	4822 157 10999	Line filter DMF-2830H
5912	2422 531 02375	Transf. EER-4245
5920	4822 526 10704	Bead 100MHz
5924	4822 526 10704	Bead 100MHz
5936	4822 526 10704	Bead 100MHz
5939	4822 157 71401	27µH
5941	4822 526 10704	Bead 100MHz
5961	4822 526 10704	Bead 100MHz
5971	4822 526 10704	Bead 100MHz

6010	4822 130 11397	BAS316
6265	4822 130 11397	BAS316
6266	4822 130 11397	BAS316
6267	4822 130 10837	UDZS8.2B
6268	4822 130 10837	UDZS8.2B
6271	4822 130 11397	BAS316
6273	4822 130 11397	BAS316
6274	4822 130 11397	BAS316
6275	4822 130 11397	BAS316
6276	4822 130 11397	BAS316
6278	4822 130 11397	BAS316
6279	3198 020 55680	BZX384-C5V6
6280	9340 548 61115	PDZ12B
6283	9340 548 61115	PDZ12B
6284	9340 548 61115	PDZ12B
6285	9340 548 61115	PDZ12B
6286	9340 548 61115	PDZ12B
6287	9340 548 61115	PDZ12B
6288	9340 548 61115	PDZ12B
6289	9340 548 61115	PDZ12B
6291	9340 548 61115	PDZ12B
6292	9340 548 61115	PDZ12B
6413	4822 130 30621	1N4148
6414	4822 130 83825	BY328/20
6419	4822 130 41601	BYV95A
6420	4822 130 41601	BYV95A
6439	4822 130 34379	BZX79-B27
6440	4822 130 30621	1N4148
6442	4822 130 30621	1N4148
6445	4822 130 41487	BYV95C
6447	9340 559 53112	BYW95C-24
6448	9340 559 53112	BYW95C-24
6467	4822 130 11148	UDZ4.7B
6468	4822 130 11551	UDZS10B
6472	4822 130 61219	BZX79-B10
6474	9340 559 53112	BYW95C-24
6475	9340 559 53112	BYW95C-24
6480	4822 130 30621	1N4148
6481	4822 130 34142	BZX79-B33
6482	4822 130 41487	BYV95C
6483	4822 130 41487	BYV95C
6484	4822 130 41487	BYV95C
6485	4822 130 20299	P0102DA
6486	4822 130 34379	BZX79-B27
6487	4822 130 34142	BZX79-B33
6505	4822 130 41601	BYV95A
6511	4822 130 30621	1N4148
6512	4822 130 34173	BZX79-C5V6
6522	4822 130 41601	BYV95A
6523	4822 130 11397	BAS316
6524	4822 130 11397	BAS316
6701	4822 130 30621	1N4148
6702	9340 548 61115	PDZ12B
6703	9340 548 61115	PDZ12B
6904	4822 130 34142	BZX79-B33
6905	4822 130 34142	BZX79-B33
6911	4822 130 31083	BYW55
6912	4822 130 31083	BYW55
6913	4822 130 31083	BYW55
6914	4822 130 31083	BYW55
6921	4822 130 34142	BZX79-B33
6926	4822 130 41601	BYV95A
6928	4822 130 41601	BYV95A
6929	4822 130 41601	BYV95A
6932	4822 130 30621	1N4148
6938	4822 130 10218	BY229X-800
6941	9322 161 76682	SB340L-7024
6942	4822 130 41601	BYV95A
6953	4822 130 34382	BZX79-B8V2
6955	4822 130 30621	1N4148
6961	9322 161 76682	SB340L-7024
6966	3198 010 53980	BZX79-B3V9
6971	5322 130 31938	BYV27-200
6973	4822 130 30621	1N4148
6977	9340 548 52115	PDZ5.1B
6986	4822 130 34281	BZX79-B15
6991	4822 130 34382	BZX79-B8V2

7012	4822 130 40959	BC547B
7013	4822 130 44568	BC557B
7014	4822 130 40981	BC337-25
7015	4822 130 40981	BC337-25
7224	5322 130 60159	BC846B
7226	5322 130 60159	BC846B
7273	4822 130 60373	BC856B
7276	5322 130 60159	BC846B
7277	4822 130 60373	BC856B
7280	5322 130 60159	BC846B

7408	4822 130 41646	BF423
7410	9340 550 89127	BU4508AX
7440	4822 130 44568	BC557B
7470	4822 130 11336	STP16NE06FP
7478	4822 130 40959	BC547B
7480	4822 130 40959	BC547B
7482	9340 547 00215	PDTC143ZT
7483	9322 103 08678	2SC2383-0
7501	4822 209 61117	TDA8172
7513	5322 130 60159	BC846B
7701	5322 130 60159	BC846B
7702	9322 148 81667	AN5277
7703	4822 209 33165	TDA1308T/N1
7704	5322 130 60159	BC846B
7710	5322 130 60159	BC846B
7711	4822 130 60373	BC856B
7712	4822 130 60373	BC856B
7921	9322 140 38682	STR-F6454(LF1352)
7922	4822 130 60373	BC856B
7929	8238 274 02070	TCET1103G
7932	5322 130 60159	BC846B
7942	4822 209 80591	LM317T
7944	5322 130 60159	BC846B
7946	5322 130 60159	BC846B
7948	5322 130 60159	BC846B
7951	5322 130 60159	BC846B
7953	5322 130 60159	BC846B
7955	5322 130 60159	BC846B
7965	4822 130 40855	BC337
7967	9322 137 01682	SI-3050C
7968	9322 137 01682	SI-3050C
7971	4822 209 16707	SE140N
7987	4822 130 60373	BC856B
7990	4822 130 60373	BC856B
7991	5322 130 60159	BC846B
7992	5322 130 60159	BC846B

CRT/SCAVEM Panel [B]

Various

0141	4822 492 70788	Fix IC
0159	3104 311 02931	Cable 3p/400/3p
0244	4822 265 30735	Connector 5p
0245	4822 265 30735	Connector 5p
0278	2422 025 16382	Connector 3p m
0373	2422 500 80058	Connector 9p f
0373	2422 500 80061	Connector 9p f

⊣⊢

2330	4822 121 51473	470nF 20% 63V
2340	4822 124 11565	10µF 20% 250V
2341	4822 126 13599	3.3nF 10% 500V
2342	5322 122 31647	1nF 10% 63V
2344	4822 051 20008	Jumper 0805
2345	4822 122 31175	1nF 10% 500V
2346	4822 126 13451	2.2nF 10% 2kV
2346	4822 126 14237	470pF 10% 2kV
2360	4822 124 40764	22µF 100 V
2361	4822 124 40207	100µF 20% 25V
2365	4822 121 40516	22nF 10% 250V
2366	4822 121 40334	100nF 10% 100V
2367	4822 126 10326	180pF 5% 63V
2368	5322 122 32654	22nF10% 63V 0805
2373	4822 126 13691	27pF 1% 63V
2375	5322 122 31863	330pF 5% 63V 0805
2376	4822 126 14585	100nF 10% 0805 50V
2377	4822 126 14585	100nF 10% 0805 50V

⊣WW⊢

3331	4822 116 52175	100Ω 5% 0.5W
3332	3198 013 01020	1kΩ 20% 0.5W
3333	4822 116 52175	100Ω 5% 0.5W
3334	3198 013 01020	1kΩ 20% 0.5W
3335	4822 116 52175	100Ω 5% 0.5W
3336	3198 013 01020	1kΩ 20% 0.5W
3340	4822 052 11109	10Ω 5% 0.5W
3341	4822 052 10108	1Ω 5% 0.33W
3341	4822 052 10188	1.8Ω 5% 0.33W
3342	4822 052 10108	1Ω 5% 0.33W
3342	4822 052 10188	1.8Ω 5% 0.33W
3343	3198 013 01520	1.5kΩ 20% 0.5W
3344	4822 116 52191	33Ω 5% 0.5W
3345	4822 117 13016	VDR 1mA/50V
3346	4822 116 52191	33Ω 5% 0.5W
3347	4822 051 10102	1kΩ 2% 0.25W
3348	4822 051 10102	1kΩ 2% 0.25W
3350	4822 051 10102	1kΩ 2% 0.25W
3351	4822 051 10102	1kΩ 2% 0.25W
3353	4822 051 10102	1kΩ 2% 0.25W
3354	4822 051 10102	1kΩ 2% 0.25W
3360	4822 117 13424	8.2kΩ 5% 5W
3362	4822 052 10109	10Ω 5% 0.33W
3363	4822 116 52231	820Ω 5% 0.5W
3364	5322 116 53564	3.3Ω 5% 0.5W
3368	4822 117 12955	2.7kΩ 1% 0.1W 0805
3369	4822 117 10833	10kΩ 1% 0.1W
3370	4822 117 11503	220Ω 1% 0.1W
3371	4822 051 20472	4.7kΩ 5% 0.1W
3373	4822 117 11503	220Ω 1% 0.1W
3374	4822 116 52291	56kΩ 5% 0.5W
3375	4822 116 83868	150Ω 5% 0.5W
3376	4822 051 20008	Jumper 0805
3377	4822 050 24708	4.7Ω 1% 0.6W
3378	4822 117 11148	56kΩ 1% 0.1W
3379	4822 051 20472	4.7kΩ 5% 0.1W
3382	4822 117 11139	1.5kΩ 1% 0.1W
3383	4822 051 20471	470Ω 5% 0.1W
3384	4822 117 11454	820Ω 1% 0.1W
3385	5322 116 53564	3.3Ω 5% 0.5W
3386	4822 051 20472	4.7kΩ 5% 0.1W
3387	4822 051 20471	470Ω 5% 0.1W
3390	4822 051 20109	10Ω 5% 0.1W
3391	4822 051 20109	10Ω 5% 0.1W
3392	4822 117 11503	220Ω 1% 0.1W
3393	4822 051 20472	4.7kΩ 5% 0.1W
4311	4822 051 20008	Jumper 0805

⌐~~⌐

5342	4822 157 51312	68µH
5342	4822 157 71703	YKC21-3416
5343	2722 122 00333	Delay line 160ns
5344	2722 122 00333	Delay line 160ns
5345	2722 122 00333	Delay line 160ns
5360	4822 157 51216	5.6µH

⊣▷⊢

6331	4822 130 30842	BAV21
6333	4822 130 30842	BAV21
6335	4822 130 30842	BAV21
6360	4822 130 30621	1N4148
6361	4822 130 11397	BAS316
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316



7330	9352 561 40112	TDA6108
7331	5322 130 60159	BC846B
7332	5322 130 60159	BC846B
7333	5322 130 60159	BC846B
7360	4822 130 40959	BC547B
7362	9322 166 55682	2SA1358
7363	4822 130 40959	BC547B
7365	9322 166 56682	2SC3421
7366	4822 130 41646	BF423
7367	4822 130 44568	BC557B

Small Signal Board [C]

Various

0205	2422 025 16704	Connector 8p m
1327	2422 543 01095	Resonator 12MHz 20p DSX840
1451	2422 549 44372	SAW 38.9MHz OFWK3953L
1455	2422 549 44369	SAW 38.9MHz OFWK9656L
1630	2422 543 01059	Resonator 18MHz 12p DSX840

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2010	3198 016 38210	820pF 25V 0603
2014	3198 017 41050	1µF 10V 0603
2015	3198 017 41050	1µF 10V 0603
2016	2238 586 59812	100nF 20% 50V 0603
2017	2238 586 59812	100nF 20% 50V 0603
2018	4822 126 14238	2.2nF 50V 0603
2043	2020 021 91729	4.7µF 20% 35V
2044	2238 586 59812	100nF 20% 50V 0603
2045	4822 126 14507	18pF 5% 50V 0603
2046	4822 126 14507	18pF 5% 50V 0603
2049	4822 126 13879	220nF +80-20% 16V
2050	2020 552 94427	100pF 5% 50V
2051	2238 586 59812	100nF 20% 50V 0603
2053	4822 124 23002	10µF 16V
2058	2238 586 59812	100nF 20% 50V 0603
2301	3198 017 41050	1µF 10V 0603
2304	2020 021 91729	4.7µF 20% 35V
2306	5322 126 11583	10nF 10% 50V 0603
2309	2238 586 59812	100nF 20% 50V 0603
2311	3198 017 41050	1µF 10V 0603
2312	5322 126 11583	10nF 10% 50V 0603
2313	2238 586 59812	100nF 20% 50V 0603
2314	4822 121 70159	0.1µF 16V
2316	2238 916 15641	22nF 10% 25V 0603
2317	4822 126 13879	220nF +80-20% 16V
2319	2238 586 59812	100nF 20% 50V 0603
2323	3198 017 42230	22nF 50V 0603
2324	2238 586 59812	100nF 20% 50V 0603
2325	3198 017 42230	22nF 50V 0603
2326	3198 017 42230	22nF 50V 0603
2327	2222 867 15339	33pF 5% 50V 0603
2328	2222 867 15339	33pF 5% 50V 0603
2332	4822 126 13879	220nF +80-20% 16V
2333	2238 586 59812	100nF 20% 50V 0603
2334	2238 586 59812	100nF 20% 50V 0603
2335	3198 017 41050	1µF 10V 0603
2338	4822 126 14238	2.2nF 50V 0603
2342	4822 122 33752	15pF 5% 50V
2345	4822 122 33752	15pF 5% 50V
2348	4822 122 33752	15pF 5% 50V
2350	2020 021 91729	4.7µF 20% 35V
2354	3198 017 44740	470nF 10V 0603
2355	3198 017 44740	470nF 10V 0603
2356	3198 017 44740	470nF 10V 0603
2357	4822 122 33741	10pF 10% 50V
2360	5322 126 11583	10nF 10% 50V 0603
2372	4822 126 13193	4.7nF 10% 63V
2373	2020 021 91737	1µF 20% 50V
2374	5322 126 11578	1nF 10% 50V 0603
2375	3198 016 31020	1nF 25V 0603
2376	3198 016 31020	1nF 25V 0603
2377	3198 016 31020	1nF 25V 0603
2380	2020 021 91554	10µF 16V 20%
2382	4822 126 13956	6.8pF 5% 63V 0603
2385	3198 017 41050	1µF 10V 0603
2386	3198 017 44740	470nF 10V 0603
2387	3198 017 44740	470nF 10V 0603
2390	3198 017 44740	470nF 10V 0603
2401	3198 017 41050	1µF 10V 0603
2402	3198 017 41050	1µF 10V 0603
2403	3198 017 41050	1µF 10V 0603
2404	2238 916 15641	22nF 10% 25V 0603
2405	2238 916 15641	22nF 10% 25V 0603
2407	2238 586 59812	100nF 20% 50V 0603
2408	2238 586 59812	100nF 20% 50V 0603
2412	4822 126 13879	220nF +80-20% 16V
2415	4822 126 13879	220nF +80-20% 16V
2417	4822 124 23002	10µF 16V
2421	2020 021 91554	10µF 16V 20%
2422	2238 586 59812	100nF 20% 50V 0603
2423	3198 017 34730	47nF 16V 0603
2424	2020 552 94427	100pF 5% 50V
2425	2020 552 94427	100pF 5% 50V
2426	3198 017 41050	1µF 10V 0603
2428	3198 017 34730	47nF 16V 0603
2452	5322 126 11583	10nF 10% 50V 0603
2453	5322 126 11583	10nF 10% 50V 0603
2460	2020 021 91554	10µF 16V 20%
2601	4822 126 13881	470pF 5% 50V
2602	2238 586 59812	100nF 20% 50V 0603
2606	4822 124 23002	10µF 16V
2607	4822 126 13879	220nF +80-20% 16V
2610	5322 126 11578	1nF 10% 50V 0603
2611	5322 126 11578	1nF 10% 50V 0603
2612	5322 126 11578	1nF 10% 50V 0603
2613	5322 126 11578	1nF 10% 50V 0603
2614	4822 126 13193	4.7nF 10% 63V
2616	4822 126 13193	4.7nF 10% 63V
2617	3198 017 41050	1µF 10V 0603
2618	3198 017 41050	1µF 10V 0603
2619	4822 126 13193	4.7nF 10% 63V
2620	3198 017 41050	1µF 10V 0603
2621	3198 017 41050	1µF 10V 0603
2622	4822 124 23002	10µF 16V
2623	4822 124 23002	10µF 16V
2624	2238 586 59812	100nF 20% 50V 0603
2625	5322 124 41945	22UF20% 35V
2626	3198 017 41050	1µF 10V 0603
2627	3198 017 41050	1µF 10V 0603
2628	2238 586 59812	100nF 20% 50V 0603
2629	4822 124 23002	10µF 16V
2631	4822 051 30008	Jumper 0603
2632	4822 126 13193	4.7nF 10% 63V
2633	4822 051 30008	Jumper 0603
2634	4822 126 13193	4.7nF 10% 63V
2635	3198 017 41050	1µF 10V 0603

2636	4822 126 14241	330pF 0603 50V
2637	3198 017 41050	1µF 10V 0603
2638	4822 126 14241	330pF 0603 50V
2639	4822 126 14241	330pF 0603 50V
2640	3198 017 41050	1µF 10V 0603
2641	4822 126 14241	330pF 0603 50V
2642	3198 017 41050	1µF 10V 0603
2643	3198 017 41050	1µF 10V 0603
2646	3198 017 41050	1µF 10V 0603
2651	2238 586 59812	100nF 20% 50V 0603
2652	3198 017 41050	1µF 10V 0603
2653	3198 017 41050	1µF 10V 0603
2655	4822 126 13193	4.7nF 10% 63V
2656	4822 126 13193	4.7nF 10% 63V
2657	4822 124 23002	10µF 16V
2661	2238 586 59812	100nF 20% 50V 0603
2662	4822 124 23002	10µF 16V
2663	4822 126 11785	47pF 5% 50V 0603
2664	4822 126 14225	56pF 5% 50V 0603
2665	4822 126 11669	27pF
2666	4822 126 14508	180pF 5% 50V 0603
2667	4822 122 33752	15pF 5% 50V
2675	3198 016 33380	3.3pF 50V 0603
2676	3198 016 33380	3.3pF 50V 0603
2678	3198 017 41050	1µF 10V 0603
2679	2238 586 59812	100nF 20% 50V 0603
2682	3198 017 41050	1µF 10V 0603
2683	3198 017 41050	1µF 10V 0603
2684	3198 017 41050	1µF 10V 0603
2685	3198 017 41050	1µF 10V 0603
2686	3198 017 41050	1µF 10V 0603
2687	3198 017 41050	1µF 10V 0603
2690	3198 017 41050	1µF 10V 0603
2691	3198 017 41050	1µF 10V 0603
2694	3198 017 41050	1µF 10V 0603
2695	3198 017 41050	1µF 10V 0603
2696	5322 126 11583	10nF 10% 50V 0603

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3002	4822 117 12902	8.2kΩ 1% 0.063W 0603
3003	4822 051 30103	10kΩ 5% 0.062W
3004	4822 117 12902	8.2kΩ 1% 0.063W 0603
3007	4822 117 12902	8.2kΩ 1% 0.063W 0603
3008	4822 117 12902	8.2kΩ 1% 0.063W 0603
3009	4822 117 12902	8.2kΩ 1% 0.063W 0603
3010	4822 051 30222	2.2kΩ 5% 0.062W
3013	4822 117 12902	8.2kΩ 1% 0.063W 0603
3014	4822 117 12902	8.2kΩ 1% 0.063W 0603
3015	4822 051 30103	10kΩ 5% 0.062W
3017	4822 051 30101	100Ω 5% 0.062W
3018	4822 051 30101	100Ω 5% 0.062W
3019	4822 051 30101	100Ω 5% 0.062W
3021	4822 051 30331	330Ω 5% 0.062W
3022	4822 051 30222	2.2kΩ 5% 0.062W
3023	4822 117 12902	8.2kΩ 1% 0.063W 0603
3024	4822 051 30102	1kΩ 5% 0.062W
3028	4822 117 12925	47kΩ 1% 0.063W 0603
3029	4822 051 30103	10kΩ 5% 0.062W
3030	4822 051 30102	1kΩ 5% 0.062W
3031	4822 051 30471	47Ω 5% 0.062W
3032	4822 051 30103	10kΩ 5% 0.062W
3034	4822 117 12925	47kΩ 1% 0.063W 0603
3035	4822 051 30471	47Ω 5% 0.062W
3042	4822 051 30151	150Ω 5% 0.062W
3043	4822 051 30151	150Ω 5% 0.062W
3044	4822 051 30103	10kΩ 5% 0.062W
3045	4822 051 30272	2.7kΩ 5% 0.062W
3046	4822 051 30472	4.7Ω 5% 0.062W
3051	4822 117 13525	24kΩ 1% 0.62W 0603
3054	4822 051 30103	10kΩ 5% 0.062W
3055	4822 051 30103	10kΩ 5% 0.062W
3056	4822 117 12925	47kΩ 1% 0.063W 0603
3057	4822 051 30392	3.9Ω 5% 0.063W 0603
3058	4822 051 30471	47Ω 5% 0.062W
3059	4822 051 30151	150Ω 5% 0.062W
3061	4822 051 30471	47Ω 5% 0.062W
3062	4822 051 30472	4.7Ω 5% 0.062W
3064	4822 051 30472	4.7Ω 5% 0.062W
3065	4822 051 30472	4.7Ω 5% 0.062W
3066	4822 117 12902	8.2kΩ 1% 0.063W 0603
3081	4822 051 30472	4.7Ω 5% 0.062W
3082	4822 051 30103	10kΩ 5% 0.062W
3083	4822 051 30471	47Ω 5% 0.062W
3084	4822 051 30101	100Ω 5% 0.062W
3085	4822 051 30101	100Ω 5% 0.062W
3086	4822 051 30101	100Ω 5% 0.062W
3088	4822 051 30101	100Ω 5% 0.062W
3090	4822 051 30103	10kΩ 5% 0.062W
3091	4822 051 30103	10kΩ 5% 0.062W
3092	4822 051 30101	100Ω 5% 0.062W
3094	4822 051 30103	10kΩ 5% 0.062W
3302	4822 051 20561	560Ω 5% 0.1W
3303	4822 051 30101	100Ω 5% 0.062W
3306	4822 051 30102	1kΩ 5% 0.062W
3311	4822 051 30273	27kΩ 5% 0.062W
3312	4822 051 30103	10kΩ 5% 0.062W
3315	4822 051 30393	39kΩ 5% 0.062W
3316	4822 051 30101	100Ω 5% 0.062W
3324	4822 051 30391	390Ω 5% 0.062W
3326	4822 051 30102	1kΩ 5% 0.062W
3327	4822 051 20561	560Ω 5% 0.1W
3329	4822 051 30101	100Ω 5% 0.062W
3330	4822 051 30101	100Ω 5% 0.062W
3331	4822 117 11748	Fuse 2.2Ω 5% 1206
3332	4822 117 11748	Fuse 2.2Ω 5% 1206
3333	4822 051 30681	680Ω 5% 0.062W
3334	4822 051 30471	47Ω 5% 0.062W
3335	4822 051 30121	120Ω 5% 0.062W
3339	4822 051 30103	10kΩ 5% 0.062W
3340	4822 051 20561	560Ω 5% 0.1W
3341	4822 051 30151	150Ω 5% 0.062W
3343	4822 051 30272	2.7kΩ 5% 0.062W
3344	4822 051 30151	150Ω 5% 0.062W
3345	4822 051 30008	Jumper 0603
3348	4822 051 30151	150Ω 5% 0.062W
3349	4822 051 30008	Jumper 0603
3353	4822 051 30271	270Ω 5% 0.062W
3354	4822 117 11817	1.2kΩ 1% 0.0625W
3355	4822 051 30102	1kΩ 5% 0.062W
3356	4822 051 30561	560Ω 5% 0.062W
3357	4822 051 30225	2.2MΩ 5% 0.062W
3358	4822 051 30101	100Ω 5% 0.062W
3359	4822 051 30334	330kΩ 5% 0.062W
3360	4822 051 30101	100Ω 5% 0.062W
3361	4822 051 30101	100Ω 5% 0.062W
3362	4822 051 30101	100Ω 5% 0.062W
3363	4822 051 30101	100Ω 5% 0.062W
3364	4822 051 30102	1kΩ 5% 0.062W
3365	4822 051 20561	560Ω 5% 0.1W
3366	4822 051 30471	47Ω 5% 0.062W
3371	4822 051 30153	15kΩ 5% 0.062W
3372	4822 051 30109	10Ω 5% 0.062W
3373	4822 051 30101	100Ω 5% 0.062W
3374	4822 051 30332	3.3Ω 5% 0.062W
3375	4822 051 30102	1kΩ 5% 0.062W
3376	4822 051 30102	1kΩ 5% 0.062W
3377	4822 051 30101	100Ω 5% 0.062W
3378	4822 051 30102	1kΩ 5% 0.062W
3381	4822 051 30101	100Ω 5% 0.062W
3382	4822 051 30101	100Ω 5% 0.062W
3383	4822 051 30101	100Ω 5% 0.062W
3387	4822 051 30101	100Ω 5% 0.062W
3388	4822 051 30479	47Ω 5% 0.062W
3397	4822 051 30102	1kΩ 5% 0.062W
3399	4822 051 30102	1kΩ 5% 0.062W
3401	4822 051 30101	100Ω 5% 0.062W
3402	4822 051 30101	100Ω 5% 0.062W
3403	4822 051 30101	100Ω 5% 0.062W
3404	4822 051 30101	100Ω 5% 0.062W
3405	4822 051 30101	100Ω 5% 0.062W
3411	4822 051 30152	1.5Ω 5% 0.062W
3412	4822 051 30152	1.5Ω 5% 0.062W
3413	4822 051 20561	560Ω 5% 0.1W
3414	4822 051 30152	1.5Ω 5% 0.062W
3415	4822 051 30152	1.5Ω 5% 0.062W
3416	4822 051 20561	560Ω 5% 0.1W
3417	4822 051 30102	1kΩ 5% 0.062W
3418	4822 051 20561	560Ω 5% 0.1W
3419	4822 051 30101	100Ω 5% 0.062W
3420	4822 051 30101	100Ω 5% 0.062W
3423	4822 051 30102	1kΩ 5% 0.062W
3425	4822 051 30102	1kΩ 5% 0.062W
3426	4822 051 30102	1kΩ 5% 0.062W
3427	4822 051 30101	100Ω 5% 0.062W
3455	4822 051 30682	6.8Ω 5% 0.062W
3456	4822 051 30222	2.2kΩ 5% 0.062W
3457	4822 051 30273	27kΩ 5% 0.062W
3458	4822 051 30183	18kΩ 5% 0.062W
3461	4822 051 30222	2.2kΩ 5% 0.062W
3471	4822 051 30008	Jumper 0603
3472	4822 051 30008	Jumper 0603
3473	4822 051 30008	Jumper 0603
3477	4822 051 30472	4.7Ω 5% 0.062W
3601	4822 051 30101	100Ω 5% 0.062W
3602	4822 051 30101	100Ω 5% 0.062W
3606	4822 051 30273	27kΩ 5% 0.062W
3616	4822 051 30101	100Ω 5% 0.062W
3618	4822 051 30101	100Ω 5% 0.062W
3619	4822 051 30101	100Ω 5% 0.062W
3621	4822 051 30101	100Ω 5% 0.062W
3643	4822 051 30563	56kΩ 5% 0.062W
3644	4822 117 13632	100kΩ 1% 0603 0.62W
3645	4822 051 30102	1kΩ 5% 0.062W
3646	4822 051 30563	56kΩ 5% 0.062W
3647	4822 117 13632	100kΩ 1% 0603 0.62W
3648	4822 051 30102	1kΩ 5% 0.062W
3651	4822 051 30101	100Ω 5% 0.062W
3653	4822 051 30101	100Ω 5% 0.062W
3665	4822 051 30222	2.2kΩ 5% 0.062W
3680	4822 051 30109	10Ω 5% 0.062W
3681	4822 051 30109	10Ω 5% 0.062W
4xxx	4822 051 30008	Jumper 0603

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5040	3198 018 64780	4.7µF 5% 1008
5041	3198 018 64780	4.7µF 5% 1008
5042	3198 018 64780	4.7µF 5% 1008
5050	3198 018 64780	4.7µF 5% 1008
5309	4822 157 71334	0.68µH
5332	4822 157 71334	0.68µH
5333	4822 157 71334	0.68µH
5401	4822 157 71303	0.39µH 10% 0805
5403	4822 157 71334	0.68µH
5421	4822 157 71334	0.68µH
5425	4822 157 71334	0.68µH
5601	3198 018 61080	1µF 5% 1008
5602	3198 018 64780	4.7µF 5% 1008
5625	3198 018 61080	1µF 5% 1008
5665	3198 018 61590	15µF 5% 1008

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6020	4822 130 11397	BAS316
6031	9340 548 42115	PDZ2.4B
6302	4822 130 10837	UDZS8.2B
6303	4822 130 11416	PDZ6.8B
6308	4822 130 11397	BAS316
6309	4822 130 11397	BAS316
6401	4822 130 11525	1SS356
6412	4822 130 11397	BAS316
6415	4822 130 11397	BAS316
6605	4822 130 11397	BAS316



7022	3198 010 42310	BC847BW
7053	9340 425 20115	BC847BS
7063	3198 010 42310	BC847BW
7064	3111 250 54951	Software (see Prod Surv)
7066	9322 156 81668	M24C32-WMN6TNKSA
7070	9322 157 41671	UPD431000AGU-B1
7301	9352 626 19557	TDA8885
7305	3198 010 42310	BC847BW
7307	3198 010 42310	BC847BW
7309	3198 010 42310	BC847BW
7310	3198 010 42320	BC857BW
7331	3198 010 42320	BC857BW
7368	3198 010 42310	BC847BW
7401	9351 869 40118	74HC4053PW
7405	9352 630 99118	TDA9181T
7412	9340 425 20115	BC847BS
7413	3198 010 42310	BC847BW
7421	3198 010 42310	BC847BW
7442	3198 010 42310	BC847BW
7630	9351 874 90118	74HC4052PW
7645	9340 425 20115	BC847BS
7651	9322 180 61702	MSP3411G-FH-B8-V3

Side I/O Panel [D]

Various

0240	2422 025 12485	Connector 11p m
0241	4822 267 10734	Connector 5p
0242	4822 267 10734	Connector 5p
1254	4822 267 31014	Socket headphone
1255	4822 265 11606	Connector 3p
1256	2422 026 04926	Socket MiniDIN 4p f

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2286	4822 122 33642	150pF 5% 50V
2288	4822 122 33642	150pF 5% 50V
2292	5322 122 32311	470pF 10% 100V
2294	5322 122 32311	470pF 10% 100V
2296	4822 122 31125	4,7nF 80% 63V
2297	4822 122 31125	4,7nF 80% 63V

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3285	4822 116 52201	75Ω 5% 0.5W
3286	4822 116 52176	10Ω 5% 0,5W
3287	4822 116 52201	75Ω 5% 0.5W
3288	4822 116 52176	10Ω 5% 0,5W

3289	4822 116 52249	1.8Ω 5% 0.5W
3291	4822 050 11002	1kΩ 1% 0.4W
3292	4822 117 10834	47kΩ 1% 0.1W
3293	4822 050 11002	1kΩ 1% 0.4W
3294	4822 117 10834	47kΩ 1% 0.1W
3295	4822 116 52276	3.9Ω 5% 0.5W
3296	4822 117 10833	10kΩ 1% 0.1W
3297	4822 117 10833	10kΩ 1% 0.1W
4241	4822 051 20008	Jumper 0805
4243	4822 051 20008	Jumper 0805

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

DC shift & DAF Panel [G]

Various

0180	3139 131 00761	Cable 2p/560/2p
0221	4822 267 10966	Connector 2p
0258	4822 267 10966	Connector 2p

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2492	4822 126 13865	390pF 10% 2kV
2493	4822 126 13865	390pF 10% 2kV

⊣WW⊢

3498	2322 592 13017	VDR 1mA/423V
3499	2322 592 13017	VDR 1mA/423V

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5493	4822 148 81425	DAF coil

Mainswitch Panel [J]

Various

0156	3104 311 01431	Cable 2p3/340/2p3
0157	3139 131 02332	Cable 5p/680/5p
0211	2422 025 16268	Connector 2p m
0212	2422 025 16268	Connector 2p m
0214	2422 025 06353	Connector 5p m
0231	2422 128 02972	Switch POW 2p 8/128A

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2691	4822 124 40207	100µF 20% 25V
2698	4822 122 30043	10nF 80% 63V

⊣WW⊢

3500	4822 053 21225	2.2MΩ 5% 0.5W
3501	4822 053 21475	4.7MΩ 5% 0.5W
3691	4822 116 52228	680Ω 5% 0.5W
3693	4822 116 83872	220Ω 5% 0.5W

⊣▷⊢

6691	9322 050 99682	LTL-10224WHCR
6692	9322 127 54667	TSOP1836UH1

IBO+ Panel [K]

Various

0001	9965 000 04199	Connector 2p
0002	9965 000 04199	Connector 2p
0003	2511 077 00039	Connector 2p
0004	2511 077 00039	Connector 2p
0005	2511 077 00039	Connector 2p
0006	2511 077 00039	Connector 2p
1001	9322 130 41668	M24C64-WMN6
1001	9322 140 96668	M24256-AWMN6
1001	9322 146 19671	AM29LV160DB-70EC
1106	5322 268 90415	Connector 2p
1112	2422 543 01329	Xtal 27MHz 18p CX49G
1500	2422 025 17234	Socket SUBD 9p m
1503	4822 267 31729	Connector cinch 1p
1600	2422 025 16389	Connector 22p f
1700	4822 267 10735	Connector 3p
1702	2422 086 11085	Fuse 1.6A 250V
1703	2422 128 02863	Switch tact 1p
1900	2422 033 00364	Connector smartcard

⊣||⊢

2100	4822 124 23002	10µF 16V
2101	4822 124 23002	10µF 16V
2102	4822 124 23002	10µF 16V
2103	2238 586 59812	100nF 20% 50V 0603
2104	2238 586 59812	100nF 20% 50V 0603
2105	2238 586 59812	100nF 20% 50V 0603
2106	2238 586 59812	100nF 20% 50V 0603
2107	2238 586 59812	100nF 20% 50V 0603
2108	2238 586 59812	100nF 20% 50V 0603
2109	2238 586 59812	100nF 20% 50V 0603
2110	2238 586 59812	100nF 20% 50V 0603
2111	2238 586 59812	100nF 20% 50V 0603
2112	2238 586 59812	100nF 20% 50V 0603
2113	2238 586 59812	100nF 20% 50V 0603
2114	2238 586 59812	100nF 20% 50V 0603
2115	2238 586 59812	100nF 20% 50V 0603
2116	2238 586 59812	100nF 20% 50V 0603
2117	2238 586 59812	100nF 20% 50V 0603
2118	2238 586 59812	100nF 20% 50V 0603
2119	2238 586 59812	100nF 20% 50V 0603
2120	2238 586 59812	100nF 20% 50V 0603
2121	2238 586 59812	100nF 20% 50V 0603
2122	2238 586 59812	100nF 20% 50V 0603
2123	2238 586 59812	100nF 20% 50V 0603
2124	2238 586 59812	100nF 20% 50V 0603
2125	2238 586 59812	100nF 20% 50V 0603
2128	4822 122 33761	22pF 5% 50V
2128	4822 126 11669	27pF
2129	4822 122 33761	22pF 5% 50V
2129	4822 126 11669	27pF
2130	4822 124 23002	10µF 16V
2131	4822 124 23002	10µF 16V
2132	4822 124 23002	10µF 16V
2200	2238 586 59812	100nF 20% 50V 0603
2201	2238 586 59812	100nF 20% 50V 0603
2202	2238 586 59812	100nF 20% 50V 0603
2203	2238 586 59812	100nF 20% 50V 0603
2204	2238 586 59812	100nF 20% 50V 0603
2205	2238 586 59812	100nF 20% 50V 0603
2206	2238 586 59812	100nF 20% 50V 0603
2207	4822 124 23002	10µF 16V
2208	2238 586 59812	100nF 20% 50V 0603
2209	2238 586 59812	100nF 20% 50V 0603
2210	2238 586 59812	100nF 20% 50V 0603
2211	2238 586 59812	100nF 20% 50V 0603
2212	2238 586 59812	100nF 20% 50V 0603
2213	2238 586 59812	100nF 20% 50V 0603
2214	2238 586 59812	100nF 20% 50V 0603
2215	4822 124 23002	10µF 16V
2216	2238 586 59812	100nF 20% 50V 0603
2217	2238 586 59812	100nF 20% 50V 0603
2218	2238 586 59812	100nF 20% 50V 0603
2219	2238 586 59812	100nF 20% 50V 0603
2220	2238 586 59812	100nF 20% 50V 0603
2221	2238 586 59812	100nF 20% 50V 0603
2222	2238 586 59812	100nF 20% 50V 0603
2223	4822 124 23002	10µF 16V
2224	2238 586 59812	100nF 20% 50V 0603
2225	2238 586 59812	100nF 20% 50V 0603
2226	2238 586 59812	100nF 20% 50V 0603
2227	2238 586 59812	100nF 20% 50V 0603
2228	2238 586 59812	100nF 20% 50V 0603
2229	2238 586 59812	100nF 20% 50V 0603
2230	2238 586 59812	100nF 20% 50V 0603
2231	4822 124 23002	10µF 16V
2300	4822 124 23002	10µF 16V
2303	2238 586 59812	100nF 20% 50V 0603
2304	2238 586 59812	100nF 20% 50V 0603
2305	2238 586 59812	100nF 20% 50V 0603
2306	2238 586 59812	100nF 20% 50V 0603
2500	4822 124 23002	10µF 16V
2501	2238 586 59812	100nF 20% 50V 0603
2502	2238 586 59812	100nF 20% 50V 0603
2503	2238 586 59812	100nF 20% 50V 0603
2504	2238 586 59812	100nF 20% 50V 0603
2505	2238 586 59812	100nF 20% 50V 0603
2515	2238 586 59812	100nF 20% 50V 0603
2516	4822 124 23002	10µF 16V
2517	2238 586 59812	100nF 20% 50V 0603
2518	4822 126 11785	47pF 5% 50V 0603
2519	2222 867 15339	33pF 5% 50V 0603
2521	4822 126 14549	33nF 16V 0603
2522	2238 586 59812	100nF 20% 50V 0603
2523	2238 586 59812	100nF 20% 50V 0603
2524	2238 586 59812	100nF 20% 50V 0603
2525	2238 586 59812	100nF 20% 50V 0603
2526	2238 586 59812	100nF 20% 50V 0603
2603	4822 124 11131	47µF 6.3V
2604	2020 021 91729	4.7µF 20% 35V
2605	2020 021 91729	4.7µF 20% 35V
2606	3198 017 44740	470nF 10V 0603
2607	3198 017 41050	1µF 10V 0603
2608	3198 017 44740	470nF 10V 0603
2609	3198 017 44740	470nF 10V 0603
2610	4822 124 23237	22µF 6.3V
2611	4822 124 23237	22µF 6.3V
2612	3198 017 44740	470nF 10V 0603
2614	3198 017 44740	470nF 10V 0603
2615	3198 017 44740	470nF 10V 0603
2616	3198 017 44740	470nF 10V 0603
2617	3198 017 44740	470nF 10V 0603
2620	3198 017 41050	1µF 10V 0603
2621	2020 021 91729	4.7µF 20% 35V
2622	2238 586 59812	100nF 20% 50V 0603
2623	2020 021 91729	4.7µF 20% 35V
2624	2238 586 59812	100nF 20% 50V 0603
2625	2020 021 91729	4.7µF 20% 35V
2626	2020 021 91729	4.7µF 20% 35V
2627	3198 017 41050	1µF 10V 0603
2644	4822 126 14315	390pF 5% 50V 0603
2645	4822 126 14315	390pF 5% 50V 0603
2646	4822 126 14315	390pF 5% 50V 0603
2647	4822 126 14315	390pF 5% 50V 0603
2648	4822 126 14315	390pF 5% 50V 0603
2649	4822 126 14315	390pF 5% 50V 0603
2650	4822 126 14315	390pF 5% 50V 0603
2651	4822 126 14315	390pF 5% 50V 0603
2652	4822 126 14315	390pF 5% 50V 0603
2653	4822 126 14315	390pF 5% 50V 0603
2654	4822 126 14315	390pF 5% 50V 0603
2655	4822 126 14315	390pF 5% 50V 0603
2656	4822 122 33761	22pF 5% 50V
2657	2238 586 59812	100nF 20% 50V 0603
2658	4822 122 33761	22pF 5% 50V
2659	4822 122 33761	22pF 5% 50V
2660	4822 122 33761	22pF 5% 50V
2661	4822 122 33761	22pF 5% 50V
2662	4822 122 33761	22pF 5% 50V
2663	4822 122 33761	22pF 5% 50V
2665	4822 126 14507	18pF 5% 50V 0603
2666	4822 126 14507	18pF 5% 50V 0603
2667	4822 126 11785	47pF 5% 50V 0603
2668	4822 126 11785	47pF 5% 50V 0603
2700	2238 586 59812	100nF 20% 50V 0603
2701	3198 030 82280	2.2µF 20% 50V
2702	2020 552 96671	1µF 10% 25V
2703	2020 021 91784	330µF 20% 25V
2703	8204 050 00073	680µH 20% 16V
2704	2238 586 59812	100nF 20% 50V 0603
2705	2238 586 59812	100nF 20% 50V 0603
2706	2020 552 96671	1µF 10% 25V
2707	2020 021 91784	330µF 20% 25V
2707	8204 050 00073	680µH 20% 16V
2708	2238 586 59812	100nF 20% 50V 0603
2709	2238 586 59812	100nF 20% 50V 0603
2710	2020 021 91784	330µF 20% 25V
2710	8204 050 00073	680µH 20% 16V
2711	4822 124 23002	10µF 16V
2712	2238 786 19856	330nF 20% 160V 0603
2713	2238 586 59812	100nF 20% 50V 0603
2714	2020 552 96671	1µF 10% 25V
2715	2020 021 91784	330µF 20% 25V
2715	8204 050 00073	680µH 20% 16V
2716	2238 586 59812	100nF 20% 50V 0603
2717	4822 124 23002	10µF 16V
2718	2238 586 59812	100nF 20% 50V 0603
2719	2238 586 59812	100nF 20% 50V 0603
2720	4822 124 23002	10µF 16V
2722	2020 552 96671	1µF 10% 25V
2724	2020 021 91784	330µF 20% 25V
2724	8204 050 00073	680µH 20% 16V
2725	2238 586 59812	100nF 20% 50V 0603
2726	2238 586 59812	100nF 20% 50V 0603
2727	4822 126 13879	220nF +80-20% 16V
2728	2020 021 91784	330µF 20% 25V
2728	8204 050 00073	680µH 20% 16V
2732	2020 021 91784	330µF 20% 25V
2732	8204 050 00073	680µH 20% 16V
2734	4822 051 30008	Jumper 0603
2735	2238 586 59812	100nF 20% 50V 0603
2736	2238 586 59812	100nF 20% 50V 0603
2737	2238 586 59812	100nF 20% 50V 0603
2738	2238 586 59812	100nF 20% 50V 0603
2739	2238 586 59812	100nF 20% 50V 0603
2740	2238 586 59812	100nF 20% 50V 0603
2741	2238 586 59812	100nF 20% 50V 0603
2742	2238 586 59812	100nF 20% 50V 0603

2743	2238 586 59812	100nF 20% 50V 0603
2744	4822 124 23002	10µF 16V
2800	2238 586 59812	100nF 20% 50V 0603
2801	2238 586 59812	100nF 20% 50V 0603
2802	2238 586 59812	100nF 20% 50V 0603
2803	2238 586 59812	100nF 20% 50V 0603
2804	2238 586 59812	100nF 20% 50V 0603
2805	2238 586 59812	100nF 20% 50V 0603
2806	2238 586 59812	100nF 20% 50V 0603
2807	4822 124 80151	47µF 16V
2808	2238 586 59812	100nF 20% 50V 0603
2809	2238 586 59812	100nF 20% 50V 0603
2810	2238 586 59812	100nF 20% 50V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	2238 586 59812	100nF 20% 50V 0603
2813	4822 124 80151	47µF 16V
2814	2238 586 59812	100nF 20% 50V 0603
2815	2238 586 59812	100nF 20% 50V 0603
2816	2238 586 59812	100nF 20% 50V 0603
2817	2238 586 59812	100nF 20% 50V 0603
2818	2238 586 59812	100nF 20% 50V 0603
2821	2238 586 59812	100nF 20% 50V 0603
2822	4822 124 23002	10µF 16V
2823	4822 124 23002	10µF 16V
2824	4822 124 80151	47µF 16V
2825	2238 586 59812	100nF 20% 50V 0603
2826	2238 586 59812	100nF 20% 50V 0603
2827	2238 586 59812	100nF 20% 50V 0603
2828	2238 586 59812	100nF 20% 50V 0603
2829	4822 122 33741	10pF 10% 50V
2830	4822 051 30008	Jumper 0603
2831	4822 122 33741	10pF 10% 50V
2900	2238 586 59812	100nF 20% 50V 0603
2901	2238 586 59812	100nF 20% 50V 0603
2902	2238 586 59812	100nF 20% 50V 0603
2903	4822 124 23002	10µF 16V
2904	4822 124 23002	10µF 16V
2905	5322 126 11578	1nF 10% 50V 0603
2906	4822 124 23002	10µF 16V
2907	2238 586 59812	100nF 20% 50V 0603
2908	2238 586 59812	100nF 20% 50V 0603
2909	2238 586 59812	100nF 20% 50V 0603
2910	2238 586 59812	100nF 20% 50V 0603
2911	2238 586 59812	100nF 20% 50V 0603
2914	4822 124 23002	10µF 16V
2915	2238 586 59812	100nF 20% 50V 0603
2916	2238 586 59812	100nF 20% 50V 0603

–WW–

3089	4822 051 30339	33Ω 5% 0.062W
3090	4822 051 30339	33Ω 5% 0.062W
3091	4822 051 30339	33Ω 5% 0.062W
3092	4822 051 30339	33Ω 5% 0.062W
3093	4822 051 30339	33Ω 5% 0.062W
3094	4822 051 30339	33Ω 5% 0.062W
3095	4822 051 30103	10kΩ 5% 0.062W
3096	4822 051 30103	10kΩ 5% 0.062W
3097	4822 051 30103	10kΩ 5% 0.062W
3098	4822 051 30101	100Ω 5% 0.062W
3099	4822 051 30101	100Ω 5% 0.062W
3100	4822 117 13576	4x33Ω 5% 1206
3101	4822 117 13576	4x33Ω 5% 1206
3102	4822 117 13576	4x33Ω 5% 1206
3103	4822 051 30339	33Ω 5% 0.062W
3104	4822 051 30339	33Ω 5% 0.062W
3105	4822 117 13576	4x33Ω 5% 1206
3106	4822 051 30103	10kΩ 5% 0.062W
3107	4822 051 30479	47Ω 5% 0.062W
3108	4822 051 30103	10kΩ 5% 0.062W
3109	4822 051 30479	47Ω 5% 0.062W
3114	4822 117 13576	4x33Ω 5% 1206
3115	4822 117 13576	4x33Ω 5% 1206
3116	4822 117 13576	4x33Ω 5% 1206
3117	4822 051 30339	33Ω 5% 0.062W
3118	4822 051 30339	33Ω 5% 0.062W
3119	4822 051 30479	47Ω 5% 0.062W
3121	4822 051 30479	47Ω 5% 0.062W
3122	4822 051 30103	10kΩ 5% 0.062W
3124	4822 051 30103	10kΩ 5% 0.062W
3127	4822 051 30103	10kΩ 5% 0.062W
3129	4822 051 30103	10kΩ 5% 0.062W
3135	4822 117 12139	22Ω 5% 0.062W
3136	4822 117 12139	22Ω 5% 0.062W
3137	4822 117 12139	22Ω 5% 0.062W
3138	4822 117 12139	22Ω 5% 0.062W
3139	4822 051 30103	10kΩ 5% 0.062W
3141	4822 051 30103	10kΩ 5% 0.062W
3143	4822 051 30103	10kΩ 5% 0.062W
3145	4822 051 30103	10kΩ 5% 0.062W
3147	4822 051 30272	2.7kΩ 5% 0.062W
3148	4822 051 30272	2.7kΩ 5% 0.062W
3150	4822 051 30103	10kΩ 5% 0.062W
3151	4822 051 30103	10kΩ 5% 0.062W
3152	4822 051 30103	10kΩ 5% 0.062W
3154	4822 051 30101	100Ω 5% 0.062W
3155	4822 051 30101	100Ω 5% 0.062W
3157	4822 051 30101	100Ω 5% 0.062W
3159	4822 051 30101	100Ω 5% 0.062W
3160	4822 051 30101	100Ω 5% 0.062W
3162	4822 051 30103	10kΩ 5% 0.062W
3163	4822 051 30103	10kΩ 5% 0.062W
3164	4822 051 30103	10kΩ 5% 0.062W
3165	4822 051 30103	10kΩ 5% 0.062W
3166	4822 051 30103	10kΩ 5% 0.062W
3167	4822 051 30103	10kΩ 5% 0.062W
3168	4822 051 30103	10kΩ 5% 0.062W
3169	4822 051 30103	10kΩ 5% 0.062W
3170	4822 051 30103	10kΩ 5% 0.062W
3171	4822 051 30103	10kΩ 5% 0.062W
3172	4822 051 30103	10kΩ 5% 0.062W
3173	4822 051 30103	10kΩ 5% 0.062W
3174	4822 051 30103	10kΩ 5% 0.062W
3175	4822 051 30103	10kΩ 5% 0.062W
3176	4822 051 30339	33Ω 5% 0.062W
3177	4822 051 30103	10kΩ 5% 0.062W
3178	4822 117 12139	22Ω 5% 0.062W
3180	4822 051 30103	10kΩ 5% 0.062W
3181	4822 051 30103	10kΩ 5% 0.062W
3182	4822 051 30105	1MΩ 5% 0.062W
3183	4822 051 30103	10kΩ 5% 0.062W
3184	4822 051 30103	10kΩ 5% 0.062W
3185	4822 051 30102	1kΩ 5% 0.062W
3186	4822 051 30471	47Ω 5% 0.062W
3187	4822 051 30103	10kΩ 5% 0.062W
3188	4822 051 30101	100Ω 5% 0.062W
3189	4822 117 13632	100kΩ 1% 0603 0.62W
3190	4822 051 30339	33Ω 5% 0.062W
3191	4822 051 30102	1kΩ 5% 0.062W
3192	4822 051 30103	10kΩ 5% 0.062W
3193	4822 117 13632	100kΩ 1% 0603 0.62W
3194	4822 051 30102	1kΩ 5% 0.062W
3195	4822 051 30102	1kΩ 5% 0.062W
3196	4822 051 30102	1kΩ 5% 0.062W
3197	4822 051 30102	1kΩ 5% 0.062W
3198	4822 051 30102	1kΩ 5% 0.062W
3200	4822 117 13576	4x33Ω 5% 1206
3201	4822 117 13576	4x33Ω 5% 1206
3202	4822 117 13576	4x33Ω 5% 1206
3203	4822 117 13576	4x33Ω 5% 1206
3204	4822 117 13576	4x33Ω 5% 1206
3205	4822 117 13576	4x33Ω 5% 1206
3206	4822 117 13576	4x33Ω 5% 1206
3207	4822 117 13576	4x33Ω 5% 1206
3208	4822 117 13576	4x33Ω 5% 1206
3209	4822 117 13576	4x33Ω 5% 1206
3210	4822 117 13576	4x33Ω 5% 1206
3211	4822 117 13576	4x33Ω 5% 1206
3212	4822 117 13576	4x33Ω 5% 1206
3213	4822 117 13576	4x33Ω 5% 1206
3214	4822 117 13576	4x33Ω 5% 1206
3215	4822 117 13576	4x33Ω 5% 1206
3300	4822 051 30103	10kΩ 5% 0.062W
3301	4822 051 30103	10kΩ 5% 0.062W
3302	4822 051 30103	10kΩ 5% 0.062W
3303	4822 051 30103	10kΩ 5% 0.062W
3304	4822 051 30103	10kΩ 5% 0.062W
3305	4822 051 30103	10kΩ 5% 0.062W
3307	4822 051 30103	10kΩ 5% 0.062W
3312	4822 051 30471	47Ω 5% 0.062W
3313	4822 051 30332	3.3Ω 5% 0.062W
3314	4822 051 30332	3.3Ω 5% 0.062W
3316	4822 051 30103	10kΩ 5% 0.062W
3317	4822 051 30101	100Ω 5% 0.062W
3318	4822 051 30102	1kΩ 5% 0.062W
3319	4822 051 30472	4.7Ω 5% 0.062W
3320	4822 051 30101	100Ω 5% 0.062W
3322	4822 051 30101	100Ω 5% 0.062W
3323	4822 051 30101	100Ω 5% 0.062W
3324	4822 051 30103	10kΩ 5% 0.062W
3325	4822 051 30103	10kΩ 5% 0.062W
3500	4822 051 30102	1kΩ 5% 0.062W
3501	4822 051 30332	3.3Ω 5% 0.062W
3502	4822 051 30103	10kΩ 5% 0.062W
3503	4822 051 30103	10kΩ 5% 0.062W
3504	4822 051 30103	10kΩ 5% 0.062W
3505	4822 051 30152	1.5Ω 5% 0.062W
3506	4822 051 30332	3.3Ω 5% 0.062W
3507	4822 051 30332	3.3Ω 5% 0.062W
3508	4822 051 30689	68Ω 5% 0.063W 0603
3520	4822 051 30339	33Ω 5% 0.062W
3523	4822 117 13576	4x33Ω 5% 1206
3524	4822 051 30339	33Ω 5% 0.062W
3526	4822 051 30339	33Ω 5% 0.062W
3527	4822 051 30339	33Ω 5% 0.062W
3529	4822 051 30339	33Ω 5% 0.062W
3602	4822 051 30683	68kΩ 5% 0.062W
3603	2322 704 66803	68kΩ 1%
3603	4822 051 30683	68kΩ 5% 0.062W
3604	4822 117 13632	100kΩ 1% 0603 0.62W
3605	4822 051 30683	68kΩ 5% 0.062W
3607	2322 704 61304	130kΩ 1%
3608	4822 051 30683	68kΩ 5% 0.062W
3609	2322 704 66803	68kΩ 1%
3609	4822 051 30683	68kΩ 5% 0.062W
3610	4822 117 13632	100kΩ 1% 0603 0.62W
3613	4822 051 30683	68kΩ 5% 0.062W
3615	2322 704 61304	130kΩ 1%
3616	4822 117 12917	1Ω 5% 0.062W
3617	4822 051 30101	100Ω 5% 0.062W
3618	4822 051 30101	100Ω 5% 0.062W
3619	4822 117 12917	1Ω 5% 0.062W
3620	4822 051 30103	10kΩ 5% 0.062W
3621	4822 051 30103	10kΩ 5% 0.062W
3622	4822 051 30103	10kΩ 5% 0.062W
3623	4822 051 30103	10kΩ 5% 0.062W
3624	4822 051 30103	10kΩ 5% 0.062W
3627	2322 704 61002	1kΩ 1%
3627	5322 117 13018	1K0 1% 0.063W 0603
3628	2322 704 61002	1kΩ 1%
3628	5322 117 13018	1K0 1% 0.063W 0603
3646	4822 051 30759	75Ω 5% 0.062W
3647	4822 051 30759	75Ω 5% 0.062W
3648	4822 051 30759	75Ω 5% 0.062W
3649	4822 051 30759	75Ω 5% 0.062W
3650	4822 051 30759	75Ω 5% 0.062W
3651	4822 051 30759	75Ω 5% 0.062W
3652	4822 051 30759	75Ω 5% 0.062W
3653	4822 051 30759	75Ω 5% 0.062W
3654	4822 051 30101	100Ω 5% 0.062W
3655	4822 051 30101	100Ω 5% 0.062W
3656	4822 051 30101	100Ω 5% 0.062W
3657	4822 051 30102	1kΩ 5% 0.062W
3707	4822 051 30103	10kΩ 5% 0.062W
3708	4822 051 30103	10kΩ 5% 0.062W
3709	4822 051 30272	2.7kΩ 5% 0.062W
3710	4822 051 30103	10kΩ 5% 0.062W
3711	5322 117 13056	8.2kΩ 1% 0.063W 0603
3712	5322 117 13046	1.8kΩ 1% 0.063W 0603
3714	4822 051 30103	10kΩ 5% 0.062W
3715	2322 704 62002	2kΩ 1%
3716	4822 051 30102	1kΩ 5% 0.062W
3717	4822 051 30103	10kΩ 5% 0.062W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3719	4822 117 13632	100kΩ 1% 0603 0.62W
3724	5322 117 13034	1K5 1% 0.063W 0603
3724	5322 117 13057	820Ω 1% 0.063W 0603
3726	2322 704 61302	1.3kΩ 1% 0.063W 0603
3726	5322 117 13046	1.8kΩ 1% 0.063W 0603
3728	4822 117 11146	6.2Ω 1% 0,1W
3731	2322 704 61002	1kΩ 1%
3731	5322 117 13018	1K0 1% 0.063W 0603
3732	2322 704 62002	2kΩ 1%
3733	4822 051 30102	1kΩ 5% 0.062W
3735	4822 051 30102	1kΩ 5% 0.062W
3737	4822 117 13632	100kΩ 1% 0603 0.62W
3738	4822 117 13632	100kΩ 1% 0603 0.62W
3740	2322 704 61002	1kΩ 1%
3740	5322 117 13018	1K0 1% 0.063W 0603
3742	2322 704 62702	2.7kΩ 1%
3742	5322 117 13052	2K7 1% 0.063W 0603
3800	4822 051 30102	1kΩ 5% 0.062W
3802	4822 051 30472	4.7Ω 5% 0.062W
3804	4822 117 13632	100kΩ 1% 0603 0.62W
3807	4822 051 30472	4.7Ω 5% 0.062W
3808	4822 117 13632	100kΩ 1% 0603 0.62W
3809	4822 117 13632	100kΩ 1% 0603 0.62W
3810	4822 051 30101	100Ω 5% 0.062W
3811	4822 051 30272	2.7kΩ 5% 0.062W
3812	4822 051 30272	2.7kΩ 5% 0.062W
3813	4822 051 30101	100Ω 5% 0.062W
3814	4822 051 30472	4.7Ω 5% 0.062W
3815	4822 051 30103	10kΩ 5% 0.062W
3816	4822 051 30101	100Ω 5% 0.062W
3817	4822 051 30101	100Ω 5% 0.062W
3818	4822 051 30101	100Ω 5% 0.062W
3819	4822 051 30101	100Ω 5% 0.062W
3820	4822 051 30101	100Ω 5% 0.062W
3821	4822 051 30101	100Ω 5% 0.062W
3824	4822 051 30102	1kΩ 5% 0.062W
3825	4822 051 30472	4.7Ω 5% 0.062W
3826	4822 117 13632	100kΩ 1% 0603 0.62W
3827	4822 051 30472	4.7Ω 5% 0.062W
3828	4822 117 13576	4x33Ω 5% 1206
3829	4822 117 13576	4x33Ω 5% 1206
3830	4822 117 13576	4x33Ω 5% 1206
3831	4822 051 30103	10kΩ 5% 0.062W
3832	4822 051 30471	47Ω 5% 0.062W
3838	4822 051 30684	680kΩ 5% 0.062W
3839	4822 117 12891	220kΩ 1%
3840	4822 051 30331	330Ω 5% 0.062W

3841	4822 051 30391	390Ω 5% 0.062W
3900	4822 051 30101	100Ω 5% 0.062W
3901	4822 051 30101	100Ω 5% 0.062W
3902	4822 117 13576	4x33Ω 5% 1206
3905	4822 117 13576	4x33Ω 5% 1206
3907	4822 051 30103	10kΩ 5% 0.062W
3908	4822 117 13576	4x33Ω 5% 1206
3914	4822 051 30103	10kΩ 5% 0.062W
3915	4822 051 30103	10kΩ 5% 0.062W
3916	4822 051 30103	10kΩ 5% 0.062W
3917	4822 051 30103	10kΩ 5% 0.062W
3918	4822 051 30103	10kΩ 5% 0.062W
3919	4822 051 30103	10kΩ 5% 0.062W
3920	2322 704 62002	2kΩ 1%
3921	4822 051 30103	10kΩ 5% 0.062W
3922	4822 051 30103	10kΩ 5% 0.062W
3923	4822 051 30103	10kΩ 5% 0.062W
3924	4822 051 30103	10kΩ 5% 0.062W
3925	4822 051 30103	10kΩ 5% 0.062W
3926	4822 051 30103	10kΩ 5% 0.062W
3927	4822 051 30103	10kΩ 5% 0.062W
3928	4822 051 30103	10kΩ 5% 0.062W
3929	4822 051 30103	10kΩ 5% 0.062W
3930	4822 051 30561	560Ω 5% 0.062W
3931	4822 051 30561	560Ω 5% 0.062W
3932	4822 051 30339	33Ω 5% 0.062W
3933	4822 051 30339	33Ω 5% 0.062W
4xxx	4822 051 30008	Jumper 0603

5100	4822 157 11499	Bead 60Ω at 100MHz
5101	4822 157 11717	Bead 50Ω at 100MHz
5102	4822 157 11717	Bead 50Ω at 100MHz
5200	4822 157 11499	Bead 60Ω at 100MHz
5201	4822 157 11499	Bead 60Ω at 100MHz
5202	4822 157 11499	Bead 60Ω at 100MHz
5203	4822 157 11499	Bead 60Ω at 100MHz
5300	4822 157 11499	Bead 60Ω at 100MHz
5301	4822 157 11499	Bead 60Ω at 100MHz
5500	4822 157 11499	Bead 60Ω at 100MHz
5508	4822 157 11499	Bead 60Ω at 100MHz
5509	4822 157 11499	Bead 60Ω at 100MHz
5510	4822 157 70601	100µH 920927085A
5600	4822 157 11499	Bead 60Ω at 100MHz
5601	4822 157 11499	Bead 60Ω at 100MHz
5602	4822 157 11499	Bead 60Ω at 100MHz
5605	3198 018 52280	2.2µF 10% 1008
5606	3198 018 52280	2.2µF 10% 1008
5607	3198 018 52280	2.2µF 10% 1008
5608	3198 018 52280	2.2µF 10% 1008
5609	3198 018 52280	2.2µF 10% 1008
5610	3198 018 52280	2.2µF 10% 1008
5611	4822 157 11499	Bead 60Ω at 100MHz
5612	4822 157 11499	Bead 60Ω at 100MHz
5613	4822 157 11499	Bead 60Ω at 100MHz
5614	4822 157 11499	Bead 60Ω at 100MHz
5615	4822 157 11499	Bead 60Ω at 100MHz
5616	4822 157 11499	Bead 60Ω at 100MHz
5700	2422 536 00518	10µF 15%
5701	2422 536 00518	10µF 15%
5702	2422 536 00518	10µF 15%
5703	4822 157 11717	Bead 50Ω at 100MHz
5704	4822 157 11499	Bead 60Ω at 100MHz
5705	2422 536 00518	10µF 15%
5706	2422 536 00518	10µF 15%
5709	2422 536 00518	10µF 15%
5710	4822 157 11717	Bead 50Ω at 100MHz
5711	4822 157 11717	Bead 50Ω at 100MHz
5712	4822 157 11717	Bead 50Ω at 100MHz
5713	4822 157 11499	Bead 60Ω at 100MHz
5714	4822 157 11499	Bead 60Ω at 100MHz
5715	4822 157 11717	Bead 50Ω at 100MHz
5800	4822 157 11499	Bead 60Ω at 100MHz
5801	4822 157 11499	Bead 60Ω at 100MHz
5802	4822 157 11499	Bead 60Ω at 100MHz
5803	4822 157 11499	Bead 60Ω at 100MHz
5900	4822 157 11499	Bead 60Ω at 100MHz
5901	4822 157 11499	Bead 60Ω at 100MHz
5902	4822 157 11499	Bead 60Ω at 100MHz
5903	4822 157 11499	Bead 60Ω at 100MHz
5905	4822 157 11499	Bead 60Ω at 100MHz

6101	9322 185 39685	LTST-C155GEK
6700	5322 130 10734	BAT54A
6701	5322 130 10734	BAT54A
6702	4822 209 90927	L78L05ACD

7100	9352 692 36557	PNX8525EH/B1
7100	9352 724 01557	PNX8526EH
7103	5322 130 63289	BSN20
7103	9965 000 04199	Connector 2p
7104	5322 130 63289	BSN20
7104	9965 000 04199	Connector 2p
7105	5322 130 60159	BC846B
7106	5322 130 60159	BC846B
7200	9322 197 09668	K4S281632E-TC60
7201	9322 197 09668	K4S281632E-TC60
7202	9322 197 09668	K4S281632E-TC60
7203	9322 197 09668	K4S281632E-TC60
7303	9322 146 19671	AM29LV160DB-70EC
7304	8204 050 00074	K9F2808U0C-YCB0
7304	9322 175 06671	K9F2808U0B-YCB0
7305	9322 130 41668	M24C64-WMN6
7306	9322 130 41668	M24C64-WMN6
7503	9322 160 17668	ST202ECD
7505	5322 209 11517	PC74HCU04T
7506	9322 160 17668	ST202ECD
7600	4822 209 30095	LM833D
7602	9352 695 80557	PNX8510HW/B1
7700	9322 158 57668	LF90CPT
7701	9322 160 70668	SI4936ADY
7702	5322 130 60159	BC846B
7703	9322 160 70668	SI4936ADY
7704	9322 160 70668	SI4936ADY
7705	9322 185 50668	ISL6444CA
7706	9322 160 70668	SI4936ADY
7707	5322 209 11578	PCF8574T
7708	9322 186 85668	LD1117S50
7710	9322 165 15685	NCP303LSN30
7712	9322 185 50668	ISL6444CA
7800	9352 707 84557	TDA10046HT/C1
7801	9322 158 58668	M24256-BWMN6
7802	9322 186 32668	LD1117S18
7803	5322 209 61472	LM393M
7804	9352 611 78118	74HC1GU04GW
7900	9352 190 10118	74LVC573ADB
7901	9352 190 10118	74LVC573ADB
7902	9322 172 92671	CIMAX 2.0
7903	9352 115 40118	74LVC245APW
7904	9322 175 13668	ST890CD
7905	4822 242 10838	Osc. 27MHz 120pF

IBO+ Power Supply+Digital Int. Panel [S]

Various

0205	4822 265 11352	Connector 8p
0206	4822 267 10734	Connector 5p
0231	2422 025 16374	Connector 2p m
0239	4822 267 10735	Connector 3p
0240	2422 025 12485	Connector 11p m
0241	2422 025 12485	Connector 11p m
1600	4822 265 11154	Connector 22p
1700	4822 267 10735	Connector 3p
8004	3104 311 04091	Cable 3p/220/3p

2009	2238 586 59812	100nF 20% 50V 0603
2012	4822 126 13879	220nF +80-20% 16V
2016	2238 586 59812	100nF 20% 50V 0603
2024	4822 124 11947	10µF 20% 16V
2029	4822 124 11947	10µF 20% 16V
2037	3198 017 41050	1µF 10V 0603
2038	3198 017 41050	1µF 10V 0603
2039	2238 586 59812	100nF 20% 50V 0603
2041	2238 586 59812	100nF 20% 50V 0603
2045	4822 126 13879	220nF +80-20% 16V
2046	4822 126 13879	220nF +80-20% 16V
2048	4822 126 13879	220nF +80-20% 16V
2052	4822 126 13879	220nF +80-20% 16V
2053	4822 126 13879	220nF +80-20% 16V
2054	4822 126 13879	220nF +80-20% 16V
2055	3198 017 41050	1µF 10V 0603
2056	3198 017 41050	1µF 10V 0603
2059	5322 126 11583	10nF 10% 50V 0603
2060	5322 126 11583	10nF 10% 50V 0603
2901	2020 021 91836	22µF 20% 400V
2903	4822 126 13682	100pF 5% 1kV
2904	5322 122 32311	470pF 10% 100V
2906	4822 124 40433	47µF 20% 25V
2907	4822 122 31175	1nF 10% 500V
2908	4822 124 12417	2200µF 20% 25V
2909	5322 126 11578	1nF 10% 50V 0603
2910	4822 126 14049	1.5nF 20% 250V

3008	4822 051 30101	100Ω 5% 0.062W
3009	4822 051 30103	10kΩ 5% 0.062W
3010	4822 051 30101	100Ω 5% 0.062W
3011	4822 051 30101	100Ω 5% 0.062W
3012	4822 117 12903	1.8kΩ 1% 0.063W 0603
3013	4822 051 30101	100Ω 5% 0.062W
3014	4822 051 30101	100Ω 5% 0.062W
3022	4822 116 83883	470Ω 5% 0.5W
3024	4822 116 52182	15Ω 5% 0,5W
3025	4822 052 10159	15Ω 5% 0.33W
3030	4822 117 12891	220kΩ 1%
3031	4822 117 12891	220kΩ 1%
3032	4822 051 30561	560Ω 5% 0.062W
3038	4822 051 30101	100Ω 5% 0.062W
3039	4822 051 30103	10kΩ 5% 0.062W
3040	4822 051 30101	100Ω 5% 0.062W
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30103	10kΩ 5% 0.062W
3043	4822 117 12903	1.8kΩ 1% 0.063W 0603
3045	4822 117 12891	220kΩ 1%
3046	4822 117 12891	220kΩ 1%
3047	4822 051 30561	560Ω 5% 0.062W
3048	4822 117 12891	220kΩ 1%
3049	4822 117 12891	220kΩ 1%
3050	4822 051 30561	560Ω 5% 0.062W
3053	4822 051 30008	Jumper 0603
3054	4822 051 30759	75Ω 5% 0.062W
3056	4822 051 30759	75Ω 5% 0.062W
3061	4822 051 30759	75Ω 5% 0.062W
3063	4822 051 30561	560Ω 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 117 12864	82kΩ 5% 0.6W
3066	4822 117 12925	47kΩ 1% 0.063W 0603
3067	4822 051 30102	1kΩ 5% 0.062W
3070	4822 051 30102	1kΩ 5% 0.062W
3073	4822 051 30103	10kΩ 5% 0.062W
3074	4822 051 30103	10kΩ 5% 0.062W
3075	4822 051 30103	10kΩ 5% 0.062W
3901	4822 052 11108	1Ω 5% 0.5W
3904	4822 050 12704	270kΩ 1% 0.4W
3905	4822 050 12704	270kΩ 1% 0.4W
3906	4822 116 52228	680Ω 5% 0.5W
3907	4822 053 10108	1Ω 5% 1W
3908	4822 116 52269	3.3kΩ 5% 0.5W
3909	5322 116 53564	3.3Ω 5% 0.5W
3910	4822 050 11002	1kΩ 1% 0.4W
3911	4822 051 30152	1.5Ω 5% 0.062W
3912	5322 117 13048	3.3kΩ 1% 0.063W 0603
3913	5322 117 13031	5.6kΩ 1% 0.063W 0603
3915	4822 051 30472	4.7Ω 5% 0.062W
3917	4822 117 10833	10kΩ 1% 0.1W
3918	4822 117 10833	10kΩ 1% 0.1W
4001	4822 051 30008	Jumper 0603
4002	4822 051 30008	Jumper 0603
4003	4822 051 30008	Jumper 0603
4010	4822 051 30008	Jumper 0603
4011	4822 051 30008	Jumper 0603
4012	4822 051 30008	Jumper 0603
4013	4822 051 30008	Jumper 0603
4014	4822 051 30008	Jumper 0603
4015	4822 051 30008	Jumper 0603
4016	4822 051 30008	Jumper 0603

5029	4822 157 11747	15µH 5%
5030	2722 122 00338	Delay line 400ns
5031	2722 122 00338	Delay line 400ns
5900	4822 157 11885	1000µH 5%
5902	4822 526 10704	Bead 100MHz
5904	2422 531 98027	Transf. S28949-02
5905	4822 157 11411	Bead 100MHz
5906	2422 549 44284	Filter 5MHz C914-0

6024	4822 130 30862	BZX79-B9V1
6025	4822 130 11397	BAS316
6902	4822 130 41601	BYV95A
6903	9322 164 42682	EGP20DL-5100
6904	9322 164 42682	EGP20DL-5100
6906	4822 130 34278	BZX79-B6V8

7008	5322 209 33172	PCF8574AT
7024	4822 130 40981	BC337-25

7040	5322 209 14481	HEF4053BT
7041	5322 209 14481	HEF4053BT
7045	5322 130 60159	BC846B
7046	5322 130 60159	BC846B
7048	5322 130 60159	BC846B
7050	5322 130 60159	BC846B
7051	5322 130 60159	BC846B
7052	5322 130 60159	BC846B
7053	5322 130 60159	BC846B
7901	5322 130 60159	BC846B
7902	9965 000 05142	STR-G6551
7903	8238 274 02070	TCET1103G
7905	5322 130 60159	BC846B

Top Control Panel [T]

Various

0135	3104 311 03291	Cable 3p/1100/3p
0215	4822 267 10748	Connector 3p
1091	4822 276 13775	Switch
1092	4822 276 13775	Switch
1093	4822 276 13775	Switch
1094	4822 276 13775	Switch

⊣⊢

2010	4822 122 33177	10nF 20% 50V

⊣WW⊢

3091	4822 051 30271	270Ω 5% 0.062W
3092	4822 051 30331	330Ω 5% 0.062W
3093	4822 051 30561	560Ω 5% 0.062W
3094	4822 051 30271	270Ω 5% 0.062W
3095	2322 704 63002	3kΩ 1%
3096	4822 051 30152	1.5Ω 5% 0.062W
4089	4822 051 30008	Jumper 0603
4090	4822 051 30008	Jumper 0603

⊣▷|⊢

6092	4822 130 10654	BAT254

Mains Harmonic Panel [U]

Various

0001⚠	4822 265 20723	Connector 2p
0002⚠	4822 267 10775	Connector 2p m (black)
0127⚠	4822 265 11253	Fuse holder
1000⚠	2422 086 10914	Fuse 4A 250V

⊣⊢

2000⚠	4822 126 13589	470nF 275V
2001	4822 121 70141	33nF 5% 400V

⊣WW⊢

3000	3198 013 01020	1kΩ 20% 0.5W
3002⚠	4822 053 21155	1.5MΩ 5% 0.5W

⊣∿⊢

5000⚠	2422 549 44444	Filter 56MHz