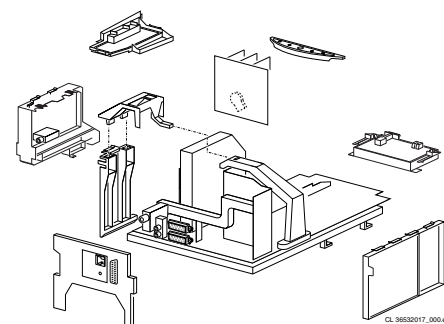


Service
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Service Manual

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1. Technical Specifications, Connections and Chassis Overview

1.1 Technical Specifications

1.1.1 Vision

Display type	: CRT, Real Flat WS
Screen size	: 28" (70 cm)
	: 32" (82 cm)
	: 36" (92 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
Aerial input	: 75 ohm, IEC-type

1.1.2 Sound

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

1.1.3 Miscellaneous

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

1.2.2 Rear Connections

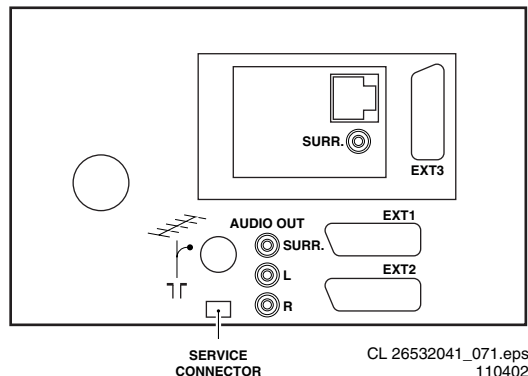


Figure 1-2 Rear View

Aerial - In

- IEC-type Coax, 75 ohm



Cinch: Audio - Out

- Audio - R 0.5 Vrms / 1 kohm
- Audio - L 0.5 Vrms / 1 kohm



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

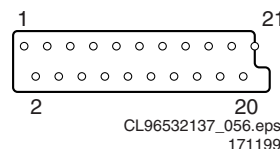


Figure 1-3 SCART connector

1.2 Connections

1.2.1 Front View / Side Connections

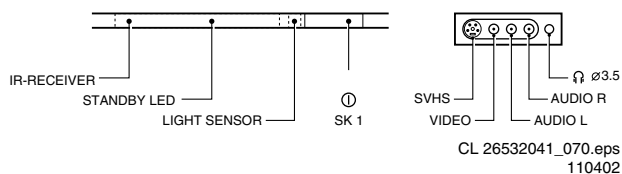


Figure 1-1 Front View and Side I/O

Hosiden: SVHS - In

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

Cinch: In

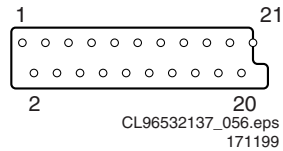
1 - CVBS	1 Vpp / 75 ohm	⊕⊕
2 - Audio - L	0.5 Vrms / 10 kohm	⊕⊕
3 - Audio - R	0.5 Vrms / 10 kohm	⊕⊕

Mini Jack: Headphone - Out

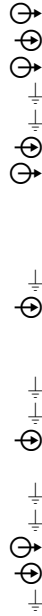
- Headphone 32 - 600 ohm / 10 mW



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

External 2: CVBS and SVHS - In (for VCR)**Figure 1-4 SCART connector**

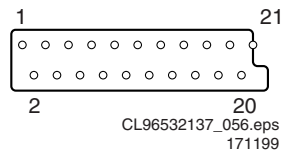
1 - Audio - R	0.5 Vrms / 1 kohm
2 - Audio - R	0.5 Vrms / 10 kohm
3 - Audio - L	0.5 Vrms / 1 kohm
4 - Audio	Ground
5 - Audio	Ground
6 - Audio - L	0.5 Vrms / 10 kohm
7 - C-out	0.7 Vpp / 75 ohm
8 - CVBS-status	0 - 1.3 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3
9 - Video	Ground
10 - Easylink	(P50)
11 - n.c.	
12 - n.c.	
13 - Video	Ground
14 - Video	Ground
15 - C-in	0.7 Vpp / 75 ohm
16 - n.c.	
17 - Video	Ground
18 - Video	Ground
19 - CVBS-out	1 Vpp / 75 ohm
20 - Y / CVBS-in	1 Vpp / 75 ohm
21 - Shielding	Ground



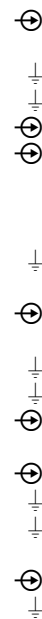
3 - GND	Ground
4 - I2C_MUTE	Signal
5 - 15V	Supply
6 - AUDIO_	
SL_S_TM	Signal
7 - GND_AUD	Ground
8 - PILOT_MUTE	Signal

**Jack: Surround - Out**

1 - Audio	0.2 - 2 Vrms / 10 kohm
-----------	------------------------

**External 3: RGB and CVBS - In****Figure 1-5 SCART connector**

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

**RJ45: Wireless Surround Transmitter - Out**

1 - SDA2_TM	Signal
2 - SCL2_TM	Signal



1.3 Chassis Overview

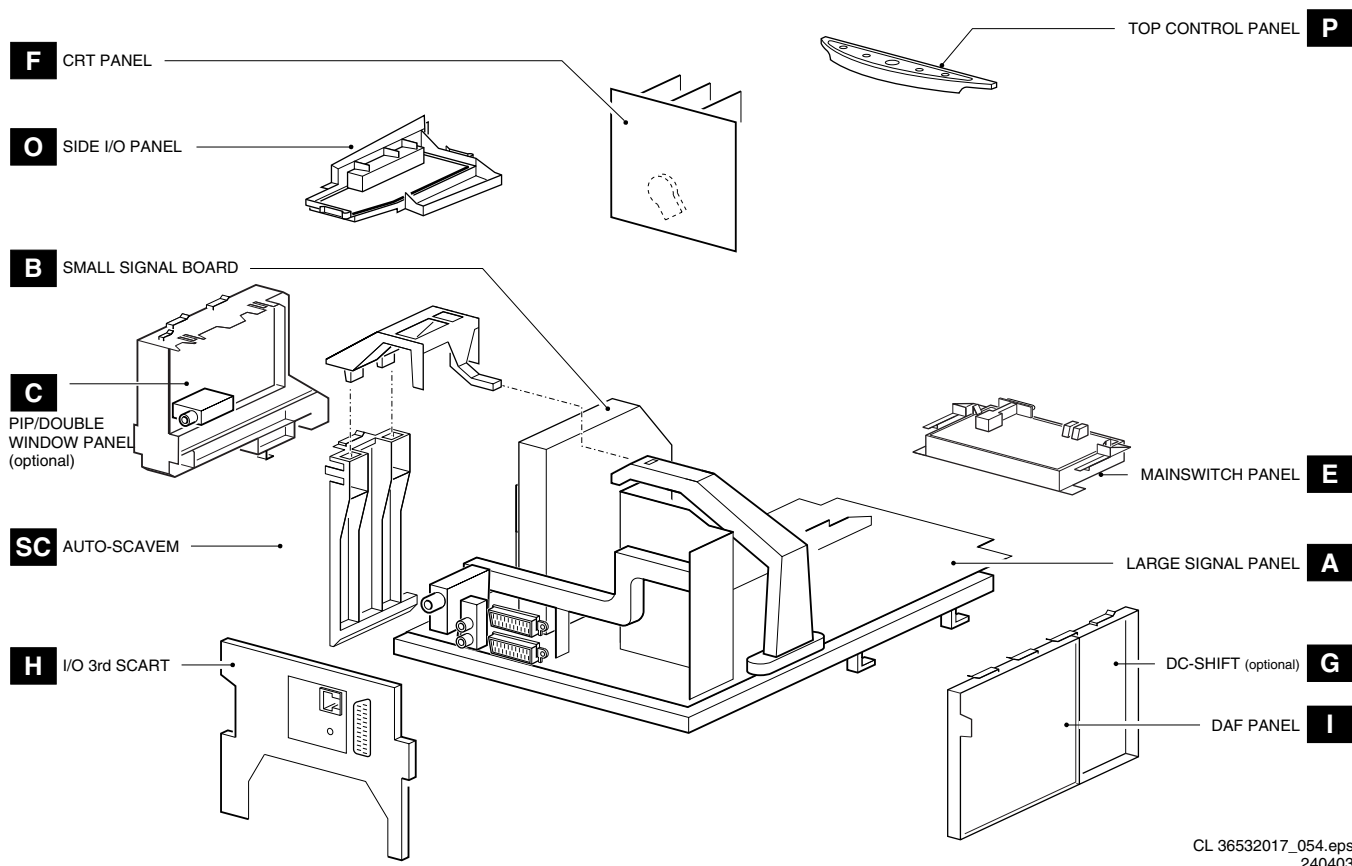


Figure 1-6 PWB location

2. Safety Instructions, Warnings, and Notes

2.1 Safety Instructions

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

- Connect the Receiver box to the Mains via an isolation transformer.
- When you use the Receiver box in combination with a plasma monitor, do not operate the monitor without the front glass plate. One function of this glass plate is to absorb IR radiation. Without this glass plate, the level of radiation could damage your eyes.
- Safety components, indicated by the symbol ▲, must be replaced with original components.

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

- Route the wire trees in their original positions and fix them in place with the mounted cable clamps.
- Check the insulation of the Mains cord for external damage.
- Check the electrical DC resistance between the Mains plug and the secondary side (only for sets which have a Mains isolated power supply):
 - Unplug the Mains cord and connect a wire between the two pins of the Mains plug;
 - Set the Mains switch to the "on" position (keep the Mains cord unplugged!).
 - Measure the resistance value between the pins of the Mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
 - Set the Mains switch to the "off" position, and remove the wire between the two pins of the Mains plug.
- Check the cabinet for defects, to prevent the customer from touching any inner parts of the television set.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD symbol ⚡). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same electrical potential as the set by a wristband with resistance. Keep components and tools at this same potential. Available ESD protection equipment:
 - Complete ESD3 kit (small tablemat, wristband, connection box, extension cable and earth cable): 4822 310 10671.
 - Wristband tester: 4822 344 13999.
- Be careful while taking measurements in the live voltage section.
- Never replace modules, or other components, with the television set "ON."
- Use plastic tools, instead of metal tools, when performing alignments on the television set. This will help prevent short circuits and reduce the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the direct voltages and oscillograms with regard to the chassis ground (symbol ⊥), or hot ground (symbol ↕).
- The direct voltages and oscillograms 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 61.25 MHz (NTSC).

- Where necessary, measure the oscillograms and direct voltages with (symbol ⊥) and without (symbol ⚡) aerial signal. Measure the voltages in the power supply section both in normal operation (symbol ①) and in standby (symbol ②). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

2.3.2 Schematic Notes

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

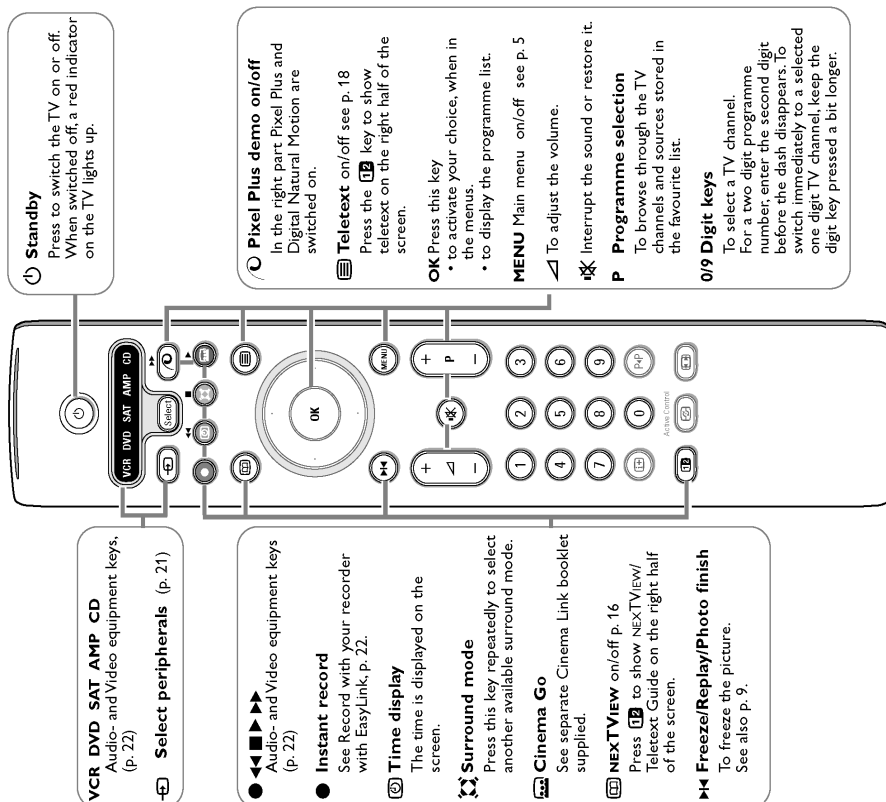
2.3.3 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions - reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.
- **Before powering up the TV set with the rear cover off** (or on a test fixture), attach a clip lead to the CRT DAG ground and to a screwdriver blade that has a well insulated handle. After the TV is powered on and high voltage has developed, probe the anode lead with the blade, starting at the case of the High Voltage Transformer (flyback - IFT). Move the blade to within two inches of the connector of the CRT. **If there is an arc, you found it the easy way, without getting a shock!** If there is an arc to the screwdriver blade, replace the part that is causing the problem: the High Voltage Transformer or the lead (if it is removable).

3. Directions for Use

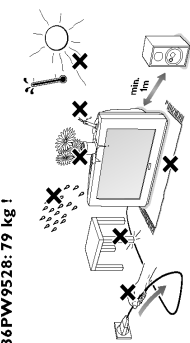
Use of the remote control RC4301

Note: For most keys pressing a key once will activate the function. Pressing a second time will de-activate it. When a key enables multiple options, a small list will be shown. Press repeatedly to select the next item in the list. The list will be removed automatically after 4 seconds or press **OK** to remove immediately.



Preparation

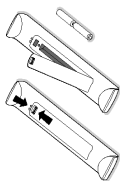
- 1 Place the TV on a solid surface.
! 28PW9528: 41 kg; 32PW9528: 59 kg;
36PW9528: 79 kg !



- 2 For ventilation, leave at least 5 cm free all around the TV. Do not place the TV on a carpet. To prevent any unsafe situations, do not place any objects on top of the TV. Avoid heat, direct sunlight and exposure to rain or water.
- 3 Insert the aerial plug firmly into the aerial socket **T** at the back of the TV. For best picture quality use the suppressor-aerial cable supplied.

- 4 Insert the mains plug of the TV in the wall socket having a mains voltage of 220V-240V.

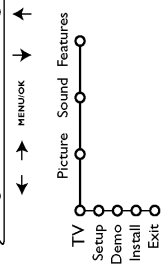
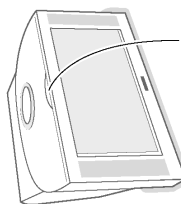
- 5 **Remote control:** Insert the 2 batteries supplied (Type R6-1.5V).



The batteries supplied do not contain the heavy metals mercury and cadmium. Please check on how to dispose of exhausted batteries according to local regulations.

- 6 **Switch the TV on:** Press the power switch **⏻** on the front of your TV. An indicator on the front of the TV lights up and the screen comes on. If the TV is in standby mode (red indicator), press the **-P+** keys on the remote control.

Keys on top of the TV



Should your remote be lost or broken you can still change some of the basic settings with the keys on top of your TV.

- Press:
- the **Δ** - or + key to adjust the volume;
 - the **-P+** keys to select the TV channels or sources.

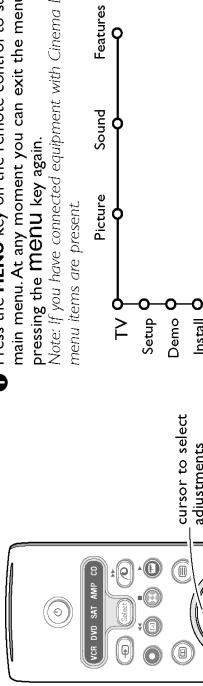
The **M** key can be used to summon the main menu without the remote control.

- Use:
- the **Δ** - and + keys and the **-P+** and **P+** keys to select menu items in the directions as shown;
 - the **M** key to confirm your selection.

Note:
When activated via the **M** key on top of the TV, only **Exit** lets you dismiss the menu. Navigate to **Exit** and press the **M** key.

To use the menus

- 1 Press the **MENU** key on the remote control to summon the main menu. At any moment you can exit the menu by pressing the **MENU** key again.
Note: If you have connected equipment with Cinema Link, more menu items are present.



- 2 Use the cursor in the up/down direction to select the **TV, Setup, Demo** or **Install** menu. Use the cursor left/right to select **Picture, Sound** or **Features**.

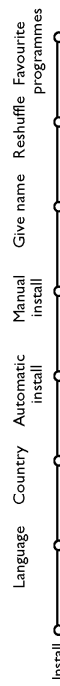
Note: Sometimes not all the menu items are visible on the screen (indicated by a cluster of blue balls). Use the cursor down or right to reveal all items.

- 3 Use the cursor in the left/right direction to select the menu item.
4 Use the cursor up/down again to select the control you want to select or to adjust.

Note: Items temporary not available or not relevant are displayed in a light grey colour and cannot be selected.

Installation

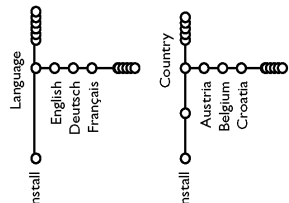
The installation menu contains the following items:



EasyLink

If your video recorder has an EasyLink function, during installation, the language, country and available channels are automatically transmitted to the video recorder.

Select the menu language and country



- 1 Press the **MENU** key on the remote control.
2 Use the cursor down to select **Install**.
3 Use the cursor right to select **Language**. Follow the instructions on screen.
4 Use the cursor up/down to select your preferred language and press the **OK** key to confirm your selection.
5 Use the cursor right to select **Country**.
6 Select the country where you are now located and press the **OK** key.
7 Proceed with the Install menu.

On Screen information

Press to display information about the selected TV channel and programme.

Menu/Remote control info

When a menu is on screen, press **13** to display info on the selected menu item. For information on the remote control functions, while the menu info is displayed, press any key on the remote control. The normal function of the key is not executed.

PiP Smart surf / NEXTVIEW themes

With this key you can easily switch between 2 up to 9 different TV channels or sources or quickly select TV programmes if NEXTVIEW with defined themes is broadcast. See General, Smart surf, p. 9. Press the **OK** key or wait for the time out to dismiss the Smart surf display.

Dual screen / PIP / Multipip

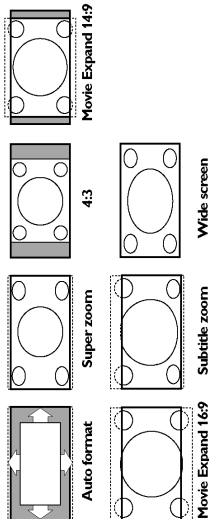
See p. 9 and p. 14.

Active control

see p. 11.

Picture format

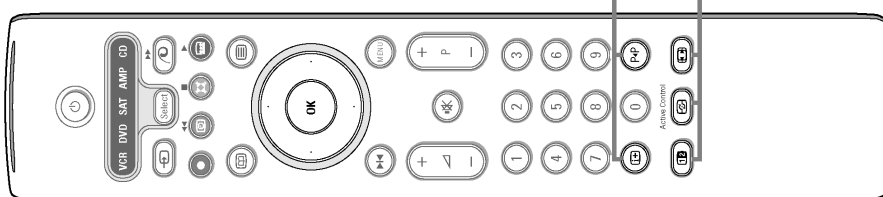
Press this key repeatedly or press the cursor up/down to select another picture format: Auto format, Super zoom, 4:3, Movie Expand 14:9, Movie Expand 16:9, Subtitle zoom or Wide screen.



Auto format makes the picture fill the screen as much as possible. In case of subtitles in the bottom black bar, Auto format makes the subtitles visible. If subtitles are only partly visible, press cursor up. In case of a broadcaster logo in the corner of the top black bar, the logo disappears from the screen.

Super zoom removes the black bars on the sides of 4:3 programs with minimal distortion.

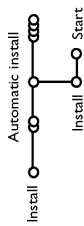
When in Movie Expand 14:9, 16:9, Super zoom or Subtitle zoom picture format, you can make subtitles visible with the cursor up/down.



Store TV channels

After language and country are set correctly you can now search for and store the TV channels in two different ways: using Automatic Installation or Manual Installation (tuning-in channel by channel). Select your choice with the cursor right.

Automatic installation

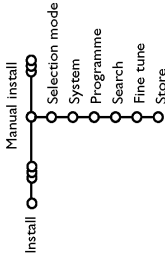


- 1 Select **Automatic install** in the Install menu.
Note: All channels must be unlocked in order to autoprogram. If requested, enter your code to unlock all channels. (See TV Features menu, Childlock, p. 13).
- 2 Press the cursor down.
- 3 The autoprogramming option label **Start** appears.
- 4 Press the cursor right.
- 5 The message **Searching** appears and the progress of autoprogramming is displayed.

If a cable system or a TV channel which broadcasts ACI (Automatic Channel Installation) is detected a programme list appears. Without ACI broadcast, the channels are numbered according your language and country selection. You can use Reshuffle to renumber them. See p. 7.

*It is possible that the cable company or the TV channel displays a broadcast selection menu. Layout and items are defined by the cable company or the TV channel. Make your choice with the cursor and press the **OK** key.*

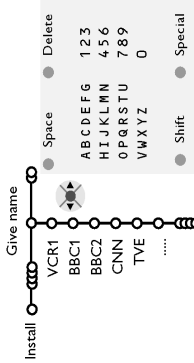
Manual installation



Searching for and storing TV channels is done channel by channel. You must go through every step of the Manual Installation menu.

- 1 Select **Manual install** in the Install menu.
 - 2 Press the cursor down.
 - 3 Follow the instructions on screen.
- Note: Search or direct selection of a TV channel. If you know the frequency, the C- or S-channel number, enter the 3 or 2 digits of the frequency or the channel number directly with the digit keys 0 to 9 (e.g. 048). Press the cursor down to proceed.*
- Repeat to search for another TV channel.

Give name



- 1 Select **Give Name** in the Install menu and press the cursor down.
- 2 Select the programme number.
Note: keep the cursor up/down pressed to scroll through the programme list quickly.
- 3 Press the cursor right.
A keyboard appears on the screen.
Press the cursor right to enter the keyboard.
Press the cursor up/down, left/right to select the first character and press **OK**. Repeat for every character you want to enter.
Select **Space** to enter a space; **Delete** to erase the highlighted character in the name entered; **Shift** to display upper- or lowercase characters on the keyboard; **Special** to display special characters on the keyboard. Press **OK** to confirm.
- 4 Press the cursor left repeatedly when you have finished the name giving.
- 5 Select another programme number and repeat steps 3 to 4.

It is possible to change the name stored in the memory or to assign a name to a TV channel for which a name has not yet been entered. A name with up to 5 letters or numbers can be given to the programme numbers 0 to 99.

Reshuffle the programme list

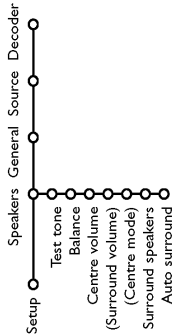
You can change the order of the stored TV channels.

- 1 Select **Reshuffle** in the Installation menu.
- 2 Follow the instructions on screen.

Select Favourite TV channels

- 1 Select **Favourite programmes** in the Install menu.
- 2 Select your programme number with the cursor up/down.
- 3 Select **Yes** or **No** with the cursor right.
- 4 Repeat 2 and 3 for every TV channel or external you want to make a favourite or a non-favourite TV channel or external.

TV Setup



The Setup menu contains items that control the settings of the TV's functions, features, services and peripherals you may have connected.

The **Speakers** menu reflects the speaker-related controls.

The **General** menu allows you to change settings that will typically be accessed only occasionally.

The **Source** menu allows you to select a source. The **Decoder** menu allows you to define one or more programme numbers as decoder programme numbers.

Speakers

Your TV is equipped with integrated front, right and centre loudspeakers, capable of reproducing Stereo, Dolby 3 stereo and 3D Surround modes. For full Dolby Pro Logic Surround sound you should use two amplified rear surround speakers connected to the back of the TV. See Extra loudspeakers/Amplifier, p. 21.

Depending on the output and Surround mode (see Main menu, TV, Sound, Sound modes, p. 12) selected, some menu items may be greyed out and are not selectable.

Test tone controls

The menu item Test tone enables you to balance the volume levels of the speakers.

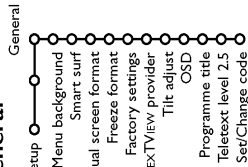
- 1 Select **Test tone** and press the cursor right.
- 2 Once turned on, the Test Tone will circulate through the left, centre, right speakers and both rear surround speakers (if present).
- 3 Press the cursor up/down to select the desired speaker for individual volume level adjustment.
- 4 Press the cursor left/right to adjust the volume level.

Centre Mode

To enhance the sound reproduction of your TV you may connect two extra front loudspeakers via an external amplifier. See Connect extra loudspeakers/Amplifier, p. 21.

If no External Front Speakers are connected, do not change the predefined factory settings which is **Centre mode Off**. Only if an external amplifier with Front Speakers is connected, select **Centre mode On**. In this setting, the centre channel in surround mode is directed to all three internal TV speakers (left, centre and right).

General



Freeze format

Freeze format allows you to select among three options: Freeze, Replay or Photo finish, to be activated when you press the **PAUSE** key on the remote control. See p. 3.

Note: Continuing to hold the **PAUSE** key down will also cycle the TV through the various formats. Changing the format this way does not store the selected format.

Factory settings

This resets the picture and sound settings to their predefined factory values, but maintains the channel installation settings.

NEXTVIEW provider

Select a TV broadcaster that provides NEXTVIEW data. How to make use of NEXTVIEW, see p. 15.

OSD (On Screen Display)

See Use of the remote control, p. 4, On screen information.

- 1 Select **OSD**.
- 2 Select **Normal** to activate the continuous display of the programme number. Also TV channel and programme information are extended. **Minimum** will display reduced channel information.

Note: When subtitles is switched on, see Features, p. 13, continuous display of the programme number is not possible.

Teletext level 2.5

Some broadcasters offer the opportunity to see more colours, other background colours and nicer pictures in the teletext pages.

- 1 Select **Teletext level 2.5**.
- 2 Press the cursor right to select **Teletext level 2.5 On** to take advantage of this feature.
- 3 Press the cursor right again to select **Teletext level 2.5 Off** if you like the more neutral teletext layout. The selection made is valid for all channels which broadcast teletext level 2.5. Note: It may take a few seconds before teletext broadcast switches over to Teletext level 2.5.

This menu allows you to change various settings that are presumably adjusted less frequently than most other settings.

Press the key on the remote control to get information about the selected menu item.

Smart surf

- 1 Select **Smart surf**.
- 2 With the cursor left/right, select
 - 2 programmes if you want the **PP** key to toggle between the current and the previously selected channel,
 - 9 programmes if you want the **PP** key to summon a list of up to 9 channels which can be selected,
 - Themes if you want the **PP** key to quickly select TV programmes if NEXTVIEW with defined themes is broadcast.

To add/remove a channel or source:

Tune to the channel or source you wish to add or remove. Press the **PP** key and press the cursor right to add or remove.

Note: If there are already 9 channels/sources in the list, the one at the bottom of the list will be removed.

Dual screen format

This menu allows you to select the preferred format which can then be displayed toggling the key on and off. See Dual screen/PIP/Multipip, p. 14.

- Select **Dual screen**, **PIP**, **PIP 3** or **PIP 12** with the cursor down.
- When Dual screen mode is activated with the remote control key and when:
- **Dual screen** is selected, the TV splits the screen into two equally sized screens.
 - **PIP** is selected, the TV shows a full screen of video with a pip window of video on top of it;
 - **PIP3** or **12** is selected, the TV will display 3 or 12 pip screens.

TV menu

Press the **MENU** key on the remote control to summon the main menu.

Press the **[3]** key on the remote control to get information about the selected menu item.

Picture

Picture Sound Features

TV Smart picture Contrast Brightness Colour Sharpness Tint Digital options Dynamic contrast DNR Colour enhancement (Hue) Picture format

1 Press the cursor right to select **Picture**.

2 Select the menu items in the Picture menu with the cursor up/down.

3 Adjust the settings with the cursor left/right or enter the list of submenu items with the cursor right. Select a submenu item with the cursor up/down.

Smart picture

Select **Smart picture** to display a list of predefined picture settings, each corresponding with specific factory settings. Personal refers to the personal preference settings of picture in the picture menu.

Digital options

Pixel Plus is the most ideal setting, doubles the horizontal resolution and increases the number of lines with 33%. You may consider to select **Movie Plus** in case a halo effect should disturb you. Dependent on your own preference, select **Double lines**, or **100 Hz Digital Scan**.

Note: When 60 Hz NTSC material is used, the options are changed to Pixel Plus, Movie Plus or Progressive, progressive scan without motion compensation.

Active Control

The TV continuously measures and corrects all incoming signals in order to provide the best picture possible.

1 Press the **[3]** key on the remote control.

2 The Active Control menu appears.

3 Press the cursor up/down to select the Active Control values **Off**, **Minimum**, **Medium** (recommended) or **Maximum**. The picture settings are being optimised continuously and automatically which is displayed by bars. The menu items can not be selected.

4 Press the cursor right to select **Smart picture**.

5 Press the cursor up/down to select one of the predefined picture settings.

6 Press the cursor right to select **Active Display**.

7 Press the cursor up/down to select **Bars**, one of the Dual screen demos or **Off**. When you select **Dynamic contrast**, **Pixel Plus**, **Digital Noise Reduction** or **Digital Natural Motion**, the TV screen is divided into two parts: in the left part the selected picture quality setting is switched off, in the right part it is switched on.

8 Press the **[3]** key again to switch off the Active Control menu.

11

Set/Change code

The Child lock feature (see TV Features, p. 13) allows you to lock channels to prevent others from watching certain programmes. To watch locked channels, a 4-digit code must be entered. The Set/Change code menu item allows you to create or change a Personal Identification Number (PIN).

1 Select **Set/Change code**.

2 If no code exists yet, the menu item is set to Set code.

Source

Source

Setup EXT1 EXT2 EXT3 SIDE (Centre input)

This menu allows you to indicate the peripheral you connected to one of the external inputs.

1 Press the cursor right to enter the list of types of peripherals attached to the selected input.

2 Select the peripheral device with the cursor up/down.

Decoder

Decoder

Setup Programme Status

If a decoder or a descrambler is connected, see p. 20, you can define one or more programme numbers as decoder programme numbers.

1 Select **Decoder** with the cursor right.

2 Select **Programme**.

Demo

TV

Setup Demo Install Auto demo Dealer demo - Digital options - Light sensor - Comb filter

The Demo menu allows to demonstrate the TV features separately or in a continuous loop.

If **Auto demo** has been selected the demo will automatically present the features sequentially in a loop. Press one of the cursor keys to stop the Auto demo.

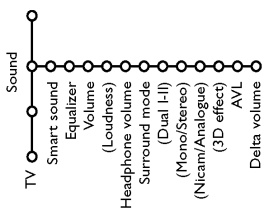
If one of the features has been selected, this particular feature demo will run only once, and the Demo menu will reappear.

Note: The Dealer demo is not part of the automatic sequence and can only be activated separately.

10

Sound

- Press the cursor right to select **Sound**.
- Select the menu items in the Sound menu with the cursor up/down and adjust the settings with the cursor left/right. Remember, control settings are at normal mid-range levels when the bar scale is centred.



Smart sound

Select **Smart sound** to display a list of predefined sound settings, each corresponding with specific factory settings of Treble and Bass. **Personal** refers to the personal preference settings of sound in the sound menu.

Notes:

- Some menu items are only available in case of a Cinema Link configuration and when the Cinema Link is activated. Others are steered by the audio receiver instead of by the TV. See the separate Cinema Link booklet supplied.
- Dual **L+R** is only available with dual sound transmission.
- Mono/Stereo is only selectable in case of analogue stereo transmission.
- Nican/Analogue is only selectable in case of Nican transmission.

Surround Modes

Dependent on your personal preference and the sound signal broadcasted, select one of the Surround modes. Only the speakers indicated in the drawings can reproduce sound.

Stereo

This mode reproduces only the left and right front sound signals.



Dolby 3 Stereo

(optimal with Dolby Surround broadcasting)



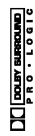
The Dolby Pro Logic® sounds are distributed over the front left, the front right and the centre TV loudspeakers.

3D Surround

(optimal with Dolby Surround broadcasting)

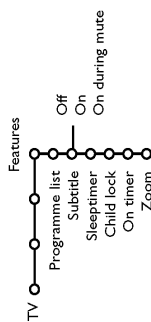


3D Surround enables you to experience the 3D effect of Dolby Surround Pro Logic® without the need of having rear speakers connected or activated. The graphical representation of the rear loudspeakers is replaced by the symbol . Select the level of 3D effect with the cursor left/right.



* Dolby® Pro Logic® and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation. Manufactured under license from Dolby Laboratories Licensing Corporation.

Features menu



Press the cursor right to select **Features**. Select the menu items with the cursor up/down and adjust the settings with the cursor left/right.

Use the on-screen **Menu-Info**  for more information about the menu items.

Programme list

Press the **OK** key to switch over to the selected TV channel or external.

Select subtitles

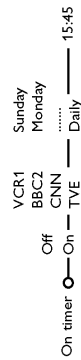
The subtitle page must be stored for each TV channel. Switch on teletext and select the proper subtitle page from the index. Switch off teletext.

Subtitle On will automatically display them on the selected TV channels if subtitles are in the transmission. A symbol will indicate that the mode is on.

Select **On during mute** when you want to have the subtitles automatically displayed only when the sound has been muted with the  key on the remote control.

On timer

1 Select **On timer** with the cursor down.



2 Select **On** with the cursor right.

3 Press the cursor right again to enter the programme list.

4 Select the TV channel or external you want your TV to switch to on a selected time and day.

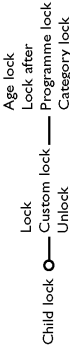
5 Press the cursor right again to select a day of the week or to select **Daily**.

6 Press the cursor right once again to enter the time with the digit keys or with the cursor up/down and press the **OK** key to activate.

7 Press the **MENU** key to turn off the menu. *Note: to check your timer settings, press the  key.*

Child lock

1 Select **Child lock**.



2 Press the cursor right to enter the **Child lock** menu. You're summoned to enter your code.

Note: You have to re-enter your code each time you enter the child lock menu.

Important: You have forgotten your code! See p. 10.

3 Select one of the menu items of the child lock menu:

- **Lock** if you want to lock all channels and externals.
- **Custom lock** and press the cursor right. The items Age lock and Category lock are only available when NEXTVIEW broadcast is available. Select:

- **Age lock** if you want to lock programmes related to a certain age: off, 2, 4 ... 18;

- **Lock after** if you want to lock all programmes from a certain time onwards.

Press the cursor right and enter the time with the cursor up/down and right. Press the **OK** key to validate.

- **Programme lock** if you want to lock a certain TV channel or external;

- **Category lock** if you want to lock programmes related to a certain theme: Movies, Sports, Shows... See NEXTVIEW, p. 15.

- Select **Unlock** to disable all locks you have set.

Zoom

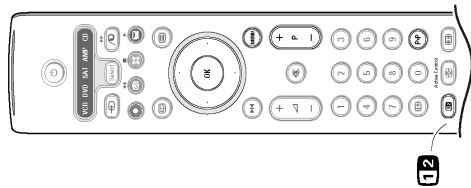
1 Select **Zoom** with the cursor down and press the **OK** key.

2 Press the **OK** key to select one of the zoom magnifications (x1, x4, x9, x16).

3 Additionally you can shift the selected zoom window over the screen with the cursor keys up/down, left/right.

4 Press the **MENU** key to switch off the zoom function.

Dual screen / PIP / Multipip



Remark: Normally only pictures from external equipment connected can be displayed in the auxiliary screen.
Full functionality is only available when having connected and activated an EasyLink recorder (of the generation P50.2 or successive). PIP 3 or PIP 12 is not available without an EasyLink recorder connected.

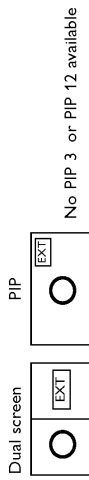
Press the **12** key to switch on Dual screen or one of the PIP modes.
Press the **12** key again. The screen that has a yellow border will become the full main screen picture.

Notes:

- Continuing to hold the **12** key down will cycle the TV through the various formats launching a new format after each second the key is held down. After standby of the TV, the preference as set in the Setup, General menu is used.
- When Dual screen mode is selected, two picture formats are supported: Full screen or 4:3 letterbox picture format (vertical squeeze).
- Audio from the right screen or the PIP plays to the headphones.

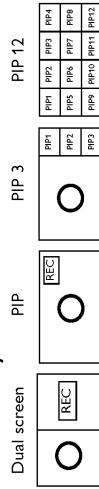
Display options

- With external equipment (non EasyLink) connected and activated:



Press the cursor right to highlight the right screen.
Press the cursor down to highlight the single PIP screen.

- With an EasyLink recorder connected and activated:



The tuner of the recorder is used for the right screen or for one of the PIP modes.
For PIP 3 or PIP 12: press the cursor right to enter the Multipip screen and then use the cursor keys to navigate through the PIP screens and to highlight a PIP screen.

Changing TV channels or external sources in left, right, PIP or Multipip screen

- Press the **P+** key or the **PIP** key in order to change the TV channels or external sources in the highlighted screen.
- Press the **OK** key to swap the left and the right screen or the highlighted pip screen.

Scan PIP3 or PIP 12

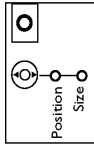
Navigate to the lowest PIP and press the cursor down to display a following series of PIP screens.

On-Screen information

The highlighted On-Screen information, which appears when changing channels, always refers to the active screen.

Define the position and the size of the single PIP screen

- 1 Select a Dual screen mode with a single PIP screen.
- 2 Press the cursor down to highlight the PIP screen. A PIP menu appears with which you can define the position and the size of the PIP screen.



Note: When the PIP menu times out, press the **OK** key to make it reappear.

- 3 Press the cursor down again to select **Position** or **Size**.
- 4 Press the **OK** key or the cursor right to activate.
- 5 Use the cursor keys to define the position of the PIP screen. Use the cursor left/right to define the size of the PIP screen.
- 6 Press the **OK** key. The PIP menu reappears.
- 7 Press the cursor up to the top of the menu to highlight the main screen again.
- 8 Press the **OK** key to switch off the menu or wait until it is timed out.

NEXTVIEW / Teletext guide



NEXTVIEW is an electronic guide that allows you to look up programmes as you would in a newspaper or a TV magazine. You can sort the programmes by subject (films, sport...), obtain detailed information and programme your video recorder if it comes with the NEXTVIEW/Link function.

Important note: The **NEXTVIEW** service is only available on certain programmes and in certain countries. When no NEXTVIEW information is broadcast, the teletext programme guide appears in its place. This is based on teletext programme information (if available) and offers most functions of NEXTVIEW.
Note: The broadcaster is responsible for the content of the information.

Call NEXTVIEW / Teletext guide

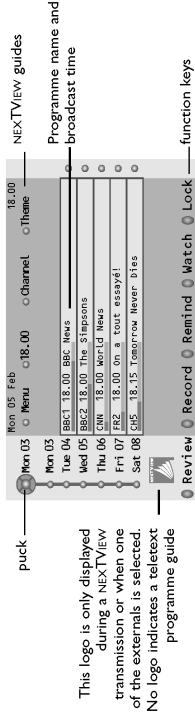
- Press the **12** key on the remote control to call the NEXTVIEW/Teletext guide.
- A menu appears with the message **One moment please**. After a while you obtain:
- a NEXTVIEW page, if the selected channel broadcasts this service (the NEXTVIEW logo is displayed),
 - a teletext page, if the selected channel does not broadcast NEXTVIEW,
 - **No information available** is displayed if neither NEXTVIEW nor teletext are transmitted. In this case, select another channel.

Select TV channels by theme

If NEXTVIEW with defined themes is broadcast, it is possible to quickly select TV programmes with the P+P key. See Setup, General menu, Smart surf, p. 9.

Display of a NEXTVIEW page

The information is set by the channel that transmits the NEXTVIEW service. See also Setup menu, General, NEXTVIEW provider, p. 9.



Picture/NEXTVIEW - Teletext Guide

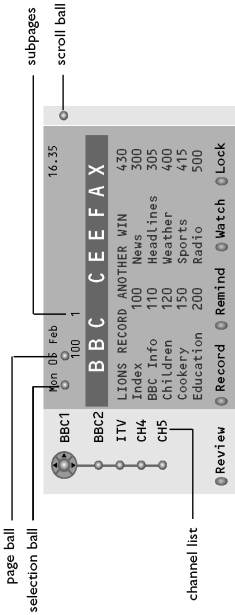
- 1 Press the key. Press the key to show NEXTVIEW-Teletext Guide on the right of the screen.
- 2 Use the cursor keys to select a TV channel or to move the puck to the blue ball in the left screen.
- 3 Press the key to switch off dual screen.

NEXTVIEW guides

- 1 Use the cursor key left/right to select **Time**, **Channel**, **Theme**, the **Date** guide.
The **Time guide** provides an overview of all programme titles active in the selected time block. The **Channel guide** provides an overview of all programmes that are broadcast by a single channel during one day. With the **Date guide** you can choose a specific date. The **Theme guide** displays a list of programmes at the selected date, that matches with the selected category.
Going through the menu guide, the TV is collecting the sorting criteria to finally display a list of programme events.
- 2 Press the **OK** key to select the guide type.
- 3 Move the puck down and to the right to select the programmes.
If available a summary or commentary on the programme is displayed at the bottom of the screen.
- 4 Use the cursor up/down to scroll through the programmes.

Teletext Guide

- 1 Enter with the digit keys, the teletext page number that contains the programme information for the current channel.
- 2 Press the cursor right to move the puck over the selection ball.
- 3 Use the cursor up/down to scroll through the different programmes.



- If the selected programme contains a page number with an optional subcode referring to a page with more info about the programme, press the **OK** key to display the information. Press the **OK** key again to return to the programme guide page.
- If the selected programme guide page satisfies the VPT requirements,
 - it will be possible to record, remind, watch or lock programmes.
 - the TV will remember the last selected teletext page number of that channel that contains programme guide information and indicates which programme starts at what time. Every time you press the key, the teletext programme guide page of the selected TV channel will be available.
- When necessary you can select the subpage number by moving the cursor to the pageball and pressing right.

Note: You must enter the teletext page number for each channel. You can change the channels also by moving the cursor up/down in the list in the left of the page.

Basic functions

- Press one of the grey , red , green , yellow or blue keys to activate a NEXTVIEW or Teletext Guide function. The keys appear in grey if the function is not available.
- Review:** this menu provides a list of programmes that are marked as reminders, those that have to be recorded and those that are locked. This menu can be used to change or remove marked programmes.
- Record:** to programme the recording of the video recorder (if it has a NEXTVIEWLink function and is connected to **EXT. 2**).
- Remind:** automatically switch on the TV if it is in standby or by displaying a message if the TV is on.
- Lock:** to lock certain programmes to prevent recording or watching.
For the functions Record, Remind or Lock, a small menu pops up in which you can choose the interval: once, daily or weekly, or clear an earlier made record, remind or lock setting. The default interval is set to **Once**. To confirm the frequency, press the **OK** key.
- Watch:** to watch the selected and currently broadcast programme.

Acquisition and updating of NEXTVIEW information

Acquisition and updating of NEXTVIEW is done when you are watching the TV channel of the selected NEXTVIEW provider, see Setup menu, p. 9, or when the TV is switched to standby.
Acquisition of fresh data will happen once during the night.
Note: it may be necessary to put the TV in standby mode when all NEXTVIEW information is outdated, e.g. when returning from holiday.

Teletext

Most TV channels broadcast information via teletext. This TV has a 1200 pages memory that will store most broadcasted pages and subpages to reduce waiting time. After each programme change, the memory is refreshed.

Switch Teletext on and off

Press **[]** to switch the teletext on.

102	«03 04 05 06 07 08 09 10 11 12»
	BBC CEEFAX 102 Mon 05 Feb 16.35.22
	BBC CEEFAX
LIONS RECORD	ANOTHER WIN 430
Index	100 News 300
BBC Info	110 Headlines 305
Children	150 Weather 415
Education	200 Radio 500
Lottery	230 Travel ling 550
Music	280 TV Listings 600
Justice	280
Red	Green Yellow Blue

Select a Teletext page

- Enter the desired page number with the digit keys, the cursor keys up/down, left/right or with the **-P+** key.
- Select the options at the bottom of the screen with the colour keys.

Previously selected teletext page

(Only possible in case there is no list of favourite teletext pages available. See p. 19)
Press the **PP** key.

Select the index teletext page

Press the grey colour key **▶▶** to display the main index (usually p.100).

Only for T.O.P teletext broadcasts :

Press **[]**. A T.O.P overview of the teletext subjects available is displayed.
Select with the cursor up/down, left/right the desired subject and press the **OK** key.
Not all TV channels broadcast T.O.P teletext.

Select subpages

When a selected teletext page consists of different subpages, a list of available subpages appears on the screen.
Press the cursor left or right to select the next or previous subpage.

Enlarge a Teletext page

Press **[]** repeatedly to display the upper teletext part, the lower teletext part and then to return to the normal teletext page size.
When the teletext page is enlarged, you can scroll the text, line by line using the cursor up/down.

Active screen selection

When in dual screen picture/teletext, enter the desired page number with the **-P+** key, then press the **MENU** key, then select the left screen (with the blue ball at the top).
You can now select a compressed or full screen view of picture/teletext with the **[]** key.

Hypertext

With hypertext you can quickly jump to a page number or search for a specific word shown on the current teletext page.

- 1 Press the **OK** key to highlight the first word or a number on the page.
- 2 Use the cursor up/down, left/right to select any other word or number you want to search for.
- 3 Press the **OK** key to confirm. The search starts. A message appears at the bottom of the screen to indicate the searching, or that the word or page is not found.
- 4 Use the cursor up to exit hypertext.

Teletext menu

(only available in full screen teletext mode)

- 1 Press the **MENU** key to activate the menu.
- 2 Press the cursor up/down to select the menu items.
- 3 Press the cursor right to activate.

Reveal

Reveals/conceals hidden information on a page, such as solutions to riddles and puzzles.
Press the cursor right to activate.

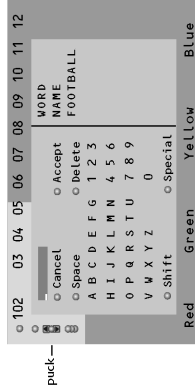
Favourite

This list contains up to eight favourite teletext pages. Only the pages of the current channel can be selected.

- 1 Press the cursor right to enter the list.
- 2 Press the cursor right again to add the current page or to select one of the favourite pages to the list.
- 3 Press the **MENU** key to watch the page.
- 4 Use the **PP** key to browse through the list of favourite pages.

Search

Selecting a word
On the keyboard on screen you can type in a random word you want to search for in the teletext pages. Whether upper- or lowercase is used has no influence.



- 1 Press the cursor right to enter the keyboard.
- 2 Press the cursor left/right, up/down to select the characters, words or functions.
- 3 Press the **OK** key to confirm each character selected.
- 4 Select **Cancel** to cancel the word; **Space** to enter a space; **Delete** to delete the last character selected; **Shift** to switch between lowercase or capital characters; **Special** to display special characters on the keyboard and press the **OK** key.
- 5 Press the cursor left repeatedly to return to the Teletext menu again.

Searching a word

- 1 Type in the word on screen or select a word from the history list on the right and press **OK**. Searching appears.
- 2 Select **Accept** and press **OK** again. The message Searching appears.
- 3 To cancel the searching or to search for a new word, select **Keyboard** and press **OK**.
- 4 When a word is not found, a message appears. When the word is found, it is highlighted in the teletext page. To continue the search, press the **OK** key.

Cycle subpages (if available)

Makes the subpages cycle automatically.
Press the cursor right to activate and to deactivate again.

Timed page

To display a specific page from a selected TV channel at a certain time.

- 1 Press the cursor right and select **Yes** or **No**.
- 2 Enter the time and page number with the cursor keys or the digit keys.
Note: Teletext does not have to remain switched on, but you should watch the TV channel you have selected the specific page from.
- 3 Press the cursor left to return to the TV menu again.

Language

If the displayed characters on screen do not correspond with the characters used by the teletext broadcaster, you can change the language group here.
Select **Group 1** or **Group 2** with the cursor right.

Press the **MENU** key to leave the Teletext menu.

Connect Peripheral Equipment

There is a wide range of audio and video equipment that can be connected to your TV.
The following connection diagrams show you how to connect them.

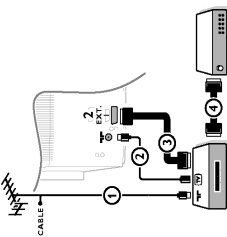
Note: **EXT. 1** can handle CVBS and RGB, **EXT. 2** CVBS and Y/C, **EXT. 3** CVBS and RGB. It is preferred to connect peripherals with RGB output to **EXT. 1** or **3** as RGB provides a better picture quality.
If your recorder is provided with the EasyLink function, it should be connected to **EXT. 2** to benefit from the EasyLink functionality.

Recorder (VCR-DVD+RW)

Connect the aerial cables ①, ② and, to obtain the optimum picture quality, eurocable ③ as shown.
If your recorder does not have a euroconnector, the only possible connection is via the aerial cable. You will therefore need to tune in your recorder's test signal and assign it programme number 0 or store the test signal under a programme number between 90 and 99, see Manual installation, p. 6.
See the handbook of your recorder.

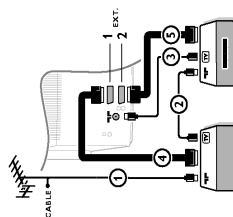
Decoder and Recorder

Connect a eurocable ④ to your decoder and to the special euroconnector of your recorder. See also the recorder handbook. See Decoder, p. 9. You can also connect your decoder directly to **EXT. 1** or **2** with a eurocable.

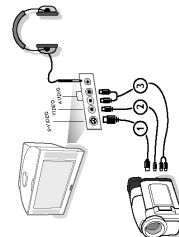


Other equipment (satellite receiver, decoder, DVD, games, etc.)

- 1 Connect the aerial cables ①, ② and ③ as shown (only if your peripheral has TV aerial in/output).
Connect your equipment with a eurocable ④ or ⑤ to one of the euroconnectors **EXT. 1, 2** or **3** to obtain a better picture quality.
- 2 Look for the test signal of your peripheral in the same way as you do for a recorder.
- 3 Make a selection in the Setup, Source menu, p. 10.



Side connections



Camera or Camcorder

- 1 Connect your camera or camcorder as shown.
- 2 Connect to **VIDEO ②** and **AUDIO L ③** for mono equipment. For stereo equipment also connect **AUDIO R ③**.
S-VHS quality with an S-VHS camcorder is obtained by connecting the S-VHS cables with the S-video input ④ and audio inputs ③.
Do not connect cable ① and ② at the same time. This may cause picture distortion !

Headphone

- 1 Insert the plug into the headphone socket ① as shown.
- 2 Press **⏏** on the remote control to switch off the internal loudspeakers of the TV.
The headphone impedance must be between 8 and 4000 Ohm. The headphone socket has a 3.5 mm jack.
In the Sound menu select **Headphone volume** to adjust the headphone volume.

Connect extra loudspeakers/amplifier

REAR multimedia loudspeakers

- 1 Select **Surround speakers On** in the Setup menu, see p. 8.

- 2 Connect the audio cables to the rear loudspeakers and to the Dolby Surround output **S** at the back of your TV. There is only one output for both speakers.

- 3 Adjust the volume of the rear loudspeakers. Use the Test tone function in the Speakers menu, see p. 8.
Note: Once you have adjusted the volume of the rear loudspeakers, do not change it while watching TV as the whole configuration operates with the volume adjustment of your TV.

Stereo amplifier and 2 extra front speakers

- 1 Select **Centre mode On** in the Setup, Speakers menu, see p. 8.
- 2 Connect the audio cables to the audio input of your amplifier and to **AUDIO L** and **R** at the back of your TV.
- 3 Adjust the volume of the audio amplifier. Use the Test tone function in the Setup, Speakers menu, p. 8.
Note: Once you have adjusted the volume of the external amplifier, do not change it while watching TV as the whole configuration operates with the volume adjustment of your TV.

To select connected equipment

Press the **⏏** key on the remote control repeatedly to select **EXT.1**, **EXT.2**, **EXT.3** or **SIDE** according to where you connected your equipment at the back or the right side of your TV.

Remark : Most equipment (decoder, recorder) carries out the switching itself when it is switched on.

Cinema Link surround receiver

See the separate supplied Cinema Link instruction manual.

Attention: the sound info on screen will not correspond with the actual sound reproduction.

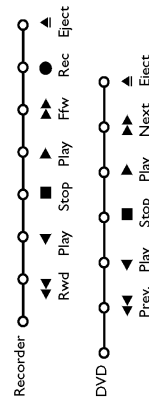
Recorder or DVD with EasyLink

The recorder (VCR or DVD+RW) or DVD can be operated with the remote control via the **Recorder** or **DVD** menu on screen.

- 1 Press the **MENU** key on the remote control.
- 2 Select the **Recorder** or **DVD** menu with the cursor up/down.
- 3 Press the cursor left/right, up/down to select one of the recorder or DVD functions.

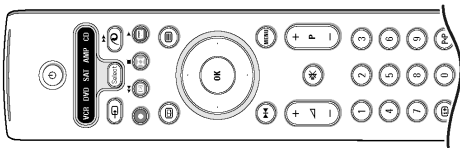
The key **●** for recording can be operated in the TV mode.

If your EasyLink recorder has the system standby function, when you press the **⏏** key for 3 seconds, both TV and the recorder are switched to standby.



Audio- and video equipment keys

Most of the audio and video equipment from the Philips range of products can be operated with the remote control of your TV.



Press the **Select** key to operate any of the equipment indicated in the display. Another device can be selected by pressing **Select** repeatedly within 2 seconds. The led will blink slowly to indicate the device.
Press one of the keys on the remote control to operate the peripheral equipment.
To return to TV mode press **Select** while the led is blinking.
When no action is taken within 60 seconds, the remote goes back to TV mode.

*Note: When the **Select** key is pressed and held for more than 2 seconds, the RC5/RC6 system select command is transmitted.*

- | | | |
|--|--|---|
| | to switch to standby | MENU to switch the menu on or off |
| | for pause (VCR, DVD, CD) | - P + for chapter, channel, track selection |
| | for record | |
| | for rewind (VCR, CD); search down (DVD, AMP) | 0 to 9 digit entry |
| | for stop | P-P tape index (VCR), select a DVD chapter, select a frequency (AMP) |
| | for play | VCR timer |
| | for fast forward (VCR, CD); search up (DVD/AMP) | surround on/off (AMP, CD) |
| | to select your choice of subtitle language (DVD); RDS news/TA (AMP); to shuffle play (CD) | cursor up/down to select the next or the previous disc (CD) |
| | to select a DVD title; RDS display (AMP); info on screen (CD) display information | cursor left/right to select the previous or following track (CD) search up/down (AMP) |
| | | |

Selecting submodes for DVD+RW, SAT, CDR

- The remote control should be in TV mode.
 - digit 1: **DVD** mode is selected
 - digit 2: **DVD+RW** mode is selected
 - digit 3: **SAT (RC5)** mode is selected
 - digit 4: **SAT (RC6)** mode is selected
 - digit 5: **CD** mode is selected
 - digit 6: **CD-R** mode is selected.
- Press the **OK** key together with

Record with your recorder with EasyLink

In TV mode, it is possible to start a direct recording of the programme which is being displayed on the TV screen.
Continue to press the record key on the remote control for more than 2 seconds.

Note:
Switching programme numbers on your TV does not disturb recording!
When recording a programme from a peripheral connected to **EXT. 1, 3 or SIDE**, you can not select another TV programme on the screen.

Tips

Care of the screen	Clean the TV with a slightly damp soft cloth. Do not use abrasive solvent as it can damage the TV screen.
Poor Picture	- Have you selected the correct TV system in the manual installation menu? - Is your TV or house aerial located too close to loudspeakers, non-earthed audio equipment or neon lights, etc.? - Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial. - Is the picture or teletext unrecognisable? Check if you have entered the correct frequency. See Installation, p. 6. - Are brightness, sharpness and contrast out of adjustment? Select Factory settings in the Setup, General menu, p. 9. - Sometimes poor picture quality is possible when having activated an S-VHS camera or camcorder connected to the right side of your TV and another peripheral is connected to one of the externals at the same time. In this case switch off one of the other peripherals.
Digital distortion	The low quality of some digital picture material may be the cause of digital image distortion. In this case select the Soft setting using the Picture menu, Smart Picture, without changing the picture settings manually.
No picture	- Is the aerial connected properly? - Are the plugs tightly connected in the aerial socket? - Is the aerial cable in good condition and does it have suitable plugs?
No sound	- No sound on any channel? Check the volume isn't at minimum. - Is the sound interrupted with the mute key ? Check if your speaker configuration corresponds with the selections made in the Setup menu, Speakers, p. 8.
No Surround sound	- Perhaps the channel is not broadcasting good quality surround sound. - No sound from the rear speakers or the centre speakers? Select an appropriate surround mode, according to the broadcasted sound signal or adjust the volume. See Surround Modes, p. 12.
No solution found for your picture or sound problem ?	Switch your TV off and then on again once. Never attempt to repair a defective TV yourself. Check with your dealer or call a TV technician.
Menu	Have you selected the wrong menu? Press the MENU key again to exit from the menu.
NEXTVIEW	No NEXTVIEW Info: See Acquisition and updating of NEXTVIEW information, p. 17. Displayed time is wrong: The broadcaster on programme number one does not transmit the correct local date and time. Use Reshuffle in the installation menu to place another broadcaster on programme number one.
Remote control	- If your TV no longer responds to the remote control, the batteries may be dead. - Check if the remote control is in the correct mode. - You can still use the M key and the -/+ keys at the top of your TV.
Standby	Your TV consumes energy in the standby mode. Energy consumption contributes to air and water pollution. Power consumption: 1 W

4. Mechanical Instructions

Index of this chapter:

1. Service Connector
2. Set Disassembly
3. Service Positions
4. Assy / Board Removal
5. Set Reassembly

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

4.1 Service Connector (for ComPair)

For service diagnostics with ComPair, it is not necessary to disassemble the set. You only have to connect the ComPair interface box, via the appropriate cable, to the service connector (on the rear of the set, see figure below), and start the program.

4.2 Set Disassembly

Follow the disassemble instructions in described order.

4.2.1 Wireless Surround Transmitter Removal (if attached)

1. Remove the cable of the Wireless Surround Transmitter box (at the side of this RJ45 plug you can find the release-hook of the lock-mechanism).
2. Pull the Wireless Surround Transmitter box backwards. It is clicked to the rear cover via three clamps.

4.2.2 Rear Cover Removal

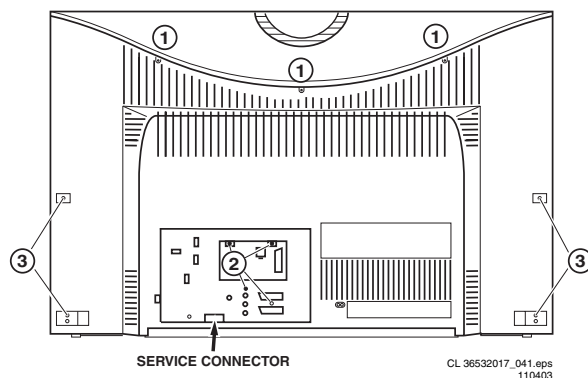


Figure 4-1 Rear view

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

First, remove the top cover (= plate with 'saucer'):

1. Remove the fixation screw(s) [1] that hold the cover plate.
2. Pull the cover (horizontally) backwards.

To be able to access the electronics of the set, you must remove the rear cover:

1. Remove the fixation screws [2] of the rear I/O cover plate.
2. Remove the remaining fixation screws [3] at the two sides, and at the top of the rear cover.
3. Release at bottom side the rear cover securing clips and remove the rear cover. Make sure that wires and cables will not be damaged during the cover remove action.

4.2.3 Sub-woofer Removal

Caution: Do not disconnect the loudspeaker cable from the subwoofer box when the set is operative, because the class-D amplifier cannot handle a change in load during operation. It is no problem when the subwoofer is disconnected **before operation**, but a change from connected to disconnected **during operation** can damage the amplifier.

1. Disconnect the loudspeaker cable connectors at the top of the sub-woofer box.
2. Unlock the subwoofer bracket and at the same time pull the unit backwards.
3. Take out the sub-woofer unit including the bracket.

4.3 Service Positions

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

4.3.1 Solder Side '3rd SCART' panel

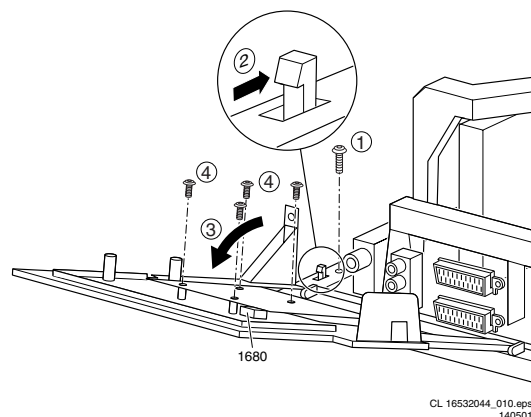


Figure 4-2 Service position 1

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

1. Remove fixation screw [1].
2. To release the fixation peg, push it towards the CRT [2].
3. At the same time, pull the complete module away from the LSP [3]. It hinges in the LSP-bracket. It is also possible to uncouple both hinges.
4. To remove the panel, disconnect the flat-cable from connector 1680 and remove the four panel screws [4].

4.3.2 Double Window PIP panel (If present)

1. Release the securing clamps and take out of the PWB to service the Double window PWB.

4.3.3 Component Side LSP

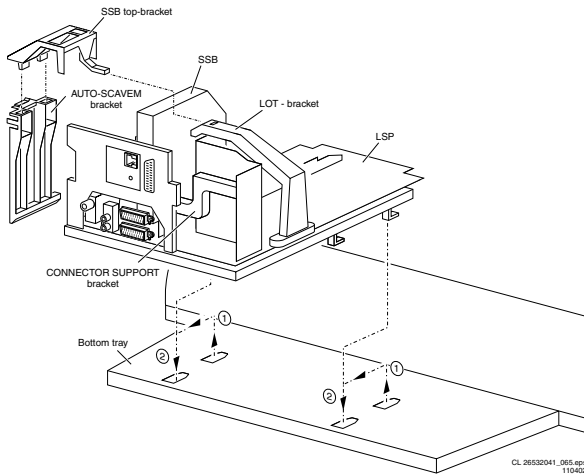


Figure 4-3 Service position 2

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

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

4.3.4 Solder Side LSP

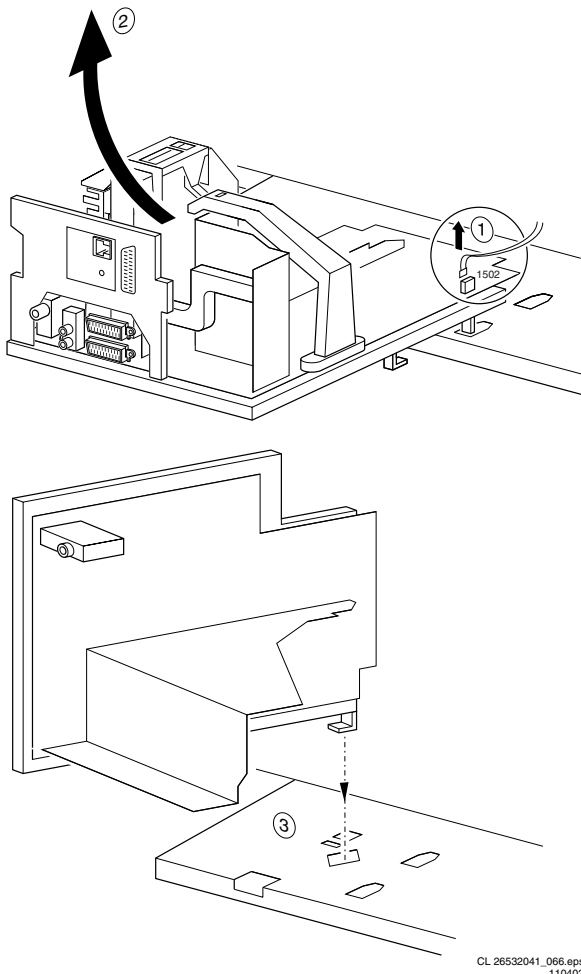


Figure 4-4 Service position 3

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

1. Unlock the DAF-module bracket (see paragraph 'DAF Assy/Panel' further down).
2. Unlock the Double Window, PIP module (if present), release the locking clip and pull the bracket out of the locking holes in the bottom plate.
3. Disconnect the degaussing coil connector 1502 [1] from the LSP.
4. Release the high voltage cable out of its guiding clamp.
5. Release the wiring from their fixation clamps, in order to position the LSP in the service position.
6. Some cables should be led underneath the CRT panel instead of above this panel.
7. Move the LSP to the left, at the same time rotate the panel 90 degrees clockwise [2] and next, place it upright at the left side of the bottom tray [3].
8. Put the panel with the right sided locking hook in the oblique accessed mounting hole in the bottom plate and pull it backwards to lock the panel in this position.

4.3.5 Small Signal Board (SSB)

Caution:

Always switch the set completely 'OFF' (disconnect the mains cord) before you remove or replace the SSB.

As the 5V2 standby voltage is always present (while the set is switched 'On', in 'Standby' or in 'Protection' mode) on the SIMM connector, it is very risky to remove the SSB in this situation, because the risk of short circuiting is very great.

In fact, there is no predefined service position for the SSB. Most test points are located on the A-side (side that is facing the tuner). If you have to replace ICs, you must take the complete SSB module out of the SIMM-connector.

Note: For good access to the A-side, it is necessary to remove the Auto-Scavem assy (at the left side of the SSB). See description in paragraph 'Assy/Panel removal' to remove the Auto-Scavem panel/bracket.

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

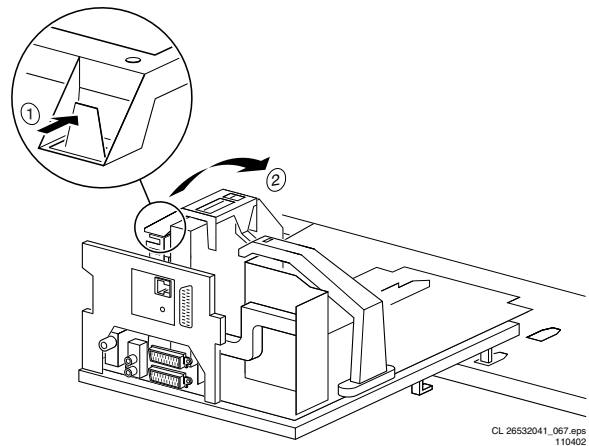


Figure 4-5 SSB removal (part 1)

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

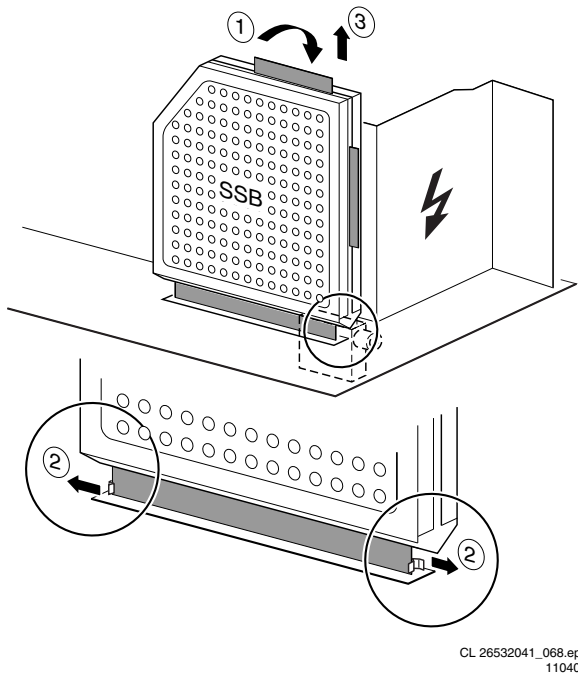


Figure 4-6 SSB removal (part 2)

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

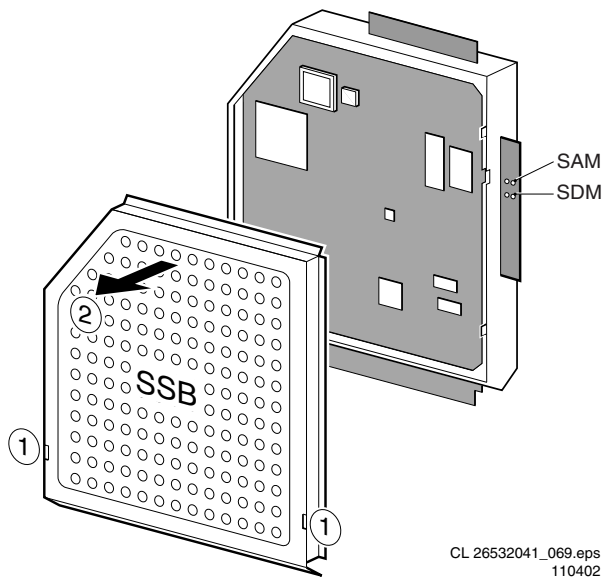


Figure 4-7 SSB removal (part 3)

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

Notes:

For better access to the SSB, it is possible to order an 'extension tool' with cables. You can use this service extension tool to connect a Small Signal Board (SSB) of an A10 or EMG (EMx) chassis, via 2 "IDE" cables to the SIMM connector in the set. In this way, you can service the SSB more easily outside the TV set. You can order this tool under 12nc: 9965 000 14526.

4.4 Assy / Board Removal

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

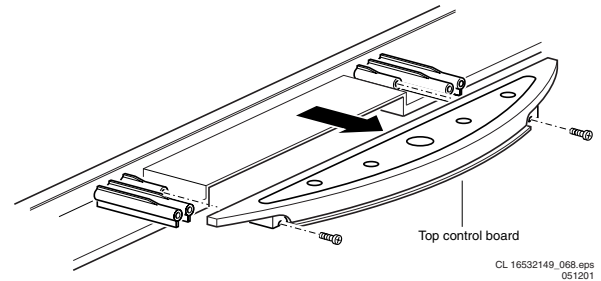
4.4.1 Top Control Assy/Panel

Figure 4-8 Top control assy

1. Release both fixation screws about 5 full turns.
2. Pull the complete assy back- and upwards (it hinges in the cabinet front).
3. Flip the assy, and you can access the board by releasing (carefully) the four fixation clamps.

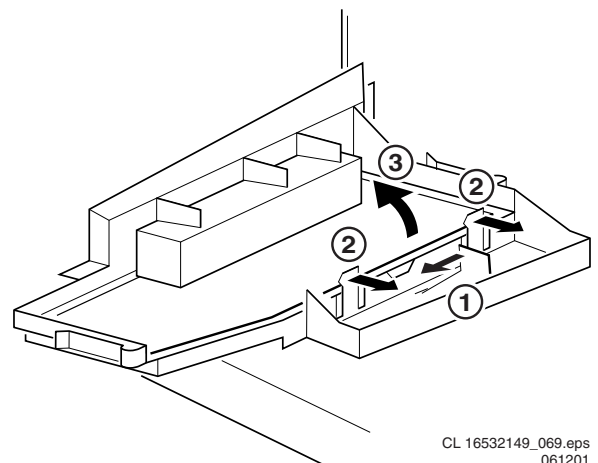
4.4.2 Side-I/O Assy and Panel

Figure 4-9 Side I/O assy

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

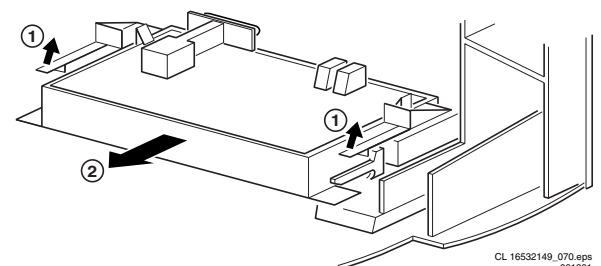
4.4.3 Mains Switch Assy/Panel

Figure 4-10 Mains Switch Assy

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

4.4.4 DAF Assy/Panel

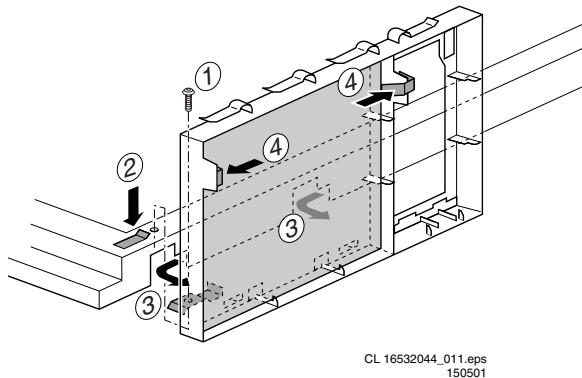


Figure 4-11 DAF-module

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

4.4.5 Double window, PIP panel (If present)

1. It is not necessary to remove the Double window bracket.
2. To remove the Double window PWB, release both upper clamps and take out the PWB.

4.4.6 Auto-SCAVEM Assy/Panel

This panel is placed on the left side of the SSB (See figure 'Service Position 2'). Because most of its components are placed on the bottom side, you must lift the panel from its bracket before you can measure it.

1. Therefore, release the two fixation clamps at the top side.
2. Lift the panel from the bracket (it hinges at the bottom).

To remove the bracket:

1. First, remove the panel from the bracket, as described above.
2. Then, remove the two fixation screws at the bottom.
3. Lift the Auto-Scavem bracket slightly up, and at the same time bend the top a little away from the tuner.
4. Now, push the bracket into the direction of the CRT, and lift it out of the LSP-bracket.

4.4.7 Small Signal Board (SSB)

See paragraph 'Small Signal Board (SSB)' above.

4.4.8 Large Signal Panel (LSP)

1. Remove the SSB (see paragraph 'Small Signal Board,SSB' above).
2. Remove the Auto-Scavem assy (see paragraph 'Auto Scavem Assy/Panel' above).
3. Disconnect the necessary cables.
4. Release the fixation clamps on the left of the LSP-bracket (the board hinges at the right side).
5. Remove the board from the bracket.

4.5 Set Re-assembly

To reassemble the whole set, do all processes in reverse order.

Be sure that, before the rear cover is mounted:

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

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

1. Test points
2. Service Modes
3. Problems and solving tips (related to CSM)
4. ComPair
5. Error Codes
6. The blinking LED procedure
7. Protections
8. Repair tips

5.1 Test Points

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

Perform measurements under the following conditions:

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

5.2 Service Modes

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

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.

Minimum requirements: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph "ComPair").

Note: In this chassis, two LED configuration are possible: with bicoloured LED (red/green) or with separate blue and red LEDs. The bicoloured version is the one we know from EM5E. The version with blue LED works slightly different. The blue LED is controlled by software (via ON_OFF_LED). The red LED will light in anti-phase to the blue one, but with a time delay. This means that if the blue LED is blinking fast, the red LED will stay off. But after the blue LED is "OFF" long enough, the red LED will go "ON".

So take care: In certain service modes (e.g. blinking LED, stepwise start-up, etc.) you must observe the blue LED and ignore the red LED.

5.2.1 Service Default Mode (SDM)

Purpose

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

Specifications

- Tuning frequency: 475.25 MHz for PAL/SECAM.
- Colour system: SECAM L for France or PAL B/G for the rest of Europe.
- All picture settings at 50 % (brightness, colour, contrast).
- All sound settings at 50 %, except volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
 - (Sleep) timer.
 - Child/parental lock.
 - Blue mute.
 - Automatic volume limiter (AVL).

- Auto switch-off (when no video signal was received for 10 minutes).
- Skip/blank of non-favourite pre-sets.
- Smart modes.
- Auto store of personal presets.
- Auto user menu time-out.

How to enter SDM

Use one of the following methods:

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

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

How to navigate

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

How to exit SDM

Use one of the following methods:

- Switch the set to STANDBY via the RC-transmitter.
- Press the "EXIT" button on the DST.
- Via a standard customer RC-transmitter: key in "00"-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose

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

Specifications

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

How to enter SAM

Use one of the following methods:

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

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

Contents of SAM:

- **OPERATION HOURS.** Displays the accumulated total of operation hours (not the standby hours).
- **HARDWARE INFO**
 - **ROM VERSION.** Displays the date of the software and the software version of the ROM (example: EM51EU1-1.0_01234 = AAABBC-X.Y_NNNNN).
 - **AAA**= the chassis name.
 - **BB**= the region: EU= Europe, AP= Asia Pacific PAL/Multi, AN= Asia Pacific NTSC, US= USA, LT= LATAM.
 - **C**= the language cluster number.
 - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
 - **NNNNN**= last five digits of 12nc code software.
- **ERRORS** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **DEFECTIVE MODULE.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message "UNKNOWN" here.
- **RESET ERROR BUFFER.** When you press the "OK" button, the error buffer is reset.
- **ALIGNMENTS.** This will activate the "ALIGNMENTS" sub-menu.
- **DEALER OPTIONS.** Extra features for the dealers.
- **SERVICE OPTIONS.** Extra features for Service.
- **INITIALISE NVM.** When an NVM was corrupted (or replaced) in the former EM3 chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all pre-sets and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognises a corrupted NVM, the "INITIALISE NVM" line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
 - Save the content of the NVM via ComPair for development analysis, before initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
 - Initialise the NVM (same as in the past, however now it happens conscious).
- **STORE.** All options and alignments are stored when pressing the "OK"-button
- **FUNCTIONAL TEST.** All devices are tested via the "OK" button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **DAILY MENUS.** With the "OK" button, you can go to the normal user menu. SAM is still active in the background. With the "MENU" button, you return from the user menu to SAM menu. This feature can be helpful to quickly change some settings in the user menu.
- **SW MAINTENANCE**
 - **UPGRADE.** Not applicable for this chassis
 - **EVENTS.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
 - **BDM INFO.** Broadcast Debug Menu info. The purpose of this menu is to debug the broadcast, NOT the TV. The menu gives an overview of what is received on the current preset. Following items are displayed:

Presetnr:	--	UTC:	--:--:--
Presetname:	-----	LTO:	--:--:--
		Time:	--:--:--
		Date:	--/--/----
CNI NVM:	----		
CNI F1:	----	Time TXT:	--:--:--
CNI F2:	----	Time 8/30 F1:	--:--:--
CNI VPS:	----	Date 8/30 F1:	--/--/----
Morning Prog:	---	LTO 8/30 F1:	--:--:--
Name 8/30 F1:	-----		
Name 8/30 F2:	-----		
Name TXT:	-----	WSS G1:	----
Signal Strength:	---	WSS G2:	----
		WSS G3:	----
EPG Service:	---	WSS G4:	----

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Figure 5-1 Broadcast debug menu overview

Table 5-1 Broadcast debug menu explanation

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

How to navigate

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

How to exit SAM

Use one of the following methods:

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

5.2.3 Customer Service Mode (CSM)**Purpose**

When a customer is having problems with his TV-set, he can call his dealer. The service technician can then ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.

The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to enter CSM

Use one of the following methods:

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

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

How to navigate

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

Contents of CSM*Customer Service Menu 1*

- **SOFTWARE VERSION (example: EM51EU1-1.0_01234).** Displays the build in software version. In case of field problems related to software, software flash-RAM pos.7006 must be changed by a new one. Do this via soldering. You will find details of the software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication. This publication is generated four times a year.
- **FEATURE BOX.** The 12NC-number of the build in Feature Box software
- **SET TYPE.** This information is very helpful for a helpdesk/workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set.
- **CODE 1.** Gives the latest 5 errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 3-digit number. When less than 10 errors occur, the rest of the buffer is empty (000). See also paragraph "Error Codes" for a description.
- **CODE 2.** Gives the first 5 errors of the error buffer. See also paragraph Error Codes for a description.
- **VOLUME.** Gives the last status of the volume as set by the customer. The value can vary from 0 (volume is minimum)

to 100 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.

- **BRIGHTNESS.** Gives the last status of the brightness as set by the customer. The value can vary from 0 (brightness is minimum) to 100 (brightness is maximum). Brightness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "BRIGHTNESS".
- **CONTRAST.** Gives the last status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 100 (contrast is maximum). Contrast values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "CONTRAST".
- **COLOUR.** Gives the last status of the colour saturation, as set by the customer. The value can vary from 0 (colour is minimum) to 100 (colour is maximum). Colour values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "COLOUR".
- **HUE.** Only relevant for NTSC-signals (e.g. some NTSC-DVD-discs).

Customer Service Menu 2

- **SHARPNESS.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "SHARPNESS".
- **HEADPHONE VOLUME.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Headphone volume values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "SOUND" and "HEADPHONE VOLUME".
- **DOLBY.** Indicates whether the received transmitter transmits Dolby sound ("ON") or not ("OFF"). Attention: The presence of Dolby can only be tested by the software on the Dolby Signalling bit. If a Dolby transmission is received without a Dolby Signalling bit, this indicator will show "OFF" even though a Dolby transmission is received.
- **SURROUND MODE.** Indicates the by the customer selected surround mode (or automatically chosen mode). In case the set is a Non-Dolby set, there will be displayed "0". If it is a Dolby-set then is displayed: "STEREO", "3 STEREO", "HALL", "3DSURROUND", "DOLBY PRO LOGIC" or "DOLBY DIGITAL". These settings can be influenced after pressing the "MENU" button and selecting "SOUND" and SURROUND MODE". It can also have been selected automatically by signalling bits (internal software).
- **TUNER FREQUENCY.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys for fine tune after opening the installation menu and selecting "INSTALL" and "MANUAL INSTALL".
- **DIGITAL OPTION.** Gives the selected digital mode, "100 HZ", "DIGITAL SCAN", "NATURAL MOTION", "DOUBLE LINES", or "PIXEL PLUS". Change via "MENU", "PICTURE", "DIGITAL OPTIONS".
- **CENTRE TRIM.** Indicates the difference between main volume and volume of centre speaker. Change via: "MENU", "SETUP", "SPEAKERS", and "CENTRE VOLUME" (not available when "Surround Mode" is set to "STEREO" or "HALL"). The value can vary from "-10" to "+10"
- **TV SYSTEM.** Gives information about the video system of the selected transmitter.
 - BG: PAL BG signal received.
 - DK: PAL DK signal received.

- I: PAL I signal received.
- L/La: SECAM L/La signals received.
- M: NTSC M signal received with video carrier on 38.9 MHz.

Customer Service Menu 3

- **BALANCE.** Indicates the balance settings, between "-50" and "+50". Change via "MENU", "SOUND", and "BALANCE". Not applicable for Dolby Pro Logic sets.
- **CENTRE MODE.** Indicates if centre mode is set "ON" or "OFF". When centre mode is on, all TV speakers are used as one centre speaker. Change Centre mode via "MENU", "SETUP", "SPEAKERS", and "CENTRE MODE".
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), "OFF", "MINIMUM", "MEDIUM", or "MAXIMUM". Change via "MENU", "PICTURE", "DNR".
- **NOISE FIGURE.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
- **SOURCE.** Indicates which source is used and the video/audio signal quality of the selected source. (Example: Tuner, Video/NICAM) Source: "TUNER", "EXT1", "EXT2", "EXT3", "EXT4", "SIDE", "AV1", "AV2", "AV3" or "AV4". Video signal quality: "VIDEO", "S-VIDEO", "RGB 1FH", "YPBPR 1FH 480P", "YPBPR 1FH 576P", "YPBPR 1FH 1080I", "YPBPR 2FH 480P", "YPBPR 2FH 576P", "YPBPR 2FH 1080I", "RGB 2FH 480P", "RGB 2FH 576P" or "RGB 2FH 1080I". Audio signal quality: "STEREO", "SPDIF 1", "SPDIF 2" or "SPDIF".
- **AUDIO SYSTEM.** Gives information about the audio system of the selected transmitter: "ANALOGUE MONO", "ANALOGUE STEREO", "PCM 2/0", "DD 1/0", "DD 2/0 LtRt", "DD 2/0 L0R0", "DD 2/1", "DD 2/2", "DD 3/0", "DD 3/1", "DD 3/2", "DD 1+1", "MPEG 1/0", "MPEG 2/0", "MPEG 2/0 LtRt", "MPEG 2/1", "MPEG 2/2", "MPEG 3/0", "MPEG 3/1", "MPEG 3/2", "MPEG 1+1" or "MPEG 2+2".
- **TUNED BIT.** Gives information about the tuning method of the stored pre-set. If a channel is found via "automatic installation", you will see the value "Off". When you change this (automatically found) frequency via "fine tune" adjustment (installation menu - manual installation), the displayed value will change to "On". Therefore, when you see the value "On" in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **SURROUND SPEAKERS.** Indicates if the surround speakers are present, "YES" or "NO". Change via "MENU", "SETUP", "SPEAKERS", and "SURROUND SPEAKERS".
- **ON TIMER.** Indicates if the "On Timer" is set "ON" or "OFF" and if the timer is "ON" also displays start time, start day and program number. Change via "MENU", "TV", "FEATURES", and "ON TIMER".
- **PRESET LOCK.** Indicates if the selected preset has a child lock: "LOCKED" or "UNLOCKED". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "CUSTOM LOCK".

Customer Service Menu 4

- **CHILD LOCK.** Indicates the last status of the general child lock: "UNLOCK", "LOCK", or "CUSTOM LOCK". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "LOCK".
- **AGE LOCK.** Indicates the last status of the EPG rating for child lock: "OFF", "4 YEARS", "6 YEARS", "8 YEARS", "10 YEARS", "12 YEARS", "14 YEARS" or "16 YEARS". This is only displayed if child lock is set to "CUSTOM LOCK".
- **LOCK AFTER.** Indicates at what time the child lock is set: "OFF" or e.g. "18:45" (lock time). This is only displayed if child lock is set to "CUSTOM LOCK".
- **CATEGORY LOCK.** Indicates the last status of the EPG theme childlock: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES". This is only displayed if child lock is set to

"CUSTOM LOCK". It is possible that more than one value is shown.

- **PROGRAM CATEGORY.** Indicates the theme of the selected transmitter: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES".
- **TV RATINGS LOCK.** Only applicable for US.
- **MOVIE RATINGS LOCK.** Only applicable for US.
- **V-CHIP TV STATUS.** Only applicable for US.

Customer Service Menu 5

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

How to exit CSM

Use one of the following methods:

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

5.3 Problems and Solving Tips (related to CSM)

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

5.3.1 Picture Problems

Snowy/noisy picture

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

Picture too dark

1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, increase the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

2. Check line 7 "Brightness" and 8 "Contrast". If the value of line 7 is low (< 10) or the value of line 8 is low (< 10), increase the "Brightness" or the "Contrast" value.

Picture too bright

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

White line around picture elements and text

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

No picture

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

Blue picture

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

Blue picture and/or unstable picture

A scrambled or decoded signal is received.

Black and white picture

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

No colours/colour lines around picture elements or colours not correct or unstable picture

1. Check line 20 "TV System". If a "strange" system pops up, something has gone wrong during installation. Re-install the channel.
2. In case line 20 is "L", the installed system for this pre-set is "France", while "West Europe" is required. Install the required program again: open the installation menu and perform manual installation. Select system "West Europe".

Menu text not sharp enough

1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case picture improves, decrease the contrast value. The new value(s) are automatically stored for all TV channels.
2. Check line 8 "Contrast". The value of line 8 is high (> 50). Decrease the contrast value.

5.3.2 Sound Problems

No sound from left and right speaker

Check line 6 "Volume". The value is low. Increase the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

Sound too loud for left and right speaker

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

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on 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.

5.4.2 Specifications

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

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

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

- **Automatic** (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on 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 extent. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. Does the screen give a picture? Click on the correct answer: YES / NO) and showing you examples (e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

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

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

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

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

- Click on the "Panel" hyperlink to automatically show the PWB with a highlighted capacitor C2568.
- Click on the "Schematic" hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 Stepwise Start-up

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

Stepwise start- up explanation

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

Table 5-2 Stepwise start-up table

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

Note (*):

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

5.4.4 How To Connect

- First, install the ComPair Browser software (see the Quick Reference Card for installation instructions).
- 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.
- Connect the mains adapter to the supply connector (marked with "POWER 9V DC") of the ComPair interface.
- Switch the ComPair interface "OFF".
- Switch the television set "OFF" with the mains switch.
- 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 tuner input, see also chapter 4).

- 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.
- Start the ComPair program and read the "Introduction" chapter.

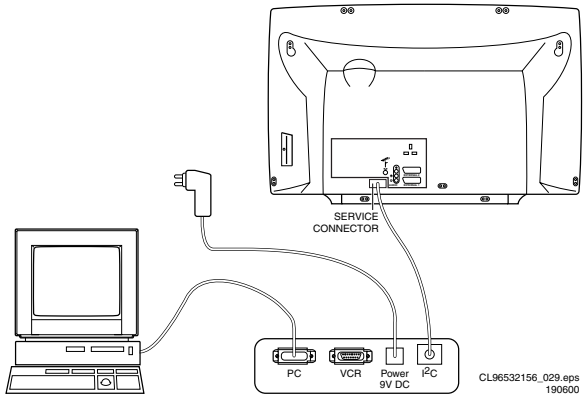


Figure 5-2 ComPair Interface connection

5.4.5 How To Order

- ComPair order codes (EU/AP):
- 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 60110.
 - SearchMan32 CD (update): 3122 785 60120.
 - ComPair interface cable: 3122 785 90004.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.

When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.

When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.

To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.

When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to read the Error Buffer

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

5.5.3 How to clear the Error Buffer

Use one of the following methods:

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

5.5.4 Error Codes

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

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

There are various errors:

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

Table 5-3 Error codes

Error	Device	Description	Def. item	Defect. module indication	Diag
1	M24C32	NVM, spontaneous blinking error 1	7011	Control	B5a
2	Hfail Protection	Horizontal Flyback protection	/	Horizontal Flyback	/
3	SAA4978	PICNIC	7713	Feature Box	B3a
4	Supply 5V	5V protection	/	+5V Supply	B5a
5	Supply 8V	8V protection	/	+8V Supply	B5a
6	Slow I2C bus blocked	Spontaneous blinking error 6	/	Slow I2C Blocked	/
7	TDA9330	HOP High-end Output Processor	7301	Video Controller	B4
8	TDA932x	HIP High-end Input Processor	7323	Chroma IF IO	B2
9	PCF8574	Wireless expander	7501	Sound Output	H
13	UV1318/...	Tuner protection	1T01	Tuner	A8
14	MSPxxxx	ITT sound processor	7A02	Audio module	B6a
16	FBX	Feature Box Protection	/	+3V (Fbx) Supply	B3
18	Fast I2C bus blocked	Spontaneous blinking error 18	/	Fast I2C Blocked	/
19	TDA8444	Auto Scavem DAC	7500	Auto Scavem	SC1
21	M62320P	PIP I/O Expander	7403	Video Dual Screen	C3
22	TDA888X	PIP BOCMA	7301	Video Dual Screen	C4
23	TELE9	PIP Tuner	7201	Video Dual Screen	C2
24	SAB9081	PIP Muppet	7801	Video Dual Screen	C1
26	SAA4992	Falconic	7718	+3V (Fbx) Supply	B3b
27	T8F24EF	Eagle	7724	+3V (Fbx) Supply	B3c
28	Black current loop	Black current loop	/	Video Controller	/
32	M29W400BT	Flash Ram (EPG)	7012	EPG Memory	B5a

Note:

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

- When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
- The sequence starts again.

Example: Error 12 9 6 0 0.

After activation of the SDM, the red front LED will show:

- 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
- 2 short blinks followed by a pause of 3 s,
- 9 short blinks followed by a pause of 3 s,
- 6 short blinks followed by a pause of 3 s,
- 1 long blink of 3 s to finish the sequence,
- The sequence starts again.

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

5.6 The Blinking LED Procedure

5.6.1 Introduction

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

When the SDM is entered, the front LED will show (blink) the contents of the error-buffer. Error-codes = 10 are shown as follows:

- A long blink of 750 ms (which is an indication of the decimal digit),
- A pause of 1.5 s,
- "n" short blinks (where "n" = 1 - 9),

5.6.2 How to Enter

Use one of the following methods:

- Enter the SDM (only via soldering pads marked "SDM" on SSB). The blinking red front LED will show the entire

contents of the error buffer (this works in "normal operation" mode and in "protection" mode).

- Transmit the commands "MUTE" - "062500" - "OK" with a normal RC. The complete error buffer is shown. Take notice that it takes some seconds before the blinking led LED starts.
- Transmit the commands "MUTE" - "06250x" - "OK" with a normal RC (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking led LED starts.
- "DIAGNOSE X" with the DST (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... When x = 0 all errors are shown.

5.7 Protections

5.7.1 Introduction

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

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

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

To get a quick diagnosis, this chassis has three service-modes implemented:

- The **Customer Service Mode (CSM)**.
- The **Service Default Mode (SDM)**. Start-up of the set in a predefined way.
- The **Service Alignment Mode (SAM)**. In this mode, items of the set can be adjusted via a menu.

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

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

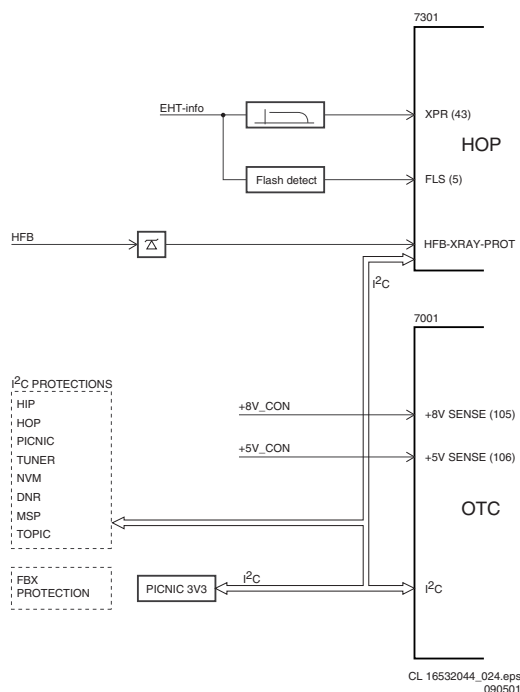


Figure 5-3 Protection diagram

There are several types of protections:

- I2C related protections.
- OTC related protections (via polling on I/O pins or via algorithms).
- HOP related protections (mainly for deflection items).
- Hardware errors that are not sensed by the OTC (e.g. vertical flyback protection, bridge coil protection, E/W protection, arcing protection).

All protections are explained below.

5.7.2 I2C Related Protections

In normal operation, some registers of the I2C controlled ICs are refreshed every 200 ms. During this sequence, the I2C busses and the I2C ICs are checked.

An I2C protection will take place if the SDA and SCL lines are short-circuited to ground, or to each other. An I2C error will also occur, if the power supply of the IC is missing (e.g. FBX_PROT (error 16)).

5.7.3 OTC Related Protections

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

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

5.7.4 HOP Related Protections

Every 200 ms, the status register of the HOP is read by the OTC (via the I2C bus). If a protection signal is detected on one

of the inputs of the HOP, the relevant error bit in the HOP register is set to "high". If this error bit is still "high" after 1 s, the OTC will store the error code in the error buffer of the NVM and, depending on the relevancy of the error bit, the set will either go into the protection mode or not.

The following protections are implemented:

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

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

5.7.5 Hardware Related Protections

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

TV-set Protection

The following fault conditions will lead to a "complete" set protection:

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

Circuit Protection

The following fault condition will lead to a "partly" set protection:

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

5.8 Repair tips

5.8.1 Miscellaneous

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

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

Advice: when you remove the SSB, disconnect the Mains cord, but keep the Mains Switch "on".

Do not try to measure on the SSB side, which is facing the 'hot' heatsink. This is dangerous. Most service test points are guided to the 'tuner' side and are indicated by the 'service' printing.

Where the circuitry was too "crowded" for service printing, you can find the correct location on the "test point overviews" in this manual.

A very large part of the LSP is "hot", such as:

- The primary part of the Standby Supply.
- The whole Main supply (except for the secondary Audio supply).
- And the complete deflection circuitry (so notice that the deflection coil is hot!).

5.8.2 Start-up Sequence

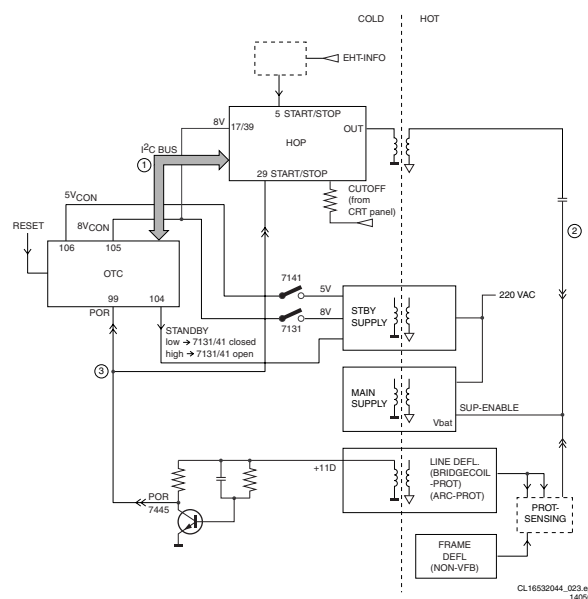


Figure 5-4 Start-up circuitry

The start up sequence differs from other sets (e.g. MG-sets or EM2E-sets, but is same as in EM3E-set):

1. When the set is switched "on", the 5 and 8 V lines ("5V_CON" and "8V_CON") of the standby power supply are activated.
2. After the OTC senses them, the P will address the HOP via the I2C-bus, to start the drive [1].
3. Via the "SUP-ENABLE" signal, the Main Supply is switched "on" and will deliver the V_BAT to the Line deflection stage [2].
4. EHT generation is now started.
5. The OTC will un-blank the picture.
6. When you switch "off" the set, this is done in a controlled way via the POR signal [3].

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

5.8.3 ComPair

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

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

5.8.4 Protections

Activating SDM via the "service pads" will overrule the processor-controlled protections, but not the hardware protections. This means, that the A/D-input protections (5 and 8 V) and the I2C "not-acknowledging" info of the feature box (FBX) and of the Tuner are overruled.

Caution: When doing this, the service technician must know what he is doing, as it could lead to damaging the set.

The "ARC"- and/or "BRIDGECOIL" protection are hardly ever triggered, however:

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

5.8.5 Main Supply

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

More detailed way:

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

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

5.8.6 Standby Supply

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

5.8.7 Line Deflection

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

5.8.8 Frame Deflection

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

To prevent this from happening, you must:

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

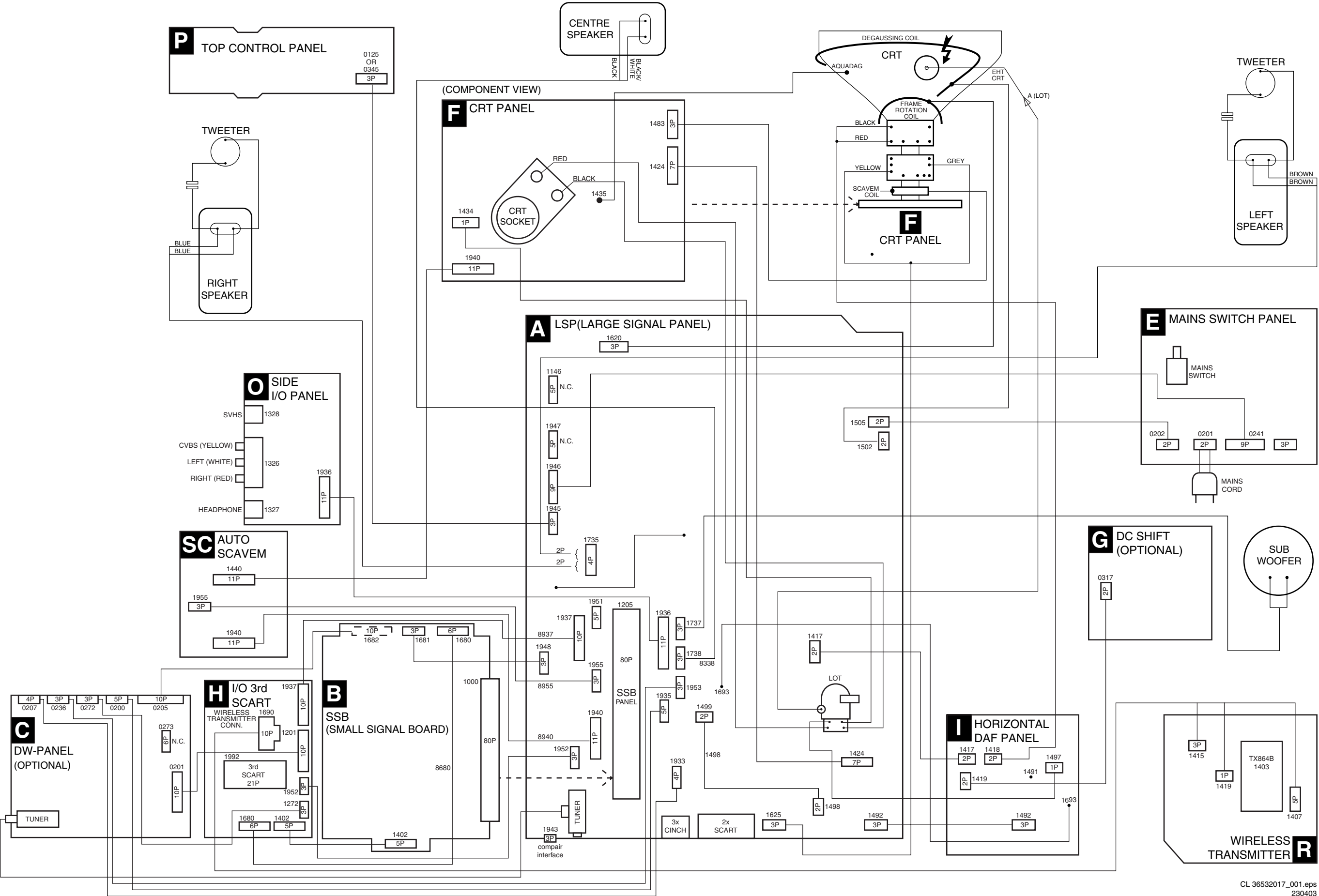
Phenomenon	Possible Cause	Repair tip
No picture, no LED.	Standby Supply defective.	Measure circuitry (see diagram A2). Start at test-point A19. When the Mains switch is 'on', this voltage must always be available
No picture, no LED.	Bad connection of SSB in SIMM-connector.	In case of a bad connection, it can happen that there is no picture, and that the Standby LED is not controllable. Re-place the SSB.
No picture, LED blinking at 3 Hz.	Set is in protection due to various causes. For error codes see error-code list.	You have no picture, so: - Read the error buffer via ComPair (error buffer is accessible when set is in protection, compare-file will guide you to this) - Read the blinking LED information via standard remote command <mute>06250X<ok> - Or you read the error code sequence via standard remote command <mute>062500<ok>. When you have found the error, check the circuitry related to the supply voltage and I ² C-communication or the circuitry that triggers the protection.
No picture, LED blinking with code 6-6-6 or 18-18-18.	No communication on slow I ² C- or fast I ² C-bus.	As processor cannot communicate with one of the 2 busses it the standby-led spontaneously starts blinking 6-6-6... or 18-18-18... If in the error buffer somewhere is an error 6 or 18, these will have the highest priority starting the mentioned blinking. Measure dependent of the error on the I ² C-bus which device is loading the bus. (Use I ² C -overview)
No picture, LED blinking with code 1-1-1.	No communication on NVM-I ² C bus to the uP.	As the uP cannot communicate with the NVM I ² C bus, it spontaneously starts blinking 1-1-1. Note: when there is no access to the NVM, a lot of picture setting can go wrong.
No picture, no sound. Set is making audible squeaking sound	Supply is possibly in hiccup-mode, which is audible via a squeaking supply transformer.	Possible causes: - V_{BAT} is shorted (caused by short circuited line transistor 7421), or - Sound winding is shorted (amplifier is shortening the power supply lines), or - D6514 is shorted (due to a too high V_{BAT}). Remove excessive load, to see what causes the failure, or check feedback circuit. See repair tip 'Main Power Supply' (supply needs a minimal load).
No picture, no sound. Power LED works fine	Supply does not work correctly.	If e.g. V _{BAT} is only about 90 V, it is possible that the regulator IC (7506) is defective.
No RC-reception. LED does not echo RC-commands.	uP circuitry or RC-receiver is defective.	In case the set does react on a local keyboard operation, you must check the RC-receiver circuitry (diagram E).
Relay (degaussing) is not audible, when set is switched from 'off' or 'standby' to 'on'.	uP is not working correctly. When pin 115 is low, the degaussing must be activated.	Check RESET-circuitry on diagram B5. Check the level on pin 115 when you switch the set 'on'. Signal must be low initially and go to high after approx. 12 s.
Picture is rotated.	Rotation circuitry on diagram A5, or related supply to it, malfunctions.	Measure test points on diagram A5.
Picture is continuously switching 'off' and 'on', showing heavy 'switch' spots (set does not go into protection).	200 V is missing on CRT panel.	Probably a bad connection from LSP connector 1424 to CRT connector 1424 (diagram F1), or an interruption of the 200 V supply line (e.g. R3341 on circuit F1 is interrupted).
Picture is not sharp.	Focus is possibly mis-aligned or SCAVEM-circuitry does not work correctly.	Re-align the 'focus' potmeter on the Line Output Transformer, or check the SCAVEM circuitry on the CRT-panel (diagram F2). It is also possible that the DAF circuitry is defective (see diagram I). Check the V _{dc} values.
Picture is not synchronised.	The sync is derived in the HIP from x-tal 1305 and/or 1308.	Maybe the crystals 1305 and/or 1308 are making a bad contact.
Picture is distorted.	Check video-path in Service Default Mode.	Investigate whether there is an error code present in the error buffer. In case there is one, check the I ² C-bus and/or supply lines (see overview supply lines). Measure and check signal path Tuner-HIP-PICNIC-HOP-RGB amplifier. In case it is a geometry issue, check on diagram A4 opto-coupler 7482, Opamps 7440/7450 and the Frame circuitry alignments or a possible corrupted NVM (7011) on diagram B5.
Picture with horizontal stripes.	Pixel Plus processing is malfunctioning	Check functionality on circuitry (B3a, B3b, and B3c) of PICNIC (7713), FALCONIC (7718, EAGLE (7724) and/or field memories (7714, 7717, 7719, 7722 and 7723). Tip the whole Pixel Plus chipset (3 ICs + 5 Field Memories can be diagnosed very good via ComPair.
No menu, no OSD.	Probably a defective uP.	Measure test points B61to B64 on diagram B5.
No NextView (EPG).	IC7012 defective or not powered.	Check circuitry around IC7012 on diagram B5.
No Teletext.	IC7007 defective or not powered.	Check circuitry around IC7007 on diagram B5. Check also B61to B64 around uP on diagram B5.
Strange switch 'off' behaviour	TS7445 possibly defective.	Check, with a multi-meter, whether transistor TS7445 is well functioning. (diagram A3).
Various symptoms, due to missing local supply voltage.	An interrupted fuse, NFR-resistor or connection.	When no symptom or error code leads you to a specific circuitry, use the supply lines overview (see chapter 6), for a quick scan of all supply lines.

Figure 5-5 Repair tips

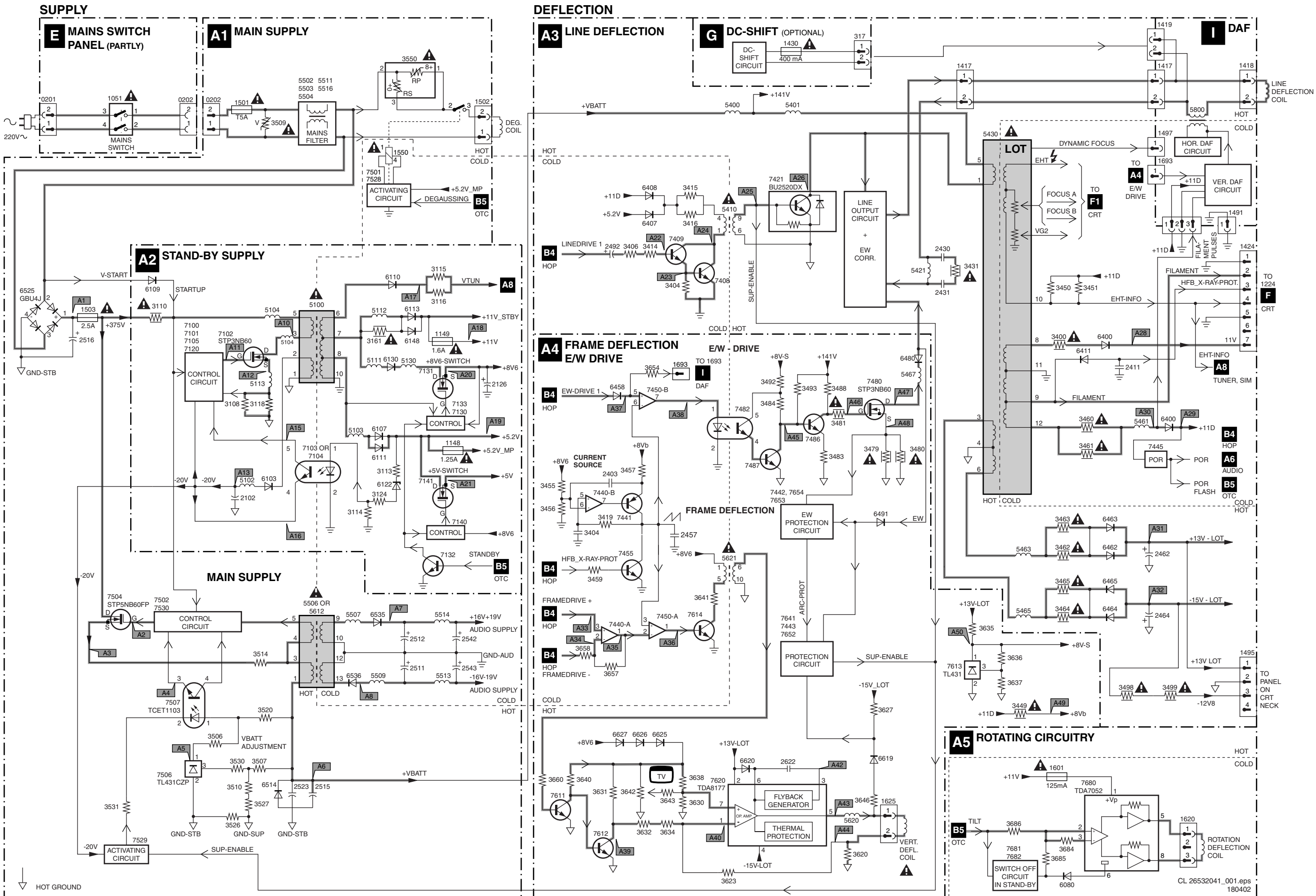
Personal Notes:

6. Wiring Diagram, Block Diagrams and Overviews

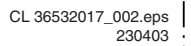
Wiring Diagram



Block Diagram Supply and Deflection

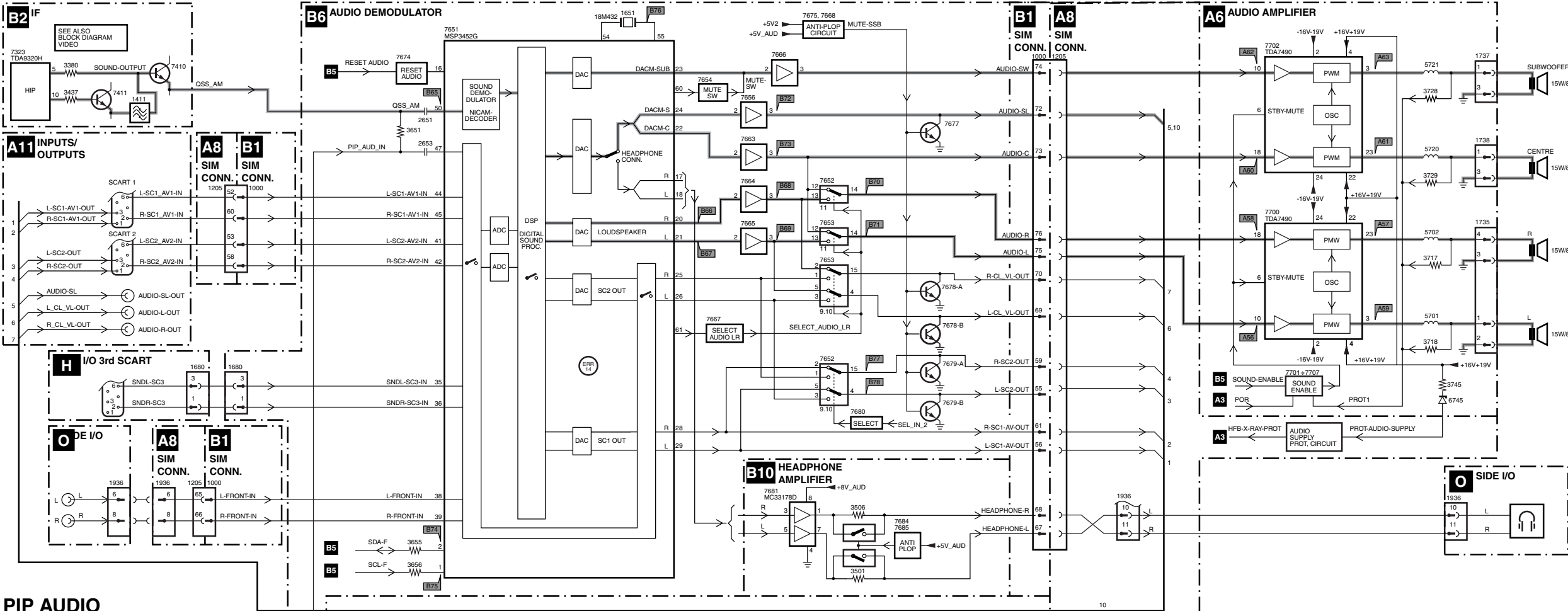


VIDEO

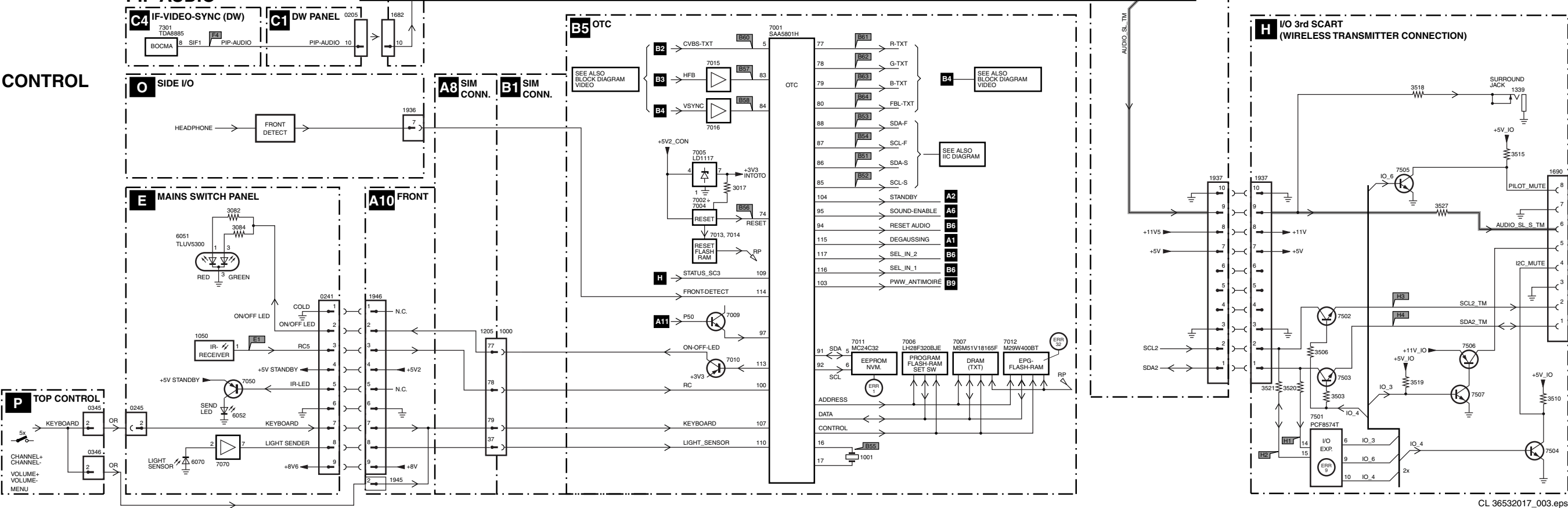


Block Diagram Audio 1 (Exclusive Wireless Audio Details)

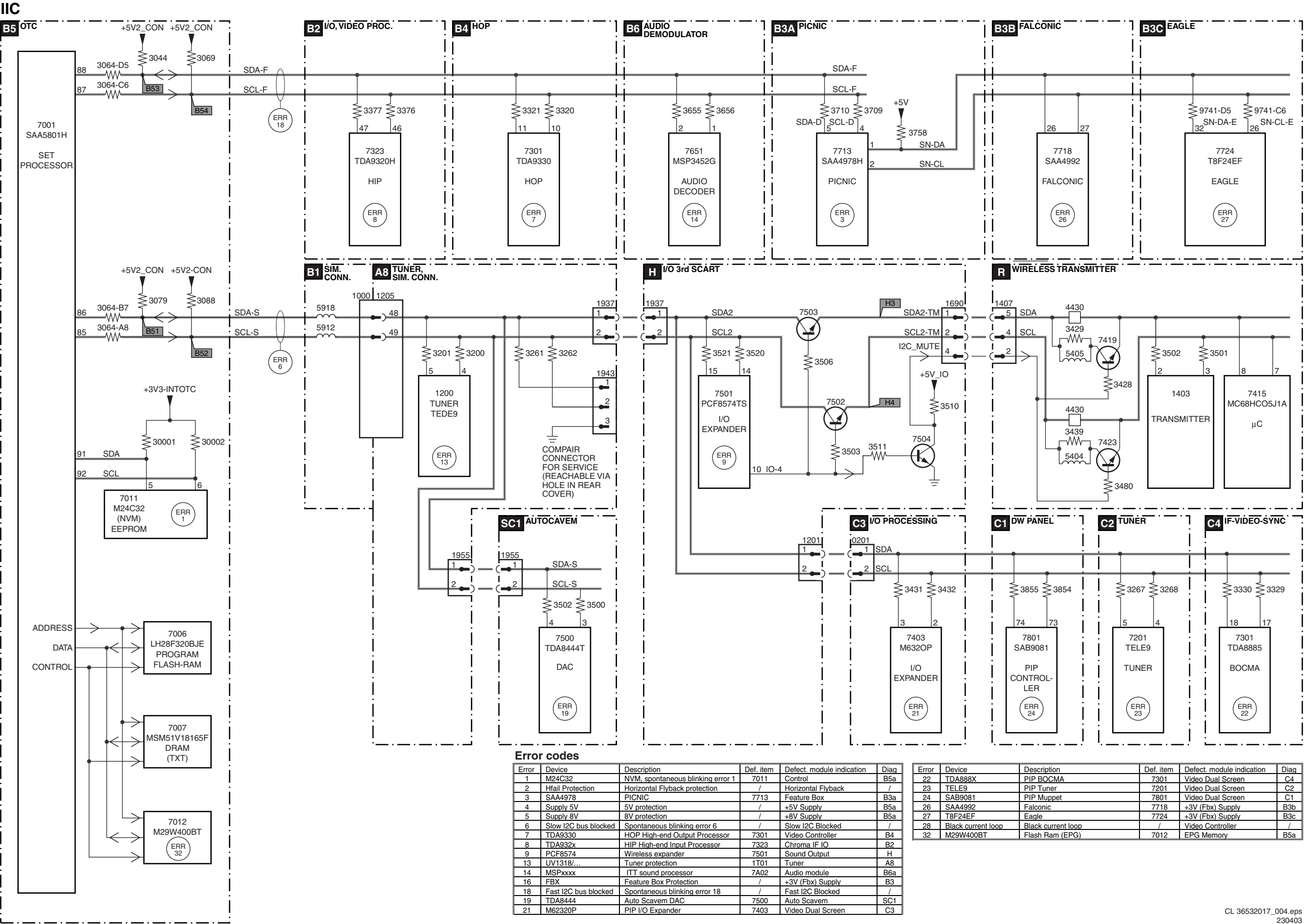
AUDIO



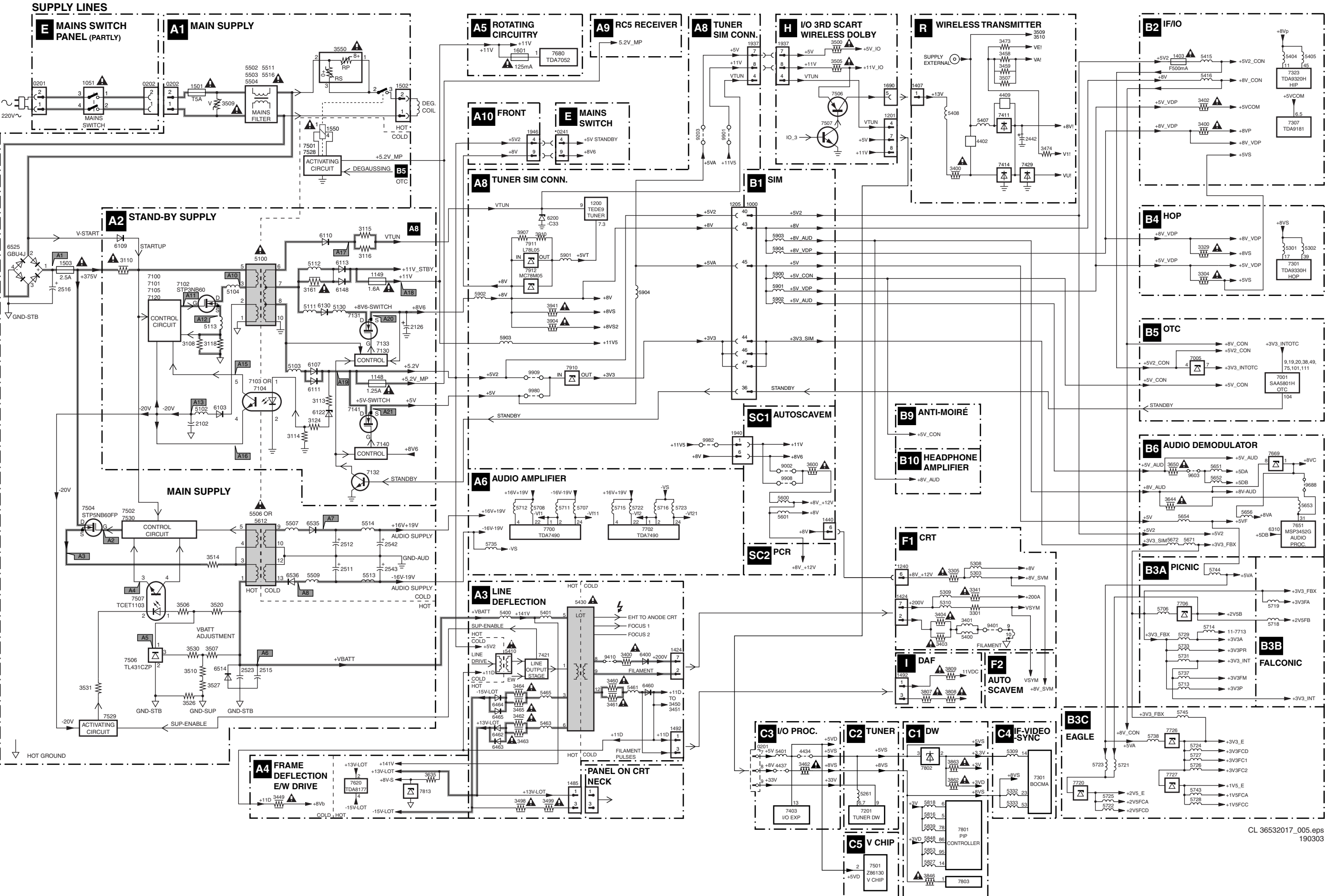
CONTROL



I2C IC's overview



Supply Lines Overview



The diagram illustrates the internal layout of a radio receiver, showing various components and their connections. The layout is organized into several functional areas:

- Power Section:** Includes the MAIN SWITCH, MAIN SUPPLY (7504), and STANDBY SUPPLY (7102). The MAIN SUPPLY is connected to the MAINS TRAFO (7700) and the STANDBY TRAFO (5100). The STANDBY TRAFO is connected to the STANDBY SUPPLY (7102).
- Audio Section:** Includes the 7700 AUDIO L+R, 7702 AUDIO C+SUB, and 7421 LINE. The 7700 AUDIO L+R is connected to the 7702 AUDIO C+SUB, which is then connected to the 7421 LINE.
- Control Section:** Includes the 7680 ROTATION, 7620 FRAME, and 7480 E/W. The 7680 ROTATION is connected to the 7620 FRAME, which is then connected to the 7480 E/W.
- Other Components:** Includes various capacitors (A1 through A30), resistors (A18, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30), and other components like the 7131 +8V6, 7141 +5V, and 7421 LINE.

The diagram also shows the physical layout of the components, with labels for each component and its pin connections. The layout is organized into a grid, with components labeled with their respective values and pin numbers.

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

→ SC7

2 V / div DC
10μs / div

→ SC8

2 V / div DC
10μs / div

→ SC9

2 V / div DC
10μs / div

→ SC10

1 V / div DC
10μs / div

→ SC11

200mV / div DC
10μs / div

→ SC12

1 V / div DC
10μs / div

→ SC13

50mV / div DC
10μs / div

→ SC22

2 V / div DC
10μs / div

→ SC23

2 V / div DC
100μs / div

→ SC24

2 V / div DC
100μs / div

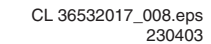
The diagram illustrates the connections for a CRT socket. The socket is a circular component with 12 pins, numbered 1 through 12. The connections are as follows:

- Pin 1:** Connected to a component labeled 1940.
- Pin 2:** Connected to a component labeled 11.
- Pin 3:** Connected to a component labeled 7330.
- Pin 4:** Connected to a component labeled 7350.
- Pin 5:** Connected to a component labeled 7340.
- Pin 6:** Connected to a component labeled F6.
- Pin 7:** Connected to a component labeled F8.
- Pin 8:** Connected to a component labeled F9.
- Pin 9:** Connected to a component labeled 9.
- Pin 10:** Connected to a component labeled 9.
- Pin 11:** Connected to a component labeled F7.
- Pin 12:** Connected to a component labeled 9.

The CRT socket is labeled "CRT SOCKET".

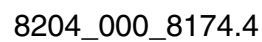


Large Signal Panel: Main Supply



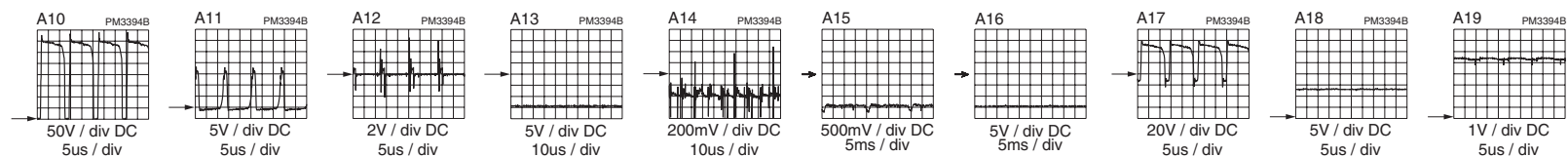
A	1500 B1	3521 B2	7528 E8	I508 A1
	1501 A1	3522 E5	7529 F4	I509 A3
	1502 C1	3523 D6	7530 B4	I510 A4
	1503 A4	3524 E9	9501 B1	I511 A5
	1505 C1	3525 D6	9502 B1	I512 A6
	1510 F2	3526 E6	9503 B3	I514 B7
	1550 D8	3527 E7	9504 B3	I515 B6
	1590 C2	3528 E8	9505 F5	I516 B5
	2501 C5	3529 E8	9510 D5	I518 B3
	2502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

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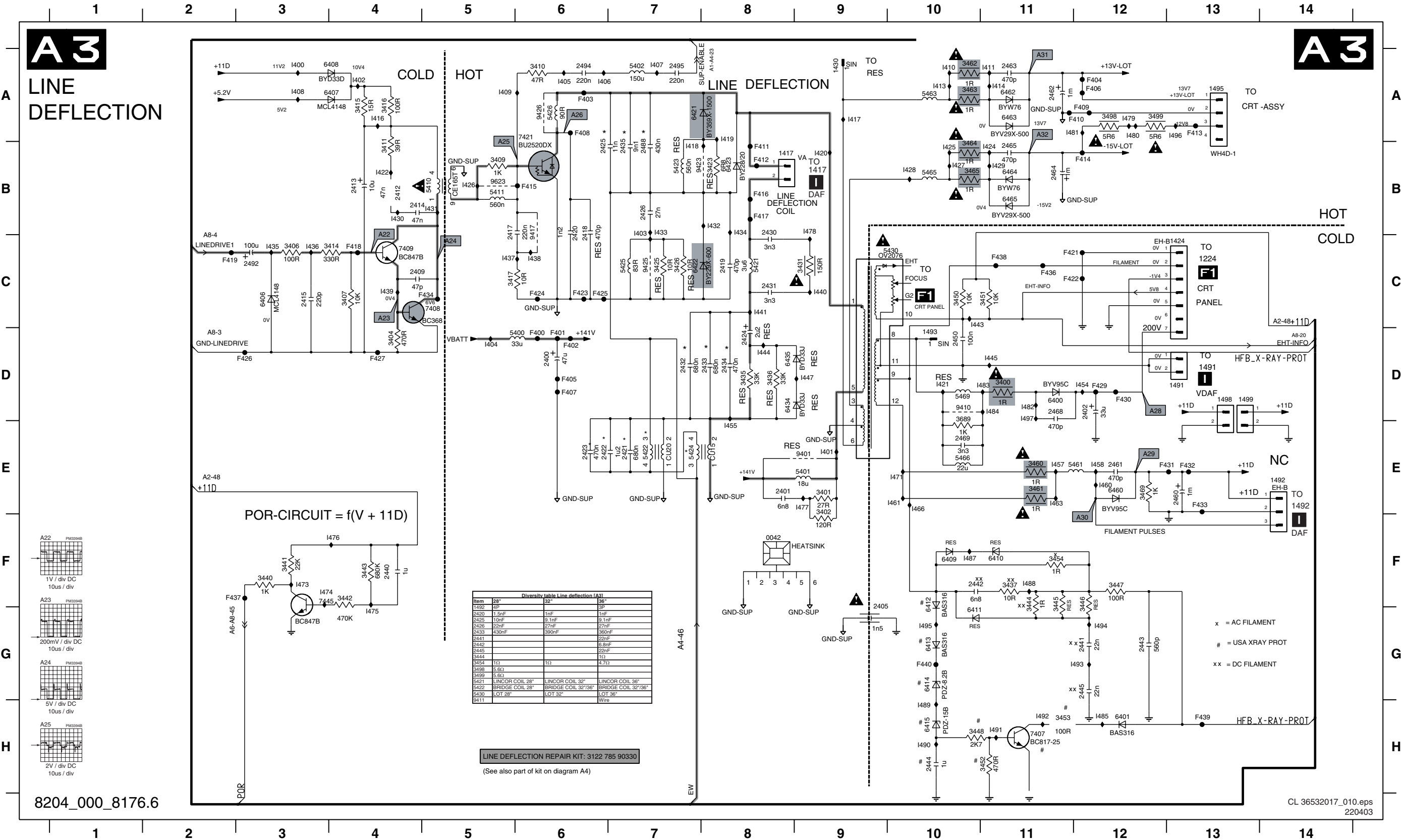
☐ NORMAL ..V.
☐ STANDBY (..V.)

STANDBY SUPPLY REPAIR KIT: 3122 785 90460



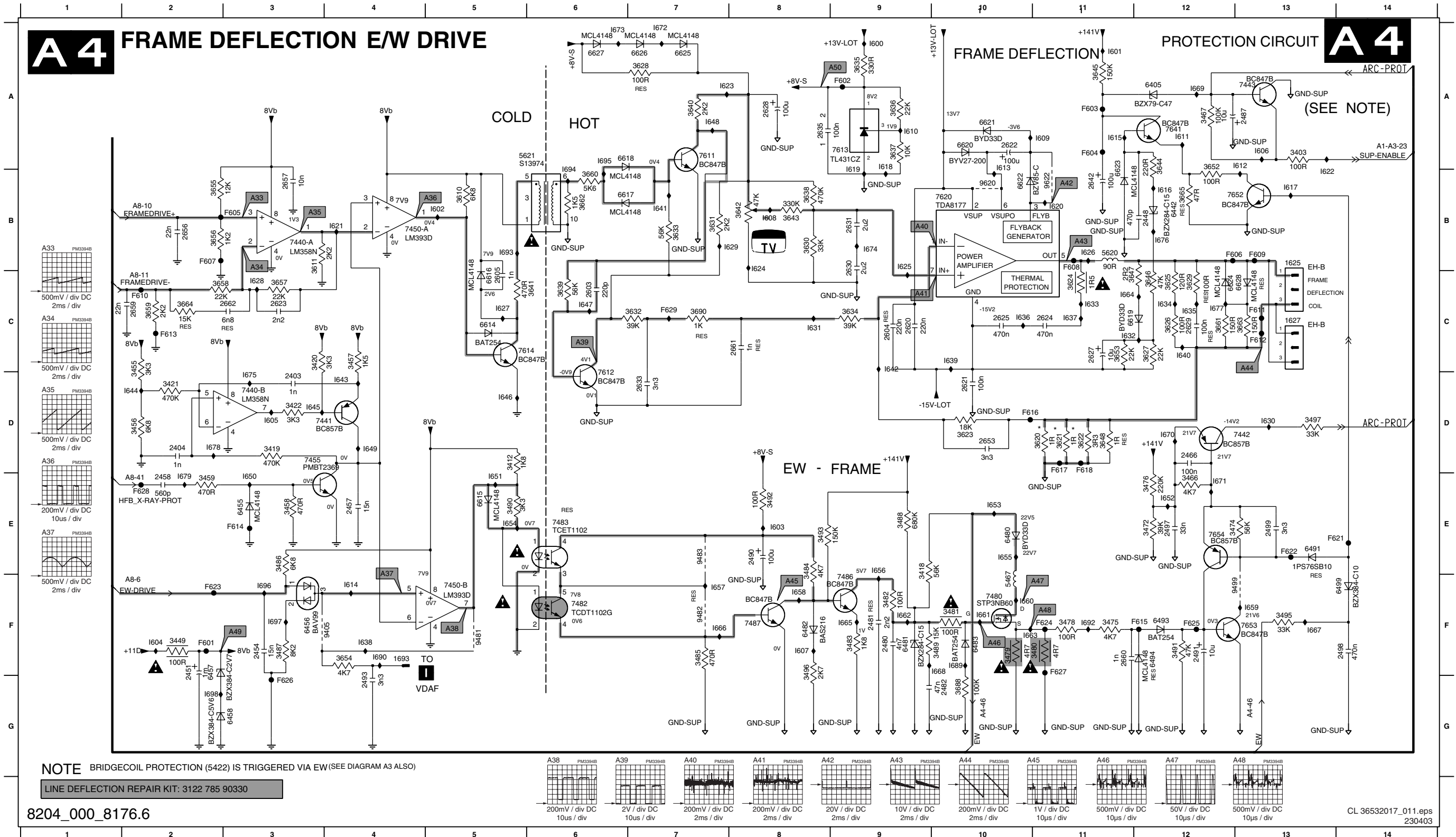
Large Signal Panel: Line Deflection

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



2480 F9	2404 D2	2628 A8	3419 D3	3490 E5	3627 C12	3422 D3	3664 C2	3611 B3	6627 A6	7612 D6	6481 F9	F624 F11	7483 E6	I619 A9	F613 C2	I607 F8	I672 A7	I673 A6	1649 D4
2481 F9	2448 B12	2620 B12	3472 E12	3491 F12	3628 A7	3449 F2	7654 E12	3620 D11	6628 C13	7613 A9	6482 F8	F625 F11	7486 F9	I620 B11	I636 C10	I608 B8	I625 B9	I674 B9	I650 E5
2631 B9	3478 F11	2639 C9	3474 E13	3492 E8	6619 C11	3455 C2	9405 F4	3621 D11	7640 A B3	7614 A5	6483 F10	F626 G3	7487 F8	I621 B4	I637 C11	I609 A11	I626 B11	I675 D3	I651 E5
2451 F2	3482 F9	3629 C12	3475 F11	2498 F14	3630 B8	3456 D2	9481 F5	3622 D11	7440 D B3	I615 A11	6491 E13	F627 F11	I611 A12	I622 B13	I638 F4	I610 A9	I627 C5	I676 B12	I652 E12
2454 F3	3483 F9	2633 D7	3476 E12	2499 E13	3631 B7	3457 C4	9482 F7	3623 D10	3643 B8	7641 A12	6493 F12	F628 E2	I612 A13	I623 A7	I639 C10	I654 E5	I628 C3	I677 C12	I653 E10
2457 E4	3484 E8	2635 A8	3661 C12	2603 C6	3632 C7	3458 E3	5620 B11	3624 C11	3644 A12	7652 B13	6494 F12	F629 C7	I613 A10	I624 B8	I698 G2	I655 E10	I629 B8	I678 D2	
2458 E2	3485 F7	2642 B11	3479 F10	2604 C9	6623 A11	3459 E2	5621 A5	6615 E5	3645 A11	7653 F13	6499 F14	7441 D3	I614 F4	F603 A11	I641 B7	I656 E9	I630 D13	I679 E2	
2466 D12	3486 E3	3633 B7	3480 F11	2605 C5	6624 C12	3466 E12	6405 A12	6616 C5	3646 C12	9483 E7	6614 C5	7442 D13	I658 F8	F604 A11	I642 C9	I657 F7	I631 C8	I689 F10	
2653 D10	2482 G10	3634 C9	3481 F10	2620 C9	3637 A9	3467 A12	6442 B12	6617 B6	3647 C12	9499 F13	F614 E3	7443 A13	I616 B12	F605 B3	I643 D4	I659 F13	I632 C11	I690 F4	
2656 B2	2487 A13	3635 A9	3665 B12	2621 D10	3638 B8	3657 C3	6455 E3	6618 A6	3648 D11	9620 B10	F615 F12	7450-A	I617 B13	F606 B12	I600 A9	I660 F10	I633 C11	I692 F11	
2657 B3	2490 E8	3636 A9	3688 G10	2622 A10	3639 C6	3658 C2	6456 F3	F618 D11	3652 A12	9622 B11	F616 D10	B4	I618 A9	F607 B2	I601 A11	I661 F10	I634 C12	I693 B5	
2659 C2	2491 F12	2661 C8	3690 C7	2623 C3	3640 A7	3659 C2	3493 E8	6620 A10	3653 C11	F601 F2	F617 D11	7450-B	I662 F9	F608 B11	I602 B5	I667 F13	I635 C12	I644 D2	
2660 F11	2493 G4	2662 C3	3467 F10	2624 C11	3641 C6	3660 B6	3495 F13	6621 A10	3654 F4	F602 A9	I640 C12	F5	I663 F10	F609 B13	I603 E8	I668 F10	I694 A6	I645 D3	
1627 C13	2497 E12	3403 A13	3487 F3	2625 C10	3642 B8	7620 B10	3496 F8	6622 B10	3655 B2	6457 F2	F621 E13	7455 D3	I664 C11	F610 C2	I604 F2	I669 A12	I695 A6	I646 D5	
1693 F4	1625 B13	3412 D5	3488 E9	3625 C12	3420 C3	3662 B6	3497 D13	6625 A7	3656 B2	6458 G3	F622 E13	7480 F10	I665 F9	F611 C13	I605 D3	I670 D12	I696 F3	I647 C6	
2420 D3	2627 C11	3418 E9	3489 F10	3626 C12	3421 D2	3663 C13	3610 B5	6626 A7	7611 A7	6480 E10	F623 F2	7482 F6	I666 F7	F612 C13	I606 A13	I671 E12	I697 F3	I648 A7	

Diversity table Frame deflection [A4]			
Item	28"	32"	36"
1693			1P
2493			3.3nF
3480		6.8Ω	
3488	1MΩ	680kΩ	1MΩ
3621	1Ω	1.5Ω	1Ω
3622	1.5Ω	1.8Ω	1Ω
3625	120Ω	220Ω	56Ω
3626	100Ω	220Ω	56Ω
3654			4.7kΩ
3661		470Ω	120Ω
6499	BZX384-C10	PDZ9.1B	BZX384-C10
6624		BAS316	BAS316



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

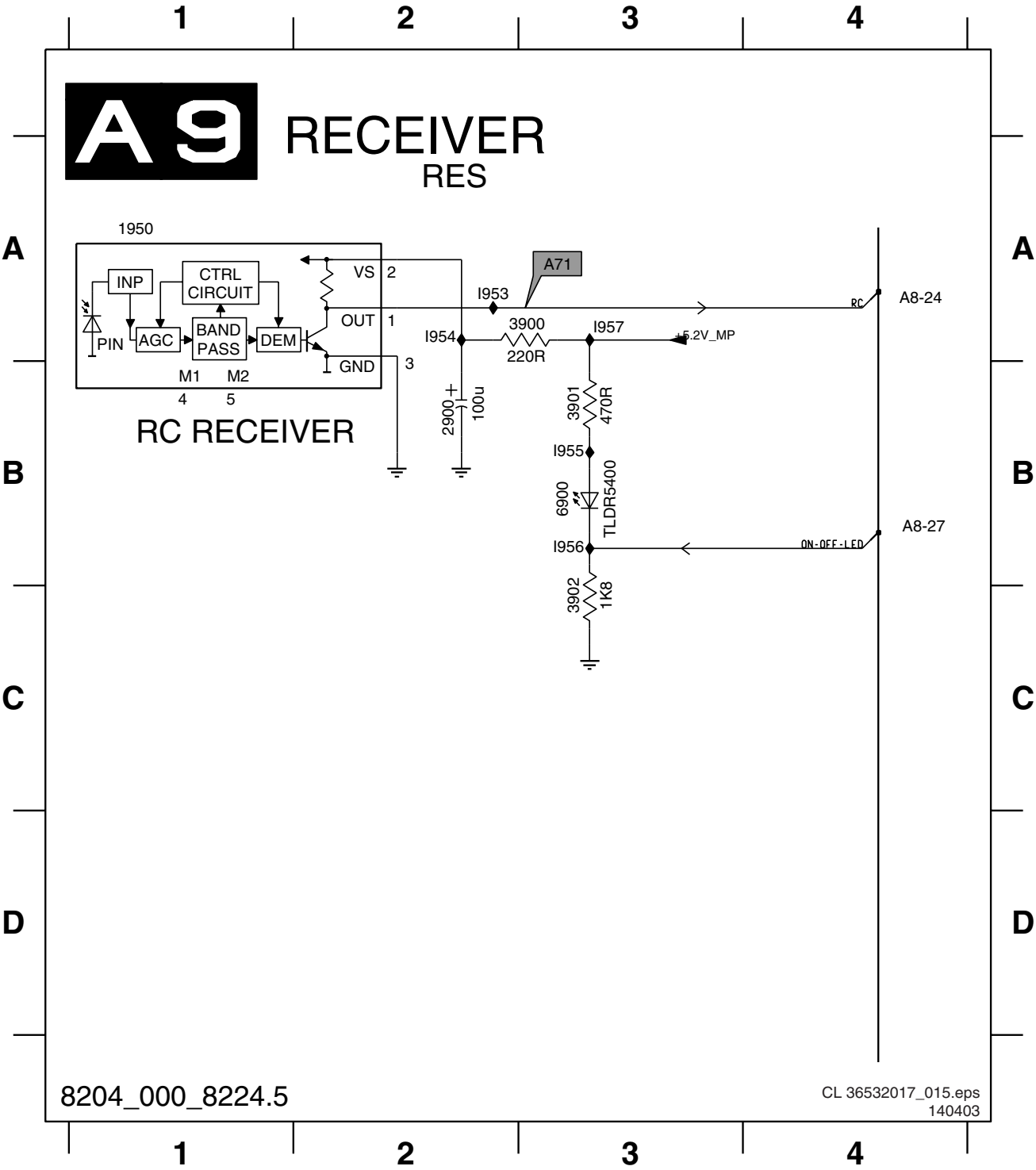
A8 TUNER SIM CONNECTOR (FEMALE)



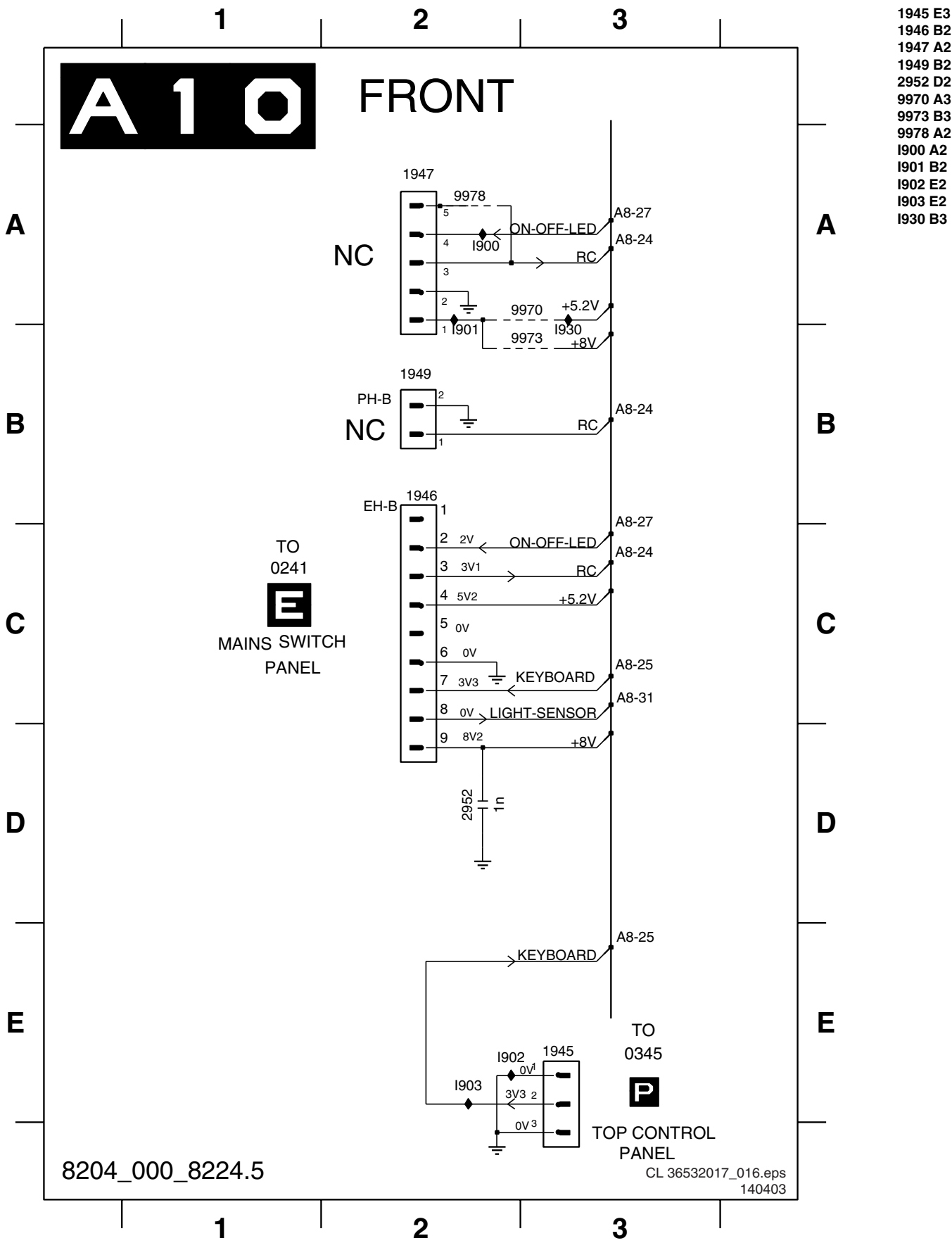
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1205 L2	9990 B5
1932 F9	9998 H3
1933 B6	9904 D6
1934 A6	9905 E6
1935 E9	9906 E6
1936 D6	9907 F6
1937 G3	9908 F6
1940 F6	9909 F6
1943 E5	F911 G5
1948 D3	F914 E4
1951 A13	F915 E4
1952 E9	F916 E4
1953 D9	F917 E2
1955 F5	F918 F1
1961 C9	F919 G3
1965 D6	F920 H2
1967 G3	F921 A4
1969 E3	F922 A3
2200 D2	F924 D6
2201 F1	F927 G2
2202 G2	F928 B3
2203 G3	F929 C3
2455 I7	F930 F12
2448 B9	F931 E1
2496 E8	D201 D6
2914 E2	I202 D6
2915 E1	F921 A2
2916 C4	F922 A4
2917 E12	I205 E6
2918 F11	I206 E6
2929 E10	I207 I9
2930 F8	I208 I3
2931 D9	I209 G5
2940 B3	I210 H4
2941 I8	I211 I4
2942 I8	I215 C12
2943 E12	I216 H4
2945 H13	I225 H3
2946 H13	I226 I3
2947 I7	I230 D10
2948 H12	I231 D11
2949 I12	I232 D11
2950 G3	I233 D10
2951 G2	I904 G4
3200 F3	I905 G4
3201 F3	I906 C10
3202 G3	I907 G4
3211 D10	I908 A6
3212 D11	I909 B6
3213 C11	I910 B6
3250 H3	I911 B6
3261 E4	I912 C6
3262 F4	I913 C6
3427 A7	I914 C6
3428 A8	I915 C6
3429 B8	I916 E8
3430 A8	I917 E9
3432 A8	I918 E9
3903 F11	I919 F9
3904 E1	I920 F9
3907 C1	I921 C2
3910 C1	I922 E11
3928 C4	I923 E11
3929 D4	I924 E11
3930 D3	I925 E12
3938 F10	I926 F11
3939 F11	I927 D2
3940 F10	I928 I9
3941 E2	I929 H7
3942 E11	I931 F1
3943 F11	I932 G1
3945 F11	I933 C1
3999 A3	I934 F3
5001 C2	I935 F3
5002 A1	I936 D12
5903 A1	I937 C1
5904 B8	I938 F9
6001 G2	I939 F11
6201 G3	I940 B12
6202 G3	I941 F11
6402 B9	I942 D12
6901 A8	I943 C11
7210 D10	I944 B13
7211 D11	I945 E8
7901 C3	I946 D12
7902 F11	I947 B2
7908 F11	I948 D2
7910 B2	I949 F8
7911 D1	I950 E12
7912 C1	I951 D1
9201 C12	I952 G1
9203 C12	I955 D5
9205 E8	I959 F6
9206 D8	I960 E2
9215 G2	I961 E3
9225 E8	I962 G5
9226 D9	I963 E2
9228 A4	<001 I2
9229 A4	<002 I2
9250 E6	
9251 E6	
9901 C12	
9902 C12	
9903 D12	
9904 C12	
9905 F8	
9906 C13	
9907 C11	
9908 C3	
9909 B1	
9980 B1	
9982 F6	
9983 C11	
9987 B6	

Large Signal Panel: Receiver

1950 A1 2900 B2 3900 A3 3901 B3 3902 C3 6900 B3 I953 A2 I954 A2 I955 B3 I956 B3 I957 A3



Large Signal Panel: Front



A horizontal number line with tick marks at every integer from 1 to 10. The segment between 1 and 2 is shaded gray.



Mapping Large Signal Panel (Top Side)

0042	C8	2420	C8	3137	G1	3749	D7	6130	F3	9411	A10	9932	G9
0043	D3	2421	B6	3141	G3	3755	E6	6147	D3	9412	E8	9933	F10
0044	E7	2422	A5	3144	F2	3904	E9	6148	F2	9413	E9	9934	F9
0045	F5	2423	A6	3161	F2	3941	F10	6400	A9	9414	E9	9935	G9
1146	G2	2424	C5	3162	F2	3967	F10	6405	A7	9415	E9	9936	G9
1148	G3	2425	C7	3170	G2	3968	F10	6408	E8	9423	C7	9937	G8
1149	F2	2426	C6	3171	G2	3971	F10	6421	D8	9425	C6	9938	G9
1200	G10	2430	B7	3213	F7	3972	F10	6422	D7	9426	C8	9939	F8
1201	G6	2431	B7	3400	A9	3973	F10	6423	C7	9501	A2	9940	G9
1205	F8	2432	B6	3401	A7	3974	E10	6434	B6	9502	A2	9942	F7
1417	B8	2433	B6	3402	A7	3975	F10	6435	C6	9503	B4	9943	G8
1424	A10	2434	B6	3403	A7	3979	E10	6460	A10	9504	B5	9944	G8
1430	C9	2435	C8	3409	C9	3983	E10	6462	C9	9510	D4	9945	G8
1491	A7	2450	A10	3411	D8	3985	E10	6463	C9	9511	C4	9946	G9
1492	A10	2451	D10	3415	D8	3986	E10	6464	C9	9513	B5	9947	G8
1493	A8	2460	A10	3416	E8	3987	E10	6465	C9	9515	E5	9948	F8
1495	C10	2461	A10	3417	C8	3989	E10	6480	C7	9516	A3	9949	F7
1498	A10	2462	C10	3418	C6	3993	D10	6505	D4	9517	E4	9950	F7
1499	D9	2463	C9	3423	C7	3998	C1	6510	C3	9518	C3	9951	G1
1500	A2	2464	C10	3425	C6	5100	E2	6514	D5	9519	B4	9952	G6
1501	B2	2465	C9	3426	C6	5102	D1	6515	D5	9551	C4	9953	G6
1502	A3	2468	A9	3431	B7	5103	F3	6525	C5	9552	F4	9954	F8
1503	C3	2469	A8	3435	B6	5104	E2	6530	D3	9554	C4	9955	G6
1505	A2	2487	A7	3436	B5	5105	F2	6534	D3	9556	E5	9956	G6
1510	E5	2488	C8	3449	E9	5106	E1	6535	F3	9557	E4	9957	B1
1550	B3	2490	D6	3450	A10	5111	F2	6536	G4	9558	E3	9958	B1
1590	A3	2491	A6	3451	B10	5112	F2	6619	B10	9563	E5	9959	F9
1601	G1	2492	E8	3460	A10	5113	D2	6620	C10	9564	C3	9961	F8
1620	F1	2501	D4	3461	A10	5130	F2	6621	C10	9566	E4	9963	G10
1625	B10	2503	E3	3462	C9	5400	C5	6622	C10	9567	B4	9964	G4
1627	B10	2505	D5	3463	C9	5401	A7	6900	B1	9570	F5	9965	G4
1693	D9	2506	E5	3464	C9	5402	B8	7100	D1	9571	F5	9967	G6
1735	G5	2507	A2	3465	C9	5410	D9	7101	C2	9620	C10	9968	F8
1737	E7	2508	C5	3469	A10	5411	C8	7102	D3	9622	C10	9969	F9
1738	E7	2509	B5	3476	A7	5421	B7	7103	E1	9623	C9	9971	G10
1901	E10	2510	D3	3478	C6	5422	A6	7104	E1	9650	C10	9972	G10
1902	F10	2511	G5	3479	C6	5423	C7	7105	C1	9651	C10	9974	G6
1932	E8	2512	G4	3480	C6	5424	A6	7120	E2	9652	A10	9975	G4
1933	E10	2515	D4	3488	C5	5425	C7	7131	F3	9655	A10	9976	B1
1934	F10	2516	B4	3492	D7	5426	C8	7141	G4	9656	A10	9977	E9
1935	F9	2517	C4	3493	C6	5430	B10	7408	D8	9658	C8	9980	G6
1936	F7	2518	D3	3495	A6	5461	A10	7421	D8	9659	B6	9982	F8
1937	G7	2519	F4	3498	C10	5463	C9	7440	D9	9660	B6	9996	F7
1940	F9	2520	A3	3499	C10	5465	C8	7480	D6	9661	B5		
1943	G10	2522	F4	3500	A4	5466	A8	7482	D8	9663	B5		
1945	G5	2523	D4	3501	A4	5467	C6	7483	D8	9664	C10		
1946	G5	2531	E4	3505	E3	5469	A8	7502	E3	9665	C8		
1947	G4	2537	B4	3507	E5	5502	A5	7504	D4	9666	C8		
1948	G8	2540	F4	3508	D4	5503	A3	7506	E4	9667	C7		
1949	G2	2541	C3	3509	B2	5504	A3	7507	E4	9669	D7		
1950	B1	2542	G5	3511	D3	5505	D4	7528	B2	9670	C7		
1951	G7	2543	F5	3513	C3	5506	E5	7529	F4	9671	B6		
1952	G9	2622	C10	3514	E4	5507	F4	7613	D9	9674	A8		
1953	E7	2624	B10	3515	D5	5509	F5	7620	C10	9675	A10		
1955	G8	2625	B10	3516	C3	5511	A4	7680	F1	9701	E6		
1961	G7	2627	B10	3518	C3	5513	G5	7682	G1	9703	E6		
1965	E9	2628	D10	3520	E4	5514	G4	7700	F6	9708	D7		
1966	F8	2642	A6	3521	A2	5515	A3	7702	E6	9709	F6		
1997	G10	2717	G5	3526	E5	5516	A5	7910	G7	9712	E6		
2100	E3	2729	G6	3533	F4	5620	B10	7911	G9	9715	D6		
2101	D2	2740	E7	3536	A4	5621	D10	7912	G9	9718	E6		
2102	E2	2758	E7	3537	D5	5701	F6	9101	C2	9719	E6		
2104	F3	2778	D6	3540	E4	5702	F6	9102	F3	9720	E6		
2107	F3	2900	B1	3542	E5	5707	G6	9110	C2	9721	D6		
2108	C2	2914	F10	3543	D3	5708	F6	9112	F2	9901	G7		
2111	D1	2915	E9	3550	C4	5711	G5	9114	D2	9902	G8		
2114	C2	2940	F7	3551	A3	5712	F6	9117	E2	9903	G8		
2115	E2	2947	G2	3620	C10	5715	E7	9118	G2	9906	G10		
2116	F1	2948	F7	3621	C10	5716	E6	9119	G2	9907	G7		
2118	F2	2949	F7	3622	C10	5720	E7	9120	G2	9909	G6		
2119	F3	3101	C2	3623	C10	5721	E6	9121	G3	9910	E8		
2120	F2	3102	D2	3624	B10	5722	D7	9122	F1	9911	E8		
2121	E2	3103	D2	3625	C10	5723	D7	9123	C3	9912	E8		
2122	E2	3104	D2	3626	C10	5725	E5	9124	F2	9913	E8		
2124	C2	3105	E2	3628	D9	5901	G9	9125	G2	9914	E8		
2126	G2	3106	E1	3634	C10	5902	G3	9126	G3	9915	E9		
2140	G3	3107	E2	3635	C9	5903	G1	9127	E2	9916	E8		
2141	F2	3108	C2	3641	D10	5904	G8	9223	G7	9917	E8		
2143	F2	3110	C2	3642	B10	6103	D2	9224	G7	9918	E10		
2148	F1	3111	D2	3645	A7	6105	D2	9227	G6	9919	E9		
2152	E3	3113	E2	3648	D10	6106	D1	9260	F10	9920	E9		
2200	G9	3114	E1	3661	C10	6107	F3	9401	B7	9921	E9		
2203	G9	3115	G1	3663	C10	6109	C2	9402	B5	9922	E10		
2400	B6	3116	G2	3681	G1	6110	E2	9403	C5	9923	E10		
2401	A7	3117	D2	3687	G1	6111	F3	9404	C5	9924	E10		
2402	A10	3118	C2	3689	A8	6113	F2	9405	E9	9925	E10		
2405	A7	3124	F1	3711	F6	6114	D2	9406	B7	9926	F10		
2413	D8	3125	D1	3713	E6	6120	F1	9408	C10	9929	G9		
2418	C8	3126	E1	3728	F6	6121	E1	9409	A10	9930	G8		
2419	C7	3127	E1	3747	E6	6122	F1	9410	A8	9931	F9		

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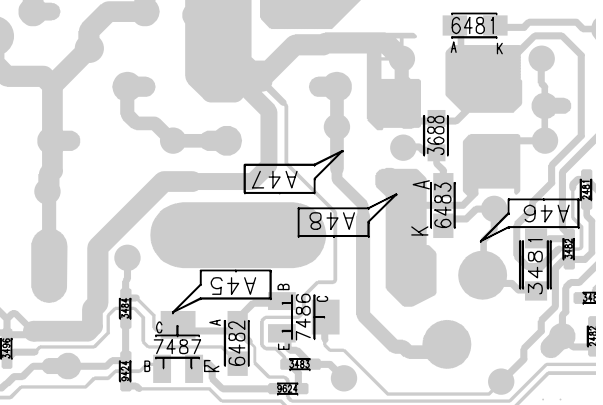
Mapping Large Signal Panel (Bottom Side)

0042	C3	2147	G8	2514	E7	2757	D4	3141	G8	3460	A1	3629	B1	3746	E6	5411	C3	6406	D3	7130	G9	9209	B10	9566	E7	9942	F4
0043	D8	2148	F10	2515	D7	2758	E4	3142	G8	3461	A1	3630	C1	3747	D5	5421	B4	6407	E3	7131	F8	9210	F4	9567	B7	9943	G3
0044	E4	2149	F10	2516	C7	2759	E4	3143	G8	3462	C2	3631	D1	3748	D5	5422	A5	6408	E3	7132	G8	9211	F4	9570	F6	9944	G3
0045	F6	2150	G9	2517	C7	2760	E4	3144	F9	3463	C2	3632	D1	3749	D4	5423	C4	6409	B2	7133	F9	9212	G2	9571	F6	9945	G3
1146	G9	2152	E8	2518	D8	2761	E5	3145	D9	3464	C2	3633	D1	3750	G6	5424	A5	6410	B2	7140	G7	9214	G2	9620	B1	9946	G2
1148	G8	2153	E10	2519	F7	2762	E4	3146	C9	3465	C2	3634	C1	3751	E4	5425	C5	6411	B2	7141	G7	9215	G2	9621	G10	9947	G3
1149	F9	2154	F9	2520	A8	2763	E4	3147	D9	3466	A5	3635	C2	3752	E4	5426	C4	6412	B2	7210	G5	9216	G1	9622	C1	9948	F3
1200	G1	2200	G2	2522	F7	2777	F5	3148	C9	3467	A4	3636	D2	3755	E5	5430	B2	6413	B2	7211	F5	9217	G1	9623	C3	9949	F4
1201	G5	2201	G1	2523	D7	2778	D5	3149	C10	3469	A1	3637	D1	3760	F5	5461	A1	6414	B2	7407	B1	9218	G1	9624	D5	9950	F4
1205	F3	2202	G1	2524	E7	2779	F5	3150	C9	3472	A5	3638	C1	3790	E5	5463	C2	6415	B1	7408	D3	9219	F1	9650	C1	9951	G10
1417	B4	2203	G2	2525	E7	2780	F6	3151	G9	3474	A5	3639	D1	3791	F5	5465	C3	6421	D4	7409	D3	9221	G9	9651	C1	9952	G5
1424	A1	2204	F3	2528	B9	2781	F6	3152	C9	3475	A6	3640	D1	3792	E5	5466	A3	6422	D4	7421	C3	9222	G9	9652	A1	9953	G5
1430	C2	2400	B5	2530	E7	2782	E4	3153	F9	3476	A4	3641	D1	3793	F5	5467	C4	6423	C4	7440	D2	9223	G4	9655	A1	9954	F3
1491	A3	2401	A4	2531	E7	2783	E5	3155	G8	3478	C5	3642	B1	3794	D4	5469	A3	6434	B5	7441	D2	9224	G4	9656	A1	9955	G5
1492	A1	2402	A2	2535	D6	2784	E4	3156	G9	3479	C5	3643	C1	3795	D4	5502	B7	6435	C5	7442	A5	9225	F2	9658	C3	9956	G5
1493	A3	2403	D2	2537	B7	2785	E5	3157	G8	3480	C5	3644	A4	3796	D4	5503	B8	6442	B1	7443	A4	9226	F2	9659	B5	9957	B10
1495	C2	2404	D2	2538	E7	2786	F6	3158	G9	3481	D5	3645	A4	3797	E4	5504	B8	6455	D3	7445	D2	9227	G5	9660	B5	9958	B10
1498	A1	2405	A4	2540	F7	2787	E5	3159	G8	3482	D5	3646	B1	3798	E6	5505	D7	6456	E1	7450	D1	9228	G9	9661	B6	9959	F2
1499	E2	2409	D3	2541	D8	2791	E5	3160	C9	3483	D5	3647	B1	3900	B10	5506	F6	6457	E2	7455	E3	9229	G7	9663	B6	9960	G6
1500	A9	2412	D3	2542	G7	2792	E5	3161	F9	3484	D4	3648	D1	3901	B10	5507	F7	6458	E2	7480	D5	9250	F4	9664	C1	9961	F3
1501	B9	2413	D3	2543	F6	2900	B10	3162	F9	3485	D3	3649	F10	3902	B10	5509	F7	6460	A1	7482	D3	9251	F4	9665	C3	9962	G6
1502	A8	2414	D3	2544	D7	2914	F1	3164	G9	3486	D2	3652	A5	3903	F2	5511	A6	6462	C2	7483	D3	9260	F1	9666	C3	9963	G1
1503	C8	2415	D3	2603	F10	2915	E2	3165	G9	3487	E2	3653	B1	3904	E2	5513	F6	6463	C2	7486	D5	9261	E1	9667	C4	9964	G7
1505	A8	2417	C3	2601	D1	2916	F1	3166	G10	3488	C6	3654	E2	3907	G2	5514	F7	6464	C2	7487	D4	9262	E1	9669	D4	9965	G7
1510	D6	2418	C3	2604	C1	2917	E2	3167	G10	3489	D5	3655	D2	3910	G2	5515	A8	6465	C2	7501	C9	9263	D1	9670	C4	9966	G7
1550	C8	2419	C4	2605	D1	2918	F1	3168	F10	3490	D4	3656	E2	3928	F1	5516	A7	6480	C4	7502	E8	9264	F1	9671	B5	9967	G5
1590	A8	2420	C3	2620	C1	2929	E4	3170	G9	3491	A5	3657	D2	3929	F1	5620	B1	6481	C5	7504	D7	9401	B4	9674	A3	9968	F3
1601	G10	2421	B5	2621	C1	2930	F2	3171	G9	3492	D4	3658	E2	3930	G1	5621	D1	6482	D5	7506	E7	9402	B6	9675	A1	9969	F2
1620	F10	2422	B5	2622	C1	2931	F4	3200	G1	3493	C5	3659	D2	3938	F1	5701	F6	6483	C5	7507	E8	9403	C6	9676	E2	9970	G7
1625	B1	2423	B5	2623	D2	2940	F4	3201	G1	3495	B5	3660	D1	3939	F1	5702	F5	6491	A5	7528	C9	9404	C6	9677	D1	9971	G1
1627	B1	2424	C5	2624	B1	2941	F3	3210	F5	3496	D4	3661	C1	3940	F1	5703	F5	6493	A5	7529	E7	9405	E2	9701	E5	9972	G1
1693	D2	2425	B4	2625	B1	2942	G3	3211	G4	3497	A4	3662	D1	3941	G1	5707	G5	6494	A5	7530	E7	9406	B4	9702	E5	9973	G7
1735	G5	2426	C5	2627	B1	2943	G3	3212	F5	3498	C2	3663	B1	3942	E3	5708	F5	6499	A5	7611	D1	9408	C1	9703	E5	9974	G5
1737	E4	2430	B4	2628	D1	2944	E1	3213	F4	3499	C1	3664	D2	3943	F2	5711	G6	6505	D7	7612	C1	9409	A1	9704	E5	9975	G7
1738	E4	2431	B4	2629	B1	2945	F4	3214	F3	3500	A7	3665	A5	3945	F2	5712	F5	6506	E7	7613	D2	9410	A3	9705	F5	9976	B10
1901	E1	2432	B5	2630	D1	2946	F4	3250	G2	3501	A8	3681	G10	3959	D1	5715	D4	6507	E7	7614	D1	9411	A1	9706	E6	9977	E2
1902	F1	2433	B5	2631	D1	2947	G9	3261	G1	3504	E7	3682	G10	3960	D1	5716	D5	6509	E7	7620	B1	9412	E3	9707	E5	9978	G7
1932	E3	2434	B5	2633	C1	2948	F4	3262	G1	3505	E8	3683	G10	3961	F1	5720	E4	6510	C8	7641	A4	9413	E2	9708	D4	9979	G7
1933	E2	2435	C4	2635	D2	2949	F4	3260	A2	3506	E7	3684	F10	3962	F1	5721	E5	6511	B9	7645	B5	9414	E2	9709	F5	9980	G5
1934	F2	2440	D2	2642	A4	2950	G1	3401	A4	3507	E6	3685	G10	3963	F1	5722	D4	6512	C9	7653	A5	9415	E2	9711	D5	9981	G2
1935	F2	2441	B2	2653	C1	2951	G2	3402	A4	3508	D7	3686	G10	3964	F1	5723	D4	6514	D6	7654	A5	9417	C3	9712	E5	9982	F3
1936	E4	2442	B2	2656	D2	2952	G6	3403	A4	3509	B9	3687	G10	3965	F1	5725	E6	6515	D6	7680	F10	9418	A5	9713	D5	9983	G3
1937	G4	2443	B2	2657	D2	2985	F1	3404	D3	3510	E7	3688	C5	3966	F1	5901	G2	6516	E7	7681	G10	9421	E2	9714	F6	9985	E1
1940	F2	2444	B1	2659	D2	2987	F1	3406	D3	3511	D8	3689	A3	3967	F1	5902	G8	6517	E7	7682	G10	9422	E3	9715	D5	9986	E1
1943	G1	2445	B1	2660	A5	2988	F1	3407	D3	3512	D8	3690	C1	3968	F1	5903	G10	6523	F7	7700	F5	9423	C4	9716	F6	9987	F2
1945	G6	2448	A5	2661	C1	2989	F1	3409	C2	3513	C8	3701	E5	3969	F1	5904	G3	6525	D6	7701	E5	9424	D4	9717	F5	9988	F1
1946	G6	2450	A1	2662	E2	2990	E1	3410	C3	3514	E6	3702	E5	3970	F1	6080	G10	6530	D8	7702	E4	9425	C5	9718	E5	9989	F1
1947	G7	2451	E1	2702	E5	2991	E1	3411	D3	3515	D6	3703	D5	3971	F1	6081	F10	6533	F8	7703	E5	9426	C3	9719	E5	9990	F1
1948	G3	2454	E2	2704	E5	2992	E1	3412	D2	3516	C8	3704	E5	3972	F1	6082	F10	6534	D8	7704	E5	9427	E2	9720	E5	9991	F1
1949	G9	2455	F3	2705	D5	2993	D1	3414	D3	3517	E7	3705	F5	3973	E1	6083	F10	6535	F8	7705	D5	9428	D2	9721	D5	9992	F1
1950	B10	2457	D1	2706	F5	2994	D1	3415	D3	3518	C8	3706	F5	3974	F1	6084	F10	6536	G7	7706	E5	9429	E2	9901	G4	9993	F1
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1952	G2	2460	A1	2708	F5	2996	E1	3417	C3	3520	E7	3708	F6	3976	F1	6102	E9	6614	D2	7708	D4	9431	D2	9903	G3	9996	F4
1953	E3	2461	A1	2709	F6	2997	D1	3418	C5	3521	A9	3709	G6	3977	F1	6103	D9	6615	D3	7901	G1	9432	E2	9904	G3	9997	F3
1955	G3	2462	C1	2710	F6	2998	D1	3419	D2	3522	E7	3710	F5	3978	E1	6104	E9	6616	D2	7902	G1	9433	D3	9905	E3	9998	F4
1961	G4	2463	C2	2711	F5	2999	D1	3420	D2	3523	E7	3711	F5	3979	E1	6105	D9	6617	D1	7908	F2	9434	D2	9906	G1		
1965	E2	2464	C1	2712	F6	3101	C9	3421	D2	3524	B9	3712	F5	3980	E1	6106	D10	6618	D1	7910	G4	9435	D1	9907	G4		
1966	F3	2465	C2	2713	D5	3102	D9	3422	D2	3525	E7	3713	E6	3981	E1	6107	F8	6619	B1	7911</							

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D



10

ATTENTION : LIVE PARTS

A

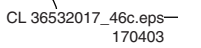
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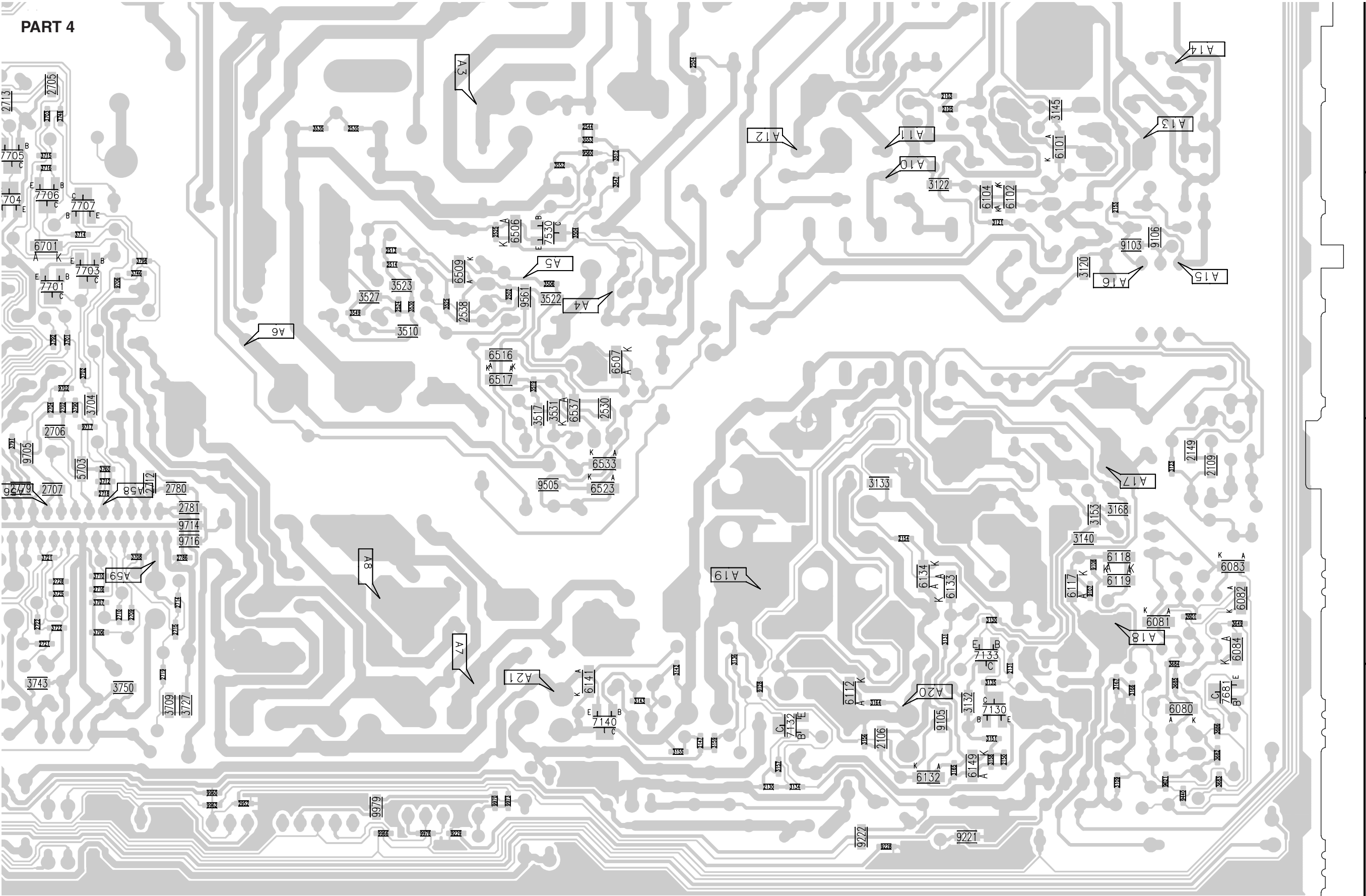
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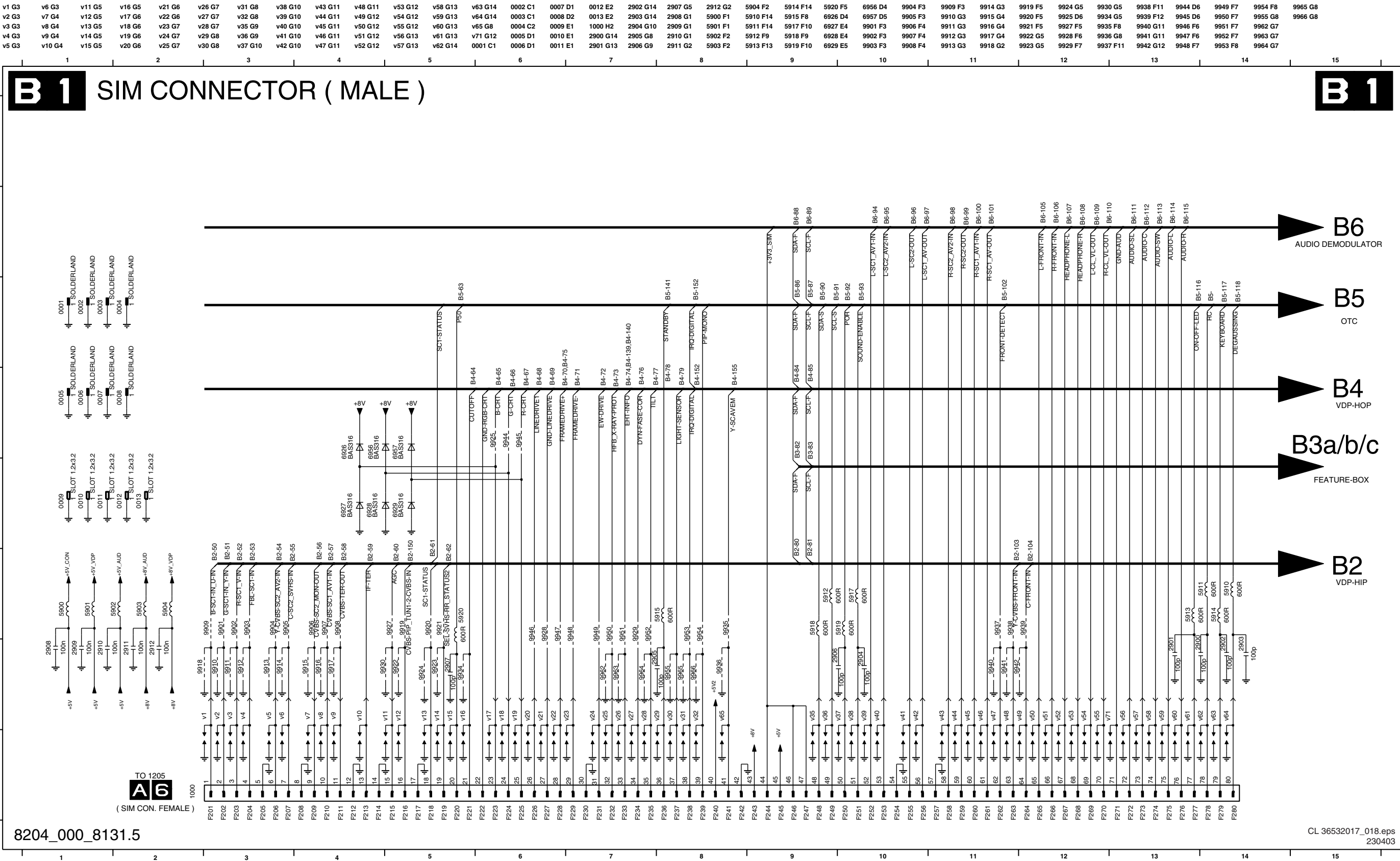
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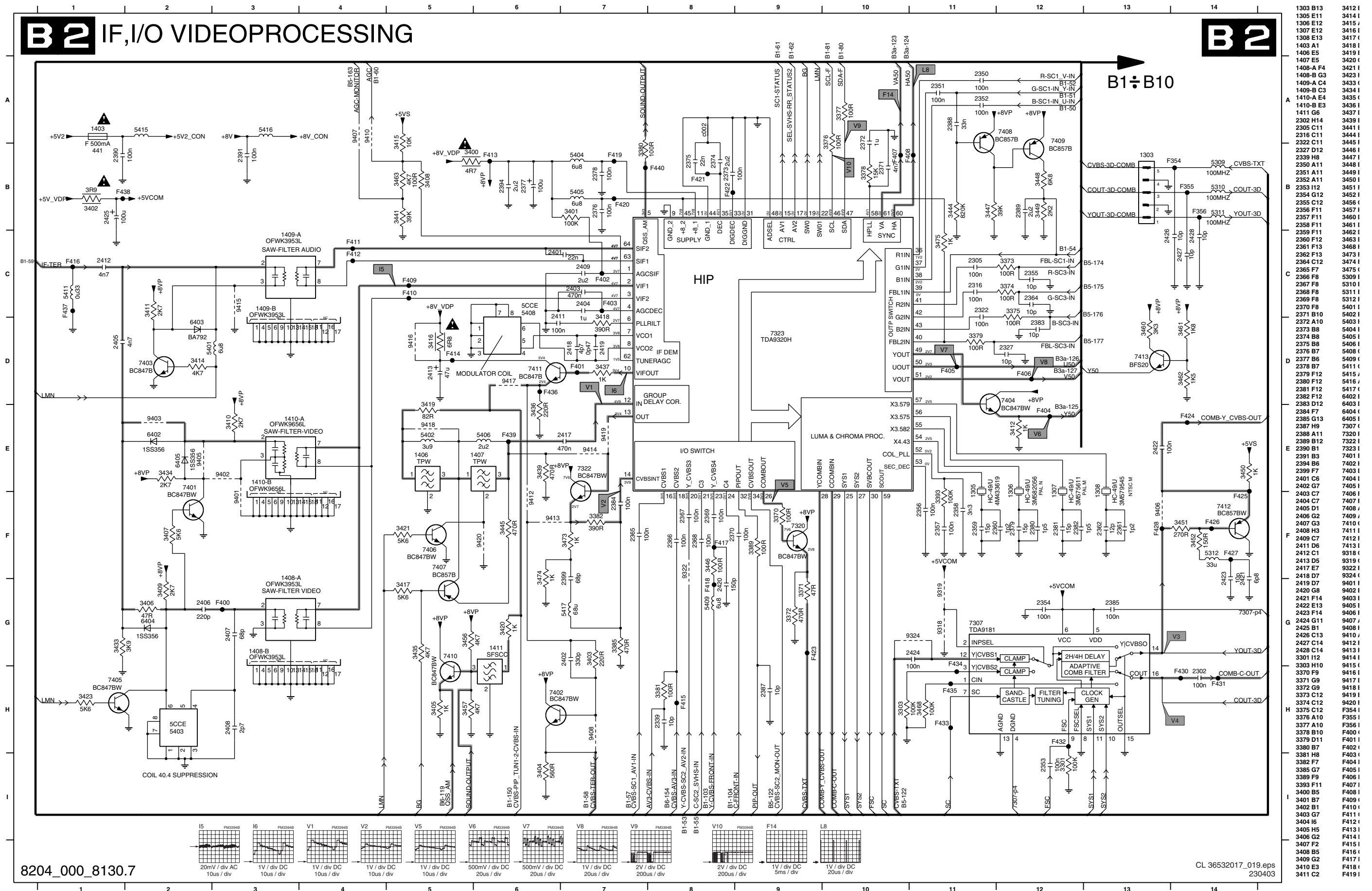
Layout Large Signal Panel (Part 4 Bottom Side)



Small Signal Board: SIM Connector (Male)



Small Signal Board: IF. I/O Video Processing



1 2

B 3 A PICNIC



TO B3b

TO B3c

TO B3c

** SEE MAPPING G1 ON B3c

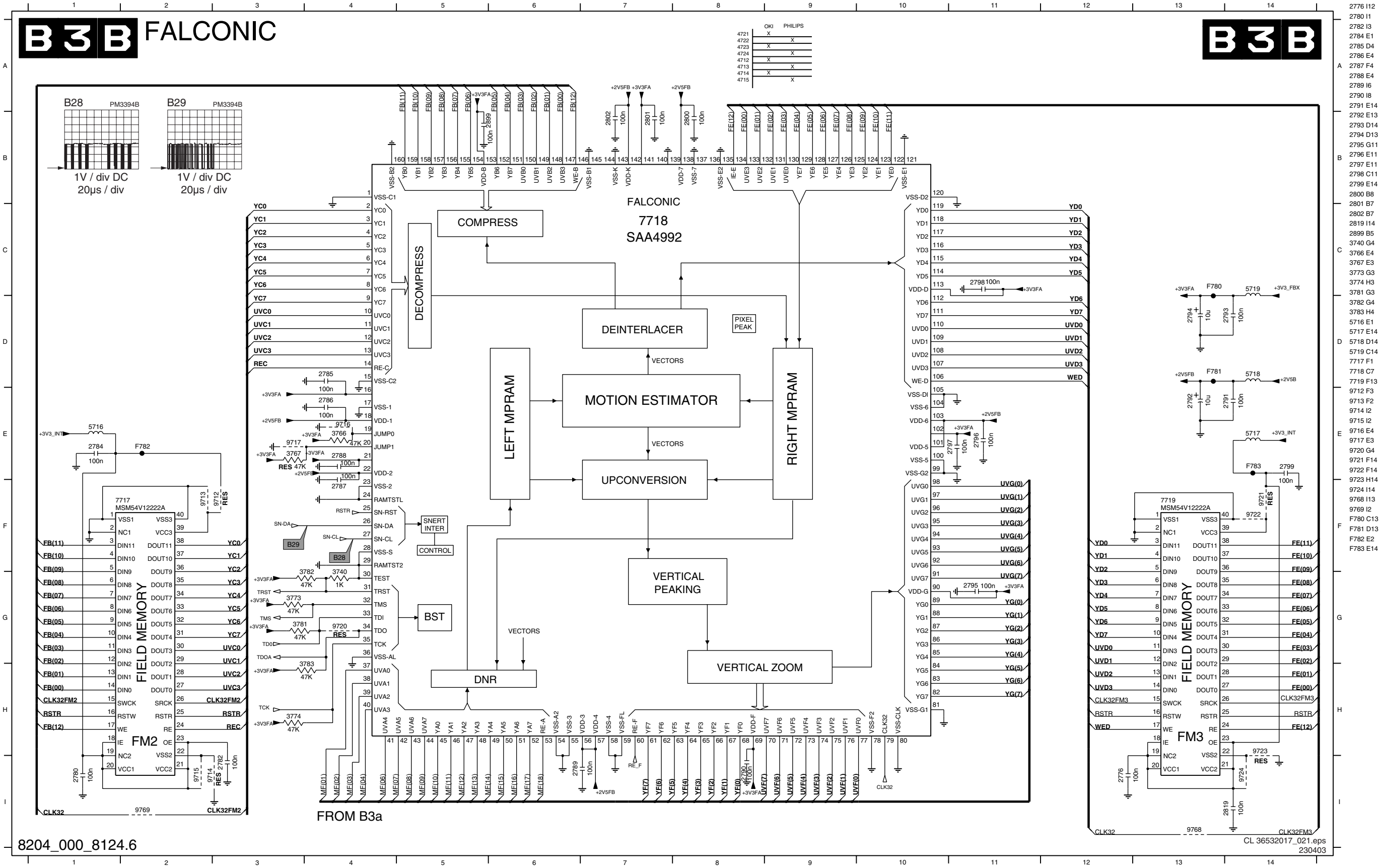
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	1710 K4	3762 J12	F703 H15
	2700 A2	3763 J12	F705 H15
	2701 B2	3764 E9	F706 B5
A	2702 B2	3765 E10	F707 B5
	2703 B2	3767 B2	F708 C5
	2704 B2	3768 C5	F709 C4
	2705 B2	3769 C5	F710 J5
	2706 C2	3769 C5	F710 J5
	2707 C2	3769 C5	F710 J5
	2708 C2	3769 C5	F710 J5
	2713 F1	3769 C5	F710 J5
	2714 F2	3769 C5	F710 J5
B	2718 H2	3769 C5	F710 J5
	2719 H2	3769 C5	F710 J5
	2720 H2	3769 C5	F710 J5
	2721 H2	3769 C5	F710 J5
	2722 J1	3769 C5	F710 J5
	2723 D1	3769 C5	F710 J5
	2724 E1	3769 C5	F710 J5
	2728 L2	3769 C5	F710 J5
	2729 L2	3769 C5	F710 J5
C	2730 L2	3769 C5	F710 J5
	2740 H4	3769 C5	F710 J5
	2741 H4	3769 C5	F710 J5
	2742 H4	3769 C5	F710 J5
	2743 B4	3769 C5	F710 J5
	2744 B5	3769 C5	F710 J5
	2745 B6	3769 C5	F710 J5
	2746 C6	3769 C5	F710 J5
	2748 E5	3769 C5	F710 J5
D	2749 E5	3769 C5	F710 J5
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	2767 C11	3769 C5	F710 J5
	2769 D13	3769 C5	F710 J5
F	2773 F15	3769 C5	F710 J5
	2774 F15	3769 C5	F710 J5
	2777 F17	3769 C5	F710 J5
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Small Signal Board: Diversity Tables

Small Signal Board: Falconic

B3B FALCONIC

B3B

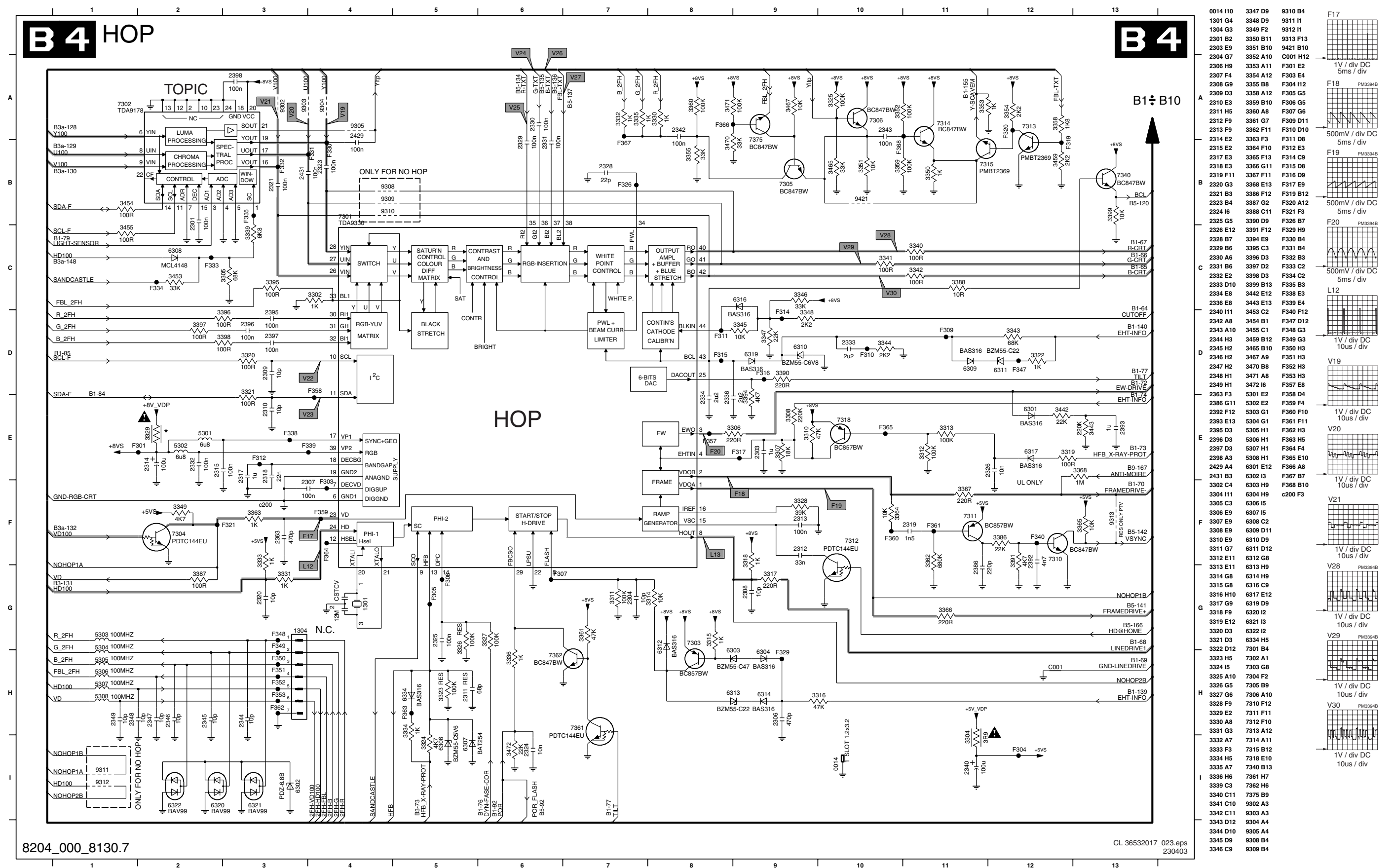


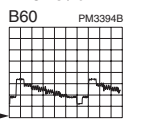
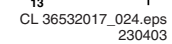
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	2716 D7	3803 H7	F766 J10
A	2717 J7	3804 C13	F767 J13
	2725 J7	3805 J10	F768 H10
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	2731 A10	3808 J9	
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	2737 J12	3814 J10	
B	2738 J12	3815 J10	
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	2770 F14	3820 G12	
	2771 F14	3821 H7	
	2772 F14	3822 H7	
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	2807 B13	3829 H12	
	2808 B12	3830 H12	
	2809 E5	3831 H12	
	2810 B4	3832 H12	
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	2812 F5	3834 H12	
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	2814 I12	3836 H12	
D	2815 J7	3837 H12	
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B 4 HOP



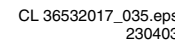
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	2017 G12	3050-B C7	7014 G13
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	2020 D1	3050-D C7	7016 J2
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	2034 H8	3054-B E7	9011 H2
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	2036 H9	3054-D F7	9013 J12
	2037 H9	3055-A G7	9014 C1
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	3007-B J6	3066 G13	F019 G9
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	3012-A I7	3074-C F3	F029 H11
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	3012-D I8	3076-A D4	F032 F11
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	3014 F12	3076-C D3	F034 H11
	3015 G12	3076-D D4	F035 F11
	3016 G12	3077 D3	F036 F11
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	3031 D9	3090-D C4	F047 H4
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	3034-B H7	3094 H1	F050 G13
	3034-C G7	3095 I1	F051 F13
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B 1 Ø HEADPHONE-AMPLIFIER

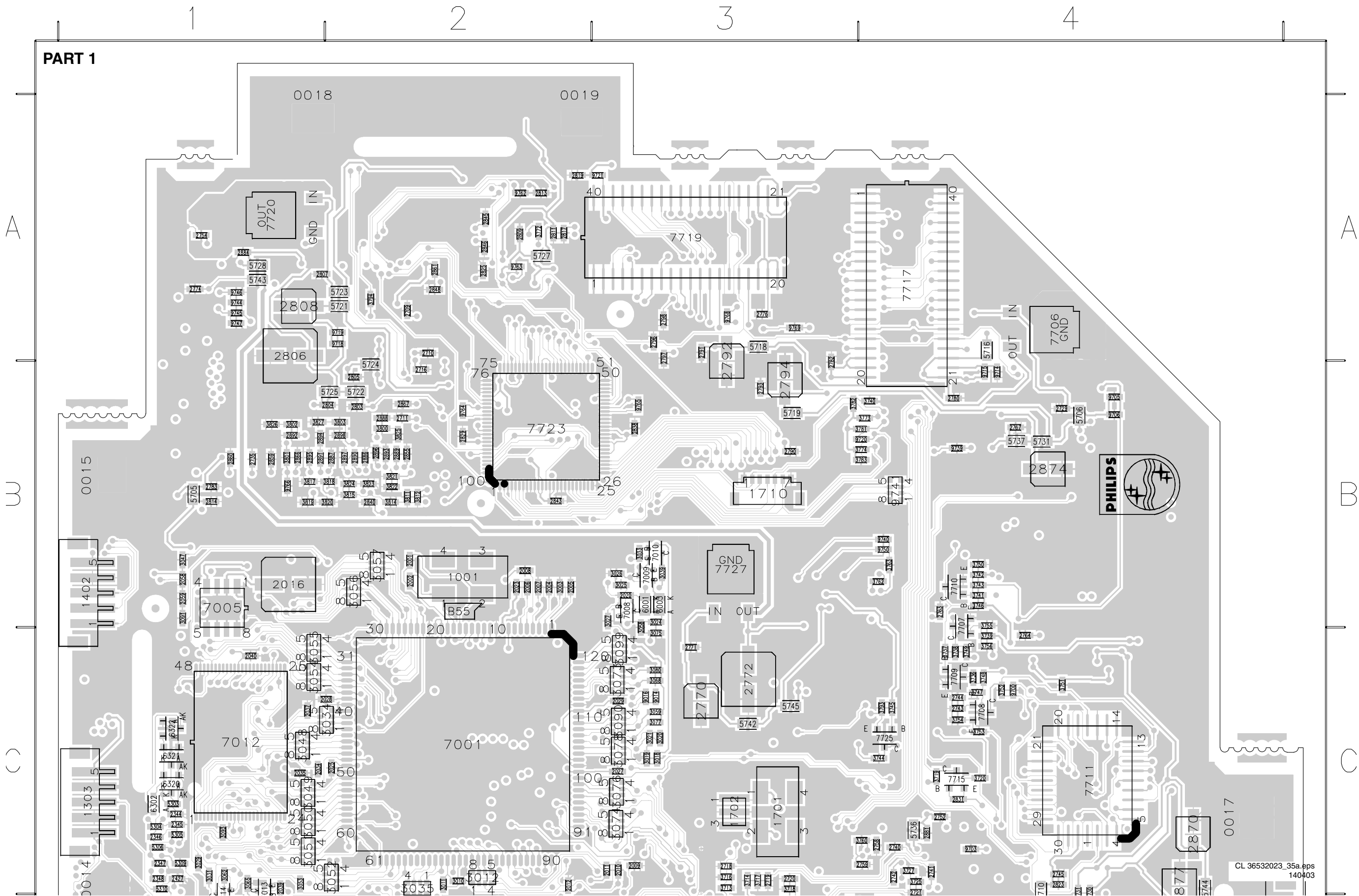


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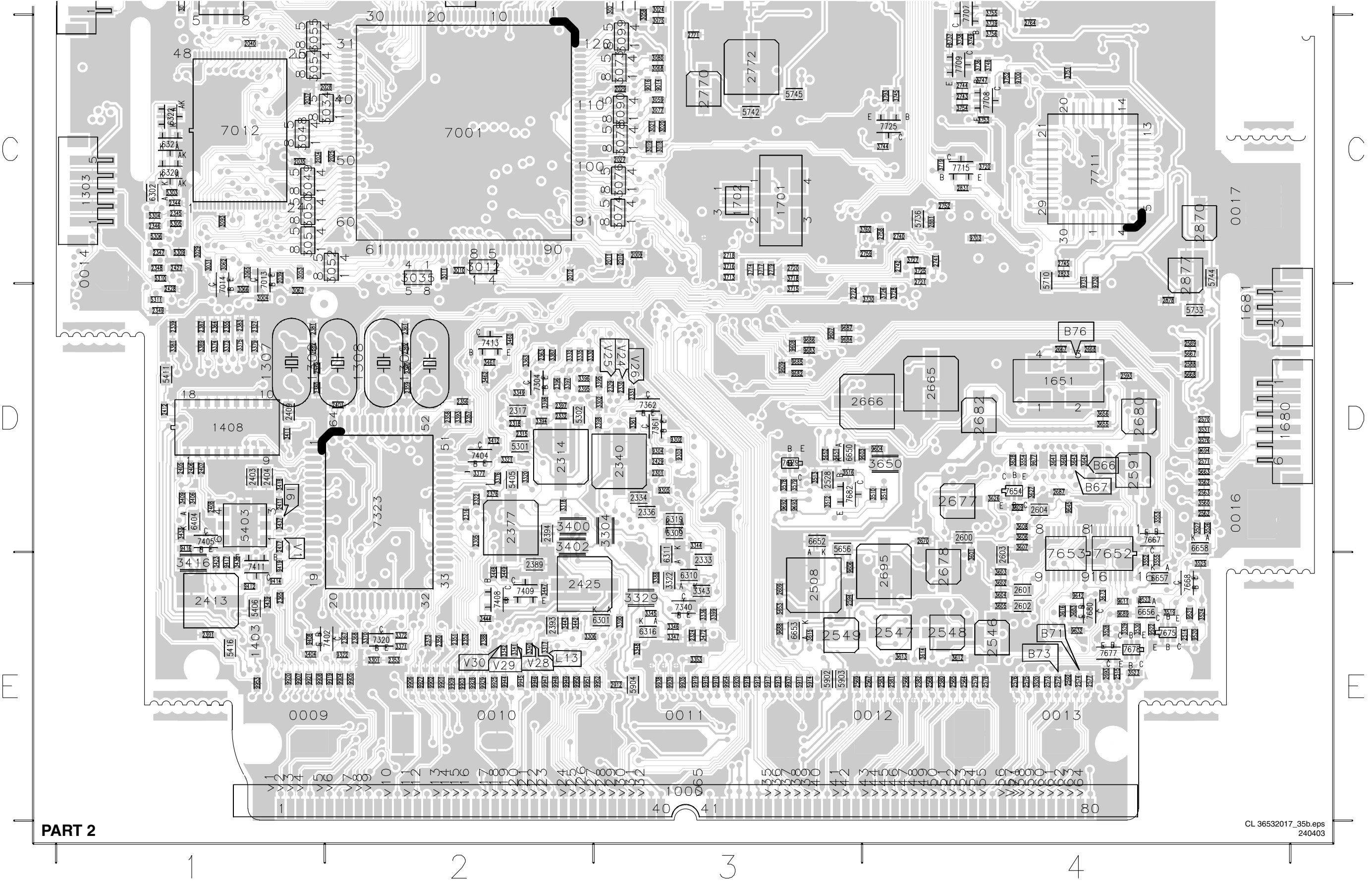


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0011	E3	2364	D1	2682	D4	2896	B2	3381	D1	3714	C3	5718	A3	7717	A4	9935	E3
0012	E4	2365	E1	2687	D4	2897	B2	3387	D2	3715	D3	5719	B3	7719	A3	9937	E3
0013	E4	2367	E2	2693	E4	2898	B2	3388	E3	3716	C3	5721	A2	7720	A1	9938	E3
0014	D1	2368	E2	2695	D4	2912	E3	3389	D1	3717	C3	5722	B2	7723	A2	9939	E3
0015	B1	2373	E2	2709	A2	3003	B2	3390	E3	3718	C3	5723	A2	7725	C4	9944	E2
0016	D4	2376	D2	2710	A2	3004	D1	3393	D2	3719	C4	5724	B2	7727	B3	9945	E2
0017	C4	2377	D2	2711	B2	3010	C2	3394	D2	3720	C4	5725	B2	9014	C3	9946	E2
0018	A1	2379	D1	2716	B2	3011	C2	3395	D3	3725	C4	5727	A2	9016	C3	9947	E2
0019	A2	2380	D1	2718	C3	3012	C2	3396	D2	3726	D4	5728	A1	9302	D3	9948	E2
1000	E3	2381	D1	2719	C3	3018	C3	3397	D2	3727	C4	5731	B4	9303	D3	9949	E2
1001	B2	2382	D1	2720	C3	3019	C3	3398	D2	3728	D4	5733	D4	9304	D3	9950	E2
1303	C1	2383	D1	2721	C4	3020	C3	3399	E3	3730	D4	5736	C4	9305	D3	9951	E2
1305	D2	2387	D1	2722	D3	3021	C3	3400	E3	3736	C4	5737	B4	9322	E2	9952	E3
1306	D2	2388	E2	2729	B4	3024	B3	3402	D2	3737	C4	5742	C3	9408	E1	9953	E1
1307	D1	2389	E2	2735	B1	3025	B3	3404	E1	3738	C4	5743	A1	9412	E1	9954	E3
1308	D2	2391	E1	2740	C4	3026	B3	3406	D1	3739	C4	5744	C4	9414	E1		
1402	B1	2393	E2	2741	C4	3027	B3	3409	D1	3740	B4	5745	C3	9416	D1		
1403	E1	2394	D2	2742	C4	3029	C1	3411	D1	3741	B4	5902	E3	9417	E1		
1408	D1	2395	D2	2743	C4	3031	C1	3412	D2	3742	B4	5903	E3	9419	E1		
1651	D4	2396	D2	2744	C4	3033	B3	3416	E1	3743	B4	5904	E3	9520	E4		
1680	D4	2397	D2	2745	C4	3034	C2	3418	D1	3744	C4	5910	E3	9521	E4		
1681	D4	2398	D3	2752	C4	3035	C2	3423	E1	3745	C4	5911	E3	9522	E4		
1701	C3	2401	D2	2754	A1	3039	B3	3433	D1	3746	B4	5912	E3	9523	E4		
1702	C3	2403	D1	2758	C4	3047	B1	3436	E1	3747	C4	5913	E3	9603	D3		
1710	B3	2404	D1	2759	C4	3048	C1	3437	D1	3748	C4	5914	E3	9604	D4		
2001	B2	2405	D1	2763	B4	3049	C2	3439	E1	3749	C4	5915	E3	9606	E3		
2002	B2	2406	D1	2764	C4	3050	C2	3442	E2	3750	B4	5917	E3	9607	D3		
2004	B2	2407	D1	2767	B4	3051	C2	3443	E2	3751	C4	5918	E3	9608	D3		
2005	B2	2408	D1	2770	C3	3052	C1	3444	E2	3752	C4	5919	E3	9609	D3		
2006	B2	2409	D1	2771	C3	3053	C1	3447	E2	3753	C4	5920	E3	9611	E4		
2007	B2	2411	D1	2772	C3	3054	C1	3448	E2	3754	C4	6001	B3	9632	E4		
2008	B2	2412	D1	2774	A1	3055	C1	3449	E2	3755	B4	6003	B3	9642	E4		
2009	C3	2413	E1	2776	A3	3056	B2	3460	D2	3756	C4	6301	E3	9645	D4		
2010	C3	2417	D1	2780	B4	3057	B2	3461	D2	3760	C4	6302	C1	9677	D4		
2011	C3	2425	E3	2782	B3	3058	B3	3462	D2	3762	B4	6309	D3	9682	D3		
2012	C2	2427	C1	2783	B1	3059	C3	3472	E3	3763	B4	6310	E3	9683	D3		
2016	B1	2428	D1	2790	B3	3062	C1	3510	D4	3772	A2	6311	E3	9684	D3		
2020	B3	2429	D3	2791	A3	3065	C1	3512	D3	3773	B4	6316	E3	9685	D3		
2023	B2	2508	E3	2792	B3	3066	D1	3513	D3	3774	B4	6319	D3	9686	D3		
2025	C2	2514	E4	2793	B3	3067	D1	3514	D4	3781	B4	6320	C1	9687	D3		
2027	C3	2515	E4	2794	B3	3068	C3	3516	D3	3782	B3	6321	C1	9688	E3		
2028	C2	2528	D3	2796	A3	3073	C3	3519	E4	3783	B4	6322	C1	9689	E4		
2029	C3	2546	E4	2797	A3	3074	C3	3520	E4	3793	C4	6404	D1	9692	D3		
2034	C1	2547	E4	2798	A3	3075	C3	3523	E4	3794	A2	6650	D4	9693	D3		
2035	C1	2548	E4	2803	B2	3076	C3	3524	E4	3800	B2	6652	D3	9694	D4		
2037	C1	2549	E3	2804	B2	3077	C3	3525	E4	3801	B1	6653	E3	9700	C4		
2039	C1	2562	D4	2805	B2	3078	C2	3526	D4	3802	B1	6656	E4	9703	C4		
2040	C1	2563	D4	2806	B1	3080	C3	3527	D4	3803	B2	6657	E4	9705	B4		
2058	B1	2564	E4	2807	A1	3090	C3	3528	E4	3811	B2	6658	E4	9706	B4		
2059	B1	2565	E4	2808	A1	3091	B1	3529	E4	3812	B2	7001	B2	9714	B4		
2301	D3	2566	E4	2809	A2	3093	C1	3530	E4	3814	B2	7005	B1	9715	B4		
2305	D2	2567	E4	2811	A2	3099	C3	3531	D4	3815	B2	7008	B3	9718	A2		
2314	D2	2568	E4	2813	A2	3301	E2	3552	E4	3817	B1	7009	B3	9719	A2		
2315	D2	2569	E3	2814	B1	3302	D3	3553	D4	3818	B2	7010	B3	9720	B4		
2316	D2	2570	D4	2817	A2	3304	D3	3554	D4	3819	B1	7012	C1	9721	A3		
2317	D2	2571	D4	2819	A2	3306	E2	3555	E4	3820	B2	7013	C1	9730	C4		
2318	D2	2572	E4	2823	C4	3317	E2	3560	D4	3821	B2	7014	D1	9731	C4		
2322	D2	2573	E4	2825	A2	3318	D2	3562	D4	3822	B2	7304	D2	9739	B4		
2324	E3	2574	E4	2829	B2	3320	D2	3576	D4	3823	B2	7320	E2	9740	B4		
2327	D1	2575	E4	2831	C4	3321	D2	3578	D3	3824	B2	7323	D2	9741	B4		
2329	D3	2576	E4	2838	B3	3322	E3	3579	D3	3825	B2	7340	E3	9744	A1		
2330	D3	2577	E4	2840	B2	3329	E3	3601	E4	3826	B1	7361	D3	9745	A1		
2331	D3	2578	E4	2843	B2	3330	D2	3602	E4	3827	B1	7362	D3	9746	A1		
2332	D2	2579	E4	2845	A2	3332	D2	3603	E4	5301	D2	7402	E1	9747	A1		
2333	E3	2580	E4	2846	A2	3335	D2	3604	E4	5302	D2	7404	D2	9750	B4		
2334	D3	2581	E4	2848	A2	3336	E3	3605	E4	5303	C1	7405	D1	9762	A2		
2336	D3	2582	E4	2855	B2	3340	E2	3606	D4	5304	C1	7408	E2	9763	A2		
2339	D1	2583	E4	2859	B1	3341	E2	3607	D4	5305	C1	7409	E2	9764	B2		
2340	D3	2588	D4	2860	B1	3342	E2	3608	D4	5306	C1	7411	E1	9765	B3		
2344	C1	2589	D4	2861	A2	3343	E3	3609	D4	5309	C1	7413	D2	9766	B1		
2345	C1	2591	D4	2866	B1	3344	D3	3612	E4	5310	C1	7652	D4	9768	A3		
2346	C1	2592	E4	2867	B2	3345	E3	3613	E4	5311	D1	7653	D4	9769	A3		
2347	C1	2593	D4	2870	C4	3346	E3	3614	E4	5403	D1	7654	D4	9901	E2		
2348	C1	2594	E3	2874	B4	3347	E3	3615	E3	5405	D2	7667	D4	9902	E2		
2349	D1	2600	D4	2877	C4	3348	E3	3616	E4	5406	E1	7668	E4	9903	E2		
2350	E2	2601	E4	2878	D4	3349	D2	3626	D4	5411	D1	7675	E4	9904	E2		
2351	E2	2602	E4	2881	C4	3353	E3	3627	D4	5416	E1	7677	E4	9905	E2		
2352	E2	2603	E4	2884	A1	3361	D3	3628	D4	5651	D3	7678	E4	9906	E2		
2353	E2	2604	D4	2886	B2	3363	D2	3640	D4	5652	D3	7679	D3	9907	E1		
2355	D1	2609	E3	2887	B2	3370	E2	3641	D4	5653	E3	7680	E4	9908	E1		
2356	D2	2665	D4	2888	B2	3371	E2	3642	D4	5656	D3	7682	D4	9909	E2		
2357	D2	2666	D3	2889	B2	3372	E2	3643	D4	5663	D4	7706	A4	9919	E2		
2358	D2	2667	D4	2890	B2	3373	D1	3650	D4	5667	D4	7707	C4	9920	E1		
2359	D2	2668	D4	2891	B1	3374	D1	3655	D4	5668	D4	7708	C4	9921	E1		
2360	D2	2670	D4	2892	B1	3375	D1	3656	D4	5705	B1	7709	C4	9925	E2		
2361	D2	2677	D4	2893	B2	3376	D2	3673	E4	5706	B4	7710	B4	9927	E2		

Layout Small Signal Board (Part 1 Top Side)



Layout Small Signal Board (Part 2 Top Side)



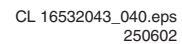
PART 1
CL 36532017_36a.eps



0009	E4	2402	E4	2699	D1	2865	B4	3352	E2	3568	E1	3795	B2	7017	B3	9652	D2
0010	E3	2418	D3	2700	C2	2871	C2	3354	E2	3569	E1	3804	A4	7018	C3	9676	D1
0011	E2	2419	D3	2701	C2	2872	C2	3355	E2	3570	E1	3805	B4	7019	B2	9691	E2
0012	E1	2420	E3	2702	C2	2875	C1	3358	D2	3571	E1	3806	B4	7020	C2	9701	C1
0013	E1	2421	E3	2703	C2	2876	C1	3359	E2	3572	E1	3807	B3	7301	D2	9702	C1
0014	C4	2422	E4	2704	C2	2880	C1	3360	E2	3573	E1	3808	B3	7302	D2	9704	C2
0015	B4	2423	E3	2705	C2	2885	B3	3362	D3	3574	E2	3809	B4	7303	E3	9707	B2
0016	D1	2424	E3	2706	D2	2899	A2	3364	D3	3575	E1	3810	B3	7305	E2	9708	B2
0017	C1	2426	C4	2707	D2	2900	E2	3365	E3	3577	E1	3813	B3	7306	E2	9709	B2
0018	A4	2431	D3	2708	D2	2901	E2	3366	D3	3617	E2	3816	B4	7307	E3	9710	B2
0019	A3	2501	D1	2712	A3	2902	E2	3367	D3	3618	D2	5307	C4	7310	E3	9711	B2
1000	E2	2502	D1	2713	C1	2903	E2	3368	D2	3619	E2	5308	D4	7311	D2	9712	A1
1301	D3	2503	D1	2714	C1	2904	E2	3378	D3	3624	E1	5312	E3	7312	D3	9713	A1
1304	C4	2504	D1	2717	B3	2905	E2	3380	D3	3630	E1	5401	D3	7313	E2	9716	A1
1305	D3	2505	D1	2723	C1	2906	E2	3382	E4	3634	E1	5402	E4	7314	E2	9717	B1
1306	D4	2506	D1	2724	D1	2907	E2	3385	E4	3636	D1	5404	D4	7315	E2	9722	A2
1307	D4	2507	D1	2725	B3	2908	E3	3386	E2	3637	D1	5408	D4	7318	D3	9723	A2
1308	D3	2509	E1	2726	B3	2909	E2	3391	E3	3639	E1	5409	E3	7322	E4	9724	A2
1401	C4	2510	E1	2727	B3	2910	E2	3401	D4	3644	E2	5415	E4	7375	E2	9725	C1
1406	E4	2511	E1	2728	A1	2911	E2	3403	E4	3651	D1	5417	E4	7401	D4	9726	C1
1407	E4	2512	E1	2730	A1	3001	C3	3405	E3	3652	D1	5654	E1	7403	D4	9732	C1
1409	D4	2513	E1	2731	A4	3002	C3	3407	D4	3653	D1	5655	D1	7406	D4	9733	C1
1410	D4	2516	D1	2732	A4	3005	D3	3408	D3	3654	D1	5657	D1	7407	D4	9734	C1
1411	D3	2520	D2	2733	A4	3006	C3	3410	D4	3657	D1	5658	D1	7410	D3	9735	C1
1682	D1	2521	E2	2734	B4	3007	C3	3414	D3	3658	E1	5659	D1	7412	E3	9736	C2
1683	D1	2522	D2	2736	B3	3008	C3	3415	D3	3659	D1	5660	D1	7651	D1	9737	C2
2003	C3	2523	E2	2737	B4	3009	C3	3417	D4	3663	D1	5661	D1	7656	D1	9738	D2
2013	B4	2524	E1	2738	B4	3013	C4	3419	E4	3664	D1	5662	D1	7663	D1	9753	B3
2014	D3	2525	D1	2739	B4	3014	D4	3420	D3	3666	E1	5664	D1	7664	E1	9754	A3
2017	D3	2526	E2	2746	C1	3015	C4	3421	D4	3667	E1	5665	D1	7665	E1	9760	A1
2019	C3	2529	D2	2747	A3	3016	D3	3434	D4	3668	E1	5666	E1	7666	E1	9761	B1
2022	C2	2530	D1	2748	C1	3017	C3	3435	E4	3669	D1	5669	D1	7669	D2	9910	E3
2024	C3	2531	D2	2749	C2	3022	C3	3441	D3	3670	E1	5670	D1	7670	E2	9911	E3
2026	C3	2532	D2	2750	C2	3023	C3	3445	D4	3671	E1	5671	D1	7674	D1	9912	E3
2031	C4	2550	D1	2751	C2	3028	C3	3446	E3	3675	D1	5672	E1	7681	D1	9913	E3
2033	C3	2551	D2	2753	C1	3030	C3	3450	D3	3676	D1	5700	C2	7684	E2	9914	E3
2036	C3	2552	D1	2755	C1	3032	C3	3451	E4	3677	D1	5701	C2	7685	E2	9915	E3
2038	C3	2553	D1	2756	C1	3036	C3	3452	E3	3680	D1	5702	D2	7703	C1	9916	E4
2052	C4	2554	D1	2757	C1	3037	C3	3453	D2	3681	E1	5711	C1	7712	C1	9917	E4
2053	B4	2555	D1	2760	C2	3038	C2	3454	D2	3682	D1	5712	C1	7713	C1	9918	E3
2054	B4	2556	D1	2761	C2	3040	C3	3455	D2	3684	D1	5713	C2	7714	B1	9922	E3
2055	B4	2557	D1	2762	B1	3041	C3	3456	D3	3685	D1	5714	C2	7718	A2	9923	E4
2056	B4	2558	D1	2765	C1	3042	C2	3457	D3	3686	D1	5717	A2	7722	A3	9924	E4
2057	B4	2559	D1	2766	C1	3043	C3	3459	D2	3687	D1	5726	B3	7724	B4	9930	E3
2060	B4	2560	D1	2768	A3	3044	C3	3463	D3	3688	D1	5729	C2	7726	B1	9934	E2
2061	B4	2561	D1	2769	B1	3045	C4	3465	E2	3689	D1	5738	C1	7728	B3	9936	E2
2062	C3	2584	D1	2773	B1	3046	B4	3467	E2	3690	D1	5739	B3	7729	B3	9940	E2
2063	C3	2585	D1	2775	B1	3060	C3	3468	E3	3691	D1	5740	B3	7730	B4	9941	E2
2064	C3	2586	D1	2777	B1	3061	C4	3470	E2	3692	D1	5741	B4	7731	B3	9942	E2
2065	C3	2587	E1	2778	B1	3063	C3	3471	E2	3693	D1	5900	E3	7732	B3	9955	E2
2066	C3	2590	D1	2779	A1	3064	C3	3473	E4	3694	D1	5901	E2	7733	B4	9962	E3
2067	B2	2595	E1	2781	A1	3069	C3	3474	E4	3695	D1	6002	B4	9001	D3	9963	E2
2302	E3	2596	E1	2784	A1	3070	C2	3475	D3	3698	E1	6004	C2	9002	C2	9964	E2
2303	D3	2610	D1	2785	A1	3071	C3	3500	D2	3699	E1	6005	B4	9003	C2	9965	E4
2304	D3	2611	D1	2786	A1	3072	C3	3501	E2	3703	C2	6006	C3	9004	C3	9966	E2
2306	E3	2612	E2	2787	B1	3079	C3	3504	D2	3704	C2	6007	C3	9005	B4		
2307	D3	2629	D1	2788	B1	3081	B4	3505	D1	3705	D2	6303	E3	9006	B4		
2308	D3	2630	E1	2789	B2	3088	C3	3506	E1	3706	C2	6304	E3	9007	B4		
2309	D3	2632	E1	2795	B2	3094	C3	3509	D2	3707	C2	6306	D3	9008	C3		
2310	D3	2634	D1	2799	A2	3095	C3	3511	D2	3708	D1	6307	D3	9009	C3		
2311	D3	2637	D1	2800	A2	3096	C2	3515	D2	3709	C1	6308	E2	9010	C3		
2312	D3	2640	D1	2801	A2	3097	B4	3521	E1	3710	C1	6312	D3	9011	C3		
2313	D3	2643	D1	2802	A2	3098	C4	3522	E1	3711	B3	6313	D3	9012	C3		
2319	D3	2644	D1	2810	A3	3303	E3	3532	D1	3712	C2	6314	E3	9013	C3		
2320	D3	2645	D1	2812	B3	3305	D2	3533	D1	3721	D1	6317	E3	9015	C2		
2321	D3	2646	E1	2815	B3	3307	D3	3535	E2	3722	D1	6334	D3	9308	D3		
2323	D3	2649	E1	2816	B3	3308	E3	3536	E2	3729	C1	6402	D4	9309	D3		
2325	D3	2651	D1	2818	B4	3310	D3	3537	E2	3731	C1	6403	D3	9310	D3		
2326	E3	2652	D1	2820	A3	3311	D3	3538	E2	3733	C1	6405	D4	9311	D3		
2328	D2	2653	D2	2821	A3	3312	E3	3539	E1	3734	C1	6651	D1	9312	D3		
2342	E2	2654	D1	2822	A3	3313	E3	3540	D1	3735	C1	6654	D1	9313	E2		
2343	E2	2659	D1	2824	C1	3314	D3	3541	E2	3757	A3	6660	E2	9318	E3		
2354	E3	2660	D1	2826	B3	3315	E3	3543	E1	3758	C1	6661	E2	9319	E3		
2366	E4	2661	D1	2827	B3	3316	E3	3544	D1	3759	C1	6926	E3	9324	E3		
2369	E3	2662	D1	2828	B3	3319	E3	3545	D1	3764	C1	6927	E3	9401	D4		
2370	E2	2663	D1	2830	B4	3323	D3	3546	D1	3765	C1	6928	E3	9402	D4		
2371	D3	2664	D1	2832	B3	3324	D3	3547	D1	3766	A1	6929	E3	9403	D4		
2372	D3	2673	D1	2833	B3	3325	E2	3550	D1	3767	B1	6956	E3	9405	D4		
2374	E3	2674	D1	2835	B3	3326	D3	3551	D2	3771	B3	6957	E3	9406	E4		
2375	E3	2679	D1	2839	B3	3327	D3	3556	E1	3785	B3	7002	D4	9407	D3		
2378	D4	2681	D1	2841	B4	3328	D3	3557	E1	3786	B3	7003	D4	9410	D3		
2384	E4	2686	D1	2847	A4	3331	D3	3558	E1	3787	B4	7004	D3	9413	E4		
2385	E3	2690	D1	2851	A4	3333	D3	3559	E1	3788	B3	7006	C4	9415	D4		
2386	E2	2691	D1	2853	B4	3334	D3	3561	E1	3789	B3	7007	C4	9418	D4		
2390	E4	2694	D1	2854	B4	3339	E2	3563	E1	3790	B4	7011	C3	9420	E4		
2392	E3	2697	E1	2857	B4	3350	E2	3564	E1	3791	B3	7015	D3	9421	E2		
2399	E4	2698	E1	2864	A4	3351	E2	3567	E1	3792	A4	7016	C2	9610	E1		

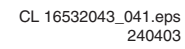
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140403

C 1 MULTI-PIP CONTROLLER (DW-PANEL)



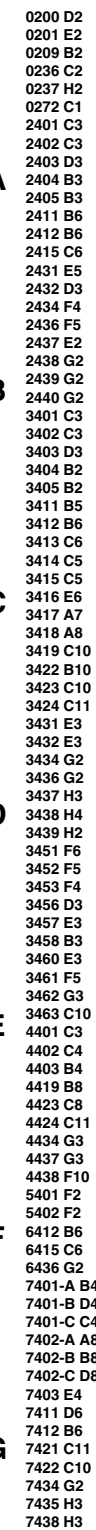
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0227 B3	3829 C5	781
2811 F7	3831 C5	781
2812 E7	3832 C6	781
2813 F7	3833 C6	781
2814 F6	3834 C5	781
2816 F7	3836 D6	
2817 F8	3837 D5	
2818 D12	3838 E6	
2819 F7	3839 E6	
2821 F7	3843 E5	
2822 D12	3844 E5	
2823 F8	3846 E4	
2824 F9	3847 F6	
2825 C6	3848 F5	
2826 G10	3849 F5	
2827 F10	3851 F6	
2828 B6	3852 A7	
2829 C6	3853 A9	
2831 C6	3854 A8	
2832 E6	3855 A8	
2833 F10	3856 D2	
2834 F10	3857 C2	
2836 F10	3858 D2	
2837 B9	3862 D3	
2838 B8	3863 C3	
2839 B8	3866 F3	
2841 B7	3868 D3	
2842 B6	3869 E3	
2843 B5	3871 A10	
2844 B6	3872 A10	
2846 F5	3873 B10	
2847 C6	3874 A11	
2848 C5	3876 C3	
2849 D6	3877 C4	
2851 D6	3878 B12	
2852 D7	3879 A11	
2853 E5	3880 C2	
2854 D5	3881 C2	
2856 E6	3882 B5	
2857 F6	3883 C5	
2858 G8	3884 E5	
2859 G9	3885 E6	
2860 G9	3886 G2	
2861 C1	3887 G2	
2862 C2	3888 G3	
2863 D3	3889 G4	
2864 G7	3890 H5	
2866 G7	3891 H5	
2867 G7	3892 H1	
2868 F4	3893 B2	
2869 F4	3894 B2	
2871 F2	3895 A2	
2872 F2	3896 A3	
2873 F3	3897 B3	
2874 F3	3898 B4	
2876 F3	3XXX A7	
2877 F3	3XXX A7	
2878 C3	4820 B11	
2882 B5	4821 A5	
2883 C5	4822 A6	
2885 H2	4823 E4	
2886 H2	4824 F2	
2887 H2	4825 G2	
2888 H4	4826 G6	
2889 H4	4827 D6	
2890 H4	4828 D7	
2891 H2	4829 D3	
2892 F3	4830 D4	
2893 G6	4831 E3	
2894 E3	4832 G4	
2895 E3	4833 B3	
2896 E2	4834 D2	
2897 D3	5816 G7	
2898 D6	5818 G7	
2899 C5	5827 G10	
2XXX A8	5834 F10	
3801 A5	5839 B7	
3802 A5	5848 C5	
3803 A6	5849 D5	
3804 A6	5851 D5	
3805 E4	5853 D5	
3806 E4	6801 A11	
3807 F1	6802 B3	
3808 F1	6XXX A7	
3809 G2	7801 D9	
3810 H2	7802 C2	
3811 F5	7803 G3	
3812 F8	7804 B3	
3813 G8	7805 A5	
3814 F8	7806 A6	
3816 F8	7807 E4	
3817 G9	7808 F2	
3818 F9	7809 G1	
3821 G9	7810 G5	
3822 D4	7824 D3	
3823 G5	7828 D5	
3824 D3	7829 A9	
3825 G6	7832 A7	
3826 B6	7871 B10	
3827 B6	7874 B11	

0255 C5 2261 C1 2262 C2 2265 A3 2269 D5 3263 A2 3264 A2 3265 B2 3267 D3 3268 D3 3270 C2 5261 B1 7201 B4



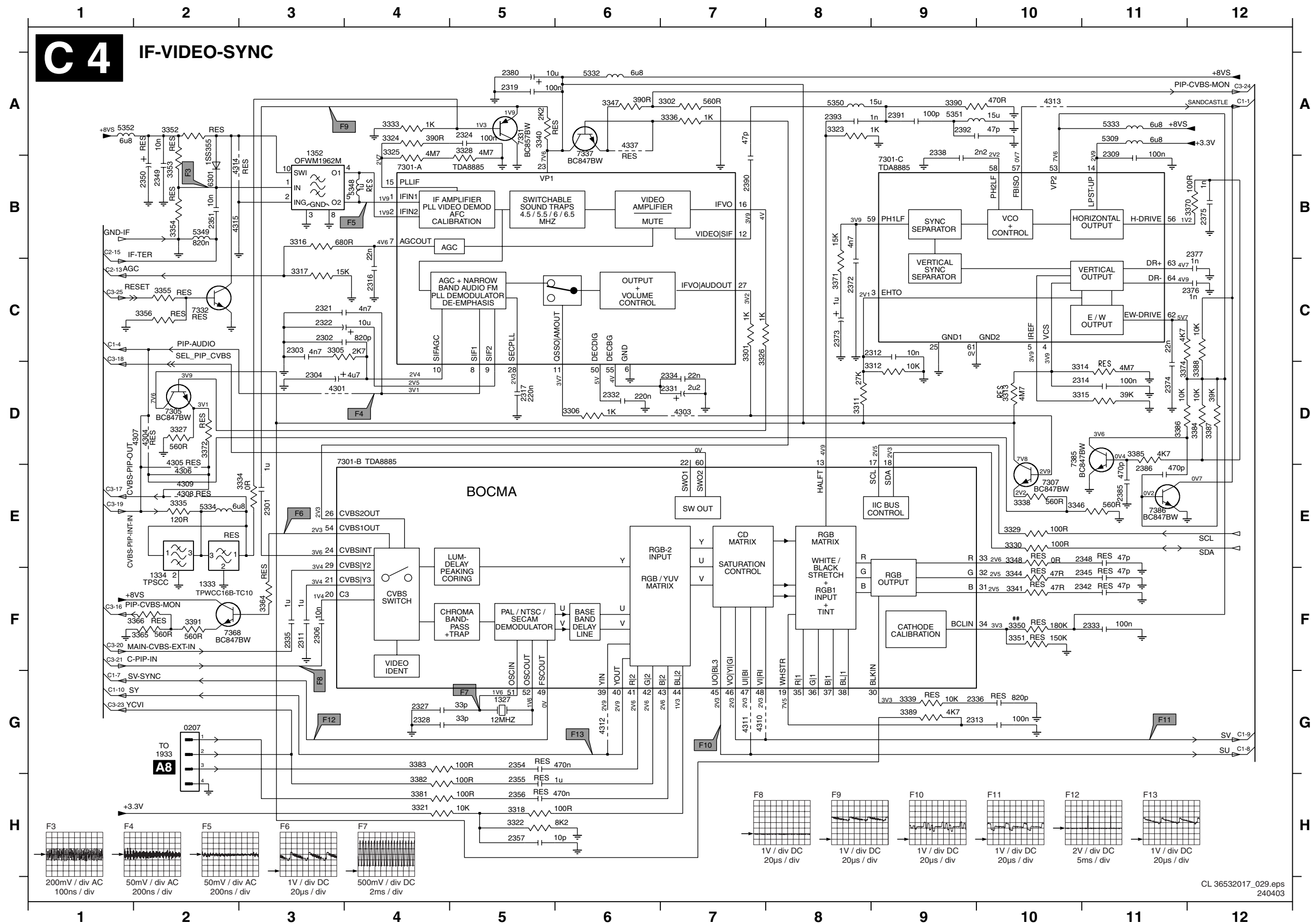
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C 3 I/O PROCESSING



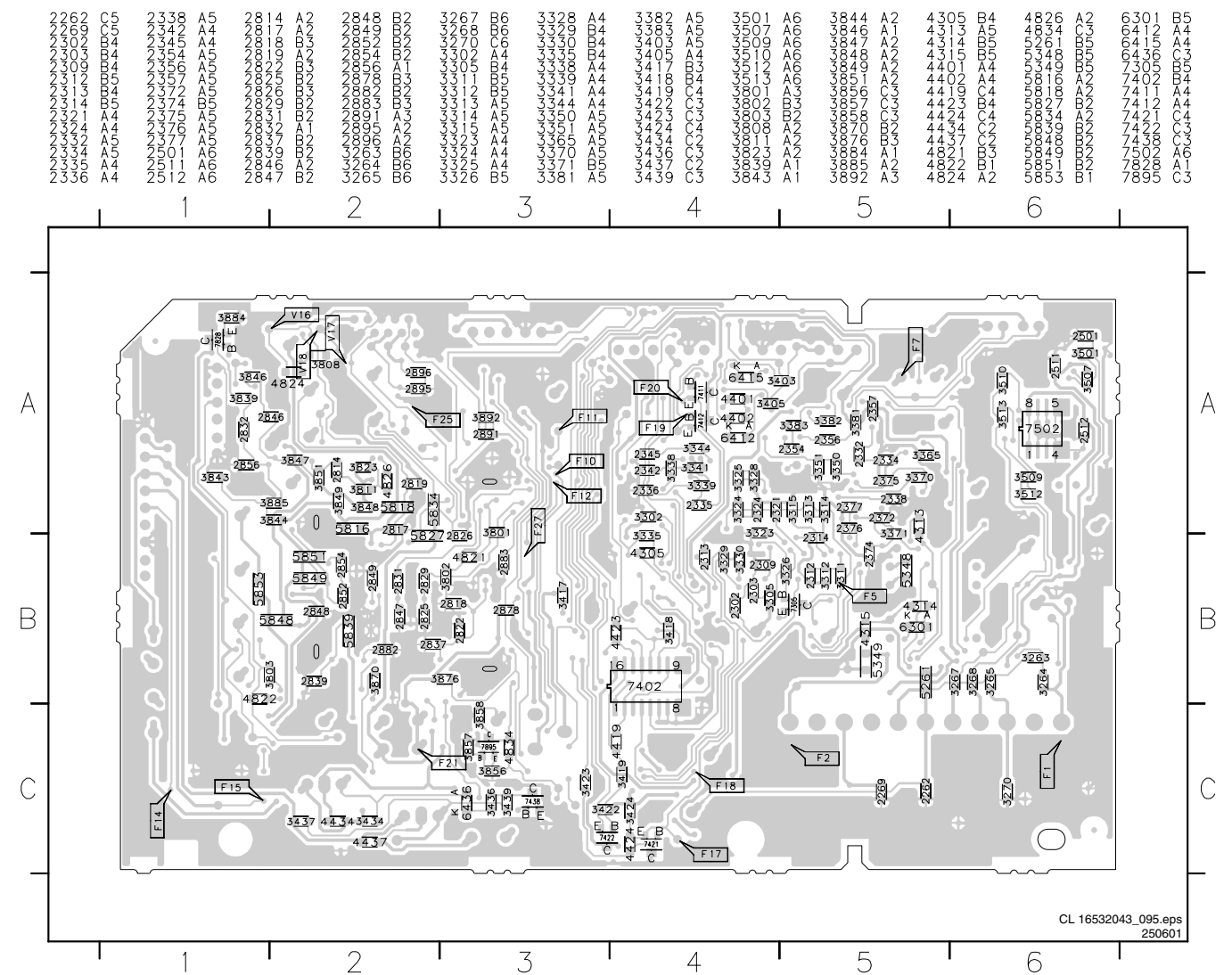
Diversity Table C3	
0209	CON V 6P
0272	CON V 3P
3417	100R
3418	100R
3419	560R
3422	560R
3423	560R
3424	x
3451	4K7
3453	4K7
3458	100R
3461	4K7
5401	x
7402	x
7421	x
7422	x
7434	x

DW Panel: IF Video Sync

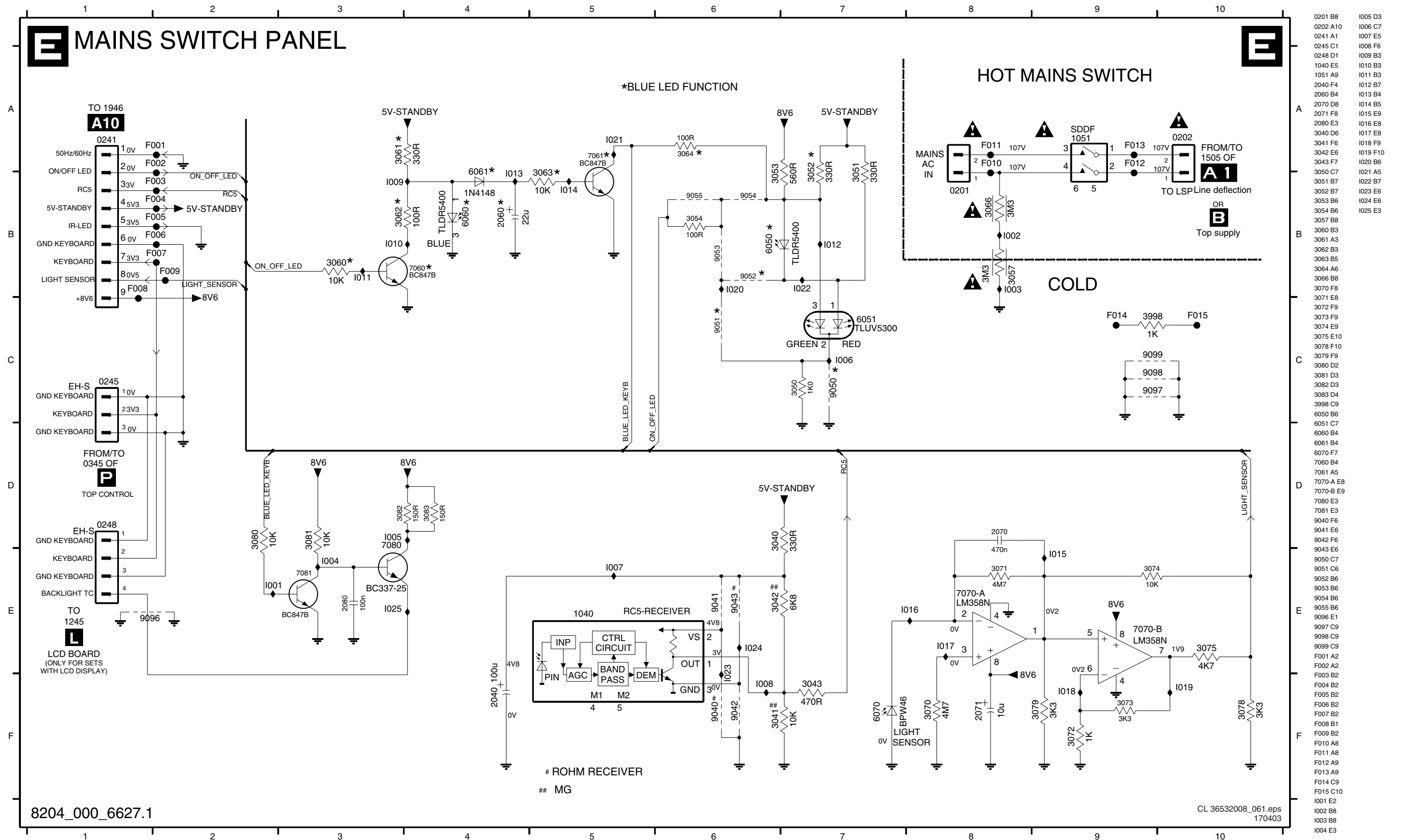
C4**IF-VIDEO-SYNC**

0207 G2	3301 C7	3386 D11
1327 G5	3302 A7	3387 D12
1333 F2	3305 C3	3388 D12
1334 F2	3306 D6	3389 G9
1352 B3	3311 D8	3390 A9
2301 E3	3312 D9	3391 F2
2302 C3	3313 D10	4301 D3
2303 C3	3314 D10	4303 D7
2304 D3	3315 D10	4304 D2
2306 F3	3316 B3	4305 D2
2309 B11	3317 C3	4306 E2
2311 F9	3318 H5	4307 D2
2312 C9	3321 H4	4308 E2
2313 G10	3322 H5	4309 E2
2314 D10	3323 A8	4310 G7
2316 C4	3324 A4	4311 G7
2317 D5	3325 A4	4312 G6
2319 A5	3326 C7	4313 A10
2321 C3	3327 D2	4314 B2
2322 C3	3328 A5	4315 B2
2324 A5	3329 E10	4337 A6
2327 G4	3330 E10	5309 A11
2328 G4	3333 A4	5332 A6
2331 D7	3334 E3	5333 A11
2332 D6	3335 E2	5334 E2
2333 F11	3336 A7	5348 B4
2334 D7	3338 E10	5349 B2
2335 F9	3339 G9	5350 A8
2336 G3	3340 A5	5351 A9
2338 A9	3341 F10	5352 A1
2342 F11	3344 F10	6301 B2
2345 F11	3346 E10	7301-A B4
2348 E11	3347 A6	7301-B D3
2349 B2	3348 E10	7301-C B9
2350 B2	3350 F10	7305 D2
2351 B2	3351 F10	7307 E10
2354 G5	3352 A2	7331 A5
2355 H5	3353 B2	7332 C2
2356 H5	3354 B2	7337 A6
2357 H5	3355 C2	7368 F3
2372 C8	3356 C2	7385 D10
2373 C8	3364 F3	7386 E11
2374 D11	3365 F2	
2375 B12	3366 F1	
2376 C12	3370 B12	
2377 B12	3371 C8	
2380 A5	3372 D2	
2385 E11	3374 D11	
2386 E11	3381 H4	
2390 B7	3382 H4	
2391 A9	3383 G4	
2392 A9	3384 D12	
2393 A8	3385 D11	

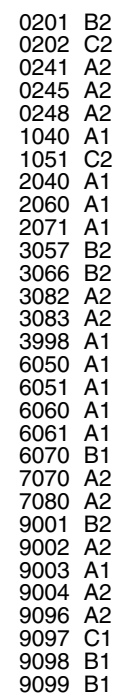
Layout Double Window Panel (Bottom View)



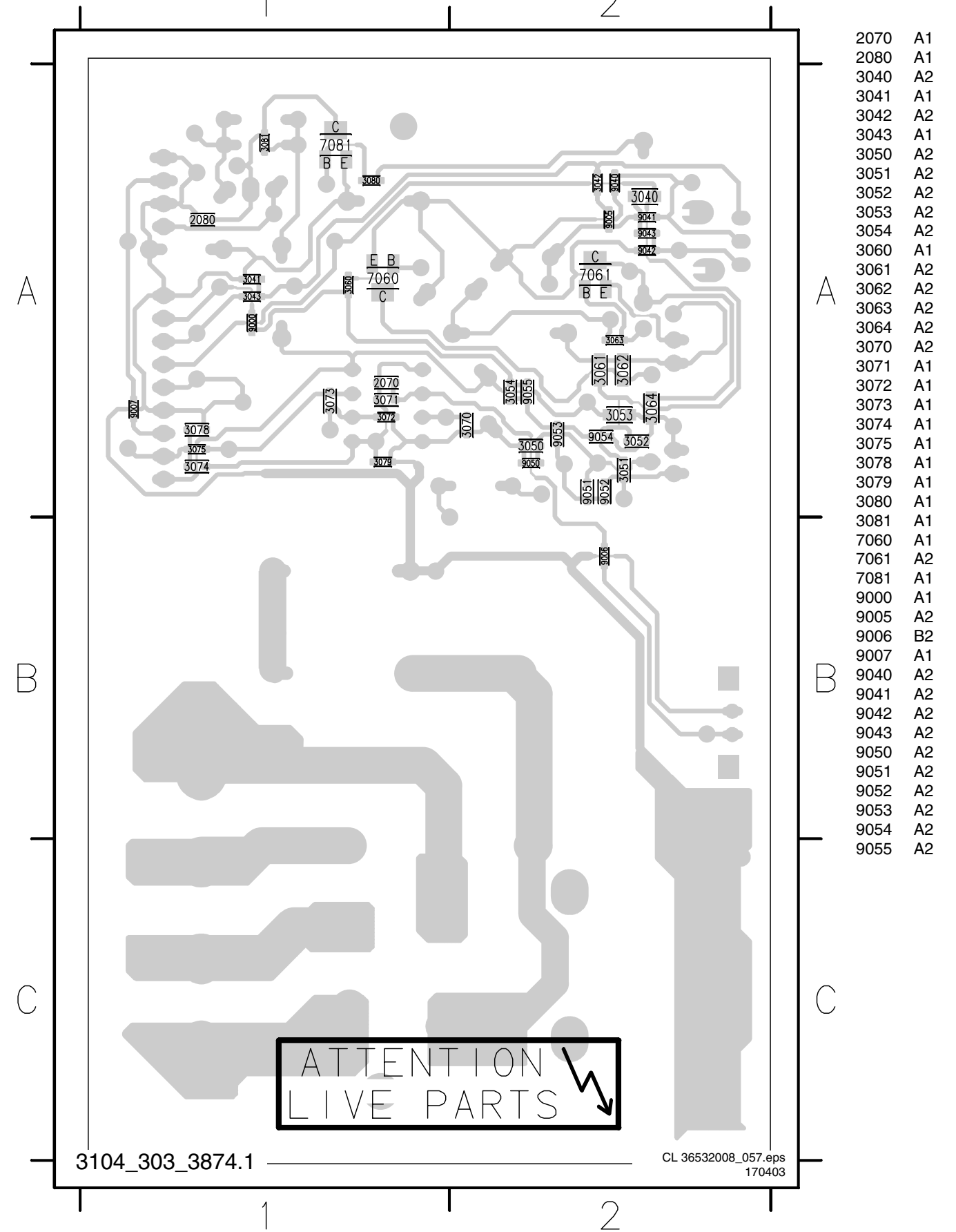
E MAINS SWITCH PANEL



1 2

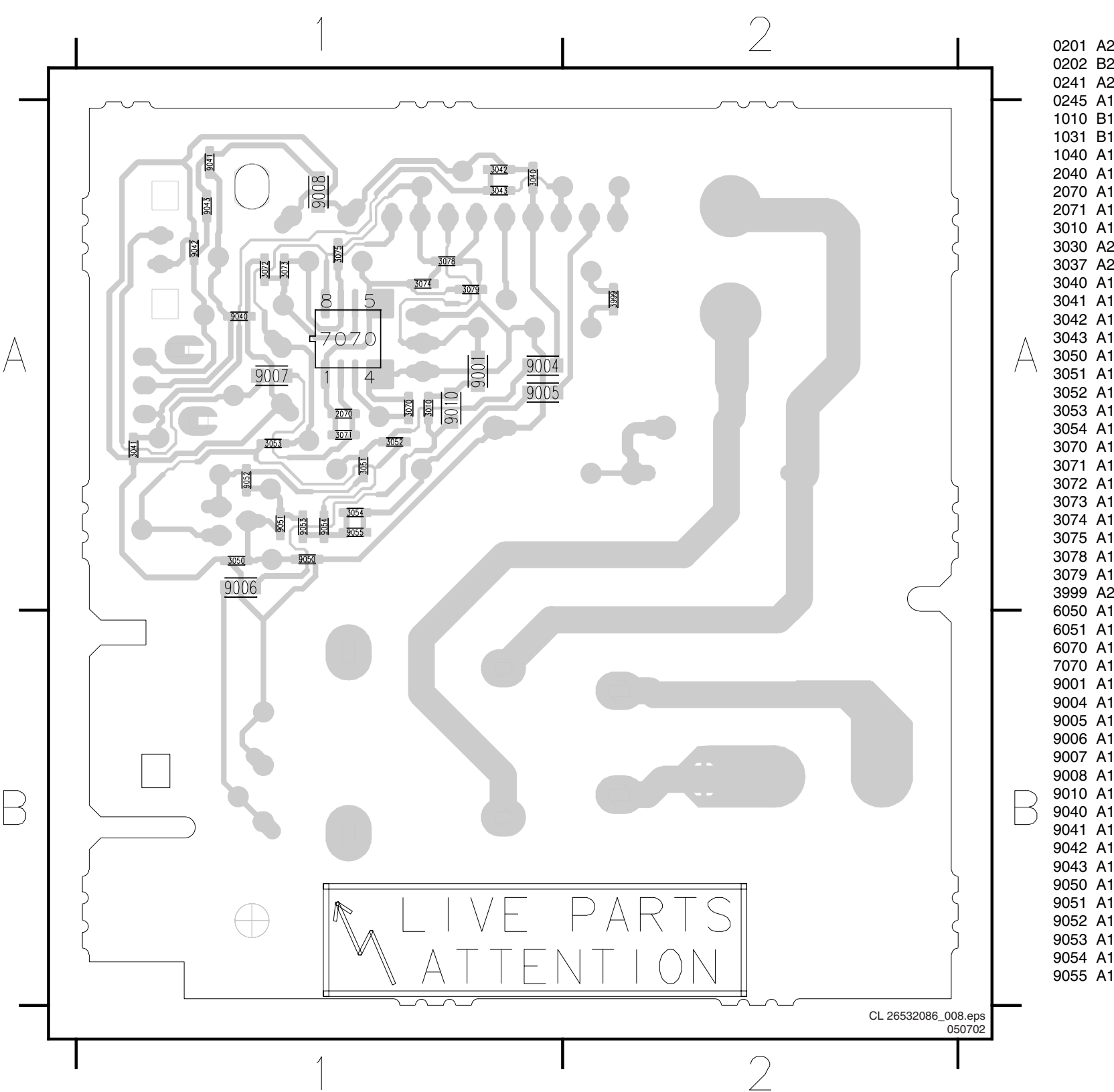
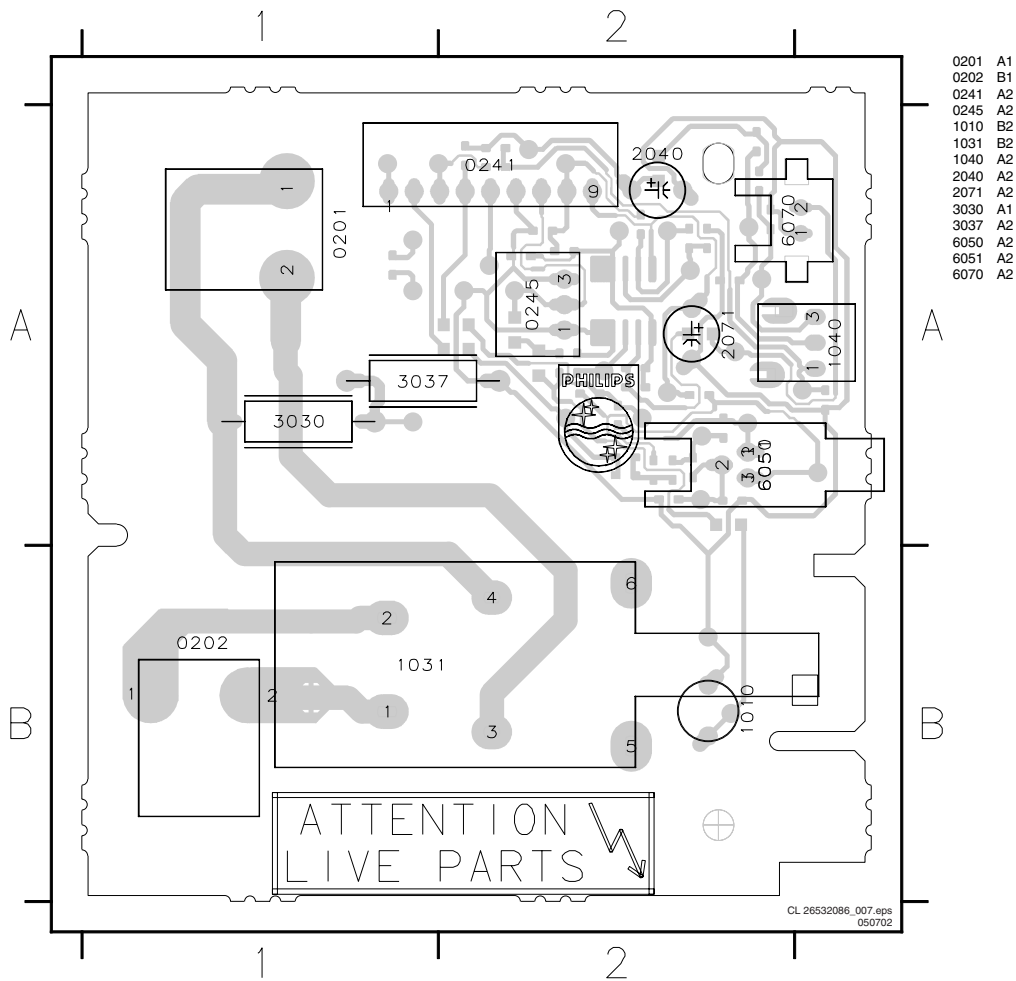


1 | 2

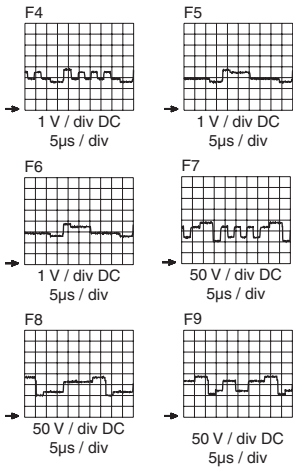
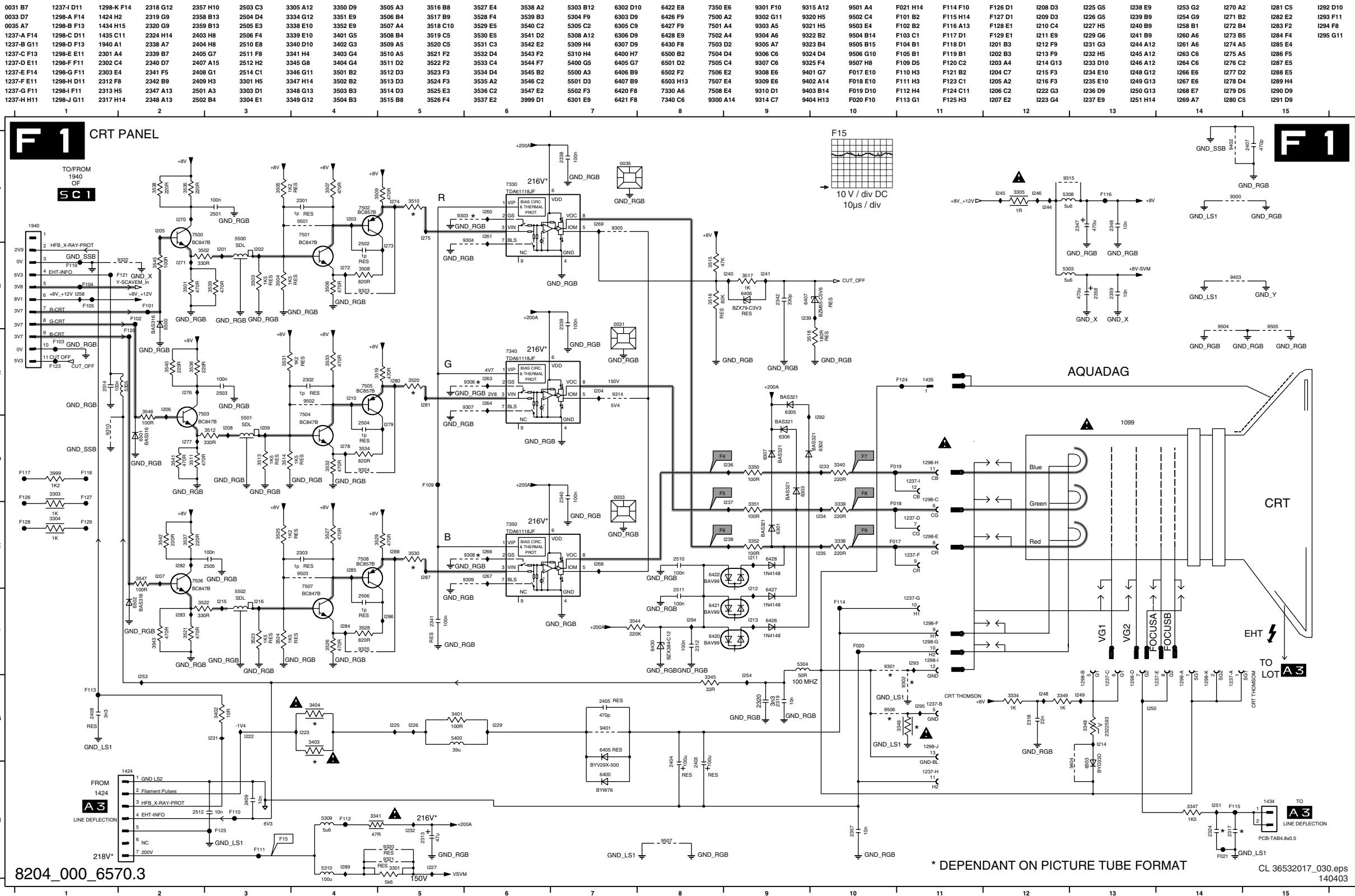


Layout Main Switch Panel (PV2 Styling) (Top Side)

Layout Main Switch Panel (PV2 Styling) (Bottom Side)



CRT Panel (FL11 Styling)



[F1] CRT panel						DESCRIPTION
Item	28" WSRF	29" RF	32" WSRF	34" RF	36" WSRF	
1237			X			CRT socket 9p female
1298	X	X		X		CRT socket 10p female
1298			X			CRT socket 11p female
2324	X					1N
2324		X				1N5
2324	X		X	X		4N7
2403	X	X	X	X		100U
2404	X	X	X	X		100U
2405	X		X	X		470P
3303			X			FUSE 1K
3304	X	X	X	X		FUSE 1K
3402	X	X	X	X		10R
3402	X	X	X	X		150R
3403	X		X	X		FUSE 1R
3403	X		X	X		FUSE 1R5
3403	X	X	X	X		FUSE 1R
3404	X	X	X	X		FUSE 1R
3404	X		X	X		FUSE 1R5
3510	X		X	X		100R
3510	X	X	X	X		150R
3510	X		X	X		220R
3510	X		X	X		560R
3520	X		X	X		150R
3520	X		X	X		220R
3520	X		X	X		390R
3520	X		X	X		560R
3530	X		X	X		150R
3530			X	X		220R
3530			X	X		270R
3530	X		X	X		390R
3530	X		X	X		560R
3999	X		X	X		1K5
3999	X		X	X		1K8
3999	X		X	X		2K2
3999	X		X	X		2K7
3999	X	X	X	X		3K9
5400	X	X	X	X		33U
5400	X		X	X		18U
5400	X		X	X		27U
5400			X	X		39U
6405	X	X	X	X		BYV29X-500
9301	X	X	X	X		Jumper
9302	X	X	X	X		Jumper
9303	X	X	X	X		Jumper
9306	X	X	X	X		Jumper
9308	X	X	X	X		Jumper
9401	X	X	X	X		Jumper

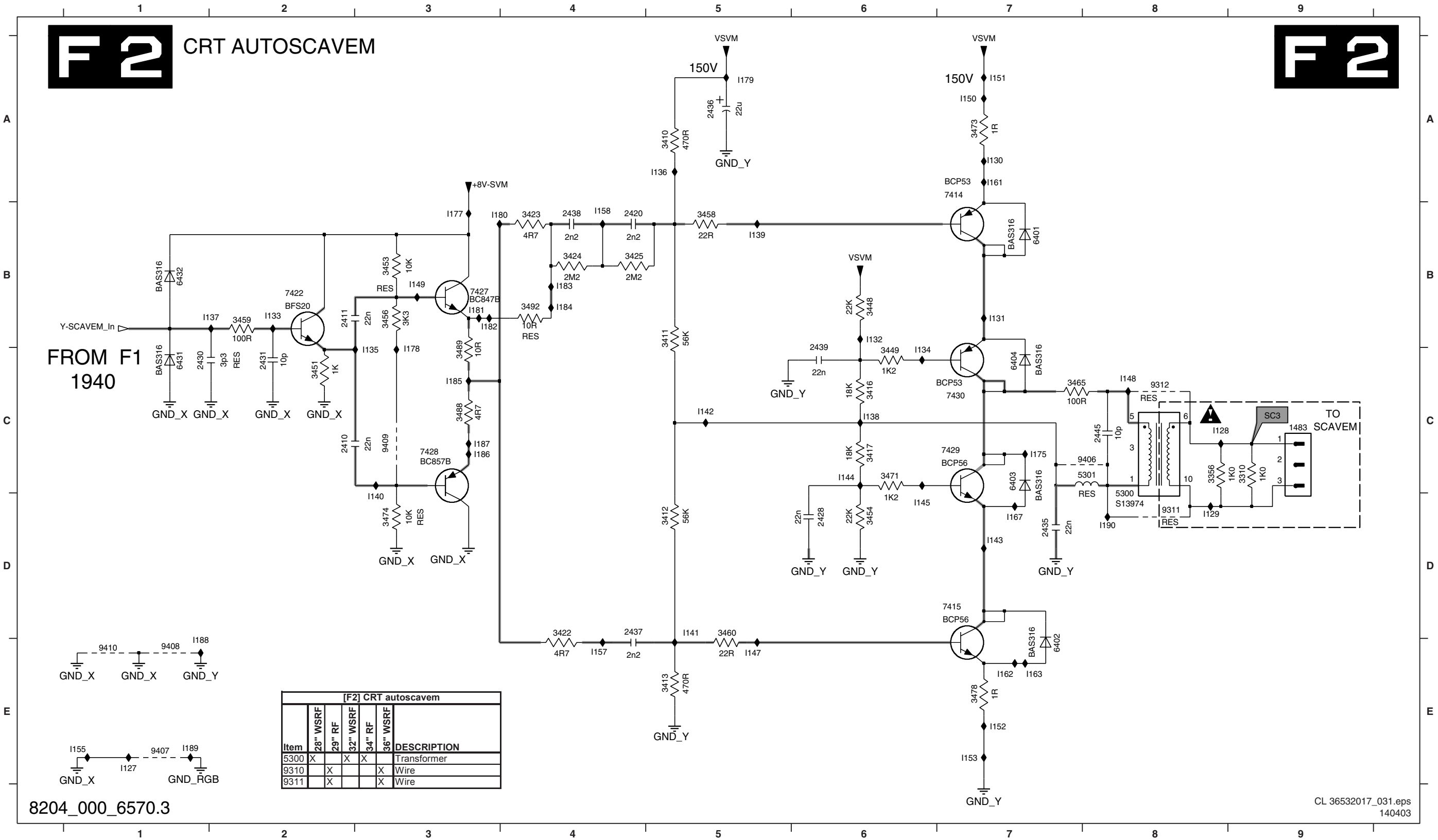
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* DEPENDANT ON PICTURE TUBE FORMAT

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CRT/ Auto SCAVEM Panel (FL11 Styling)

1483 C9	2430 C1	2438 B4	3410 A5	3417 C6	3448 B6	3456 B3	3471 C6	3489 C3	6402 E7	7414 A7	7429 C7	9407 E1	I128 C8	I133 B2	I138 C6	I143 D7	I149 B3	I155 E1	I163 E7	I179 A5	I184 B4	I189 E1
2410 C2	2431 C2	2439 B6	3411 B5	3422 D4	3449 C6	3458 B5	3473 A7	3492 B4	6403 C7	7415 D7	7430 C7	9408 E1	I129 D8	I134 C6	I139 B5	I144 C6	I150 A7	I157 E4	I167 D7	I180 B3	I185 C3	I190 D8
2411 B2	2435 D7	2445 C8	3412 D5	3423 B4	3451 C2	3459 B2	3474 D3	5300 D8	6404 C7	7422 B2	9311 D8	9409 C3	I130 A7	I135 C3	I140 D3	I145 D6	I151 A7	I158 B4	I175 C7	I181 B3	I186 C3	
2420 B4	2436 A5	3310 C9	3413 E5	3424 B4	3453 B3	3460 D5	3478 E7	5301 C8	6431 C1	7427 B3	9312 C8	9410 E1	I131 B7	I136 A5	I141 D5	I147 E5	I152 E7	I161 A7	I177 B3	I182 B3	I187 C3	
2428 D6	2437 D4	3356 C8	3416 C6	3425 B4	3454 D6	3465 C7	3488 C3	6401 B7	6432 B1	7428 C3	9406 C8	I127 E1	I132 B6	I137 B1	I142 C5	I148 C8	I153 E7	I162 E7	I178 C3	I183 B4	I188 D1	



4

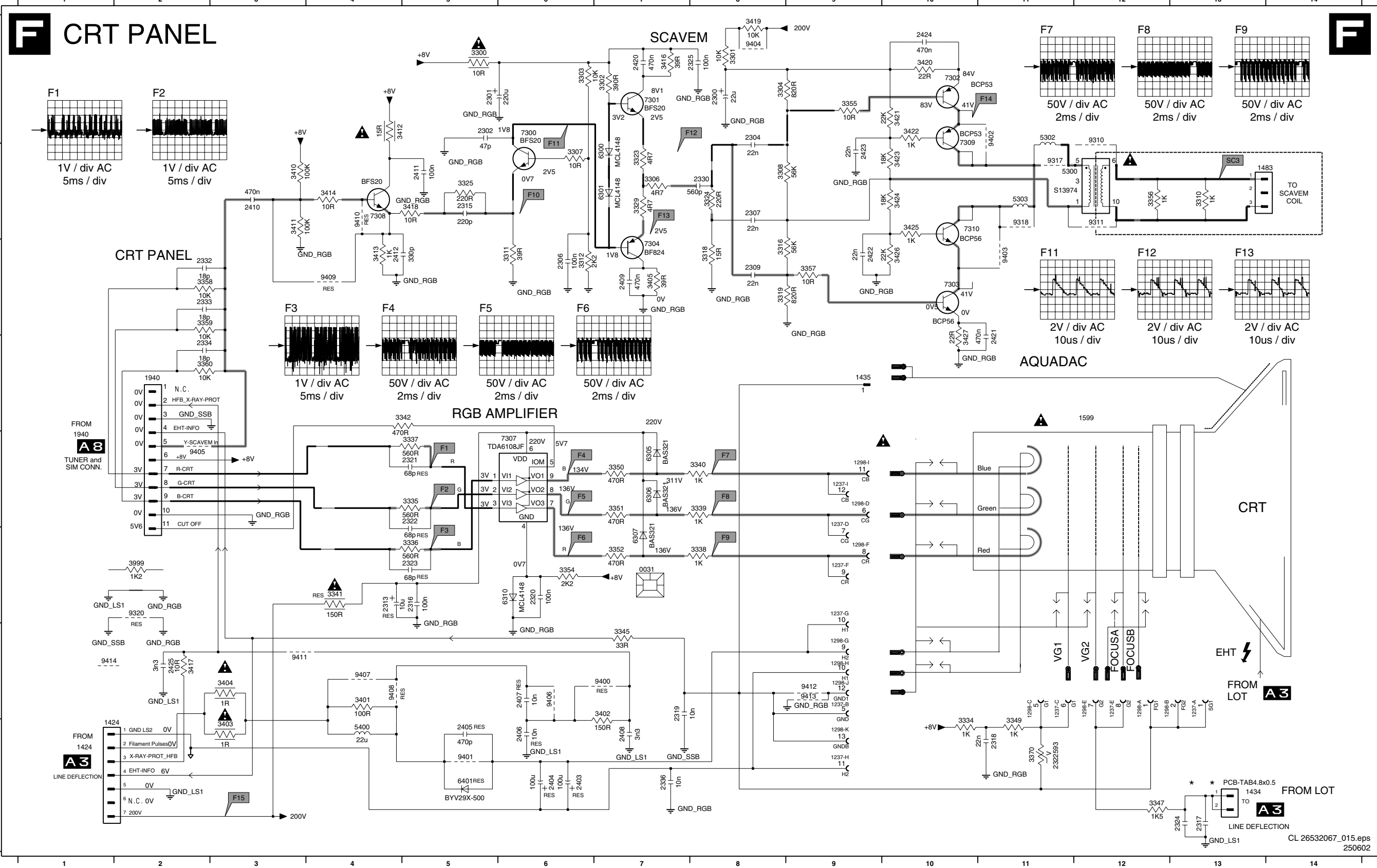
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C

CRT Panel (PV2 Styling)

0031 F7	1298-A G12	1298-K H9	2306 C6	2321 E5	2403 H6	2420 A7	3304 A8	3323 B7	3340 E8	3355 A9	3404 G3	3419 A8	5300 B11	6401 H5	9310 A12	9405 E2	9415 G1
1237-A G13	1298-B G12	1424 H2	2307 B8	2322 E5	2404 H6	2421 D11	3306 B7	3324 B8	3341 F4	3356 B12	3405 C7	3420 A10	5302 A11	7300 A6	9311 B12	9406 G6	
1237-B G9	1298-C G11	1434 H13	2309 C8	2323 F5	2405 H5	2422 C9	3307 B6	3325 B5	3342 D5	3357 C9	3410 B3	3421 A10	5303 B11	7301 A7	9317 B11	9407 G4	
1237-C G11	1298-D E9	1435 D9	2313 F4	2324 H13	2406 H6	2423 B9	3308 B8	3329 B7	3345 G7	3358 C2	3411 B3	3422 A10	5400 H4	7302 A10	9318 B11	9408 G4	
1237-D E9	1298-E G12	1483 B13	2315 B5	2325 A8	2407 G6	2424 A10	3310 B13	3334 H10	3347 H12	3359 C2	3412 A4	3423 B10	6300 B7	7303 C10	9320 F2	9409 C4	
1237-E G12	1298-F F9	1940 D2	2316 F5	2330 B8	2408 H7	2425 G2	3311 C6	3335 E5	3349 H11	3360 D2	3413 C4	3424 B10	6301 B7	7304 C7	9400 G7	9410 B4	
1237-F F9	1298-G G9	2300 A8	2317 H13	2332 C2	2409 C7	3300 A5	3312 C6	3336 F5	3350 E7	3370 H11	3414 B4	3425 B10	6305 E7	7307 E6	9401 H5	9411 G3	
1237-G F9	1298-H G9	2301 A5	2318 H11	2333 C2	2410 B3	3301 A8	3316 C8	3337 E5	3351 F7	3401 G4	3416 A7	3426 C10	6306 E7	7308 B4	9402 A11	9412 G9	
1237-H H9	1298-I E9	2302 A5	2319 G7	2334 D2	2411 B5	3302 A7	3318 C8	3338 F8	3352 F7	3402 G7	3417 G2	3427 D10	6307 F7	7309 A10	9403 C11	9413 G9	
1237-I E9	1298-J G9	2304 A8	2320 F6	2336 H7	2412 C4	3303 A6	3319 C8	3339 E8	3354 F6	3403 H3	3418 B5	3999 F2	6310 F6	7310 B10	9404 A8	9414 G1	

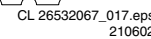


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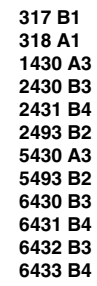


0031	A2
1237	A2
1298	A2
1424	B1
1434	A1
1435	A3
1483	C3
1940	A3
2300	C1
2301	B1
2304	C2
2307	C2
2313	A1
2316	A2
2317	B2
2319	A3
2324	A2
2336	A2
2403	A1
2404	A1
2405	A1
2406	B2
2407	B2
2422	B2
2423	C2
3300	B1
3301	C1
3323	C1
3329	C2
3334	A3
3338	A1
3339	A2
3340	A2
3341	A1
3342	A2
3345	A3
3347	A2
3349	A3
3350	A2
3351	A2
3352	A2
3370	B3
3401	B1
3402	B2
3403	B1
3404	B1
3405	C1
3416	B1
3419	C1
5300	C3
5302	C3
5303	C3
5400	A1
6401	A1
7307	A2
9300	A3
9301	B1
9302	B1
9303	C1
9304	A3
9306	A1
9307	B3
9310	C3
9311	C3
9312	B3
9313	A3
9314	B1
9315	B2
9317	C3
9318	C3
9320	B3
9400	B2
9401	A1
9412	B2
9414	A2

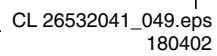
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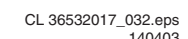
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2306	B3
2309	C2
2315	B1
2318	A1
2320	A1
2321	A1
2322	A1
2323	A1
2325	B3
2330	B2
2332	A1
2333	A1
2334	A1
2408	B2
2409	C3
2410	B1
2411	B1
2412	B1
2420	B3
2421	B2
2424	C2
2425	B2
3302	B2
3303	B3
3304	C2
3306	B2
3307	B3
3308	C2
3310	C1
3311	B3
3312	C3
3316	C2
3318	C2
3319	C2
3324	C2
3325	B1
3335	A1
3336	A1
3337	A1
3354	A1
3355	C2
3356	C1
3357	C2
3358	A1
3359	A1
3360	A1
3410	B1
3411	B1
3412	B1
3413	B1
3414	B1
3417	B3
3418	B1
3420	C2
3421	C2
3422	C2
3423	C1
3424	C2
3425	B2
3426	B2
3427	B2
3999	C3
6300	C3
6301	C3
6305	A2
6306	A2
6307	A2
6310	A1
7300	C3
7301	B3
7302	C2
7303	B1
7304	C3
7308	B1
7309	C2
7310	C1
9402	C2
9403	B1
9404	C3
9405	A1
9406	B2
9407	B3
9408	B3
9409	B1
9410	B1
9411	B2
9413	B2

 DC-SHIFT

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

[illegible]

H I/O 3rd SCART



1201	F511 D2
1272 F12	F512 H1
1339 E12	F514 H1
1402 C6	F516 H1
1500 A3	F518 I1
1501 B2	F525 I8
1502 B3	F531 C6
1503 E11	F532 C3
1504 G3	F533 C6
1505 F3	F534 C6
1506 E3	F535 C6
1507 D3	F536 D3
1508 C4	F537 D2
1680 H1	F539 E5
1690 A12	I500 G1
1937 H8	I501 G1
1952 F12	I502 H7
1992 A1	I503 A4
2500 A5	I504 B1
2502 H1	I505 A4
2503 H2	I506 G1
2504 A3	I507 A8
2506 G1	I508 A4
2507 G2	I509 A11
2508 B5	I510 G1
2509 B3	I511 G1
2510 H9	I512 G1
2511 G11	I513 A11
2513 E11	I514 A8
2514 I3	I515 A11
2515 C8	I516 B4
2516 E10	I517 A11
2517 B11	I518 B4
3500 G1	I519 B4
3501 A3	I520 A11
3502 A4	I521 B7
3503 A7	I522 A11
3504 A4	I523 D11
3505 G1	I524 I6
3506 A8	I525 E7
3507 B3	I526 I7
3508 B4	I527 D11
3509 B4	I528 I11
3510 B7	I529 H3
3511 B7	I530 H3
3512 F5	I531 I6
3513 A10	I532 C9
3514 A10	I533 C9
3515 D7	I534 H6
3516 E7	I535 C9
3517 D11	I536 H9
3518 D11	I537 H1
3519 C7	I538 H1
3520 H3	I539 G10
3521 I3	I540 H8
3522 C9	I541 A7
3523 C9	I542 D11
3524 D8	I543 A8
3525 D9	I544 C8
3526 D2	I545 C2
3527 A10	I546 H8
3528 B10	I547 H12
3529 H2	I548 H12
3530 G9	I549 B3
3531 H9	I552 D10
3532 G10	I553 D12
3533 G3	I554 E12
3534 H9	I561 A9
3535 H10	I562 A9
3538 C5	I563 G10
3539 C4	I564 H10
3540 D4	I565 H10
3541 D3	I566 G10
3542 E4	I567 F10
3543 E4	I568 F12
3544 E3	
3545 F3	
3546 I6	
3999 H12	
6500 A4	
6501 A4	
6502 B4	
6503 C4	
6504 E11	
6505 E11	
6506 G3	
6507 C2	
6509 C4	
6510 D3	
6511 E4	
6512 F3	
7501 H3	
7502 A8	
7503 A9	
7504 B7	
7505 E8	
7506 B9	
7507 D9	
7508 H10	
7509 H10	
7515 E9	
9501 D7	
9502 B8	
9503 D10	
9504 D10	
9505 F10	
9506 H10	
9509 D12	
9510 E12	
9525 G12	
9530 H12	
9532 H12	
9533 I12	
F500 A2	
F501 B1	
F502 B2	
F504 A11	

2500	A2	3544	A2
2502	C1	3545	A1
2503	C1	3546	C1
2504	A1	3999	C1
2506	B2	6500	A1
2507	B2	6501	A1
2508	A2	6502	A1
2509	A2	6503	A1
2510	A1	6504	B1
2511	A1	6505	B1
2513	C2	6506	A2
2514	C1	6507	B1
2515	B2	6509	B1
2516	A1	6510	B1
2517	C2	6511	B2
3500	C2	6512	A2
3501	A1	7501	C1
3502	A2	7502	C1
3503	C1	7503	C1
3504	A2	7504	C2
3505	B2	7505	C2
3506	C1	7506	B2
3507	A1	7507	B2
3508	A2	7508	A1
3509	A2	7509	A1
3510	C2	7515	A1
3511	C1	9501	C1
3512	A2	9502	C2
3513	B1	9503	C2
3514	C1	9504	C2
3515	C2	9505	A1
3516	C2	9506	A1
3517	C2	9507	C2
3518	B1	9508	B2
3519	C1	9509	B1
3520	C1	9510	B1
3521	C1	9512	C1
3522	B2	9514	C1
3523	B2	9515	C1
3524	B1	9516	B2
3525	B1	9519	A2
3526	A1	9520	A2
3527	C2	9521	C2
3528	C2	9523	C2
3529	A1	9524	C2
3530	A1	9525	A2
3531	A1	9526	C1
3532	A1	9527	C2
3533	A2	9528	A2
3534	A1	9529	A1
3535	A1	9530	B1
3538	A2	9532	B1
3539	B1	9533	B1
3540	A2	9534	B2
3541	B1	9537	A1
3542	A2	9540	A2
3543	B2		

VDAF + 2ND ORDERS

-VERTICAL DAF-

FROM :
EMG 0393 **A4** EMG STAR 1693 **A4**

TO DEFLECTION COIL 1418

TO dynamic focus input of LOT 1497

TO 1491 **A3**

-HORIZONTAL DAF-

FROM :
EMG 0317 **A3** EMG STAR 1417 **A3**

TO DC-SHIFT 0318 **G**

-2ND ORDER S-

DAF OUTPUT

DAF GND

VDAF SIGNAL

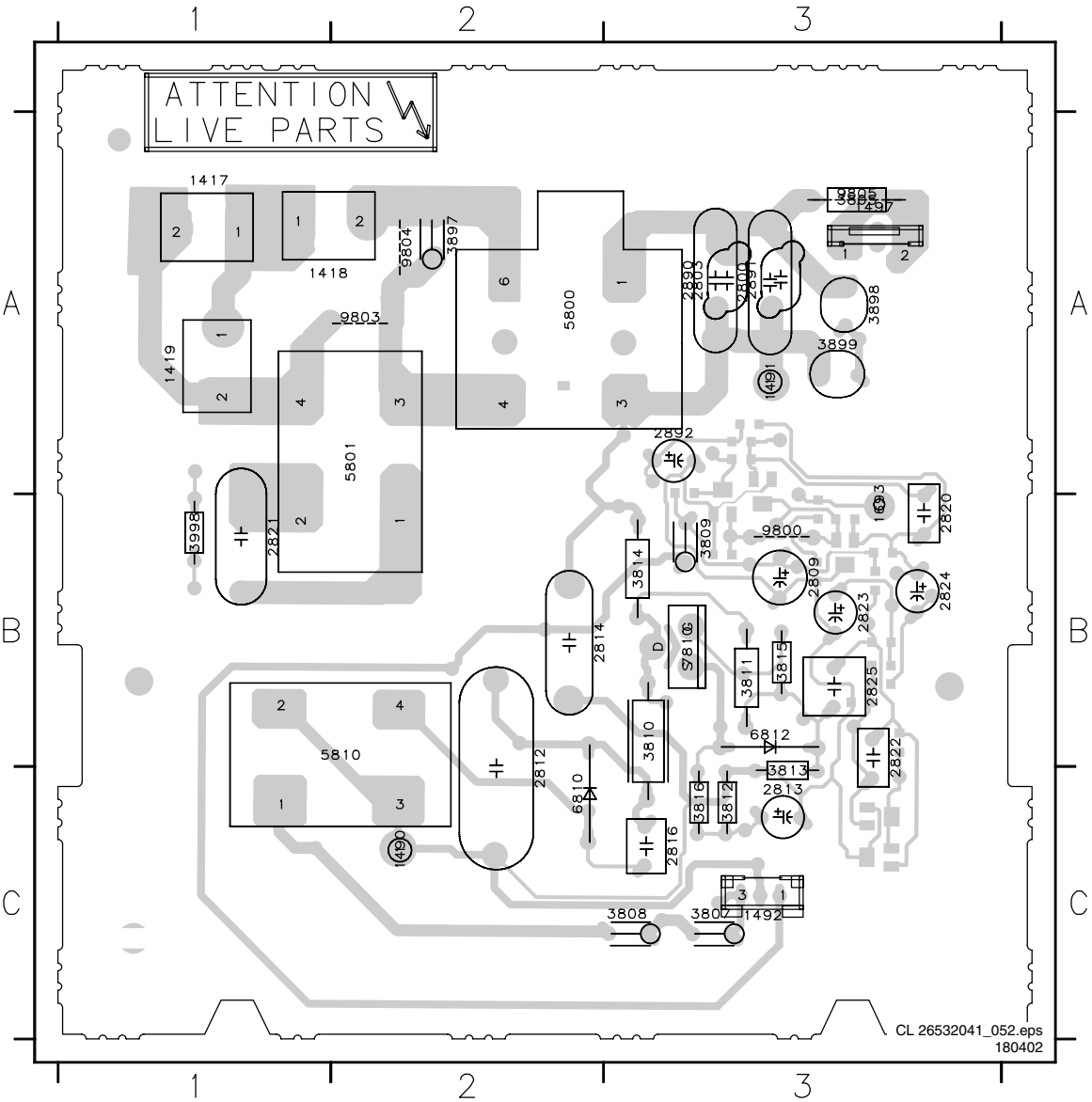
V_Parabol

11V DC

CL 26532041_036.eps 080802

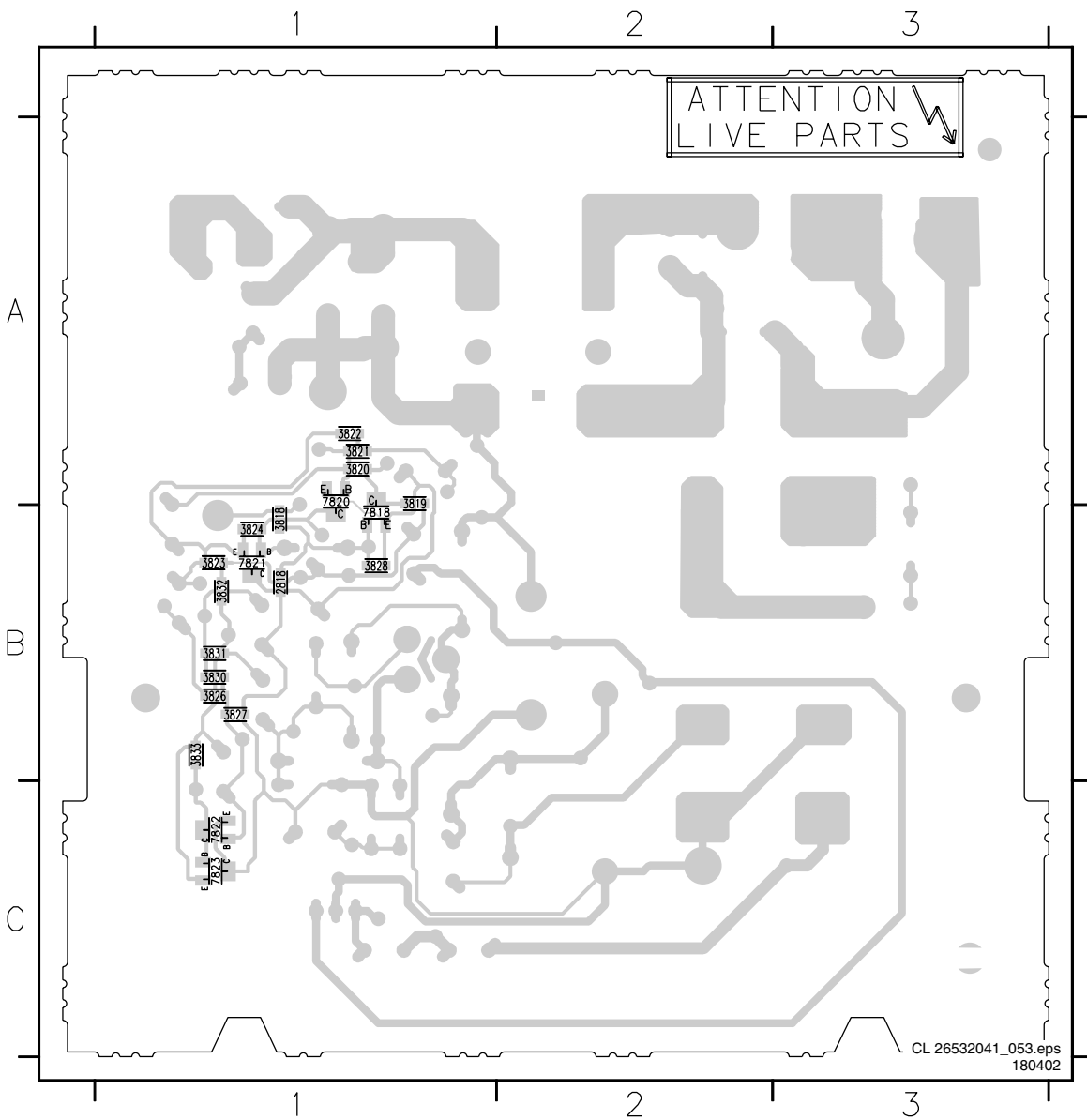
III VDAF+2ND ORDER S					
Item	29RF	28RF/32RF	34RF/39RF	36RF	Description
1492	X		X	X	3p
1693	X		X	X	1p
2800	X				330pF
2800		X	X		470pF
2800				X	390pF
2809	X		X	X	100uF
2812	X	X	X	X	10nF
2813	X	X	X	X	10uF
2814	X	X	X	X	1nF
2821	X	X			68nF
2822	X		X	X	4nF
2824	X		X	X	10uF
2825	X		X	X	1uF
2890	X				270pF
2890		X			220pF
2890			X		470pF
2890				X	390pF
3807	X		X	X	15R
3808	X		X	X	15R
3809	X	X	X	X	10R
3810	X	X	X	X	470kR
3811	X	X	X	X	4.7MR
3812	X		X	X	27kR
3813	X		X	X	470kR
3814	X		X	X	100kR
3815	X		X	X	1kR
3816	X	X			4.7kR
3816				X	2.2kR
3818	X		X	X	33kR
3820	X	X	X	X	Jumper
3821	X	X	X	X	Jumper
3822	X	X	X	X	Jumper
3823	X	X	X	X	1.5kR
3824	X		X	X	33kR
3826	X		X	X	3.3kR
3827	X	X	X	X	5.6kR
3828	X	X	X	X	100kR
3830	X	X	X	X	47kR
3831	X	X	X	X	4.7kR
3832	X	X	X	X	1.8kR
3833	X	X	X	X	4.7kR
5801	X	X			Transformer
5810	X	X	X	X	Bridge coil
6810	X		X	X	BYD33V
6812	X	X	X	X	BZX79-C22
7810	X	X	X	X	STP3NB80FP
7818	X		X	X	BC847B
7822	X	X	X	X	BC847B
7823	X	X	X	X	BC857B
9800	X	X			Wire
9803			X	X	Wire

Layout VDAF Panel (Top Side)



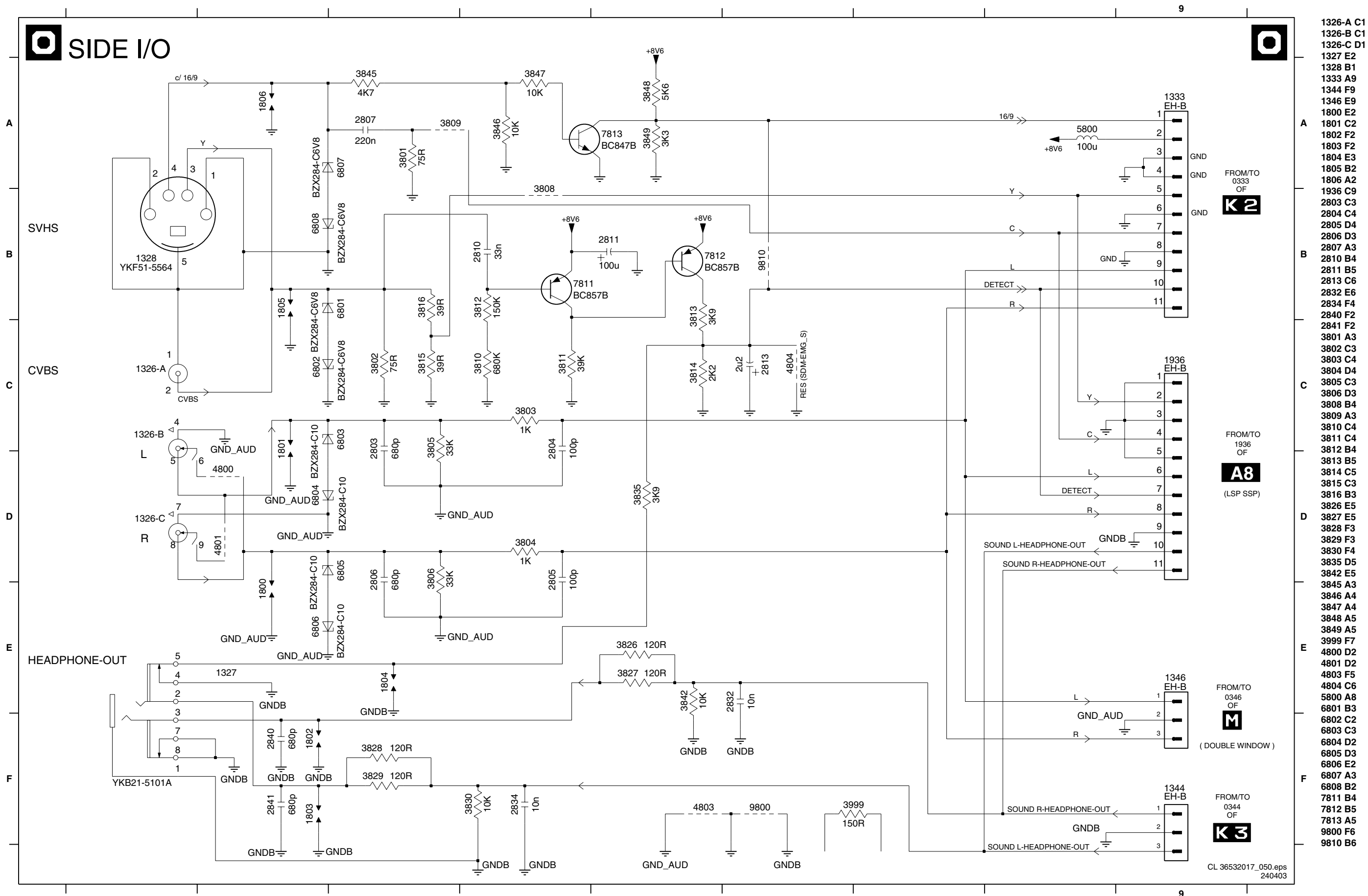
- 1417 A1
- 1418 A1
- 1419 A1
- 1490 C2
- 1491 A3
- 1492 C3
- 1497 A3
- 1693 B3
- 2800 A3
- 2803 A3
- 2809 B3
- 2812 C2
- 2813 C3
- 2814 B2
- 2816 C3
- 2820 B3
- 2821 B1
- 2822 B3
- 2823 B3
- 2824 B3
- 2825 B3
- 2890 A3
- 2891 A3
- 2892 A3
- 3805 A3
- 3807 C3
- 3808 C3
- 3809 B3
- 3810 B3
- 3811 B3
- 3812 C3
- 3813 C3
- 3814 B3
- 3815 B3
- 3816 C3
- 3897 A2
- 3898 A3
- 3899 A3
- 5800 A2
- 5801 A1
- 5810 B2
- 6810 C2
- 6812 B3
- 7810 B3
- 9800 B3
- 9803 A2
- 9804 A2
- 9805 A3

Layout VDAF Panel (Bottom Side)



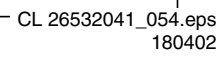
- 2818 B1
- 3818 B1
- 3819 A1
- 3820 A1
- 3821 A1
- 3822 A1
- 3823 B1
- 3824 B1
- 3826 B1
- 3827 B1
- 3828 B1
- 3830 B1
- 3831 B1
- 3832 B1
- 3833 B1
- 7818 B1
- 7820 A1
- 7821 B1
- 7822 C1
- 7823 C1

Side I/O Panel (FL11 Styling)

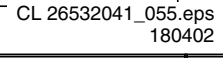


- 1326-A C1
- 1326-B C1
- 1326-C D1
- 1327 E2
- 1328 B1
- 1333 A9
- 1344 F9
- 1346 E9
- 1800 E2
- 1801 C2
- 1802 F2
- 1803 F2
- 1804 E3
- 1805 B2
- 1806 A2
- 1936 C9
- 2803 C3
- 2804 C4
- 2805 D4
- 2806 D3
- 2807 A3
- 2810 B4
- 2811 B5
- 2813 C6
- 2832 E6
- 2834 F4
- 2840 F2
- 2841 F2
- 3801 A3
- 3802 C3
- 3803 C4
- 3804 D4
- 3805 C3
- 3806 D3
- 3808 B4
- 3809 A3
- 3810 C4
- 3811 C4
- 3812 B4
- 3813 B5
- 3814 C5
- 3815 C3
- 3816 B3
- 3826 E5
- 3827 E5
- 3828 F3
- 3829 F3
- 3830 F4
- 3835 D5
- 3842 E5
- 3845 A3
- 3846 A4
- 3847 A4
- 3848 A5
- 3849 A5
- 3999 F7
- 4800 D2
- 4801 D2
- 4803 F5
- 4804 C6
- 5800 A8
- 6801 B3
- 6802 C2
- 6803 C3
- 6804 D2
- 6805 D3
- 6806 E2
- 6807 A3
- 6808 B2
- 7811 B4
- 7812 B5
- 7813 A5
- 9800 F6
- 9810 B6

1

C

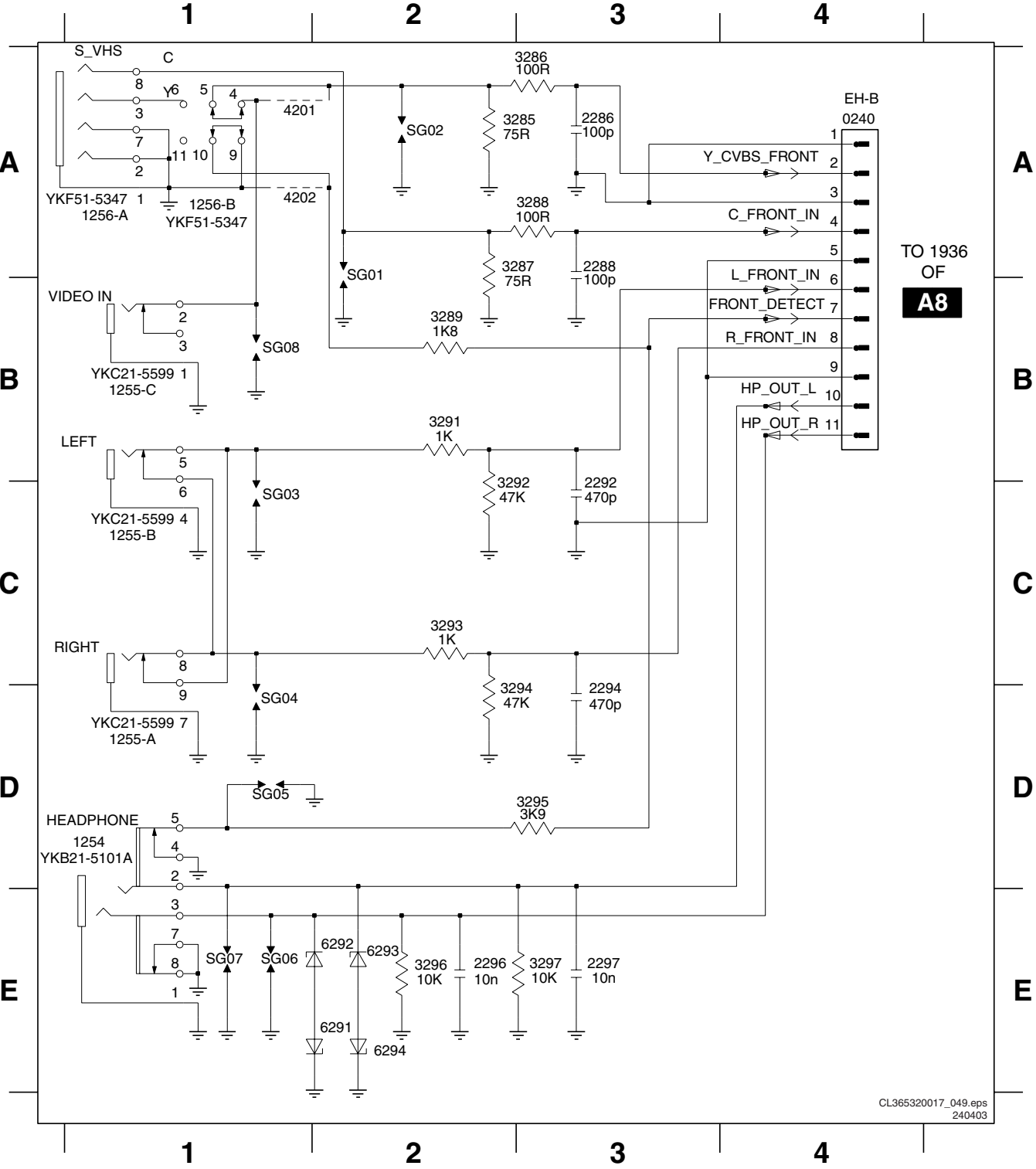
—

C

Side I/O Panel (PV2 Styling)

O SIDE IO PANEL

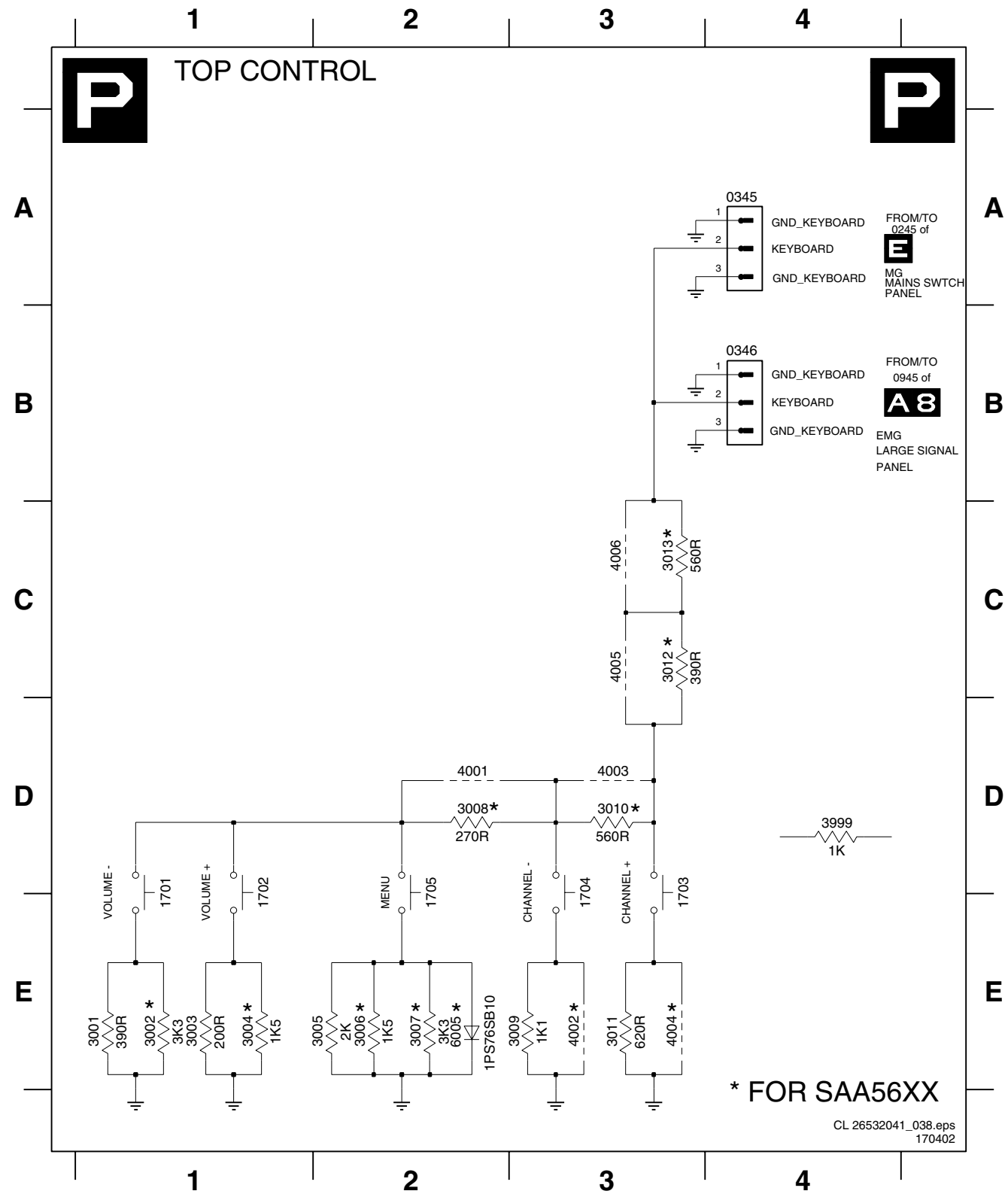
0240 A4	1256-B A1	2297 E3	3291 B2	3297 E3	6294 E2	SG06 E1
1254 D1	2286 A3	3285 A3	3292 B2	4201 A1	SG01 B2	SG07 E1
1255-A D1	2288 A3	3286 A3	3293 C2	4202 A1	SG02 A2	SG08 B1
1255-B C1	2292 B3	3287 A3	3294 C3	6291 E2	SG03 C1	
1255-C B1	2294 C3	3288 A3	3295 D3	6292 E2	SG04 D1	
1256-A A1	2296 E2	3289 B2	3296 E2	6293 E2	SG05 D1	



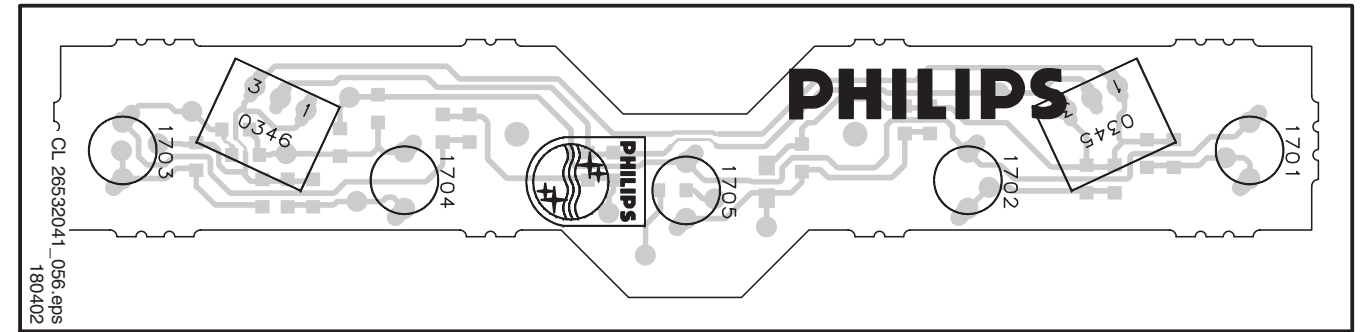
Personal Notes:

Blank lined area for personal notes.

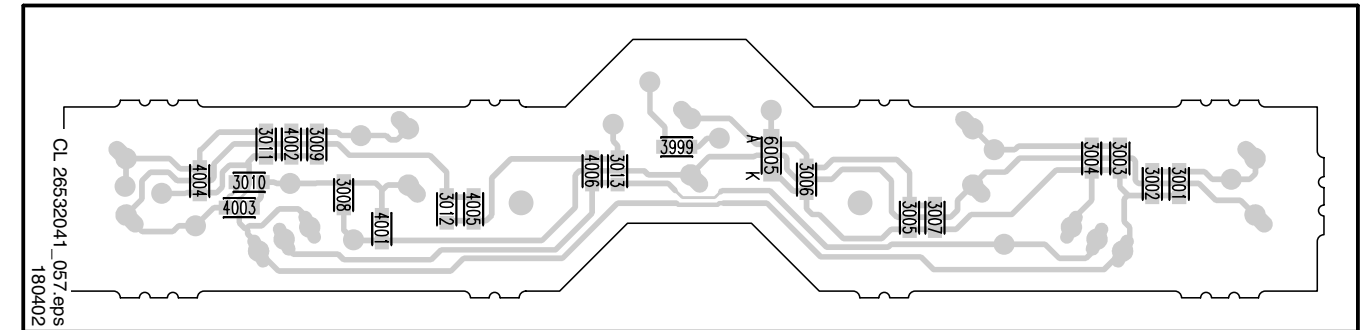
0345 A4	1703 D3	3002 E1	3006 E2	3010 D3	3999 D4	4004 E3
0346 B4	1704 D3	3003 E1	3007 E2	3011 E3	4001 D2	4005 C3
1701 D1	1705 D2	3004 E1	3008 D2	3012 C3	4002 E3	4006 C3
1702 D1	3001 E1	3005 E2	3009 E3	3013 C3	4003 D3	6005 E2



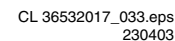
Top Control Panel (FL11 Styling) (Top Side)



Top Control Panel (FL11 Styling) (Bottom Side)



1 **2** **3** **4**



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

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

3139_123_5440.5

6093 K A

6091 A K

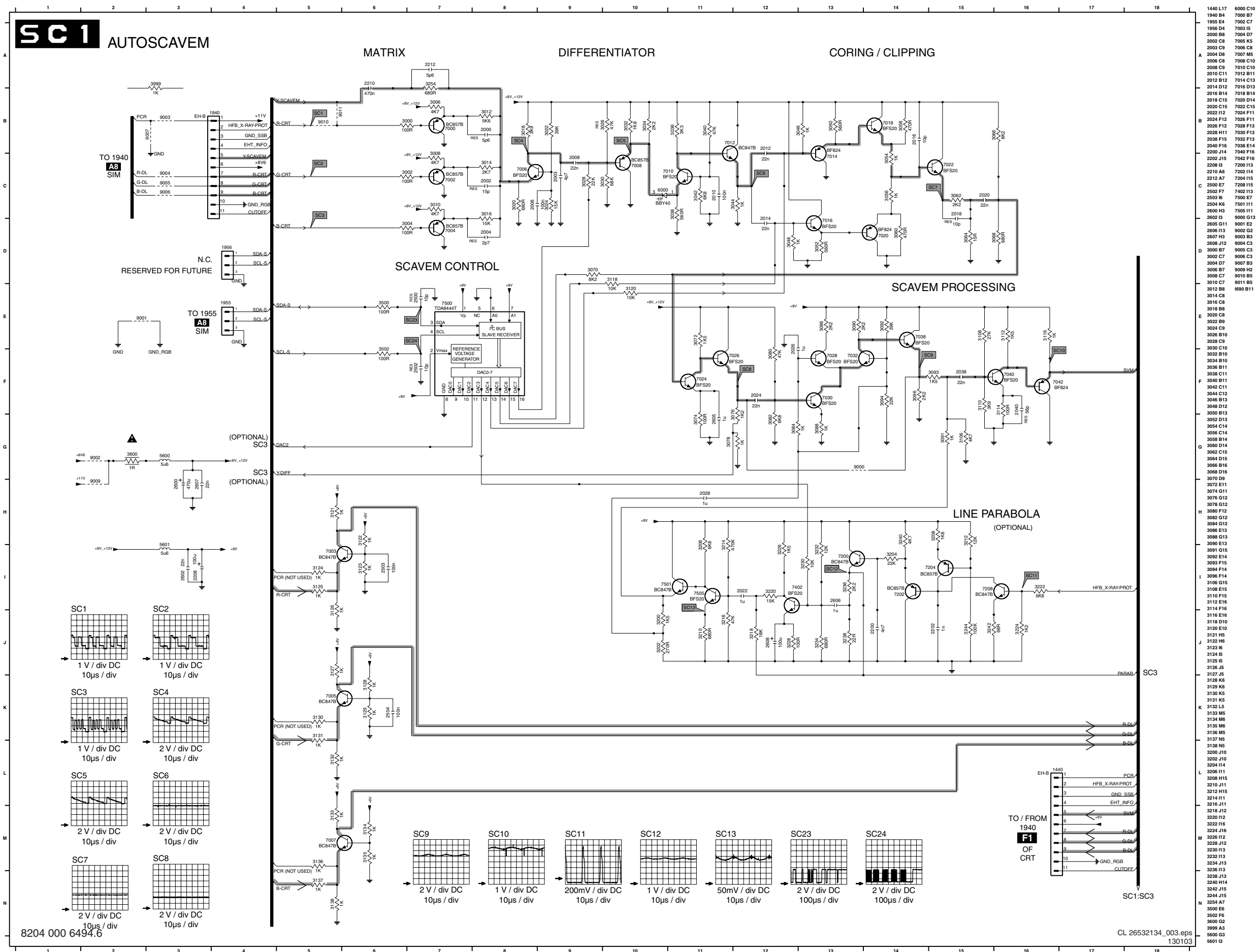
7091 4 1 5 8

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

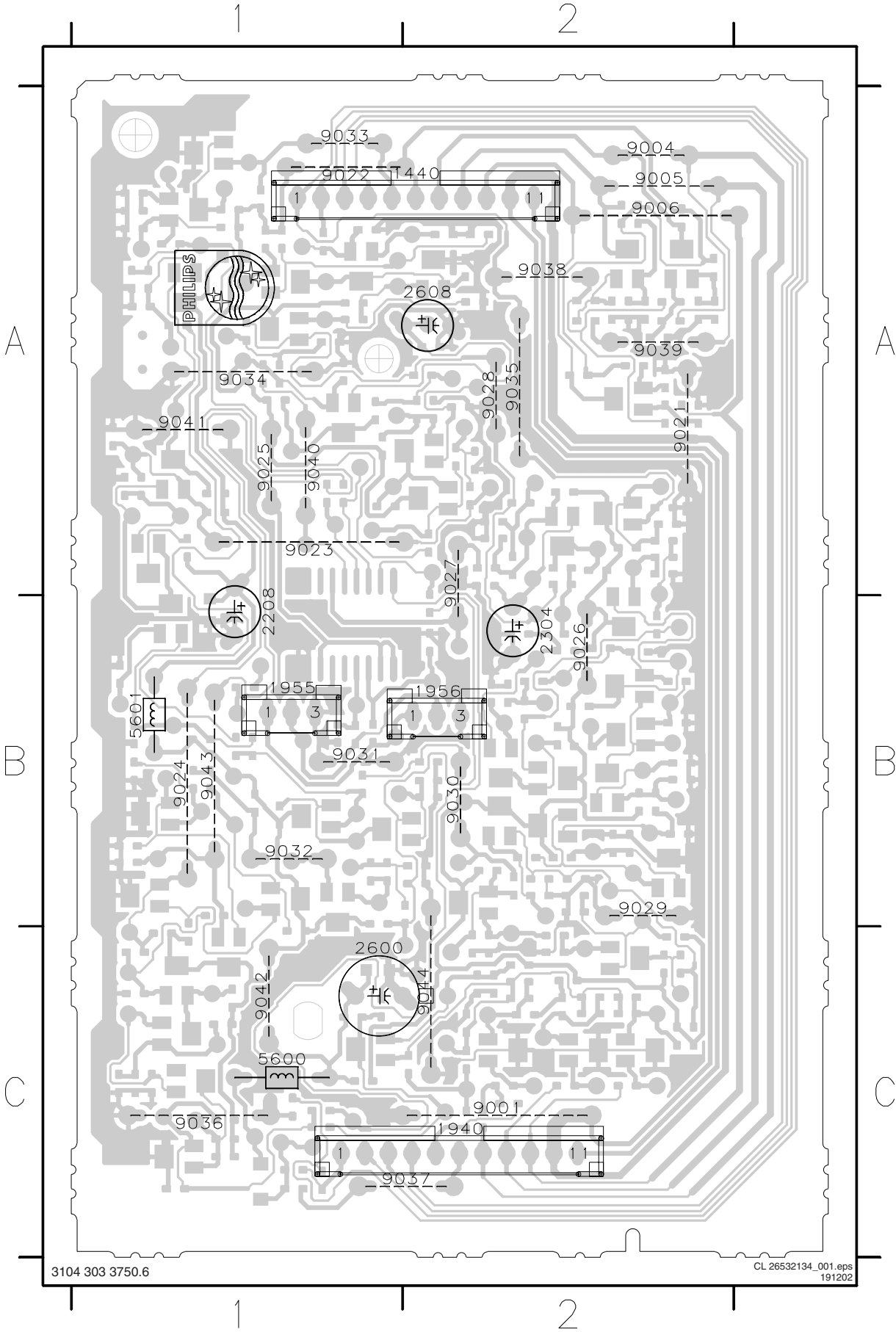
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230403

CL 36532017_038.eps
230403

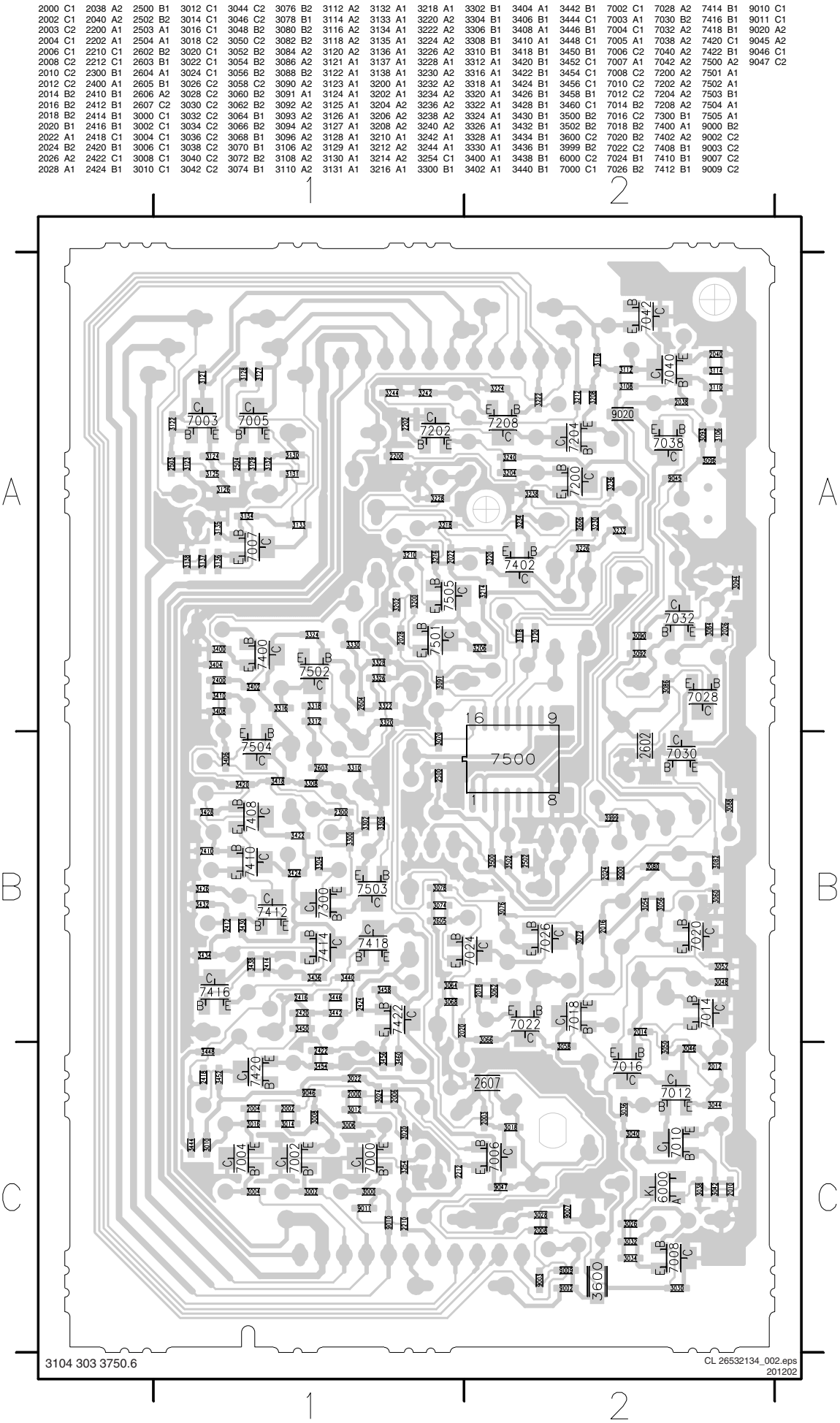
Auto SCAVEM Panel



Layout Auto SCAVEM Panel (Top Side)



Layout Auto SCAVEM Panel (Bottom Side)



8. Electrical Alignments

Index of this chapter

1. General alignment conditions
2. Hardware alignments
3. Software alignments
4. Option settings

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V_{AC}/50 Hz ($\pm 10\%$).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).

Caution: never use the cooling fins/plates as ground.

- Test probe: $R_i > 10\text{ M}\Omega$, $C_i < 20\text{ pF}$.
- Use an isolated trimmer/screwdriver to perform the alignments.

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

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

8.1.2 Adjustment Sequence

Use the following adjustment sequence:

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

8.2 Hardware Alignments

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

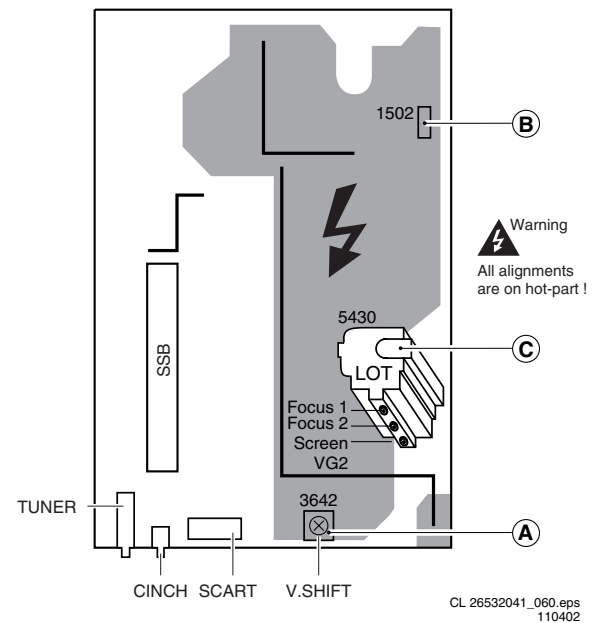


Figure 8-1 Top-view LSP

8.2.1 Vg2 Adjustment

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

1. Go, via the MENU key, to the normal user menu, select "PICTURE", and set "CONTRAST" and "BRIGHTNESS" to "0".
2. Activate the SAM.
3. Connect the RF output of a pattern generator to the antenna input. Test pattern is a "black" picture (blank screen on CRT without any OSD info).
4. Set the channel of the oscilloscope to 20 V/div and the time base to 20 μ s/div. Use external triggering on the vertical pulse (**caution:** use a trigger point at the "cold" side!).
5. Ground the scope at the CRT panel ("cold" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see diagram F).
6. Measure the cut-off pulse during first full line after the frame blanking. You will see two pulses, one being the cut-off pulse and the other being the white drive pulse. Choose the one with the lowest value; this is the cut-off pulse.
7. Select the cathode with the highest V_{dc} value for the alignment. Adjust the V_{CUTOFF} of this gun with the SCREEN (lower) potentiometer on the LOT to the correct DC-value (tolerance is $\pm 3\text{ V}_{dc}$):
 - 28 inch: 160 V.
 - 29 inch: 160 V.
 - 32 inch (LPD - Philips): 160 V.
 - 32 inch (MEC - Panasonic): 170 V.
 - 36 inch: 170 V.
8. Restore "CONTRAST" to "75" and "BRIGHTNESS" to "42".

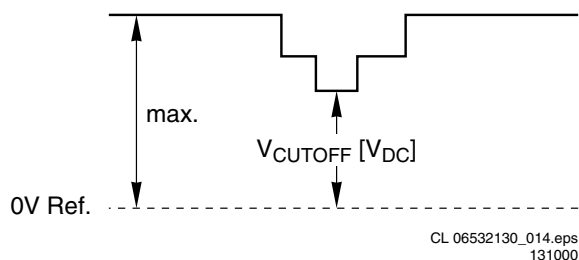


Figure 8-2 Waveform Vg2 alignment

8.2.2 Focus alignment

Notes:

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

Focus method for Philips 32 inch tube with bleeder gun

You can recognize a CRT with bleeder gun by its type number:

- W76ERF052X044= with bleeder gun
- W76ERF042X044= with standard gun.

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

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

Focus method for all other tubes

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

8.3 Software Alignments

8.3.1 Introduction

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

Put the set in the SAM (see chapter 5). The SAM menu will now appear on the screen. Select, via **ALIGNMENTS**, one of the sub-menus. They are explained below in the sequence of the sub-menus.

Notes:

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

8.3.2 GENERAL

VG2 TEST PATTERN

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

ADJUST PEAK WHITE LIMITER

Fixed setting: "9".

EHT COMPENSATION

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

SOFT CLIPPER

Fixed setting: Pwl + 0%

LUMA GAIN

Fixed setting: 2.

IF AFC

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

Alignment procedure:

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

Table 8-1 OSD feedback of AFC alignment

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

1. The first item (IN or OUT) informs you whether you are in or out the AFC-window.
2. The second item (HIGH or LOW) informs you about whether the AFC-frequency is too high or too low.
3. First, you must align the IF AFC parameter such that you come into the AFC-window (= IN).
4. Then you must look for the point where the IF AFC parameter changes from HIGH to LOW. This level is the value you are looking for.

- After adjustment, STORE the value.
- Now return to the user "Installation" menu.
- Select "Manual Installation" - "Search" - "475" - "OK" and "Store". This will set the AFC "ON" again.

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

IF LPRIME AFC

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

TUNER AGC

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

TUNER AGC TUNER 2

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

BLEND INTENSITY

Use this alignment when you replace the microcontroller or the HOP. It aligns the level of transparency of the menu-picture blended into the main-picture.

Position the "BRIGHTNESS", "CONTRAST", and "COLOUR" setting in the middle position (picture-menu).

- Apply a signal with a 100 % white video-pattern.
- Connect an oscilloscope to pin 8 of connector 1298 of the CRT panel and measure the Red output level.
- Align the BLEND INTENSITY parameter such, that the blended signal is 65 % of the black-white amplitude. In practice, this is about 1.3 V (blended signal) versus 2 V (full white signal).
- The parameter can be adjusted in between "0" and "31".

8.3.3 DRIVE

Method 1 (with colour analyser):

- Select TEST PATTERN and turn it ON. During the following alignments, you will get a white block in middle of the screen.
- Select CATHODE and adjust the set to the correct light output. This setting depends on the picture tube size and brand. See table "Cathode parameter" for the colour analyser readings.
- Select a COLOUR TEMPERATURE (COOL, NORMAL, or WARM).
- Adjust the white level (via RED, GREEN, and BLUE) according to the values in table "White levels".

Table 8-2 Cathode parameter

CRT	Light output (cd/m ²)
28" RF WS	400 (Mk1), 450 (Mk2)
29" RF 4:3	400
32" RF WS	380 (LPD), 370 (MEC)
36" RF WS	330

Table 8-3 White levels

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

Method 2 (without colour analyser):

Without having a colour-analyser, one can set some parameters. This is the next best solution. The setting-parameters are average values coming from production (statistics).

- Select CATHODE and enter the value "15" (for all picture tubes).
- Select a COLOUR TEMPERATURE (COOL, NORMAL, or WARM).
- Set the RED, GREEN, and BLUE parameters according to the (delta) values in table "Tint settings".
- RED BL OFFSET: herewith the black level can be aligned very precise (default value is "7").
- GREEN BL OFFSET: herewith the black level can be aligned very precise (default value is "7").

Table 8-4 Tint settings

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

8.3.4 LUM. DEL. (Luminance Delay)

With this alignment, you place the luminance information exactly on the chrominance information (brightness is pushed onto the colour). Use a colour bar/grey scale pattern as test signal.

- LUM. DELAY PAL BG:** Apply a PAL BG colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = 9.
- LUM. DELAY PAL I:** Apply a PAL I colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = 9.
- LUM. DELAY SECAM:** Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value = 11.
- LUM. DELAY BYPASS:** apply a NTSC colour bar/greyscale pattern as a test signal. Adjust this value until the transients of the colour and black & white part of the test area are at the same position. Default value = 10.

8.3.5 GEO-NOR (Normal Geometry)

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

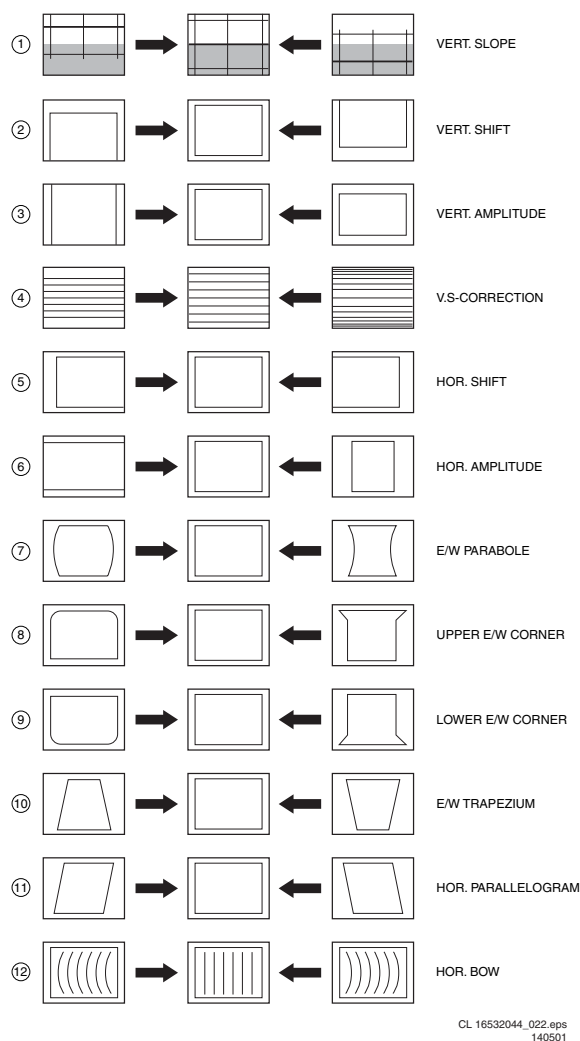


Figure 8-3 Geometry Alignments

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

V. SLOPE

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

1. First set the start conditions for 16:9 sets: V. S-CORRECTION value on "16" for the 28 inch, "32" for the 29 inch, "16" for the 32 inch (LPD - Philips tube), "27" for the 32 inch (MEC - Panasonic tube), or "20" for the 36 inch sets. Position the boundary-stripes of the test pattern on the edges of the picture tube.
2. Align V. SLOPE (during alignment, the lower half of the picture is blanked) such, that the middle line of the test pattern is matched with the edge of the pattern transient in the middle of the picture.
3. Repeat the alignment if necessary.

V. SHIFT AND V. AMPLITUDE (vertical alignment)

Align the vertical centre and height of the picture.

1. Use V. AMPLITUDE to align the vertical amplitude so that the entire test pattern is visible.
2. Set V. SHIFT to value "32".
3. Connect a voltmeter (V_{dc}) between R3624 and "hot" ground.
4. Adjust the DC voltage to "0" with potmeter R3642 (see figure 8-1).

5. Use V. SHIFT again to align the test pattern roughly vertically in the middle.
6. Repeat the alignment if necessary.

V. S-CORRECTION

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

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

H. SHIFT AND H. AMPLITUDE (horizontal alignment)

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

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

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

EAST/WEST ALIGNMENT

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

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

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

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

You only need to set the following values (if the normal geometry alignment has been performed correctly):

1. V. S-CORRECTION: enter value of the NORMAL GEOMETRY alignment.
2. H. AMPLITUDE: enter value of the NORMAL GEOMETRY alignment subtracted by "1".
3. EAST/WEST PARABOLA: enter value of the NORMAL GEOMETRY alignment.

8.3.8 GEO-100HZ (Digital Scan geometry alignment)

As all alignments are done in Pixel Plus mode (at 75 Hz), the 100 Hz mode needs an extra alignment:

- Select GEO-100HZ. The set automatically switches to 100 Hz mode.
- V. SLOPE: match the middle line of the test pattern with the upper edge of this blanking picture.
- After the alignment, return to the previous menu. The set automatically returns to "Pixel Plus" mode.

8.4 Option Settings

8.4.1 Introduction

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

- You can set the "hardware related" options via the SAM - ALIGNMENTS - OPTIONS or OPTION NUMBERS menu.
- You can set the "software related" options via the SAM - DEALER OPTIONS menu.

Notes:

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

8.4.2 DEALER OPTIONS

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

Menu name	Subjects	Options	Physically in set
Personal Options	Picture Mute	Yes	Video mute active when there is no signal detected
		No	Noise when there is no signal detected
	Virgin Mode	Yes	TV starts up with language selection menu
		No	TV does not start up with language selection menu
	Auto Store Mode (for EU)	None	Auto Store mode disabled (not in installation menu)
		PDC-VPS	Auto Store mode via ATS (Automatic Tuning System) enabled
		TXT page	Auto Store mode via ACI (Automatic Channel Installation) enabled
		PDC-VPS-TXT	Auto Store mode via ATS or ACI enabled
	Txt Preference (for EU)	FLOF	Preference to FLOF (Full Level One Features) teletext
		TOP	Preference to TOP (Table Of Pages) teletext
Note: Above overview gives the menu items for all regions (EU/AP/US). The correct settings differs per region (see Option Numbers).			

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Figure 8-4 Dealer options overview

8.4.3 SERVICE OPTIONS

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

Menu-item	Subjects	Options	Description
Chassis/Region	Chassis	EMGS 2001	Service name = EM3
		EMGS 2002	Service name = EM5
		EMGS TOP 2003	Service name = EM6
	Region	AP NTSC	Only for AP
		US	Only for US
Dual screen	PIP/Dual Screen	Yes	Feature present.
		No	Feature not present.
	Text/EPG	Yes	Feature present.
		No	Feature not present.
	DS/PIP Tuner	Yes	Only selectable if Dual Screen option is "on"
		No	Feature not present.
Teletext	Flash RAM	Yes	Feature present.
		No	Feature not present.
	NexTView	None	Feature not present.
		Textguide only	Feature present, but only as text guide.
	Nextview 2c3	Feature present, for countries that support this.	
Picture Tube	CRT Type	4 by 3	4:3 picture tube.
		16 by 9	16:9 picture tube.
	Picture Rotation	Yes	Frame rotation circuitry present.
		No	Frame rotation circuitry not present .
	CRT size	28 / 32 / 36	CRT size (in inches).
		29 / 34 / 38	MEC= Panasonic, II= Mark 2
	Anti MoirÉ filter	Yes	Feature present.
		No	Feature not present.
Video repro	Featurebox type	1050i/1250i	HD input
		Eagle	Eagle present (Pixel Plus).
	Lightsensor	Yes	Feature present.
		No	Feature not present.
	2D Combfilter	Yes	Feature present.
		No	Feature not present.
	Picture improvement	Yes	LTP (TOPIC) present.
		No	LTP (TOPIC) not present.
	Auto Scavem	Yes	Feature present.
		No	Feature not present.
Signalling bits	Yes	For 16:9 sets	
	No	For 4:3 sets	
Audio Repro	Dolby	None	Set without Dolby.
		Pro Logic	Set with Dolby ProLogic.
		Virtual	Sets with Virtual Dolby
	Rear speakers	Speakerless	Virtual Dolby (without rear speakers).
		Cordless	Wireless active surroundbox present.
	Subwoofer present	Yes	Feature present.
		No	Feature not present.
	Acoustic system	None, FL9-DAS, FL11, FL12, PV02, FL13, Soft Designline, Tech Designline.	
	AVL	On	Automatic Volume Limiter 'on'.
Off	Automatic Volume Limiter 'off'.		
Source Selection	AV3 2fH (2002)	Yes	Not selectable yet
		No	Feature not present.
	AV4 2fH (2002)	Yes	Not selectable yet
		No	Feature not present.
	EXT3 2fH (2003)	Yes	Feature present.
		No	Feature not present.
	EXT4 2fH (2003)	Yes	Not selectable for this chassis
		No	Feature not present.
Miscellaneous	Home Cinema	Yes	Set with Home Cinema Link (EU only)
		No	Set without Home Cinema Link
	Integrated RC	Yes	Feature present.
		No	Feature not present.
	Tuner type	UV1316	Set with Philips tuner.
		TEDE9	Set with Alps tuner.
	Integrated Radio	Yes	Feature present.
		No	Feature not present.
	P50 DVD menu line	Yes	Feature present (only in sets with Home Cinema).
		No	Feature not present.
Option no.	Group 1		Group 1 option code overview (see CRT sticker).
	Group 2		Group 2 option code overview (see CRT sticker).

Figure 8-5 Option overview

8.4.4 OPT. NO. (Option numbers)

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

An option number (or option byte) represents a number of different options. When you change these numbers directly, you can set all options very fast. All options are controlled via eight option numbers.

When the EAROM is replaced, all options will require a re-setting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a CRT sticker inside the TV set.

Example: The CRT sticker gives the following option numbers:

04187 08526 50001 00000

04182 00001 00000 00070

The first line (group 1) indicates options 1 to 4, the second line (group 2) options 5 to 8 (see tables below).

Every 5-digit number represents 16 bits (so maximum number can be 65536 if all options are set).

When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.

OB	Bit	Option name	Settings (in decimal values) for EM5.1E chassis		Option number
1	0	Featurebox	0= None	2= Prozonic	Sum OB1 (decimal)
	1			3= Eagle	
	2			4= Falconic	
				5= Falconic 1050i 1250i	
	3	2D Comb Filter	0= Off	8= On	
	4	Auto-Scavem	0= Off	16= On	
	5	n.a. *	0		
	6	Light Sensor	0= Off	64= On	
	7	Luma Trans. Proc.	0= Off	128= On (for non-Eagle sets)	
	8	n.a. *	0		
	9	n.a. *	0		
	10	n.a. *	0		
	11	n.a. *	0		
	12	WSS	0= Off	4096= On	
	13	3D Comb Filter	0= Off	8192= On	
14	Pixel Plus	0= Off	16384= On		
15	n.a. *	0			
2	0	n.a. *	0		Sum OB2 (decimal)
	1	Dolby ProLogic	0= Off	2= On	
	2	Virtual Rear Spkrs	0= Off	4= On	
	3	Cordless Rear Spkrs	0= Off	8= On	
	4	Dolby Digital	0= Off	16= On	
	5	Virtual Dolby	0= Off	32= On	
	6	Subwoofer	0= No subwoofer present	64= Subwoofer present	
	7				
	8	Chassis	0= EM6	256= EM5	
	9			512= EM3	
	10				
	11			3840= Others	
	12	EPG Type	0= Off (US)	8192= On (EU)	
	13	Flash RAM	0= Off (US)	8192= On (EU)	
	14	EPG Version	0= Off (US)	16384= Text guide only	
15	32768= NexTVview 2C3 (EU) 49152= NexTVview 2				
3	0	n.a. *	0		Sum OB3 (decimal)
	1	n.a. *	0		
	2	AV4 (2fH)	0= Off	4= On (not selectable)	
	3	AV3 (2fH)	0= Off	8= On (not selectable)	
	4	Dual Screen	0= Off	16= On	
	5	n.a. *	0		
	6	TXT/EPG/DS	0= Off	64= On	
	7	n.a. *	0		
	8	Aspect Ratio	0= 4:3	256= 16:9	
	9	Tilt	0= Off	512= On	
	10	Monitor	0= Off	1024= Reserved for FTV	
	11	Integrated Radio	0= Off	2048= On	
	12	Stand Alone	0= Off	4096= Reserved for FTV	
	13	Integrated DVD	0= Off	8192= On (not appl. for FTV)	
	14	Home Cinema	0= Off	16384= On	
15	Integrated RC (P50)	0= Off	32768= On		
4	0	PIP/Aux. Tuner	0= Off	1= On	Sum OB4 (decimal)
	1	n.a. *	0		
	2	China IF	0= Off	4= On	
	3	Tuner	0= Philips	8= Alps	
	4	Teletext	0= Off	16= On	
	5	n.a. *	0		
	6	n.a. *	0		
	7	n.a. *	0		
	8	Digital Module (MILO)	0= Off	256= On	
	9	Integrated Harddisk	0= Off	512= On	
	10	n.a. *	0		
	11	n.a. *	0		
	12	Anti Aging	0= Off	4096= Reserved for FTV	
	13	DVD-door lock	0= Off	8192= On	
	14	n.a. *	0		
15	n.a. *	0			
Note: Bits that are not used have a fixed value of "0", and are not mentioned in above overview.					

Figure 8-6 Option bytes Group 1

OB	Bit	Option name	Settings (in decimal values) for F22Rx_AA chassis		Option Number
5	0	n.a. *	0		Sum OB5 (decimal)
	1	Auto Store Mode	0= None	2= PDC/VPS 4= TXT Page 6= PDC/VPS/TXT Page	
	2				
	3	Korean Stereo	0= Off	8= On	
	4	Picture Mute	0= Off	16= On	
	5	n.a. *	0		
	6	Virgin	0= Off	64= On	
	7	n.a. *	0		
	8	n.a. *	0		
	9	n.a. *	0		
	10	n.a. *	0		
	11	n.a. *	0		
	12	TXT Preference	0= TOP	4096= FLOF	
	13	n.a. *	0		
	14	n.a. *	0		
	15	n.a. *	0		
6	0	P50 DVD menu-line	0= Off	1= On	Sum OB6 (decimal)
	1	n.a. *	0		
	2	n.a. *	0		
	3	n.a. *	0		
	4	Region	0= EU	16= AP PAL-multi 32= AP NTSC 48= US 64= LATAM 80= Australia	
	5				
	6				
	7				
	8	n.a. *	0		
	9	n.a. *	0		
	10	n.a. *	0		
	11	n.a. *	0		
	12	n.a. *	0		
	13	n.a. *	0		
	14	n.a. *	0		
	15	n.a. *	0		
7	0	EXT4 1fH (EU)	0= Off (EM5)	1= On	Sum OB7 (decimal)
	1	EXT 2fH 1 (EU)	0= Off (EM5)	2= On	
	2	EXT 2fH 2 (EU)	0= Off	4= On	
	3	EXT VGA (EU)	0= Off	8= On	
	4	EXT DVI (EU)	0= Off	16= On	
	5	EXT3 (EU)	0= Off	32= On	
	6	n.a. *	0		
	7	n.a. *	0		
	8	n.a. *	0		
	9	AV 2fH 1 (non-EU)	0= Off	512= On	
	10	AV 2fH 2 (non-EU)	0= Off	1024= On	
	11	AV VGA (non-EU)	0= Off	2048= On	
	12	AV DVI (non-EU)	0= Off	4096= On	
	13	n.a. *	0		
	14	n.a. *	0		
	15	n.a. *	0		
8	0	Cabinet	0= FL6	1= FL7 2= FL8 3= FL9 DAS 4= FL9 Monitor 5= FL10 6= FL11 7= FL12 8= FL14 (n.a.) 9= PV02 10= FL13 11= Soft Design Line 12= Tech Design Line	Sum OB8 (decimal)
	1				
	2				
	3				
	4	n.a. *	0		
	5	n.a. *	0		
	6	AVL	0= Off	64= On	
	7	n.a. *	0		
	8	Picture tube size	0= 28 inch	256= 32 inch 512= 36 inch 768= 29 inch 1024= 34 inch 1280= 38 inch 1536= 32 inch MEC 1792= 28 inch Mk2 2048= 36 inch FP 3840= Other	
	9				
	10				
	11				
	12	Anti MoirÉ	0= Off	4096= On	
	13	n.a. *	0		
	14	n.a. *	0		
	15	n.a. *	0		

Note: Bits that are not used have a fixed value of "0", and are not mentioned in above overview.

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Figure 8-7 Option bytes Group 2

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

Index of this chapter

1. Introduction
2. Block diagram
3. Double Window
4. Abbreviation list
5. IC Data Sheets

Note:

- Only **new** circuits (compared to the EM5E) are described. For the other circuit descriptions, see the manual of the EM5E. This manual is available in different languages:
 - 3122 785 12560 = English.
 - 3122 785 12571 = German.
 - 3122 785 12581 = French.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

- Two Tuners: In this case there are 2 separate tuners, so the main picture and the DW picture are independently selectable. The IF signal from the main tuner is processed on the SSB, while the IF signal from the 2nd tuner is processed by a 2nd BOCMA video processor on the DW-panel. The source selection is done via an I/O expander.

9.1 Introduction

For the EM5.1E chassis, there are three ranges foreseen, with the following delta's (compared to the EM5E):

- 93xx: No NexTView level 3, No 3rd SCART, No PIP, Eco Scavem, Virtual Dolby Surround.
- 94xx: New RC, 2-tuner PIP/DW, 3rd SCART with PIP/DW input, Auto Scavem, Virtual Dolby Surround.
- 95xx: New RC, 1-tuner PIP/DW, 3rd SCART with PIP/DW input, Auto Scavem, Dolby ProLogic.

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

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

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

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

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

In the architecture, provisions are made for more features/extensions like:

- Wireless surround sound.
- Integrated DVD-player.

The availability of Double Window (DW) or Picture In Picture (PIP) depends on the model range. There are 2 different executions, depending on the number of tuners:

- One Tuner: The TV has only one tuner (on the LSP), so the PIP-picture can be either from this tuner or from an external AV-source.

9.2 Block Diagram

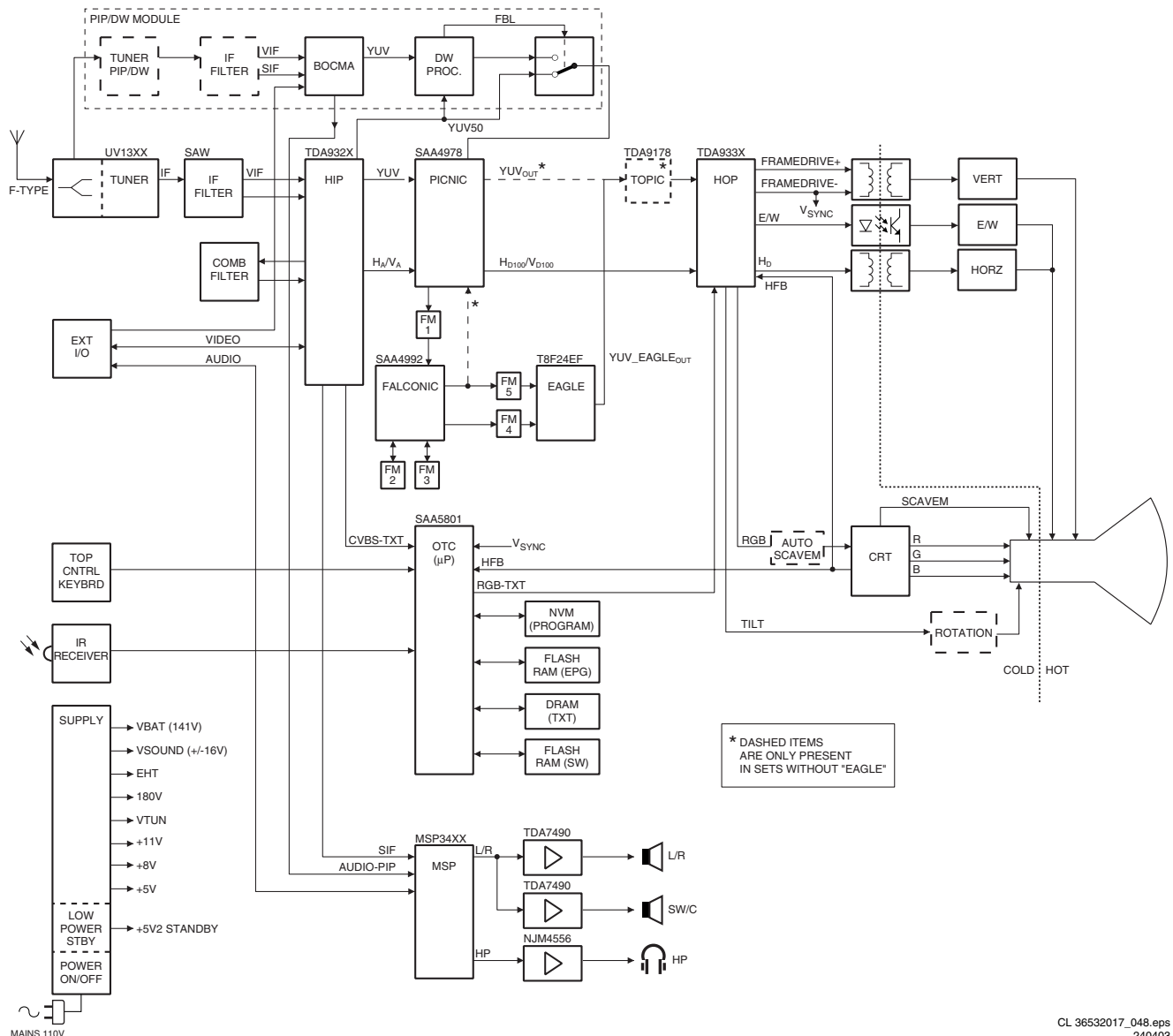
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Figure 9-1 Block diagram

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

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

Three SCART-connectors can be used:

- SCART1 is fully equipped,
- SCART2 is meant for VCR. Pin 10 is used for Easylink (P50) and there is a possibility for Y/C in. The CVBS-out on pin 19 is meant for WYSIWYR (What You See Is What You Record).
- SCART3 is a RGB/CVBS and audio L/R input. It can be used as 2nd tuner input, in case of a 1-Tuner DW/PIP set.

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

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

The '2fh features'-block in the diagram gives several options:

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

After the PICNIC the, now 100 Hz, YUV-signals are fed to the FALCONIC for 'Natural Motion', followed by the Eagle for 'Pixel Plus' enhancement (if present). The processed YUV signals (from Eagle or PICNIC) are, together with the sync-signals from the PICNIC, then fed to the HOP (High-end Output Processor). This IC handles the video control and geometry part. The RGB-signals for TXT/OSD (from the microprocessor) are also inserted via the HOP. The video part delivers the RGB signals to the CRT-panel and the geometry part delivers the H-drive, V-drive, and a drive-signal for rotation.

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

The RGB amplifiers on the CRT-panel are supplied with 200 V from the LOT.

The Scavem circuit modulates transitions of the Luminance (Y) signal on the horizontal deflection current, giving a sharper picture.

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

The microprocessor, called OTC (OSD, Teletext and Control) takes care of the analogue TXT input- and output processing. The OTC, ROM, and RAM are supplied with 3.3 V, which is derived from the +5V2.

The NVM (Non Volatile Memory) is used to store the settings, one Flash-RAM contains the set software, the other Flash-RAM (7012) is for EPG, and the DRAM is used for storing the Teletext pages.

There is a separate Standby Supply, in order to reduce the Standby power consumption. During Standby, the Main Supply is switched 'off' (via TS7529).

A relay (1550) is used to switch the degaussing circuit. It is switched 'on' after set start-up and switched 'off' by the P after 12 s.

The Main Supply, an SMPS based on the 'down-converter' principle, generates the 141 V (V_BAT) and the +/- 16 V for the audio part.

Note: Voltage V_BAT is not mains isolated ('hot'), but is alignment free.

9.3 Double Window

9.3.1 Introduction

The Double Window (DW) panel provides the option for viewer to see two pictures or programs on the displayed area of a TV screen. The displayed pictures can be in PIP or DW mode. The viewer can also select the size and position of the "second" picture.

There are basically two types of configurations. One with one (main) tuner and one with an additional tuner on the DW panel.

9.3.2 Block Diagram

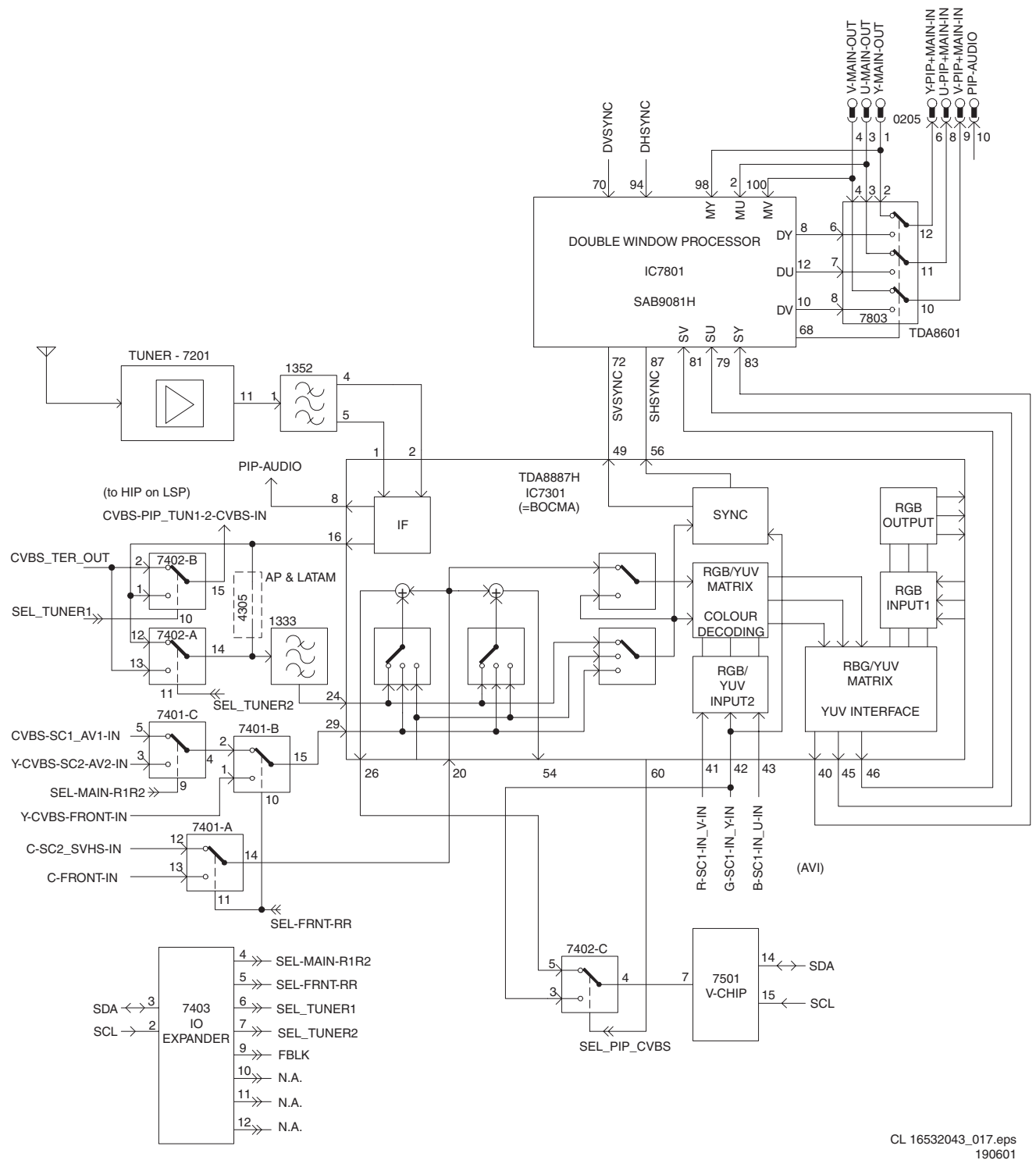


Figure 9-2 Double Window circuitry

9.3.3 IF and Video section

Basically the "IF and video" processing part is quite similar to the circuits used on the main board, except that it has a multi standard PIP processor. The processing in the DW module is performed by the TDA8887H BOCMA IC (in the set by the HIP IC).

One tuner versions

In order to display the external AV sources by the DW panel, a source selection circuit is incorporated on the panel. Three

external AV sources are possible. The selection between the sources is performed by IC7401 (HEF4053).

Two tuner versions

The TV uses one RF input to the DWs tuner via a splitter. The tuner on the main board receives RF from the splitter. Due to this configuration, the main board tuner always processes the Main picture while the DW tuner always processes the Sub picture. If the picture between the two tuners needs to be swapped, then the tuners' RF frequencies are swapped.

Signal IF-TER from the tuner is fed to pin 1 and 2, IF circuits of TDA8887H IC7301 via SAW filter 1352. The AGC voltage for the tuner can be adjusted in the SAM tuner menu (2nd AGC).

Source selection

After IF demodulation, the CVBS-PIP-OUT is fed back to TDA888x pin 24 with or without video switching circuit comprises of 7402 (HEF4053). Due to this construction, two independent RF signal pictures can be selectively displayed on the CRTs screen. See table.

Table 9-1 Switching logic for Main and DW Picture

SEL-TUNER1(Pin 6 IC7403)	SEL TUNER2 (Pin 7 IC7403)	Selected CVBS signals
0	0	Main = Tuner 1 DW/PIP = Tuner 2
0	1	Main = Tuner 1 DW/PIP = Tuner 1
1	0	Main = Tuner 2 DW/PIP = Tuner 2
1	1	Main = Tuner 2 DW/PIP = Tuner 1

The source signals are fed directly to video processor IC7301. The IC performs the source selection internally. The video processor IC7301 decodes the CVBS at pin 24 or pin 29 into YC signals and further process it into YUV signal. Output is at pins 40, 45, and 46. The PIP-AUDIO signal is fed to pin 47 of the audio demodulator MSP34xx on the SSB.

Note: When S-VHS is inserted from the rear, the AV2 source will be disabled. Likewise, when S-VHS is inserted from the side-AV.

9.3.4 DW/PIP processing

The SAB908x (IC7801) is a multi-standard PIP controller, which can be used in double window or PIP applications. The YUV signals from the video processor IC7301 are fed to pin 79, 81, and 83. The PIP controller will insert the YUV signals from IC7301 with reduced size into the main picture. The main picture YUV signals (50 Hz) are fed to pins 100, 2, and 98, respectively. These signals are used during the DW mode.

Inside IC7801, the conversion to the digital environment is done with ADCs. Processing and storage (1 MB DRAM) of the video data is done entirely in the digital domain. The conversion back to the analogue domain is done by DACs. Internal clocks are generated by PLLs, which lock on to the applied horizontal and vertical syncs from the main and sub pictures. The main picture syncs are applied to pin 70 (V) and pin 94 (H) and the sub picture syncs are applied to pin 72 (V) and pin 87 (H).

For DW mode, the main picture is compressed horizontally by a factor of two and fed directly to the output. After compression, a horizontal expansion of two is possible for the main picture. The sub picture is also compressed horizontally by a factor two, but is stored in memory before it is fed to the outputs.

Post-processed YUV signals are fed to the "fast switching" IC7803 (TDA8601 pins 6, 7, and 8). In normal operation (without DW), the main picture YUV signals (at pins 2, 3 and 4) are bypassed by IC7803, and returned back to the main video processor. When DW mode is active, the compressed YUV signals (main and sub pictures) are used and fed to the main video processor. During the PIP mode, only sub-picture YUV signals are used. The insertion control is made possible by a fast blanking signal from pin 68 of IC7801.

9.3.5 Power supplies

The power supplies used by the DW panel are from the main board 5 V, 8 V, and 33 V (for tuner only). IC7802 LM317T regulates the 5V to +3.3V, +3V, and +3VD. These voltages are mainly used by the DW processor circuitry. The 8V is mainly supplied to the IF + video processing circuitry (IC7301 TDA888x), and to fast switching IC7803.

9.4 Abbreviation list

2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV sets directly from cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature-box
AM	Amplitude Modulation
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AR	Aspect Ratio: 4 by 3 or 16 by 9
Artistic	See OTC 2.5: main processor
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars but without throwing away video information
ATV	See Auto TV
AUDIO_C	Audio Centre
AUDIO_L	Audio Left
AUDIO_R	Audio Right
AUDIO_SL	Audio Surround Left
AUDIO-SR	Audio surround right
AUDIO_SW	Audio Subwoofer
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
BC-PROT	Protection signal to the uP for a too high Beam Current.
BG	System B and G
BLC-INFO	Black Current Info
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
BOCMA	BiMOS One Chip Mid-end Architecture: integrated video and chroma decoder
CL	Constant Level: audio output to connect with an external amplifier
ComPair	Computer aided rePair
CRT	Cathode Ray Tube or picture tube
CSM	Customer Service Mode
CTI	Colour Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-TER	CVBS terrestrial
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DC-filament	Filament supply voltage

DFU	Direction For Use: description for the end user		in the NVM. They are called at start-up of the set to configure it according the customers wishes
DNR	Digital Noise Reduction: noise reduction feature of the box	LDP	Line Deflection Protection signal, derived from the EW-current and voltage
DPL	Dolby ProLogic		
DSP	Digital Signal Processing		
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode	LED	Light Emitting Diode
		LINE DRIVE	Line drive signal (for the Line transistor)
DVD	Digital Versatile Disc	LNA	Low Noise Adapter
DYN-FASE-COR	Dynamic phase correction, to correct the phase of the H-drive	LSP	Large signal panel
		MSP	Multi-standard Sound Processor: ITT sound decoder of EM5E
Eagle	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical direction, CTI and other colour features	MUTE	Mute-Line
		NC	Not Connected
EHT	Extra High Tension	NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
EHT-INFO	Extra High Tension information, used for contrast reduction, vertical and horizontal amplitude correction, beam current protection, and flash detection.	O/C	Open Circuit
		ON/OFF LED	On/Off control signal for the LED
		OSD	On Screen Display
		OTC	On screen display Teletext and Control; also named Artistic
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTVview)	P50	Project 50 communication: protocol between TV and peripherals
EW	East West, related to horizontal deflection of the set	PCB	Printed Circuit Board
		PICNIC	Peripheral Integrated Combined Network IC: main IC for 100 Hz featuring and feature processing
EW-DRIVE	The drive signal for the EW-transistor		
EXT	External (source), entering the set via SCART or via cinches	PIP	Picture In Picture
FALCONIC	Feature box IC performing Digital Natural Motion, 3DNR, and vertical zoom and vertical peaking	Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
FBL	Fast Blanking: DC signal accompanying RGB signals	PTP	Picture Tube Panel
FBL-PIP	The fast blanking signal for PIP	RAM	Random Access Memory
FBL-TXT	The fast blanking signal for TXT. It has a higher priority than FBL-PIP	R-TXT	Red teletext
FBSCO	Fixed Beam Current Switch Off, a 140 V dip detection to activate the black switch off circuit	RC	Remote Control
		RC5 / RC6	Signal protocol from the remote control receiver
FBX	Feature Box: part of small signal / separate module which contains 100 Hz processing, extra featuring and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle)	RESET	Reset signal
		RGB-PIP	RGB-input for PIP
		RGB-TXT	RGB-input for Teletext and OSD
		RGB-VC	RGB-input to the Picture Tube Panel
		ROM	Read Only Memory
		SAM	Service Alignment Mode
		SC	Sandcastle: two-level pulse derived from sync signals
FDS	Full Dual Screen		
FILAMENT	Filament of CRT	S/C	Short Circuit
FLASH	Flash memory	SCAVEM	Scan Velocity Modulation
FM	Field Memory or Frequency Modulation	SCL-F	Clock signal on fast I2C bus
		SD	Standard Definition
G-TXT	Green teletext	SDA-F	Data signal on fast I2C bus
GND-DRIVE	A separate ground for the line drive towards the line driver	SIF	Sound Intermediate Frequency
		SIMM	80-fold connector between LSP and SSB
HA50	Horizontal Acquisition 1fH: horizontal sync pulse coming out of the HIP	SNERT	Synchronous No parity Eight bit Reception and Transmit
HD100	Horizontal Drive 2fH: horizontal sync pulse coming out of the feature-box	SSB	Small Signal Board
HD at HOME	A signal from the OTC, to switch the HOP to the Pixel Plus standard (75 Hz frame)	STBY	Standby
		SW	Subwoofer
		TXT	Teletext
HFB	Horizontal Flyback Pulse: horizontal sync pulse from large signal deflection	TXT-DS	Teletext Dual Screen
		TXT-KILL	To kill the TXT picture to insert a PIP. It has a higher priority than FBL-TXT.
HIP	High-end video Input Processor: video and chroma decoder of EM5E	uP	Microprocessor
HOP	High-end video Output Processor: video, sync, and geometry controller of	U100	U from Feature Box
		V100	V from Feature Box
HP	Headphone	VA50	Vertical Acquisition 1Fh
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	VBAT	Main supply for deflection (mostly 141 V)
		VD100	Vertical Drive 2fh: vertical sync pulse from deflection
		VDPOS	One of the symmetrical drive signals for the DC frame output stage.
Last Status	The settings last chosen by the customer, read, and stored in RAM or		

VDNEG	One of the symmetrical drive signals for the DC frame output stage.
VDS	Virtual Dolby Surround
VFB	Vertical Flyback Pulse: vertical sync pulse coming from the feature box
VL	Variable Level out: processed audio output towards external amplifier
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
X-RAY-PROT	A protection signal for too high X-ray radiation
XTAL	Quartz crystal
Y100	Y from Feature Box
Y-OUT	Luminance-signal to HOP IC
YUV-Feat	The YUV input for the main picture, coming from the Feature box or the HIP

9.5 IC Data Sheets

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

9.5.1 Diagram B3c, T8F24EF (IC7724)

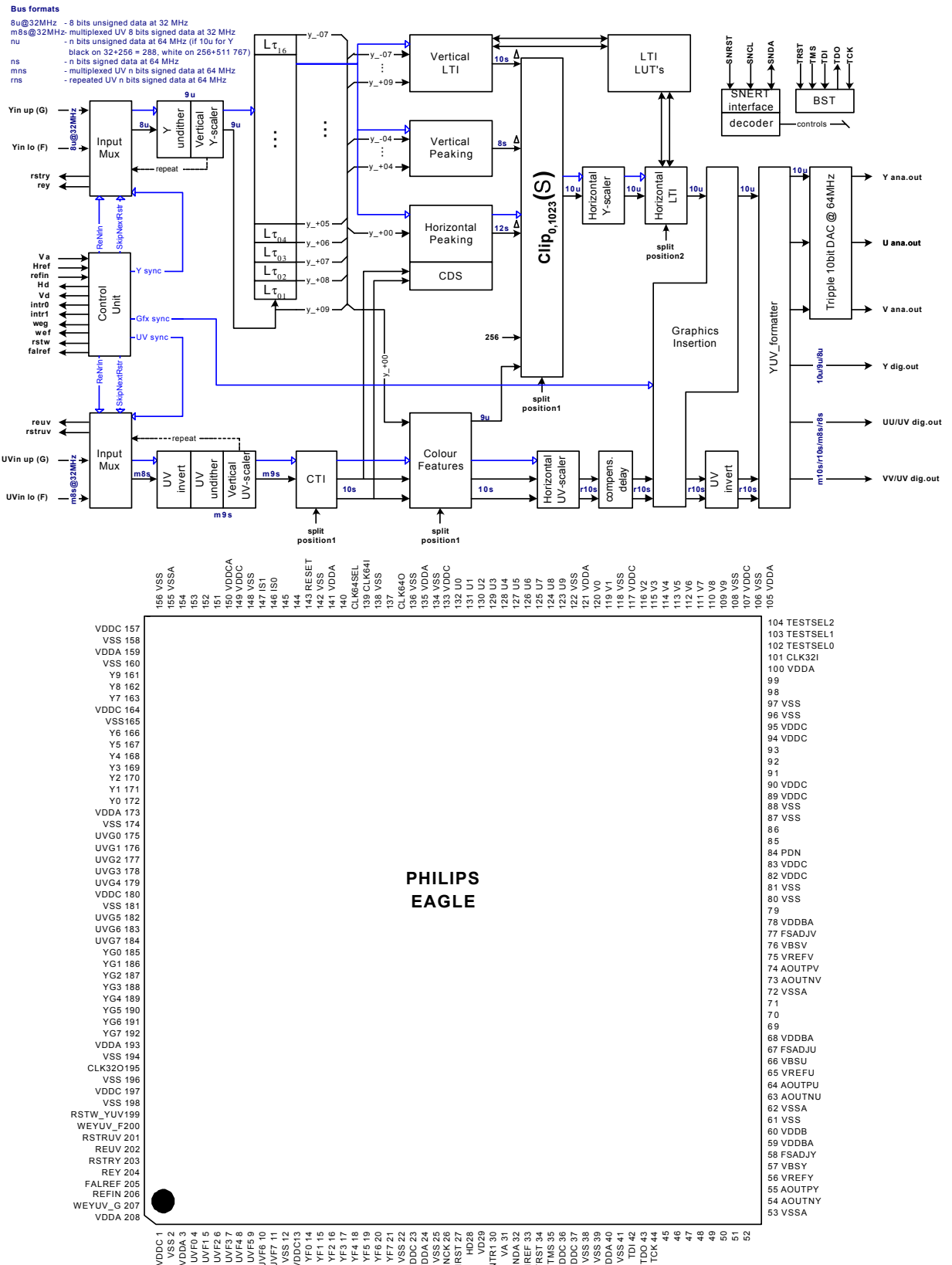


Figure 9-3 Internal Block Diagram and Pin Layout.

2707	4822 126 14076	220nF 25V. 20%			3427	4822 051 30334	330kΩ 5% 0.062W
2708	4822 126 14076	220nF 25V. 20%			3427	4822 051 30684	680kΩ 5% 0.062W
2709	4822 126 13881	470pF 5% 50V			3429	3198 021 32250	2MΩ 5% 0603
2710	4822 126 13881	470pF 5% 50V			3429	4822 051 30105	1MΩ 5% 0.062W
2711	3198 016 31020	1nF 25V 0603			3431	2306 207 03151	150Ω 5% 0.5W
2712	2020 552 96683	220nF 10% 50V			3437	4822 051 20109	10Ω 5% 0.1W
2713	4822 126 14076	220nF 25V. 20%			3440	4822 051 30102	1kΩ 5% 0.062W
2714	4822 126 14549	33nF 16V 0603			3441	4822 051 30223	22kΩ 5% 0.062W
2715	3198 016 31020	1nF 25V 0603			3442	4822 051 30474	470kΩ 5% 0.062W
2716	4822 126 14241	330pF 50V 0603			3443	4822 051 30684	680kΩ 5% 0.062W
2717	5322 121 42498	680nF 5% 63V			3444	4822 051 20108	1Ω 5% 0.1W
2718	2222 867 15339	33pF 5% 50V 0603			3447	4822 117 11373	100Ω 1% 0805
2719	3198 016 31020	1nF 25V 0603			3449	4822 052 10101	100Ω 5% 0.33W
2720	4822 126 14076	220nF 25V. 20%			3450	4822 050 21003	10kΩ 1% 0.6W
2721	4822 126 13881	470pF 5% 50V			3450	4822 116 52238	12kΩ 5% 0.5W
2722	4822 126 13881	470pF 5% 50V			3451	4822 050 21003	10kΩ 1% 0.6W
2723	3198 016 31020	1nF 25V 0603			3454	4822 051 20108	1Ω 5% 0.1W
2724	2020 552 96683	220nF 10% 50V			3455	4822 117 12902	8.2kΩ 1% 0.063W 0603
2725	3198 016 31020	1nF 25V 0603			3456	4822 117 12903	1.8kΩ 1% 0.063W 0603
2726	4822 126 14549	33nF 16V 0603			3457	4822 051 30152	1.5kΩ 5% 0.062W
2727	3198 016 31020	1nF 25V 0603			3458	4822 051 30471	470kΩ 5% 0.062W
2728	4822 126 14241	330pF 50V 0603			3459	4822 051 30272	2.7kΩ 5% 0.062W
2729	5322 121 42498	680nF 5% 63V			3460	4822 052 10108	1Ω 5% 0.33W
2740	4822 121 51252	470nF 5% 63V			3461	4822 052 10108	1Ω 5% 0.33W
2741	2222 867 15339	33pF 5% 50V 0603			3462	4822 052 11108	1Ω 5% 0.5W
2742	4822 126 14241	330pF 50V 0603			3463	4822 052 11108	1Ω 5% 0.5W
2743	4822 126 12105	33nF 5% 50V			3464	4822 052 11108	1Ω 5% 0.5W
2744	4822 126 12105	33nF 5% 50V			3465	4822 052 11108	1Ω 5% 0.5W
2745	4822 126 14241	330pF 50V 0603			3466	4822 051 30472	4.7kΩ 5% 0.062W
2746	3198 016 31020	1nF 25V 0603			3467	4822 117 13632	100kΩ 1% 0603 0.62W
2747	4822 126 13881	470pF 5% 50V			3472	4822 051 30393	39kΩ 5% 0.062W
2748	2020 552 96683	220nF 10% 50V			3474	4822 051 30563	56kΩ 5% 0.062W
2749	2020 552 95447	2.2μF 20% 16V			3475	4822 051 30472	4.7kΩ 5% 0.062W
2750	2238 586 59812	100nF 20-80% 50V 0603			3476	4822 116 83874	220kΩ 5% 0.5W
2751	4822 126 14585	100nF 10% 50V			3478	4822 116 52175	100Ω 5% 0.5W
2753	4822 126 14076	220nF 25V. 20%			3479	4822 052 10478	4Ω 7.5% 0.33W
2754	2020 552 95447	2.2μF 20% 16V			3480	4822 052 10478	4.7Ω 5% 0.33W
2755	3198 016 31020	1nF 25V 0603			3480	4822 052 10688	6Ω 8.5% 0.33W
2756	4822 126 13881	470pF 5% 50V			3481	2322 750 61001	100Ω 5% 1206
2757	2020 552 96683	220nF 10% 50V			3482	4822 051 30221	220Ω 5% 0.062W
2758	5322 121 42498	680nF 5% 63V			3483	4822 117 12903	1.8kΩ 1% 0.063W 0603
2759	5322 126 10511	1nF 5% 50V			3485	4822 051 30471	470Ω 5% 0.062W
2760	5322 122 32268	470pF 5% 63V			3486	2120 108 94004	7kΩ 1% 0603
2761	4822 126 13881	470pF 5% 50V			3486	2322 704 67502	7.5K 1% 0.5W
2762	4822 126 14076	220nF 25V. 20%			3487	4822 117 12902	8.2kΩ 1% 0.063W 0603
2763	4822 126 14076	220nF 25V. 20%			3487	5322 117 13056	8.2K 1% 0.063W 0603
2777	2020 552 96684	470nF 10% 25V			3488	4822 050 21005	1MΩ 1% 0.6W
2778	4822 124 41751	47μF 20% 50V			3488	4822 050 26804	680k 1% 0.6W
2779	2020 552 96684	470nF 10% 25V			3489	4822 051 30103	10kΩ 5% 0.062W
2780	2020 552 96684	470nF 10% 25V			3490	4822 051 30332	3.3kΩ 5% 0.062W
2781	2020 552 96684	470nF 10% 25V			3491	4822 117 12925	47kΩ 1% 0.063W 0603
2782	2020 552 96684	470nF 10% 25V			3492	4822 116 52175	100Ω 5% 0.5W
2783	2020 552 96684	470nF 10% 25V			3493	4822 050 21504	150kΩ 1% 0.6W
2784	2020 552 96684	470nF 10% 25V			3496	4822 051 30272	2.7kΩ 5% 0.062W
2785	2020 552 96684	470nF 10% 25V			3497	4822 051 30333	33kΩ 5% 0.062W
2786	2238 916 15641	22nF 10% 25V 0603			3501	4822 116 83872	220Ω 5% 0.5W
2786	4822 126 14494	22nF 10% 25V 0603			3504	4822 051 30222	2.2kΩ 5% 0.062W
2787	2238 916 15641	22nF 10% 25V 0603			3505	4822 116 52257	22kΩ 5% 0.5W
2791	2020 552 96684	470nF 10% 25V			3506	4822 051 30562	5.6kΩ 5% 0.063W 0603
2792	2020 552 96684	470nF 10% 25V			3507	4822 050 21604	160kΩ 1% 0.6W
2914	4822 124 40248	10μF 20% 63V			3508	4822 116 52182	100Ω 5% 0.5W
2915	4822 124 12255	10μF 20% 50V			3509▲	2122 550 00158	VDR 1mA 612V
2917	4822 126 14585	100nF 10% 50V			3510	4822 117 11454	820Ω 1% 0.1W
2929	4822 126 13879	220nF 20% 16V			3511	4822 053 11222	2kΩ 5% 2W
2930	2020 552 93683	1.2nF 10% 50V 0603			3512	4822 117 12891	220kΩ 1% 0.063W 0603
2931	2020 552 93683	1.2nF 10% 50V 0603			3513	4822 116 52272	330k 5% 0.5W
2940	4822 124 23432	100μF 20% 10V			3514	2322 193 53397	0.39Ω 5% 0.6W
2941	4822 126 14585	100nF 10% 50V			3515	2322 193 53397	0.39Ω 5% 0.6W
2942	4822 126 14585	100nF 10% 50V			3517	4822 117 10834	47kΩ 1% 0.1W
2943	4822 126 14585	100nF 10% 50V			3518	4822 116 52245	150kΩ 5% 0.5W
2944	4822 126 13879	220nF 20% 16V			3519	4822 051 30102	1kΩ 5% 0.062W
2945	4822 126 14491	2.2μF -20+80% 10V 0805			3520	4822 053 11333	33k 5% 2W
2946	4822 126 14491	2.2μF -20+80% 10V 0805			3521	4822 053 21475	1k 5% 0.5W
2947	2020 021 90141	4.7μF 20% 50V			3522	4822 117 11507	6.8kΩ 1% 0.1W
2948	4822 124 23432	100μF 20% 10V			3523	4822 051 20105	1MΩ 5% 0.1W
2949	4822 124 23432	100μF 20% 10V			3524	4822 051 30333	33kΩ 5% 0.062W
2950	5322 126 11583	10nF 10% 50V 0603			3525	4822 051 30479	47Ω 5% 0.062W
2951	5322 126 11583	10nF 10% 50V 0603			3526	4822 116 83303	0.1Ω 2W
2952	5322 126 11578	1nF 10% 50V 0603			3527	4822 117 11951	2kΩ 1% 0.1W
2985	4822 126 14315	390pF 5% 50V 0603			3528	4822 051 30103	10kΩ 5% 0.062W
2987	5322 122 31863	330pF 5% 63V			3529	4822 051 30472	4.7kΩ 5% 0.062W
2989	5322 122 31863	330pF 5% 63V			3530	4822 051 30102	1kΩ 5% 0.062W
2990	5322 122 31863	330pF 5% 63V			3531	4822 117 11507	6.8kΩ 1% 0.1W
2991	5322 122 32531	100pF 5% 50V			3532	4822 117 12925	47kΩ 1% 0.063W 0603
2992	5322 122 31863	330pF 5% 63V			3533	4822 116 52182	150kΩ 5% 0.5W
2993	5322 122 32531	100pF 5% 50V			3534	4822 117 12925	47kΩ 1% 0.063W 0603
2994	5322 122 31863	330pF 5% 63V			3535	4822 051 30479	47Ω 5% 0.062W
2995	5322 122 31863	330pF 5% 63V			3536	4822 052 10102	1k 5% 0.33W
2996	5322 122 31863	330pF 5% 63V			3537	4822 116 52182	15Ω 5% 0.5W
2997	5322 122 31863	330pF 5% 63V			3540	4822 050 23303	33k 1% 0.6W
2998	5322 122 32531	100pF 5% 50V			3543	4822 050 24708	4Ω 7.1% 0.6W
2999	5322 122 32531	100pF 5% 50V			3547	4822 051 30008	Jumper 0603
					3549	5322 117 13039	220K 1% 0.063W 0603
					3550▲	2122 663 00018	PTC 4.7Ω 20%

3550▲	2322 662 96858	PTC 276V 4.5Ω 20%	3724	4822 117 11503	220Ω 1% 0.1W	9202	4822 051 30008	Jumper 0603
3551	4822 116 83872	220Ω 5% 0.5W	3725	4822 051 30223	22kΩ 5% 0.062W	9203	4822 051 30008	Jumper 0603
3552	4822 051 30222	2.2kΩ 5% 0.062W	3726	4822 117 11503	220Ω 1% 0.1W	9204	4822 051 30008	Jumper 0603
3553	4822 051 30103	10kΩ 5% 0.062W	3727	4822 117 11503	220Ω 1% 0.1W	9205	4822 051 20008	Jumper 0805
3610	4822 051 30223	22kΩ 5% 0.062W	3728	4822 116 52234	100kΩ 5% 0.5W	9207	4822 051 30008	Jumper 0603
3611	4822 051 30222	2.2kΩ 5% 0.062W	3729	4822 117 10837	100kΩ 1% 0.1W	9208	4822 051 20008	Jumper 0805
3620	4822 050 21808	1.8Ω 1% 0.6W	3730	4822 117 11503	220Ω 1% 0.1W	9209	4822 051 20008	Jumper 0805
3620	4822 116 80176	1Ω 5% 0.5W	3731	4822 117 11503	220Ω 1% 0.1W	9210	4822 051 30008	Jumper 0603
3620	4822 116 80676	1Ω5 5% 0.5W	3732	4822 051 30223	22kΩ 5% 0.062W	9211	4822 051 30008	Jumper 0603
3621	4822 116 80176	1Ω 5% 0.5W	3733	4822 051 30223	22kΩ 5% 0.062W	9212	4822 051 20008	Jumper 0805
3621	4822 116 80676	1Ω5 5% 0.5W	3734	4822 051 20124	120kΩ 5% 0.1W	9214	4822 051 20008	Jumper 0805
3622	2122 101 02083	1.5Ω 5% 0.5W	3735	4822 051 30683	68kΩ 5% 0.062W	9215	4822 051 20008	Jumper 0805
3622	4822 116 80176	1Ω 5% 0.5W	3736	4822 051 30563	56kΩ 5% 0.062W	9216	4822 051 20008	Jumper 0805
3622	4822 116 81039	1.8Ω 5% 0.5W	3737	2322 704 65102	5.1kΩ 1% 0603	9217	4822 051 20008	Jumper 0805
3623	4822 116 52251	18kΩ 5% 0.5W	3738	4822 051 20828	8.2Ω 5% 0.1W	9218	4822 051 20008	Jumper 0805
3623	4822 116 52257	22kΩ 5% 0.5W	3739	4822 051 30683	68kΩ 5% 0.062W	9219	4822 051 20008	Jumper 0805
3624	4822 052 10158	1Ω5 5% 0.33W	3740	2322 704 65102	5.1kΩ 1% 0603	9221	4822 051 20008	Jumper 0805
3625	4822 050 15609	56Ω 1% 0.4W	3741	2322 704 61243	12k4 1% 0603	9222	4822 051 20008	Jumper 0805
3625	4822 053 10121	120Ω 5% 1W	3742	4822 051 30563	56kΩ 5% 0.062W	9226	4822 051 30008	Jumper 0603
3625	4822 116 52219	330Ω 5% 0.5W	3743	4822 117 11449	2.2kΩ 5% 0.1W 0805	9251	4822 051 30008	Jumper 0603
3625	4822 116 83872	220Ω 5% 0.5W	3744	4822 117 12891	220kΩ 1% 0.063W 0603	9261	4822 051 20008	Jumper 0805
3626	4822 050 15609	56Ω 1% 0.4W	3745	4822 051 30102	1kΩ 5% 0.062W	9262	4822 051 20008	Jumper 0805
3626	4822 116 52199	68Ω 5% 0.5W	3746	4822 051 30223	22kΩ 5% 0.062W	9263	4822 051 20008	Jumper 0805
3626	4822 116 52219	330Ω 5% 0.5W	3748	4822 051 30008	Jumper 0603	9264	4822 051 20008	Jumper 0805
3626	4822 116 80176	1Ω 5% 0.5W	3749	4822 116 83883	470Ω 5% 0.5W	9418	4822 051 20008	Jumper 0805
3626	4822 116 83872	220Ω 5% 0.5W	3750	4822 117 11449	2.2kΩ 5% 0.1W 0805	9421	4822 051 20008	Jumper 0805
3627	4822 051 20223	22kΩ 5% 0.1W	3751	4822 117 11449	2.2kΩ 5% 0.1W 0805	9422	4822 051 30008	Jumper 0603
3630	4822 051 30333	33kΩ 5% 0.062W	3752	4822 117 11449	2.2kΩ 5% 0.1W 0805	9424	4822 051 30008	Jumper 0603
3631	4822 051 30222	2.2kΩ 5% 0.062W	3760	4822 117 12891	220kΩ 1% 0.063W 0603	9427	4822 051 30008	Jumper 0603
3632	4822 051 30393	39kΩ 5% 0.062W	3790	4822 051 30272	2.7kΩ 5% 0.062W	9428	4822 051 30008	Jumper 0603
3633	4822 051 30563	56kΩ 5% 0.062W	3791	4822 051 30272	2.7kΩ 5% 0.062W	9429	4822 051 30008	Jumper 0603
3634	4822 116 83882	39k 5% 0.5W	3792	4822 051 30103	10kΩ 5% 0.062W	9430	4822 051 30008	Jumper 0603
3635	4822 116 52219	330Ω 5% 0.5W	3793	4822 051 30103	10kΩ 5% 0.062W	9431	4822 051 30008	Jumper 0603
3636	4822 051 30223	22kΩ 5% 0.062W	3794	4822 051 30103	10kΩ 5% 0.062W	9432	4822 051 30008	Jumper 0603
3637	4822 051 30103	10kΩ 5% 0.062W	3795	4822 051 30103	10kΩ 5% 0.062W	9433	4822 051 30008	Jumper 0603
3638	4822 051 30474	470kΩ 5% 0.062W	3796	4822 051 30272	2.7kΩ 5% 0.062W	9434	4822 051 30008	Jumper 0603
3639	4822 051 30563	56kΩ 5% 0.062W	3797	4822 051 30272	2.7kΩ 5% 0.062W	9435	4822 051 30008	Jumper 0603
3640	4822 051 30222	2.2kΩ 5% 0.062W	3798	4822 051 30153	15kΩ 5% 0.062W	9436	4822 051 30008	Jumper 0603
3641	4822 116 83883	470Ω 5% 0.5W	3903	4822 051 20561	560Ω 5% 0.1W	9437	4822 051 30008	Jumper 0603
3642	4822 101 11193	47k 30% 0.1W	3904	4822 052 10688	6Ω8 5% 0.33W	9438	4822 051 30008	Jumper 0603
3643	4822 051 30334	330kΩ 5% 0.062W	3907	4822 051 20479	47Ω 5% 0.1W	9440	4822 051 30008	Jumper 0603
3644	4822 051 30221	220Ω 5% 0.062W	3910	4822 117 12521	68Ω 1% 0.1W	9441	4822 051 30008	Jumper 0603
3645	4822 116 52245	150kΩ 5% 0.5W	3928	4822 051 30008	Jumper 0603	9443	4822 051 30008	Jumper 0603
3646	4822 117 12925	47kΩ 1% 0.063W 0603	3938	4822 117 11373	100Ω 1% 0805	9481	4822 051 30008	Jumper 0603
3647	4822 051 20228	2.2Ω 5% 0.1W	3939	4822 051 30103	10kΩ 5% 0.062W	9483	4822 051 30008	Jumper 0603
3649	4822 051 30103	10kΩ 5% 0.062W	3940	4822 051 20561	560Ω 5% 0.1W	9499	4822 051 30008	Jumper 0603
3653	4822 051 20223	22kΩ 5% 0.1W	3941	4822 052 10688	6Ω8 5% 0.33W	9505	4822 051 20008	Jumper 0805
3654	4822 051 30472	4.7kΩ 5% 0.062W	3942	4822 117 11373	100Ω 1% 0805	9560	4822 051 30008	Jumper 0603
3655	4822 051 30123	12kΩ 5% 0.062W	3943	4822 051 30103	10kΩ 5% 0.062W	9561	4822 051 20008	Jumper 0805
3656	4822 117 11817	1.2kΩ 1% 1/16W	3945	4822 117 12955	2.7kΩ 1% 0.1W 0805	9621	4822 051 30008	Jumper 0603
3657	4822 051 30223	22kΩ 5% 0.062W	3959	4822 117 10353	150Ω 1% 0.1W	9624	4822 051 30008	Jumper 0603
3658	4822 051 30223	22kΩ 5% 0.062W	3960	4822 117 10353	150Ω 1% 0.1W	9676	4822 051 30008	Jumper 0603
3659	4822 051 30222	2.2kΩ 5% 0.062W	3961	4822 117 10353	150Ω 1% 0.1W	9677	4822 051 20008	Jumper 0805
3660	4822 051 30562	5.6kΩ 5% 0.063W 0603	3962	4822 117 10353	150Ω 1% 0.1W	9702	4822 051 30008	Jumper 0603
3661	4822 116 52206	120Ω 5% 0.5W	3965	4822 117 10353	150Ω 1% 0.1W	9704	4822 051 20008	Jumper 0805
3661	4822 116 52219	330Ω 5% 0.5W	3966	4822 117 10353	150Ω 1% 0.1W	9705	4822 051 20008	Jumper 0805
3661	4822 116 83883	470Ω 5% 0.5W	3967	4822 116 52201	75Ω 5% 0.5W	9706	4822 051 30471	470Ω 5% 0.062W
3662	4822 051 30152	1.5kΩ 5% 0.062W	3968	4822 116 52201	75Ω 5% 0.5W	9707	4822 051 30008	Jumper 0603
3665	4822 051 30479	47Ω 5% 0.062W	3969	4822 051 20008	Jumper 0805	9711	4822 051 30008	Jumper 0603
3681	4822 116 52207	1k2 5% 0.5W	3970	4822 051 20008	Jumper 0805	9713	4822 051 30008	Jumper 0603
3682	4822 117 13632	100kΩ 1% 0603 0.62W	3971	4822 116 52201	75Ω 5% 0.5W	9714	4822 051 20008	Jumper 0805
3683	4822 051 30103	10kΩ 5% 0.062W	3972	2122 101 02073	82Ω 5% 0.5W	9716	4822 051 20008	Jumper 0805
3684	4822 051 30682	6.8kΩ 5% 0.062W	3972	4822 116 52202	82Ω 5% 500mW	9717	4822 051 30008	Jumper 0603
3685	4822 051 30273	27kΩ 5% 0.062W	3973	4822 116 52201	75Ω 5% 0.5W	9908	4822 051 30008	Jumper 0603
3686	4822 051 30563	56kΩ 5% 0.062W	3974	4822 116 52201	75Ω 5% 0.5W	9927	4822 051 20008	Jumper 0805
3687	4822 116 52207	1k2 5% 0.5W	3975	4822 116 52201	75Ω 5% 0.5W	9928	4822 051 20008	Jumper 0805
3688	4822 051 20684	680kΩ 5% 0.1W	3976	4822 117 11373	100Ω 1% 0805	9960	4822 051 30008	Jumper 0603
3689	4822 050 11002	1k 1% 0.4W	3977	4822 117 11373	100Ω 1% 0805	9962	4822 051 30008	Jumper 0603
3690	4822 051 30109	10Ω 5% 0.062W	3978	4822 117 11373	100Ω 1% 0805	9966	4822 051 30008	Jumper 0603
3701	4822 051 30103	10kΩ 5% 0.062W	3979	4822 116 52201	75Ω 5% 0.5W	9979	4822 051 20008	Jumper 0805
3702	4822 051 30682	6.8kΩ 5% 0.062W	3980	4822 117 11373	100Ω 1% 0805	9981	4822 051 20008	Jumper 0805
3703	4822 051 30333	33kΩ 5% 0.062W	3981	4822 051 20822	8.2kΩ 5% 0.1W	9985	4822 051 30008	Jumper 0603
3703	4822 051 30472	4.7kΩ 5% 0.062W	3982	4822 051 20392	3.9kΩ 5% 0.1W	9986	4822 051 20008	Jumper 0805
3704	4822 117 10833	10kΩ 1% 0.1W	3983	4822 116 52175	100Ω 5% 0.5W	9987	4822 051 20008	Jumper 0805
3705	4822 051 20828	8.2Ω 5% 0.1W	3984	4822 051 20822	8.2kΩ 5% 0.1W	9988	4822 051 20008	Jumper 0805
3706	2322 704 65102	5.1kΩ 1% 0603	3985	4822 116 52201	75Ω 5% 0.5W	9989	4822 051 20008	Jumper 0805
3707	4822 051 30683	68kΩ 5% 0.062W	3986	4822 116 52276	3.9kΩ 5% 0.5W	9990	4822 051 20008	Jumper 0805
3708	4822 051 30563	56kΩ 5% 0.062W	3987	4822 116 52175	100Ω 5% 0.5W	9991	4822 051 20008	Jumper 0805
3709	4822 117 11503	220Ω 1% 0.1W	3988	4822 051 10102	1kΩ 2% 0.25W	9992	4822 051 20008	Jumper 0805
3710	4822 051 30223	22kΩ 5% 0.062W	3989	4822 050 11002	1k 1% 0.4W	9993	4822 051 20008	Jumper 0805
3711	4822 050 11204	120k 1% 0.4W	3990	4822 117 10353	150Ω 1% 0.1W	9994	4822 051 20008	Jumper 0805
3711	4822 050 21204	120kΩ 1% 0.6W	3991	4822 117 10353	150Ω 1% 0.1W	9997	4822 051 20008	Jumper 0805
3712	4822 117 12706	10kΩ 1% 0.063W 0603	3992	4822 117 10353	150Ω 1% 0.1W			
3713	4822 116 83884	47k 5% 0.5W	3993	4822 116 83868	150Ω 5% 0.5W			
3714	4822 117 12925	47kΩ 1% 0.063W 0603	3994	4822 051 10102	1kΩ 2% 0.25W			
3715	4822 117 12925	47kΩ 1% 0.063W 0603	3995	4822 051 10102	1kΩ 2% 0.25W			
3716	4822 117 12925	47kΩ 1% 0.063W 0603	3996	4822 117 10353	150Ω 1% 0.1W	5100▲	3104 308 20431	Transformer BS25126-03
3717	4822 117 13632	100kΩ 1% 0603 0.62W	3997	4822 117 10353	150Ω 1% 0.1W	5100▲	3104 308 20561	TFM BS25125-04 B
3718	4822 117 13632	100kΩ 1% 0603 0.62W	9103	4822 051 20008	Jumper 0805	5102	2422 535 94639	10μH 20%
3719	4822 117 11503	220Ω 1% 0.1W	9105	4822 051 20008	Jumper 0805	5103	4822 526	

5113	4822 157 11411	Bead 83Ω at 100MHz
5130	4822 157 11411	Bead 83Ω at 100MHz
5400	4822 157 11869	33μH 10% LHL08
5401	2422 536 00059	12μH 10%
5402	3198 018 21510	150μH 10%
5410▲	3128 138 39091	Transformer CE165T
5411	4822 157 71097	0.56μH 10%
5421	3104 308 20471	Coil BL15131-00 Y
5421	3104 308 20591	Linearity coil 5μH
5421	3104 308 20611	Linearity coil 5μH 30"
5421	3104 308 20691	Linearity coil 5μH 34"
5422	3104 308 20671	Bridge coil BC21215-01
5422▲	3104 308 20752	Bridge coil BC21237-01 Y
5423	4822 157 71097	0.56μH 10%
5425	4822 157 11411	Bead 83Ω at 100MHz
5426	4822 157 70826	2.4μH
5430▲	3104 308 20491	LOT 1392.9014A
5430▲	3104 308 20521	LOT 1392.9005C 30"
5430▲	3104 308 20521	Trans. 1392.9010B Y
5461	4822 157 11411	Bead 83Ω at 100MHz
5463	4822 157 11411	Bead 83Ω at 100MHz
5465	4822 157 11411	Bead 83Ω at 100MHz
5466	2422 535 94996	18μH 10%
5467	4822 157 11411	Bead 83Ω at 100MHz
5469	4822 157 11411	Bead 83Ω at 100MHz
5503▲	2422 549 44877	Filter 45mH DMF2845H
5505	4822 157 11411	Bead 83Ω at 100MHz
5506▲	2422 531 02501	Transformer S30940-04
5507	4822 157 11411	Bead 83Ω at 100MHz
5509	4822 157 11411	Bead 83Ω at 100MHz
5511	3104 308 20511	FIL MAINS HARM 40MH Y
5513	4822 157 11869	33μH 10% LHL08
5514	4822 157 11869	33μH 10% LHL08
5515	4822 157 11869	33μH 10% LHL08
5620	4822 157 11771	0.09μH 10%
5621▲	3104 308 20571	Transformer S13974-03 34'
5701	2422 536 00385	68μH 10%
5702	2422 536 00385	68μH 10%
5703	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 83Ω at 100MHz
5708	4822 157 11411	Bead 83Ω at 100MHz
5711	4822 157 11411	Bead 83Ω at 100MHz
5712	4822 157 11411	Bead 83Ω at 100MHz
5715	4822 157 11411	Bead 83Ω at 100MHz
5716	4822 157 11411	Bead 83Ω at 100MHz
5720	2422 536 00385	68μH 10%
5721	2422 536 00385	68μH 10%
5722	4822 157 11411	Bead 83Ω at 100MHz
5723	4822 157 11411	Bead 83Ω at 100MHz
5725	4822 157 11411	Bead 83Ω at 100MHz
5901	4822 157 11299	10μH 5%
5902	4822 157 11869	33μH 10% LHL08
5903	4822 157 10359	33μH 10%
5904	4822 157 11411	Bead 83Ω at 100MHz



6080	4822 130 11397	BAS316
6082	4822 130 11528	1PS76SB10
6084	4822 130 11522	UDZ15B
6103	4822 130 41601	BYV95A
6103	4822 130 42488	BYD33D
6103	5322 130 31938	BYV27-200
6105	4822 130 34281	BZX79-B15
6106	3198 010 52290	BZX79-B22
6107	4822 130 11572	STPS8H100F
6108	4822 130 11528	1PS76SB10
6109	4822 130 31083	BYW55
6110	9340 418 70133	BYV27-600
6111	9322 161 78682	SB360L-7024
6112	4822 130 11551	UDZS10B
6115	4822 130 11528	1PS76SB10
6118	4822 130 11397	BAS316
6119	4822 130 11397	BAS316
6120	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6122	3198 010 53980	BZX79-B3V9
6130	4822 130 11596	BYW29EX-200
6132	9322 171 80685	BZX384-B6V8
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316
6141	9322 129 42685	BZM55-C15
6142	4822 130 11528	1PS76SB10
6144	4822 130 11397	BAS316
6147	4822 130 34278	BZX79-B6V8
6148	5322 130 31938	BYV27-200
6149	4822 130 11397	BAS316
6200	9340 548 71115	SM PDZ33B
6201	4822 130 11397	BAS316
6202	4822 130 11397	BAS316
6400	4822 130 70055	BYV27-400
6405	4822 130 34383	BZX79-B47
6406	4822 130 11397	BAS316

6407	4822 130 11397	BAS316
6408	4822 130 41601	BYV95A
6408	4822 130 42488	BYD33D
6421	4822 130 10753	BY359X-1500
6422	4822 130 10218	BY229X-800
6442	4822 130 11522	UDZ15B
6455	4822 130 11397	BAS316
6456	5322 130 34337	BAV99
6457	9322 102 64685	UDZ2.7B
6458	3198 020 55680	BZX384-C5V6
6460	4822 130 41487	BYV95C
6462	9322 127 32682	BYW76-RAS15/10
6464	9322 127 32682	BYW76-RAS15/10
6465	3139 120 52021	BYV29X-500
6480	4822 130 41601	BYV95A
6480	4822 130 42488	BYD33D
6481	4822 130 11522	UDZ15B
6482	4822 130 11397	BAS316
6483	4822 130 11528	1PS76SB10
6493	4822 130 11528	1PS76SB10
6505	4822 130 34281	BZX79-B15
6506	4822 130 10654	BAT254
6506	4822 130 80622	BAT54
6509	4822 130 11397	BAS316
6510	4822 130 61219	BZX79-B10
6511	4822 130 11397	BAS316
6512	4822 130 11397	BAS316
6514	5322 130 31932	BZT03-C200
6515	4822 130 33657	BZV85-C6V8
6516	4822 130 11397	BAS316
6517	4822 130 11528	1PS76SB10
6525▲	3198 010 10640	Bridge cell GBU4K
6530	4822 130 41487	BYV95C
6534	9322 165 72687	DTV1500MFP
6535	4822 130 11572	STPS8H100F
6536	4822 130 11572	STPS8H100F
6537	4822 130 11397	BAS316
6614	4822 130 11528	1PS76SB10
6615	4822 130 11397	BAS316
6616	4822 130 11397	BAS316
6617	4822 130 11397	BAS316
6618	4822 130 11397	BAS316
6619	4822 130 41601	BYV95A
6619	4822 130 42488	BYD33D
6620	5322 130 31938	BYV27-200
6621	4822 130 41601	BYV95A
6621	4822 130 42488	BYD33D
6622	5322 130 32296	BZV85-C10
6622	5322 130 33635	BZV85-C8V2
6623	4822 130 11397	BAS316
6624	4822 130 11397	BAS316
6625	4822 130 11397	BAS316
6626	4822 130 11397	BAS316
6627	4822 130 11397	BAS316
6701	4822 130 11397	BAS316
6745	4822 130 11551	UDZS10B
6950	4822 130 11416	PDZ6.8B
6951	4822 130 11416	PDZ6.8B
6953	4822 130 11416	PDZ6.8B
6954	4822 130 11416	PDZ6.8B
6955	4822 130 11416	PDZ6.8B
6956	4822 130 11416	PDZ6.8B
6957	4822 130 11416	PDZ6.8B
6958	4822 130 11416	PDZ6.8B
6959	4822 130 11416	PDZ6.8B
6960	9340 548 61115	PDZ12B
6961	4822 130 11416	PDZ6.8B
6962	4822 130 11416	PDZ6.8B



7100	4822 130 44568	BC557B
7101	4822 130 40981	BC337-25
7102	4822 130 11417	STP3NB60FPP
7103▲	9322 149 04682	TCET1102
7130	5322 130 60159	BC846B
7131	4822 130 11336	STP16NE06FP
7132	5322 130 60159	BC846B
7133	4822 130 60373	BC856B
7140	5322 130 60159	BC846B
7141	4822 130 11336	STP16NE06FP
7210	5322 130 60159	BC846B
7211	4822 130 42804	BC817-25
7408	5322 130 44647	BC368
7409	5322 130 60159	BC846B
7421	9340 210 30127	BU2520DX
7440	4822 209 70672	LM358N SEL.
7441	4822 130 60373	BC856B
7442	4822 130 60373	BC856B
7443	5322 130 60159	BC846B
7445	5322 130 60159	BC846B
7450	5322 209 61472	LM393M
7455	4822 209 73852	PMBT2369

7480	4822 130 11417	STP3NB60FP
7482▲	4822 130 11418	TCDT1102G
7486	5322 130 60159	BC846B
7487	5322 130 60159	BC846B
7501	5322 130 60159	BC846B
7502	4822 130 40959	BC547B
7504	9322 126 65687	STP5NB60FP
7506	4822 209 14933	TL431IZ
7507	9322 149 04682	TCET1102
7528	4822 130 40981	BC337-25
7529	4822 130 44461	BC546B
7530	5322 130 60159	BC846B
7611	5322 130 60159	BC846B
7612	5322 130 60159	BC846B
7613	4822 209 81397	TL431CLPST
7614	5322 130 60159	BC846B
7620	4822 209 90009	TDA8177
7641	5322 130 60159	BC846B
7653	5322 130 60159	BC846B
7654	4822 130 60373	BC856B
7680	4822 209 60956	TDA7052/N2
7681	5322 130 60159	BC846B
7682	5322 130 44647	BC368
7700	9322 163 86682	TDA7490L
7701	5322 130 60159	BC846B
7702	9322 163 86682	TDA7490L
7703	5322 130 60159	BC846B
7704	5322 130 60159	BC846B
7705	5322 130 60159	BC846B
7706	4822 130 60373	BC856B
7707	5322 130 60159	BC846B
7902	5322 130 60159	BC846B
7908	5322 130 60159	BC846B
7910	9322 166 03682	LD1085V36
7911	4822 209 72042	L78L05ACZ

Small Signal Panel [B]

Various

0072	3104 301 24191	Frame SSB A-side
0073	3104 301 24211	Cover SSB A-side
0074	3104 301 24221	Cover SSB Z-side
0075	3104 301 24201	Frame SSB Z-side
0265	3104 304 22841	FFC relieve
1001	2422 543 89022	Crystal 6MHz 20pF CX5F
1301	2422 540 98456	Resonator 12MHz CSTCV
1305	2422 543 01184	Crystal 4.433619MHz 20pF
1308	2422 543 01183	Crystal 3.579545MHz 16pF
1402	2422 025 16966	Connector 5P m v 2.00 SMD
1403▲	2422 086 11031	Fuse SMD 500mA 63V
1403▲	2422 086 11092	Fuse F0.5A 50V 1206
1407	2422 549 44324	Filt. 5M5/5M74 TPWCC04BS
1408	2422 549 44372	Filt. SAW 38.9MHz K3953L
1409	2422 549 44369	Filt. SAW 38.9MHz K9656L
1651	2422 543 89019	Crystal 18.432MHz 12pF
1680	2422 025 16961	Connector 6p m
1681	2422 025 17103	Connector 3p m
1682	2422 025 16729	Connector FFC 10p m
1702	2422 540 98456	Resonator 12MHz CSTCV
8402	3104 311 04711	Cable 5P/180/5P
8680	3104 311 04991	Cable 6P/400/6P
8682	3104 311 02951	Cable foil 10P/280/10P



2001	2222 867 15339	33pF 5% 50V 0603
2002	4822 126 11669	27pF 5% 50V 0603
2003	4822 126 13879	220nF 20% 16V
2004	4822 126 13879	220nF 20% 16V
2005	2238 586 59812	100nF 20-80% 50V 0603
2006	2238 586 59812	100nF 20-80% 50V 0603
2007	2238 586 59812	100nF 20-80% 50V 0603
2008	2238 586 59812	100nF 20-80% 50V 0603
2010	4822 126 11785	47pF 5% 50V 0603
2011	4822 126 11785	47pF 5% 50V 0603
2012	4822 126 11785	47pF 5% 50V 0603
2013	4822 124 12095	100μF 20% 16V
2016	4822 124 12095	100μF 20% 16V
2017	2238 586 59812	100nF 20-80% 50V 0603
2019	2238 586 59812	100nF 20-80% 50V 0603
2020	4822 126 13883	220pF 5% 50V
2022	2238 586 59812	100nF 20-80% 50V 0603
2023	2238 586 59812	100nF 20-80% 50V 0603

2033	4822 126 14226	82pF 5% 50V 0603	2501	4822 126 11785	47pF 5% 50V 0603	2666	4822 124 12095	100µF 20% 16V
2034	4822 126 14226	82pF 5% 50V 0603	2502	4822 126 14107	330nF +80/20% 25V	2667	3198 016 33380	3.3pF 50V 0603
2035	4822 126 14226	82pF 5% 50V 0603	2503	4822 126 14107	330nF +80/20% 25V	2668	3198 016 33380	3.3pF 50V 0603
2036	4822 126 14226	82pF 5% 50V 0603	2504	4822 126 14107	330nF +80/20% 25V	2670	2238 586 59812	100nF 20-80% 50V 0603
2037	4822 126 14226	82pF 5% 50V 0603	2505	4822 126 14107	330nF +80/20% 25V	2673	3198 016 31020	1nF 25V 0603
2038	2238 586 59812	100nF 20-80% 50V 0603	2506	4822 126 14107	330nF +80/20% 25V	2674	3198 016 31020	1nF 25V 0603
2039	2238 586 59812	100nF 20-80% 50V 0603	2507	4822 126 14107	330nF +80/20% 25V	2677	4822 124 23002	10µF 20% 16V
2040	2238 586 59812	100nF 20-80% 50V 0603	2508	4822 124 12095	100µF 20% 16V	2678	4822 124 23002	10µF 20% 16V
2302	2238 586 59812	100nF 20-80% 50V 0603	2509	4822 124 23002	10µF 20% 16V	2679	2238 586 59812	100nF 20-80% 50V 0603
2303	2020 552 96448	1µF 10% 16V	2510	2020 552 96448	1µF 10% 16V	2680	4822 124 23002	10µF 20% 16V
2304	4822 122 33741	10pF 10% 50V	2511	2020 552 96448	1µF 10% 16V	2681	2238 586 59812	100nF 20-80% 50V 0603
2305	2238 586 59812	100nF 20-80% 50V 0603	2512	4822 126 13879	220nF 20% 16V	2682	4822 124 23002	10µF 20% 16V
2306	4822 126 13881	470pF 5% 50V	2513	3198 030 74780	4u7 20% 35V	2686	3198 016 31020	1nF 25V 0603
2307	2238 586 59812	100nF 20-80% 50V 0603	2513	4822 124 12084	1µF 20% 50V SMD	2687	3198 016 31020	1nF 25V 0603
2308	4822 122 33741	10pF 10% 50V	2515	2020 552 94427	100pF 5% 50v 0603	2690	2238 586 59812	100nF 20-80% 50V 0603
2312	2020 552 96659	33nF 5% 50V 1206	2516	2020 552 96221	10µF 20% 6.3V 0805	2691	4822 126 14491	2.2µF -20+80% 10V 0805
2313	2020 552 96685	100nF 5% 25V 1206	2516	2020 552 96448	1µF 10% 16V	2693	4822 126 13883	220pF 5% 50V
2314	4822 124 12095	100µF 20% 16V	2516	4822 126 14491	2.2µF -20+80% 10V 0805	2694	3198 016 31020	1nF 25V 0603
2315	2238 586 59812	100nF 20-80% 50V 0603	2520	2238 586 59812	100nF 20-80% 50V 0603	2695	4822 124 12095	100µF 20% 16V
2316	2238 586 59812	100nF 20-80% 50V 0603	2521	2238 586 59812	100nF 20-80% 50V 0603	2697	2238 586 59812	100nF 20-80% 50V 0603
2317	2020 552 96448	1µF 10% 16V	2522	4822 126 13881	470pF 5% 50V	2698	4822 126 14491	2.2µF -20+80% 10V 0805
2318	2238 916 15641	22nF 10% 25V 0603	2523	3198 016 31020	1nF 25V 0603	2699	4822 126 14491	2.2µF -20+80% 10V 0805
2318	4822 126 14494	22nF 10% 25V 0603	2524	2238 586 59812	100nF 20-80% 50V 0603	2701	4822 122 33752	15pF 5% 50V
2319	4822 126 14247	1.5nF 50V 0603	2525	4822 126 13881	470pF 5% 50V	2704	4822 126 14507	18pF 5% 50V 0603
2320	4822 122 33741	10pF 10% 50V	2526	3198 016 31020	1nF 25V 0603	2707	4822 126 14507	18pF 5% 50V 0603
2321	2238 586 59812	100nF 20-80% 50V 0603	2528	4822 126 14585	100nF 10% 50V	2709	2238 586 59812	100nF 20-80% 50V 0603
2322	2238 586 59812	100nF 20-80% 50V 0603	2529	4822 126 14472	1µF 10% 10V 0805	2710	2238 586 59812	100nF 20-80% 50V 0603
2323	2238 586 59812	100nF 20-80% 50V 0603	2530	4822 126 14472	1µF 10% 10V 0805	2711	2238 586 59812	100nF 20-80% 50V 0603
2324	5322 126 11583	10nF 10% 50V 0603	2546	4822 124 23002	10µF 20% 16V	2712	2238 586 59812	100nF 20-80% 50V 0603
2325	2238 586 59812	100nF 20-80% 50V 0603	2547	4822 124 23002	10µF 20% 16V	2713	4822 122 33761	22pF 5% 50V
2326	5322 126 11583	10nF 10% 50V 0603	2548	4822 124 23002	10µF 20% 16V	2714	4822 122 33761	22pF 5% 50V
2327	4822 051 30759	75Ω 5% 0.062W	2549	4822 124 23002	10µF 20% 16V	2716	2238 586 59812	100nF 20-80% 50V 0603
2328	4822 122 33761	22pF 5% 50V	2550	4822 126 14241	330pF 50V 0603	2717	4822 126 11663	12pF 5% 50V 0603
2329	2238 586 59812	100nF 20-80% 50V 0603	2552	4822 126 13881	470pF 5% 50V	2718	4822 122 33752	15pF 5% 50V
2330	2238 586 59812	100nF 20-80% 50V 0603	2553	4822 126 13881	470pF 5% 50V	2719	4822 122 33752	15pF 5% 50V
2331	2238 586 59812	100nF 20-80% 50V 0603	2554	4822 126 13881	470pF 5% 50V	2720	4822 122 33752	15pF 5% 50V
2332	2238 586 59812	100nF 20-80% 50V 0603	2555	4822 126 13881	470pF 5% 50V	2721	2020 552 94427	100pF 5% 50v 0603
2333	4822 126 14491	2.2µF -20+80% 10V 0805	2562	3198 016 31020	1nF 25V 0603	2722	2020 552 94427	100pF 5% 50v 0603
2334	4822 126 14491	2.2µF -20+80% 10V 0805	2563	3198 016 31020	1nF 25V 0603	2723	4822 126 14225	56pF 5% 50V 0603
2336	4822 126 14491	2.2µF -20+80% 10V 0805	2564	3198 016 31020	1nF 25V 0603	2724	2020 552 94427	100pF 5% 50v 0603
2340	4822 124 12095	100µF 20% 16V	2565	3198 016 31020	1nF 25V 0603	2725	4822 126 11663	12pF 5% 50V 0603
2350	2238 586 59812	100nF 20-80% 50V 0603	2566	3198 016 31020	1nF 25V 0603	2726	4822 126 11669	27pF 5% 50V 0603
2351	2238 586 59812	100nF 20-80% 50V 0603	2567	3198 016 31020	1nF 25V 0603	2727	4822 126 11663	12pF 5% 50V 0603
2352	2238 586 59812	100nF 20-80% 50V 0603	2568	3198 016 31020	1nF 25V 0603	2728	2020 021 91554	10µF 20% 16V
2353	2238 586 59812	100nF 20-80% 50V 0603	2569	3198 016 31020	1nF 25V 0603	2729	2238 586 59812	100nF 20-80% 50V 0603
2354	2238 586 59812	100nF 20-80% 50V 0603	2570	3198 016 31020	1nF 25V 0603	2730	2020 021 91557	100µF 20% 16V
2355	4822 051 30759	75Ω 5% 0.062W	2571	2020 552 94427	100pF 5% 50v 0603	2731	2238 586 59812	100nF 20-80% 50V 0603
2356	2238 586 59812	100nF 20-80% 50V 0603	2571	4822 051 30759	75Ω 5% 0.062W	2732	2238 586 59812	100nF 20-80% 50V 0603
2357	2238 586 59812	100nF 20-80% 50V 0603	2572	3198 016 31020	1nF 25V 0603	2733	2238 586 59812	100nF 20-80% 50V 0603
2358	5322 126 11579	3.3nF 10% 63V	2573	3198 016 31020	1nF 25V 0603	2734	2238 586 59812	100nF 20-80% 50V 0603
2359	4822 122 33752	15pF 5% 50V	2574	3198 016 31020	1nF 25V 0603	2735	2238 586 59812	100nF 20-80% 50V 0603
2360	3198 016 31280	1.2pF 50V 0603	2575	3198 016 31020	1nF 25V 0603	2736	4822 126 11669	27pF 5% 50V 0603
2361	3198 016 31280	1.2pF 50V 0603	2576	3198 016 31020	1nF 25V 0603	2737	4822 126 11663	12pF 5% 50V 0603
2362	4822 126 11663	12pF 5% 50V 0603	2577	3198 016 31020	1nF 25V 0603	2738	4822 126 11663	12pF 5% 50V 0603
2363	4822 126 13881	470pF 5% 50V	2578	2020 552 94427	100pF 5% 50v 0603	2739	4822 126 11669	27pF 5% 50V 0603
2364	4822 051 30759	75Ω 5% 0.062W	2579	2020 552 94427	100pF 5% 50v 0603	2740	2238 916 15641	22nF 10% 25V 0603
2365	2238 586 59812	100nF 20-80% 50V 0603	2580	3198 016 31020	1nF 25V 0603	2740	4822 126 14494	22nF 10% 25V 0603
2366	2238 586 59812	100nF 20-80% 50V 0603	2581	3198 016 31020	1nF 25V 0603	2741	2238 916 15641	22nF 10% 25V 0603
2367	2238 586 59812	100nF 20-80% 50V 0603	2582	3198 016 31020	1nF 25V 0603	2741	4822 126 14494	22nF 10% 25V 0603
2368	2238 586 59812	100nF 20-80% 50V 0603	2583	3198 016 31020	1nF 25V 0603	2742	2238 916 15641	22nF 10% 25V 0603
2369	2238 586 59812	100nF 20-80% 50V 0603	2592	5322 126 11578	10nF 5% 50V 0603	2742	4822 126 14494	22nF 10% 25V 0603
2370	2238 586 59812	100nF 20-80% 50V 0603	2593	3198 016 31020	1nF 25V 0603	2743	2238 586 59812	100nF 20-80% 50V 0603
2371	4822 126 13193	4.7nF 10% 63V	2594	3198 016 31020	1nF 25V 0603	2744	2238 586 59812	100nF 20-80% 50V 0603
2372	4822 126 14043	1µF 20% 16V	2595	3198 016 31020	1nF 25V 0603	2745	2238 586 59812	100nF 20-80% 50V 0603
2373	2238 586 59812	100nF 20-80% 50V 0603	2600	2020 552 96448	1µF 10% 16V	2746	2238 586 59812	100nF 20-80% 50V 0603
2374	4822 126 14491	2.2µF -20+80% 10V 0805	2601	2020 552 96448	1µF 10% 16V	2747	2238 586 59812	100nF 20-80% 50V 0603
2375	2238 916 15641	22nF 10% 25V 0603	2602	2020 552 96448	1µF 10% 16V	2748	2238 586 59812	100nF 20-80% 50V 0603
2375	4822 126 14494	22nF 10% 25V 0603	2603	2020 552 96448	1µF 10% 16V	2749	2020 021 91554	10µF 20% 16V
2376	2238 586 59812	100nF 20-80% 50V 0603	2604	2020 552 96448	1µF 10% 16V	2750	2238 586 59812	100nF 20-80% 50V 0603
2377	4822 124 12095	100µF 20% 16V	2609	3198 016 31020	1nF 25V 0603	2751	2238 586 59812	100nF 20-80% 50V 0603
2378	2238 586 59812	100nF 20-80% 50V 0603	2610	4822 126 14238	2.2nF 50V 0603	2752	2238 586 59812	100nF 20-80% 50V 0603
2383	4822 051 30759	75Ω 5% 0.062W	2611	3198 016 31020	1nF 25V 0603	2753	2238 586 59812	100nF 20-80% 50V 0603
2384	2238 586 59812	100nF 20-80% 50V 0603	2629	4822 126 14107	330nF +80/20% 25V	2754	2238 586 59812	100nF 20-80% 50V 0603
2385	2238 586 59812	100nF 20-80% 50V 0603	2630	4822 126 14491	2.2µF -20+80% 10V 0805	2755	2238 586 59812	100nF 20-80% 50V 0603
2386	4822 126 13883	220pF 5% 50V	2632	4822 126 14107	330nF +80/20% 25V	2756	2238 586 59812	100nF 20-80% 50V 0603
2390	2238 586 59812	100nF 20-80% 50V 0603	2634	3198 016 31020	1nF 25V 0603	2757	2238 916 15641	22nF 10% 25V 0603
2391	2238 586 59812	100nF 20-80% 50V 0603	2637	4822 126 14107	330nF +80/20% 25V	2757	4822 126 14494	22nF 10% 25V 0603
2392	4822 126 13193	4.7nF 10% 63V	2640	4822 126 13879	220nF 20% 16V	2760	2238 586 59812	100nF 20-80% 50V 0603
2394	4822 126 14491	2.2µF -20+80% 10V 0805	2643	4822 126 14107	330nF +80/20% 25V	2761	2238 586 59812	100nF 20-80% 50V 0603
2404	2020 552 96448	1µF 10% 16V	2644	3198 016 31020	1nF 25V 0603	2762	2238 586 59812	100nF 20-80% 50V 0603
2405	4822 126 13193	4.7nF 10% 63V	2645	4822 126 14107				

2776	2238 586 59812	100nF 20-80% 50V 0603	2893	2238 586 59812	100nF 20-80% 50V 0603	3314	4822 051 30103	10kΩ 5% 0.062W
2777	2238 586 59812	100nF 20-80% 50V 0603	2894	2238 586 59812	100nF 20-80% 50V 0603	3315	4822 051 30102	1kΩ 5% 0.062W
2778	2238 586 59812	100nF 20-80% 50V 0603	2895	2238 586 59812	100nF 20-80% 50V 0603	3316	4822 117 10834	47kΩ 1% 0.1W
2779	2238 586 59812	100nF 20-80% 50V 0603	2896	2238 586 59812	100nF 20-80% 50V 0603	3317	4822 051 30221	220Ω 5% 0.062W
2780	2238 586 59812	100nF 20-80% 50V 0603	2897	2238 586 59812	100nF 20-80% 50V 0603	3318	4822 051 30102	1kΩ 5% 0.062W
2781	2238 586 59812	100nF 20-80% 50V 0603	2898	2238 586 59812	100nF 20-80% 50V 0603	3319	4822 051 30102	1kΩ 5% 0.062W
2782	2238 586 59812	100nF 20-80% 50V 0603	2899	2238 586 59812	100nF 20-80% 50V 0603	3320	4822 051 30101	100Ω 5% 0.062W
2783	2238 586 59812	100nF 20-80% 50V 0603	2908	2238 586 59812	100nF 20-80% 50V 0603	3321	4822 051 30101	100Ω 5% 0.062W
2784	2238 586 59812	100nF 20-80% 50V 0603	2909	2238 586 59812	100nF 20-80% 50V 0603	3322	4822 051 10102	1kΩ 2% 0.25W
2785	2238 586 59812	100nF 20-80% 50V 0603	2910	2238 586 59812	100nF 20-80% 50V 0603	3323	4822 117 12925	47kΩ 1% 0.063W 0603
2786	2238 586 59812	100nF 20-80% 50V 0603	2911	2238 586 59812	100nF 20-80% 50V 0603	3324	4822 051 30472	4.7kΩ 5% 0.062W
2787	2238 586 59812	100nF 20-80% 50V 0603	2912	2238 586 59812	100nF 20-80% 50V 0603	3327	4822 117 13632	100kΩ 1% 0603 0.62W
2788	2238 586 59812	100nF 20-80% 50V 0603	2912	3198 017 44740	470nF 10V 0603	3328	4822 051 30393	39kΩ 5% 0.062W
2789	2238 586 59812	100nF 20-80% 50V 0603				3329	4822 117 13568	6.8Ω 5% 1206
2790	2238 586 59812	100nF 20-80% 50V 0603				3331	4822 051 30102	1kΩ 5% 0.062W
2791	2238 586 59812	100nF 20-80% 50V 0603				3333	4822 051 30102	1kΩ 5% 0.062W
2792	2020 021 91554	10μF 20% 16V				3334	4822 051 30102	1kΩ 5% 0.062W
2793	2238 586 59812	100nF 20-80% 50V 0603	3001	4822 051 30472	4.7kΩ 5% 0.062W	3336	4822 051 30102	1kΩ 5% 0.062W
2794	2020 021 91554	10μF 20% 16V	3002	4822 051 30472	4.7kΩ 5% 0.062W	3340	4822 051 30101	100Ω 5% 0.062W
2795	2238 586 59812	100nF 20-80% 50V 0603	3003	4822 117 13525	24kΩ 1% 0.62W 0603	3341	4822 051 30101	100Ω 5% 0.062W
2796	2238 586 59812	100nF 20-80% 50V 0603	3005	4822 051 30103	10kΩ 5% 0.062W	3342	4822 051 30101	100Ω 5% 0.062W
2797	2238 586 59812	100nF 20-80% 50V 0603	3006	4822 051 30471	470Ω 5% 0.062W	3343	4822 051 20683	68kΩ 5% 0.1W
2798	2238 586 59812	100nF 20-80% 50V 0603	3007	3198 031 14710	4 x 470Ω 5% 1206	3344	4822 051 30222	2.2kΩ 5% 0.062W
2799	2238 586 59812	100nF 20-80% 50V 0603	3008	4822 117 13526	150Ω 5% 0.63W	3345	4822 051 30103	10kΩ 5% 0.062W
2800	2238 586 59812	100nF 20-80% 50V 0603	3009	4822 117 13501	82Ω 5% 0.62W 0603	3346	4822 051 30333	33kΩ 5% 0.062W
2801	2238 586 59812	100nF 20-80% 50V 0603	3011	4822 051 30471	470Ω 5% 0.062W	3347	4822 051 30223	22kΩ 5% 0.062W
2802	2238 586 59812	100nF 20-80% 50V 0603	3012	3198 031 11010	4 x 100Ω 5% 1206	3348	4822 051 30222	2.2kΩ 5% 0.062W
2803	2238 586 59812	100nF 20-80% 50V 0603	3013	4822 051 30103	10kΩ 5% 0.062W	3349	4822 051 30472	4.7kΩ 5% 0.062W
2804	2238 586 59812	100nF 20-80% 50V 0603	3014	4822 051 30682	6.8kΩ 5% 0.062W	3362	4822 051 30684	680kΩ 5% 0.062W
2805	2238 586 59812	100nF 20-80% 50V 0603	3015	4822 051 30474	470kΩ 5% 0.062W	3363	4822 051 30102	1kΩ 5% 0.062W
2807	2238 586 59812	100nF 20-80% 50V 0603	3016	4822 051 30152	1.5kΩ 5% 0.062W	3364	4822 051 30103	10kΩ 5% 0.062W
2808	2020 021 91554	10μF 20% 16V	3017	4822 051 30472	4.7kΩ 5% 0.062W	3365	4822 051 30103	10kΩ 5% 0.062W
2809	2238 586 59812	100nF 20-80% 50V 0603	3018	4822 051 30103	10kΩ 5% 0.062W	3366	4822 051 30221	220Ω 5% 0.062W
2810	2238 586 59812	100nF 20-80% 50V 0603	3019	4822 051 30472	4.7kΩ 5% 0.062W	3367	4822 051 30221	220Ω 5% 0.062W
2811	2238 586 59812	100nF 20-80% 50V 0603	3020	4822 051 30103	10kΩ 5% 0.062W	3368	3198 021 32250	2M2 5% 0603
2812	2238 586 59812	100nF 20-80% 50V 0603	3021	4822 051 30103	10kΩ 5% 0.062W	3370	4822 051 30101	100Ω 5% 0.062W
2813	2238 586 59812	100nF 20-80% 50V 0603	3024	4822 051 30273	27kΩ 5% 0.062W	3371	4822 051 30479	47Ω 5% 0.062W
2814	2238 586 59812	100nF 20-80% 50V 0603	3025	4822 051 30221	220Ω 5% 0.062W	3372	4822 051 30471	470Ω 5% 0.062W
2815	4822 126 14223	2.2pF +0.25pF 50V 0603	3026	4822 051 30472	4.7kΩ 5% 0.062W	3373	4822 051 30008	Jumper 0603
2816	4822 126 14223	2.2pF +0.25pF 50V 0603	3027	4822 117 12925	47kΩ 1% 0.063W 0603	3374	4822 051 30008	Jumper 0603
2817	2238 586 59812	100nF 20-80% 50V 0603	3029	4822 051 30103	10kΩ 5% 0.062W	3375	4822 051 30008	Jumper 0603
2818	4822 126 14223	2.2pF +0.25pF 50V 0603	3031	4822 051 30103	10kΩ 5% 0.062W	3376	4822 051 30101	100Ω 5% 0.062W
2819	2238 586 59812	100nF 20-80% 50V 0603	3033	4822 051 30103	10kΩ 5% 0.062W	3377	4822 051 30101	100Ω 5% 0.062W
2820	2238 586 59812	100nF 20-80% 50V 0603	3034	3198 031 11010	4 x 100Ω 5% 1206	3378	4822 051 30153	15kΩ 5% 0.062W
2821	2238 586 59812	100nF 20-80% 50V 0603	3035	3198 031 11010	4 x 100Ω 5% 1206	3379	4822 051 30008	Jumper 0603
2822	2238 586 59812	100nF 20-80% 50V 0603	3039	4822 051 30181	180Ω 5% 0.062W	3380	4822 051 30101	100Ω 5% 0.062W
2823	5322 126 11578	1nF 10% 50V 0603	3040	4822 051 30472	4.7kΩ 5% 0.062W	3382	4822 051 30561	560Ω 5% 0.062W
2824	5322 126 11578	1nF 10% 50V 0603	3042	4822 051 30472	4.7kΩ 5% 0.062W	3385	4822 051 30471	470Ω 5% 0.062W
2825	2238 586 59812	100nF 20-80% 50V 0603	3044	4822 051 30272	2.7kΩ 5% 0.062W	3386	4822 051 30223	22kΩ 5% 0.062W
2826	2238 586 59812	100nF 20-80% 50V 0603	3048	3198 031 11010	4 x 100Ω 5% 1206	3390	4822 051 30221	220Ω 5% 0.062W
2827	2238 586 59812	100nF 20-80% 50V 0603	3049	3198 031 11010	4 x 100Ω 5% 1206	3391	4822 051 30472	4.7kΩ 5% 0.062W
2828	2238 586 59812	100nF 20-80% 50V 0603	3050	3198 031 11010	4 x 100Ω 5% 1206	3393	4822 117 13632	100kΩ 1% 0603 0.62W
2829	2238 586 59812	100nF 20-80% 50V 0603	3051	3198 031 11010	4 x 100Ω 5% 1206	3394	4822 051 30472	4.7kΩ 5% 0.062W
2830	2238 586 59812	100nF 20-80% 50V 0603	3052	3198 031 11010	4 x 100Ω 5% 1206	3400	4822 117 11152	4.7Ω 5% 0.062W
2831	4822 126 13956	68pF 5% 63V 0603	3053	4822 051 30101	100Ω 5% 0.062W	3402▲	2322 750 63908	3.9Ω 5% Fuse 1206
2832	2238 586 59812	100nF 20-80% 50V 0603	3054	3198 031 11010	4 x 100Ω 5% 1206	3403	4822 051 30101	100Ω 5% 0.062W
2833	2238 586 59812	100nF 20-80% 50V 0603	3055	3198 031 11010	4 x 100Ω 5% 1206	3404	4822 051 30561	560Ω 5% 0.062W
2835	2238 586 59812	100nF 20-80% 50V 0603	3056	3198 031 11010	4 x 100Ω 5% 1206	3405	4822 051 30102	1kΩ 5% 0.062W
2838	2238 586 59812	100nF 20-80% 50V 0603	3057	3198 031 11010	4 x 100Ω 5% 1206	3406	2322 702 60279	27Ω 5% 0.1W 0603
2843	2238 586 59812	100nF 20-80% 50V 0603	3059	2322 704 66201	620Ω 1% 0603	3408	4822 051 30101	100Ω 5% 0.062W
2845	2238 586 59812	100nF 20-80% 50V 0603	3061	4822 051 30103	10kΩ 5% 0.062W	3411	4822 051 30272	2.7kΩ 5% 0.062W
2846	2238 586 59812	100nF 20-80% 50V 0603	3062	4822 051 30103	10kΩ 5% 0.062W	3412	4822 051 30102	1kΩ 5% 0.062W
2847	2238 586 59812	100nF 20-80% 50V 0603	3064	3198 031 11010	4 x 100Ω 5% 1206	3414	4822 051 30472	4.7kΩ 5% 0.062W
2848	2238 586 59812	100nF 20-80% 50V 0603	3065	4822 051 30472	4.7kΩ 5% 0.062W	3415	4822 051 30222	2.2kΩ 5% 0.062W
2851	2238 586 59812	100nF 20-80% 50V 0603	3066	4822 117 12925	47kΩ 1% 0.063W 0603	3418	4822 051 30391	390Ω 5% 0.062W
2853	2238 586 59812	100nF 20-80% 50V 0603	3067	4822 051 30474	470kΩ 5% 0.062W	3419	4822 051 30339	33Ω 5% 0.062W
2854	2238 586 59812	100nF 20-80% 50V 0603	3068	4822 051 30272	2.7kΩ 5% 0.062W	3435	4822 051 30472	4.7kΩ 5% 0.062W
2855	2238 586 59812	100nF 20-80% 50V 0603	3069	4822 051 30272	2.7kΩ 5% 0.062W	3436	4822 051 30181	180Ω 5% 0.062W
2857	2238 586 59812	100nF 20-80% 50V 0603	3073	3198 031 14710	4 x 470Ω 5% 1206	3437	4822 051 30471	470Ω 5% 0.062W
2859	2238 586 59812	100nF 20-80% 50V 0603	3074	3198 031 14710	4 x 470Ω 5% 1206	3439	4822 051 30471	470Ω 5% 0.062W
2860	2238 586 59812	100nF 20-80% 50V 0603	3076	3198 031 14710	4 x 470Ω 5% 1206	3441	4822 051 30562	5.6kΩ 5% 0.063W 0603
2861	2238 586 59812	100nF 20-80% 50V 0603	3078	3198 031 14710	4 x 470Ω 5% 1206	3445	4822 051 30271	270Ω 5% 0.062W
2864	2238 586 59812	100nF 20-80% 50V 0603	3079	4822 051 30472	4.7kΩ 5% 0.062W	3446	4822 051 30101	100Ω 5% 0.062W
2865	2238 586 59812	100nF 20-80% 50V 0603	3080	4822 051 30472	4.7kΩ 5% 0.062W	3463	4822 051 30472	4.7kΩ 5% 0.062W
2866	2238 586 59812	100nF 20-80% 50V 0603	3081	4822 051 30008	Jumper 0603	3468	4822 117 13632	100kΩ 1% 0603 0.62W
2867	2238 586 59812	100nF 20-80% 50V 0603	3088	4822 051 30472	4.7kΩ 5% 0.062W	3472	4822 051 30223	22kΩ 5% 0.062W
2870	2020 021 91554	10μF 20% 16V	3090	3198 031 14710	4 x 470Ω 5% 1206	3500	4822 051 30153	15kΩ 5% 0.062W
2871	2020 021 91554	10μF 20% 16V	3093	4822 051 30103	10kΩ 5% 0.062W	3501	4822 051 20479	47Ω 5% 0.1W
2872	2238 586 59812	100nF 20-80% 50V 0603	3094	4822 117 12925	47kΩ 1% 0.063W 0603	3501	4822 157 11716	Bead 30Ω at 100MHz
2874	2020 021 91554	10μF 20% 16V	3095	4822 117 12925	47kΩ 1% 0.063W 0603	3504	4822 051 30123	12kΩ 5% 0.062W
2875	2020 021 91554	10μF 20% 16V	3096	4822 117 12925</				

3521	4822 117 13632	100kΩ 1% 0603 0.62W	3683	4822 051 30223	22kΩ 5% 0.062W	3815	4822 051 30759	75Ω 5% 0.062W
3522	4822 117 13632	100kΩ 1% 0603 0.62W	3684	4822 051 30008	Jumper 0603	3816	4822 051 30391	390Ω 5% 0.062W
3523	4822 117 13632	100kΩ 1% 0603 0.62W	3685	4822 051 30008	Jumper 0603	3817	4822 051 30759	75Ω 5% 0.062W
3524	4822 117 13632	100kΩ 1% 0603 0.62W	3688	4822 051 30008	Jumper 0603	3818	4822 051 30759	75Ω 5% 0.062W
3525	4822 051 30684	680kΩ 5% 0.062W	3689	4822 051 30008	Jumper 0603	3819	4822 051 30759	75Ω 5% 0.062W
3526	4822 051 30105	1MΩ 5% 0.062W	3692	4822 051 30008	Jumper 0603	3820	4822 051 30759	75Ω 5% 0.062W
3527	4822 051 30101	100Ω 5% 0.062W	3693	4822 051 30008	Jumper 0603	3821	4822 051 30759	75Ω 5% 0.062W
3528	4822 051 30103	10kΩ 5% 0.062W	3698	4822 117 11817	1.2kΩ 1% 1/16W	3822	4822 051 30759	75Ω 5% 0.062W
3529	4822 051 30103	10kΩ 5% 0.062W	3699	2322 702 60184	180k 5% 0603	3823	4822 051 30759	75Ω 5% 0.062W
3530	4822 051 30103	10kΩ 5% 0.062W	3703	5322 117 13062	390R 1% 0.063W 0603	3824	4822 051 30759	75Ω 5% 0.062W
3531	4822 117 12902	8.2kΩ 1% 0.063W 0603	3704	5322 117 13047	330Ω 1% 0.063W 0603	3825	5322 117 13058	150Ω 1% 0.063W 0603
3532	4822 051 30102	1kΩ 5% 0.062W	3705	5322 117 13047	330Ω 1% 0.063W 0603	3826	5322 117 13058	150Ω 1% 0.063W 0603
3533	4822 051 30103	10kΩ 5% 0.062W	3709	4822 051 30101	100Ω 5% 0.062W	3827	5322 117 13058	150Ω 1% 0.063W 0603
3540	4822 051 30103	10kΩ 5% 0.062W	3710	4822 051 30101	100Ω 5% 0.062W	9015	4822 051 30008	Jumper 0603
3544	4822 117 12925	47kΩ 1% 0.063W 0603	3711	4822 117 12925	47kΩ 1% 0.063W 0603	9302	4822 051 30008	Jumper 0603
3545	4822 117 11817	1.2kΩ 1% 1/16W	3712	4822 117 12925	47kΩ 1% 0.063W 0603	9303	4822 051 30008	Jumper 0603
3546	4822 051 30102	1kΩ 5% 0.062W	3713	4822 051 30181	180Ω 5% 0.062W	9304	4822 051 30008	Jumper 0603
3547	4822 117 12925	47kΩ 1% 0.063W 0603	3714	4822 051 30181	180Ω 5% 0.062W	9318	4822 051 30008	Jumper 0603
3552	4822 051 30103	10kΩ 5% 0.062W	3715	4822 051 30181	180Ω 5% 0.062W	9322	4822 051 30008	Jumper 0603
3553	4822 051 30223	22kΩ 5% 0.062W	3716	4822 117 13632	100kΩ 1% 0603 0.62W	9406	4822 051 30008	Jumper 0603
3554	4822 051 30223	22kΩ 5% 0.062W	3717	4822 117 13632	100kΩ 1% 0603 0.62W	9407	4822 051 30008	Jumper 0603
3555	4822 051 30223	22kΩ 5% 0.062W	3718	4822 117 13632	100kΩ 1% 0603 0.62W	9410	4822 051 30008	Jumper 0603
3556	4822 051 30101	100Ω 5% 0.062W	3719	4822 051 30332	3.3kΩ 5% 0.062W	9413	4822 051 30008	Jumper 0603
3557	4822 051 30101	100Ω 5% 0.062W	3720	4822 051 30103	10kΩ 5% 0.062W	9416	4822 051 30008	Jumper 0603
3558	4822 051 30101	100Ω 5% 0.062W	3721	4822 117 12917	1Ω 5% 0.062W 0603	9417	4822 051 30008	Jumper 0603
3559	4822 051 30101	100Ω 5% 0.062W	3725	4822 051 30332	3.3kΩ 5% 0.062W	9418	4822 051 30008	Jumper 0603
3560	4822 051 30101	100Ω 5% 0.062W	3726	4822 117 11817	1.2kΩ 1% 1/16W	9419	4822 051 30008	Jumper 0603
3561	4822 051 30101	100Ω 5% 0.062W	3727	4822 051 30151	150Ω 5% 0.062W	9420	4822 051 30008	Jumper 0603
3562	4822 051 30101	100Ω 5% 0.062W	3728	4822 051 30151	150Ω 5% 0.062W	9520	4822 051 30008	Jumper 0603
3563	4822 051 30101	100Ω 5% 0.062W	3729	4822 051 30689	68Ω 5% 0.063W 0603	9522	4822 051 30008	Jumper 0603
3564	4822 051 30101	100Ω 5% 0.062W	3730	4822 051 30681	680Ω 5% 0.062W	9603	4822 051 30008	Jumper 0603
3567	4822 051 30101	100Ω 5% 0.062W	3731	4822 051 30472	4.7kΩ 5% 0.062W	9604	4822 051 30008	Jumper 0603
3568	4822 051 30101	100Ω 5% 0.062W	3733	4822 051 30472	4.7kΩ 5% 0.062W	9607	4822 051 30008	Jumper 0603
3569	4822 051 30101	100Ω 5% 0.062W	3735	4822 117 12917	1Ω 5% 0.062W 0603	9608	4822 051 30008	Jumper 0603
3570	4822 051 30101	100Ω 5% 0.062W	3736	4822 051 30101	100Ω 5% 0.062W	9609	4822 051 30008	Jumper 0603
3571	4822 051 30101	100Ω 5% 0.062W	3737	4822 051 30102	1kΩ 5% 0.062W	9610	4822 051 30008	Jumper 0603
3572	4822 051 30101	100Ω 5% 0.062W	3738	4822 051 30101	1kΩ 5% 0.062W	9642	4822 051 30008	Jumper 0603
3573	4822 051 30101	100Ω 5% 0.062W	3739	4822 051 30153	15kΩ 5% 0.062W	9645	4822 051 30008	Jumper 0603
3574	4822 051 30101	100Ω 5% 0.062W	3740	4822 051 30102	1kΩ 5% 0.062W	9652	4822 051 30008	Jumper 0603
3575	4822 051 30101	100Ω 5% 0.062W	3741	4822 051 30183	18kΩ 5% 0.062W	9682	4822 051 30008	Jumper 0603
3576	4822 051 30272	2.7kΩ 5% 0.062W	3742	4822 051 30183	18kΩ 5% 0.062W	9683	4822 051 30008	Jumper 0603
3577	4822 051 30101	100Ω 5% 0.062W	3744	4822 051 30222	2.2kΩ 5% 0.062W	9684	4822 051 30008	Jumper 0603
3578	4822 051 30103	10kΩ 5% 0.062W	3745	4822 051 30102	1kΩ 5% 0.062W	9685	4822 051 30008	Jumper 0603
3579	4822 051 30103	10kΩ 5% 0.062W	3746	4822 051 30392	3.9kΩ 5% 0.063W 0603	9686	4822 051 30008	Jumper 0603
3601	4822 051 30223	22kΩ 5% 0.062W	3747	4822 051 30154	150k 5% 0.062W	9687	4822 051 30008	Jumper 0603
3602	4822 051 30124	120kΩ 5% 0.062W	3748	4822 117 12891	220kΩ 1% 0.063W 0603	9688	4822 051 30008	Jumper 0603
3603	4822 117 12891	220kΩ 1% 0.063W 0603	3749	4822 051 30392	3.9kΩ 5% 0.063W 0603	9689	4822 051 30008	Jumper 0603
3604	4822 051 30124	120kΩ 5% 0.062W	3750	4822 051 30332	3.3kΩ 5% 0.062W	9691	4822 051 30008	Jumper 0603
3605	4822 117 12891	220kΩ 1% 0.063W 0603	3751	4822 051 30472	4.7kΩ 5% 0.062W	9692	4822 051 30008	Jumper 0603
3606	4822 051 30124	120kΩ 5% 0.062W	3752	4822 117 12917	1Ω 5% 0.062W 0603	9694	4822 051 30008	Jumper 0603
3607	4822 117 12891	220kΩ 1% 0.063W 0603	3753	4822 117 12917	1Ω 5% 0.062W 0603	9702	4822 051 30008	Jumper 0603
3608	4822 051 30124	120kΩ 5% 0.062W	3754	4822 051 30101	100Ω 5% 0.062W	9704	4822 051 30008	Jumper 0603
3609	4822 117 12891	220kΩ 1% 0.063W 0603	3755	4822 051 30472	4.7kΩ 5% 0.062W	9713	4822 051 30008	Jumper 0603
3612	4822 117 12925	47kΩ 1% 0.063W 0603	3756	4822 117 12902	8.2kΩ 1% 0.063W 0603	9715	4822 051 30008	Jumper 0603
3613	4822 117 12925	47kΩ 1% 0.063W 0603	3757	4822 051 30479	47Ω 5% 0.062W	9716	4822 051 30008	Jumper 0603
3614	4822 117 12925	47kΩ 1% 0.063W 0603	3758	4822 051 30472	4.7kΩ 5% 0.062W	9717	4822 051 30008	Jumper 0603
3615	4822 117 12925	47kΩ 1% 0.063W 0603	3759	4822 051 30221	220Ω 5% 0.062W	9718	4822 051 30008	Jumper 0603
3616	4822 051 30272	2.7kΩ 5% 0.062W	3762	4822 051 30101	100Ω 5% 0.062W	9719	4822 051 30008	Jumper 0603
3624	4822 117 11817	1.2kΩ 1% 1/16W	3763	4822 051 30221	220Ω 5% 0.062W	9722	4822 051 30008	Jumper 0603
3626	4822 051 30154	150k 5% 0.062W	3763	4822 117 12139	22Ω 5% 0.062W	9724	4822 051 30008	Jumper 0603
3627	4822 051 30103	10kΩ 5% 0.062W	3764	4822 051 30109	10Ω 5% 0.062W	9725	4822 051 30008	Jumper 0603
3628	4822 051 30223	22kΩ 5% 0.062W	3771	4822 117 12971	15Ω 5% 0.62W 0603	9731	4822 051 30008	Jumper 0603
3630	4822 051 30563	56kΩ 5% 0.062W	3772	4822 117 12971	15Ω 5% 0.62W 0603	9733	4822 051 30008	Jumper 0603
3634	4822 051 30121	120Ω 5% 0.062W	3773	4822 117 12925	47kΩ 1% 0.063W 0603	9735	4822 051 30008	Jumper 0603
3636	4822 051 30271	270Ω 5% 0.062W	3774	4822 117 12925	47kΩ 1% 0.063W 0603	9736	4822 051 30008	Jumper 0603
3637	4822 117 12864	82kΩ 5% 0.6W	3781	4822 117 12925	47kΩ 1% 0.063W 0603	9737	4822 051 30008	Jumper 0603
3639	4822 051 30102	1kΩ 5% 0.062W	3782	4822 117 12925	47kΩ 1% 0.063W 0603	9738	4822 051 30008	Jumper 0603
3640	4822 051 30101	100Ω 5% 0.062W	3783	4822 117 12925	47kΩ 1% 0.063W 0603	9739	4822 051 30008	Jumper 0603
3641	4822 051 30101	100Ω 5% 0.062W	3785	4822 117 13577	330Ω 1% 0805 1.25W	9740	4822 051 30008	Jumper 0603
3642	4822 051 30101	100Ω 5% 0.062W	3786	4822 117 13577	330Ω 1% 0805 1.25W	9741	4822 117 12662	4 x 10Ω 5%
3643	4822 051 30101	100Ω 5% 0.062W	3787	4822 117 13577	330Ω 1% 0805 1.25W	9744	4822 051 30008	Jumper 0603
3644	4822 117 11152	4.7Ω 5% 0.062W	3788	5322 117 13034	1k5 1% 0.063W 0603	9747	4822 051 30008	Jumper 0603
3653	4822 051 30008	Jumper 0603	3789	5322 117 13043	220Ω 1% 0.063W 0603	9754	4822 051 30008	Jumper 0603
3654	4822 051 30008	Jumper 0603	3790	5322 117 13059	560Ω 1% 0.063W 0603	9760	4822 051 30008	Jumper 0603
3655	4822 051 30101	100Ω 5% 0.062W	3791	5322 117 13049	470Ω 1% 0.063W 0603	9761	4822 051 30008	Jumper 0603
3656	4822 051 30101	100Ω 5% 0.062W	3792	4822 051 30102	1kΩ 5% 0.062W	9762	4822 051 30008	Jumper 0603
3657	4822 051 30563	56kΩ 5% 0.062W	3793	4822 051 30222	2.2kΩ 5% 0.062W	9763	4822 051 30008	Jumper 0603
3658	4822 051 30154	150k 5% 0.062W	3794	4822 117 12971	15Ω 5% 0.62W 0603	9764	4822 051 30008	Jumper 0603
3659	4822 051 30154	150k 5% 0.062W	3795	4822 051 30339	33Ω 5% 0.062W	9765	4822 051 30008	Jumper 0603
3663	4822 051 30181	180Ω 5% 0.062W	3800	5322 117 13058	150Ω 1% 0.063W 0603	9768	4822 051 30008	Jumper 0603
3664	4822 051 30102	1kΩ 5% 0.062W	3801	4822 051 30102	1kΩ 5% 0.062W	9769	4822 051 30008	Jumper 0603
3666	4822 051 30154	150k 5% 0.062W	3802	5322 117 13058	150Ω 1% 0.063W 0603	9901	4822 051 30008	Jumper 0603
3667	4822 117 12864	82kΩ 5% 0.6W	3803	5322 117 13058	150Ω 1% 0.063W 0603	9902	4822 051 30008	Jumper 0603
3668	4822 051 30563	56kΩ 5% 0.062W	3804	4822 051 30102	1kΩ 5% 0.062W	9903	4822 051 30008	Jumper 0603
3669	4822 051 30271	270Ω 5% 0.062W	3805	5322 117 13049	470Ω 1% 0.063W 0603	9904	4822 051 30008	Jumper 0603
3670	4822 051 30102	1kΩ 5% 0.062W	3806	5322 117 13049	470Ω 1% 0.063W 0603	9905	4822 051 30008	Jumper 0603
3671	4822 117 11817	1.2kΩ 1% 1/16W	3807	5322 117 13068	82Ω 1% 0.063W 0603			

9927	4822 051 30008	Jumper 0603
9928	4822 051 30008	Jumper 0603
9929	4822 051 30008	Jumper 0603
9935	4822 051 30008	Jumper 0603
9937	4822 051 30008	Jumper 0603
9938	4822 051 30008	Jumper 0603
9939	4822 051 30008	Jumper 0603
9944	4822 051 30008	Jumper 0603
9945	4822 051 30008	Jumper 0603
9946	4822 051 30008	Jumper 0603
9947	4822 051 30008	Jumper 0603
9948	4822 051 30008	Jumper 0603
9949	4822 051 30008	Jumper 0603
9950	4822 051 30008	Jumper 0603
9951	4822 051 30008	Jumper 0603
9952	4822 051 30008	Jumper 0603
9953	4822 051 30008	Jumper 0603
9954	4822 051 30008	Jumper 0603

5301	4822 157 11876	6.8μH 10% 0805
5302	4822 157 11876	6.8μH 10% 0805
5401	3198 018 56880	6.8μH 10% 0603
5403	2422 549 44461	Coil trim. 40.4MHz 5CCE
5404	2422 535 95427	Bead 120Ω at 100MHz
5405	2422 535 95427	Bead 120Ω at 100MHz
5406	4822 157 10586	2.2μH 10% 0805
5408	2422 549 44983	Coil trim. 78MHz 5CCB SMD
5409	2422 549 42896	Bead 120Ω at 100MHz
5411	4822 157 11892	0.22μH 10% 0805
5415	4822 157 11716	Bead 30Ω at 100MHz
5416	4822 157 11716	Bead 30Ω at 100MHz
5651	2422 549 43769	Bead 30Ω at 100MHz
5652	2422 549 43769	Bead 30Ω at 100MHz
5653	2422 549 43769	Bead 30Ω at 100MHz
5654	4822 157 11716	Bead 30Ω at 100MHz
5655	4822 157 11828	22μH 20% 0805
5656	4822 157 11876	6.8μH 10% 0805
5657	4822 051 30008	Jumper 0603
5658	4822 051 30008	Jumper 0603
5659	4822 051 30008	Jumper 0603
5660	4822 051 30008	Jumper 0603
5661	4822 051 30008	Jumper 0603
5662	4822 051 30008	Jumper 0603
5663	4822 051 30008	Jumper 0603
5666	4822 051 30008	Jumper 0603
5667	4822 051 30008	Jumper 0603
5668	4822 051 30008	Jumper 0603
5671	4822 157 11716	Bead 30Ω at 100MHz
5672	4822 157 11716	Bead 30Ω at 100MHz
5700	4822 157 10586	2.2μH 10% 0805
5701	3198 018 31580	1.5μH 10% 0805
5702	3198 018 31580	1.5μH 10% 0805
5705	4822 156 21729	Bead 1kΩ at 100MHz
5706	4822 157 11716	Bead 30Ω at 100MHz
5710	4822 156 21729	Bead 1kΩ at 100MHz
5711	4822 156 21729	Bead 1kΩ at 100MHz
5712	4822 156 21729	Bead 1kΩ at 100MHz
5713	4822 157 11716	Bead 30Ω at 100MHz
5714	4822 157 71206	Bead 600Ω at 100MHz
5716	4822 156 21729	Bead 1kΩ at 100MHz
5717	4822 156 21729	Bead 1kΩ at 100MHz
5718	4822 157 11716	Bead 30Ω at 100MHz
5719	4822 156 21729	Bead 1kΩ at 100MHz
5721	4822 157 71206	Bead 600Ω at 100MHz
5722	4822 156 21729	Bead 1kΩ at 100MHz
5724	4822 156 21729	Bead 1kΩ at 100MHz
5725	4822 157 71206	Bead 600Ω at 100MHz
5726	4822 156 21729	Bead 1kΩ at 100MHz
5727	4822 156 21729	Bead 1kΩ at 100MHz
5728	4822 157 11716	Bead 30Ω at 100MHz
5729	4822 157 11716	Bead 30Ω at 100MHz
5731	4822 156 21729	Bead 1kΩ at 100MHz
5736	4822 157 11876	6.8μH 10% 0805
5737	4822 156 21729	Bead 1kΩ at 100MHz
5738	4822 157 11716	Bead 30Ω at 100MHz
5739	4822 157 10586	2.2μH 10% 0805
5740	4822 157 10586	2.2μH 10% 0805
5741	4822 157 10586	2.2μH 10% 0805
5742	4822 157 11716	Bead 30Ω at 100MHz
5743	4822 051 20229	22Ω 5% 0.1W
5743	4822 156 21729	Bead 1kΩ at 100MHz
5744	4822 157 11716	Bead 30Ω at 100MHz
5900	4822 157 11716	Bead 30Ω at 100MHz
5901	4822 157 11716	Bead 30Ω at 100MHz
5902	4822 157 11716	Bead 30Ω at 100MHz
5903	4822 157 11716	Bead 30Ω at 100MHz
5904	4822 157 11716	Bead 30Ω at 100MHz
5910	2422 549 43062	Bead 600Ω at 100MHz 0603
5911	2422 549 43062	Bead 600Ω at 100MHz 0603
5912	2422 549 43062	Bead 600Ω at 100MHz 0603
5913	2422 549 43062	Bead 600Ω at 100MHz 0603

5914	2422 549 43062	Bead 600Ω at 100MHz 0603
5915	2422 549 43062	Bead 600Ω at 100MHz 0603
5917	2422 549 43062	Bead 600Ω at 100MHz 0603
5918	2422 549 43062	Bead 600Ω at 100MHz 0603
5919	2422 549 43062	Bead 600Ω at 100MHz 0603
5920	2422 549 43062	Bead 600Ω at 100MHz 0603



6001	4822 130 80622	BAT54
6002	4822 130 11397	BAS316
6003	4822 130 80622	BAT54
6004	4822 130 80622	BAT54
6005	4822 130 11422	PLVA2650A
6303	4822 130 11594	BZX284-C47
6304	4822 130 11397	BAS316
6306	3198 020 55680	BZX384-C5V6
6307	4822 130 11528	1PS76SB10
6309	4822 130 11397	BAS316
6310	4822 130 11416	PDZ6.8B
6311	9340 548 67115	PDZ22B
6312	4822 130 11397	BAS316
6313	9322 149 08685	BZM55-C22
6314	4822 130 11397	BAS316
6317	4822 130 11397	BAS316
6319	4822 130 11397	BAS316
6334	4822 130 11397	BAS316
6403	9340 552 30115	BA591
6652	9322 129 40685	BZM55-C10
6657	4822 130 10838	UDZ3.3B
6657	4822 130 11564	UDZ3.9B
6658	4822 130 11397	BAS316
6659	4822 130 80622	BAT54
6926	4822 130 10837	UDZS8.2B
6926	4822 130 11397	BAS316
6927	4822 130 11397	BAS316
6928	4822 130 11397	BAS316
6929	4822 130 11397	BAS316
6956	4822 130 10837	UDZS8.2B
6956	4822 130 11397	BAS316
6957	4822 130 10837	UDZS8.2B
6957	4822 130 11397	BAS316



7001	9352 684 81557	SAA5801H/015
7002	3198 010 42320	BC857BW
7003	3198 010 42310	BC847BW
7004	3198 010 42310	BC847BW
7005	9322 116 74668	LD1117D33
7006	3104 300 50441	MR27V3202F-NETN-9
7007	9322 157 20668	MSM51V18165F-60J
7008	3198 010 42310	BC847BW
7009	3198 010 42310	BC847BW
7010	3198 010 42320	BC857BW
7011	9322 156 81668	M24C32-WMN6TNKSA
7012	9322 156 72668	M29W400BT-90N1
7013	3198 010 42310	BC847BW
7014	3198 010 42320	BC857BW
7015	4822 209 73852	PMBT2369
7016	4822 209 73852	PMBT2369
7301	9352 681 65518	TDA9330N3
7303	3198 010 42320	BC857BW
7304	9340 310 30215	PDTC144ET
7307	9352 630 99118	TDA9181T
7310	3198 010 42310	BC847BW
7311	3198 010 42320	BC857BW
7312	9340 310 30215	PDTC144ET
7318	3198 010 42320	BC857BW
7320	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	9352 625 24518	TDA9321H/N2
7402	3198 010 42310	BC847BW
7403	5322 130 60159	BC846B
7404	3198 010 42310	BC847BW
7407	4822 130 60373	BC856B
7410	3198 010 42310	BC847BW
7411	5322 130 60159	BC846B
7651	9322 180 61702	MSP3411G-FH-B8-V3
7651	9322 183 28702	MSP3412G-FH-B3
7652	9351 869 40118	74HC4053PW
7653	9351 869 40118	74HC4053PW
7654	9340 425 20115	BC847BS
7656	9340 425 30115	BC847BPN
7663	9340 425 30115	BC847BPN
7664	9340 425 30115	BC847BPN
7665	9340 425 30115	BC847BPN
7666	9340 425 30115	BC847BPN
7667	3198 010 42310	BC847BW
7668	3198 010 42320	BC857BW
7674	3198 010 42310	BC847BW
7675	9340 425 20115	BC847BS

7677	3198 010 42310	BC847BW
7678	9340 425 20115	BC847BS
7679	9340 425 20115	BC847BS
7680	3198 010 42310	BC847BW
7681	9322 060 73668	MC33178DR2
7682	5322 130 60159	BC846B
7703	4822 209 73852	PMBT2369
7706	9322 142 88668	LF25CDT
7707	5322 130 60159	BC846B
7708	5322 130 60159	BC846B
7709	5322 130 60159	BC846B
7710	5322 130 60159	BC846B
7711	2422 486 80938	Socket 32p f
7712	9351 870 00118	74HC573PW
7713	9352 688 09557	SAA4978H/V204 Y
7714	9965 000 02179	MS81V04160-25TB
7715	4822 209 73852	PMBT2369
7717	9352 498 00518	SAA4955TJ/V1
7718	9352 695 58557	SAA4993H/V1
7719	9352 498 00518	SAA4955TJ/V1
7722	9965 000 02179	MS81V04160-25TB
7723	9965 000 02179	MS81V04160-25TB
7724	9322 188 08702	T8F24EF-0002 EAGLE
7725	4822 209 73852	PMBT2369
7726	4822 209 17398	LD1117DT33
7727	9322 170 14668	LF15ABDT
7728	5322 130 42718	BFS20
7729	5322 130 42718	BFS20
7730	5322 130 42718	BFS20
7731	5322 130 42718	BFS20
7732	5322 130 42718	BFS20
7733	5322 130 42718	BFS20
7999	3104 317 43881	Software (check Prod.Surv.)

DW Panel [C]

Various

0200	4822 267 10734	Connector 5p m
0201	4822 267 10557	Connector 10p
0205	2422 025 16587	Connector FFC 10p f
0207	4822 267 10565	Connector 4p
0236	4822 267 10735	Connector 3p m
0237	4822 267 10676	Connector 1P
0272	2422 025 16382	Connector 3p m
1002	3139 188 01661	VIF/DEMOM. EUROPE1
1327	4822 242 10694	Resonator 12MHz
1333	2422 549 44311	Filter 5M8/6M5 TPWCC16B
1352	2422 549 44223	Filter SAW OFWK7260M



2261	4822 124 40207	100μF 20% 25V
2265	4822 124 40207	100μF 20% 25V
2269	4822 126 13751	47nF 10% 63V
2270	4822 126 13751	47nF 10% 63V
2271	4822 126 13751	47nF 10% 63V
2272	5322 126 11583	10nF 10% 50V 0603
2301	3198 017 41050	1μF 10V 0603
2302	5322 126 10184	820pF 5% 50V 3
2303	5322 126 10223	4.7nF 10% 63V
2306	5322 126 11583	10nF 10% 50V 0603
2309	4822 126 14585	100nF 10% 50V
2312	4822 122 33177	10nF 20% 50V
2313	4822 126 14585	100nF 10% 50V
2314	4822 126 14585	100nF 10% 50V
2316	2238 916 15641	22nF 10% 25V 0603
2317	4822 126 13879	220nF 20% 16V
2319	2238 586 59812	100nF 20-80% 50V 0603
2321	5322 126 10465	3.9nF 10% 50V
2322	4822 124 40248	10μF 20% 63V
2324	4822 126 14585	100nF 10% 50V
2327	2222 867 15339	33pF 5% 50V 0603
2328	2222 867 15339	33pF 5% 50V 0603
2331	4822 124 22652	2.2μF 20% 50V
2332	4822 126 14076	220nF 25V. 20%
2333	2238 586 59812	100nF 20-80% 50V 0603
2334	5322 122 32654	22nF 10% 63V
2335	4822 126 14043	1μF 20% 16V
2336	5322 126 10184	820pF 5% 50V 3
2338	4822 122 33127	2.2nF 10% 63V
2342	4822 126 13692	47pF 1% 63V
2345	4822 126 13692	47pF 1% 63V
2348	4822 126 11785	47pF 5% 50V 0603
2349	4822 122 33177	10nF 20% 50V
2350	4822 124 40248	10μF 20% 63V
2351	4822 122 33177	10nF 20% 50V
2354	4822 126 13482	470nF 80/20% 16V
2355	3198 017 41050	1μF 10V 0603
2356	4822 126 13482	470nF 80/20% 16V
2357	2238 861 18109	10pF 1% 50V

2372	5322 126 10223	4.7nF 10% 63V	2851	3198 025 51090	10µF 20% 50V	3370	4822 117 11373	100Ω 1% 0805
2373	4822 124 21913	1µF 20% 63V	2851	4822 124 40248	10µF 20% 63V	3371	4822 116 83933	15k 1% 0.1W
2374	5322 122 32654	22nF 10% 63V	2852	3198 017 01040	100nF 10% 16V 0805	3372	4822 051 30008	Jumper 0603
2375	5322 126 10511	1nF 5% 50V	2852	4822 126 14585	100nF 10% 50V	3374	4822 051 30472	4.7kΩ 5% 0.062W
2376	5322 126 10511	1nF 5% 50V	2853	3198 025 51090	10µF 20% 50V	3381	4822 117 11373	100Ω 1% 0805
2377	5322 126 10511	1nF 5% 50V	2853	4822 124 40248	10µF 20% 63V	3382	4822 117 11373	100Ω 1% 0805
2380	4822 124 40248	10µF 20% 63V	2854	3198 023 21040	100nF 10% 25V 0805	3383	4822 117 11373	100Ω 1% 0805
2385	4822 126 13881	470pF 5% 50V	2854	4822 126 14585	100nF 10% 50V	3384	4822 051 30103	10kΩ 5% 0.062W
2386	4822 126 13881	470pF 5% 50V	2856	3198 016 01510	150pF 10% 50V 0805	3385	4822 051 30472	4.7kΩ 5% 0.062W
2390	4822 126 11785	47pF 5% 50V 0603	2856	5322 122 33538	150pF 2% 63V	3386	4822 051 30103	10kΩ 5% 0.062W
2391	2020 552 94427	100pF 5% 50v 0603	2857	3198 016 31510	150pF 10% 50V 0603	3387	4822 051 30393	39kΩ 5% 0.062W
2392	4822 126 14225	56pF 5% 50V 0603	2857	4822 122 33753	150pF 5% 50V	3388	4822 051 30103	10kΩ 5% 0.062W
2393	2020 552 94427	100pF 5% 50v 0603	2861	3198 025 51090	10µF 20% 50V	3389	4822 051 30472	4.7kΩ 5% 0.062W
2401	3198 017 41050	1µF 10V 0603	2861	4822 124 40248	10µF 20% 63V	3390	4822 051 30471	470Ω 5% 0.062W
2402	3198 017 41050	1µF 10V 0603	2862	2238 586 59812	100nF 20-80% 50V 0603	3401	4822 051 30101	100Ω 5% 0.062W
2403	3198 017 41050	1µF 10V 0603	2862	3198 023 41040	100nF 10% 100V 0603	3402	4822 051 30101	100Ω 5% 0.062W
2404	3198 017 41050	1µF 10V 0603	2863	3198 025 52290	22µF 20% 50V	3403	4822 117 11373	100Ω 1% 0805
2405	3198 017 41050	1µF 10V 0603	2863	4822 124 81151	22µF 50V	3404	4822 051 30101	100Ω 5% 0.062W
2411	4822 124 40248	10µF 20% 63V	2864	3198 017 34730	47nF 16V 0603	3405	4822 117 11373	100Ω 1% 0805
2412	4822 126 13879	220nF 20% 16V	2866	3198 017 34730	47nF 16V 0603	3411	4822 117 12925	47kΩ 1% 0.063W 0603
2415	4822 126 13879	220nF 20% 16V	2867	3198 017 41050	1µF 10V 0603	3412	4822 117 12925	47kΩ 1% 0.063W 0603
2431	2238 586 59812	100nF 20-80% 50V 0603	2868	2238 586 59812	100nF 20-80% 50V 0603	3413	4822 051 30102	1kΩ 5% 0.062W
2432	2238 586 59812	100nF 20-80% 50V 0603	2868	3198 023 41040	100nF 10% 100V 0603	3414	4822 117 12925	47kΩ 1% 0.063W 0603
2434	2238 586 59812	100nF 20-80% 50V 0603	2869	3198 025 31010	100µF 20% 25V	3415	4822 117 12925	47kΩ 1% 0.063W 0603
2436	4822 124 40207	100µF 20% 25V	2869	4822 124 40207	100µF 20% 25V	3416	4822 051 30102	1kΩ 5% 0.062W
2438	3198 017 34730	47nF 16V 0603	2871	3198 017 41050	1µF 10V 0603	3417	4822 117 11373	100Ω 1% 0805
2439	3198 017 34730	47nF 16V 0603	2872	3198 017 34730	47nF 16V 0603	3418	4822 117 11373	100Ω 1% 0805
2440	3198 017 34730	47nF 16V 0603	2873	3198 017 34730	47nF 16V 0603	3423	4822 051 20561	560Ω 5% 0.1W
2811	2238 586 59812	100nF 20-80% 50V 0603	2874	3198 021 90030	Jumper 0603	3424	4822 117 11448	180Ω 1% 0.1W
2811	3198 023 41040	100nF 10% 100V 0603	2874	4822 051 30008	Jumper 0603	3431	4822 051 30101	100Ω 5% 0.062W
2812	2238 586 59812	100nF 20-80% 50V 0603	2876	3198 021 90030	Jumper 0603	3432	4822 051 30101	100Ω 5% 0.062W
2812	3198 023 41040	100nF 10% 100V 0603	2876	4822 051 30008	Jumper 0603	3437	4822 051 20472	4.7kΩ 5% 0.1W
2813	3198 016 31510	150pF 10% 50V 0603	2877	3198 021 90030	Jumper 0603	3438	4822 051 30471	470Ω 5% 0.062W
2813	4822 122 33753	150pF 5% 50V	2877	4822 051 30008	Jumper 0603	3439	4822 051 20008	Jumper 0805
2814	3198 023 21040	100nF 10% 25V 0805	2878	3198 023 21040	100nF 10% 25V 0805	3453	4822 051 30472	4.7kΩ 5% 0.062W
2814	4822 126 14585	100nF 10% 50V	2878	4822 126 14585	100nF 10% 50V	3456	4822 051 30472	4.7kΩ 5% 0.062W
2816	3198 025 51090	10µF 20% 50V	2879	2238 586 59812	100nF 20-80% 50V 0603	3457	4822 051 30472	4.7kΩ 5% 0.062W
2816	4822 124 40248	10µF 20% 63V	2879	3198 023 41040	100nF 10% 100V 0603	3460	4822 051 30472	4.7kΩ 5% 0.062W
2817	3198 023 21040	100nF 10% 25V 0805	2891	3198 017 01020	1nF 10% 50V 0805	3461	4822 051 30472	4.7kΩ 5% 0.062W
2817	4822 126 14585	100nF 10% 50V	2891	5322 122 31647	1nF 10% 63V	3462	4822 052 10228	22Ω 5% 0.33W
2818	3198 023 21040	100nF 10% 25V 0805	2892	3198 016 34790	47pF 10% 50V 0603	3801	3198 021 52210	220Ω 5% 0805
2818	4822 126 14585	100nF 10% 50V	2892	4822 126 11785	47pF 5% 50V 0603	3801	4822 117 11503	220Ω 1% 0.1W
2819	3198 023 21040	100nF 10% 25V 0805	2893	3198 016 34790	47pF 10% 50V 0603	3802	3198 021 56810	680K 5% 0805
2819	4822 126 14585	100nF 10% 50V	2893	4822 126 11785	47pF 5% 50V 0603	3802	4822 117 10361	680Ω 1% 0.1W
2821	3198 025 51090	10µF 20% 50V	2894	3198 016 34790	47pF 10% 50V 0603	3803	3198 021 52210	220Ω 5% 0805
2821	4822 124 40248	10µF 20% 63V	2894	4822 126 11785	47pF 5% 50V 0603	3803	4822 117 11503	220Ω 1% 0.1W
2822	3198 023 21040	100nF 10% 25V 0805	2895	3198 016 04790	47pf 10% 50V 0805	3804	3198 021 36810	680Ω 5% 0.062W
2822	4822 126 14585	100nF 10% 50V	2895	4822 126 13692	47pF 1% 63V	3804	4822 051 30681	680Ω 5% 0.062W
2823	2238 586 59812	100nF 20-80% 50V 0603	2896	3198 016 04790	47pf 10% 50V 0805	3805	3198 021 32210	220Ω 5% 0603
2823	3198 023 41040	100nF 10% 100V 0603	2896	4822 126 13692	47pF 1% 63V	3805	4822 051 30221	220Ω 5% 0.062W
2824	2238 586 59812	100nF 20-80% 50V 0603	2897	3198 016 34790	47pF 10% 50V 0603	3806	3198 021 36810	680Ω 5% 0.062W
2824	3198 023 41040	100nF 10% 100V 0603	2897	4822 126 11785	47pF 5% 50V 0603	3806	4822 051 30681	680Ω 5% 0.062W
2825	3198 016 01510	150pF 10% 50V 0805	2898	3198 025 31010	100µF 20% 25V	3807	3198 021 32210	220Ω 5% 0603
2825	5322 122 33538	150pF 2% 63V	2898	4822 124 40207	100µF 20% 25V	3807	4822 051 30221	220Ω 5% 0.062W
2826	3198 023 21040	100nF 10% 25V 0805	2899	3198 025 31010	100µF 20% 25V	3808	3198 021 56810	680K 5% 0805
2826	4822 126 14585	100nF 10% 50V	2899	4822 124 40207	100µF 20% 25V	3808	4822 117 10361	680Ω 1% 0.1W
2827	3198 025 31010	100µF 20% 25V				3809	3198 021 32210	220Ω 5% 0603
2827	4822 124 40207	100µF 20% 25V				3809	4822 051 30221	220Ω 5% 0.062W
2828	2238 586 59812	100nF 20-80% 50V 0603				3810	3198 021 36810	680Ω 5% 0.062W
2828	3198 023 41040	100nF 10% 100V 0603				3810	4822 051 30681	680Ω 5% 0.062W
2829	3198 023 21040	100nF 10% 25V 0805				3811	3198 021 52210	220Ω 5% 0805
2829	4822 126 14585	100nF 10% 50V				3811	4822 117 11503	220Ω 1% 0.1W
2831	3198 017 21050	1uF 5% 16V 0805	3263	4822 117 11449	2.2kΩ 5% 0.1W 0805	3812	3198 021 34790	47Ω 5% 0603
2831	4822 126 14043	1µF 20% 16V	3264	4822 117 10833	10kΩ 1% 0.1W	3812	4822 051 30479	47Ω 5% 0.062W
2832	3198 017 21050	1uF 5% 16V 0805	3267	4822 051 20109	10Ω 5% 0.1W	3813	3198 021 31510	150Ω 5% 0603
2832	4822 126 14043	1µF 20% 16V	3268	4822 051 20109	10Ω 5% 0.1W	3813	4822 051 30151	150Ω 5% 0.062W
2833	2238 586 59812	100nF 20-80% 50V 0603	3270	4822 051 20008	Jumper 0805	3814	3198 021 32230	22K 5% 0603
2833	3198 023 41040	100nF 10% 100V 0603	3301	4822 051 30102	1kΩ 5% 0.062W	3814	4822 051 30223	22kΩ 5% 0.062W
2834	3198 025 51090	10µF 20% 50V	3305	4822 117 12955	2.7kΩ 1% 0.1W 0805	3816	3198 021 34790	47Ω 5% 0603
2834	4822 124 40248	10µF 20% 63V	3311	4822 051 20273	27kΩ 5% 0.1W	3816	4822 051 30479	47Ω 5% 0.062W
2836	2238 586 59812	100nF 20-80% 50V 0603	3312	4822 117 10833	10kΩ 1% 0.1W	3817	3198 021 31510	150Ω 5% 0603
2836	3198 023 41040	100nF 10% 100V 0603	3315	4822 117 12708	39kΩ 1% 0.1W 0805 RC12G	3817	4822 051 30151	150Ω 5% 0.062W
2837	3198 023 21040	100nF 10% 25V 0805	3316	4822 051 30681	680Ω 5% 0.062W	3818	3198 021 34790	47Ω 5% 0603
2837	4822 126 14585	100nF 10% 50V	3318	4822 051 30101	100Ω 5% 0.062W	3818	4822 051 30479	47Ω 5% 0.062W
2838	3198 025 02210	220µF 20% 6.3V	3321	4822 051 30103	10kΩ 5% 0.062W	3821	3198 021 31510	150Ω 5% 0603
2838	4822 124 11912	220µF 20% 6.3V	3322	4822 117 12902	8.2kΩ 1% 0.063W 0603	3821	4822 051 30151	150Ω 5% 0.062W
2839	3198 023 21040	100nF 10% 25V 0805	3324	4822 051 20391	390Ω 5% 0.1W	3822	3198 021 34720	4.7kΩ 5% 0603
2839	4822 126 14585	100nF 10% 50V	3326	5322 117 12487	1k 1% 0.125W	3822	4822 051 30472	4.7kΩ 5% 0.062W
2841	3198 025 51090	10µF 20% 50V	3327	4822 051 30561	560Ω 5% 0.062W	3823	3198 021 56810	680K 5% 0805
2841	4822 124 40248	10µF 20% 63V	3329	4822 117 11373	100Ω 1% 0805	3823	4822 117 10361	680Ω 1% 0.1W
2842	3198 016 31510	150pF 10% 50V 0603	3330	4822 117 11373	100Ω 1% 0805	3824	3198 021 90030	Jumper 0603
2842	4822 122 33753	150pF 5% 50V	3333	4822 051 30681	680Ω 5% 0.062W	3824	4822 051 30008	Jumper 0603
2843	2238 586 59812	100nF 20-80% 50V 0603	3334	4822 051 30471	470Ω 5% 0.062W	3825	3198 021 32210	220Ω 5% 0603
2843	3198 023 41040	100nF 10% 100V 0603	3335	4822 051 20121	120Ω 5% 0.1W	3825	4822 051 30221	220Ω 5% 0.062W
2844	2238 586 59812	100nF 20-80% 50V 0603	3338	4822 051 20008	Jumper 0805	3826	3198 021 33320	3.3kΩ 5% 0603
2844	3198 023 41040	100nF 10% 100V 0603	3339	4822 117 10833	10kΩ 1% 0.1W	3826	4822 051 30332	3.3kΩ 5% 0.062W
2846	3198 023 21040	100nF 10% 25V 080						

3832	3198 021 33930	39KΩ 5% 0605
3832	4822 051 30393	39kΩ 5% 0.062W
3833	3198 021 33320	3.3kΩ 5% 0603
3833	4822 051 30332	3.3kΩ 5% 0.062W
3834	3198 021 31820	1.8kΩ 5% 0603
3834	4822 117 12903	1.8kΩ 1% 0.063W 0603
3836	3198 021 33320	3.3kΩ 5% 0603
3836	4822 051 30332	3.3kΩ 5% 0.062W
3837	3198 021 31820	1.8kΩ 5% 0603
3837	4822 117 12903	1.8kΩ 1% 0.063W 0603
3838	3198 021 33930	39KΩ 5% 0605
3838	4822 051 30393	39kΩ 5% 0.062W
3839	3198 021 52210	220Ω 5% 0805
3839	4822 117 11503	220Ω 1% 0.1W
3846	3198 021 52210	220Ω 5% 0805
3846	4822 117 11503	220Ω 1% 0.1W
3854	3198 021 31010	100Ω 5% 0603
3854	4822 051 30101	100Ω 5% 0.062W
3856	3198 021 55620	5.6KΩ 5% 0805
3856	4822 051 20562	5.6kΩ 5% 0.1W 0805
3857	3198 021 51030	10K 5% 0805
3857	4822 117 10833	10kΩ 1% 0.1W
3858	3198 021 55620	5.6KΩ 5% 0805
3858	4822 051 20562	5.6kΩ 5% 0.1W 0805
3862	2306 204 03108	1R Fuse NFR25
3862	4822 052 10108	1Ω 5% 0.33W
3863	2306 204 03108	1R Fuse NFR25
3863	4822 052 10108	1Ω 5% 0.33W
3865	3198 021 33320	3.3kΩ 5% 0603
3865	4822 051 30332	3.3kΩ 5% 0.062W
3866	3198 021 31020	1kΩ 5% 0603
3866	4822 051 30102	1kΩ 5% 0.062W
3868	3198 021 31820	1.8kΩ 5% 0603
3868	4822 117 12903	1.8kΩ 1% 0.063W 0603
3869	3198 021 33320	3.3kΩ 5% 0603
3869	4822 051 30332	3.3kΩ 5% 0.062W
3871	3198 021 32220	2.2k 5% 0603
3871	4822 051 30222	2.2kΩ 5% 0.062W
3872	3198 021 34710	470Ω 5% 0603
3872	4822 051 30471	470Ω 5% 0.062W
3873	3198 021 31520	1.5KΩ 5% 0603
3873	4822 051 30152	1.5kΩ 5% 0.062W
3874	3198 021 31520	1.5KΩ 5% 0603
3874	4822 051 30152	1.5kΩ 5% 0.062W
3876	3198 021 54720	4.7K 5% 0805
3876	4822 051 20472	4.7kΩ 5% 0.1W
3878	3198 021 31020	1kΩ 5% 0603
3878	4822 051 30102	1kΩ 5% 0.062W
3879	3198 021 32210	220Ω 5% 0603
3879	4822 051 30221	220Ω 5% 0.062W
3881	3198 021 90030	Jumper 0603
3881	4822 051 30008	Jumper 0603
3884	3198 021 56810	680K 5% 0805
3884	4822 117 10361	680Ω 1% 0.1W
3886	3198 021 90030	Jumper 0603
3886	4822 051 30008	Jumper 0603
3887	3198 021 90030	Jumper 0603
3887	4822 051 30008	Jumper 0603
3888	3198 021 90030	Jumper 0603
3888	4822 051 30008	Jumper 0603
3889	3198 021 33390	33Ω 5% 0603
3889	4822 051 30339	33Ω 5% 0.062W
3890	3198 021 33390	33Ω 5% 0603
3890	4822 051 30339	33Ω 5% 0.062W
3891	3198 021 33390	33Ω 5% 0603
3891	4822 051 30339	33Ω 5% 0.062W
3892	3198 021 54720	4.7K 5% 0805
3892	4822 051 20472	4.7kΩ 5% 0.1W
3893	3198 021 31520	1.5KΩ 5% 0603
3893	4822 051 30152	1.5kΩ 5% 0.062W
3894	3198 021 32220	2.2k 5% 0603
3894	4822 051 30222	2.2kΩ 5% 0.062W
3895	3198 021 34710	470Ω 5% 0603
3895	4822 051 30471	470Ω 5% 0.062W
3896	3198 021 31520	1.5KΩ 5% 0603
3896	4822 051 30152	1.5kΩ 5% 0.062W
3897	3198 021 32210	220Ω 5% 0603
3897	4822 051 30221	220Ω 5% 0.062W
3898	3198 021 31020	1kΩ 5% 0603
3898	4822 051 30102	1kΩ 5% 0.062W
4304	4822 051 30008	Jumper 0603
4309	4822 051 30008	Jumper 0603
4310	4822 051 30008	Jumper 0603
4311	4822 051 30008	Jumper 0603
4312	4822 051 30008	Jumper 0603
4313	4822 051 20008	Jumper 0805
4314	4822 051 20008	Jumper 0805
4434	4822 051 20008	Jumper 0805
4437	4822 051 20008	Jumper 0805
4438	4822 051 20008	Jumper 0805
4827	3198 021 90030	Jumper 0603
4827	4822 051 30008	Jumper 0603
4828	3198 021 90030	Jumper 0603
4828	4822 051 30008	Jumper 0603

4831	3198 021 32210	220Ω 5% 0603
4831	4822 051 30221	220Ω 5% 0.062W



5261	4822 157 11299	10μH 5%
5309	4822 157 71334	0.68μH
5332	4822 157 71334	0.68μH
5333	4822 157 71334	0.68μH
5334	4822 157 71334	0.68μH
5349	4822 157 71694	0.82μH 10%
5350	3198 018 61590	15μH 5% 1008
5351	3198 018 61590	15μH 5% 1008
5352	4822 157 71334	0.68μH
5401	2422 535 94637	4.7μH 20% LHL08
5816	3198 018 90070	Bead 120Ω 100MHz
5816	4822 157 11506	Bead 120Ω at 100MHz
5818	3198 018 90070	Bead 120Ω 100MHz
5818	4822 157 11506	Bead 120Ω at 100MHz
5827	3198 018 90070	Bead 120Ω 100MHz
5827	4822 157 11506	Bead 120Ω at 100MHz
5834	3198 018 90070	Bead 120Ω 100MHz
5834	4822 157 11506	Bead 120Ω at 100MHz
5839	3198 018 90070	Bead 120Ω 100MHz
5839	4822 157 11506	Bead 120Ω at 100MHz
5848	3198 018 90070	Bead 120Ω 100MHz
5848	4822 157 11506	Bead 120Ω at 100MHz
5849	3198 018 90070	Bead 120Ω 100MHz
5849	4822 157 11506	Bead 120Ω at 100MHz
5851	3198 018 90070	Bead 120Ω 100MHz
5851	4822 157 11506	Bead 120Ω at 100MHz
5853	3198 018 90070	Bead 120Ω 100MHz
5853	4822 157 11506	Bead 120Ω at 100MHz



6301	4822 130 11525	1SS356
6412	4822 130 11397	BAS316
6415	4822 130 11397	BAS316
6801	3198 020 53980	BZX384-C2V9
6801	4822 130 11564	UDZ3.9B
6802	3198 020 53980	BZX384-C2V9
6802	4822 130 11564	UDZ3.9B
6803	3198 010 10630	BAS316
6803	4822 130 11397	BAS316



7201	2422 542 90104	TUNERTEDE9X217AALPS
7301	9352 638 73557	TDA8889H/N1
7305	3198 010 42310	BC847BW
7307	3198 010 42310	BC847BW
7331	3198 010 42320	BC857BW
7332	3198 010 42310	BC847BW
7385	3198 010 42310	BC847BW
7386	3198 010 42310	BC847BW
7401	5322 209 14481	HEF4053BT
7402	5322 209 14481	HEF4053BT
7403	4822 209 17345	M62320FP
7411	3198 010 42310	BC847BW
7412	3198 010 42310	BC847BW
7421	3198 010 42320	BC857BW
7438	3198 010 42310	BC847BW
7801	9352 639 83557	SAB9083H/N4
7802	9322 123 54687	LD1117V33
7803	4822 209 12776	TDA8601T/C1
7803	9351 538 90518	TDA8601T/C1
7804	9352 457 50115	74HC1G32GW
7805	3198 010 42310	BC847BW
7806	3198 010 42310	BC847BW
7807	3198 010 42310	BC847BW
7808	3198 010 42310	BC847BW
7809	3198 010 42310	BC847BW
7810	3198 010 42310	BC847BW
7824	3198 010 42310	BC847BW
7828	3198 010 42310	BC847BW
7832	3198 010 42310	BC847BW
7871	3198 010 42310	BC847BW
7874	3198 010 42310	BC847BW
7876	3198 010 42320	BC857BW
7891	3198 010 42310	BC847BW
7892	3198 010 42310	BC847BW
7893	3198 010 42310	BC847BW
7894	3198 010 42320	BC857BW
7895	3198 010 42310	BC847BW

Mainsswitch Panel [E]

Various

0040	3104 307 97621	Mainsknob FL11
0040	3139 177 55091	Knob Frost Silver
0046	3104 304 23471	Bracket mains unit FL11
0046	3139 124 32521	Front Interface
0151	4822 256 91766	LED holder
0160	4822 256 91766	LED holder
0170	4822 256 10562	Photo diode holder
0201	2422 025 16268	Connector 2p m
0202	2422 025 16268	Connector 2p m
0241	2422 025 06354	Connector 9p m
0248	4822 267 10567	Connector 4P
1031	2422 128 02972	Mains switch
1040	9322 155 82667	IR receiver TSOP2236
1050	9322 155 82667	IR receiver TSOP2236
1051	2422 128 02972	Mains switch
1060	3104 328 18291	MS assy PV2 mains
1060	3104 328 27321	MS Panel
8202	3104 311 02571	Cable 2p3/680/2p3
8202	4822 320 12513	Wiring VH 2P480VH
8946	3104 311 02911	Cable 9P/680/9P
8946	3104 311 04981	Cable 9p/820/9p



2040	4822 124 41584	100μF 20% 10V
2051	4822 124 41584	100μF 20% 10V
2060	4822 124 81151	22μF 50V
2070	3198 017 44740	470nF 10V 0603
2070	4822 126 13879	220nF 20% 16V
2071	4822 124 40248	10μF 20% 63V
2080	2238 586 59812	100nF 20-80% 50V 0603



3030	4822 053 21335	3M3 5% 0.5W
3037	4822 053 21335	3M3 5% 0.5W
3040	4822 051 30331	330Ω 5% 0.062W
3040	4822 117 13577	330Ω 1% 0805 1.25W
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30682	6.8kΩ 5% 0.062W
3043	4822 051 30101	100Ω 5% 0.062W
3043	4822 051 30471	470Ω 5% 0.062W
3050	4822 117 13577	330Ω 1% 0805 1.25W
3051	4822 051 30471	470Ω 5% 0.062W
3052	4822 051 30331	330Ω 5% 0.062W
3053	4822 051 30561	560Ω 5% 0.062W
3054	4822 051 20471	470Ω 5% 0.1W
3057	4822 053 21335	3M3 5% 0.5W
3060	4822 051 30103	10kΩ 5% 0.062W
3061	4822 117 13577	330Ω 1% 0805 1.25W
3062	4822 117 11373	100Ω 1% 0805
3063	4822 051 30103	10kΩ 5% 0.062W
3064	4822 117 11373	100Ω 1% 0805
3066	4822 053 21335	3M3 5% 0.5W
3070	4822 051 30155	1M50 5% 0.062W
3070	4822 051 30334	330kΩ 5% 0.062W
3070	4822 051 30475	4.7MΩ 5% 0.062W 0603
3071	4822 051 30155	1M50 5% 0.062W
3071	4822 051 30334	330kΩ 5% 0.062W
3071	4822 051 30475	4.7MΩ 5% 0.062W 0603
3072	4822 051 30102	1kΩ 5% 0.062W
3073	4822 051 30103	10kΩ 5% 0.062W
3073	4822 051 30332	3.3kΩ 5% 0.062W
3074	4822 051 30103	10kΩ 5% 0.062W
3074	4822 051 30472	4.7kΩ 5% 0.062W
3075	4822 051 30472	4.7kΩ 5% 0.062W
3076	4822 051 30682	6.8kΩ 5% 0.062W
3077	4822 051 30103	10kΩ 5% 0.062W
3078	4822 051 30102	1kΩ 5% 0.062W
3078	4822 051 30332	3.3kΩ 5% 0.062W
3079	4822 051 30332	3.3kΩ 5% 0.062W
3080	4822 051 30103	10kΩ 5% 0.062W
3081	4822 051 30222	2.2kΩ 5% 0.062W
3082	4822 051 30008	Jumper 0603
3998	4822 050 11002	1k 1% 0.4W
3998	4822 116 52213	180Ω 5% 0.5W
3999	4822 051 30222	2.2kΩ 5% 0.062W
4000	4822 051 30008	Jumper 0603
4002	4822 051 30008	Jumper 0603
4007	4822 051 30008	Jumper 0603
4008	4822 051 30008	Jumper 0603
4009	4822 051 30008	Jumper 0603
4010	4822 051 30008	Jumper 0603
4011	4822 051 30008	Jumper 0603
9000	4822 051 30008	Jumper 0603
9001	4822 051 20008	Jumper 0805
9004	4822 051 20008	Jumper 0805

9005	4822 051 20008	Jumper 0805	2410	2238 916 15641	22nF 10% 25V 0603	3412	2322 750 61509	Fuse 15Ω 1206 5%
9005	4822 051 30008	Jumper 0603	2410	3198 017 44740	470nF 10V 0603	3412	4822 117 11148	56kΩ 1% 0.1W
9006	4822 051 20008	Jumper 0805	2411	2238 916 15641	22nF 10% 25V 0603	3413	4822 051 30471	470Ω 5% 0.062W
9006	4822 051 30008	Jumper 0603	2411	4822 126 14585	100nF 10% 50V	3413	4822 051 30681	680Ω 5% 0.062W
9007	4822 051 20008	Jumper 0805	2412	2222 867 15339	33pF 5% 50V 0603	3414	4822 051 30109	10Ω 5% 0.062W
9007	4822 051 30008	Jumper 0603	2420	2222 930 56627	2.2nF 10% 200V 0805	3416	4822 051 20333	33kΩ 5% 0.1W
9008	4822 051 20008	Jumper 0805	2420	3198 017 44740	470nF 10V 0603	3416	4822 116 52193	39Ω 5% 0.5W
9041	4822 051 30008	Jumper 0603	2421	2322 702 60688	6R8 5% 0.062W RC21 0603	3417	4822 051 20333	33kΩ 5% 0.1W
9042	4822 051 30008	Jumper 0603	2422	4822 121 41856	22nF 5% 250V	3417	4822 051 30109	10Ω 5% 0.062W
9050	4822 051 30008	Jumper 0603	2423	4822 121 41856	22nF 5% 250V	3418	4822 051 30008	Jumper 0603
9051	4822 051 30008	Jumper 0603	2424	2322 702 60688	6R8 5% 0.062W RC21 0603	3419	4822 053 12272	2.7kΩ 5% 3W
9052	4822 051 30008	Jumper 0603	2425	4822 126 13883	220pF 5% 50V	3420	2322 702 60688	6R8 5% 0.062W RC21 0603
9053	4822 051 30008	Jumper 0603	2428	3198 017 42230	22nF 50V	3420	4822 051 30109	10Ω 5% 0.062W
9055	4822 051 30008	Jumper 0603	2435	2020 557 90734	22nF 10% 250V	3421	4822 051 20333	33kΩ 5% 0.1W
			2436	2020 012 93596	22μF 20% 250V	3422	4822 051 30008	Jumper 0603
			2437	5322 126 11578	1nF 10% 50V 0603	3422	4822 051 30152	1.5kΩ 5% 0.062W
			2438	2222 930 56627	2.2nF 10% 200V 0805	3422	4822 051 30392	3.9kΩ 5% 0.063W 0603
			2439	2020 557 90734	22nF 10% 250V	3423	4822 051 20333	33kΩ 5% 0.1W
6050	5322 130 83903	TLRC114	2501	2238 586 59812	100nF 20-80% 50V 0603	3424	4822 051 20333	33kΩ 5% 0.1W
6051	4822 209 72895	TLUV5320	2503	2238 586 59812	100nF 20-80% 50V 0603	3425	4822 051 30152	1.5kΩ 5% 0.062W
6060	9322 191 72682	VS LTL353UBJ	2505	2238 586 59812	100nF 20-80% 50V 0603	3425	4822 051 30392	3.9kΩ 5% 0.063W 0603
6061	4822 130 30621	1N4148	2510	4822 126 14585	100nF 10% 50V	3426	4822 051 20333	33kΩ 5% 0.1W
6070	4822 130 11595	BPW46	2511	4822 126 14585	100nF 10% 50V	3427	2322 702 60688	6R8 5% 0.062W RC21 0603
						3427	4822 051 30109	10Ω 5% 0.062W
						3448	4822 051 20333	33kΩ 5% 0.1W
						3449	4822 117 11817	1.2kΩ 1% 1/16W
						3451	4822 051 30102	1kΩ 5% 0.062W
						3453	4822 051 30103	10kΩ 5% 0.062W
						3454	4822 051 20333	33kΩ 5% 0.1W
						3456	4822 051 30332	3.3kΩ 5% 0.062W
						3458	4822 117 12139	22Ω 5% 0.062W
						3459	4822 051 30101	100Ω 5% 0.062W
						3460	4822 117 12139	22Ω 5% 0.062W
						3465	4822 051 30008	Jumper 0603
						3471	4822 117 11817	1.2kΩ 1% 1/16W
						3473	4822 116 80176	1Ω 5% 0.5W
						3474	4822 051 30103	10kΩ 5% 0.062W
						3478	4822 116 80176	1Ω 5% 0.5W
						3488	4822 051 30008	Jumper 0603
						3489	4822 051 30109	10Ω 5% 0.062W
						3492	4822 051 30008	Jumper 0603
						3501	4822 051 20471	470Ω 5% 0.1W
						3502	4822 051 30331	330Ω 5% 0.062W
						3506	4822 051 30008	Jumper 0603
						3508	4822 051 30008	Jumper 0603
						3509	4822 051 30471	470Ω 5% 0.062W
						3510	4822 116 52175	100Ω 5% 0.5W
						3511	4822 051 20471	470Ω 5% 0.1W
						3512	4822 051 30331	330Ω 5% 0.062W
						3516	4822 117 13632	100kΩ 1% 0603 0.62W
						3517	4822 051 30102	1kΩ 5% 0.062W
						3518	4822 051 30008	Jumper 0603
						3519	4822 051 30471	470Ω 5% 0.062W
						3520	4822 116 52226	560Ω 5% 0.5W
						3521	4822 051 20471	470Ω 5% 0.1W
						3522	4822 051 30331	330Ω 5% 0.062W
						3526	4822 051 30008	Jumper 0603
						3528	4822 051 30008	Jumper 0603
						3529	4822 051 30471	470Ω 5% 0.062W
						3530	4822 116 52226	560Ω 5% 0.5W
						3532	4822 051 30008	Jumper 0603
						3534	4822 051 30008	Jumper 0603
						3535	4822 051 20008	Jumper 0805
						3536	4822 051 20008	Jumper 0805
						3537	4822 051 20008	Jumper 0805
						3539	4822 051 20471	470Ω 5% 0.1W
						3541	4822 051 20471	470Ω 5% 0.1W
						3543	4822 051 20471	470Ω 5% 0.1W
						3544	4822 116 52285	470kΩ 5% 0.5W
						3545	4822 051 30109	10Ω 5% 0.062W
						3546	4822 051 30109	10Ω 5% 0.062W
						3547	4822 051 30109	10Ω 5% 0.062W
						3999	4822 051 30392	3.9kΩ 5% 0.063W 0603
						3999	4822 051 30472	4.7kΩ 5% 0.062W
						3999	4822 051 30562	5.6kΩ 5% 0.063W 0603
						3999	4822 051 30682	6.8kΩ 5% 0.062W
						3999	4822 117 12902	8.2kΩ 1% 0.063W 0603
						9301	4822 051 30008	Jumper 0603
						9303	4822 051 30008	Jumper 0603
						9305	4822 051 30008	Jumper 0603
						9306	4822 051 30008	Jumper 0603
						9308	4822 051 30008	Jumper 0603
						9314	4822 051 30008	Jumper 0603
						9402	2238 930 11523	10pF 5% 200V 0805
						9402	4822 051 30008	Jumper 0603
						9403	2238 930 11523	10pF 5% 200V 0805
						9403	4822 051 30008	Jumper 0603
						9404	4822 051 30008	Jumper 0603
						9406	4822 051 20008	Jumper 0805
						9408	4822 051 30008	Jumper 0603
						9409	4822 051 30008	Jumper 0603
						9413	4822 051 20008	Jumper 0805
						9428	4822 051 30008	Jumper 0603
						9432	4822 051 30008	Jumper 0603
								
2300	2020 012 93596	22μF 20% 250V	3300	4822 052 10109	10Ω 5% 0.33W			
2301	4822 124 40196	220μF 20% 16V	3301	4822 053 12272	2.7kΩ 5% 3W			
2302	4822 126 13956	68pF 5% 63V 0603	3301	4822 117 12517	5.6kΩ 5% 5W			
2304	4822 121 41856	22nF 5% 250V	3302	4822 051 30102	1kΩ 5% 0.062W			
2306	2238 586 59812	100nF 20-80% 50V 0603	3303	4822 051 30153	15kΩ 5% 0.062W			
2307	4822 121 41856	22nF 5% 250V	3304	4822 052 10102	1k 5% 0.33W			
2309	3198 017 42230	22nF 50V	3304	4822 117 11454	820Ω 1% 0.1W			
2312	4822 126 14585	100nF 10% 50V	3305	4822 052 10108	1Ω 5% 0.33W			
2313	4822 124 11565	10Ω F 20% 250V	3306	4822 117 13608	4.7R 5% 0603 0,0016W			
2313	4822 124 12373	47μF 20% 250V	3307	4822 051 30109	10Ω 5% 0.062W			
2315	4822 126 13883	220pF 5% 50V	3308	4822 117 10837	100kΩ 1% 0.1W			
2316	4822 121 40518	100nF 10% 250V	3310	4822 051 10102	1kΩ 2% 0.25W			
2318	2238 916 15641	22nF 10% 25V 0603	3311	4822 051 30569	56R00 5% 0,062W			
2318	5322 122 32654	22nF 10% 63V	3312	4822 051 30222	2.2kΩ 5% 0.062W			
2319	4822 121 43693	10NF 100V	3316	4822 117 10837	100kΩ 1% 0.1W			
2319	4822 122 30043	10nF 80% 63V	3318	4822 051 30008	Jumper 0603			
2320	2238 586 59812	100nF 20-80% 50V 0603	3318	4822 051 30109	10Ω 5% 0.062W			
2320	2252 648 08032	10nf 20% 500V	3319	4822 117 12968	820Ω 5% 0.62W			
2324	4822 121 70581	1.5nF 5% 2kV	3323	4822 050 24708	4Ω7 1% 0.6W			
2324	4822 121 70594	1nF 5% 2kV	3329	4822 050 24708	4Ω7 1% 0.6W			
2324	5322 121 44356	4.7nF 5% 2kV	3334	4822 050 11002	1k 1% 0.4W			
2325	2238 586 59812	100nF 20-80% 50V 0603	3335	48				

9437	4822 051 30008	Jumper 0603
9450	4822 051 20008	Jumper 0805
9452	4822 051 20008	Jumper 0805
9453	4822 051 20008	Jumper 0805
9501	4822 051 30008	Jumper 0603
9502	4822 051 30008	Jumper 0603
9503	4822 051 30008	Jumper 0603

5300▲	3104 308 20571	Transformer S13974-03 34'
5304	4822 526 10704	Bead 45Ω at 50MHz
5305	2422 549 42896	Bead 120Ω at 100MHz
5308	4822 157 11867	5.6μH 5%
5309	4822 157 11867	5.6μH 5%
5310	4822 157 50964	100μH 20%
5400	4822 157 11869	33μH 10% LHL08
5400	4822 157 71467	39μH 10%
5500	2722 122 00337	Del. Line 70NS SDL-5135
5501	2722 122 00337	Del. Line 70NS SDL-5135
5502	2722 122 00337	Del. Line 70NS SDL-5135

6300	4822 130 83757	BAS216
6301	4822 051 20479	47Ω 5% 0.1W
6301	9340 553 52115	BAS321
6302	9340 553 52115	BAS321
6303	9340 553 52115	BAS321
6305	9340 553 52115	BAS321
6306	9340 553 52115	BAS321
6307	9340 553 52115	BAS321
6310	4822 130 11397	BAS316
6401	3139 120 52021	BYV29X-500
6401	4822 130 11397	BAS316
6402	4822 130 11397	BAS316
6403	4822 130 11397	BAS316
6404	4822 130 11397	BAS316
6405	3139 120 52021	BYV29X-500
6407	4822 130 11397	BAS316
6420	5322 130 34337	BAV99
6421	5322 130 34337	BAV99
6422	5322 130 34337	BAV99
6426	4822 130 30613	BAW62
6427	4822 130 30613	BAW62
6428	4822 130 30613	BAW62
6430	9340 548 61115	PDZ12B
6431	4822 130 11397	BAS316
6432	9340 553 52115	BAS321
6500	4822 130 11397	BAS316
6501	4822 130 11397	BAS316
6502	4822 130 11397	BAS316



7300	5322 130 42718	BFS20
7301	5322 130 42718	BFS20
7302	5322 130 62804	BCP53
7303	5322 130 63033	BCP56
7304	4822 130 60383	BF824
7307	9352 561 40112	TDA6108
7308	5322 130 42718	BFS20
7309	5322 130 62804	BCP53
7310	5322 130 63033	BCP56
7330	9352 694 46112	TDA6118JF/N1
7340	9352 694 46112	TDA6118JF/N1
7350	9352 694 46112	TDA6118JF/N1
7414	5322 130 62804	BCP53
7415	5322 130 63033	BCP56
7422	5322 130 42718	BFS20
7427	5322 130 60159	BC846B
7428	4822 130 60373	BC856B
7429	5322 130 63033	BCP56
7430	5322 130 62804	BCP53
7500	5322 130 42718	BFS20
7502	4822 130 60373	BC856B
7503	5322 130 42718	BFS20
7505	4822 130 60373	BC856B
7506	5322 130 42718	BFS20
7508	4822 130 60373	BC856B

DC Shift Panel [G]

Various

0317	4822 265 20723	Connector 2p m
0318	4822 265 20723	Connector 2p m
1430	2422 086 10581	Fuse 400mA 65V
8317	3104 311 01421	Cable 2p3/220/2p3



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



5430	3128 138 38911	DC-shift coil CU15
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6432	9340 317 00133	BYD33V
6433	9340 317 00133	BYD33V

I/O 3rd SCART Panel [H]

Various

0043	3104 304 21311	Coverplate SCART
1201	2422 025 12493	Connector 10P m h 2.50
1272	2422 025 16601	3p male
1339	4822 265 10838	Socket phono 1P f v 3.5mm
1402	4822 267 10596	Connector 5P
1680	4822 265 31067	Connector 7p m
1937	2422 025 12493	Connector 10P m h 2.50
1952	4822 267 10748	Connector 3p m
1992	2422 025 16725	Connector SCART f m Bk
8201	3104 301 09841	Cable 10P/340/10P Wh
8272	3104 311 03101	Cable 3P/560/3P Bk
8340	3104 311 03101	Cable 3P/560/3P Bk



2500	2020 552 95344	680nF 20-80% 16V 0805
2502	4822 126 14585	100nF 10% 50V
2503	3198 016 31020	1nF 25V 0603
2504	2020 552 94427	100pF 5% 50v 0603
2508	2020 552 95344	680nF 20-80% 16V 0805
2509	2020 552 94427	100pF 5% 50v 0603
2510	3198 017 41050	1μF 10V 0603
2511	2238 586 59812	100nF 20-80% 50V 0603
2513	4822 126 13883	220pF 5% 50V
2514	4822 126 14585	100nF 10% 50V
2516	2238 586 59812	100nF 20-80% 50V 0603



3500	4822 117 13574	1.5Ω 5% 1206
3501	4822 051 30102	1kΩ 5% 0.062W
3502	4822 051 30008	Jumper 0603
3507	4822 051 30102	1kΩ 5% 0.062W
3508	4822 051 30008	Jumper 0603
3512	4822 051 30008	Jumper 0603
3512	4822 051 30101	100Ω 5% 0.062W
3517	4822 051 30151	150Ω 5% 0.062W
3518	4822 051 30151	150Ω 5% 0.062W
3520	4822 051 30101	100Ω 5% 0.062W
3521	4822 051 30101	100Ω 5% 0.062W
3526	4822 051 30101	100Ω 5% 0.062W
3529	4822 051 30333	33kΩ 5% 0.062W
3530	4822 051 30102	1kΩ 5% 0.062W
3531	4822 051 30471	470Ω 5% 0.062W
3532	4822 051 30102	1kΩ 5% 0.062W
3532	4822 051 30479	47Ω 5% 0.062W
3533	4822 051 30759	75Ω 5% 0.062W
3534	4822 117 12864	82kΩ 5% 0.6W
3535	4822 051 30102	1kΩ 5% 0.062W
3535	4822 051 30471	470Ω 5% 0.062W
3538	4822 051 30008	Jumper 0603
3540	4822 051 30008	Jumper 0603
3542	4822 051 30008	Jumper 0603
3544	4822 051 30008	Jumper 0603
3546	4822 051 30102	1kΩ 5% 0.062W
3999	4822 051 30222	2.2kΩ 5% 0.062W
3999	4822 051 30272	2.7kΩ 5% 0.062W
9503	4822 051 30008	Jumper 0603
9505	4822 051 20008	Jumper 0805
9507	4822 051 30008	Jumper 0603
9508	4822 051 30008	Jumper 0603
9509	4822 051 30008	Jumper 0603
9510	4822 051 30008	Jumper 0603
9514	4822 051 30008	Jumper 0603
9515	4822 051 30008	Jumper 0603
9516	4822 051 30008	Jumper 0603
9519	4822 051 30008	Jumper 0603
9520	4822 051 30008	Jumper 0603
9521	4822 051 30008	Jumper 0603
9523	4822 051 30008	Jumper 0603
9525	4822 051 30008	Jumper 0603

9526	4822 051 30008	Jumper 0603
9527	4822 051 30008	Jumper 0603
9528	4822 051 30008	Jumper 0603
9529	4822 051 30008	Jumper 0603
9537	4822 051 20008	Jumper 0805
9540	4822 051 30008	Jumper 0603



6500	4822 130 11416	PDZ6.8B
6501	4822 130 11416	PDZ6.8B
6502	4822 130 11416	PDZ6.8B
6503	4822 130 11416	PDZ6.8B
6504	4822 130 11416	PDZ6.8B
6505	4822 130 11416	PDZ6.8B
6506	4822 130 11416	PDZ6.8B
6507	9340 548 61115	PDZ12B
6509	4822 130 11416	PDZ6.8B
6510	4822 130 11416	PDZ6.8B
6511	4822 130 11416	PDZ6.8B
6512	4822 130 11416	PDZ6.8B



7501	5322 209 11578	PCF8574T
7508	5322 130 60159	BC846B
7509	4822 130 60373	BC856B
7515	9351 869 40118	74HC4053PW

Horizontal DAF Panel [I]

Various

0034	3104 304 23041	DAF bracket EMGS
1417	4822 265 20723	Connector 2p m
1418	2422 025 16374	Connector 2p m
1419	4822 265 20723	Connector 2p m
1491	3104 311 02452	Cable 1P/340/1P
1492	4822 267 10735	Connector 3p m
1497	4822 267 10973	Connector 1P m
1693	4822 267 10676	Connector 1P
8418	3104 311 01951	CableH 2P3/560mm/2P4



2800	2222 375 90188	390pF 5% 2kV
2800	2222 375 90498	470pF 5% 2kV
2809	4822 124 40207	100μF 20% 25V
2812	4822 121 70435	10nF 5% 2kV
2813	4822 124 40248	10μF 20% 63V
2814	4822 121 70594	1nF 5% 2kV
2821	2222 479 90166	68nF 5% 400V
2822	4822 121 43856	4.7nF 5% 250V
2824	4822 124 40248	10μF 20% 63V
2825	4822 121 51319	1μF 10% 63V
2890	2222 375 90188	390pF 5% 2kV
2890	2222 375 90276	220pF 5% 2kV



3807	4822 052 10159	15Ω 5% 0.33W
3808	4822 052 10159	15Ω 5% 0.33W
3809	4822 052 10109	10Ω 5% 0.33W
3810	4822 053 21474	470k 5% 0.5W
3811	4822 053 20475	47M 5% 0.25W
3812	4822 116 52264	27kΩ 5% 0.5W
3813	4822 116 52285	470kΩ 5% 0.5W
3814	4822 050 21004	100kΩ 1% 0.6W
3815	4822 050 11002	1k 1% 0.4W
3816	4822 116 52256	2k2 5% 0.5W
3818	4822 051 20333	33kΩ 5% 0.1W
3820	4822 051 20008	Jumper 0805
3821	4822 051 20008	Jumper 0805
3822	4822 051 20008	Jumper 0805
3823	4822 117 11139	1.5kΩ 1% 0.1W
3824	4822 051 20333	33kΩ 5% 0.1W
3826	4822 051 20332	3.3kΩ 5% 0.1W
3827	4822 051 20562	5.6kΩ 5% 0.1W 0805
3828	4822 117 10837	100kΩ 1% 0.1W
3830	4822 117 10834	47kΩ 1% 0.1W
3831	4822 051 20472	4.7kΩ 5% 0.1W
3832	4822 051 20182	1.8kΩ 5% 0.1W
3833	4822 051 20472	4.7kΩ 5% 0.1W
3898	4822 116 21211	VDR 420V
3898	4822 116 21239	VDR 1mA/612V
3899	4822 116 21211	VDR 420V
3899	4822 116 21239	VDR 1mA/612V
3998	4822 050 11002	1k 1% 0.4W
3998	4822 116 52207	1k2 5% 0.5W

				
5800	2422 531 02437	Transformer S21975-03		
5801	2422 531 02435	Transformer C948-02		
5801	8228 001 34391	Driver Transformer CU15		
5810	3128 138 40041	Transformer CU15B		



6810	9340 317 00133	BYD33V		
6812	4822 130 34441	BZX79-B22		



7810	9322 136 03687	STP3NB80FP		
7818	5322 130 60159	BC846B		
7822	5322 130 60159	BC846B		
7823	4822 130 60373	BC856B		

Side I/O Panel [O]

Various

0077	3104 304 23481	Bracket side I/O FL11		
0240	2422 025 12485	Connector 11p m		
0306	3139 124 31651	Side I/O Bracket PV2		
1016	3104 328 17361	Side I/O EMGS FL11 HD		
1254	4822 267 31014	Socket headphone		
1255	4822 265 11606	3p		
1256	2422 026 04926	Socket 4P		
1326	4822 267 10975	Connector 3p		
1327	4822 267 31014	Socket headphone		
1328	2422 026 05133	Connector SVHS 4p f		
1936	2422 025 12485	Connector 11p m		
8936	3104 311 05271	Cable 11P/820/11P UL		



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 20% 63V		
2297	4822 122 31125	4.7nF 20% 63V		
2803	5322 126 10733	680pF 5% 50V		
2804	5322 122 32531	100pF 5% 50V		
2805	5322 122 32531	100pF 5% 50V		
2806	5322 126 10733	680pF 5% 50V		
2807	4822 126 14076	220nF 25V. 20%		
2813	4822 124 22652	2.2μF 20% 50V		
2832	4822 122 33177	10nF 20% 50V		
2832	5322 122 31863	330pF 5% 63V		
2834	4822 122 33177	10nF 20% 50V		
2834	5322 122 31863	330pF 5% 63V		
2840	4822 122 33177	10nF 20% 50V		
2840	5322 126 10733	680pF 5% 50V		
2841	4822 122 33177	10nF 20% 50V		
2841	5322 126 10733	680pF 5% 50V		



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		
3291	4822 050 11002	1k 1% 0.4W		
3292	4822 117 10834	47kΩ 1% 0.1W		
3293	4822 050 11002	1k 1% 0.4W		
3294	4822 117 10834	47kΩ 1% 0.1W		
3295	4822 116 52175	100Ω 5% 0.5W		
3296	4822 117 10833	10kΩ 1% 0.1W		
3297	4822 117 10833	10kΩ 1% 0.1W		
3801	4822 117 11927	75Ω 1% 0.1W		
3802	4822 116 52201	75Ω 5% 0.5W		
3803	4822 050 11002	1k 1% 0.4W		
3804	4822 050 11002	1k 1% 0.4W		
3808	4822 051 20008	Jumper 0805		
3809	4822 051 20008	Jumper 0805		
3814	4822 117 10833	10kΩ 1% 0.1W		
3816	4822 051 20008	Jumper 0805		
3826	4822 116 52199	68Ω 5% 0.5W		
3826	4822 116 52206	120Ω 5% 0.5W		
3827	4822 116 52199	68Ω 5% 0.5W		
3827	4822 116 52206	120Ω 5% 0.5W		
3828	4822 116 52199	68Ω 5% 0.5W		
3828	4822 116 52206	120Ω 5% 0.5W		
3829	4822 116 52199	68Ω 5% 0.5W		
3829	4822 116 52206	120Ω 5% 0.5W		
3830	4822 050 21003	10kΩ 1% 0.6W		

3835	4822 116 52175	100Ω 5% 0.5W		
3842	4822 050 21003	10kΩ 1% 0.6W		
4201	4822 051 20008	Jumper 0805		
4241	4822 051 20008	Jumper 0805		
4243	4822 051 20008	Jumper 0805		
4800	4822 051 20008	Jumper 0805		
4801	4822 051 20008	Jumper 0805		
4802	4822 051 20008	Jumper 0805		
4803	4822 051 20008	Jumper 0805		



6291	9340 548 61115	PDZ12B		
6292	9340 548 61115	PDZ12B		
6293	9340 548 61115	PDZ12B		
6294	9340 548 61115	PDZ12B		
6296	9340 548 61115	PDZ12B		
6297	9340 548 61115	PDZ12B		
6801	9322 129 38685	BZM55-C6V8		
6802	9322 129 38685	BZM55-C6V8		
6803	9322 129 40685	BZM55-C10		
6804	9322 129 40685	BZM55-C10		
6805	9322 129 40685	BZM55-C10		
6806	9322 129 40685	BZM55-C10		
6807	9322 129 38685	BZM55-C6V8		
6808	9322 129 38685	BZM55-C6V8		

Top Control Panel [P]

Various

0055	3104 307 98241	Top control keypad FL11		
0056	3104 307 97611	Top control FL11		
0057	3104 304 23431	Topcontrol bottom FL11		
0135	3104 311 01401	Cable 3p/1500/3p		
0215	4822 267 10748	Connector 3p m		
0342	3139 124 39172	Top control bracket		
0346	4822 267 10748	Connector 3p m		
1091	4822 276 13775	Switch		
1092	4822 276 13775	Switch		
1093	4822 276 13775	Switch		
1094	4822 276 13775	Switch		
1095	4822 276 13775	Switch		
1701	2422 128 02778	Tact switch		
1702	2422 128 02778	Tact switch		
1703	2422 128 02778	Tact switch		
1704	2422 128 02778	Tact switch		
1705	2422 128 02778	Tact switch		
8346	3104 301 07771	Cable 3P 1200mm white		
8346	3104 311 01401	Cable 3p/1500/3p		



2010	4822 122 33177	10nF 20% 50V		
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3001	4822 051 20391	390Ω 5% 0.1W		
3003	4822 117 13528	200Ω 1% 0.125W 0805		
3005	4822 117 11951	2kΩ 1% 0.1W		
3009	4822 117 11534	1.1kΩ 1% 0.1W		
3011	4822 117 10845	620Ω 1% 0.1W		
3088	4822 117 11951	2kΩ 1% 0.1W		
3089	4822 117 11534	1.1kΩ 1% 0.1W		
3090	4822 117 10845	620Ω 1% 0.1W		
3091	4822 051 30008	Jumper 0603		
3092	4822 051 30008	Jumper 0603		
3093	4822 051 30008	Jumper 0603		
3094	4822 051 30008	Jumper 0603		
3095	4822 051 30391	390Ω 5% 0.062W		
3096	4822 117 13528	200Ω 1% 0.125W 0805		
3999	4822 051 20471	470Ω 5% 0.1W		
4001	4822 051 20008	Jumper 0805		
4003	4822 051 20008	Jumper 0805		
4005	4822 051 20008	Jumper 0805		
4006	4822 051 20008	Jumper 0805		

Auto Scavem [SC]

Various

1440	2422 025 12485	Connector 11p m		
1940	2422 025 12485	Connector 11p m		
1955	4822 267 10735	Connector 3p m		
8440	3104 311 05882	Cable 11P/400/11P ferr.		



2000	4822 126 14223	2.2pF +-0.25pF 50V 0603		
2002	4822 126 13887	4.7pF 50V		
2003	4822 126 13887	4.7pF 50V		
2004	3198 016 31080	1pF 25% 50V 0603		
2006	2238 586 59812	100nF 20-80% 50V 0603		
2008	2238 916 15641	22nF 10% 25V 0603		
2010	2238 586 59812	100nF 20-80% 50V 0603		
2012	2238 916 15641	22nF 10% 25V 0603		
2014	2238 916 15641	22nF 10% 25V 0603		
2016	4822 122 33741	10pF 10% 50V		
2020	2238 916 15641	22nF 10% 25V 0603		
2038	2238 916 15641	22nF 10% 25V 0603		
2040	4822 126 14225	56pF 5% 50V 0603		
2041	5322 122 32163	5.6PF0,25PF 100V		
2208	4822 124 41584	100μF 20% 10V		
2600	4822 124 80791	470μF 20% 16V		
2602	5322 122 32654	22nF 10% 63V		
2605	3198 017 41050	1μF 10V 0603		
2607	5322 122 32654	22nF 10% 63V		



3000	4822 051 30101	100Ω 5% 0.062W	
3002	4822 051 30101	100Ω 5% 0.062W	
3004	4822 051 30101	100Ω 5% 0.062W	
3006	4822 051 30102	1kΩ 5% 0.062W	
3008	4822 051 30102	1kΩ 5% 0.062W	
3010	4822 051 30102	1kΩ 5% 0.062W	
3012	4822 051 30332	3.3kΩ 5% 0.062W	
3014	4822 117 12903	1.8kΩ 1% 0.063W 0603	
3016	4822 117 12902	8.2kΩ 1% 0.063W 0603	
3018	4822 051 30681	680Ω 5% 0.062W	
3020	4822 051 30471	470Ω 5% 0.062W	
3022	4822 051 30393	39kΩ 5% 0.062W	
3024	4822 051 30273	27kΩ 5% 0.062W	
3028	4822 051 30223	22kΩ 5% 0.062W	
3030	4822 051 30683	68kΩ 5% 0.062W	
3032	4822 117 12903	1.8kΩ 1% 0.063W 0603	
3034	4822 051 30222	2.2kΩ 5% 0.062W	
3036	4822 051 30332	3.3kΩ 5% 0.062W	
3038	4822 051 30561	560Ω 5% 0.062W	
3040	4822 117 12925	47kΩ 1% 0.063W 0603	
3042	4822 051 30682	6.8kΩ 5% 0.062W	
3044	4822 051 30102	1kΩ 5% 0.062W	
3046	4822 051 30102	1kΩ 5% 0.062W	
3048	4822 051 30102	1kΩ 5% 0.062W	
3050	4822 051 30561	560Ω 5% 0.062W	
3052	4822 051 30561	560Ω 5% 0.062W	
3054	4822 051 30102	1kΩ 5% 0.062W	
3056	4822 051 30102	1kΩ 5% 0.062W	
3058	4822 051 30471	470Ω 5% 0.062W	
3060	4822 051 30471	470Ω 5% 0.062W	
3062	4822 051 30222	2.2kΩ 5% 0.062W	
3064	4822 117 12971	15Ω 5% 0.62W 0603	
3066	4822 117 12902	8.2kΩ 1% 0.063W 0603	
3068	4822 051 30681	680Ω 5% 0.062W	
3070	4822 117 12902	8.2kΩ 1% 0.063W 0603	
3072	4822 051 30101	1.5kΩ 5% 0.062W	
3074	4822 051 30101	100Ω 5% 0.062W	
3076	4822 117 11817	1.2kΩ 1% 1/16W	
3078	4822 051 30102	1kΩ 5% 0.062W	
3093	4822 051 30152	1.5kΩ 5% 0.062W	
3106	4822 051 30472	4.7kΩ 5% 0.062W	
3108	4822 051 30273	27kΩ 5% 0.062W	
3110	4822 051 30392	3.9kΩ 5% 0.063W 0603	
3112	4822 051 30222	2.2kΩ 5% 0.062W	
3114	4822 051 30101	100Ω 5% 0.062W	
3116	4822 051 30102	1kΩ 5% 0.062W	
3118	4822 051 30103	10kΩ 5% 0.062W	
3120	4822 051 30103	10kΩ 5% 0.062W	
3500	4822 051 30101	100Ω 5% 0.062W	
3502	4822 051 30101	100Ω 5% 0.062W	
3600	4822 117 13574	1.5Ω 5% 1206	
3999	4822 051 30102	1kΩ 5% 0.062W	
9000	4822 051 30008	Jumper 0603	
9002	4822 051 30008	Jumper 0603	
9010	4822 051 30008	Jumper 0603	
9020	4822 051 30008	Jumper 0603	
9033	4822 116 52175	100Ω 5% 0.5W	
9045	4822 051 30008	Jumper 0603	
9046	4822 051 30008	Jumper 0603	
9047	4822 051 30008	Jumper 0603	



6000 5322 130 80119 BBY40



- 7000 4822 130 60373 BC856B
- 7002 4822 130 60373 BC856B
- 7004 4822 130 60373 BC856B
- 7006 5322 130 42718 BFS20
- 7008 4822 130 60373 BC856B
- 7010 5322 130 42718 BFS20
- 7012 5322 130 42718 BFS20
- 7014 4822 130 60383 BF824
- 7016 5322 130 42718 BFS20
- 7018 5322 130 42718 BFS20
- 7020 4822 130 60383 BF824
- 7022 5322 130 42718 BFS20
- 7024 5322 130 42718 BFS20
- 7026 5322 130 42718 BFS20
- 7040 5322 130 42718 BFS20
- 7042 4822 130 60383 BF824
- 7500 5322 209 90559 TDA8444T/N4

11. Revision List

First release