

Plasma Display Panel – 50 FHD

Type D9 FHD

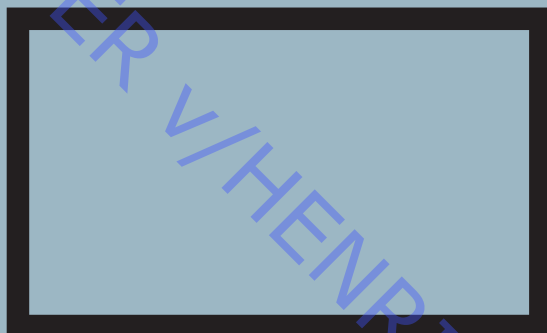
BeoVision 4 – 50 MKII, type 9039 - 9049

BeoVision 9 – 50 MKII, type 9720 - 9730

Service Manual

English

German, French, Italian, Spanish, Danish, Dutch and Simplified Chinese versions are available in the Retail System

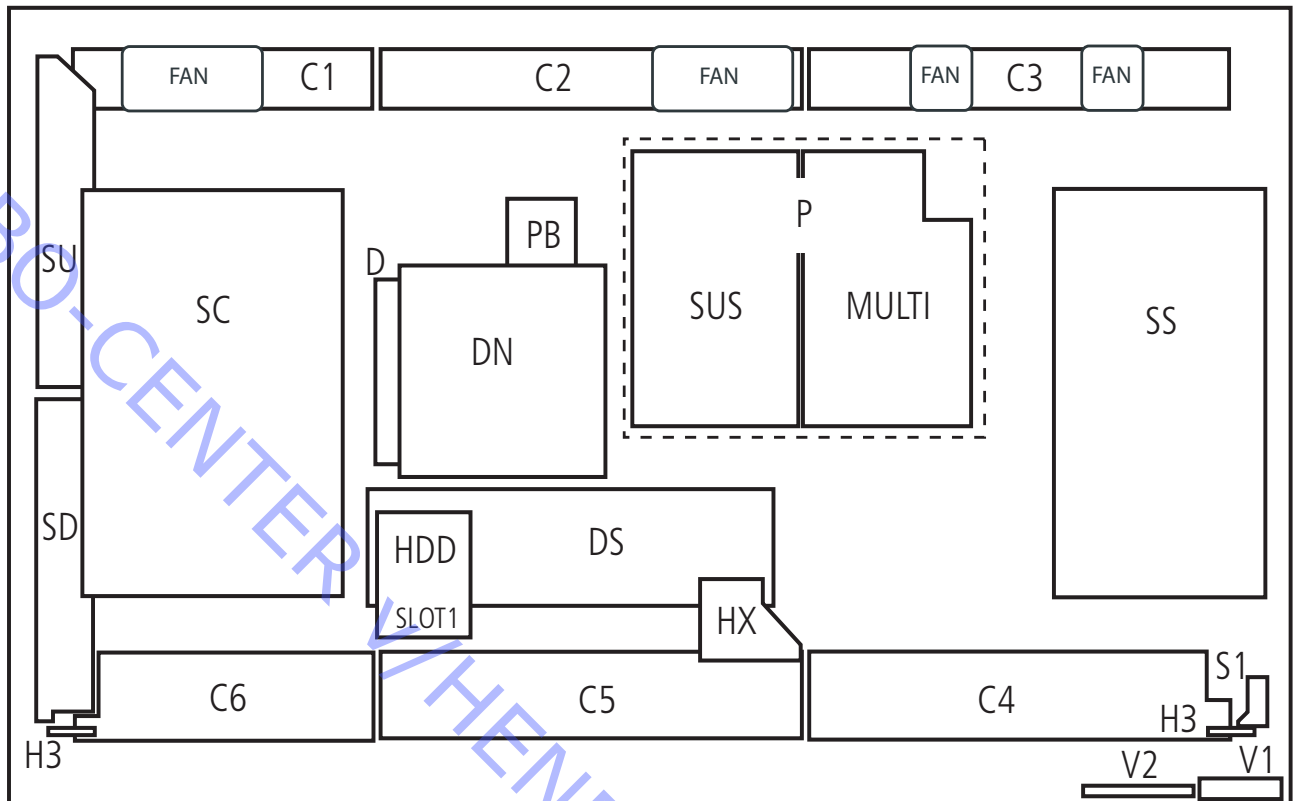


*This Service Manual must be returned with
the defective parts/back-up suitcase !*

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Survey of modules, Plasma Display Panel (PDP)



- | | | | |
|-----|---------------------------------|----|----------------------------|
| C1 | Data Drive (Upper left) | H3 | Speaker Terminal |
| C2 | Data Drive (Upper center) | P | Power Supply (SUS + MULTI) |
| C3 | Data Drive (Upper right) | PB | Fan Control |
| C4 | Data Drive (Lower right) | SC | Scan Out |
| C5 | Data Drive (Lower center) | SD | Scan Connection (Lower) |
| C6 | Data Drive (Lower left) | SS | Sustain Out |
| D | Digital Signal Processor | SU | Scan Connection (Upper) |
| DN | Digital Signal Processor/Micom | S1 | Power switch |
| DS | Slot Interface & SYNC processor | V1 | Remote receiver |
| HDD | DVI Input Terminal | V2 | Key switch |
| HX | PC Type Input Terminal | | |

How to service

Servicing

The PDP must be serviced by qualified technical personal only.

If it is not possible to determine the location of the fault or if replacing spare parts does not clear the fault, please contact your national Service Center for technical support.

Handling

The PDP must always be placed vertically to avoid damaging itself. There is a major risk of damaging the PDP if it is placed in a horizontal position. Whenever possible place the PDP on the service stand.

Clean the product

Never use alcohol or other solvents to clean any part of the product!

Use white gloves to avoid smudging the contrast screen.

Wipe dust off the surfaces using a dry, soft cloth or a micro fibre cloth. Remove grease stains or persistent dirt with a soft, lint-free, firmly wrung cloth, dipped in a solution of water containing only a few drops of mild detergent, such as washing-up liquid.

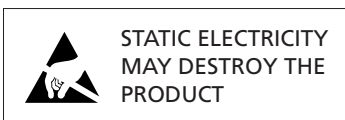
To retain the optimum performance of the screen, make sure that no streaks or traces of the cleaning fluid are left on the screen.

Burn-in

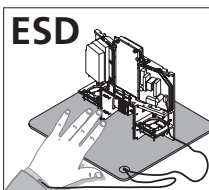
Burn-in on the PDP might occur when displaying a non-moving picture for more than app. 30 minutes.

Warning

Static electricity



Static electricity may damage the product.



Static-protective field service kit.

A static-protective field service kit must always be used when the product is disassembled or modules are being handled.

Follow the instructions in the guide and use the ESD-mat for both old and new modules.

Please note:

When mains voltage on the television is required, remove the connection between the PDP and the ESD-mat.

The chassis or modules must always be connected to the static-protective field service kit or placed in an ESD-proof bag.

Symbol of safety components



When replacing components with this symbol, the same type has to be used, also the same values for ohm and watt.

The new component is to be mounted in the same way as the replaced one.

Troubleshooting

Before troubleshooting is started

Please ask the customer to demonstrate or explain the fault.

Check that

The product is set for the correct option.

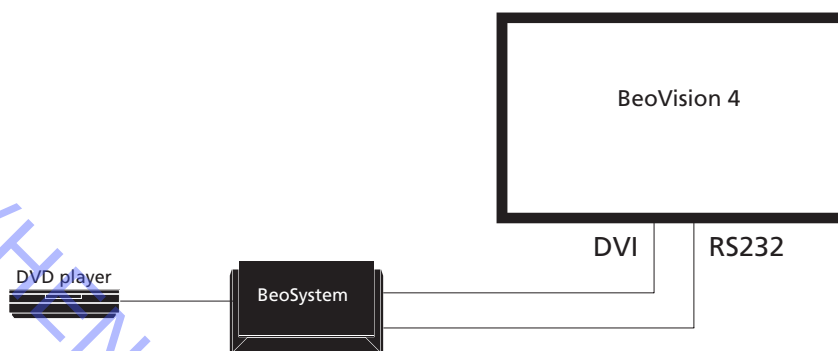
All leads are connected correctly.

Mains voltage is applied.

All external sources are connected correctly and the product setup is correct.

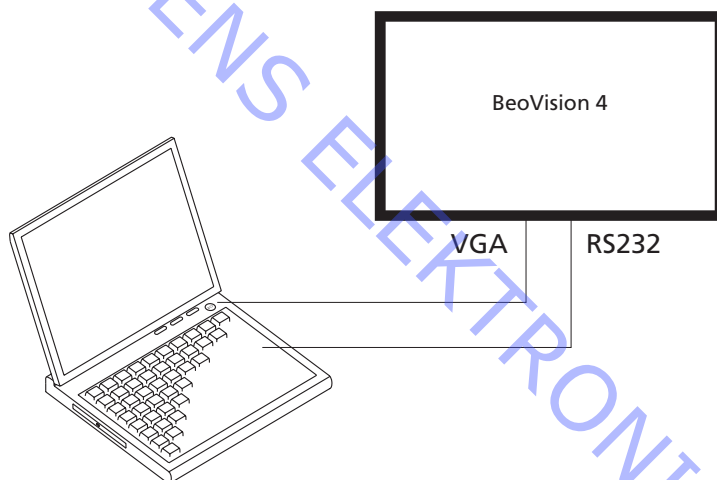
Set up for test

Connect the following products to establish the setup for test, the BeoVision 4, a BeoSystem and a DVD player.



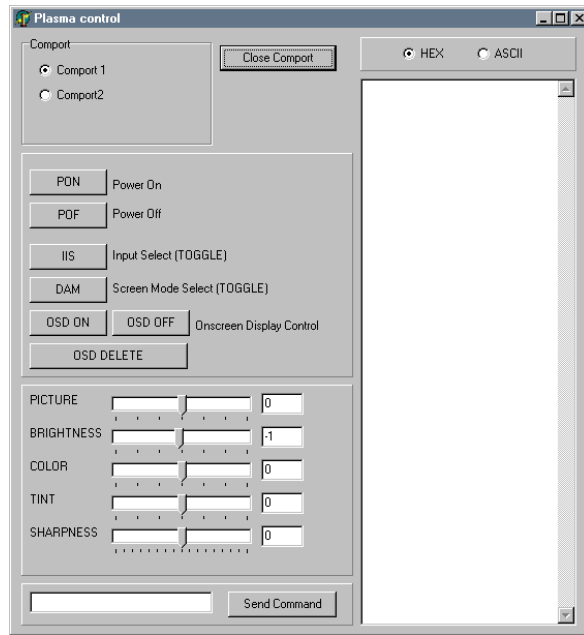
Default settings when using the Fault flow chart

- Press TV on Beo4.
- Select a TV channel with picture and sound.



- It is also an option to use a laptop with the program *Plasmactrl.exe* to make sure, that there is no failure in the BeoSystem.

Plasmactrl.exe



This program can be found in BeoWise in the Bang & Olufsen Retail system, together with a Power point presentation with some test patterns (see product related software).

Note: To activate input select (toggle) write IMS and click Send 'Command'.

Trouble shooting

Actions before dismantling the PDP

Check the PDP for burn-in and pixel errors!

This check is very important when the PDP must be transported to a workshop.

Refer to PDP pixel test, page 2.1.

Before dismantling the PDP - disconnect the mains supply and wait at least 1 minute for the electrolytic capacitors to discharge.

Connect ESD-mat.

PDP pixel test

The pixel test checks the status of the PDP, with regard to the number of defective pixels

The test must be used:

- Before transporting the product to the PDP workshop
- Before and after service on the PDP

The scope of this test is to determine if there are any defective pixels in the PDP. Refer to "Panel Defect Standardts" to see if a defective pixel gives occasion to replace the PDP.

When the PDP is fitted with an aluminium front frame, point the NN remote control at the hole in the left-hand front bottom side of the PDP. See >2.

- Refer to the illustrations for:

- Placement of buttons on NN remote control. See >1.

- Enter Service mode.

Press the Standby button on the NN remote control to switch on the PDP.

Use a thin tool or a pen to press in the holes FD and then FE on the NN remote control. CAT Panel menu (service mode) appears.

- Select IIC mode.

Move cursor with the up/down arrows on the NN remote control and select with "OK".

- Select 'Aging'.

Use up/down arrows to find "Aging" Select with "OK".

- Change test picture.

To change the test picture press "OK".

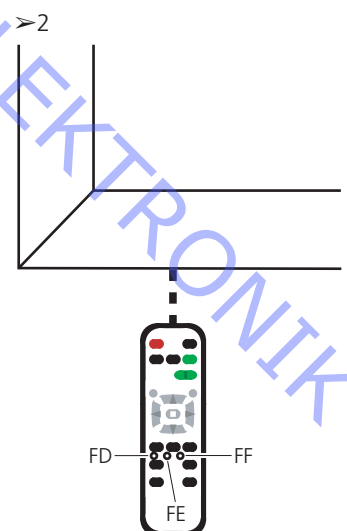
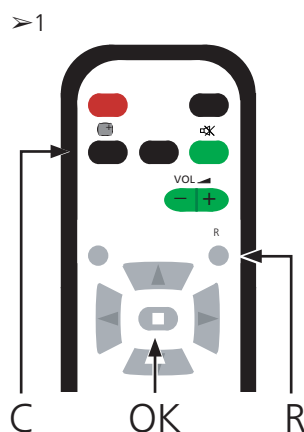
- PDP pixel test.

Use the RED, GREEN and BLUE test picture for checking the pixels.

- How to exit the service mode.

- Press "R" twice to return to the CAT Panel menu.

- Access the ID mode and switch off the mains. Switch on the PDP again and choose PDP language and press OK. If this is not done the PDP will start up with the OSD language select menu next time the PDP is switched on.



Panel defect standards

Crosstalk

Definition: Crosstalk is interference between pixels during the display of the primary RGB colours or 2 or more mixed colours causing pixels to illuminate when they are not supposed to.

Luminous spot

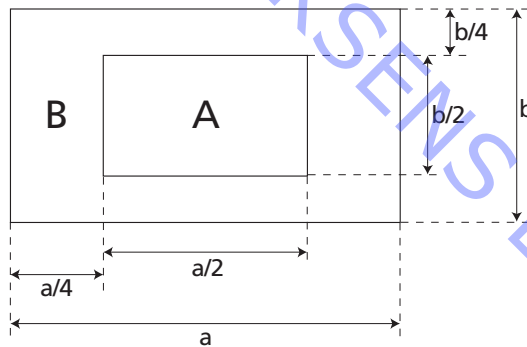
Definition: When a cell illuminates brightly while the screen is displaying all black.

Non-lighting cell

Definition: When display discharge does not occur in the cells. However, it is only a non-lighting cell if it fails to illuminate 50% or more.

Standards

Area	Cross talk	Luminous spot	Non-lighting cells			
			Total number	Pair defect	Defects distance	
A	G R B	0	0	11	0	50mm
B	G R B	0	0	14	0	10mm
Total	0	0	14	0	-	



Pair defect: Adjacent two pixels are both defective.

Defects distance: Distance between nearest two defect pixels.

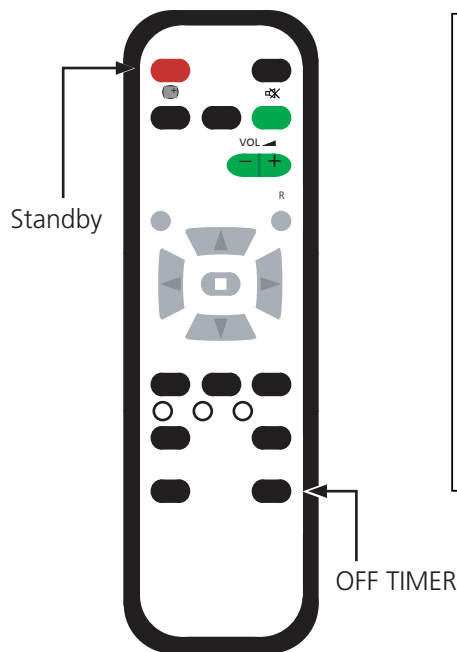
PDP self-check

The self-check checks the status of the circuits connected to the IIC bus

When the PDP is fitted with an aluminium front frame, point the NN remote control at the hole in the left-hand front bottom side of the PDP. See >5.

- Refer to illustration for:
 - Placement of buttons on the NN remote control.
- Press the Standby button on the NN remote control to switch on the PDP. Use a thin tool or a pen to press in the hole FF on the NN remote control. The result of the self-check will appear in the display. See >4.
 - "OK" = No fault
 - "- - -" = Fault
- For other operations point the NN remote control in the same direction.
- Replacement of the faulty PCB.
 - Change PCB D if D panel is faulty.
 - Change PCB DN if any of the following ICs are faulty: IC4703, IC5402, IC5101, IC5201, IC5301, IC4501, IC4001, IC5405, IC5103, IC5104, IC5501.
 - Change PCB DS if any of the following ICs are faulty: IC8181, IC3001, IC3003, IC3004, IC3005, IC2303.
- How to exit the service mode.
 - Press "R" twice to return to the CAT Panel menu.
 - Access the ID mode and switch off the main power. Switch on the PDP again and choose PDP language and press OK. If this is not done the PDP will start up with the OSD language select menu next time the PDP is switched on.

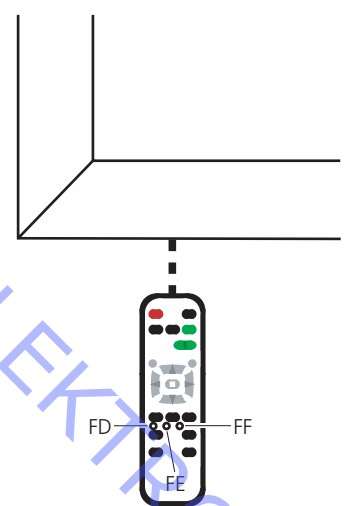
>3



>4

ID	IIC1	IIC2	IIC3	IIC4	SI
DN	IC4703	OK H90	DS	IC8181	OK H51
	IC5402	OK H61		IC3001	OK H22
	IC5101	OK H56		IC3003	OK H63
	IC5201	OK H57		IC3004	OK H64
	IC5301	OK H58		IC3005	OK H65
	IC4501	OK H53		IC2303	OK H21
	IC4001	OK H52			
	IC5405	OK H31			
	IC5103	OK H32			
	IC5104	OK H33			
	IC5501	OK H51			
			D	PANEL	OK
				PTCT	01 H09

>5

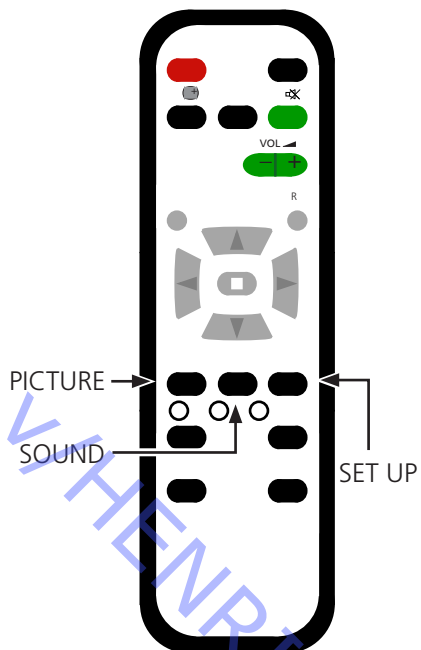


OSD menu on the PDP

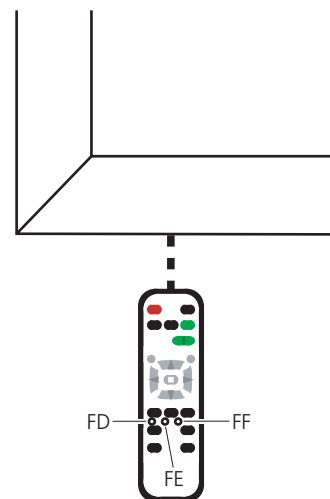
When the PDP is fitted with an aluminium front frame, point the NN remote control at the hole in the left-hand front bottom side of the PDP. See >7.

1. Press PICTURE, SOUND or SET UP on NN remote control.

>6



>7



Fault flow chart

No picture and no light in PDP stby. LED	3.3
No picture and green light in stby. LED	3.3
PDP can not be switched on with use of RS232, stby. LED = red	3.4
Unable to remote control PDP	3.4
Vertical/horizontal line in picture	3.5
No picture, no OSD, stby. LED = green, NN remote control no function, no operation on front buttons	3.6
Noise in picture, PDP OSD menu	3.6
Dark picture	3.8
No colour (all sources DVI / VGA)	3.8
PDP stby. light blinking 1 time:	3.10
PDP stby. light blinking 2 times, 15 V SOS	3.10
PDP stby. light blinking 3 times, 3.3 V SOS	3.11
PDP stby. light blinking 4 times, (Power SOS VSUS / 5 V issue)	3.12
PDP stby. light blinking 5 times, 5 V SOS	3.15
PDP stby. light blinking 6 times, driver SOS1	3.17
PDP stby. light blinking 7 times, driver SOS2	3.25
PDP stby. light blinking 8 times driver SOS3	3.26
PDP stby. light blinking 9 times, Panel config SOS	3.30
PDP stby. light blinking 10 times, Terminal board SOS	3.30
PDP stby. light blinking 11 times, FAN SOS	3.30

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Introduction

Fault flow chart

Before disconnecting or re-connecting connectors or flexible cables, always disconnect mains and allow the PDP electrolytic capacitors to discharge (WAIT at least 5 minutes).

Measurements

DC voltage measurements is performed with a digital multimeter, if nothing else is described, GND is chassis.

Oscilloscope measurements shown in the fault flow chart are performed with a 200 MHz PC oscilloscope (PicoScope 3206). The settings can be seen on the oscillograms, if nothing else is described a 10:1 probe is used (do not use 1:1 probe!). A test signal (e.g. colour bar) can be applied to obtain good measurements.

Graphic conventions

These symbols appear in numerous places throughout the FFC to emphasize points that you must keep in mind to avoid problems or injury:



TIPS: highlight time saving short cuts and helpful guidelines.



NOTES: emphasize text with unusual importance or special significance. They also provide supplemental information.



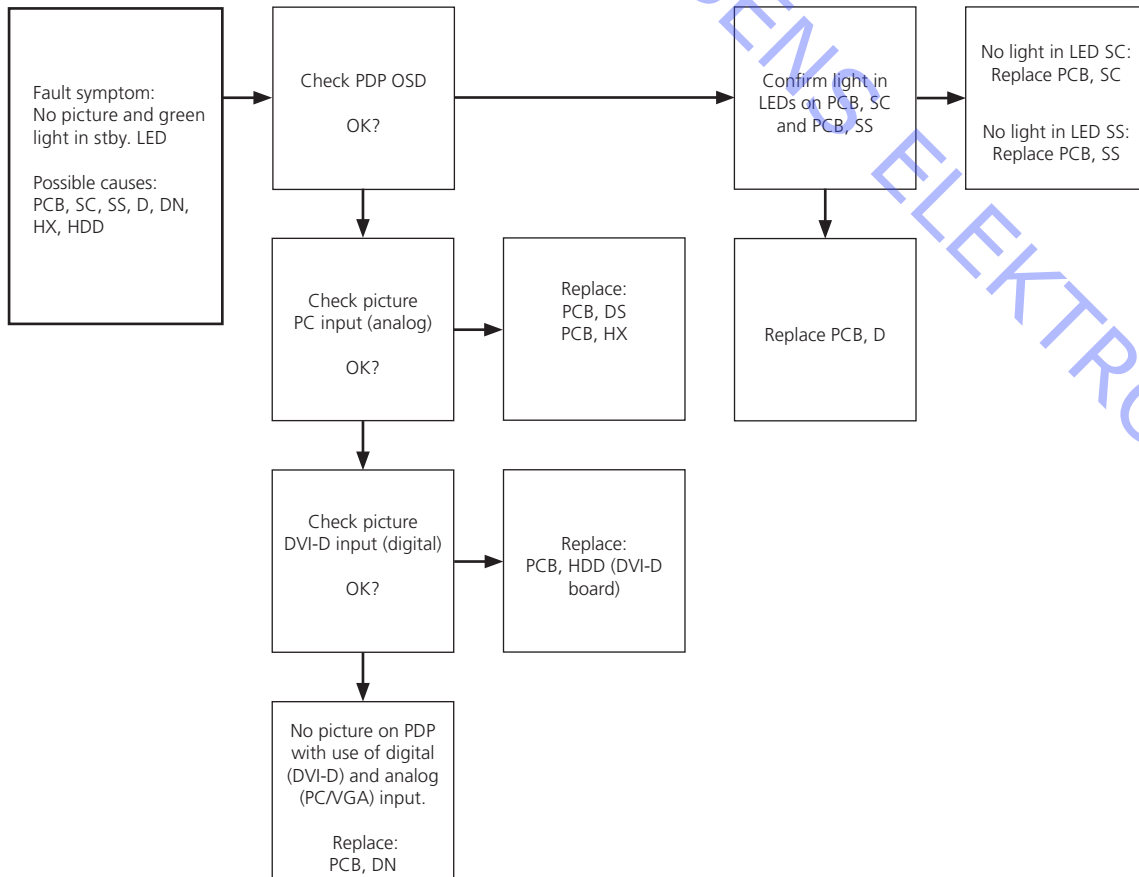
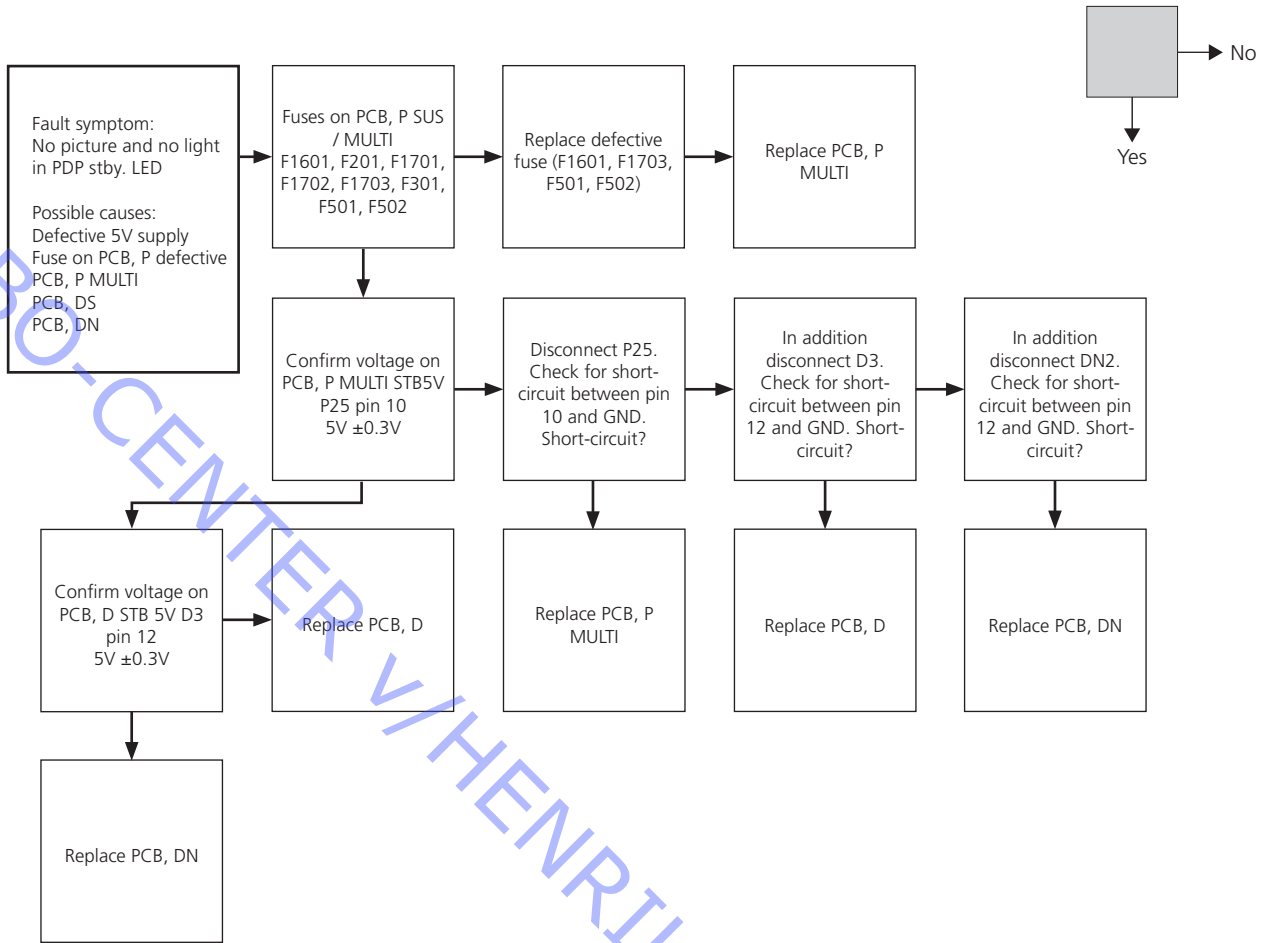
CAUTIONS: alert users that a given or omitted action can degrade performance or cause a malfunction.

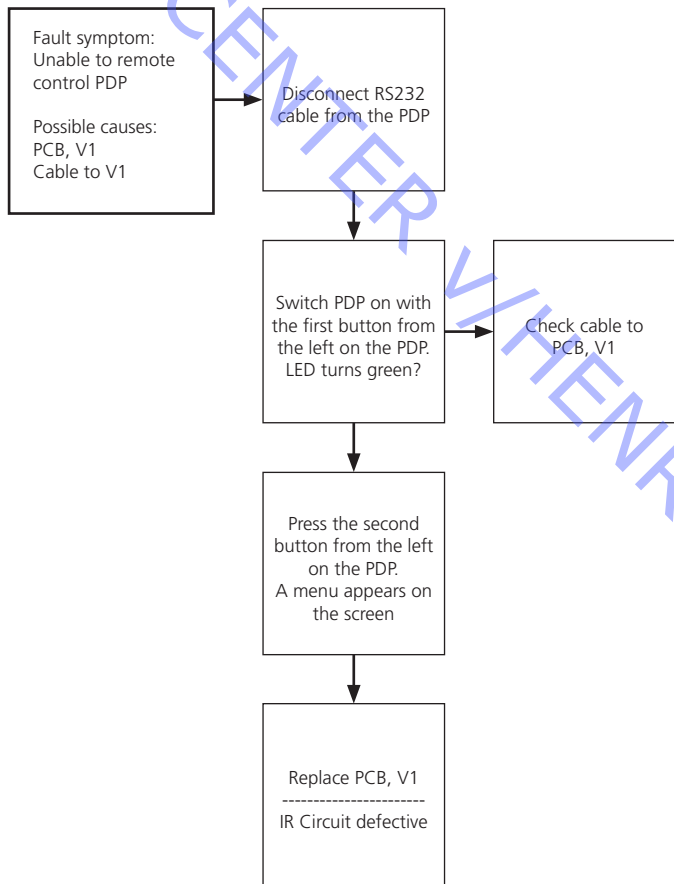
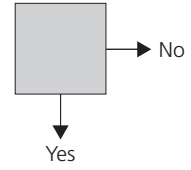
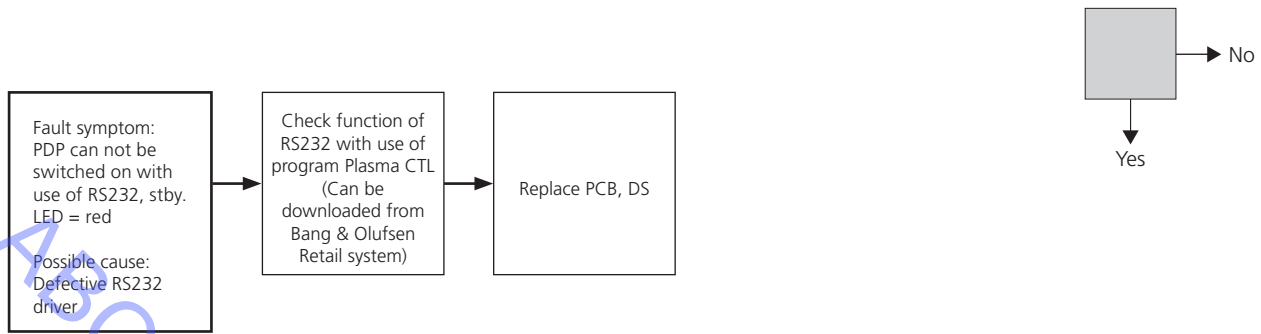


WARNINGS: appear when a given action or omitted action can result in damage to the equipment, or possible non-fatal injury to the user.

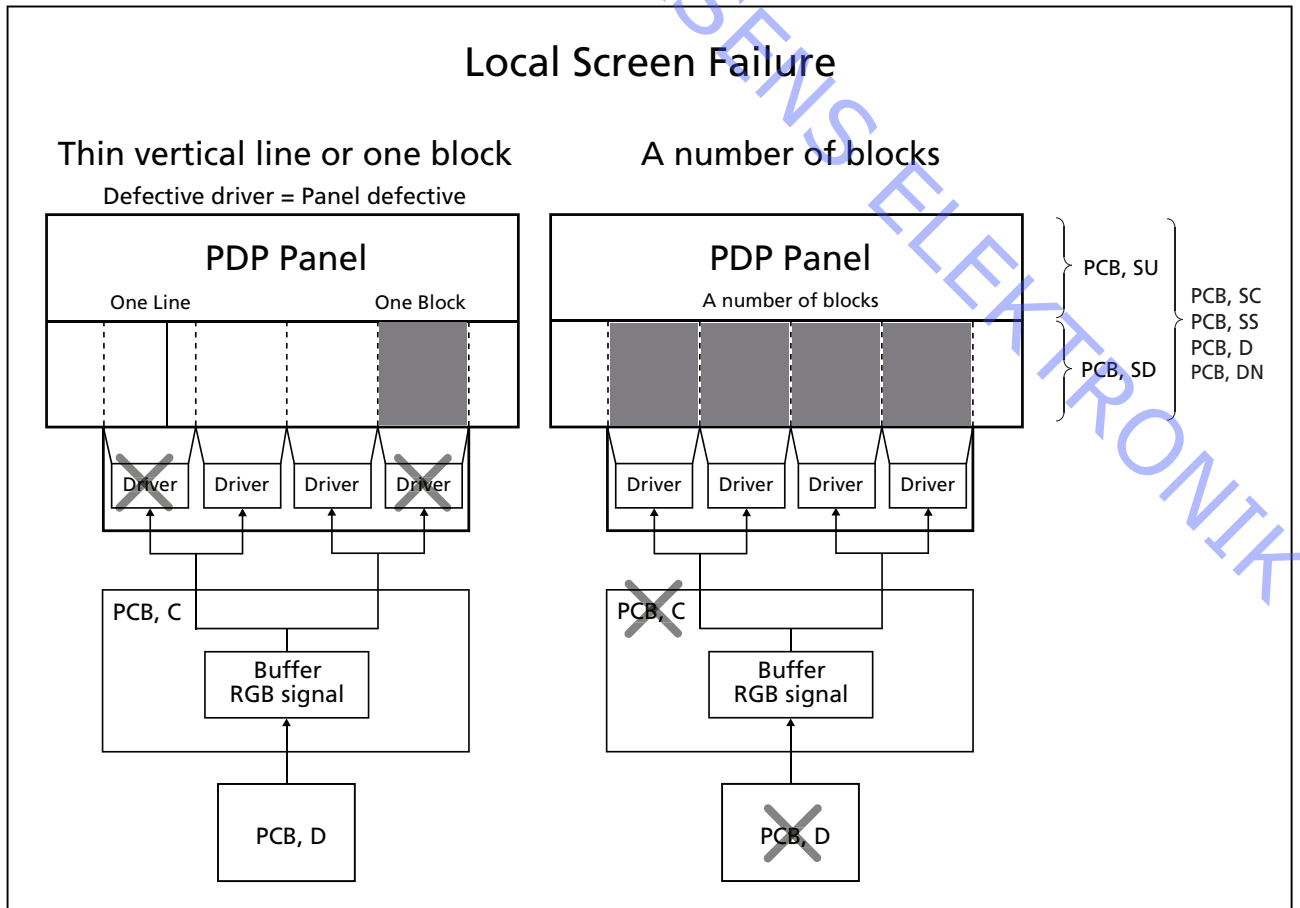
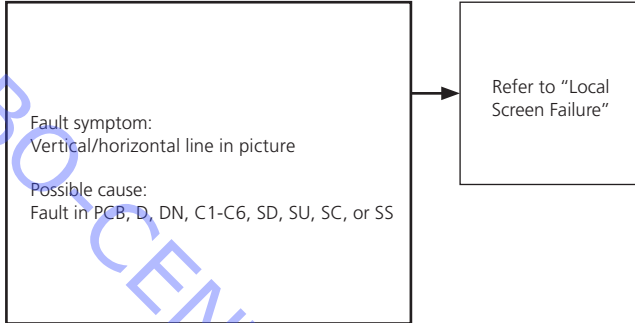
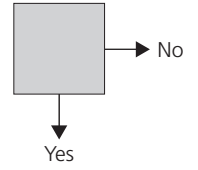


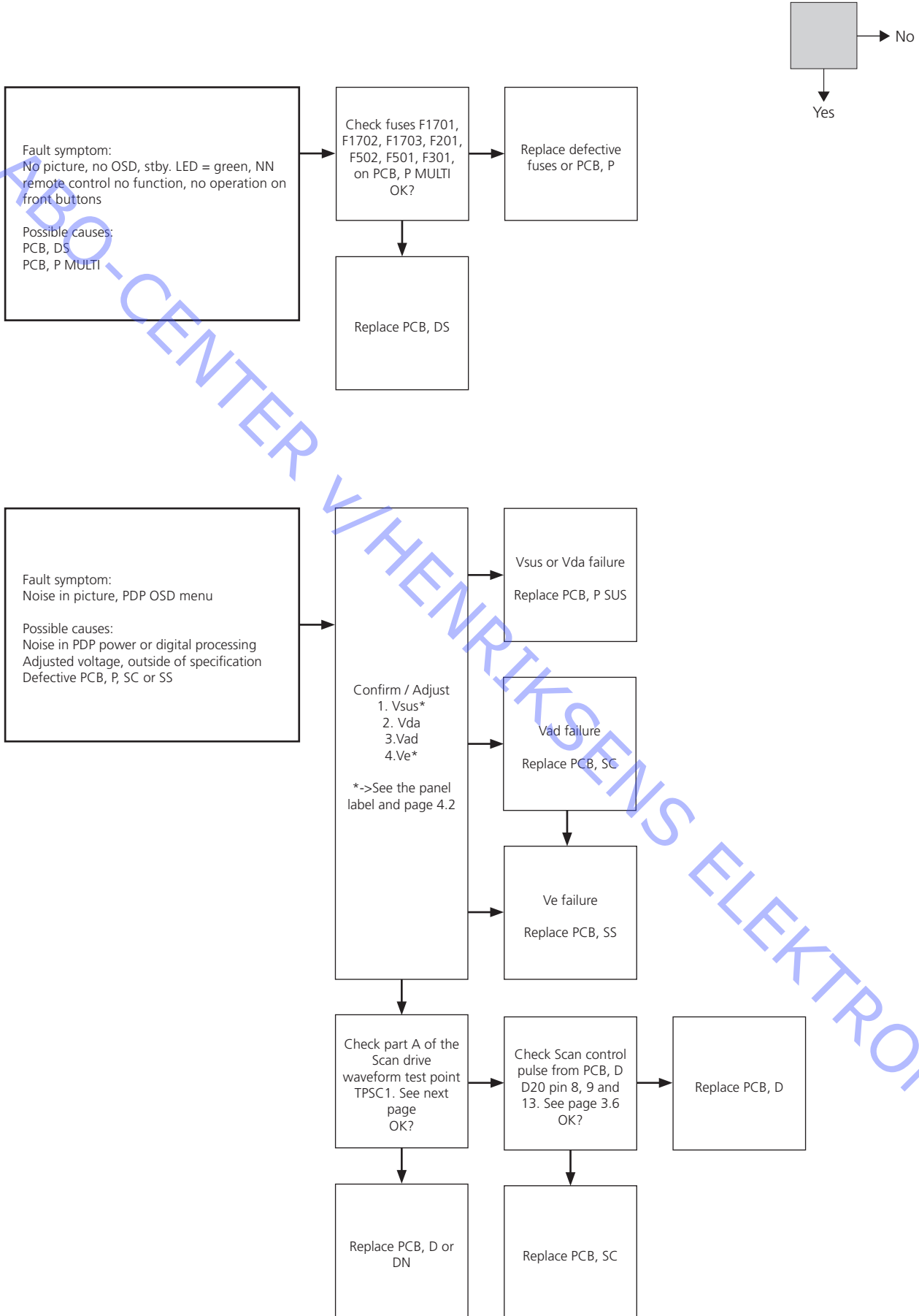
DANGER: appears when a given action can cause severe injury or death.



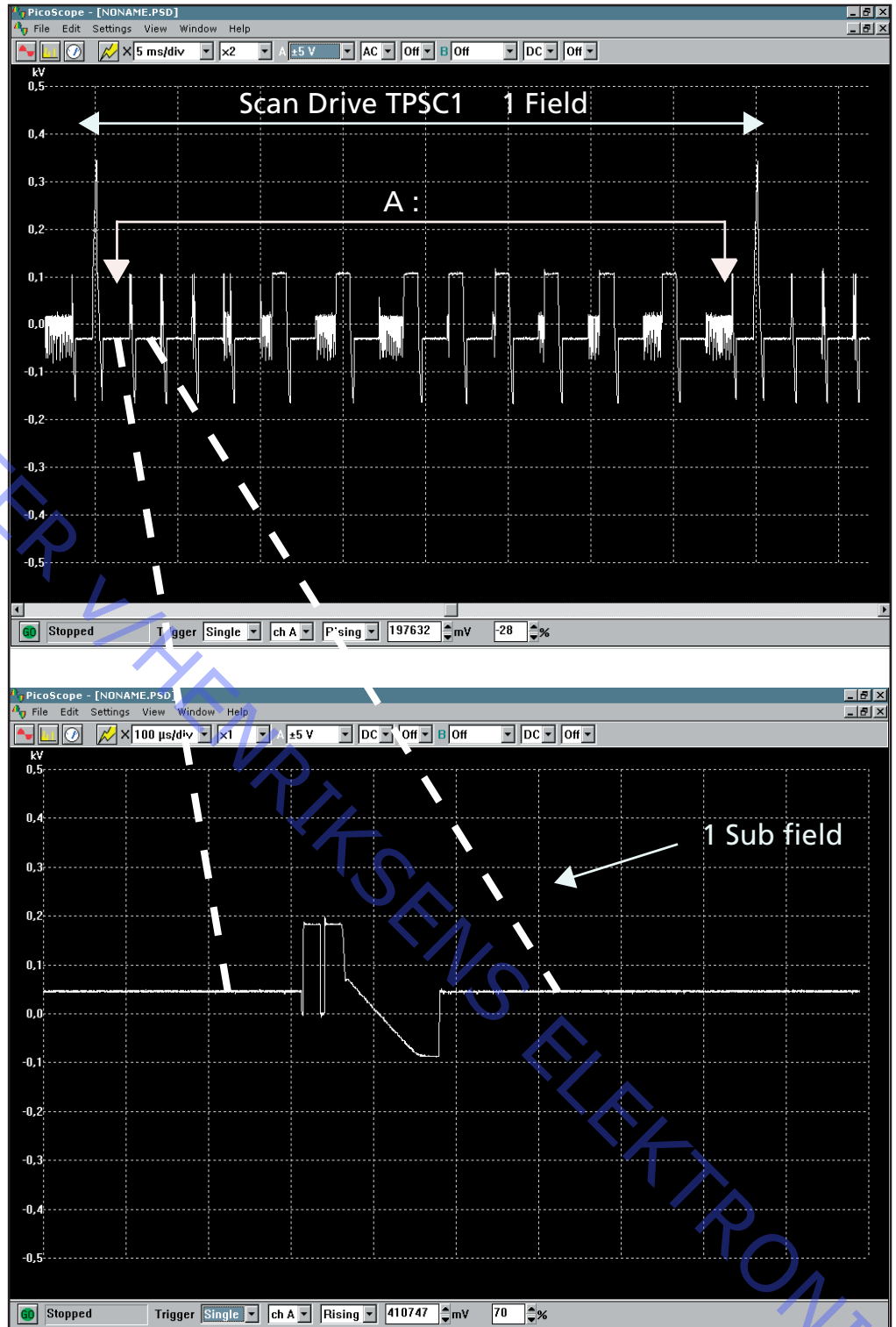


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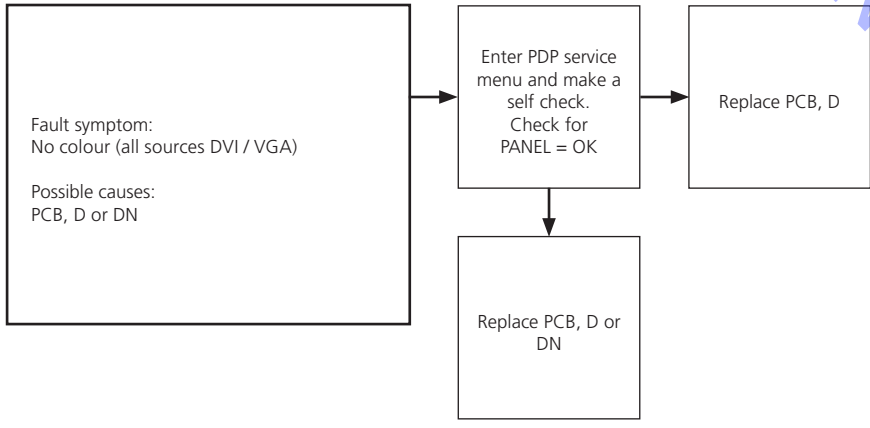
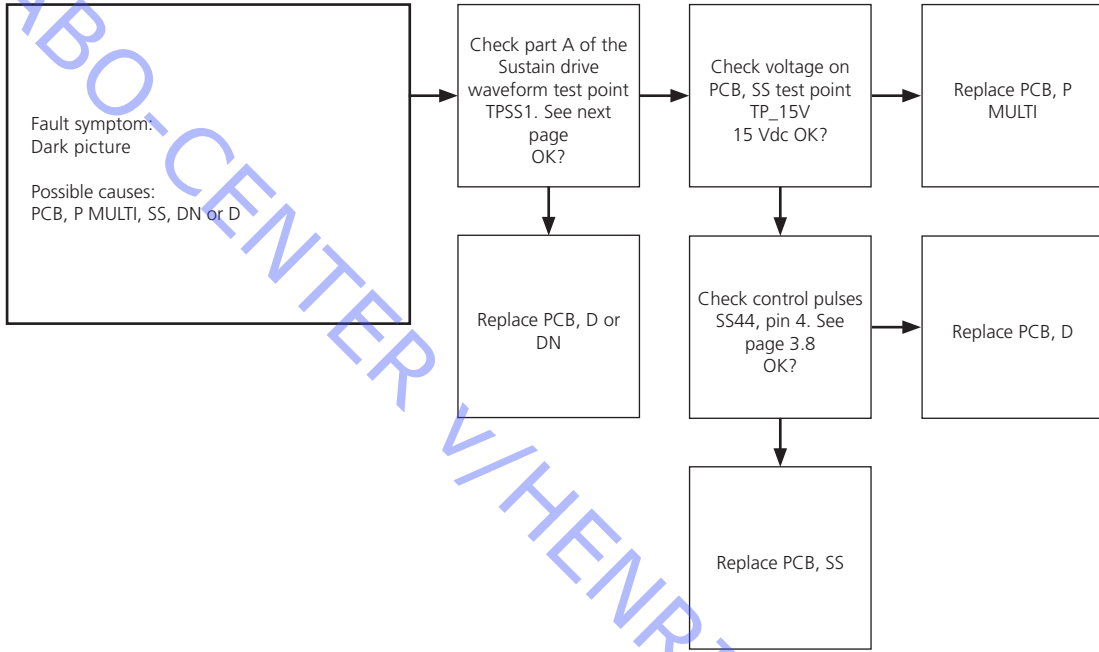
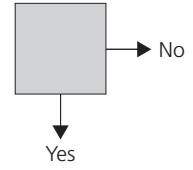




Test point TPSC1
Use 1:100 Probe
5 ms/div
100 V/div
DC

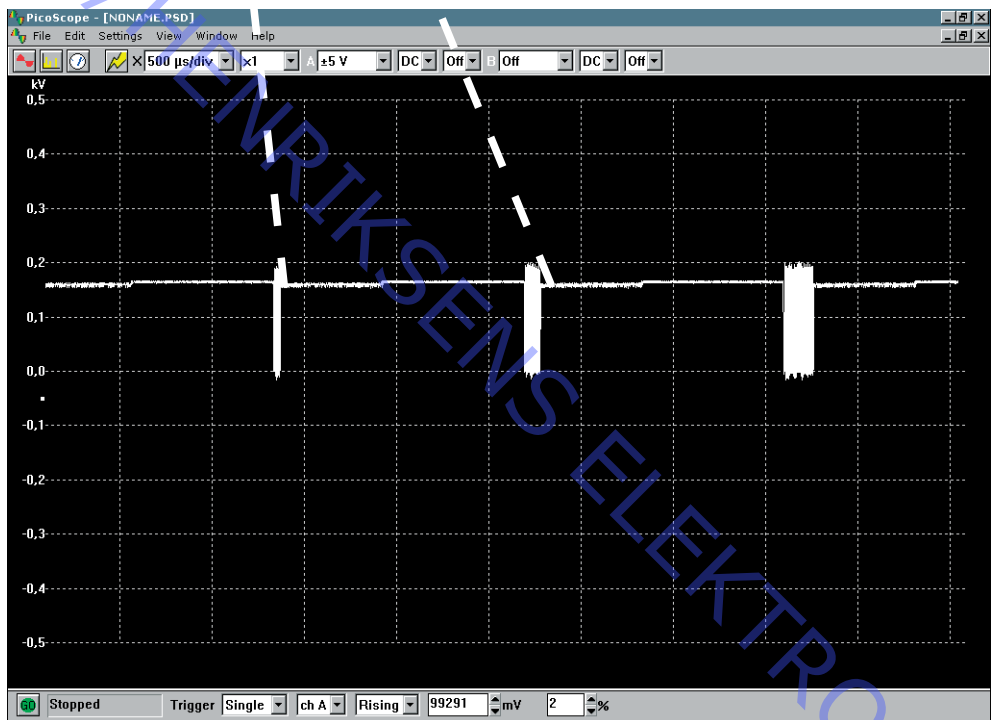
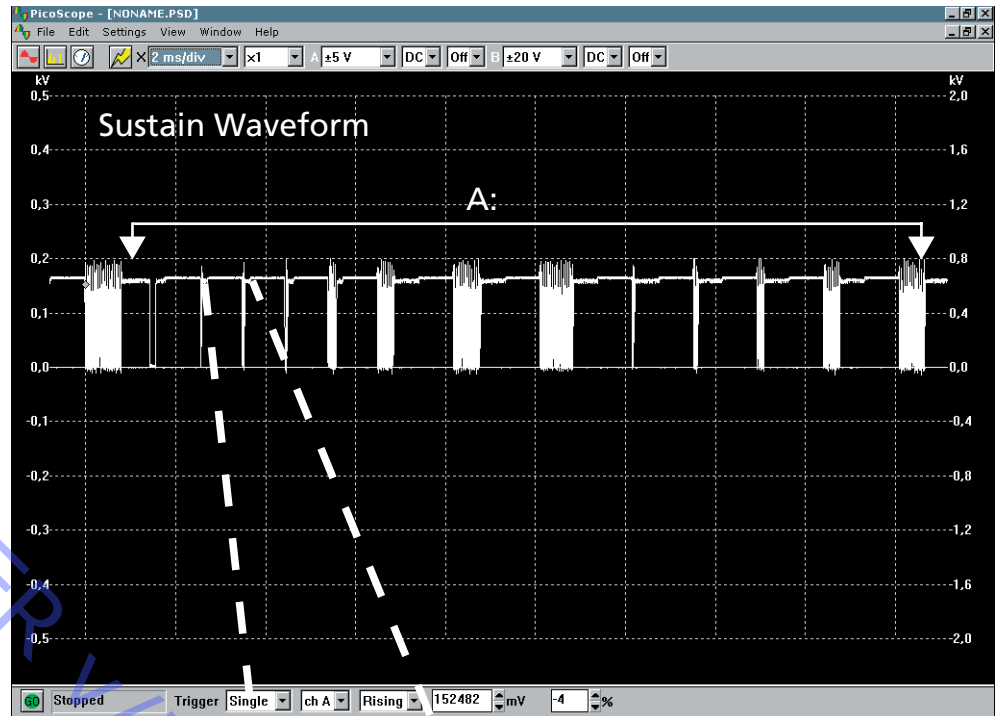


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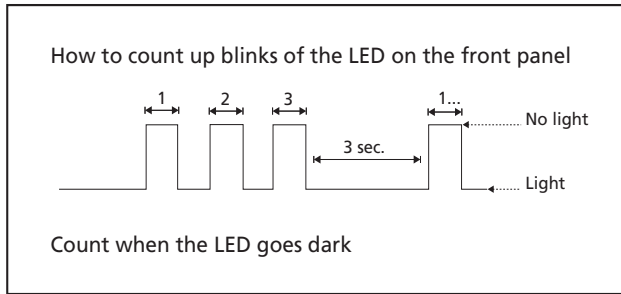
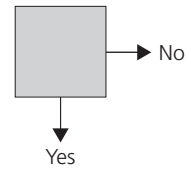
Test point TPSS1
Use 1:100 Probe
2 ms/div
100 V/div
DC



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Fault symptom:
PDP stby. light blinking, shuts down

Possible causes:
Blinking
1 time: No particular check point
2 times: 15 V SOS
3 times: 3.3 V SOS
4 times: Power SOS
5 times: 5 V SOS
6 times: Driver SOS1
7 times: Driver SOS2
8 times: Driver SOS3
9 times: Panel Config SOS
10 times: Terminal Board SOS
11 times: Fan SOS



PDP stby. light blinking 1 time:
No particular check point

PDP stby. light blinking 2 times, 15 V SOS
Possible causes:
PCB, P MULTI or D

Confirm voltage 15V on PCB, P P25 pin 1 before shut down?

Check for short-circuit between pin 1 or 2 and GND? (P25)

Replace PCB, P MULTI

Replace PCB, D

Disconnect P25 and check for short-circuit between pin 1 or 2 and GND? (P25)

Replace PCB, D

Additionally disconnect P23.
Check for short-circuit between pin 1 or 2 and GND? (P25)

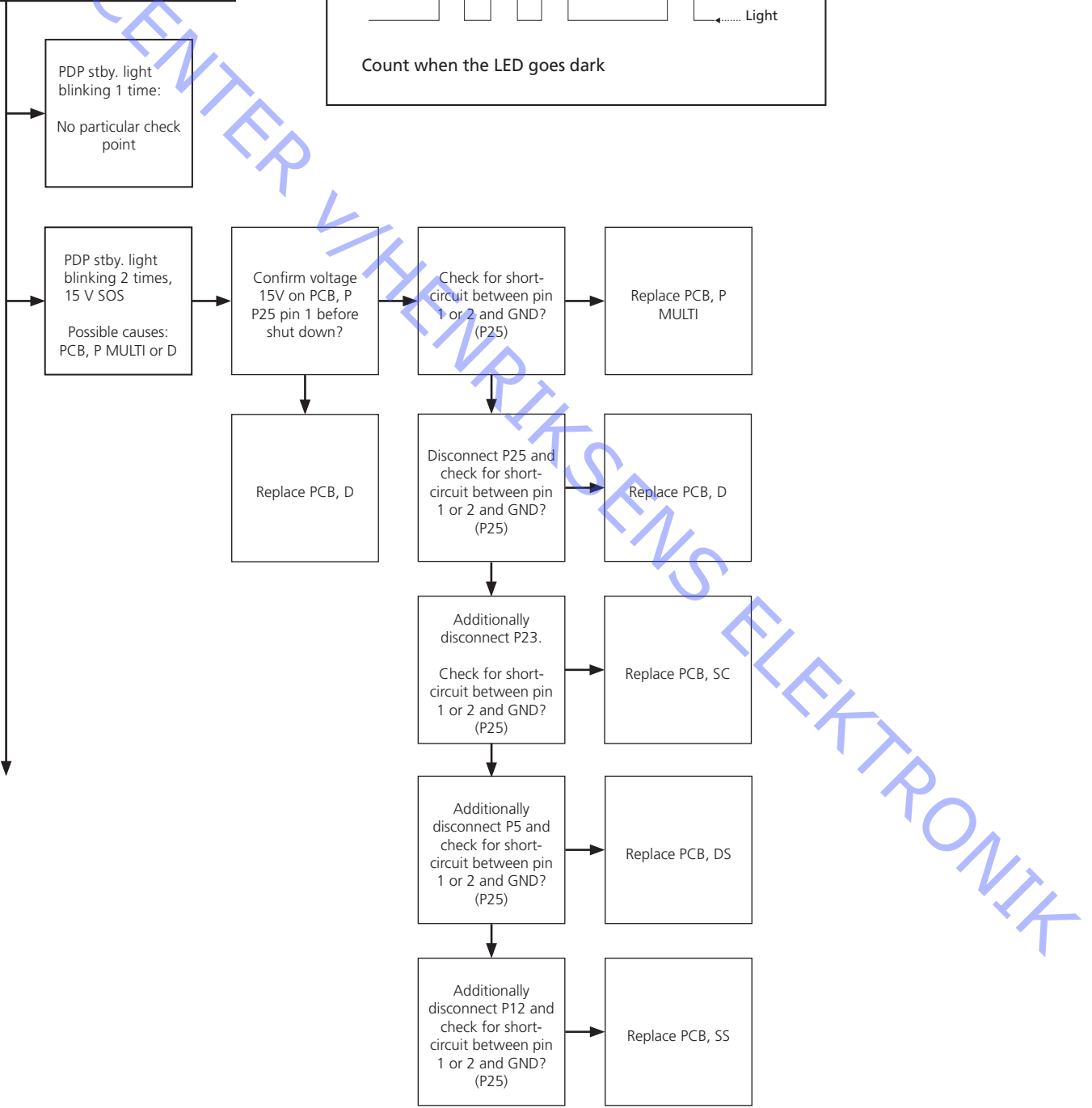
Replace PCB, SC

Additionally disconnect P5 and check for short-circuit between pin 1 or 2 and GND? (P25)

Replace PCB, DS

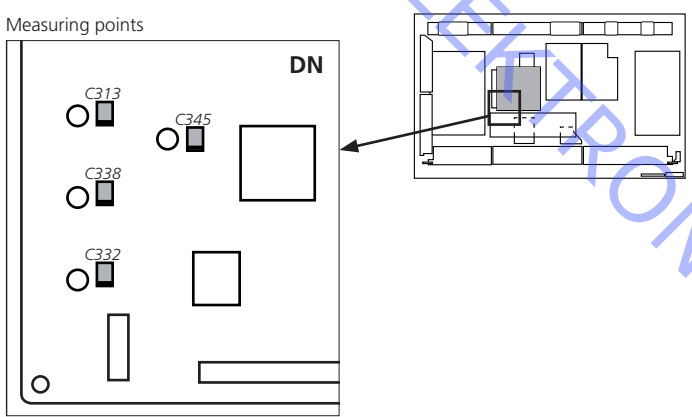
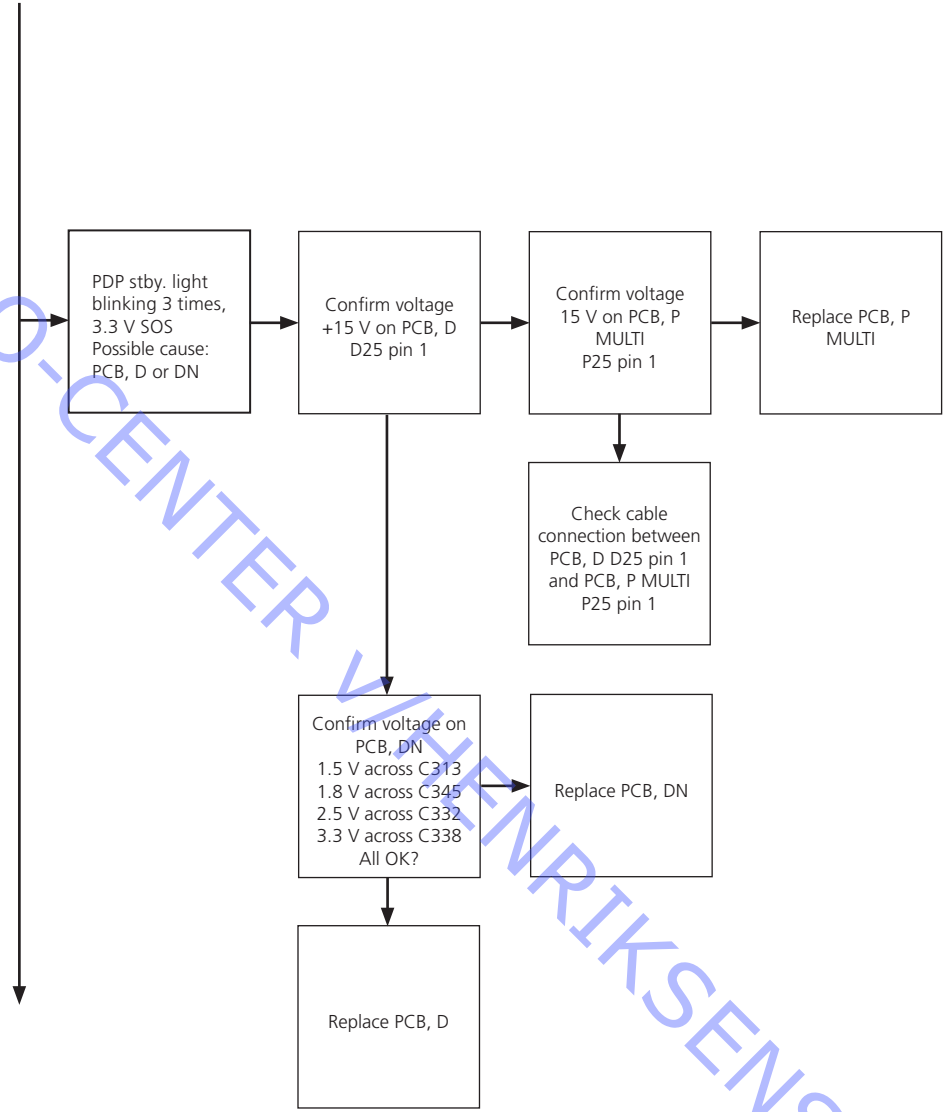
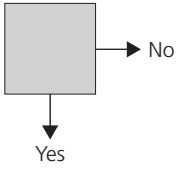
Additionally disconnect P12 and check for short-circuit between pin 1 or 2 and GND? (P25)

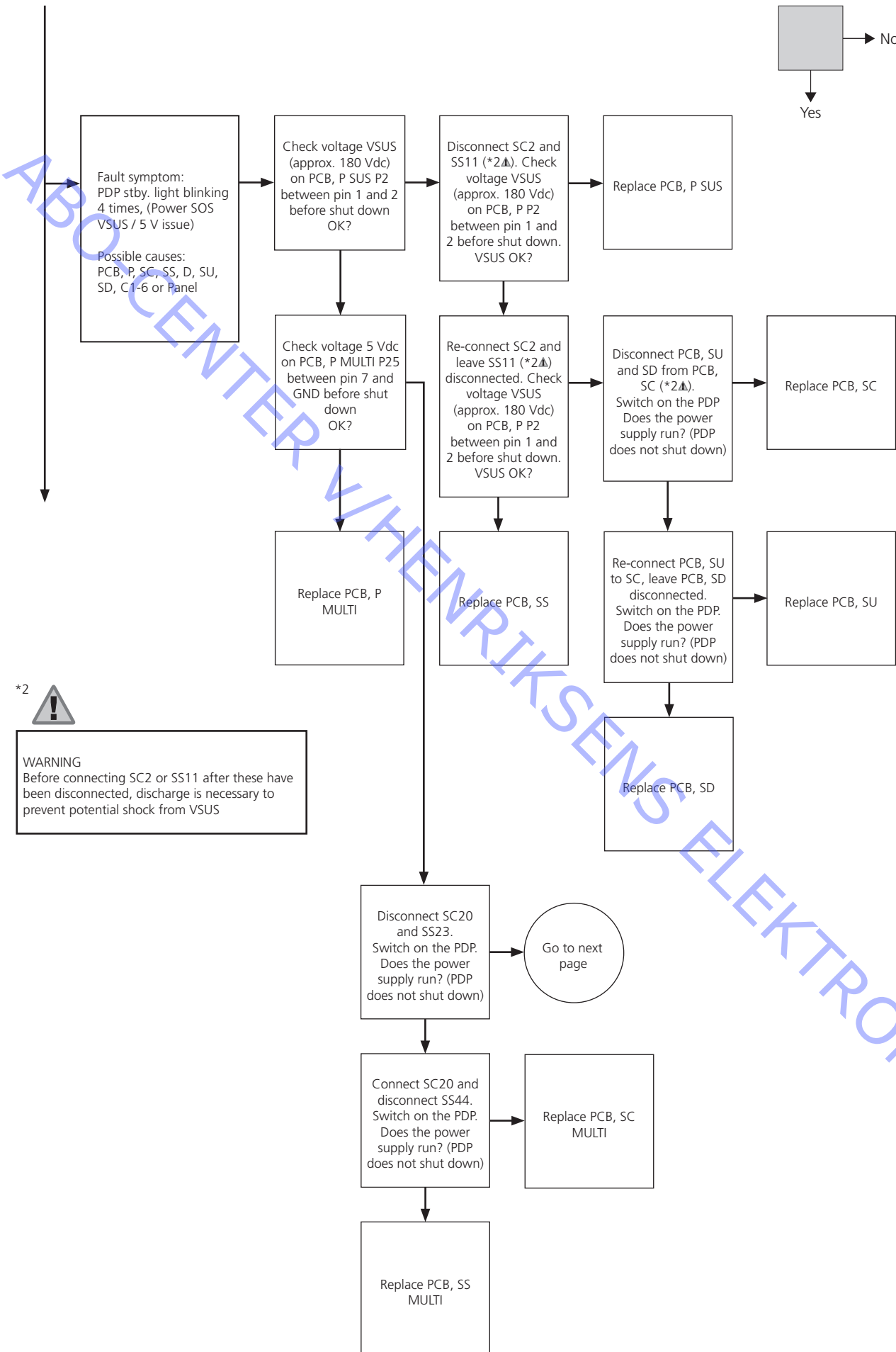
Replace PCB, SS

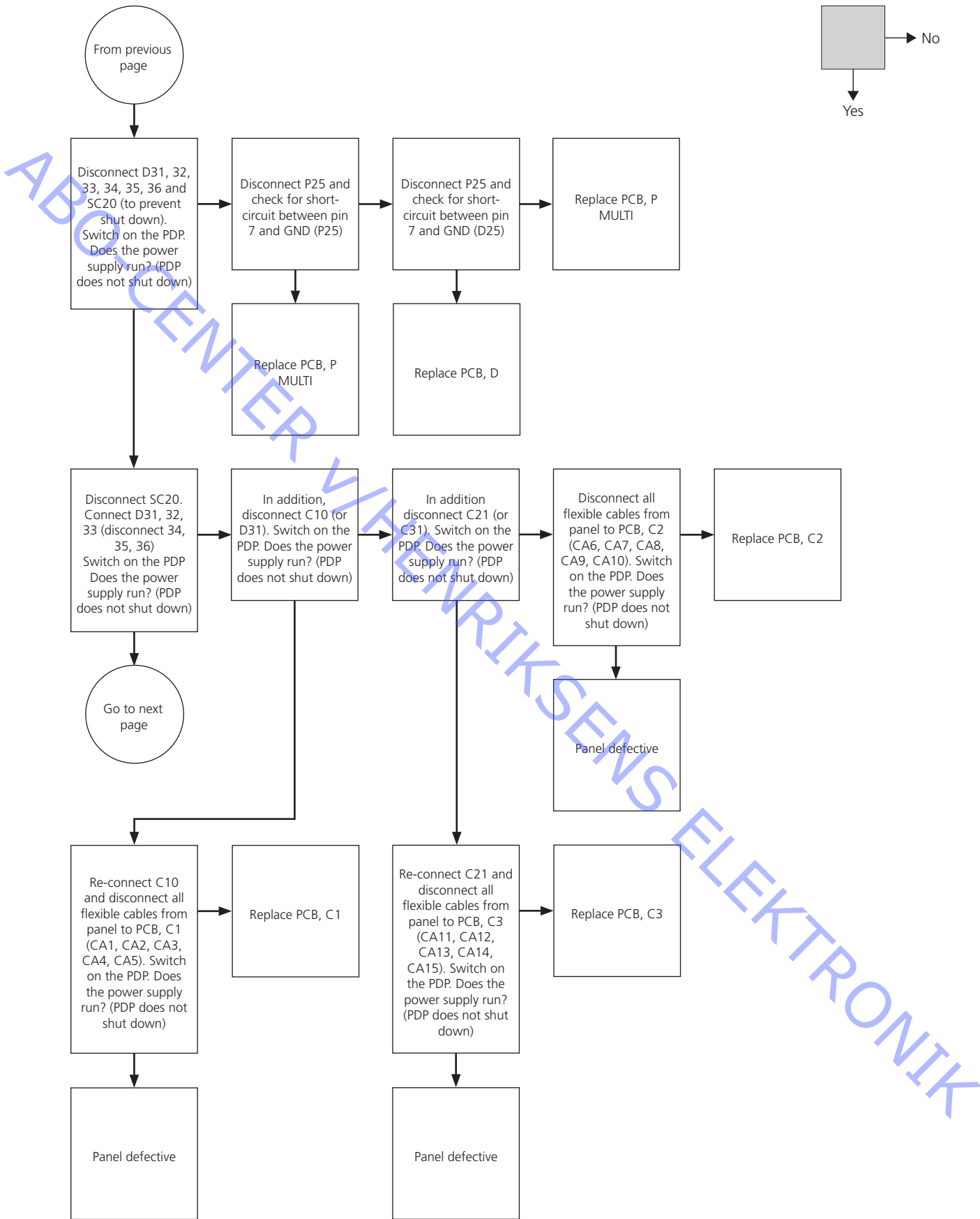


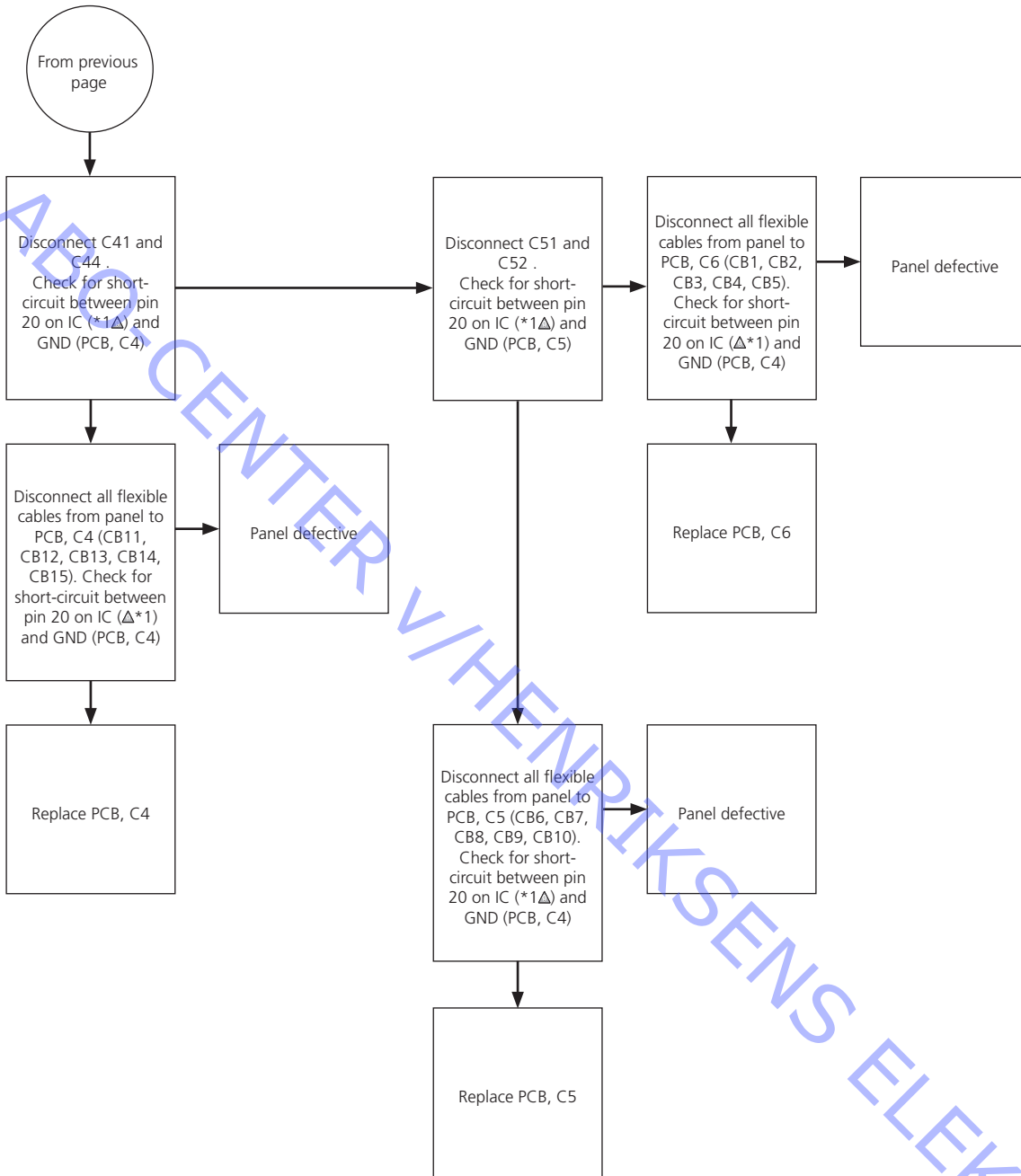
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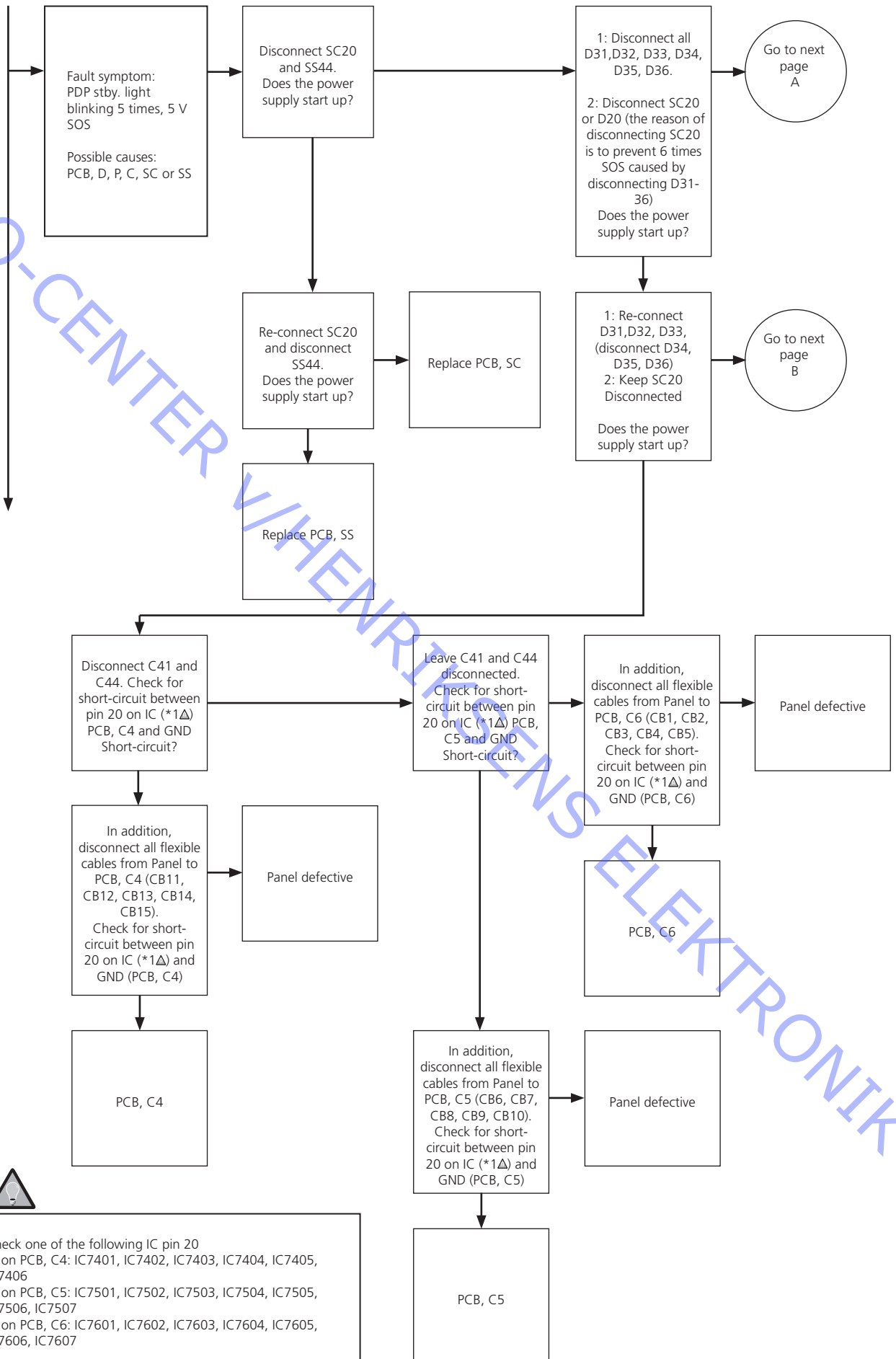


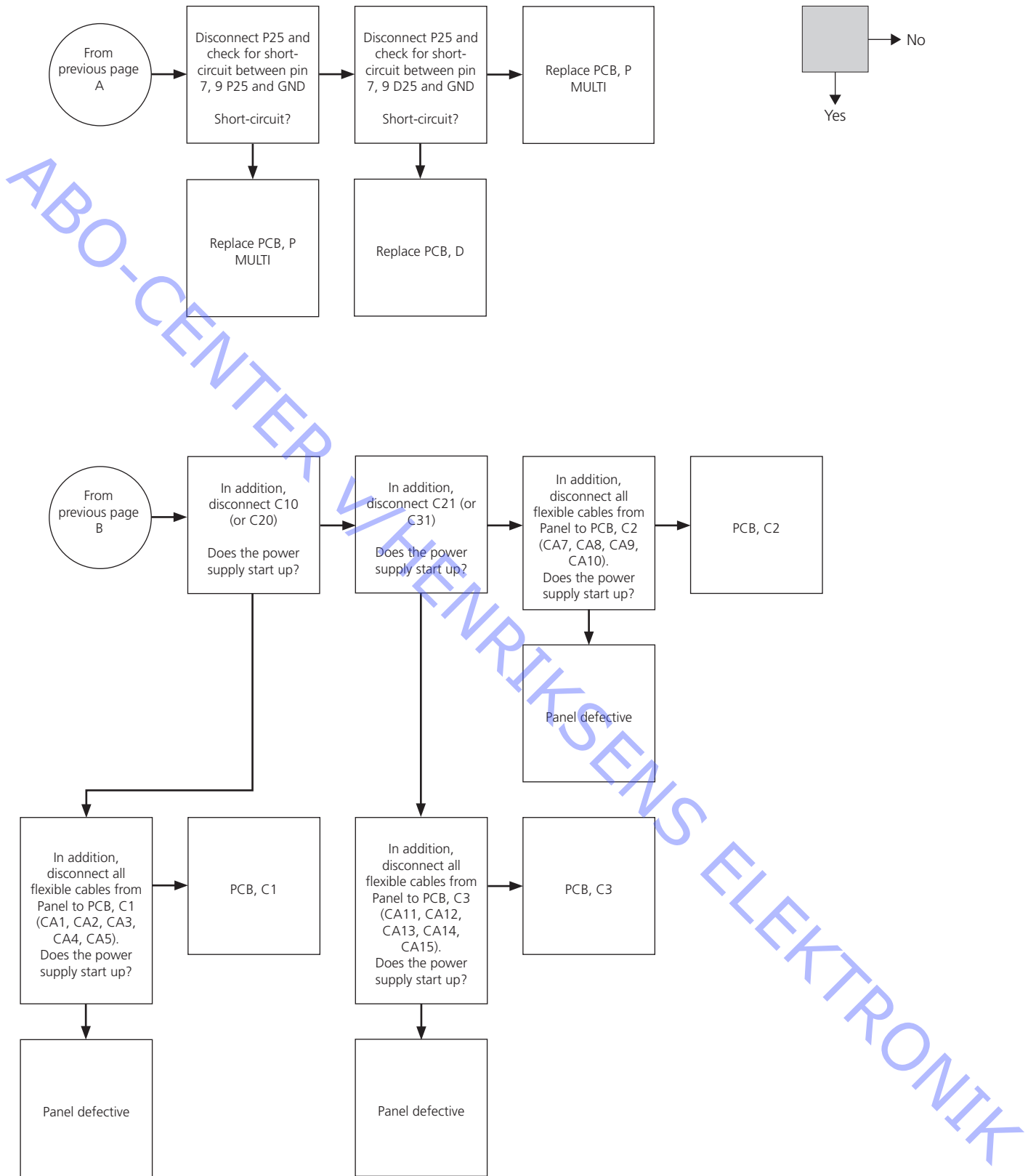


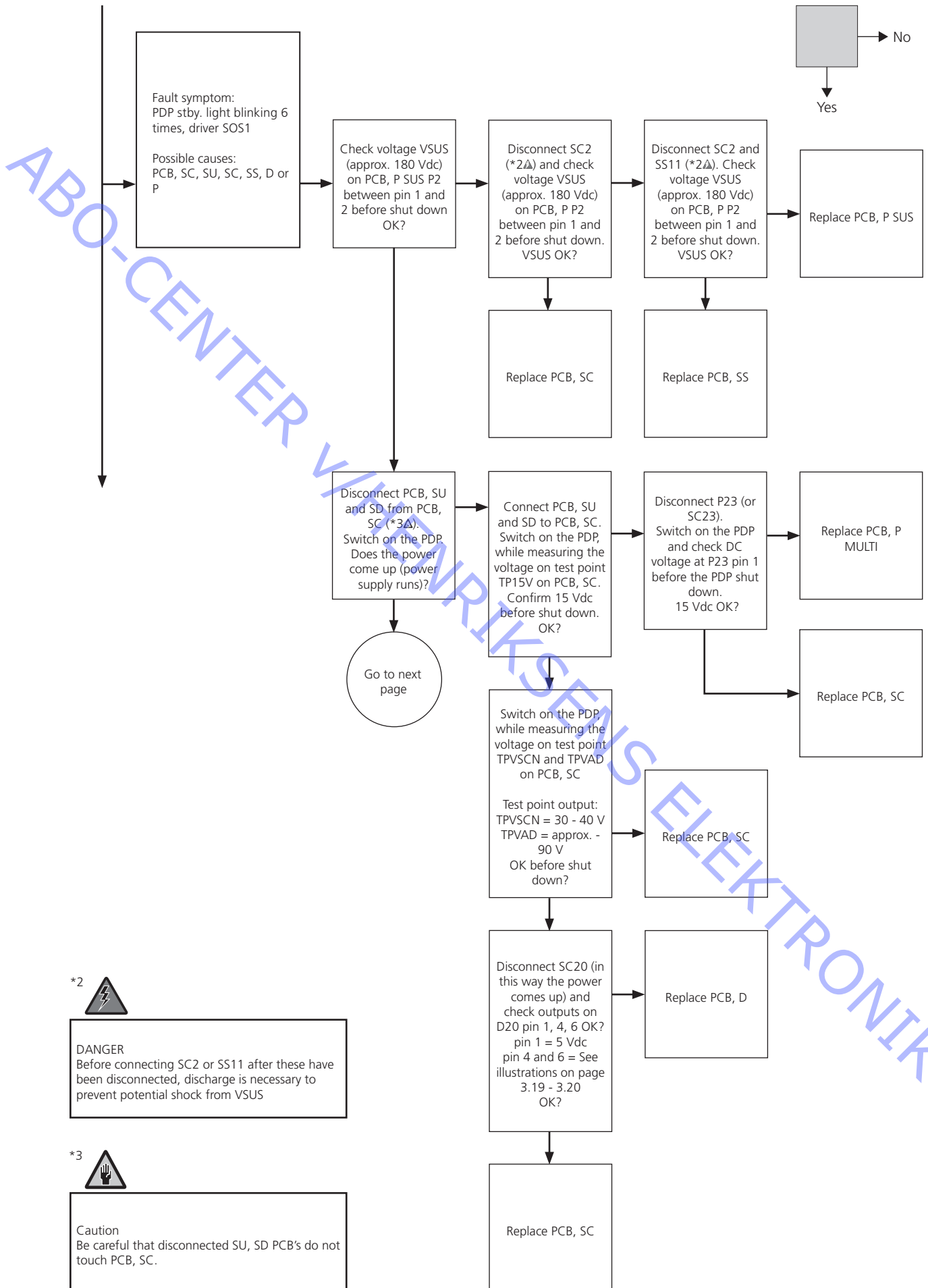






Check one of the following IC pin 20
 IC on PCB, C4: IC7401, IC7402, IC7403, IC7404, IC7405, IC7406
 IC on PCB, C5: IC7501, IC7502, IC7503, IC7504, IC7505, IC7506, IC7507
 IC on PCB, C6: IC7601, IC7602, IC7603, IC7604, IC7605, IC7606, IC7607

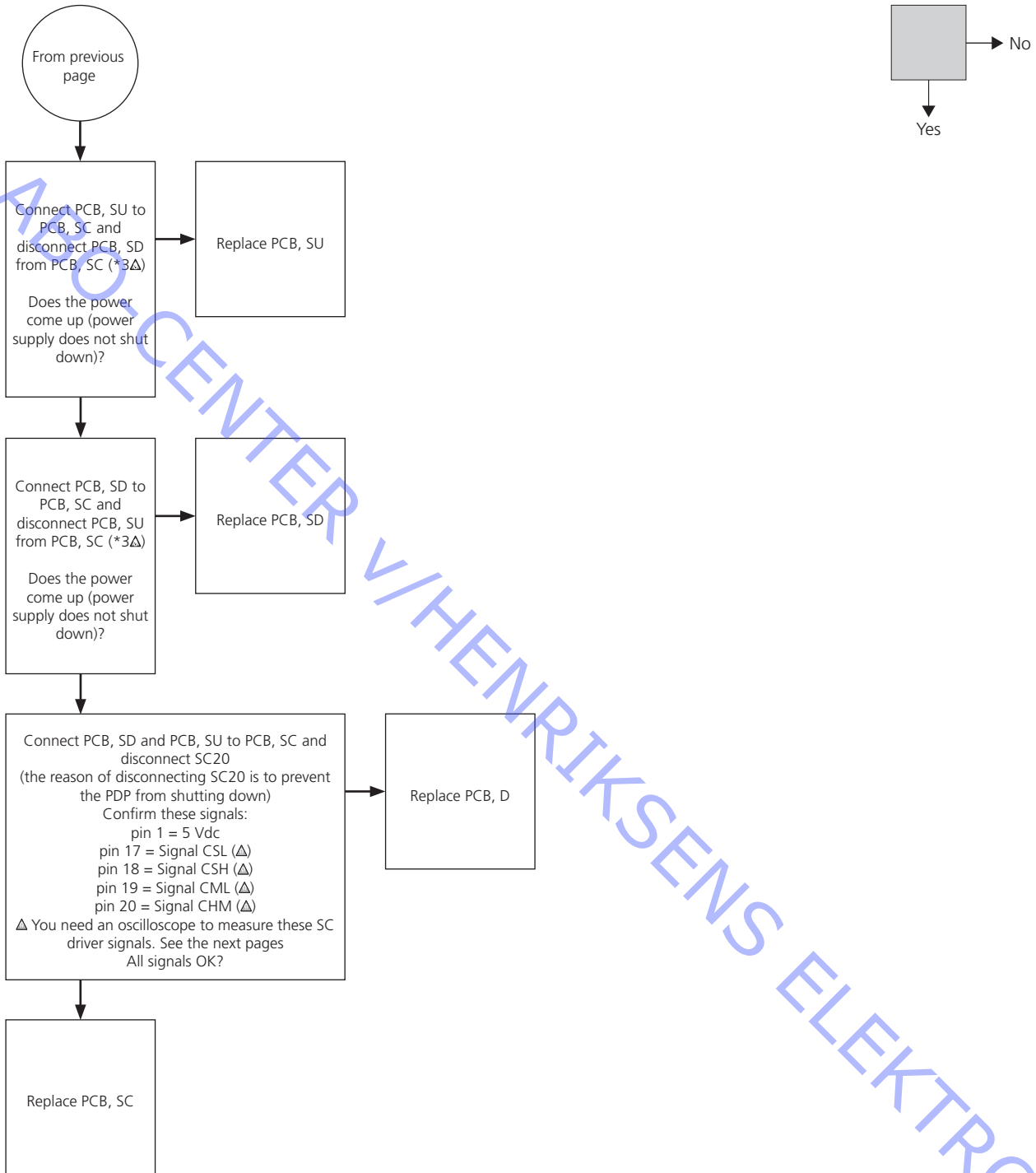






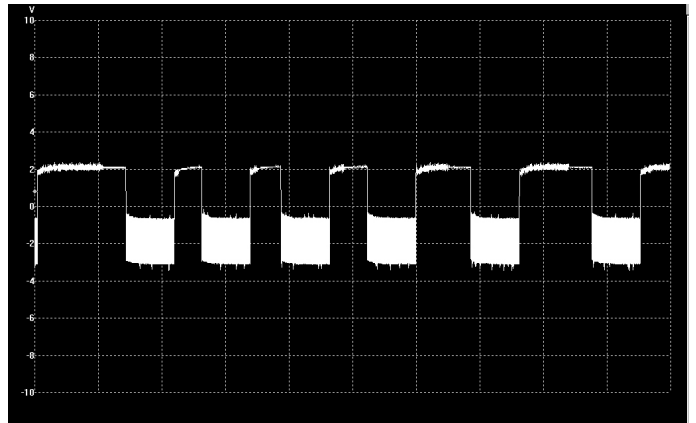
*2 
DANGER
 Before connecting SC2 or SS11 after these have been disconnected, discharge is necessary to prevent potential shock from VSUS

*3 
Caution
 Be careful that disconnected SU, SD PCB's do not touch PCB, SC.



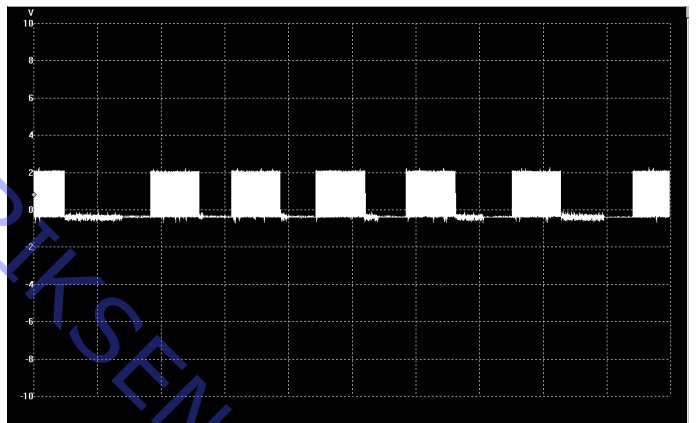
Caution
Be careful that disconnected SU, SD PCB's do not touch PCB, SC.

D20 pin 2 signal CL



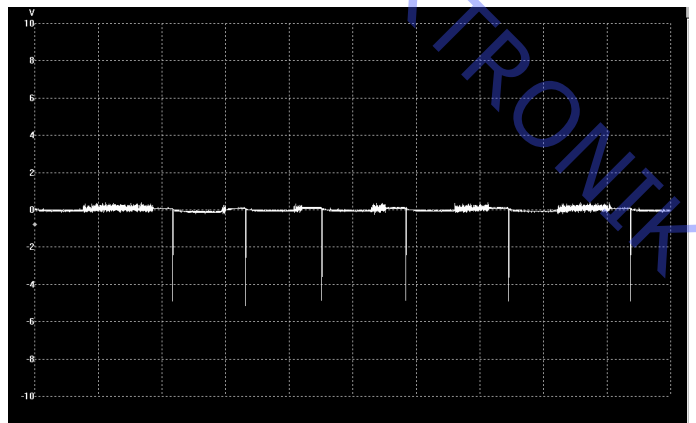
1 ms/div 2 V/div AC

D20 pin 3 signal SLK



1 ms/div 2 V/div AC

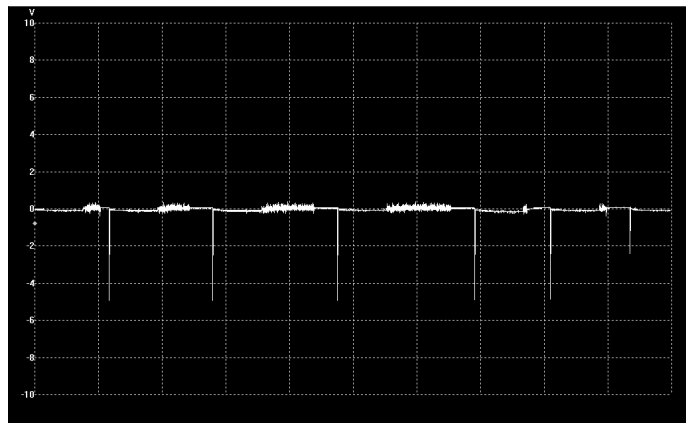
D20 pin 4 signal SIO



1 ms/div 2 V/div AC

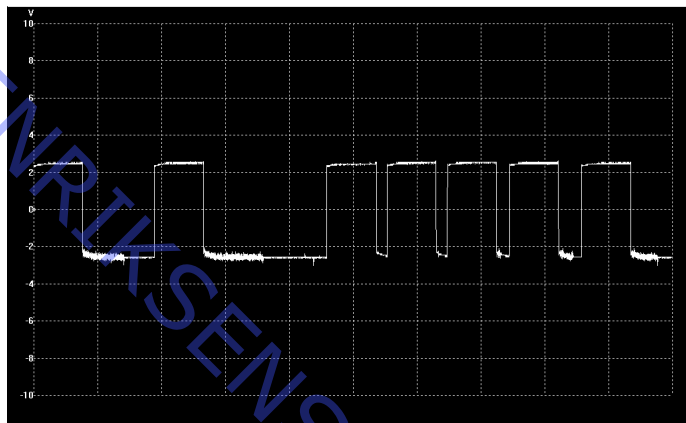
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D20 pin 6 signal SID



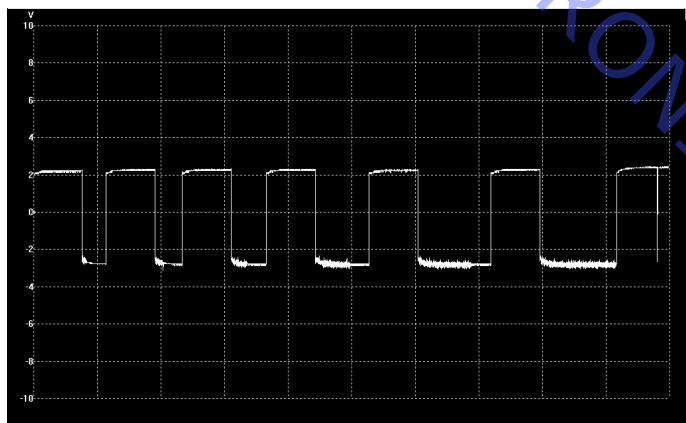
1 ms/div 2 V/div AC

D20 pin 7 signal SCSU



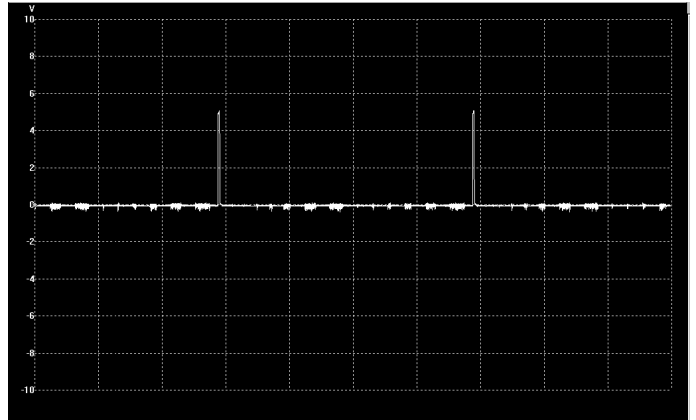
1 ms/div 2 V/div AC

D20 pin 8 signal CEL2



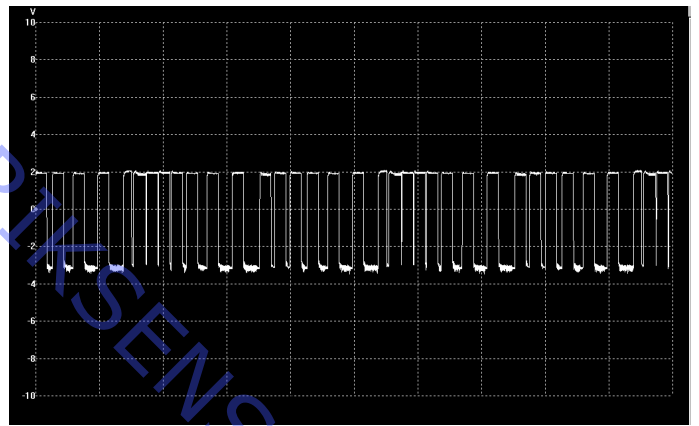
1 ms/div 2 V/div AC

D20 pin 9 signal CPH



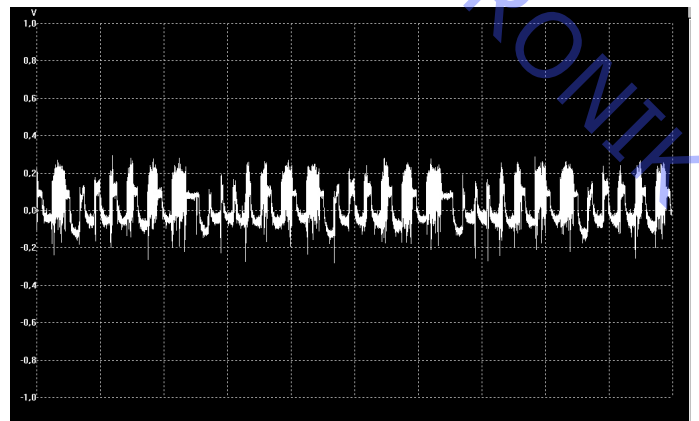
5 ms/div 2 V/div AC

D20 pin 13 signal CEL



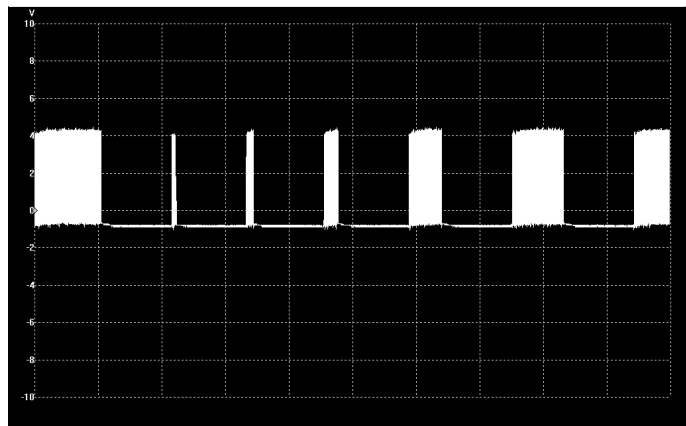
5 ms/div 2 V/div AC

D20 pin 14 signal CEH



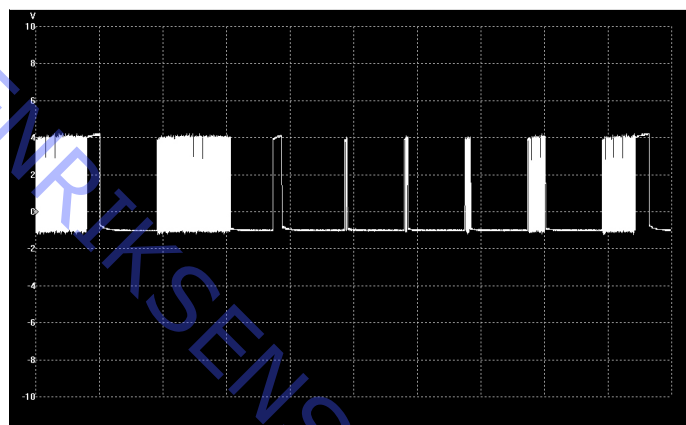
5 ms/div 0.2 V/div AC

D20 pin 17 signal CSL



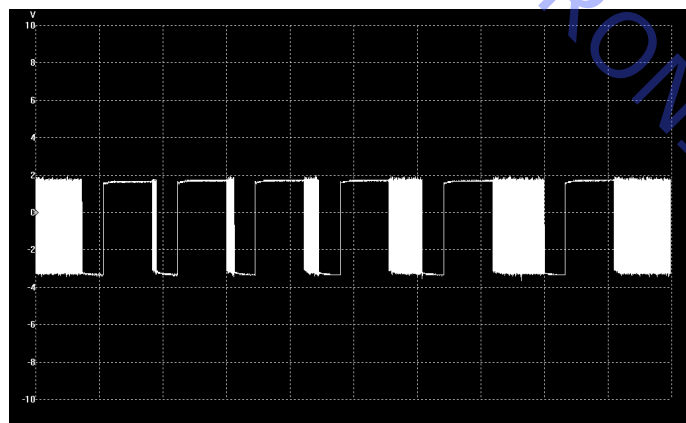
1 ms/div 2 V/div AC

D20 pin 18 signal CSH



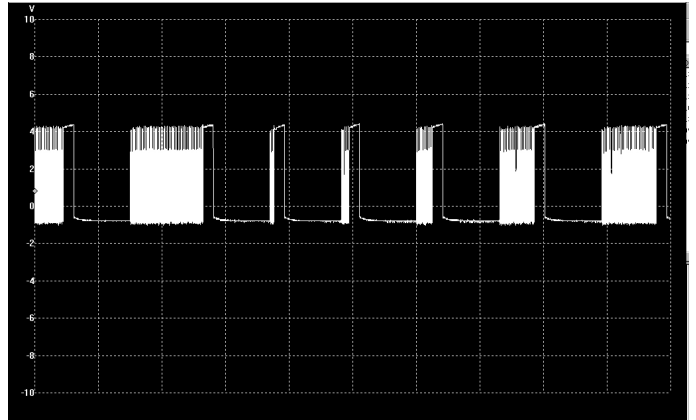
1 ms/div 2 V/div AC

D20 pin 19 signal CML



1 ms/div 2 V/div AC

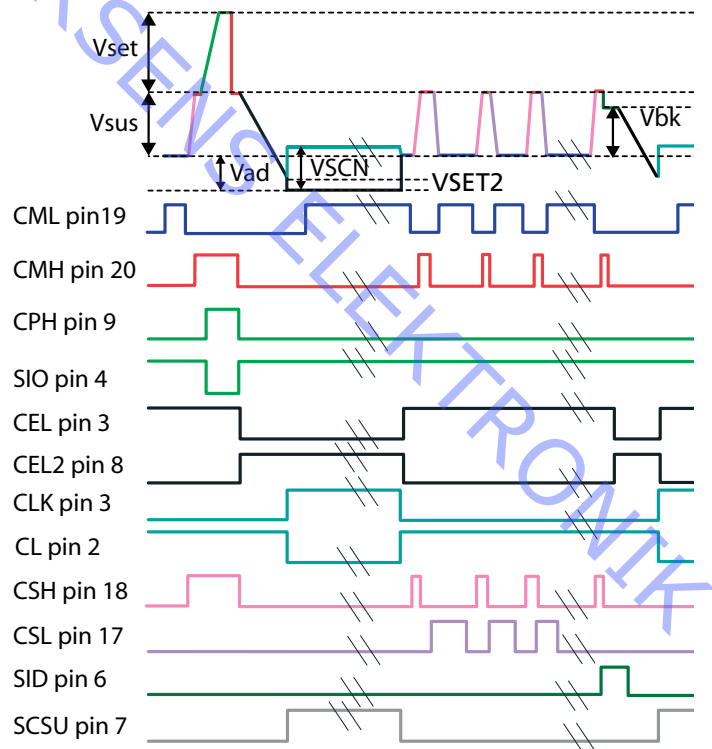
D20 pin 20 signal CMH



1 ms/div 2 V/div AC

PCB, SC Explanation

The PCB, SC consists of buffers and drivers to generate the scan signals to the panel. The buffers provide insulation between the PCB, D and the drivers. Connector SC20 provides the driver voltage and trigger signals to switch the FET transistors. The signals from PCB, D switches the FETs on and off to create the distinctive scan signal. Each trigger signal switches on a driver FET creating a portion of the waveform. For example, applying the CHP signal creates the peak portion of the waveform. See illustration. After the scan waveform is developed on PCB, SC, it is applied to PCB, SU and SD. On the PCB, SU/SD the scan signals are de-multiplexed in a series of shift registers (driver IC) and then applied to the scan electrodes.



Measurement of SC versus driver signals

On the next page there are two examples of measurements of the SC drive signal compared with the SCAN PULS (TPSC1).

Measurement CML vs. TPSC1

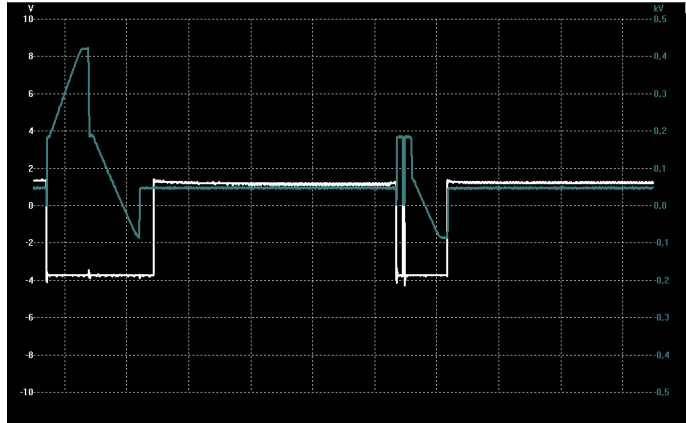
Set up:

A: Probe 1:10, test point SC20 pin 19 CML

B: Probe 1:100  test point TPSC1

Trigger: On channel B (SC pulse)

Time base: 200 μ sec./div.



CMH vs. TPSC1

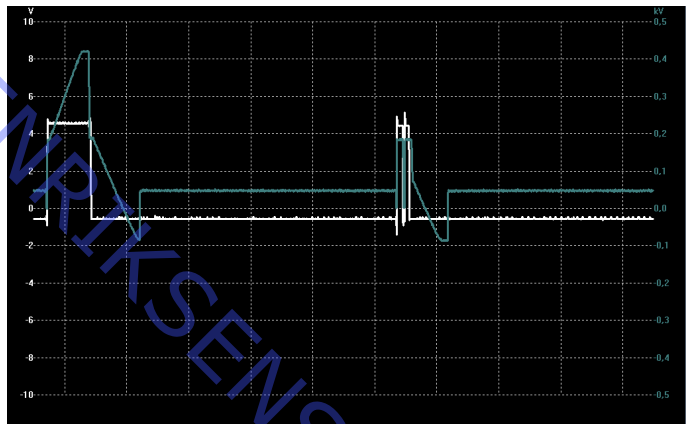
Set up:

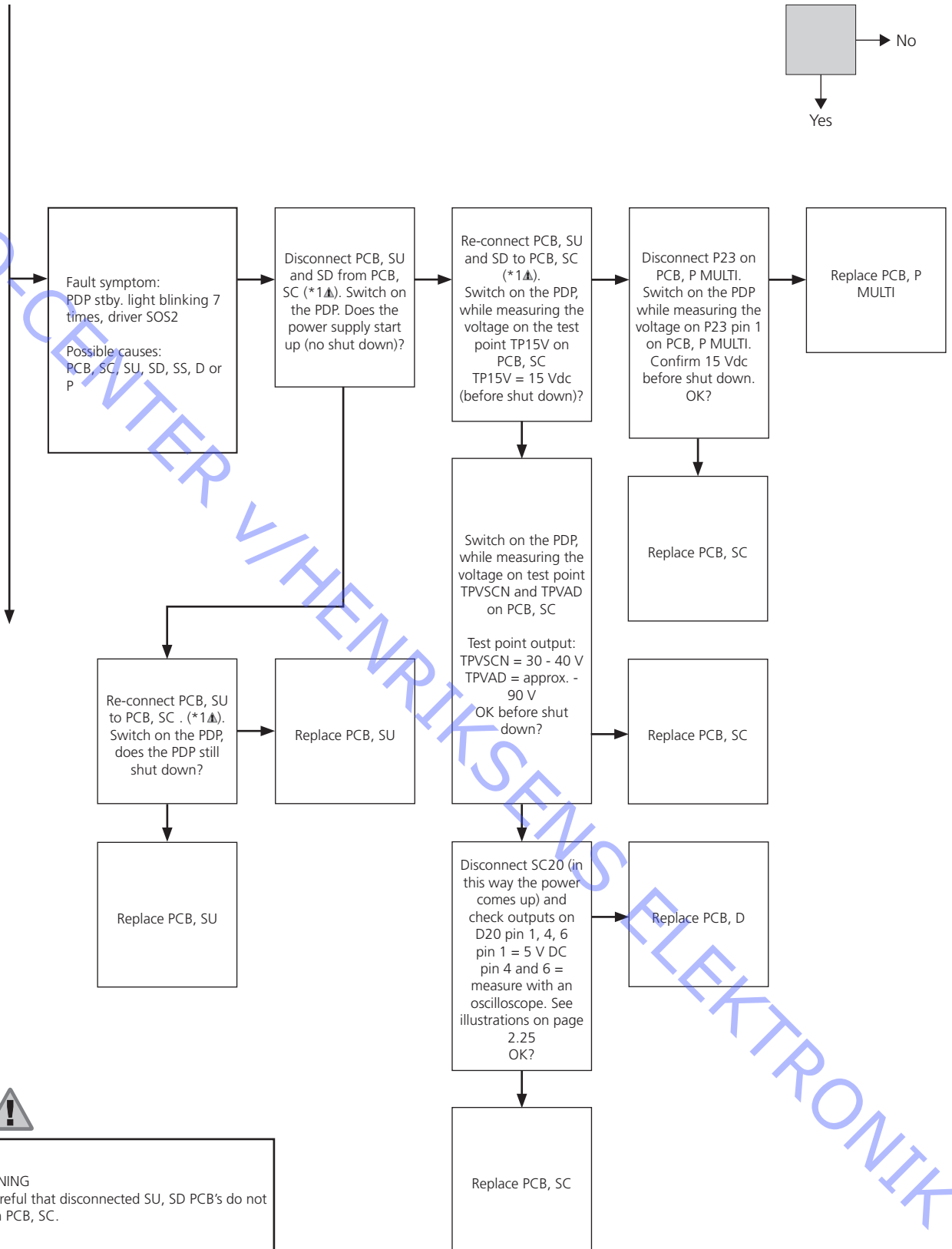
A: Probe 1:10, test point SC20 pin 20 CMH

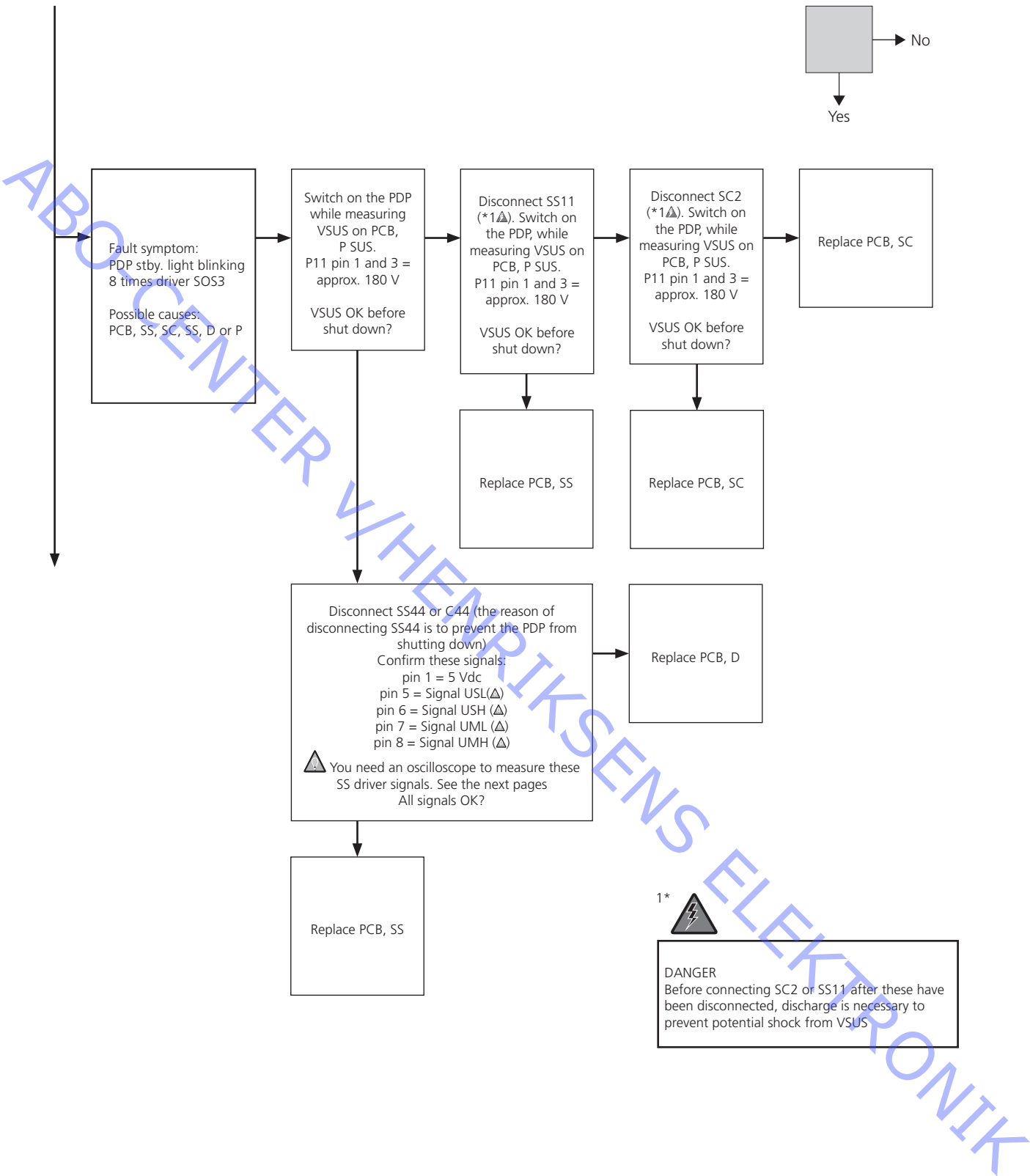
B: Probe 1:100  test point TPSC1

Trigger: On channel B (SC pulse)

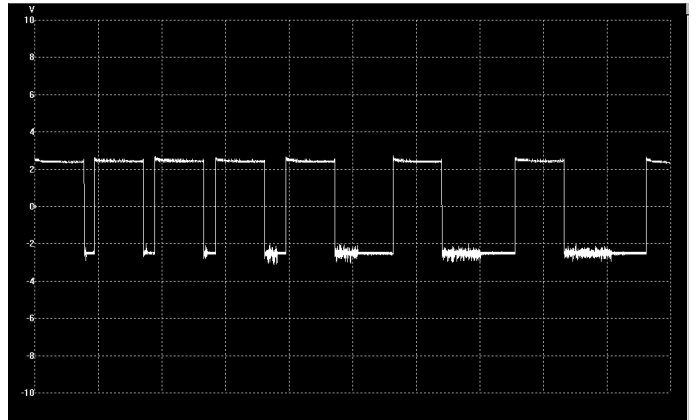
Time base: 200 μ sec./div.





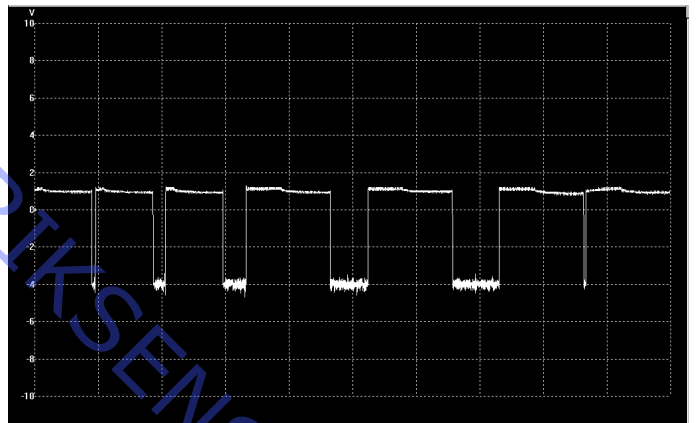


SS44 pin 3 signal UEL



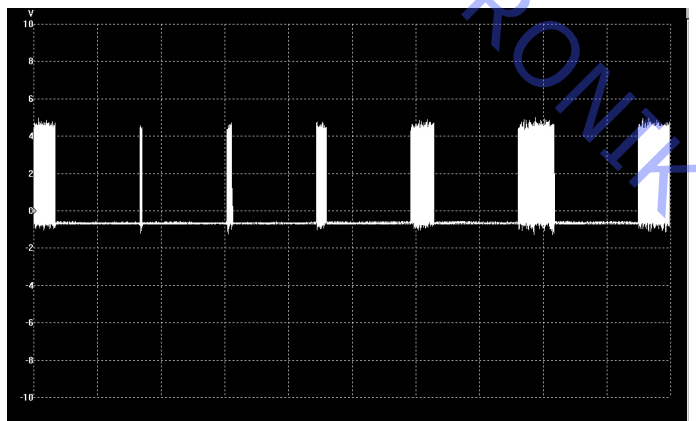
1 ms/div 2 V/div AC

SS44 pin 4 signal UEH



1 ms/div 2 V/div AC

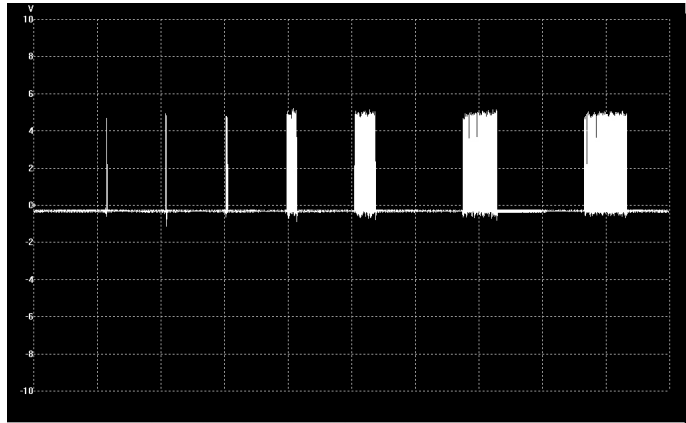
SS44 pin 5 signal USL



1 ms/div 2 V/div AC

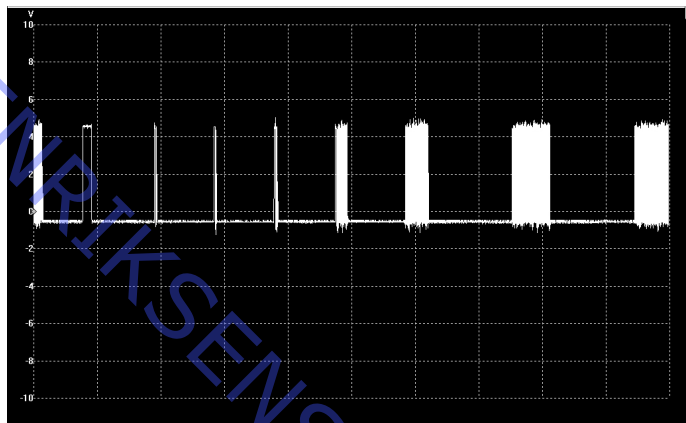
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SS44 pin 6 signal USH



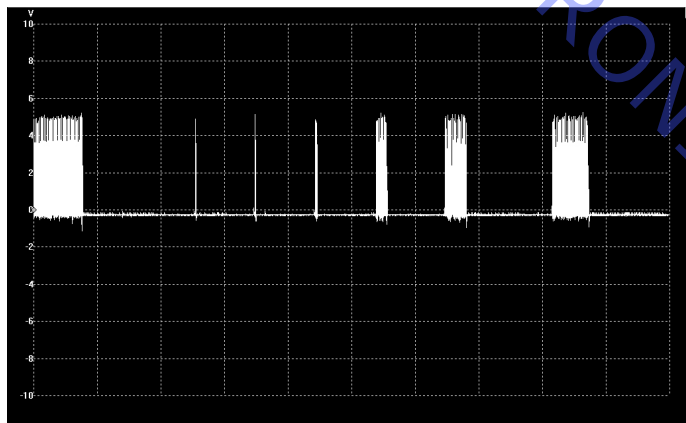
1 ms/div 2 V/div AC

SS44 pin 7 signal UML



1 ms/div 2 V/div AC

SS44 pin 8 signal UMH

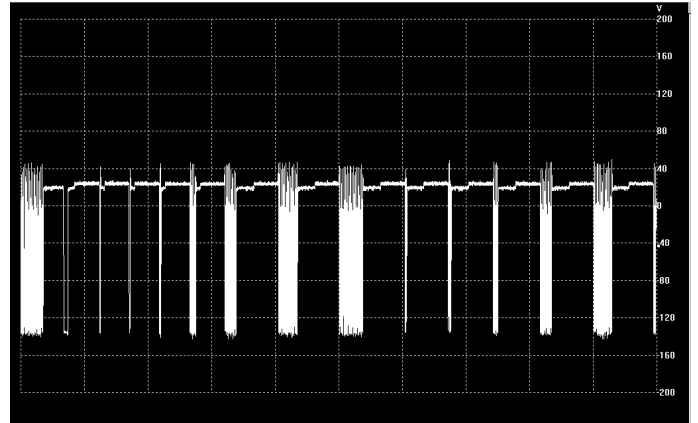


1 ms/div 2 V/div AC

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Sustain pulse TP SS1

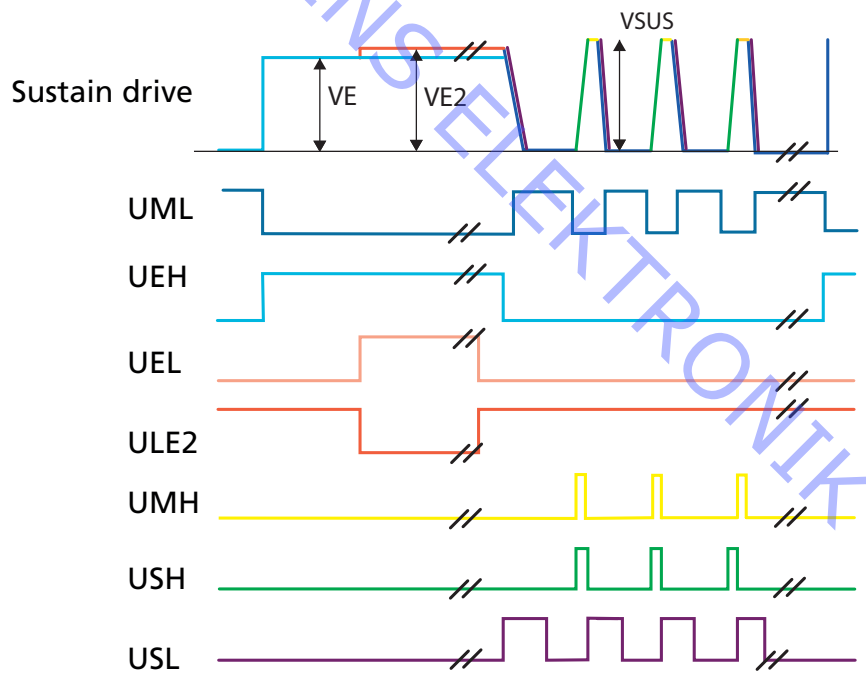
Use 1:100 Probe

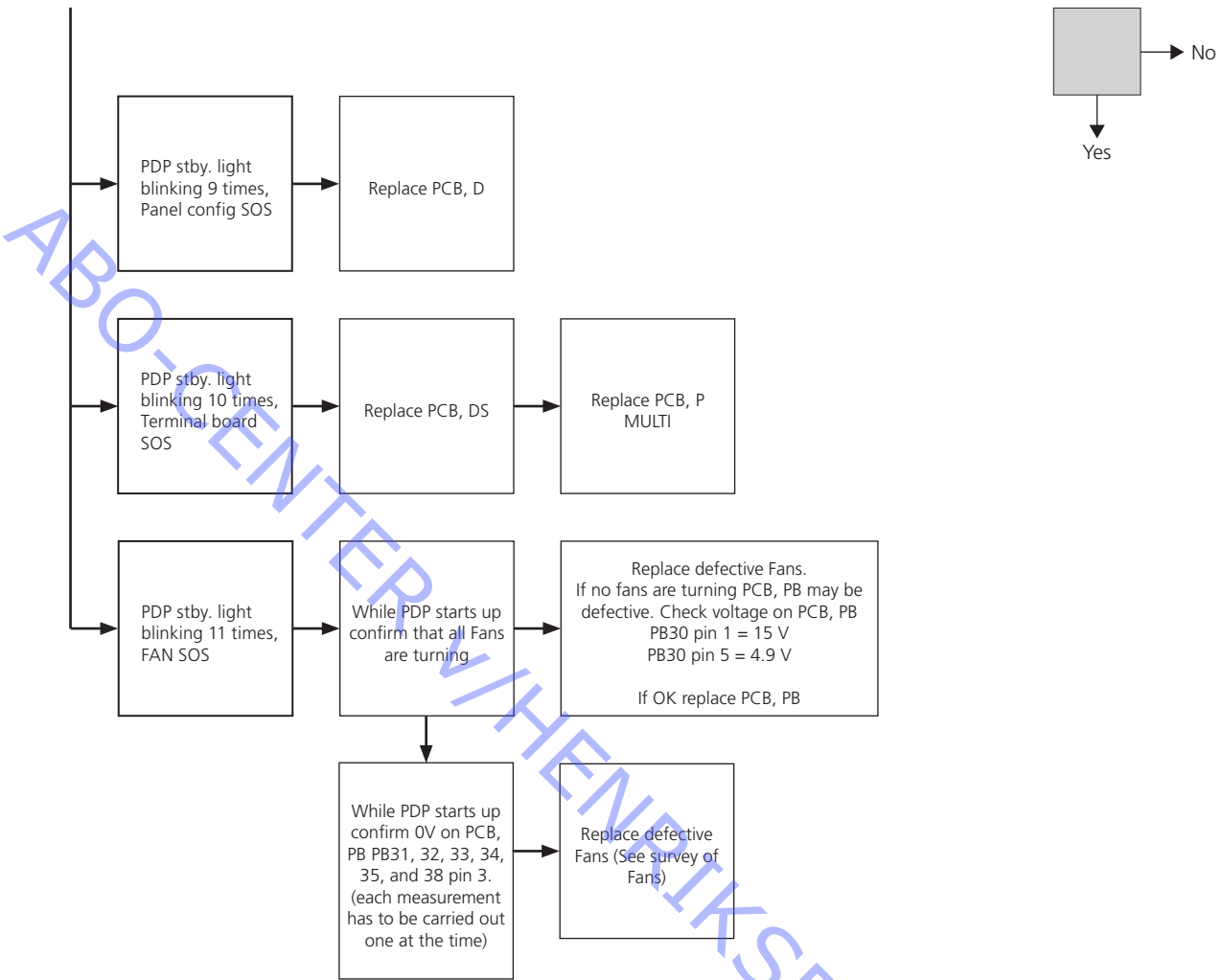


2 ms/div 40 V/div AC

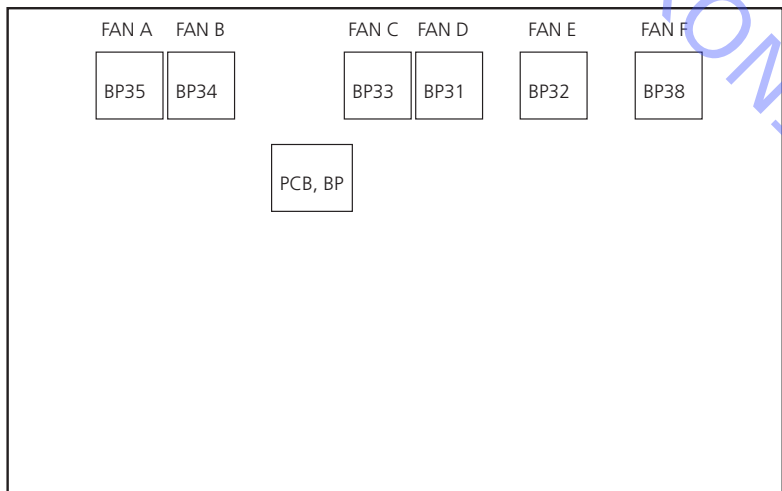
PCB, SS Explanation

After the video signal is processed on the PCB, D, the sustain and erase drive pulses are supplied to the PCB, SS. The erase pulse is supplied at the beginning of each scan period (applied to PCB, SS). The erase pulse is applied to remove the previous charge for the upper and lower sections of the panel. The sustain drive pulses are also developed on the PCB, D and are applied after the scan period. The SUSTAIN PULSE is developed using similar circuit as the SCAN PULSE. A series of specifically timed pulses are applied to FET drivers creating the distinctive SUSTAIN PULSE. The basic waveform remains constant but the exact number of sustain pulses is determined by the amount of luminance required.



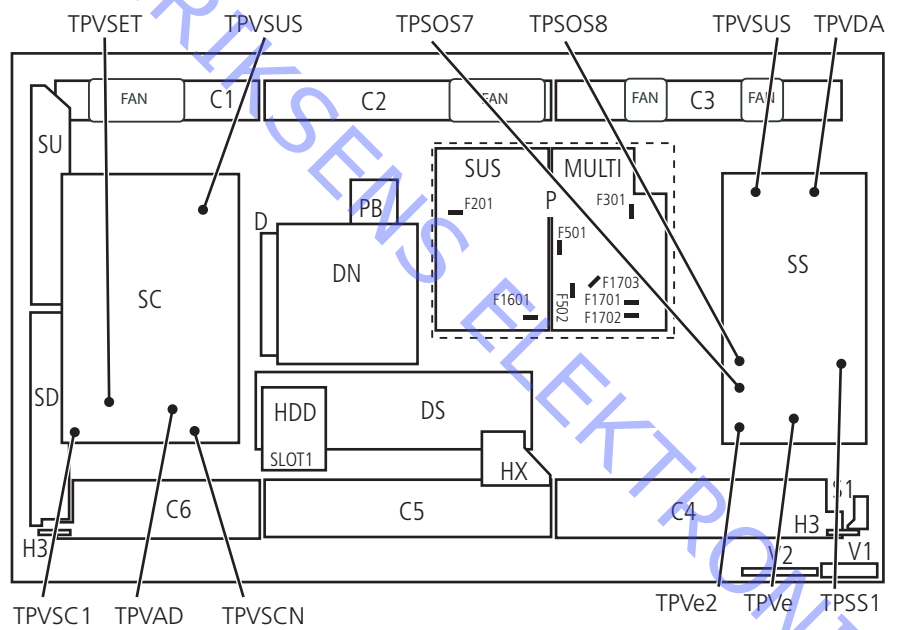
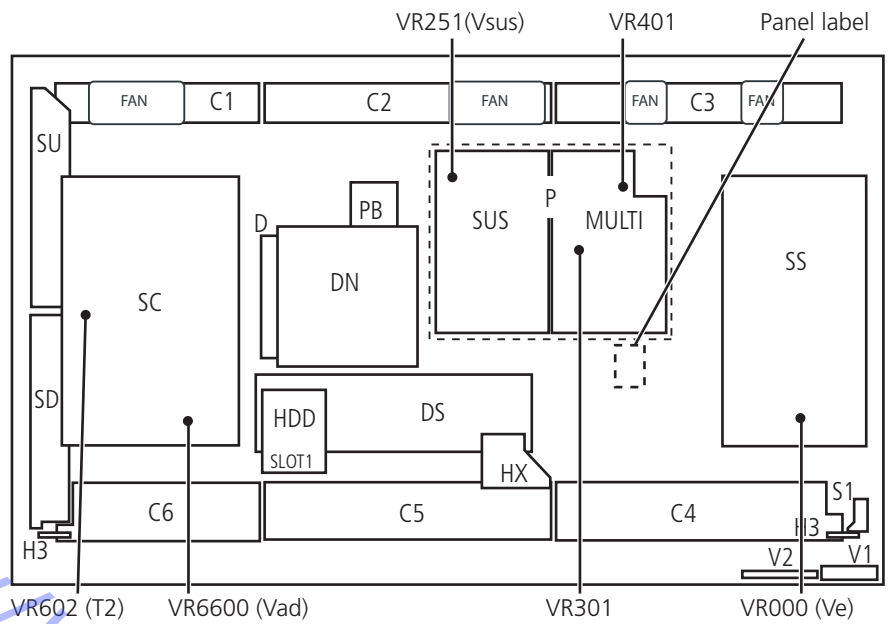


 Survey of Fans



Placement of measuring points

- Use a non conductive tool for adjustment.



Test and adjustment after replacement of module(s)

Preparations before adjustment

- Do not connect ESD-mat to PDP.
- Set the PDP to receive a picture, e.g. generate internal picture. Refer to PDP pixel test, page 2.1.

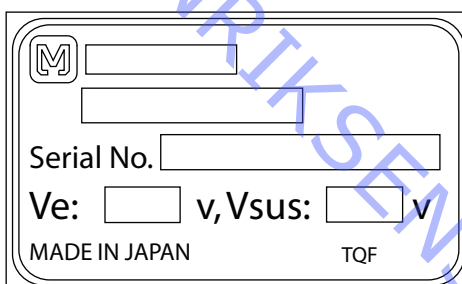
PCB	Name	Test point	Voltage	Volume
P board	Vsus	TPVSUS (SS)	Vsus* $\pm 2V$	VR251 (P) *
SC board	Vad	TPVAD(SC)	-90V $\pm 1V$	VR6600 (SC)
	Vscn	TPVSCN(SC)	Vad+ 140V $\pm 4V$	Fixed
	Vset	TPVSET(SC)	240V $\pm 7V$	Fixed
SS board	Ve	TPVE(SS)	Ve* $\pm 1V$	VR6000 (SS) *
	Vda	TPVDA(SS)	72V $\pm 1V -3V$	Fixed
D, DS board	Japan: see Japan power adjustment			
DN board	Set market select number to correct destination by MS mode (24)			

*See the panel label.

Caution

1. First perform Vsus voltage adjustment.
 2. Confirmation of Vscn voltage should be preformed after confirmation of Vad voltage adjustments. When Vad = -90V, Voltage of Vscn is 50V $\pm 4V$
- Absolutely do not reduce Vsus below Ve not to do damage to the PCB.

Panel label information



← Adjustment voltage

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Japan power adjustment

This adjustment is only necessary for the Japanese market!
 If PCB, D or the PDP have been replaced, it is important to make this adjustment.

Because of the mains voltage on the Japanese marked, the power consumption has to be reduced to obtain warranty.

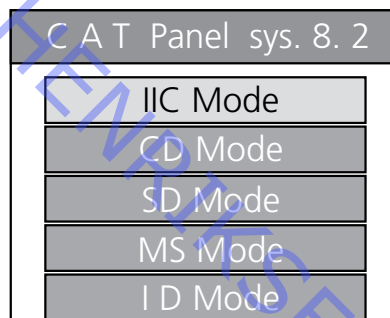
A label is placed on the backside of the PDP. On the label there is two digits/letters 'Before' and 'After'. To reduce the power consumption the 'After' digit/letter has to be entered in the PDP service menu.

PWRCLT	
Before	After
A7	D3

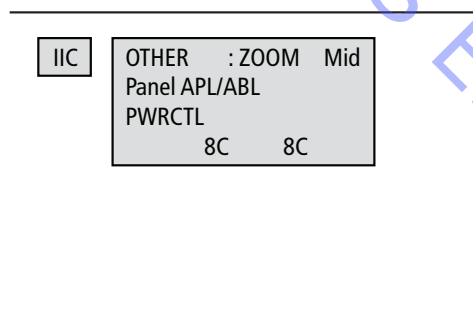
Adjustment procedure

Access the PDP Service Menu by means of the NN remote control (press FD and then F).

The CAT Menu appears on the screen :



Select IIC and press OK



Use the up and down buttons to find the menu 'PWRCLT'. Use the button VOL + - to change the power control setting e.g. to D3.

The left digit/letters shows the current setting and the right shows the new setting.

The adjustment is automatically saved.

Exit the service mode as described on page 2.1.

Insulation test

Each set must be insulation tested after having been dismantled. Make the test when the set has been reassembled and is ready to be returned to the customer.

Flashovers must not occur during the testing procedure!

Make the insulation test as follows:

Short-circuit the two pins of the mains plug and connect them to one of the terminals of the insulation tester. Connect the other terminal to ground on the PC Input terminal.

NOTE!

To avoid damaging the set it is essential that both terminals of the insulation tester have good contact.

Slowly turn the voltage control of the insulation tester until a voltage of 2.5 kV ac and max. 10mA is obtained.

Maintain that voltage for one second, then slowly turn it down to 0 V ac again.

Final check after repair

Before reinstalling the PDP in the product, run the PDP self-check, page 2.3.

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Modules that can be replaced

PDP in service position	5.2
Replace contrast screen and plasma frame	5.4
Replace PCB C1, Data Drive (Upper left)	5.6
Replace PCB C2, Data Drive (Upper center)	5.7
Replace PCB C3, Data Drive (Upper right)	5.8
Replace PCB C4, Data Drive (Lower right)	5.9
Replace PCB C5, Data Drive (Lower center)	5.11
Replace PCB C6, Data Drive (Lower left)	5.13
Replace PCB D, Digital Signal Processor	5.15
Replace PCB DN, Digital Signal Processor/Micom	5.17
Replace PCB DS, Slot Interface & SYNC processor	5.18
Replace PCB HX, PC Type Input Terminal	5.19
Replace PCB HDD, DVI Input Terminal	5.20
Replace PCB P, Power Supply	5.21
Replace PCB PB, Fan Control	5.22
Replace PCB SC, Scan Out	5.23
Replace PCB SD, Scan Connection (Lower)	5.24
Replace PCB SS, Sustain Out	5.25
Replace PCB SU, Scan Connection (Upper)	5.26

Actions before dismantling the PDP

Before dismantling the PDP - disconnect the mains supply and wait minimum 1 minute for the electrolytic capacitors to discharge.

Connect ESD-mat.

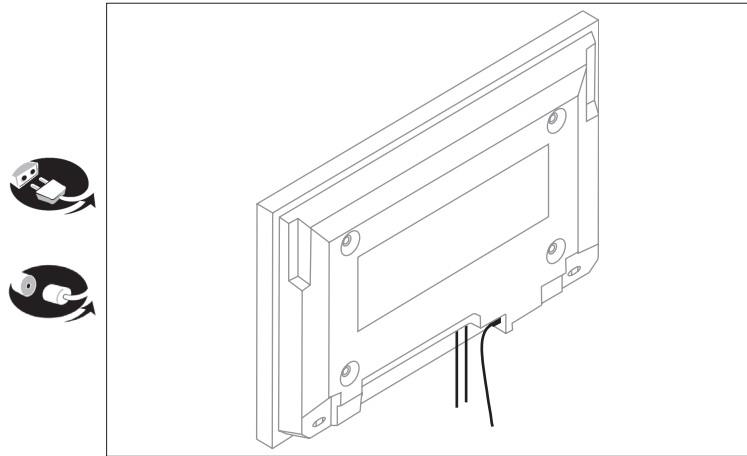
After replacing module(s) in the PDP follow the test and adjustment procedure as described in "Test and adjustment after replacement of module(s)" on page 4.2.

Note

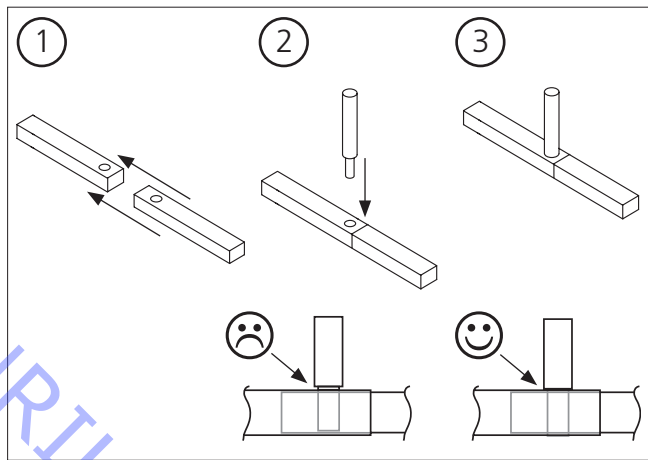
Internal cables in the PDP.

Please show precaution when disconnecting cables from sockets.

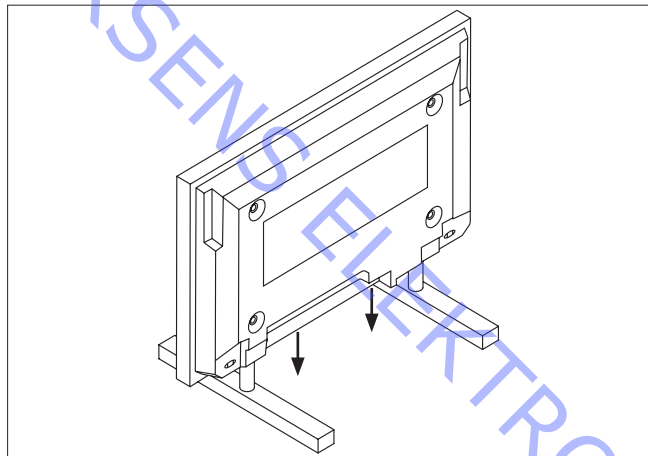
- Remove all cables



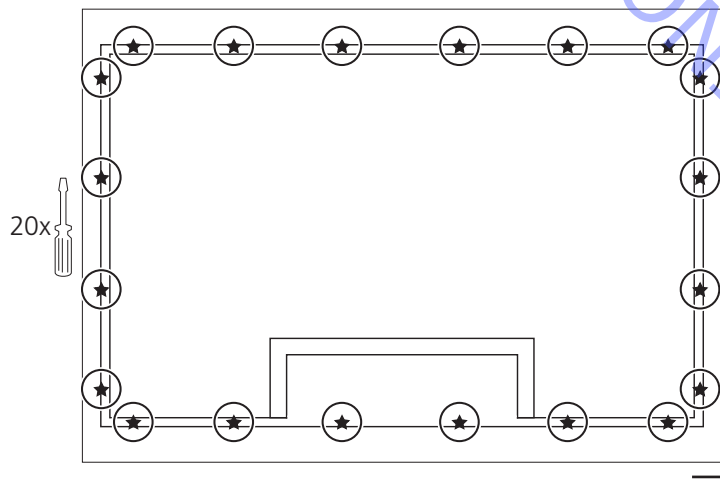
- Assemble service stands



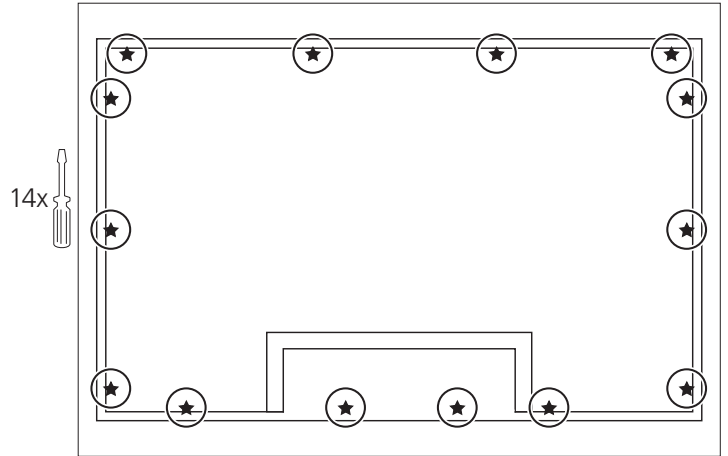
- Put PDP on service stands



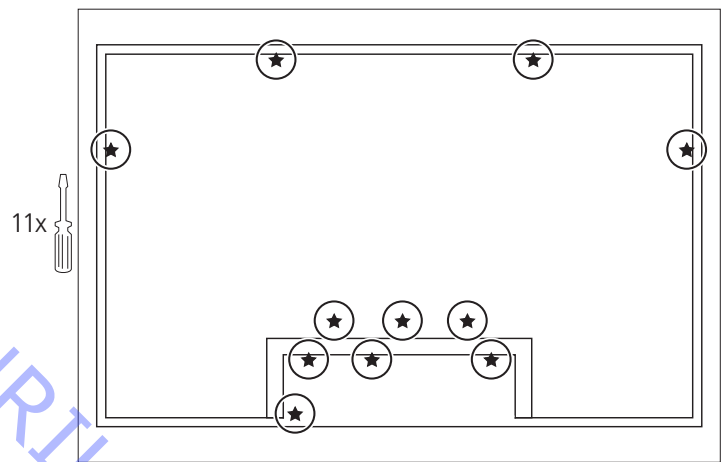
- Remove screws holding the aluminium frame



→ - Remove screws holding the iron frame



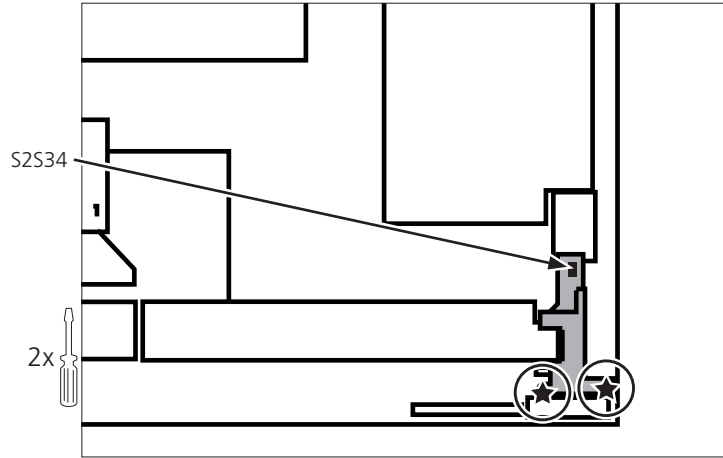
- Remove screws holding the backcover



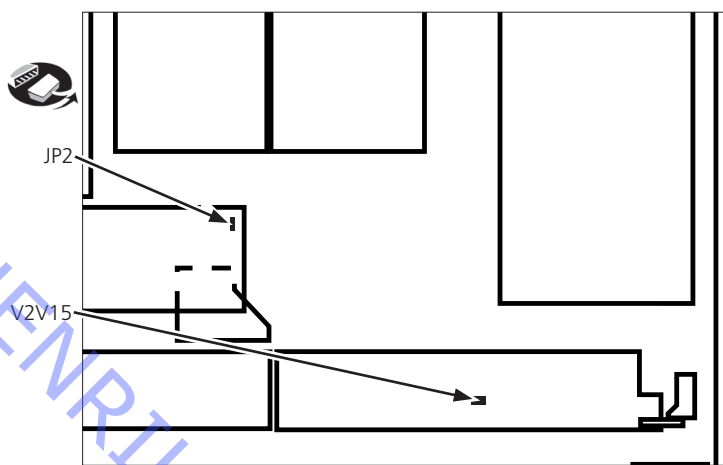
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5.2 PDP in service position

- Remove PCB S1, Power switch as shown

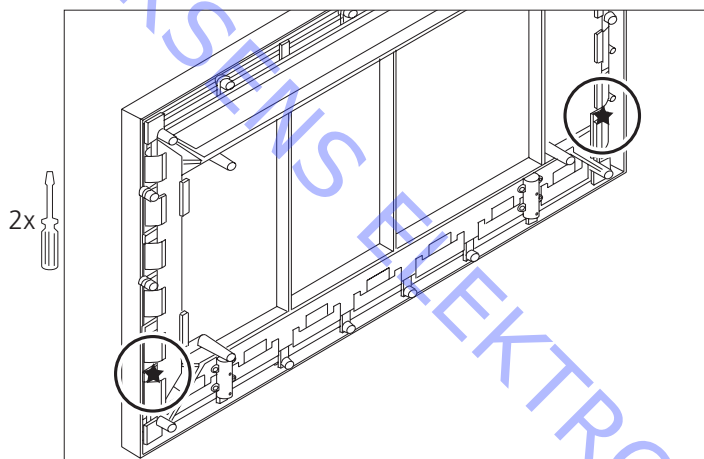
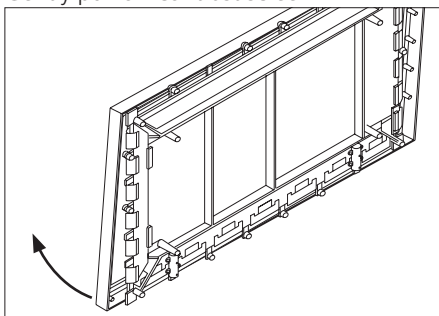


- Remove cables

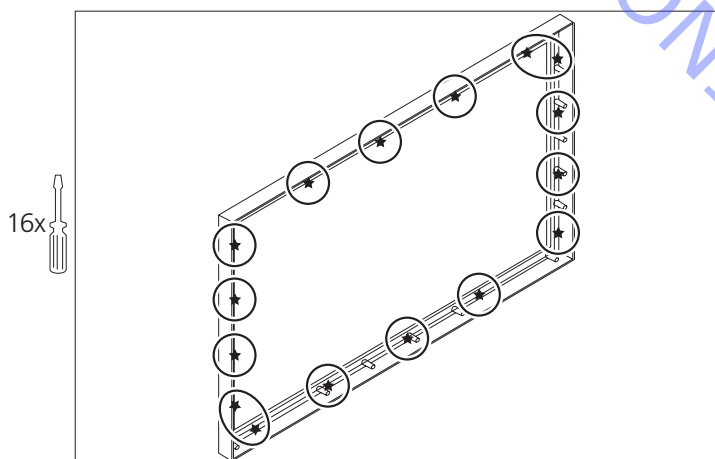


- Remove screws

Gently pull off contrast screen

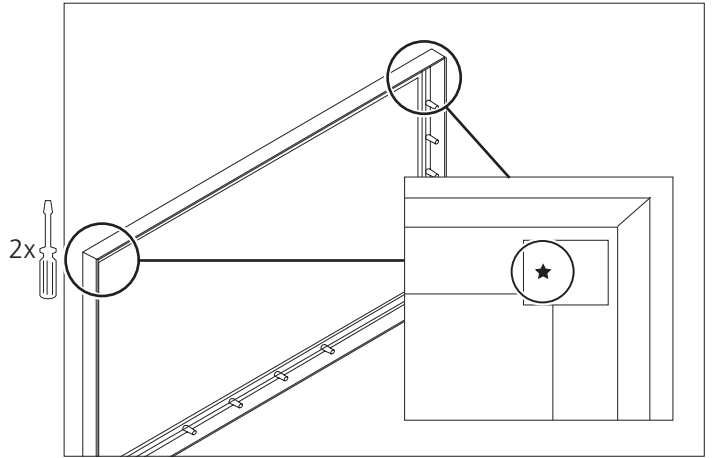


- Remove screws

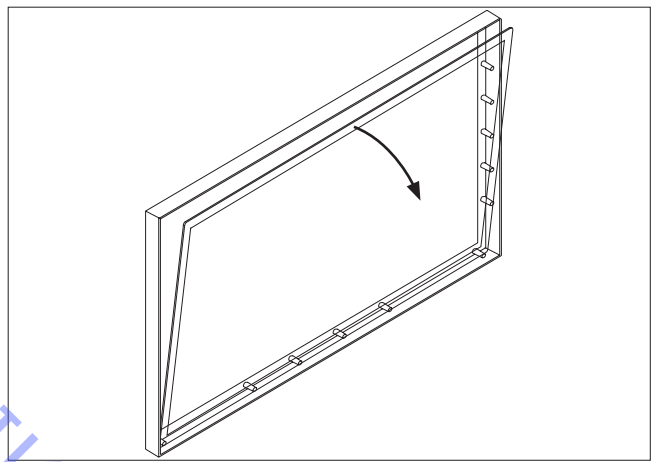


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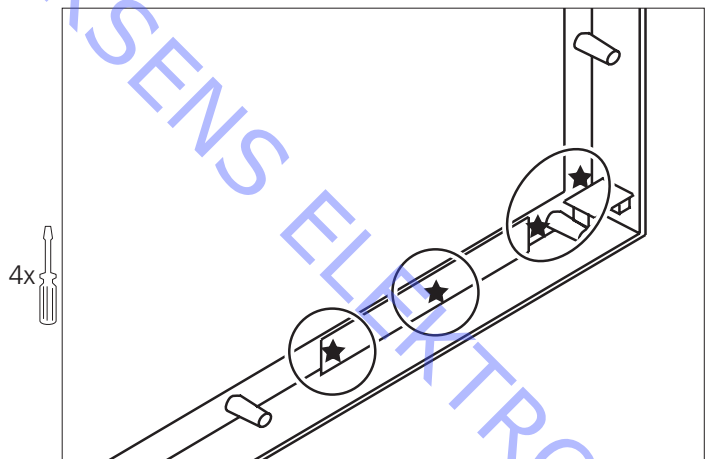
→ - Remove screws



- Pull out contrast screen



- Remove screws for S1, Power switch & V1, Remote receiver

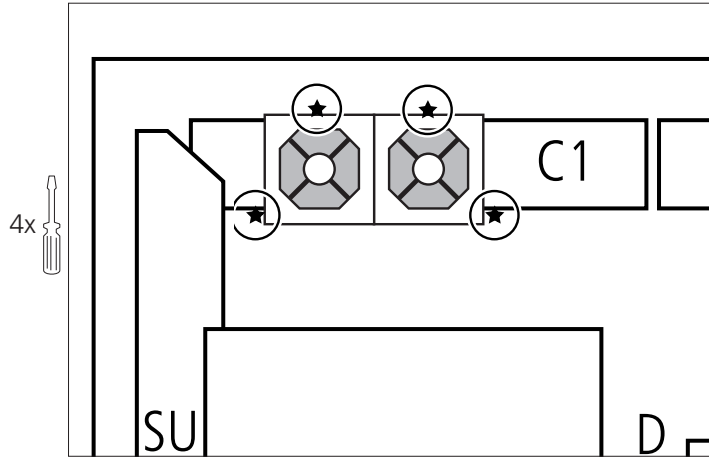
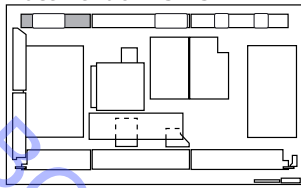


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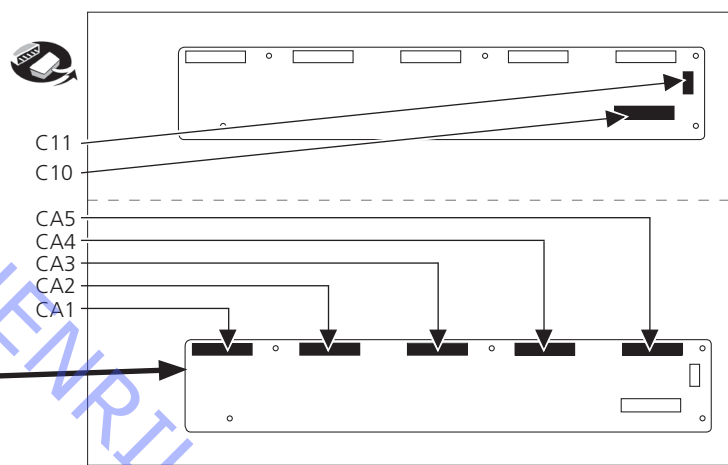
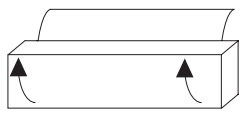
5.2 PDP in service position

- Remove screws for Fan and pull off Fan

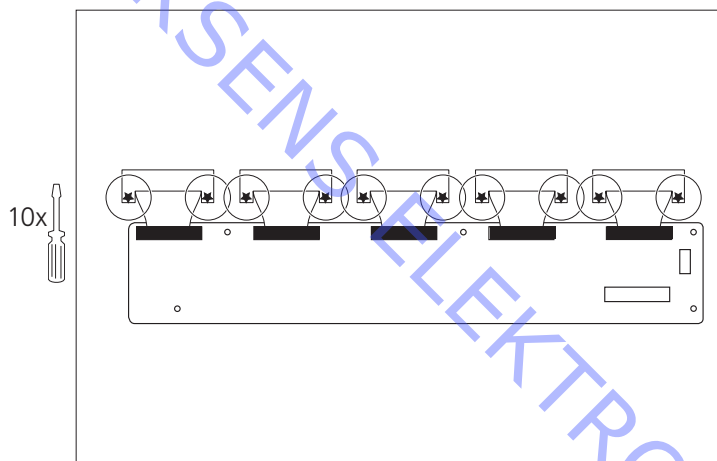
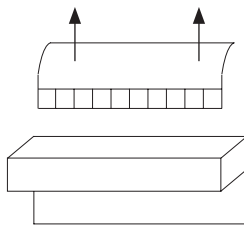
Placement of PCB C1



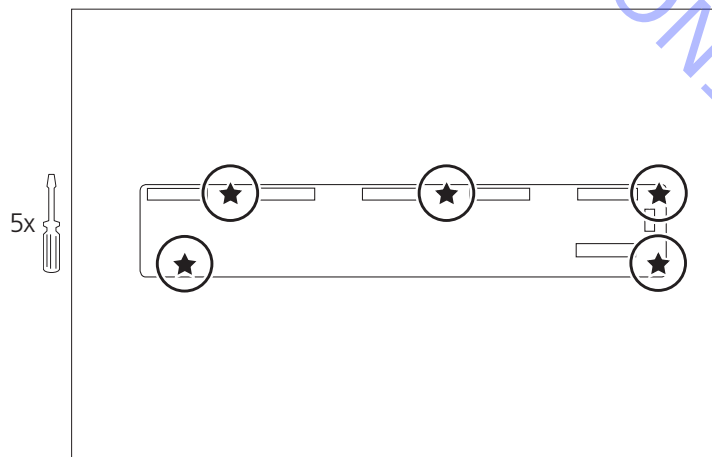
- Remove plugs C10 and open plugs CA1-5



- Remove screws at cable holders and remove cables



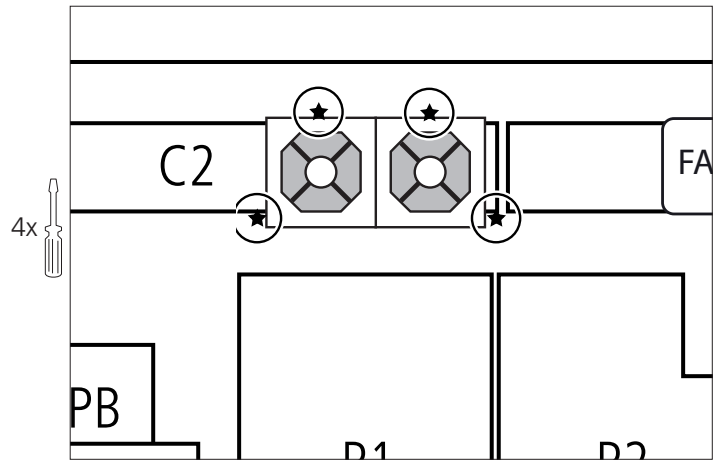
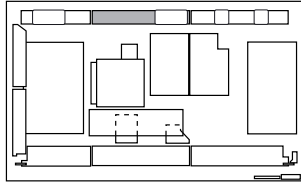
- Remove screws at PCB C1



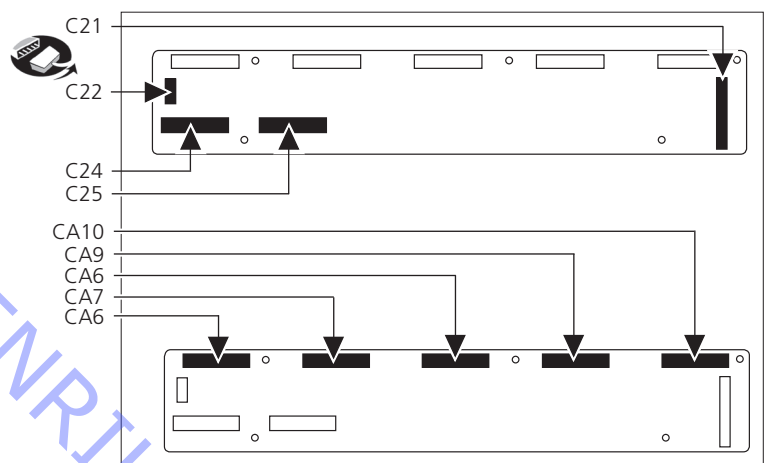
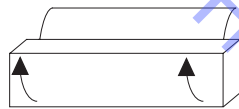
5.2 PDP in service position

- Remove cables

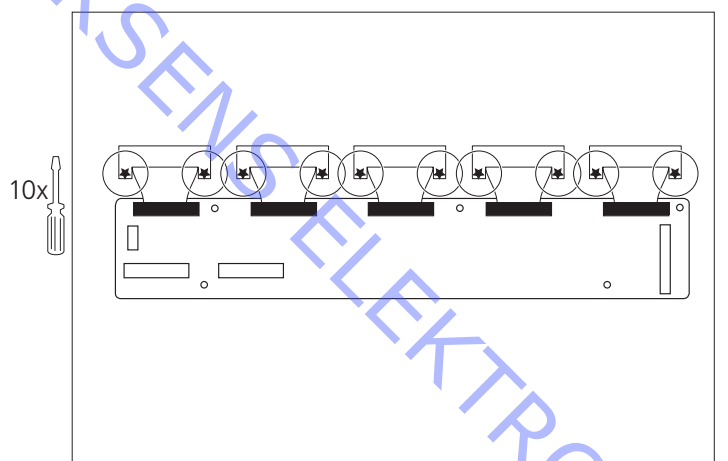
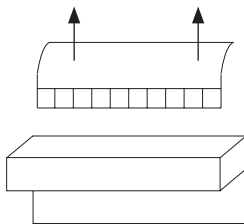
Placement of PCB C2



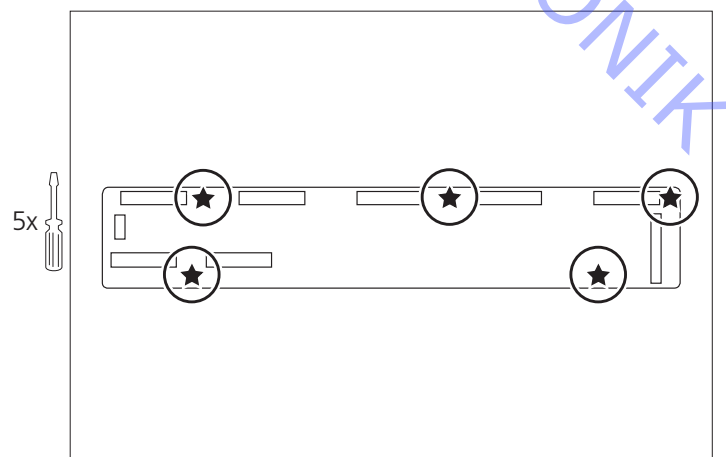
- Remove cables C21, C22, C23, C24
- Open plugs CA6 to CA10



- Remove screws at cable holders and remove cables



- Remove screws at PCB C2

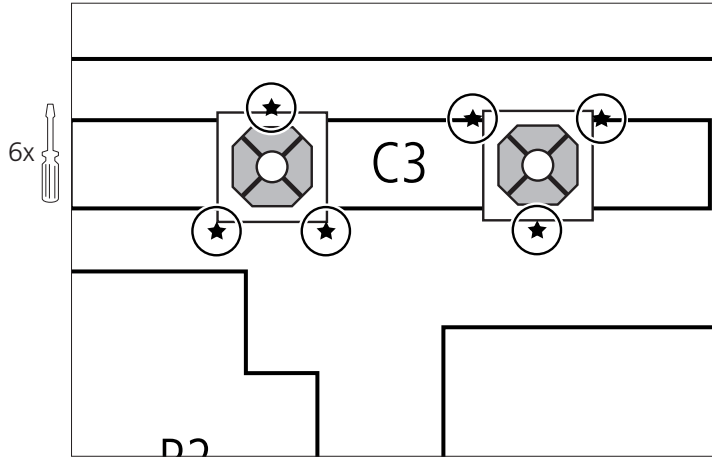
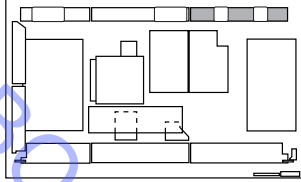


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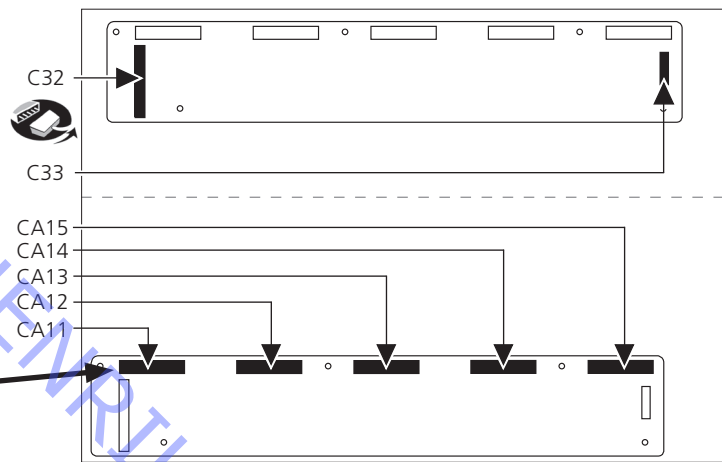
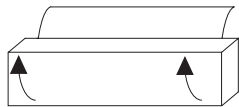
5.2 PDP in service position

- Remove screws for Fans and pull off Fans

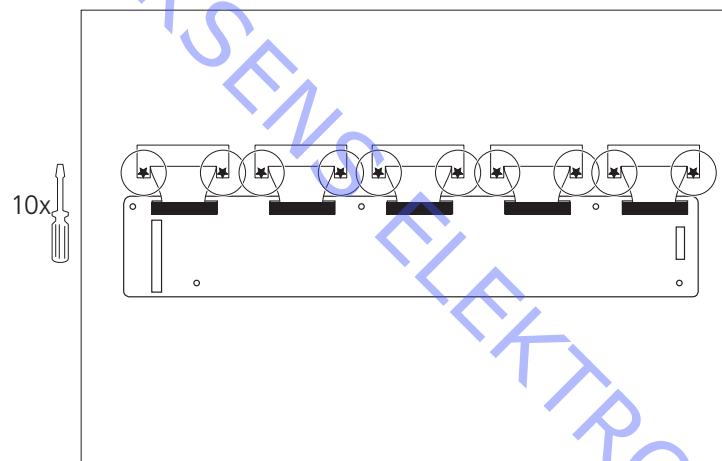
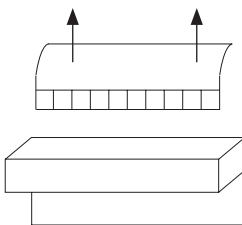
Placement of PCB C3



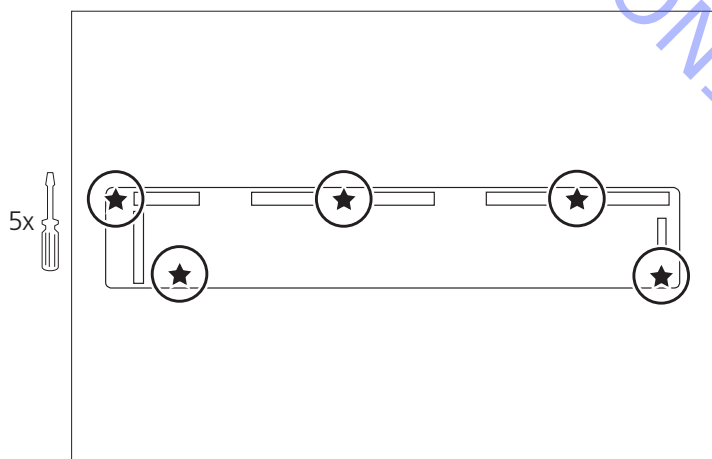
- Remove plugs C32 and C33
- and open plugs CA11-15



- Remove screws at cableholders and remove cables



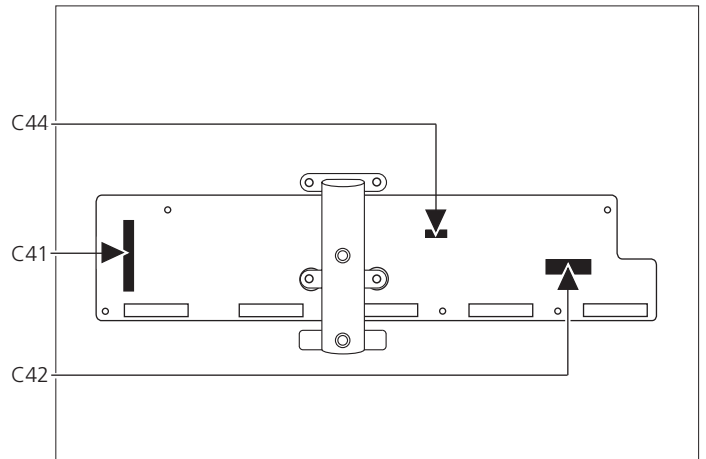
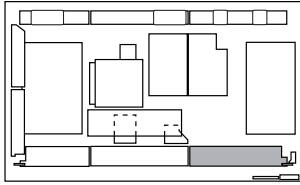
- Remove screws at PCB C3



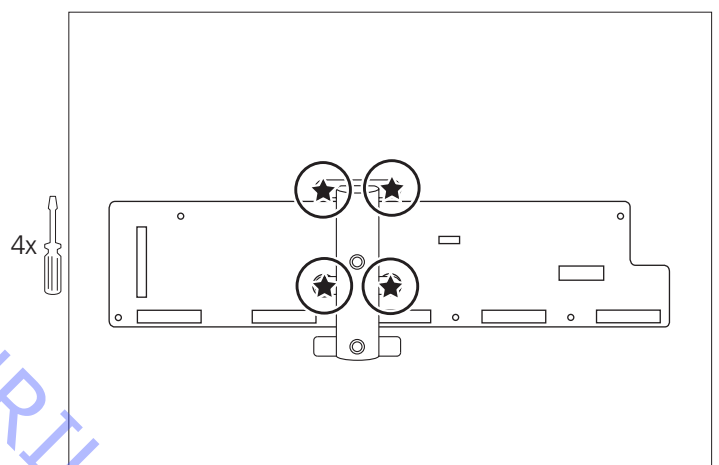
5.2 PDP in service position

- Remove cables

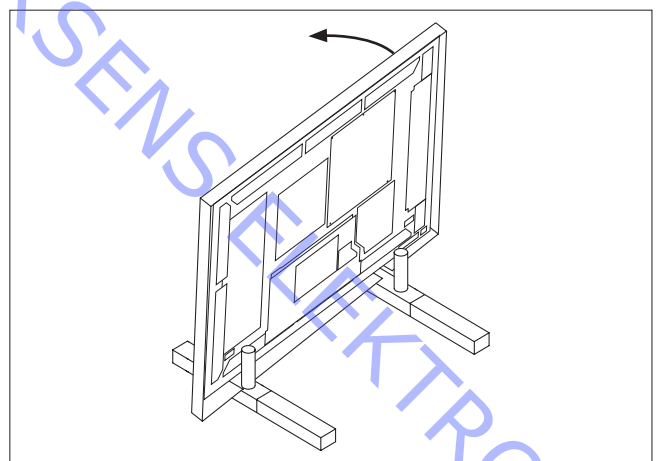
Placement of PCB C4



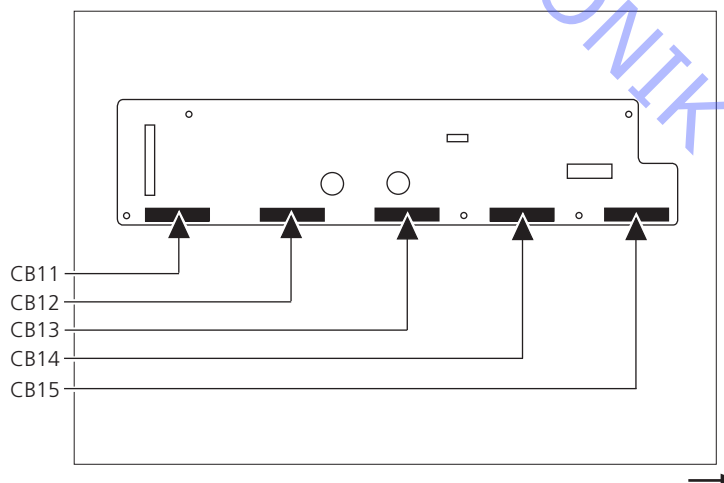
- Remove screws at bracket



- Pull PDP off Service foot and bracket

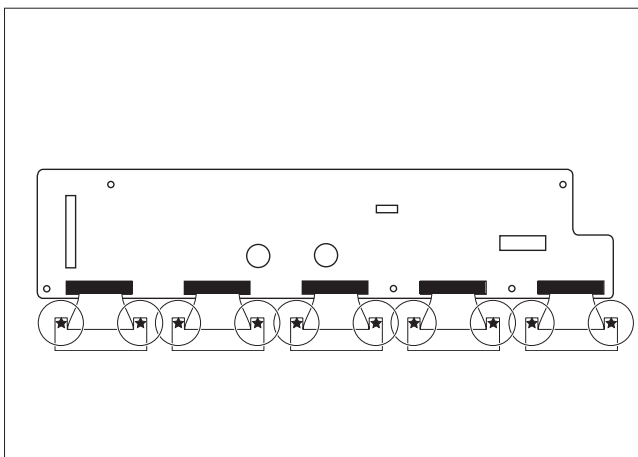
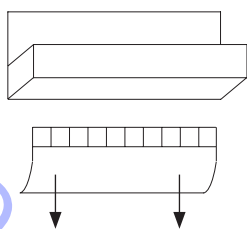


- Open plugs

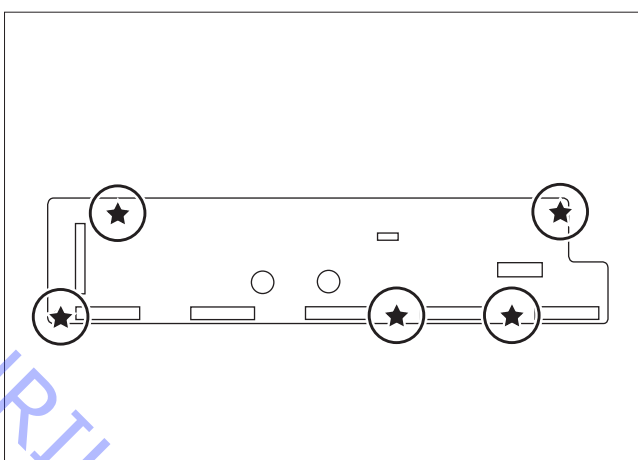


ABO-CENTER V/HENRIKSENS ELEKTRONIK

→ - Remove screws at cableholders and remove cables



- Remove screws at PCB C4

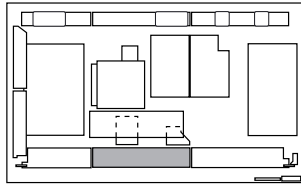


ABO-CENTER V/HENRIKSENS ELEKTRONIK

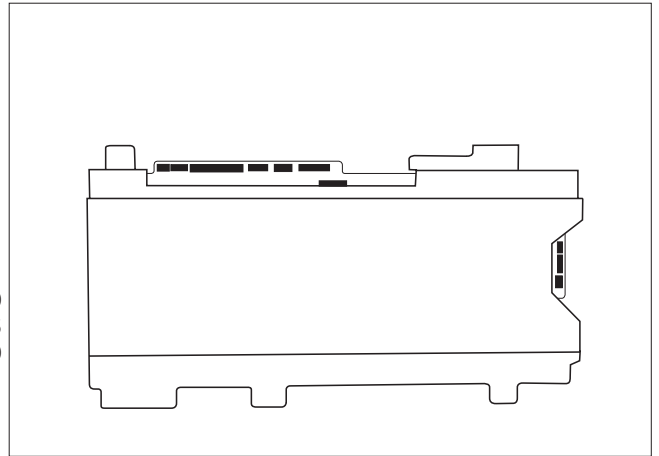
5.2 PDP in service position

- Remove plugs on PCB DS

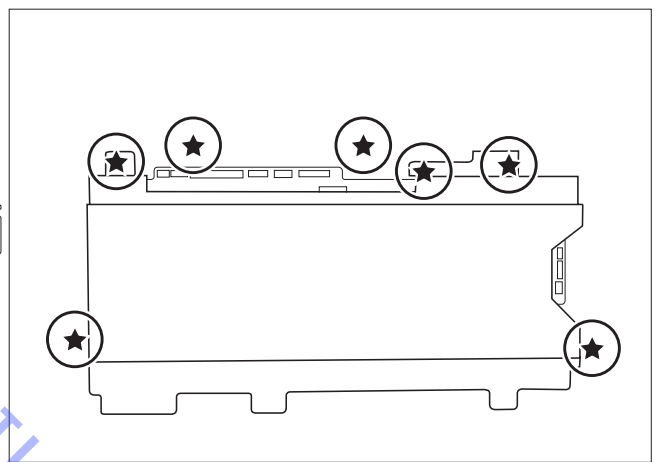
Placement of PCB C5



- DS1
- DS2
- DS3
- DS4
- DS6
- DS7
- DS8
- DS10
- DS15
- DS30



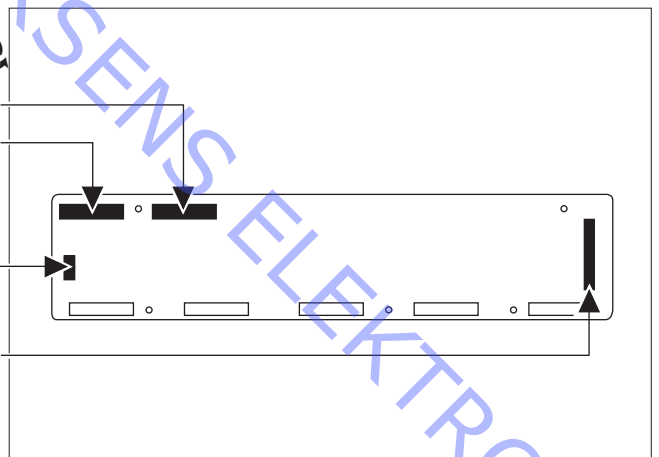
- Remove screws at input housing and remove it



- Remove cables on PCB C5



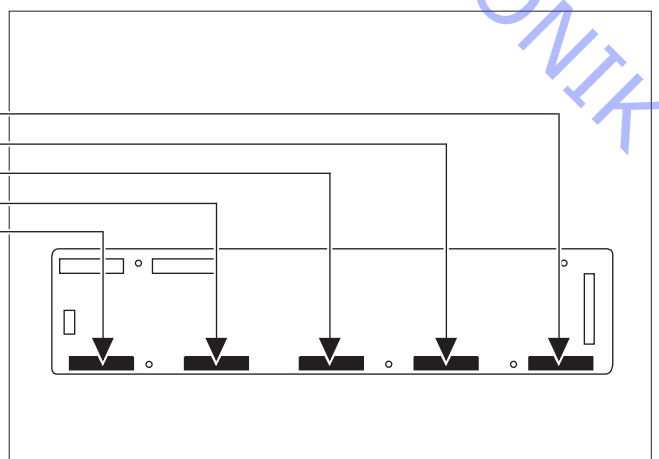
- C55
- C54
- C52
- C51



- Open plugs

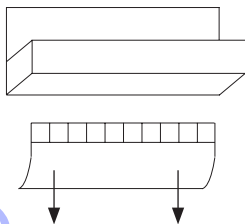


- CB10
- CB9
- CB8
- CB7
- CB6

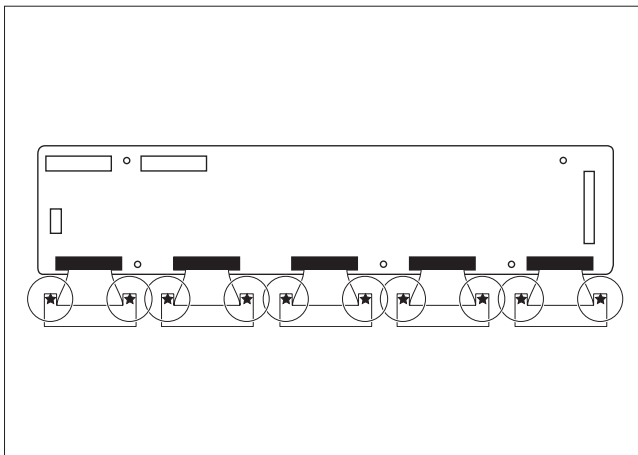


ABO-CENTER V/HENRIKSENS ELEKTRONIK

→ - Remove screws at cableholders and remove cables

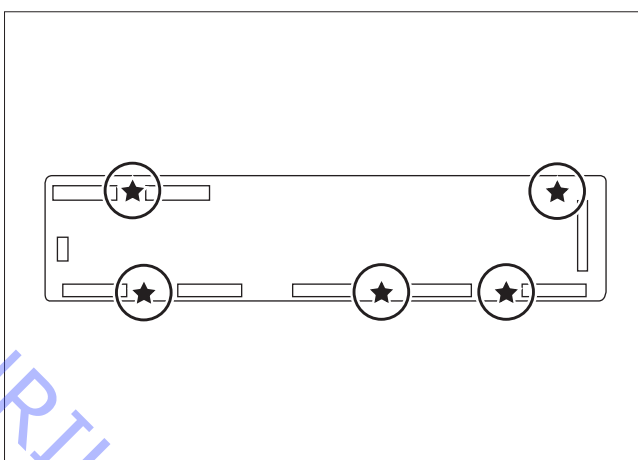


10x



- Remove screws at PCB C5

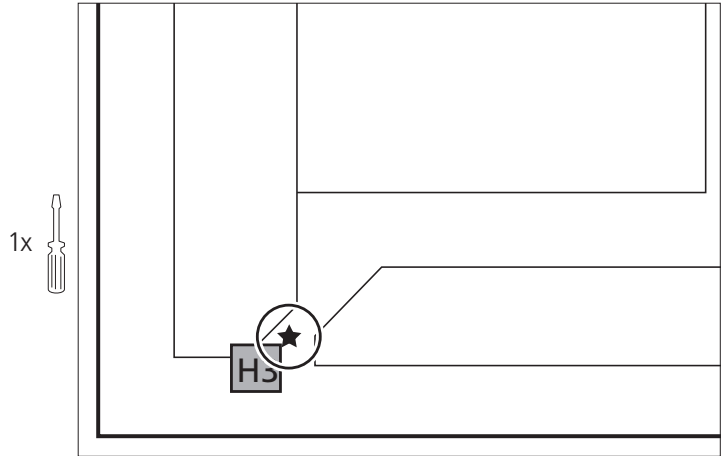
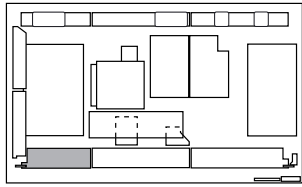
5x



ABO-CENTER V/HENRIKSENS ELEKTRONIK

- 5.2 PDP in service position
- Remove screw and remove PCB H3

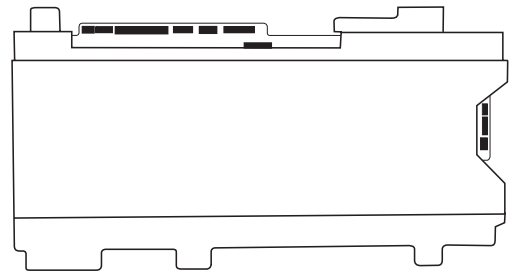
Placement of PCB C6



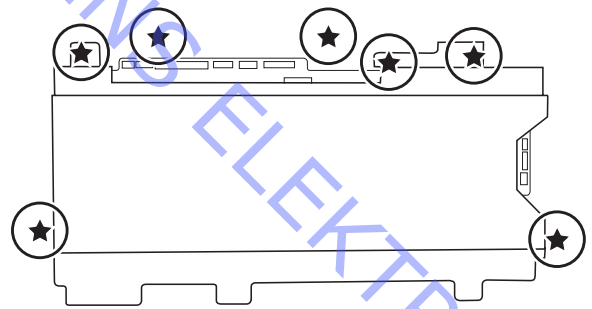
- Remove plugs on PCB DS



- DS1
- DS2
- DS3
- DS4
- DS6
- DS7
- DS8
- DS10
- DS15
- DS30



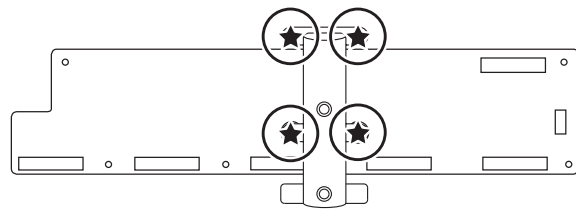
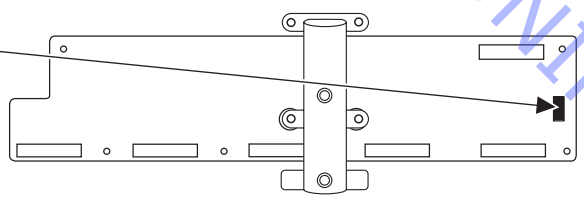
- Remove screws at input housing and remove it



- Remove plug and remove screws at bracket

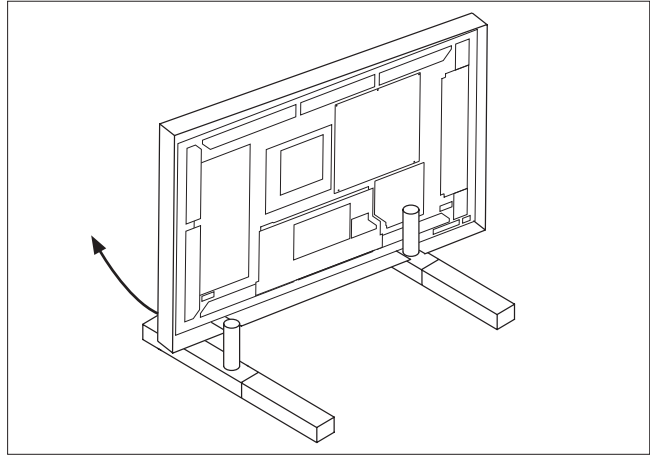


C60

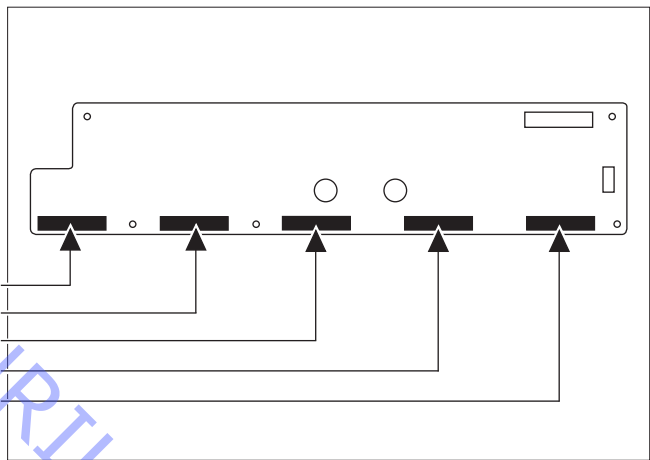
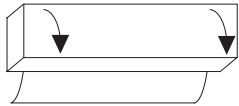


ABO-CENTER V/HENRIKSENS ELEKTRONIK

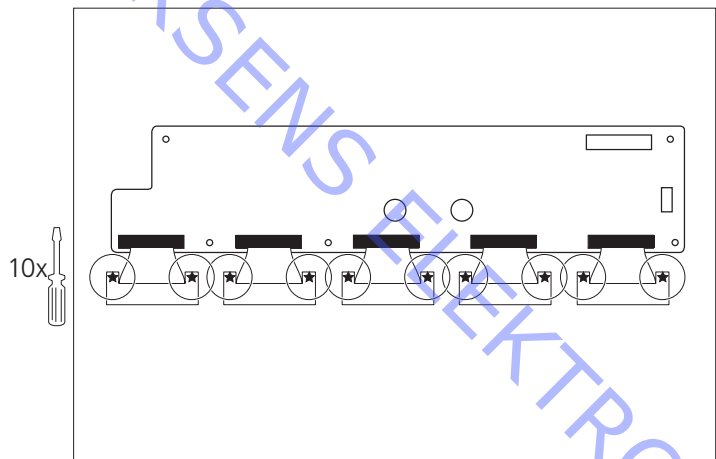
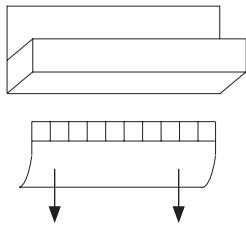
→ - Pull PDP off Service foot and bracket



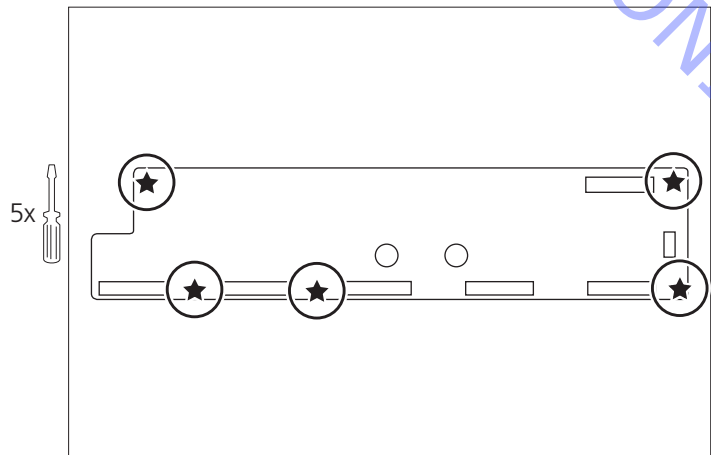
- Open plugs



- Remove screws at cableholders and remove cables



- Remove screws at PCB C6

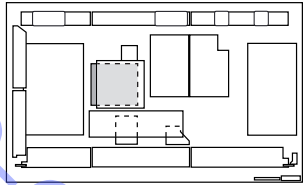


5.2 PDP in service position

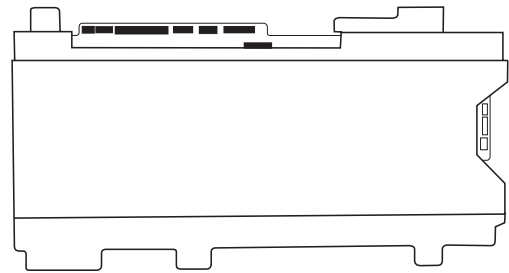
5.2.2 Remove PCB PB

- Remove plugs on PCB DS

Placement of PCB D



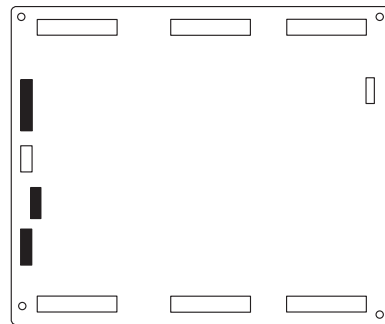
- DS1
- DS3
- DS4
- DS6
- DS7
- DS10
- DS30



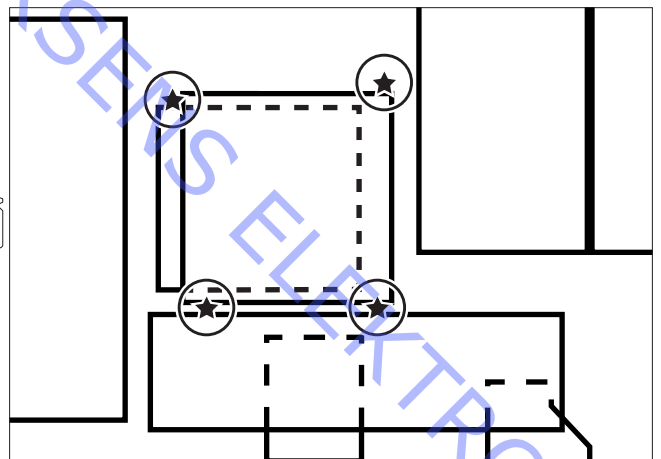
- Remove plugs on PCB D



- D3
- D5
- D20



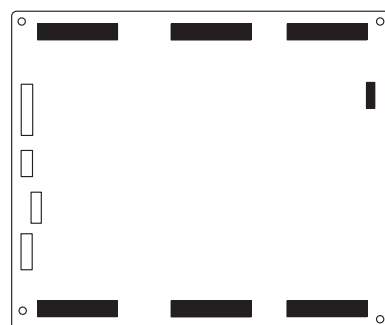
- Remove screws on PCB DN bracket



- Remove screws



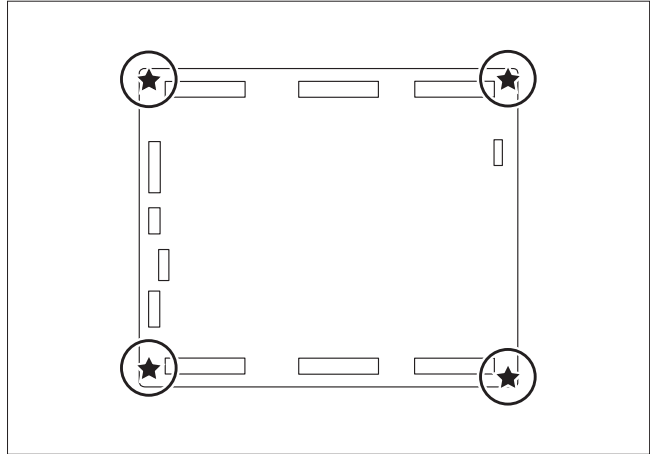
- D25
- D31
- D32
- D33
- D34
- D35
- D36



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→ - Remove screws

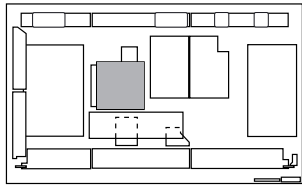


ABO-CENTER V/HENRIKSENS ELEKTRONIK

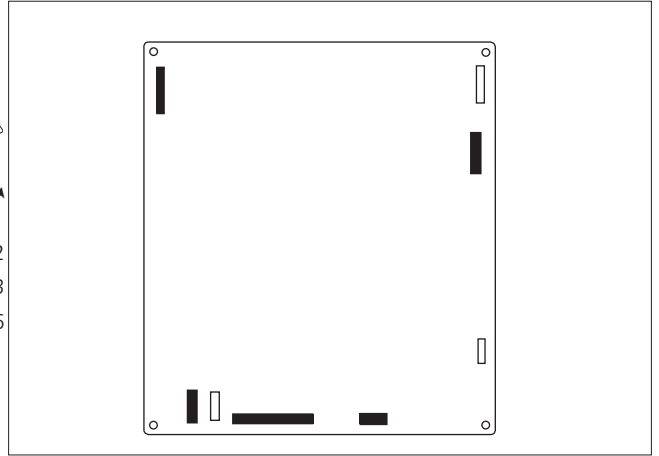
5.2 PDP in service position

- Remove cables

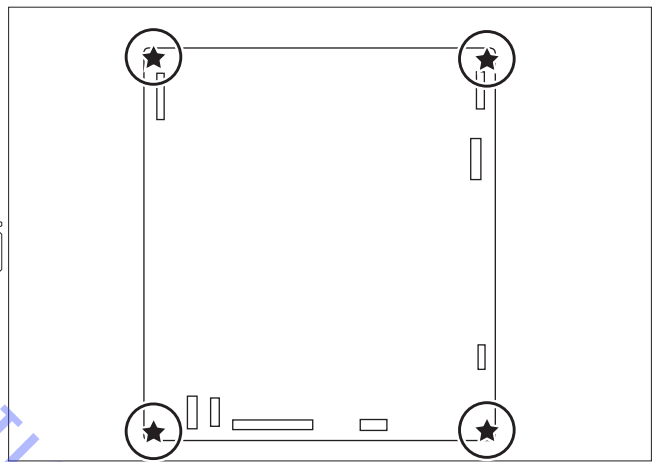
Placement of PCB DN



- DN1
- DN2
- DN3
- DN6
- DN51



- Remove screws



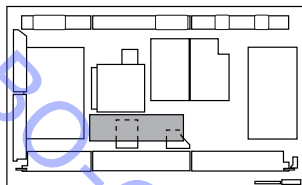
ABO-CENTER V/HENRIKSENS ELEKTRONIK

5.2 PDP in service position

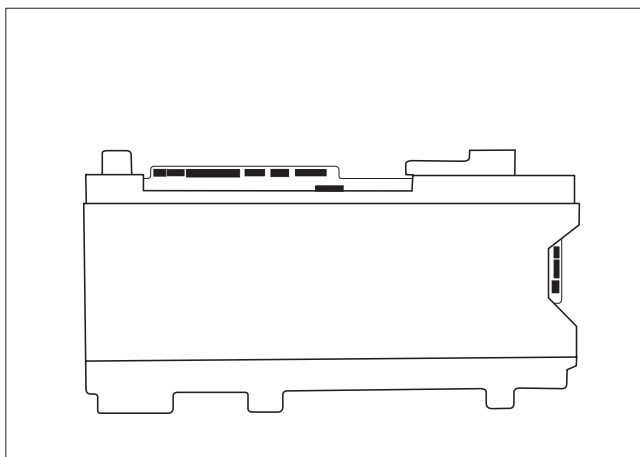
5.20 Remove PCB HDD

- Remove plugs on PCB DS

Placement of PCB DS



- DS1
- DS2
- DS3
- DS4
- DS6
- DS7
- DS8
- DS10
- DS15
- DS30



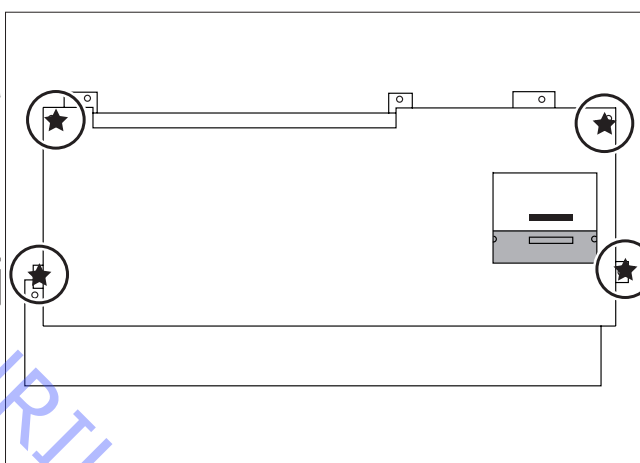
- Remove plug connecting PCB HX

- Remove screws holding shield



HX1

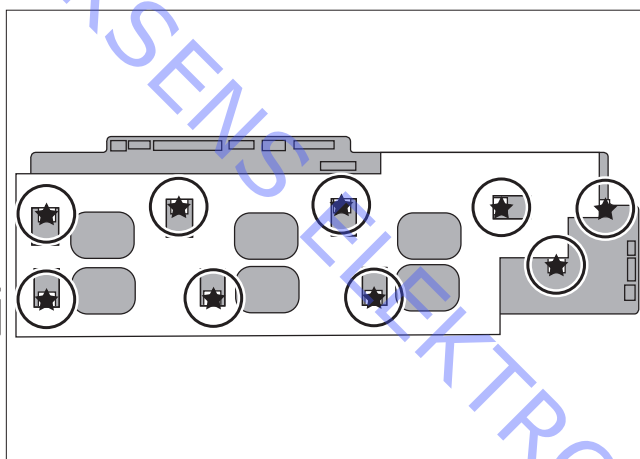
4x



- Remove screws on PCB DS

- Pull off shield and PCB DS

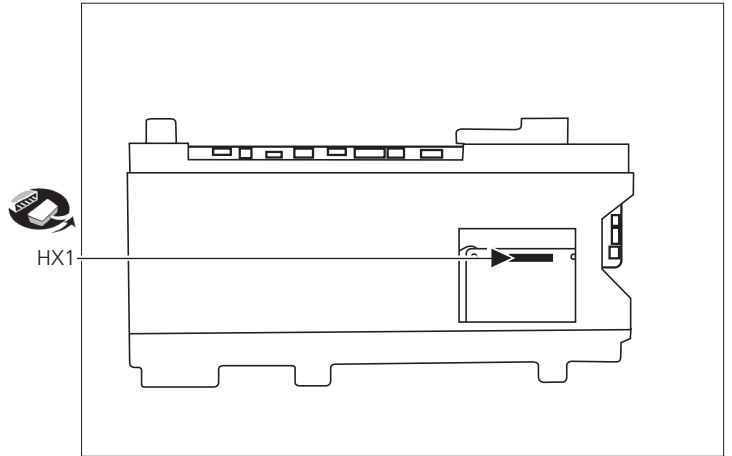
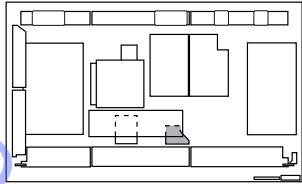
9x



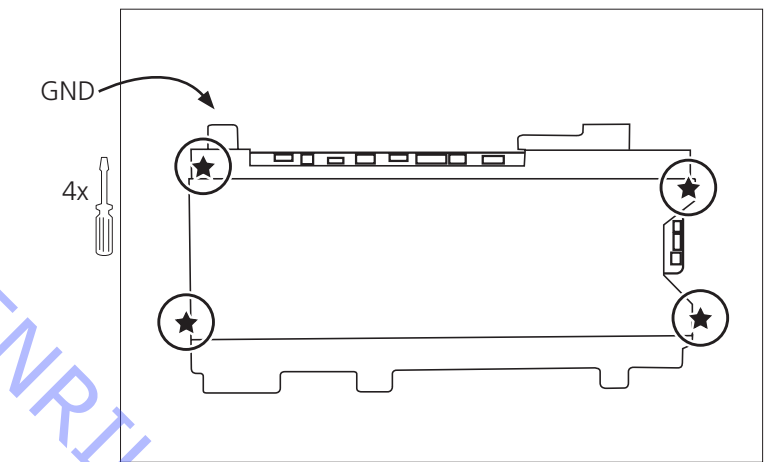
ABC CENTER V/HENRIKSENS ELEKTRONIK

- 5.2 PDP in service position
- 5.20 Remove PCB HDD
- Remove cable on PCB HX

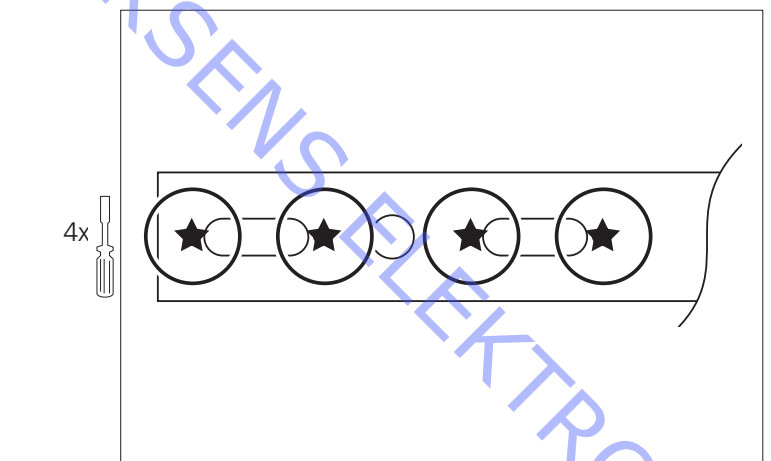
Placement of PCB HX



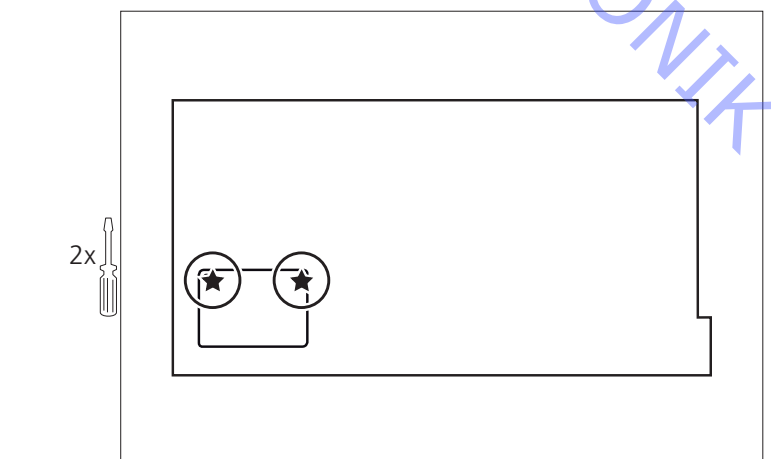
- Remove screws at input housing
- Pull off input housing



- Remove "screws" on the bottom



- Remove screws on PCB HX

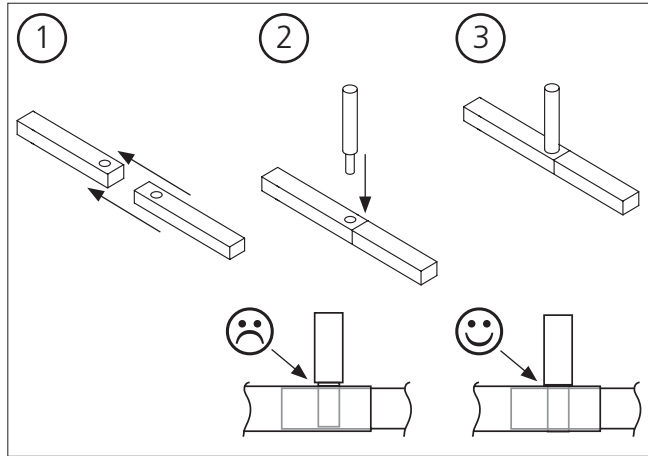
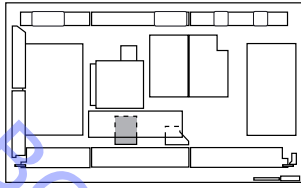


ABO-CENTER V/HENRIKSENS ELEKTRONIK

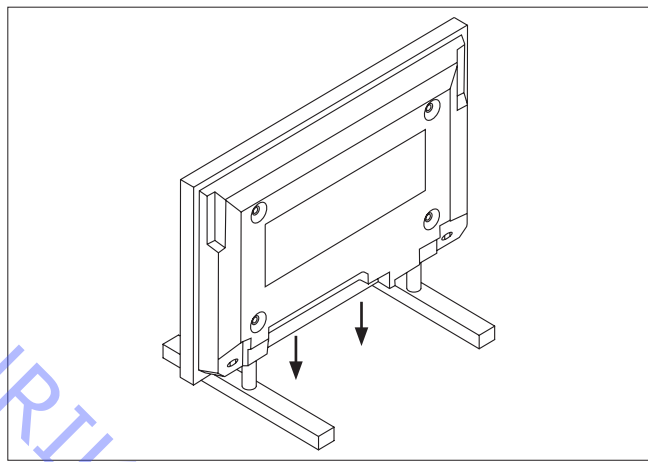
5.2 PDP in service position

- Assemble service stand

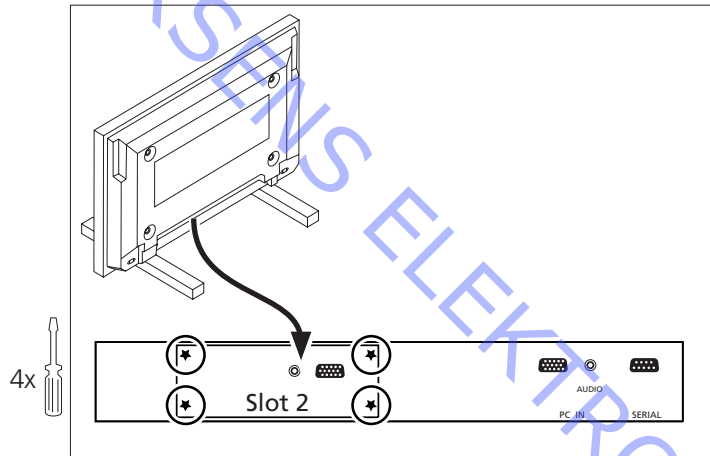
Placement of PCB HDD



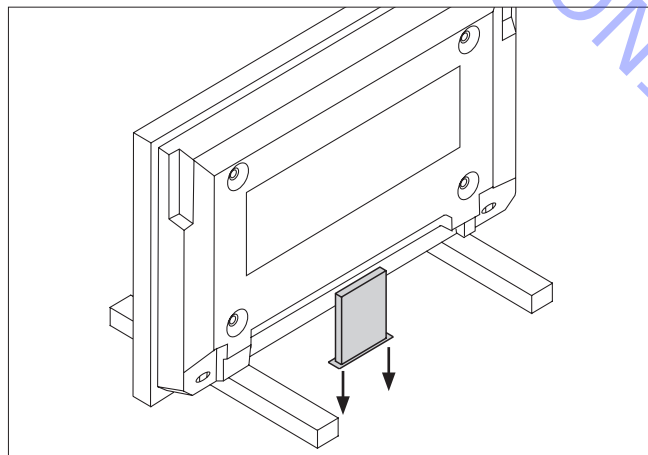
- Put PDP on service stands



- Remove screws from slot



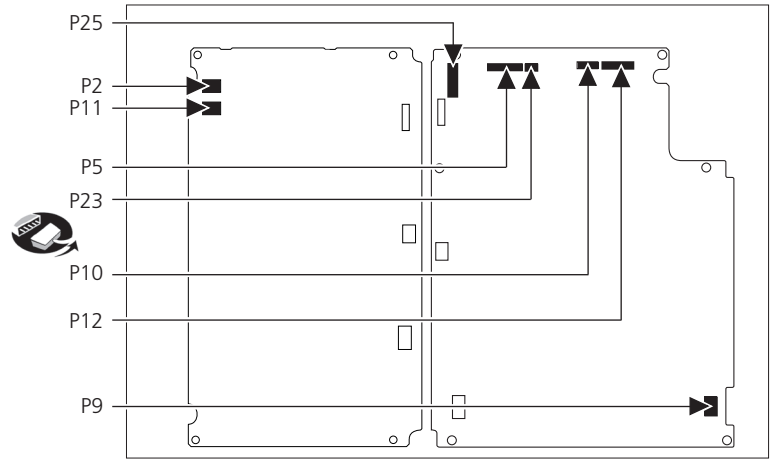
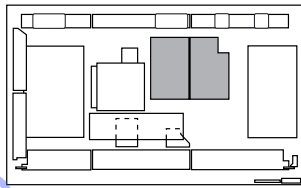
- Pull out DVI PCB



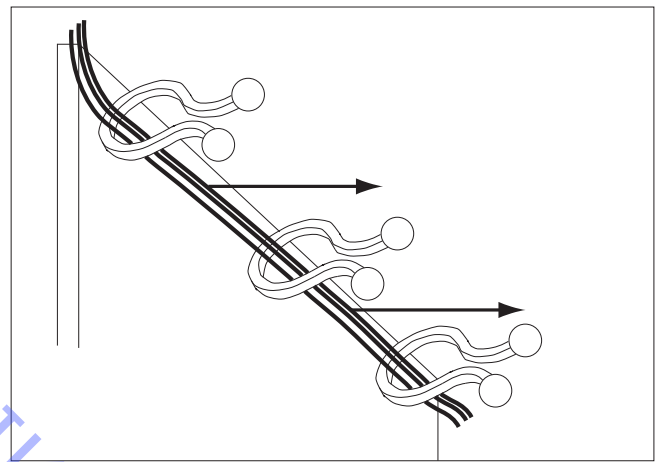
5.2 PDP in service position

- Remove plugs on PCB P

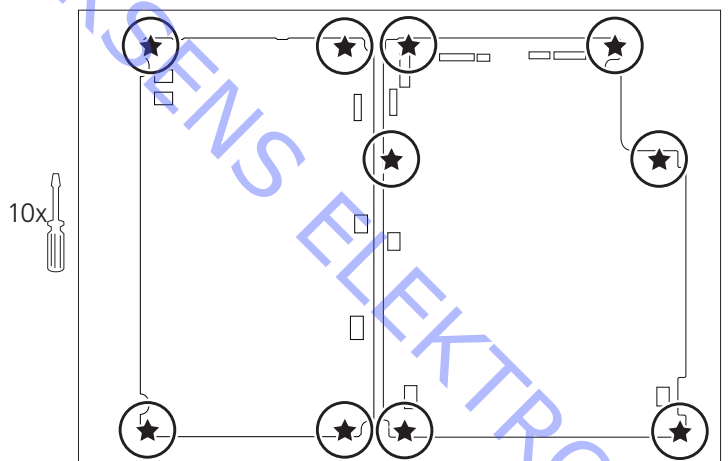
Placement of PCB P



- Remove cables from holders



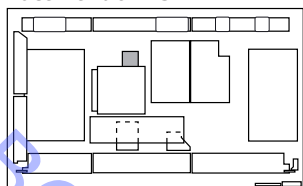
- Remove screws



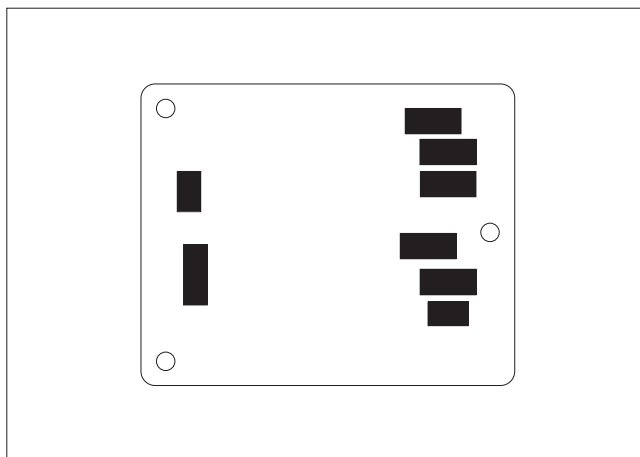
5.2 PDP in service position

- Remove plugs on PCB PB

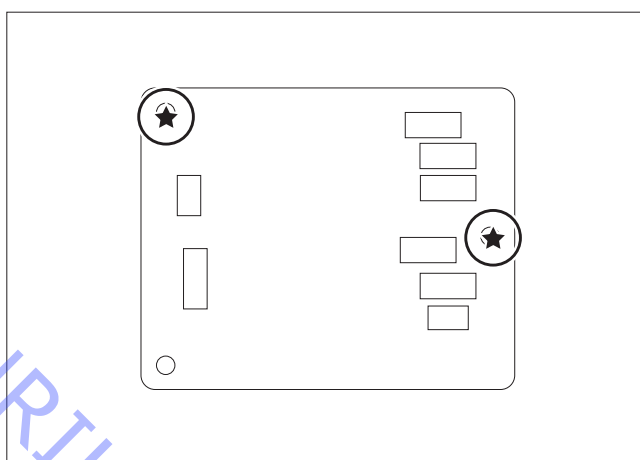
Placement of PCB PB



- PB30
- PB31
- PB32
- PB33
- PB34
- PB35
- PB36
- PB38



- Remove screws

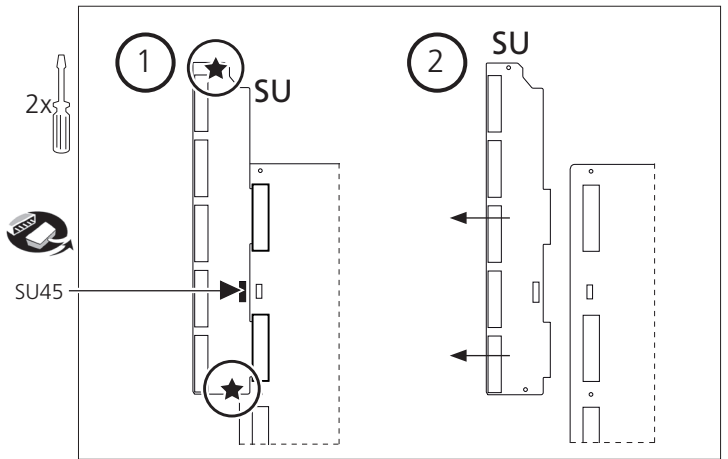
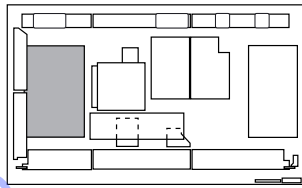


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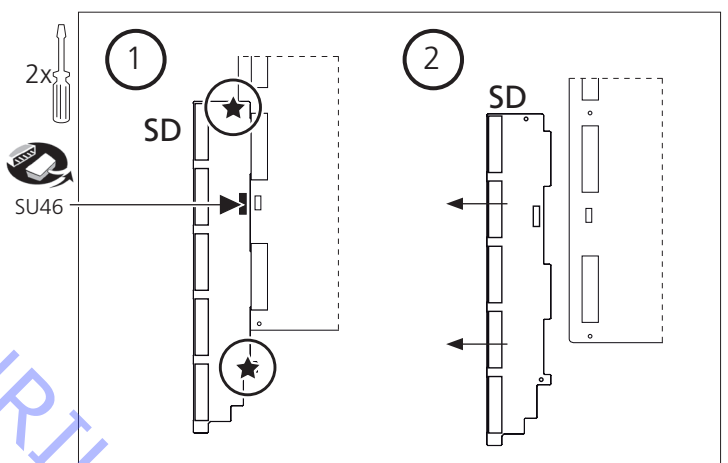
5.2 PDP in service position

- Remove PCB SU

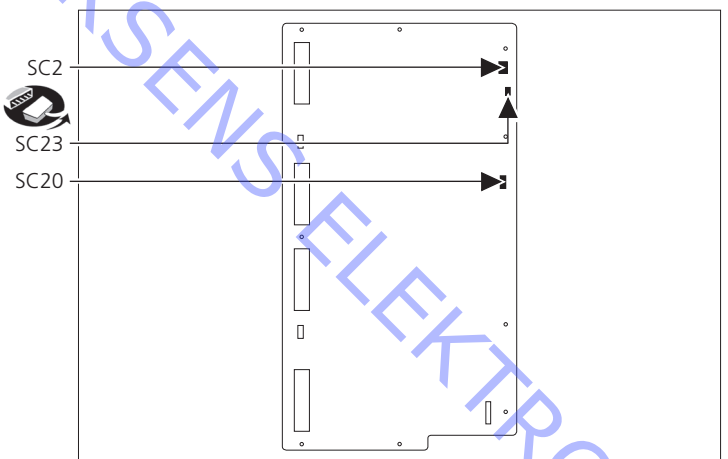
Placement of PCB SC



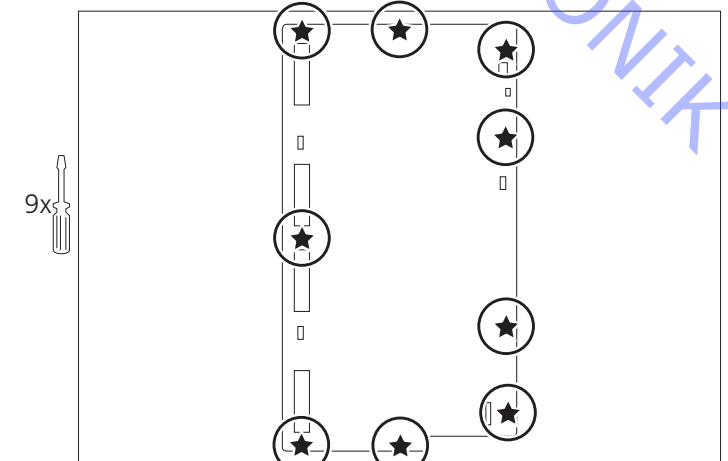
- Remove PCB SD



- Remove plugs



- Remove screws

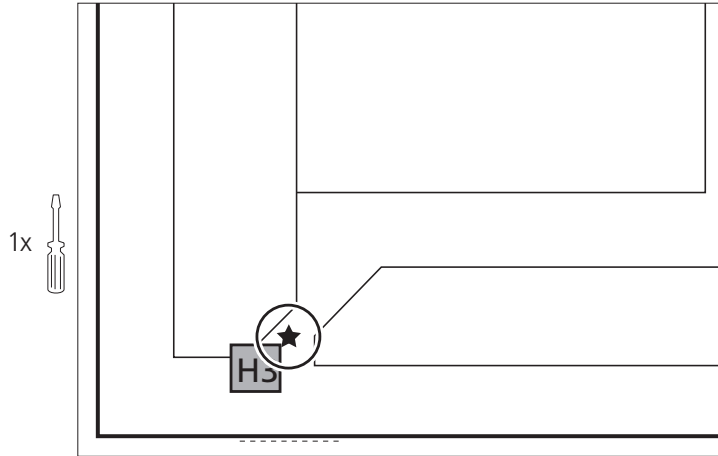
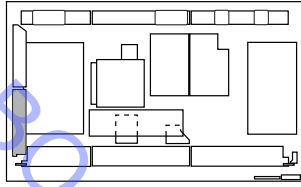


ABO-CENTER V/HENRIKSENS ELEKTRONIK

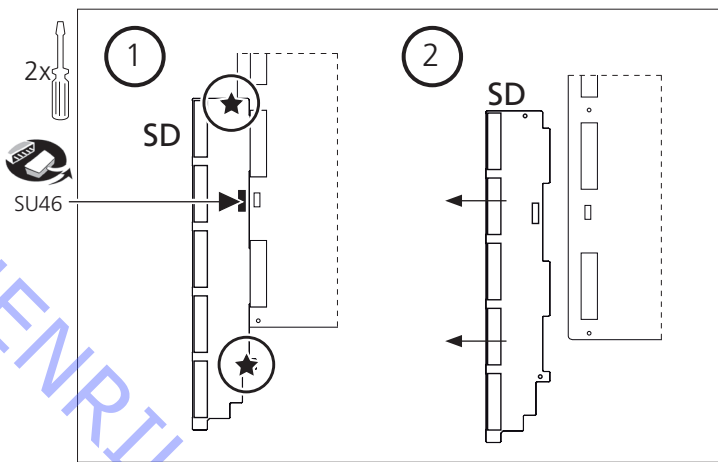
5.2 PDP in service position

- Remove PCB H3

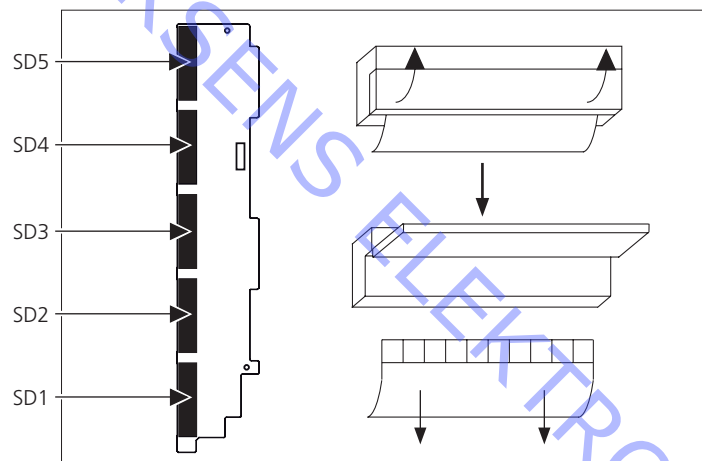
Placement of PCB SD



- Remove PCB SD from PCB SC



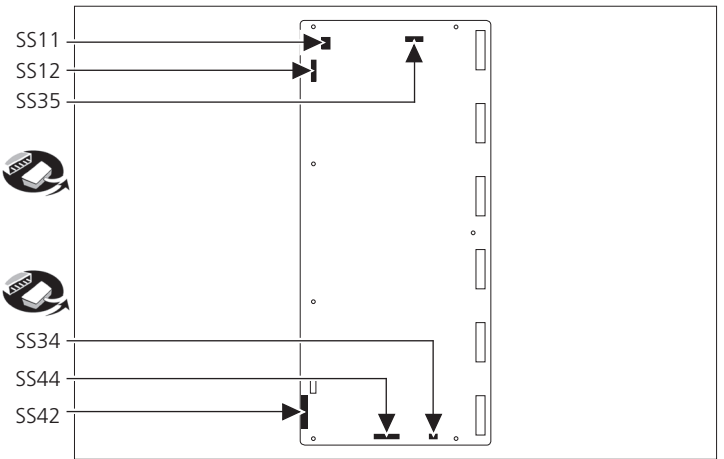
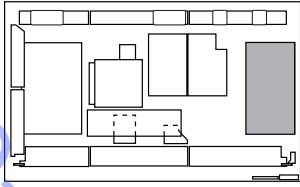
- Remove cables from PCB SD



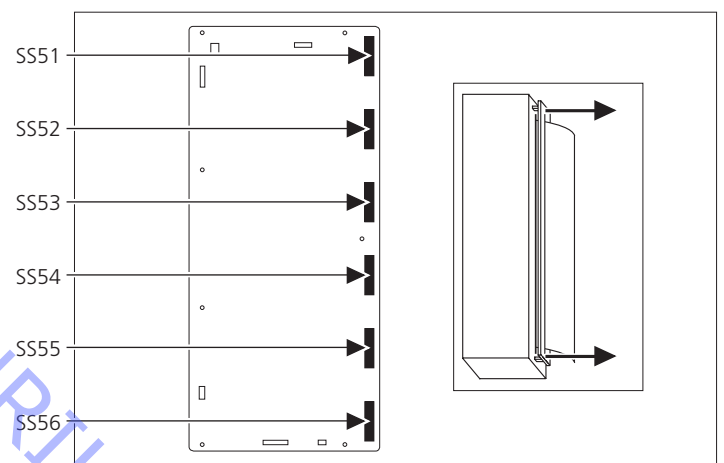
5.2 PDP in service position

- Remove cables

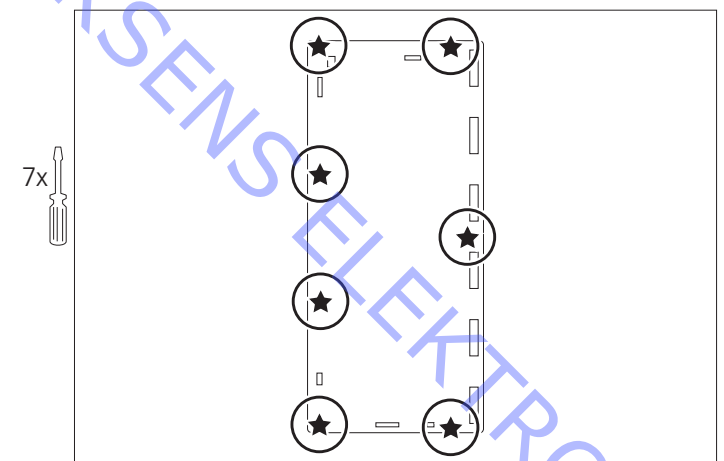
Placement of PCB SS



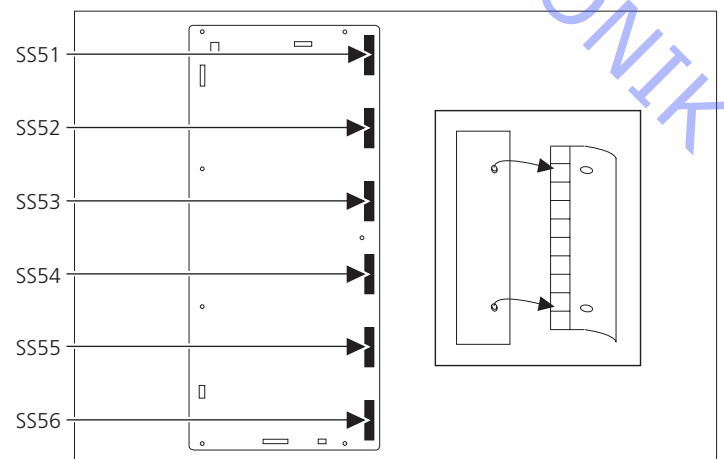
- Open plugs



- Remove screws



- Gently remove cables

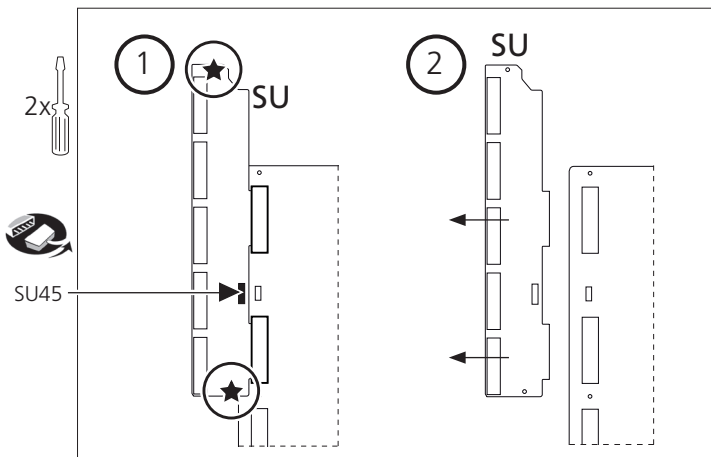
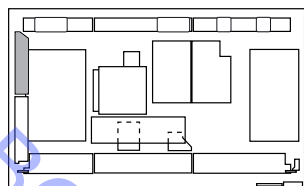


ABO-CENTER V/HENRIKSENS ELEKTRONIK

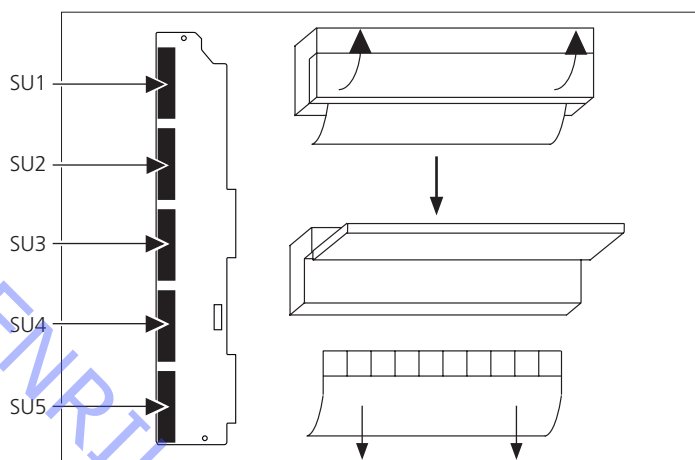
5.2 PDP in service position

- Remove PCB SU from PCB SC

Placement of PCB SU

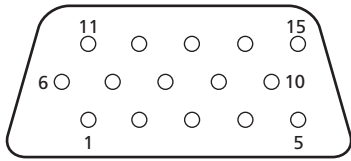


- Remove cables from PCB SU



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Pin Layout for PC Input Terminal



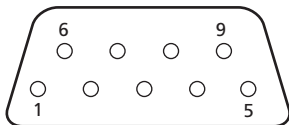
Pin 1	R (PR/CR)
Pin 2	G (Y)
Pin 3	B (PB/CB)
Pin 4	GND (ground)
Pin 5	GND (ground)
Pin 6	GND (ground)
Pin 7	GND (ground)
Pin 8	GND (ground)
Pin 9	NC (not connected)
Pin 10	GND (ground)
Pin 11	GND (ground)
Pin 12	SDA
Pin 13	HD/SYNC
Pin 14	VD
Pin 15	SCL

Applicable input signal name

	Signal	fh (KHz)	fv (Hz)	Image reception possible	Pre-defined
1	525/60i [*525/60i_@60Hz_(480 lines)]	15.73	59.94	yes	yes
2	*525/60p [*525/60p_@60Hz_(480 lines)]	31.47	59.94	yes	yes
3	625/50i [*625/50i_@50Hz_(575 lines)]	15.63	50.0	yes	yes
4	625/50p [*625/50p_@50Hz_(575 lines)]	31.25	50.0	yes	yes
5	750/60p [*750/60p_@60Hz_(720 lines)]	45.00	60.0	yes	yes
6	750/50p [*750/50p_@50Hz_(720 lines)]	37.50	50.0	yes	yes
7	1125/60i [*1125/60i_@60Hz_(1080 lines)]	33.75	60.0	yes	yes
8	1125/50i [*1125/50i_@50Hz_(1080 lines)]	28.13	50.0	yes	yes
9	1125/24sF [*1125/24sF_@48Hz_(1080 lines)]	27.00	47.92	yes	yes
10	1125/30p [*1125/30p_@30Hz_(1080 lines)]	33.75	30.0	yes	yes
11	1125/24p [*1125/24p_@24Hz_(1080 lines)]	27.00	24.0	yes	yes
12	1125/25p [*1125/25p_@25Hz_(1080 lines)]	28.13	25.0	yes	yes
13	1250/50i [*1250/50i_@50Hz_(1080 lines)]	31.25	50.0	yes	yes

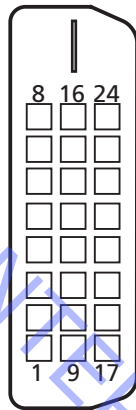
*At 525P is inputted into PC(D-sub15P), it displays as VGA60Hz.

Serial Input



D-Sub 9 PIN RS-232	
Pin 1	NC
Pin 2	R X D Pin No.
Pin 3	T X D
Pin 4	Non use
Pin 5	GND
Pin 6	Non use
Pin 7	Shorted to 8
Pin 8	Shorted to 7
Pin 9	NC

DVI-D Input	Pin 1	Data 2 -
	Pin 2	Data 2 +
	Pin 3	Data 2/4 shield
	Pin 4	Data 4 -
	Pin 5	Data 4 +
	Pin 6	DDC Clock
	Pin 7	DDC Data
	Pin 8	Analog vert. sync
	Pin 9	Data 1 -
	Pin 10	Data 1 +
	Pin 11	Data 1/3 shield
	Pin 12	Data 3 -
	Pin 13	Data 3 +
	Pin 14	+5V
	Pin 15	GND
	Pin 16	Hot plug detect
	Pin 17	Data 0 -
	Pin 18	Data 0 +
	Pin 19	Data 0/5 shield
	Pin 20	Data 5 -
	Pin 21	Data 5 +
	Pin 22	Clock shield
	Pin 23	Clock +
	Pin 24	Clock -



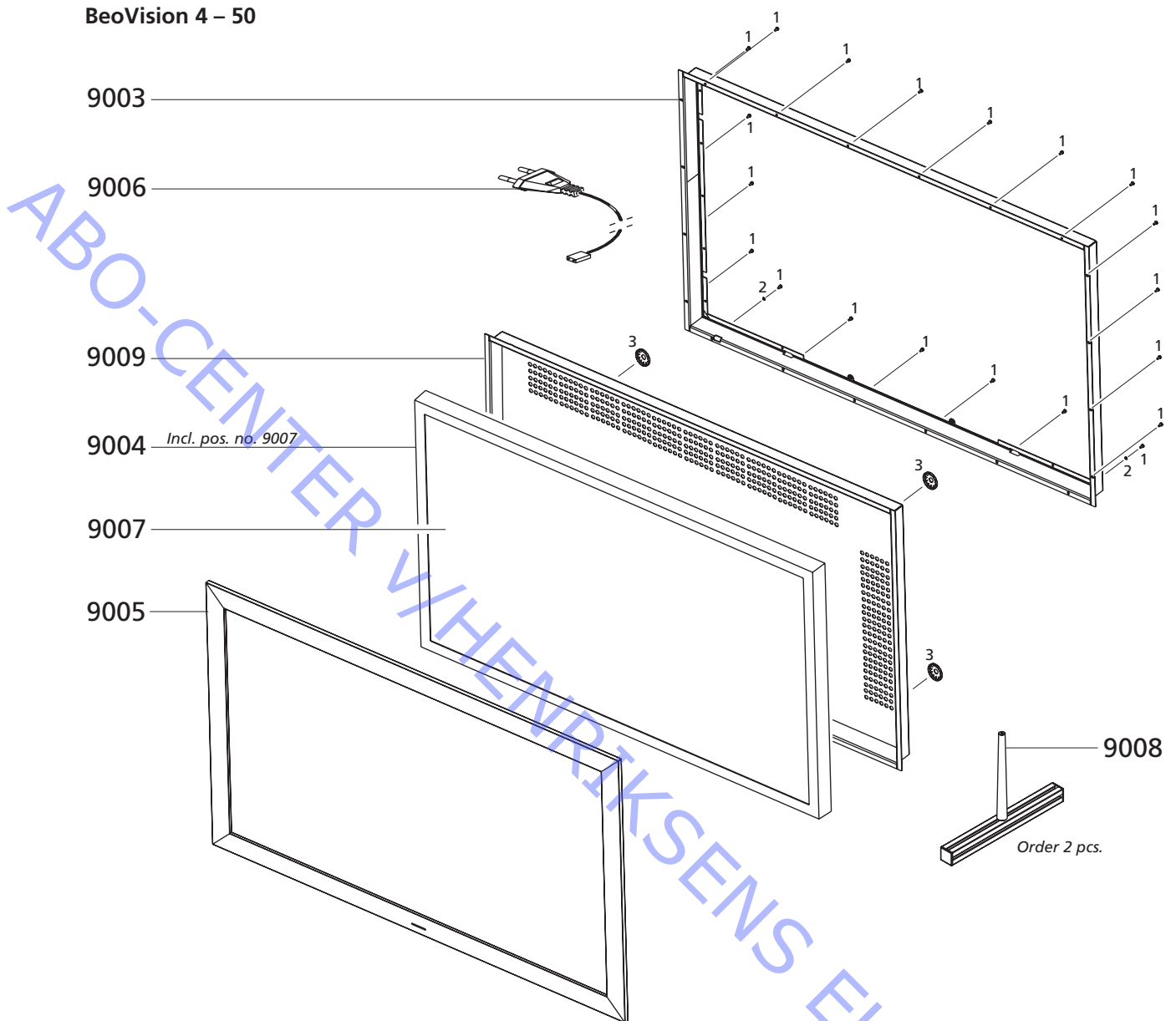
Encryption	Support of HDCP (High-bandwidth Digital Content Protection)
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Applicable input signal name					
	Signal name	Resolution	Dot clock frequency (MHz)	Horizontal frequency (kHz)	Vertical frequency (Hz)
1	525(480)/60p	720 × 480	27.00	31.47	59.94
2	625(576)/50p	720 × 576	27.00	31.25	50.00
3	750(720)/60p	1,280 × 720	74.25	45.00	60.00
4	750(720)/50p	1,280 × 720	74.25	37.50	50.00
5	1,125(1,080)/60i	1,920 × 1,080	74.25	33.75	60.00
6	1,125(1,080)/60p	1,920 × 1,080	148.50	67.50	60.00
7	1,125(1,080)/50i	1,920 × 1,080	74.25	28.13	50.00
8	1,125(1,080)/50p	1,920 × 1,080	148.50	56.26	50.00
9	VGA60	640 × 480	25.18	31.47	59.94
10	WVGA60	852 × 480	34.24	31.47	59.94
11	SVGA60	800 × 600	40.00	37.88	60.32
12	WSVGA60	1,066 × 600	53.94	37.88	60.32
13	XGA60	1,024 × 768	65.00	48.36	60.00
14	XGA50	1,024 × 768	51.89	39.55	50.00
15	WXGA60	1,366 × 768	87.44	48.36	60.00
16	WXGA50	1,366 × 768	69.92	39.55	50.00
17	XGA+	1,152 × 864	81.62	53.70	60.00
18	SXGA60	1,280 × 1,024	108.00	63.98	60.02
19	SXGA+	1,400 × 1,050	122.61	65.22	60.00
20	UXGA60	1,600 × 1,200	162.00	75.00	60.00
21	WUXGA60	1,920 × 1,200	154.00	74.04	59.95

Subject to change without notice

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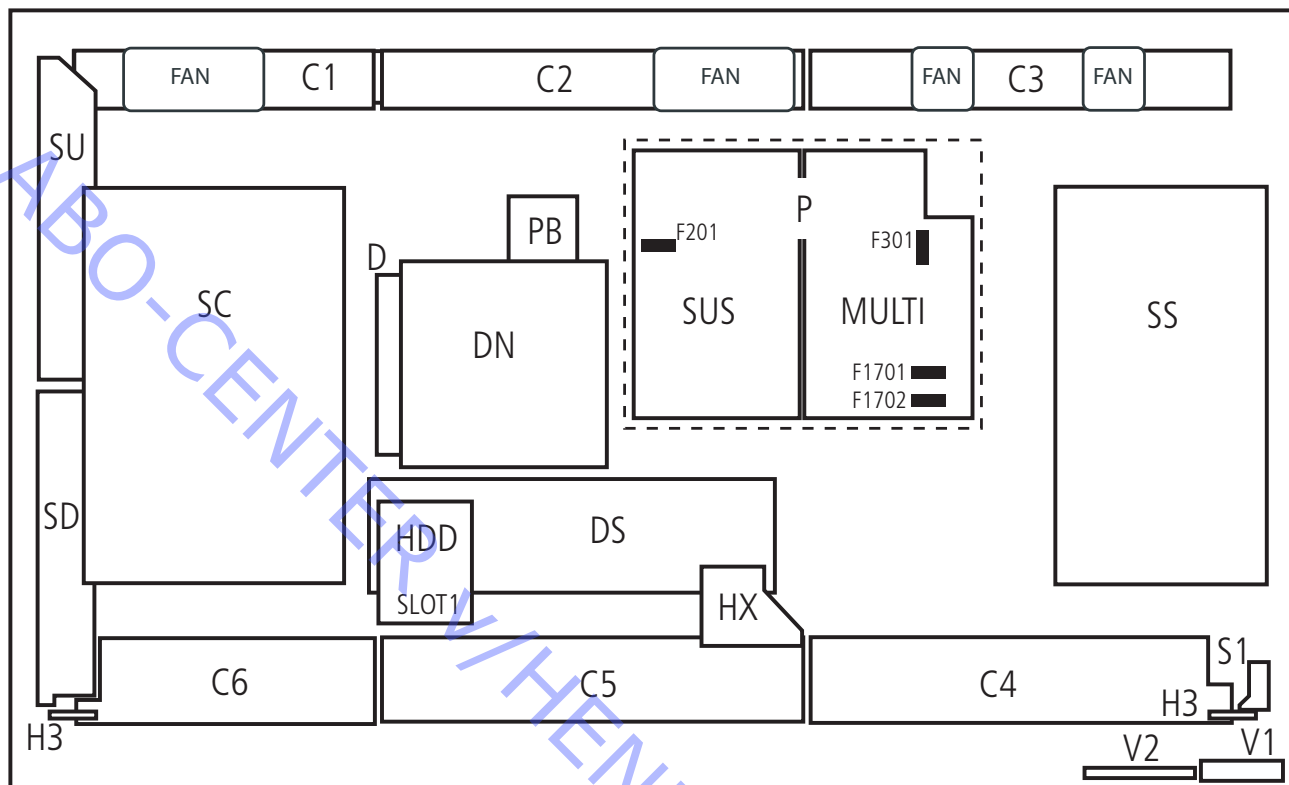
BeoVision 4 – 50



9003	3151436	Iron frame
9004	8200019	Plasma screen, complete
9005	3320768	Aluminium frame, silver
	3320825	Aluminium frame, black
	3320826	Aluminium frame, dark grey
	3320901	Aluminium frame, red
	3320902	Aluminium frame, blue
9006	6100036	Mains cable, DK
	6100026	Mains cable, EU
	6100028	Mains cable, I
	6100029	Mains cable, CH
	6100035	Mains cable, UK
	6100033	Mains cable, AUS
	6100052	Mains cable, US
	6100117	Mains cable, JP
	6100119	Mains cable, KOR
9007	3451508	Contrast screen
9008	3375289	Service stand, order 2 pcs.
9009	3321074	Rear cover

1	2054045	Screw 3.5 x 8mm
2	2625039	Washer
3	2576166	Spacer

Survey of modules - Plasma Display Panel



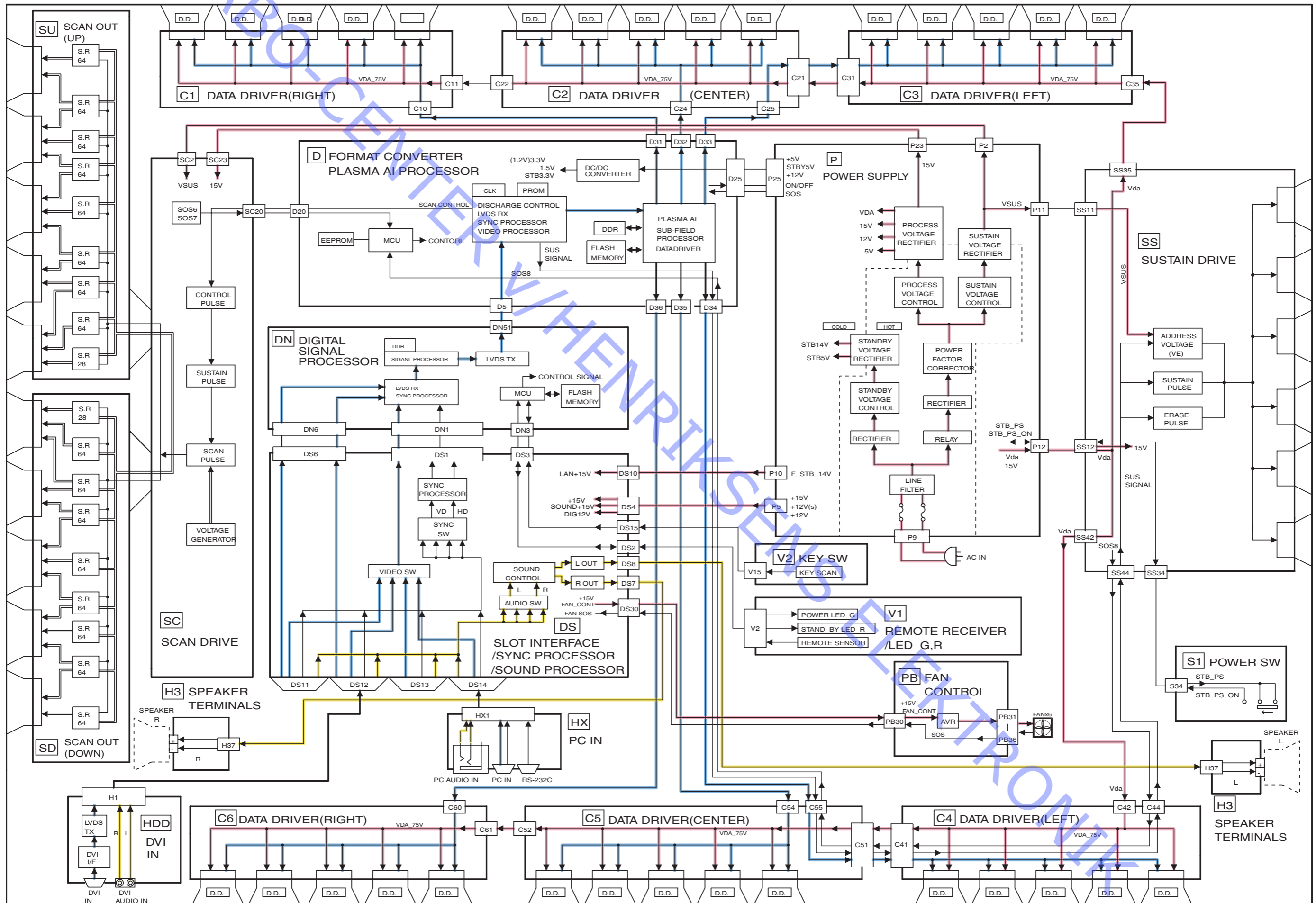
C1	8003674	Data Drive (Upper left)
C2	8003681	Data Drive (Upper center)
C3	8003682	Data Drive (Upper right)
C4	8003684	Data Drive (Lower right)
C5	8003686	Data Drive (Lower center)
C6	8003696	Data Drive (Lower left)
D	8003743	Digital Signal Processor
DN	8003777	Digital Signal Processor/Micom
DS	8003673	Slot Interface & SYNC processor
HDD	8003733	DVI Input Terminal
HX	8003744	PC Type Input Terminal
H3	8003672	Speaker Terminal
P	8003775	Power Supply (SUS + MULTI)
PB	8003669	Fan Control
SC	8003776	Scan Out
SD	8003698	Scan Connection (Lower)
SS	8003721	Sustain Out
SU	8003697	Scan Connection (Upper)
S1	8003668	Power switch
V1	8003665	Remote receiver
V2	8003666	Key switch

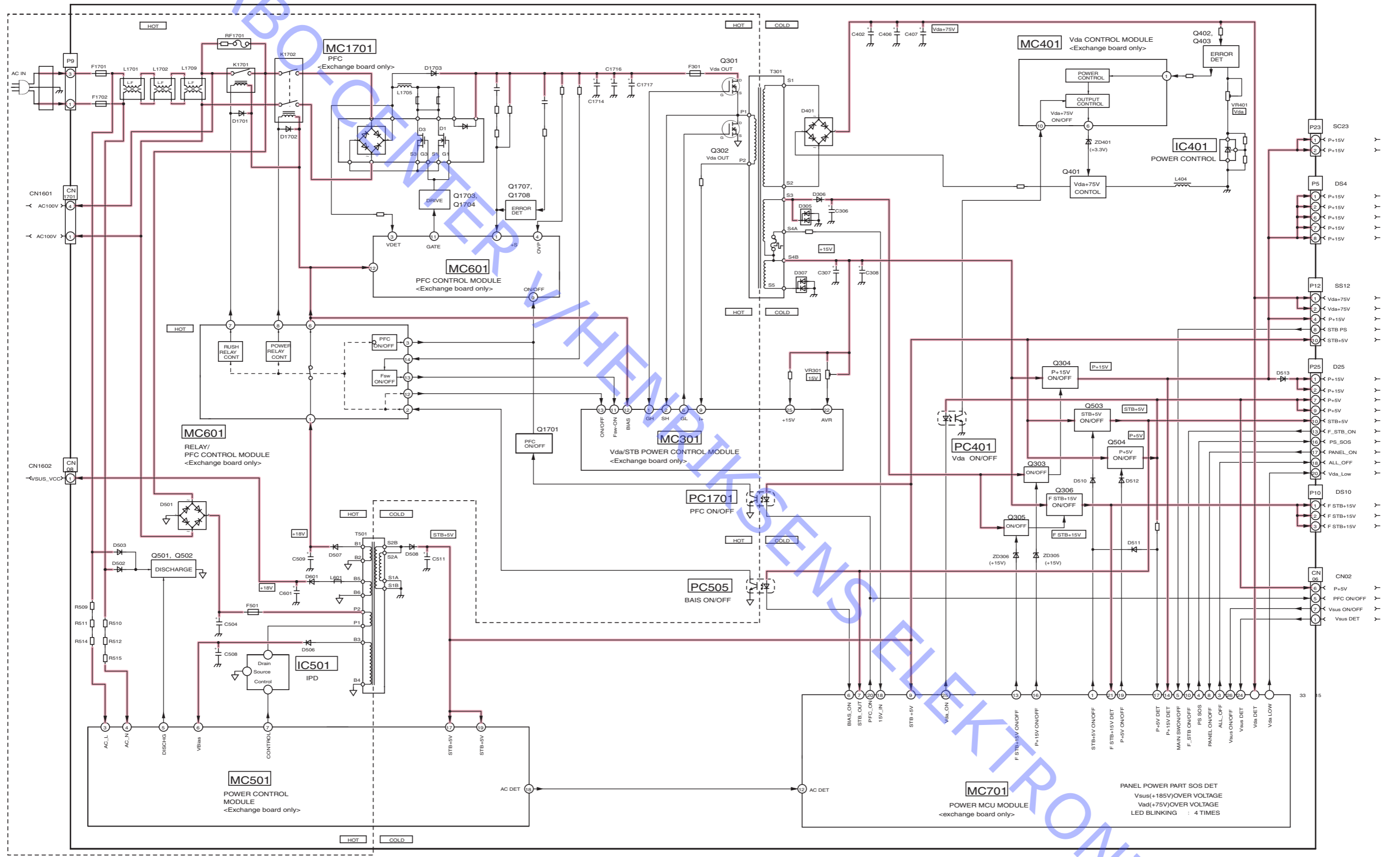
F201	6600093	Fuse F5A 250V
F301	6600093	Fuse F5A 250V
F1701	6600092	Fuse T10A 250V
F1702	6600092	Fuse T10A 250V

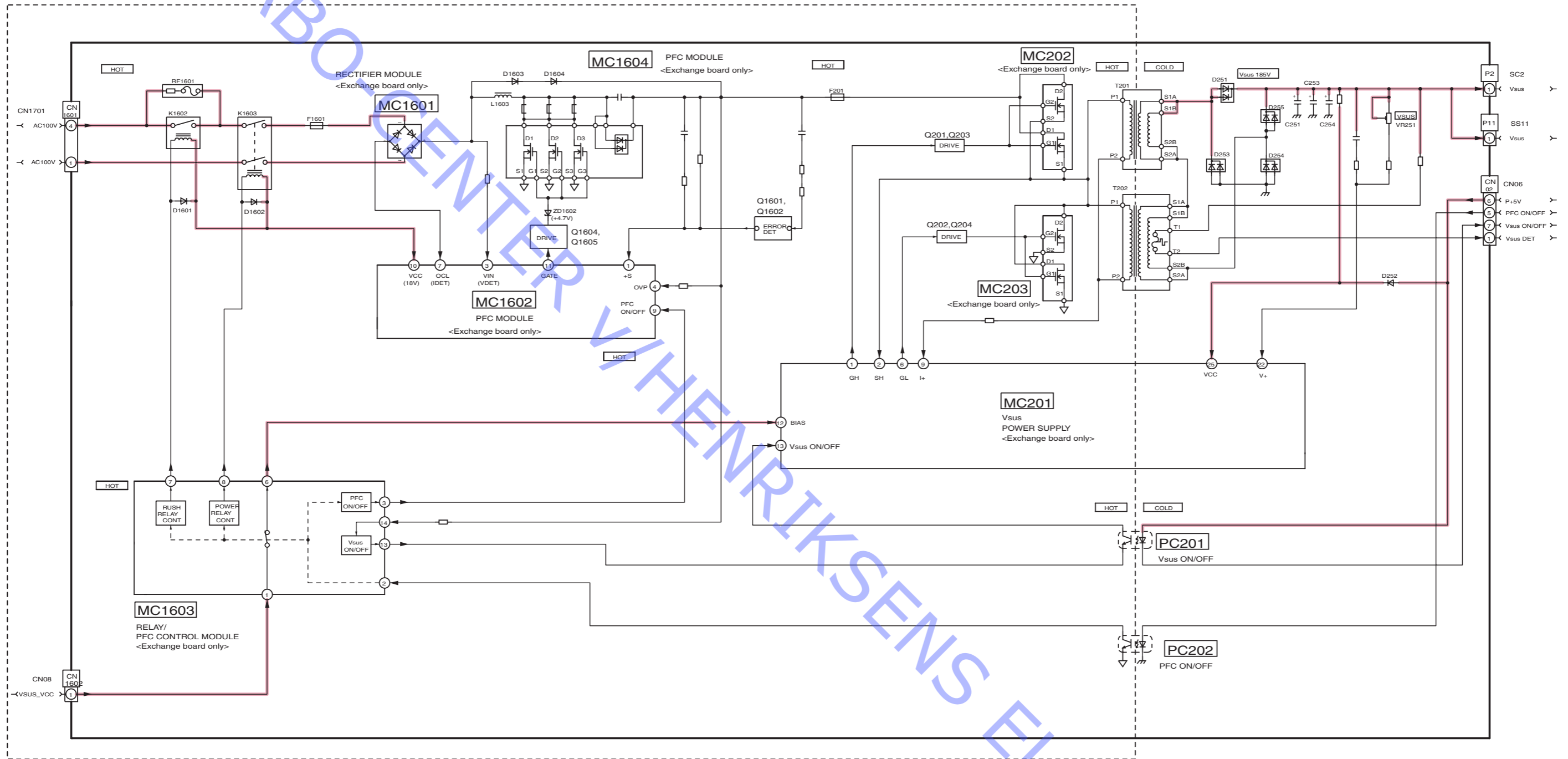
FAN	8400044	Fan
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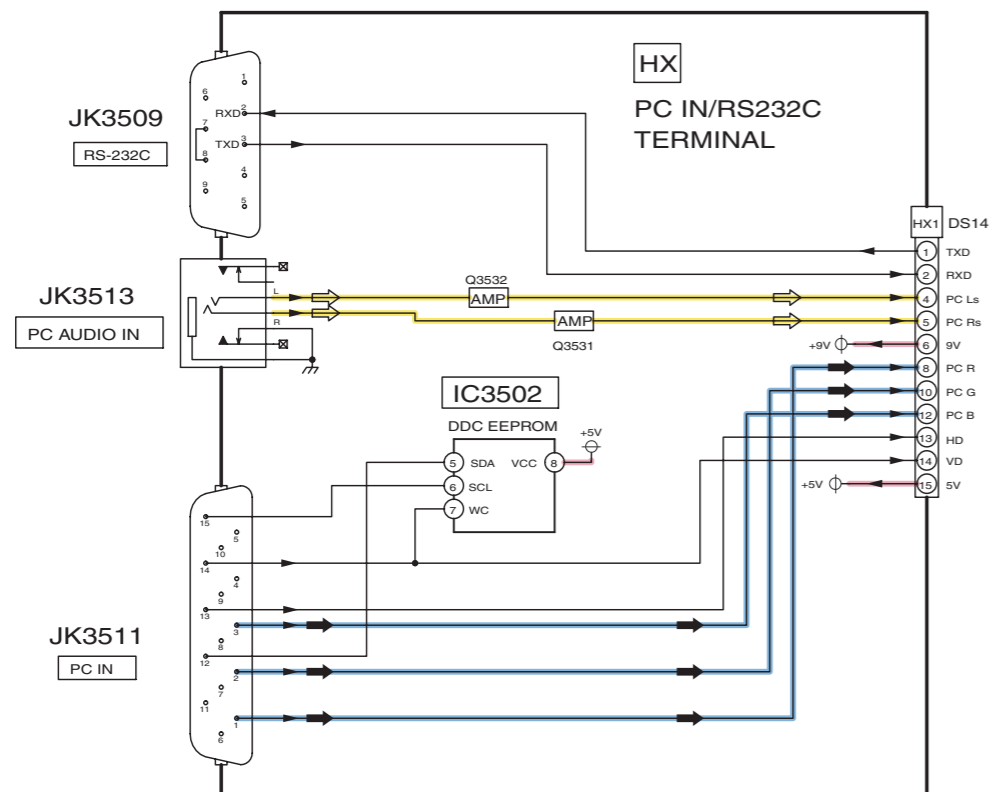
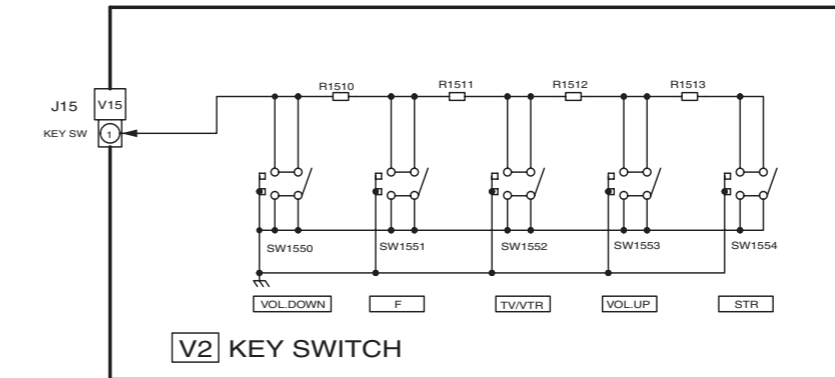
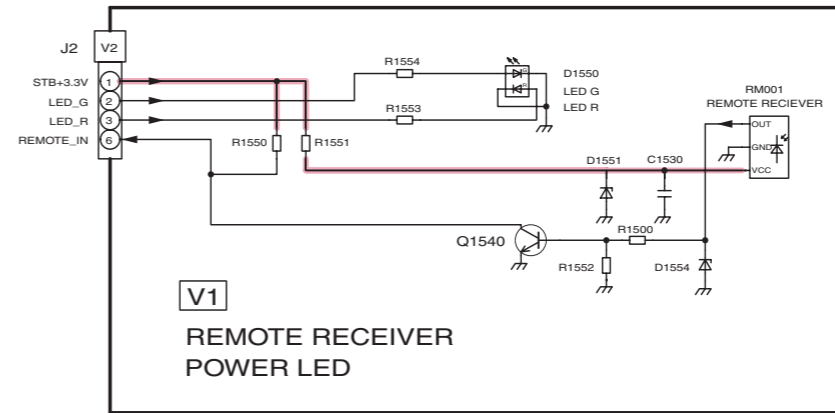
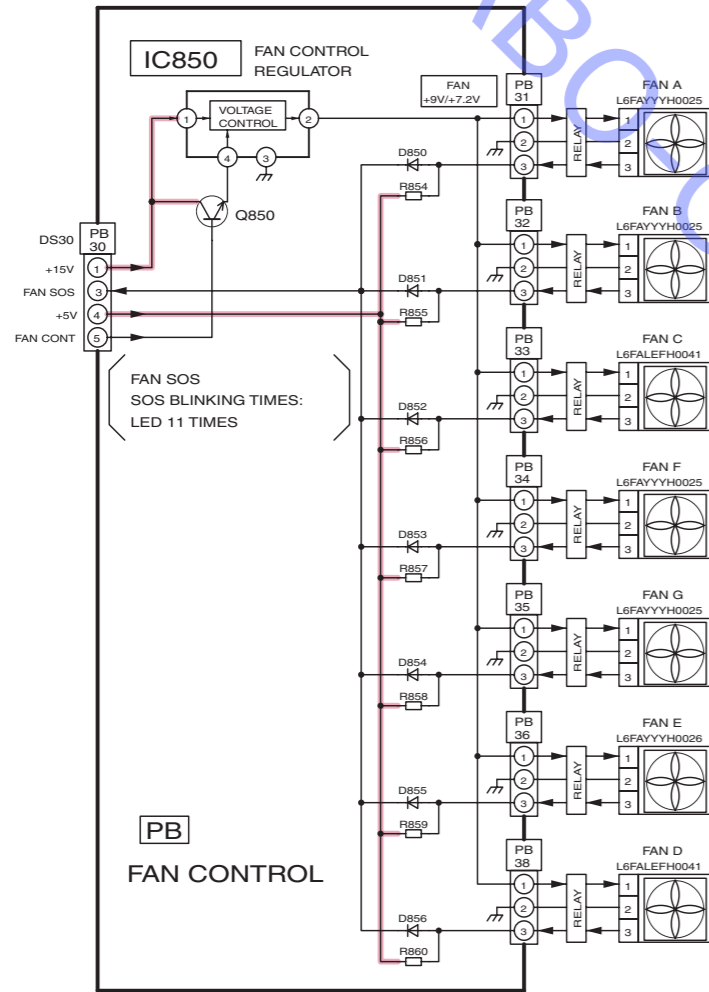
Packing	3393018	Outer box, complete
	3393019	Packing, complete
<hr/>		
Accessories	6278159	Cable RS232, GENDER CHANGER
	6277965	5 M cable External IR with autocontrast
	6270624	15 M cable External IR with autocontrast
	6270503	5 M cable scart 21/21 pin
	6270233	10 M cable scart pin
	6270497	5 M cable EU input 1-3
	6270525	10 M cable EU input 1-3
	6270526	15 M cable EU input 1-3
	6270527	5 M cable US input 1-3
	6270532	10 M cable US input 1-3
	6270533	15 M cable US input 1-3
	6270537	5 M cable EU/US input 4-6
	6270539	10 M cable EU/US input 4-6
	6270540	15 M cable EU/US input 4-6
	6278116	5 M cable RS232D sub-9
	6270625	10 M cable RS232D sub-9
	6270626	15 M cable RS232D sub-9
	6270554	5 M cable DVI-D/DVI-D
	6270593	5 M HDMI
	6270627	Cable adaptor DVI-D male - HDMI female
	6200182	Cable PL splitter for 7.2
	6270148	10 M VGA cable (for BeoMedia)
	6270657	3 M VGA cable (for BeoMedia)
	6200193	3 M sound/CVBS cable - Elbow (for BeoMedia)
	6200198	10 M sound/CVBS cable - Elbow (for BeoMedia)
	6270641	8 M DVI-D cable
<hr/>		
Back-up suitcase	3395323	Back-up suitcase
<hr/>		
Parts not shown	3375078	Product cover
	8053466	Special remote control
	3375706	Micro fibre cloth
	3390436	Bag w/wall bracket f/IR sensor
	3390519	Bag w/rear plate f/IR sensor
	8089110	IR sensor
<hr/>		
Available documentation	See Retail System	
<hr/>		
Wall bracket 1407866	3507702	Guide
	3390050	Bag w/parts
	3392404	Outer carton
	3396296	Foam
<hr/>		
Table stand 1407966	3507703	Guide
	3375112	Screw 5 x 30mm
	3392374	Outer carton
	3396305	Foam corner
	3396306	Foam block
<hr/>		

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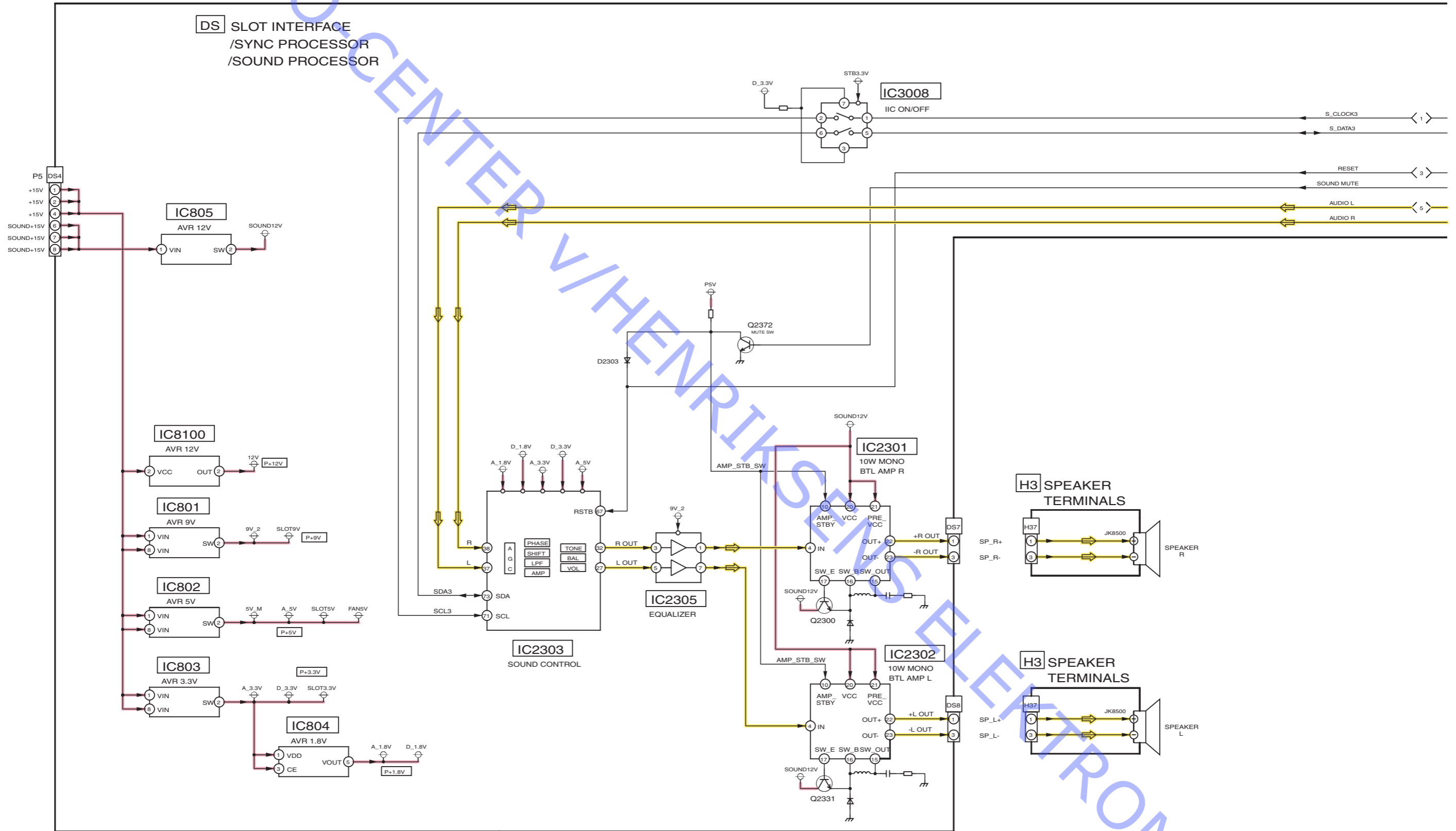


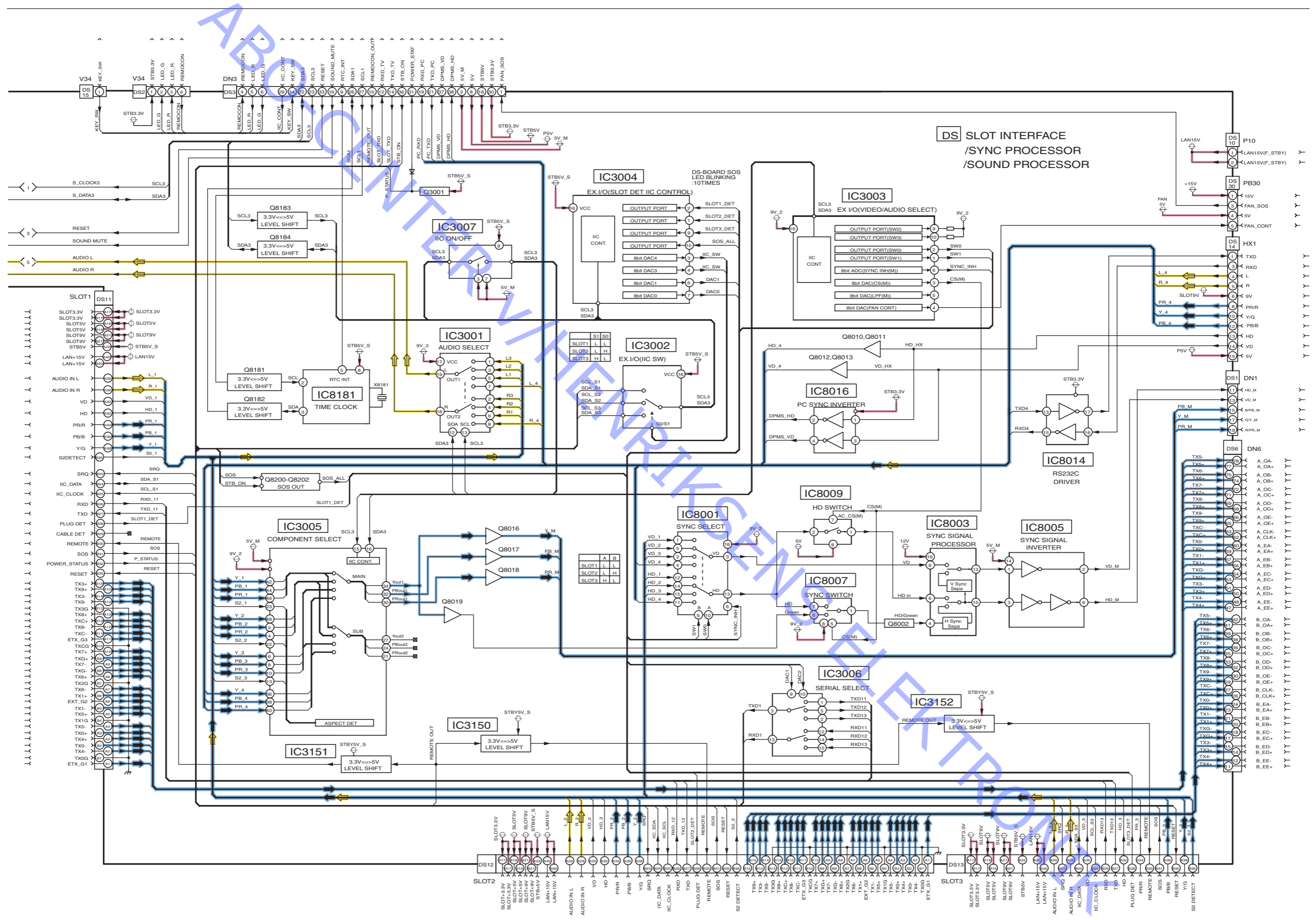


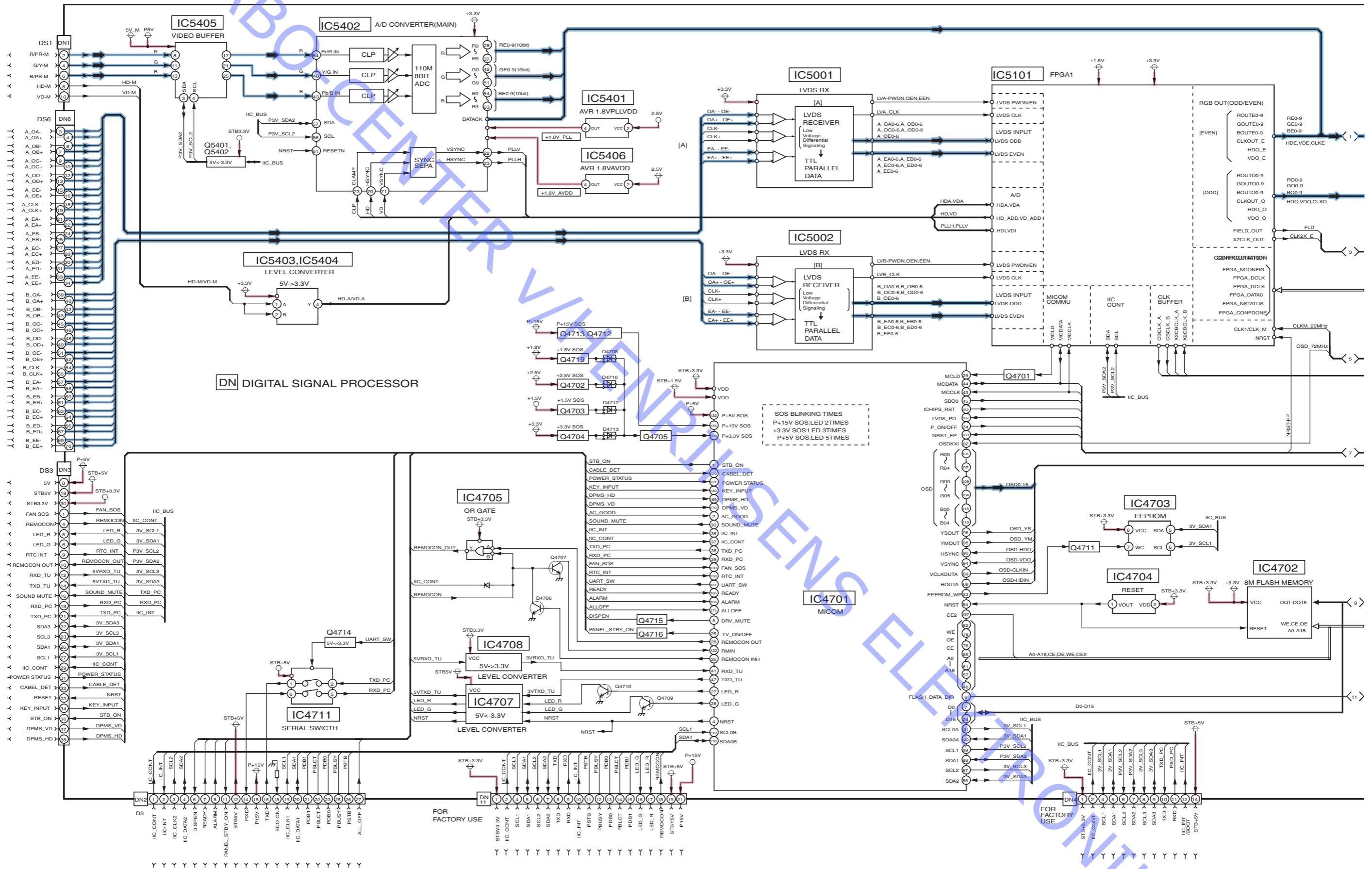


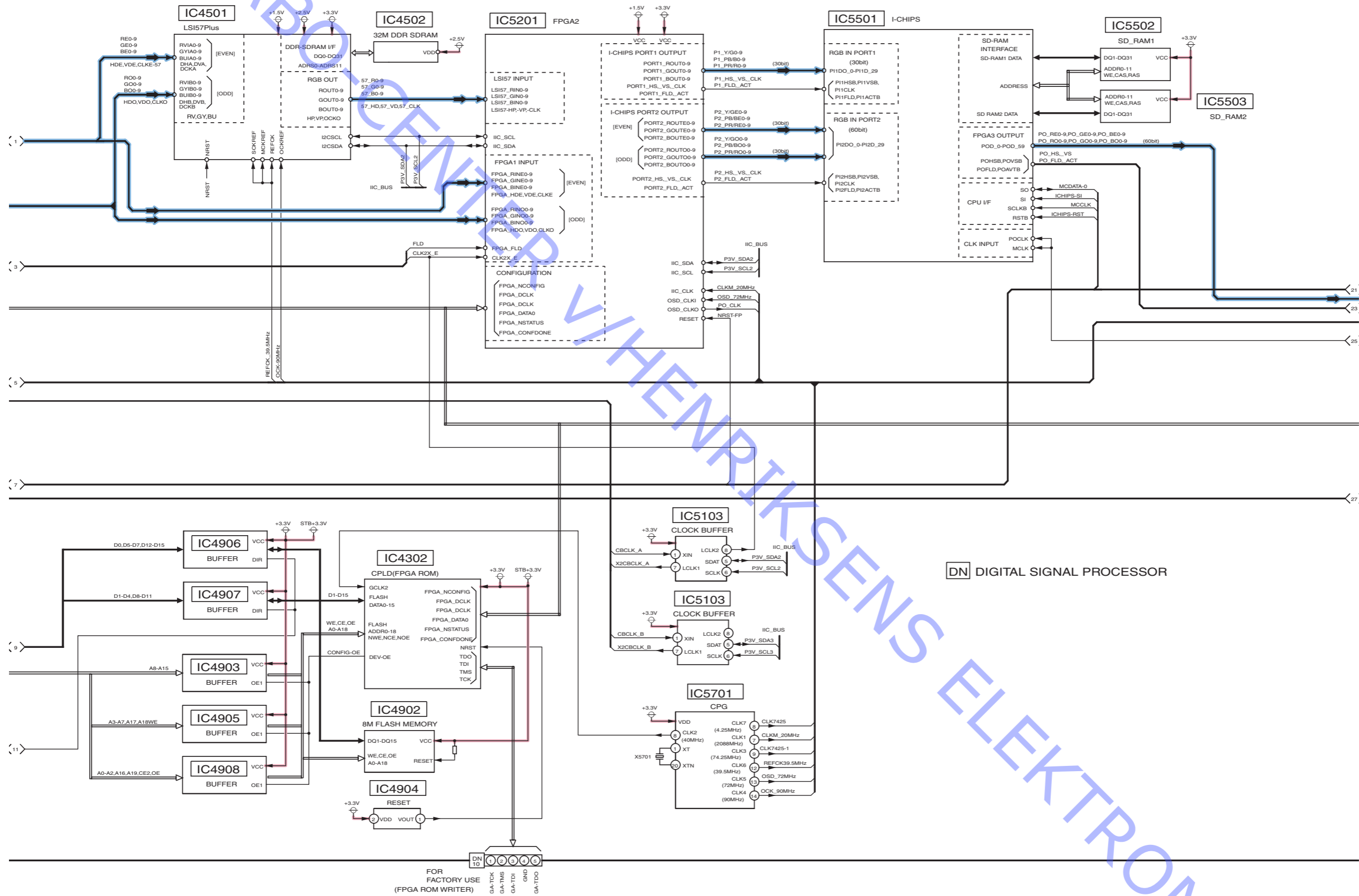


ABC CENTER V/HENRIKSENS ELEKTRONIK





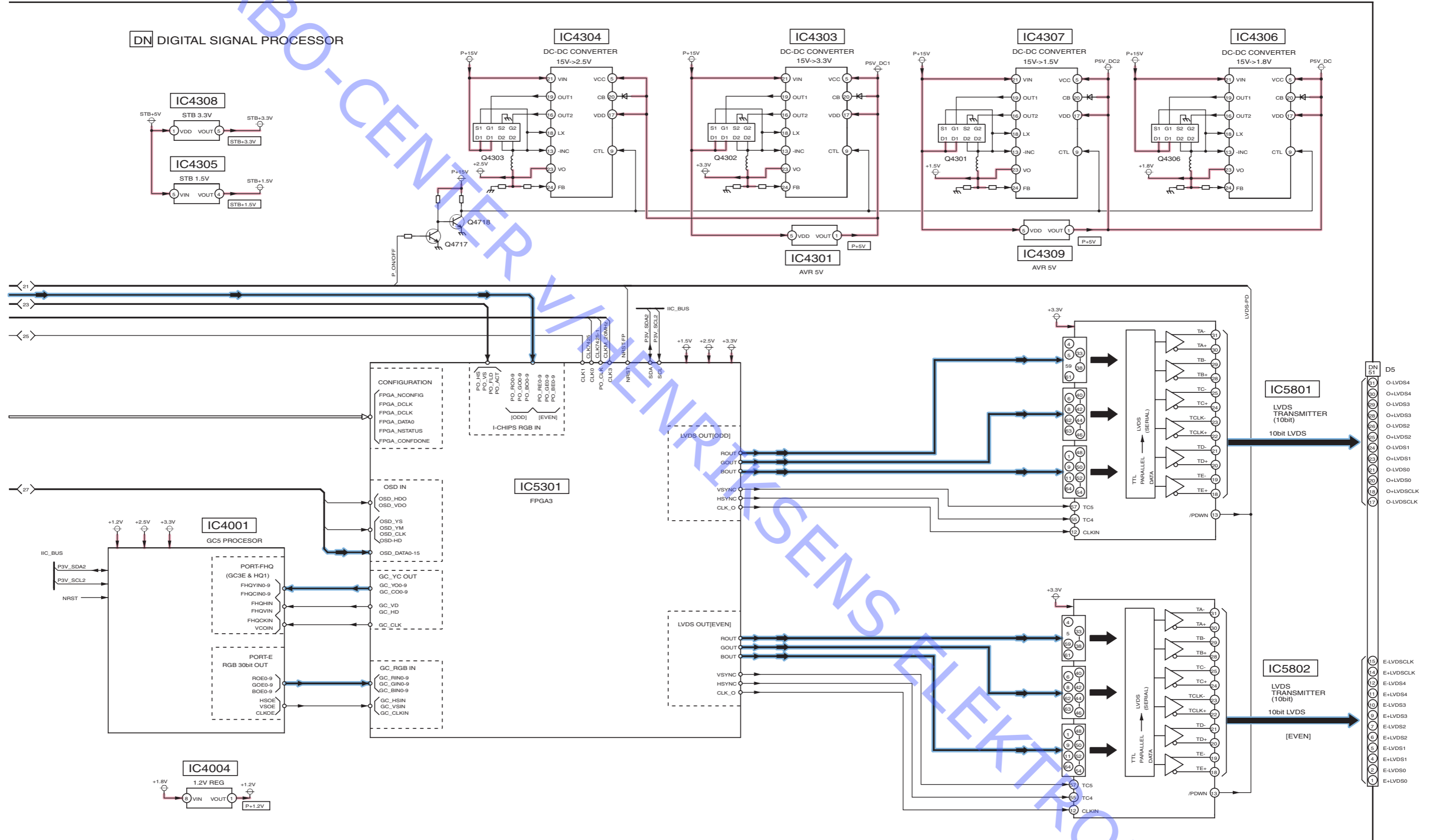


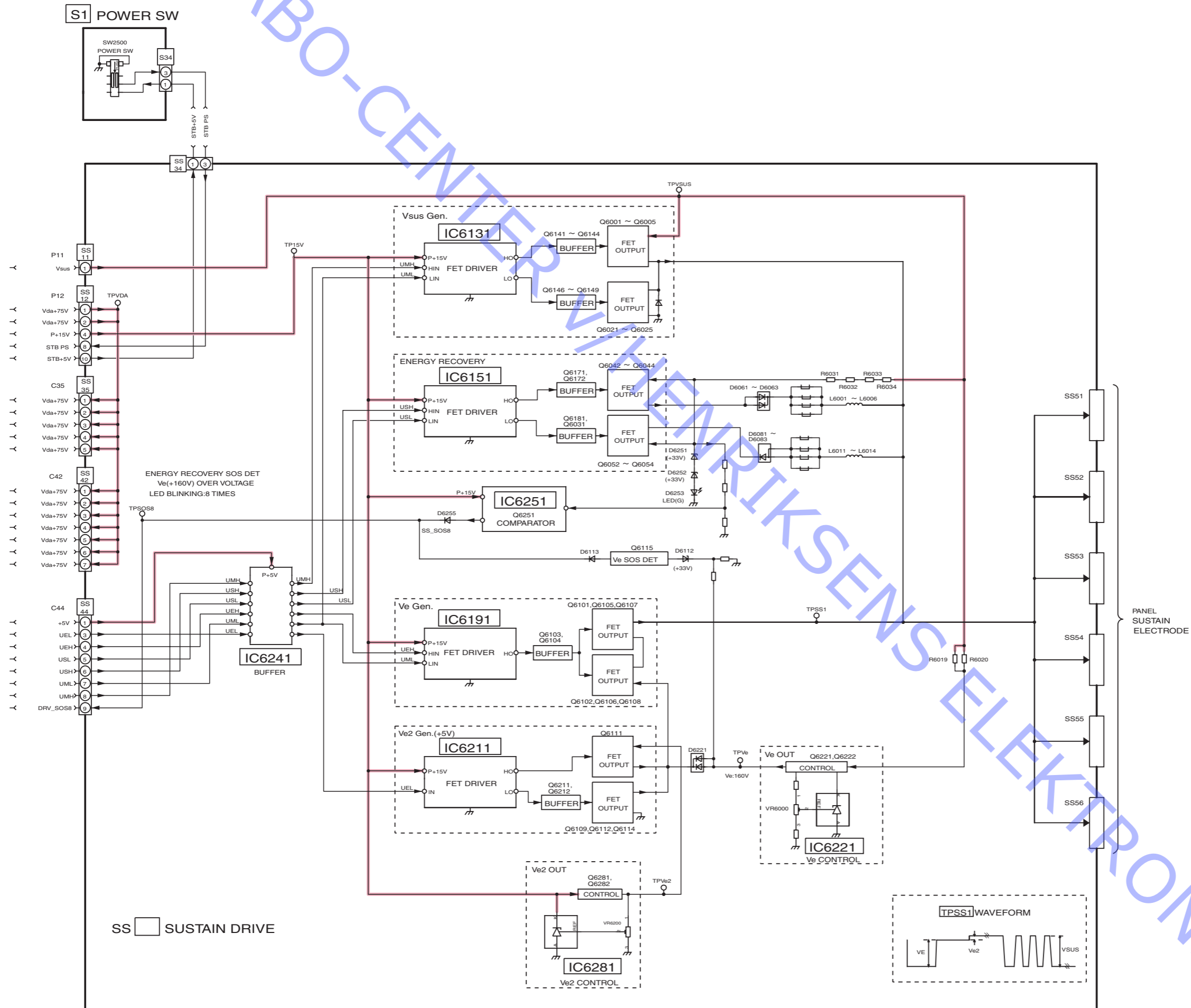


DN DIGITAL SIGNAL PROCESSOR

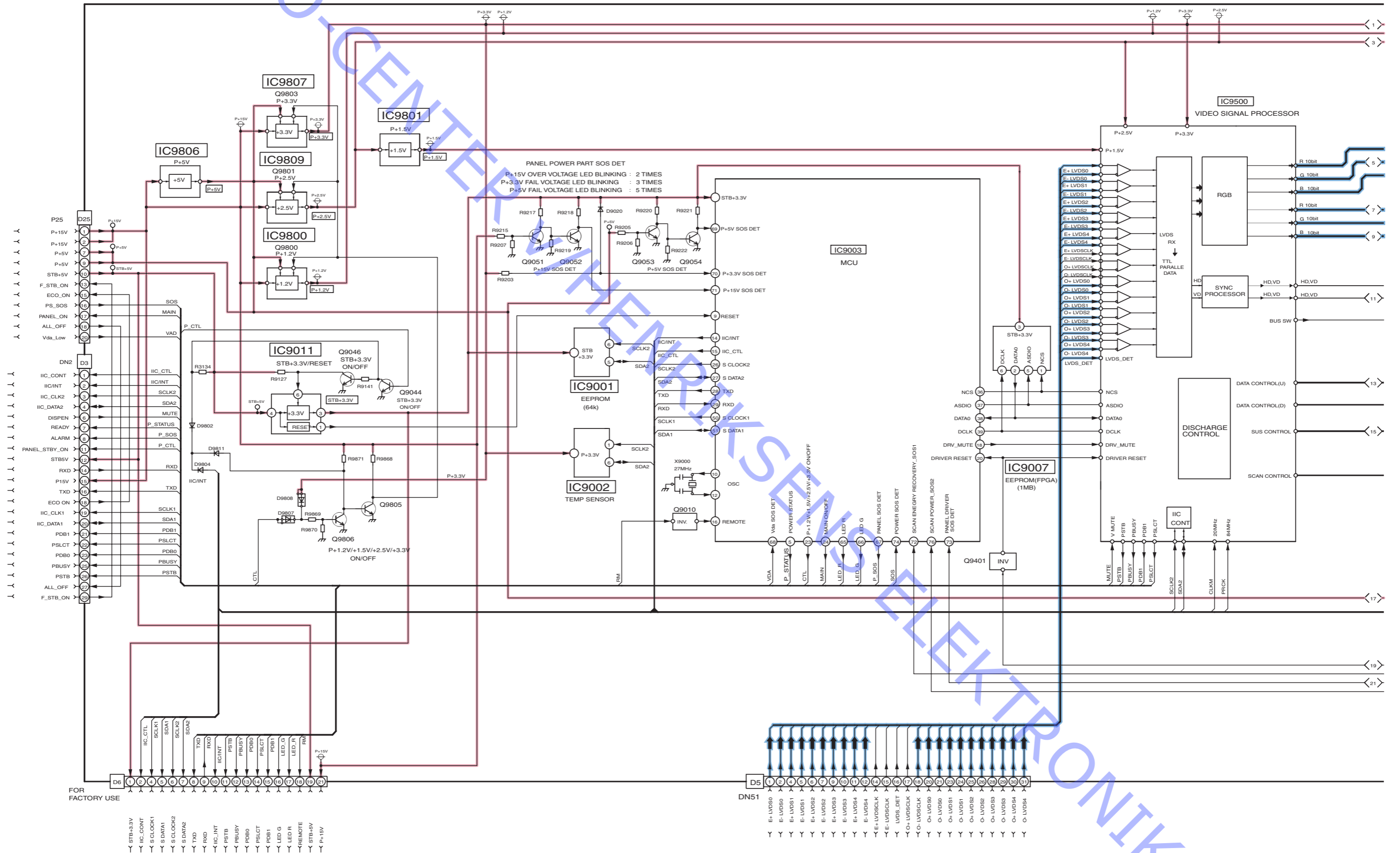
FOR
FACTORY USE
(FPGA ROM WRITER)

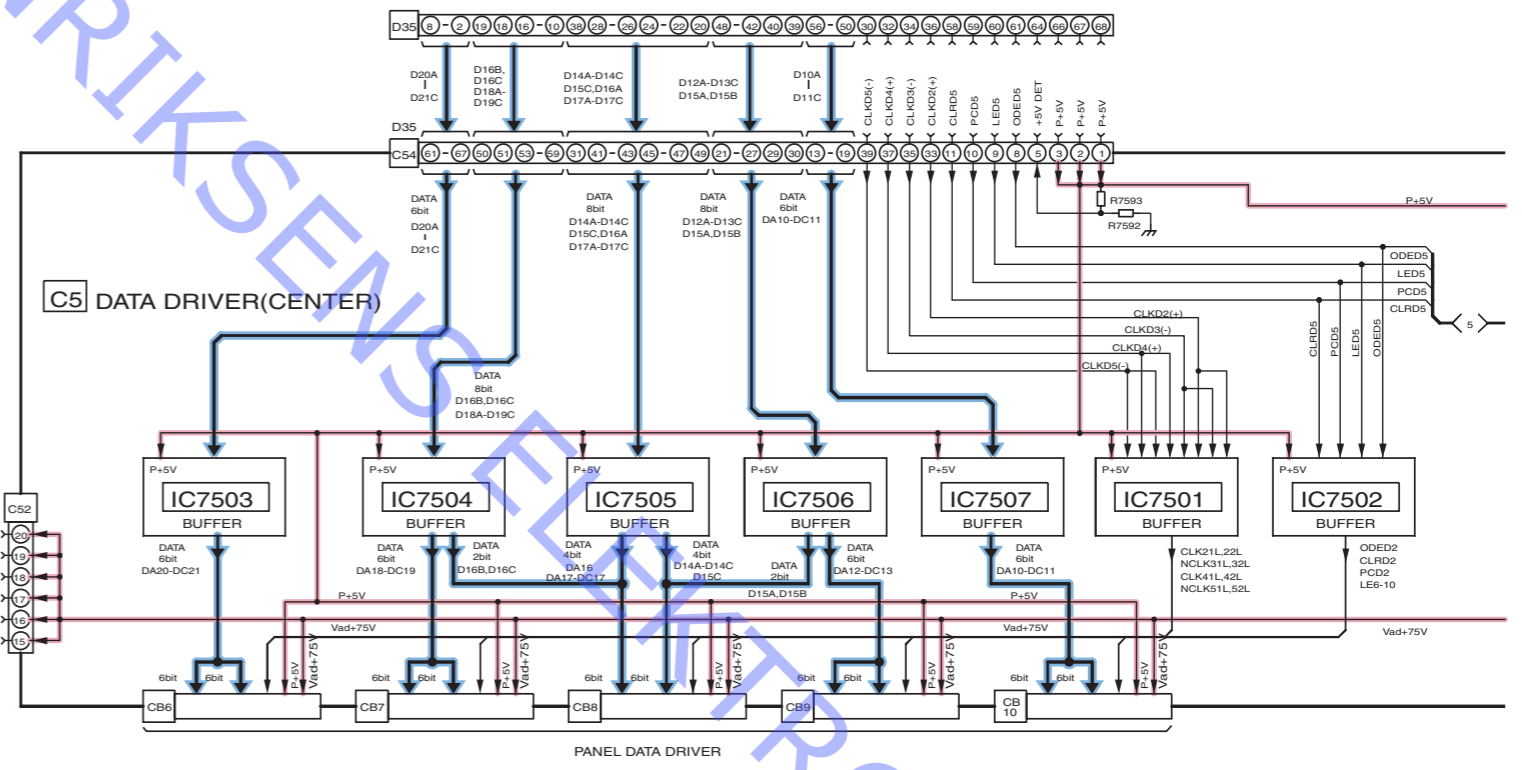
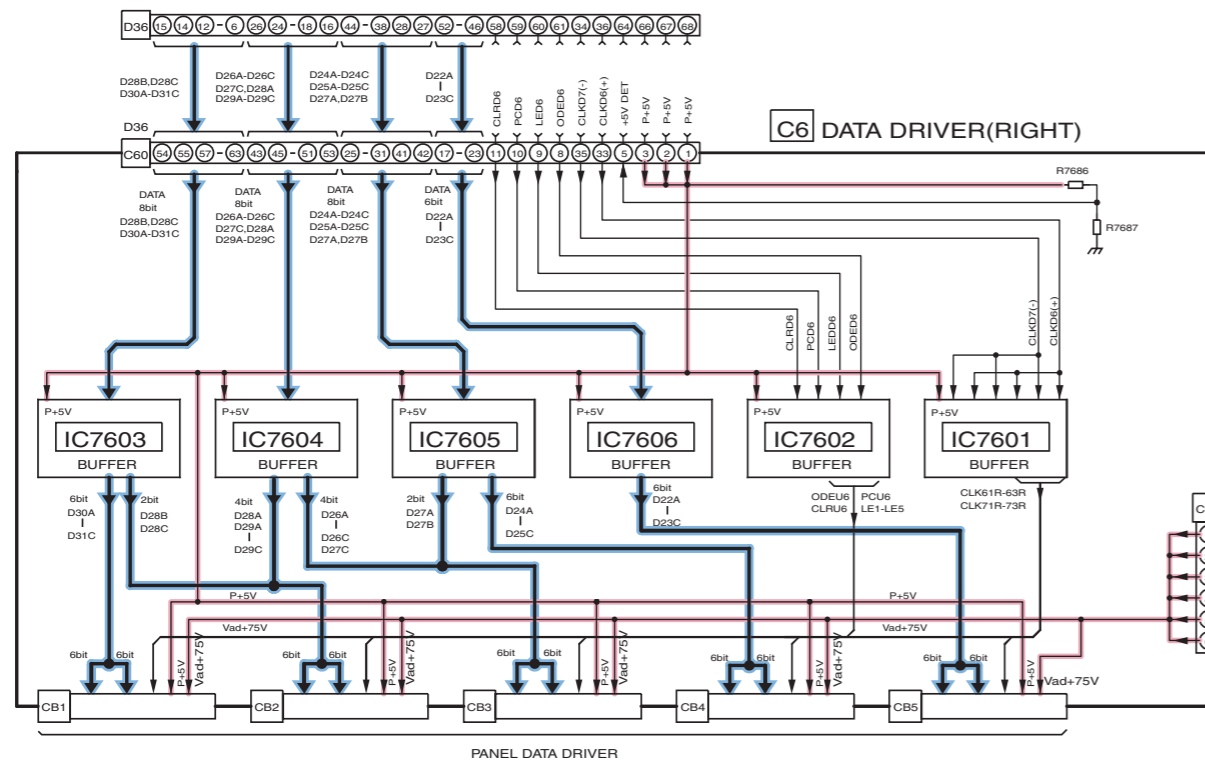
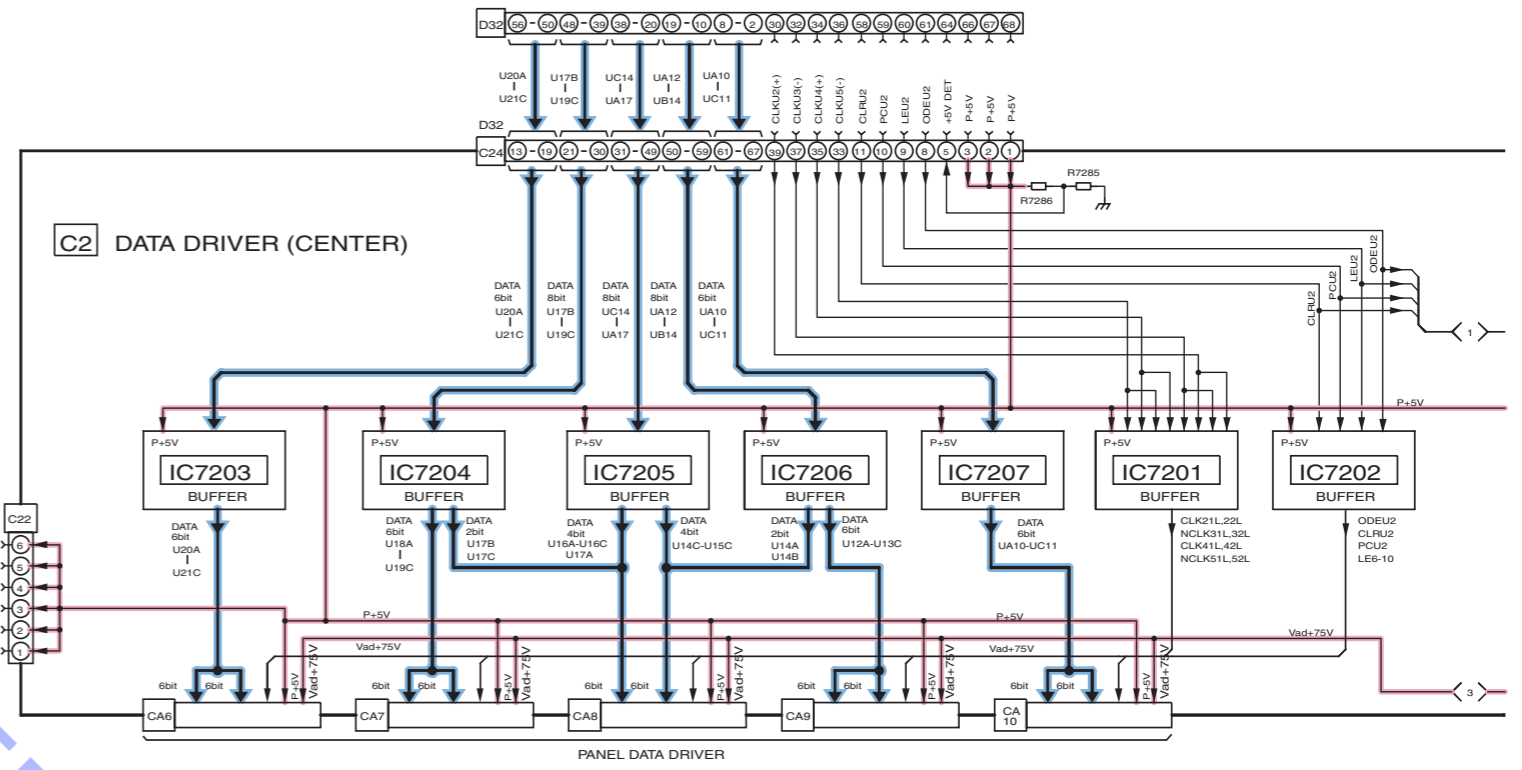
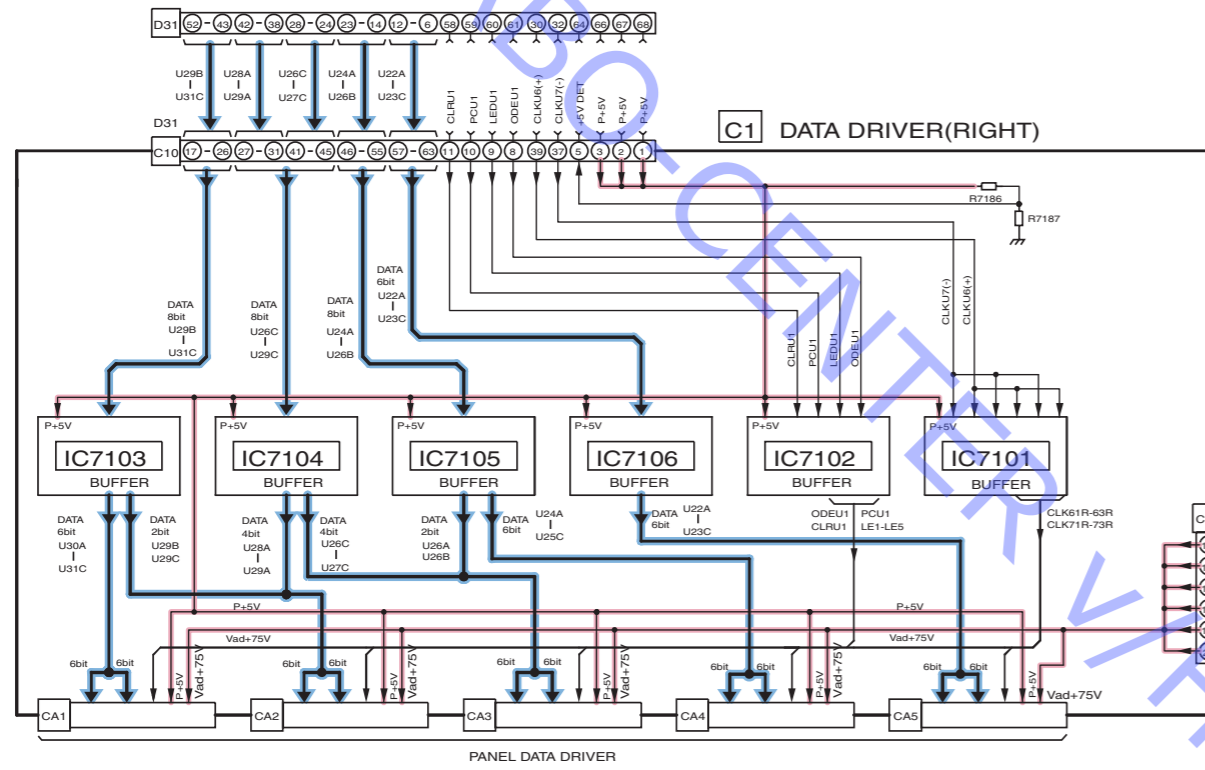
GA-TCK	GA-TMS	GA-TDI	GND	GA-TDO
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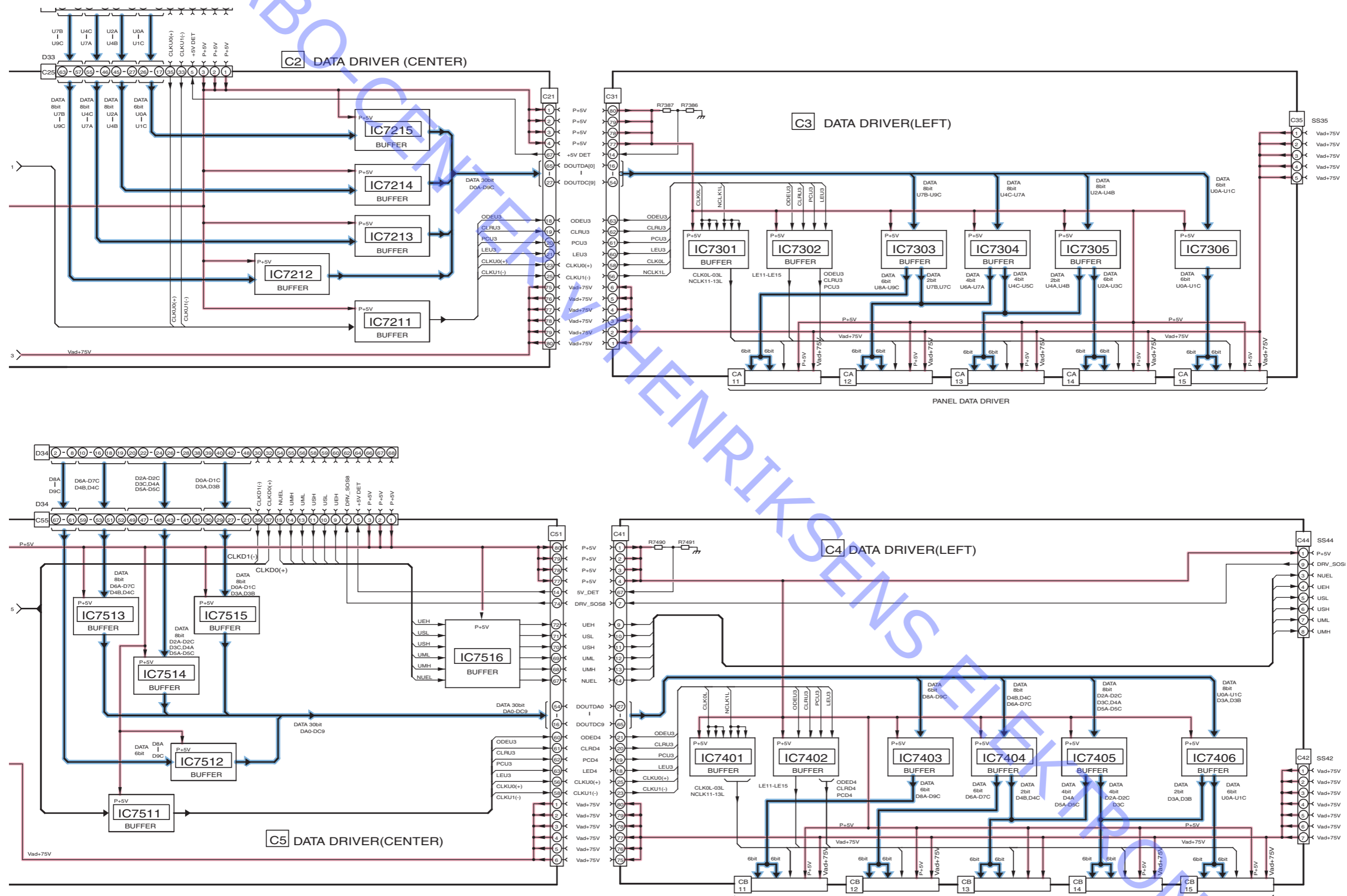


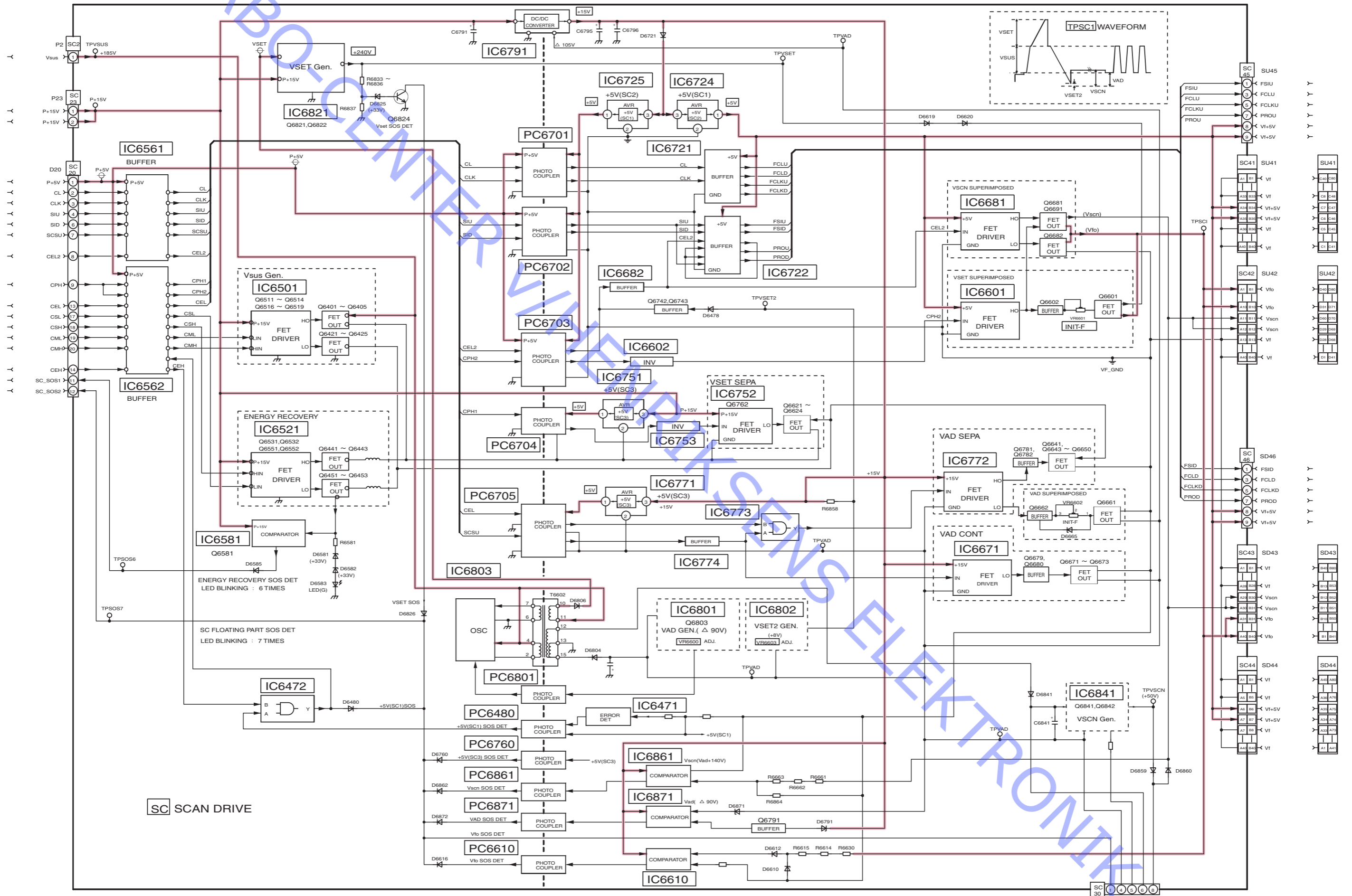


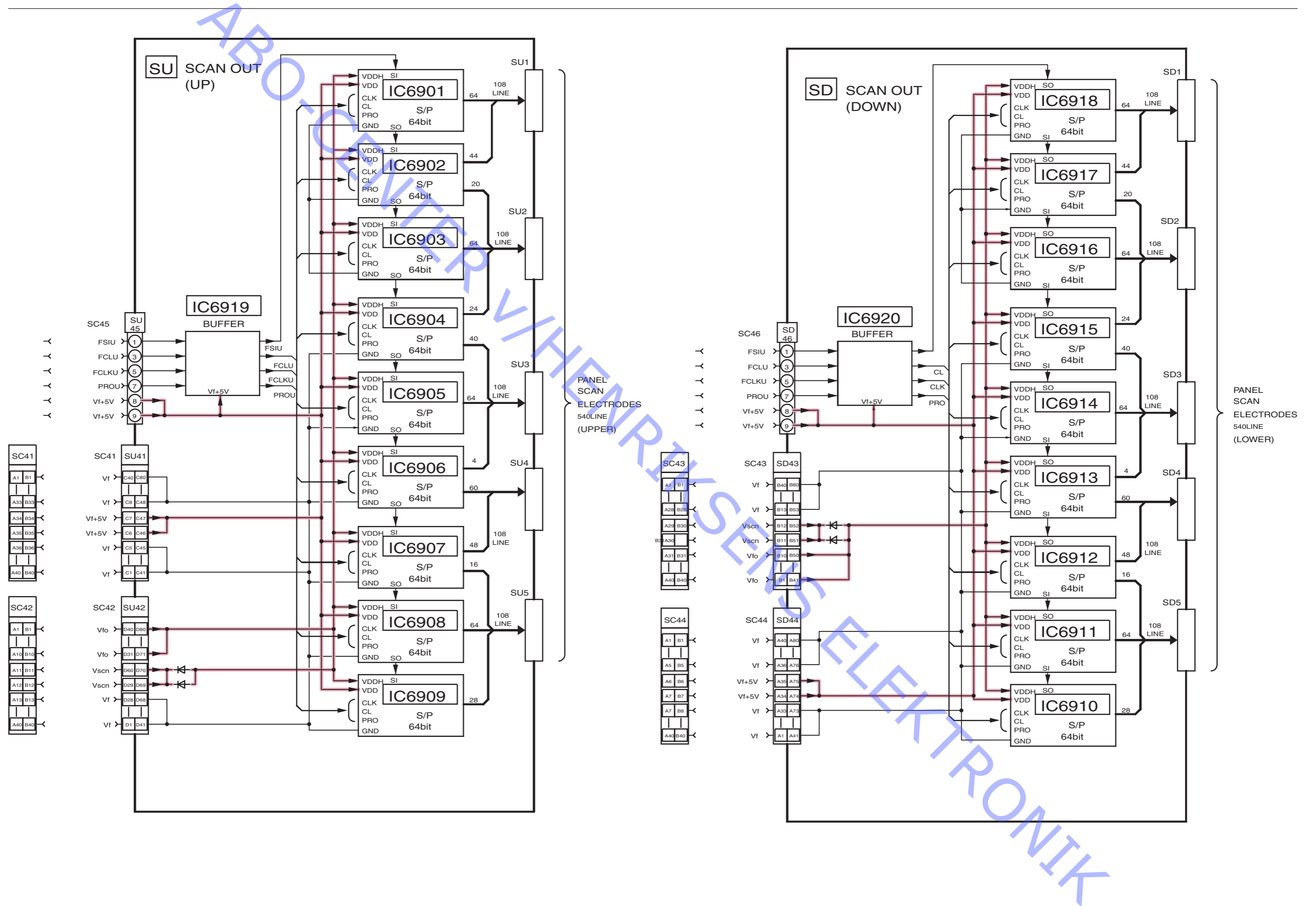
D FORMAT CONVERTER, PLASMA AI PROCESSOR











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