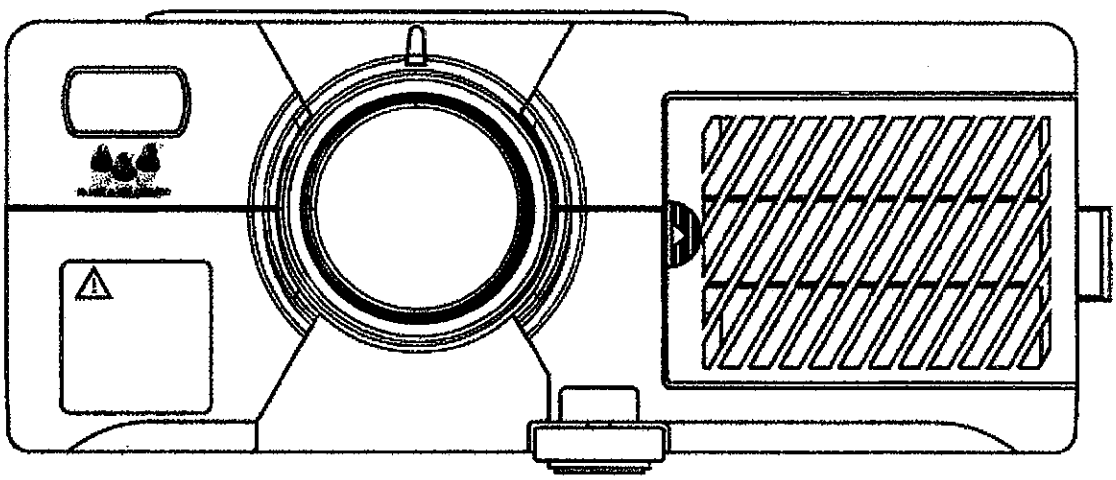
Service Manual

ViewSonic PJL1035

Model No. VPRJ21549-2

Office Theater™

Ultra-Portable XGA LCD Projector



(Rev. 1 – March 2000)

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Revision History

Revision	Date	Description Of Changes	Approval
1.0	3/3/00	Initial Issue	T. Sears

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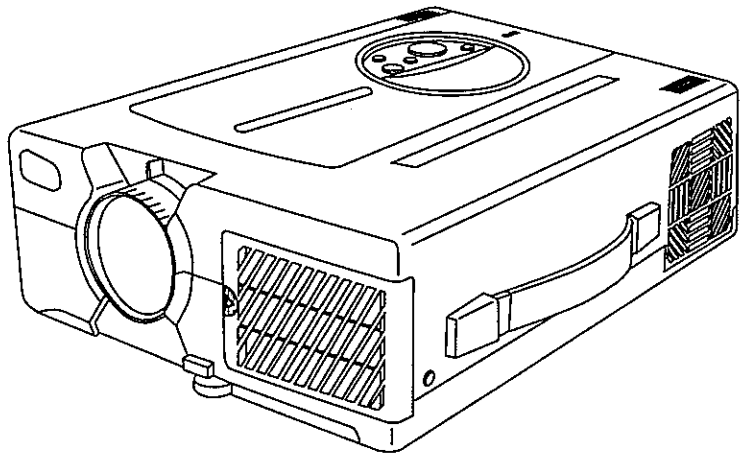
SERVICE MANUAL

PJL1035-2



Caution

Be sure to read this manual before attempting to service this product. This ViewSonic liquid crystal projector is designed to provide protection from fire, electric shock, physical injury, harmful radiation, and materials. It is important to read and follow all cautionary warnings mentioned in this manual.

Service Warning

1. The lamp can be extremely HOT. Be careful to avoid burning your fingers when replacing the lamp.
2. Never touch the lamp bulb. Dropping it or giving it a shock may cause the lamp to burst.
3. High voltage is present in the projector for the lamp circuit, so do not touch the electrical parts of the power unit when the projector is powered on.
4. Do not touch the exhaust fan during operation.
5. The LCD module assembly is easily damaged. When replacing the LCD Module assembly, never handle the attached flexible ribbon cable.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Liquid Crystal Projector

February 2000

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1. Features

- ▶ High brightness, High resolution
- ▶ Compact size, light weight for portability
- ▶ RGB output terminal
- ▶ RS232C Communication
- ▶ Mouse emulation
- ▶ Complies with VESA DDC1/2B specifications
- ▶ Auto-adjustment function

2. Specifications

Liquid crystal panel	Drive system	TFT active matrix
	Panel size	0.9 inches
	Number of pixels	1024 (H) x 768 (V)
Lamp		UHP lamp 150W
Video input	System	NTSC , 4.43NTSC , PAL , M-PAL , or SECAM (N-PAL : only compulsion mode)
	Level	Composite 1.0Vp-p (75Ω termination) Y/C Y : 1.0Vp-p (75Ω termination) C : 0.286Vp-p (NTSC burst signal, 75Ω termination) 0.3Vp-p (PAL/SECAM burst signal, 75Ω termination)
RGB input / output	Video signal	Analog RGB input 0.7Vp-p (75Ω termination)
	Sync signal	H/V separate TTL level
Audio	Input	200mVrms, 20kΩ or less
	Output	0~200mVrms, 1kΩ
Speaker output		1W + 1W (stereo)
Power supply		AC100~120V/2.9A,AC220~240V/1.3A (50/60Hz)
Power consumption		260W
Dimensions		248 (W) x 106 (H) x 336 (D) mm
Weight		4.5kg
Temperature range		Operation : 0~35°C Storage : -20~60°C
Accessories		Remote control ..... 1 POWER cord ..... 3 BATTERIES LR6 ..... 2 RGB cable ..... 1 Mac adapter ..... 1 Video/Audio cable ..... 1 Mouse cable ..... 3 S-cable ..... 1 Stereo mini cable 1

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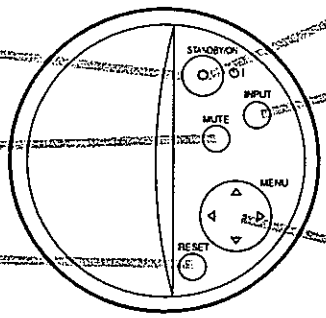
3. Names of each part

● Main unit



STANDBY / ON button
Power ON/OFF button.
OFF sets the unit in standby mode.

ON indicator
This blinks in the standby mode and lights in the operation mode.

MUTE button
Silences the sound. (Cancels the mute when the unit is set in mute mode.)

INPUT button
To select the input source.
Each time this button is pressed, the input source is changed in sequence as shown below.

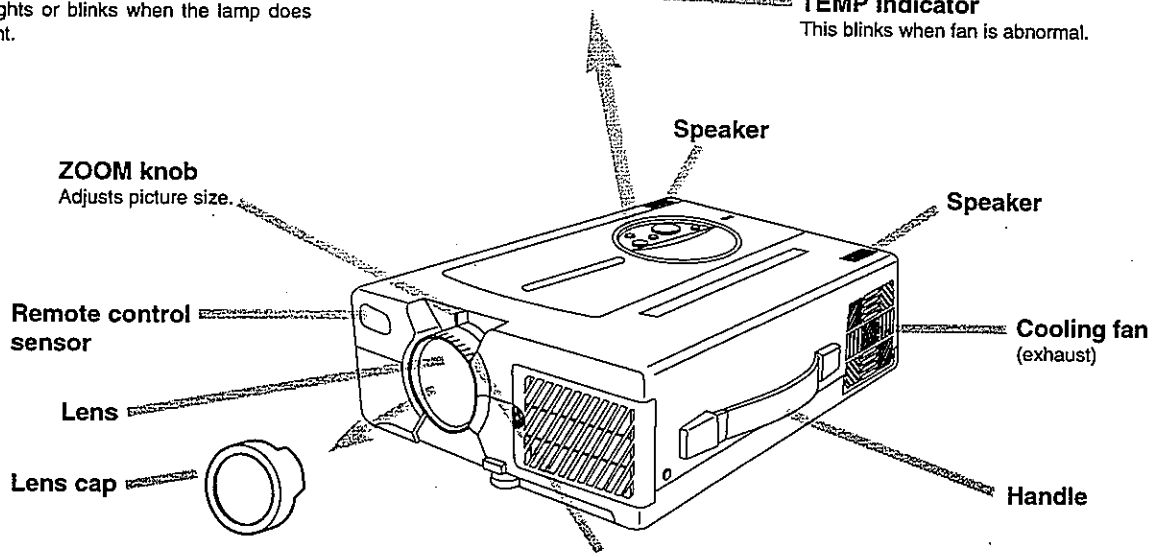
RGB1 → RGB2 → VIDEO

RESET button
Resets unit to factory settings.

MENU button
Picture adjustments.

LAMP indicator
This lights or blinks when the lamp does not light.

TEMP indicator
This blinks when fan is abnormal.



Speaker

ZOOM knob
Adjusts picture size.

Speaker

Remote control sensor

Cooling fan
(exhaust)

Lens

Lens cap

Handle

FOCUS ring
Adjusts focus.

- Use the remote control transmitter within the range of about 16 feet from the remote control sensor and within 30° to both the left and right.

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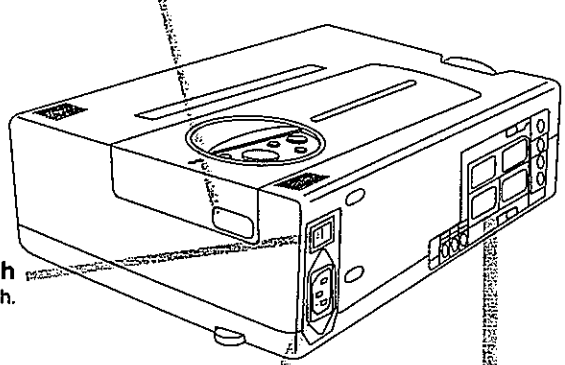
Remote control sensor

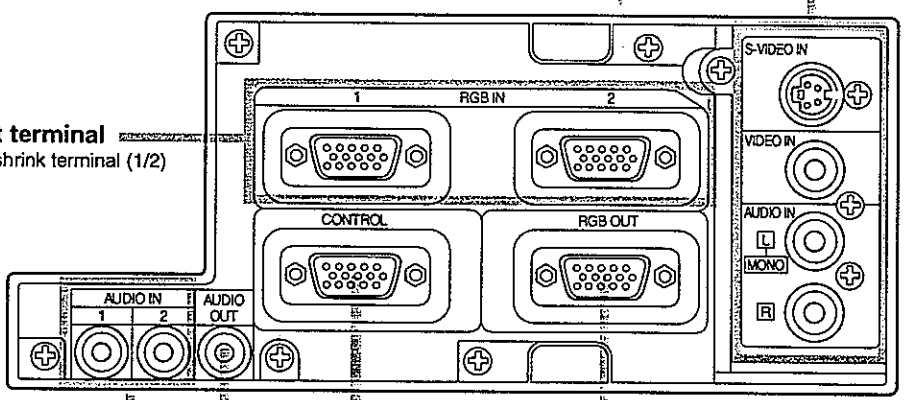


MAIN POWER switch
Main power ON/OFF switch.
O: OFF
| : ON

AC IN socket
Connect the provided power cord.

VIDEO input terminal
(on video-equipped models only)

S-VIDEO input terminal
Mini DIN 4pin connector
VIDEO input terminal
RCA Jack
AUDIO L/R input terminal
RCA Jack



RGB input terminal
D-sub 15pin shrink terminal (1/2)

CONTROL terminal
D-sub 15pin shrink terminal

AUDIO output terminal (RGB/VIDEO)
Stereo mini jack

AUDIO input terminal
Stereo mini jack (1/2)

RGB output terminal
D-sub 15pin shrink terminal
RGB output can be displayed even in the standby mode.

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● Remote control transmitter

STANDBY / ON button
Power ON/OFF button.
OFF sets the unit in standby mode.

FREEZE Button
Pressing this button displays a still picture (by freezing).

MAGNIFY button
Pressing this button partially magnifies a displayed picture.

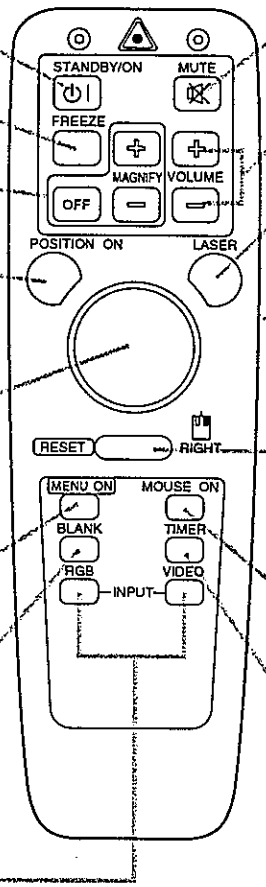
POSITION button
Moves the picture by DISK PAD after pressed the POSITION ON button.
(Only RGB signal input)
While the back light on, you can operate POSITION.

DISK PAD
① When the back light of MENU ON button on, selects or adjusts the menu item.
② When removes the on-screen menus, works as mouse.
③ When the back light of the POSITION ON button on, moves picture.

MENU ON button
Displays the on-screen menus.
And back light on.
While the back light on, you can operate MENU.

BLANK ON button
① The blank screen which is displayed by pressing BLANK.
② And the blank screen will be revealed down by pressing BLANK again.

INPUT SELECT button
Selects the input source.

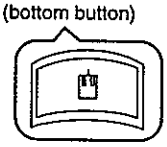


MUTE button
Silences the sound. (Cancels the mute when the unit is set in mute mode.)

VOLUME button
Adjusts volume. The sound is loud or low while pressing the "+" or "-" button.

LASER button
Laser pointer ON button. Use as a stick (for indication).

MOUSE LEFT button
Mouse left button is the left click of the mouse. (bottom button)



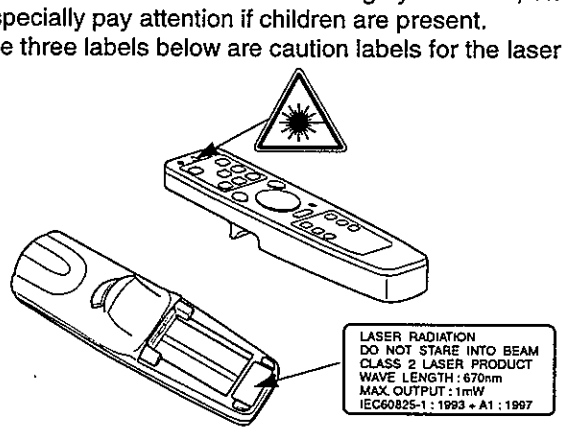
RESET / RIGHT button
When displays the on-screen menus, resets the menu item to factory settings.
When operates the mouse emulation, works as right click of mouse in computer mode.
After moving the picture (POSITION ON), resets the position to factory settings.

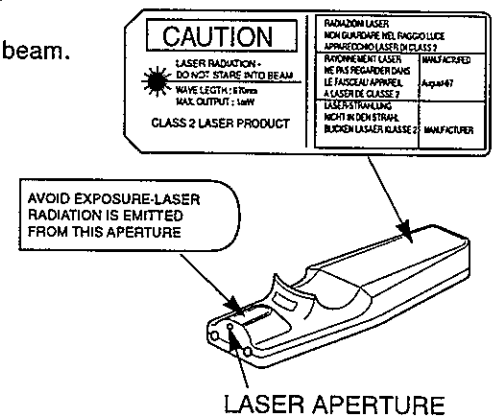
MOUSE ON button
Mouse emulation mode starts.
When menu are open or blank screen is displayed or icon of position is displayed, there are stopped and back light off.

TIMER ON / OFF button
Displays the setting time by count down.

⚠ Caution Cautions on use of the laser pointer.

- The laser pointer on the remote control unit radiates the laser beam from the laser aperture.
- This laser pointer used as a stick (for indication).
  Do not stare directly into the laser aperture or radiate the laser beam to other persons as the laser emitted is a class 2 laser and it could damage you vision , etc.
  Especially pay attention if children are present.
- The three labels below are caution labels for the laser beam.





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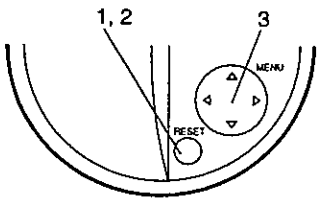
Function for service

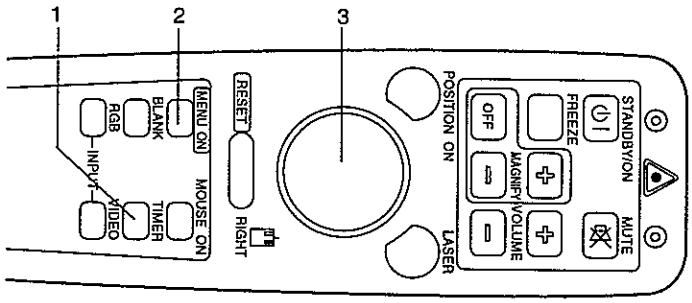
Function	Operation
Displayed the operating time of the lamp	Press the RESET button of the projector or the TIMER button of the remote control, for 3 seconds.
Reset the operating time of the lamp	Press the RESET button of the projector or the remote control MENU. (During be displayed the operating time of the lamp.)
Displayed the operating time of the projector	Press the MUTE button of the projector or the remote control, for 3 seconds. (During be displayed the operating time of the lamp.)

When replacing the lamp, Reset the operating time of lamp.

Reset the lamp timer :

If you have replaced the lamp after the lamp replacement time had expired, perform the procedure explained below within 10 minutes after the power is turned on. The power will turn off automatically when the 10-minute period expires.





1) Press the RESET button on projector for 3 seconds or remote control TIMER button for 3 seconds and display the total lamp used time.
   - When accumulated operation time of the lamp reaches 1700 hours (after the second time : 2000 hours), the following display will appear at the bottom of the screen.
2) Press the RESET button on projector or remote control MENU ON button during displaying the lamp used time.
3) Select the "0" on the screen using the MENU (◄) button or DISK PAD.DISK PAD.

LAMP 1500 hr

LAMP 1500 □→ 0■ CANCEL

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Message table

On-screen display

The following messages are displayed on the screen.

MESSAGE	Action
CHANGE THE LAMP AFTER REPLACING LAMP, RESET THE LAMP TIMER.	The lamp has been in service for long. Replacement with a new lamp is recommended. The lamp will go off automatically when the lamp replacement time is exceeded. *1
CHANGE THE LAMP AFTER REPLACING LAMP, RESET THE LAMP TIMER. THE POWER WILL TURN OFF AFTER * Hr.	The total lamp service time will exceed the lamp replacement time in * hours. The lamp will go off automatically when the lamp replacement time is exceeded. Replace with a new lamp before that. *1 The asterisk (*) indicates the number of hours remaining before the lamp goes off automatically.
Blinking of CHANGE THE LAMP	The total lamp service time has exceeded the lamp replacement time. The lamp will go off automatically about 10 minutes after it starts blinking. Replace with a new lamp.*2
NO INPUT IS DETECTED	Signal is hot input.
SYNC IS OUT OF RANGE	The horizontal frequency of the input signal exceeds the range of the projector, it cannot be displayed.

*1 This message are not displayed after 3 minutes.
But this message are displayed when you turn on the power again.

*2 It is possible to again turn on the power, however the power will go off after about 10 minutes.

Indicator display

The ON indicator, LAMP indicator and TEMP indicator will light or blink in the following cases.

ON indicator	LAMP indicator	TEMP indicator	Meaning	Remedy
Lights orange	Goes off	Goes off	Standby mode	
Blinks green	Goes off	Goes off	During warming up	
Lights green	Goes off	Goes off	During operation *1	
Blinks orange	Goes off	Goes off	During cooling down	
Lights red	Lights red	Goes off	Lamp cannot light *2	Cool projector by power off for 45 minutes. If the indicator is still it, lamp may be defective. Replace.
Lights red	Blinks red	Goes off	Lamp is not inserted or the lamp door open	Securely insert the lamp or close the lamp door.
Lights red	Goes off	Blinks red	Cooling fan accidented	Replace fan.
Blinks red	Blinks red	Goes off	The total lamp service time has exceeded the lamp replacement time.	Replace lamp and reset the accumulated lamp operation time.

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4. Adjustment

4 - 1 Before adjusting.

4-1-1 ADJUSTMENT menu.

The ADJUSTMENT menu is needed at all adjustments.

How to set up ADJUSTMENT menu follow these;

a. Push the MENU button.

b. Keep the RESET button pushing for a several seconds while the PICTURE menu is displayed.

Note: All parameters used in these adjustment are printed in boldface as shown in Fig.4-2-a and Fig.4-2-b.

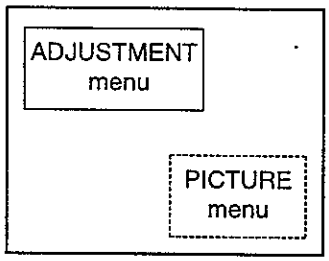

Fig.4-1 ADJUSTMENT menu

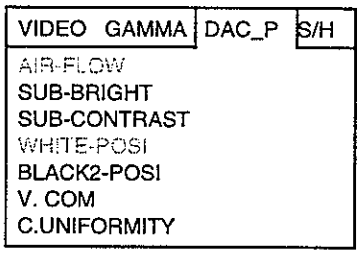

Fig.4-2-a Parameters in the DAC_P of the ADJUSTMENT menu.

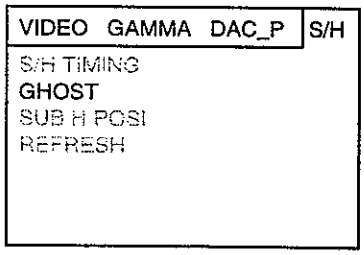

Fig.4-2-b Parameters in the S/H of the ADJUSTMENT menu.

4-1-2 Selection of adjustment.

When any parts in the table 4-1 is changed, choose the profer adjusting items with the chart. Keep the adjusting order, from upper to lower in it. For example, adjust "White balance" firstly and "Ghost" next at replacement of the PWB ass'y color.

Table 4-1 : Relation between the replaced part and adjustment.

Replaced part	Adjustment		
	P.O.filter (Chap.4-2)	White balance (Chap.4-3)	Ghost (Chap.4-4)
Dichroic optics unit	Yes	No	No
LCD/LENS prism ass'y	Yes	Yes	Yes
PWB ass'y drive	No	Yes	Yes
PWB ass'y color	No	Yes	No

"Yes" means need for adjustment, "No" means no need for adjustment.

4-1-3 Setting of condition before adjustment.

1. Apply heat-running for 10 minutes or more before adjustment.
2. Project 40 inches size image with zoom set to the widest.
3. Press the RESET button on the remote controller to set picture adjustment to NORMAL.
4. Use a darkroom whose luminance is less than 2[lx].

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4 - 2 P.O.filter adjustment.

Before adjusting, input the 0.0Vp-p signal to check the black image. If the image is not as dark as other set, continue this procedure.

1. Make sure the AC power cord is unplugged.
2. Remove the PWB ass'y DRIVE and the DUST COVER.
3. Loosen the screws on P.O.filters for GREEN and RED. (See Fig.4-3-(a).)
   Remark: Don't touch the screw on the P.O.filter for BLUE.
4. Put back the PWB ass'y DRIVE where it belongs without screws and make connections with peripheral devices. Then get on the projector.
5. Use the XGA VESA(60) timing signal to Input 0.0Vpp black pattern.
6. Slide the P.O.filter for GREEN on its base to find out where a whole image is darkest by visual check. At the best position, tighten the screw a little so that the filter cannot shift. (See Fig.4-3-(b).)
7. Slide the P.O.filter for RED on its base in order to get rid of the reddish tint of the image by visual check. After finding out the best position, tighten the screw in a little order not to change the color of the image. (See Fig.4-3-(b).)
8. Remove the PWB ass'y DRIVE again to tighten up the screws of both P.O.filters.
9. Put on the DUST COVER and the PWB ass'y DRIVE and make original connections with all of peripheral parts.
10. Reinstall the UPPER CASE and tighten all screws.

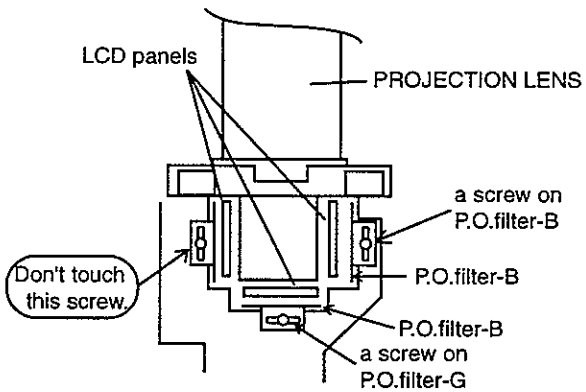

Fig.4-3-(a) Top view of P.O.filters

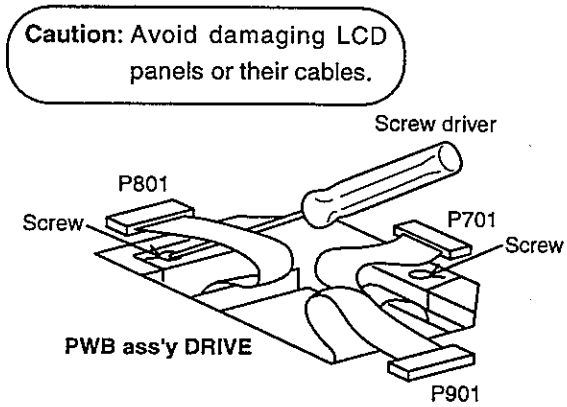

Fig.4-3-(b) How to tighten screws

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4 - 3 White balance adjustment

Preparations for adjustment

4-3-1 Flicker adjustment.

Refer to the attached drawing (Fig.4-4).

1. Use the XGA VESA(60) timing signal to input a 0.35Vp-p R primary color signal for every other line.
2. Use DAC_P - V.COM - R in the adjustment menu to adjust until flicker is minimum on a whole image.
3. Use the XGA VESA(60) timing signal to input a 0.35Vp-p G primary color signal for every other line.
4. Use DAC_P - V.COM - G in the adjustment menu to adjust until flicker is minimum on a whole image.
5. Use the XGA VESA(60) timing signal to input a 0.35Vp-p B primary color signal for every other line.
6. Use DAC_P - V.COM - B in the adjustment menu to adjust until flicker is minimum on a whole image.

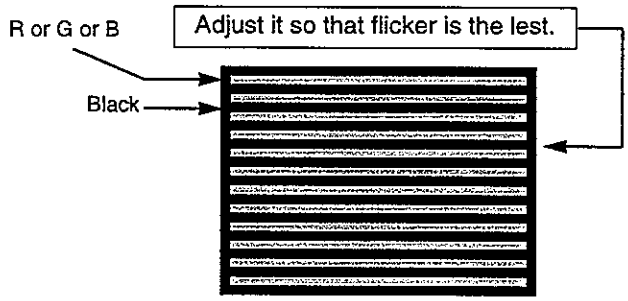

Fig.4-4 Test pattern for the flicker adjustment.

4-3-2 Adjustment of color uniformity

1. Input gray pattern at 0.35Vp-p with a timing signal of XGA VESA(60).
2. Set C.UNIFORMITY - SWITCH in the adjustment menu to OFF.
3. Check the color unevenness of the original image.
4. Continue this adjustment unless color uniformity is good.
5. Set C.UNIFORMITY - SWITCH in the adjustment menu to ON.
6. Adjust following parameters to make better color balance with same input signal.
   a. Adjust "C. UNIFORMITY - H - R -RP" so that color balance of left and right side is best by visual check.
      This is control correction wave for Horizontal Saw.
   b. Adjust "C. UNIFORMITY - H - R -PB" so that color balance of center and side is best by visual check.
      This is control correction wave for Horizontal Parabola.
   c. Adjust "C. UNIFORMITY - H - B -RP" so that color balance of left and right side is best by visual check.
      This is control correction wave for Horizontal Saw.
   d. Adjust "C. UNIFORMITY - H - B -PB" so that color balance of center and side is best by visual check.
      This is control correction wave for Horizontal Parabola.
   e. Adjust "C. UNIFORMITY - V - B -RP" so that color balance of top and bottom is best by visual check.
      This is control correction wave for Vertical Saw.

"C. UNIFORMITY - H - R -RP"
: horizontal correction for R horizontal Saw
"C. UNIFORMITY - H - R -PB"
: horizontal correction for R horizontal Parabola
"C. UNIFORMITY - H - B -RP"
: horizontal correction for B horizontal Saw
"C. UNIFORMITY - H - B -PR"
: horizontal correction for B horizontal Parabola
"C. UNIFORMITY - V - B -RP"
: vertical correction for B vertical Saw.

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4-3-3 The luminance adjustment.

Use Minolta CL-100 at measurement and adjustment.

1. Maximize CONTRAST and BRIGHT in the picture menu.
2. Use the XGA VESA(60) timing signal to input a 0.7Vpp green primary signal and measure the luminance at the center of the image. Suppose the reading is "A".
3. Normalize CONTRAST and BRIGHT in the picture menu.
4. Use the XGA VESA(60) timing signal to input a 0.21Vpp green primary signal. Adjust the luminance with SUB-BRIGHT - W to
   Ax0.09 ± 10 [lx].
5. Use the XGA VESA(60) timing signal to input a 0.7Vpp green primary signal. Adjust the luminance with SUB-CONTRAST - W to
   Ax0.95 ± 20 [lx].
6. Return to procedure 4 to check the luminance is within the specification. If it is out of the specification, repeat the procedure 4 - 5.
7. Use the XGA VESA(60) timing signal to input a 0.0Vp-p black pattern. Adjust the luminance with DAC_P - BLACK2-POSI - W to
   $Ax0.009^{+1}_{-0}$ [lx].
8. Use the XGA VESA(60) timing signal to input 0.7Vpp 16 step gray scale signal. See the two darkest steps if they can be distinguished. Use DAC_P - BLACD2-POSI - G in order to make a little different luminance between 1st step and 2nd step by visual check. (See Fig.4-5.)

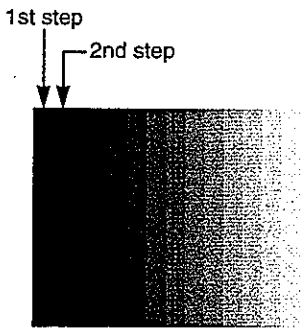

Fig.4-5 16 step gray scale

4-3-4. Adjustment of the white balance.

Use Minolta CL-100 at measurement and adjustment.

1. Low brightness white balance.
   a. Input gray pattern at 0.21Vp-p with a timing signal of XGA VESA(60).
   b. Adjust DAC_P - SUB BRIGHT - R and DAC_P - SUB BRIGHT - B so that the chromaticity at the center of the picture is x=0.28 ± 0.005,y=0.34 ± 0.005(low-brightness white balance)
2. Medium brightness white balance.
   a. Input gray pattern at 0.52Vpp with a timing signal of XGA VESA(60).
   b. Adjust DAC_P - SUB CONTRAST - R and DAC_P - SUB CONTRAST - B so that the chromaticity at the center of the picture is x=0.28 ± 0.005,y=0.345 ± 0.005(middle-brightness white balance)
3. Return to 1 to check low-brightness white balance, and repeat 1 to 2 until both middle-brightness and low-brightness white balance are adjusted within their target at the same time.
4. Black white balance.
   a. Input gray pattern at 0.07Vpp with a timing signal of XGA VESA(60).
   b. Adjust DAC_P - BLACK POSI - R and DAC_P - BLACK POSI - B so that the chromaticity at the center of the picture is x=0.27± 0.005,y=0.34 ± 0.005.
5. Compare the brightness between the darkest stepsand the 2nd darkest one visually. Unless the difference is visible, go to the procedure a - d below.
   a. Input a 0.7Vpp 16 steps primary blue signal with a timing signal of XGA VESA(60).
   b. Adjust DAC_P - BLACK2 POSI - B so that the brightness between 1st and 2nd step is different slightly. (See Fig. 4-5.)
   c. Input a 0.7Vpp 16 steps primary red signal with a timing signal of XGA VESA(60).
   d. Adjust DAC_P - BLACK2 POSI - R so that the brightness between 1st and 2nd step is different slightly. (See Fig. 4-5.)
6. Repeat the procedure 1 to 4 so that the low-brightness white balance, the medium-brightness white balance and the black white balance are within their targets at the same time.

   Remark; You don't need to take care of the target of the black white balance, when it has been adjusted visually in the procedure 5.

4 - 4 Ghost adjustment

Preparations for adjustment

1. Input a 0.7Vpp cross-hatch pattern with a timing signal of XGA VESA(60).
2. Adjust "H.PHASE" in the picture menu so that the vertical lines of cross-hatch pattern are seen clearest.

Adjustment procedure

1. Position the cursor on S/H - GHOST in the ADJUSTMENT menu and push the RESET button to initialize this parameter.
2. Decrease the value of the S/H - GHOST in the ADJUSTMENT menu until the ghost image appears. Suppose this figure "B". (See the example below.)
3. Set the parameter to "B + 2".

   Example:

Adjusted value	Image	
6	No ghost	
5	Faint ghost	→ B=5
4	Ghost	

   In this case, S/H - GHOST is set to 7 (=5+2).

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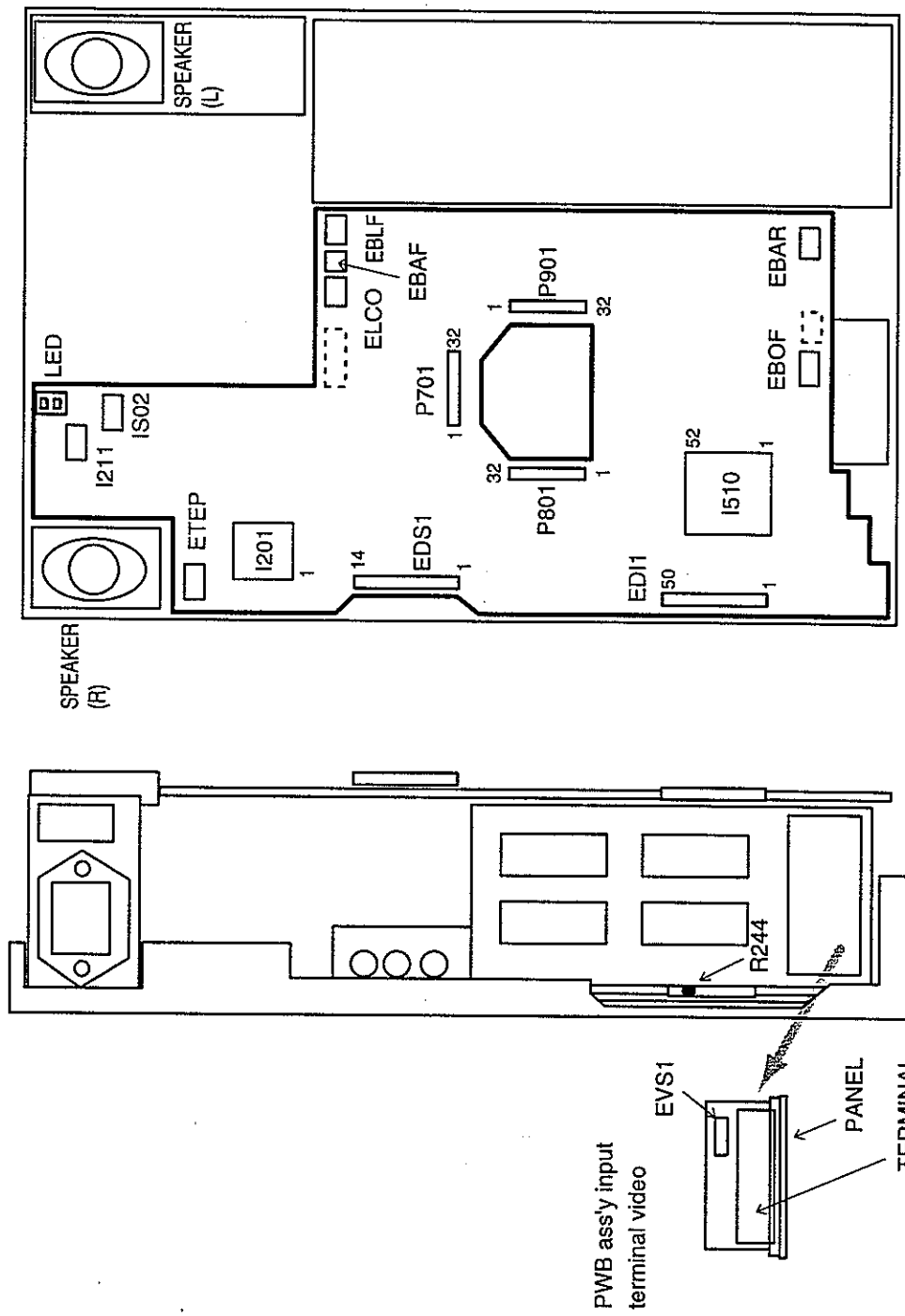
5. Troubleshooting

Check points at trouble shooting



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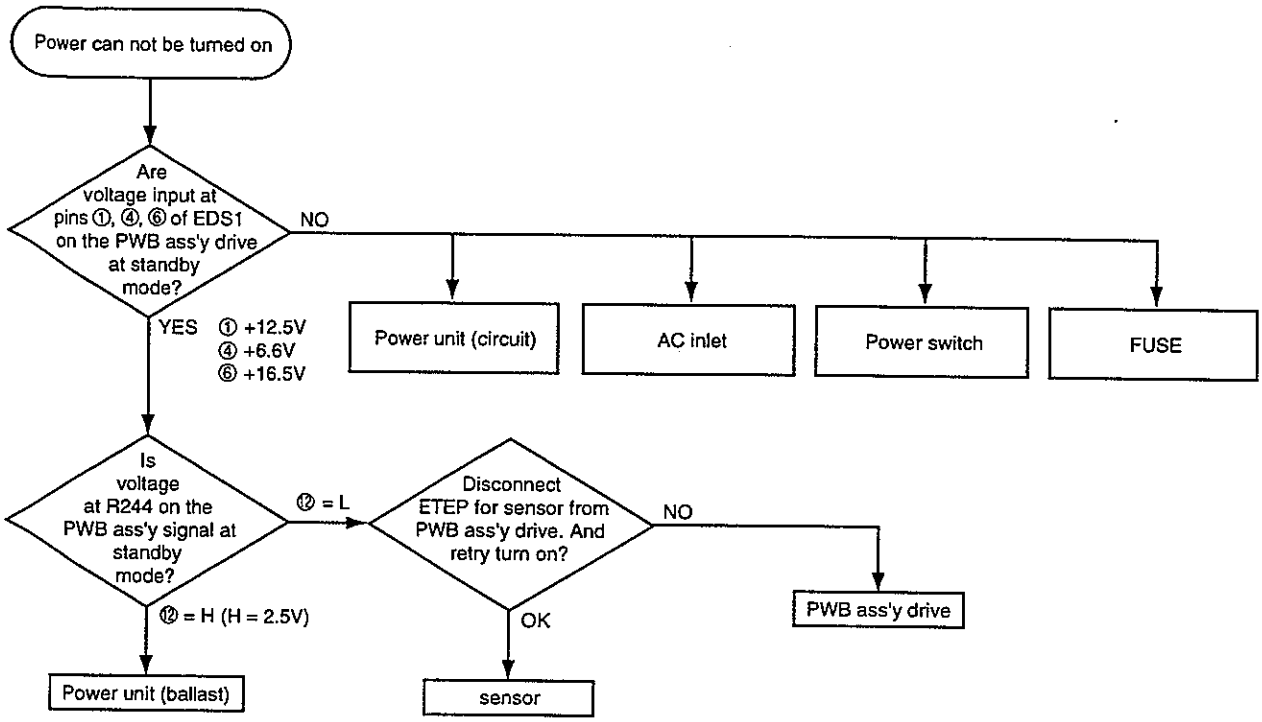

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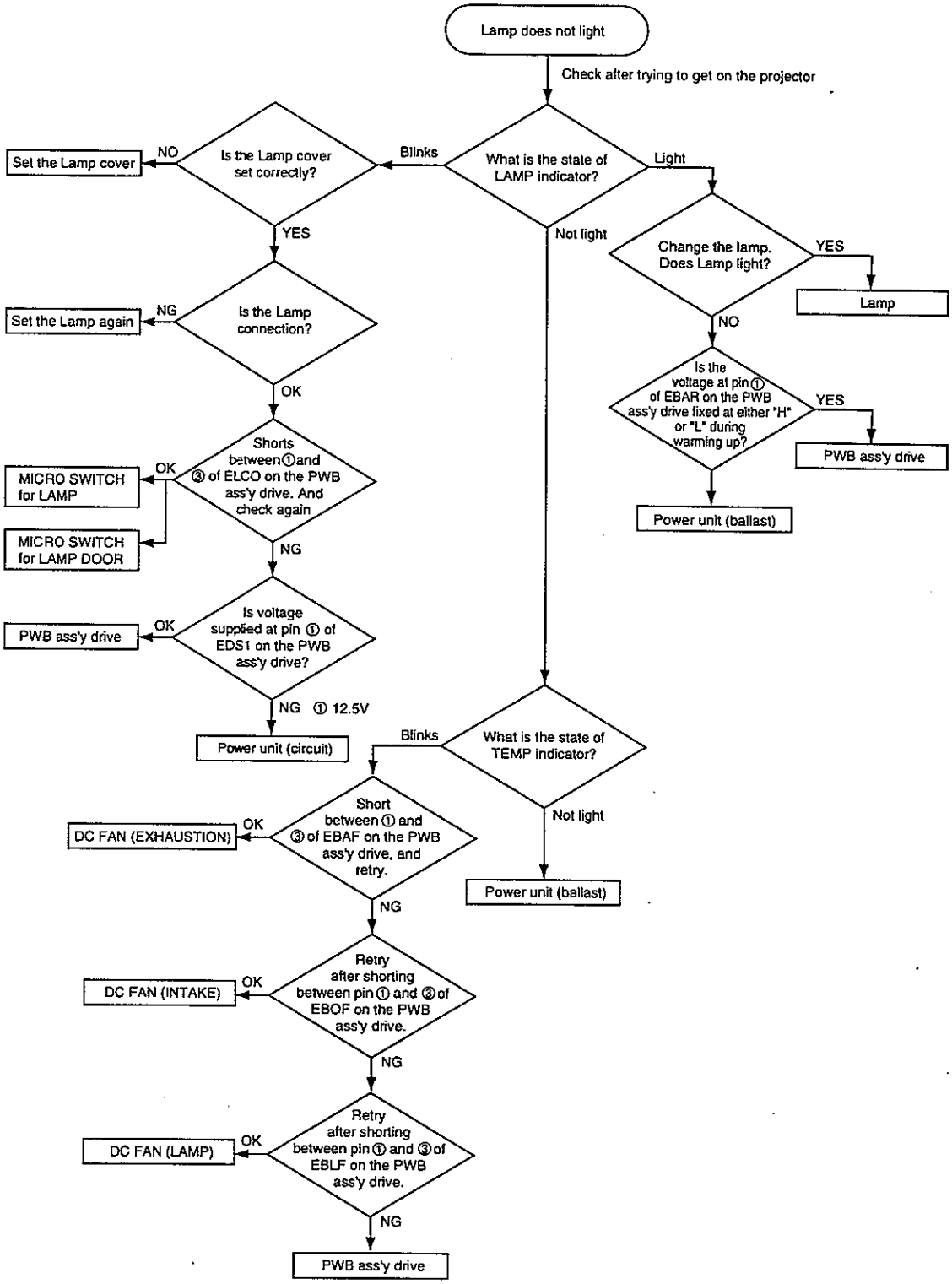

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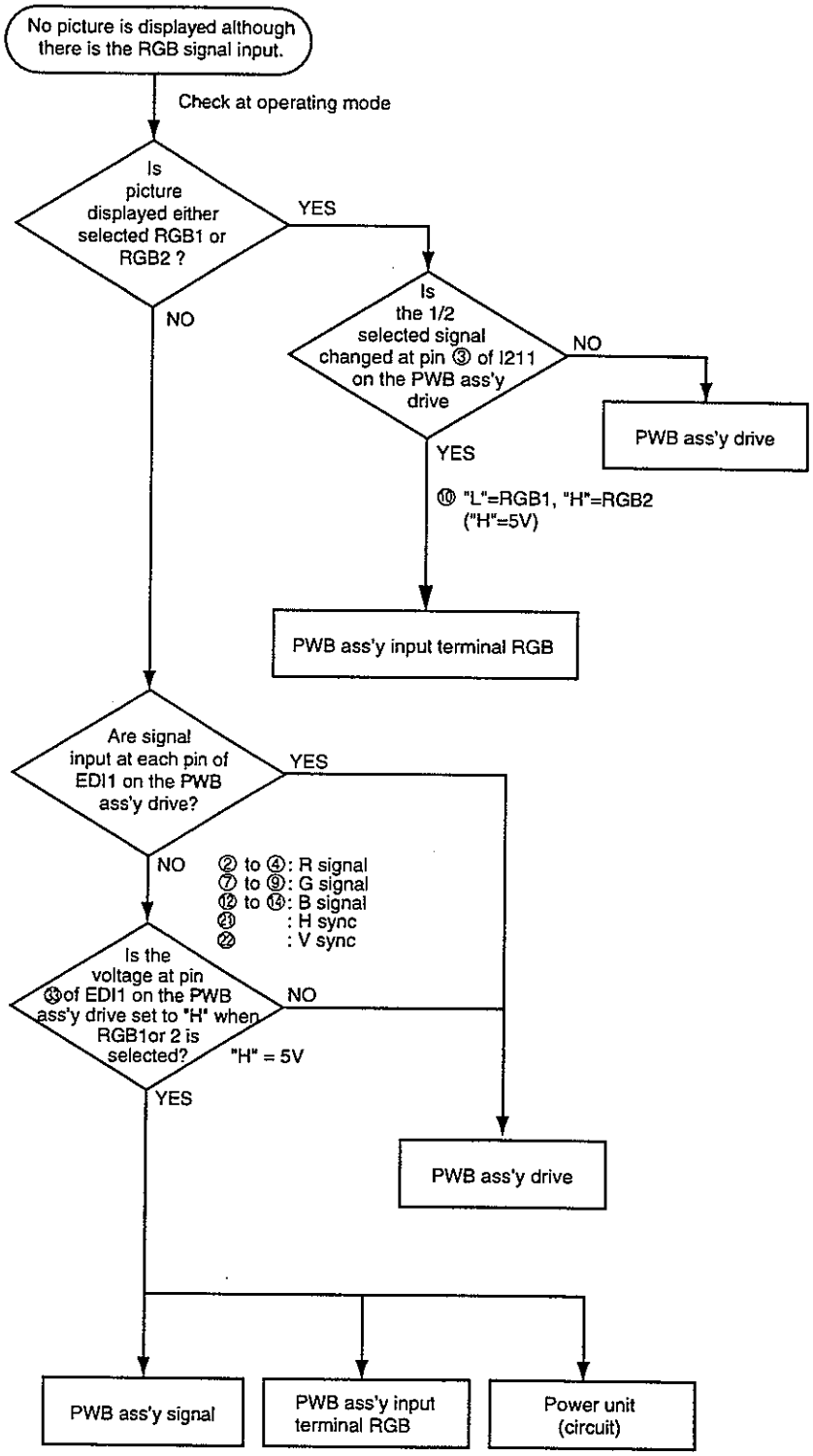
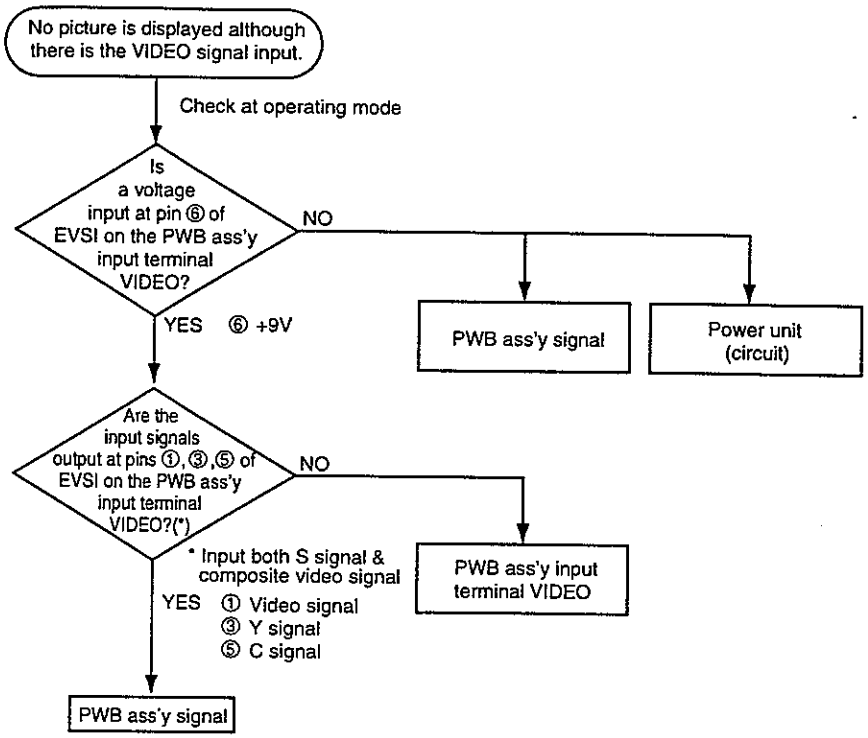


Confidential - Do Not Copy



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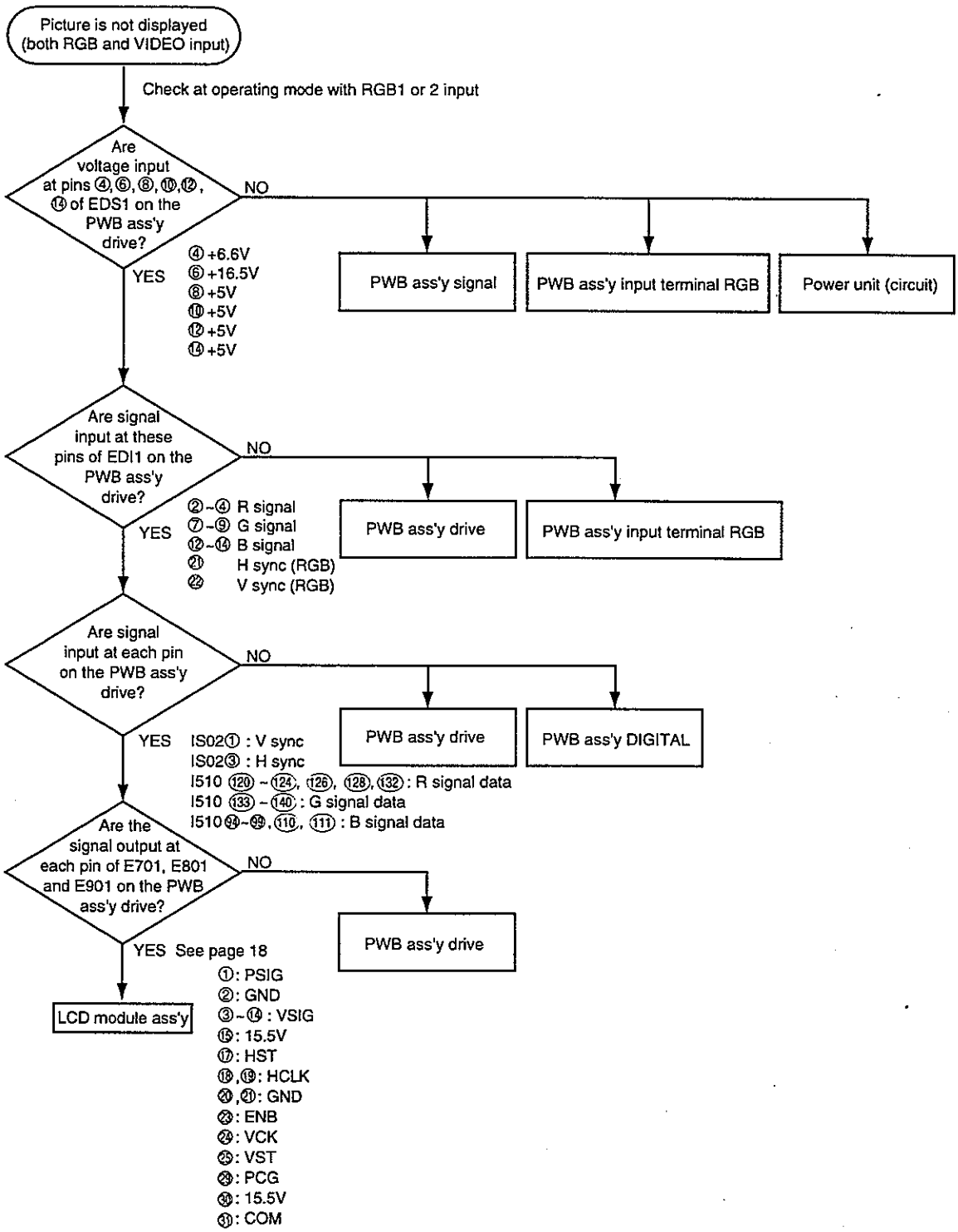

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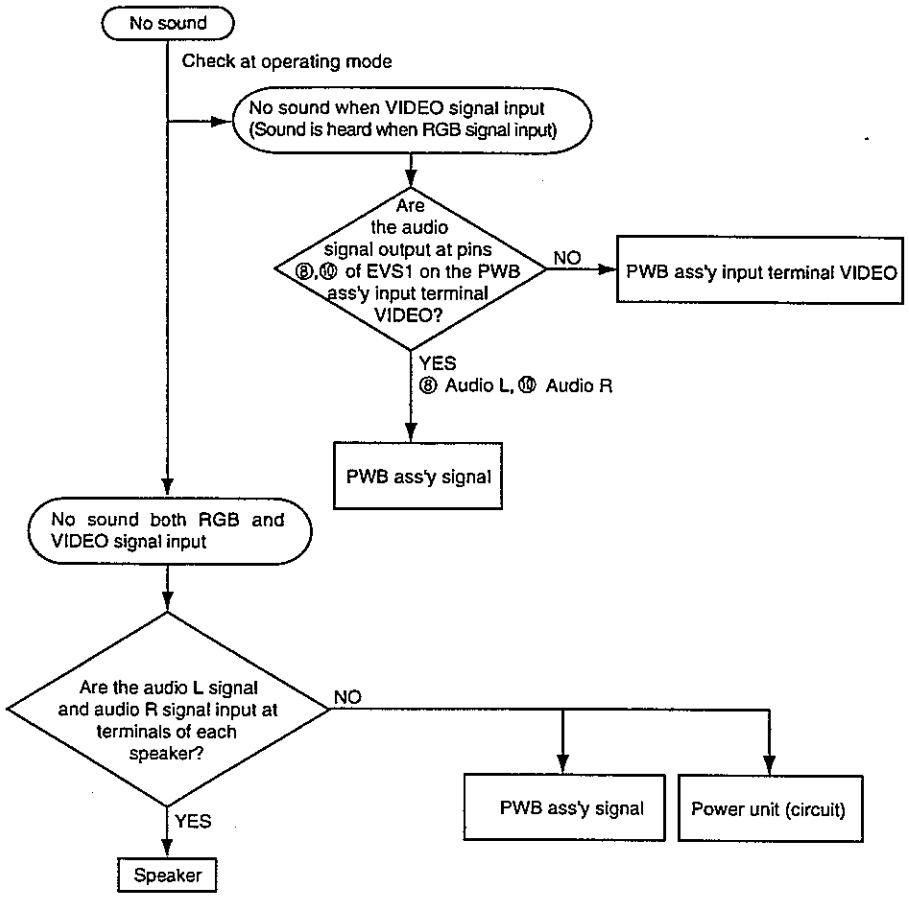

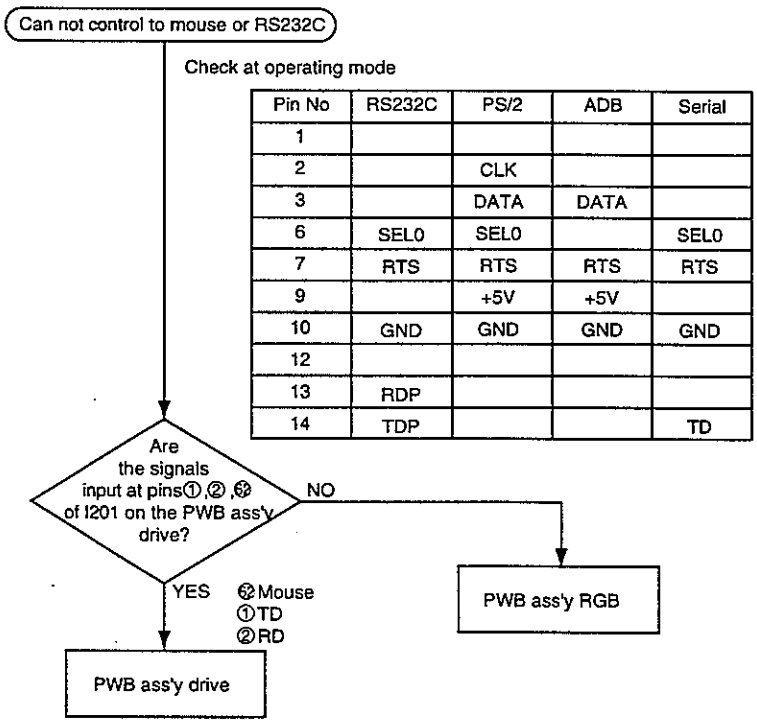

Pin No	RS232C	PS/2	ADB	Serial
1				
2		CLK		
3		DATA	DATA	
6	SEL0	SEL0		SEL0
7	RTS	RTS	RTS	RTS
9		+5V	+5V	
10	GND	GND	GND	GND
12				
13	RDP			
14	TDP			TD

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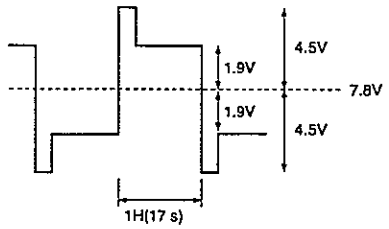
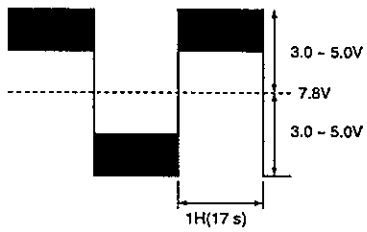
Signal waveforms of P701, P801 and P901 (Input signal is VGA3)

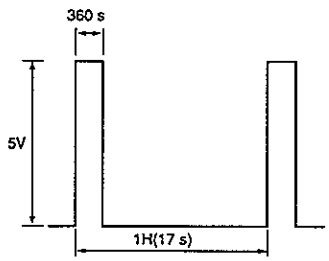
① PSIG (Uniformity Signal)



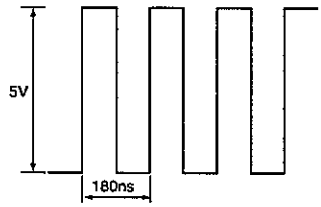
③~⑭ VIDEO SIGNAL



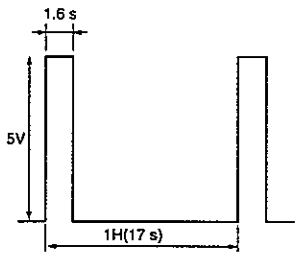
⑰ HST



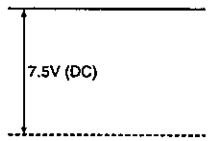
⑱, ⑲ HCK1,HCK2



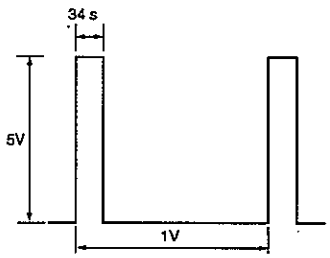
㉙ PCG



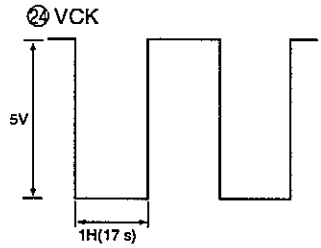
㉛ COM



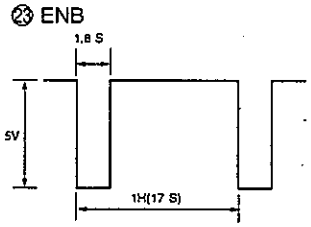
㉕ VST



㉔ VCK



㉓ ENB



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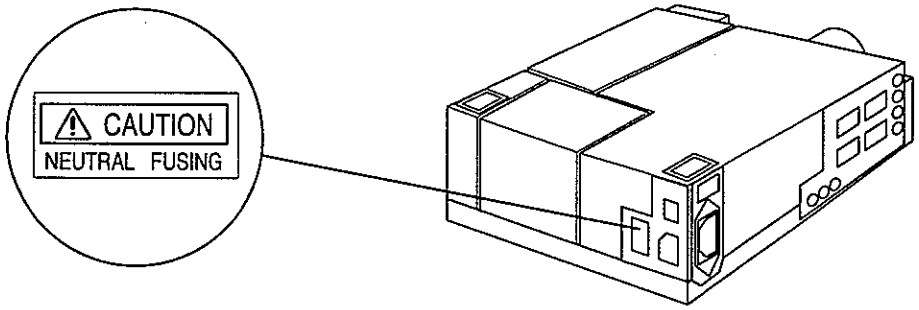
6. Service points

6 - 1 POINT

Caution for NEUTRAL FUSING.

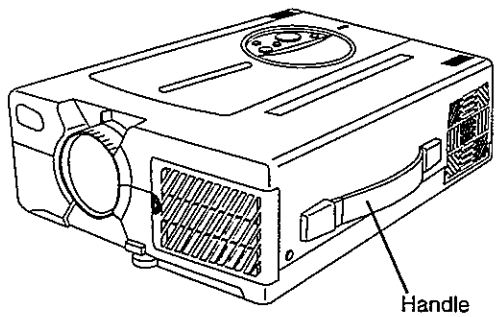
The fuse is in NEUTRAL line on this model. Therefore high voltage is still supplied to circuit after fuse is blown. Always unplug the AC cord from the socket before removing Upper case and be careful not to get a shock when checking waveforms and voltage without Upper case.



<Without Upper case>

● **When Upper case is removed**

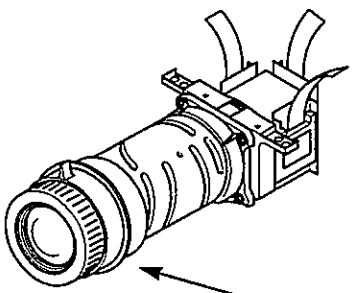
Upper case is lifted as the figure with pulling a handle.



● **Before Replacing the LCD / Lens Prism**

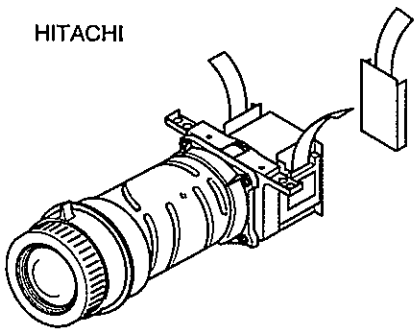
You should not replace separately the parts of the liquid crystal LCD / Lens Prism because it works properly only when used together. Therefore, regarding these parts, you can either replace part , LCD / Lens Prism Ass'y, or send the whole unit LCD / Lens Prism Ass'y back to Hitachi, where we will replace the malfunctioning part, recondition the device and send it back to you. In that case please contact our distributor.

DISTRIBUTOR



•Do not disassemble the unit because replacement of separate parts is not possible.
•For repairs of the product, please contact our distributor.

HITACHI



Replacement of G Panel→ Reconditioning

Return

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6 - 2 Service point of principal parts

(1) Removing the UPPER CASE ASS'Y.
1. Remove 9 screws and remove the UPPER CASE ASS'Y.

(2) Removing the PWB ASS'Y DRIVE.
1. Remove the UPPER CASE ASS'Y.(Refer to item 6-2(1))
2. Release the lock of the connector housing and disconnect the FPC of the LCD module ass'y.
3. Remove 4 screws and disconnect 10 connectors and remove the PWB ASS'Y DRIVE.

(3) Removing the SPEAKER.
1. Remove 2 screws and disconnect a wire-to-wire connector to remove each SPEAKER.

(4) Removing the POWER UNIT(BALLAST).
1. Remove a screw to remove the metallic stopper on LAMP connector.
2. Remove 4 screws on Ballast holder and disconnect lamp connector to remove the POWER UNIT(BALLAST).

(5) Removing the LCD/LENS PRISM ASS'Y.
1. Remove the UPPER CASE ASS'Y.(Refer to item 6-2(1))
2. Remove the PWB ASS'Y DRIVE.(Refer to item 6-2(2))
3. Remove a screw to remove the filter to protect LCD panels.
4. Remove 2 screws to remove the LCD/LENS PRISM ASS'Y.

(6) Removing the DICHROIC OPTICS UNIT.
1. Remove the LAMP COVER ⑤ and remove the LAMP.
2. Remove the UPPER CASE ASS'Y.(Refer to item 6-2(1))
3. Remove the PWB ASS'Y DRIVE.(Refer to item 6-2(2))
4. Remove the SPEAKER.(Refer to item 6-2(3))
5. Remove the PWB ASS'Y POWER UNIT(BALLAST).(Refer to item 6-2(4))
6. Remove the HOOD inside DC FAN(POWER) ㊱ by two clips.
7. Remove a screw on the filter for LCD panels to remove the filter.
8. Remove tape(black) on the DICHROIC OPTICS UNIT and disconnect all wire-to-wire connectors.
9. Remove 3 screws and remove the DICHROIC OPTICS UNIT.

(7) Removing the PWB ASS'Y INPUT TERMINAL RGB.
1. Remove a screw and remove the PWB ASS'Y INPUT TERMINAL VIDEO.
2. Remove the UPPER CASE ASS'Y.(Refer to item 6-2(1))
3. Remove the PWB ASS'Y DRIVE.(Refer to item 6-2(2))
4. Remove 3 screws and remove the PWB ASS'Y INPUT TERMINAL PANEL.
5. Remove 2 screws and remove the PWB INPUT TERMINAL RGB with RGB metal.

(8) Removing the DC FAN(POWER).
1. Remove the UPPER CASE ASS'Y.(Refer to item 6-2(1))
2. Remove the PWB ASS'Y DRIVE.(Refer to item 6-2(2))
3. Remove the SPEAKER-R.(Refer to item 6-2(3))
4. Remove the PWB ASS'Y POWER UNIT(BALLAST).(Refer to item 6-2(4))
5. Remove the DICHROIC OPTICS UNIT.(Refer to item 6-2(6))
6. Remove 3 screws to remove the DC FAN(POWER).

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6 - 3 About Lamp Replacement

Light source lamp has a service life.
The picture will become dark or color will be poor when the lamp is used for a long time.
If usage of lamp is continued in such cases, it could cause a malfunction. Replace lamp with new one.
As reference for replacement time, indicator will operate or message will be displayed when the power is turned on, as shown on page 31,32. In these cases the lamp should be replaced.

Caution — Also LAMP indicator will light when the lamp becomes too hot. Turn off the power and let the projector cool for 45 minutes. Turn on.

1. How to replace lamp

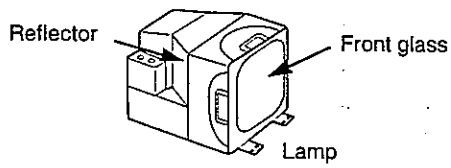
(Option lamp : Lamp unit DT00205)

HIGH VOLTAGE
HIGH TEMPERATURE
HIGH PRESSURE

When replacing lamp, turn off and remove AC cord, wait 45 minutes to let lamp cool. High-pressure lamp when hot, may explode if improperly handled.

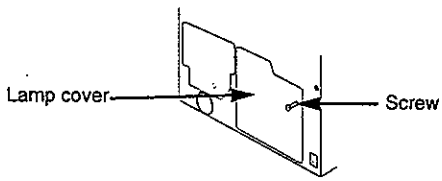
Caution

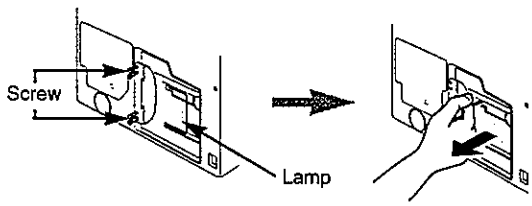
- For disposal of used lamp, treat according to the instruction of community authorities.
- Since the lamp is made of glass, do not apply shock to it and do not scratch it.
- Also, do not use old lamp. This could also cause explosion of the lamp.
- If it is probable that the lamp has exploded (explosive sound is heard), disconnect the power plug from the power outlet and replace lamp. The lamp is covered by front glass and air-tight structure, but, in rare cases, the reflector and the inside of the projector may be damaged by scattered broken pieces of glass, and broken pieces could cause injury when being handled.



1. Turn the main power switch off and disconnect the power plug from the power outlet.
2. Remove the lamp cover.
   - If lamp is hot at this time, this could cause burn. Wait for minimum 45 minutes until lamp is cooled down.
   - Loosen a screw and remove the cover.
3. Loosen two screws and pull the handle to remove the lamp.
   - If the screws are not loosened completely, your fingers may be damaged.
   - Do not insert your hand into the box after the lamp is removed.

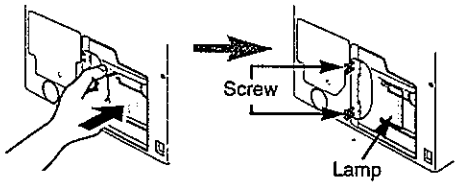
   (There are optical parts inside. If touched by hand, it may result in color unevenness, etc.)

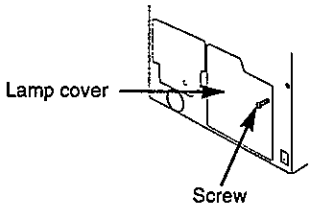




4. Replace the lamp with new one and fix it using the same two screws.
   - Firmly tighten the lamp screws. Loose screws may cause bad connection of the connector which in turn may result in malfunctioning.
5. Install the lamp cover and fix it using screws.
   - To prevent burn, install the lamp cover and secure it using the screws.
   - Do not turn on the power with lamp cover removed.

- Whenever the lamp is replaced, reset the total operation time of the lamp. Do not reset if the lamp has not been replaced.
- Do not perform resetting without changing the lamp, as this can cause lamp breakage.





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7. Dust cleaning

(1) Check For Dust
1. Display the white picture on a 60" screen.
2. If there is dust present, clean the LCD Module Assembly, the Multilenses, and the air filter.

(2) Clean the LCD Module Assembly (Do not remove the LCD Module Assembly)
1. Use the Dust Blower to remove dust from the LCD Module Assembly.
2. If dust is still present, wipe it off with the special glass cleaning cloth.
3. Repeat Step (1), Check for Dust.

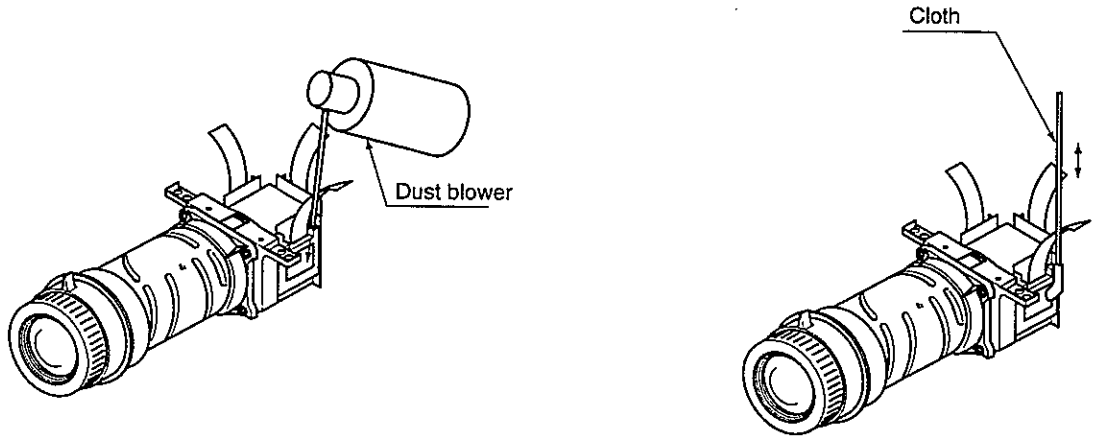

Fig. 1

(3) Clean the Air filter
1. Remove the air filter from the front of the projector.
2. Wipe the air filter with a cloth moistened with water or neutral detergent, and wipe with a dry cloth.

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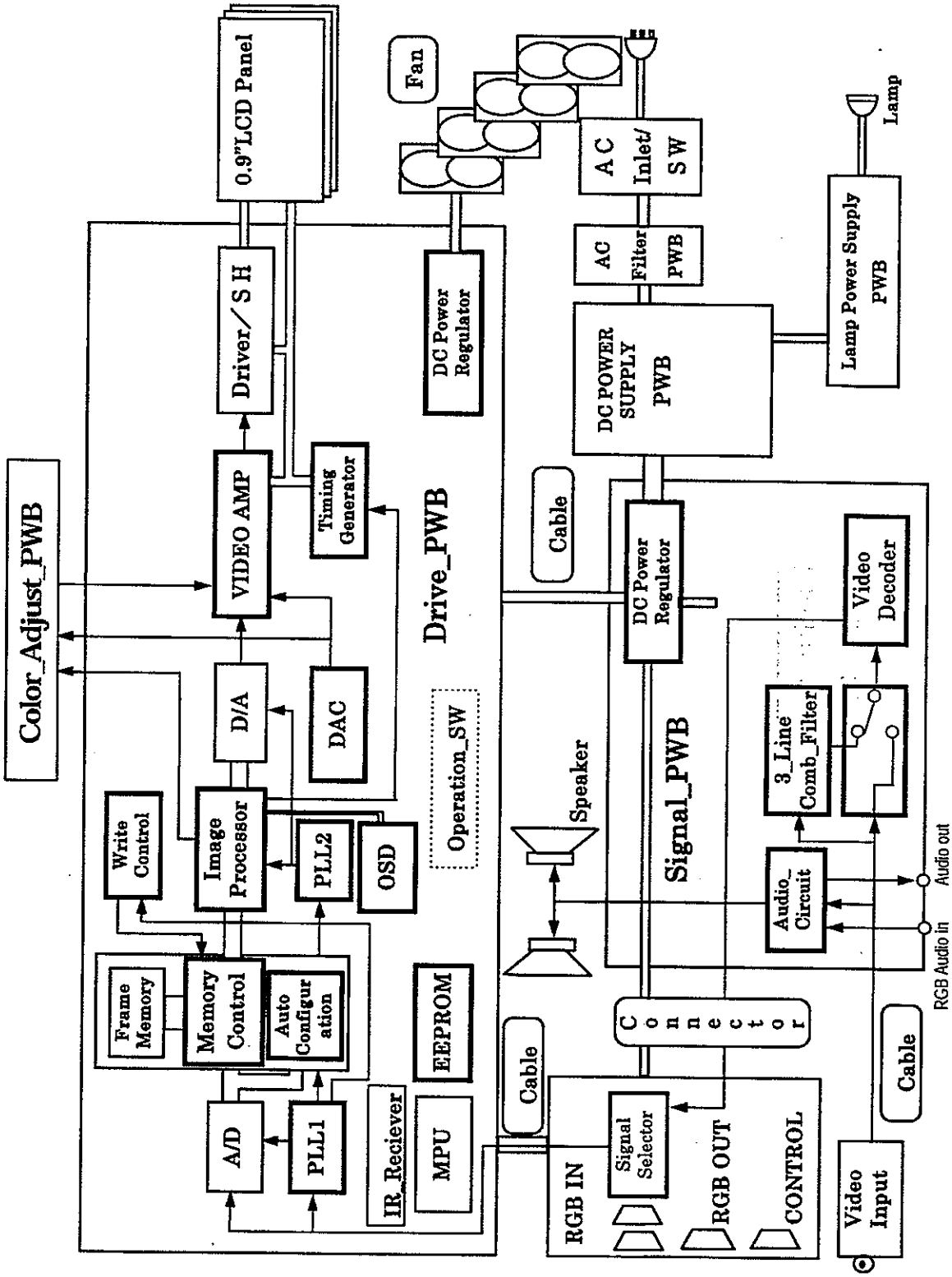
8. Block diagram



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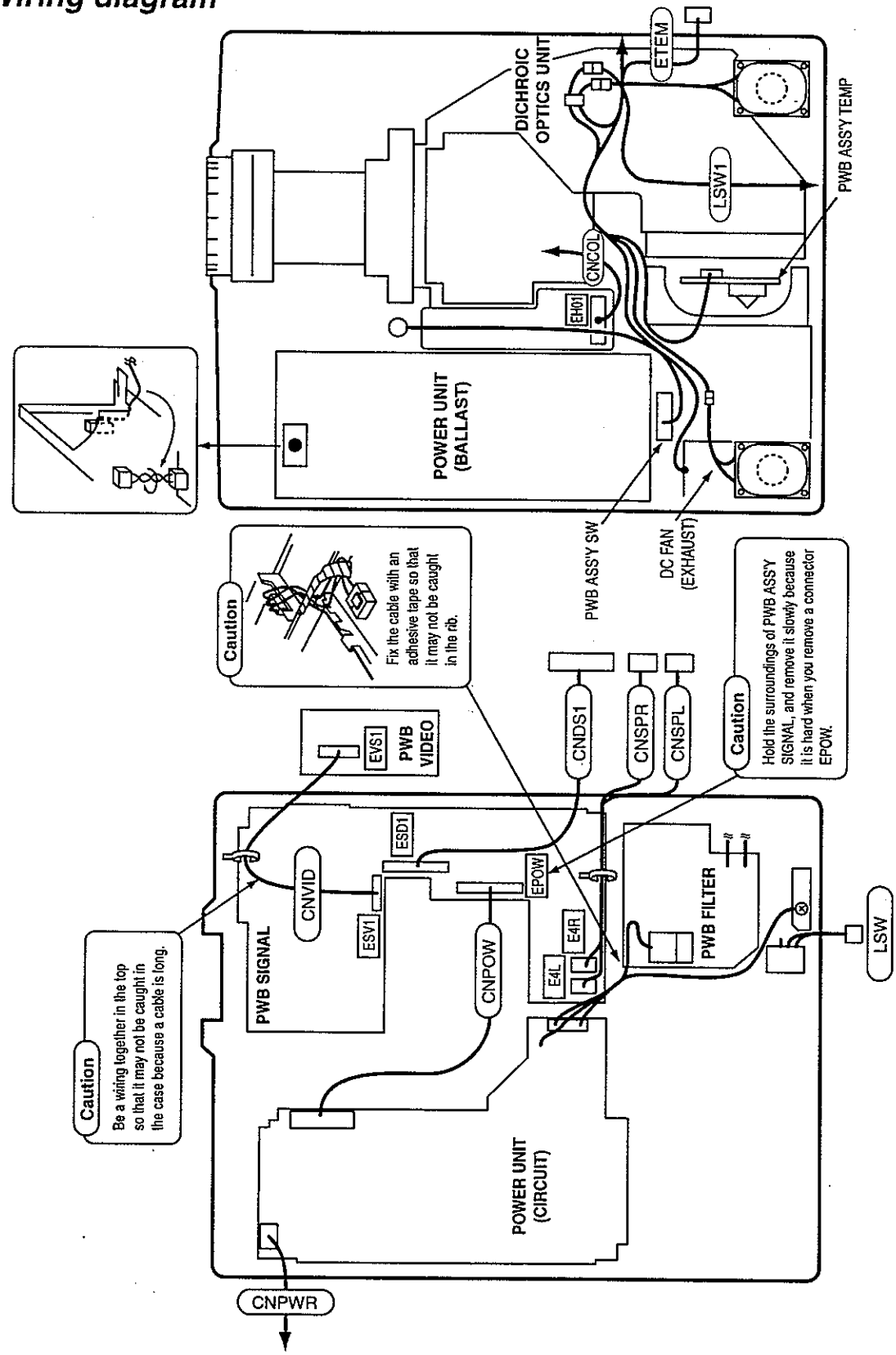
9. Wiring diagram



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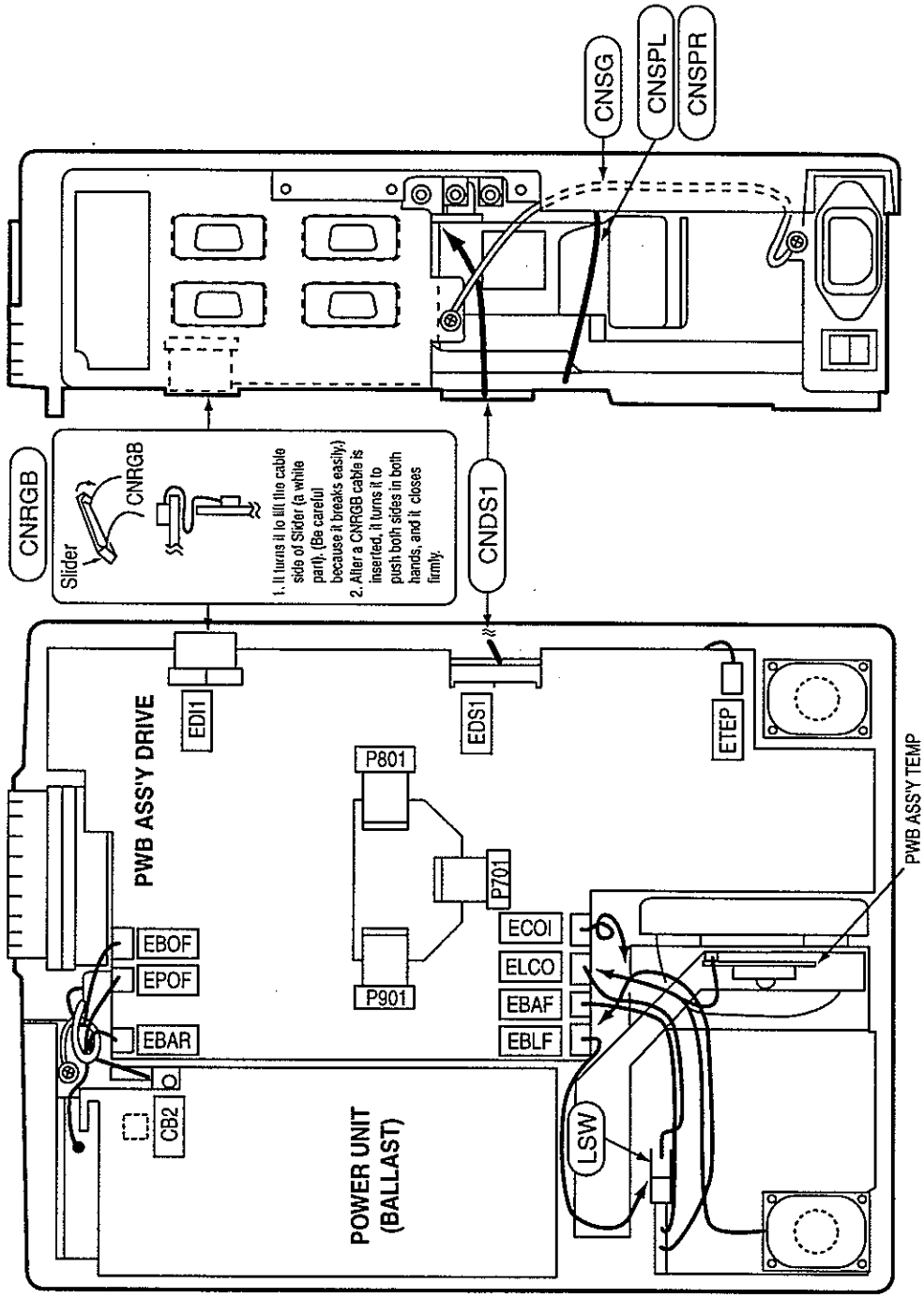

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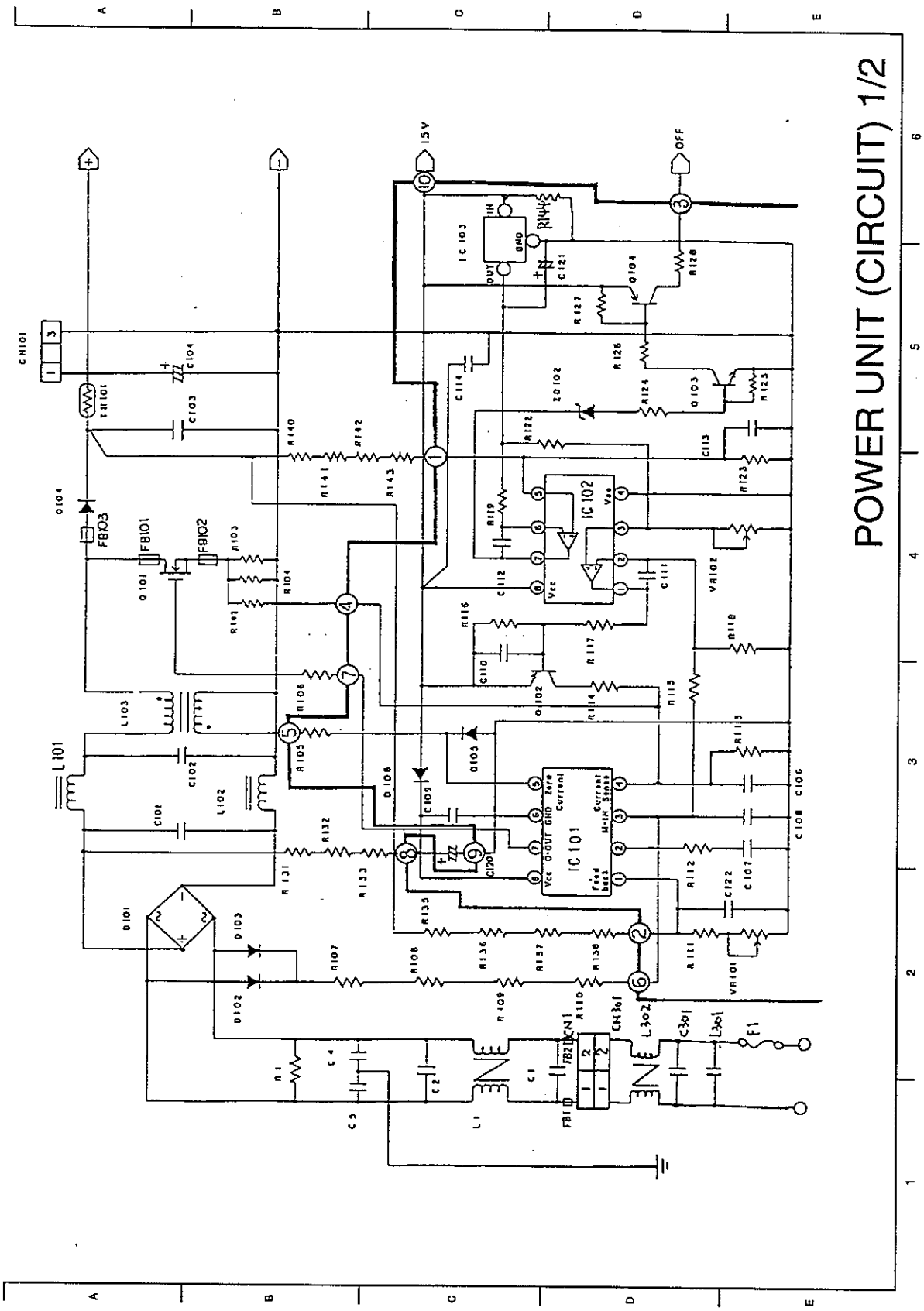

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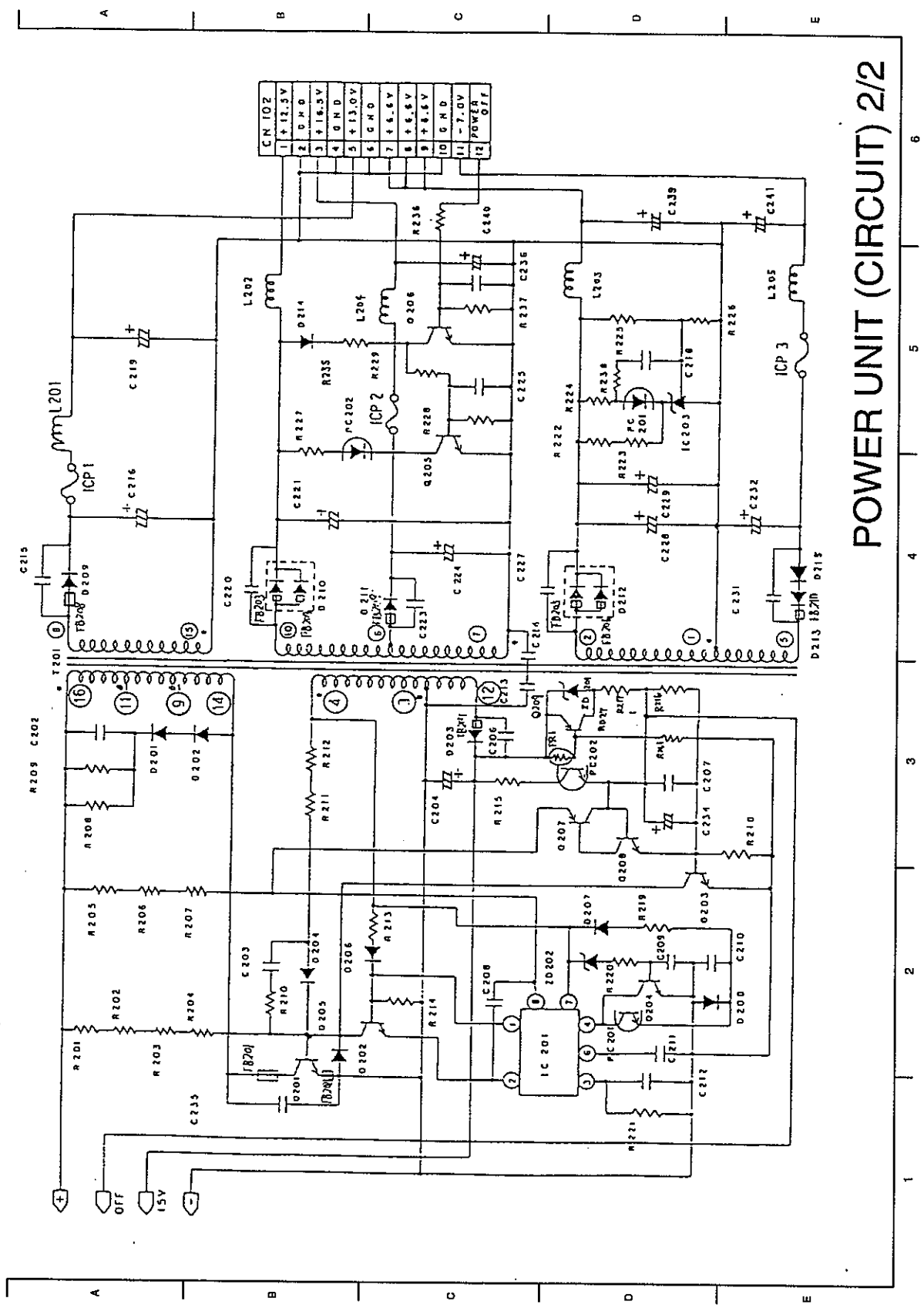

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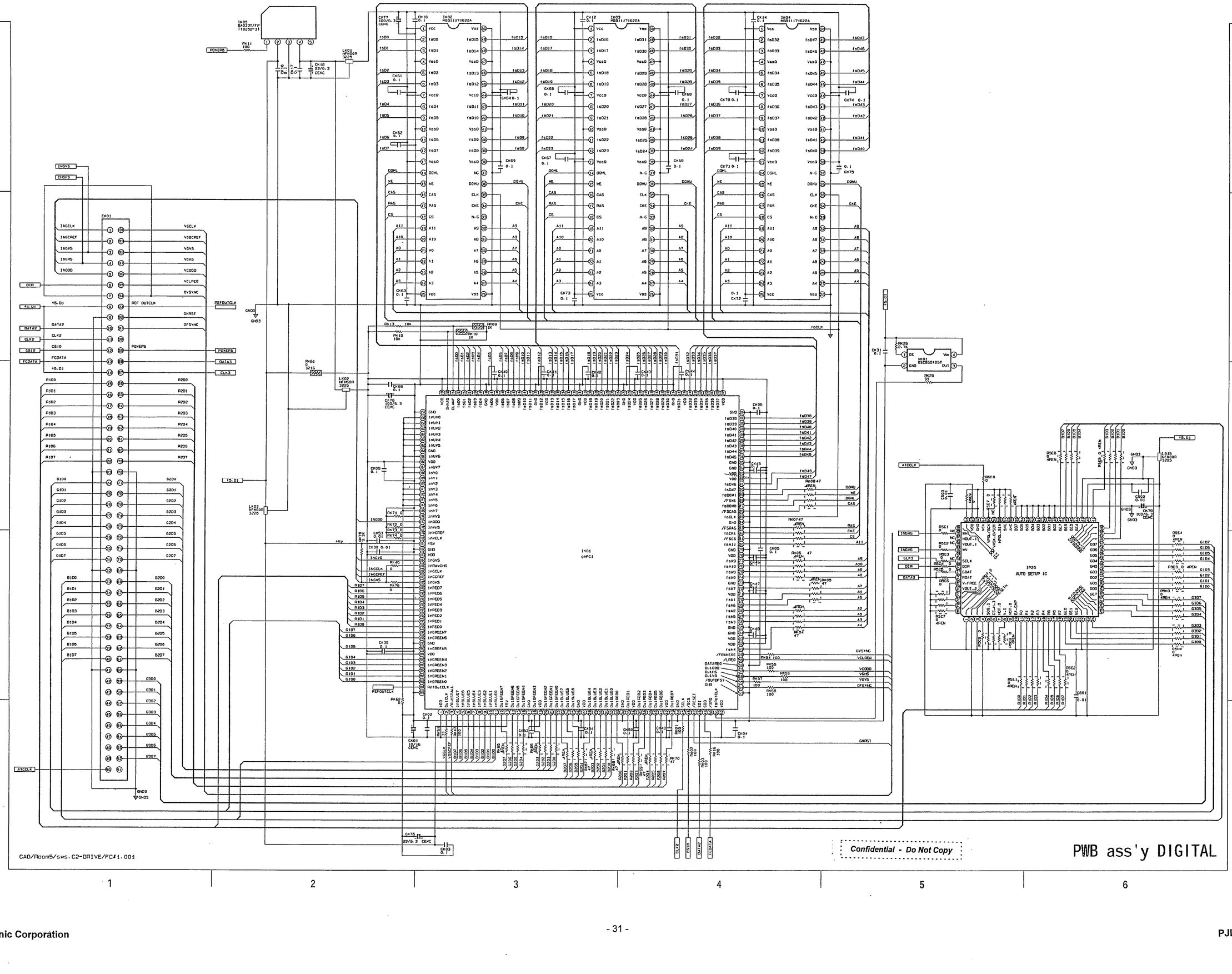
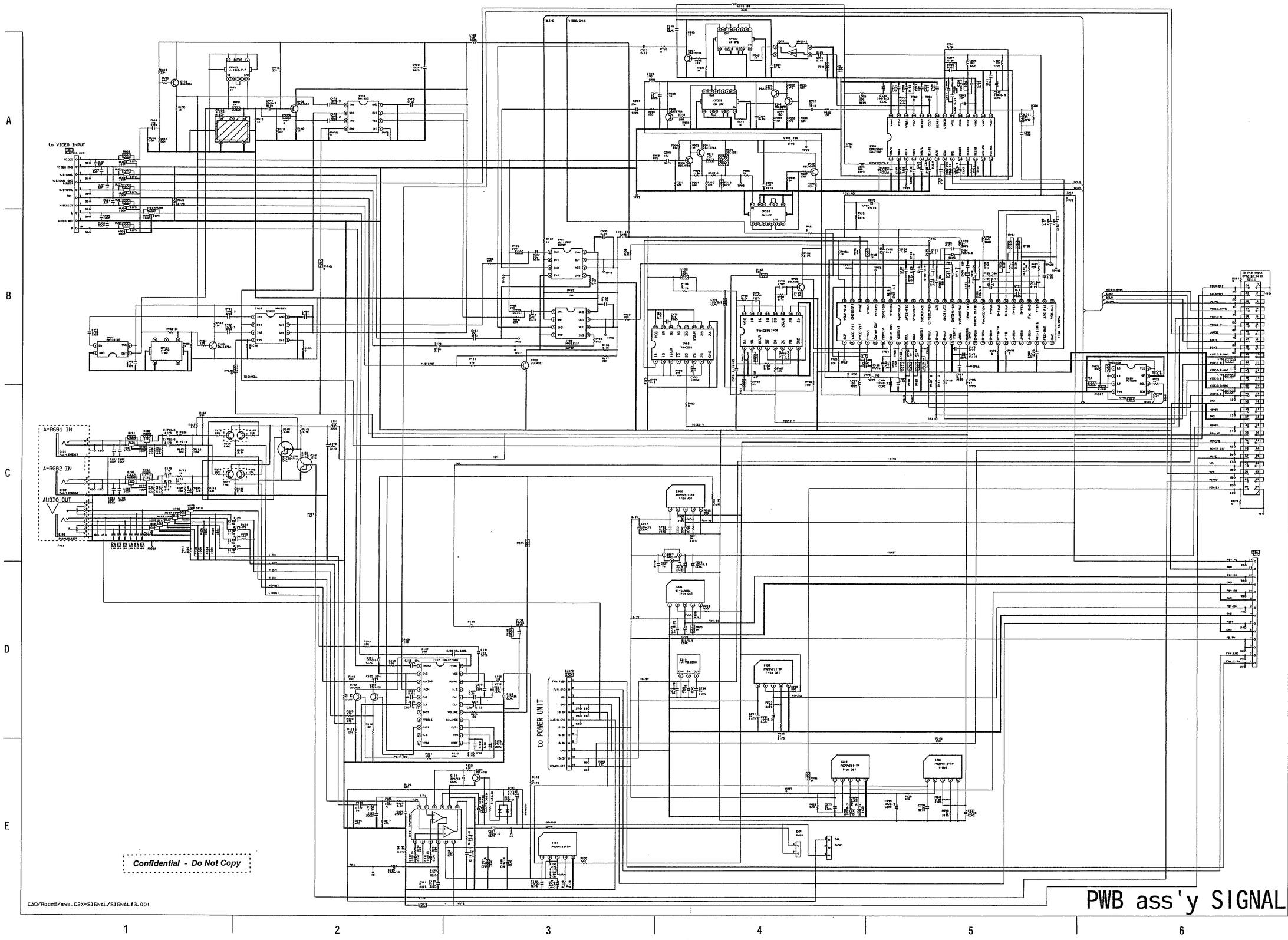
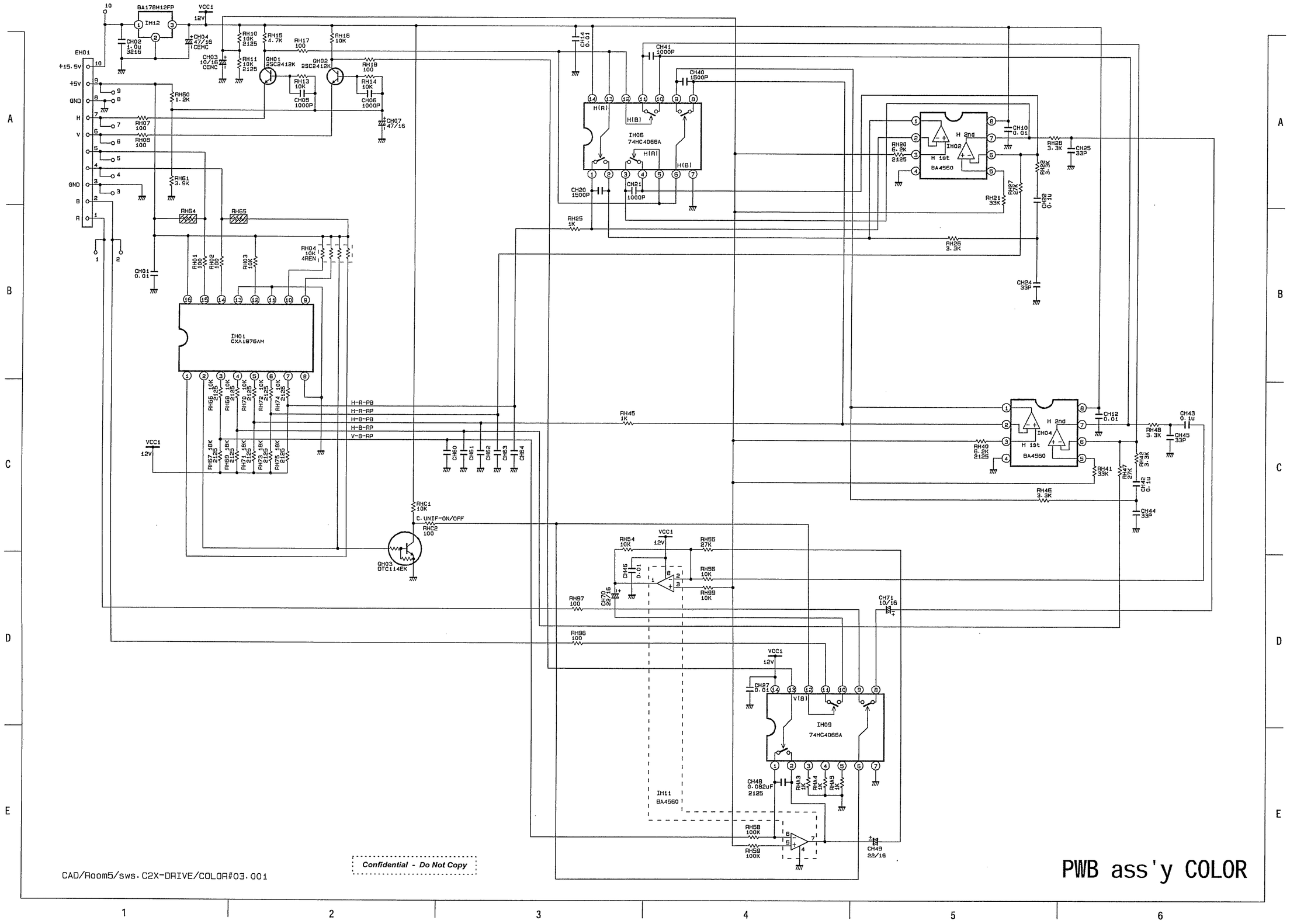
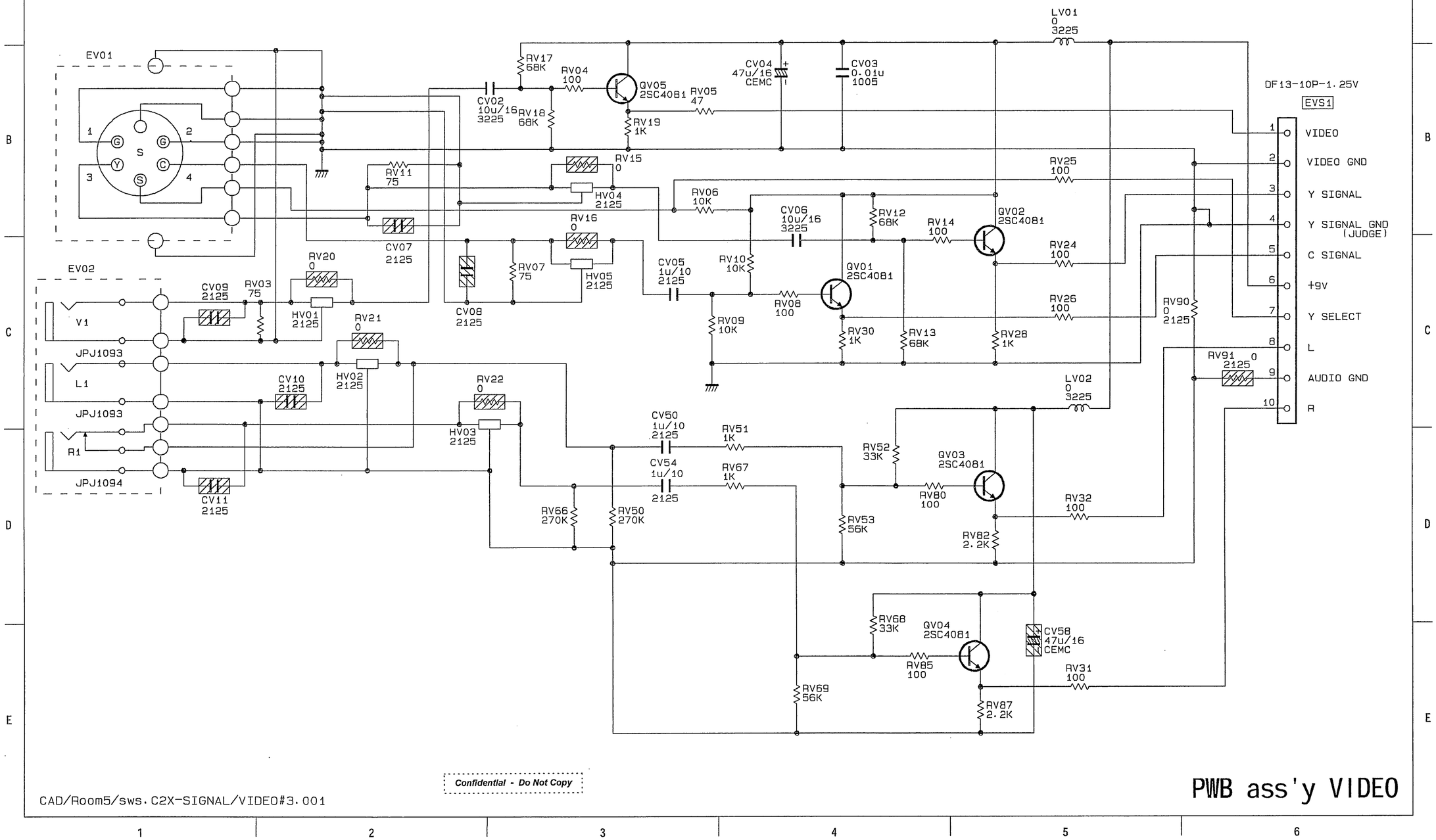

IK05 BA3731/FP 110252-31
POWER5
RK11 100
LK01 NFM60R 3025
CK18 22/6.3 CEMC
IK02 M5D11716224A
IK03 M5D11716224A
IK04 M5D11716224A
IK01 onFC1
EK01
INGVS
INGHS
INGCLK
INGCREF
INDOD
DIR
45.01
DATA2
CLK2
CS10
FCDATA
REF OUTCLK
GWRST
DFSYNC
POWER5
DATA3
CLK3
VGCLK
VGBCREF
VGVS
VGHS
VCODD
VCLRE0
OVSYNC
REFOUTCLK
GND3
ATCCLK
R3D0
R3D1
R3D2
R3D3
R3D4
R3D5
R3D6
R3D7
G3D0
G3D1
G3D2
G3D3
G3D4
G3D5
G3D6
G3D7
B3D0
B3D1
B3D2
B3D3
B3D4
B3D5
B3D6
B3D7
G300
G301
G302
G303
G304
G305
G306
G307
B200
B201
B202
B203
B204
B205
B206
B207
R200
R201
R202
R203
R204
R205
R206
R207
fsCLK
IP26
AUTO SETUP IC
Confidential - Do Not Copy
PWB ass'y DIGITAL
CAD/Room5/sws.C2-DRIVE/FC#1.001


to VIDEO INPUT
A-RGB1 IN
A-RGB2 IN
AUDIO OUT
to POWER UNIT
Confidential - Do Not Copy
CAD/ROOM5/SW9.C2X-SIGNAL/SIGNAL#3.001
PWB ass'y SIGNAL


BA178M12FP
IH12
VCC1
12V
EH01
+15.5V
+5V
GND
H
V
GND
B
A
CH02 1.0u 3216
CH04 47/16 CEMC
CH03 10/16 CEMC
RH10 10K 2125
RH11 10K 2125
RH15 4.7K
RH17 100
RH16 10K
QH01 2SC2412K
QH02 2SC2412K
RH13 10K
RH14 10K
RH18 100
CH05 1000P
CH06 1000P
CH07 47/16
RH60 1.2K
RH07 100
RH08 100
RH61 3.9K
RH64
RH65
CH01 0.01
RH01 100
RH02 100
RH03 100
RH04 10K 4REN
IH01 CXA1875AM
RH65 10K 2125
RH68 10K 2125
RH70 10K 2125
RH72 10K 2125
RH74 10K 2125
RH67 10K 2125
RH69 10K 2125
RH71 10K 2125
RH73 10K 2125
RH75 10K 2125
H-A-PB
H-A-AP
H-B-PB
H-B-AP
V-B-AP
CH60
CH61
CH62
CH63
CH64
RHC1 10K
C-UNIF-ON/OFF
RHC2 100
QH03 DTC114EK
CH14 0.01
CH41 1000P
CH40 1500P
IH06 74HC4066A
H(A)
H(B)
CH20 1500P
CH21 1000P
RH25 1K
RH45 1K
IH02 BA4560
H 2nd
H 1st
RH20 6.2K 2125
RH22 3.3K
RH27 27K
RH21 33K
CH22 0.1u
RH26 3.3K
CH10 0.01
RH28 3.3K
CH25 33P
CH24 33P
IH04 BA4560
CH12 0.01
RH40 6.2K 2125
RH48 3.3K
CH43 0.1u
CH45 33P
RH41 33K
RH47 27K
RH42 3.3K
CH42 0.1u
RH46 3.3K
CH44 33P
RH54 10K
RH55 27K
RH56 10K
RH58 10K
CH46 0.01
CH70 22/16
RH97 100
RH96 100
CH71 10/16
CH27 0.01
V(B)
IH09 74HC4066A
CH48 0.082UF 2125
RH43 1K
RH44 1K
RH45 1K
IH11 BA4560
RH58 100K
RH59 100K
CH49 22/16
CAD/Room5/sws.C2X-DRIVE/COLOR#03.001
Confidential - Do Not Copy
PWB ass'y COLOR


EV01
EV02
V1
L1
R1
JPJ1093
JPJ1093
JPJ1094
JPJ1093
RV17 68K
RV04 100
QV05 2SC4081
RV05 47
RV19 1K
CV02 10u/16 3225
RV18 68K
CV04 47u/16 CEMC
CV03 0.01u 1005
LV01 0 3225
RV11 75
RV15 0
HV04 2125
CV07 2125
RV06 10K
CV06 10u/16 3225
RV12 68K
RV14 100
QV02 2SC4081
RV25 100
RV16 0
HV05 2125
RV07 75
CV08 2125
CV05 1u/10 2125
RV10 10K
QV01 2SC4081
RV08 100
RV09 10K
RV30 1K
RV13 68K
RV28 1K
RV24 100
RV26 100
RV90 0 2125
RV91 0 2125
CV09 2125
RV03 75
HV01 2125
RV20 0
RV21 0
HV02 2125
CV10 2125
CV11 2125
RV22 0
HV03 2125
CV50 1u/10 2125
RV51 1K
CV54 1u/10 2125
RV67 1K
RV66 270K
RV50 270K
RV52 33K
QV03 2SC4081
RV80 100
RV53 56K
RV82 2.2K
LV02 0 3225
RV32 100
RV68 33K
QV04 2SC4081
CV58 47u/16 CEMC
RV85 100
RV69 56K
RV87 2.2K
RV31 100
DF13-10P-1.25V
EVS1
1 VIDEO
2 VIDEO GND
3 Y SIGNAL
4 Y SIGNAL GND (JUDGE)
5 C SIGNAL
6 +9V
7 Y SELECT
8 L
9 AUDIO GND
10 R
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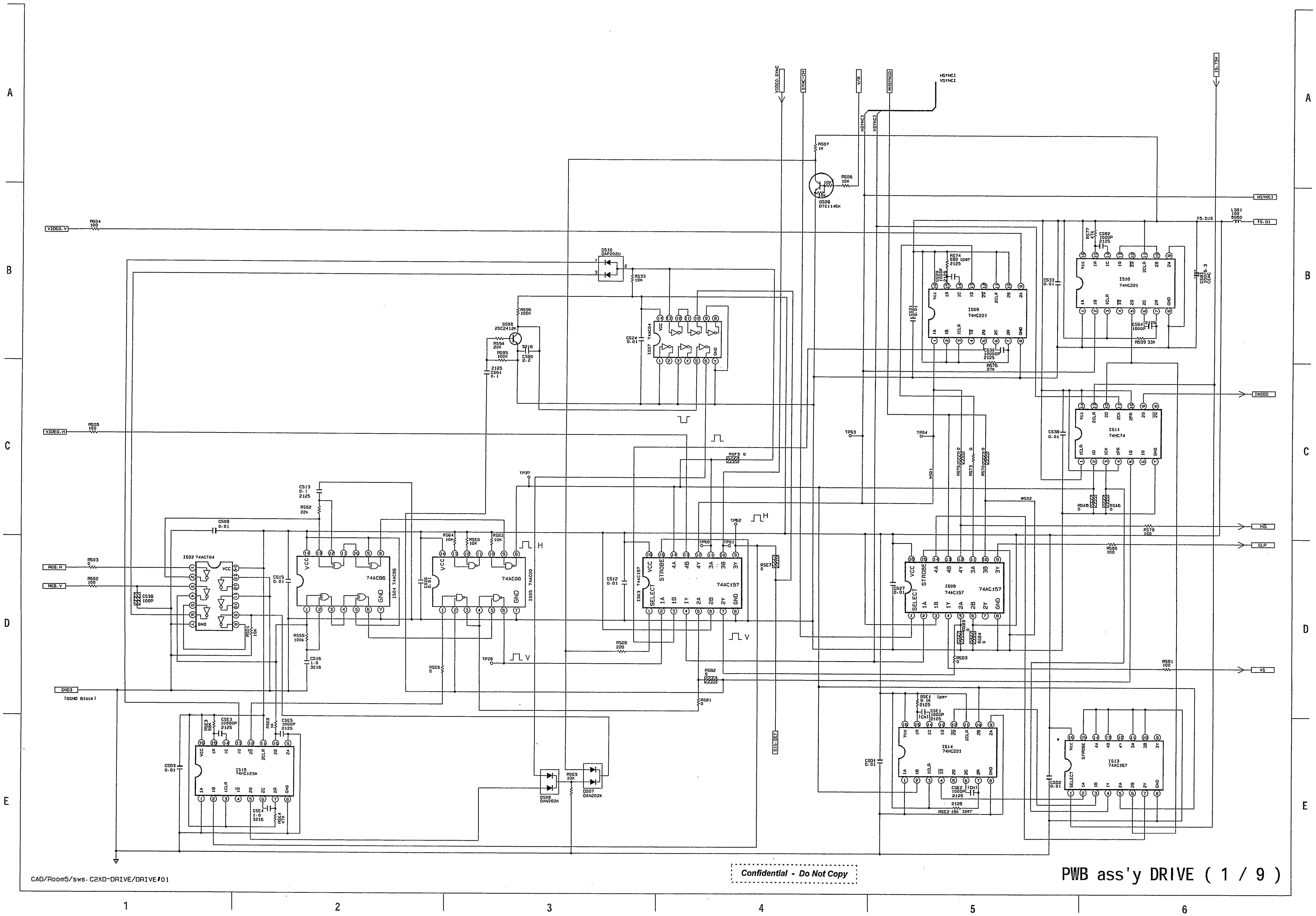
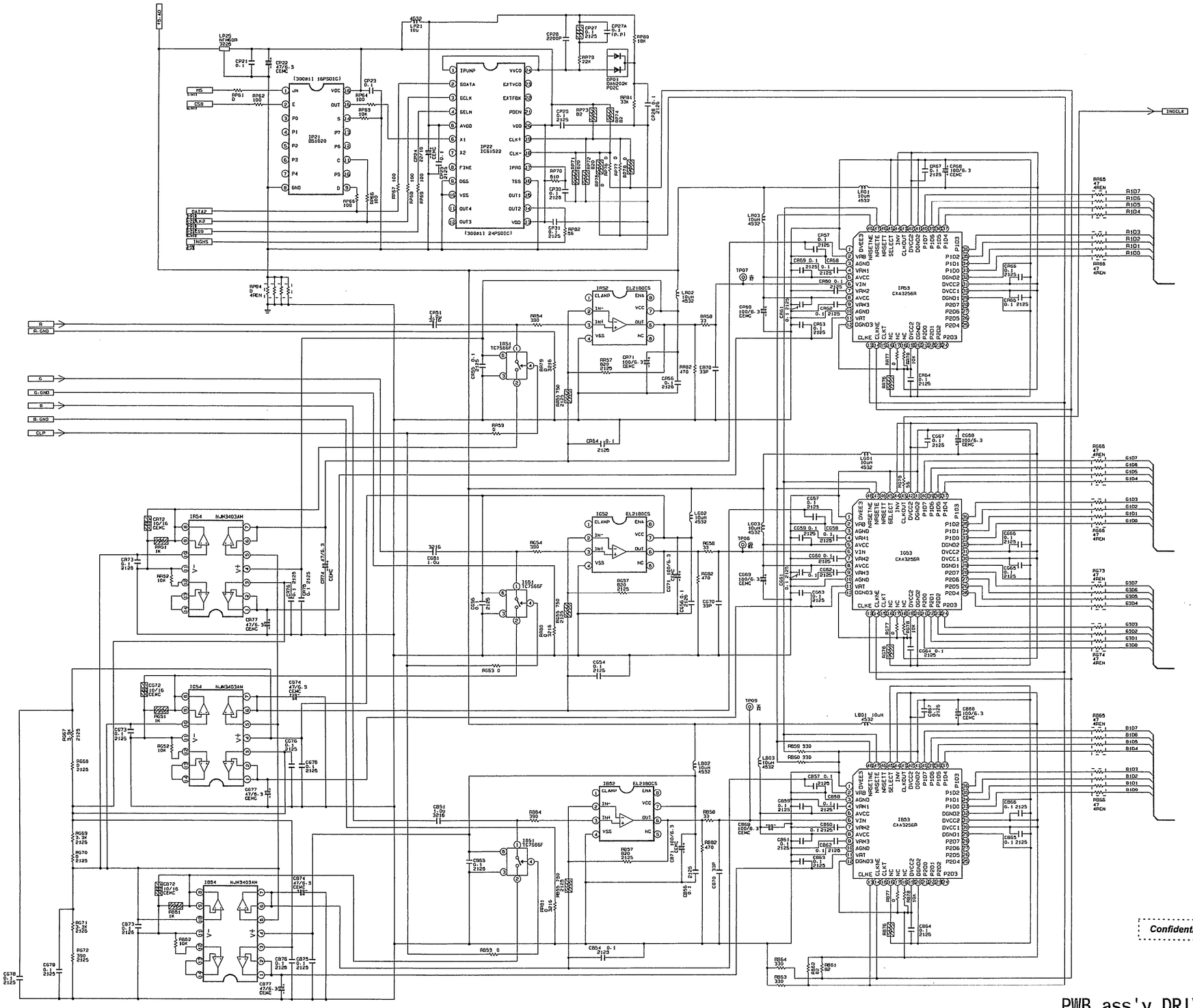
CAD/Room5/sws.C2X-SIGNAL/VIDEO#3.001
PWB ass'y VIDEO



PWB ass'y DRIVE (1 / 9)
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01
Confidential - Do Not Copy


IR21 DS1620
IR22 ICS1522
IR3 CXA3256R
IG3 CXA3256R
IB3 CXA3256R
IR51 TC7S66F
IG51 TC7S66F
IB51 TC7S66F
IR52 EL2180CS
IG52 EL2180CS
IB52 EL2180CS
IR54 NJM3403AM
IG54 NJM3403AM
IB54 NJM3403AM
INGCLK
R
R.GND
G
G.GND
B
B.GND
CLP
DATA2
CLK2
INGHS
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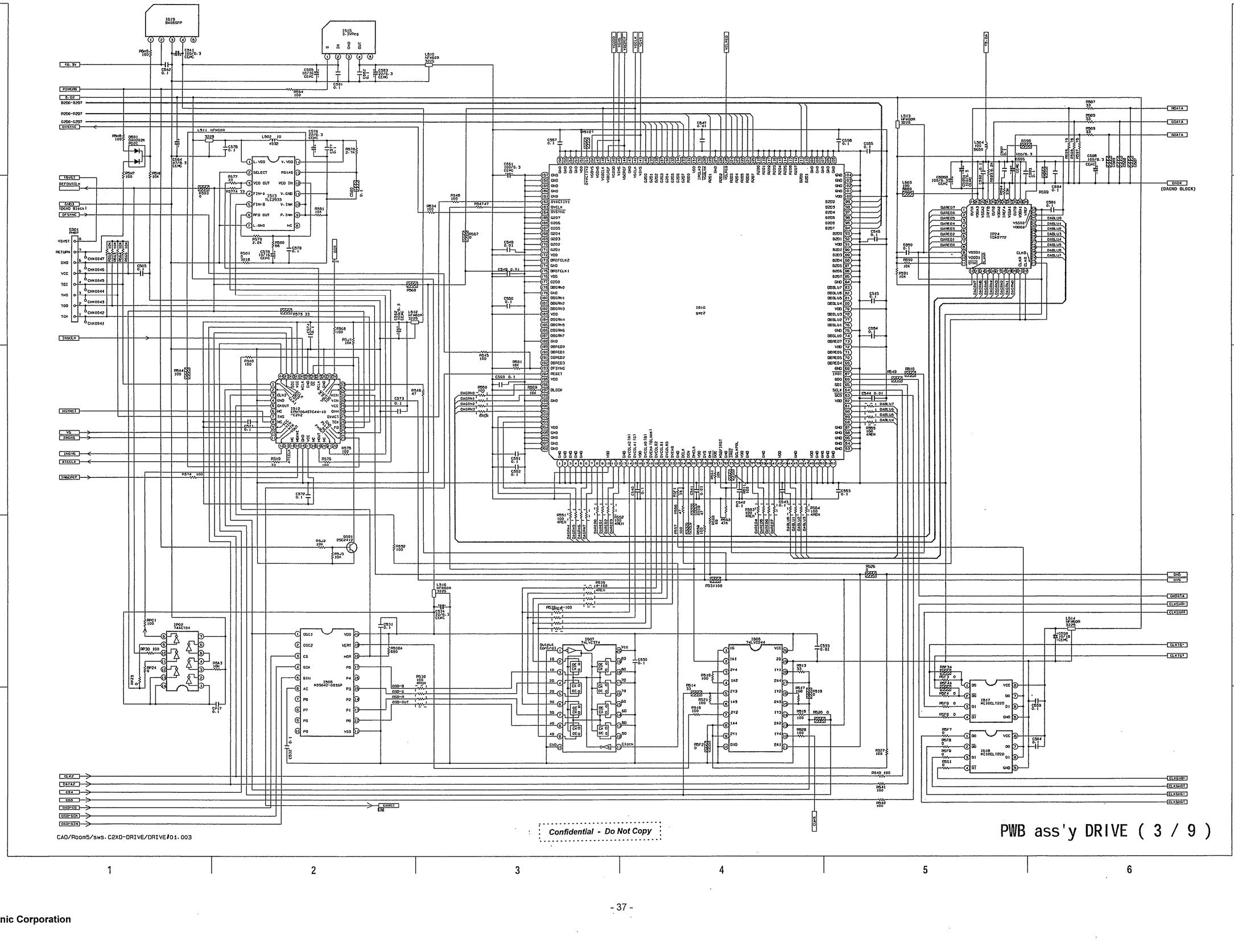
PWB ass'y DRIVE (2 / 9)
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.002


Confidential - Do Not Copy
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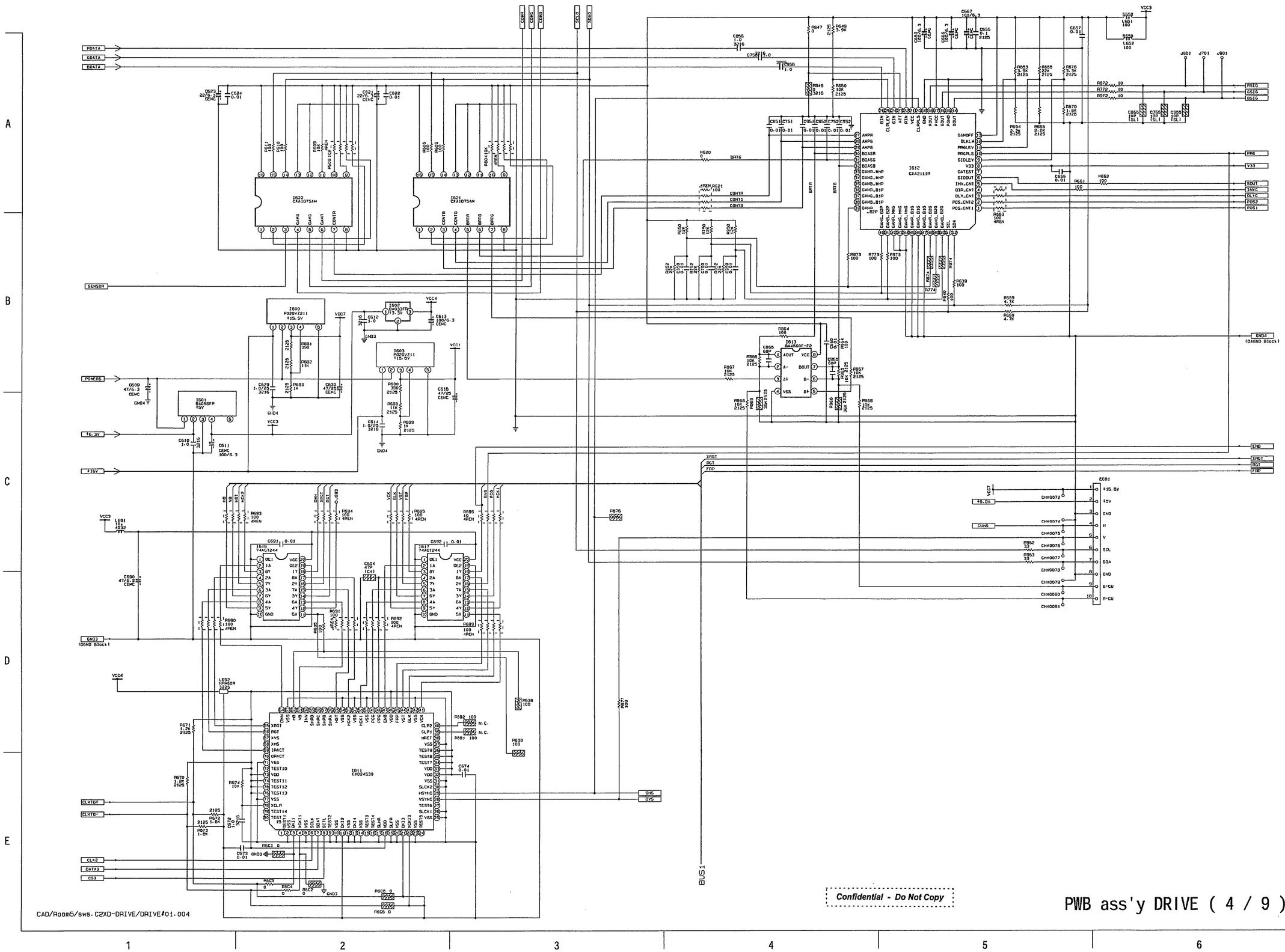
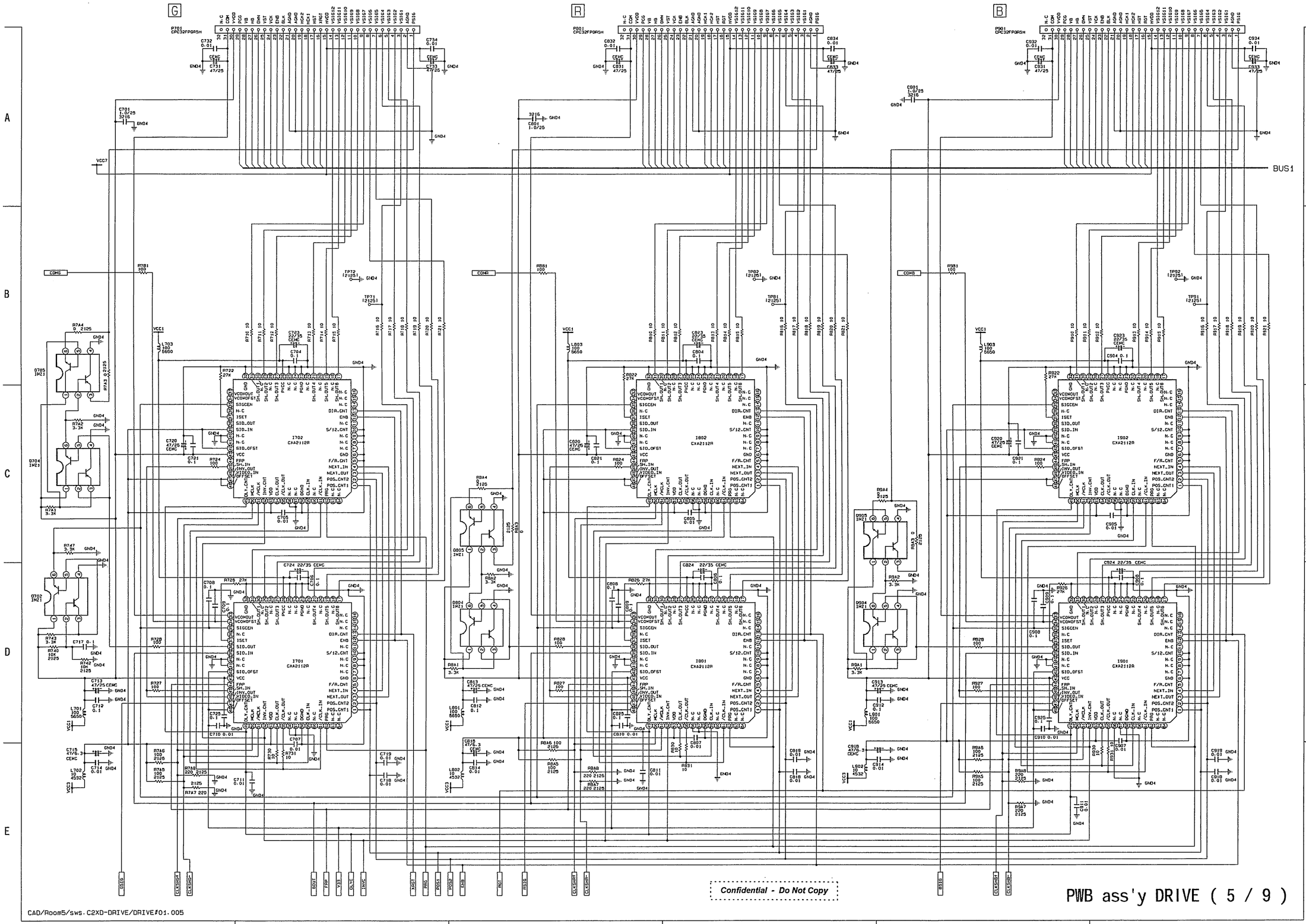
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.003


RDATA
GDATA
BDATA
SENSOR
POWER6
+6.3V
+16V
CLKTG+
CLKTG-
CLK2
DATA2
CS3
IC600 P020V2211 +15.5V
IC601 BA033FP 3.3V
IC603 P020V211 +15.5V
IC601 BA05SFP 15V
IC622 CXA1075AM
IC621 CXA1075AM
IC612 CXA2111R
IC613 BA4560F-E2
IC610 74AC1244
IC617 74AC1244
IC611 CXD2453Q
IC604 CXD4539
EC01
VCC3
VCC4
VCC7
VCC1
GND4
GND3
BUS1
RSIG
GSIG
BSIG
PRE
V33
SOUT
INVC
DLYC
POSP
POSI
GND4 (DAGND Block)
XRGT
RGT
FRP
GND
DVS
+15.5V
+5V
GND
H
V
SCL
SDA
GND
B-CU
R-CU
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.004
Confidential - Do Not Copy
PWB ass'y DRIVE (4 / 9)


G
R
B
BUS1
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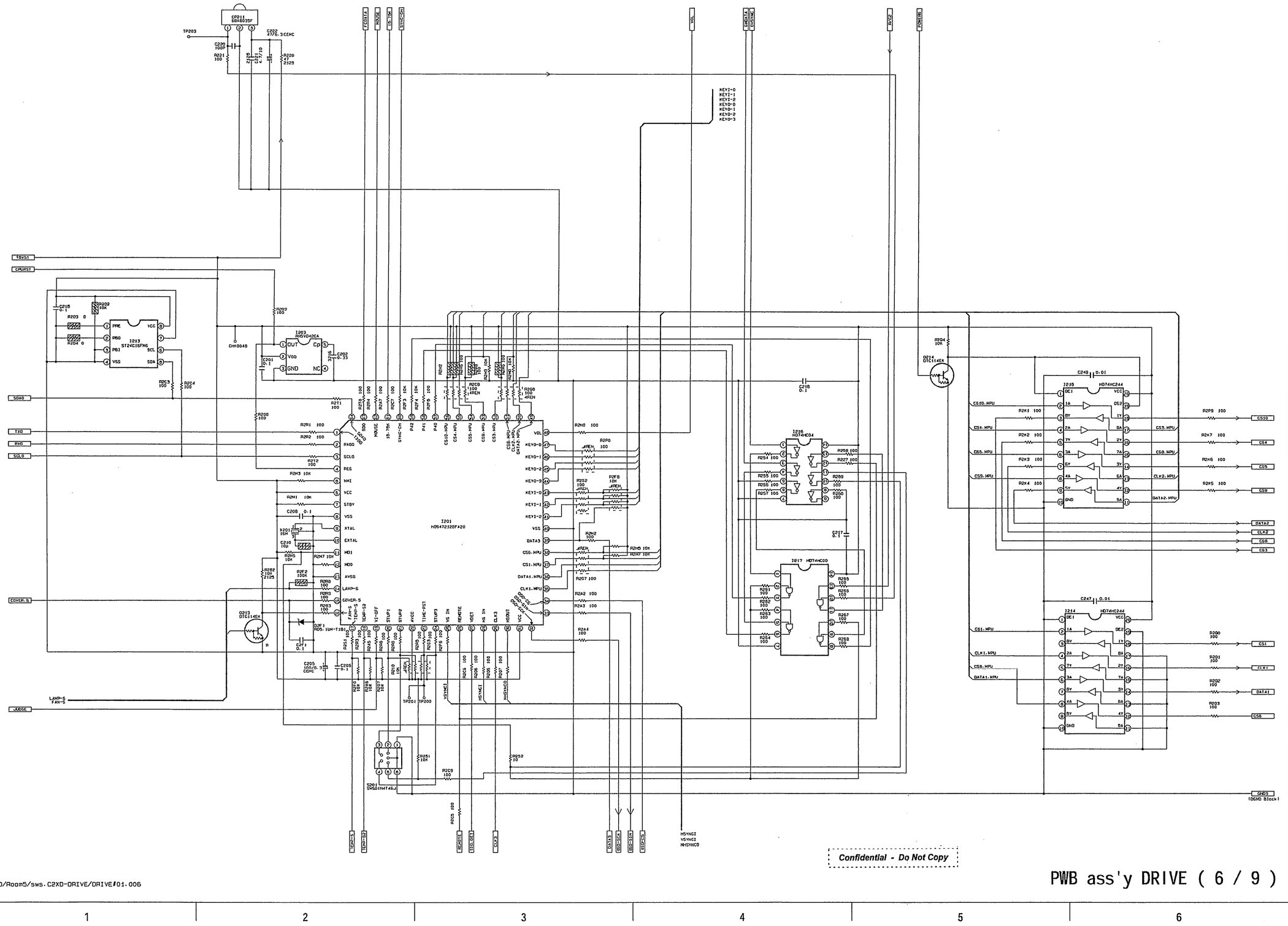
PWB ass'y DRIVE (5 / 9)
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.005



CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.006

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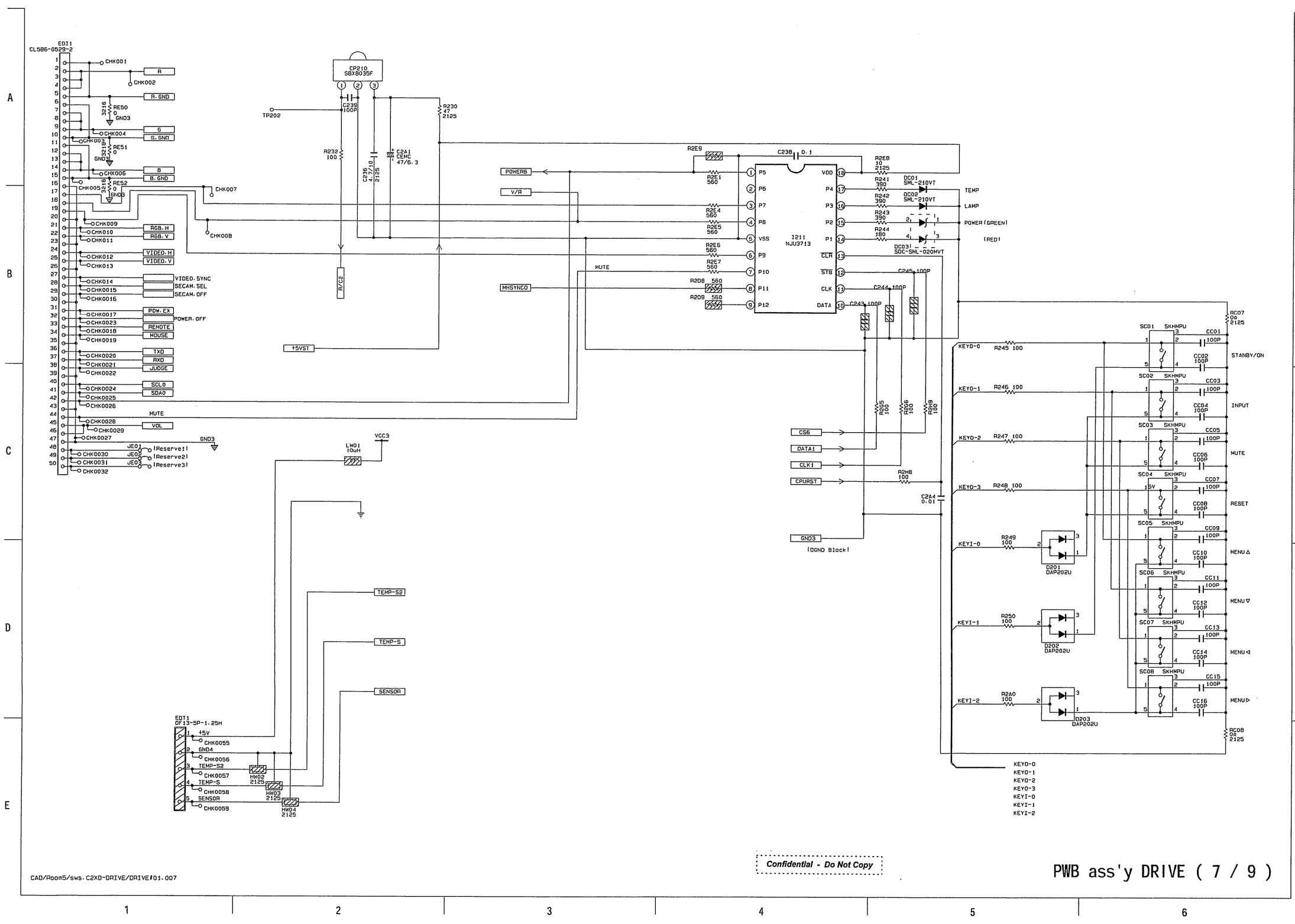
PWB ass'y DRIVE (6 / 9)



CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.007

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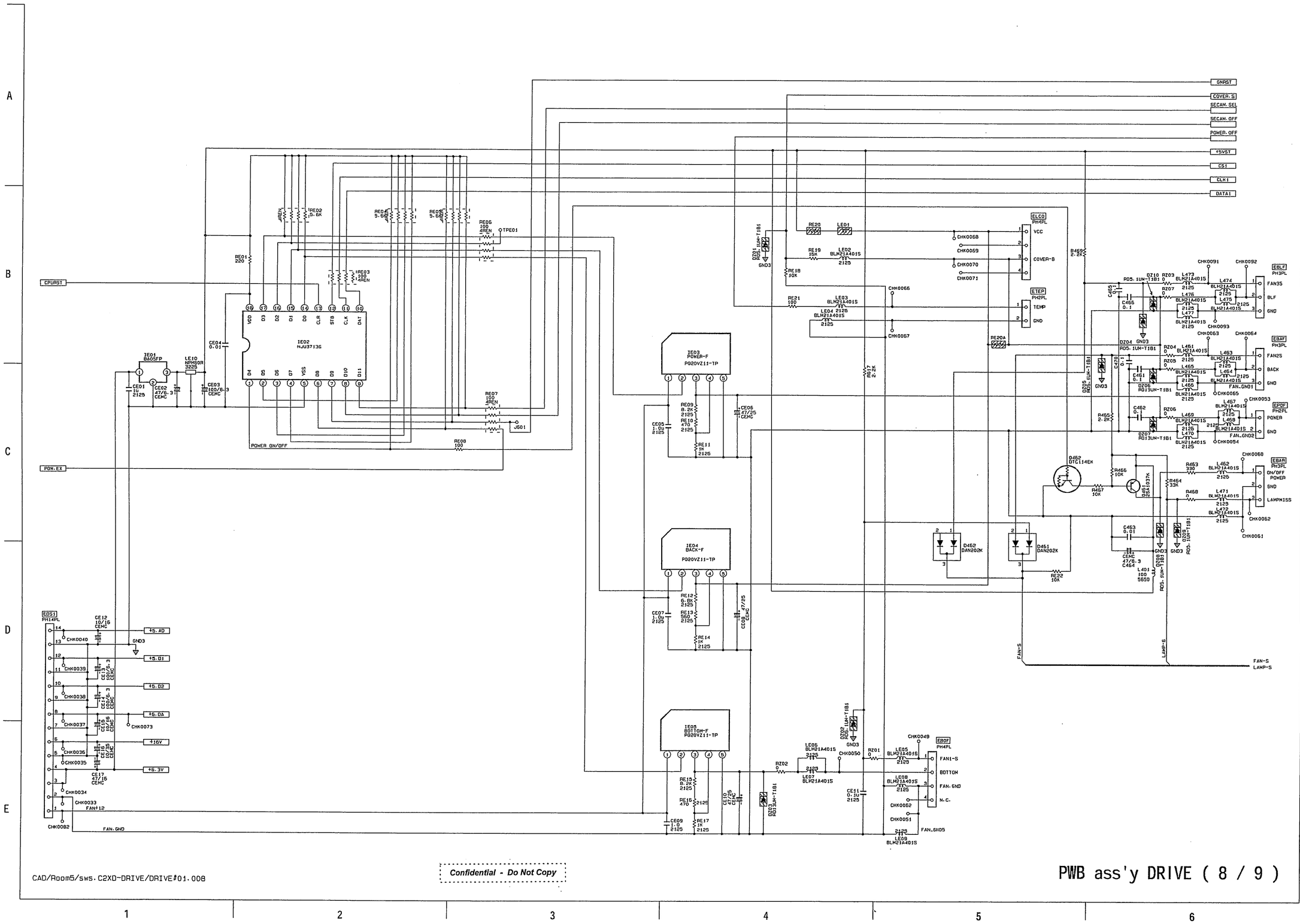
PWB ass'y DRIVE (7 / 9)


GNRST
COVER.S
SECAM.SEL
SECAM.OFF
POWER.OFF
+5VST
CS1
CLK1
DATA1
CPURST
POW.EX
POWER ON/OFF
IE01 BA05FP
IE02 NJU3713G
IE03 POWER-F P020VZ11-TP
IE04 BACK-F P020VZ11-TP
IE05 BOTTOM-F P020VZ11-TP
ELCO PH4PL
VCC
COVER-S
ETEP PH2PL
TEMP
GND
EBLF PH3PL
FAN3S
BLF
EBAF PH3PL
FAN2S
BACK
EPOF PH2PL
POWER
EBAR PH3PL
ON/OFF POWER
LAMPNISS
EBOF PH4PL
FAN1-S
BOTTOM
FAN.GND
N.C.
EDS1 PH14PL
+5.0D
+5.01
+5.02
+5.0A
+16V
+5.3V
FAN12
FAN.GND
GND3
FAN-S
LAMP-S
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.008
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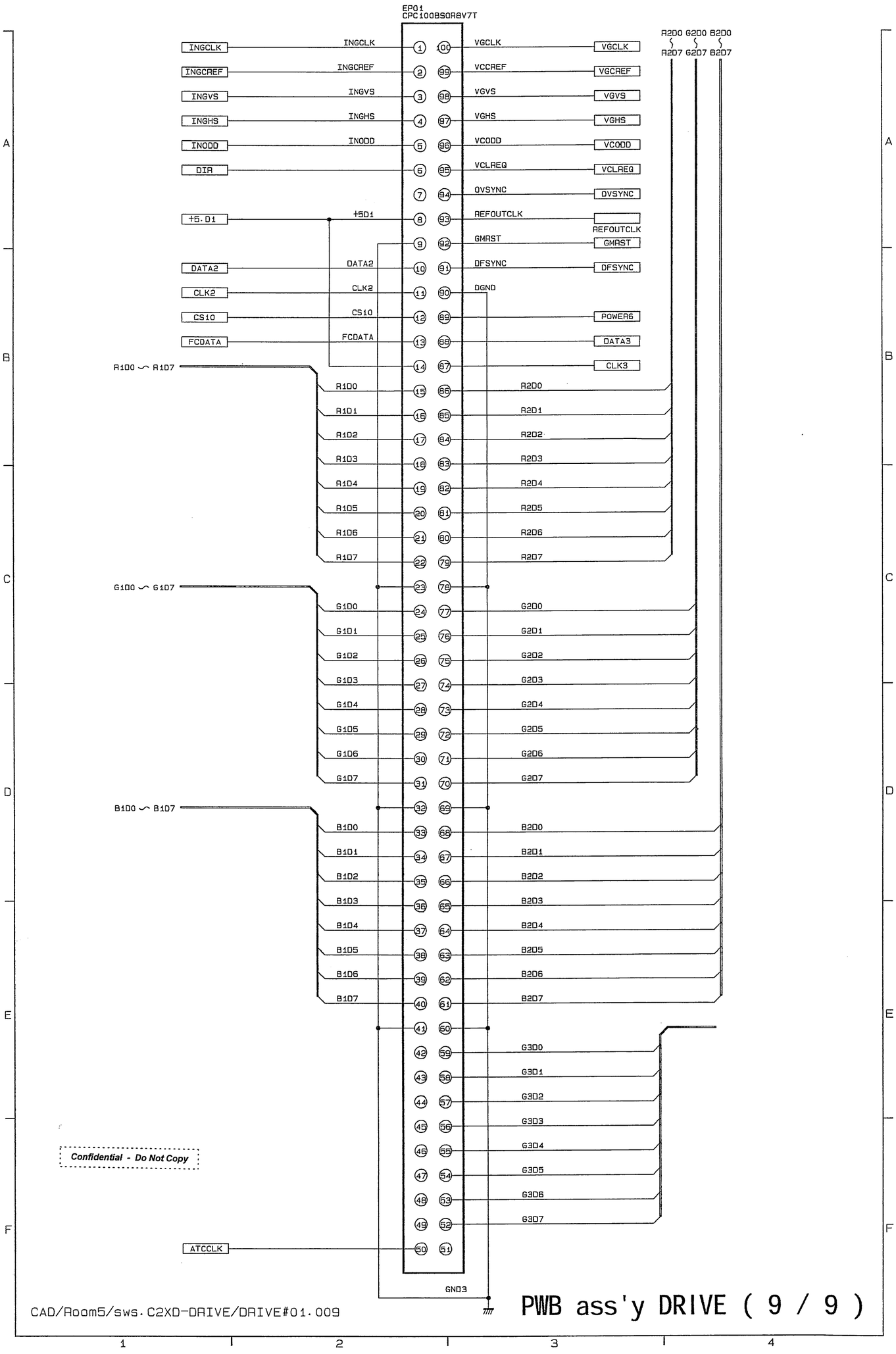
PWB ass'y DRIVE (8 / 9)


EP01
CPC100BS0RBV7T
INGCLK
INGCREF
INGVS
INGHS
INODD
DIR
+5.01
DATA2
CLK2
CS10
FCDATA
R1D0 ~ R1D7
G1D0 ~ G1D7
B1D0 ~ B1D7
ATCCLK
VGCLK
VCCREF
VGVS
VGHS
VCODD
VCLREQ
OVSYNC
REFOUTCLK
GMRST
DFSYNC
DGND
POWER6
DATA3
CLK3
R2D0 G2D0 B2D0
R2D7 G2D7 B2D7
G3D0
G3D1
G3D2
G3D3
G3D4
G3D5
G3D6
G3D7
GND3
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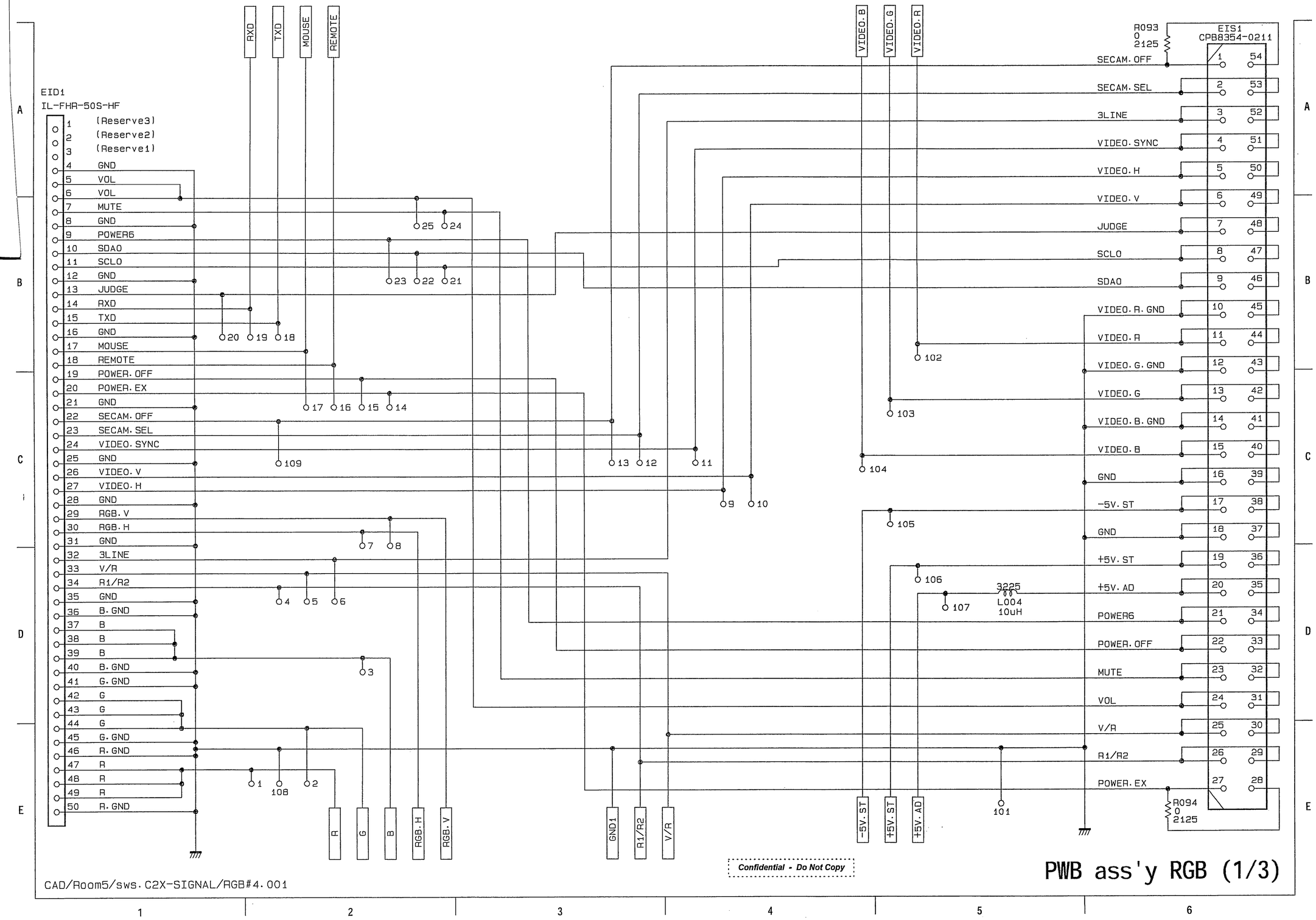
CAD/Room5/sws.C2XD-DRIVE/DRIVE#01.009
PWB ass'y DRIVE (9 / 9)


EID1
IL-FHR-50S-HF
1 (Reserve3)
2 (Reserve2)
3 (Reserve1)
4 GND
5 VOL
6 VOL
7 MUTE
8 GND
9 POWER6
10 SDAO
11 SCLO
12 GND
13 JUDGE
14 RXD
15 TXD
16 GND
17 MOUSE
18 REMOTE
19 POWER. OFF
20 POWER. EX
21 GND
22 SECAM. OFF
23 SECAM. SEL
24 VIDEO. SYNC
25 GND
26 VIDEO. V
27 VIDEO. H
28 GND
29 RGB. V
30 RGB. H
31 GND
32 3LINE
33 V/R
34 R1/R2
35 GND
36 B. GND
37 B
38 B
39 B
40 B. GND
41 G. GND
42 G
43 G
44 G
45 G. GND
46 R. GND
47 R
48 R
49 R
50 R. GND
RXD
TXD
MOUSE
REMOTE
VIDEO. B
VIDEO. G
VIDEO. R
R093
0
2125
EIS1
CPB8354-0211
SECAM. OFF
SECAM. SEL
3LINE
VIDEO. SYNC
VIDEO. H
VIDEO. V
JUDGE
SCLO
SDAO
VIDEO. R. GND
VIDEO. R
VIDEO. G. GND
VIDEO. G
VIDEO. B. GND
VIDEO. B
GND
-5V. ST
GND
+5V. ST
+5V. AD
POWER6
POWER. OFF
MUTE
VOL
V/R
R1/R2
POWER. EX
3225
L004
10uH
R094
0
2125
R
G
B
RGB. H
RGB. V
GND1
R1/R2
V/R
-5V. ST
+5V. ST
+5V. AD
CAD/Room5/sws. C2X-SIGNAL/RGB#4. 001
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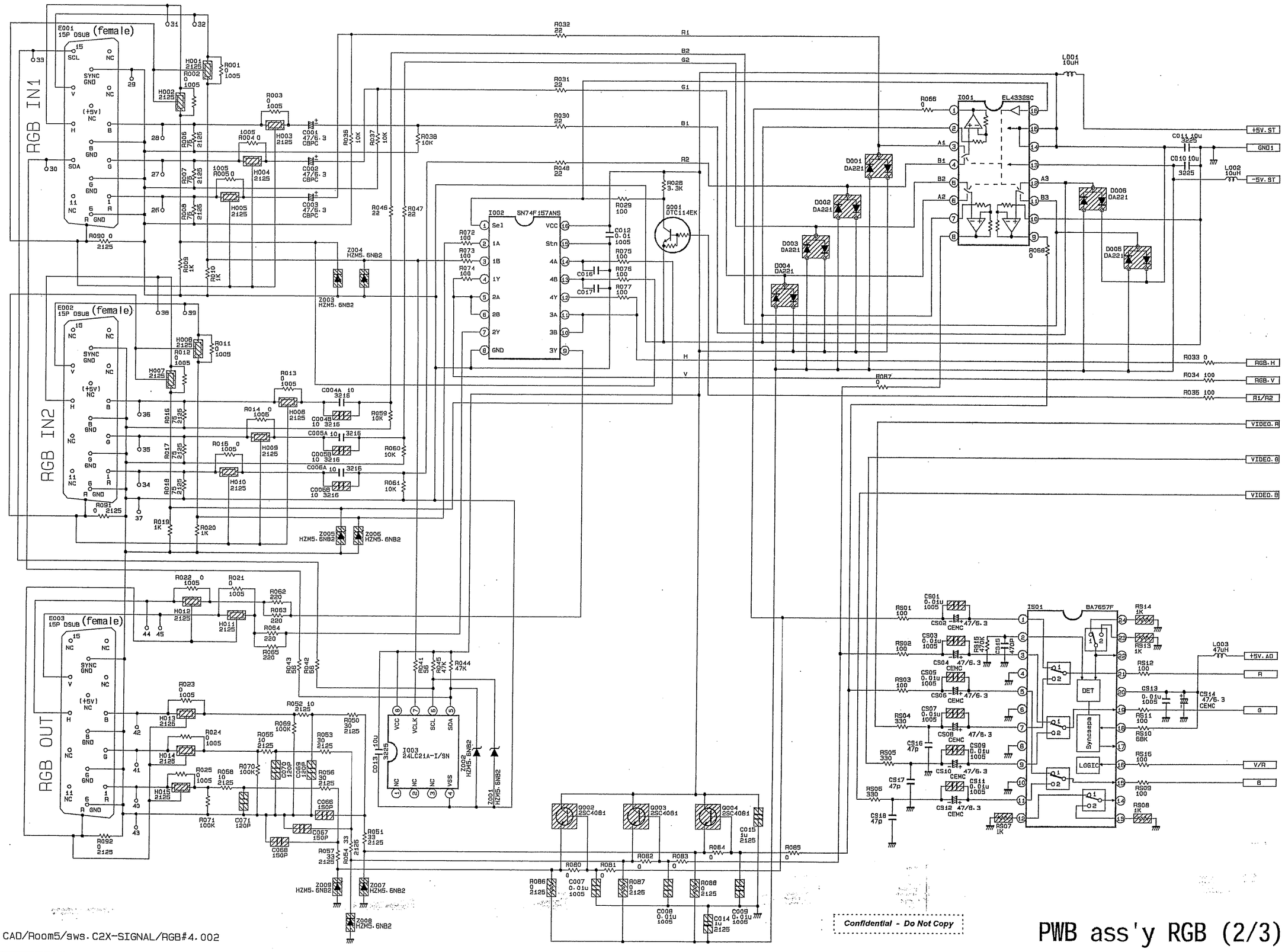
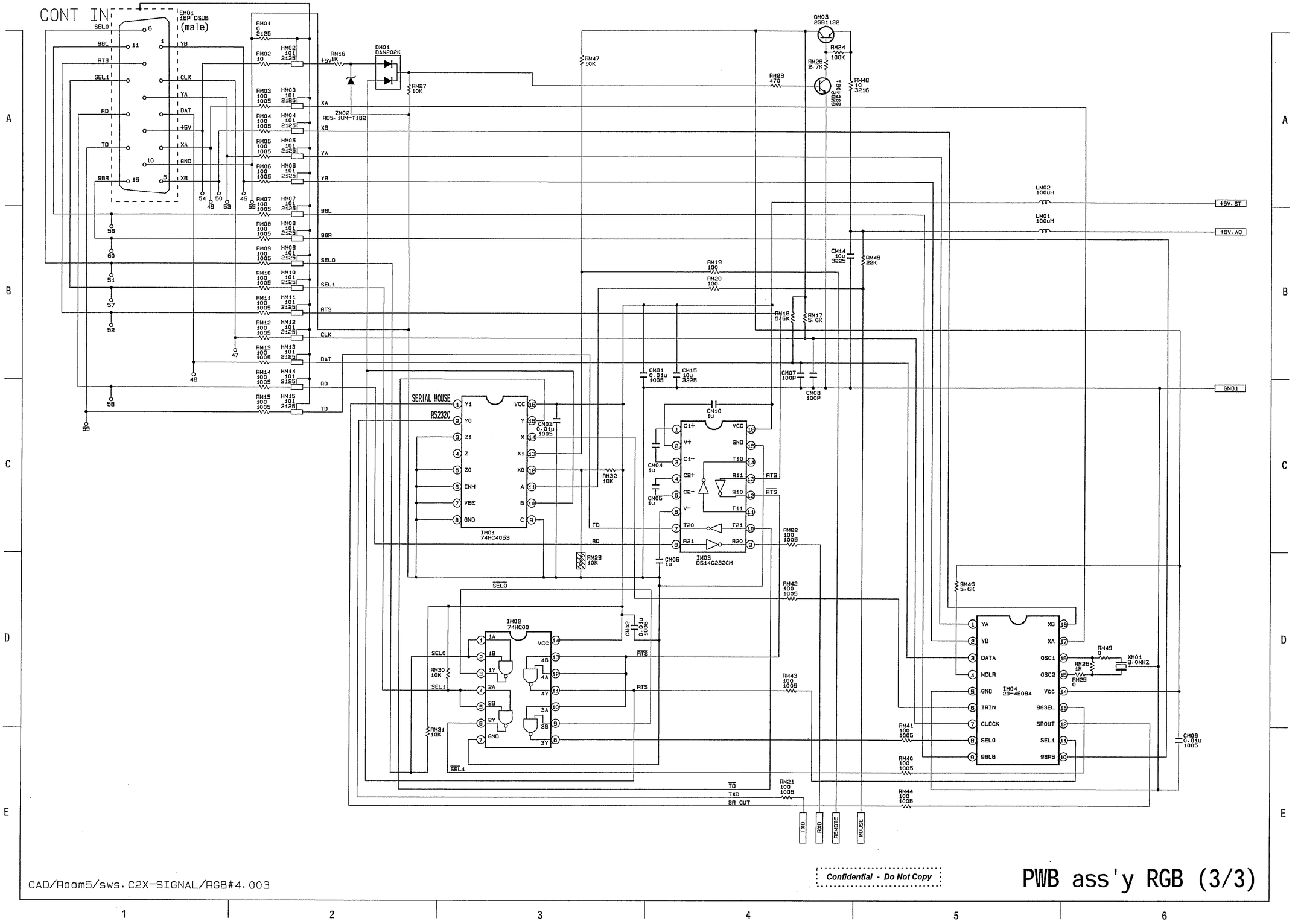
PWB ass'y RGB (1/3)


RGB IN1
RGB IN2
RGB OUT
E001 15P DSUB (female)
E002 15P DSUB (female)
E003 15P DSUB (female)
I002 SN74F157ANS
I003 24LC21A-I/SN
I001 EL4332SC
IS01 BA7657F
Q001 DTC114EK
Q002 2SC4081
Q003 2SC4081
Q004 2SC4081
D001 DA221
D002 DA221
D003 DA221
D004 DA221
D005 DA221
D006 DA221
L001 10uH
L002 10uH
L003 47uH
+5V.ST
GND1
-5V.ST
RGB.H
RGB.V
R1/R2
VIDEO.A
VIDEO.G
VIDEO.B
+5V.AD
R
G
B
V/R
DET
Syncsepa
LOGIC
Confidential - Do Not Copy
CAD/Room5/sws.C2X-SIGNAL/RGB#4.002
PWB ass'y RGB (2/3)


CONT IN
EM01 15P DSUB (male)
SEL0
9BL
RTS
SEL1
RD
TD
9BR
YB
CLK
YA
DAT
+5V
XA
GND
XB
RM01 0 2125
RM02 10
HM02 101 2125
RM16 +5V1K
DN01 DAN202K
RM27 10K
RM03 100 1005
HM03 101 2125
XA
RM04 100 1005
HM04 101 2125
XB
RM05 100 1005
HM05 101 2125
YA
RM06 100 1005
HM06 101 2125
YB
ZN02 RD5.1UM-T1B2
RM47 10K
QM03 2SB1132
RM24 100K
RM28 2.7K
QM02 2SD401
RM23 470
RM48 10 3216
LM02 100uH
+5V.ST
LM01 100uH
+5V.AD
RM07 100 1005
HM07 101 2125
9BL
RM08 100 1005
HM08 101 2125
9BR
RM09 100 1005
HM09 101 2125
SEL0
RM10 100 1005
HM10 101 2125
SEL1
RM11 100 1005
HM11 101 2125
RTS
RM12 100 1005
HM12 101 2125
CLK
RM13 100 1005
HM13 101 2125
DAT
RM14 100 1005
HM14 101 2125
RD
RM15 100 1005
HM15 101 2125
TD
RM19 100
RM20 100
CM14 10u 3225
RM45 22K
RM18 5.6K
RM17 5.6K
CM01 0.01u 1005
CM15 10u 3225
CM07 100P
CM08 100P
GND1
SERIAL MOUSE
RS232C
IM01 74HC4053
CM03 0.01u 1005
RM32 10K
CM10 1u
CM04 1u
CM05 1u
IM03 DS14C232CM
CM06 1u
RM22 100 1005
RTS
TD
RD
RM29 10K
SEL0
IM02 74HC00
CM02 0.01u 1005
RM30 10K
SEL1
RM31 10K
RM42 100 1005
RM43 100 1005
RM41 100 1005
RM40 100 1005
RM44 100 1005
RM21 100 1005
TD
TXD
SR OUT
RM46 5.6K
IM04 2D-46084
YA
YB
DATA
MCLR
GND
IRIN
CLOCK
SELO
SEL1
9BLB
9BRB
XB
XA
OSC1
OSC2
Vcc
9BSEL
SROUT
RM49 0
XM01 8.0MHZ
RM26 1M
RM25 0
CM09 0.01u 1005
TXD
RXD
REMOTE
MOUSE
CAD/Room5/sws.C2X-SIGNAL/RGB#4.003
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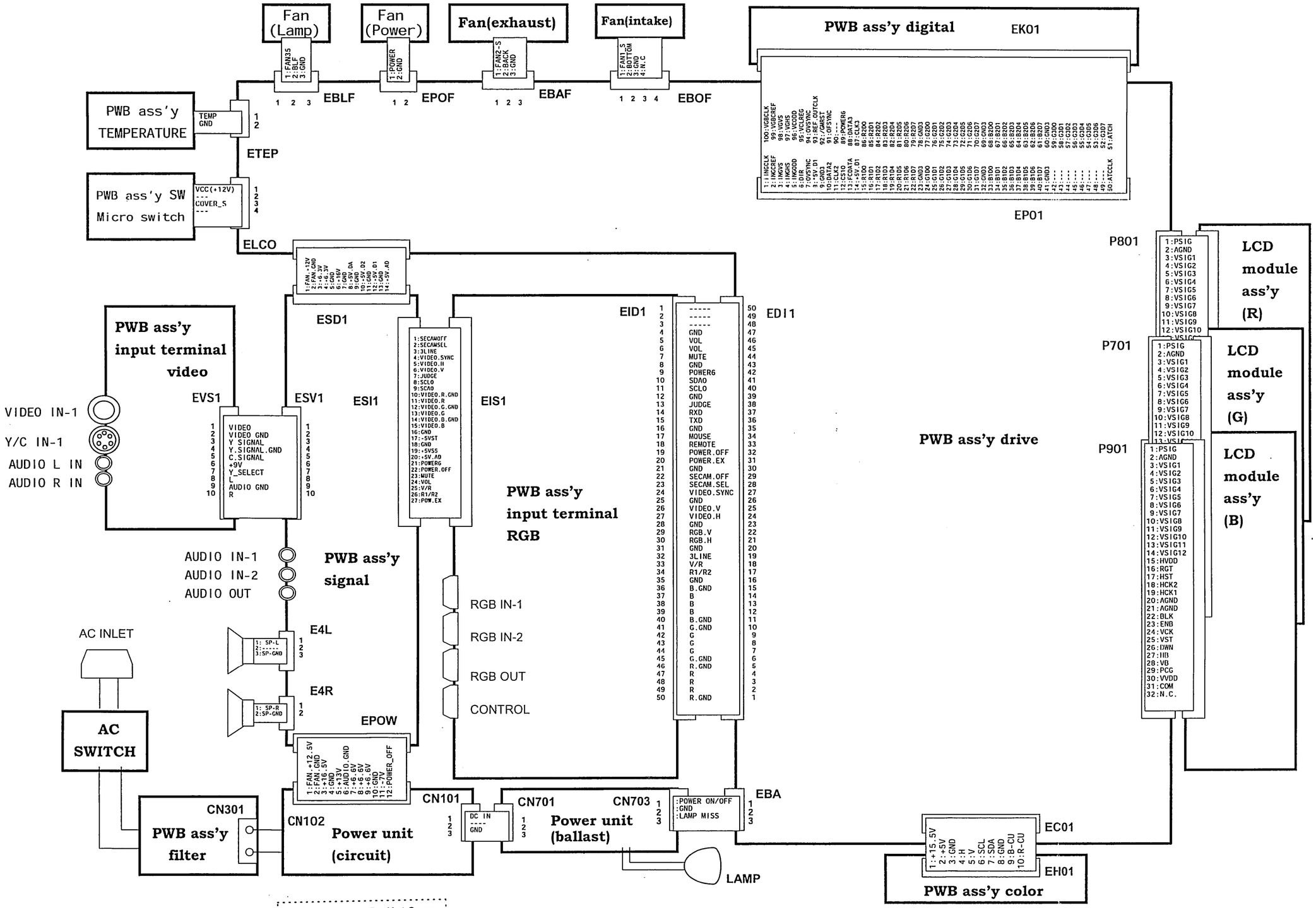
PWB ass'y RGB (3/3)

11. Connector Connection Diagram



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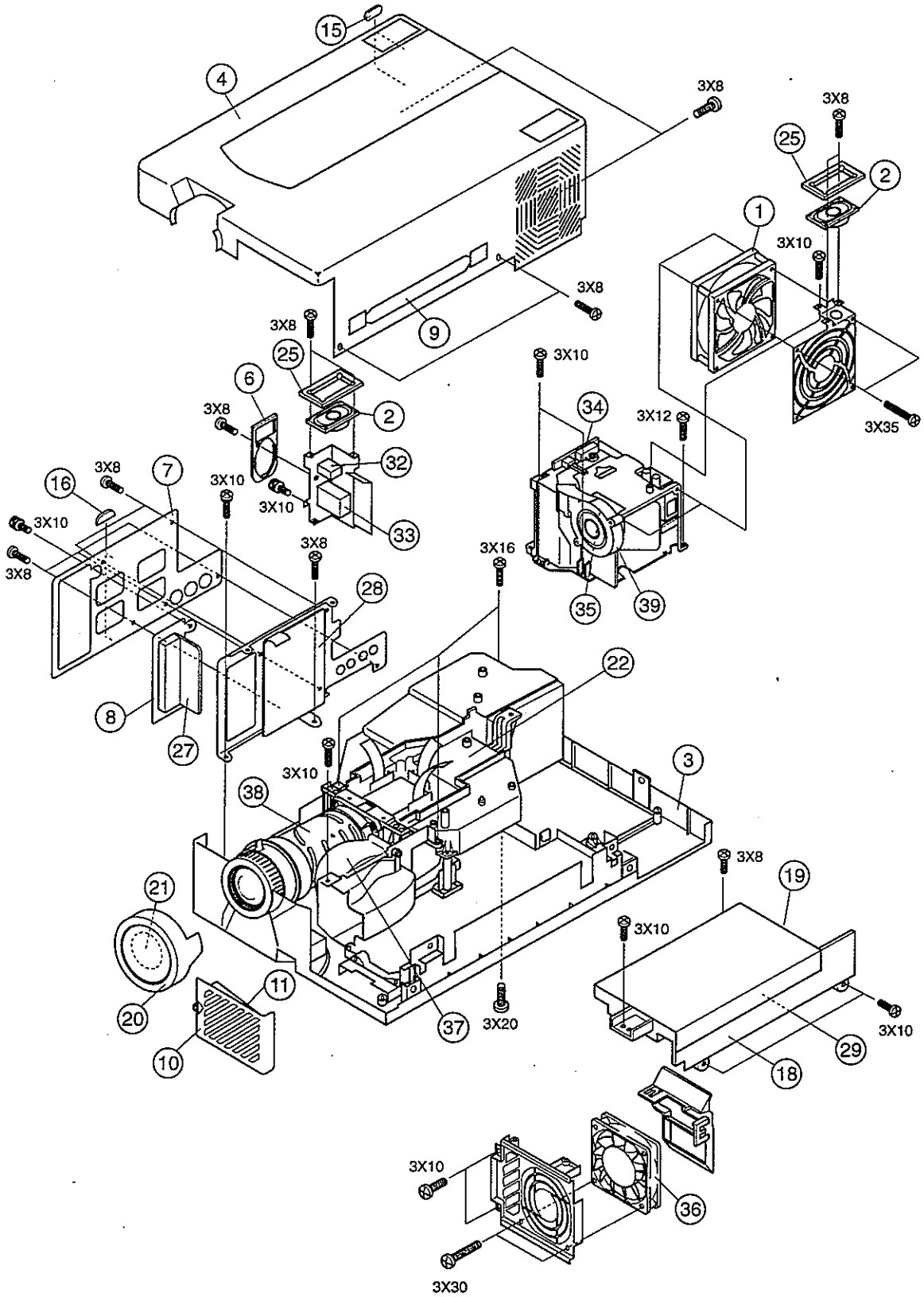
12. Disassembly diagram



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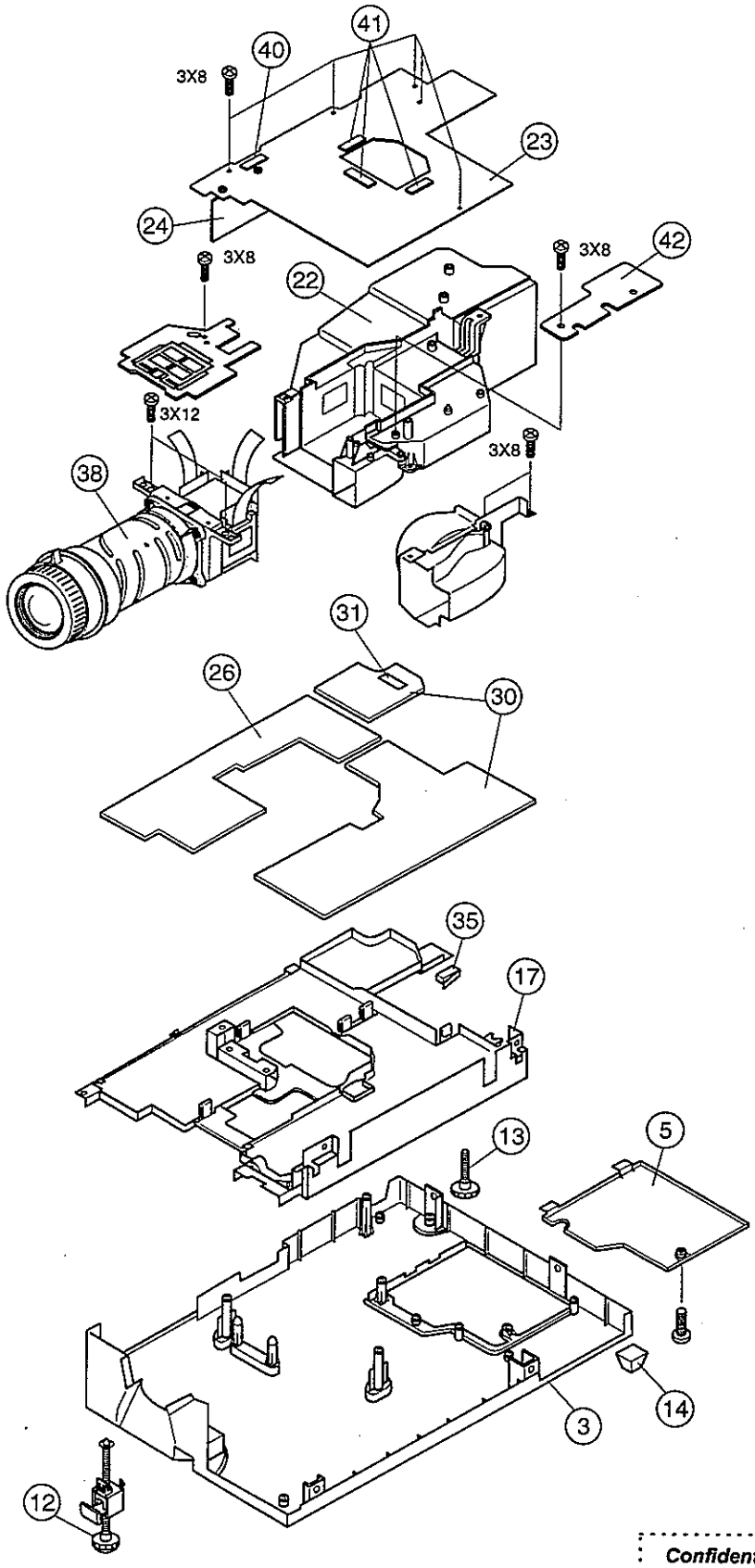

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13. Replacement Parts list

PRODUCT SAFETY NOTE : Components marked with a ⚠ have special characteristics important to safety. Before replacing any of there components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PARTS NO.	DESCRIPTION	SYMBOL NO.	PARTS NO.	DESCRIPTION
1	GS00392	DC FAN(EXHAUST)	30	HA00555	POWER UNIT(CIRCUIT)
2	GK00562	SPEAKER	31	2722447	FUSE
3	QD06778	BOTTOM CASE ASS'Y	32	FG00141	POWER SWITCH
4	QD08537	UPPER CASE ASS'Y	33	BZ02653	AC INLET
5	QD06808	LAMP COVER ASS'Y	34	JP03665	PWB ASS'Y TEMPERATURE
6	PH06734	AC PANEL	35	FH00161	LIMIT SWITCH (MICRO SWITCH)
7	QD07214	I/O DECO PANEL	36	GS00232	DC FAN(POWER)
8	PM08762	VIDEO PLATE	37	GS00371	DC FAN(INTAKE)
9	PV00221	HANDLE	38	UX06163	LCD/LENS PRISM ASS'Y
10	PH06802	FILTER COVER	39	GS00421	DC FAN(LAMP)
11	MU00502	AIR FILTER A	40	EA00282R	CPC50 CONNECTOR
12	QJ00621	ADJUST FOOT	41	EA00561R	CPC32 CONNECTOR
13	QJ00631	ADJUST REAR FOOT	42	JP03044	PWB ASS'Y COLOR
14	PE00111	RUBBER FOOT			
15	PE00094	LEG CUSHION R			
16	PE00121	LEG CUSHION		EV00631	POWER SUPPLY CORD(UL/CSA TYPE)
17	NJ03204	PWB HOLDER		EV00641	POWER SUPPLY CORD(CONTINENTAL TYPE)
18	NJ03911	BALAST HOLDER		EV01022	POWER SUPPLY CORD(CHINA TYPE)
19	ME02171	BALAST COVER		EW06031	3 CONDUCTOR VIDEO/AUDIO CABLE
20	QD06811	LENS CAP		EW05016	RGB-D CABLE(15PIN MALE TO 15PIN MALE)
21	ME01771	CAP SHEET		EY00362	APPLE MAC ADAPTER
22	UE06005	DICHROIC OPTICS UNIT		EW06021	VIDEO CABLE(S-VIDEO MINI DIN 4PIN)
23	JP03046G	PWB ASS'Y DRIVE		EW06011	STEREO MINI JACK CABLE
24	JP03047	PWB ASS'Y DIGITAL		HL01314	REMOTE CONTROL UNIT W/POINTER
25	MD05652	SPEAKER SUB METAL SASS		EW02753	PS/2-2 MOUSE CABLE W/CORE
26	JP03662	PWB ASS'Y SIGNAL		EW02743	ADB-2 MOUSE CABLE W/CORE
27	JP03663	PWB ASS'Y INPUT TERMINAL VIDEO		EW02733	SERIAL-2 MOUSE CABLE W/CORE
28	JP03664	PWB ASS'Y INPUT TERMINAL RGB		DT00205	C2S LAMP UNIT ASS'Y
29	HA00641	POWER UNIT(BALLAST)		NX05741	CLEANING TOOL FOR DUST

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