

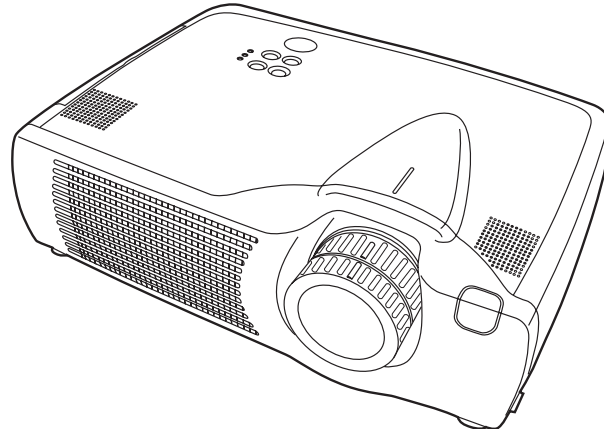
# HITACHI

## SERVICE MANUAL

YK

No.0520E

**CP-X430W**  
(C7X)



### Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this HITACHI Multimedia LCD Projector. Be sure to read cautionary items described in the manual to maintain safety before servicing.

### Service Warning

1. When replace the lamp, to avoid burns to your fingers. The lamp becomes too hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit (main), when turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. The LCD module assembly is likely to be damaged. If replacing to the LCD module assembly, do not hold the FPC of the LCD module assembly.
6. Use the cables which are included with the projector or specified.

### Contents

1. Features -----	2	8. Connector connection diagram -----	24
2. Specifications-----	2	9. Wiring diagram -----	25
3. Names of each part-----	3	10. Basic circuit diagram-----	30
4. Adjustment -----	5	11. Disassembly diagram-----	63
5. Troubleshooting -----	11	12. Replacement parts list -----	65
6. Service points -----	16	13. RS-232C communication -----	66
7. Block diagram -----	23		

**SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.**

## Multimedia LCD Projector

February 2002 Digital Media Systems Division

## 1. Features

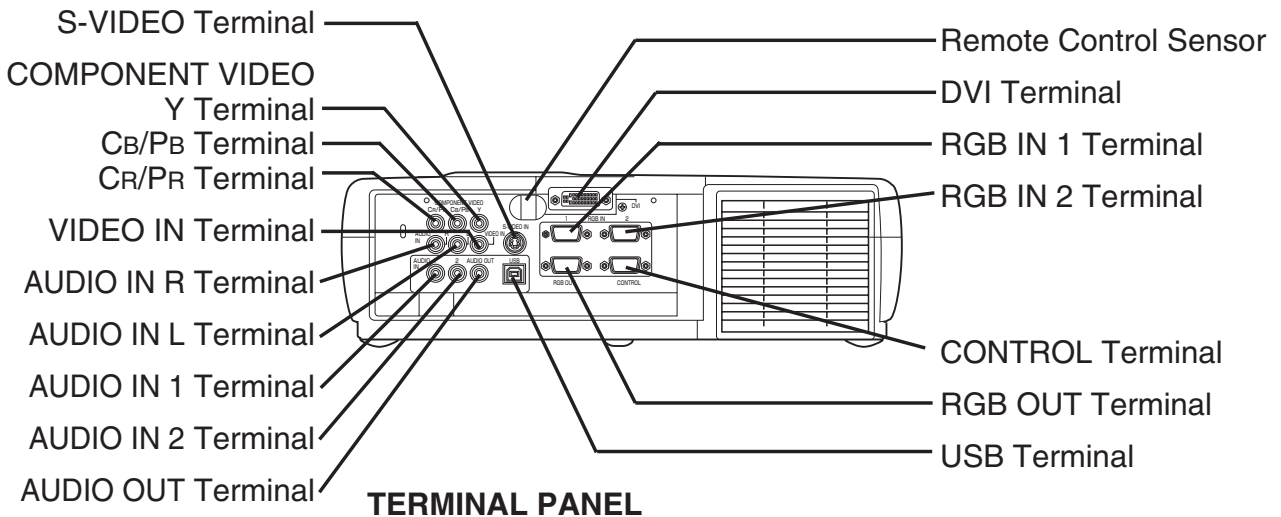
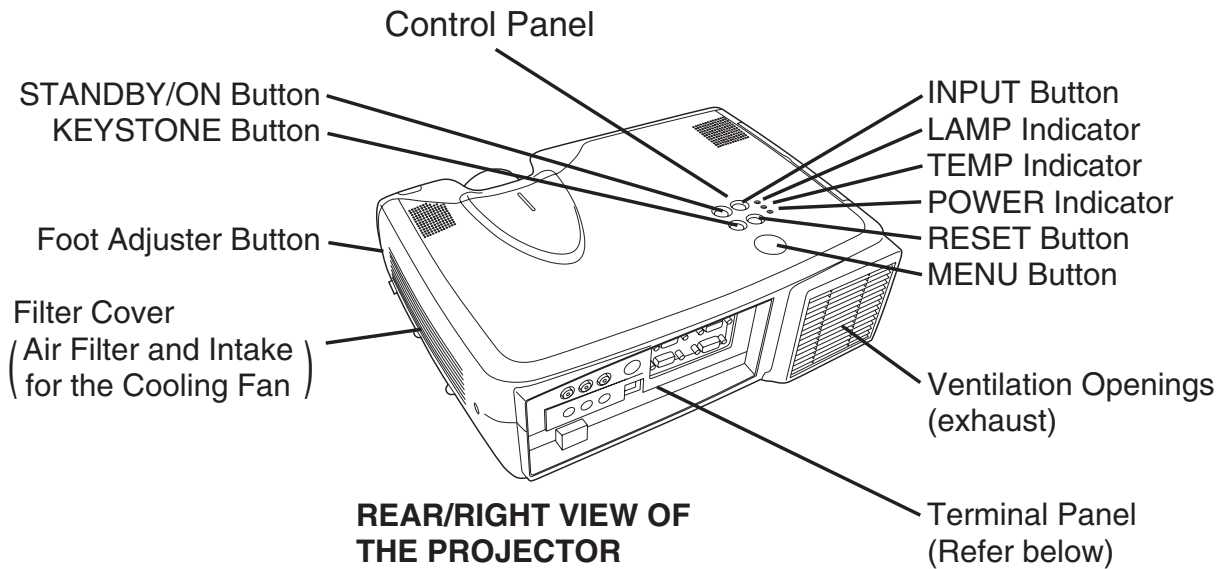
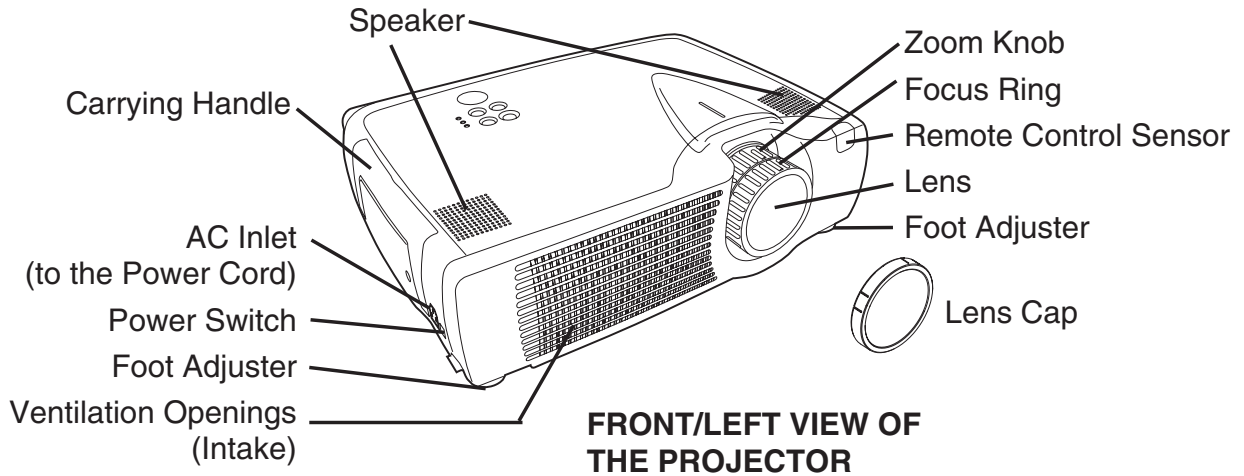
- ▶ High brightness, High resolution
- ▶ Compact size, light weight for portability
- ▶ RS-232C Communication
- ▶ Auto-adjustment function
- ▶ Vertical / Horizontal keystone function
- ▶ P. in P. function
- ▶ My screen function (User start up screen)

## 2. Specifications

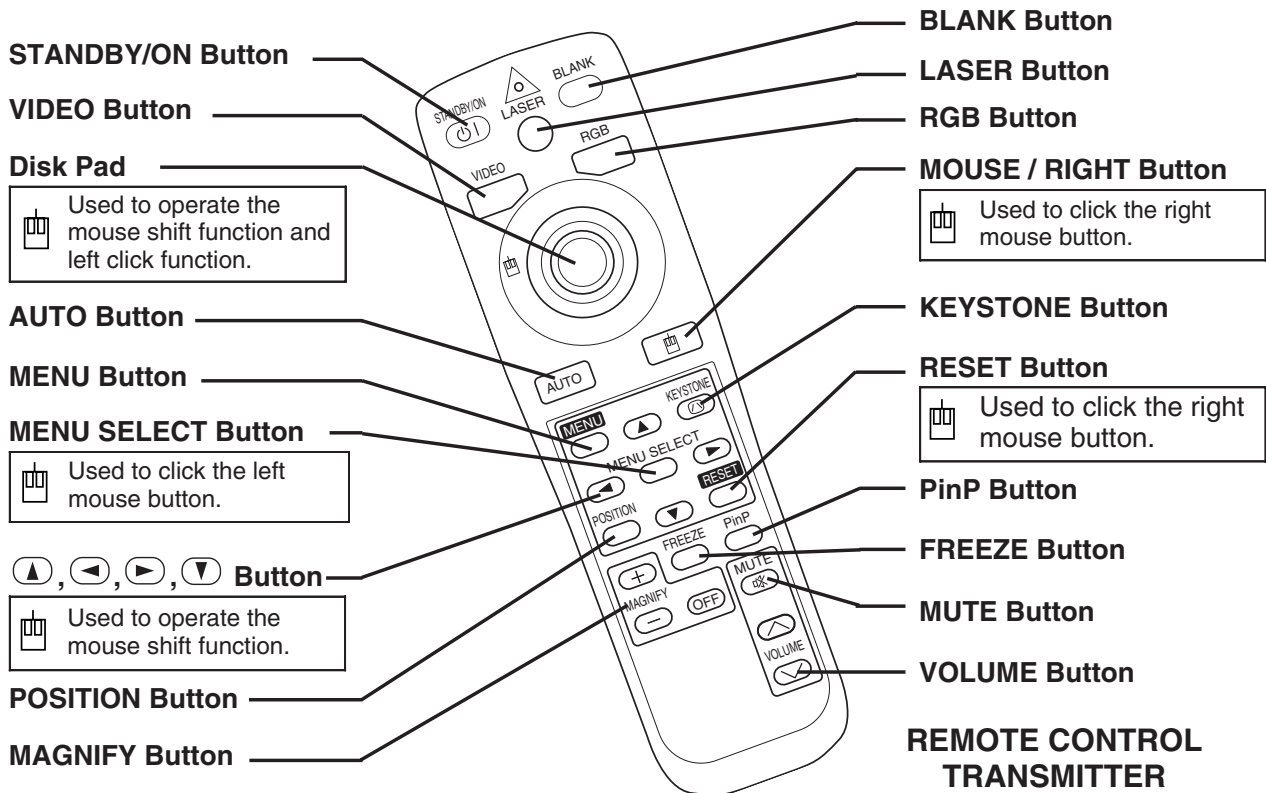
Liquid crystal panel	Drive system		TFT active matrix	
	Panel size		0.9 inches	
	Number of pixels		1024 (H) × 768 (V)	
Lamp			250W UHB	
RGB signal input	RGB IN	1	Video: Analog 0.7Vp-p, 75Ω terminator H/V. sync.: TTL level (positive/negative) Composite sync.: TTL level D-sub 15-pin shrink jack	
		2		
	Digital input	Signal		Type: T.M.D.S Amplitude differential signal: DC: 150~1200mV AC: 1.56Vp-p Amplitude signal: TTL level ("L" : less than 0.8V, "H" : more than 2.0V)
	AUDIO IN	1		200mVrms, 47kΩ (max. 3.0Vp-p) Stereo mini jack
2				
Video signal input	VIDEO IN	System	NTSC, NTSC4.43, PAL (BGDHI), SECAM, PAL-M, PAL-N, PAL60	
				1.0Vp-p, 75Ω terminator RCA jack
	S-VIDEO IN		Brightness signal: 1.0Vp-p, 75Ω terminator Color signal: 0.286Vp-p (NTSC, burst signal), 75Ω terminator 0.3Vp-p (PAL/SECAM, burst signal), 75Ω terminator Mini DIN 4-pin jack	
	COMPONENT VIDEO	System	480i, 480p, 575i, 720p, 1080i	
		Y	1.0Vp-p, 75Ω terminator (positive)	
		C <sub>B</sub> /C <sub>R</sub>	0.7Vp-p, 75Ω terminator (positive)	
	AUDIO IN	P <sub>B</sub> /P <sub>R</sub>	0.7Vp-p, 75Ω terminator (positive)	
L		200mVrms, 50kΩ (max. 3.0Vp-p) RCA jack		
R				
Signal output	RGB OUT		Video: Analog 0.7Vp-p, 75Ω output impedance (positive) H/V. sync.: TTL level (positive/negative) Composite sync.: TTL level D-sub 15-pin shrink jack	
	AUDIO OUT		200mVrms, output impedance 1kΩ (max. 3.0Vp-p) Stereo mini jack	
Audio input			200mVrms, 47kΩ	
Speaker output			1W +1W (stereo)	
Power supply			AC100~120V/4.5A, AC220~240V/1.9A	
Power consumption			410W	
Dimensions			360 (W) × 112.5 (H) × 266 (D) mm	
Weight			4.5kg (9.92lbs)	
Temperature range			Operation : 0~35°C Storage : -20~60°C	
Accessories			Remote control transmitter × 1 RGB cable × 1 Component cable × 1 Mouse cable (PS/2) × 1 POWER cord × 3 Battery × 2 Carrying bag × 1 Lens cap (set wearing) × 1 User's manual (with Safety Instructions) × 1	

### 3. Names of each part

● Parts names



● Remote control transmitter



☞ These functions work when the mouse control function is activated. Remember, the POSITION, BLANK ON and MENU ON functions disable the mouse control function.

- ⚠ **WARNING** • The laser pointer of the remote control transmitter is used in place of a finger or rod. Never look directly into the laser beam outlet or point the laser beam at other people. The laser beam can cause vision problems.
- ⚠ **CAUTION** • Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

AVOID EXPOSURE-  
LASER RADIATIONS IS  
EMITTED FROM THIS  
APERTURE

**CAUTION**

LASER RADIATION:  
DO NOT STARE INTO BEAM  
MAX. OUTPUT: 1mW  
WAVE LENGTH: 650nm  
CLASS2 LASER PRODUCT

LASER RADIATION  
DO NOT STARE INTO BEAM  
CLASS2 LASER PRODUCT  
MAX. OUTPUT: 1mW  
WAVE LENGTH: 650nm  
EC60825-1:1998-A1:1997

Complies with 21 CFR 1040. 10 and 1040. 11 except for deviations pursuant to Laser Notice No.50, dated 2001.7.26  
SMK CORPORATION  
6-5-5 Togoshi Shinagawa-ku, Tokyo, JAPAN 142-8511  
MANUFACTURED Novemver 2001  
PLACE OF MANUFACTURER: A

- NOTE** • Keep the remote control transmitter away from children and pets.
- Do not give the remote control transmitter any physical impact. Take care not to drop.
  - Do not place the heavy objects on the remote control transmitter.
  - Do not wet the remote control transmitter or place it on any wet object.
  - Do not place the remote control transmitter close to the cooling fan of the projector.
  - Do not disassemble the remote control transmitter.



## 4. Adjustment

### 4-1 Before adjusting

#### 4-4-1 Selection of adjustment

When any parts in the table 4-1 are changed, choose the proffer adjusting items with the chart.

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

Replaced part	Adjustment				
	Ghost (Chap.4-2)	Flicker (Chap.4-3)	PSIG (Chap.4-4)	White balance (Chap.4-5)	Color uniformity (Chap.4-6)
Dichroic optics unit	○	○	×	△	△
LCD/LENS prism assembly	○	○	○	○	○
PWB assembly drive	○	○	○	○	○
Lamp unit assembly	△	△	×	△	△

○: means need for adjustment. ×: means not need for adjustment.

△: means recommended.

#### 4-4-2 Setting of condition before adjustment

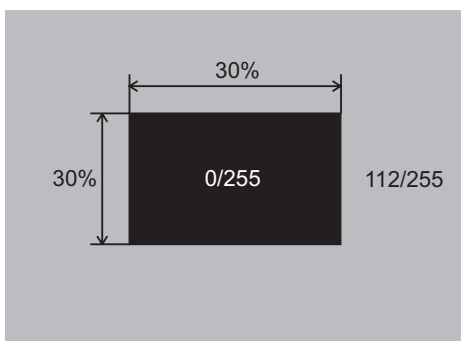
1. Before starting adjustment, warm up the projector for about 10 minutes.(Blank white)
2. Set Zoom Wide to Max. And project an image a distance of more than 40 inches.
3. Normalizing the video adjustment.  
(Press the [MENU] button of the Remote control transmitter to display the Setup menu, and then press the [RESET] button. And select the [DEFAULT].)

\*note : The setup menu is not displayed on with no signal.

4. Perform all adjustments from the Adjustment menu.  
Perform the following operations to display the Adjustment menu.
  - a. Press the [MENU] button of the Remote control transmitter (the Setup menu will appear).
  - b. Next, press the [RESET] button one time. And press the [RESET] button again for 5 seconds or more (the Adjustment menu will appear).
5. Set the normal at OPT-WHISPER in the menu.
6. Set the normal at IMAGE-GAMMA in the menu.

### 4-2 Ghost adjustment

#### Signals for internal adjustment

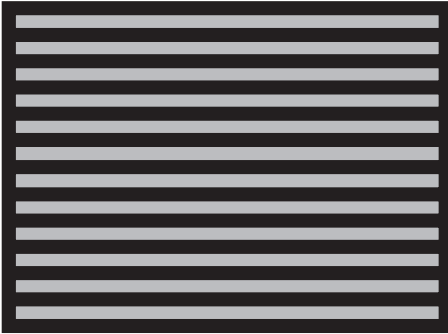


#### Adjustment procedure

1. Use DAC-P - GHOST - R: in the Adjustment menu to adjust so that R color ghost is at a minimum.  
(Set the adjustment value to default, and then raise the value. When a light ghost appears to the left of a vertical line, reduce the value by 2 steps. When a dark ghost appears to the left of a vertical line, reduce the value by 3 steps.)
2. In the same way, use DAC-P - GHOST-G: in the Adjustment menu to adjust so that G color ghost is at a minimum.
3. In the same way, use DAC-P - GHOST-B: in the Adjustment menu to adjust so that B color ghost is at a minimum.

### 4-3 Flicker adjustment (V.COM adjustment)

#### Signals for internal adjustment

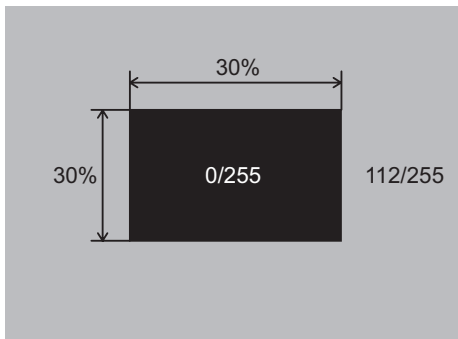


#### Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-2 Ghost adjustment.
2. Use DAC-P - V.COM - R: in the Adjustment menu to adjust so that the flicker at the center of the screen is less than the flicker at the periphery. (When the flicker is about the same across the whole screen, adjust so that the flicker at the center of the screen is somewhat less than elsewhere.)
3. In the same way, use DAC-P - V.COM-G: in the Adjustment menu to adjust the G color flicker.
4. In the same way, use DAC-P - V.COM-B: in the Adjustment menu to adjust the B color flicker.

### 4-4 PSIG adjustment (vertical stripe adjustment)

#### Signals for internal adjustment



#### Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-3 Flicker adjustment.
2. Use DAC-P - PSIG - G: in the Adjustment menu to adjust so that the vertical lines spaced every 12 dots are as inconspicuous as possible.
3. Next, use DAC-P - PSIG - B: in the Adjustment menu to adjust so that the vertical streaks on the upper of window pattern.

## 4-5 White balance adjustment (visual inspection)

### Preparations

1. Perform these adjustments after the PSIG adjustment described in Section 4-4.
2. Reset gamma correction before adjustment.
  - Place the cursor on [GAMMA] in the Adjustment menu, press the [RESET] key and select [DEFAULT].

### Adjustment procedure

1. First, adjust the G color.
2. Select GAMMA, SUB-CONTRAST, and G: in the Adjust menu. If the background is white solid, press the [MENU SELECT] key on the Remote control transmitter to change to [G] monochrome in the 28-tone grayscale.
3. Adjust GAMMA, SUB-CONTRAST, and G: in the Adjust menu so that brightness of 28 steps is best.
4. Don't adjust GAMMA, SUB-BRIGHT, and G: in the Adjust menu. Because we want to keep the best contrast ratio.
5. Then adjust colors R and B.
6. Select GAMMA, SUB-CONTRAST, and G: in the Adjust menu. If the background is white solid, press the [MENU SELECT] key on the Remote control transmitter to change to [W] monochrome in the 28-tone grayscale.
7. Adjust GAMMA, SUB-BRIGHT, R: and B: in the Adjust menu so that low-brightness white balance is best.
8. Adjust GAMMA, SUB-CONTRAST, R: and B: in the Adjust menu so that middle-brightness white balance is best.
9. Repeat steps 7 to 8 above, and adjust so that brightness white balance of 28 steps is best.

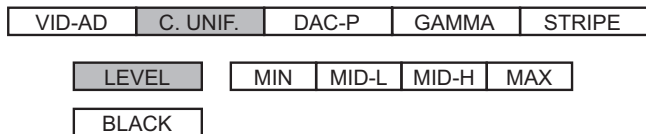
## 4-6 Color uniformity adjustment

### Preparations

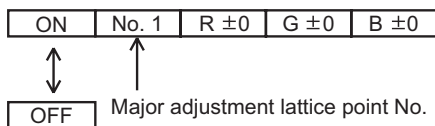
1. Perform these adjustments after the white balance adjustment described in Section 4-5.
2. Make a color uniformity adjustment for the following four tones.
  - MIN tone (approx. 10% input signal)
  - MID-L tone (approx. 21% input signal)
  - MID-H tone (approx. 50% input signal)
  - MAX tone (approx. 75% input signal)
3. Place the cursor on the tone to be adjusted in the Adjust menu and press the [▼] key. This displays the Adjust Tone menu at the bottom of the screen. Select the major adjustment lattice point No. and color, and then adjust them.
4. The major adjustment lattice point numbers (a total of 17 points) corresponds to the major adjustment lattice point positions in the diagram on the right. The color uniformity of the entire screen can be adjusted by adjusting the white balance for each of the points starting in order from the low numbers.
5. Adjustment point No.1 should not be adjusted, because it controls the brightness of the entire screen.

6. To temporarily turn correction off, place the cursor on "ON" in the Adjust Tone menu and press the [▼] key. To turn it on again, place the cursor on OFF in the Adjust Tone menu and press the [▲] key.
7. Although this adjustment can also be made using internal signals, we will here use the [MENU SELECT] key on the Remote control transmitter to select the following two signals.
  - Solid monochrome adjustment color (use G color adjustment when a color differential meter is used).
  - Solid white (use for adjustment other than above).
8. Reset color-shading correction before adjustment.
  - When 4 tones and all colors are to be reset, place the cursor on [C.UNIF.] in the Adjustment menu, press the [RESET] key and select [DEFAULT].
  - When only 1 tone is to be reset, place the cursor on the tone to be reset, press the [RESET] key and select [DEFAULT].
  - Single tone and monochrome resets cannot be performed.

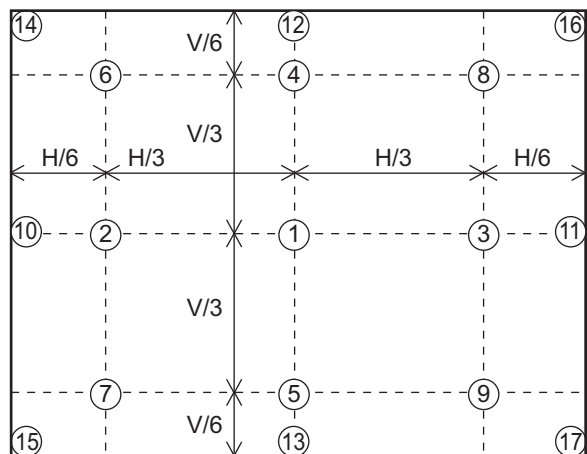
### Adjust menu



### Adjust Tone menu



### Major adjustment lattice point position



## Adjustment procedure 1

### (when a color differential meter is used)

1. First adjust [MID-L] tone [G:].
2. Select adjustment point [No.2][G:].  
When the background is not [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid [G] monochrome.
3. Measure the illumination at adjustment points No. 2, No.3, No.10 and No.11.  
The values should be:  
No.2 = Y2 [lx]      No.10 = Y10 [lx]  
No.3 = Y3 [lx]      No.11 = Y11 [lx]
4. No.2 and No.3 adjustment point have the average of Y2 and Y3.  
 $Y2 = (Y2 + Y3) / 2 \pm 2 [\%]$   
 $Y3 = (Y2 + Y3) / 2 \pm 2 [\%]$
5. No.10 and No.11 adjustment point have the average of Y10 and Y11.  
 $Y10 = (Y10 + Y11) / 2 \pm 2 [\%]$   
 $Y11 = (Y10 + Y11) / 2 \pm 2 [\%]$
6. Then adjust [MID-L] tone [R] and [B].  
When the background is [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
7. Measure the color coordinates of adjustment point [No.1] and make a note of them.  
Assume that they are  $x = x1$ ,  $y = y1$ .  
**Note:** When the CL-100 color and color difference meter is used, the  $[\Delta]$ (delta) mode is convenient. When adjustment point [No.1] color coordinate has been selected, set the slide switch on the side to  $[\Delta]$ (delta) while holding down the [F] button on the front panel. The measurement shown after this displays the deviation from measurement point 1.
8. Measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.  
 $x = x1 \pm 0.005$ ,  $y = y1 \pm 0.010$
9. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.  
This completes adjustments required for [MIN].  
**Note:** Since excessive correction may lead to a correction data overview during internal calculations, use the following values for reference.  
[No.2] to [No.5]  $\pm 40$  or less  
[No.6] to [No.9]  $\pm 50$  or less  
[No.10] to [No.13]  $\pm 70$  or less  
[No.14] to [No.17]  $\pm 120$  or less
10. Then adjust [MIN] tone [G] so that the adjustment data set three times as much as [MID-L] tone [G].  
This completes [G] color adjustments.
11. Then adjust [MIN] tone [R] and [B].  
Select [No.2] [B:] and press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
12. Measure the color coordinates of adjustment point [No.1] and make a note of them.  
Assume that they are  $x = x1$ ,  $y = y1$ .
13. Now measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.  
 $x = x1 \pm 0.005$ ,  $y = y1 \pm 0.010$  (Target)  
 $x = x1 \pm 0.020$ ,  $y = y1 \pm 0.040$
14. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.  
This completes [MIN] tone adjustments.
15. Now make similar adjustments for [MID-H] tone.  
(Adjust [MID-H] tone [G] so that the adjustment data set half as many as [MID-L] tone [G].)
16. Now make similar adjustments for [MAX] tone.  
(Adjust [MAX] tone [G] so that the adjustment data set half as many as [MID-L] tone [G].)

**Adjustment procedure 2**

**(visual inspection)**

1. First adjust [MIN] tone [G:].
2. Select [No.2] [G:].  
If the background is [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
3. View measurement point [No.2] and [No.3].  
Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1].
4. View measurement point [No.10] and [No.11].  
Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1], and raise the intensity of the point whose color intensity is lower than measurement point [No.1].
5. Now adjust the [MIN] tone for colors [R] and [B].

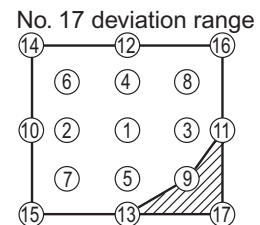
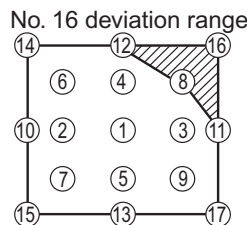
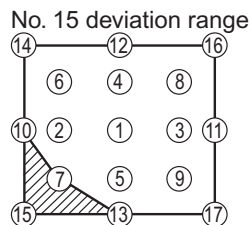
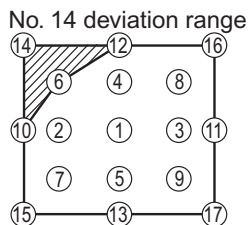
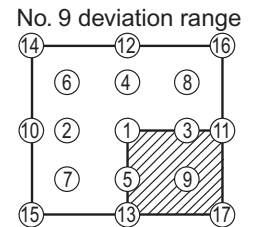
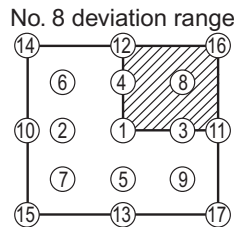
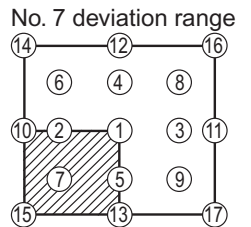
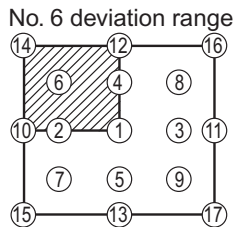
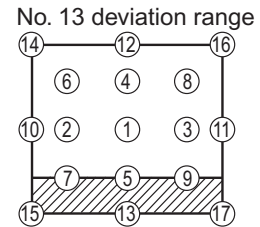
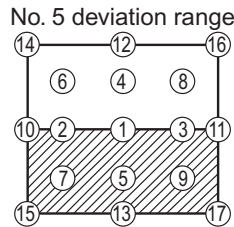
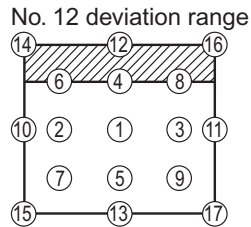
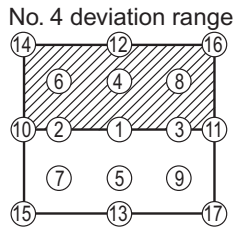
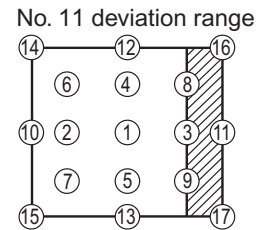
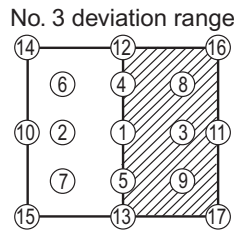
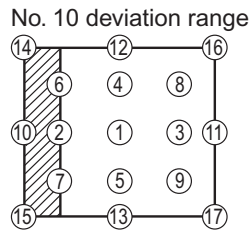
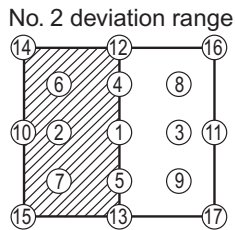
6. View measurement points [No.2], [No.3], [No.10] and [No.11]. Adjust the [R] and [B] of each measurement point so that they have the same color as measurement point [No.1].

**Adjustment technique:**

First, adjust [B:] of the point whose color is to be adjusted so that it approximates that of [No.1]. If [R:] is low at this time, the image will have cyan cast, in which case [R:] is increased. On the other hand, if [R:] is excessive, the image will have a magenta cast, in which case [R:] is decreased.

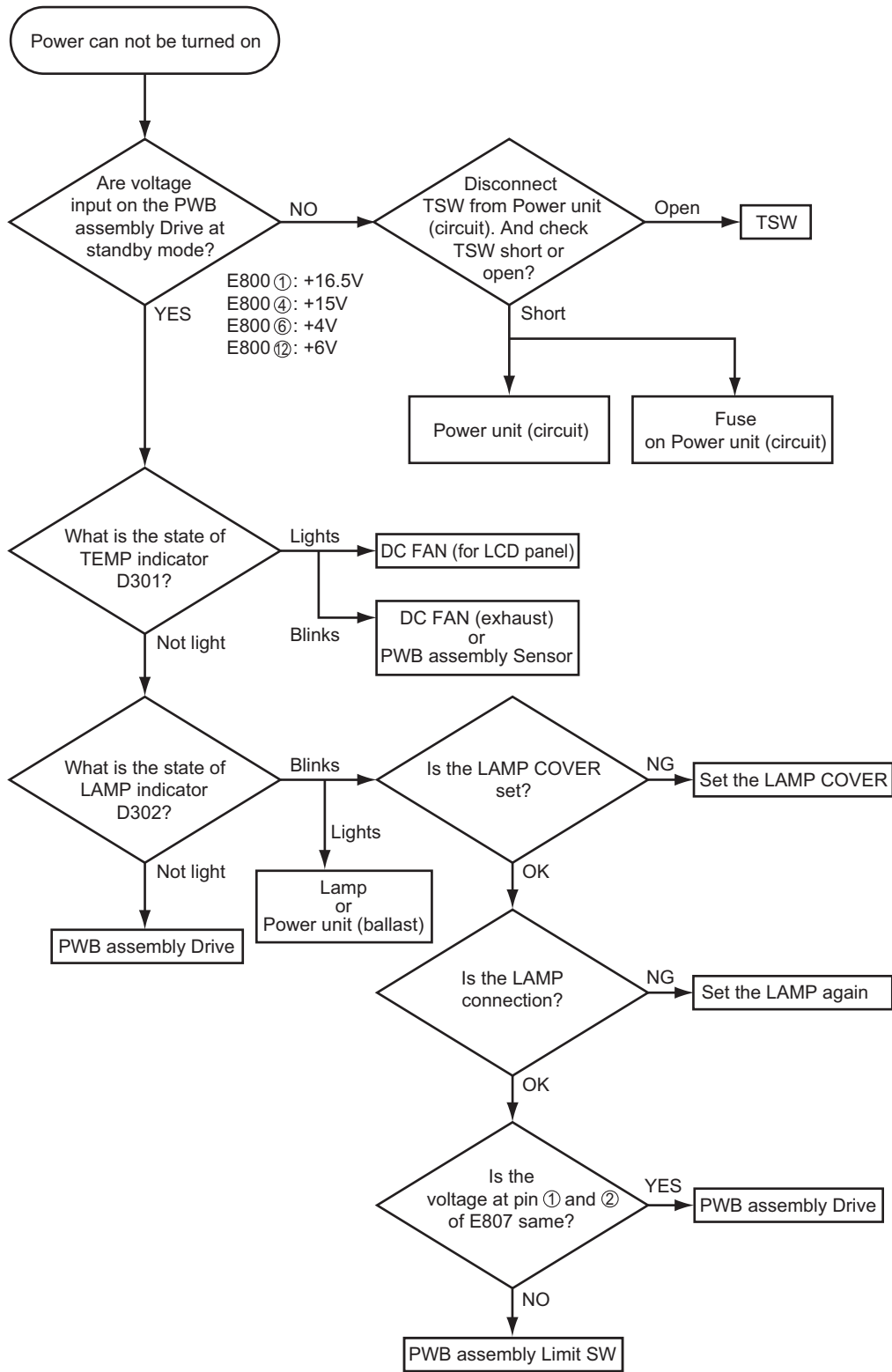
Overall, a cyan cast makes it easy to see color shading.

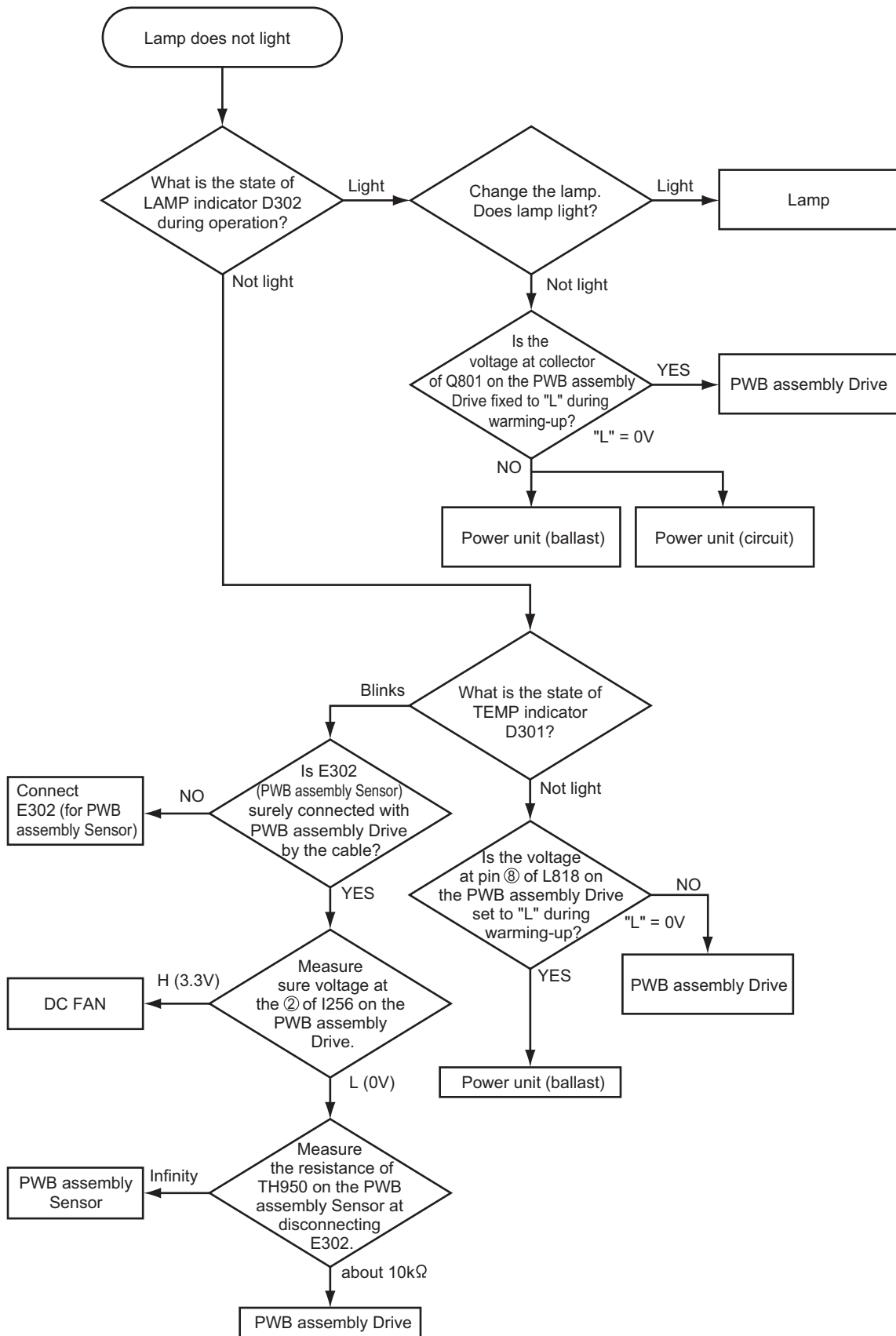
7. Next, view measurement points [No.4], [No.5], [No.12], [No.13] and make similar adjustments.
8. Then adjust measurement points [No.6], [No.7], [No.8], [No.9], [No.14], [No.15], [No.16] and [No.17].  
This completes the [MIN] tone adjustments.
9. Make similar another three tones as described in steps 1 to 8 above.

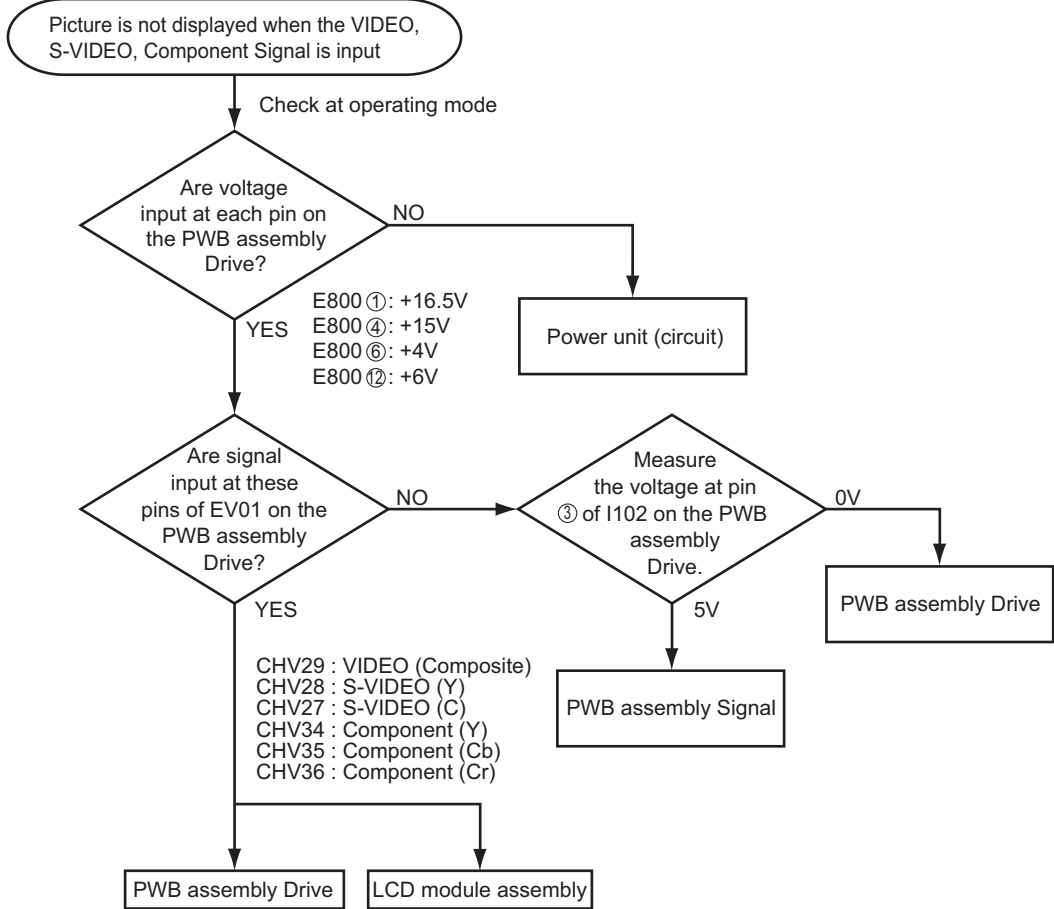
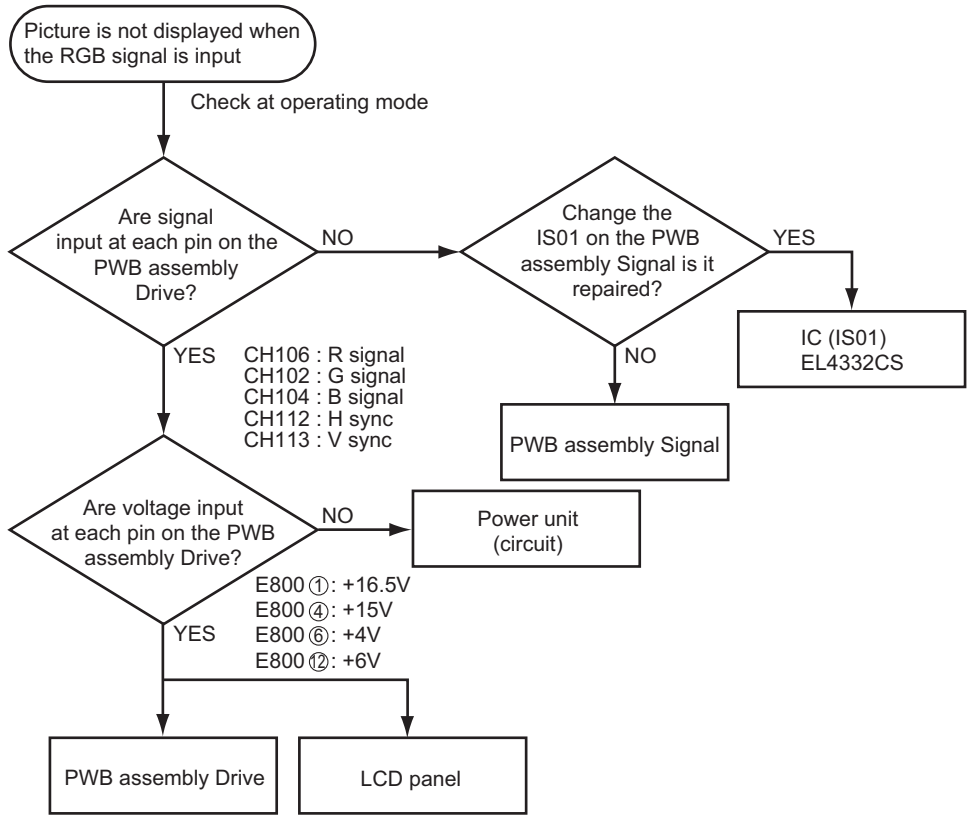


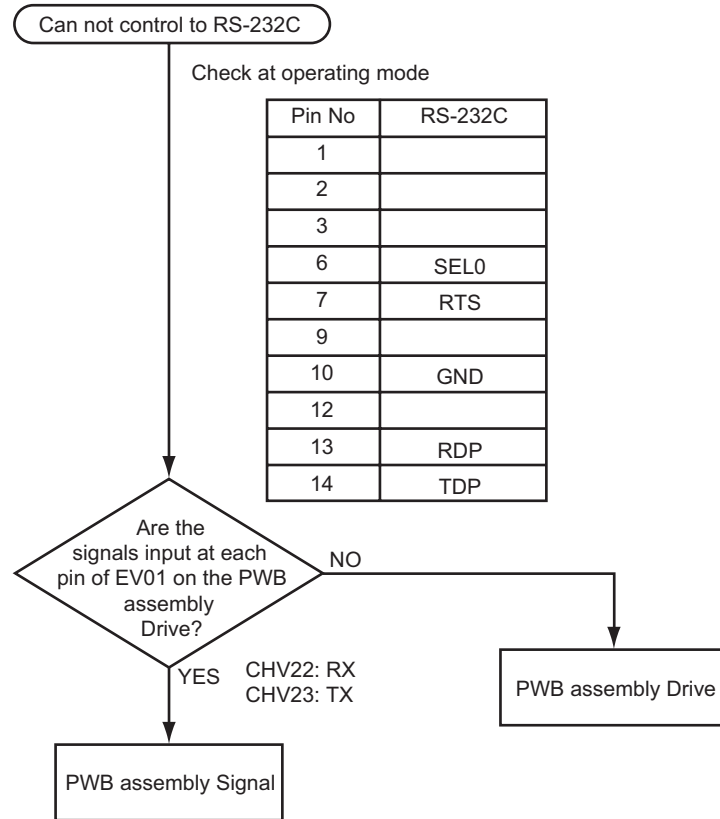
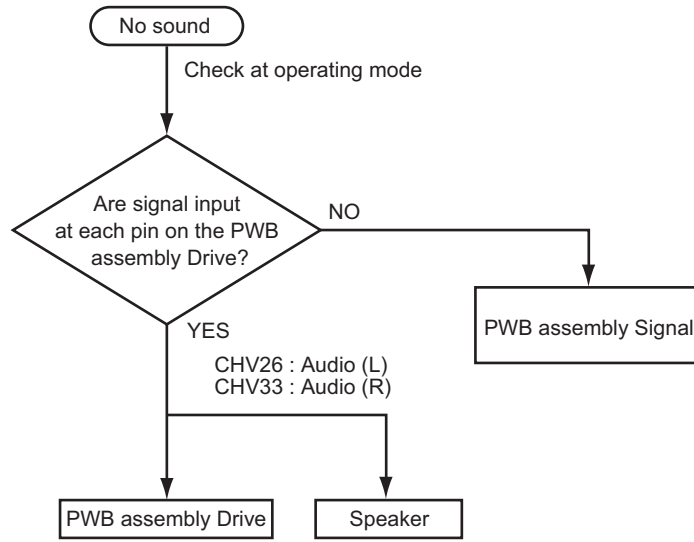








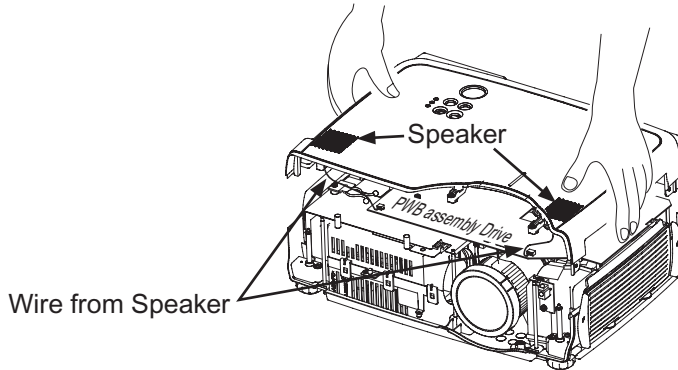




## 6. Service points

### ● Cautions when removing the Upper case assembly

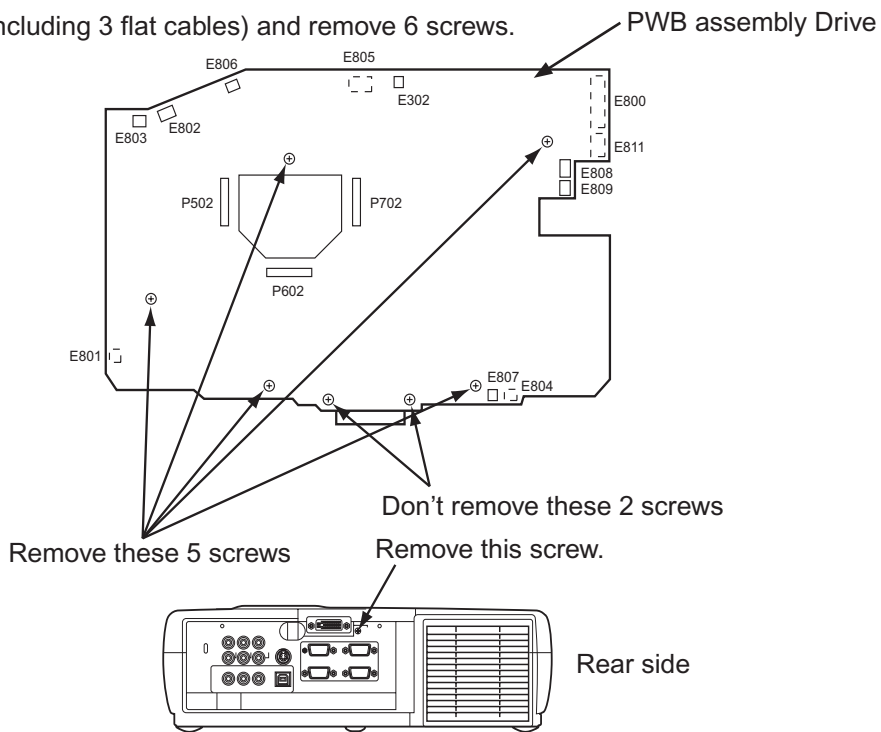
When you remove the Upper case assembly, avoid to damage wires between speakers on the Upper case assembly and PWB assembly Drive on the Bottom case assembly.



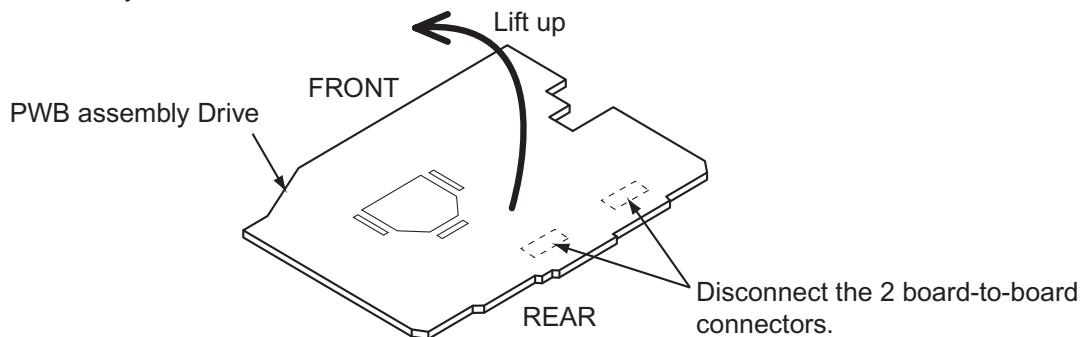
### ● Cautions when removing the PWB assembly Drive

When removing the PWB assembly Drive, there is a danger of damaging the connectors, connecting cables and the PWB assembly Signal.

1) Disconnect 15 cables (including 3 flat cables) and remove 6 screws.



2) Lift up the PWB assembly Drive.

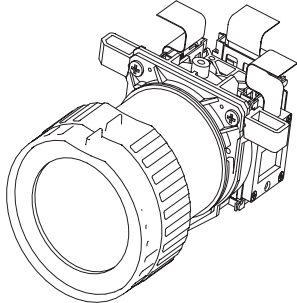




## ● Before Replacing the LCD / Lens Prism

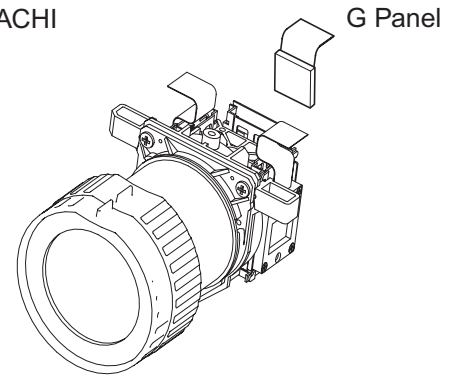
You should not replace separately the parts of the liquid crystal LCD / Lens Prism because it works properly only when used together. Therefore, regarding these parts, you can either replace part, LCD / Lens Prism assembly, or send the whole unit LCD / Lens Prism assembly back to HITACHI, where we will 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

## ● Air Filter

### Cleaning the Air filter

The air filter should be cleaned as described below at intervals of approximately 100 hours.

1. Switch the projector power supply OFF, and remove the power cord from the power outlet.
2. Clean the air filter with a vacuum cleaner.

### Replacing the Air filter

Replace the air filter if contamination cannot be removed, or if it is damaged.

1. Remove the filter cover.
2. Remove the old filter.
3. Set the new filter and filter cover.

#### CAUTION

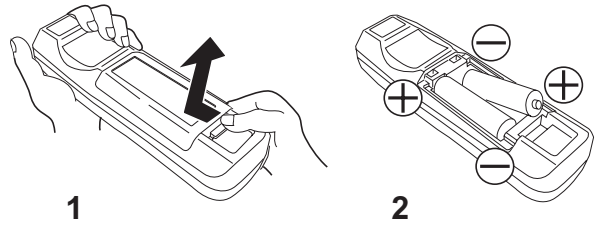


- Switch power OFF and remove the power cord from the power outlet before beginning maintenance work. Please read the separate "SAFETY INSTRUCTIONS" thoroughly to ensure that maintenance is performed correctly.
- Replace the air filter if contamination cannot be removed, or if it is damaged. Contact your dealer in such case. (Option Air filter assembly : Parts No. NJ06131)
- Do not use the equipment with the air filter removed.
- When the air filter is clogged with dust etc. the power supply is switched OFF automatically to prevent the temperature rising inside the projector.

● **Loading the Batteries**

Install the AA batteries into the remote control transmitter.

1. Remove the battery cover.  
Push the knob while lifting up the battery cover.
2. Loading the batteries.  
Make sure the plus and minus poles are correctly oriented.
3. Close the battery cover.



**CAUTION**



- Use only the specified batteries with this remote control transmitter. Also, do not mix new and old batteries. This could cause in battery cracking or leakage, which could result in fire or personal injury.
- When loading the batteries, make sure the plus and minus terminals are correctly oriented as indicated in the Remote control transmitter. Incorrect orientation could cause battery cracking or leakage, which could result in personal injury or pollution of the surrounding environment.
- When you dispose the battery, you should obey the law in the relative area or country.
- Keep the battery away from children and pets.
- When not to be used for an extended period, remove the batteries from the Remote control transmitter.

**NOTE:** Replace the batteries when remote control transmitter operation becomes difficult.

● **Lamp** (Option Lamp: DT00471)



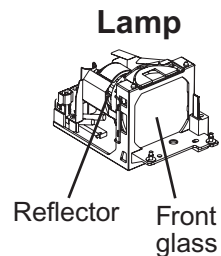
**HIGH VOLTAGE  
HIGH TEMPERATURE  
HIGH PRESSURE**

Before replacing the lamp, switch power OFF, remove the power cord from the power outlet, and wait approximately 45 minutes until the lamp has cooled. The lamp may explode if handled at high temperatures.

**WARNING**



- 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 ask your dealer to replace lamp. The lamp is covered by front glass, 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.
- Do not use the projector with the lamp cover removed.



**Lamp Life**

Projector lamps have a finite life. The image will become darker, and hues will become weaker, after a lamp has been used for a long period of time.

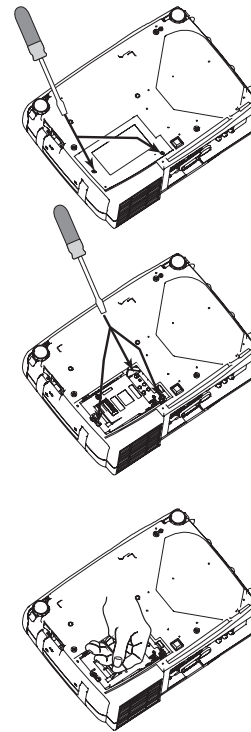
Replace the lamp if the LAMP indicator is red, or the CHANGE THE LAMP message appears when the projector is switched ON.

**NOTE:** The LAMP indicator is also red when the lamp unit reaches high temperature. Before replacing the lamp, switch power OFF, wait approximately 20 minutes, and switch power ON again.

If the LAMP indicator is still red, replace the lamp.

## Replacing the Lamp

1. Switch the projector OFF, remove the power cord from the power outlet, and wait at least 45 minutes for the unit to cool.
2. Prepare a new lamp.
3. Check that the projector has cooled sufficiently, and gently turn it upside down.
4. Loosen the two screws as shown in the diagram, and remove the lamp cover.
5. Loosen the three screws, and gently remove the lamp while holding the grips. Touching the inside of the lamp case may result in uneven coloring.
6. Install the new lamp and tighten the three screws firmly.  
Also steadily push the opposite side of the screwed lamp into the unit.
7. Replace the lamp cover in position and tighten the two screws firmly.
8. Gently turn the projector right-side up.




### CAUTION

- Ensure that screws are tightened properly. Screws not tightened fully may result in injury or accidents.
- Do not use the projector with the lamp cover removed.

## Resetting the Lamp Timer

Reset the lamp timer after replacing the lamp. When the lamp has been replaced after the LAMP indicator is red, or the CHANGE THE LAMP message is displayed, complete the following operation within ten minutes of switching power ON. The power will be turned off automatically in over 10 minutes.

1. Switch power ON, and press the RESET button, for approximately three seconds. The 'LAMP xxxx hr' message will appear on the lamp timer on the bottom of the screen.
2. Press the MENU button on the remote control transmitter, or the RESET button on the control panel, while the lamp timer is displayed. The 'LAMP xxxx □ → 0 ■ CANCEL' message will then appear.
3. Press the  and select 0, and wait until the timer display is cleared.

**NOTE:** Do not reset the lamp timer without replacing the lamp. Reset the lamp timer always when replacing the lamp. The message functions will not operate properly if the lamp timer is not reset correctly.

## OSD Message

The messages as described below may appear on the screen at power ON. Take the appropriate measures when such messages appears.

Message	Contents
CHANGE THE LAMP AFTER REPLACING LAMP, RESET THE LAMP TIME. (*1)	The usage time of lamp will be reaching 2000 hr shortly.(*2) It is recommended to replace the lamp soon. Prepare a new lamp as a replacement.
CHANGE THE LAMP AFTER REPLACING LAMP, RESET THE LAMP TIME. THE POWER WILL TURN OFF AFTER ** hr. (*1)	The usage time of lamp will be reaching 2000 hr shortly. It is recommended to replace the lamp within * * hours.(*2) It might be happened that the lamp is cut off before * * hr by any chance. Power will be switched OFF automatically in * * hours. Replace the lamp as shown in P.19~20 "Lamp". Always reset the lamp timer after replacing the lamp.
CHANGE THE LAMP AFTER REPLACING LAMP, RESET THE LAMP TIME. THE POWER WILL TURN OFF AFTER 0 hr.	The usage time of lamp is about to reach. Power will be switched OFF in a few minutes.(*2) Switch power OFF immediately and replace the lamp as shown in P.19~20 "Lamp". Always reset the lamp timer after replacing the lamp.
NO INPUT IS DETECTED ON ***	No input signal found. Check signal input connections and signal sources.
SYNC IS OUT OF RANGE ON ***	The horizontal or vertical frequency of the input signal is not within the specified range. Check the specifications of the equipment and the signal source.
CHECK THE AIR FLOW	Please remove the obstruction before the suction port.

**NOTE** (\*1) This message is cleared automatically after approximately three minutes, and appears every time power is switched ON.

(\*2) The unit has a function to turn the power off which will be active when the usage time reaches 2000 hr. However the life of lamp might be much different among lamps, so that it might be happened that a lamp is cut off before the function is active.

## Indicators Message

The POWER indicator, LAMP indicator, and TEMP indicator are lit and blank as follows. Take the appropriate measures.

POWER indicator	LAMP indicator	TEMP indicator	Contents
Lights orange	Turns off	Turns off	The Standby mode has been set.
Blinks green	Turns off	Turns off	Warming up. Please wait.
Lights green	Turns off	Turns off	ON. Normal operation possible.
Blinks orange	Turns off	Turns off	Cooling. Please wait.
Blinks red	-	-	Cooling. Please wait. The error is found. Take the appropriate measures when the POWER indicator ceases blinking
Blinks /Lights red	Lights red	Turns off	Lamp is not lit. The interior of the equipment may be too hot. Switch power OFF, wait 20 minutes until the equipment cools, and check whether the ventilation openings are blocked, whether the air filter is dirty, or whether the ambient temperature exceeds 35 °C. And switch power ON again. Replace the lamp if the same problem occurs.
Blinks /Lights red	Blinks red	Turns off	Lamp or lamp cover is not found, or hasn't been fitted in correctly. Switch power OFF, and wait for 45 minutes until the equipment cools. Check fitting of the lamp and lamp cover, and switch power ON again.
Blinks /Lights red	Turns off	Blinks red	The cooling fan is not operating. Switch power OFF, and wait for 20 minutes until the equipment cools. Check for foreign matters in the fan, and switch power ON again.
Blinks /Lights red	Turns off	Lights red	The interior of the equipment is too hot. Switch power OFF, and wait for 20 minutes until the equipment cools. Check whether the ventilation openings are blocked, whether the air filter is dirty, or whether the ambient temperature exceeds 35 °C. Then switch power ON again.
Lights green	Blinks red	Blinks red	The interior of the equipment is too cool. Check whether the ambient temperature is below 0°C. Contact your dealer if the same problem occurs when the ambient temperature is 0~35°C.

**NOTE** When the internal temperature becomes excessive power is switched OFF automatically for safety reasons, and the indicator is extinguished. Set the power switch to [O] and wait for 20 minutes until the equipment has cooled sufficiently.

● **Setup of a Cooling Fan Speed**

When using this projector in the place where altitude is high, we recommend you to set a cooling fan’s speed as “HIGH”. It is because the cooling efficiency of a projector falls and the temperature inside a projector rises easily in such a place, since the density of air becomes low.

**Setting Method of Cooling Fan Speed**

1. To display the OSD for cooling fan speed setup:

	By the control panel	By the remote control transmitter
A proper signal is input	<ol style="list-style-type: none"> <li>1. Display the menu by the “MENU” button.</li> <li>2. Select the “OPT.” on the menu.</li> <li>3. Continue press the button “▲” first, then press the button “RESET” together with “▲”, and hold for 3 seconds.</li> </ol>	<ol style="list-style-type: none"> <li>1. Display the menu by the “MENU” button.</li> <li>2. Select the “OPT.” on the menu.</li> <li>3. Continue pressing the button “MAGNIFY OFF” for 3 seconds.</li> </ol>
No signal is input	<ol style="list-style-type: none"> <li>1. Display the menu by the “MENU” button.</li> <li>2. Select the “VOLUME” on the menu.</li> <li>3. Continue press the button “▲” first, then press the button “RESET” together with “▲”, and hold for 3 seconds.</li> </ol>	<ol style="list-style-type: none"> <li>1. Display the menu by the “MENU” button.</li> <li>2. Select the “VOLUME” on the menu.</li> <li>3. Continue pressing the button “MAGNIFY OFF” for 3 seconds.</li> </ol>

2. Select the “HIGH” on the OSD using the button “▶”. To reset this setup, select the “NORMAL” using the button “◀”.

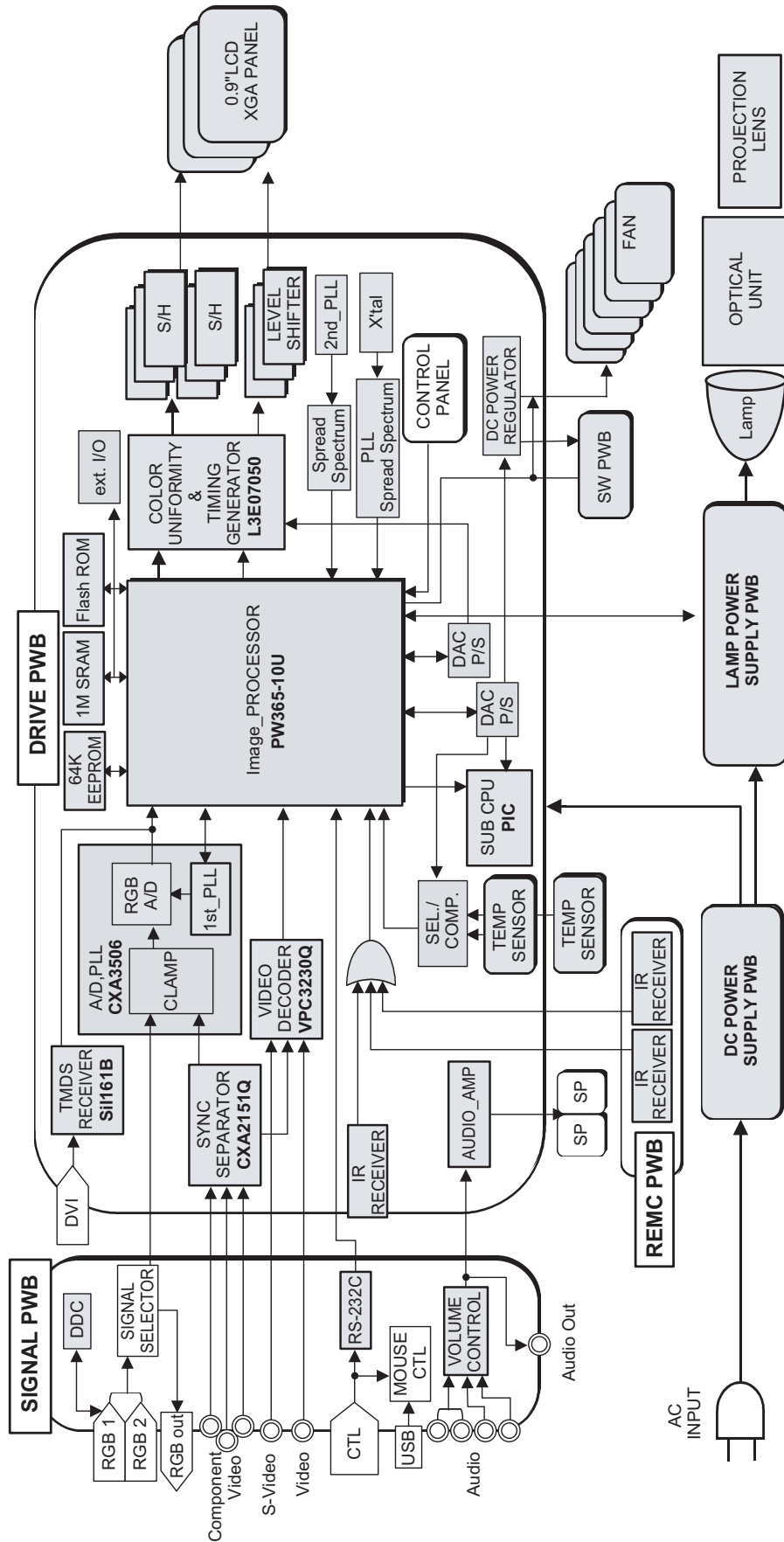
3. The OSD will be ended by no operation for 10 seconds or change of input signal. To end immediately, use one of buttons except buttons “▲”, “▼”, “◀”, “▶”, “RESET”, “MENU SELECT”, “MAGNIFY +/-OFF”, “FREEZE” (when no signal is input) or “POSITION” (when no signal is input).

**NOTE:**

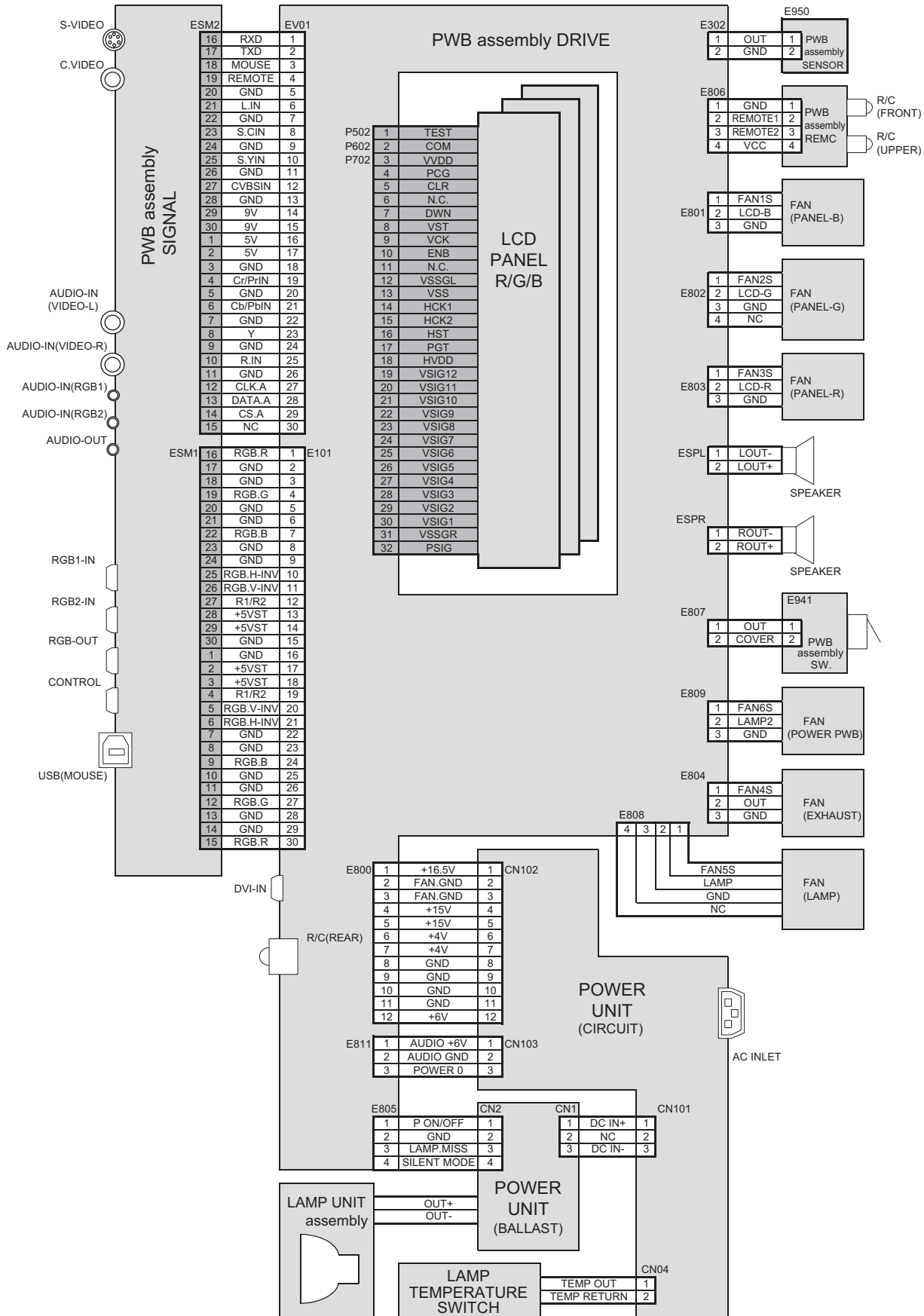
- The “HIGH” mode makes the fan noisy than “NORMAL” mode.
- The recall of factory setting sets the fan speed to “NORMAL” mode. You must set the fan speed after recall of factory setting if you need “HIGH” mode.



### 7. Block diagram



## 8. Connector connection diagram

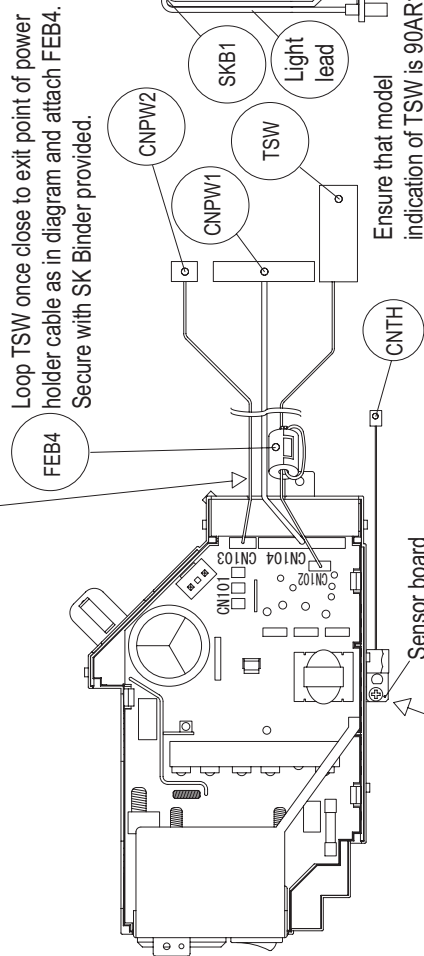


# 9. Wiring diagram

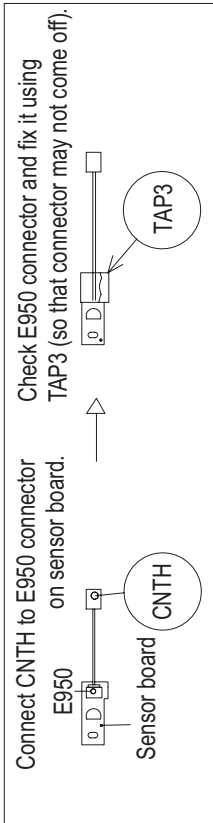
## 1. Power board block wiring (1) Power board wiring

Before fitting circuit power board into its holder, make sure CNPW1, CNPW2 and TSW cables are properly connected to CN102, CN103 and CN104 connectors, respectively.  
(You cannot connect cables after fitting power board.)

Place the 3 cables through a notch in power board holder leaving no slack in cables.  
(Cable slack may touch primary power circuit.)

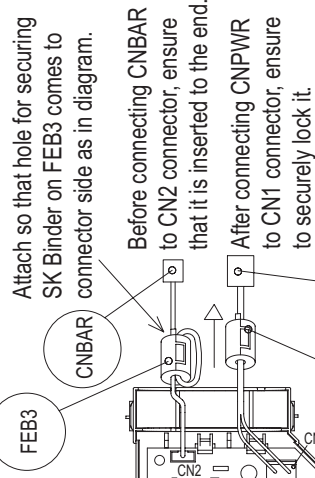


Mount sensor board after taking following steps:



## (2) Ballast board block wiring

Attach FEB3 to CNBAR. Make a loop at cable outlet on ballast holder as illustrated. Delete provided SK Binder.



Put light lead through a notch of ballast holder.  
Pull light lead toward outside of holder to leave no slack in ballast holder, and bind it using SKB1 as illustrated.

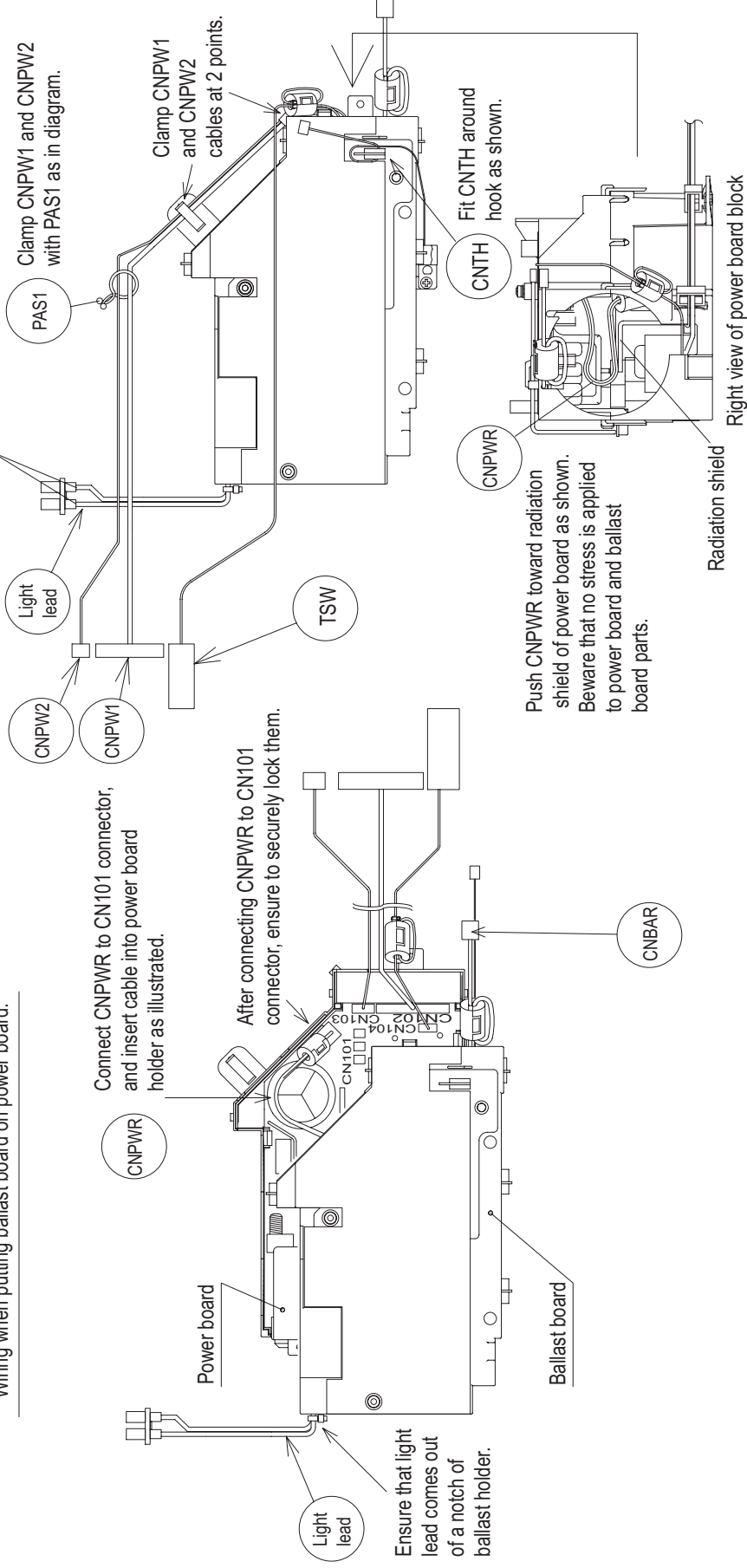
Attach FEB1 to CNPWR by moving in the direction shown. Fix it near the connector using SK binder that is included in an accessory kit.

(3) Power board block wiring

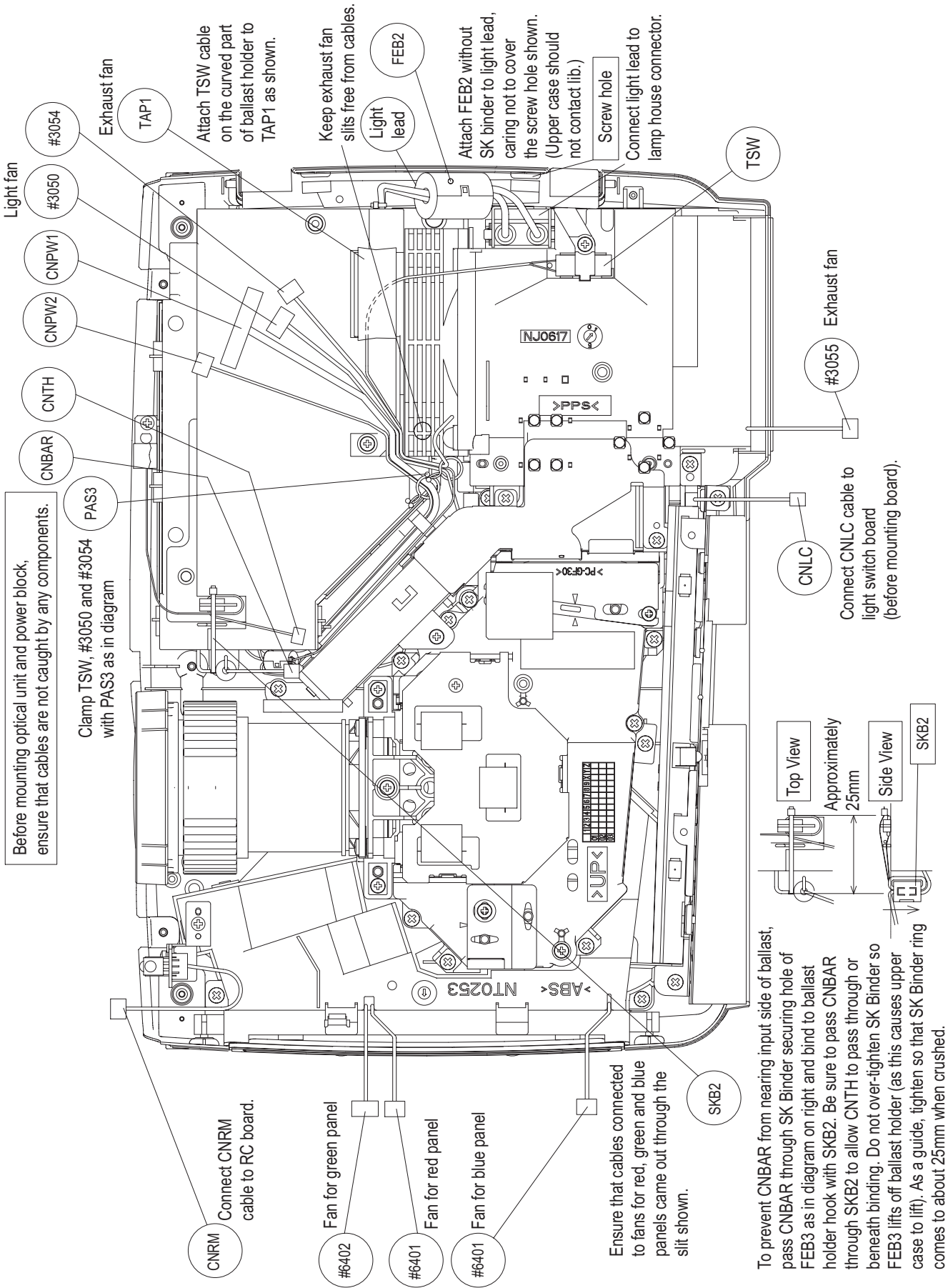
Wiring when after putting ballast board on power board.



Wiring when putting ballast board on power board.



2. Wiring when mounting power block and optical unit on bottom case



Before mounting optical unit and power block, ensure that cables are not caught by any components.

Clamp TSW, #3050 and #3054 with PAS3 as in diagram

Ensure that cables connected to fans for red, green and blue panels came out through the slit shown.

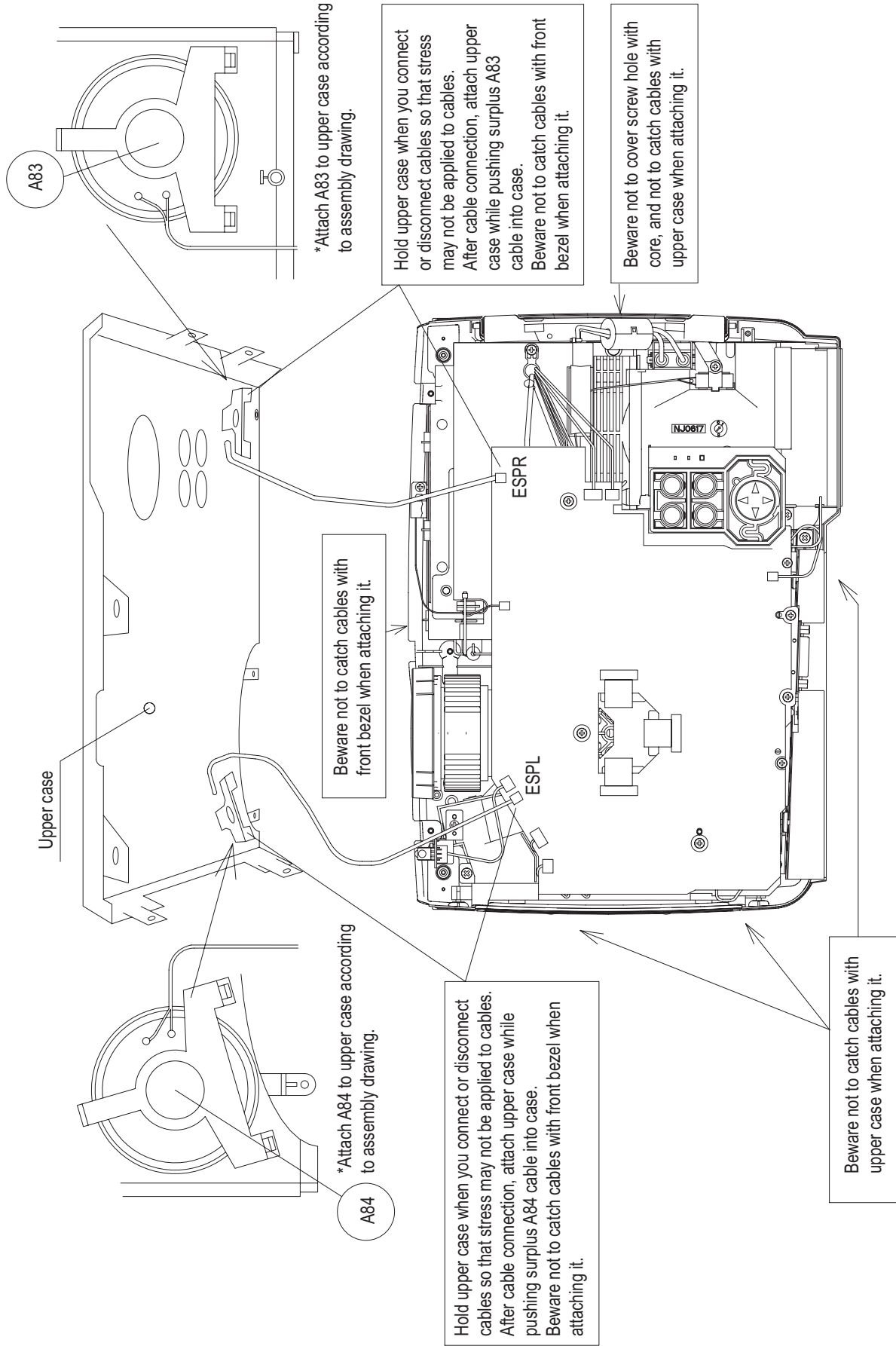
To prevent CNBAR from nearing input side of ballast, pass CNBAR through SK Binder securing hole of FEB3 as in diagram on right and bind to ballast holder hook with SKB2. Be sure to pass CNBAR through SKB2 to allow CNTH to pass through or beneath binding. Do not over-tighten SK Binder so FEB3 lifts off ballast holder (as this causes upper case to lift). As a guide, tighten so that SK Binder ring comes to about 25mm when crushed.

Connect CNLNC cable to light switch board (before mounting board).



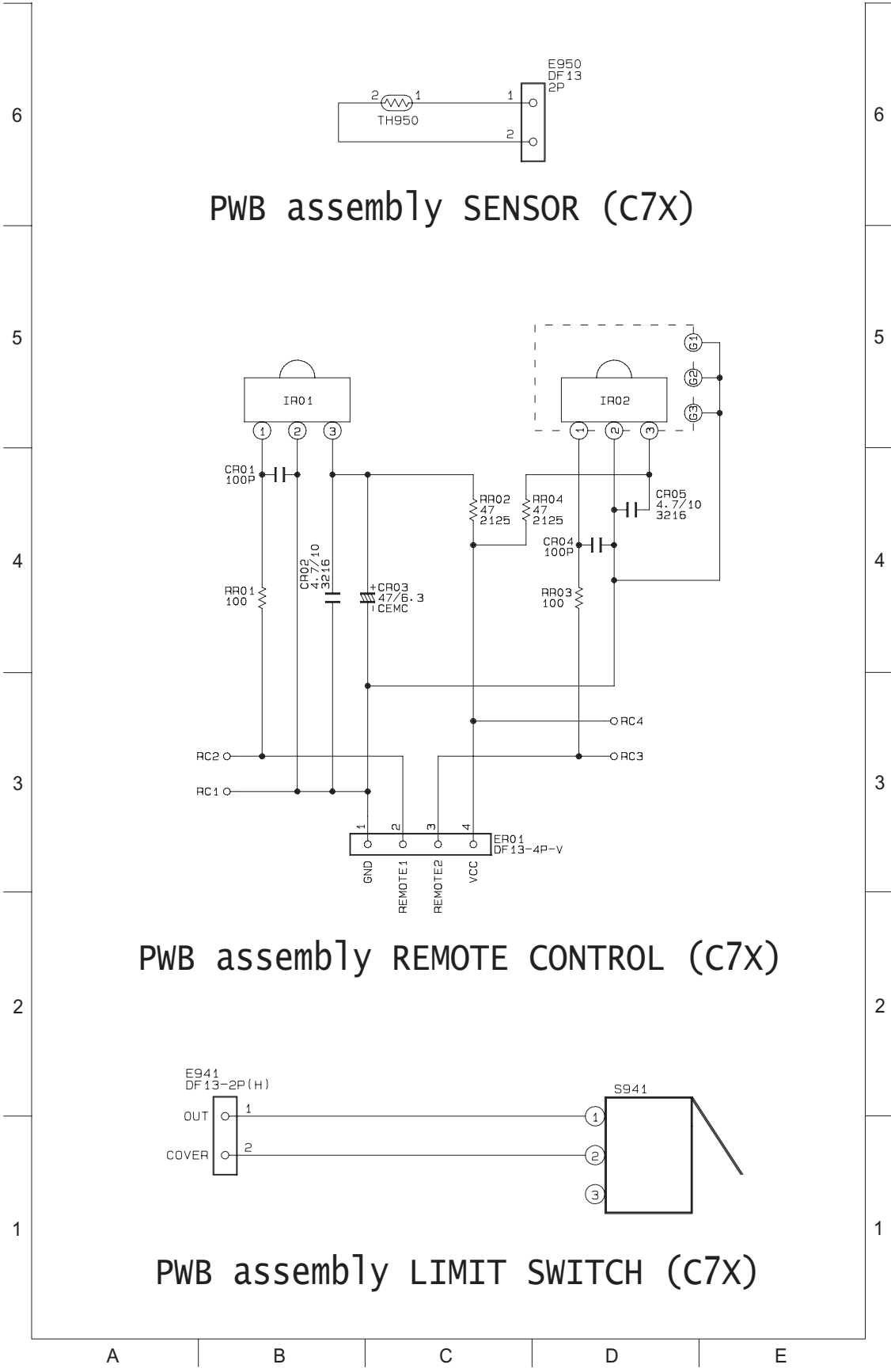


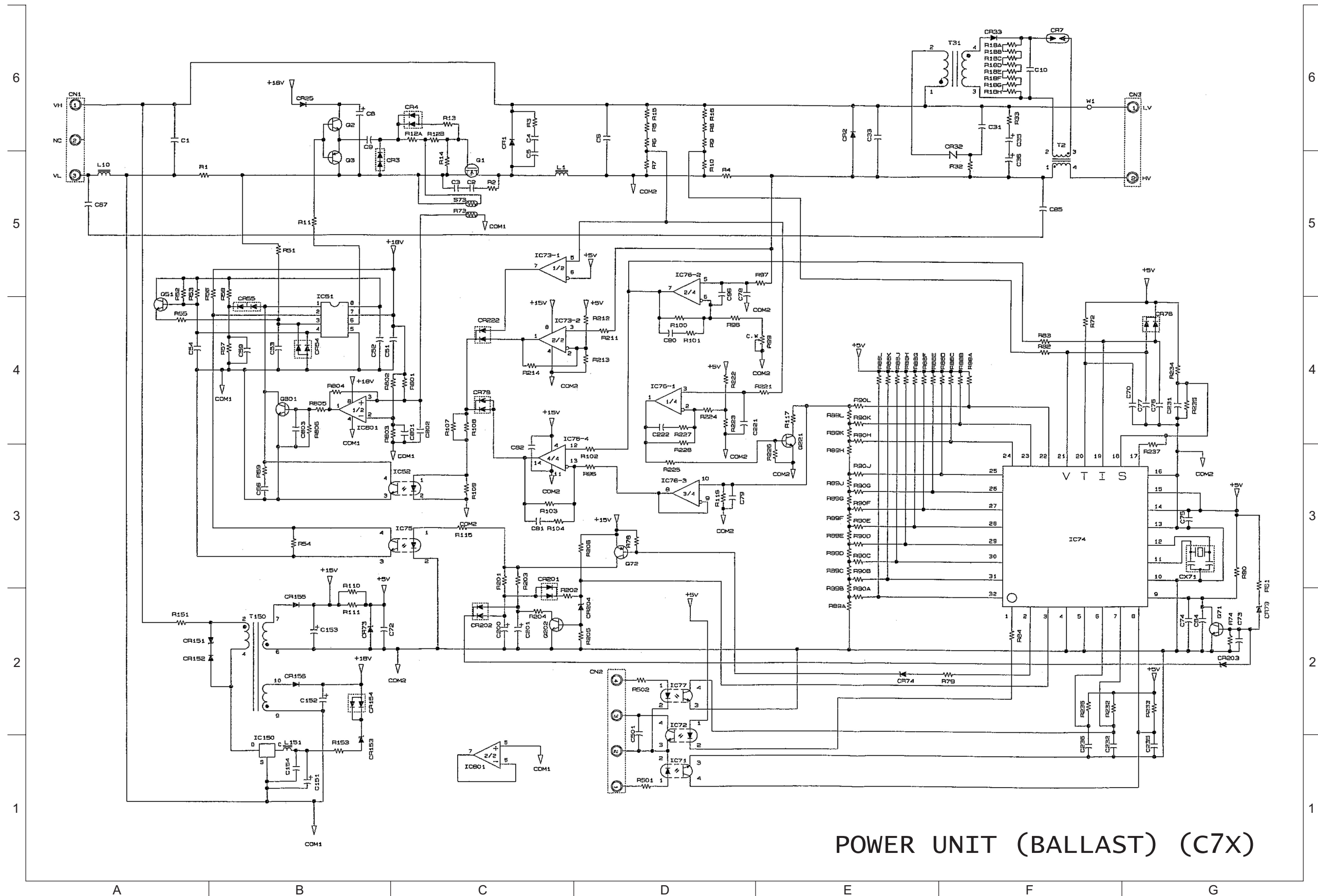
4. Wiring when attaching upper case



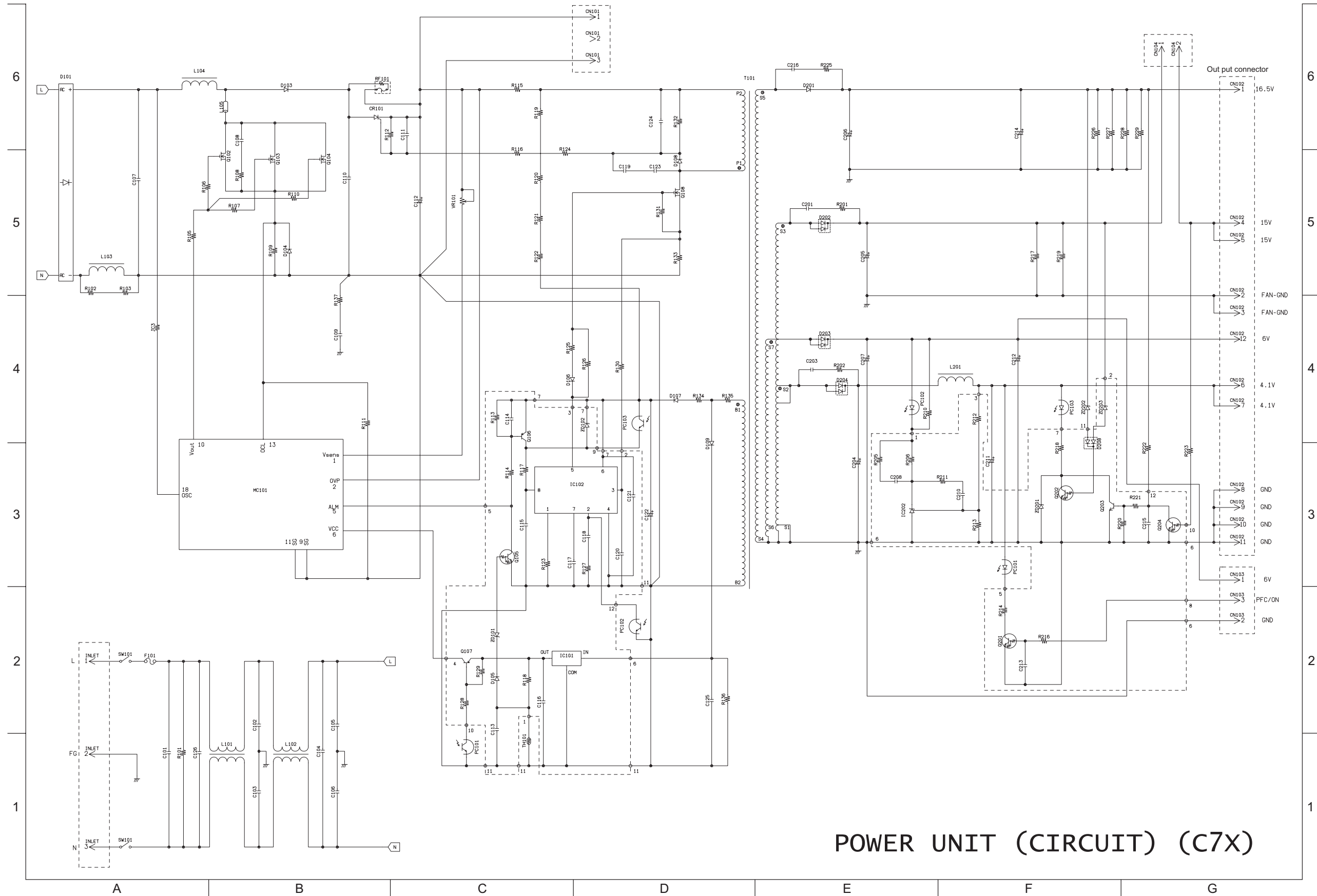
10. Basic circuit diagram

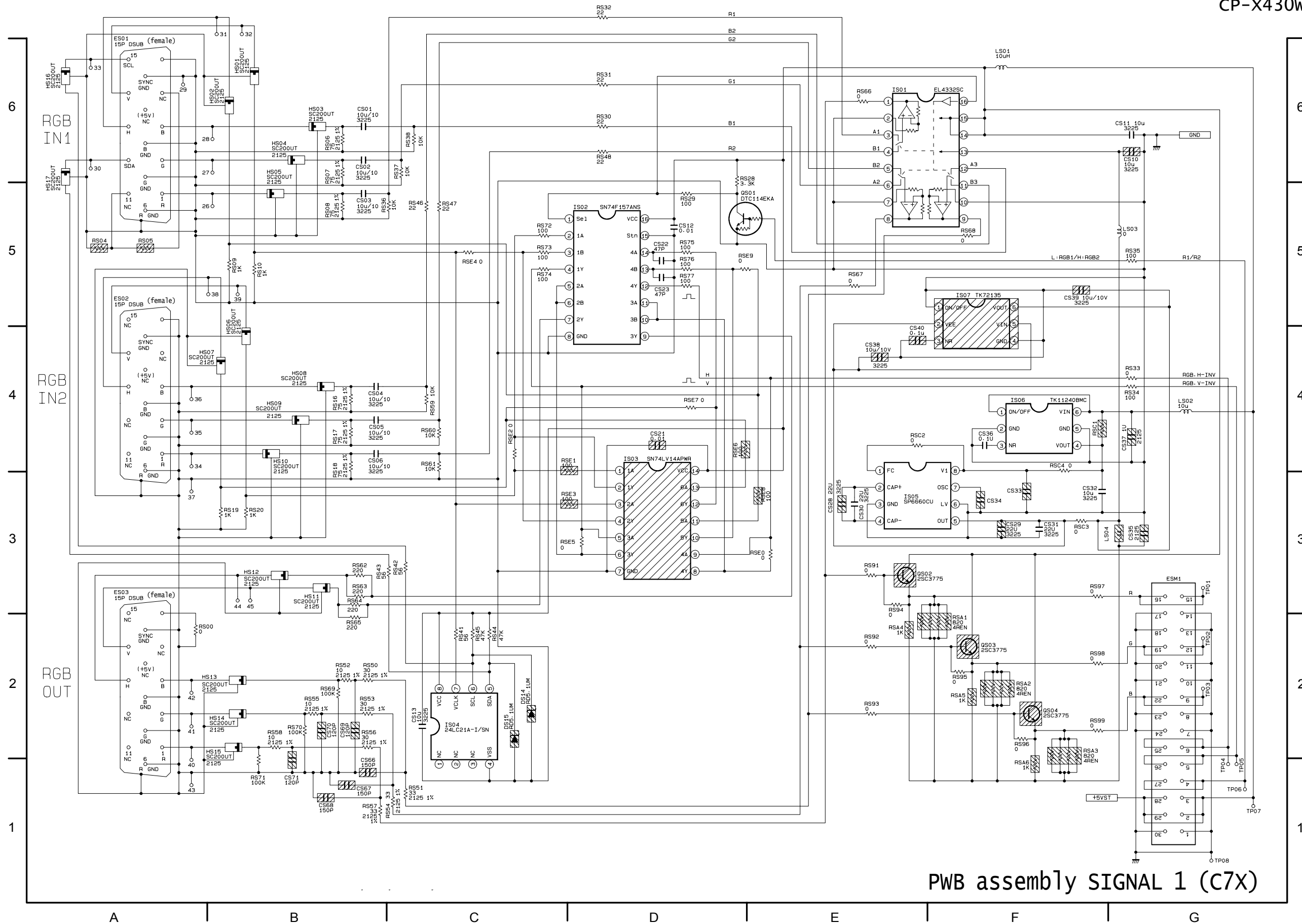
Parts with hatching are not mounted.





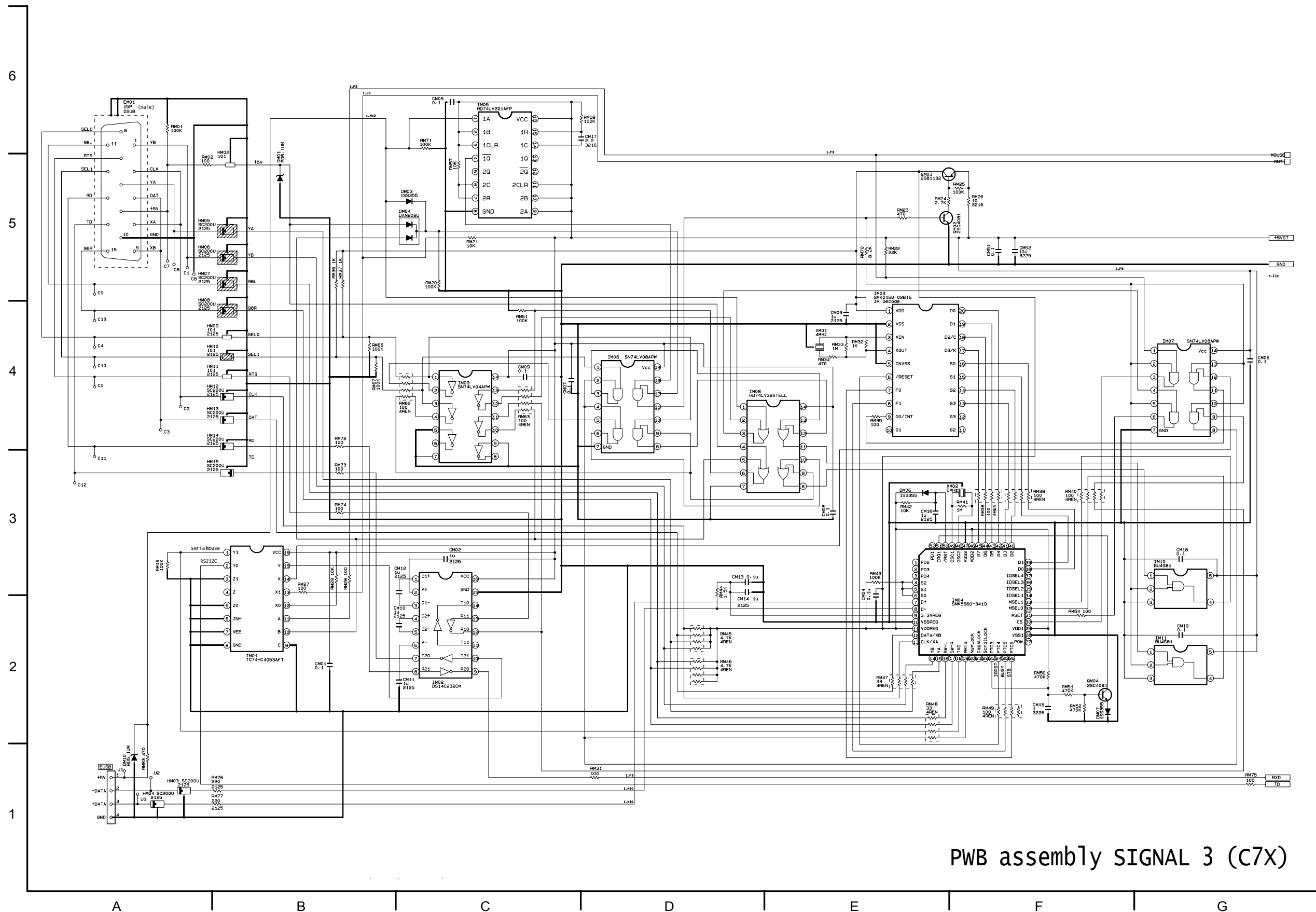
POWER UNIT (BALLAST) (C7X)





PWB assembly SIGNAL 1 (C7X)



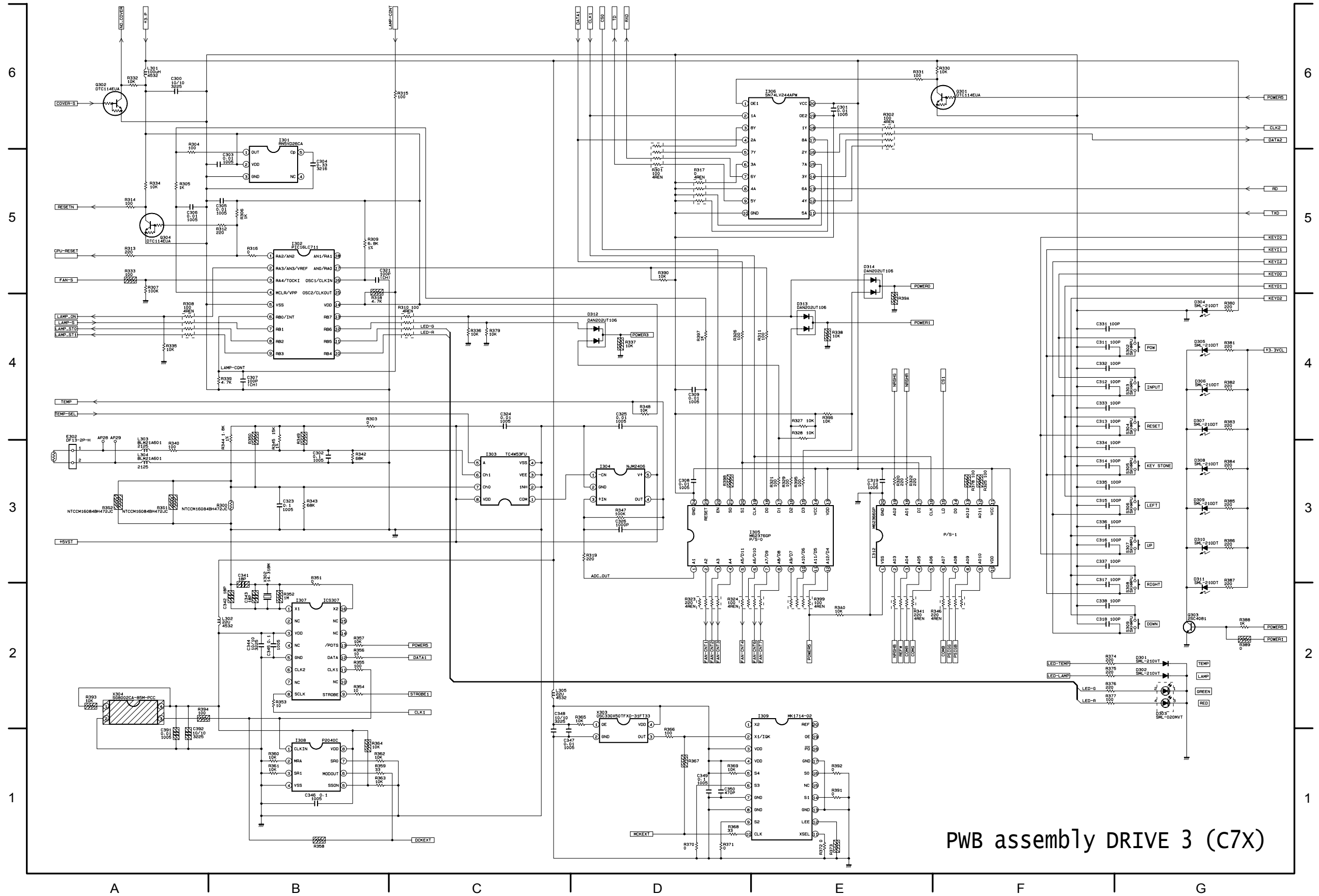


PWB assembly SIGNAL 3 (C7X)

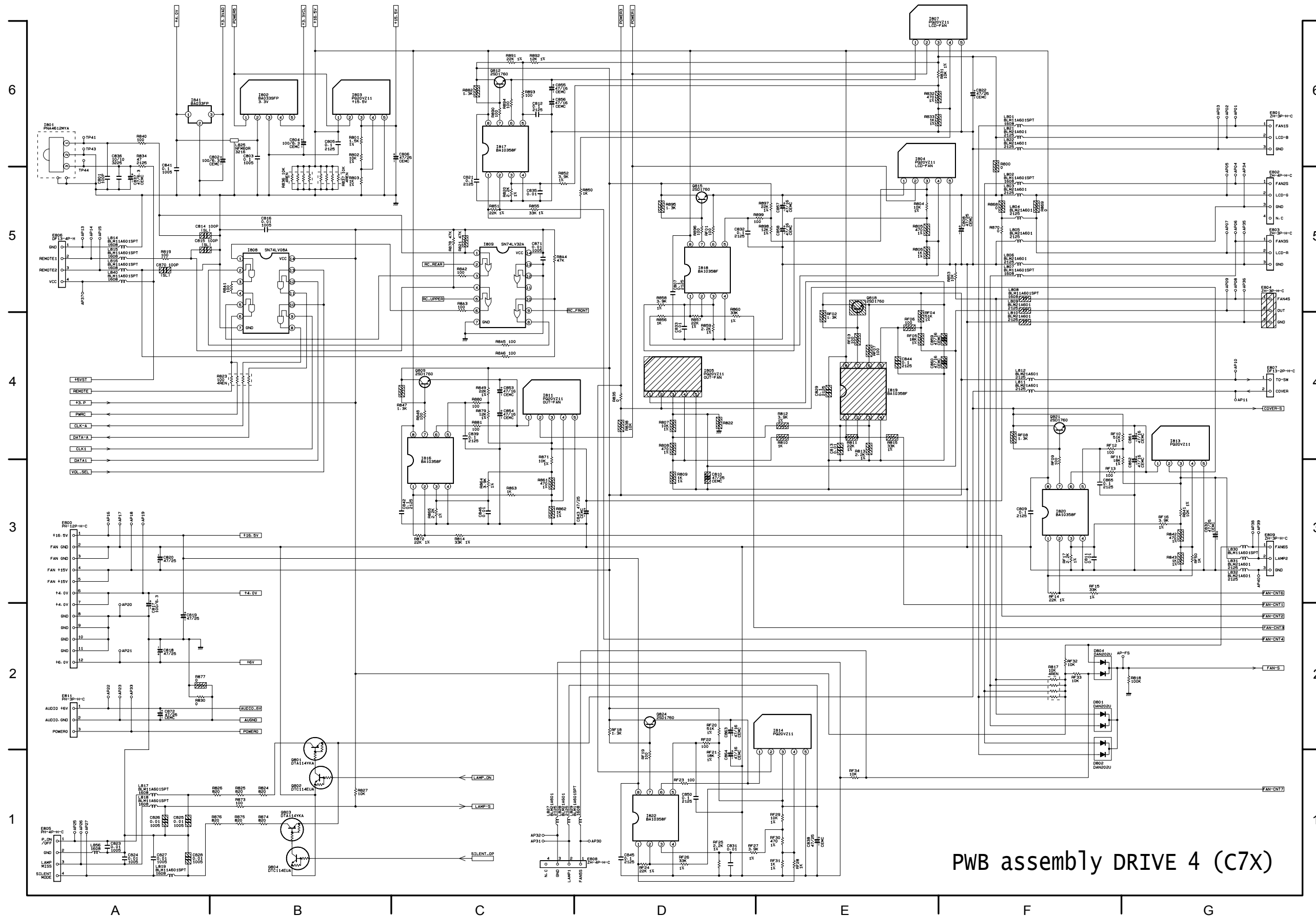




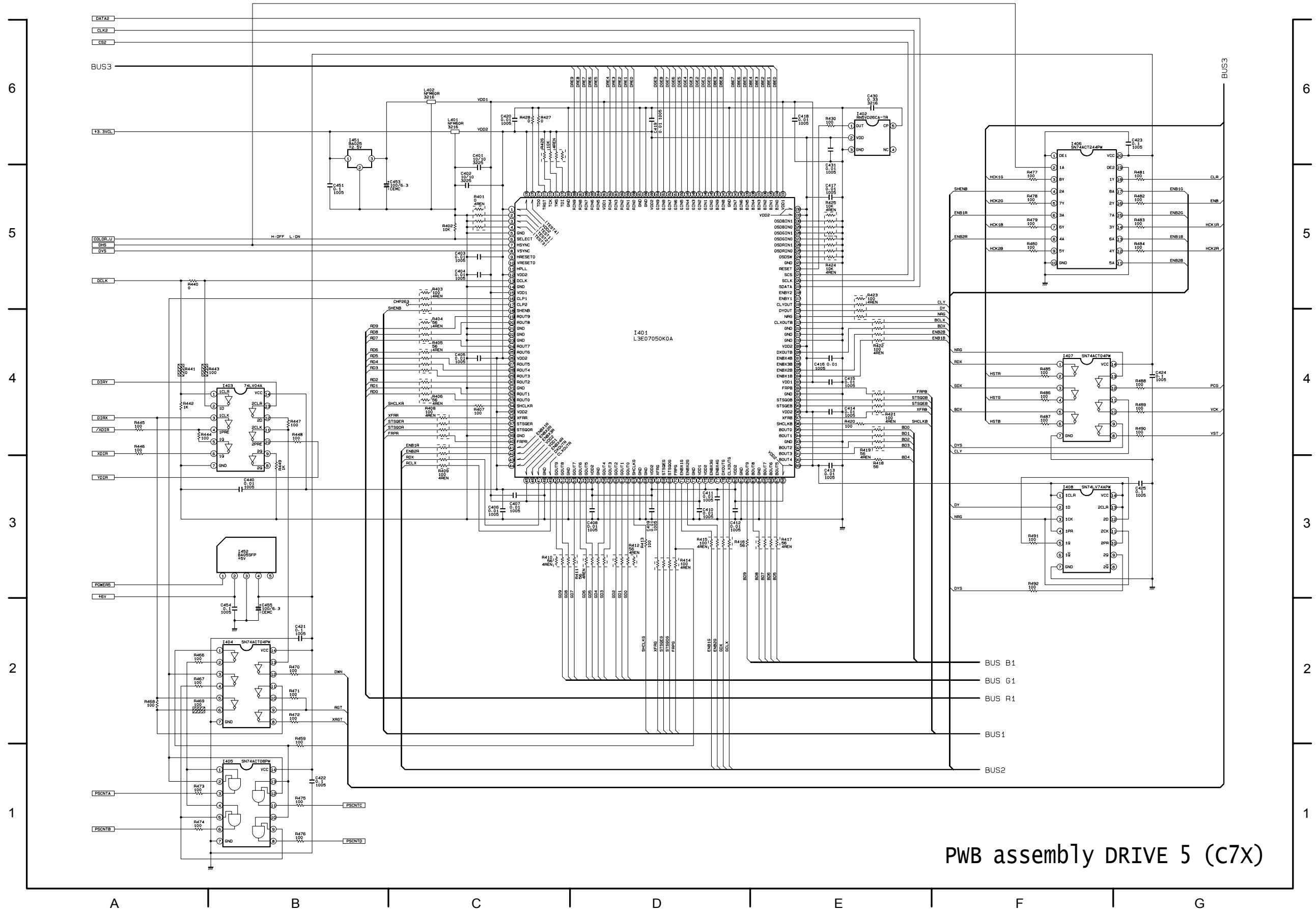




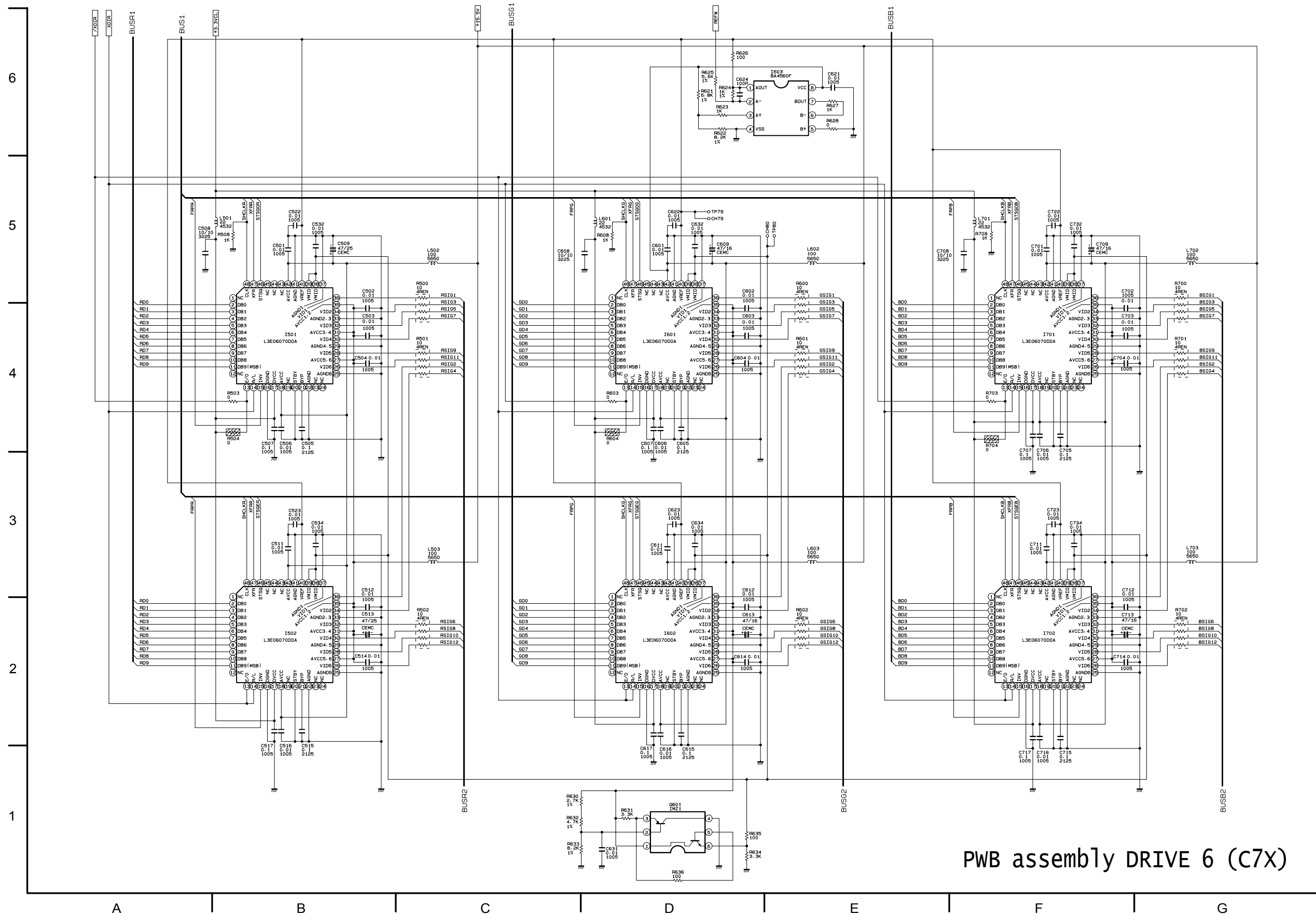
PWB assembly DRIVE 3 (C7X)



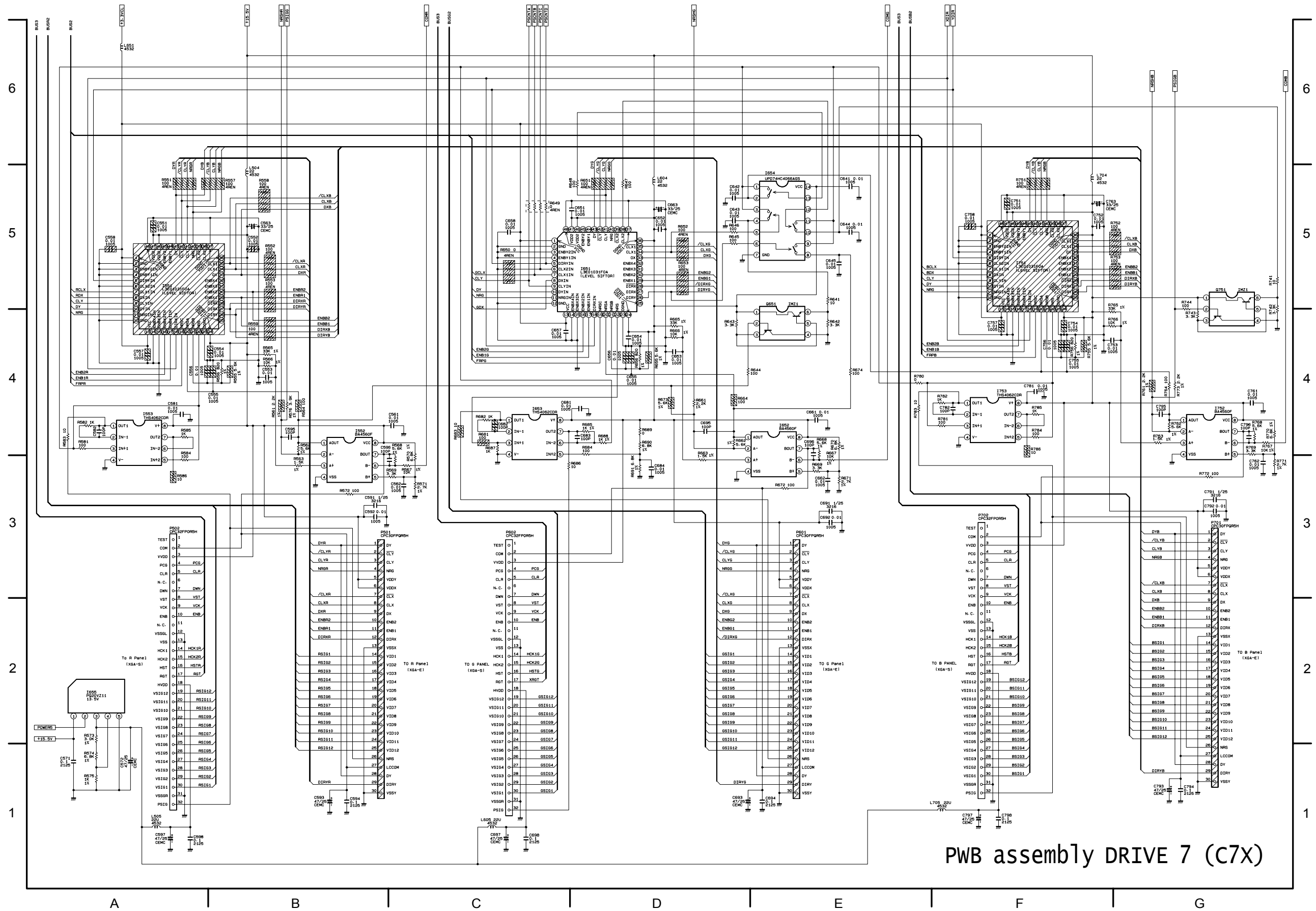
PWB assembly DRIVE 4 (C7X)



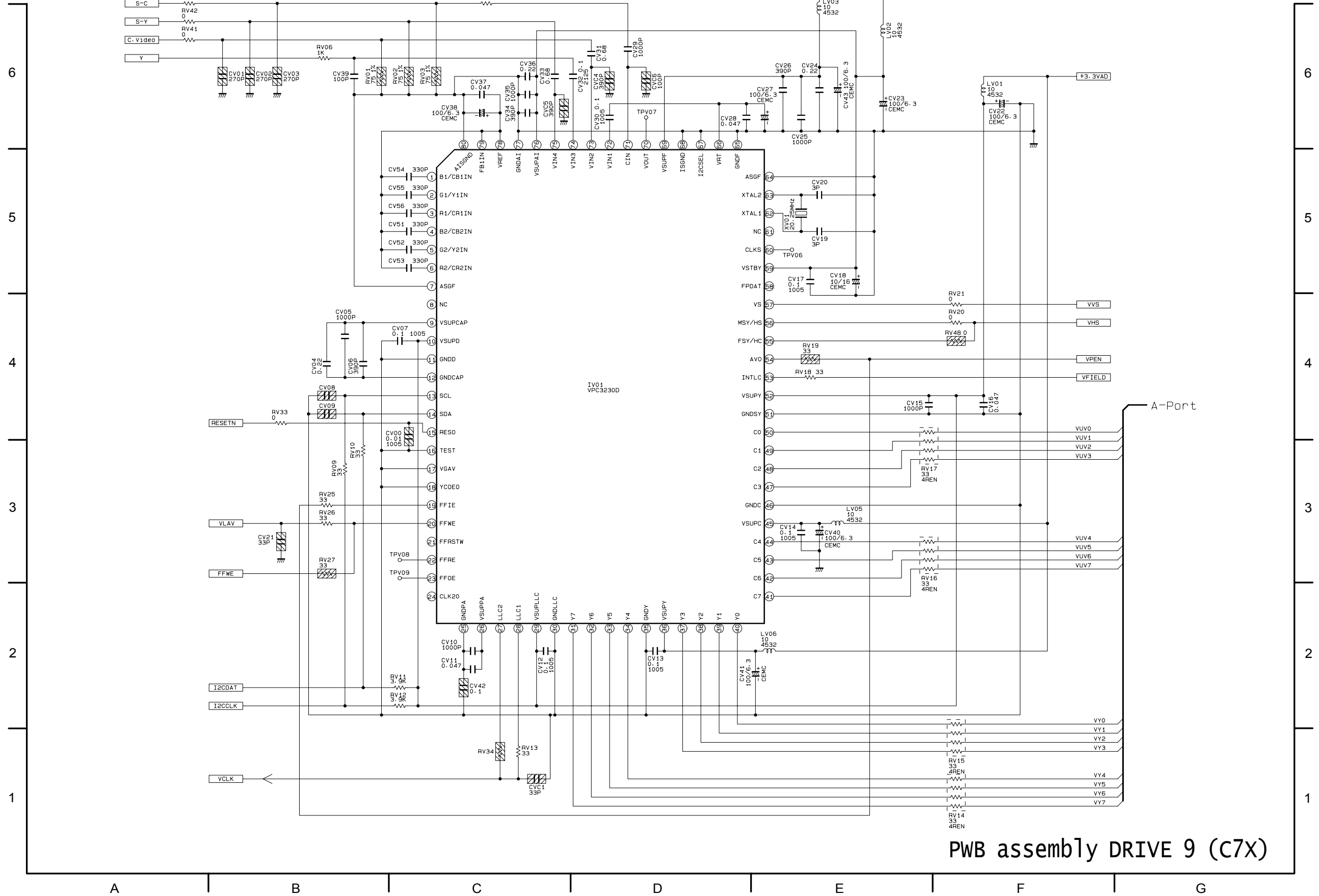
PWB assembly DRIVE 5 (C7X)



PWB assembly DRIVE 6 (C7X)

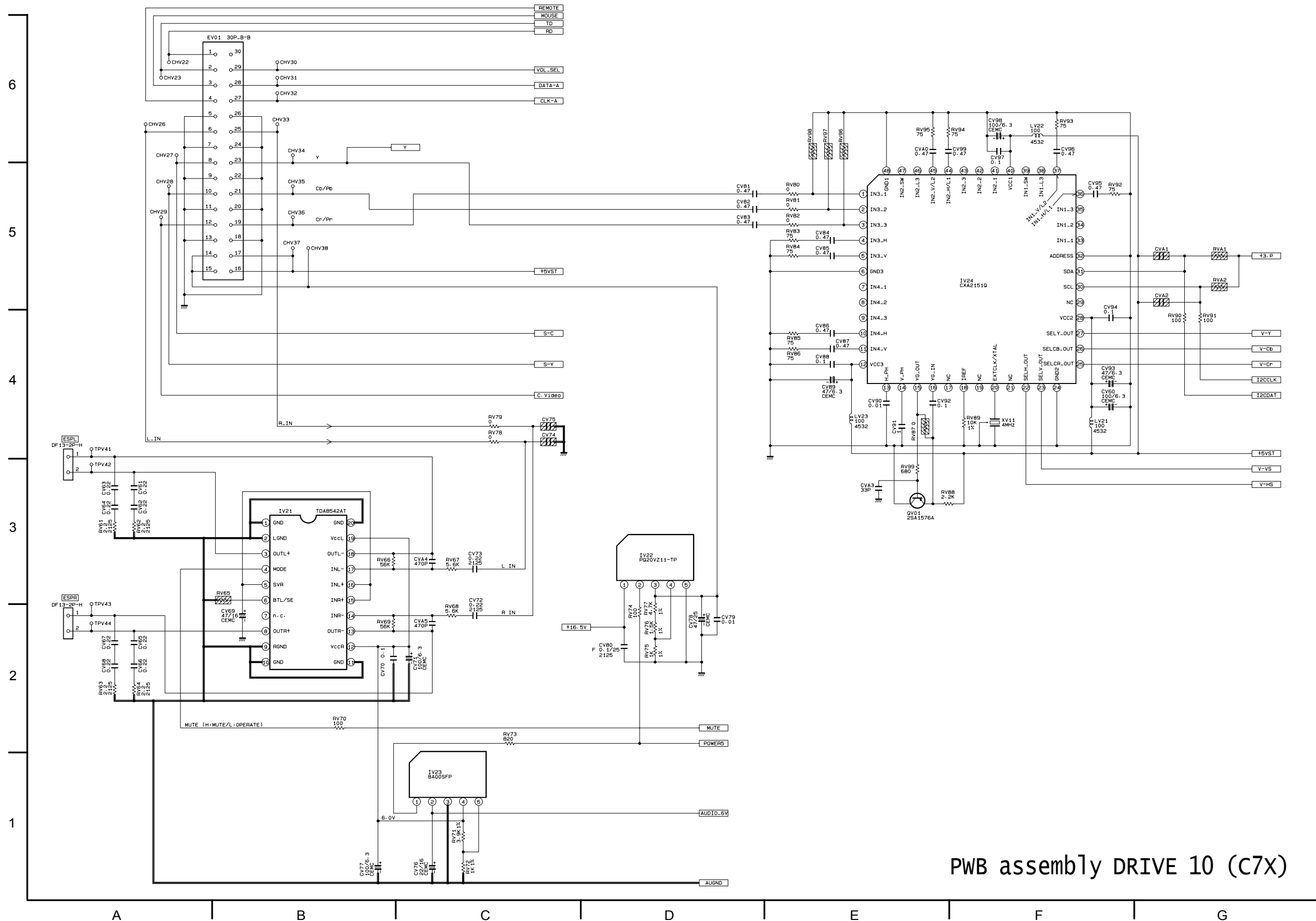




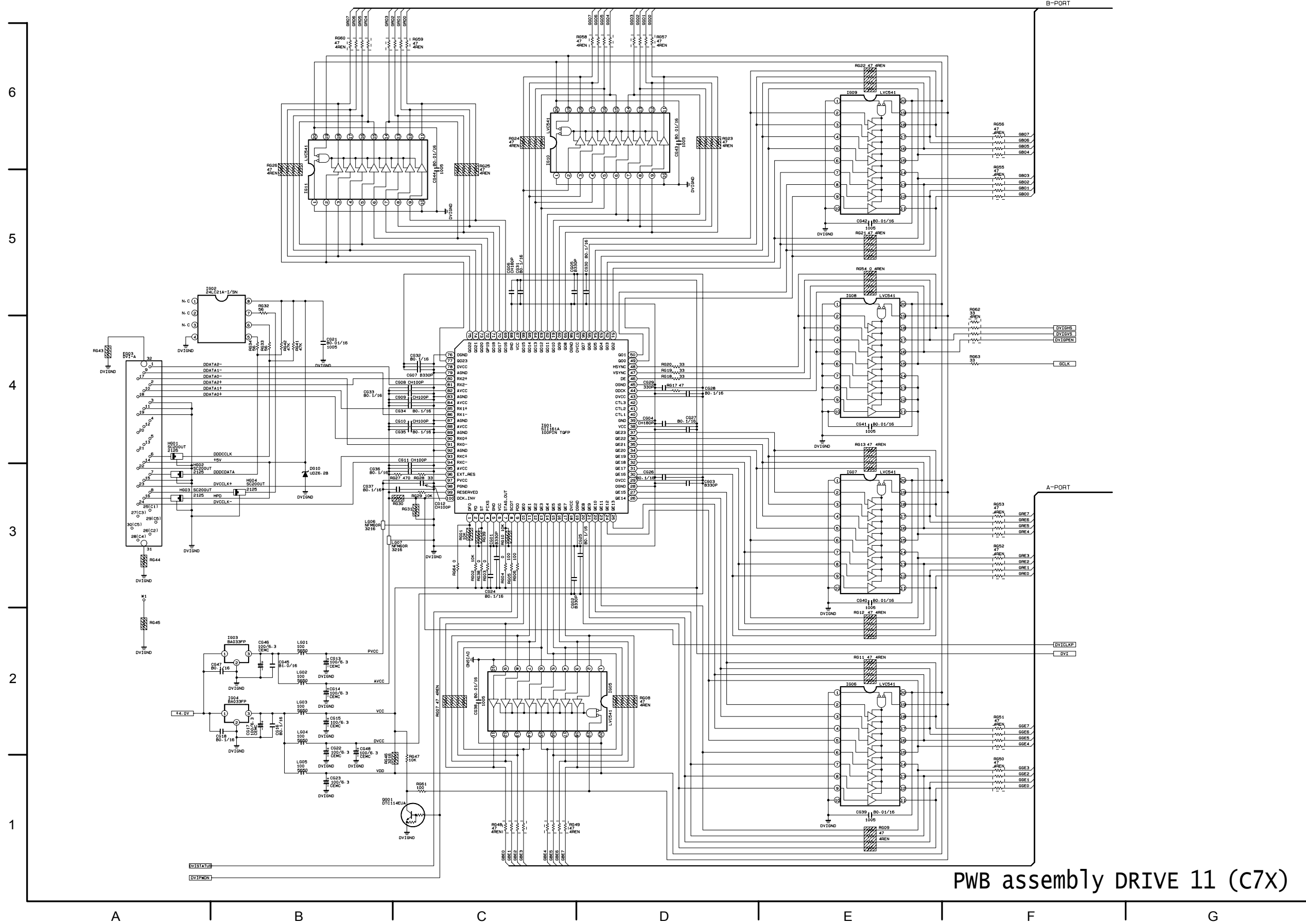


PWB assembly DRIVE 9 (C7X)



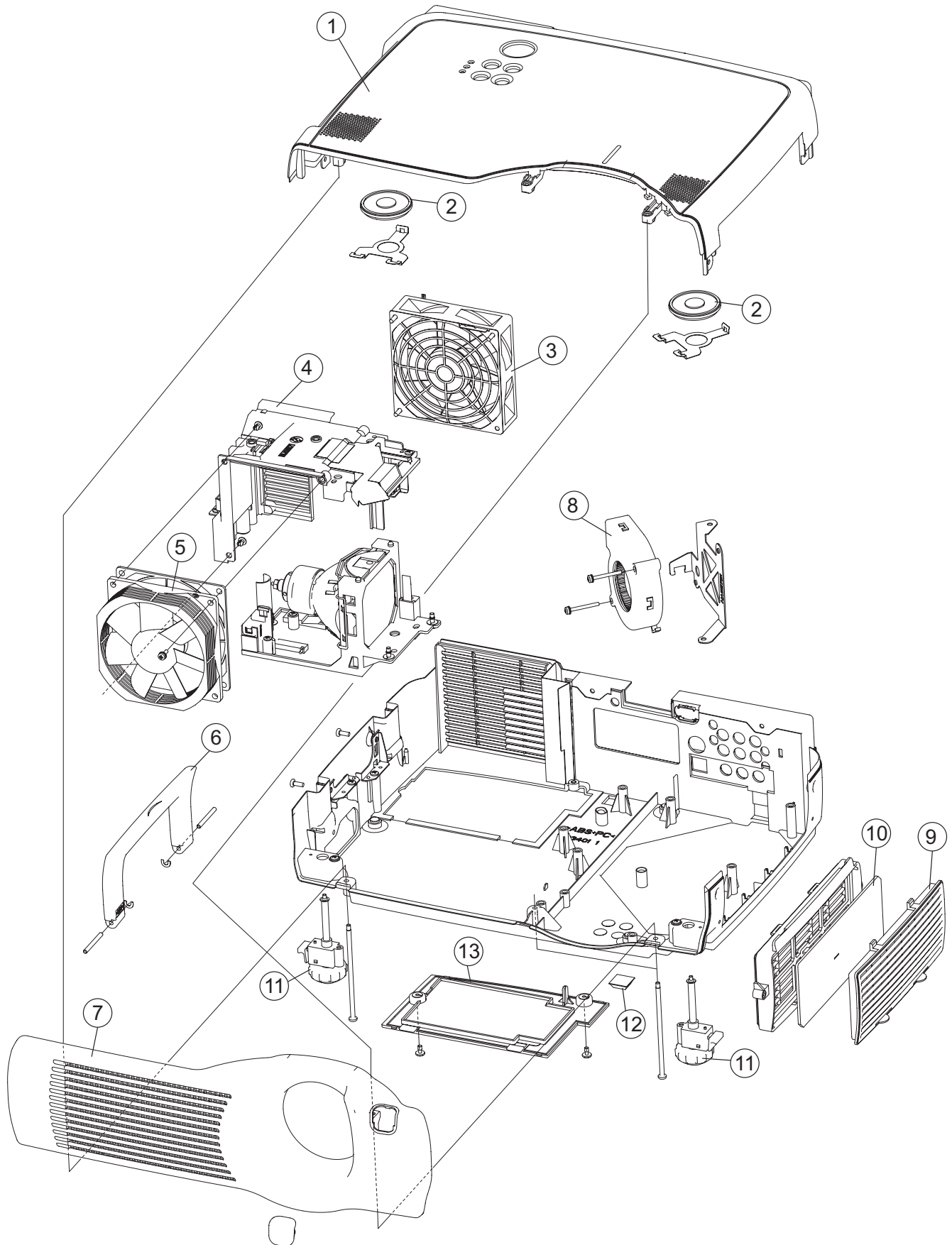


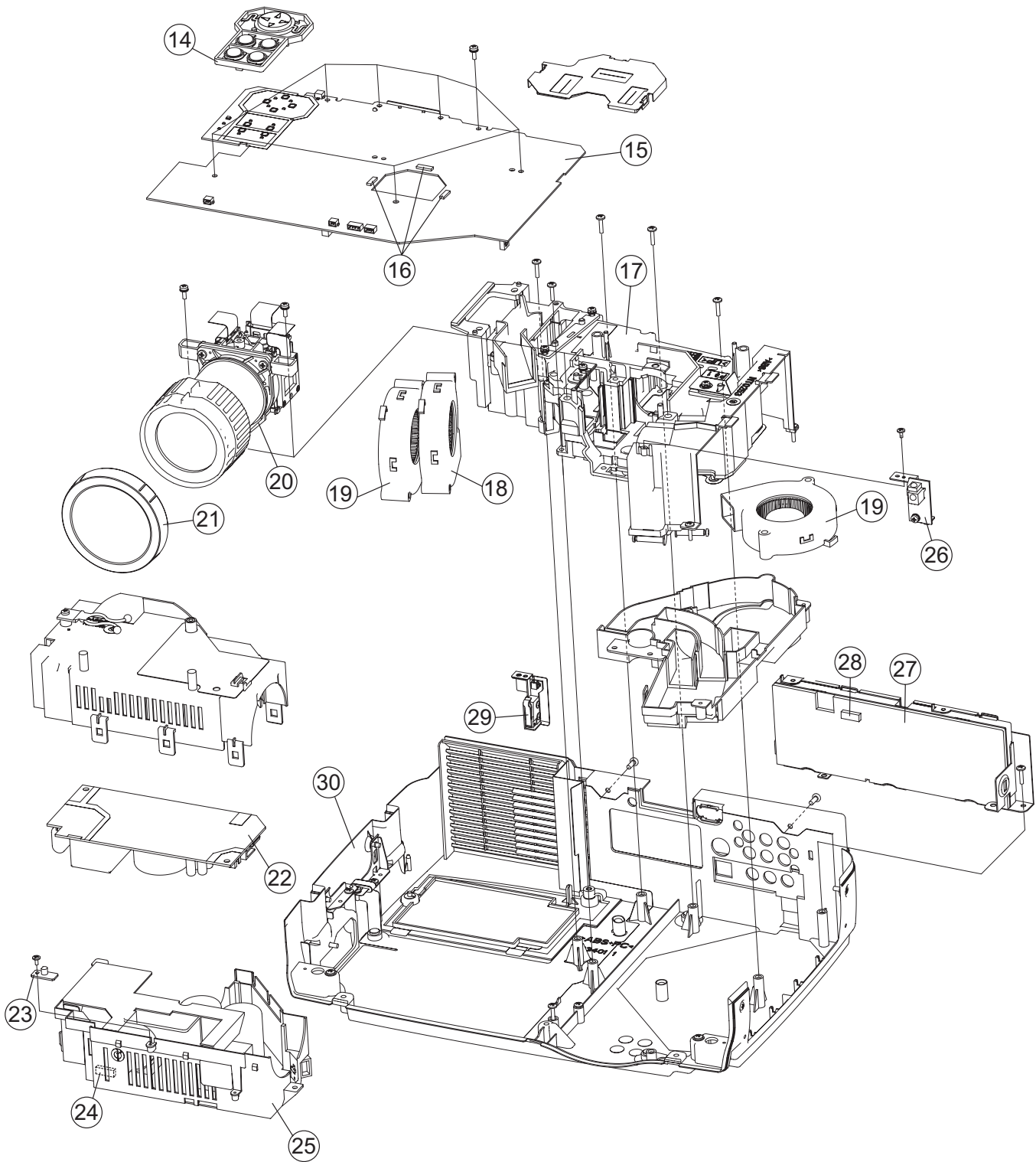
PWB assembly DRIVE 10 (C7X)




PWB assembly DRIVE 11 (C7X)












### 11. Disassembly diagram





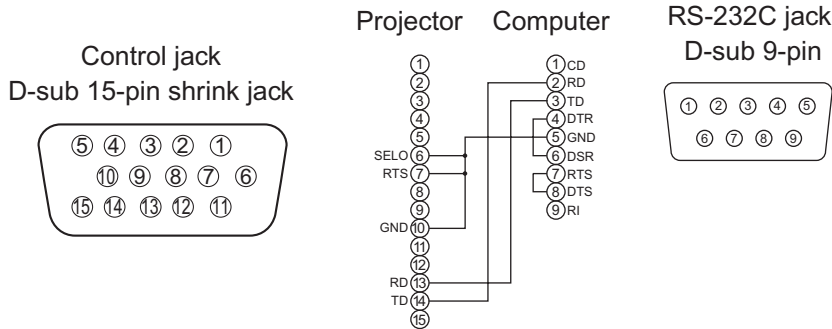
## 12. Replacement Parts list

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

SYMBOL NO.	PARTS NO.	DESCRIPTION	SYMBOL NO.	PARTS NO.	DESCRIPTION
1	QD33871	UPPER CASE ASS'Y	23	JP05395	PWB ASS'Y SENSOR
2	GK00655	SPEAKER	 24	2722448	FUSE
 3	GS00505	DC FAN(EXHAUST-OUTSIDE)	 25	HA01051	POWER UNIT(CIRCUIT)
4	NJ06171	LAMP SWITCH HOUSE	26	JP05388	PWB ASS'Y REMOTE CONTROL
 5	GS00771	DC FAN(EXHAUST-INSIDE)	27	JP05392	PWB ASS'Y SIGNAL
6	PV00331	HANDLE	28	CK31602R	EL4332CS
7	QD33881	FRONT BEZEL ASS'Y	29	JP05394	PWB ASS'Y LIMIT SWITCH
 8	GS00752	DC FAN(LAMP)	30	QD33861	BOTTOM CASE ASS'Y
9	PH31361	FILTER COVER			
10	NJ06131	AIR FILTER ASS'Y			
11	QJ01061	FRONT FOOT ASS'Y		EV00861	POWER SUPPLY CORD (UK TYPE) W/CORE
12	PE00113	RUBBER FOOT		EV00881	POWER SUPPLY CORD (UL/CSA TYPE) W/CORE
13	PH31691	LAMP DOOR ASS'Y		EV00891	POWER SUPPLY CORD (EUROPE TYPE) W/CORE
14	PC05461	CONTROL BUTTON ASS'Y		EW02753	PS/2-2 MOUSE CABLE W/CORE
15	JP05382	PWB ASS'Y DRIVE		EW06651	COMPONENT CABLE
16	EA00561R	CPC32 CONNECTOR		EW06661	RGB-D CABLE(15PIN MALE TO 15 PIN MALE)
17	UE20031	DICHROIC OPTICS UNIT		HL01841	REMOTE CONTROL UNIT WITH POINTER
 18	GS00755	DC FAN(INTAKE G)		NX05741	CLEANING TOOL FOR DUST
 19	GS00751	DC FAN(INTAKE R,B)		NX05742	COTTON STICK L70
20	UX08051	LCD LENS PRISM ASS'Y		QR51551	INSTRUCTION MANUAL S-ASS'Y
21	PH31321	LENS CAP			
 22	HA01061	POWER UNIT(BALLAST)			

### 13. RS-232C communication

- (1) Turn off the projector and computer power supplies and connect with the RS-232C cable.
- (2) Turn on the computer power supply and, after the computer has started up, turn on the projector power supply.



#### Communications setting

19200bps, 8N1

#### 1 Protocol

Consist of header (7 bytes) + command data (6 bytes).

#### 2 Header

BE + EF + 03 + 06 + 00 + CRC\_low + CRC\_high.

CRC\_low : Lower byte of CRC flag for command data.

CRC\_high : Upper byte of CRC flag for command data.

#### 3 Command data

Command data chart

byte_0	byte_1	byte_2	byte_3	byte_4	byte_5
Action		Type		Setting code	
low	high	low	high	low	high

Action (byte\_0 - 1)

Action	Classification	Content
1	SET	Change setting to desired value.
2	GET	Read projector internal setup value.
4	INCREMENT	Increment setup value by 1.
5	DECREMENT	Decrement setup value by 1.
6	EXECUTE	Run a command.

**Requesting projector status (Get command)**

- (1) Send the request code Header + Command data ('02H'+ '00H'+ type (2 bytes) + '00H'+ '00H') from the computer to the projector.
- (2) The projector returns the response code '1DH'+ data (2 bytes) to the computer.

**Changing the projector settings (Set command)**

- (1) Send the setting code Header + Command data ('01H'+ '00H'+ type (2 bytes) + setting code (2 bytes)) from the computer to the projector.
- (2) The projector changes the setting based on the above setting code.
- (3) The projector returns the response code '06H' to the computer.

**Using the projector default settings (Reset Command)**

- (1) The computer sends the default setting code Header + Command data ('06H'+ '00H'+ type (2 bytes) + '00H'+ '00H') to the projector.
- (2) The projector changes the specified setting to the default value.
- (3) The projector returns the response code '06H' to the computer.

**Increasing the projector setting value (Increment command)**

- (1) The computer sends the increment code Header + Command data ('04H'+ '00H'+ type (2 bytes) + '00H'+ '00H') to the projector.
- (2) The projector increases the setting value on the above setting code.
- (3) The projector returns the response code '06H' to the computer.

**Decreasing the projector setting value (Decrement command)**

- (1) The computer sends the decrement code Header + Command data ('05H'+ '00H'+ type (2 bytes) + '00H'+ '00H') to the projector.
- (2) The projector decreases the setting value on the above setting code.
- (3) The projector returns the response code '06H' to the computer.

**When a command sent by the projector cannot be understood by the computer**

When the command sent by the projector cannot be understood, the error command '15H' is returned by the computer. Some times, the projector ignores RS-232C commands during other works. If the error command '15H' is returned, please send the same command again.

**When data sent by the projector cannot be practice**

When the command sent by the projector cannot be practiced, the error code '1cH' + 'xxxxH' is returned.

When the data length is greater than indicated by the data length code, the projector will ignore the excess data code. Conversely, when the data length is shorter than indicated by the data length code, an error code will be returned to the projector.

**NOTE:**

- Operation cannot be guaranteed when the projector receives an undefined command or data.
- Provide an interval of at least 40ms between the response code and any other code.
- The projector outputs test data when the power supply is switched ON, and when the lamp is lit. Ignore this data.
- Commands are not accepted during warm-up.

Command data chart

Names	Operation type		Header				Command data				
						CRC	Action	Type	Setting code		
Blank Color	Set	Red	BE	EF	03	06	00	3B D3	01 00	00 30	00 00
		Orange	BE	EF	03	06	00	AB D2	01 00	00 30	01 00
		Green	BE	EF	03	06	00	5B D2	01 00	00 30	02 00
		Blue	BE	EF	03	06	00	CB D3	01 00	00 30	03 00
		Purple	BE	EF	03	06	00	FB D1	01 00	00 30	04 00
		White	BE	EF	03	06	00	6B D0	01 00	00 30	05 00
		Black	BE	EF	03	06	00	9B D0	01 00	00 30	06 00
		MyScreen	BE	EF	03	06	00	FB CA	01 00	00 30	20 00
	ORIGNAL	BE	EF	03	06	00	FB E2	01 00	00 30	40 00	
	Get		BE	EF	03	06	00	08 D3	02 00	00 30	00 00
Mirror	Set	Normal	BE	EF	03	06	00	C7 D2	01 00	01 30	00 00
		H Inverse	BE	EF	03	06	00	57 D3	01 00	01 30	01 00
		V Inverse	BE	EF	03	06	00	A7 D3	01 00	01 30	02 00
	H&V Inverse	BE	EF	03	06	00	37 D2	01 00	01 30	03 00	
	Get		BE	EF	03	06	00	F4 D2	02 00	01 30	00 00
Freeze	Set	Normal	BE	EF	03	06	00	83 D2	01 00	02 30	00 00
		Freeze	BE	EF	03	06	00	13 D3	01 00	02 30	01 00
	Get		BE	EF	03	06	00	B0 D2	02 00	02 30	00 00
Menu Color	Set	Red	BE	EF	03	06	00	7F D3	01 00	03 30	00 00
		Orange	BE	EF	03	06	00	EF D2	01 00	03 30	01 00
		Green	BE	EF	03	06	00	1F D2	01 00	03 30	02 00
		Blue	BE	EF	03	06	00	8F D3	01 00	03 30	03 00
		Purple	BE	EF	03	06	00	BF D1	01 00	03 30	04 00
		Transparent	BE	EF	03	06	00	2F D0	01 00	03 30	05 00
	Gray	BE	EF	03	06	00	DF D0	01 00	03 30	06 00	
	Get		BE	EF	03	06	00	4C D3	02 00	03 30	00 00
Startup	Set	ORIGNAL	BE	EF	03	06	00	0B D2	01 00	04 30	00 00
		OFF	BE	EF	03	06	00	9B D3	01 00	04 30	01 00
	MyScreen	BE	EF	03	06	00	CB CB	01 00	04 30	20 00	
	Get		BE	EF	03	06	00	38 D2	02 00	04 30	00 00
Language	Set	English	BE	EF	03	06	00	F7 D3	01 00	05 30	00 00
		Français	BE	EF	03	06	00	67 D2	01 00	05 30	01 00
		Deutsch	BE	EF	03	06	00	97 D2	01 00	05 30	02 00
		Español	BE	EF	03	06	00	07 D3	01 00	05 30	03 00
		Italiano	BE	EF	03	06	00	37 D1	01 00	05 30	04 00
		Norsk	BE	EF	03	06	00	A7 D0	01 00	05 30	05 00
		Nederlands	BE	EF	03	06	00	57 D0	01 00	05 30	06 00
		Português	BE	EF	03	06	00	C7 D1	01 00	05 30	07 00
	Japanese	BE	EF	03	06	00	37 D4	01 00	05 30	08 00	
	Get		BE	EF	03	06	00	C4 D3	02 00	05 30	00 00



Command data chart

Names	Operation type	Header				Command data				
					CRC	Action	Type	Setting code		
Magnify	Get	BE	EF	03	06 00	7C D2	02 00	07 30	00 00	
	Increment	BE	EF	03	06 00	1A D2	04 00	07 30	00 00	
	Decrement	BE	EF	03	06 00	CB D3	05 00	07 30	00 00	
Auto off	Get	BE	EF	03	06 00	08 86	02 00	10 31	00 00	
	Increment	BE	EF	03	06 00	6E 86	04 00	10 31	00 00	
	Decrement	BE	EF	03	06 00	BF 87	05 00	10 31	00 00	
Brightness Reset	Execute	BE	EF	03	06 00	58 D3	06 00	00 70	00 00	
Contrast Reset	Execute	BE	EF	03	06 00	A4 D2	06 00	01 70	00 00	
V.Position Reset	Execute	BE	EF	03	06 00	E0 D2	06 00	02 70	00 00	
H.Position Reset	Execute	BE	EF	03	06 00	IC D3	06 00	03 70	00 00	
H.Size Reset	Execute	BE	EF	03	06 00	68 D2	06 00	04 70	00 00	
Color Balance R Reset	Execute	BE	EF	03	06 00	94 D3	06 00	05 70	00 00	
Color Balance B Reset	Execute	BE	EF	03	06 00	D0 D3	06 00	06 70	00 00	
Sharpness Reset	Execute	BE	EF	03	06 00	C4 D0	06 00	09 70	00 00	
Color Reset	Execute	BE	EF	03	06 00	80 D0	06 00	0A 70	00 00	
Tint Reset	Execute	BE	EF	03	06 00	7C D1	06 00	0B 70	00 00	
Keystone_V Reset	Execute	BE	EF	03	06 00	08 D0	06 00	0C 70	00 00	
Keystone_H Reset	Execute	BE	EF	03	06 00	98 D8	06 00	20 70	00 00	
Auto	Execute	BE	EF	03	06 00	91 D0	06 00	0A 20	00 00	
Blank on/off	Set	off	BE	EF	03	06 00	FB D8	01 00	20 30	00 00
		on	BE	EF	03	06 00	6B D9	01 00	20 30	01 00
	Get	BE	EF	03	06 00	C8 D8	02 00	20 30	00 00	
Error Status	Get		BE	EF	03	06 00	D9 D8	02 00	20 60	00 00
		(Example of Return) 00 00    01 00            02 00            03 00 (Normal) (Cover-error) (Fan-error) (Lamp-error) 04 00            05 00            06 00 (Temp-error) (Air flow-error) (Lamp-Time-over)								
Power	Set	OFF	BE	EF	03	06 00	2A D3	01 00	00 60	00 00
		ON	BE	EF	03	06 00	BA D2	01 00	00 60	01 00
	Get	BE	EF	03	06 00	19 D3	02 00	00 60	00 00	
Input Source	Set	RGB1	BE	EF	03	06 00	FE D2	01 00	00 20	00 00
		RGB2	BE	EF	03	06 00	3E D0	01 00	00 20	04 00
		DVI	BE	EF	03	06 00	0E D2	01 00	00 20	03 00
		Video	BE	EF	03	06 00	6E D3	01 00	00 20	01 00
		SVideo	BE	EF	03	06 00	9E D3	01 00	00 20	02 00
		Component	BE	EF	03	06 00	AE D1	01 00	00 20	05 00
	Get	BE	EF	03	06 00	CD D2	02 00	00 20	00 00	
Volume	Get	BE	EF	03	06 00	31 D3	02 00	01 20	00 00	
	Increment	BE	EF	03	06 00	57 D3	04 00	01 20	00 00	
	Decrement	BE	EF	03	06 00	86 D2	05 00	01 20	00 00	

## Command data chart

Names	Operation type		Header				Command data		
			CRC	Action	Type	Setting code			
Mute	Set	Normal	BE EF	03 06 00	46 D3	01 00	02 20	00 00	
		Mute	BE EF	03 06 00	D6 D2	01 00	02 20	01 00	
	Get	BE EF	03 06 00	75 D3	02 00	02 20	00 00		
Brightness	Get	BE EF	03 06 00	89 D2	02 00	03 20	00 00		
	Increment	BE EF	03 06 00	EF D2	04 00	03 20	00 00		
	Decrement	BE EF	03 06 00	3E D3	05 00	03 20	00 00		
Contrast	Get	BE EF	03 06 00	FD D3	02 00	04 20	00 00		
	Increment	BE EF	03 06 00	9B D3	04 00	04 20	00 00		
	Decrement	BE EF	03 06 00	4A D2	05 00	04 20	00 00		
Color Balance R	Get	BE EF	03 06 00	01 D2	02 00	05 20	00 00		
	Increment	BE EF	03 06 00	67 D2	04 00	05 20	00 00		
	Decrement	BE EF	03 06 00	B6 D3	05 00	05 20	00 00		
Color Balance B	Get	BE EF	03 06 00	45 D2	02 00	06 20	00 00		
	Increment	BE EF	03 06 00	23 D2	04 00	06 20	00 00		
	Decrement	BE EF	03 06 00	F2 D3	05 00	06 20	00 00		
Keystone_V	Get	BE EF	03 06 00	B9 D3	02 00	07 20	00 00		
	Increment	BE EF	03 06 00	DF D3	04 00	07 20	00 00		
	Decrement	BE EF	03 06 00	0E D2	05 00	07 20	00 00		
Keystone_H	Get	BE EF	03 06 00	E9 D0	02 00	0B 20	00 00		
	Increment	BE EF	03 06 00	8F D0	04 00	0B 20	00 00		
	Decrement	BE EF	03 06 00	5E D1	05 00	0B 20	00 00		
Aspect	Set	4:3, Full	BE EF	03 06 00	9E D0	01 00	08 20	00 00	
		16:9	BE EF	03 06 00	0E D1	01 00	08 20	01 00	
		Small	BE EF	03 06 00	FE D1	01 00	08 20	02 00	
	Get	BE EF	03 06 00	AD D0	02 00	08 20	00 00		
Display Position at 16 : 9 or Small	Set	Default	BE EF	03 06 00	62 D1	01 00	09 20	00 00	
		Bottom	BE EF	03 06 00	F2 D0	01 00	09 20	01 00	
		Top	BE EF	03 06 00	02 D0	01 00	09 20	02 00	
	Get	BE EF	03 06 00	51 D1	02 00	09 20	00 00		
V.Position	Get	BE EF	03 06 00	0D 83	02 00	00 21	00 00		
	Increment	BE EF	03 06 00	6B 83	04 00	00 21	00 00		
	Decrement	BE EF	03 06 00	BA 82	05 00	00 21	00 00		
H.Position	Get	BE EF	03 06 00	F1 82	02 00	01 21	00 00		
	Increment	BE EF	03 06 00	97 82	04 00	01 21	00 00		
	Decrement	BE EF	03 06 00	46 83	05 00	01 21	00 00		
H.Size	Get	BE EF	03 06 00	B5 82	02 00	02 21	00 00		
	Increment	BE EF	03 06 00	D3 82	04 00	02 21	00 00		
	Decrement	BE EF	03 06 00	02 83	05 00	02 21	00 00		
H.Phase	Get	BE EF	03 06 00	49 83	02 00	03 21	00 00		
	Increment	BE EF	03 06 00	2F 83	04 00	03 21	00 00		
	Decrement	BE EF	03 06 00	FE 82	05 00	03 21	00 00		

Command data chart

Names	Operation type	Header				Command data				
					CRC	Action	Type	Setting code		
Sharpness	Get	BE	EF	03	06 00	F1 72	02 00	01 22	00 00	
	Increment	BE	EF	03	06 00	97 72	04 00	01 22	00 00	
	Decrement	BE	EF	03	06 00	46 73	05 00	01 22	00 00	
Color	Get	BE	EF	03	06 00	B5 72	02 00	02 22	00 00	
	Increment	BE	EF	03	06 00	D3 72	04 00	02 22	00 00	
	Decrement	BE	EF	03	06 00	02 73	05 00	02 22	00 00	
Tint	Get	BE	EF	03	06 00	49 73	02 00	03 22	00 00	
	Increment	BE	EF	03	06 00	2F 73	04 00	03 22	00 00	
	Decrement	BE	EF	03	06 00	FE 72	05 00	03 22	00 00	
Video Format	Set	Auto	BE	EF	03	06 00	9E 75	01 00	00 22	0A 00
		NTSC	BE	EF	03	06 00	FE 71	01 00	00 22	04 00
		PAL	BE	EF	03	06 00	6E 70	01 00	00 22	05 00
		SECAM	BE	EF	03	06 00	6E 75	01 00	00 22	09 00
		NTSC 4.43	BE	EF	03	06 00	5E 72	01 00	00 22	02 00
		M-PAL	BE	EF	03	06 00	FE 74	01 00	00 22	08 00
	N-PAL	BE	EF	03	06 00	0E 71	01 00	00 22	07 00	
Get	BE	EF	03	06 00	0D 73	02 00	00 22	00 00		
HDTV	Set	1080i	BE	EF	03	06 00	F2 73	01 00	05 22	00 00
		1035i	BE	EF	03	06 00	62 72	01 00	05 22	01 00
	Get	BE	EF	03	06 00	C1 73	02 00	05 22	00 00	
PinP Size	Set	off	BE	EF	03	06 00	FE 22	01 00	00 23	00 00
		Large	BE	EF	03	06 00	6E 23	01 00	00 23	01 00
		Small	BE	EF	03	06 00	9E 23	01 00	00 23	02 00
	Get	BE	EF	03	06 00	CD 22	02 00	00 23	00 00	
PinP Position	Set	Upper left	BE	EF	03	06 00	02 23	01 00	01 23	00 00
		Upper right	BE	EF	03	06 00	92 22	01 00	01 23	01 00
		bottom left	BE	EF	03	06 00	62 22	01 00	01 23	03 00
		bottom right	BE	EF	03	06 00	F2 23	01 00	01 23	02 00
	Get	BE	EF	03	06 00	31 23	02 00	01 23	00 00	
PinP Audio ch	Set	RGB	BE	EF	03	06 00	BA 22	01 00	03 23	00 00
		Video	BE	EF	03	06 00	2A 23	01 00	03 23	01 00
	Get	BE	EF	03	06 00	89 22	02 00	03 23	00 00	
PinP Input	Set	Video	BE	EF	03	06 00	D6 22	01 00	02 23	01 00
		S-Video	BE	EF	03	06 00	26 22	01 00	02 23	02 00
	Get	BE	EF	03	06 00	75 23	02 00	02 23	00 00	

## Command data chart

Names	Operation type		Header				Command data		
						CRC	Action	Type	Setting code
Sync on G	Set	off	BE EF	03 06	00 CB D0	01 00	08 30	01 00	
		on	BE EF	03 06	00 5B D1	01 00	08 30	00 00	
	Get	BE EF	03 06	00 68 D1	02 00	08 30	00 00		
WHISPER	Set	NORMAL	BE EF	03 06	00 3B 23	01 00	00 33	00 00	
		WHISPER	BE EF	03 06	00 AB 22	01 00	00 33	01 00	
	Get	BE EF	03 06	00 08 23	02 00	00 33	00 00		
GAMMA	Set	NORMAL	BE EF	03 06	00 C7 F0	01 00	A1 30	00 00	
		CINEMA	BE EF	03 06	00 57 F1	01 00	A1 30	01 00	
		DYNAMIC	BE EF	03 06	00 A7 F1	01 00	A1 30	02 00	
	Get	BE EF	03 06	00 F4 F0	02 00	A1 30	00 00		
IR Remote Front	Set	off	BE EF	03 06	00 FF 32	01 00	00 26	00 00	
		on	BE EF	03 06	00 6F 33	01 00	00 26	01 00	
	Get	BE EF	03 06	00 CC 32	02 00	00 26	00 00		
IR Remote Rear	Set	off	BE EF	03 06	00 03 33	01 00	01 26	00 00	
		on	BE EF	03 06	00 93 32	01 00	01 26	01 00	
	Get	BE EF	03 06	00 30 33	02 00	01 26	00 00		
IR Remote Top	Set	off	BE EF	03 06	00 47 33	01 00	02 26	00 00	
		on	BE EF	03 06	00 D7 32	01 00	02 26	01 00	
	Get	BE EF	03 06	00 74 33	02 00	02 26	00 00		

**NOTE** • The max. 2 IR remote out of 3 (front, rear and top) can be activated.

# ***MEMO***

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**CP-X430W YK No.0520E Digital Media System Division**