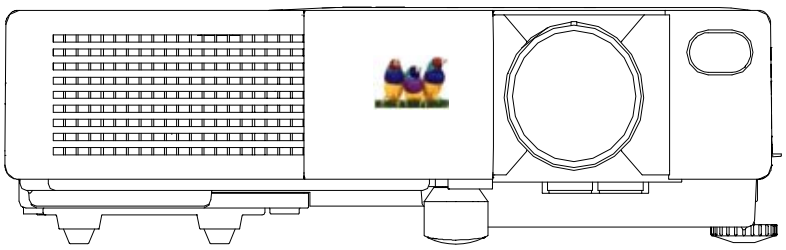
Service Manual

ViewSonic PJ501/PJ551

Model No. VPROJ25048-1W/ VPROJ25049-1W

Color Super Bright XGA LCD Ultra-Portable Projector



(PJ501/PJ551_SM_623 - Rev. 1a – October 2002)

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Revision History

Revision	Date	Description Of Changes	Approval
1a	10/18/02	Initial Issue – DCN2765	T. Thai

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SERVICE MANUAL

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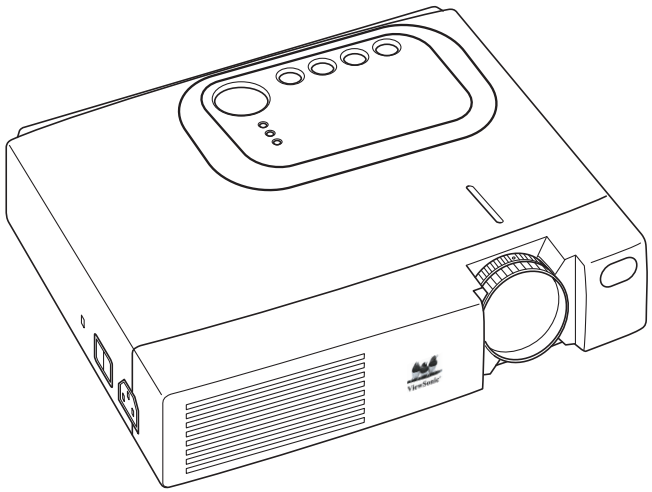


Caution

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 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.

1. Features

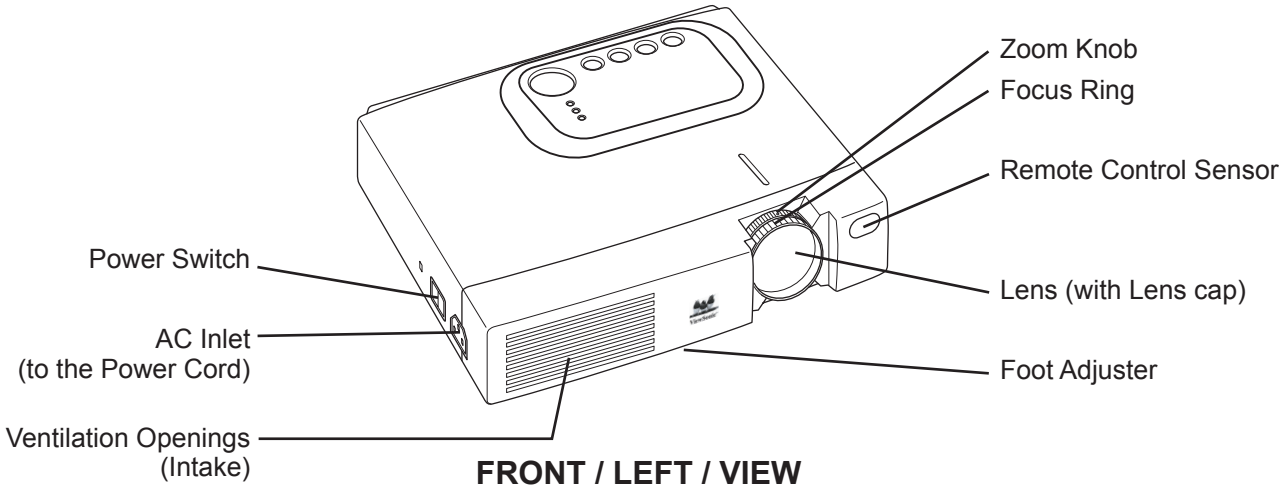
- 1,500 ANSI lumens, 2.7kg(6lbs)
- Easy and flexible keystone adjustment
- My screen
- Wide angle lens
- Low noise

2. Specifications

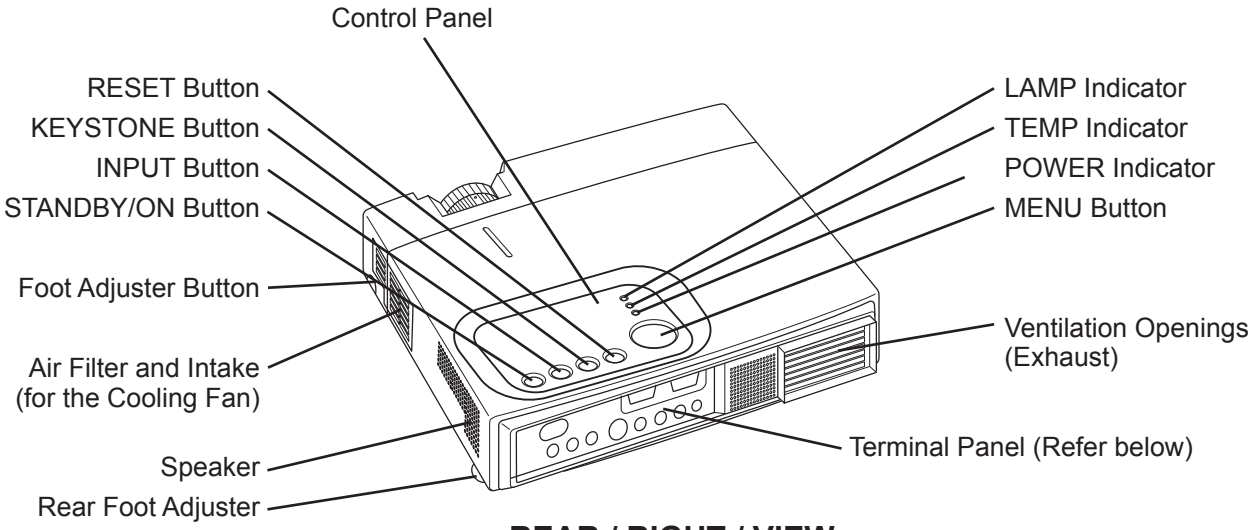
		PJ501	PJ551
Liquid crystal panel	Drive system	TFT active matrix	
	Panel size	0.7 inch	
	Number of pixels	800 (H) × 600 (V)	1024 (H) × 768 (V)
Lamp		150W UHB	
Video input	System	NTSC, PAL(BGDHI), SECAM, PAL-M, PAL-N, NTSC4.43, PAL60	
	Level	Composite 1.0±0.1Vp-p (75Ω termination)	
		S-video Y : 1.0±0.1Vp-p (75Ω termination) C : 0.286±0.1Vp-p (NTSC burst signal, 75Ω termination) 0.3±0.1Vp-p (PAL/SECAM burst signal, 75Ω termination)	
		Component Y : 1.0±0.1Vp-p (75Ω termination) C_B/C_R : 0.7±0.1Vp-p (75Ω termination) P_B/P_R : 0.7±0.1Vp-p (75Ω termination)	
RGB input	Analog RGB	0.7Vp-p (75Ω termination)	
	Sync.	TTL level	
Audio	Input	200mVrms, 47kΩ	
	Output	200mVrms, output impedance 1kΩ	
Speaker output		1.0W (mono)	
Power supply		AC100~120V/2.7A, AC220~240V/1.3A	
Power consumption		240W	
Dimensions		289 (W) × 83 (H) × 210 (D) mm	
Weight		2.4kg (5.4lbs.)	
Temperature range		Operation : 0~35°C Storage : -20~60°C	
Accessories		Remote control transmitter × 1 RGB cable × 1 Video/Audio cable × 1 S-cable × 1 Component cable × 1	POWER cord × 3 Battery × 2 Carrying bag × 1 Quick start guide × 1 CD-ROM (User's guide)× 1

3. Location of Features, Controls, and I/O

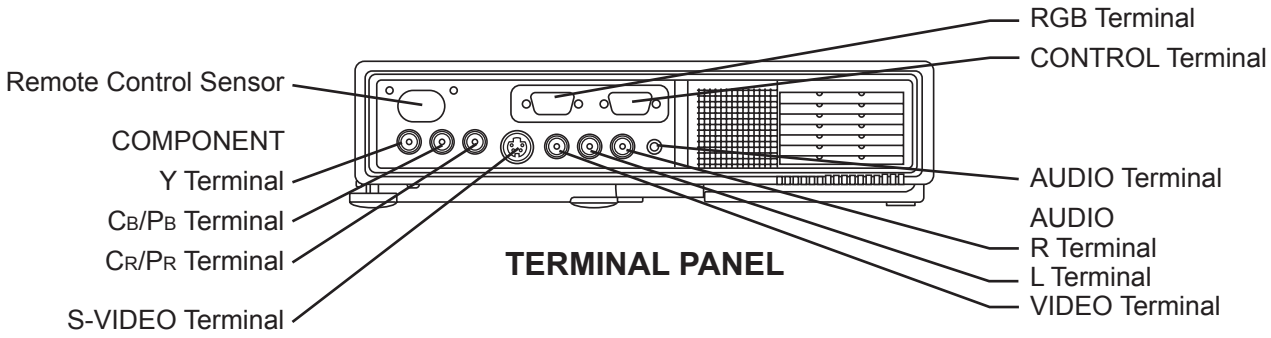
● Parts names



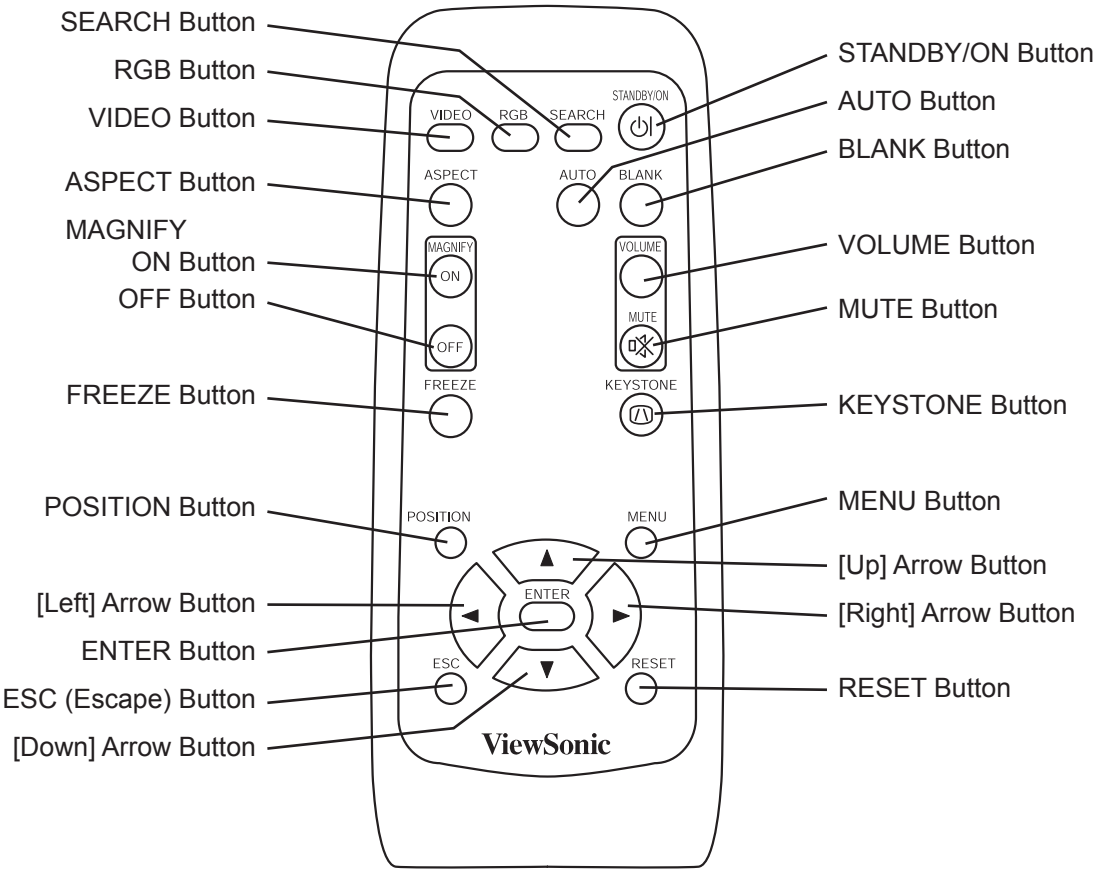
FRONT / LEFT / VIEW



REAR / RIGHT / VIEW



TERMINAL PANEL



Remote control

4. Adjustment

4-1 Before adjusting

4-1-1 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/NRSH (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.

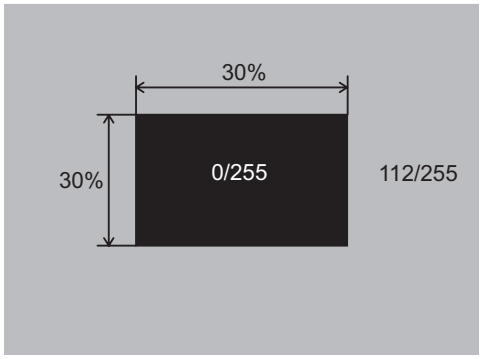
△: means recommended.

4-1-2 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 with more than 40 inches in diagonal size.
3. Normalizing the video adjustment.
   (Press the [MENU] button of the Remote control transmitter to display the MAIN menu, and then press the [RESET] button. And select the [DEFAULT]. Next, open MAIN menu and press the [▼] key to display the PICTURE1 menu, then press the [RESET] key to set to [DEFAULT].)
   *note :The MAIN and PICTURE1 menu is not reset with no signal.
4. Set the normal at OPT-WHISPER in the menu.
5. Reset KEYSTONE correction.
6. 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).

4-2 Ghost adjustment

Signals for internal adjustment

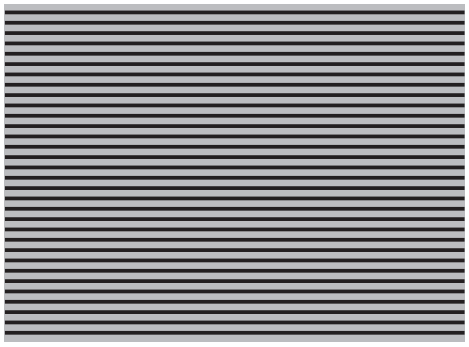


Adjustment procedure

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 ghost appears to the left of a vertical line, reduce the value by 2 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



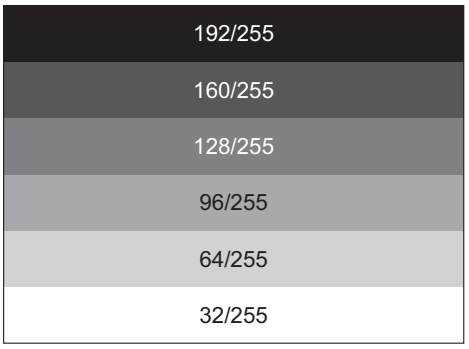
Adjustment procedure

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.

PJ501 ONLY

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

Signals for internal adjustment

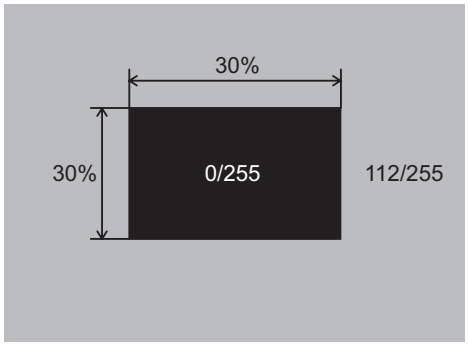


Adjustment procedure

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 6 or 12 dots are as inconspicuous as possible.

4-4-1 PSIG-B adjustment (vertical streaks adjustment)

Signals for internal adjustment



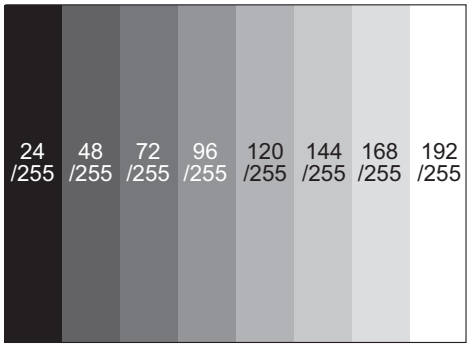
Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-3 Flicker adjustment.
2. Use DAC-P - PSIG - B: in the Adjustment menu to adjust so that the vertical streaks on the upper of window pattern.

PJ551 ONLY

4-4 NRSH 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 - NRSH - R: in the Adjustment menu to adjust so that the vertical lines spaced every 6 dots are as inconspicuous as possible.
   (Reduce the adjustment value when black stripes appear in the 2nd or 3rd tone from the black side. Note that when the adjustment value is lowered, white stripes may appear in the 2nd or 3rd tone from the bright side. Should this happen, adjust so that the stripes are as inconspicuous as possible.)
3. In the same way, use DAC-P - NRSH - G: in the Adjustment menu to adjust vertical stripes of G color.
4. In the same way, use DAC-P - NRSH - B: in the Adjustment menu to adjust vertical stripes of B color.

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

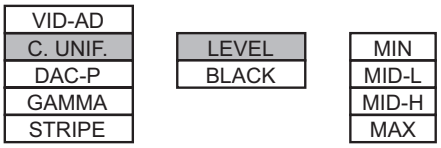
1. First, adjust the G color.
2. Select GAMMA, SUB-CONTRAST, and G: in the Adjust menu. If the background is white solid, press the [MENU SELECT] key on the Remote control transmitter to change to [G] monochrome in the 28-tone grayscale.
3. Adjust GAMMA, SUB-CONTRAST, and G: in the Adjust menu so that 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 trasmitter 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-brigtness 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

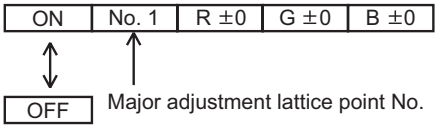
Preparations

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. 4% input signal)
   - MID-L tone (approx. 14% input signal)
   - MID-H tone (approx. 25% input signal)
   - MAX tone (approx. 57% 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.

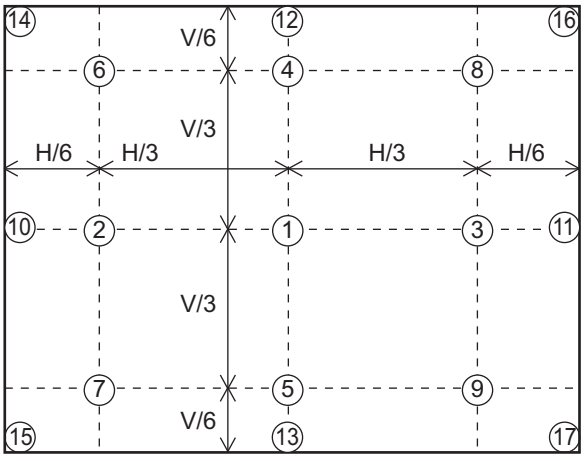
Adjust menu



Adjust Tone menu



Major adjustment lattice point position



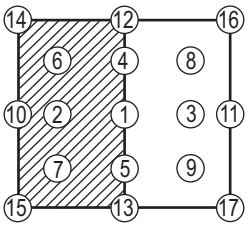
Adjustment procedure 1
(when a color differential meter is used)

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 ± 2 [%]
   Y3 = (Y2 + Y3) / 2 ± 2 [%]
5. No.10 and No.11 adjustment point have the average of Y10 and Y11.
   Y10 = (Y10 + Y11) / 2 ± 2 [%]
   Y11 = (Y10 + Y11) / 2 ± 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 [Δ](delta) mode is convenient. When adjustment point [No.1] color coordinate has been selected, set the slide switch on the side to [Δ](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 ± 0.005 , y = y1 ± 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] ± 40 or less
   [No.6] to [No.9] ± 50 or less
   [No.10] to [No.13] ± 70 or less
   [No.14] to [No.17] ± 120 or less
10. Then adjust [MIN] tone [G] so that the adjustment data set two 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 ± 0.005 , y = y1 ± 0.010 (Target)
    x = x1 ± 0.020 , y = y1 ± 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].)

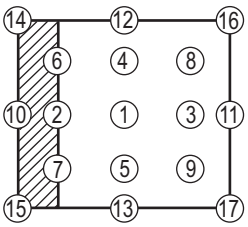
Adjustment procedure 2
(visual inspection)

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.

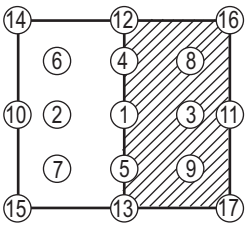
No. 2 deviation range



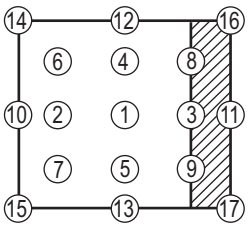
No. 10 deviation range



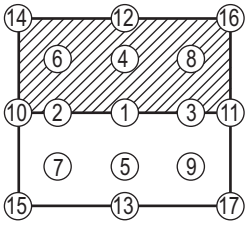
No. 3 deviation range



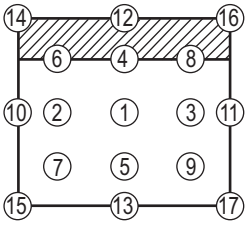
No. 11 deviation range



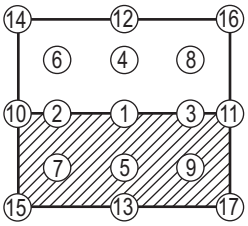
No. 4 deviation range



No. 12 deviation range



No. 5 deviation range



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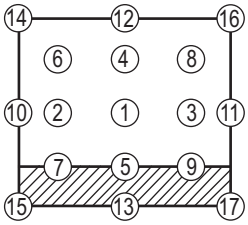

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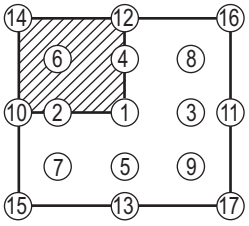

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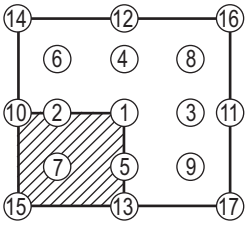
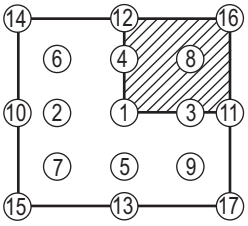
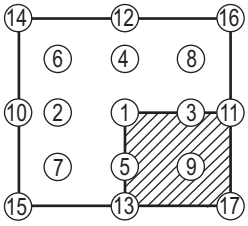


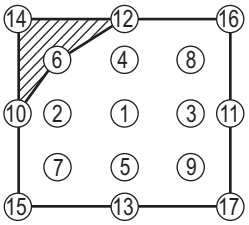
No. 8 deviation range



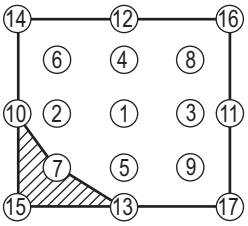
No. 9 deviation range



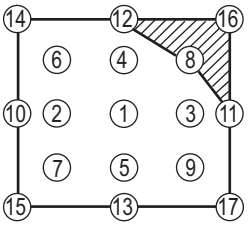
No. 14 deviation range



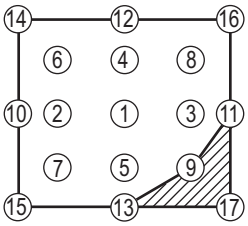
No. 15 deviation range



No. 16 deviation range

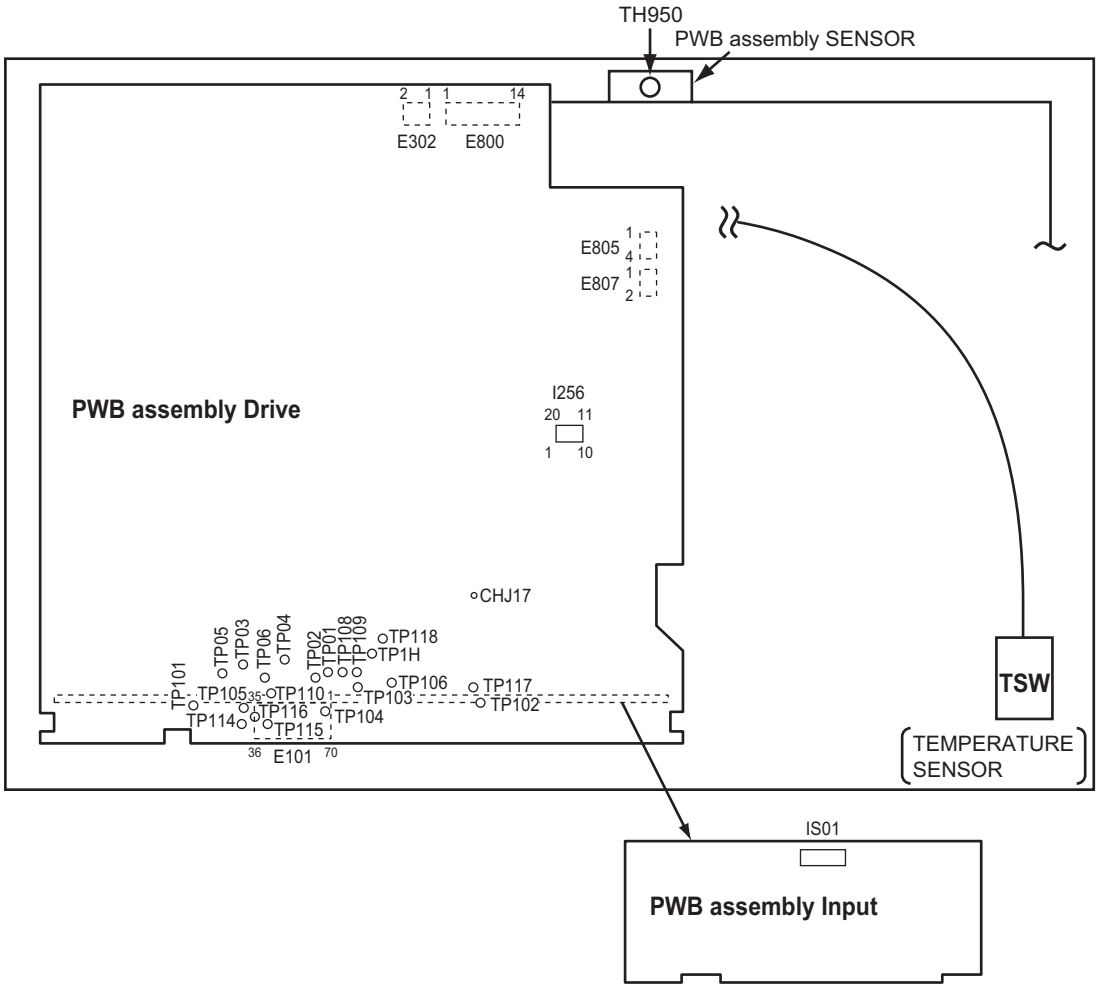


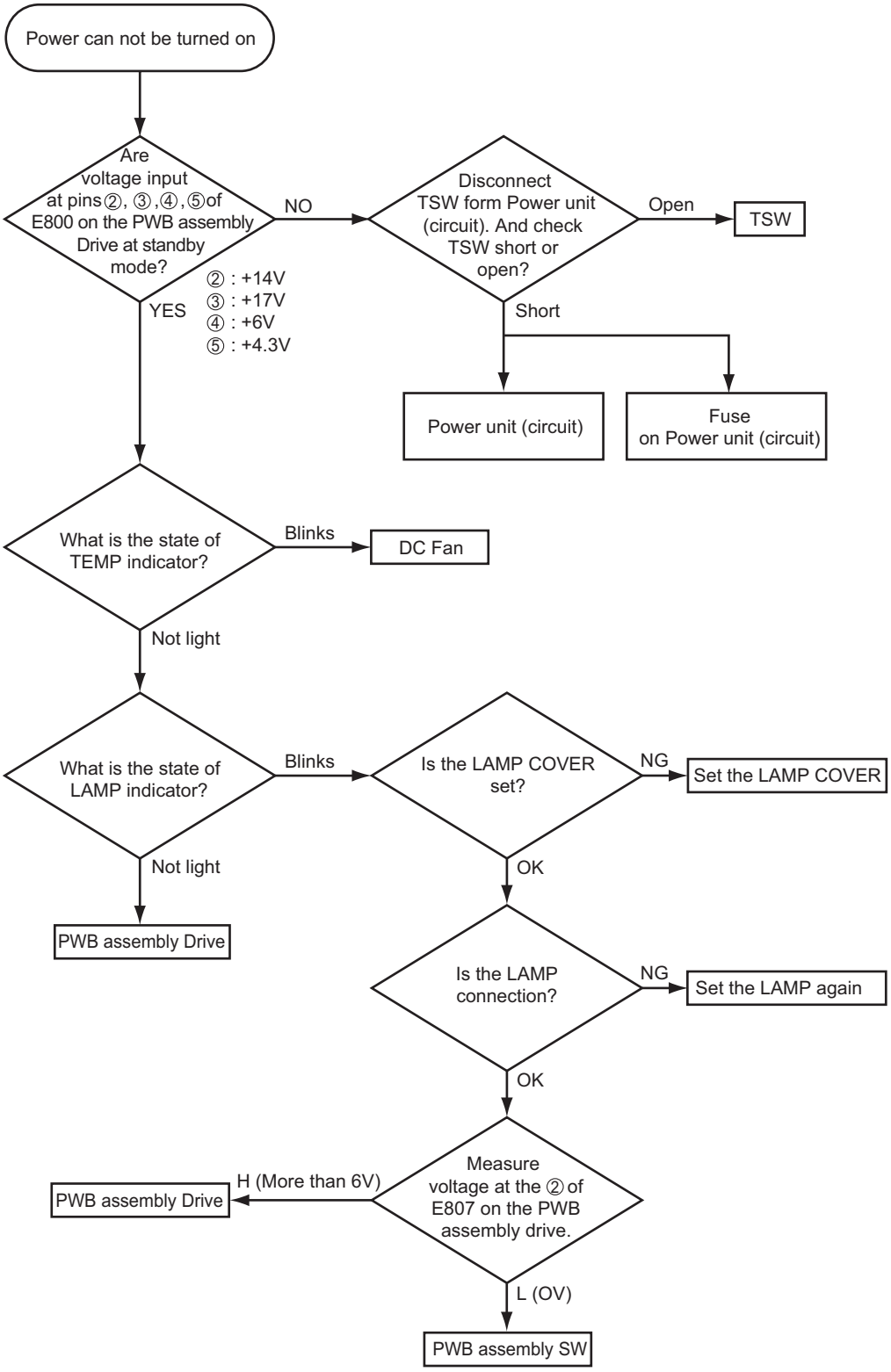
No. 17 deviation range

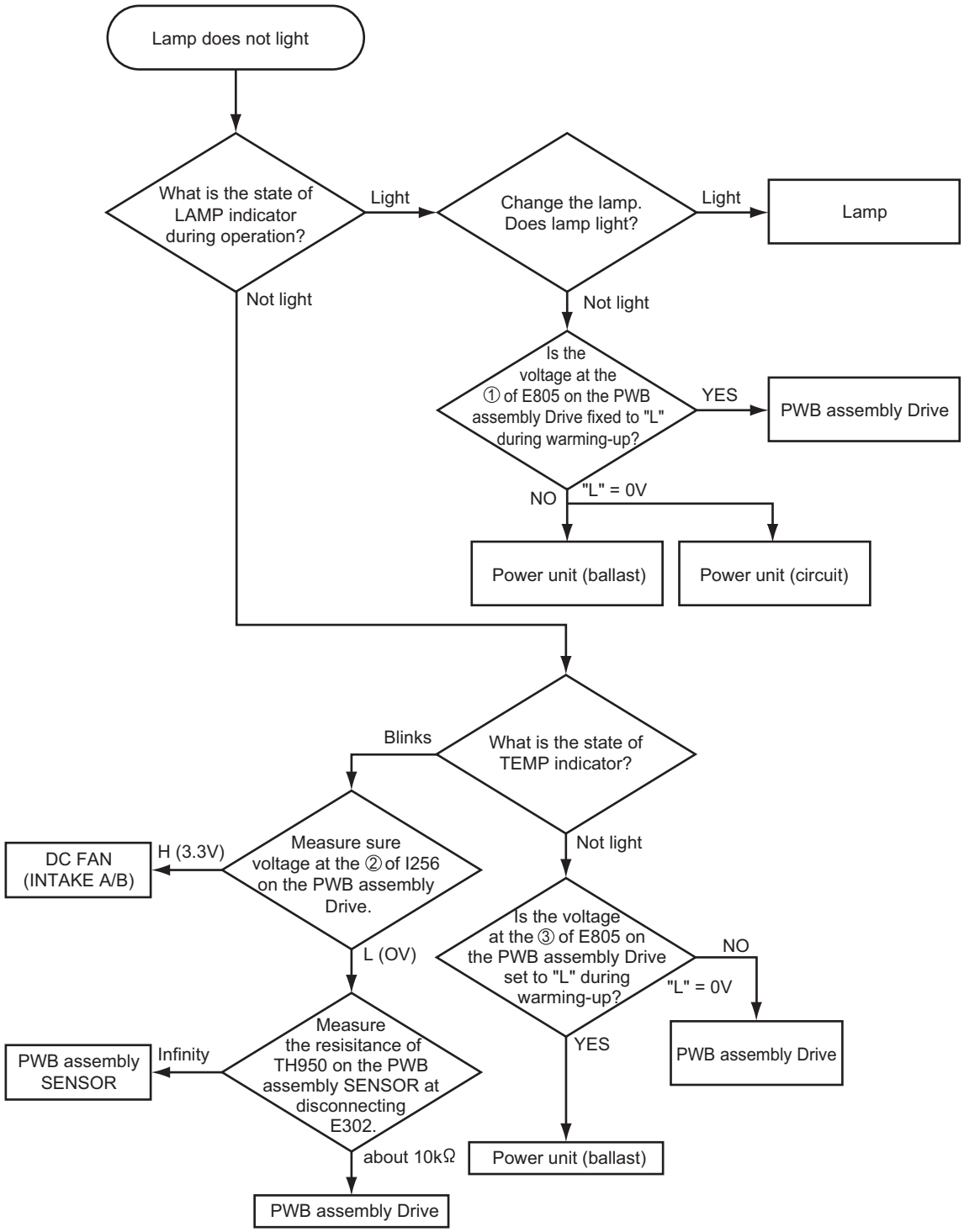


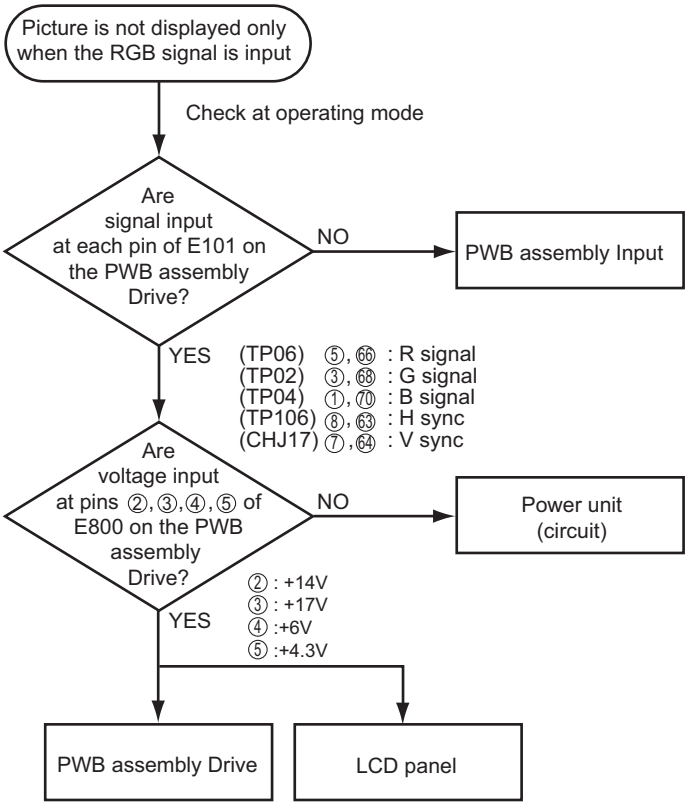
5. Troubleshooting

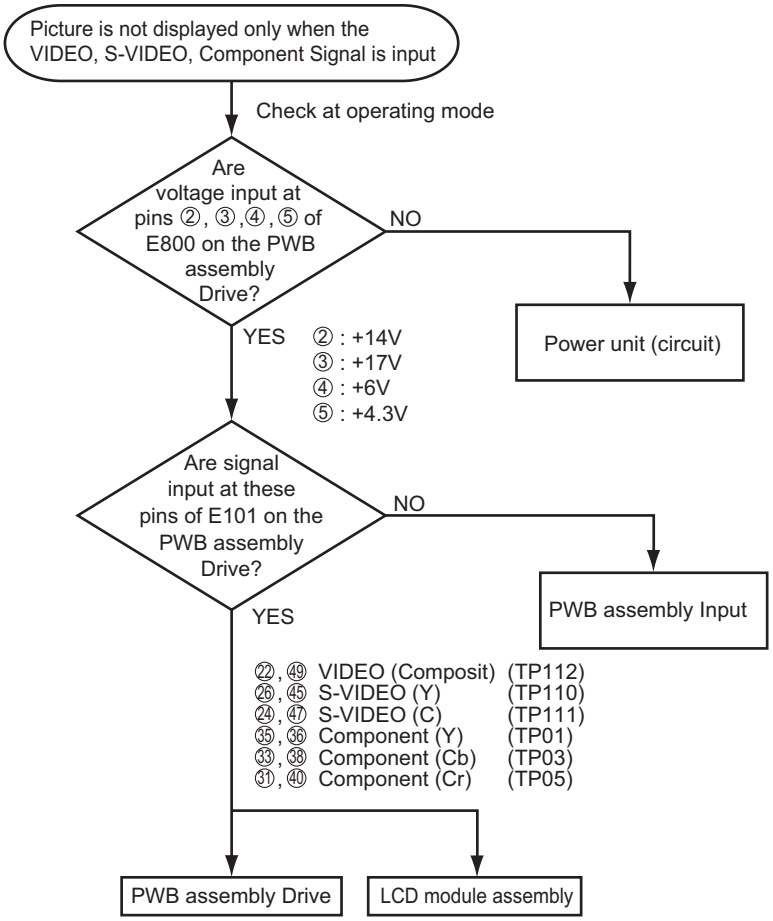
Check points at trouble shooting

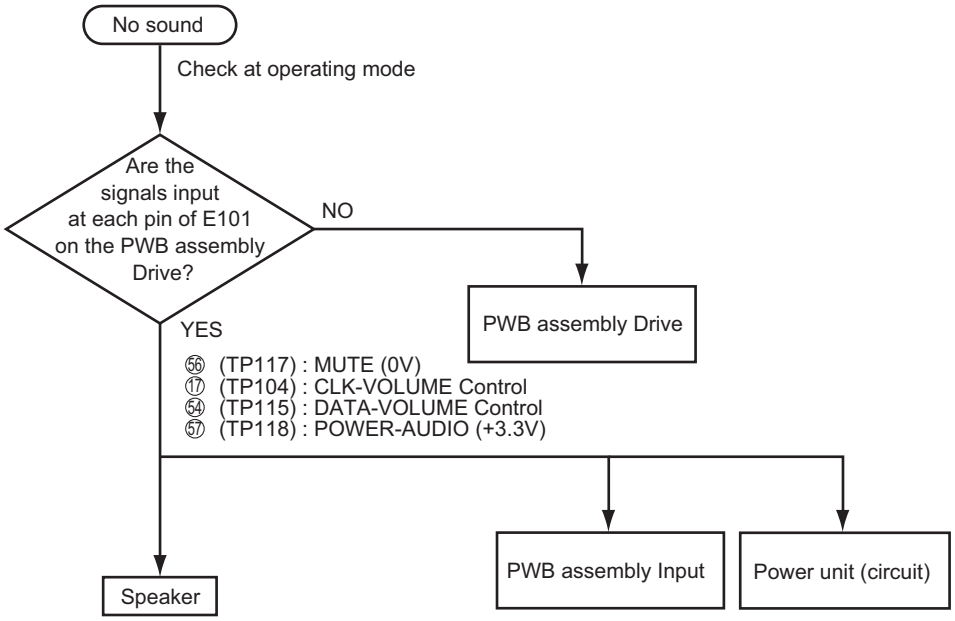


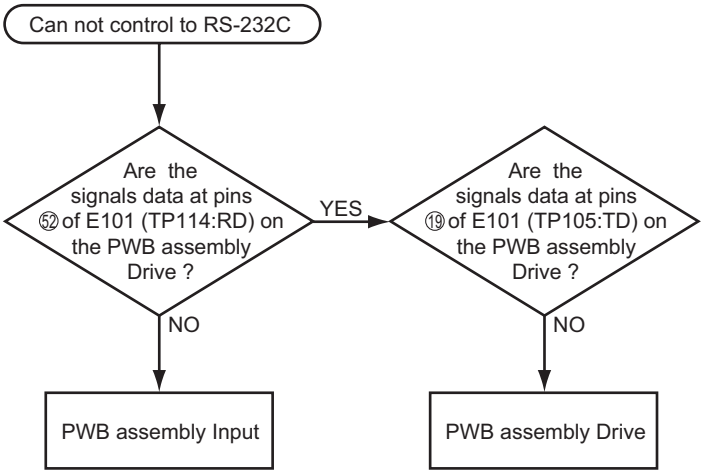

Power can not be turned on
Are voltage input at pins②, ③,④,⑤of E800 on the PWB assembly Drive at standby mode?
NO
Disconnect TSW form Power unit (circuit). And check TSW short or open?
Open
TSW
② : +14V
③ : +17V
④ : +6V
⑤ : +4.3V
YES
Short
Power unit (circuit)
Fuse on Power unit (circuit)
What is the state of TEMP indicator?
Blinks
DC Fan
Not light
What is the state of LAMP indicator?
Blinks
Is the LAMP COVER set?
NG
Set the LAMP COVER
Not light
OK
PWB assembly Drive
Is the LAMP connection?
NG
Set the LAMP again
OK
Measure voltage at the ② of E807 on the PWB assembly drive.
H (More than 6V)
PWB assembly Drive
L (OV)
PWB assembly SW


Lamp does not light
What is the state of LAMP indicator during operation?
Light
Change the lamp. Does lamp light?
Light
Lamp
Not light
Not light
Is the voltage at the ① of E805 on the PWB assembly Drive fixed to "L" during warming-up?
YES
PWB assembly Drive
NO
"L" = 0V
Power unit (ballast)
Power unit (circuit)
What is the state of TEMP indicator?
Blinks
Not light
Measure sure voltage at the ② of I256 on the PWB assembly Drive.
H (3.3V)
DC FAN (INTAKE A/B)
L (OV)
Is the voltage at the ③ of E805 on the PWB assembly Drive set to "L" during warming-up?
NO
"L" = 0V
PWB assembly Drive
YES
Measure the resisitance of TH950 on the PWB assembly SENSOR at disconnecting E302.
Infinity
PWB assembly SENSOR
about 10kΩ
PWB assembly Drive
Power unit (ballast)


Picture is not displayed only when the RGB signal is input
Check at operating mode
Are signal input at each pin of E101 on the PWB assembly Drive?
NO
PWB assembly Input
YES
(TP06) ⑤, ㊻ : R signal
(TP02) ③, ㊽ : G signal
(TP04) ①, ㊿ : B signal
(TP106) ⑧, ㊸ : H sync
(CHJ17) ⑦, ㊹ : V sync
Are voltage input at pins ②, ③, ④, ⑤ of E800 on the PWB assembly Drive?
NO
Power unit (circuit)
② : +14V
③ : +17V
④ :+6V
⑤ :+4.3V
YES
PWB assembly Drive
LCD panel


Picture is not displayed only when the VIDEO, S-VIDEO, Component Signal is input
Check at operating mode
Are voltage input at pins ②, ③, ④, ⑤ of E800 on the PWB assembly Drive?
NO
Power unit (circuit)
YES
② : +14V
③ : +17V
④ : +6V
⑤ : +4.3V
Are signal input at these pins of E101 on the PWB assembly Drive?
NO
PWB assembly Input
YES
㉒, ㊾ VIDEO (Composit) (TP112)
㉖, ㊺ S-VIDEO (Y) (TP110)
㉔, ㊼ S-VIDEO (C) (TP111)
㉟, ㊱ Component (Y) (TP01)
㉝, ㊳ Component (Cb) (TP03)
㉛, ㊵ Component (Cr) (TP05)
PWB assembly Drive
LCD module assembly





The check after PWB change

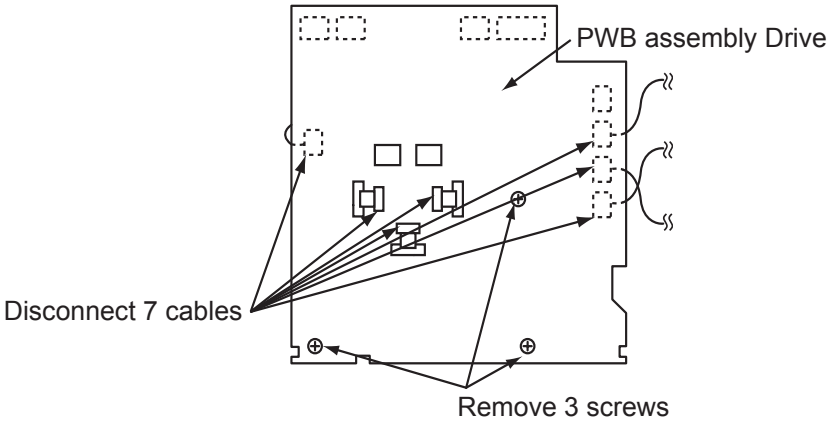
1. PC power supply OFF
2. Connection of cable
3. Projector starting
4. PC starting
   *When not operating :
   PC set up change of cable.

6. Assembly Removal, Replacement, and Maintenance

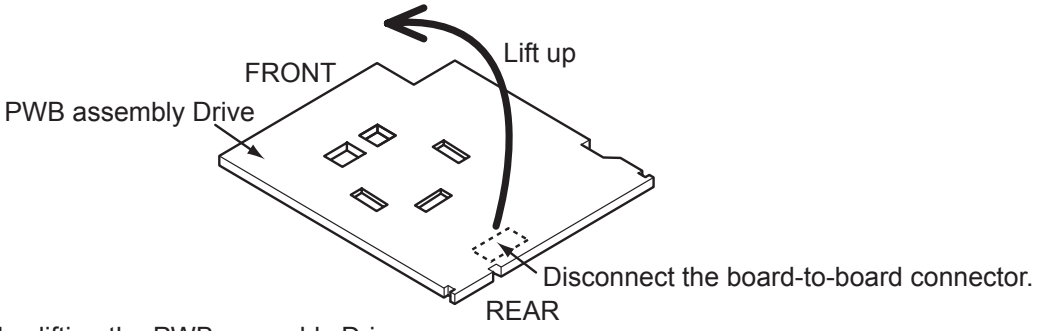
● Cautions when removing the PWB assembly Drive

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

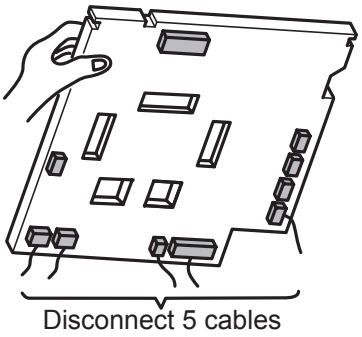
1) Disconnect 6 cables and remove 3 screws.



2) Lift up the rearward of the PWB assembly Drive to the front.

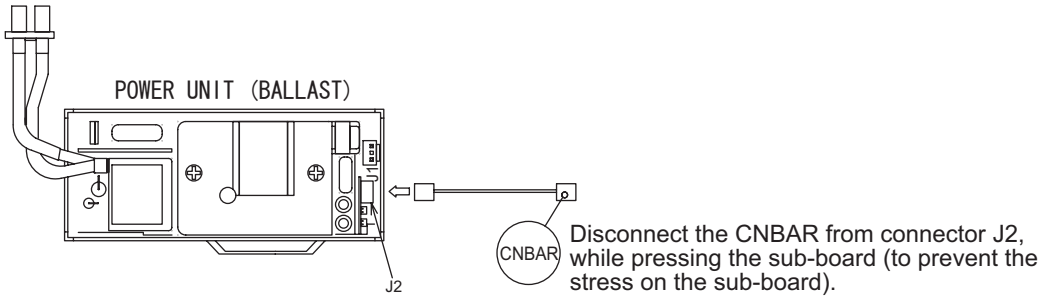


3) Disconnect 5 cables lifting the PWB assembly Drive.



● Cautions when removing the POWER UNIT (BALLAST)

When removing the cable (CNBAR) connected to POWER UNIT (BALLAST) there is danger of damaging the small PWB connecting cables.



● Lead free solder [CAUTION]

This product uses lead free solder (unleaded) to help preserve the environment. Please read these instructions before attempting any soldering work.

Caution: Always wear safety glasses to prevent fumes or molten solder from getting into the eyes. Lead free solder can splatter at high temperatures (600˚C).

■ Lead free solder indicator

Printed circuit boards using lead free solder are engraved with an "F."

■ Properties of lead free solder

The melting point of lead free solder is 40-50˚C higher than leaded solder.

■ Servicing solder

Solder with an alloy composition of Sn-3.0Ag-0.5Cu or Sn-0.7Cu is recommended.

Although servicing with leaded solder is possible, there are a few precautions that have to be taken. (Not taking these precautions may cause the solder to not harden properly, and lead to consequent malfunctions.)

Precautions when using leaded solder

- Remove all lead free solder from soldered joints when replacing components.
- If leaded solder should be added to existing lead free joints, mix in the leaded solder thoroughly after the lead free solder has been completely melted (do not apply the soldering iron without solder).

■ Servicing soldering iron

A soldering iron with a temperature setting capability (temperature control function) is recommended.

The melting point of lead free solder is higher than leaded solder. Use a soldering iron that maintains a high stable temperature (large heat capacity), and that allows temperature adjustment according to the part being serviced, to avoid poor servicing performance.

Recommended soldering iron:

- Soldering iron with temperature control function (temperature range: 320-450˚C)

Recommended temperature range per part:

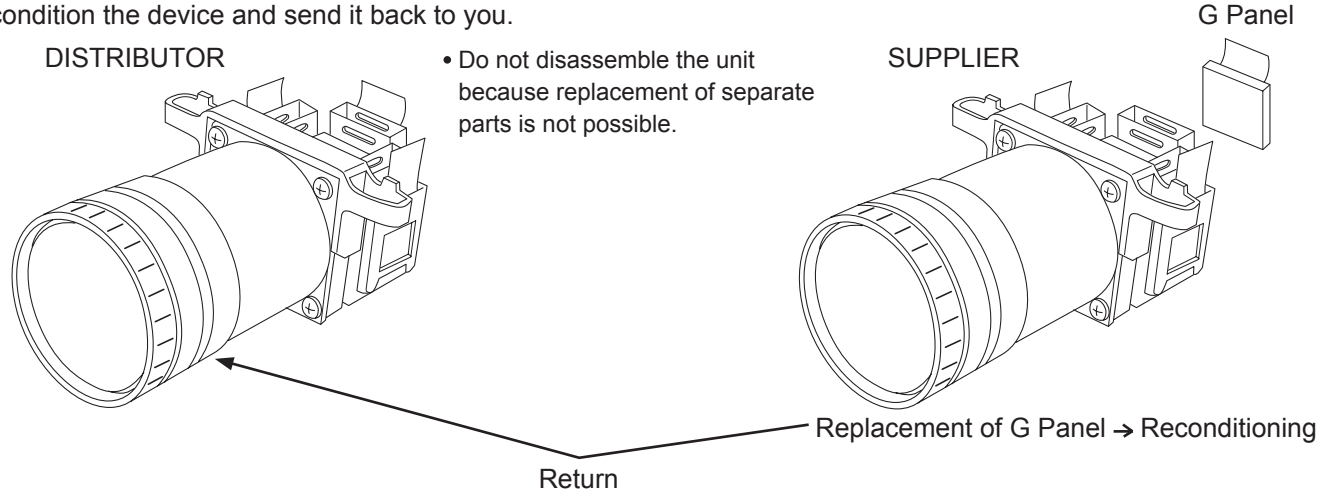
Part	Soldering iron temperature
Mounting (chips) on mounted PCB	320˚C±30˚C
Mounting (chips) on empty PCB	380˚C±30˚C
Chassis, metallic shield, etc.	420˚C±30˚C

The PWB assembly which has used lead free solder

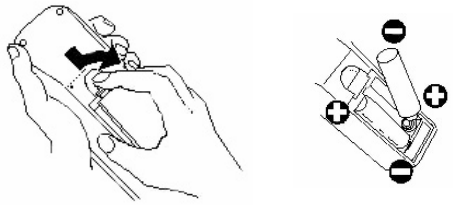
① PWB assembly DRIVE

● 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 SUPPLIER, where we will replace the malfunctioning part, recondition the device and send it back to you.



● Inserting the Batteries



1 Remove the battery cover by pulling then lifting the knob on the cover.
2 Insert the batteries, corresponding to the (+) and (-) markings on the battery compartment.
3 Reattach the battery cover.

CAUTION

- Only use the specified AA batteries.
- Do not mix new and old batteries. This may result in cracking or leakage, which may pose a risk of fire or lead to personal injury.
- Insert batteries according to (+) and (-) markings. Inserting the batteries incorrectly may result in cracking or leakage, which may pose a risk of fire or lead to personal injury.
- Dispose of the battery in accordance with local laws and regulations.
- Keep the battery away from children and pets.
- When the remote control will not to be used for an extended period, remove the batteries.

NOTE: Replace the batteries if the operation of the remote control becomes irregular or weak.

● Air Filter

Cleaning the Air Filter

The air filter should be cleaned as described below at intervals of approximately 100 hours. When the filter is used for approximately 100 hours, the message "CLEAN THE AIR FILTER" appears when the projector is switched on.

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.
3. Reset the Filter Timer using the function of the FILTER TIME on the OPTION Menu. Please refer to the description of the "FILTER TIME" on the : MAIN Menu.
   (Select RESET on the menu with the ▲ button.)

Replacing the Air Filter

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

1. Switch the projector power OFF, and remove the power cord from the power outlet.
2. Remove the filter cover and the filter.
3. Replace the new air-filter and the filter cover.
4. Reset the Filter Timer using the function of the FILTER TIME on the OPTION Menu. Refer to the description of the "FILTER TIME" on the : MAIN Menu.
   (Select RESET on the menu with the ▲ button.)

CAUTION

- Switch POWER OFF and remove the power cord from the power outlet before beginning maintenance work.
- Replace the air filter if contamination cannot be removed, or if it is damaged.
- Do not use the projector with the air filter removed.
- When the air filter is clogged, the power supply is switched OFF automatically to prevent overheating.

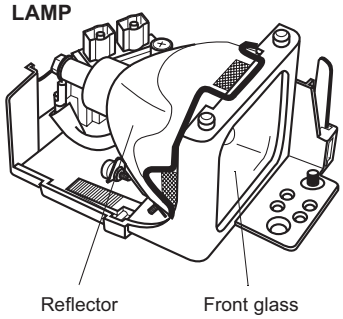
● Lamp (Option Lamp: DT00402 RLC-150-001(PJ501) / DT00462 RLC-150-003(PJ551))

HIGH VOLTAGE
HIGH TEMPERATURE
HIGH PRESSURE

Before replacing the lamp, check the serial number of the replacement lamp bulb (sold separately: DT00402 RLC-150-001(PJ501) / DT00462 RLC-150-003(PJ551)), then contact your local dealer. Before replacing the lamp, turn off the power, and unplug the power cord, then wait at least 45 minutes, in order to ensure that the lamp is properly cooled. Removing the lamp bulb while it is still hot could cause burns, or cause the lamp bulb to burst.

⚠**WARNING** The LCD projector uses a glass lamp bulb. It is a mercury lamp with high internal pressure. High-pressure mercury lamps can break with a loud bang, or burn out, if jolted or scratched, or through wear over time. Each lamp has a different lifetime, and some may burst or burn out soon after you start using them. In addition, when the bulb bursts, it is possible for shards of glass to fly into the lamp housing, and for gas containing mercury to escape from the projector's vent holes.

- Handle with care: jolting or scratching could cause the lamp bulb to burst during use.
- If the replace lamp indicator (see "Related Messages" and "Regarding the indicator Lamps") comes on, replace the lamp as soon as possible. Using the lamp for long periods of time, or past the replacement date, could cause it to burst. Do not use old (used) lamps; this is a cause of breakage.
- If the lamp breaks soon after the first time it is used, it is possible that there are electrical problems elsewhere besides the lamp. If this happens, contact your local dealer.
- If the lamp should break (it will make a loud bang when it does), ventilate the room well, and make sure not to breathe the gas that comes out of the projector vents, or get it in your eyes or mouth.
- If the lamp should break (it will make a loud bang when it does), unplug the power cord from the outlet, and make sure to request a replacement lamp from your local dealer. Note that shards of glass could damage the projector's internals, or cause injury during handling, so please do not try to clean the projector or replace the lamp yourself.
- Obey local ordinances when disposing of used lamps. In most cases, it is possible to dispose of used bulbs in the same manner as used glass bottles, but in some cases, bulbs are sorted separately.
- 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.

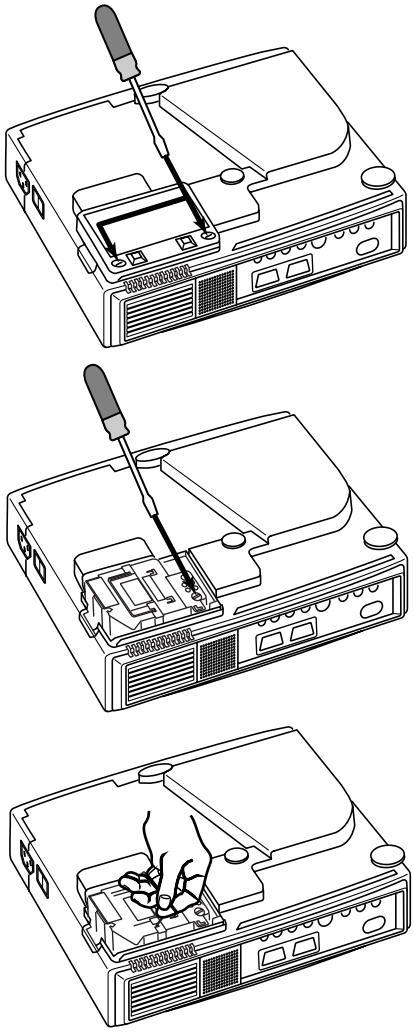
Replace the lamp if the LAMP indicator is red or the "CHANGE THE LAMP" message appears when the projector is switched on. See "OSD Messages" on page 25 and "Indicator Messages" on page 26.

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

● Replacing the Lamp

When the indicator shows that there is zero (0) hours of lamp life remaining, the unit will automatically shut off within 10 minutes. If you see this message you should replace the lamp. However, you may replace the lamp anytime after the first warning message appears at approximately 300 hours of remaining lamp life.

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 one screw, 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 one screw firmly. Make sure that the lamp assembly is seated properly before replacing the other screw.
7 Replace the lamp cover in position and tighten the two screws firmly.
8 Gently turn the projector right-side up.



CAUTION

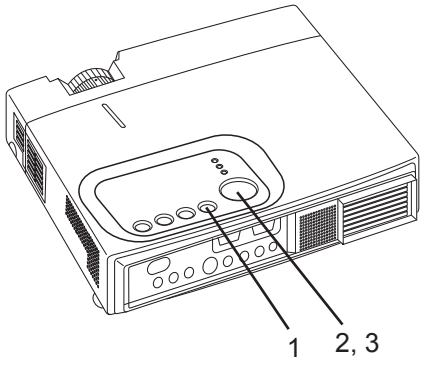
- Ensure that screws are tightened properly. Screws not tightened fully may result in injury or accidents.
- Do not use the projector with the lamp cover removed.

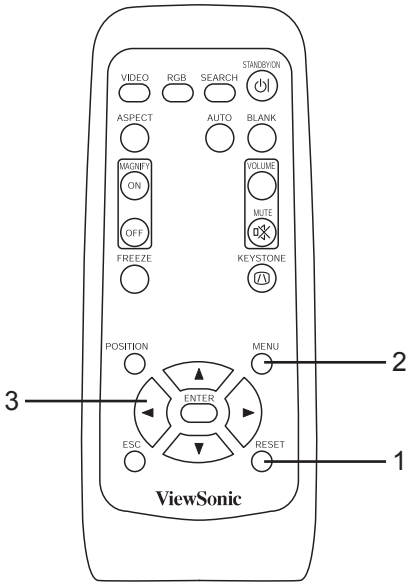
● Resetting the Lamp Timer

After replacing the lamp, it is important that you reset the lamp timer. When the lamp has been replaced after the "THE POWER WILL TURN OFF AFTER 0hr." message is displayed, complete the following steps within 10 minutes of switching power ON. The power will be turned off automatically after 10 minutes.

1. Switch POWER ON.
2. From the OPTION menu select LAMP TIME with the description of "Adjusting the Projected Image".
3. Press the RESET button and hold for approximately 3 seconds. The DEFAULT and CANCEL options will display.
4. Press the Up arrow button to select the DEFAULT. The remaining lamp life is now reset to 2000 hours.

IMPORTANT: Do not reset the lamp timer without replacing the lamp. The message functions will not operate properly if the lamp timer is not reset correctly.





● Notice of AUTO adjustment

Use of AUTO adjustment with the image through RGB input optimizes VPOSI, HPOSI, HSIZE and HPHASE automatically.

In case that projected image has dark tone around its peripheral, AUTO operation sometimes makes artifacts in the image, shifts capture area and so on. Those failures are caused by period of image data is not exactly distinguished to period of blanking on signal processing.

To avoid such phenomena, AUTO function should be used with the full size picture that has bright tone on its peripheral.

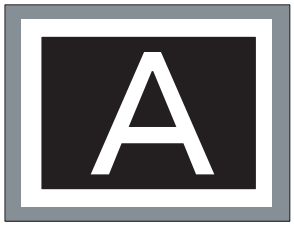


Image when AUTO operates correctly

Image when AUTO fails.

- Noting image of top or bottom lines.
- Shift of the image to East or West.
- Artifacts on image. Etc.

Note

1) The phenomenon at the failure of AUTO adjustment depends on resolution of input source, scene of picture etc.
2) There is no failure above in AUTO with video source through VIDEO, S-VIDEO or COMPONENT input. The reason is why recognition of input signal's standard does not need to search the capture range from input signal itself.

● OSD Messages

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

Screen Message	Meaning or Action Required
CHANGE THE LAMP. AFTER REPLACING LAMP, RESET THE LAMP TIME. [1]	The lamp will reach the end of its life in 300 hours. POWER is switched off automatically when the lamp reaches the end of its life. prepare a new lamp for installation. 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 ** HR. [1]	The lamp will reach the end of its life in ** hours. POWER will be switched OFF automatically in ** hours. Replace the lamp as shown in "Replacing the Lamp" on page 22. 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 lamp has reached the end of its life. POWER will be switched OFF in a few minutes. Switch POWER OFF immediately and replace the lamp as shown in "Replacing the Lamp" on page 22. 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	The internal temperature has risen. Switch POWER OFF, and wait 20 minutes until the equipment cools. Check the following and switch POWER ON again. • Are the ventilation openings blocked? • Is the air filter dirty? • Is the ambient temperature in excess of 95°F (35°C)?
CLEANING THE AIR FILTER AFTER CLEANING AIR FILTER, RESET THE FILTER TIMER.	The filter time reach 100 hours. Clean the air filter and reset the filter time.

[1] This message is cleared automatically after approximately three minutes, and appears every time POWER is switched ON.

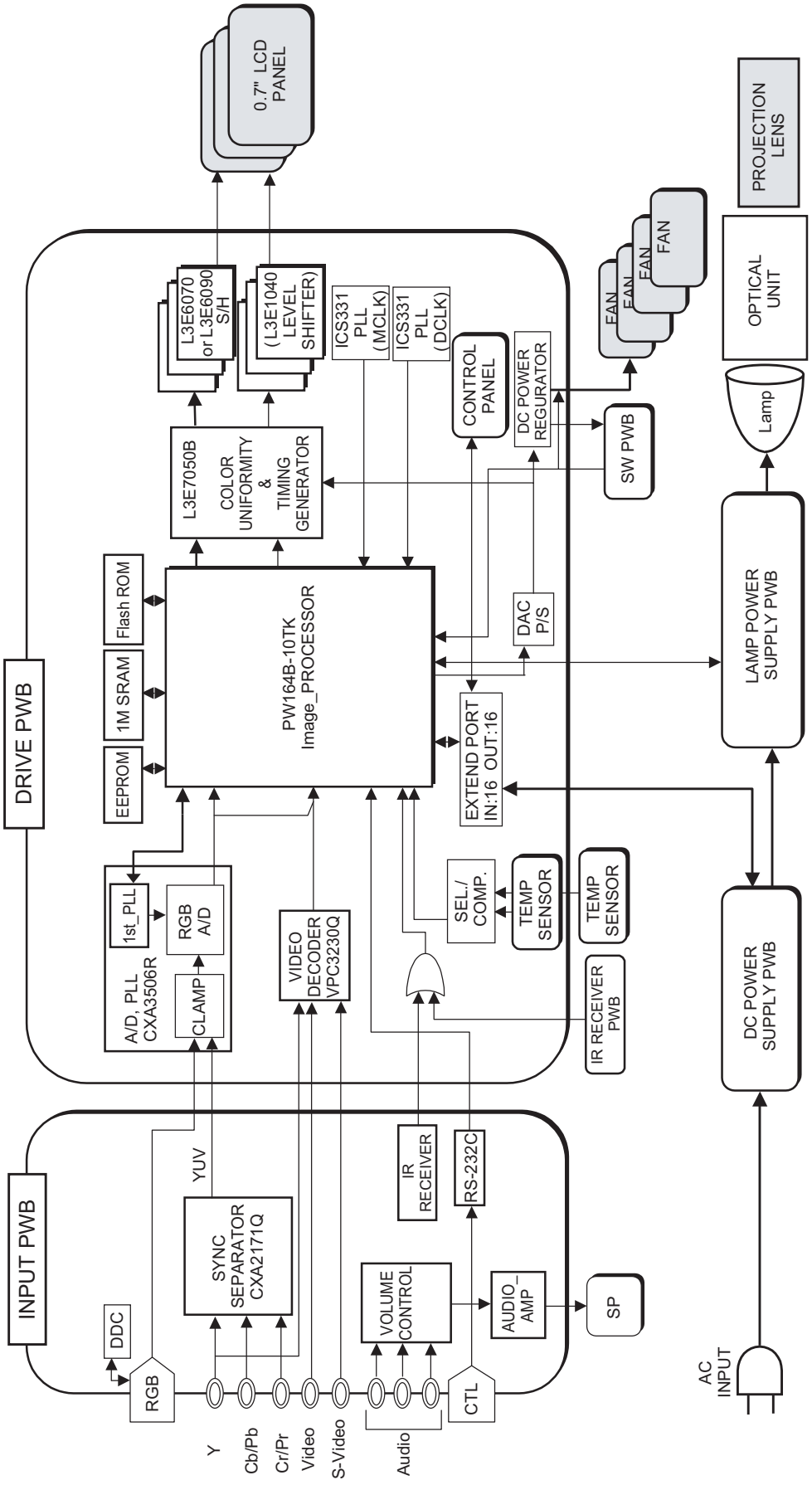
● Indicator Messages

The POWER indicator, LAMP indicator, and TEMP indicator are either lit, unlit or blinking as explained in the table below.

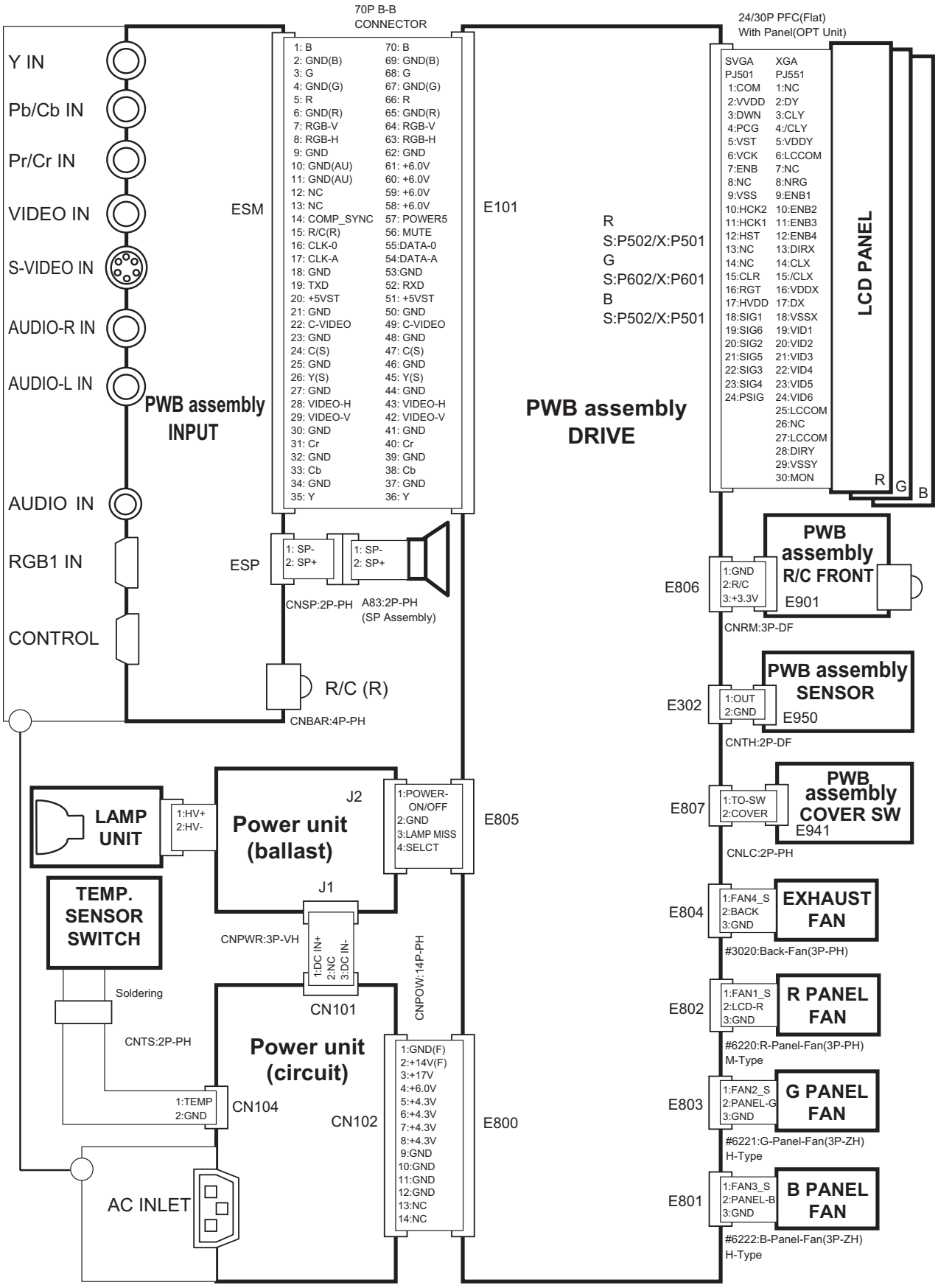
POWER indicator	LAMP indicator	TEMP indicator	Meaning or Action Required
Lights orange	Turns off	Turns off	The Standby mode has been set.
Blinks green	Turns off	Turns off	Warming up. Please wait.
Lights green	Turns off	Turns off	ON. Normal operation possible.
Blinks orange	Turns off	Turns off	Cooling. 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 95°F (35°C). And switch POWER ON again. Replace the lamp if the same problem occurs again.
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. Contact your dealer if the same problem occurs 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 matter in the fan, and switch POWER ON again. Contact your dealer if the same problem occurs again.
Blinks/ Lights red	Turns off	Lights red	The interior of the equipment is too hot. See **NOTE: (about overheating)** below. 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 95°F (35°C). Then switch POWER ON again. Contact your dealer if the same problem occurs again.
Lights green	Blinks red alternately with TEMP indicator	Blinks red alternately with LAMP indicator	The interior of the equipment is too cool. Check whether the ambient temperature is below 32°F (0°C). Contact your dealer if the same problem occurs when the ambient temperature is 32°F ~ 95°F (0°C ~ 35°C).
Lights green	Blinks red synchronizing with TEMP indicator	Blinks red synchronizing with LAMP indicator	The air-filter has been used for 100 hours or more. Clean the filter, then reset the filter timer.

NOTE: **(about overheating)** When the internal temperature rises too high, POWER to the unit switches OFF as a safety precaution; the LED lamp indicator turns OFF. Set the POWER switch to [0] and wait 20 minutes until the equipment has cooled sufficiently before continuing with operation.

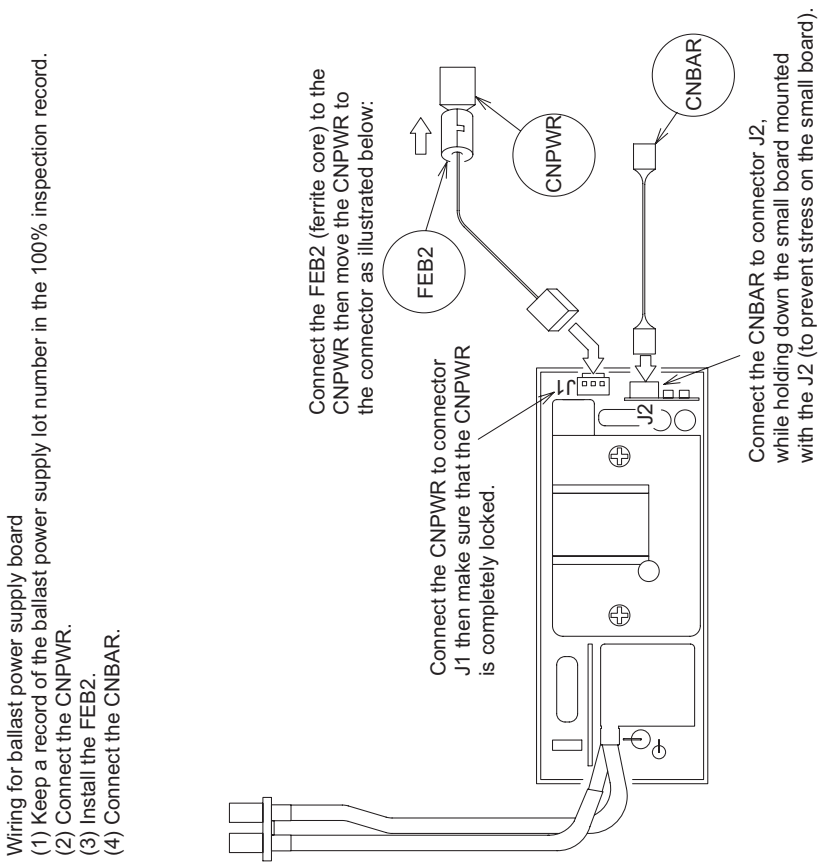
7. Block diagram

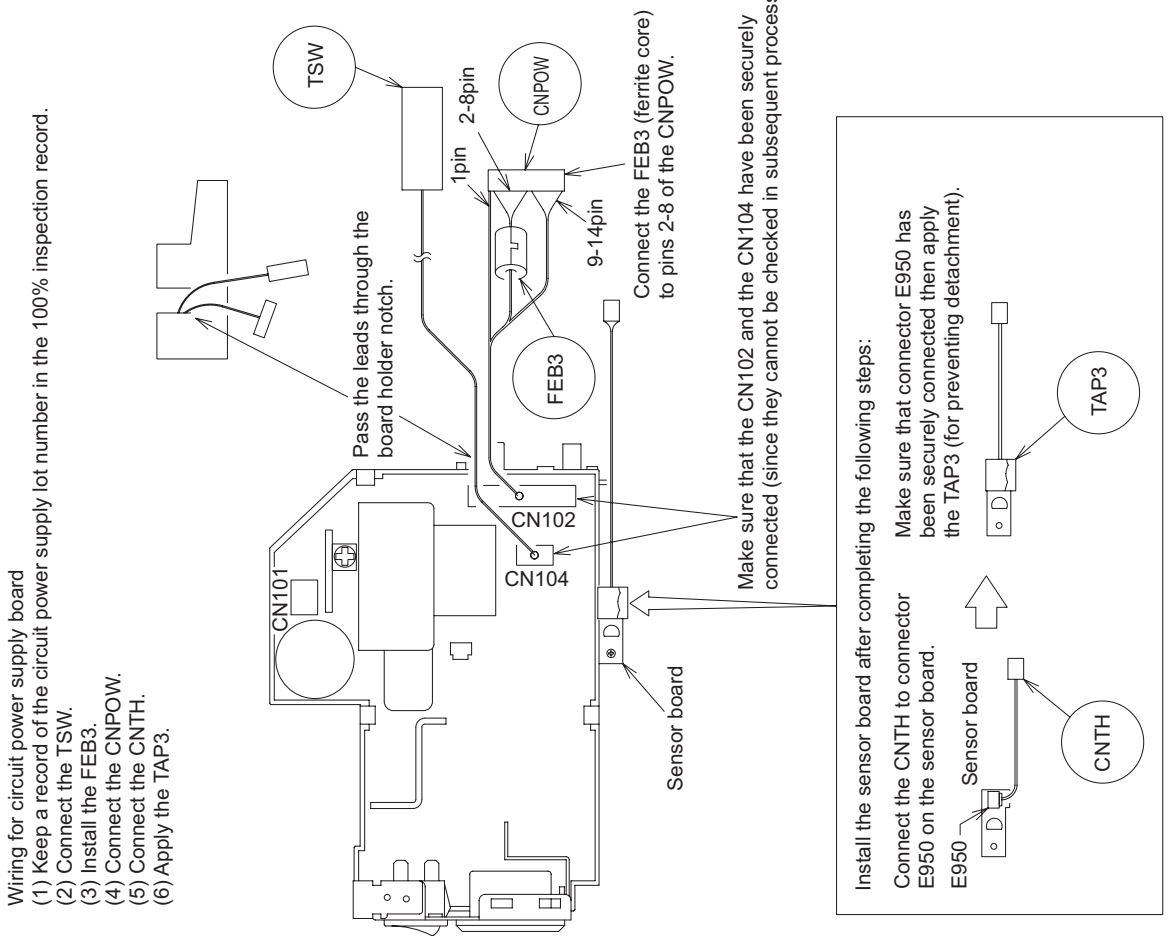


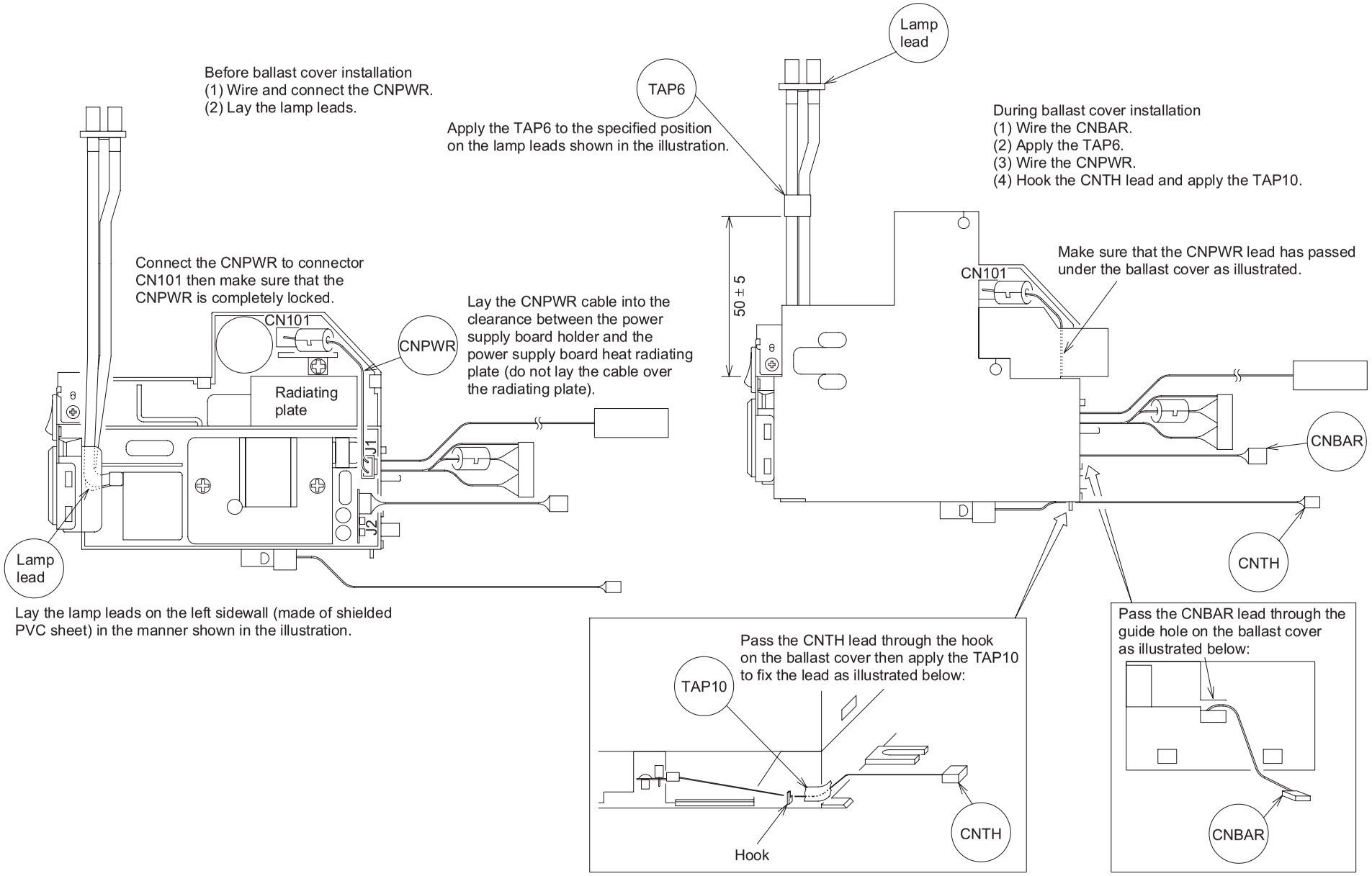
8. Interconnection Diagram



9. Wiring diagram

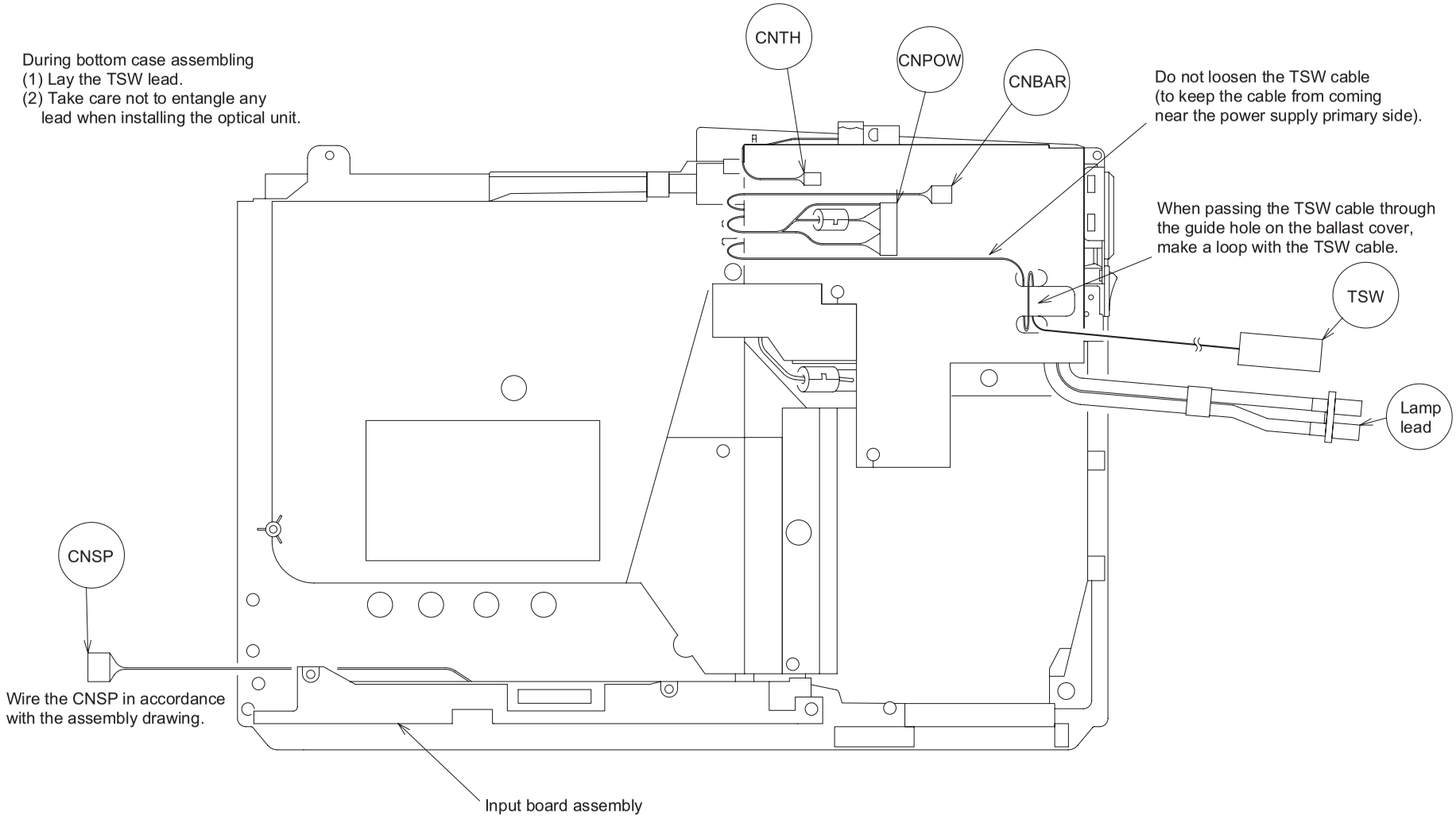





Before ballast cover installation
(1) Wire and connect the CNPWR.
(2) Lay the lamp leads.
Connect the CNPWR to connector CN101 then make sure that the CNPWR is completely locked.
CN101
CNPWR
Radiating plate
J1
J2
Lay the CNPWR cable into the clearance between the power supply board holder and the power supply board heat radiating plate (do not lay the cable over the radiating plate).
Lamp lead
Lay the lamp leads on the left sidewall (made of shielded PVC sheet) in the manner shown in the illustration.
TAP6
Apply the TAP6 to the specified position on the lamp leads shown in the illustration.
Lamp lead
During ballast cover installation
(1) Wire the CNBAR.
(2) Apply the TAP6.
(3) Wire the CNPWR.
(4) Hook the CNTH lead and apply the TAP10.
50 ± 5
CN101
Make sure that the CNPWR lead has passed under the ballast cover as illustrated.
CNBAR
CNTH
Pass the CNTH lead through the hook on the ballast cover then apply the TAP10 to fix the lead as illustrated below:
TAP10
CNTH
Hook
Pass the CNBAR lead through the guide hole on the ballast cover as illustrated below:
CNBAR

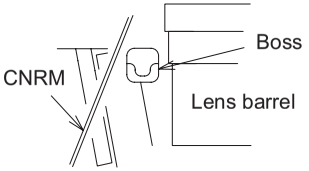
Wiring for Bottom Case Assembling

Before installing the optical unit, put all of the leads away from where the optical unit is installed as illustrated below so no lead can become entangled.



Wiring for Optical Unit Installation

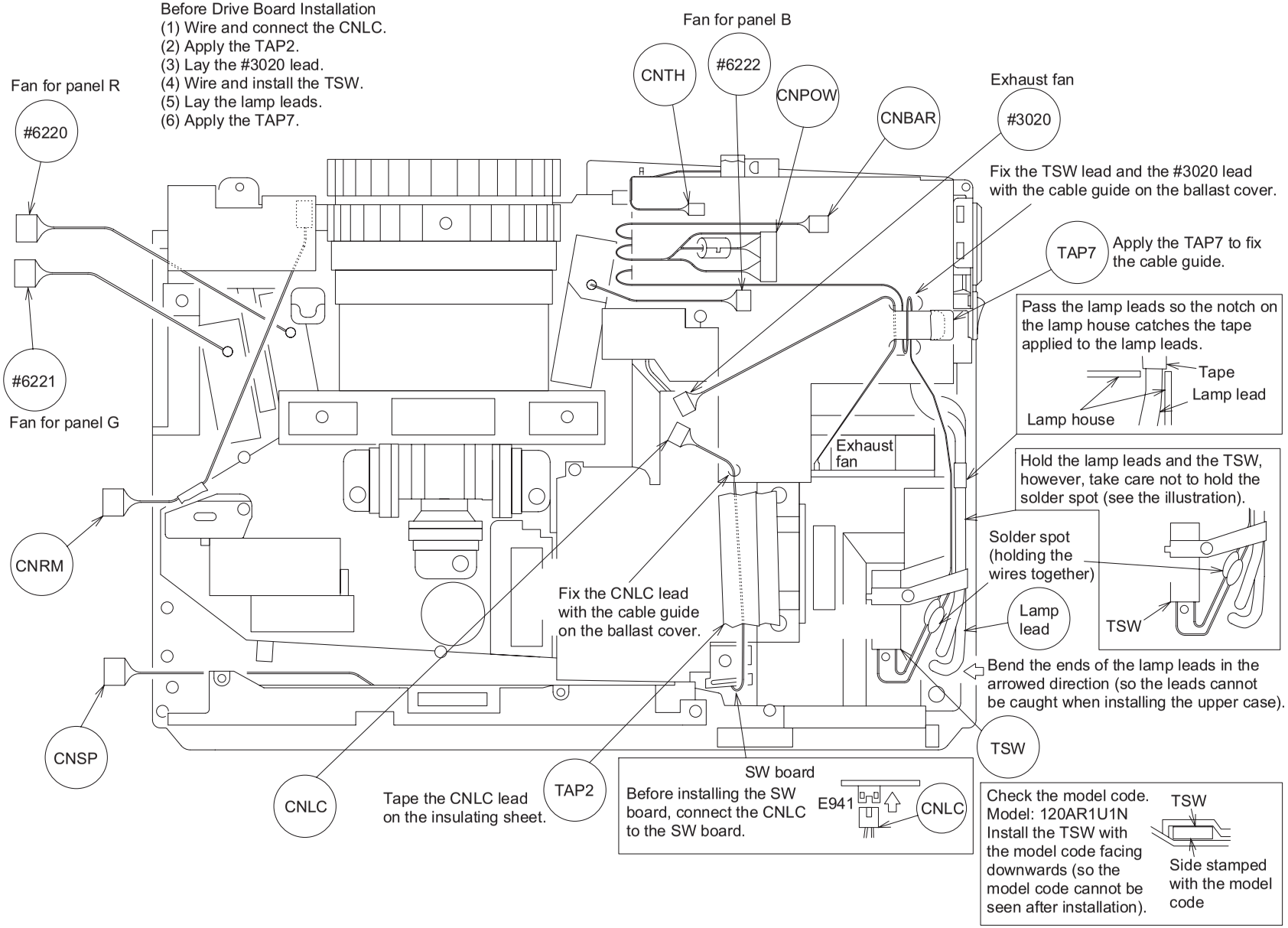
Pass the CNRM cable through the specified position illustrated below and avoid passing it between the boss and the lens barrel (to prevent the lens from contacting the cable).



During Optical Unit Installation
(1) Connect the CNRM.
(2) Apply the TAP1.

Wiring before Drive Board Installation.

Before Drive Board Installation
(1) Wire and connect the CNLC.
(2) Apply the TAP2.
(3) Lay the #3020 lead.
(4) Wire and install the TSW.
(5) Lay the lamp leads.
(6) Apply the TAP7.

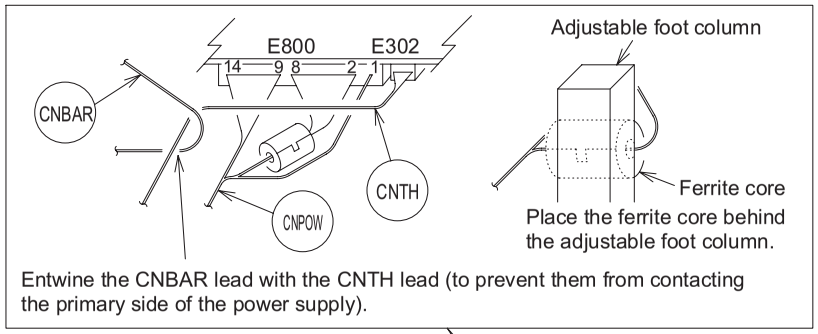


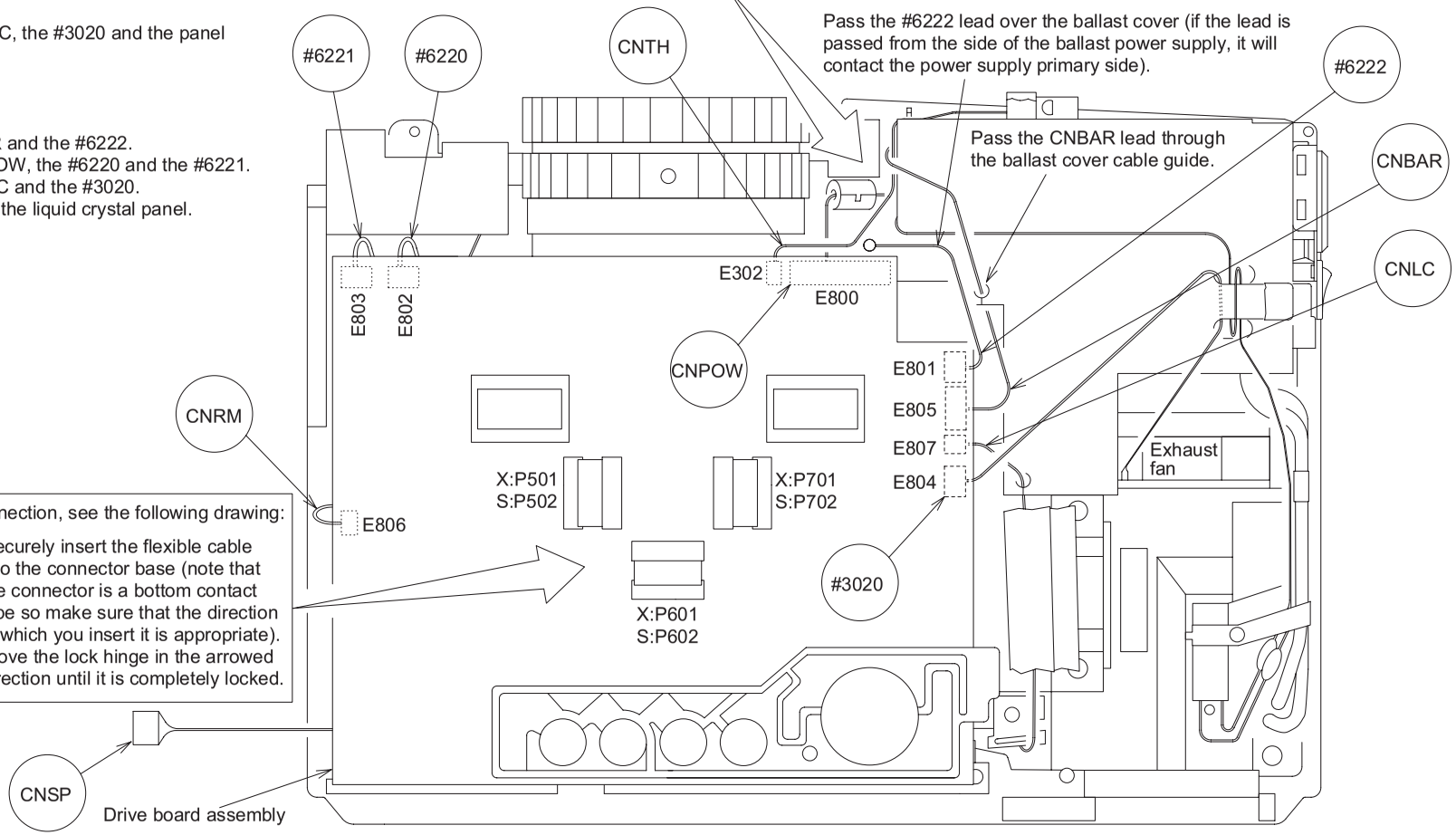
Wiring for Drive Board Installation

Procedure

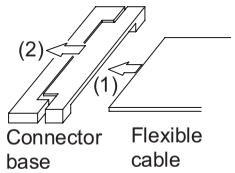
(1) Before installing the drive board, connect the CNBAR, the #6222, the CNTH, the CNPOW, the #6220 and the #6221 while holding the drive board at an inclined angle with your hand.
(2) Put the drive board in the position where you install it, while passing the panel flexible cable through the slit on the drive board (make sure that the drive board has been securely connected to the input board).
(3) Pass the CNBAR lead through the cable guide on the ballast cover.
(4) Connect the CNRM, the CNLC, the #3020 and the panel flexible cable.

During drive board installation
(1) Wire and connect the CNBAR and the #6222.
(2) Connect the CNTH, the CNPOW, the #6220 and the #6221.
(3) Connect the CNRM, the CNLC and the #3020.
(4) Connect the flexible cable for the liquid crystal panel.





For details on flexible cable connection, see the following drawing:

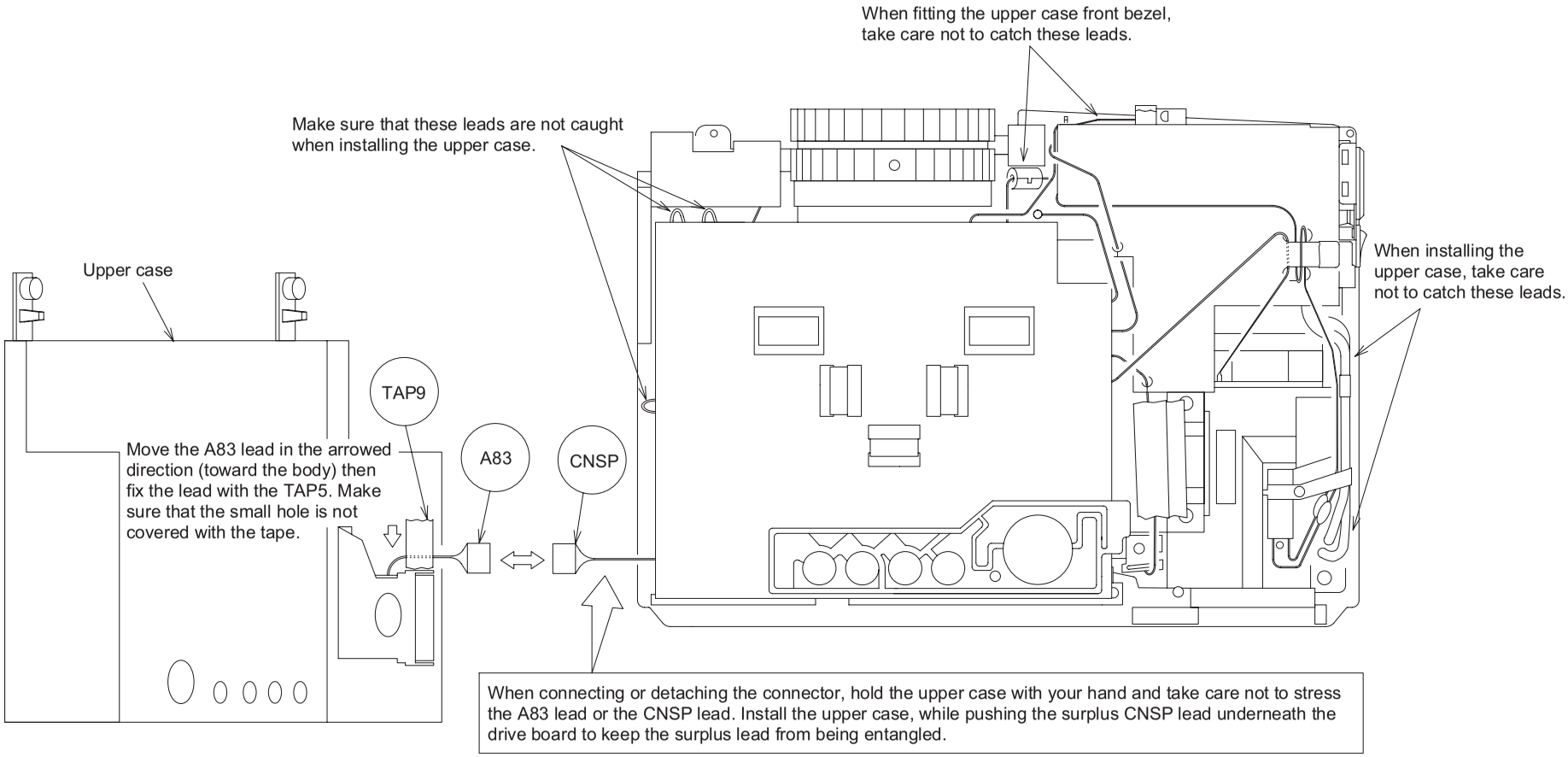


(1) Securely insert the flexible cable into the connector base (note that the connector is a bottom contact type so make sure that the direction in which you insert it is appropriate).
(2) Move the lock hinge in the arrowed direction until it is completely locked.

Wiring for Upper Case Installation

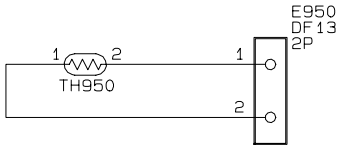
During upper case installation

(1) Apply the TAP9.
(2) Connect the CNSP to the A83.
(3) Take care not to entangle any lead.

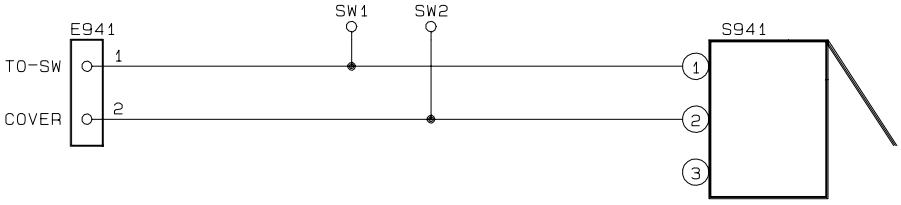


10. Circuit Diagrams

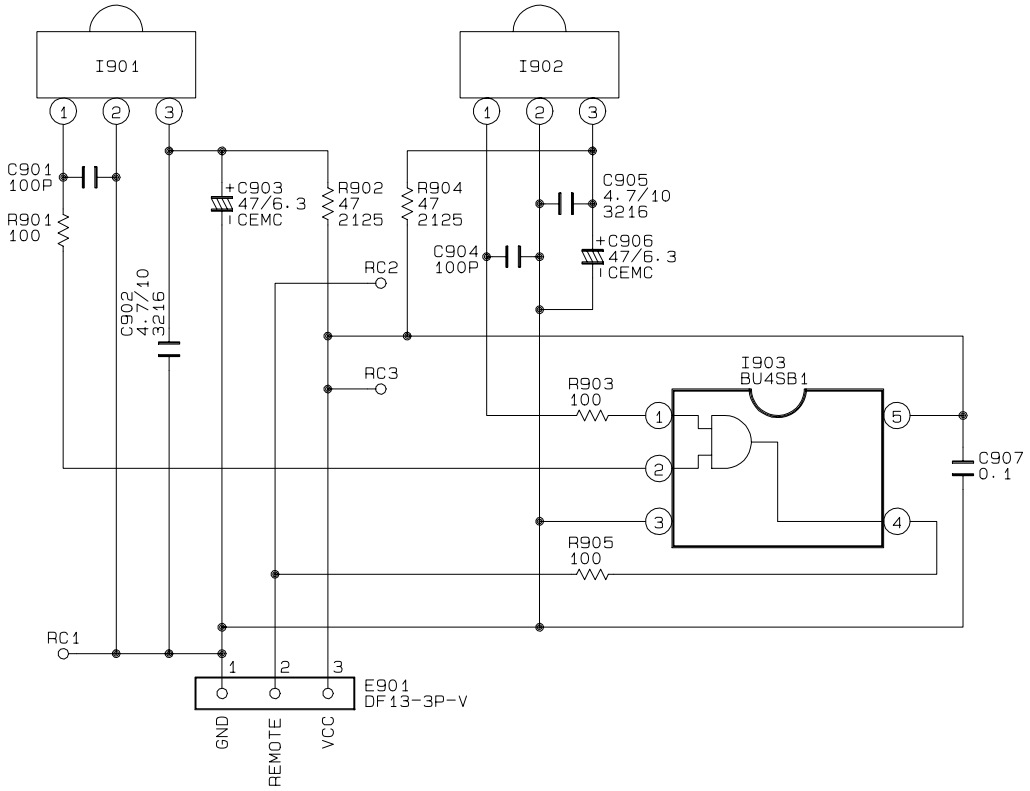
Parts with hatching are not mounted.



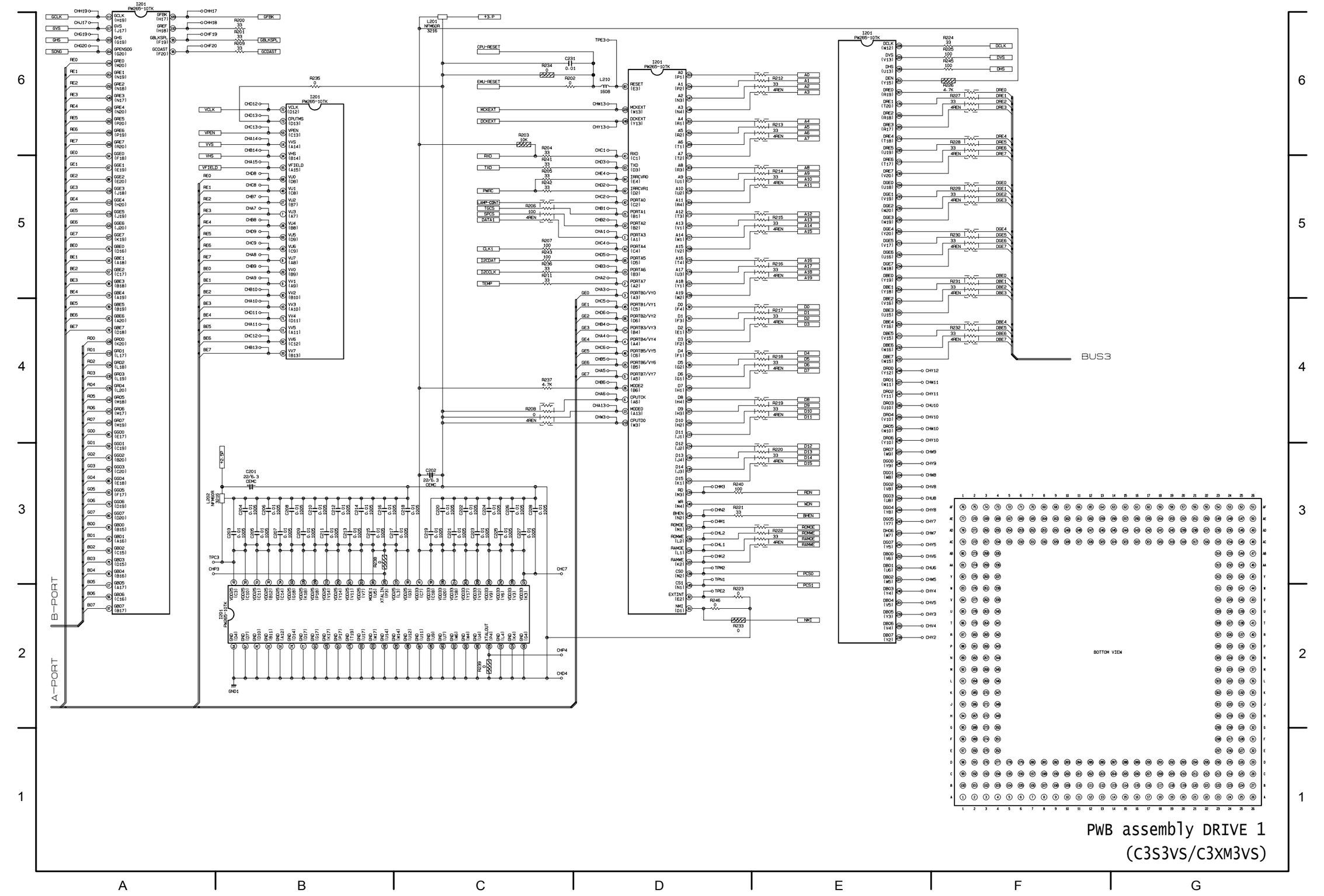
PWB assembly SENSOR (C3S3VS/C3XM3VS)

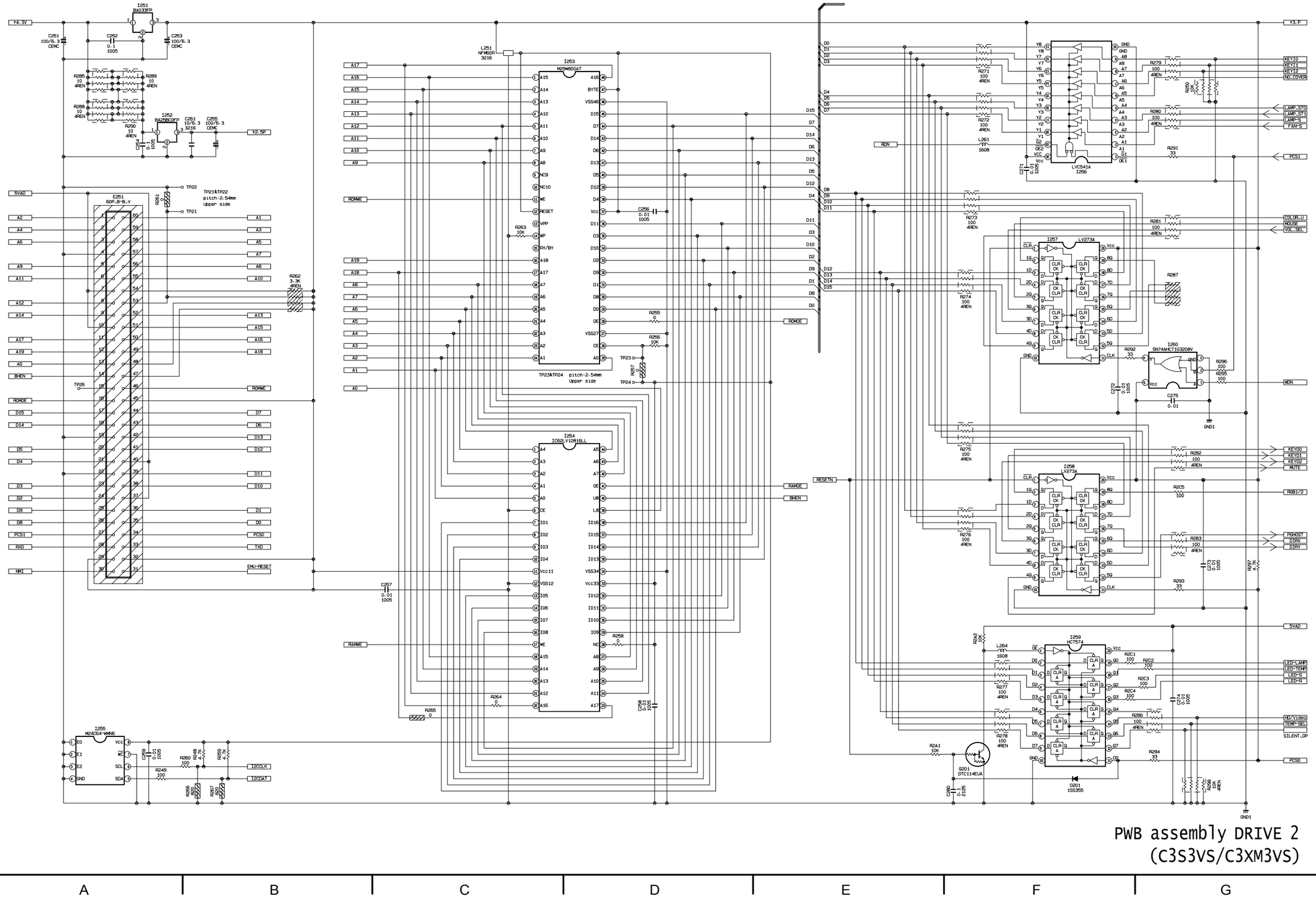


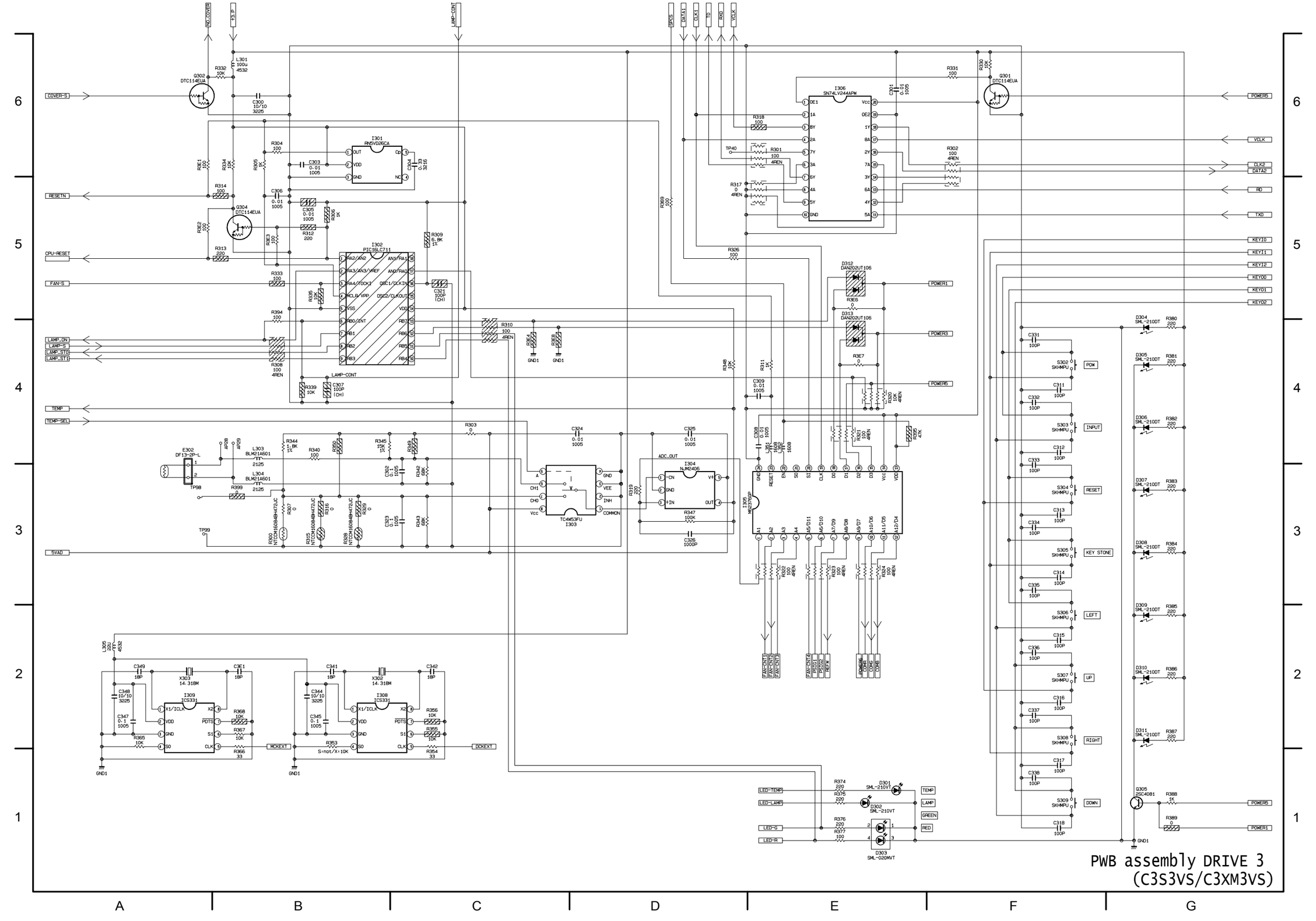
PWB assembly LIMIT SWITCH (C3S3VS/C3XM3VS)

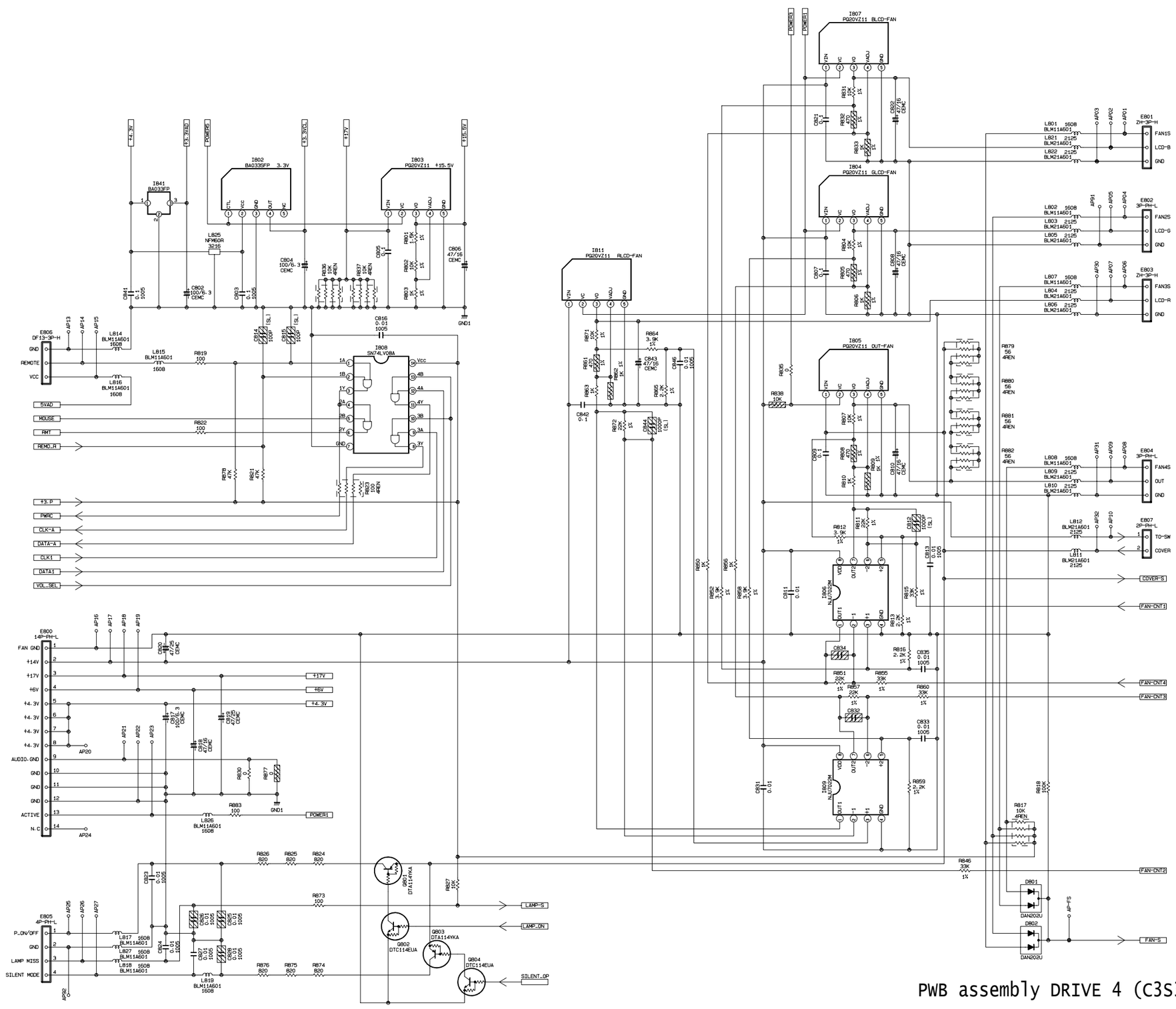


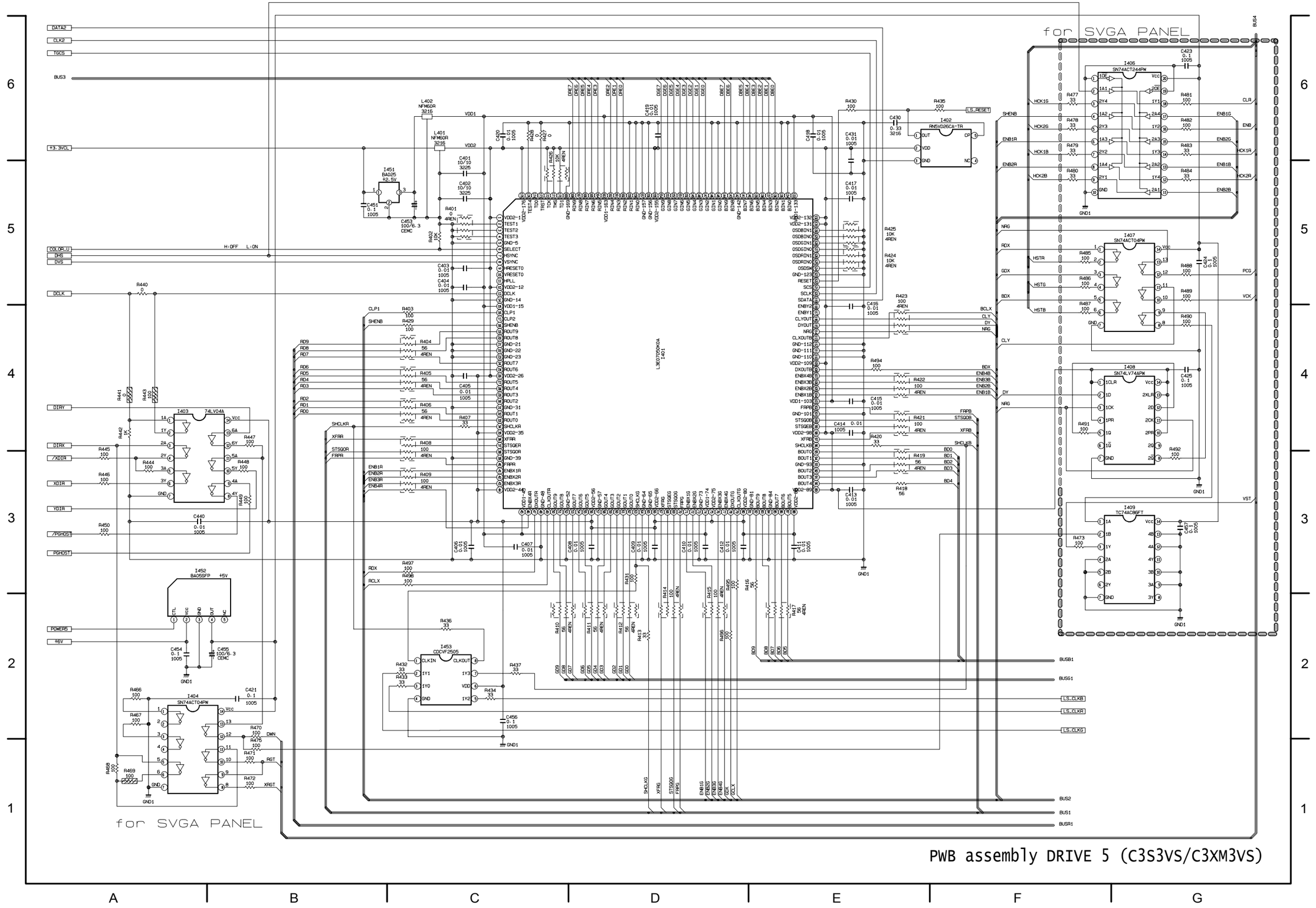
PWB assembly REMOTE CONTROL (C3S3VS/C3XM3VS)

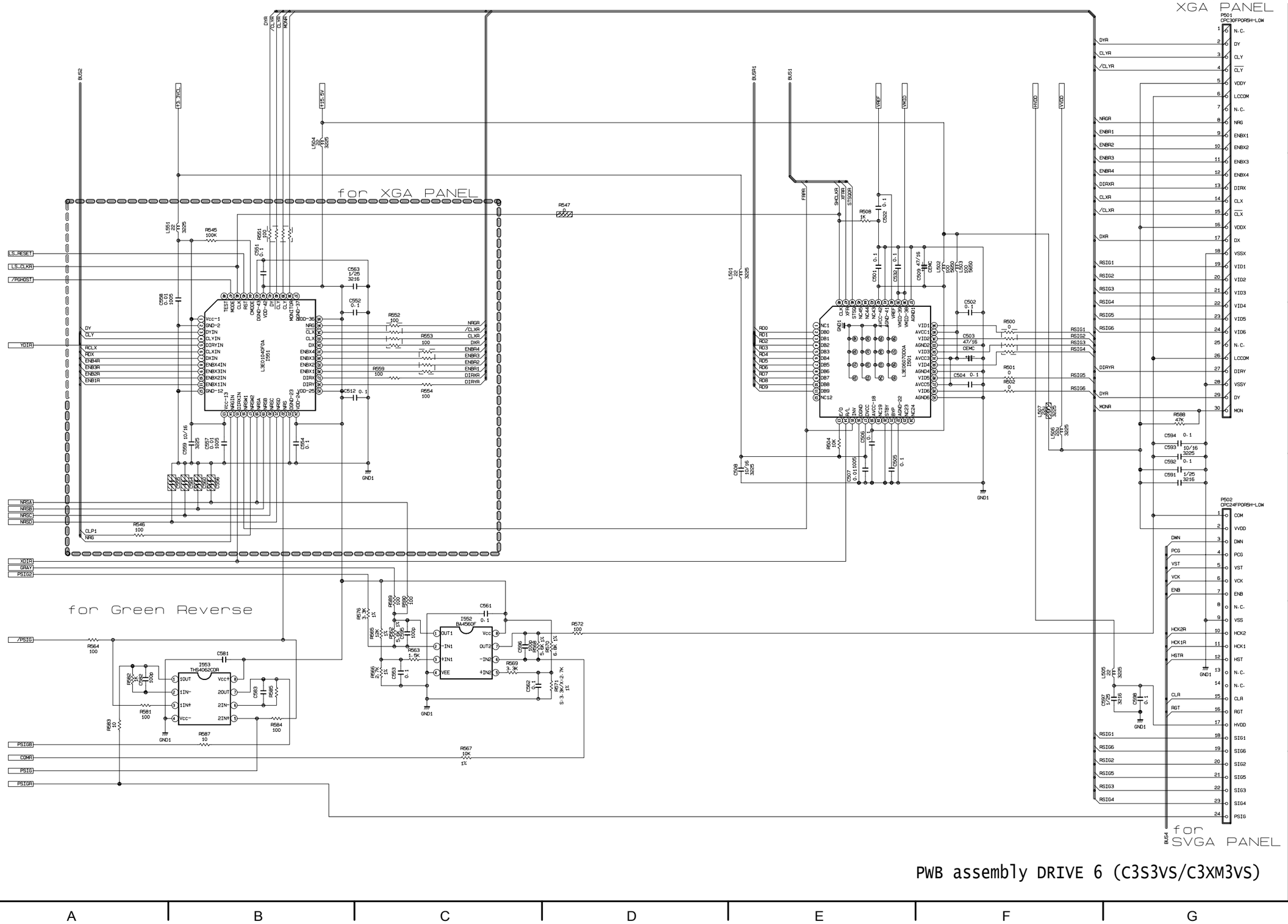

I201 PW265-10TK
L201 NFM60R 3216
+3.P
BUS3
A-PORT
B-PORT
BOTTOM VIEW
PWB assembly DRIVE 1
(C3S3VS/C3XM3VS)

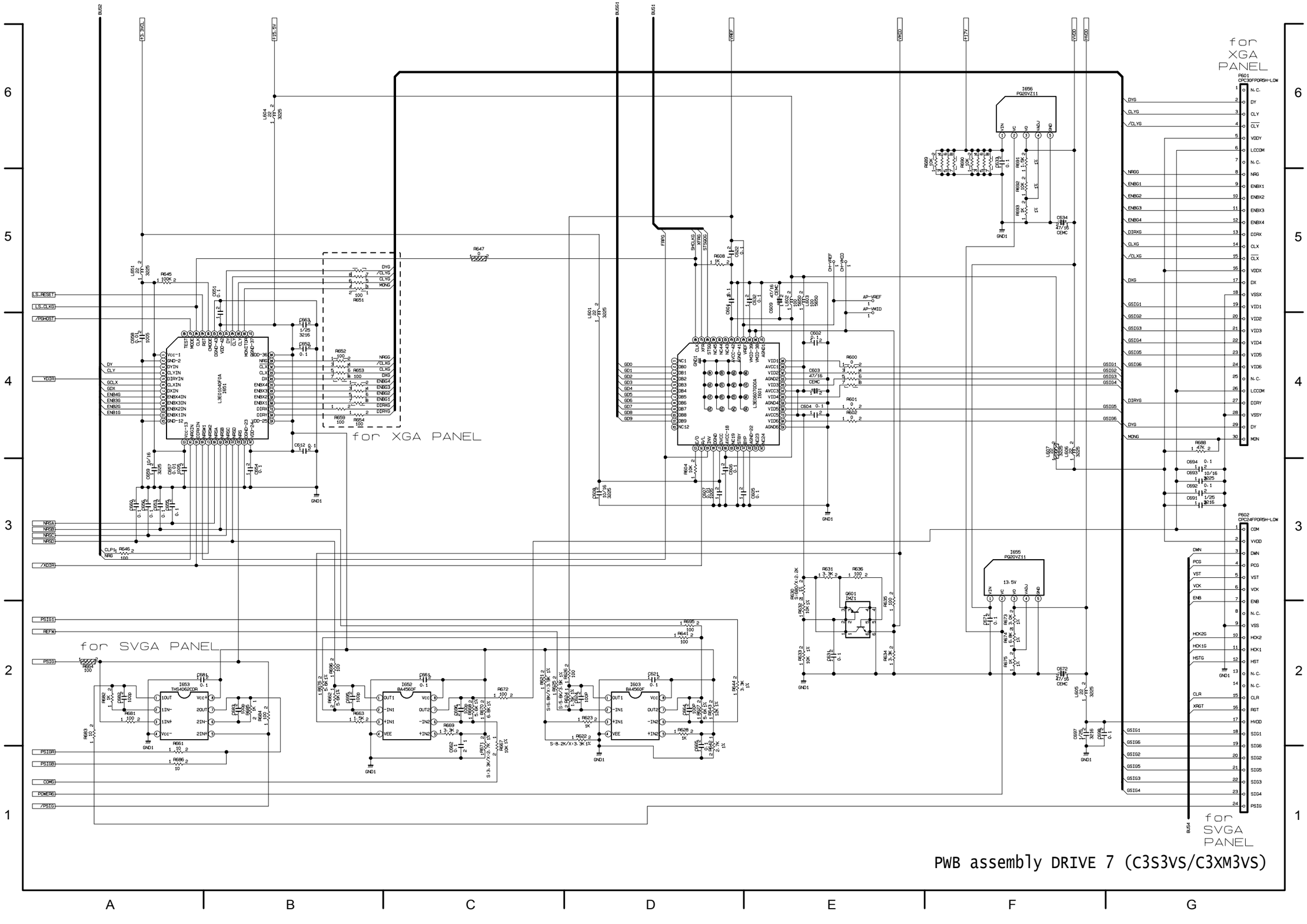

+4.3V
+2.5P
5VAD
+3.P
I251 BA033FP
C251 100/6.3 CEMC
C252 0.1 1005
C253 100/6.3 CEMC
R285 10 4REN
R289 10 4REN
R288 10 4REN
R290 10 4REN
I252 BA25BC0FP
C261 10/6.3 3216
C255 100/6.3 CEMC
C262 0.1 1005
C263 0.1 1005
E251 60P_B-B_V
R261
TP22
TP21&TP22 pitch-2.54mm Upper side
TP21
R262 3.3K 4REN
TP25
ROMCE
D15
D14
D5
D4
D3
D2
D9
D8
PCS1
RXD
NMI
A2
A4
A6
A9
A11
A12
A14
A17
A19
A0
BHEN
A1
A3
A5
A7
A8
A10
A13
A15
A16
A18
D7
D6
D13
D12
D11
D10
D1
D0
PCS0
TXD
EMU-RESET
L251 NFM62R 3216
I253 M29W800AT
A17
A16
A15
A14
A13
A12
A11
A10
A9
ROMCE
A19
A18
A8
A7
A6
A5
A4
A3
A2
A1
A0
RAMCE
R263 10K
C256 0.01 1005
R255 0
R256 10K
TP23
TP24
TP23&TP24 pitch-2.54mm Upper side
R265 0
R264 0
C258 0.01 1005
I254 IO62LV1281GLL
C257 0.01 1005
R258 0
I255 M24C64-WMN6
C259 0.1 1005
R249 100
R266 100
R248 4.7K
R259 4.7K
R256 820
R257 820
I2CCLK
I2CDAT
D0
D1
D2
D3
D4
D5
D6
D7
D15
D7
D14
D6
D13
D5
D12
D11
D4
D10
D3
D9
D2
D8
D1
D0
RAMCE
BHEN
RESETN
RDN
R271 100 4REN
R272 100 4REN
L261 1608
R273 100 4REN
R274 100 4REN
R275 100 4REN
R276 100 4REN
R277 100 4REN
R278 100 4REN
R2A1 10K
Q201 DTC114EUA
D201 1SS355
C260 0.1 2125
I256 LV541A 1256
C271 0.1 1005
R279 100 4REN
R280 100 4REN
R281 100 4REN
R282 100 4REN
R283 100 4REN
R285 100 4REN
R286 100 4REN
R287
R288 10K 4REN
R290 100
R291 33
R292 33
R293 33
R294 33
R296 100
R297 4.7K
R2A2 10K
I257 LV273A
I258 LV273A
I259 HCT574
I260 SN74AHCT1G32DBV
C272 0.01 1005
C273 0.01 1005
C274 0.01 1005
C275 0.01
C2C1 100
C2C2 100
C2C3 100
C2C4 100
KEY00
KEY01
KEY02
KEY03
INC_COVER
LAMP_STO
LAMP_ST1
LAMP_S
FAN_S
PCS1
COLOR_U
MOUSE
VOL_SEL
RGB1/2
PGHOST
DIRX
DIRY
LED-LAMP
LED-TEMP
LED-G
LED-R
HD/V1060
TEMP_SEL
SILENT_OP
PCS0
MUTE
GND1
PWB assembly DRIVE 2
(C3S3VS/C3XM3VS)

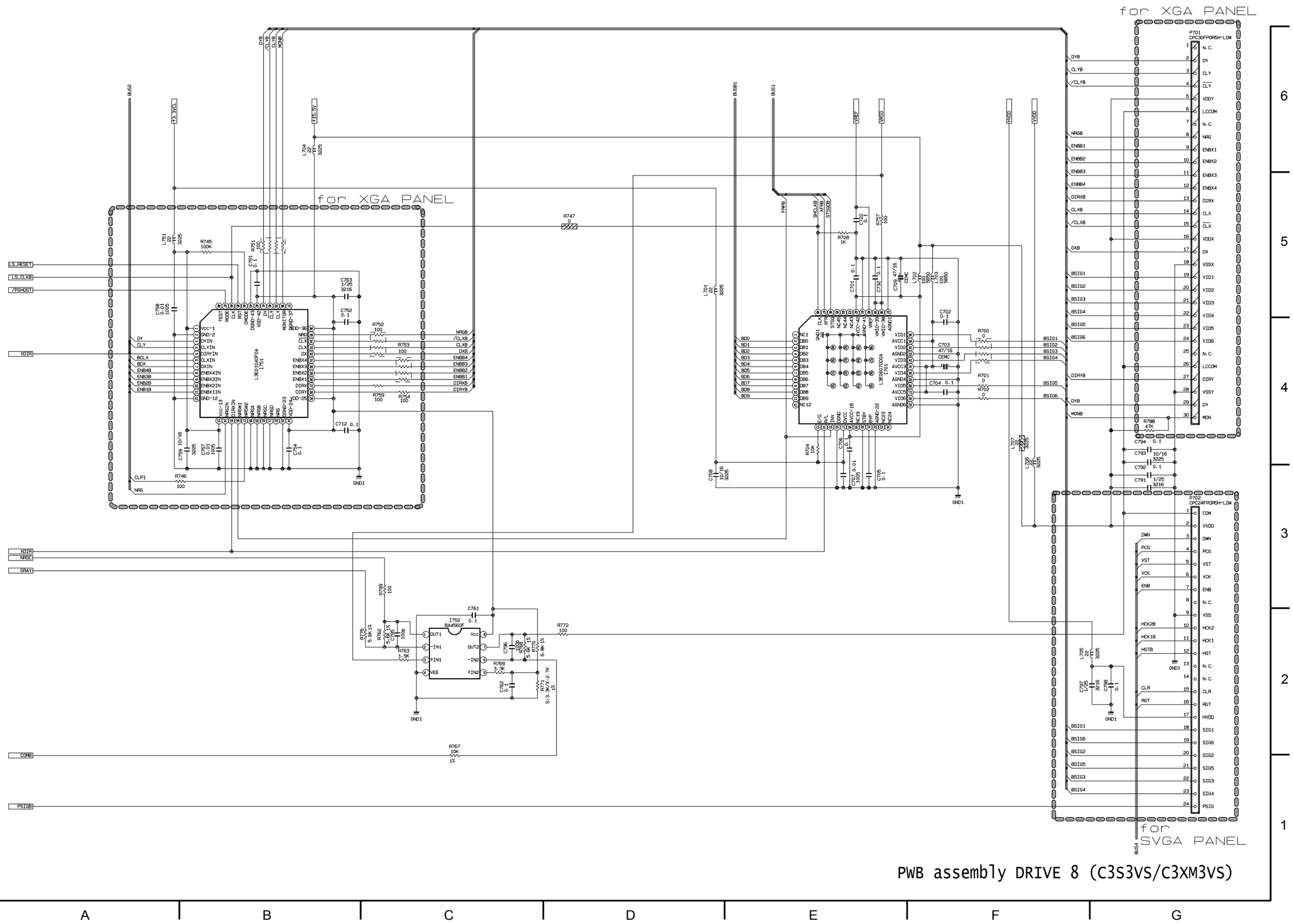

NC_COVER
+3.3P
LAMP-CONT
SPCS
DATA1
CLK1
TO
RXD
VCLK
COVER-S
RESETN
CPU-RESET
FAN-S
LAMP_ON
LAMP-S
LAMP_ST0
LAMP_ST1
TEMP
TEMP-SEL
5VAD
MCKEXT
DCKEXT
POWER5
VCLK
CLK2
DATA2
RD
TXD
KEY10
KEY11
KEY12
KEY00
KEY01
KEY02
POWER1
POWER3
POW
INPUT
RESET
KEY STONE
LEFT
UP
RIGHT
DOWN
LED-TEMP
LED-LAMP
LED-G
LED-R
TEMP
LAMP
GREEN
RED
PWB assembly DRIVE 3
(C3S3VS/C3XM3VS)

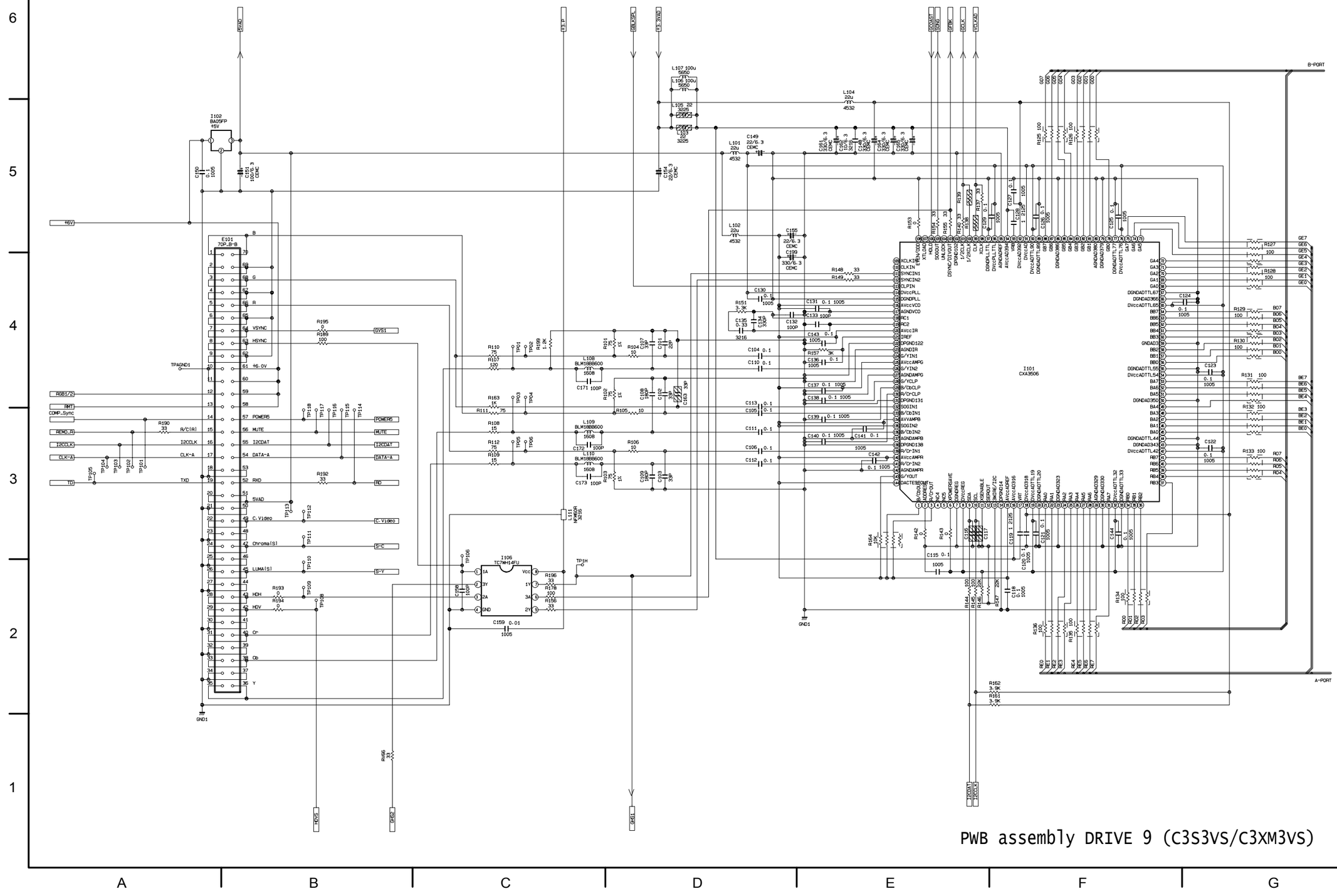

+4.3V
+5.3VAD
POWER5
+3.3VDL
+17V
+15.5V
IB02 BA033SFP 3.3V
IB03 PQ20VZ11 +15.5V
IB41 BA033FP
L805 NFM60R 3216
C804 100/6.3 CEMC
C805 0.1 1005
C806 47/16 CEMC
C801 0.1 1005
C802 100/6.3 CEMC
C803 0.1 1005
R836 10K 4REN
R837 10K 4REN
R891 10K 1%
R892 10K 1%
R893 10K 1%
GND1
C816 0.01 1005
C814 1000P (SL)
C815 1000P (SL)
E806 DF13-3P-H
GND
REMOTE
VCC
AP13
AP14
AP15
L814 BLM11A601 1608
L815 BLM11A601 1608
L816 BLM11A601 1608
R819 100
R822 100
IB08 SN74LV08A
5VAD
MOUSE
RMT
REMO_R
R878 47K
R821 47K
R823 100 4REN
+3.3
PWRC
CLK-A
DATA-A
CLK1
DATA1
VOL_SEL
E800 14P-PH-L
FAN GND
+14V
+17V
+6V
+4.3V
AUDIO.GND
ACTIVE
N.C
AP16
AP17
AP18
AP19
AP20
AP21
AP22
AP23
AP24
C820 47/16 CEMC
C817 100/6.3 CEMC
C818 47/16 CEMC
C819 47/16 CEMC
R830 0
R877 0
R883 100
L826 BLM11A601 1608
POWER1
E805 4P-PH-L
P_ON/OFF
GND
LAMP MISS
SILENT MODE
AP25
AP26
AP27
AP28
L817 BLM11A601 1608
L827 BLM11A601 1608
L818 BLM11A601 1608
L819 BLM11A601 1608
C823 0.01 1005
C824 0.1 1005
C825 0.01 1005
C826 0.01 1005
C827 0.01 1005
C828 0.01 1005
R826 820
R825 820
R824 820
R873 100
R876 820
R875 820
R874 820
Q801 DTA114YKA
Q802 DTC114EUA
Q803 DTA114YKA
Q804 DTC114EUA
R827 10K
LAMP-S
LAMP-ON
SILENT_OP
IB07 PQ20VZ11 BLCD-FAN
IB04 PQ20VZ11 GLCD-FAN
IB11 PQ20VZ11 RLCD-FAN
IB05 PQ20VZ11 OUT-FAN
R831 10K 1%
R832 470 1%
R833 1K 1%
C821 0.1
C826 47/16 CEMC
R834 10K 1%
R835 470 1%
R836 1K 1%
C827 0.1
C828 47/16 CEMC
R871 10K 1%
R861 1K 1%
R862 1K 1%
R863 1K 1%
C842 0.1
R864 3.9K 1%
C843 47/16 CEMC
C846 0.01 1005
R865 2.2K 1%
R872 22K 1%
C844 1000P (SL)
R838 10K
R867 10K 1%
R868 470 1%
R839 1K 1%
C829 0.1
C830 47/16 CEMC
R810 0
R811 22K 1%
R812 3.9K 1%
C812 1000P (SL)
C813 0.01 1005
R880 56 4REN
R881 56 4REN
R882 56 4REN
R879 56 4REN
R860 1K
R866 1K
R852 3.9K 1%
R858 3.9K 1%
C811 0.01
IB06 NJU7052M
R815 33K 1%
R813 2K 1%
C834
R816 2.2K 1%
C835 0.01 1005
R851 22K 1%
R857 22K 1%
R855 33K 1%
R850 33K 1%
C832
C833 0.01 1005
C831 0.01
IB09 NJU7052M
R859 2.2K 1%
R819 100K
R817 10K 4REN
R846 33K 1%
DB01 DAN202U
DB02 DAN202U
L801 BLM11A601 1608
L821 BLM21A601 2125
L822 BLM21A601 2125
E801 ZH-3P-H
FAN1S
LCD-B
GND
L802 BLM11A601 1608
L803 BLM21A601 2125
L805 BLM21A601 2125
E802 3P-PH-L
FAN2S
LCD-G
GND
L807 BLM11A601 1608
L804 BLM21A601 2125
L806 BLM21A601 2125
E803 ZH-3P-H
FAN3S
LCD-R
GND
L808 BLM11A601 1608
L809 BLM21A601 2125
L810 BLM21A601 2125
E804 3P-PH-L
FAN4S
OUT
GND
LB12 BLM21A601 2125
L811 BLM21A601 2125
E807 2P-PH-L
TO-SW
COVER
COVER-S
FAN-CNT1
FAN-CNT4
FAN-CNT3
FAN-CNT2
FAN-S
AP1
AP2
AP3
AP4
AP5
AP6
AP7
AP8
AP9
AP10
AP11
AP12
AP29
AP30
AP31
AP32
AP33
PWB assembly DRIVE 4 (C3S3VS/C3XM3VS)

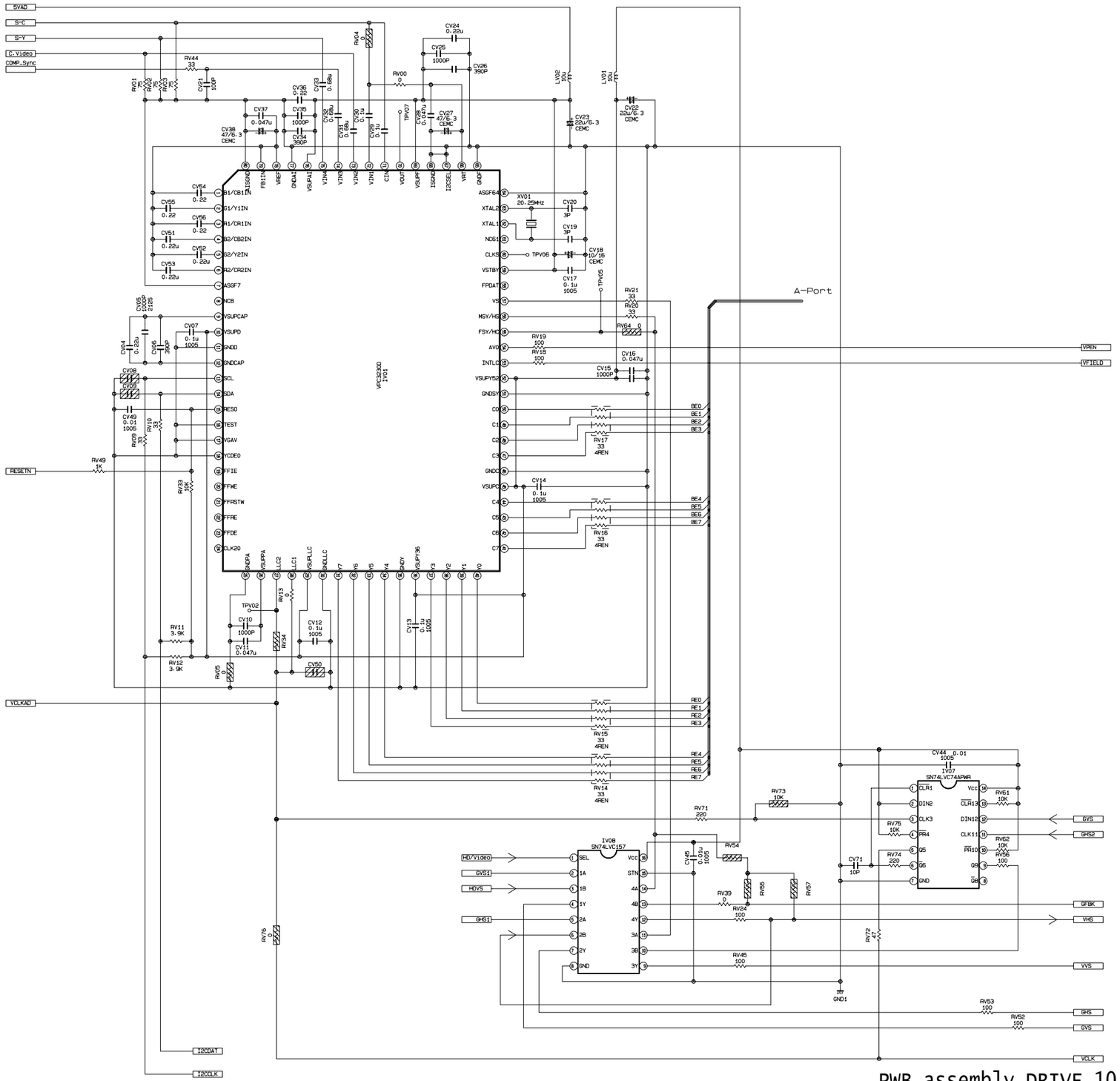

for SVGA PANEL
PWB assembly DRIVE 5 (C3S3VS/C3XM3VS)
for SVGA PANEL
DATA2
CLK2
TGCS
BUS3
+3.3VCL
COLOR_U
DHS
DVS
H:OFF L:ON
DCLK
DIRY
DIRX
/XDIR
XDIR
YDIR
/PGHOST
POWER5
+6V
VDD1
VDD2
L402 NFM60R 3216
L401 NFM60R 3216
I451 BA025 +2.5V
I452 BA05SFP +5V
I453 CDCVF2505
I403 74LV04A
I404 SN74ACT04PW
I406 SN74ACT244PW
I407 SN74ACT04PW
I408 SN74LV74APW
I409 TC74AC86FT
I402 RN5VD26CA-TR
L401 L3C07050K0A
LS_RESET
BUS4
BUSB1
BUSG1
BUS2
BUS1
BUSR1
LS_CLKB
LS_CLKR
LS_CLKG
GND1

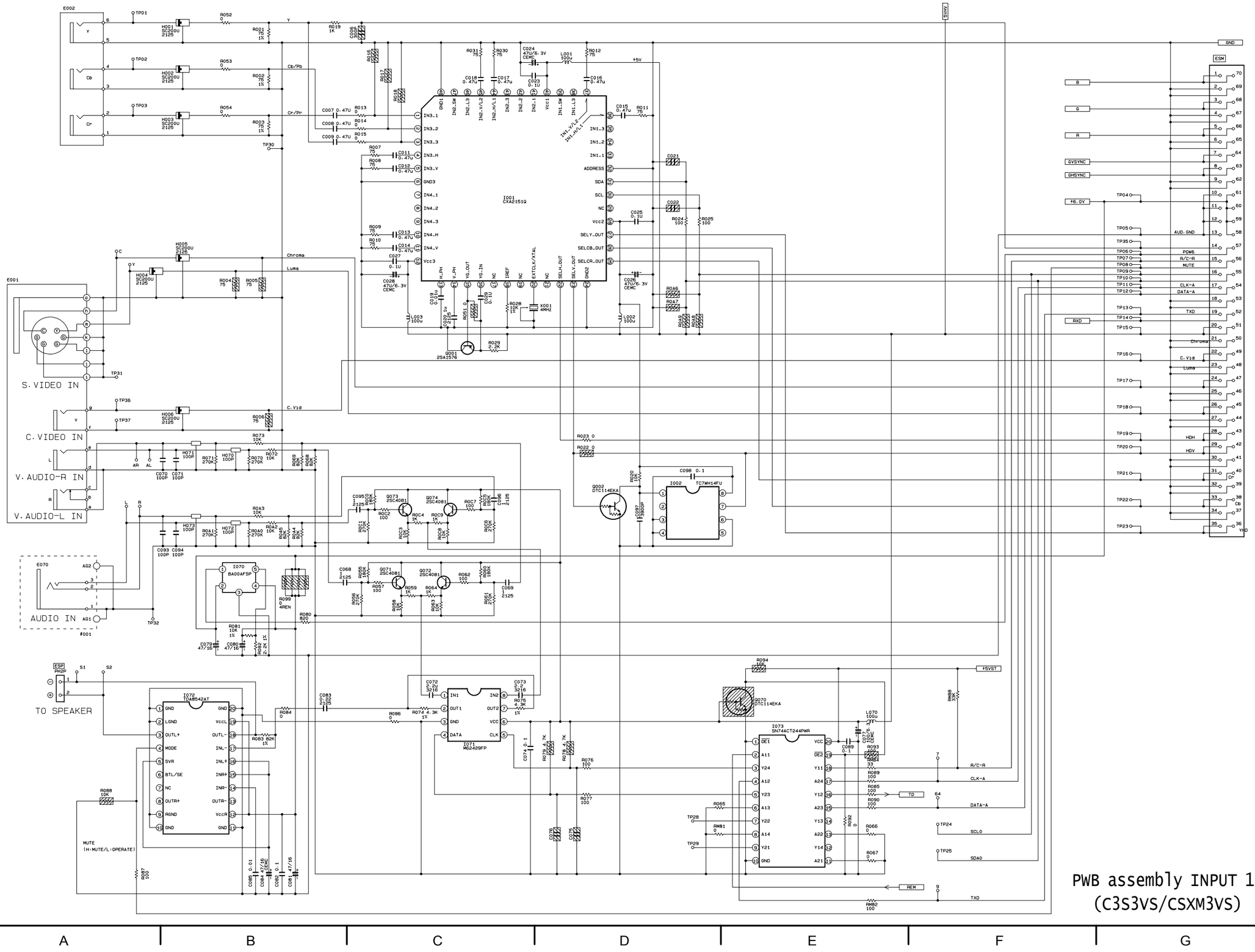

for XGA PANEL
for XGA PANEL
for Green Reverse
for SVGA PANEL
P501
CPC30FPORSH-LOW
P502
CPC24FPORSH-LOW
L3E060700A
L3E01040F0A
THS4062IDR
BA4560F
PWB assembly DRIVE 6 (C3S3VS/C3XM3VS)

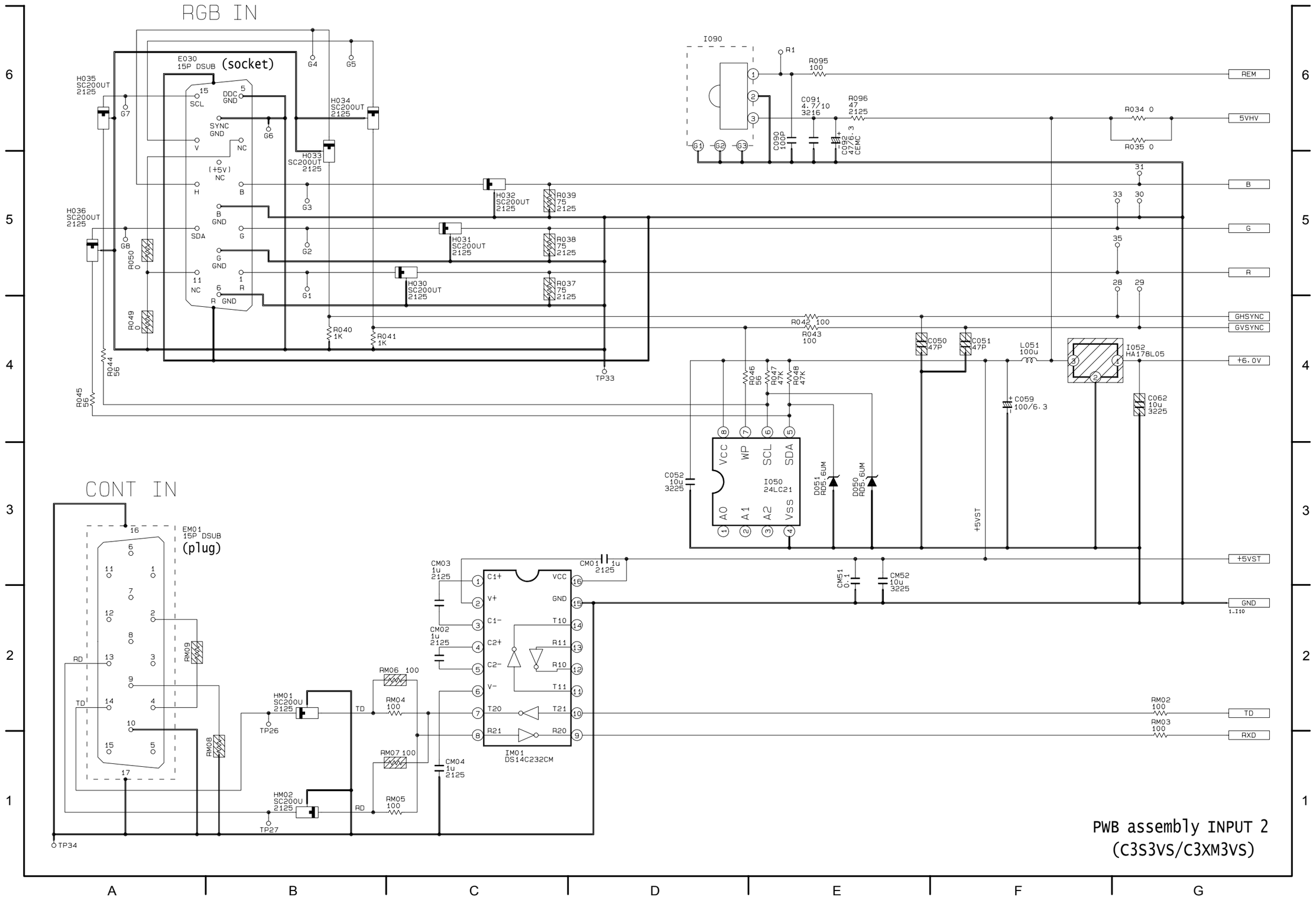

for XGA PANEL
for SVGA PANEL
for XGA PANEL
for SVGA PANEL
PWB assembly DRIVE 7 (C3S3VS/C3XM3VS)

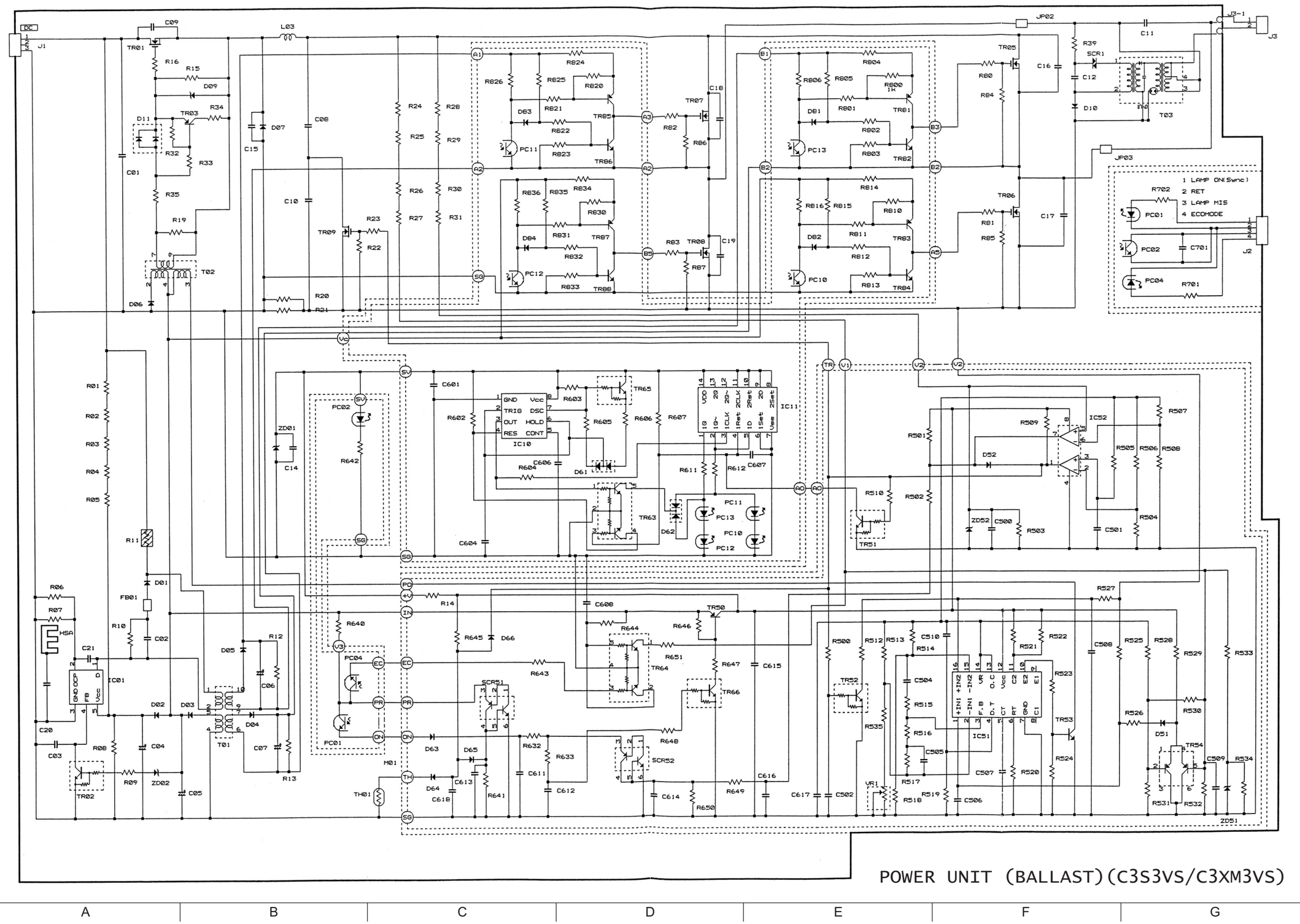

for XGA PANEL
for XGA PANEL
for SVGA PANEL
PWB assembly DRIVE 8 (C3S3VS/C3XM3VS)

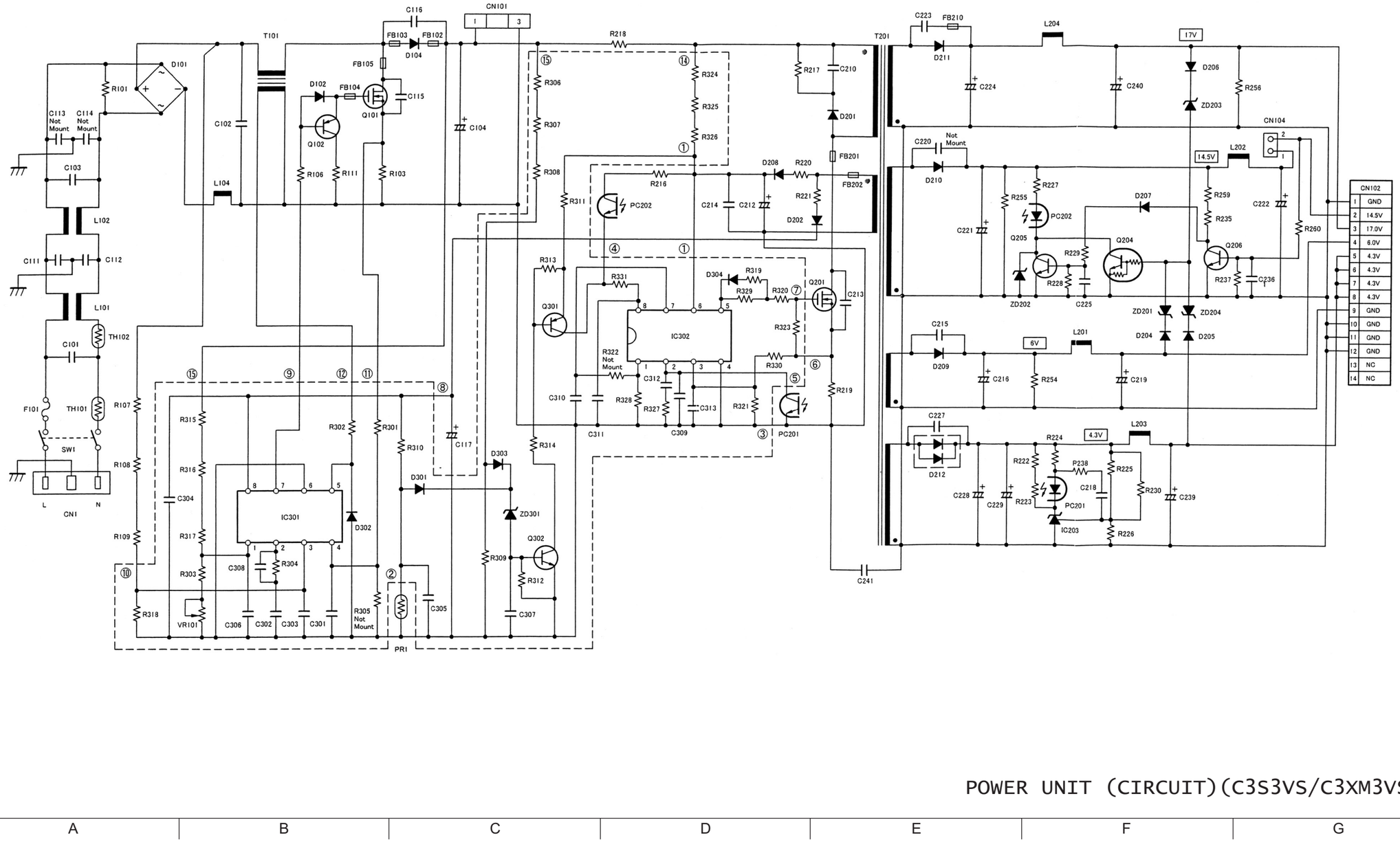

I102
BA05FP
+5V
E101
70P_B-B
I101
CX43506
I105
TC7WH14FU
B-PORT
A-PORT
PWB assembly DRIVE 9 (C3S3VS/C3XM3VS)


5VAD
S-C
S-Y
C.Video
COMP_Sync
RESETN
VCLKAD
I2CDAT
I2CCLK
A-Port
VPEN
VFIELD
GVS
GHS2
GFBK
VHS
VVS
GHS
GVS
VCLK
HD/V1Geo
6VS1
HDVS
GHS1
VR3R300
1V01
XV01
20.25MHz
IV08
SN74LVC157
IV07
SN74LVC74APWR
PWB assembly DRIVE 10 (C3S3VS/C3XM3VS)


S.VIDEO IN
C.VIDEO IN
V.AUDIO-R IN
V.AUDIO-L IN
AUDIO IN
TO SPEAKER
MUTE
(H:MUTE/L:OPERATE)
I001 CXA2151Q
I002 TC7WH14FU
I070 BA00AFSP
I071 M62429FP
I072 TDA8542AT
I073 SN74ACT244PWR
Q001 2SA1576
Q002 DTC114EKA
Q070 DTC114EKA
Q071 2SC4081
Q072 2SC4081
Q073 2SC4081
Q074 2SC4081
X001 4MHz
ESM
AUD.GND
POWS
R/C-R
MUTE
CLK-A
DATA-A
TXD
Chroma
C.Vid
Luma
HDH
HDV
Cb
Cr
YPD
SCL0
SDA0
+5V
+5VST
+6.0V
GND
GVSYNC
GHSYNC
RXD
TD
REM
PWB assembly INPUT 1
(C3S3VS/CSXM3VS)

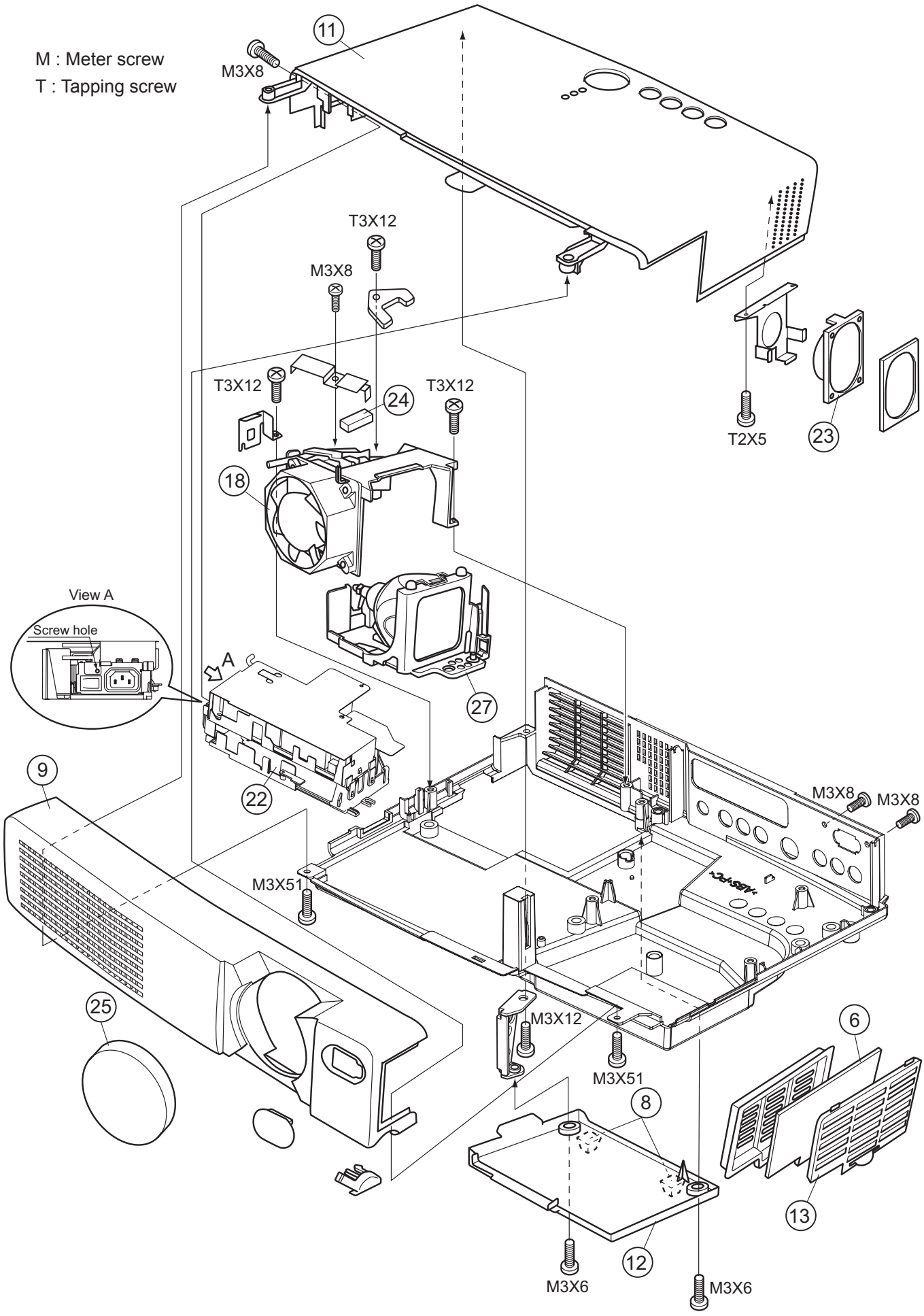

RGB IN
E030
15P DSUB
(socket)
H035 SC200UT 2125
H034 SC200UT 2125
H033 SC200UT 2125
H032 SC200UT 2125
H031 SC200UT 2125
H030 SC200UT 2125
H036 SC200UT 2125
SCL
DDC GND
SYNC GND
V
NC
(+5V)
H
B
SDA
G
R
R GND
R039 75 2125
R038 75 2125
R037 75 2125
R040 1K
R041 1K
R042 100
R043 100
R044 56
R045 56
R046 56
R047 47K
R048 47K
R049 0
R050 0
TP33
I090
R1
R095 100
C091 4.7/10 3216
R096 47 2125
C090 100P
C092 47/6.3 CEMC
R034 0
R035 0
REM
5VHV
B
G
R
GHSYNC
GVSYNC
+6.0V
C050 47P
C051 47P
L051 100u
I052 HA178L05
C059 100/6.3
C062 10u 3225
I050 24LC21
VCC
WP
SCL
SDA
A0
A1
A2
VSS
C052 10u 3225
D051 RD5.6UM
D050 RD5.6UM
+5VST
CONT IN
EM01
15P DSUB
(plug)
RD
TD
RM09
RM08
HM01 SC200U 2125
HM02 SC200U 2125
TP26
TP27
TP34
RM06 100
RM04 100
RM07 100
RM05 100
CM03 1u 2125
CM02 1u 2125
CM01 1u 2125
CM04 1u 2125
IM01
DS14C232CM
C1+
V+
C1-
C2+
C2-
V-
T20
R21
T10
R11
R10
T11
T21
R20
CM51 0.1
CM52 10u 3225
GND
RM02 100
RM03 100
TD
RXD
PWB assembly INPUT 2
(C3S3VS/C3XM3VS)

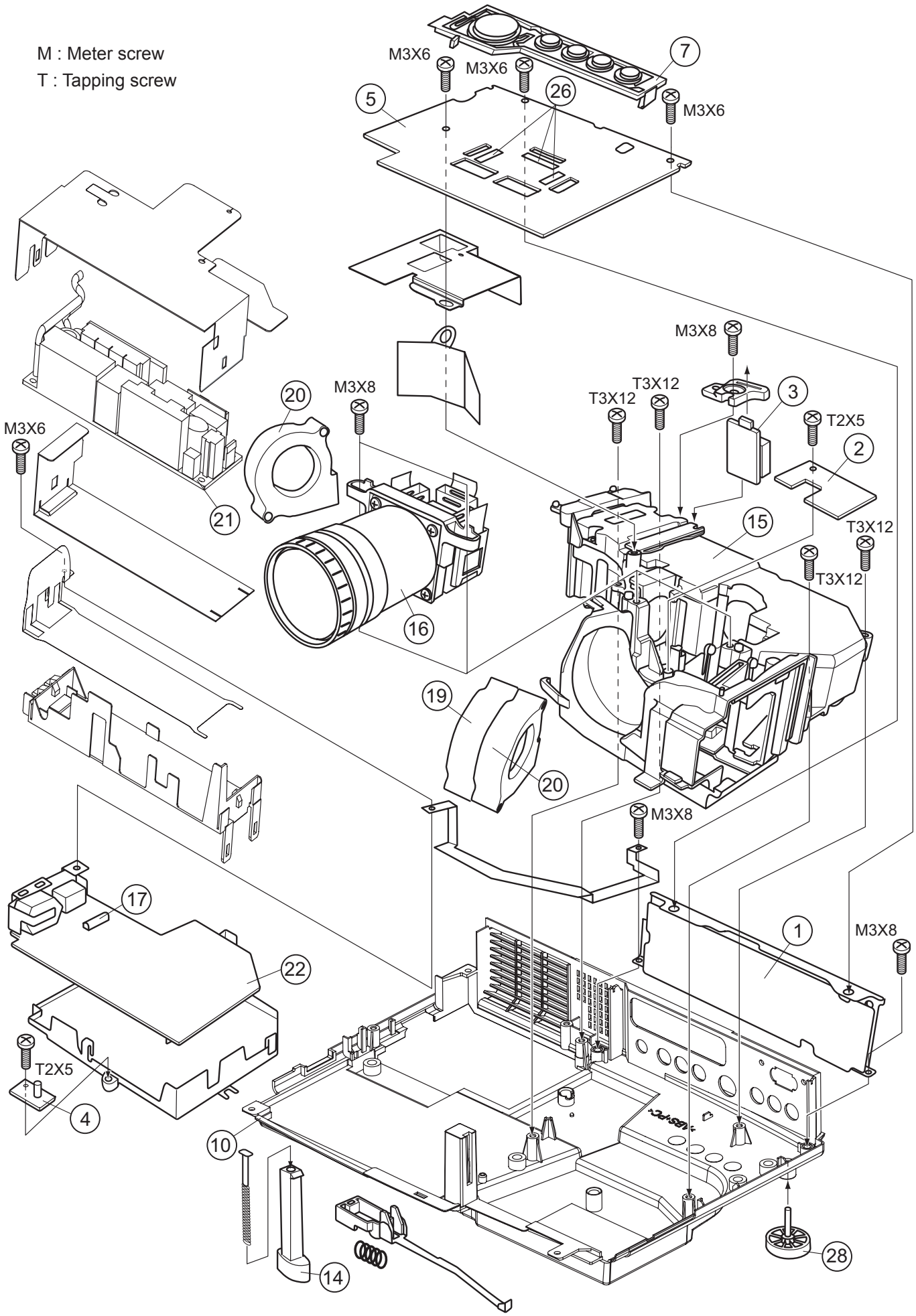

POWER UNIT (BALLAST)(C3S3VS/C3XM3VS)



POWER UNIT (CIRCUIT)(C3S3VS/C3XM3VS)

11. Disassembly/Exploded Parts Diagrams




M : Meter screw
T : Tapping screw
M3X6
M3X6
M3X6
7
26
5
M3X8
T3X12
T3X12
3
T2X5
2
M3X8
20
M3X6
21
15
T3X12
T3X12
16
19
20
M3X8
17
1
M3X8
22
T2X5
4
10
14
28

12. 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.

● PJ501

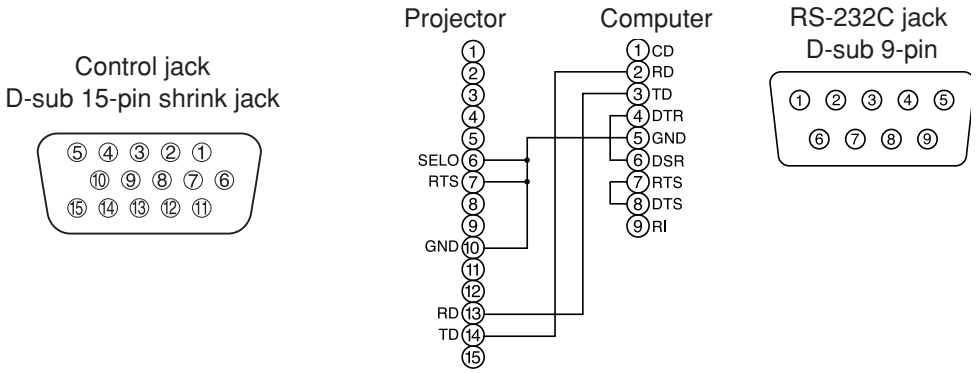
Symbol No.	VIEWSONIC P/N	PARTS NO.	DESCRIPTION	Symbol No.	VIEWSONIC P/N	PARTS NO.	DESCRIPTION
1	B-SB-0221-0377	JP04872	PWB ASSÝ INPUT	22	B-SB-0221-0375	HA00911	POWER UNIT (CIRCUIT)
2	B-SB-0221-0378	JP04873	PWB ASSÝ REMOTE CONTROL	23	E-SK-0412-0006	GK00562	SPEAKER
3	B-SB-0221-0379	JP04874	PWB ASSÝ LIMIT SWITCH	⚠ 24	M-MS-0808-5625	FH00209	TEMPERATURE SENSOR
4	B-SB-0221-0380	JP04875	PWB ASSÝ SENSOR	25	M-MS-0808-7525	QD21043	LENS CAP
5	B-SB-0221-0484	JP06162	PWB ASSÝ DRIVE	26	M-MS-0808-8364	EA01035R	CPC24 LOW CONNECTOR
6	M-FT-0827-0086	MU01461	AIR FILTER	27	M-MS-0808-7586	DT00402	LAMP UNIT ASS'Y
7	PL-BT-0706-0093	PC04817	CONTROL BUTTON ASSÝ	28	M-MS-0808-7530	QJ00791	REAR ADJUST FOOT
8	M-MS-0808-2969	PE00111	RUBBER FOOT				
9	C-FP-0301-9914	QD34005	FRONT BEZEL ASSÝ				
10	M-MS-0808-7911	QD34235	BOTTOM CASE ASSÝ	⚠	A-PC-0106-0200	EV01662	POWER SUPPLY CORD (US TYPE) W/CORE
11	M-MS-0808-7528	QD33196	UPPER CASE ASSÝ	⚠	A-PC-0106-0201	EV01672	POWER SUPPLY CORD (EUROPE TYPE) W/CORE
12	M-MS-0808-7529	QD33255	LAMP DOOR ASSÝ	⚠	A-PC-0106-0206	EV01801	POWER SUPPLY CORD (CHINA TYPE) W/CORE
13	M-CV-0830-0270	QD33274	FILTER COVER ASSÝ		M-MS-0808-6893	EW06651	COMPONENT CABLE
14	M-MS-0808-7526	QD21731	ADJUST FOOT ASSÝ		A-VC-0101-0231	EW06661	RGB-D CABLE (15 PIN MALE TO 15 PIN MALE)
15	M-MS-0808-8366	UE09213	DICHROIC OPTICS UNIT		M-MS-0808-7969	EW06031	3 CONDUCTOR VIDEO/AUDIO CABLE
16	M-MS-0808-8367	UX07583	LCD/LENS PRISM ASSÝ		A-VC-0101-0165	EW06021	S-CABLE
⚠ 17	E-FS-0410-0046	2722447	FUSE 5A		M-MS-0808-8365	HL01893	REMOTE CONTROL UNIT
⚠ 18	M-FAN-0825-0039	GS00641	DC FAN (EXHAUST)		M-MS-0808-3937	NX05741	CLEANING TOOL FOR DUST
⚠ 19	M-FAN-0825-0038	GS00414	DC FAN (INTAKE R)		M-MS-0808-6801	NX05742	COTTON STICK L70
⚠ 20	M-FAN-0825-0048	GS00418	DC FAN (INTAKE G,B)		M-MS-0808-8296	QT41271	INSTRUCTION MANUAL
⚠ 21	M-MS-0808-8270	HA01101	POWER UNIT (BALLAST)				

● PJ551

Symbol No.	VIEWSONIC P/N	PARTS NO.	DESCRIPTION	Symbol No.	VIEWSONIC P/N	PARTS NO.	DESCRIPTION
1	B-SB-0221-0399	JP05442	PWB ASSÝ INPUT	22	B-SB-0221-0375	HA00911	POWER UNIT (CIRCUIT)
2	B-SB-0221-0378	JP04873	PWB ASSÝ REMOTE CONTROL	23	E-SK-0412-0006	GK00562	SPEAKER
3	B-SB-0221-0379	JP04874	PWB ASSÝ LIMIT SWITCH	⚠ 24	M-MS-0808-5625	FH00209	TEMPERATURE SENSOR
4	B-SB-0221-0380	JP04875	PWB ASSÝ SENSOR	25	M-MS-0808-7525	QD21043	LENS CAP
5	B-SB-0221-0469	JP06172	PWB ASSÝ DRIVE	26	M-MS-0808-6891	EA01031R	CPC24 LOW CONNECTOR
6	M-FT-0827-0086	MU01461	AIR FILTER	27	M-MS-0808-7914	DT00462	LAMP UNIT ASS'Y
7	PL-BT-0706-0093	PC04817	CONTROL BUTTON ASSÝ	28	M-MS-0808-7530	QJ00791	REAR ADJUST FOOT
8	M-MS-0808-2969	PE00111	RUBBER FOOT				
9	C-FP-0301-0897	QD34006	FRONT BEZEL ASSÝ				
10	M-MS-0808-7911	QD34235	BOTTOM CASE ASSÝ	⚠	A-PC-0106-0200	EV01662	POWER SUPPLY CORD (US TYPE) W/CORE
11	M-MS-0808-7528	QD33196	UPPER CASE ASSÝ	⚠	A-PC-0106-0201	EV01672	POWER SUPPLY CORD (EUROPE TYPE) W/CORE
12	M-MS-0808-7529	QD33255	LAMP DOOR ASSÝ	⚠	A-PC-0106-0206	EV01801	POWER SUPPLY CORD (CHINA TYPE) W/CORE
13	M-CV-0830-0270	QD33274	FILTER COVER ASSÝ		M-MS-0808-6893	EW06651	COMPONENT CABLE
14	M-MS-0808-7526	QD21731	ADJUST FOOT ASSÝ		A-VC-0101-0231	EW06661	RGB-D CABLE (15 PIN MALE TO 15 PIN MALE)
15	M-MS-0808-8306	UE09217	DICHROIC OPTICS UNIT		M-MS-0808-7969	EW06031	3 CONDUCTOR VIDEO/AUDIO CABLE
16	M-MS-0808-8307	UX07587	LCD/LENS PRISM ASSÝ		A-VC-0101-0165	EW06021	S-CABLE
⚠ 17	E-FS-0410-0046	2722447	FUSE 5A		M-MS-0808-8365	HL01893	REMOTE CONTROL UNIT
⚠ 18	M-FAN-0825-0039	GS00641	DC FAN (EXHAUST)		M-MS-0808-3937	NX05741	CLEANING TOOL FOR DUST
⚠ 19	M-FAN-0825-0038	GS00414	DC FAN (INTAKE R)		M-MS-0808-6801	NX05742	COTTON STICK L70
⚠ 20	M-FAN-0825-0048	GS00418	DC FAN (INTAKE G,B)		M-MS-0808-8296	QT41271	INSTRUCTION MANUAL
⚠ 21	M-MS-0808-8270	HA01101	POWER UNIT (BALLAST)				

13. RS-232C communication Protocol

(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 in creases 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 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	CRC	Command data		
					Action	Type	Setting code
Blank Color	Set	Blue	BE EF 03 06 00	CB D3	01 00	00 30	03 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
	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
Startup	Set	Turn on	BE EF 03 06 00	0B D2	01 00	04 30	00 00
		Turn off	BE EF 03 06 00	9B D3	01 00	04 30	01 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
		日本語	BE EF 03 06 00	37 D4	01 00	05 30	08 00
		中文	BE EF 03 06 00	A7 D5	01 00	05 30	09 00
		한글	BE EF 03 06 00	57 D5	01 00	05 30	0A 00
	Get		BE EF 03 06 00	C4 D3	02 00	05 30	00 00
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

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
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
Auto Adjust	Execute		BE EF 03 06 00	91 D0	06 00	0A 20	00 00
Lamp Time Reset	Execute		BE EF 03 06 00	58 DC	06 00	30 70	00 00
Filter Time Reset	Execute		BE EF 03 06 00	98 C6	06 00	40 70	00 00
Blank on/off	Set	off	BE EF 03 06 00	FB D8	01 00	20 30	00 00
	Set	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 (Normal) 01 00 (Cover-error) 02 00 (Fan-error) 03 00 (Lamp-error) 04 00 (Temp-error) 05 00 (Air flow-error) 06 00 (Lamp-Time-over) 07 00 (Cool-error) 08 00 (Filter-Error)				
Power	Set	OFF	BE EF 03 06 00	2A D3	01 00	00 60	00 00
	Set	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	RGB	BE EF 03 06 00	FE D2	01 00	00 20	00 00
	Set	Video	BE EF 03 06 00	6E D3	01 00	00 20	01 00
	Set	SVideo	BE EF 03 06 00	9E D3	01 00	00 20	02 00
	Set	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
Mute	Set	Normal	BE EF 03 06 00	46 D3	01 00	02 20	00 00
	Set	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

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
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
Aspect	Set	4:3	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
Picture 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
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

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
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
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
Lamp Time	Get		BE EF 03 06 00	C2 FF	02 00	90 10	00 00
Filter Time	Get		BE EF 03 06 00	C2 F0	02 00	A0 10	00 00