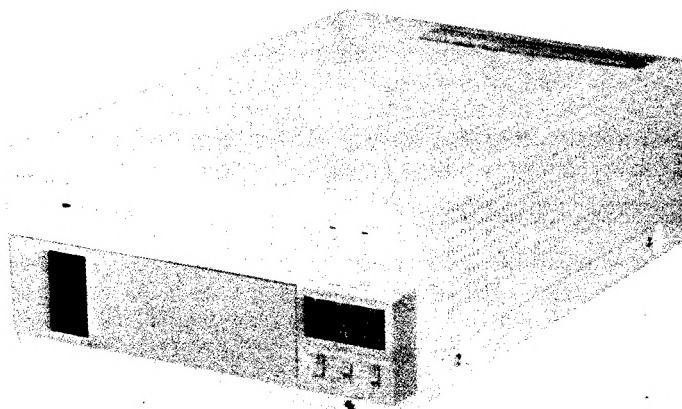


MITSUBISHI

Service Manual

MARCH 1991

VIDEO COPY PROCESSOR



MODEL P68E

CAUTION

Before servicing this product, it is important that the serviceman reads the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" in this service manual.

SPECIFICATIONS

• Power Input	AC 220V/240V 50Hz	• Resolution	Composite Video Signal Input Field mode 640 dots×289 lines Frame mode 640 dots×512 lines
• Power Consumption	110W (MAX)	• Cabinet Dimensions	250mm(W)×125mm(H)×374mm(D) 9-27/32"(W)×4-15/16"(H)×14-23/32"(D)
• Composite Video Signal Input	1Vp-p	• Weight	7.0kg (15.4lbs)
• RGB TTL Signal Input	TTL level	FEATURES	
• Parallel Data Interface	TTL level	• Positive/Negative print selection	
• Print size	100mm×75mm (3-15/60"×2-15/16")	• Direction Selector	
• Print speed	11 sec/picture	• Selectable contrast	
• Gray scale	High grade 64 tones	• Wired remote control	
• Synchronization	Horizontal: 15kHz~35kHz (Automatically) Vertical: 45Hz~75Hz (Automatically)	• Automatic tracking of wide range horizontal and vertical scanning frequencies.	
		• Auto cutter	

 **MITSUBISHI ELECTRIC CORPORATION**

SAFETY PRECAUTIONS

NOTICE. Observe all cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.

LEAKAGE CURRENT CHECK

Before returning the receiver to the customer, it is recommended that leakage current be measured according to the following methods.

Cold Check

With the AC plug removed from the Power source, place a jumper across the two AC plug prongs. Turn the receiver AC switch on. Using an ohm-meter, connect one lead to the jumped AC plug and touch the other lead to each exposed metal part (antennas, handle bracket, metal cabinet, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistance reading of 1 megohm. Any resistance below this value indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

PRODUCT SAFETY NOTICE

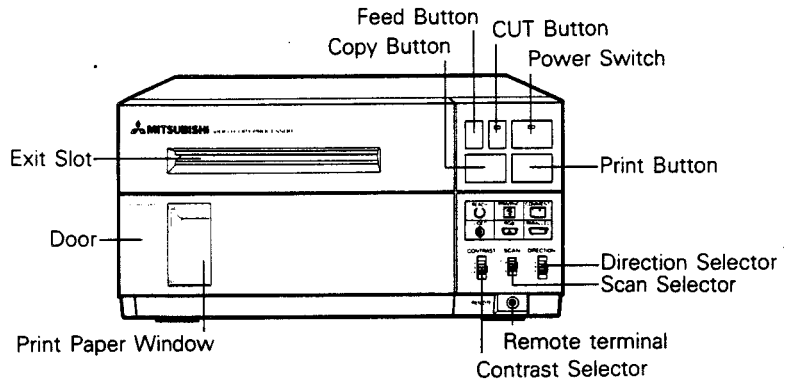
Many electrical and mechanical parts in video copy processor have special safety related characteristics.

These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.

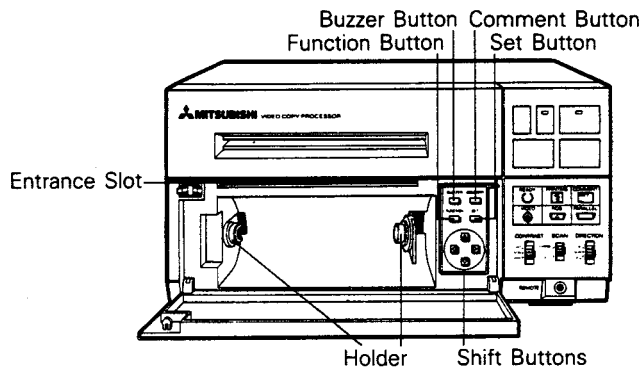
Replacement parts which have these special safety characteristics are identified in this service manual.

Electrical components having such features are identified by shading on the schematic diagram and the parts list of this service manual and by marking on the supplementary sheet for this chassis to be issued subsequently. Therefore replacements for any safety parts should be identical in value and characteristics.

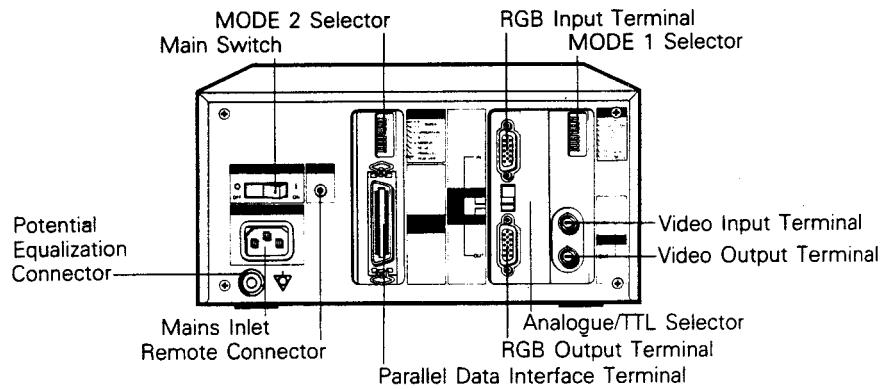
FRONT PANEL CONTROLS



INSIDE PANEL CONTROLS



REAR PANEL TERMINOLOGY



SPECIFICATIONS FOR INPUT SIGNALS

1. COMPOSITE VIDEO SIGNAL

STANDARD (PAL/SECAM/NTSC) COMPOSITE VIDEO SIGNAL

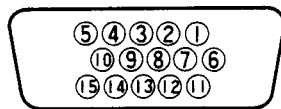
- 1) Input Level 1V p-p (input terminal)
- 2) Input Impedance 75Ω
- 3) Connector BNC type

2. RGB TTL/ANALOG SIGNAL

R.G.B.I HD · VD SEPARATE VIDEO SIGNAL

- 1) Input Level ANALOGUE 0.7 Vp-p/TTL
- 2) Input Impedance ANALOGUE-VIDEO 75Ω TTL-VIDEO 470Ω SYNC. 1kΩ
- 3) Connector D-SUB Mini 15 Pin

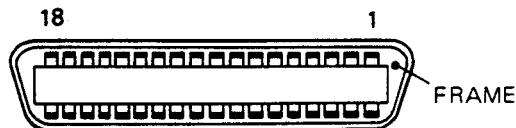
RGB IN RGB OUT



Pin #	ANALOGUE (IBM® PS/2, APPLE® Mac II or other Analogue PCs)	TTL			
		M1: OFF M2: ON (EGA)	M1: OFF M2: ON (CGA)	M1, M2: OFF (MDA)	M1, M2: ON (None of LEFT)
1	R Video	-			
2	G Video (Sync on G available)				
3	B Video				
4	reserved	B	B		B
5	reserved	r			
6	GND (R)				
7	GND (G)				
8	GND (B)				
9	GND (Sync)	GND	GND		
10	GND (Sync)	g		Video	
11	reserved	G	G		G
12	reserved	R	R		R
13	HS/CS/Hs/Cs	Hs	Hs	Hs/Hs	Hs/Hs
14	VS/Vs	Vs	Vs	Vs/Vs	Vs/Vs
15	reserved	b	I	Intensity	I

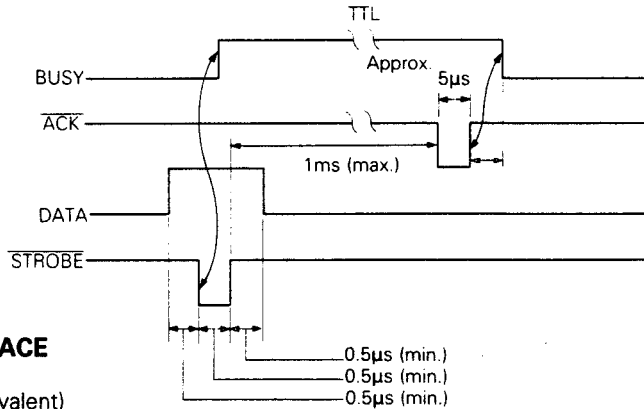
3. PARALLEL DATA SIGNAL (According to CENTRONICS® Interface)

- 1) • Input Level: TTL
- Connector: JD-36SL or equivalent



- Mode Types:
 - Character Mode
 - Line Scan Graphic Mode
 - 16-Gradation Dot Graphic Mode
 - 2-Gradation Dot Graphic Mode

4. PARALLEL INTERFACE TIMING



STANDARD PARALLEL INTERFACE

- ① Input Connector
Plug 57-30360 (AMPHENOL Equivalent)
- ② Input Connector Signal Assignment

Pin No.	Pin No. Return Side	Signal	Signal Source	Function
①	19	STROBE	Computer	Strobe pulse for the data reading. Pulse width: over $0.5\mu\text{s}$ Normal "High" Data Reading "Low"
② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	20 21 22 23 24 25 26 27	DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7 DATA 8	Computer Computer Computer Computer Computer Computer Computer Computer	Each signal indicates the information of the parallel data from 1 bit till 8 bit. High – Data 1 Low – Data 0
⑩	28	ACK	Video Copy Processor	Low indicates that the printer received the data and is ready to receive the next data.
⑪	29	BUSY	Video Copy Processor	High signifies that the Video Copy Processor can not accept the data. Low indicates that the Video Copy Processor can accept the data. In the next case, this signal will be changed to High. 1 While the data is entered. 2 While printing is on. 3 While paper is being fed. 4 PE is "HIGH" condition or "SELECT" is "LOW" condition. 5 While ERROR is "LOW" condition.
⑫		P · E	"	Paper supply Low: available High: Not available
⑬		SELECT	Video Copy Processor	It's possible to "SELECT" or "DESELECT" with DC1/DC3 controls. It's "SELECT" condition at "HIGH".
⑭, ⑮		NC		Unused
⑯, ⑰		GND		GND
⑱		NC		Unused
⑲~⑳		GND		GND level signal for Twist Pair Return.
㉑		NC		Unused
㉒		ERROR	Video Copy Processor	"LOW": when the Video Copy Processor is at "ERROR" due to the following: <1> No-paper conditions <2> Off-line conditions <3> Over-heat or humidity accumulation on the Thermal-Head. <4> "PAPER JAMMED" conditions
㉓		GND		GND level signal for Twist Pair Return.
㉔~㉕		NC		Unused

7. MODE SWITCH FUNCTIONS

1. MODE 1

BIT	ABB.	FUNCTION
8	FIL/THRU	TRAP FILTER/THRU selector
7	TRAP/LPF	FILTER selector
6	PAL/NTSC	PAL/NTSC signal selector
5	TV/NOR	SYNCHRO CIRCUIT selector
4	—	Unused
3	—	Unused
2	M ₁ RGB MODE	MANUAL/AUTO selector
1	M ₂ RGB MODE	COLOUR/MONO selector

SWITCHES FUNCTIONS

① M₂ ② M₁

- The input mode setting of the RGB/TTL analog signal can be made by setting bits ① and ②.
- Set the specifications of the signal fed from the connected device as in the table hereunder.

Computer/Graphic board	ANALOG/TTL selector	M ₂	M ₁
IBM® Monochrome Display/Adapter	TTL	OFF	OFF
IBM® EGA/CGA	TTL	OFF	ON
IBM® MCGA/VGA (PS/2)	ANALOG	OFF	OFF
IBM PGC or Apple® MACII	ANALOG	ON	—
None of above	Confirm the signal type and select ANALOG or TTL	—	—

⑤ MODE SWITCH FUNCTIONS

Set the Synchro circuit mode selection to "NOR" position for normal use. If the electric signal is weak or noise is significant, set it to "TV" position. When VTR is to be used, set it to "TV".

MODE	FUNCTION
NOR	fH: 15 ~ 35kHz fV: 45 ~ 80Hz
TV	fH: 15.75kHz (vicinity only) Conformable to withstand noise, weak broadcasting, and VTR signals.

⑥ PAL/NTSC

Select PAL or NTSC, in accordance with the input signal.

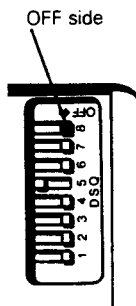
7 TRAP/COMB 8 FIL/THRU

A filter can be selected via the settings of bits. **6**, **7** and **8**.

MODE 1 SWITCH FUNCTION			SELECTION
8	7	6	
THRU	—	—	Filter will not act.
FIL	LPF	—	Low PASS-Filter
FIL	TRAP	PAL	PAL (4.43MHz) TRAP ON
FIL	TRAP	NTSC	NTSC (3.58MHz) TRAP ON

- However, if "DIRECT ON" has been selected at the menu of STEP 1, this setting will be rendered ineffective, and the filter cannot be used.

2. MODE 2



8	7	6	5	4	3	2	1	
P ₁	P ₂	GRADATION	AUTO CUT	MIRROR	NEGA	PARALLEL	RGB/VIDEO	Paper selection
PAPER	PAPER	Gradation ON/OFF	Automatic cutting ON/OFF	Mirror printing ON/OFF	Negative/Positive printing selection	Parallel Input/Composite Video, RGB selection	Composite Video, RGB input selection	

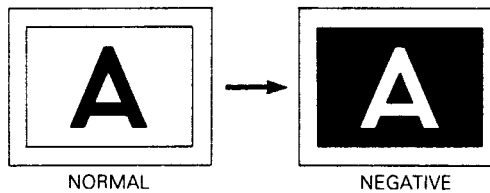
SWITCHES FUNCTIONS

1 RGB/VIDEO 2 PARALLEL

- The input signal, whether Composite Video, RGB Analog or Parallel Data Interphase, is determined by setting Bits **1** and **2**.

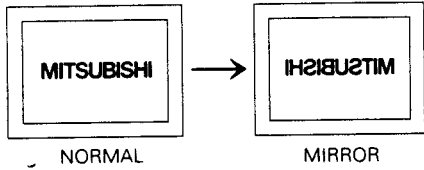
INPUT SIGNAL	1	2
RGB (TTL ANALOG)	RGB side (ON)	PARALLEL OFF side
Composite video	VIDEO side (OFF)	PARALLEL OFF side
Parallel	—	PARALLEL ON side

3 NEGA



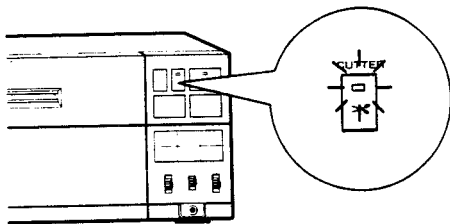
- If it is set at ON position, black/white print-out in reverse to the picture displayed can be made.
- Keep it set at OFF position to carry out normal picture print outs.

4 MIRROR



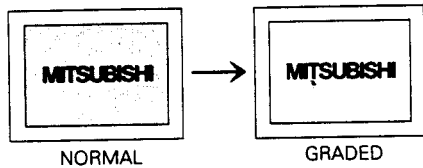
- In the ON position mirror image print outs can be made as in the left hand figure.
- Keep it set at OFF position to carry out normal picture print-outs.

5 AUTO CUT

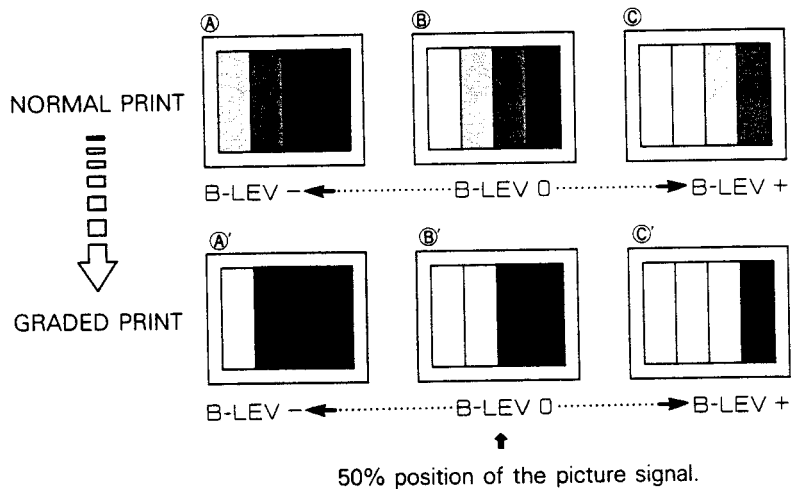


- If it is kept set at ON, the paper will be cut after printing has ended. When it is set at ON, the front panel's green CUT button lights.
- If it is kept OFF, automatic cutting will not be possible. To cut the thermo paper, press CUT button located on the front panel.

6 GRADATION



- If it is kept set at ON, graded print-out (back/white with no mid-tones) can be made.
- For normal print-outs, keep it set at OFF position.
- For composite video and RGB analog signals, if the B-LEV digital values are changed, it would be possible to change the gradation standard level.



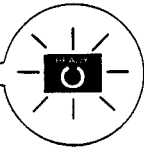
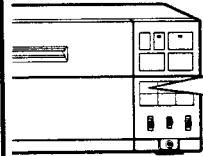
- For RGB (TTL), black level will be defined when the input G signal is at H (high) and the WHITE level is at L (low).

7 P₂ 8 P₁ PAPER

- Set in accordance with the type of registration paper being used.

SWITCH		TYPE OF PAPER
P1	P2	
OFF	OFF	K-61S
ON	OFF	K-60N
ON	ON	K-65H/K-65HM

SYMPTOM 1. IN CASE OF CONDENSATION

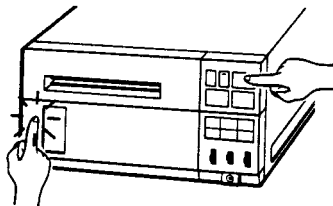


- If the buzzer sounds and the READY indicator blinks after the PRINT or COPY button is pressed, the paper is jammed. In this case, stop pressing PRINT, COPY or FEED button, and follow the procedures.

A. OVERCOMING PAPER JAM PROCEDURES

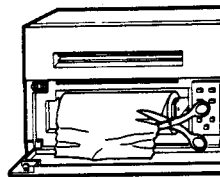
- IF THE PAPER IS JAMMED, FOLLOW THE PROCEDURES HEREUNDER TO REMOVE THE PAPER.

1 TURN OFF THE POWER OPEN THE DOOR



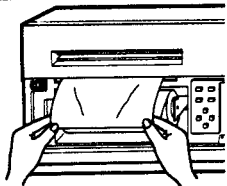
- ① Press the POWER button.
- ② Press on the upper left part of the panel. The door will open.

3 CUT THE PAPER



- Cut off the damaged portion of the paper.

2 REMOVE THE PAPER



- Pull or remove the thermal paper in a straight direction from the paper roll insertion inlet side.
- At that time, if the power source has not been turned off, AUTO-LOADING process will be activated and the paper will be pulled back.

4 RE-FIT THE PAPER

After completing the above steps, reset the paper in accordance with the instructions of "HOW TO INSTALL THE PAPER" on pages 11~12.

B. CAUSES OF PAPER JAMS

- **Note the elements stated hereunder can easily produce paper jammings.**
 - ① If the paper is pulled out or pressed during the printing or copying process.
 - ② If the paper has been inserted in an oblique direction.
 - ③ If wrinkled or pleated paper has been inserted.

HOW TO INSTALL THE PAPER

One roll of thermal paper is provided in the carton box.

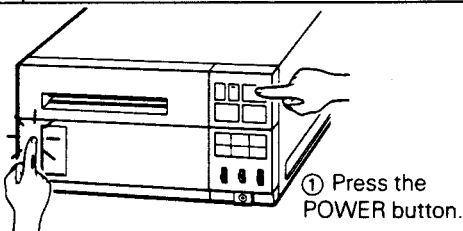
The thermal-head should be cleaned with the cleaning-sheet once for every 10 rolls

Humidity, finger print, dust, etc. on the high density paper may deteriorate the printing quality or cause a noise at printing.

- Ⓐ Take care not to expose high density paper to finger print, dust, humidity, etc.
- Ⓑ A finger print, or dust, adheres to the high density paper surface when the paper is loaded. So load the paper as follows.

TURN ON THE MAIN SWITCH AT THE REAR PANEL

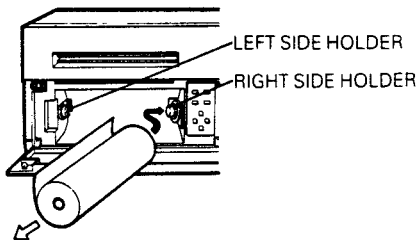
1 TURN THE POWER SOURCE ON AND OPEN THE DOOR



① Press the POWER button.

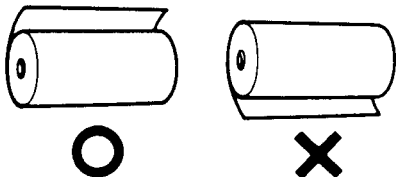
② Press on the upper left part of the panel. The door will open.

2 SET THE PAPER

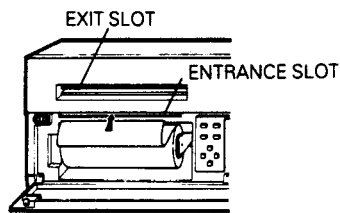


- ① Insert the roll of the paper onto the right side holder.
- ② As you push the roll to the right, fit the other side of the roll onto the left holder. Insert the other side of the roll onto the left side holder pushing the roller to the right.

Note: The print side of the paper is rolled to the outside. Make sure the paper is installed as shown in the figure.

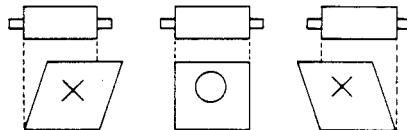


3 INSERT THE PAPER



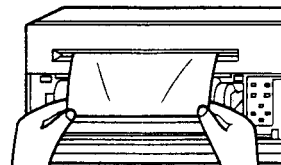
① Insert the end of the paper into the ENTRANCE SLOT.

② Upon inserting the paper, the paper will advance automatically. In case the paper does not advance automatically, press the feed button to insert the paper.



③ When the paper is obliquely ejected from the paper exit, adjust so that the paper is parallel at the paper inlet and exit.

4 DRAW OUT THE PAPER

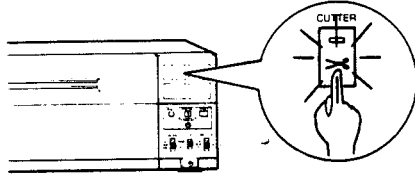


① Draw out the end of the paper (approx. 30cm) by hand from the EXIT SLOT and then close the FRONT DOOR.

Note: Draw out the paper by hand without pressing the FEED button.

5

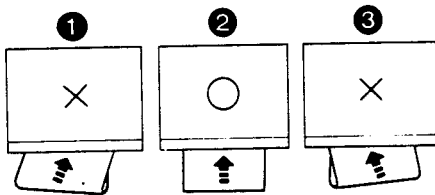
CUT THE PAPER



- Cut the paper by pressing the CUTTER button on the front panel. When the cut button is turned on, the ready lamp lights and printing and copying is possible.
- Automatic paper cutting is also possible.

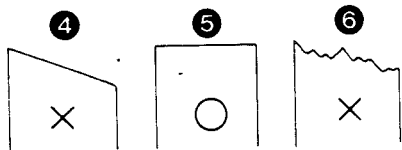
CAUTIONS ON INSERTING PAPER

- KEEP THE FOLLOWING POINTS IN MIND TO PREVENT THE PAPER BEING JAMMED ON INSERTION.



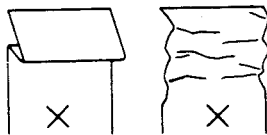
A. INSERT IN A STRAIGHT LINE

- When paper is inserted into the entrance slot the paper (as shown in 2 of the left figure) should be parallel with the sides of the unit. Inserting the paper obliquely as shown in the figures 1 · 3 may cause jamming.



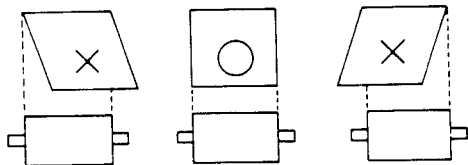
B. TIP END SHOULD BE AT RIGHT ANGLES TO THE SIDES

- The print paper should be cut square to the direction of paper feed as shown in the figure 5. Paper jamming may occur easily when the tip end is oblique or irregular - as shown in the figure 4 or 6.



C. AVOID USING WRINKLED OR PLEATED PAPER

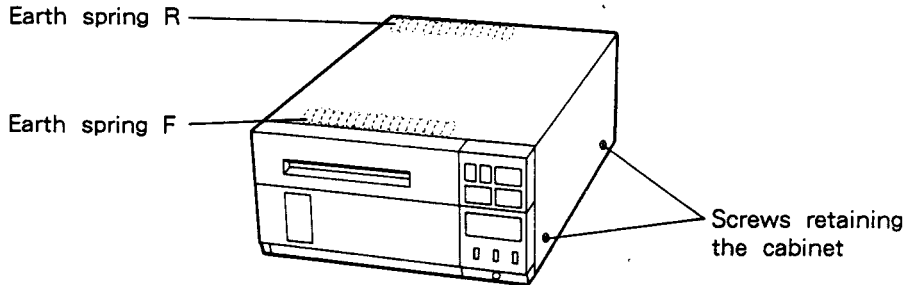
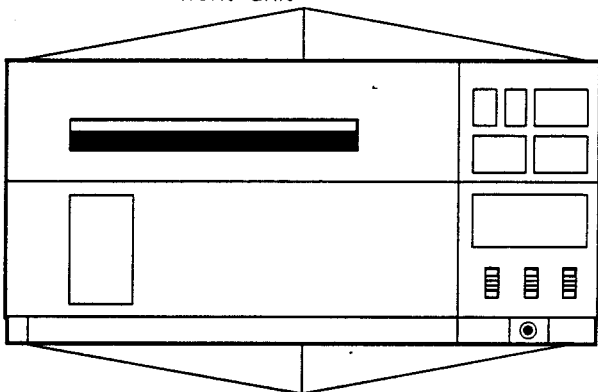
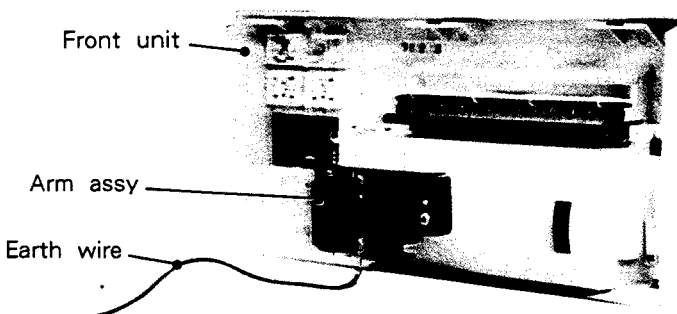
- Do not insert pleated, wrinkled, or soiled paper.



D. CHECK TO SEE IF THE PAPER IS PARALLEL

- Printing while the paper is not parallel with the roller may cause the paper edge to touch the wall, thus resulting in wrinkled paper.

DISASSEMBLY PROCEDURE

<p>Removal of Cabinet</p>	<ol style="list-style-type: none"> 1. Remove 4 screws (2 on each side) securing the cabinet.(Fig. 1-1) 2. Slide the cabinet slightly backward and remove it. (Note) Be careful not to hit against the earth spring F (Front) and R (Rear).  <p style="text-align: center;">Fig. 1-1</p>
<p>Remove of Front unit</p>	<ol style="list-style-type: none"> 1. Remove the cabinet. (Fig. 1-1) 2. Remove screws retaining the front unit. (Fig. 1-2) 3. Remove 3 snaps on the upper side and remove the front unit to your side. 4. Disconnect the earth wire connected to the arm assy in back of the front unit. (Fig. 1-3) 5. For re-assembly, reverse the procedure.  <p style="text-align: center;">Fig. 1-2</p>  <p style="text-align: center;">Fig. 1-3</p>

**PCB: VIDEO
RGB
RAM
CPU
MOTHER**

**Removal of
PCB unit
(video PCB)
(RGB PCB)
(RAM PCB)
(CPU PCB)
(mother PCB)**

1. As shown in Fig. 1-4, remove 4 screws retaining the PCB unit.
2. Raise the PCB unit from the chassis.
3. To inspect the rear side (foil side) of the mother PCB, remove 2 screws retaining the mother PCB, and 8 screws retaining the connectors.

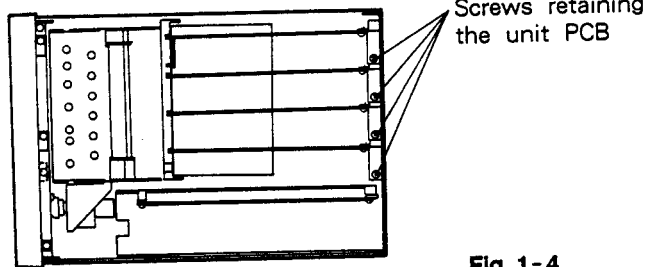


Fig. 1-4

**Remove of
Switch PCB**

1. Remove the cabinet.(Fig. 1-1)
2. Remove the front unit .(Fig. 1-2)
3. Remove screws retaining the switch PCB.(Fig. 1-5)
4. Disconnect the connectors [RJ] and [SW] connected to the switch PCB.
5. When re-assembling, reverse the procedure.

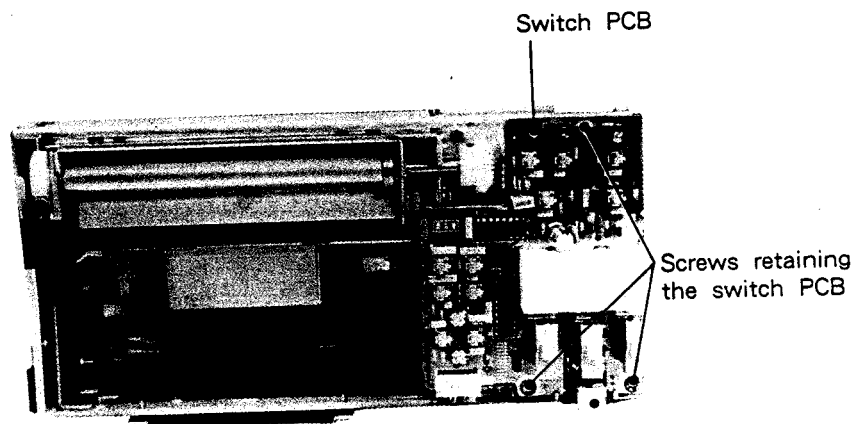


Fig. 1-5

Removal of power unit

1. Remove 4 screws retaining the step-motor-bracket .(Fig. 1-6)

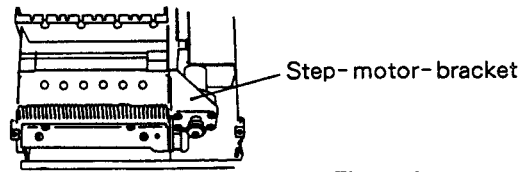


Fig. 1-6

2. Remove 4 screws retaining the rear panel (Fig.1-7), and 2 screws retaining the power unit.(Fig.1-8)

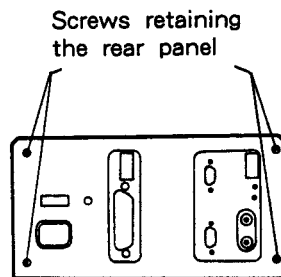


Fig. 1-7

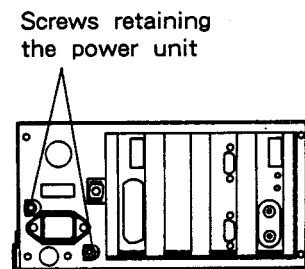
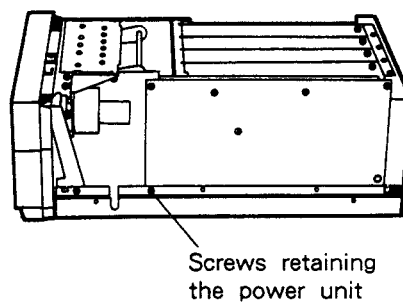


Fig. 1-8

3. Unscrew one right screw retaining the power unit.(Fig. 1-9) Raise and turn the power unit to remove the unit from the chassis.



DISASSEMBLY PROCEDURE(PRINTER UNIT)

Removal of Cabinet

1. Remove 4 screws (2 on each side) securing the cabinet.(Fig. 2-1)
2. Slide the cabinet slightly backward and remove it.
(Note) Be careful not to hit against the earth spring F (Front) and R (Rear).

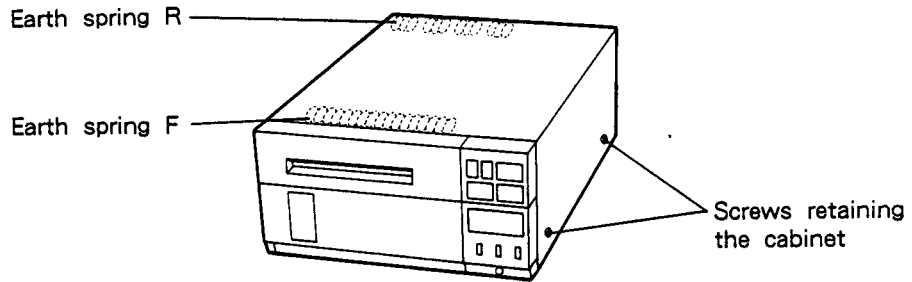
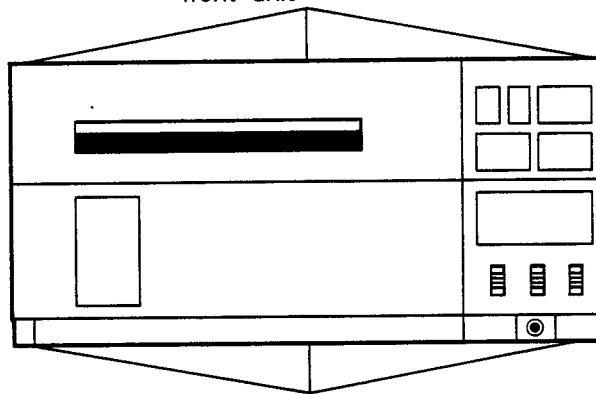


Fig. 2-1

Remove of Front unit

1. Remove the cabinet. (Fig. 2-1)
2. Remove screws retaining the front unit. (Fig. 2-2)
3. Remove 3 snaps on the upper side and remove the front unit to your side.
4. Disconnect the earth wire connected to the arm assy in back of the front unit. (Fig. 2-3)
5. For re-assembly, reverse the procedure.

Screws retaining the front unit



Screws retaining the front unit

Fig. 2-2

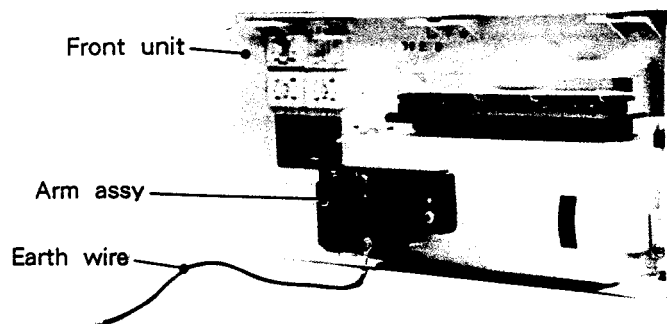


Fig. 2-3

**Removal of
Switch PCB**

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove screws retaining the switch PCB. (Fig. 2-4)
4. Disconnect the connectors **RJ** and **SW** connected to the switch PCB.
5. When re-assembling, reverse the procedure.

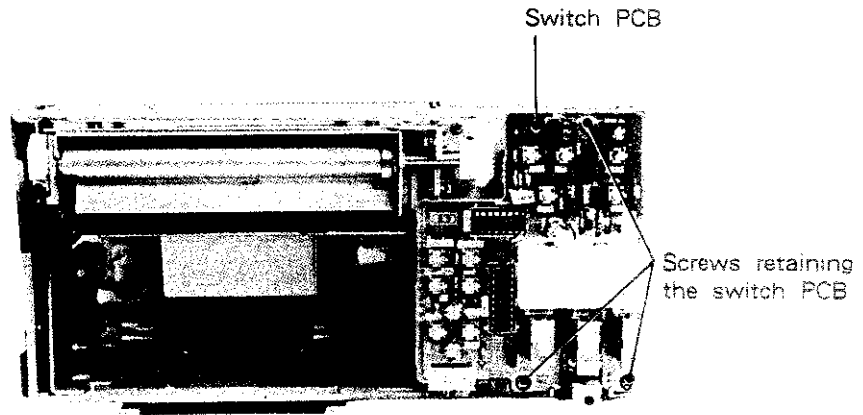


Fig. 2-4

**Removal of
Printer assembly**

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Disconnect the connectors **M1**, **M2**, **M3**, **MS** connected to CPU PCB.
5. Disconnect the connector **PH** connected to power PCB.
6. Disconnect the connectors **RM** and **RN** connected to RAM PCB.
7. Remove the front bracket and stay. (Fig. 2-5)
8. Remove the clamber **FM**. (Fig. 2-5)
9. Remove screws retaining the printer unit (Fig. 2-5)

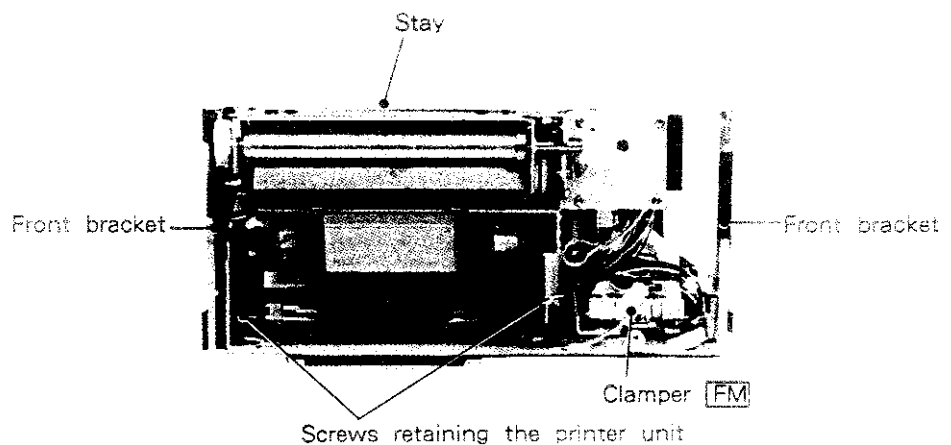


Fig. 2-5

**Removal of
Printer assy**

10. Remove screws retaining the printer base. (Fig. 2-6)
11. Slide the printer assy to your side and remove it.
12. When re-assembling, reverse the procedure.

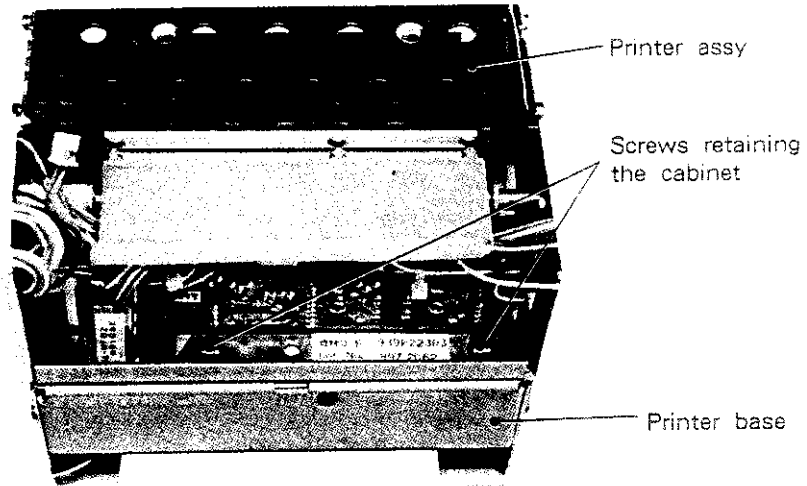


Fig. 2-6

**Removal of
Cutter unit**

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove the connector **CS** connected to the sensor PCB inside the printer assembly.
6. Remove 5 screws (2 on front, 3 on right side) retaining the cutter unit (Fig. 2-7)
7. When re-assembling, reverse the procedure.

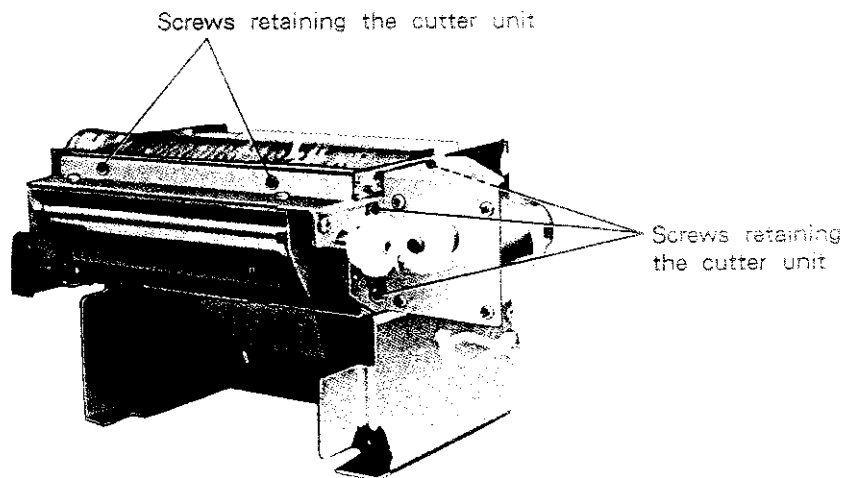


Fig. 2-7

Removal of Fan motor

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove screws retaining the fan motor. (Fig. 2-8)
6. For re-assembly, reverse the procedure.

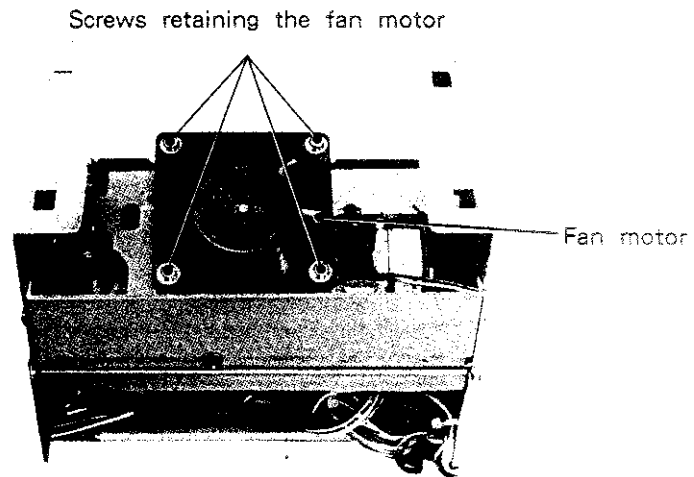


Fig. 2- 8

Replacement of Thermal head

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove the cutter unit. (Fig. 2-7)
6. Remove screws retaining the cover. (Fig. 2-9)
- (Note) Be careful as the H spring is pushing up the cover.
7. Remove the heat-sink. (Fig. 2-9)

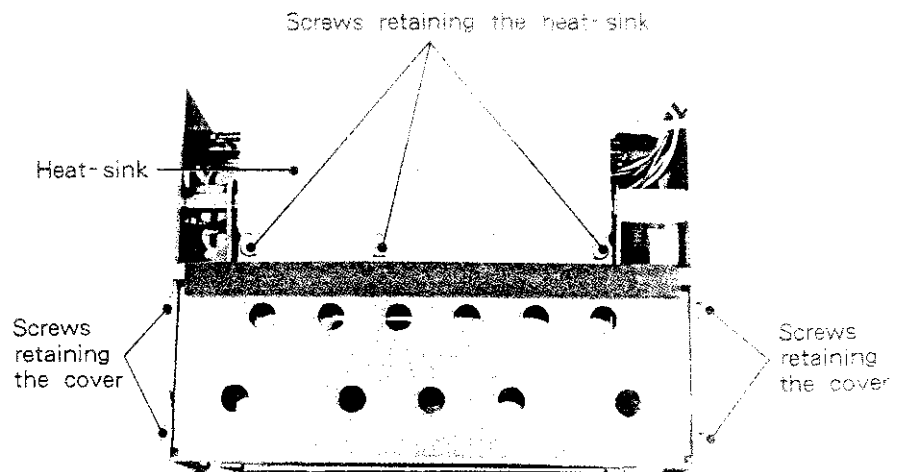


Fig. 2- 9

Replacement of Thermal head

8. Disconnect the connectors connected to the thermal head.
9. Hold up the thermal head and remove screws retaining the thermal head. (Fig. 2-10)
(Note) Be careful not to touch or damage the heat generating part of the thermal head. (Fig. 2-11)

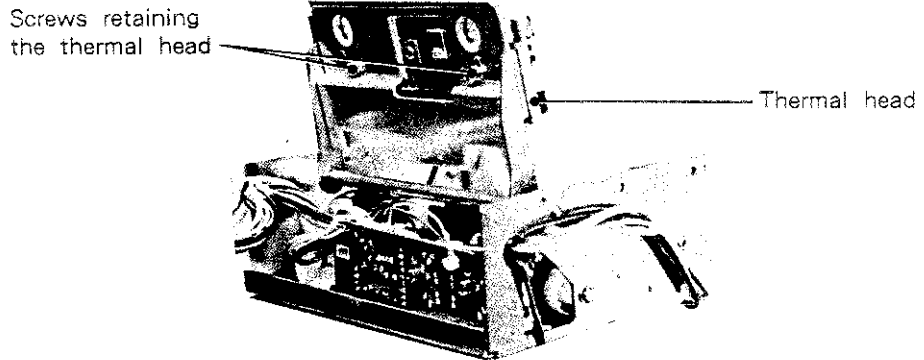


Fig. 2-10

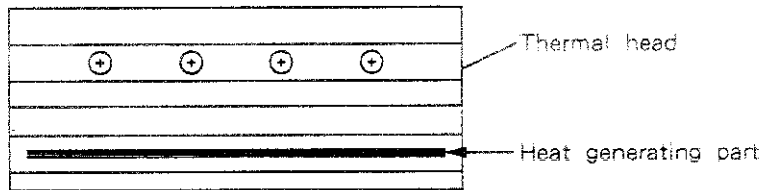


Fig. 2-11

10. For re-assembly, reverse the procedure.
(Note)
 - Before fixing the thermal head with screws, insert the gauge bar (549D133010) in 2 holes and after confirming that the gauge bar can be drawn out, tighten the screws. (Fig. 2-12)

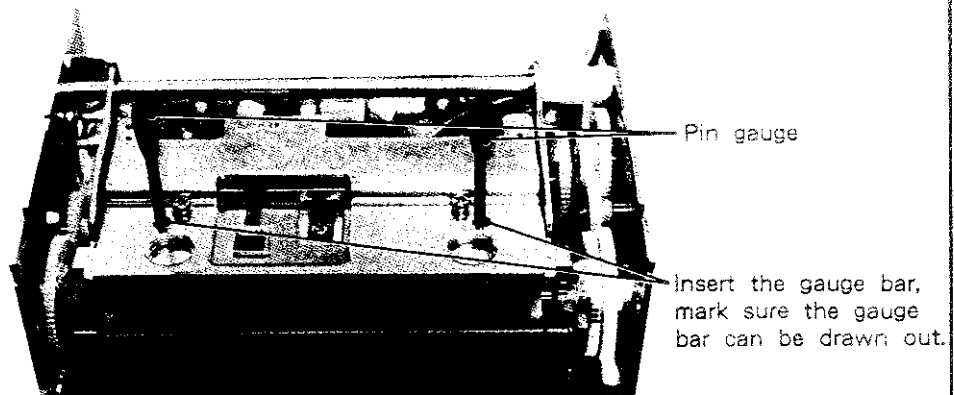
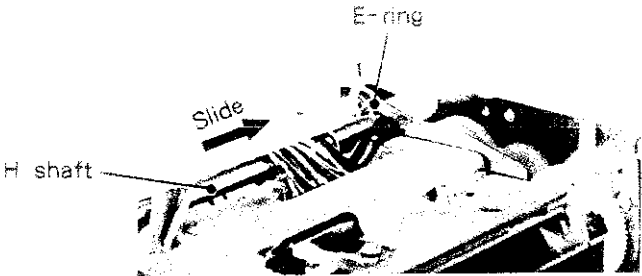


Fig. 2-12

Replacement of Thermal head	<ul style="list-style-type: none"> ● Be sure to connect the connectors to be connected to the thermal head. Otherwise, trouble of the thermal head may be caused. * After completing the assembly, be sure to perform "Adjustment of Head Voltage" in Page 38 and check for normal printing.
Removal of the Head bracket	<ol style="list-style-type: none"> 1. Remove the cabinet. (Fig. 2-1) 2. Remove the front unit. (Fig. 2-2) 3. Remove the switch PCB. (Fig. 2-4) 4. Remove the printer unit. (Fig. 2-5) 5. Remove the cutter unit. (Fig. 2-7) 6. Remove screws retaining the cover. (Fig. 2-9) (Note) Be careful as the H spring is holding up the cover. 7. Remove the heat-sink. (Fig. 2-9) 8. Disconnect the connectors connected to the thermal head. 9. Remove the E-ring attaching the H shaft. (Fig. 2-13) 10. Slide the H shaft rightward and remove it. (Fig. 2-13) 11. For re-assembly, reverse the procedure. <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center;">Fig. 2-13</p>
Replacement of Platen roller	<ol style="list-style-type: none"> 1. Remove the cabinet. (Fig. 2-1) 2. Remove the front unit. (Fig. 2-2) 3. Remove the switch PCB. (Fig. 2-4) 4. Remove the printer unit. (Fig. 2-5) 5. Remove the cutter unit. (Fig. 2-7) 6. Remove screws retaining the cover. (Fig. 2-9) (Note) Be careful as the H spring is holding up the cover. 7. Remove the heat-sink. (Fig. 2-9) 8. Disconnect the connectors connected to the thermal head.

Replacement of Platen roller

9. Remove the head bracket.
10. Remove the E-rings (both sides) retaining the platen roller. (Fig. 2-14)
11. Remove the bushings (both sides). (Fig. 2-14)
12. Remove the cam (L), cam (R) and the A-gear. (Fig. 2-14)
13. Remove the guide sub. (Fig. 2-14)

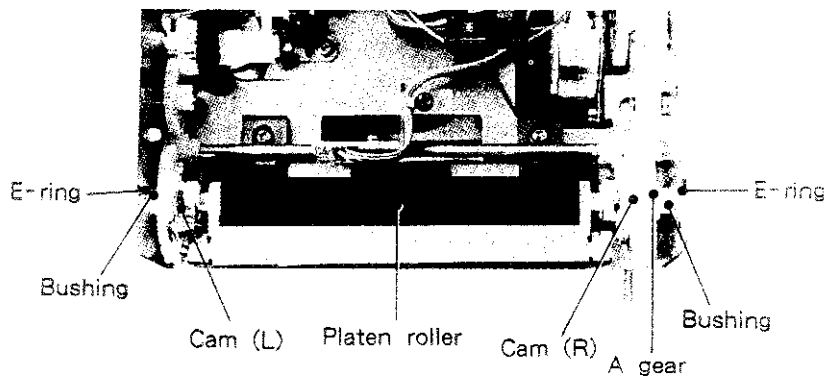


Fig. 2-14

14. For re-assembly, reverse the procedure.
(Note)
 - a. Be careful with the direction of guide sub when attaching. (Fig. 2-15)
 - b. Be careful not to mistake the cam (L) and cam (R).
 - c. Use the jig for positioning the platen sensor when assembling. (P. 25)

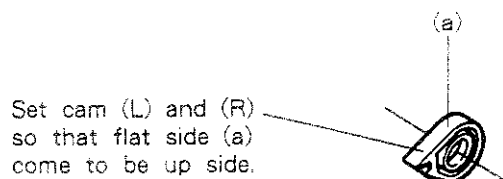


Fig. 2-15

Removal of Paper guide assy

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove the cutter unit. (Fig. 2-7)
6. Remove the head bracket. (Fig. 2-13)
7. Remove the platen roller. (Fig. 2-14)
8. Remove screws retaining the paper guide assy. (Fig. 2-16)
9. Slide the paper guide assy to front side and remove it.
10. For re-assembly, reverse the procedure.

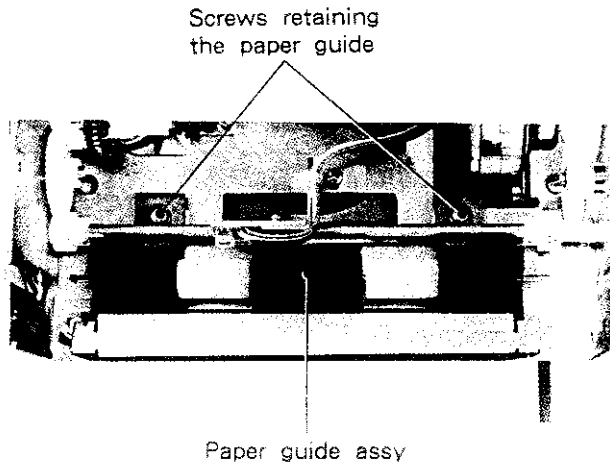


Fig. 2-16

Replacement of Step motor

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove the printer base. (Fig. 2-6)
6. Remove screws retaining the step motor. (Fig. 2-17)

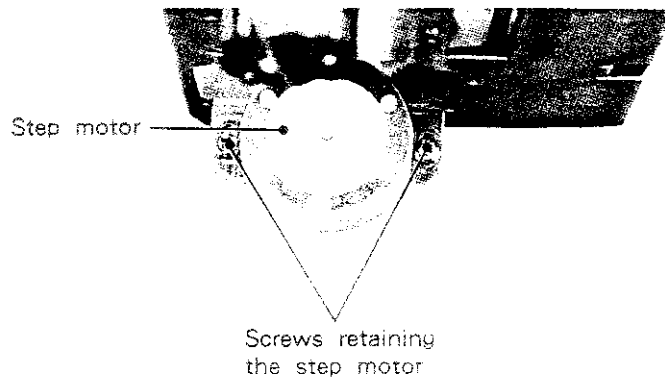


Fig. 2-17

Replacement of Step motor

7. For re-assembly, reverse the procedure.
 (Note) How to attach the step motor.
 Insert heat-sensitive paper (synthetic paper) folded into two between the pinion gear and the D gear of the step motor and tighten the motor with screws.(Fig. 2-18)
 Remove the heat-sensitive paper (synthetic paper),turn the pinion gear of the step motor manually and confirm that the D gear also turns.

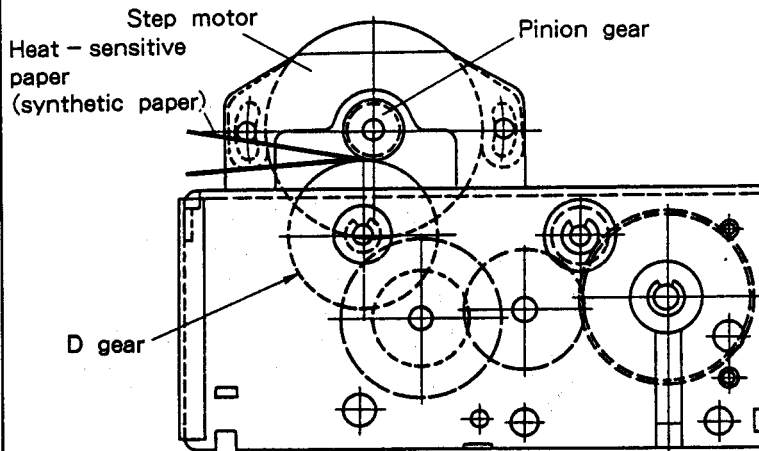


Fig. 2 - 18

Replacement of Loading motor

1. Remove the cabinet. (Fig. 2-1)
2. Remove the front unit. (Fig. 2-2)
3. Remove the switch PCB. (Fig. 2-4)
4. Remove the printer unit. (Fig. 2-5)
5. Remove the printer base. (Fig. 2-6)
6. Loosen screws retaining the thrust and separate it from the auxiliary shaft. (Fig.2-19)

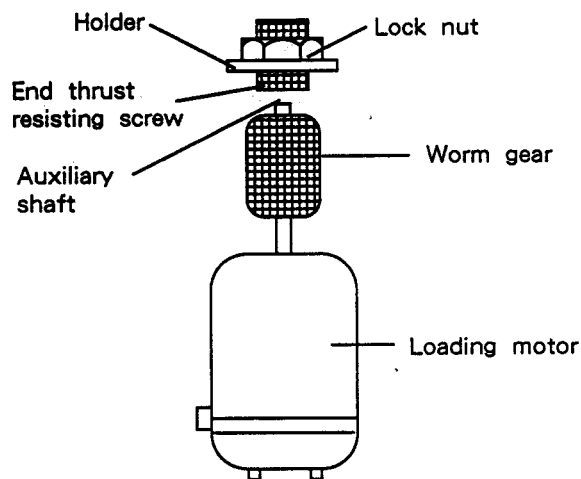


Fig. 2 - 19

Replacement of Loading motor

7. Remove screws retaining the loading motor.
8. For re-assembly, reverse the procedure.

(Note)

How to retain the loading motor.

- a. Loosen the end thrust resisting screw, and then fit the loading motor so that the end of its shaft touches the thrust resisting screw.
- b. Turn the thrust resisting screw until the screw softly contacts the auxiliary shaft and turn it in the opposite direction from that point by 90°.
- c. Tighten the nut with the dented part placed down so that the thrust resisting screw does not move.
- d. Apply screw lock compound as shown in Fig. 2-20 to the holder and both screw threads.
- e. Use the platen, sensor positioning jig and check if the position of the platen sensor is correct. (Refer to the positioning of platen and sensor.)

※Use of the SCREW LOCK (1401B) for VCR.

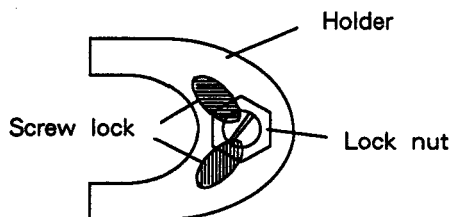


Fig. 2-20

Positioning of Platen sensor

When platen roller, cam (L, R) etc. are replaced or printer mechanism is disassembled for servicing, re-assemble correctly using "platen-sensor positioning jig" (Parts No. : 859C425090).

1. Insert the platen roller, cam (L) and cam (R) in the frame of the printer mechanism.

(Note) Confirm that the position of the cam (L) and cam (R) is the head-up position (◁). (Fig. 2-21)

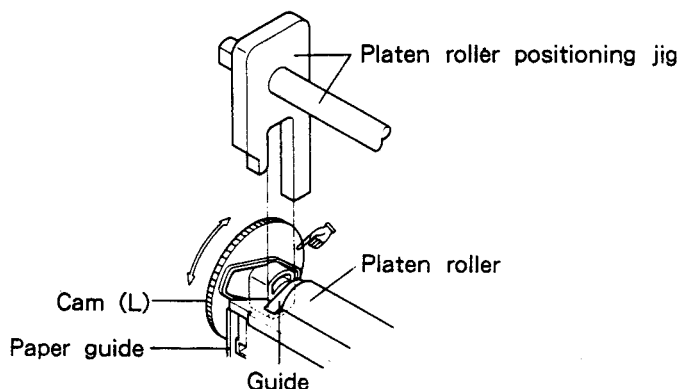


Fig. 2 - 21

Positioning of Platen sensor

2. As shown in Fig. 2-22, insert "platen roller positioning jig" in the cam (L) and cam (R) and fix them.
 3. As shown in Fig. 2-22, fix the position of the cover plate with "the sensor positioning jig".
- Confirm that A-part contacts with the cover plate with no clearance, B-part is inserted in the flute of the sensor and C-part is inserted in the sensor board.

In case re-adjustment is required, loosen 2 screws retaining the fixing table assy as shown in Fig. 2-22 and adjust so that the positions of the cams (L, R) and the cover plate are correct.

The sensor positioning jig

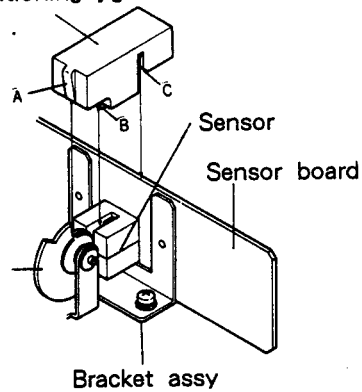


Fig. 2-22

Cleaning of Thermal head

When the thermal head is dirty, rain-drop pattern or white vertical lines may appear on the printed picture.

In this case, use the attached cleaning sheet or the thermal head cleaner pen TH-2000 (859C425050) (Separate purchase) in the following procedure.

● In case of cleaning sheet

1. Turn off power switch.
2. Remove heat-sensitive paper.
3. Turn on power switch.
4. Confirm that AUTO cutter switch is turned off.
(Note) When the CTU button indicator is turned on, turn off AUTO CUT switch of MODE selector.
5. Insert the tip of the cleaning sheet in the paper supply port.
(Note) Insert the cleaning sheet with the carbon face (black colored) placed upward.
6. Press FEED button and feed until the cleaning sheet comes out.
(Note) In case feeding is not performed although FEED button is pressed, take out the cleaning sheet and insert it into the depth as much as possible. When the cleaning sheet is inserted slantedly and fed, the sheet will be wrinkled and the later use may be disabled. Be sure to insert the sheet in the right angle to the supply part.
7. After letting the cleaning sheet through several times, set heat-sensitive paper and print 2-3 sheets to check the effect of the cleaning.
(Note)
 - Store the cleaning sheet in a cool and dark place away from direct sun light.
 - This cleaning sheet is exclusively for cleaning the thermal head. Never use it for other purposes.
 - When the cleaning sheet is used too often the thermal head performance may deteriorate. As for the cleaning standard, use the cleaning sheet once for every 10 rolls of heat sensitive paper.
 - The cleaning sheet may dissolve, or otherwise fall apart, when it is exposed to organic solvent (thinner, alcohol) acid or alkali. Be careful.

Cleaning of Thermal head

- How to use the cleaner pen.
 1. Take the procedure for replacing the thermal head. (Page 19, 20, 21)
 2. Turn over the thermal head and clean the heating element (brown part) with the cleaner pen (859C425050) (Separately purchased).
(Note) Move the cleaner pen in parallel to the heating element (brown part). (Fig. 2-23)

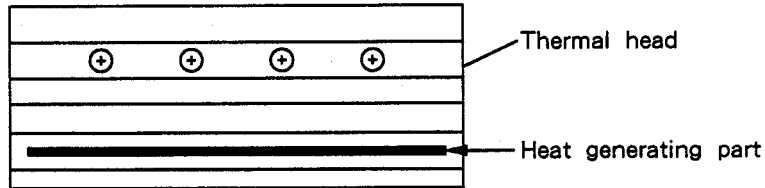


Fig. 2-23

How to use Cleaner pen

1. Draw out the pen from the body and apply adequate amount of cleaning solvent to the body.
 - When the pen core is dirty, replace it with the spare pen. (Fig. 2-24)

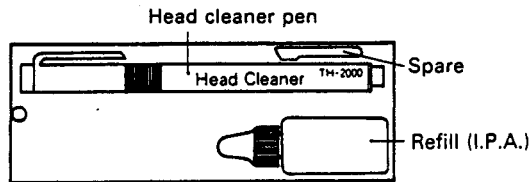


Fig. 2-24

Head cleaner pen
(Parts No. 859C425050 SERVICING JIG)

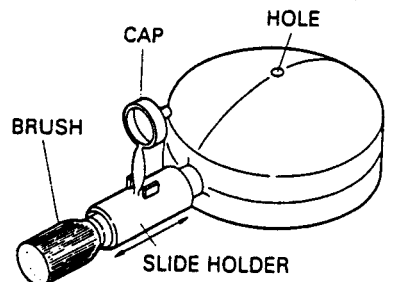
(Note)

- Since the cleaning solvent is inflammable, close the cap after the use and be particularly careful against fire.
- Store it in a cool and dark place away from direct sun beams.

A dirty platen roller may give very poor print quality.
To avoid such a case, clean the roller in the following procedure.

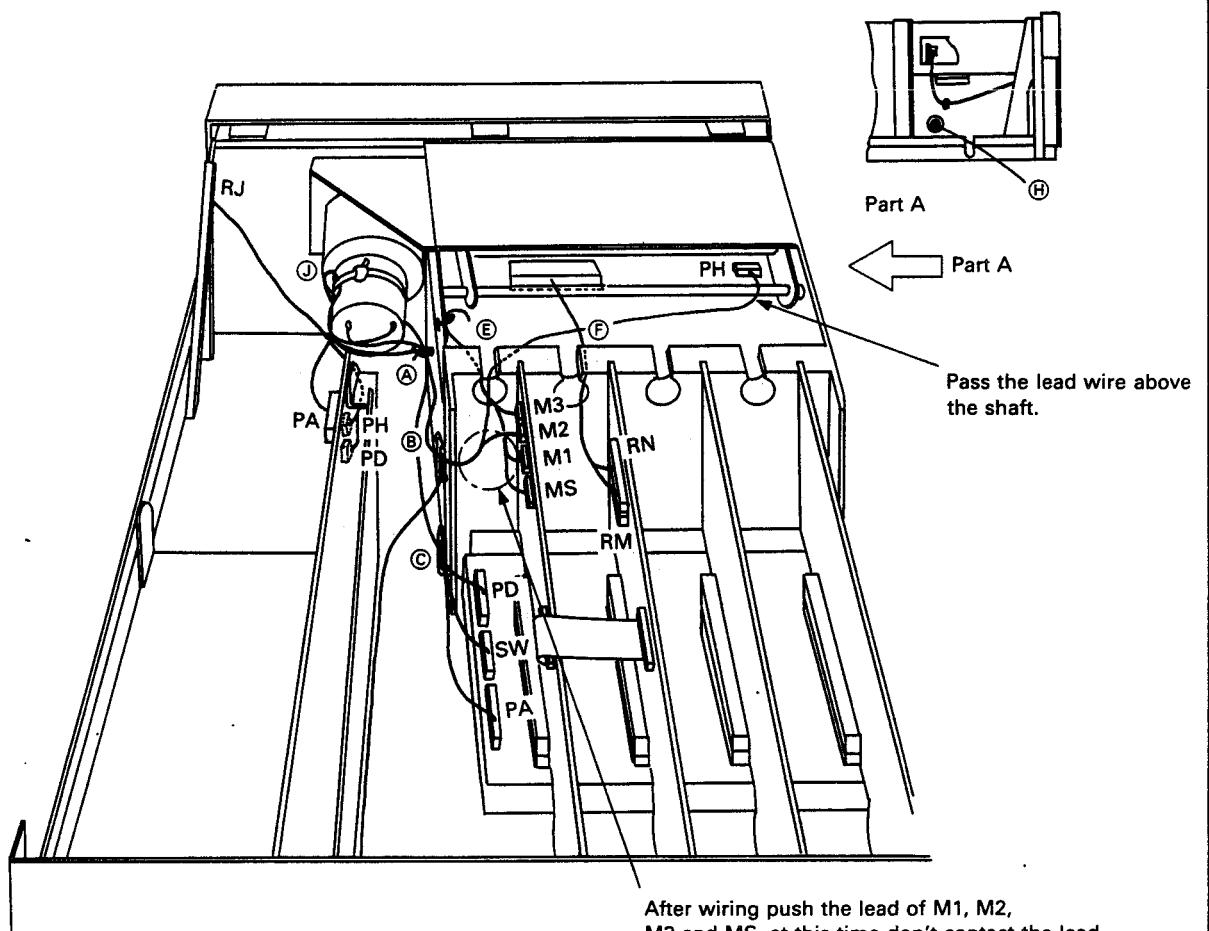
Cleaning of Platen roller

1. Take the procedure for replacing the platen roller. (Page 21, 22)
2. Check the platen roller and in case dirt or dust is adhered, use the blower brush shown in Fig. 2-25 to clean it.
3. If the stains are heavy, use a tooth brush and alcohol to clean it. In this case, be careful not to damage or scratch the roller.
4. After cleaning the platen roller, check for normal printing.



BLOWER BRUSH
PARTS No. 859D048010

Fig. 2-25



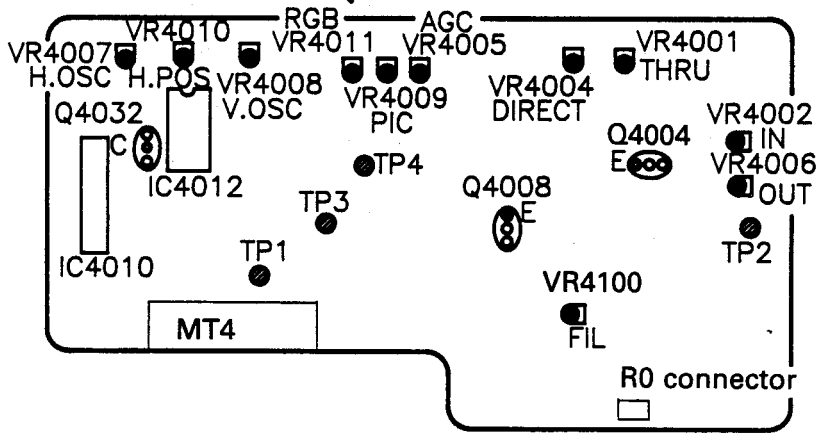
After wiring push the lead of M1, M2, M3 and MS, at this time don't contact the lead to POWER UNIT and edge of sheet metal.

	LEAD TO BE CLAMPED	REMARK
A	PA, PD, PH, SW, RJ, M2, FM	
B	PH, RJ, M2	
C	PA, PD, SW	
D		
E	PH, MS, M1, M3	
F	RM, RN	
G		
H	CS	
J	PA, PD, PH, M2	Clamp at the body of motor.

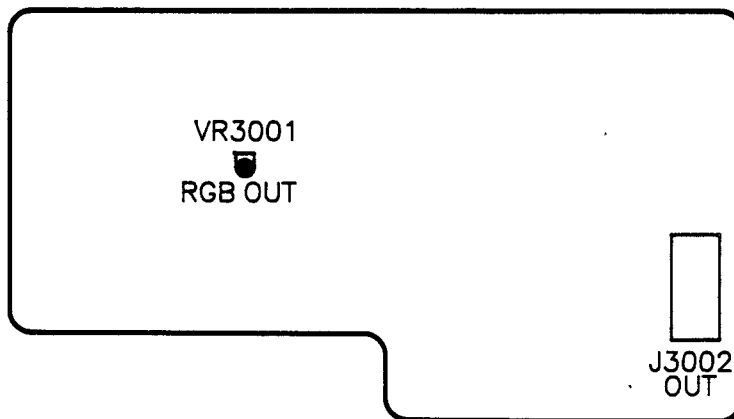
LEAD DRESS

LOCATION ON CONTROL PCB

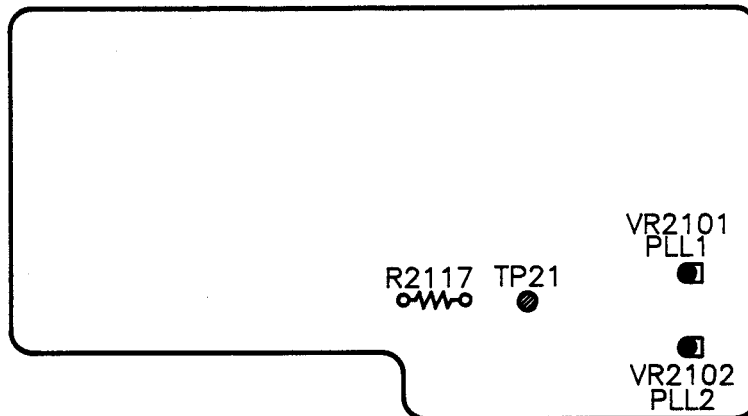
PCB-VIDEO (COMPONENT SIDE)



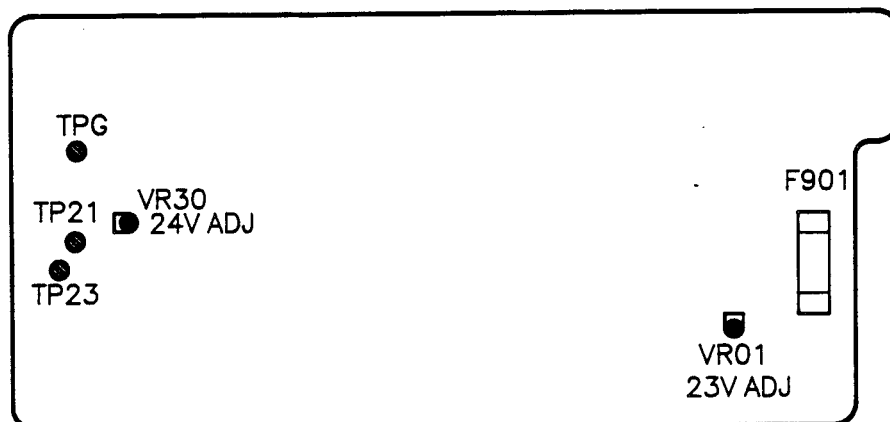
PCB-RGB (COMPONENT SIDE)



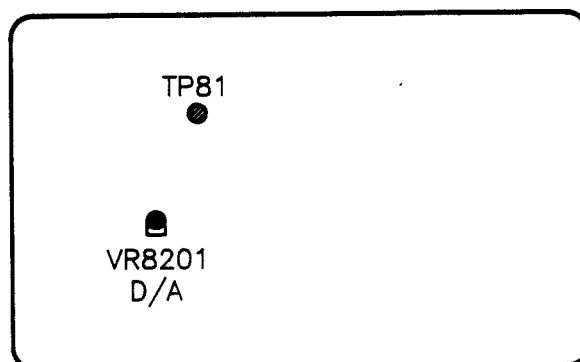
PCB-RAM (COMPONENT SIDE)



PCB-POWER (COMPONENT SIDE)



PCB-MOTHER (COMPONENT SIDE)



ALIGNMENT PROCEDURE

Set the switches at the front panel and the rear panel to the following positions prior to electrical adjustment.

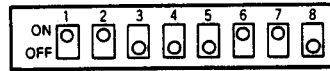
Front panel controls

- POWER ON
- SIDE/NORM NORM
- FIELD/FRAME FRAME
- LIGHT/NORM/DARK NORM
- FUNCTION-1 USER
- FUNCTION-2 STD
- COMMENT INITIATORY

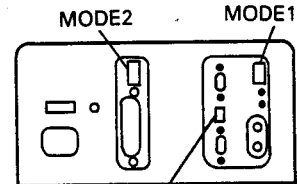
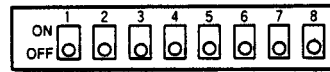
Rear panel controls

- ANALOG/TTL ANALOG

- MODE 1 SELECT DIP SW

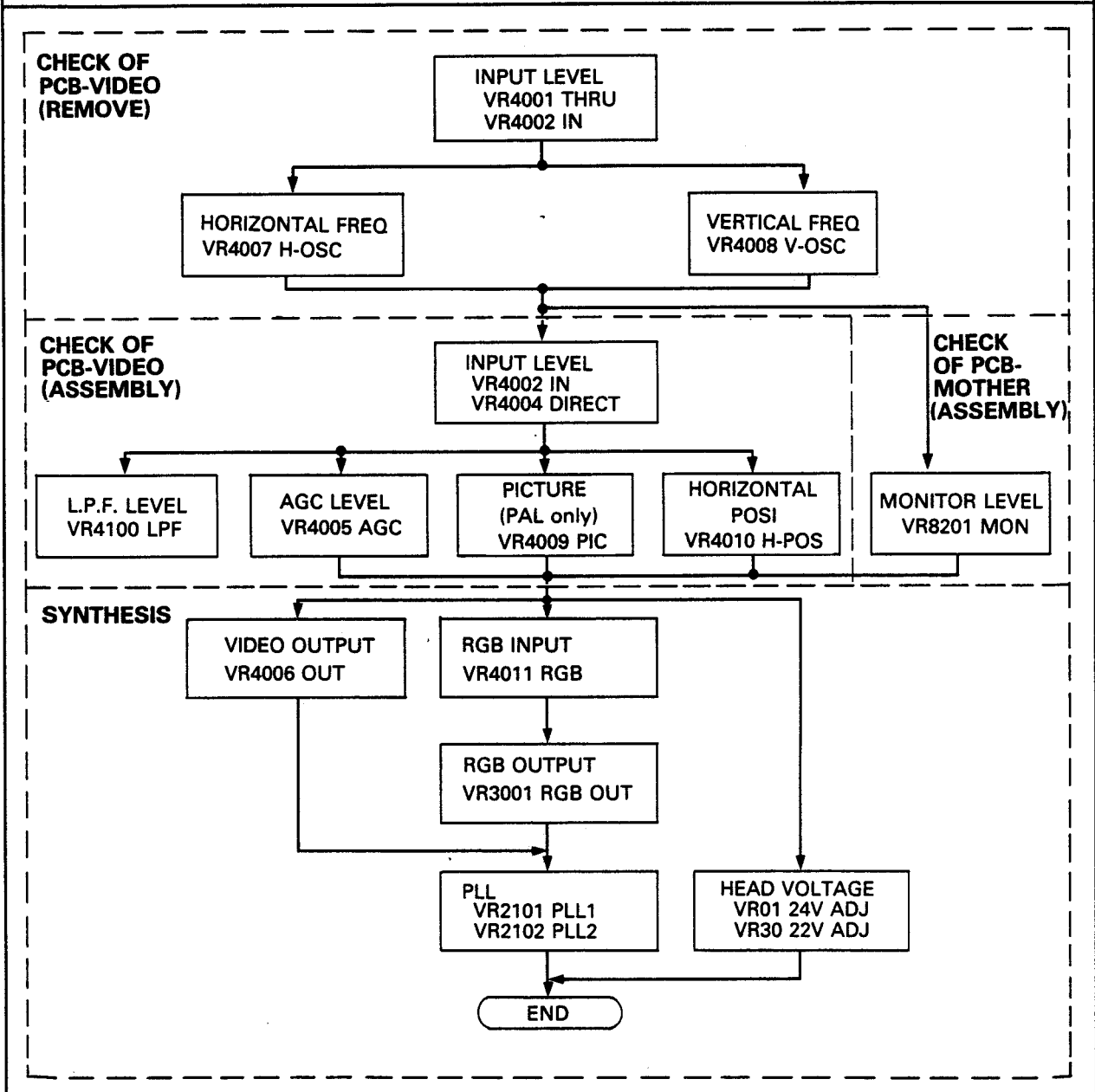


- MODE 2 SELECT DIP SW



ANALOG/TTL

- VIDEO IN Standard gray signal 1Vp-p
Standard colour bar signal 1Vp-p
- RGB IN Grey scale (8-steps tone) 0.7Vp-p
<PGA>

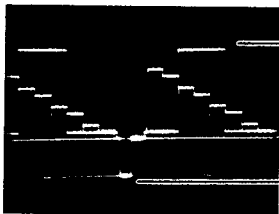


EAROM initial writing

When exchange EAROM (IC1007) or programme ROM (IC1004), do the EAROM initial writing according to the following procedures.

- (1) Turn off the POWER switch.
- (2) Set the **MODE2** DIP-SW-② (PARALLEL) to "ON" position.
- (3) Turn on the POWER switch.
- (4) Press the COPY button. Confirm that the PARALLEL indicator lamps goes out then lights again after one or two seconds.
- (5) Reset the **MODE2** DIP-SW-② to "OFF" position.

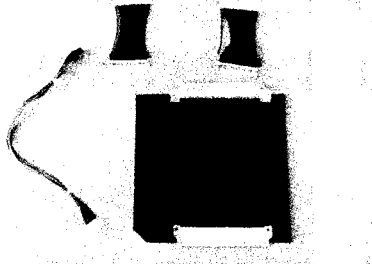
ALIGNMENT PROCEDURE

ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD
INPUT LEVEL	VR4001 (PCB-VIDEO)	<ol style="list-style-type: none">1. Feed a PAL standard grey signal to VIDEO IN connector.2. Connect an oscilloscope to R0 connector (75Ω terminated).3. Re-adjust VR4001 for $1.0V_{p-p} \pm 0.05V$.4. Connect an oscilloscope to emitter of Q4004.5. Re-adjust VR4002 for $1.0V_{p-p} \pm 0.1V$  <p>Setting of the oscilloscope; Vertical range: 20[mV/DIV] Horizontal range: 10[μsec/DIV] Probe 10:1</p>
HORIZONTAL FREQUENCY	VR4007 (PCB-VIDEO)	<ol style="list-style-type: none">1. Set to the no signal condition.2. Connect a frequency counter to collector of Q4032 or pin ③ of IC4010.3. Re-adjust VR4007 for 15.65 kHz ± 0.02 kHz reading on the counter.
VERTICAL FREQUENCY	VR4008 (PCB-VIDEO)	<ol style="list-style-type: none">1. Set to the no signal condition.2. Connect a frequency counter to pin ⑮ of IC4012 or pin ④ of IC4010.3. Re-adjust VR4008 for 45 Hz ± 1 Hz reading on the counter.

ALIGNMENT PROCEDURE

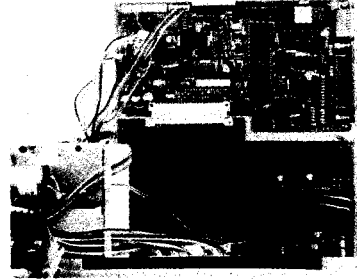
CHECK OF THE PCB-VIDEO (ASSEMBLY)

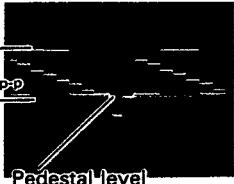
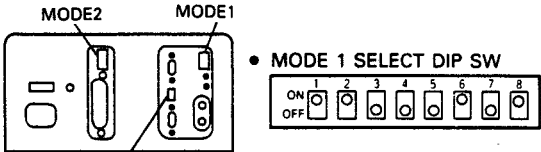
EXTENSION CABLES



EXTENSION BOARD

ASSEMBLED VIEW

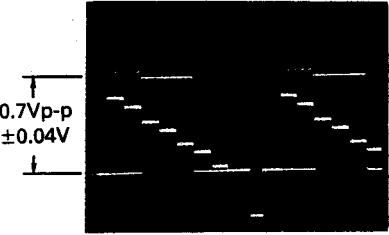
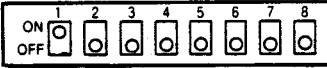
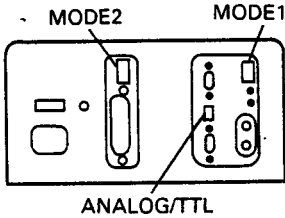
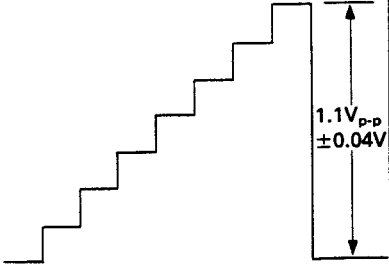


ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD												
<p>INPUT LEVEL</p>	<p>VR4002 VR4004 (PCB-VIDEO)</p>	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal. 2. Connect an oscilloscope to TP3. V scale; 0.2V/DIV. 3. Set the function switch for "FUNCTION (1)" and select "USER" as follows. <table border="1" data-bbox="694 1010 1306 1111"> <thead> <tr> <th>B-LEV</th> <th>W-LEV</th> <th>SHARP</th> <th>AGC</th> <th>DIRECT</th> <th>DITHER</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> 4. Re-adjust VR4002 for $1.1 V_{p-p} \pm 0.04V$. 5. Select "DIRECT ON". 6. Re-adjust VR4004 for $1.1 V_{p-p} \pm 0.04V$. 7. Select "DIRECT OFF". 	B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER	0	0	0	OFF	OFF	OFF
B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER									
0	0	0	OFF	OFF	OFF									
<p>L.P.F. LEVEL</p>	<p>VR4100 (PCB-VIDEO)</p>	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal. 2. Connect an oscilloscope to TP3. V scale; 0.2V/DIV. 3. Set the function switch for "FUNCTION (1)" and select "USER" as follows. <table border="1" data-bbox="694 1514 1306 1615"> <thead> <tr> <th>B-LEV</th> <th>W-LEV</th> <th>SHARP</th> <th>AGC</th> <th>DIRECT</th> <th>DITHER</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> 4. Turn ON the DIP switch MODE1 no. 8 (FIL/THRU).  <p>ANALOG/TTL</p> 5. Adjust VR4100 so that both amplitudes of VIDEO signal are equal when the DIP-switch MODE1 no. 8 (FIL/THRU) position is "ON" and "OFF". 6. Select "OFF" switch DIP switch MODE1 no.8. 	B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER	0	0	0	OFF	OFF	OFF
B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER									
0	0	0	OFF	OFF	OFF									

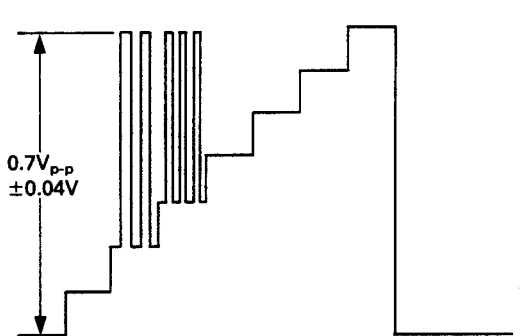
ALIGNMENT PROCEDURE

ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD												
AGC LEVEL	VR4005 (PCB-VIDEO)	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal. 2. Connect an oscilloscope to testpoint TP3. 3. Set the function switch for "FUNCTION (1)" and select "AGC ON". <table border="1" data-bbox="744 470 1356 571"> <thead> <tr> <th>B-LEV</th> <th>W-LEV</th> <th>SHARP</th> <th>AGC</th> <th>DIRECT</th> <th>DITHER</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>ON</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> 4. Adjust the amplitude of VIDEO signal by turning VR4005 so that both voltages are equal when the AGC is ON and OFF. 5. Select AGC "OFF". 	B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER	0	0	0	ON	OFF	OFF
B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER									
0	0	0	ON	OFF	OFF									
PICTURE	VR4009 (PCB-VIDEO)	<ol style="list-style-type: none"> 1. Feed a PAL standard colour bar signal to VIDEO input terminal. (1.0V_{p-p} (75Ω), Burst level 350mV ±150mV) 2. Turn OFF the DIP switch MODE1 no.8 (FIL/THRU). 3. Set the function switch for "FUNCTION (1)" and select "DIRECT ON". <table border="1" data-bbox="744 884 1356 985"> <thead> <tr> <th>B-LEV</th> <th>W-LEV</th> <th>SHARP</th> <th>AGC</th> <th>DIRECT</th> <th>DITHER</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> </tbody> </table> 4. Connect an oscilloscope to test point TP4. V. scale; 10mV/DIV Probe 10 : 1 5. Confirm and record of burst level. 6. Re-adjust VR4009 so that burst level is equal to the "DIRECT ON" level ±20mV. 7. Select DIRECT "OFF". 	B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER	0	0	0	OFF	ON	OFF
B-LEV	W-LEV	SHARP	AGC	DIRECT	DITHER									
0	0	0	OFF	ON	OFF									
HORIZONTAL	VR4010 (PCB-VIDEO)	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal. 2. Set the function switch to provide a menu screen. 3. Turn ON the DIP switch MODE1 no.5. (TV/NORM). <div data-bbox="784 1332 1152 1456" style="text-align: center;"> <p>• MODE 1 SELECT DIP SW.</p> </div> 4. Adjust VR4010 to stabilize the menu on the screen horizontally in spite of TV/NORM switch ON/OFF. Note: The position TV/NORM switch OFF is a standard. Adjust the menu TV/NORM switch ON to the standard position. 5. Turn OFF (NORM) the DIP switch no.5. 												
CHECK OF THE PCB-MOTHER (ASSEMBLY)														
MONITOR LEVEL	VR8201 (PCB-MOTHER)	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal. 2. Connect an oscilloscope to test point TP81 or TP1 (PCB-VIDEO). 3. Set the function switch to provide a menu screen. 4. Re-adjust VR8201 so that words portion is 2.0 V_{p-p}. <div data-bbox="768 1904 1019 2027" style="text-align: center;"> </div> <p>Setting of the oscilloscope; Vertical range; 50[mV/DIV] Horizontal range; 10[μsec/DIV] Probe 10:1</p> 												

ALIGNMENT PROCEDURE (SYNTHESIS)

ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD										
VIDEO OUTPUT	VR4006 (PCB-VIDEO)	<ol style="list-style-type: none"> 1. Feed a PAL standard grey signal to VIDEO input terminal 2. Connect an oscilloscope to pin ② of R0 connector. (75Ω terminated). 3. Set the function switch for "FUNCTION (1)" and select "STD". 4. Re-adjust VR4006 so that picture portion is $0.70 V_{p-p} \pm 0.04V$. <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Setting of the oscilloscope; Vertical range : 20[mV/DIV] Horizontal range: 10[μsec/DIV] Probe 10:1</p> </div> </div>										
RGB INPUT	VR4011 (PCB-VIDEO)	<ol style="list-style-type: none"> 1. Feed a RGB ANALOG PGA grey scale (8-steps tone) signal to RGB input terminal. 2. Turn ON the DIP switch MODE 2 no.1 (RGB/VIDEO). <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"> <p>• MODE 2 SELECT DIP SW</p>  </div> <div style="text-align: center;">  </div> </div> <ol style="list-style-type: none"> 3. Connect an oscilloscope to testpoint TP3. 4. Set the function switch as follow. <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>B-LEV</th> <th>W-LEV</th> <th>SHARP</th> <th>DIRECT</th> <th>AGC</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 5. Re-adjust VR4011 for $1.1V_{p-p} \pm 0.04V$. <div style="text-align: right; margin-top: 20px;">  </div>	B-LEV	W-LEV	SHARP	DIRECT	AGC	0	0	0	OFF	OFF
B-LEV	W-LEV	SHARP	DIRECT	AGC								
0	0	0	OFF	OFF								

ALIGNMENT PROCEDURE

ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD
RGB OUTPUT	VR3001 (PCB-RGB)	<ol style="list-style-type: none"> 1. Feed a RGB ANALOG PGA grey scale (8-steps tone) signal to RGB input terminal. 2. Turn ON the DIP switch MODE 2 no.1. 3. Connect an oscilloscope to pin 1 of RGB output terminal. (75Ω terminated) 4. Push the function switch to provide a menu screen. 5. Re-adjust VR3001 so that words portion is $0.70V_{p-p} \pm 0.04V$. 
PLL	VR2101 VR2102 (PCB-RAM)	<ol style="list-style-type: none"> 1. Turn OFF the DIP switch MODE 2 no. ① (RGB/VIDEO). Turn OFF the DIP switch MODE 1 no. ⑤ (TV/NOR). 2. Set the function switch for "FUNCTION (2)" and select "STD". 3. Connect a frequency counter to test point TP21. 4. Set to the no signal. 5. Re-adjust VR2102 for 14.0 MHz ± 0.2 MHz reading on the counter. Turn VR2101 to the mechanical centre position.

ALIGNMENT PROCEDURE

ADJUSTING ITEM	ADJUSTING POINT	ADJUSTING METHOD
<p>HEAD VOLTAGE</p>	<p>VR01 VR30 (PCB-POWER)</p>	<ol style="list-style-type: none"> 1. Feed a PAL standard colour bar signal to the VIDEO IN terminal. 2. Set Power switch OFF. 3. Connect two DC voltmeters as shown in following figure. <div data-bbox="816 510 1204 723" style="text-align: center;"> <p>DC voltmeter</p> </div> 4. Set Power switch ON. And put COPY switch to print a test pattern. <p>Note: The following items 6-7 should be done for printing the test pattern.</p> 5. Adjust VR01 for the reading of the voltage 27 V at TP-23. 6. According to a resistance described in the back of head. Set a converted voltage through the head voltage table in next page. <p>Adjust VR30 for the reading of the voltage $\pm 0.1V$ at TP-21.</p> 7. Observing a second grade of test pattern maked in Fig. 3-2, ajust VR30 for the position that a gray scale began to appear. 8. Set to the no signal condition. 9. Turn on the DIP switch MODE 2 no. 3. 10. Adjust VR01 so that the voltage at TP-23 is the same as the voltage at TP-21. $TP23 \text{ voltage} = TP21 \text{ voltage} + (2.5 \pm 0.1V)$ <div data-bbox="816 1263 1094 1312" style="text-align: center;"> <p>TEST PATTERN</p> </div> <div data-bbox="718 1346 1329 1966" style="text-align: center;"> </div> <p style="text-align: center;">SECOND GRADE (Third tone) (Fourth tone)</p>

HEAD VOLTAGE TABLE

HEAD MARKING "D"		HEAD MARKING "C"	
RESISTANCE (Ω)	VOLTAGE $\begin{matrix} +0.1V \\ - \\ 0V \end{matrix}$	RESISTANCE (Ω)	VOLTAGE $\begin{matrix} +0.1V \\ - \\ 0V \end{matrix}$
R=679-685	V=19.6	R=684-690	V=19.5
R=686-693	V=19.7	R=691-697	V=19.6
R=694-700	V=19.8	R=698-704	V=19.7
R=701-707	V=19.9	R=705-712	V=19.8
R=708-714	V=20.0	R=713-719	V=19.9
R=715-722	V=20.1	R=720-726	V=20.0
R=723-729	V=20.2	R=727-734	V=20.1
R=730-737	V=20.3	R=735-741	V=20.2
R=738-744	V=20.4	R=742-748	V=20.3
R=745-751	V=20.5	R=749-756	V=20.4
R=752-759	V=20.6	R=757-764	V=20.5
R=760-767	V=20.7	R=765-771	V=20.6
R=768-774	V=20.8	R=772-779	V=20.7
R=775-782	V=20.9	R=780-786	V=20.8
R=783-789	V=21.0	R=787-794	V=20.9
R=790-797	V=21.1	R=795-802	V=21.0
R=798-805	V=21.2	R=803-810	V=21.1
R=806-813	V=21.3	R=811-817	V=21.2
R=814-820	V=21.4	R=818-825	V=21.3
R=821-828	V=21.5	R=826-833	V=21.4
R=829-836	V=21.6	R=834-841	V=21.5
R=837-844	V=21.7	R=842-849	V=21.6
R=845-852	V=21.8	R=850-857	V=21.7
R=853-860	V=21.9	R=858-865	V=21.8
R=861-868	V=22.0	R=866-873	V=21.9
R=869-876	V=22.1	R=866-873	V=22.0
R=877-884	V=22.2	R=882-889	V=22.1
R=885-893	V=22.3	R=890-897	V=22.2
R=894-901	V=22.4	R=898-906	V=22.3
R=902-909	V=22.5	R=907-914	V=22.4
R=910-917	V=22.6	R=915-922	V=22.5
R=918-926	V=22.7	R=923-931	V=22.6

PARTS LIST

MODEL : P68E

In order to expedite delivery of replacement part orders.

- Specify : 1. Model number/Serial number
- 2. Part number and Description
- 3. Quantity

Unless full information is supplied, delay in execution of orders will result.

△ : Critical components ○ : New Parts

MARK	B	C	D	F	G	J	K
TOLERANCE (%)	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10

MARK	M	N	V	X	Z	P	Q
TOLERANCE (%)	± 20	± 30	+ 10 - 10	+ 40 - 20	+ 80 - 20	+ 100 - 0	+ 30 - 10

MARK	B	C	D	F	G
TOLERANCE (pF)	± 0.1	± 0.25	± 0.5	± 1	± 2

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
INTEGRATED CIRCUITS				IC3008	266P241010	IC	SN74LS257AN
				IC3011	266P840020	IC	SN74LS00N
IC 301	266P849010	IC (TTL)	SN74LS74AN	IC3012	266P853020	IC	SN74LS08N
IC 302	266P478010	IC	SN74LS86N	IC3013	266P878010	IC	SN74LS32N
IC1001	263P748010	IC	M50734SP	IC3015	266P478010	IC	SN74LS86N
IC1002	266P882010	IC (TTL)	SN74LS373N	IC3018	266P853020	IC	SN74LS08N
IC1003	263P751010	IC	μ PD446C-2	IC3019	266P452020	IC	SN74LS05N
IC1004	263P108070	IC	UPD27C256AD20	IC3020	266P853020	IC	SN74LS08N
IC1005	272P178010	IC	SN74ALS245N	IC3021	266P844010	IC	SN74LS123N
IC1006	272P178010	IC	SN74ALS245N	IC4001	263P053020	IC	TC4053BP
IC1007	272P064010	IC	M58630P	IC4002	263P053020	IC	TC4053BP
IC1009	266P998010	IC	M54543L	IC4003	263P053020	IC	TC4053BP
IC1010	263P046010	IC	TA8050P	IC4010	267P026020	IC	B073-2
IC1011	272P175010	IC	M54567P	IC4012	266P507020	IC	LA7824
IC1012	263P616010	IC	TC74HC240P	IC4013	266P419010	IC	M5223P
IC1013	266P487010	IC	SN74LS165AN	IC4014	266P645010	IC	M51392P
IC1014	266P727010	IC	μ PC339C/MC3302P	IC4015	263P869010	IC	μ PD6326C
IC1015	266P154010	IC	μ PC393C	IC4016	263P607010	IC	TC74HC4050P
IC1016	266P130020	IC	PST520C	IC4017	266P806020	IC	SN7406N
IC1017	266P130040	IC	PST520H	IC4018	266P154010	IC	μ PC393C
IC2001	263P754040	IC	UPD65024GF-201-3BA	IC8001	272P177010	IC	M54977P
IC2002	263P754030	IC	μ PD65013GF313	IC8002	266P171010	IC	M50125P
IC2003	263P754020	IC	μ PD65013GF305	IC8201	266P241010	IC	SN74LS257AN
IC2004	263P753010	IC	μ PD65042GF188	IC8202	266P241010	IC	SN74LS257AN
IC2005	263P746010	IC	HD63484P8	IC8203	272P086010	IC	MB40576
IC2006	266P844010	IC	SN74LS123N	IC8204	272P087010	IC	MB40776
IC2007	263P770010	IC	HD74HC244P	IC8205	272P229010	IC	μ PC812C
IC2008	263P770010	IC	HD74HC244P	IC8206	266P848010	IC	SN74LS02N
IC2009	263P790050	IC	UPD27C256AD15	TRANSISTORS			
IC2010	263P747010	IC	M5M5165P-10	Q 1001	260P632010	TRANSISTOR	DTC124ES
IC2011	263P757010	IC	M5M4C264L-12	Q 1002	260P632010	TRANSISTOR	DTC124ES
IC2012	263P757010	IC	M5M4C264L-12	Q 1003	260P632010	TRANSISTOR	DTC124ES
IC2013	263P757010	IC	M5M4C264L-12	Q 1004	260P632010	TRANSISTOR	DTC124ES
IC2014	263P757010	IC	M5M4C264L-12	Q 2101	260P254010	TRANSISTOR	2SA1175-E
IC2015	263P757010	IC	M5M4C264L-12	Q 3001	260P477010	TRANSISTOR	2SC2026-K, L
IC2016	263P757010	IC	M5M4C264L-12	Q 3002	260P477010	TRANSISTOR	2SC2026-K, L
IC2017	263P757010	IC	M5M4C264L-12	Q 3003	260P338030	TRANSISTOR	2SC2603-F
IC2018	263P757010	IC	M5M4C264L-12	Q 3004	260P477010	TRANSISTOR	2SC2026-K, L
IC2019	263P757010	IC	M5M4C264L-12	Q 3005	260P477010	TRANSISTOR	2SC2026-K, L
IC2020	263P757010	IC	M5M4C264L-12	Q 3006	260P338030	TRANSISTOR	2SC2603-F
IC2021	263P757010	IC	M5M4C264L-12	Q 3007	260P477010	TRANSISTOR	2SC2026-K, L
IC2022	263P757010	IC	M5M4C264L-12	Q 3008	260P477010	TRANSISTOR	2SC2026-K, L
IC2023	266P407020	IC	μ PD41464C-10/MB81464	Q 3009	260P338030	TRANSISTOR	2SC2603-F
IC2024	272P178010	IC	SN74ALS245N	Q 3010	260P416030	TRANSISTOR	2SC2274-F
IC2025	272P178010	IC	SN74ALS245N	Q 3011	260P416030	TRANSISTOR	2SC2274-F
IC2101	272P071010	IC	BA7041	Q 3012	260P416030	TRANSISTOR	2SC2274-F
IC2102	263P894010	IC	TC5081AP	Q 3013	260P338030	TRANSISTOR	2SC2603-F
IC2103	266P520010	IC	M5236L	Q 3015	260P338030	TRANSISTOR	2SC2603-F
IC2104	263P302050	IC	HD74HC02P	Q 3016	260P338030	TRANSISTOR	2SC2603-F
IC3001	266P490010	IC	SN74LS245N	Q 3017	260P338030	TRANSISTOR	2SC2603-F
IC3002	266P490010	IC	SN74LS245N	Q 3019	260P632010	TRANSISTOR	DTC124ES
IC3003	263P053020	IC	TC4053BP	Q 3021	260P338030	TRANSISTOR	2SC2603-F
IC3005	266P490010	IC	SN74LS245N	Q 3022	260P338030	TRANSISTOR	2SC2603-F
IC3006	266P241010	IC	SN74LS257AN	Q 3023	260P338030	TRANSISTOR	2SC2603-F
IC3007	266P241010	IC	SN74LS257AN				

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 3024	260P338030	TRANSISTOR	2SC2603-F	D 3023	299D090050	DIODE-BLOCK	264P045-80
Q 3027	260P338040	TRANSISTOR	2SC2603-E, F	D 4001	264P045040	DIODE	1S2471
Q 4001	260P477010	TRANSISTOR	2SC2026-K, L	D 4002	264P464040	DIODE	EQA02-10B/RD10EB3
Q 4002	260P477010	TRANSISTOR	2SC2026-K, L	D 4003	264P483080	DIODE	RD5. 1FB2
Q 4003	260P338040	TRANSISTOR	2SC2603-E, F	D 8001	264P525010	LIGHT EMITTING DIODE	SLR-56MG3
Q 4004	260P338040	TRANSISTOR	2SC2603-E, F	D 8002	264P525010	LIGHT EMITTING DIODE	SLR-56MG3
Q 4005	260P338040	TRANSISTOR	2SC2603-E, F	D 8003	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4006	260P338040	TRANSISTOR	2SC2603-E, F	D 8004	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4007	260P338040	TRANSISTOR	2SC2603-E, F	D 8005	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4008	260P338040	TRANSISTOR	2SC2603-E, F	D 8006	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4009	260P338040	TRANSISTOR	2SC2603-E, F	D 8007	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4011	260P416020	TRANSISTOR	2SC2274-E	D 8008	264P523020	LIGHT EMITTING DIODE	SLV-31MC3
Q 4012	260P338040	TRANSISTOR	2SC2603-E, F	D 8201	264P045040	DIODE	1S2471
Q 4013	260P338040	TRANSISTOR	2SC2603-E, F			FILTERS	
Q 4014	260P338040	TRANSISTOR	2SC2603-E, F	CF1001	299P110010	CERAMIC RESONATOR	
Q 4015	260P338040	TRANSISTOR	2SC2603-E, F	CF2001	299P119010	CERAMIC RESONATOR	
Q 4016	260P338040	TRANSISTOR	2SC2603-E, F	CF8001	296P044010	CERAMIC FILTER	
Q 4017	260P338040	TRANSISTOR	2SC2603-E, F	L 4100	409P496010	LOW PASS FILTER	
Q 4018	260P338040	TRANSISTOR	2SC2603-E, F			COILS	
Q 4019	260P338040	TRANSISTOR	2SC2603-E, F	L 1001	325C120070	PEAKING COIL	3.3 μ H-K
Q 4020	260P338040	TRANSISTOR	2SC2603-E, F	L 1002	325C120070	PEAKING COIL	3.3 μ H-K
Q 4021	260P338040	TRANSISTOR	2SC2603-E, F	L 1003	325C120070	PEAKING COIL	3.3 μ H-K
Q 4022	260P298010	TRANSISTOR	2SC1583-F	L 1004	325C120070	PEAKING COIL	3.3 μ H-K
Q 4030	260P632010	TRANSISTOR	DTC124ES	L 1005	325C120070	PEAKING COIL	3.3 μ H-K
Q 4031	260P632010	TRANSISTOR	DTC124ES	L 1006	325C120070	PEAKING COIL	3.3 μ H-K
Q 4032	260P582010	TRANSISTOR	2SK656	L 1007	325C120070	PEAKING COIL	3.3 μ H-K
Q 4033	260P632010	TRANSISTOR	DTC124ES	L 1008	325C120070	PEAKING COIL	3.3 μ H-K
Q 4034	260P632010	TRANSISTOR	DTC124ES	L 1009	325C120070	PEAKING COIL	3.3 μ H-K
Q 4035	260P632010	TRANSISTOR	DTC124ES	L 1010	325C120070	PEAKING COIL	3.3 μ H-K
Q 4036	260P338030	TRANSISTOR	2SC2603-F	L 1011	325C120070	PEAKING COIL	3.3 μ H-K
Q 4100	260P338040	TRANSISTOR	2SC2603-E, F	L 1012	325C120070	PEAKING COIL	3.3 μ H-K
Q 4101	260P338040	TRANSISTOR	2SC2603-E, F	L 1013	325C120070	PEAKING COIL	3.3 μ H-K
Q 4102	260P338040	TRANSISTOR	2SC2603-E, F	L 1014	325C120070	PEAKING COIL	3.3 μ H-K
Q 4200	260P338030	TRANSISTOR	2SC2603-F	L 1015	325C120070	PEAKING COIL	3.3 μ H-K
Q 4201	260P338030	TRANSISTOR	2SC2603-F	L 1016	411D009020	FERRITE CORE FILTER	
Q 8001	260P254010	TRANSISTOR	2SA1175-E	L 1017	411D009020	FERRITE CORE FILTER	
Q 8002	260P455010	TRANSISTOR	DTC124EF	L 1018	411D009020	FERRITE CORE FILTER	
Q 8003	260P455010	TRANSISTOR	DTC124EF	L 1019	411D009020	FERRITE CORE FILTER	
Q 8203	260P338030	TRANSISTOR	2SC2603-F	L 1020	411D009020	FERRITE CORE FILTER	
Q 8204	260P338030	TRANSISTOR	2SC2603-F	L 1021	411D009020	FERRITE CORE FILTER	
Q 8205	260P256040	TRANSISTOR	2SA1115-F	L 1022	411D009020	FERRITE CORE FILTER	
Q 8206	260P256040	TRANSISTOR	2SA1115-F	L 1023	411D009020	FERRITE CORE FILTER	
Q 8207	260P582010	TRANSISTOR	2SK656	L 1024	411D009020	FERRITE CORE FILTER	
Q 8208	260P338010	TRANSISTOR	2SC2603-D	L 1026	411D009020	FERRITE CORE FILTER	
Q 8209	260P338030	TRANSISTOR	2SC2603-F	L 1027	411D009020	FERRITE CORE FILTER	
Q 8210	260P338030	TRANSISTOR	2SC2603-F	L 1028	411D009020	FERRITE CORE FILTER	
Q 8211	260P338030	TRANSISTOR	2SC2603-F	L 1029	411D009020	FERRITE CORE FILTER	
Q 8212	260P632010	TRANSISTOR	DTC124ES	L 2001	411D009020	FERRITE CORE FILTER	
Q 8213	260P632010	TRANSISTOR	DTC124ES	L 2002	411D009020	FERRITE CORE FILTER	
		DIODES		L 2003	325C120090	PEAKING COIL	4.7 μ H-K
D 1002	264P045040	DIODE	1S2471	L 2101	325C120050	PEAKING COIL	2.2 μ H-M
D 2101	264P045040	DIODE	1S2471	L 3001	411D009020	FERRITE CORE FILTER	
D 2102	264P045040	DIODE	1S2471	L 3002	411D009020	FERRITE CORE FILTER	
D 2103	264P045040	DIODE	1S2471				
D 3022	299D090050	DIODE-BLOCK	264P045-80				

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
L 3003	321C031040	RF COIL	10 μ H-K	VR4006	127C180050	VR-SEMIFIXED	1/5W B2K Ω -M
L 3004	321C031040	RF COIL	10 μ H-K	VR4067	127C180080	VR-SEMIFIXED	1/10W B10K Ω -M
L 3005	411D009020	FERRITE CORE FILTER		VR4008	127C181030	VR-SEMIFIXED	1/5W B200K Ω -M
L 3006	411D009020	FERRITE CORE FILTER		VR4009	127C180090	VR-SEMIFIXED	1/5W B20K Ω -M
L 4003	349P064020	TRAP COIL		VR4010	127C180090	VR-SEMIFIXED	1/5W B20K Ω -M
L 4004	320P022010	TRAP COIL		VR4011	127C180040	VR-SEMIFIXED	1/5W B1K Ω -M
L 4010	321C031040	RF COIL	10 μ H-K	VR4100	127C080040	VR-SEMIFIXED	1/5W B1K Ω -M
L 4011	321C031040	RF COIL	10 μ H-K	VR8201	127C080040	VR-SEMIFIXED	1/5W B1K Ω -M
L 4013	325C111070	PEAKING COIL	22 μ H-K			RESISTORS	
L 4014	325C112000	PEAKING COIL	39 μ H-K	R 1018	103P594010	NETWORK	1/8W 22K Ω -JX9
L 8101	325C120050	PEAKING COIL	2.2 μ H-M	R 1033	103P554010	NETWORK	1/8W 22K Ω -JX4
L 8102	325C120050	PEAKING COIL	2.2 μ H-M	R 1039	103P564010	NETWORK	1/8W 22K Ω -JX6
L 8103	325C120050	PEAKING COIL	2.2 μ H-M	R 1040	103P584010	NETWORK	1/8W 22K Ω -JX8
L 8104	325C120050	PEAKING COIL	2.2 μ H-M	R 2001	109P060020	NETWORK	1/8W 56 Ω -JX4
L 8106	325C120050	PEAKING COIL	2.2 μ H-M	R 2002	109P060020	NETWORK	1/8W 56 Ω -JX4
L 8107	325C120050	PEAKING COIL	2.2 μ H-M	R 2003	109P060020	NETWORK	1/8W 56 Ω -JX4
L 8108	325C120050	PEAKING COIL	2.2 μ H-M	R 2004	109P060020	NETWORK	1/8W 56 Ω -JX4
L 8109	325C120050	PEAKING COIL	2.2 μ H-M	R 3100	103P542030	NETWORK	1/8W 22K Ω -JX8
L 8117	325C120050	PEAKING COIL	2.2 μ H-M	R 4049	103P544050	NETWORK	1/8W 47K Ω -JX4
L 8118	325C120050	PEAKING COIL	2.2 μ H-M	R 4100	103P562070	NETWORK	1/8W 1.5K Ω -JX6
L 8119	325C120050	PEAKING COIL	2.2 μ H-M	R 4120	103P543030	NETWORK	1/8W 4.7K Ω -JX4
L 8137	411D009020	FERRITE CORE FILTER				SWITCHES	
L 8138	411D009020	FERRITE CORE FILTER		S 1001	431C078010	DIP SWITCH	
L 8139	411D009020	FERRITE CORE FILTER		S 3001	431C077010	SLIDE SWITCH	
L 8140	411D009020	FERRITE CORE FILTER		S 3002	431C077010	SLIDE SWITCH	
L 8142	411D009020	FERRITE CORE FILTER		S 3003	431C077010	SLIDE SWITCH	
L 8143	325C120050	PEAKING COIL	2.2 μ H-M	S 3004	431C077010	SLIDE SWITCH	
L 8144	325C120050	PEAKING COIL	2.2 μ H-M	S 4001	431C078010	DIP SWITCH	
L 8145	411D009020	FERRITE CORE FILTER		S 8001	432P101040	KEY BOARD SWITCH	
L 8146	411D009020	FERRITE CORE FILTER		S 8002	432P101010	KEY BOARD SWITCH	
L 8147	411D009020	FERRITE CORE FILTER		S 8003	432P101010	KEY BOARD SWITCH	
L 8148	411D009020	FERRITE CORE FILTER		S 8004	432P101040	KEY BOARD SWITCH	
L 8149	411D009020	FERRITE CORE FILTER		S 8005	432P101040	KEY BOARD SWITCH	
L 8150	411D009020	FERRITE CORE FILTER		S 8006	432P101040	KEY BOARD SWITCH	
L 8151	411D009020	FERRITE CORE FILTER		S 8007	432P101040	KEY BOARD SWITCH	
L 8152	325C120090	PEAKING COIL	4.7 μ H-K	S 8008	432P101010	KEY BOARD SWITCH	
L 8153	325C120090	PEAKING COIL	4.7 μ H-K	S 8009	432P101010	KEY BOARD SWITCH	
L 8154	325C120090	PEAKING COIL	4.7 μ H-K	S 8010	432P101010	KEY BOARD SWITCH	
L 8155	325C120090	PEAKING COIL	4.7 μ H-K	S 8011	432P101010	KEY BOARD SWITCH	
L 8156	325C120090	PEAKING COIL	4.7 μ H-K	S 8012	432P101010	KEY BOARD SWITCH	
L 8157	325C120090	PEAKING COIL	4.7 μ H-K	S 8013	432P101010	KEY BOARD SWITCH	
L 8159	325C121030	PEAKING COIL	10 μ H-K	S 8014	431C068030	SLIDE SWITCH	
L 8160	325C121030	PEAKING COIL	10 μ H-K	S 8015	431C067010	SLIDE SWITCH	
L 8161	325C121030	PEAKING COIL	10 μ H-K	S 8016	431C068030	SLIDE SWITCH	
L 8201	325C120050	PEAKING COIL	2.2 μ H-M			MISCELLANEOUS	
L 8202	325C120050	PEAKING COIL	2.2 μ H-M				
		VARIABLE RESISTORS					
VR2101	127C180090	VR-SEMIFIXED	1/5W B20K Ω -M		451C101010	EARPHONE JACK	
VR2102	127C180080	VR-SEMIFIXED	1/10W B10K Ω -M	IC1004	449P013090	IC SOCKET	
VR3001	127C180020	VR-SEMIFIXED	1/5W B300-M	IC2009	449P013090	IC SOCKET	
VR4001	127C180040	VR-SEMIFIXED	1/5W B1K Ω -M	J 8001	451C094010	HEADPHONE JACK	
VR4002	127C180040	VR-SEMIFIXED	1/5W B1K Ω -M			PRINTED CIRCUIT BOARD ASSY'S	
VR4004	127C180010	VR-SEMIFIXED	1/10W B200K Ω -M		936C006002	CPU PCB ASSY	
VR4005	127C180080	VR-SEMIFIXED	1/10W B10K Ω -M				

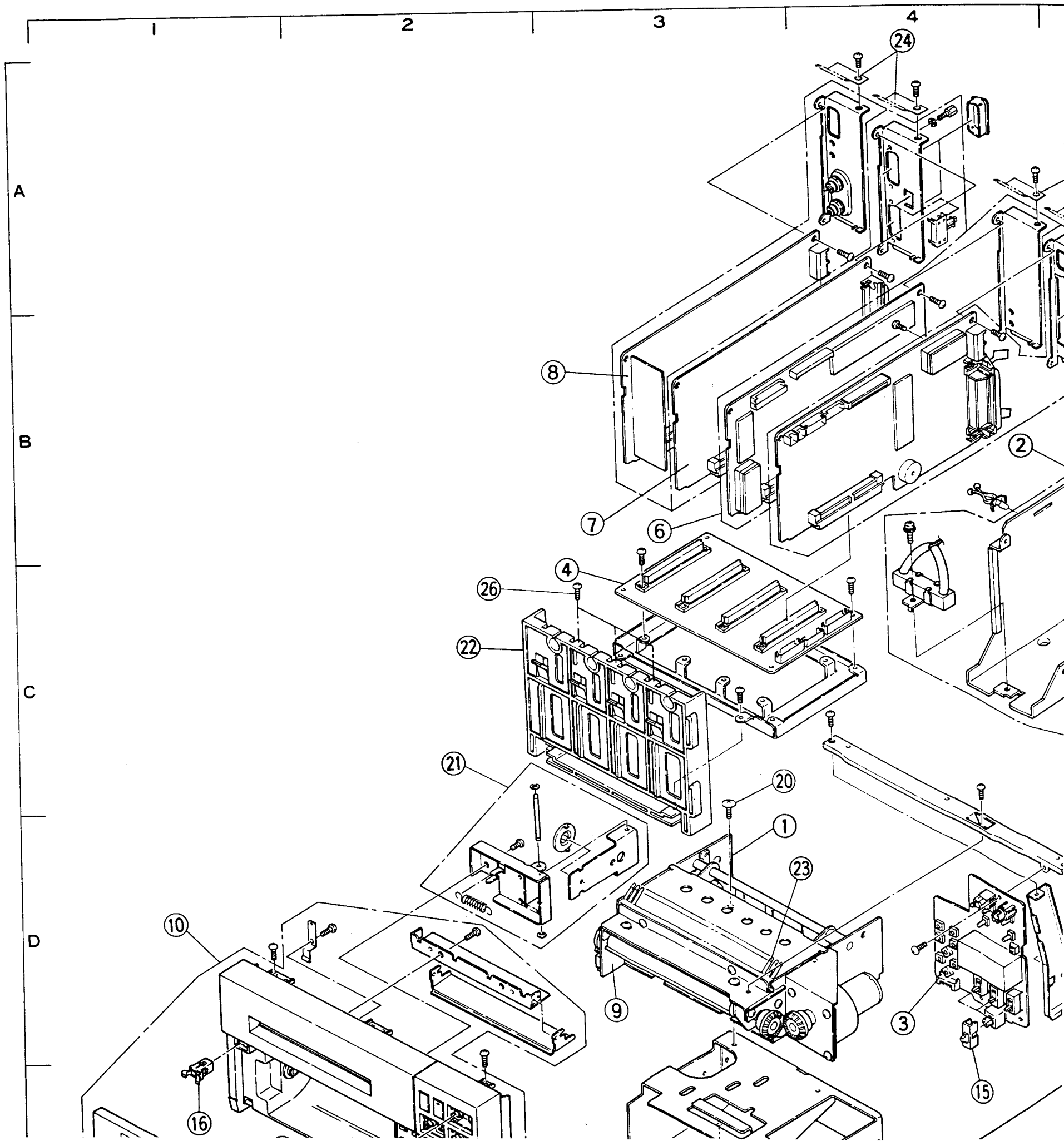
SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
	936D010001	MOTHER PCB ASSY					
	930C221060	RAM PCB ASSY					
	930C222020	RGB PCB ASSY					
	920D124010	SW PCB ASSY					
	930C223040	VIDEO PCB ASSY					
		COSMETIC PARTS					
	242C795090	AC POWER CORD					
		PACKING PARTS AND ACCESSORY					
	803B568010	PACKING CUSHION					
	871C833020	INSTRUCTION BOOK					
	831D169010	PACKING BAG					
	831D183040	PACKING BAG					
	831D199070	PACKING BAG					
	802C838070	PACKING CASE					
	242D232020	CABLE-BNC					
	857P001010	CLEANING SHEET					
	939P221020	REMOTE HAND UNIT					

POWER UNIT

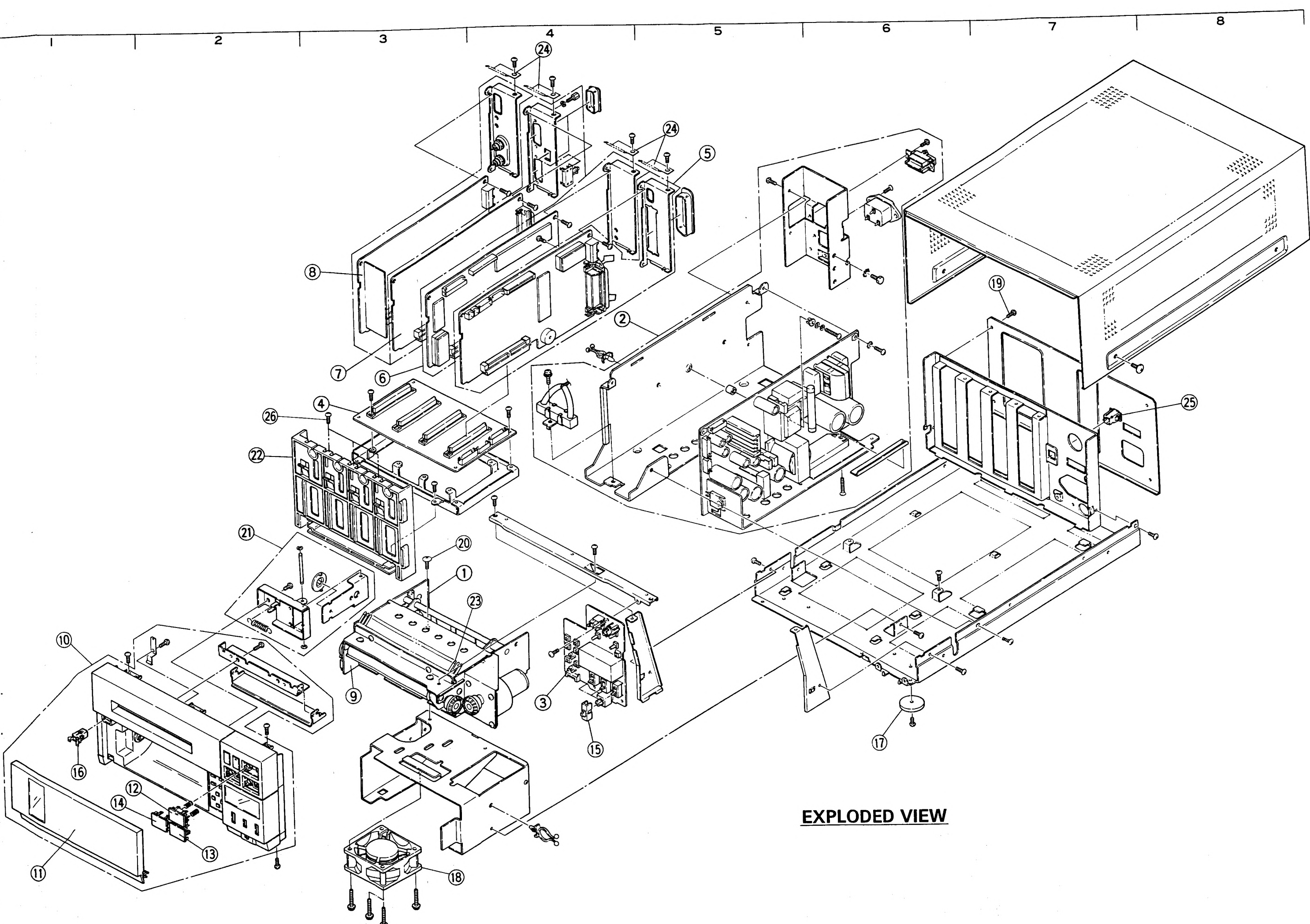
SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
INTEGRATED CIRCUIT							
△ IC01	266D098070	STX-7309	MAIN SW, -REG	D55	264D119090	HZ11CP	
IC30	266P520010	M5236L	+22V REG	D56	264D119090	HZ11CP	
IC31	266D098080	PQ12R05	+12V REG1	D57	264D119090	HZ11CP	
IC32	266D098080	PQ12R05	+12V REG2	COILS			
IC33	266D098090	S13052V	+5V REG	L30	325D076040	2.2 μH	
IC34	266P919010	7912	-12V REG	L31	325D076030	4.7 μH	
IC35	266D099010	7820	+20 REG	L32	325D076030	4.7 μH	
IC36	266P932010	7805		L33	325D076020	2.2 μH	
IC37	266D099020	74LS112	POWER REMOTE	L34	325D076020	2.2 μH	
TRANSISTORS				FILTERS			
Q02	260D174050	2SC2655-1	MAIN-REG PROTECT	△ L901	351D040020	LINE FILTER	ELF18D850T
Q31	260P256040	2SA1115-E, F	OVER-LOAD-DET	TRANSFORMERS			
Q32	260D210040	2SA1265N-0	+22V-OUT	△ T901	350D040030	TRANSFORMER	D081-259
Q33	260D210010	2SA1382	+22V DRIVE	△ T902	350D040050	TRANSFORMER	D081-263
Q35	260P338040	2SC2603-E, F	+22V-ON/OFF	VARIABLE RESISTORS			
Q36	260P338040	2SC2603-E, F	POWER-RELAY-DRIVE2	VR01	127C191020	VR-SEMIFIXED	B 100k Ω
Q37	260P256040	2SA1115-E, F	POWER-RELAY-DRIVE1	VR30	127D005010	VR-SEMIFIXED	B 2k Ω
Q38	260P338040	2SC2603-E, F	ON/OFF AMP2	RESISTORS			
Q39	260P338040	2SC2603-E, F	ON/OFF AMP1	R15	103P370080	FUSE	1/4W 39 Ω-J
Q40	260P338040	2SC2603-E, F	PROTECT-AMP	R16	103P378040	FUSE	1/4W 2.2 Ω-J
DIODES				R18	102D002040	WIRE	10W 8.2 Ω-J
△ D01	264P512010	RBV408		R43	103P370010	FUSE	1/4W 10 Ω-J
D02	264D119060	RG-1C		R65	103P370010	FUSE	1/4W 10 Ω-J
D03	264D111020	EU02		CAPACITORS			
D04	264D111020	EU02		△ C901	189D144010	C-MP	AC250V 0.2 μF-M
D30	264D100020	ESAC92M-02	D10LCA20	△ C902	189D144020	C-MP	AC250V 0.1 μF-M
D31	264D119070	HZ33-2		△ C903	142D001020	CERAMIC	DE7100F 2200pF VA1/ ECK DNS2200pF E
D32	264P045080	1S2471		△ C904	142D001020	CERAMIC	DE7100F 2200pF VA1/ ECK DNS2200pF E
D33	264P045080	1S2471		△ C923	142D001040	CERAMIC	DE7100F 4700pF VA1/ ECK DNS4700pF E
D34	264P045080	1S2471		△ C924	142D001040	CERAMIC	DE7100F 4700pF VA1/ ECK DNS4700pF E
D35	264P045080	1S2471		MISCELLANEOUS			
D36	264P045080	1S2471		△ S991	433D008010	SWITCH-SEESAW	EST-15702V
D37	264P045080	1S2471		△ CN991	409D087010	AC INLEY	S0T-16
D38	264D119030	ERC90M02		△ K01	287D026030	RELAY	DG24D1-0 (M)
D39	264D091020	HZ12C		△ K901	287D026040	RELAY	DH5D1-0 (M)
D40	264P045080	1S2471		△ F901	283D074010	FUSE	AC250V 3.15A
D41	264D119030	ERC90M02					
D42	264P341070	HZ6C2					
D43	264P045080	1S2471					
D44	264D119020	RL2Z					
D45	264P543010	EG01					
D47	264P508010	S1WB (A) 10					
D48	264D119080	EM01Z					
D49	264P045080	1S2471					
D50	264P045080	1S2471					
D51	264P045080	1S2471					

replacement part orders.
 Serial number
 and Description
 ed, delay in execution of

PARTS NO.	DESCRIPTION	ADDRESS
939P223030		D-3
939P224030		B-4
920D124010		D-4
936D010001		C-3
936C006020		A-5
930C221060		B-3
930C221060		B-3
930C223040		B-3
589B008010		D-3
701A399010		D-1
702C686000		E-1
704C583020		E-1
704C584030		E-2
704C584040		E-1
734D369010		E-4
761C273010		E-1
771D051010		E-6
288P098010		E-3
669D212020	D = 3 L = 8 83A	B-7
669D221020	(10P)	C-3
☆		C-2
☆		C-2
☆		D-3
☆		A-4
☆		C-8
669D222090		C-3
734D374010		A-5

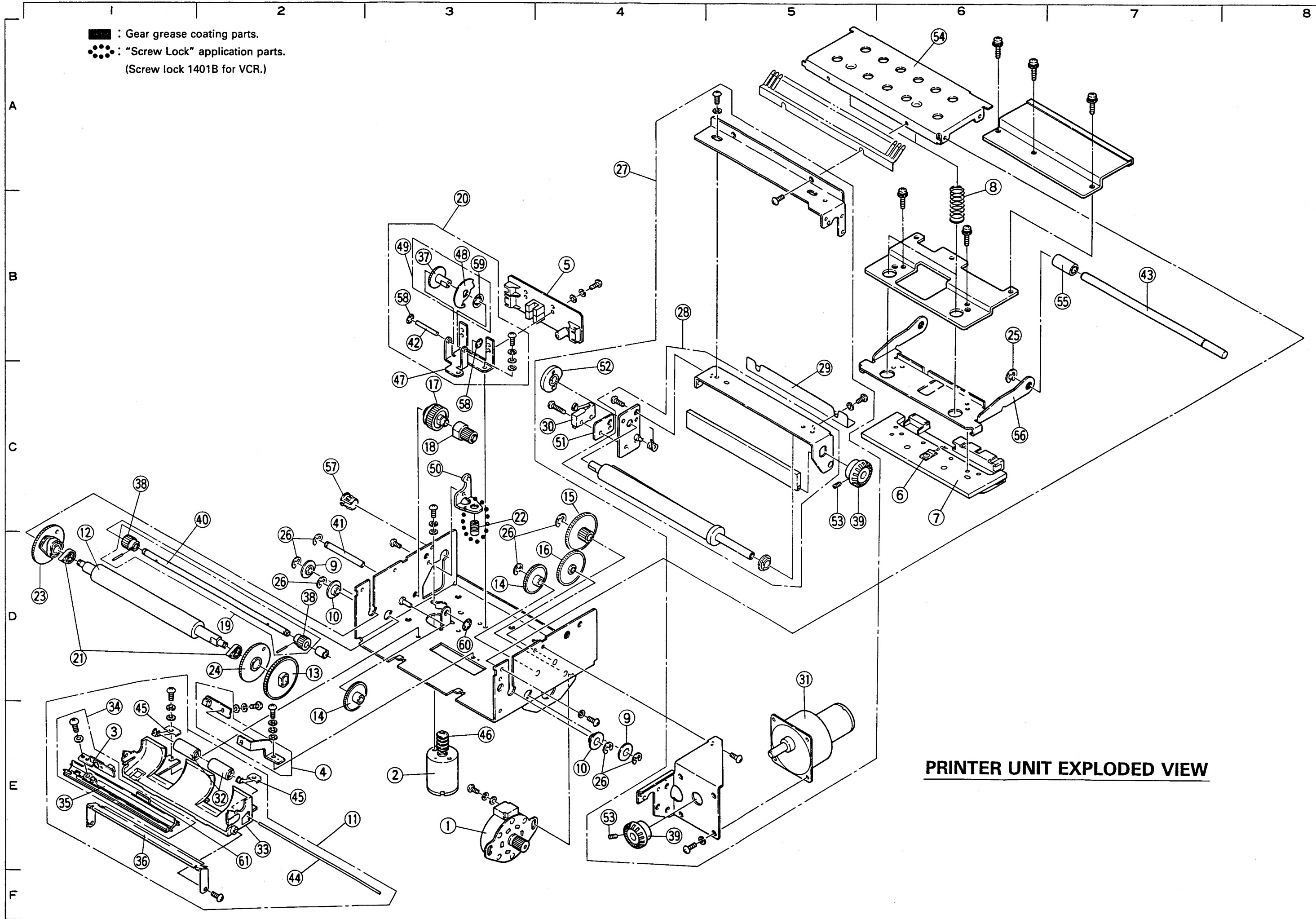


2 3 4 5 6 7 8

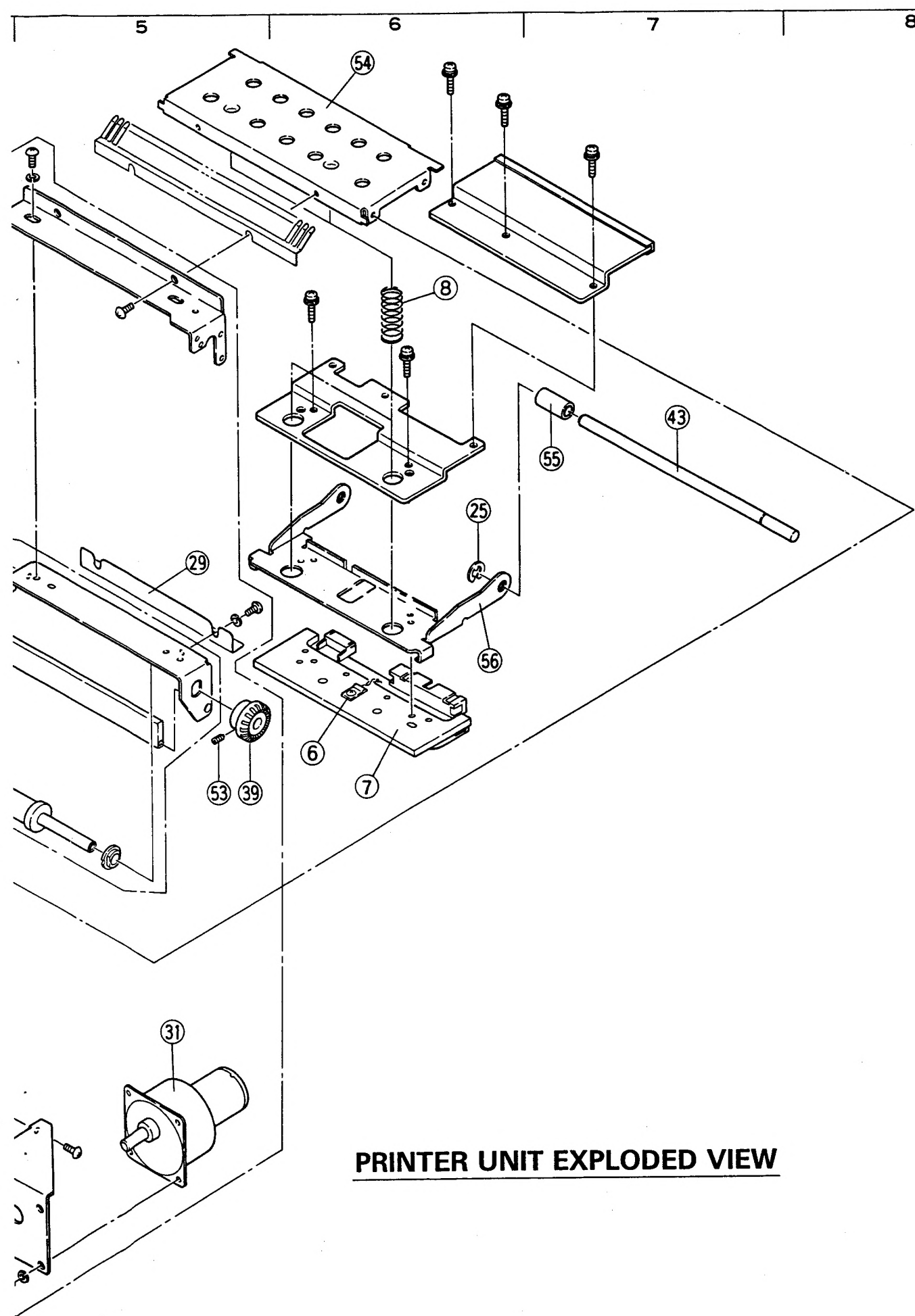


EXPLODED VIEW

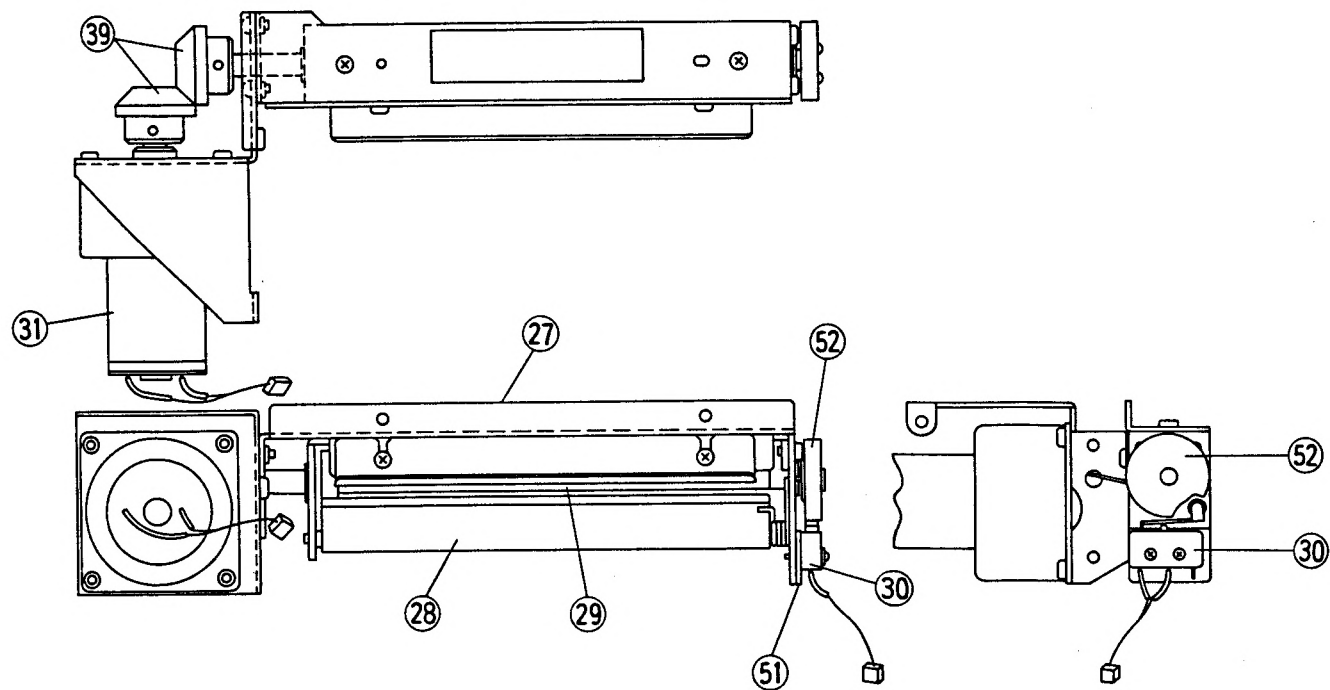
- : Gear grease coating parts.
- : "Screw Lock" application parts.
(Screw lock 1401B for VCR.)



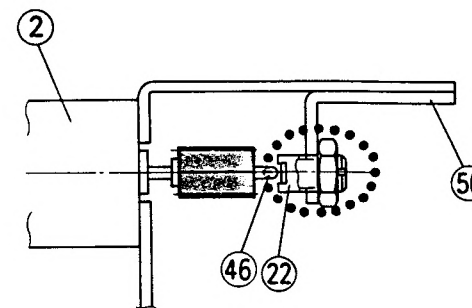
PRINTER UNIT EXPLODED VIEW



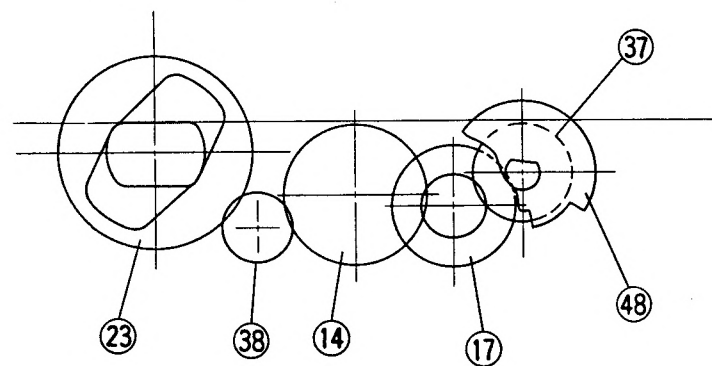
CUTTER-UNIT(28)



THRUST SCREW(22)



Installation angle of CAM(23) and GEAR (37)



PARTS LIST

In order to expedite delivery of replacement part orders.

- Specify : 1. Model number/Serial number
 2. Parts number and Description
 3. Quantity

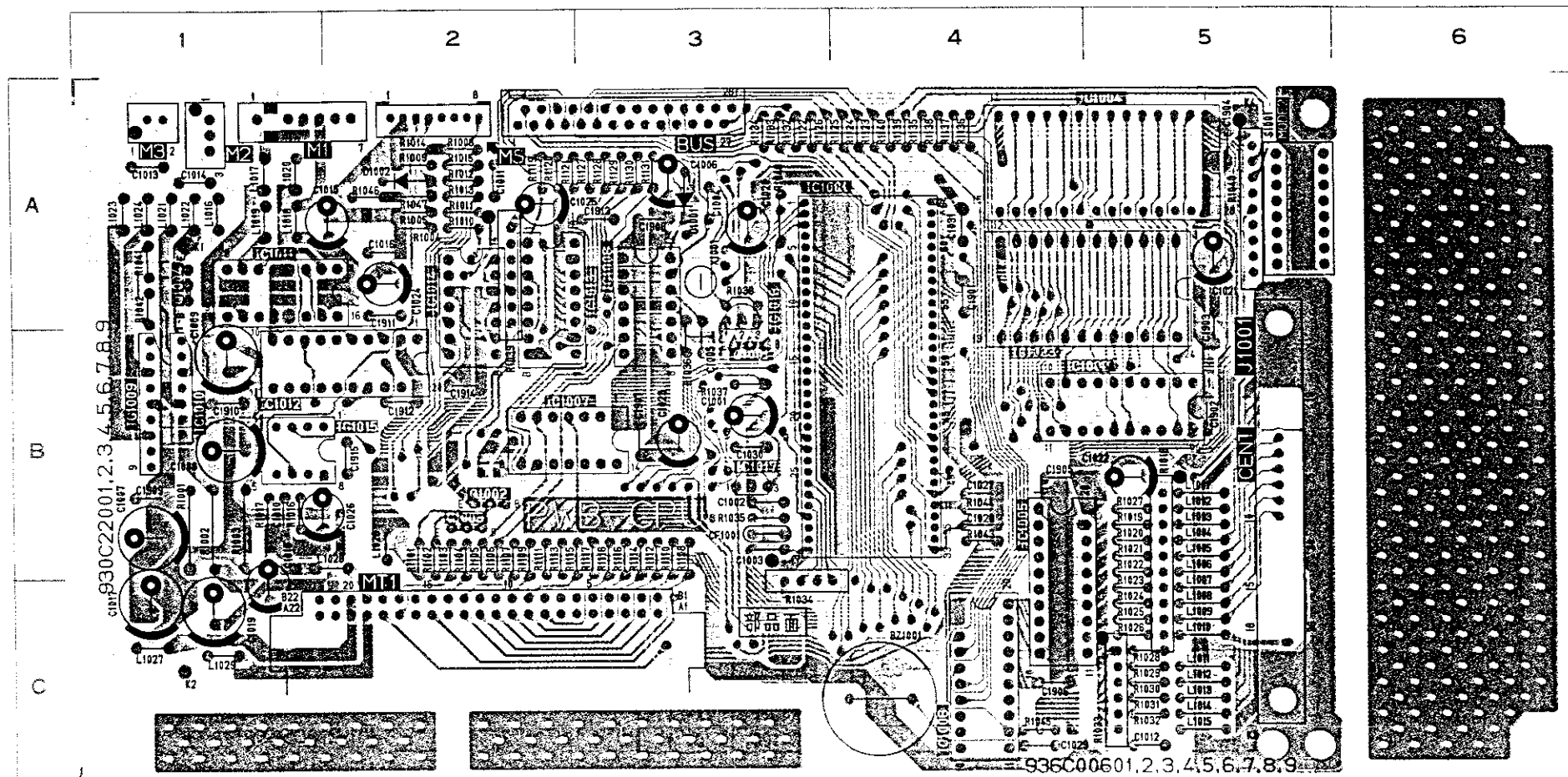
Unless full information is supplied, delay in execution of orders will result.

○ : New Parts

SYMBOL NO.	PARTS NAME	PARTS NO.	DESCRIPTION	ADDRESS	
1	PRINTER UNIT	939P223030			
2	STEP MOTOR	288D017090	LQ802X006Y00	E-3	
3	LOADING MOTOR	288D021010	LF423Y554G10	E-3	
4	SENSOR ASSY (PS1)	299D169030	LF425W126G01	E-1	
4	SENSOR ASSY (PS2)	299D169040	LF425W125G01	E-2	
5	RELAY CARD ASSY	299D169050	LF425X124G01	B-4	
6	DEW SENSOR	299D169000	LF424Y023G01	C-6	
7	THERMAL HEAD	460D010090	LQ992C012Y00	C-6	
8	H-SPRING	571D026040	LF422S646H02	A-6	
9	C-BUSHING	621D263020	LF423M256H02	D-2	E-4
10	D-BUSHING	621D263030	LF422J641H03	D-2	E-4
11	PAPER GUIDE ASSY	621D290090	LF321Y411G02	E-2	
12	PLATEN ROLLER ASSY	621D291020	LK9900666U00	D-1	
13	A-GEAR	621D262010	LF420G750H03	D-2	
14	C-GEAR	621D262030	LF420G752H02	D-3	E-2
15	D-GEAR	621D262040	LF420Y418H01	C-4	
16	E-GEAR	621D262050	LF420Y419H01	D-4	
17	F-GEAR	621D446050	LF321M681H01	C-3	
18	H-GEAR	621D446060	LF423M360H01	C-3	
19	GEAR ASSY	621D446040	LF422Y640G01	D-2	
20	BRACKET ASSY	621D537010	LF423Y375G01	B-3	
21	AUXILIARY GUIDE	621D538010	LF423M553H02	D-1	
22	THRUST SCREW ASSY	621D539010	LF423Y393G01	C-3	
23	CAM (L)	621D540010	LF220M555H02	D-1	
24	CAM (R)	621D540020	LF220M554H02	D-2	
25	E-RING	685D023090	LK885D000U00	B-6	
26	E-RING	685D026010	LK8877000U00	D-2	C-3
				E-4	
27	UNIT-CUTTER	589B008010		A-4	
28	ROTARY CUTTER	589C035010		B-4	
29	PAPER GUIDE	595D977010		C-5	
30	MICRO SWITCH	436P018010		C-4	
31	GEAR MOTOR	288P086010		D-5	
32	ROLLER	☆	LF422M643H02	E-2	
33	A PAPER GUIDE	☆	LF220M360H05	E-2	
34	C PAPER GUIDE ASSY	☆	LF321Y410G01	E-1	

SYMBOL NO.	PARTS NAME	PARTS NO.	DESCRIPTION	ADDRESS	
35	C PAPER GUIDE	☆	LF321M367H02	E-1	
36	D PAPER GUIDE	☆	LF321Z374H06	F-1	
37	G GEAR	☆	LF422G632H03	B-3	
38	J GEAR	☆	LF422G630H03	C-1	D-2
39	BEVEL GEAR	☆		C-5	E-4
40	E-SHAFT	☆	LF422J635H04	D-1	
41	F-SHAFT	☆	LF422J636H04	D-2	
42	G-SHAFT	☆	LF422J637H02	B-3	
43	H-SHAFT	☆	LF422J638H02	B-7	
44	R-SHAFT	☆	LF422J639H03	F-2	
45	SPRING	☆	LF321S623H04	E-1	E-2
46	AUXILIARY SHAFT	☆	LF423J390H01	E-3	
47	HOLDER (PCB)	☆	LF321Z372H01	C-3	
48	INTERRUPTION PLATE	☆	LF422Z648H03	B-3	
49	HOLDER (INTERRUPTION PLATE)	☆	LF423Y374G01	B-3	
50	SCREW TRAY STAND	☆	LF321Z482H01	C-3	
51	SPACER	☆		C-4	
52	CAM	☆		C-4	
53	SET SCREW	☆		C-5	E-4
54	COVER	☆	LF320Z917H02	A-6	
55	H-SPACER	☆	LF422M645H02	B-7	
56	HEAD MOUNTING PLATE	☆	LF320Z918H05	C-6	
57	BUSHING	☆	LQ194K004Y00	C-2	
58	RETAINING RING (CS)	☆	LK9402000U00	B-3	C-3
59	RETAINING RING (CS)	☆	LK9406000U00	B-3	
60	RETAINING RING (CS)	☆	LK9404000U00	D-3	
61	SENSOR PLATEN ASSY	299D169060	LF425Y130G01	E-1	

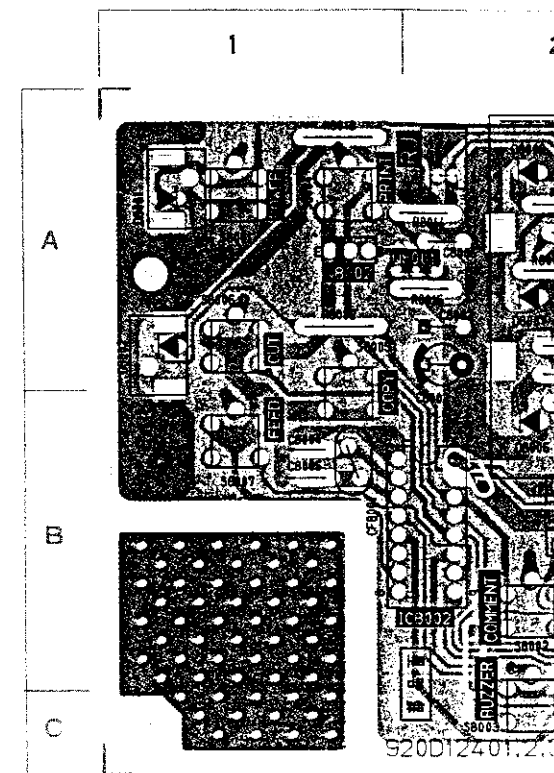
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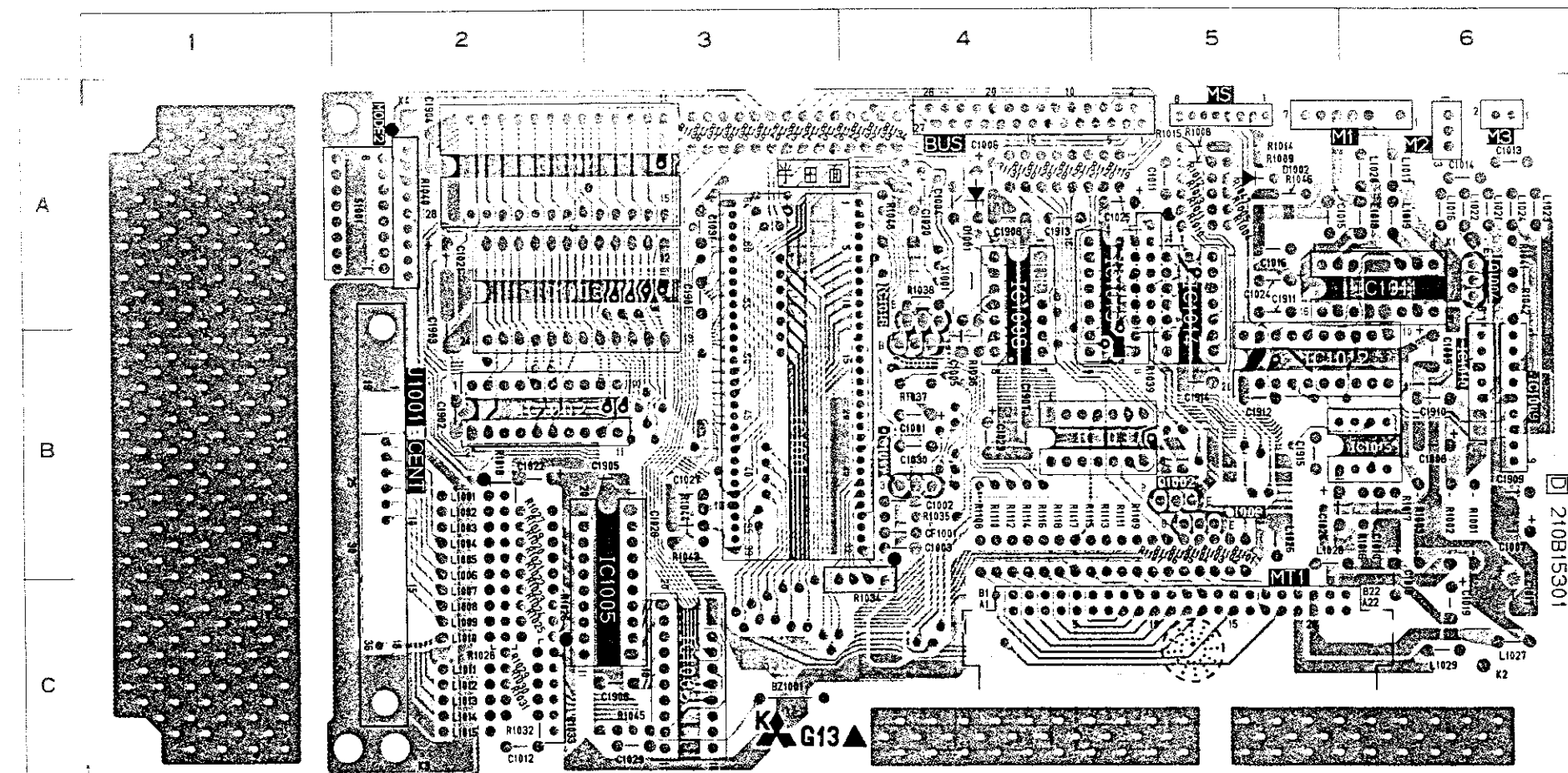
PCB-CPU (PARTS-SIDE)

SYMBOL NO.	ADDRESS
D1001	A- 3
D1002	A- 2
IC1001	B- 4
IC1002	B- 4
IC1003	A- 4
IC1004	A- 4
IC1005	C- 4
IC1006	C- 4
IC1007	B- 2
IC1008	B- 3
IC1009	B- 1
IC1010	B- 1
IC1011	A- 1
IC1012	B- 1
IC1013	A- 2
IC1014	B- 2
IC1015	B- 1
IC1016	A- 3
IC1017	B- 3
L1001	B- 5
L1002	B- 5
L1003	B- 5
L1004	B- 5
L1005	B- 5
L1006	B- 5
L1007	C- 5

SYMBOL NO.	ADDRESS
L1008	C- 5
L1009	C- 5
L1010	C- 5
L1011	C- 5
L1012	C- 5
L1013	C- 5
L1014	C- 5
L1015	C- 5
L1016	A- 1
L1017	A- 1
L1018	A- 1
L1019	A- 1
L1020	A- 1
L1021	A- 1
L1022	A- 1
L1023	A- 1
L1024	A- 1
L1026	B- 2
L1027	C- 1
L1028	B- 1
L1029	C- 1
Q1001	B- 3
Q1002	B- 2
Q1003	B- 2
Q1004	A- 1
X1001	A- 3



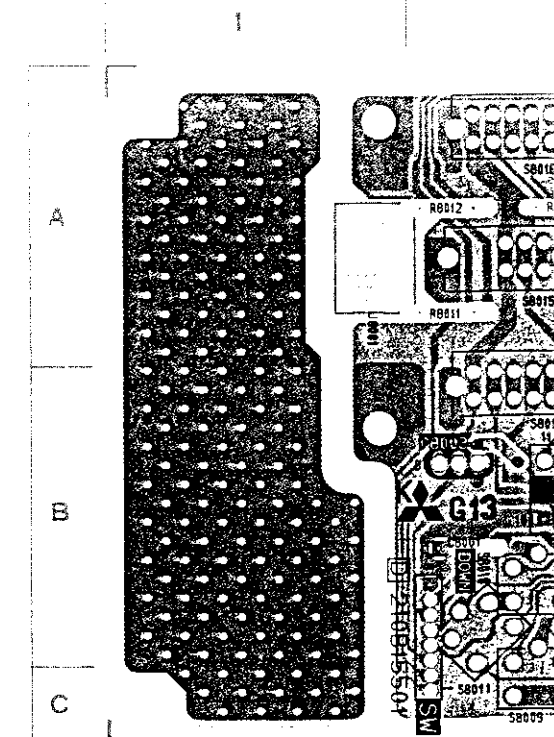
PCB-CPU

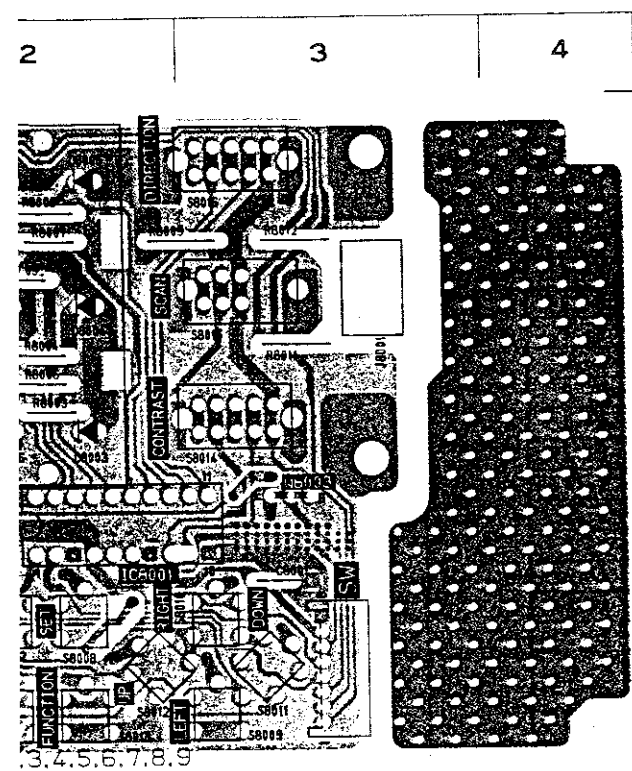


PCB-CPU (FOIL-SIDE)

SYMBOL NO.	ADDRESS
D1001	A- 4
D1002	A- 5
IC1001	B- 3
IC1002	B- 3
IC1003	A- 3
IC1004	A- 3
IC1005	C- 3
IC1006	C- 3
IC1007	B- 5
IC1008	B- 4
IC1009	B- 6
IC1010	B- 6
IC1011	A- 6
IC1012	B- 6
IC1013	B- 5
IC1014	B- 5
IC1015	B- 6
IC1016	B- 4
IC1017	B- 4
L1001	B- 2
L1002	B- 2
L1003	B- 2
L1004	B- 2
L1005	B- 2
L1006	C- 2
L1007	C- 2

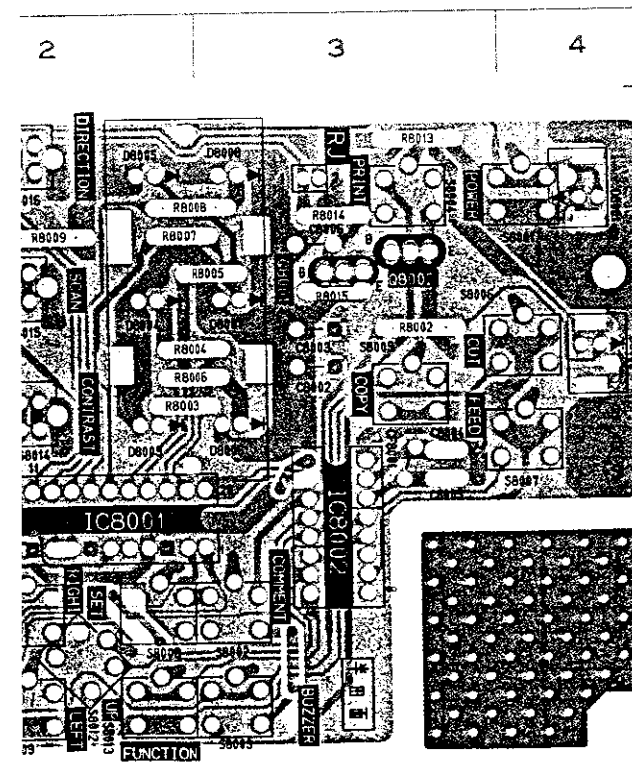
SYMBOL NO.	ADDRESS
L1008	C- 2
L1009	C- 2
L1010	C- 2
L1011	C- 2
L1012	C- 2
L1013	C- 2
L1014	C- 2
L1015	C- 2
L1016	A- 6
L1017	A- 6
L1018	A- 6
L1019	A- 6
L1020	A- 6
L1021	A- 6
L1022	A- 6
L1023	A- 6
L1024	A- 6
L1026	B- 5
L1027	C- 6
L1028	B- 6
L1029	C- 6
Q1001	B- 4
Q1002	B- 5
Q1003	B- 5
Q1004	A- 6
X1001	A- 4





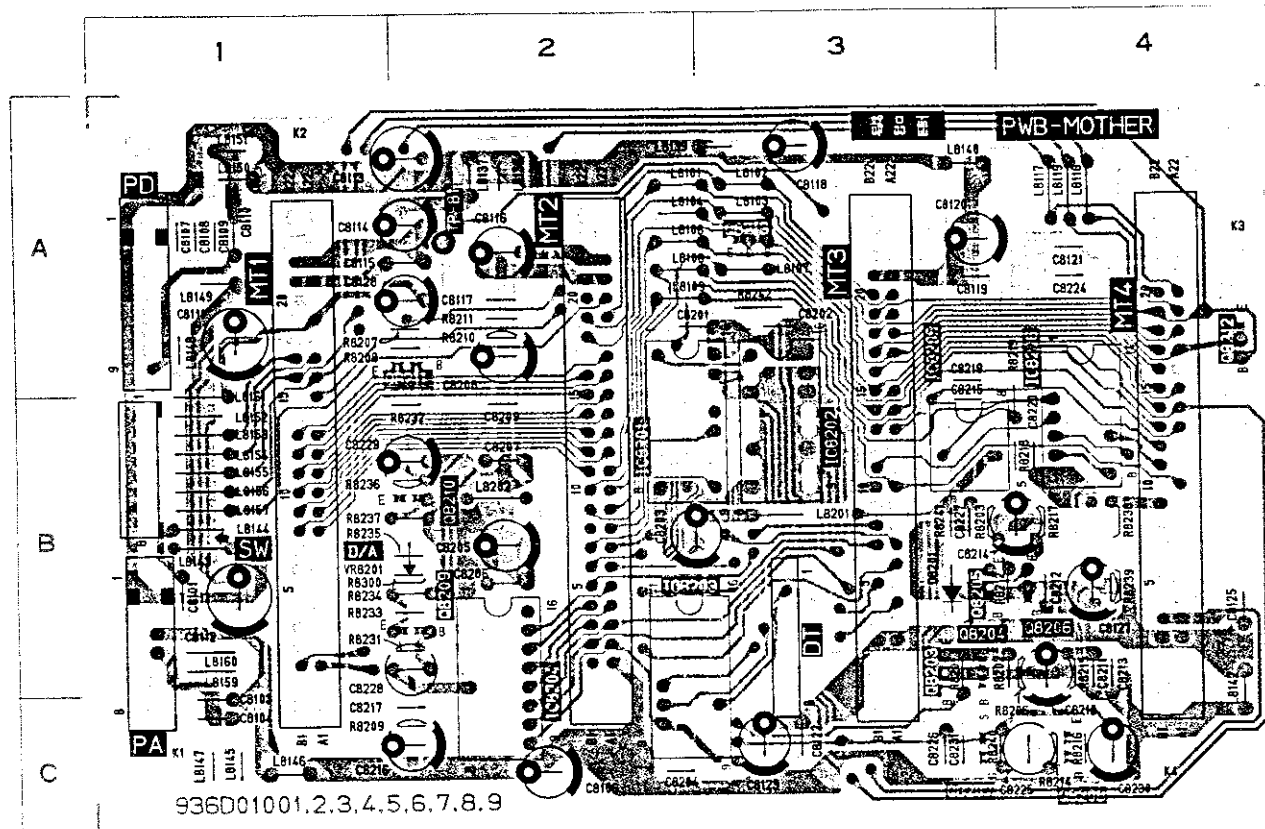
SYMBOL NO.	ADDRESS
D8001	A- 1
D8002	A- 1
D8003	B- 2
D8004	A- 2
D8005	A- 2
D8006	B- 2
D8007	A- 2
D8008	A- 2
IC8001	B- 2
IC8002	B- 2
Q8001	A- 2
Q8002	A- 1
Q8003	B- 3

-SW (PARTS-SIDE)



SYMBOL NO.	ADDRESS
D8001	A- 4
D8002	A- 4
D8003	B- 2
D8004	A- 2
D8005	A- 2
D8006	B- 3
D8007	A- 3
D8008	A- 3
IC8001	B- 2
IC8002	B- 3
Q8001	A- 3
Q8002	A- 3
Q8003	B- 2

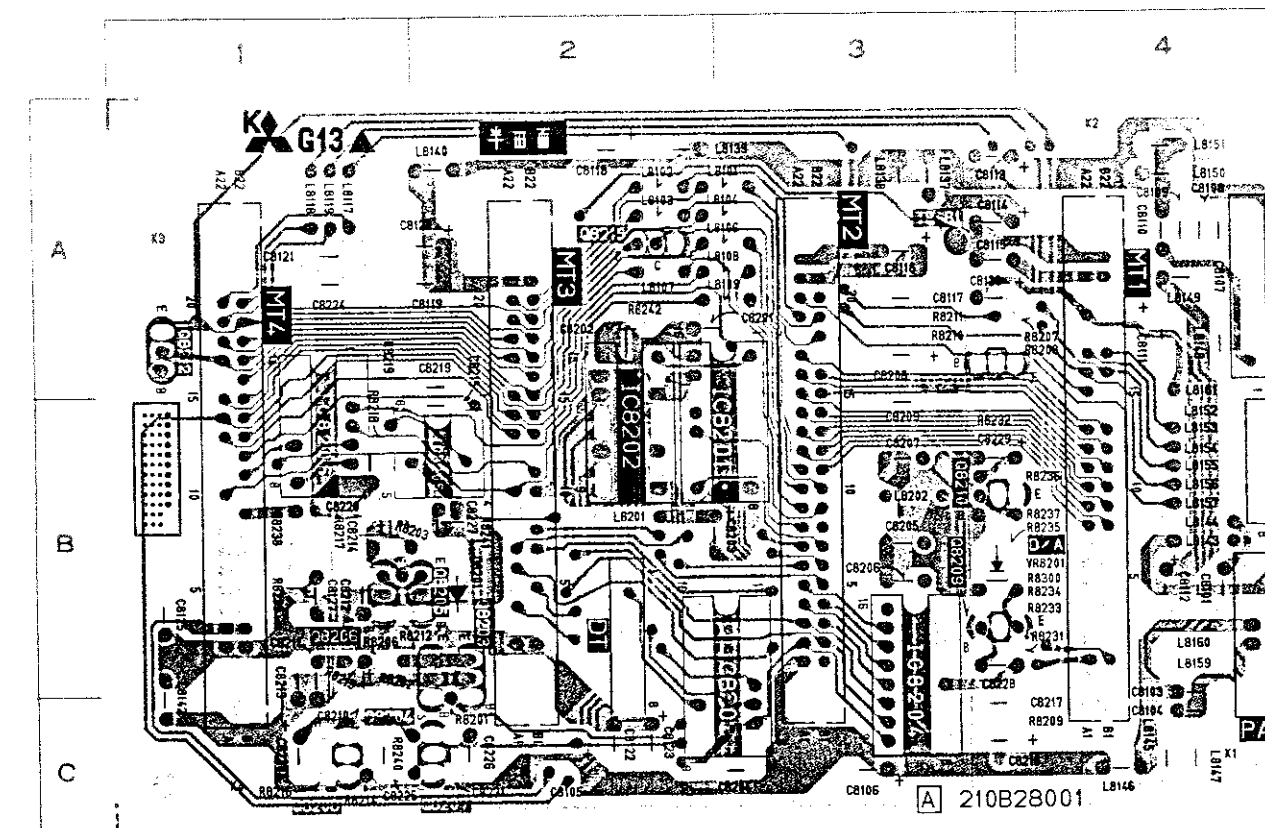
PCB-SW (FOIL-SIDE)



PCB-MOTHER (PARTS-SIDE)

SYMBOL NO.	ADDRESS
D8201	B- 3
IC8201	B- 2
IC8202	B- 3
IC8203	C- 2
IC8204	C- 2
IC8205	B- 3
IC8206	B- 4
L8101	A- 2
L8102	A- 3
L8103	A- 3
L8104	A- 2
L8106	A- 2
L8107	A- 3
L8108	A- 2
L8109	A- 2
L8117	A- 4
L8118	A- 4
L8119	A- 4
L8137	A- 2
L8138	A- 2
L8139	A- 2
L8140	A- 3
L8142	C- 4
L8143	B- 1
L8144	B- 1
L8145	C- 1
L8146	C- 1
L8147	C- 1
L8148	A- 1

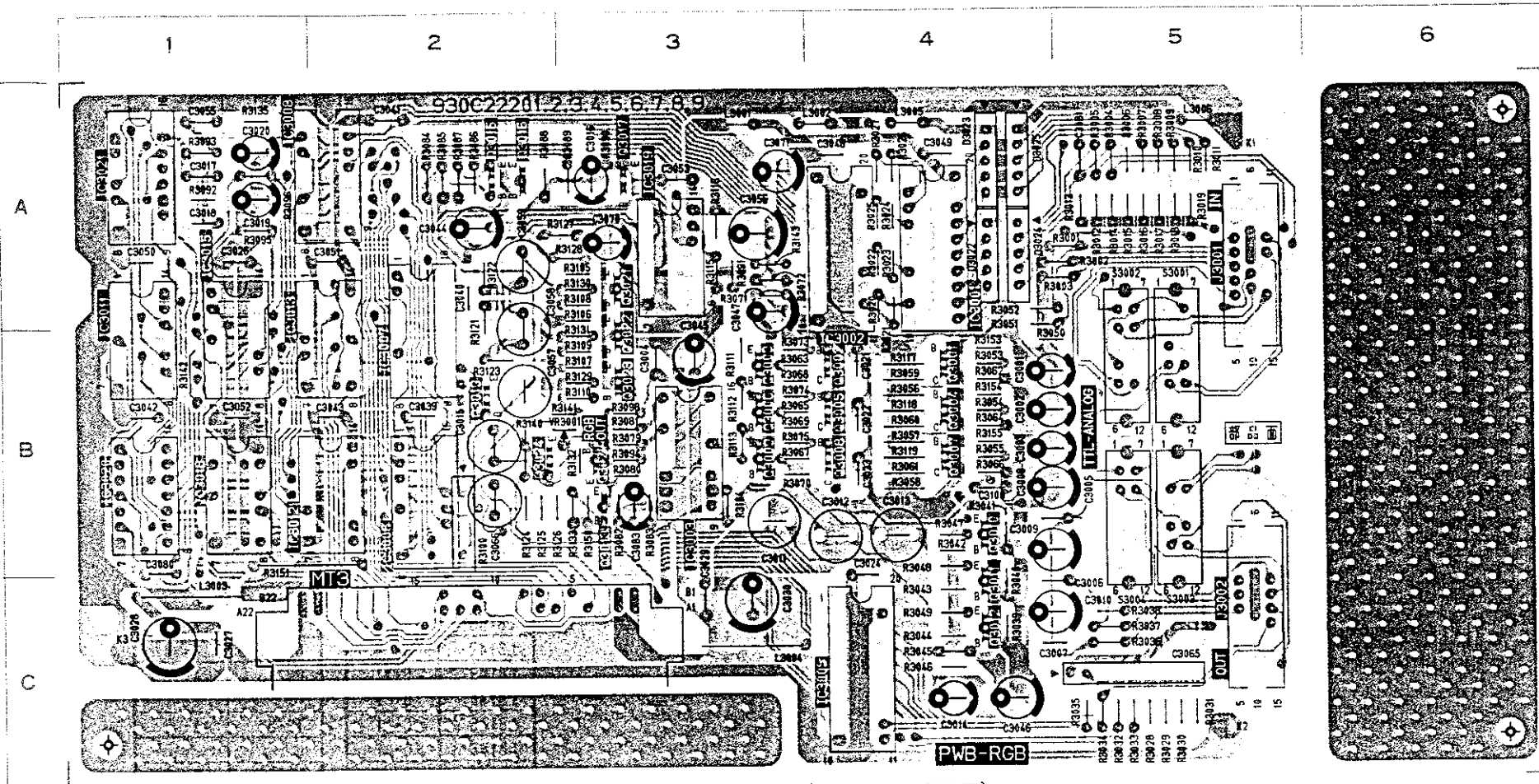
SYMBOL NO.	ADDRESS
L8149	A- 1
L8150	A- 1
L8151	A- 1
L8152	B- 1
L8153	B- 1
L8154	B- 1
L8155	B- 1
L8156	B- 1
L8157	B- 1
L8159	B- 1
L8160	B- 1
L8161	A- 1
L8201	B- 3
L8202	B- 2
Q8203	B- 3
Q8204	C- 3
Q8205	B- 3
Q8206	B- 4
Q8207	C- 3
Q8208	C- 4
Q8209	B- 2
Q8210	B- 2
Q8211	A- 2
Q8212	A- 4
Q8213	A- 3
TP-81	A- 2
VR8201	B- 1



PCB-MOTHER (FOIL-SIDE)

SYMBOL NO.	ADDRESS
D8201	B- 2
IC8201	B- 3
IC8202	B- 2
IC8203	C- 3
IC8204	C- 3
IC8205	B- 2
IC8206	B- 1
L8101	A- 3
L8102	A- 2
L8103	A- 2
L8104	A- 3
L8106	A- 3
L8107	A- 2
L8108	A- 3
L8109	A- 3
L8117	A- 1
L8118	A- 1
L8119	A- 1
L8137	A- 3
L8138	A- 3
L8139	A- 3
L8140	A- 2
L8142	C- 1
L8143	B- 4
L8144	B- 4
L8145	C- 4
L8146	C- 4
L8147	C- 4
L8148	A- 4

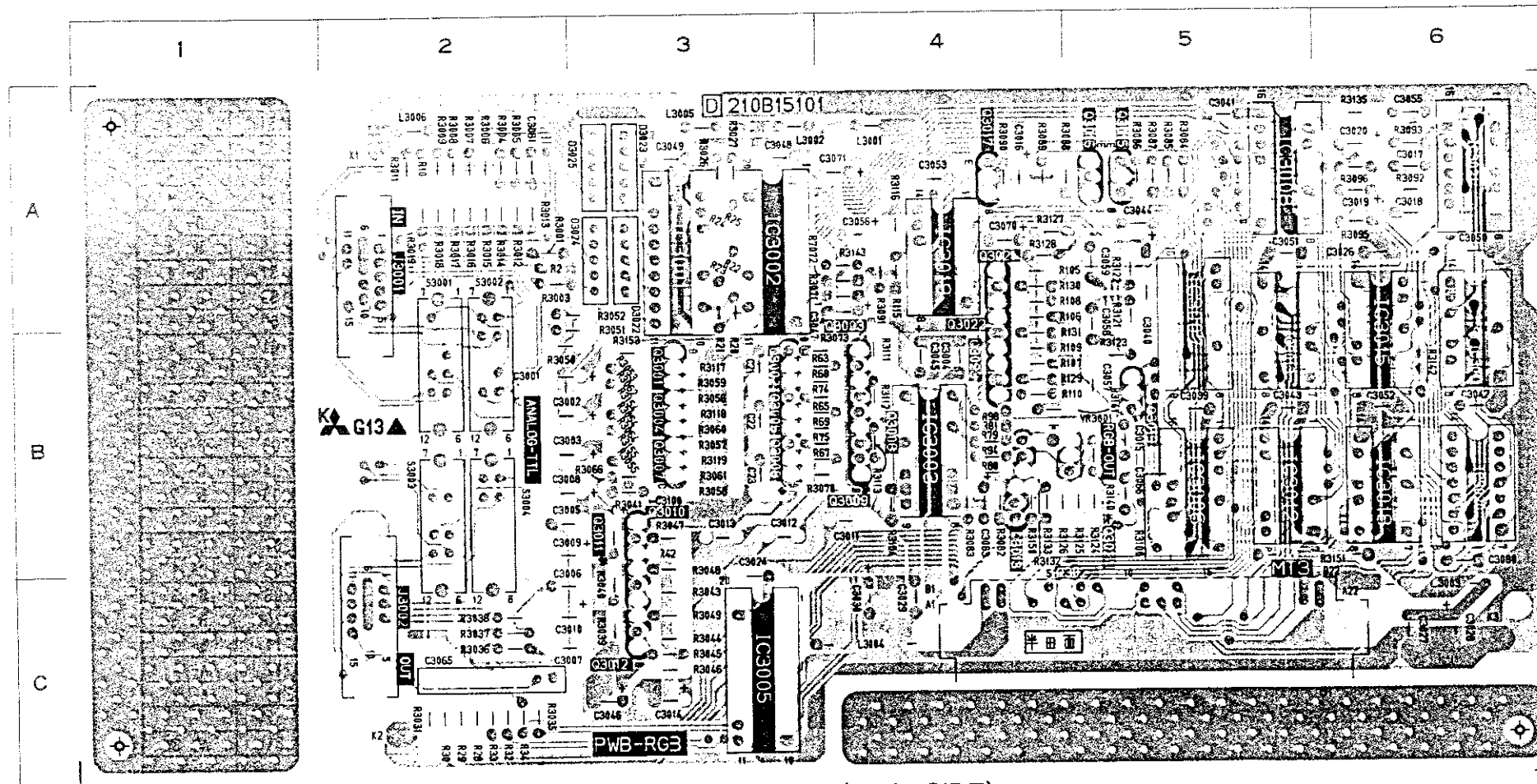
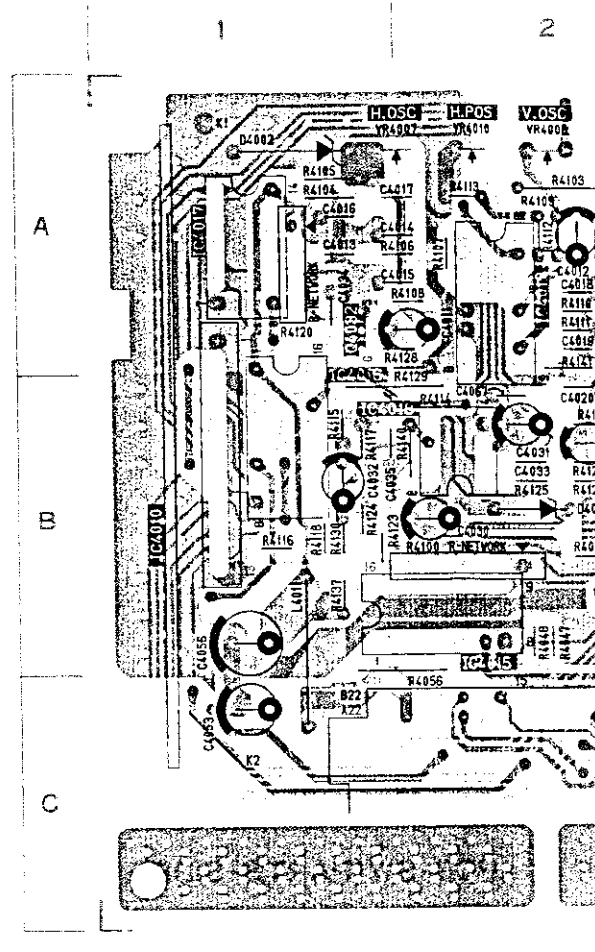
SYMBOL NO.	ADDRESS
L8149	A- 4
L8150	A- 4
L8151	A- 4
L8152	B- 4
L8153	B- 4
L8154	B- 4
L8155	B- 4
L8156	B- 4
L8157	B- 4
L8159	B- 4
L8160	B- 4
L8161	B- 4
L8201	B- 2
L8202	B- 3
Q8203	B- 2
Q8204	C- 2
Q8205	B- 2
Q8206	B- 1
Q8207	C- 2
Q8208	C- 1
Q8209	B- 3
Q8210	B- 3
Q8211	B- 3
Q8212	A- 1
Q8213	A- 2
TP-81	A- 3
VR8201	B- 4



PCB-RGB (PARTS-SIDE)

SYMBOL NO.	ADDRESS
D3022	B- 4
D3023	A- 4
D3024	A- 4
D3025	A- 4
IC3001	A- 4
IC3002	A- 4
IC3003	B- 3
IC3005	C- 4
IC3006	B- 2
IC3007	B- 2
IC3008	A- 2
IC3011	B- 1
IC3012	B- 2
IC3013	B- 2
IC3015	B- 1
IC3018	B- 1
IC3019	A- 3
IC3020	B- 1
IC3021	A- 1
L3001	A- 3
L3002	A- 3
L3003	C- 1
L3004	C- 3
L3005	A- 4

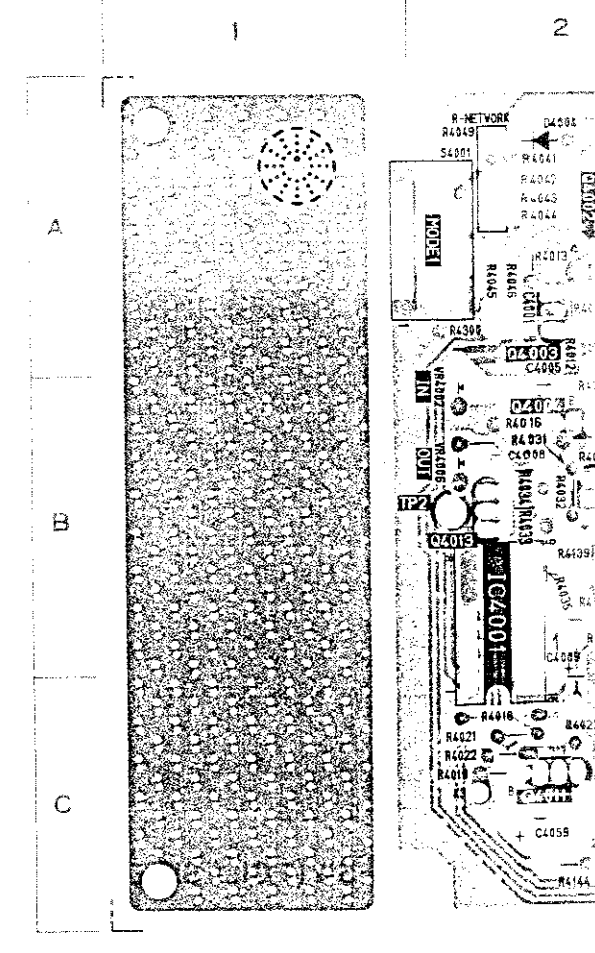
SYMBOL NO.	ADDRESS
L3006	A- 5
Q3001	B- 4
Q3002	B- 4
Q3003	B- 3
Q3004	B- 4
Q3005	B- 4
Q3006	B- 3
Q3007	B- 4
Q3008	B- 4
Q3009	B- 3
Q3010	B- 4
Q3011	B- 4
Q3012	C- 4
Q3013	B- 3
Q3015	A- 2
Q3016	A- 2
Q3017	A- 3
Q3019	B- 2
Q3021	A- 3
Q3022	B- 3
Q3023	B- 3
Q3024	B- 2
Q3027	C- 2
VR3001	B- 2



PCB-RGB (FOIL-SIDE)

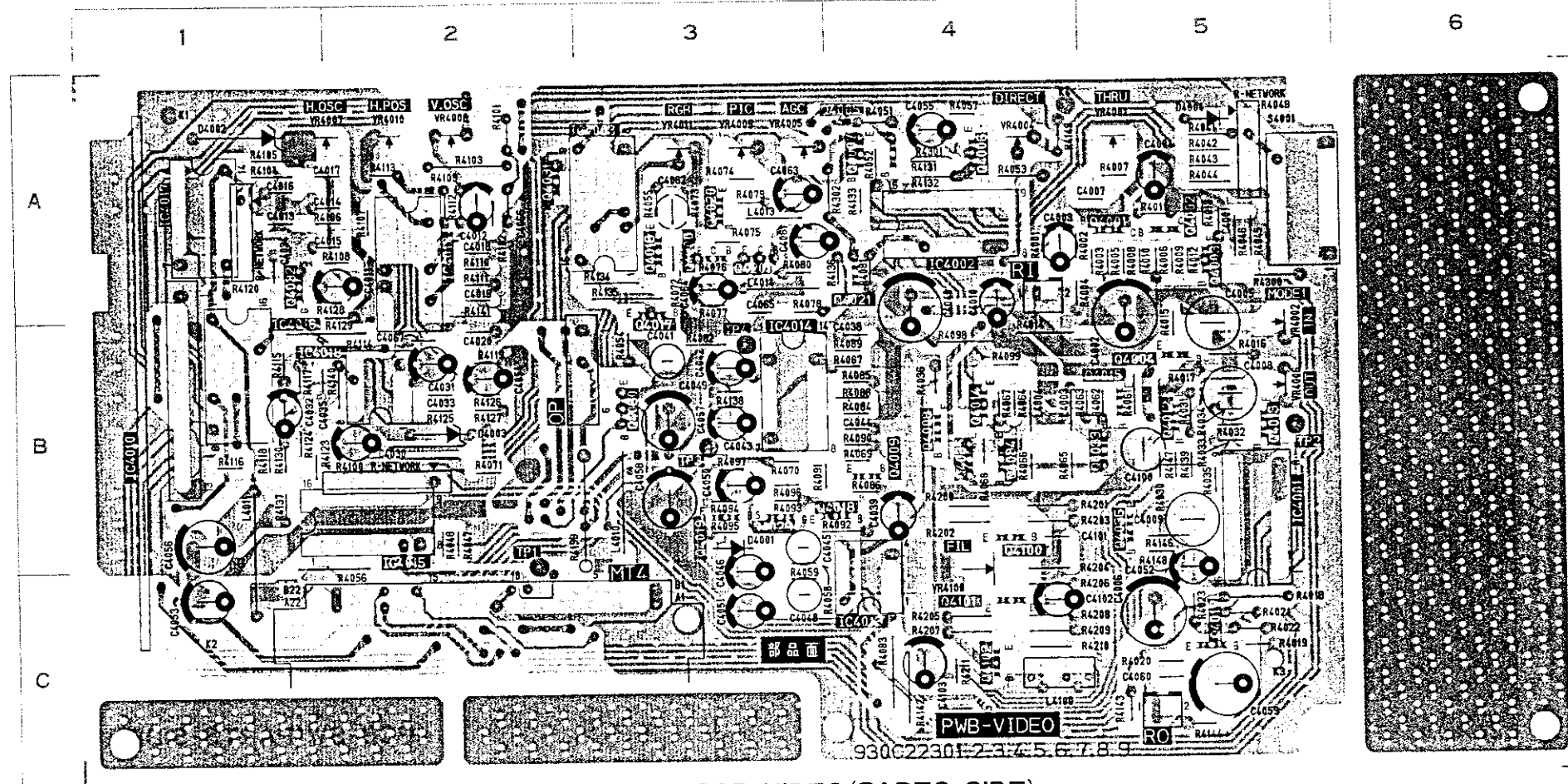
SYMBOL NO.	ADDRESS
D3022	B- 3
D3023	A- 3
D3024	A- 3
D3025	A- 3
IC3001	A- 3
IC3002	A- 3
IC3003	B- 4
IC3005	C- 3
IC3006	B- 5
IC3007	B- 5
IC3008	A- 5
IC3011	B- 6
IC3012	B- 5
IC3013	B- 5
IC3015	B- 6
IC3018	B- 6
IC3019	A- 4
IC3020	B- 6
IC3021	A- 6
L3001	A- 4
L3002	A- 4
L3003	C- 6
L3004	C- 4
L3005	A- 3

SYMBOL NO.	ADDRESS
L3006	A- 2
Q3001	B- 3
Q3002	B- 3
Q3003	B- 4
Q3004	B- 3
Q3005	B- 3
Q3006	B- 4
Q3007	B- 3
Q3008	B- 3
Q3009	B- 4
Q3010	B- 3
Q3011	B- 3
Q3012	C- 3
Q3013	C- 4
Q3015	A- 5
Q3016	A- 5
Q3017	A- 4
Q3019	B- 5
Q3021	A- 4
Q3022	B- 4
Q3023	B- 4
Q3024	C- 5
Q3027	C- 5
VR3001	B- 5



SYMBOL NO.	ADDRESS
D3022	B-4
D3023	A-4
D3024	A-4
D3025	A-4
IC3001	A-4
IC3002	A-4
IC3003	B-3
IC3005	C-4
IC3006	B-2
IC3007	B-2
IC3008	A-2
IC3011	B-1
IC3012	B-2
IC3013	B-2
IC3015	B-1
IC3018	B-1
IC3019	A-3
IC3020	B-1
IC3021	A-1
L3001	A-3
L3002	A-3
L3003	C-1
L3004	C-3
L3005	A-4

SYMBOL NO.	ADDRESS
L3006	A-5
Q3001	B-4
Q3002	B-4
Q3003	B-3
Q3004	B-4
Q3005	B-4
Q3006	B-3
Q3007	B-4
Q3008	B-4
Q3009	B-3
Q3010	B-4
Q3011	B-4
Q3012	C-4
Q3013	B-3
Q3015	A-2
Q3016	A-2
Q3017	A-3
Q3019	B-2
Q3021	A-3
Q3022	B-3
Q3023	B-3
Q3024	B-2
Q3027	C-2
VR3001	B-2



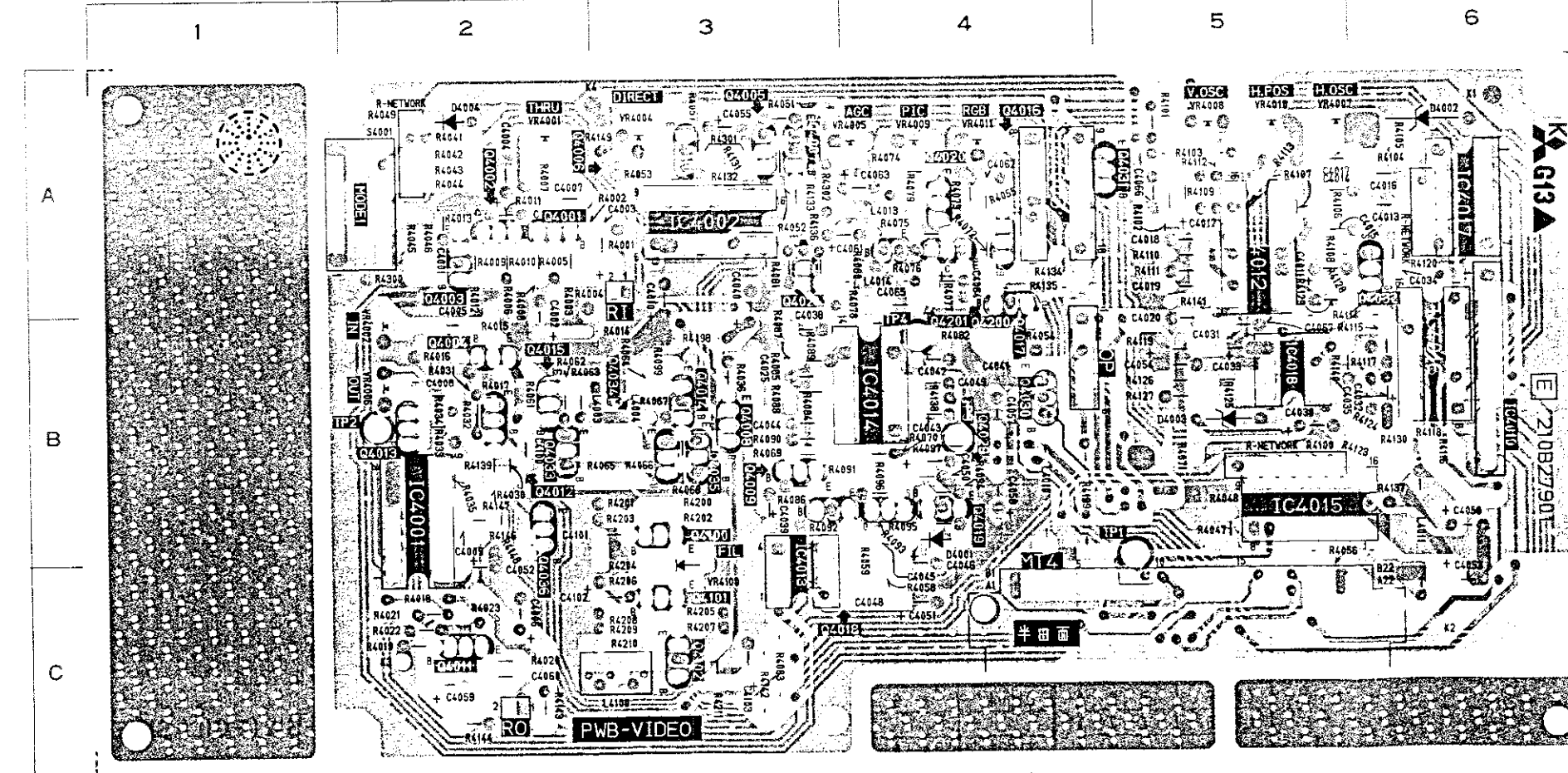
PCB-VIDEO (PARTS-SIDE)

SYMBOL NO.	ADDRESS
D4001	B-3
D4002	A-1
D4003	B-2
D4004	A-5
IC4001	B-5
IC4002	A-4
IC4003	A-3
IC4010	B-1
IC4012	A-2
IC4013	C-4
IC4014	B-3
IC4015	B-2
IC4016	B-1
IC4017	A-1
IC4018	B-2
L4003	B-4
L4004	B-4
L4010	B-3
L4011	B-1
L4013	A-3
L4014	A-3
L4100	C-4

SYMBOL NO.	ADDRESS
Q4001	A-4
Q4002	A-5
Q4003	A-5
Q4004	B-5
Q4005	A-4
Q4006	A-5
Q4007	A-4
Q4008	B-4
Q4009	B-4
Q4011	C-5
Q4012	B-5
Q4013	B-5
Q4014	B-4
Q4015	B-5
Q4016	A-3
Q4017	B-3
Q4018	C-3
Q4019	B-3
Q4020	A-4
Q4021	A-4
Q4029	B-3
Q4030	B-3
Q4031	A-2
Q4032	A-1
Q4033	B-5

SYMBOL NO.	ADDRESS
D3022	B-3
D3023	A-3
D3024	A-3
D3025	A-3
IC3001	A-3
IC3002	A-3
IC3003	B-4
IC3005	C-3
IC3006	B-5
IC3007	B-5
IC3008	A-5
IC3011	B-6
IC3012	B-5
IC3013	B-5
IC3015	B-6
IC3018	B-6
IC3019	A-4
IC3020	B-6
IC3021	A-6
L3001	A-4
L3002	A-4
L3003	C-6
L3004	C-4
L3005	A-3

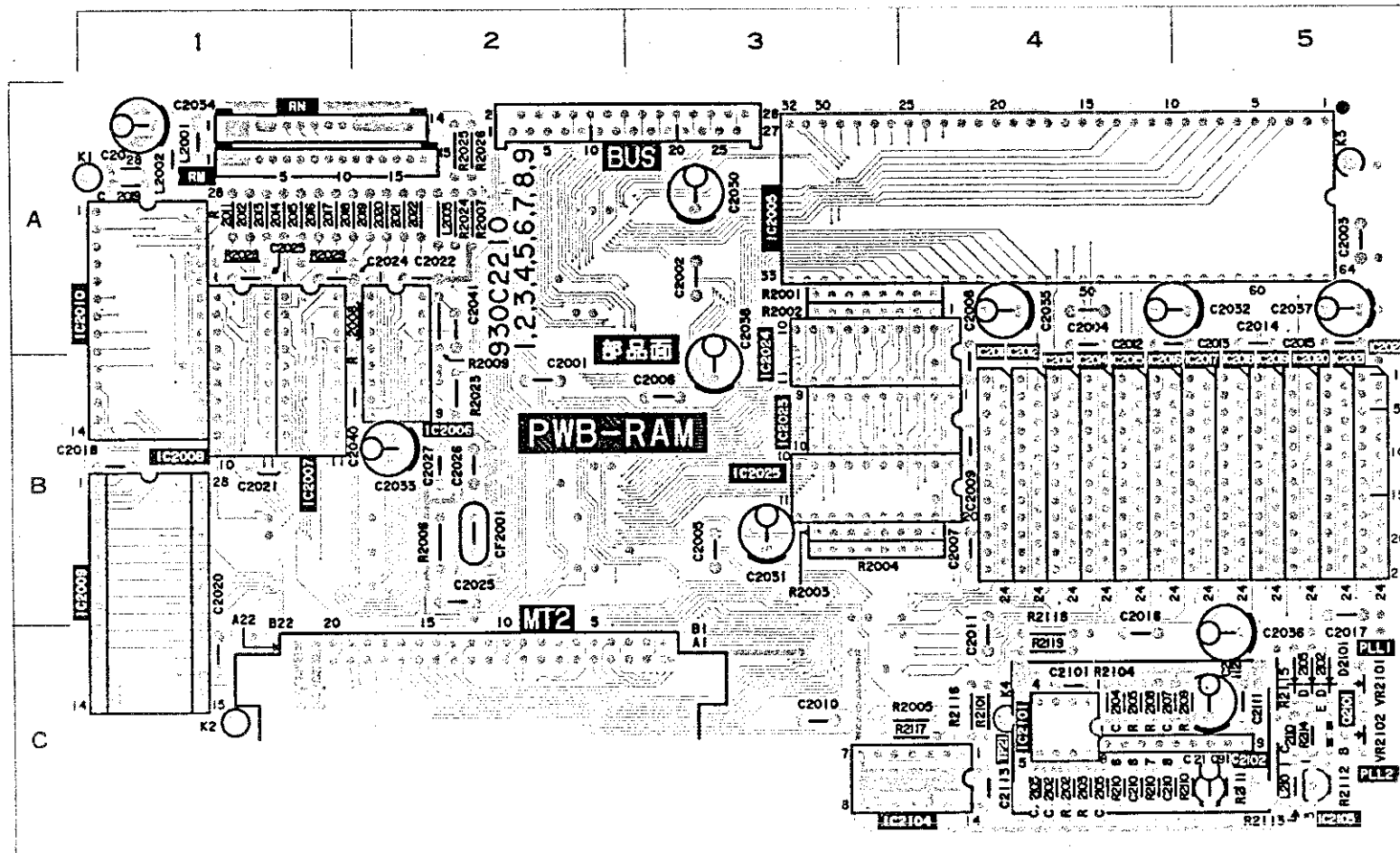
SYMBOL NO.	ADDRESS
L3006	A-2
Q3001	B-3
Q3002	B-3
Q3003	B-4
Q3004	B-3
Q3005	B-3
Q3006	B-4
Q3007	B-3
Q3008	B-3
Q3009	B-4
Q3010	B-3
Q3011	B-3
Q3012	C-3
Q3013	C-4
Q3015	A-5
Q3016	A-5
Q3017	A-4
Q3019	B-5
Q3021	A-4
Q3022	B-4
Q3023	B-4
Q3024	C-5
Q3027	C-5
VR3001	B-5



PCB-VIDEO (FOIL-SIDE)

SYMBOL NO.	ADDRESS
D4001	C-4
D4002	A-6
D4003	B-5
D4004	A-2
IC4001	B-2
IC4002	A-3
IC4003	A-4
IC4010	B-6
IC4012	A-5
IC4013	C-3
IC4014	B-4
IC4015	B-5
IC4016	B-6
IC4017	A-6
IC4018	B-5
L4003	B-3
L4004	B-3
L4010	B-4
L4011	B-6
L4013	A-4
L4014	A-4
L4100	C-3

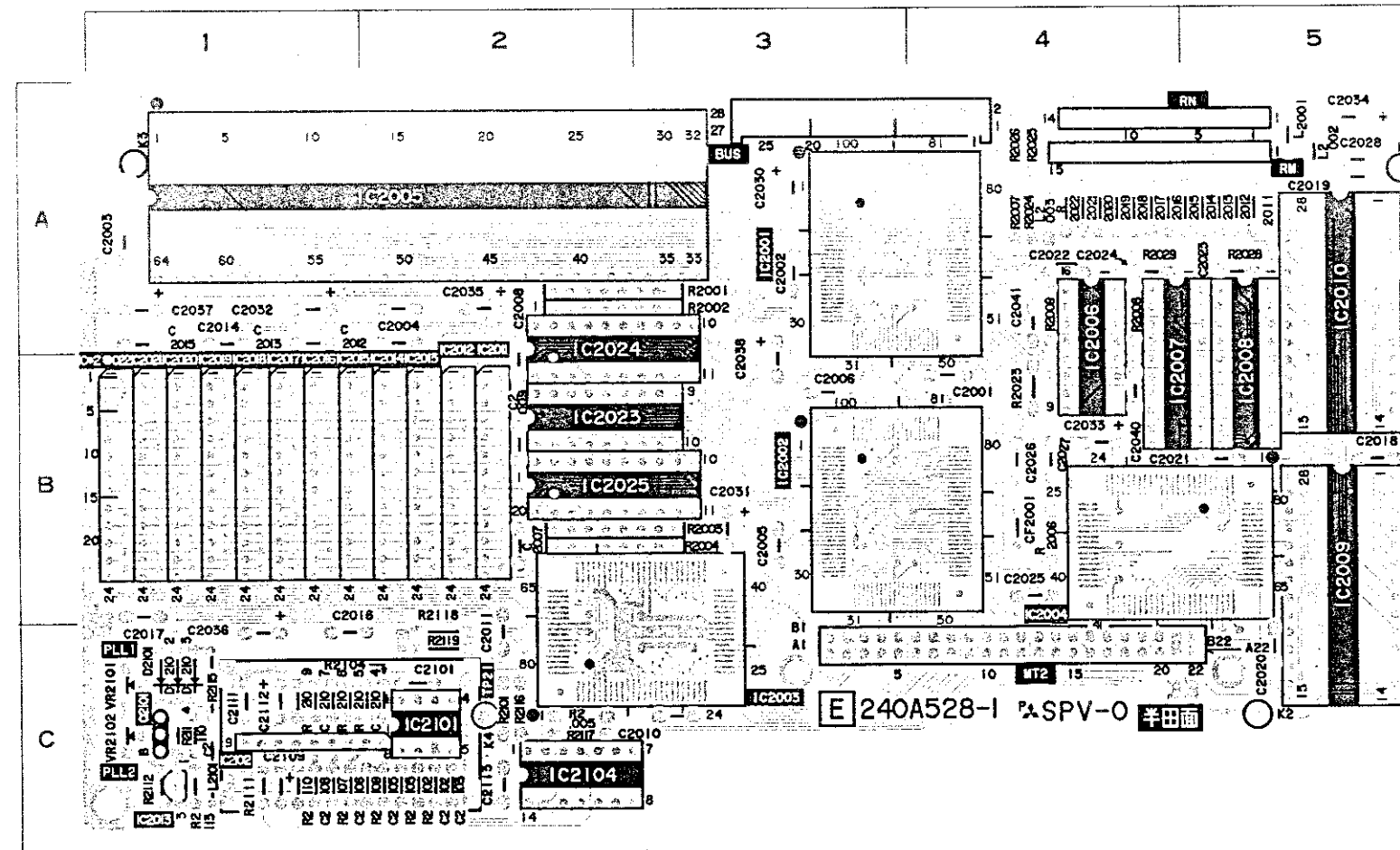
SYMBOL NO.	ADDRESS
Q4001	A-2
Q4002	A-2
Q4003	A-2
Q4004	B-2
Q4005	A-3
Q4006	A-2
Q4007	A-2
Q4008	B-2
Q4009	B-2
Q4011	C-2
Q4012	B-2
Q4013	B-2
Q4014	B-2
Q4015	B-2
Q4016	A-2
Q4017	B-2
Q4018	C-2
Q4019	B-2
Q4020	A-2
Q4021	B-2
Q4029	B-2
Q4030	B-2
Q4031	A-2
Q4032	B-2
Q4033	B-2



PCB-AM (PARTS-SIDE)

SYMBOL NO.	ADDRESS
CF2001	B-2
D2101	C-5
D2102	C-5
D2103	C-5
IC2005	A-4
IC2006	B-2
IC2007	B-1
IC2008	B-1
IC2009	B-1
IC2010	A-1
IC2011	B-4
IC2012	B-4
IC2013	B-4
IC2014	B-4
IC2015	B-4
IC2016	B-5
IC2017	B-5
IC2018	B-5
IC2019	B-5
IC2020	B-5
IC2021	B-5
IC2022	B-5

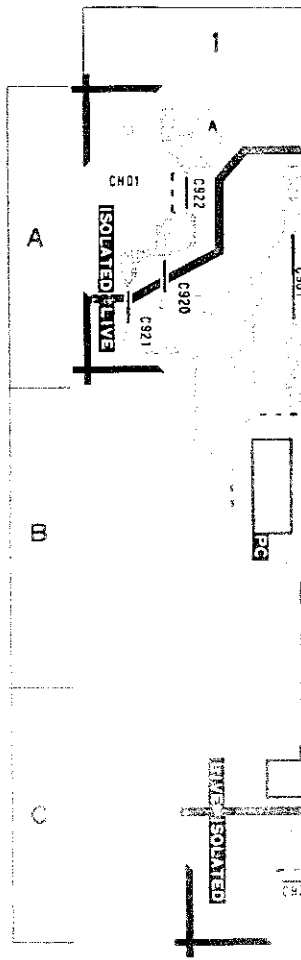
SYMBOL NO.	ADDRESS
IC2023	B-3
IC2024	A-3
IC2025	B-3
IC2101	C-4
IC2102	C-5
IC2103	C-5
IC2104	C-4
L2001	A-1
L2002	A-1
L2003	A-1
L2101	C-5
Q2101	C-5
TP21	C-4
VR2101	C-5
VR2102	C-5



PCB-AM (FOIL-SIDE)

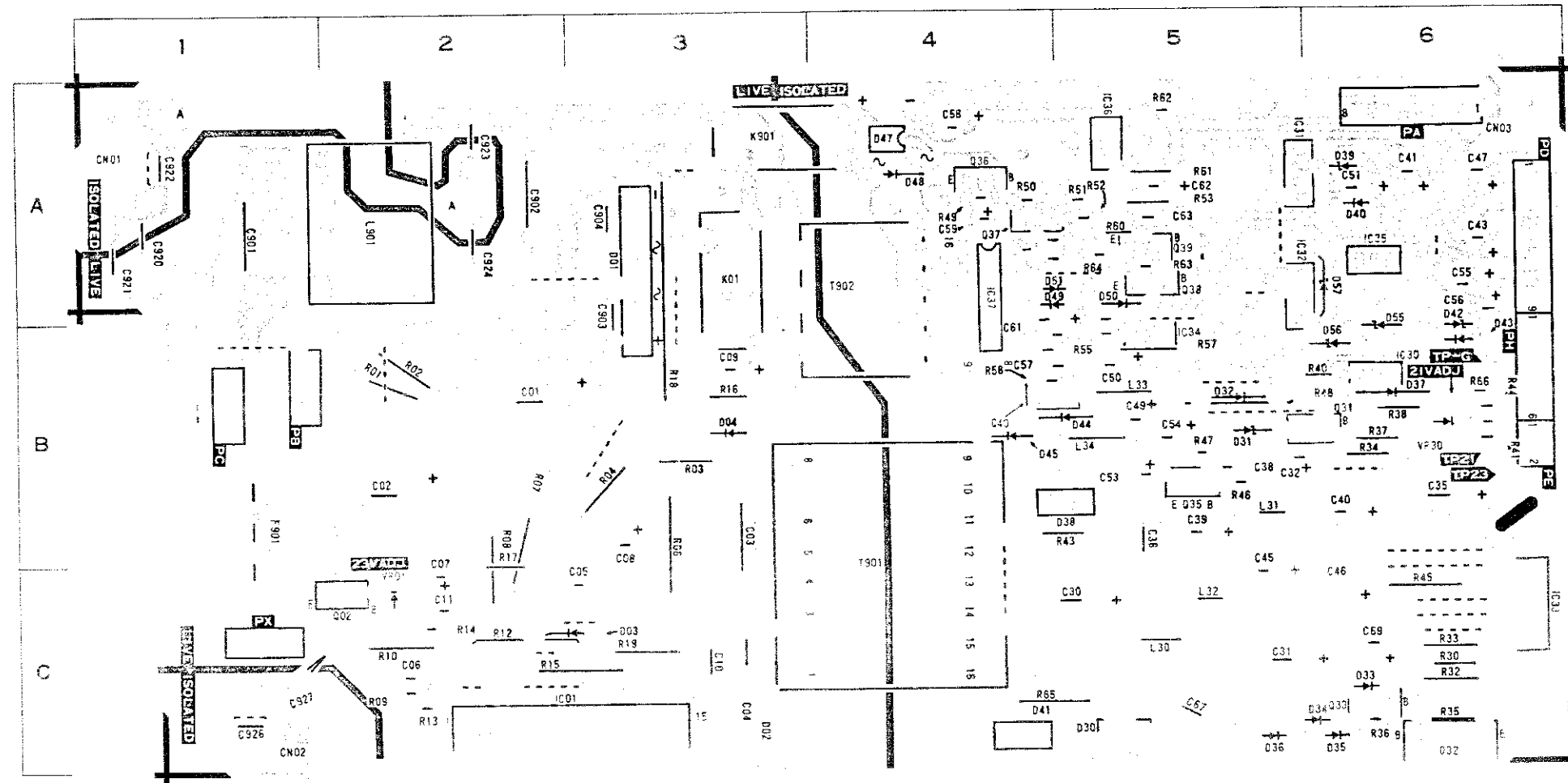
SYMBOL NO.	ADDRESS
CF2001	B-4
D2101	C-1
D2102	C-1
D2103	C-1
IC2001	A-3
IC2002	B-1
IC2003	C-3
IC2004	B-4
IC2005	A-2
IC2006	B-4
IC2007	B-4
IC2008	B-5
IC2009	B-5
IC2010	A-5
IC2011	B-2
IC2012	B-2
IC2013	B-2
IC2014	B-2
IC2015	B-2
IC2016	B-1
IC2017	B-1
IC2018	B-1

SYMBOL NO.	ADDRESS
IC2019	B-1
IC2020	B-1
IC2021	B-1
IC2022	B-1
IC2023	B-2
IC2024	A-2
IC2025	B-2
IC2101	C-2
IC2102	C-1
IC2103	C-1
IC2104	C-2
L2001	A-5
L2002	A-5
L2003	A-4
L2101	C-5
Q2101	C-1
TP21	C-2
VR2101	C-1
VR2102	C-1



ADDRESS	SYMBOL NO.	ADDRESS
B-2	IC2023	B-3
	IC2024	A-3
C-5	IC2025	B-3
C-5	IC2101	C-4
C-5	IC2102	C-5
	IC2103	C-5
	IC2104	C-4
A-4		
B-2		
B-1	L2001	A-1
B-1	L2002	A-1
B-1	L2003	A-1
A-1	L2101	C-5
B-4		
B-4	Q2101	C-5
B-4		
B-4	TP21	C-4
B-4		
B-5	VR2101	C-5
B-5	VR2102	C-5
B-5		
B-5		
B-5		
B-5		
B-5		
B-5		

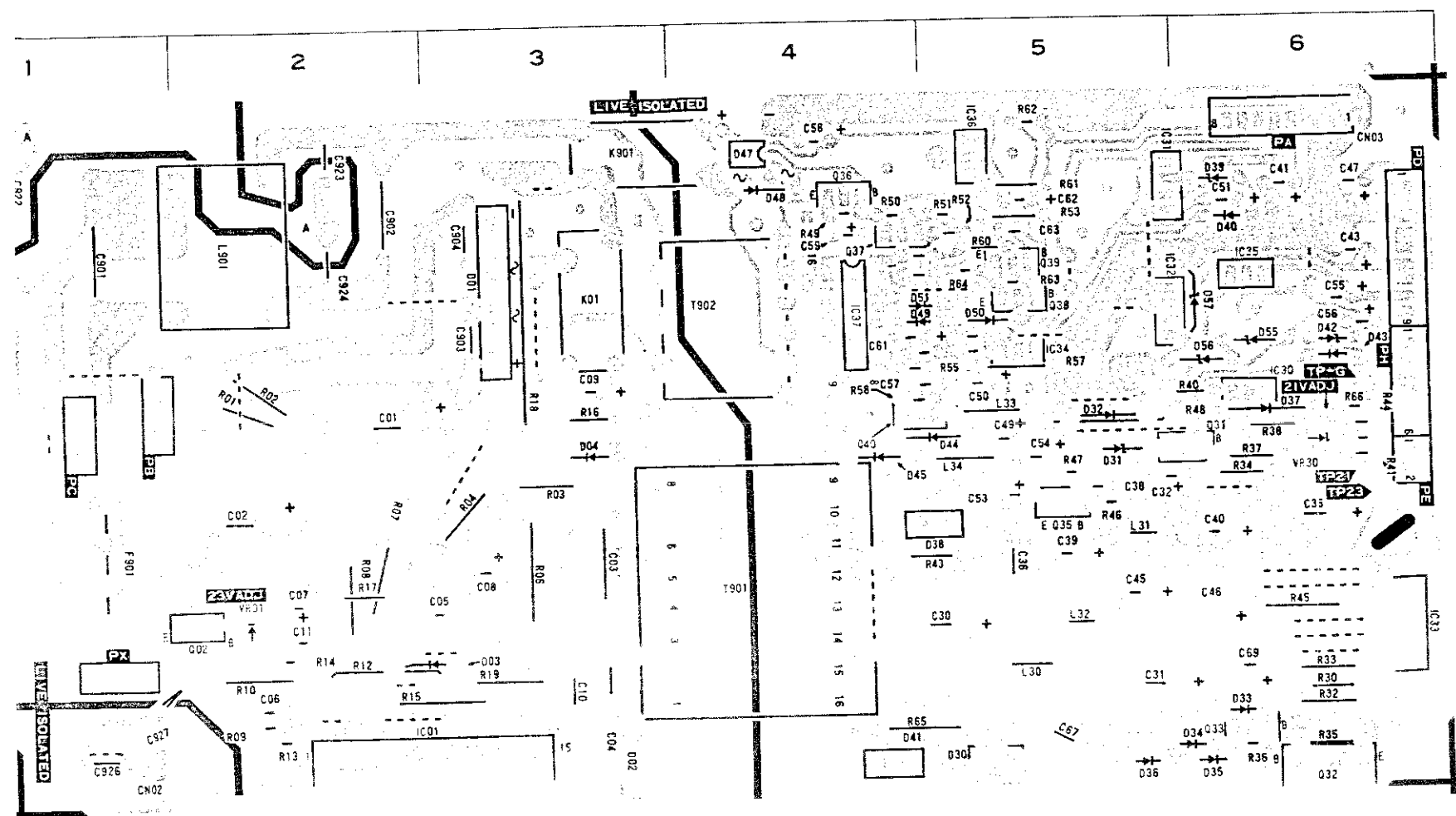
ADDRESS	SYMBOL NO.	ADDRESS
B-4	IC2019	B-1
	IC2020	B-1
C-1	IC2021	B-1
C-1	IC2022	B-1
C-1	IC2023	B-2
	IC2024	A-2
A-3	IC2025	B-2
B-1	IC2101	C-2
C-3	IC2102	C-1
B-4	IC2103	C-1
A-2	IC2104	C-2
B-4		
B-4	L2001	A-5
B-5	L2002	A-5
B-5	L2003	A-4
A-5	L2101	C-5
B-2		
B-2	Q2101	C-1
B-2		
B-2	TP21	C-2
B-2		
B-1	VR2101	C-1
B-1	VR2102	C-1
B-1		



PCB-POWER

SYMBOL NO.	ADDRESS
D01	A-3
D02	C-3
D03	C-2
D04	B-3
D30	C-5
D31	B-5
D32	B-5
D33	C-6
D34	C-6
D35	C-6
D36	C-5
D37	B-6
D38	B-5
D39	A-6
D40	A-6
D41	C-4
D42	B-6
D43	B-6
D44	B-5
D45	B-4
D47	A-4
D48	A-4
D49	A-5
D50	A-4
D51	A-5
D55	B-6
D56	B-6
D57	B-6

SYMBOL NO.	ADDRESS
F901	B-
IC01	C-
IC30	B-
IC31	A-
IC32	A-
IC33	C-
IC34	B-
IC35	A-
IC36	A-
IC37	A-
L30	C-
L31	B-
L32	C-
L33	B-
L34	B-
L901	A-
Q02	C-
Q31	B-
Q32	C-
Q33	C-
Q35	B-
Q36	A-
Q37	A-
Q38	A-



PCB-POWER

SYMBOL NO.	ADDRESS
D01	A-3
D02	C-3
D03	C-2
D04	B-3
D30	C-5
D31	B-5
D32	B-5
D33	C-6
D34	C-6
D35	C-6
D36	C-5
D37	B-6
D38	B-5
D39	A-6
D40	A-6
D41	C-4
D42	B-6
D43	B-6
D44	B-5
D45	B-4
D47	A-4
D48	A-4
D49	A-5
D50	A-4
D51	A-5
D55	B-6
D56	B-6
D57	B-6

SYMBOL NO.	ADDRESS
F901	B-1
IC01	C-2
IC30	B-6
IC31	A-5
IC32	A-5
IC33	C-6
IC34	B-5
IC35	A-6
IC36	A-5
IC37	A-4
L30	C-5
L31	B-5
L32	C-5
L33	B-5
L34	B-5
L901	A-2
Q02	C-2
Q31	B-6
Q32	C-6
Q33	C-6
Q35	B-5
Q36	A-4
Q37	A-4
Q38	A-5

SYMBOL NO.	ADDRESS
Q39	A-5
Q40	B-4
T901	B-4
T902	A-4
VR01	C-2
VR30	B-6
TP21	B-6
TP23	B-6
TP-G	B-6

SCHEMATIC DIAGRAM

MODEL : P68E

NOTE 1:

- The unit of resistance is "ohm" with no symbol. Accordingly, K = 1000 ohms, M = 1000K ohms.
- The wattage of resistors, if not specifically designated, is less than 1/4 watt.
- Resistors, if not specifically designated, are carbon resistors.
- The marks of resistors are as follows:
 - CE : Cemented resistor
 - MB : Metal oxide film resistor (type B)
 - MPC : Metal plate cement resistor.
 - ML : Metal linear resistor.
 - S : Fixed composition resistor
 - W : Wire wound resistor
 - M : Metal film resistor
- The tolerance of resistor value, if not specifically designated, is: ±5%, K = ±10% M = ±20%
- The unit of capacitance, if not specifically designated, is:
 - a) μF, for numbers less than 1
 - b) PF, for numbers more than 1
- Capacitors, if not specifically designated are Ceramic capacitors except electrolytic capacitors.
- The marks of capacitors are as follows:
 - ALM : Aluminum electrolytic capacitor
 - MF : Polyester capacitor
 - PP : Polypropylene film capacitor
 - TANT : Tantalum capacitor
 - TF : Twin film capacitor.
 - MF_PP : Polyester polypropylene film capacitor.
 - MPP : Metallized plastic film capacitor.
 - NP : Non polarized electrolytic capacitor.
 - ⊕ : Electrolytic capacitor
- The DC working voltage of capacitor, if not specifically designated is: 50V
- The tolerance of capacitor value, if not specifically designated is: ±10% for polyester capacitor, ±5% for ceramic capacitor and J = ±5% K = ±10% M = ±20% P = +100% -0% C = ±0.25PF D = ±0.5PF F = ±1PF Z = +80% -20% N = ±30%

SPECIFIC SYMBOL	
	Zener Diode
	Varicap
	Posistor
	Thermistor
	Fusible Resistor
	Varistor
	Crystal unit
	Air Gap
	Part (resistor) attached on the copper foil side of PCB
	Ceramic filter

NOTE 2:

- DC voltages were measured from points indicated to the circuit ground with a high-Z voltmeter.
- This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.

SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND PERFORMANCE. THEREFOR REPLACEMENT OF ANY SAFETY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS.

DON'T DEGRADE THE SAFETY OF THE RECEIVERS THROUGH IMPROPER SERVICING.

Hinweis 1:

- Bezeichnung der Widerstände
Keine Bezeichnung = Ohm
K = 1000 Ohm
M = 1000 K Ohm
- Widerstände ohne Leistungsangabe unter 1/4 Watt.
- Widerstände ohne Bezeichnung sind Kohlewiderstände
- Die Symbole für die Widerstände sind wie folgt:
 - CE : Zementwiderstände
 - MB : Metalloxyd-Widerstände (Type B)
 - MPC : Metallüberzogene Zementwiderstände
 - S : Fester Ausgleichswiderstand
 - W : Drahtwiderstand
 - M : Metallfilm-Widerstand
- Die Toleranzbezeichnung ist ohne Bezeichnung ±5%, K = ±10%, M = ±20%
- Die nicht besonders bezeichneten Kondensatoren
 - a) μF für Zahlen unter 1
 - b) pF für Zahlen über 1
- Kondensatoren ohne Bezeichnung sind Keramik-Kondensatoren, ausgenommen Elektrolyt-Kondensatoren.
- Für die Kondensatoren werden folgende Symbole verwendet:
 - ALM : Aluminium-Elektrolyt-Kondensatoren
 - MF : Polyester-Kondensatoren
 - PP : Polypropylene-Schichtkondensator
 - TANT : Tantal-Kondensator
 - TF : Doppelschichtkondensator
 - MF_PP : Polyester-Polypropylene-Kondensator
 - MPP : Metallisierter-Plastikfilm-Kondensator
 - NP : Ungepolter-Elektrolyt-Kondensator
 - ⊕ : Elektrolyt-Kondensator
- Die Gleichstrom Spannungsfestigkeit der nicht besonders bezeichneten Kondensatoren beträgt: 50V
- Die Toleranz der nicht besonders bezeichneten Kondensatoren beträgt: ±10% für Polyester-Kondensatoren, ±5% für Keramik-Kondensatoren
Sonstige Toleranzen
J = ±5% K = ±10% M = ±20% N = ±30%
P = +100%, -0% Z = +80%, -20%
C = ±0.25pF D = ±0.5pF F = ±1pF
- Keramik Kondensatoren mit den Bezeichnungen RH, UJ, SL usw. sind Temperatur-Kompensations-Kondensatoren.

Schaltungssymbole	
	Zener Diode
	Varicap
	Posistor
	Thermistor
	Sicherungswiderstand
	Varistor
	Keramikereinheit
	Luftspalt
	Bauteile (Widerstand) auf der Printseite der Platine
	Keramikfilter

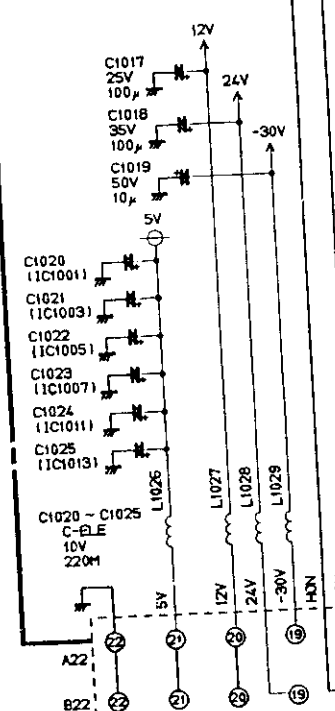
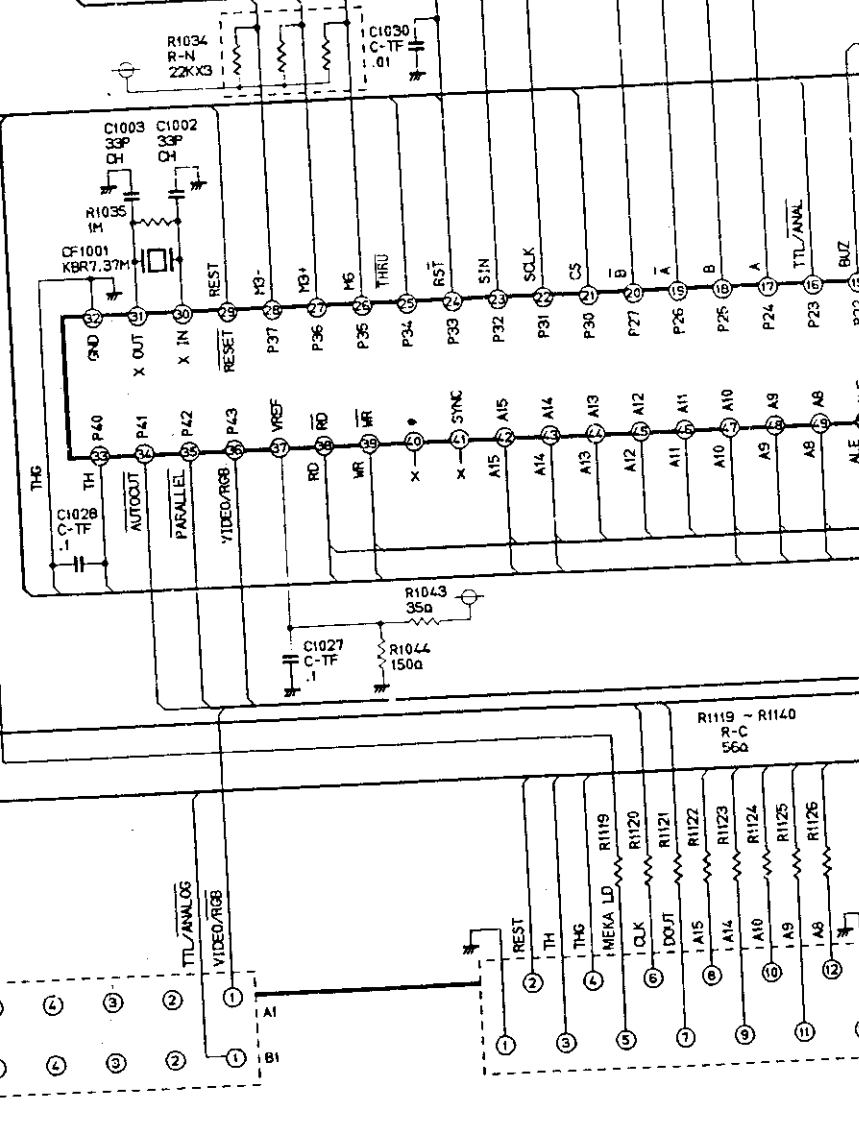
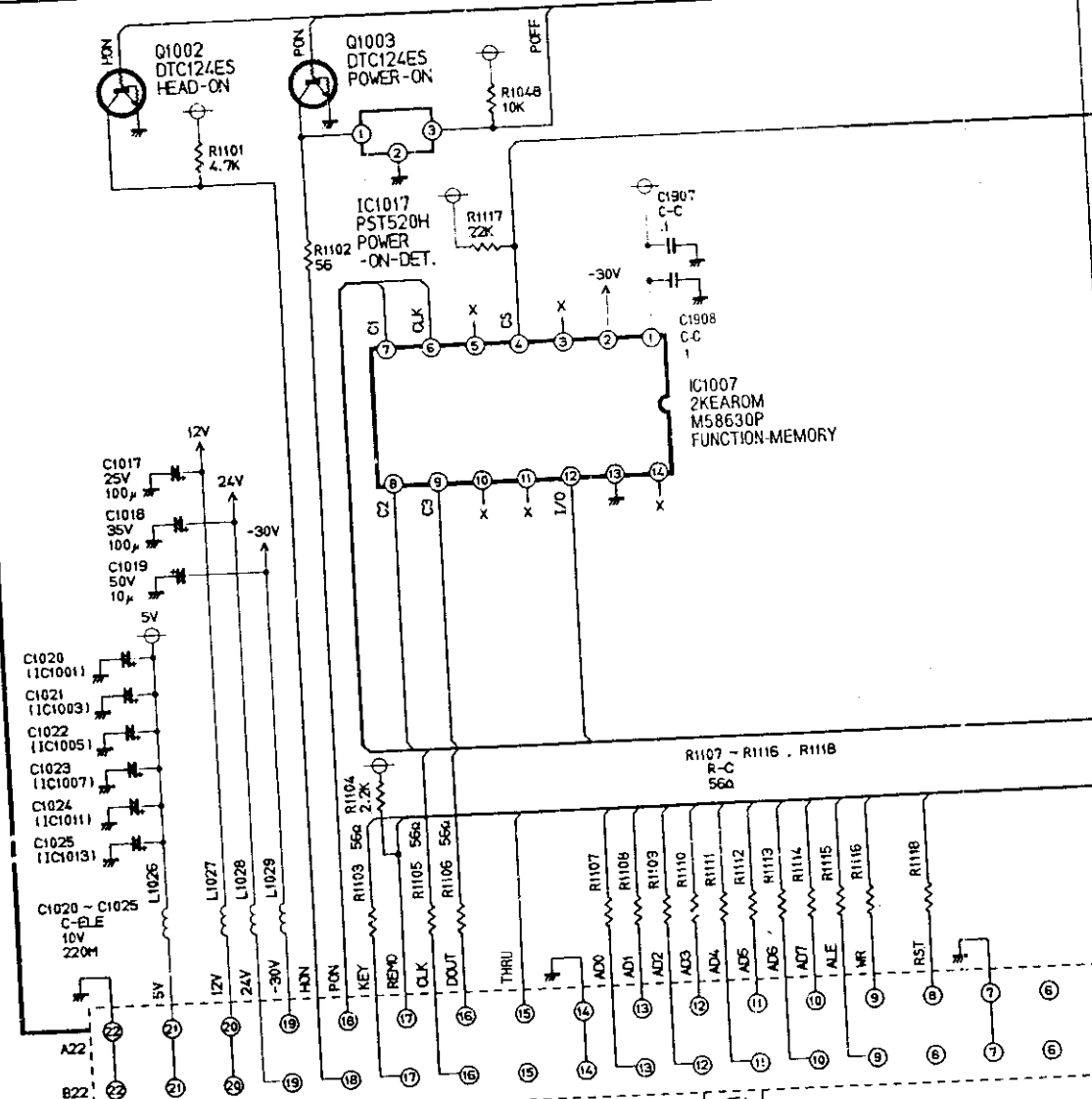
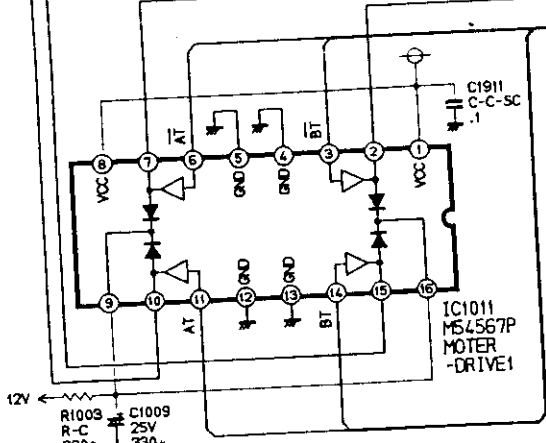
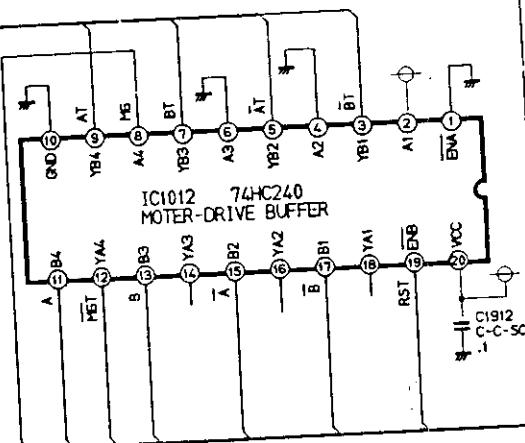
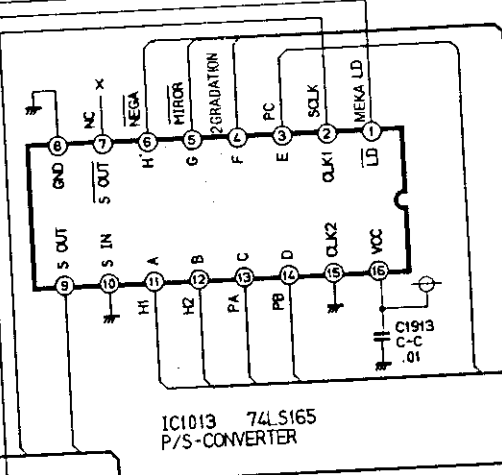
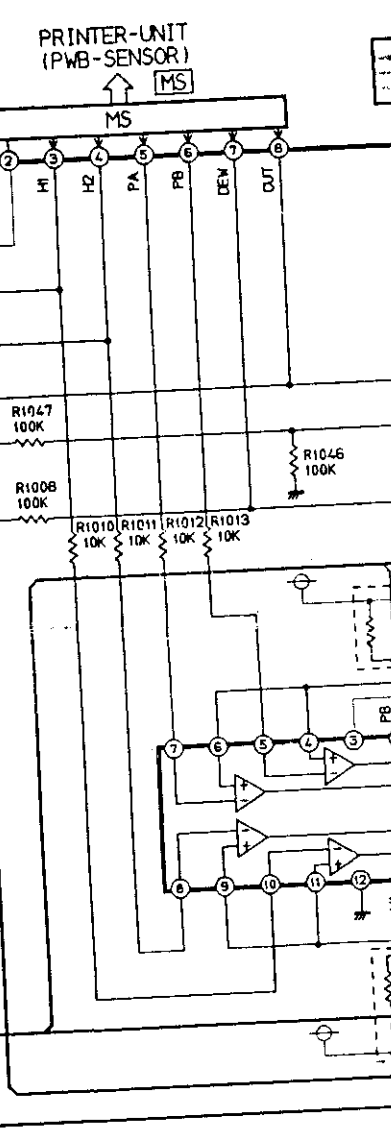
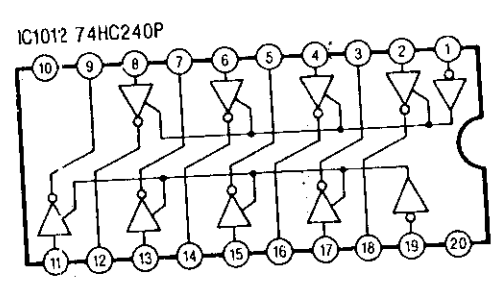
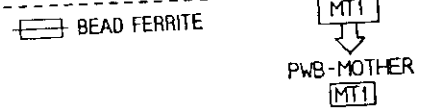
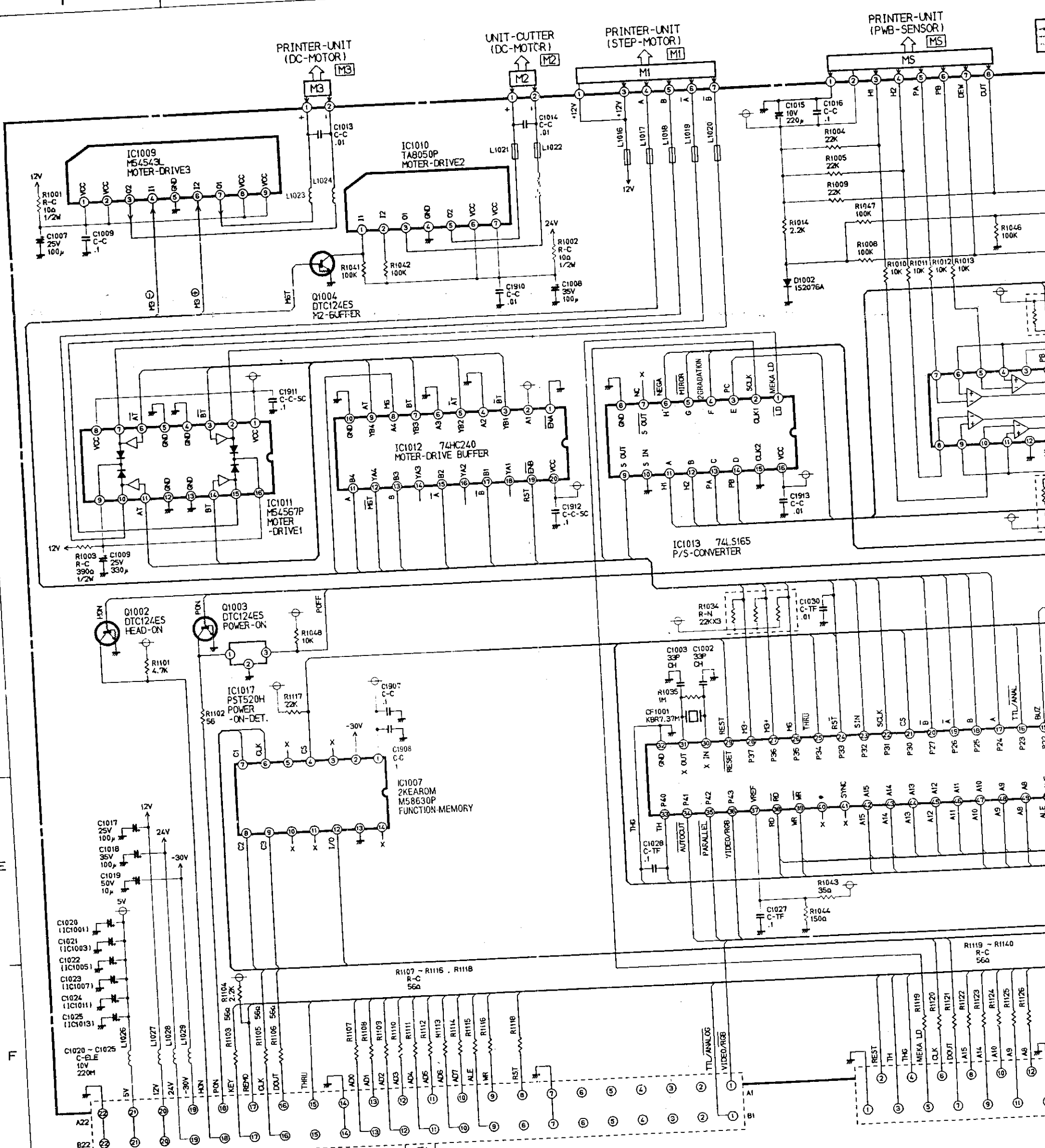
Hinweis 2:

- Die Gleichspannungen wurden vom angezeigten Punkt gegen Schaltungsmasse mit einem Hochohm-Voltmeter gemessen.
- Das ist ein Basisschaltplan. Technische Änderungen zwecks Verbesserungen sind vorbehalten.

Sicherheitshinweis:

Die mit diesem Symbol gekennzeichneten Bauteile haben spezielle Eigenschaften und sind für die Sicherheit und Leistungsfähigkeit wichtig. Beim Austausch der Bauteile nur Teile mit gleichem Wert und Eigenschaften verwenden, sonst ist die Sicherheit und Leistung des Gerätes gefährdet.

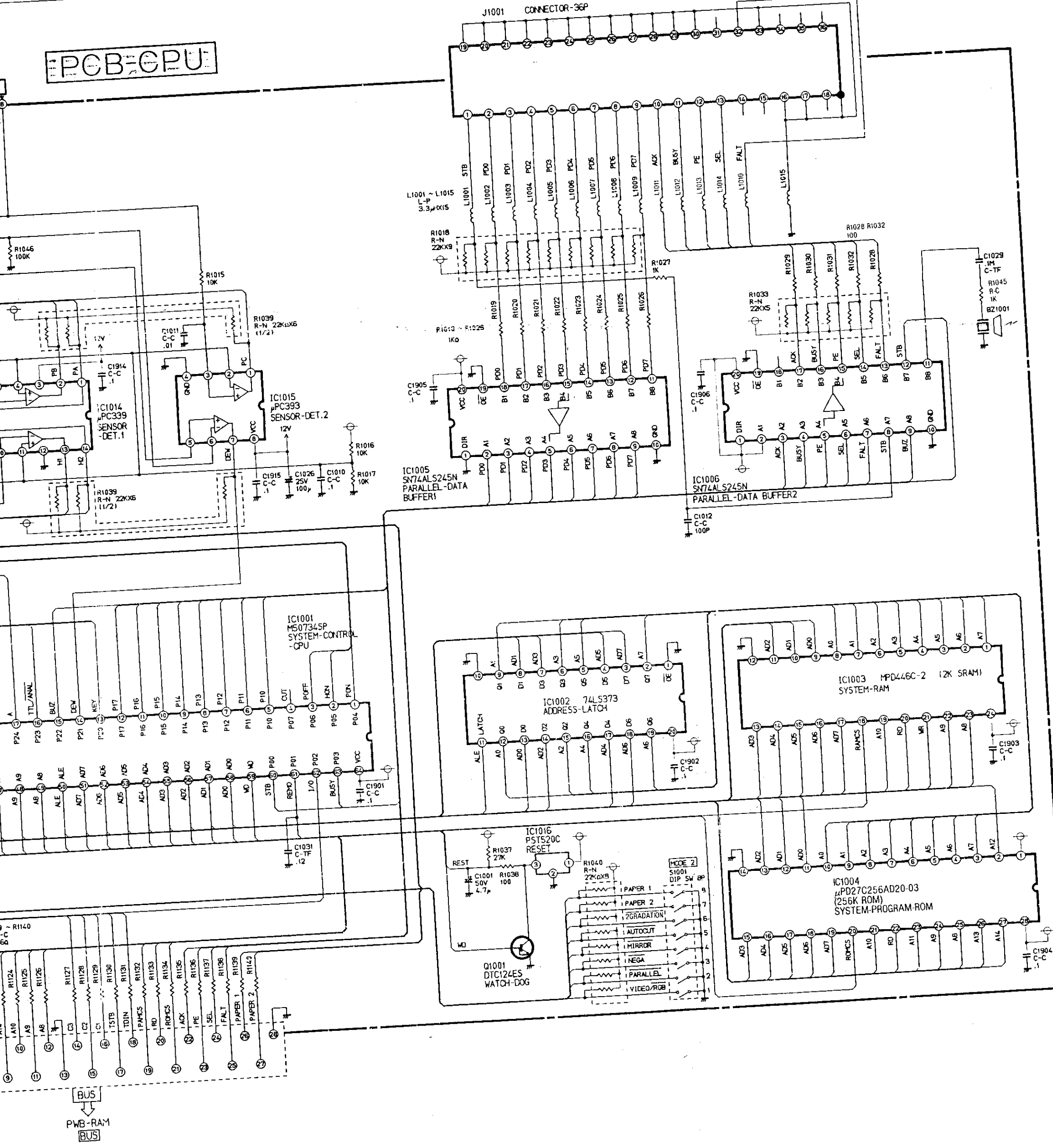
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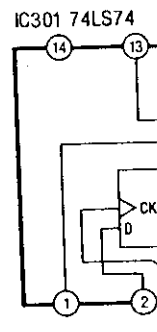
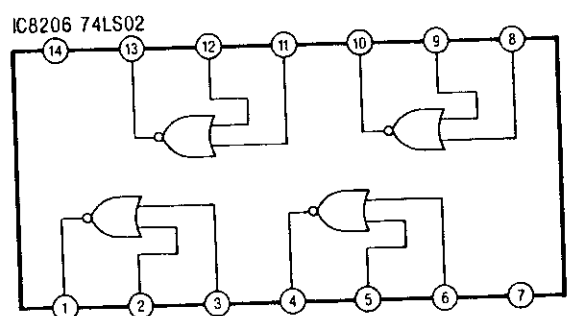
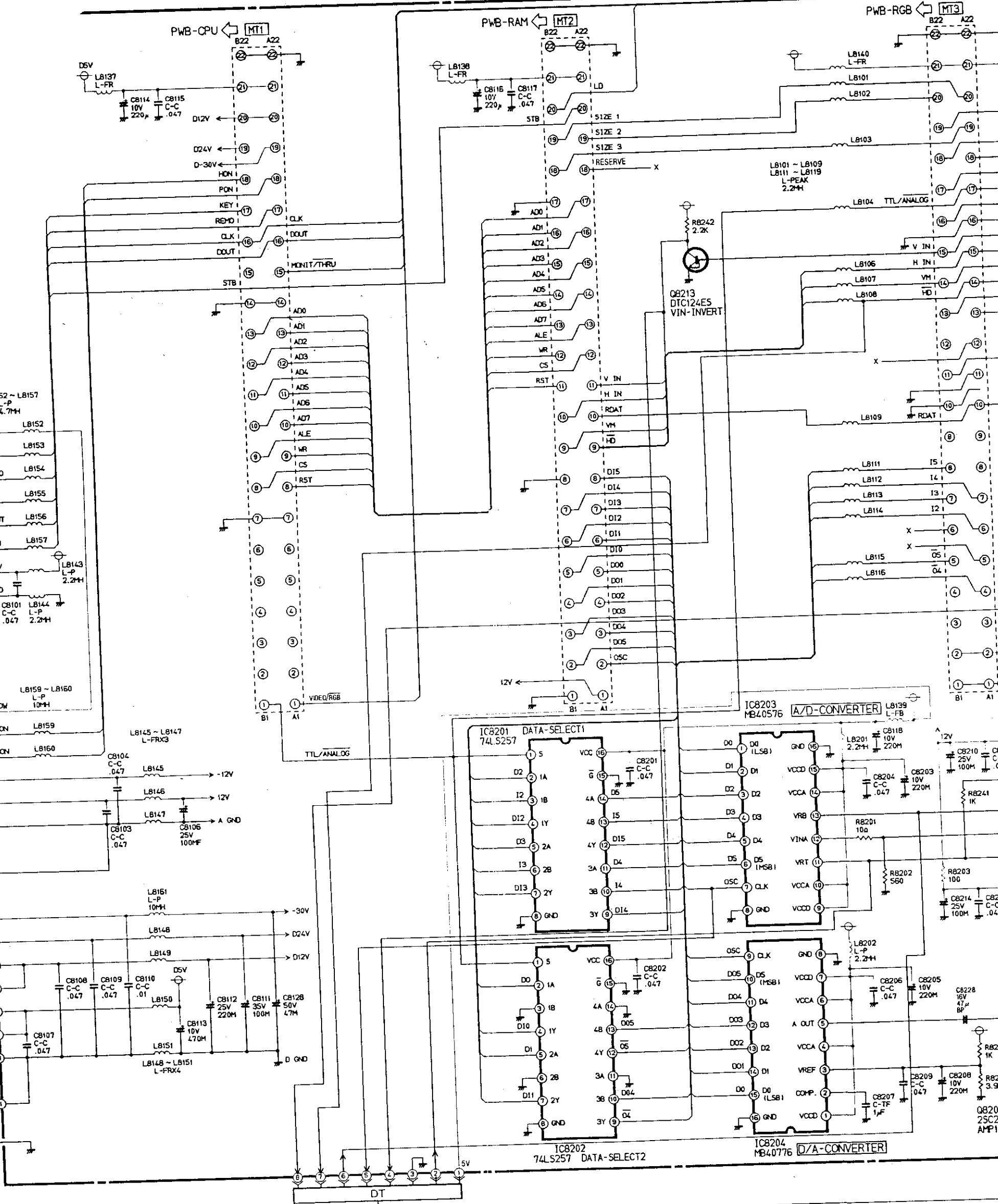
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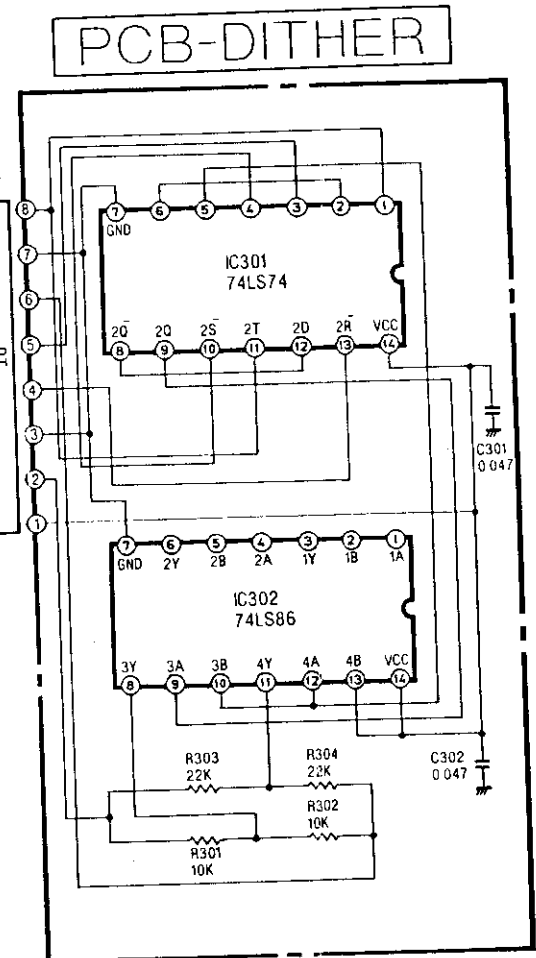
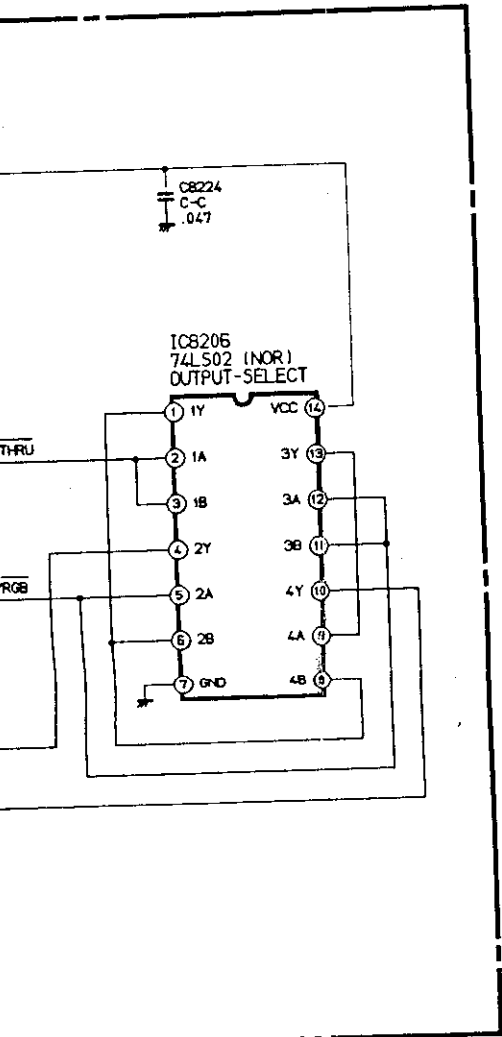
PCB-CPU

PARALLEL DATA IN

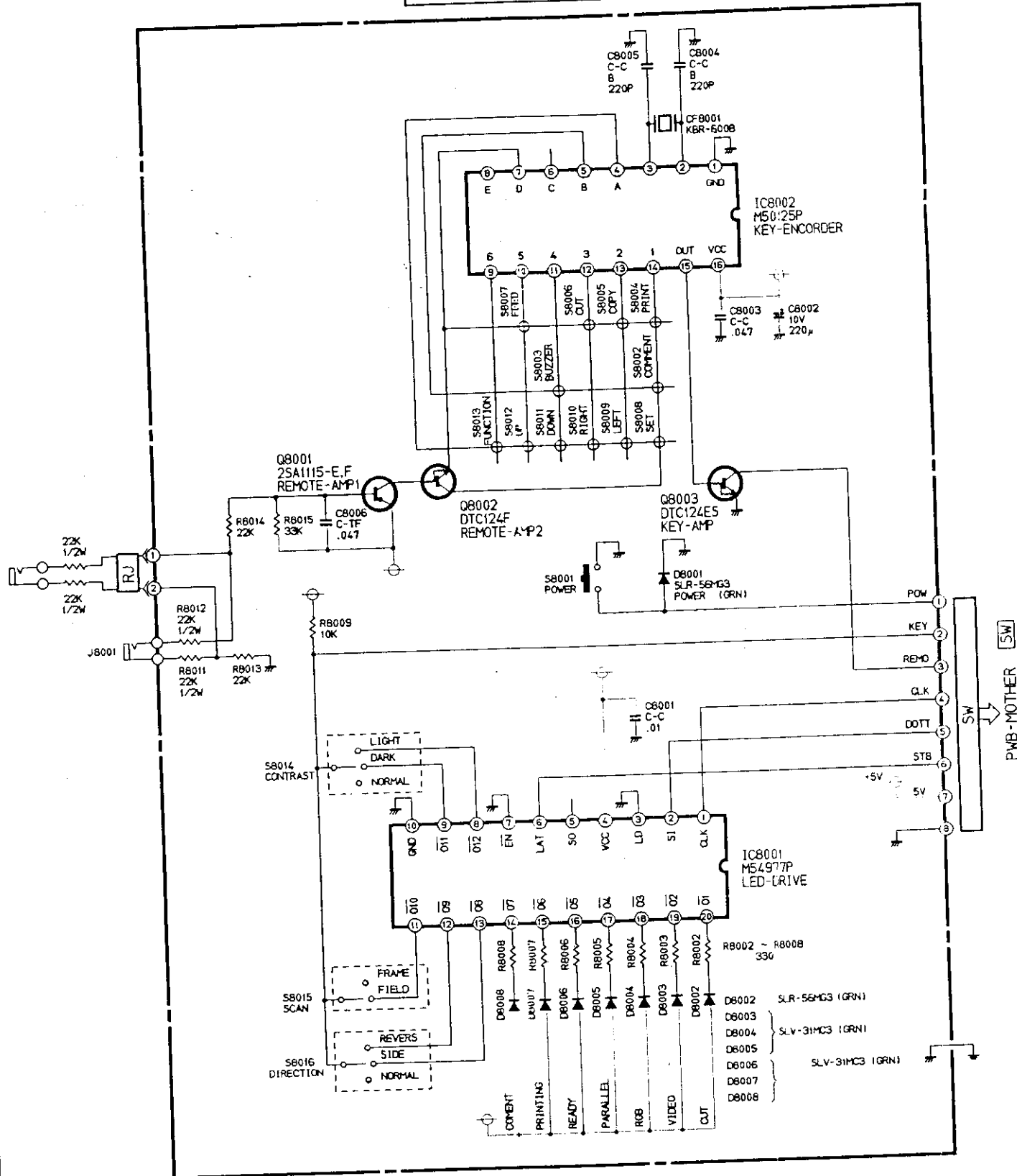


B
C
D
E
F
G

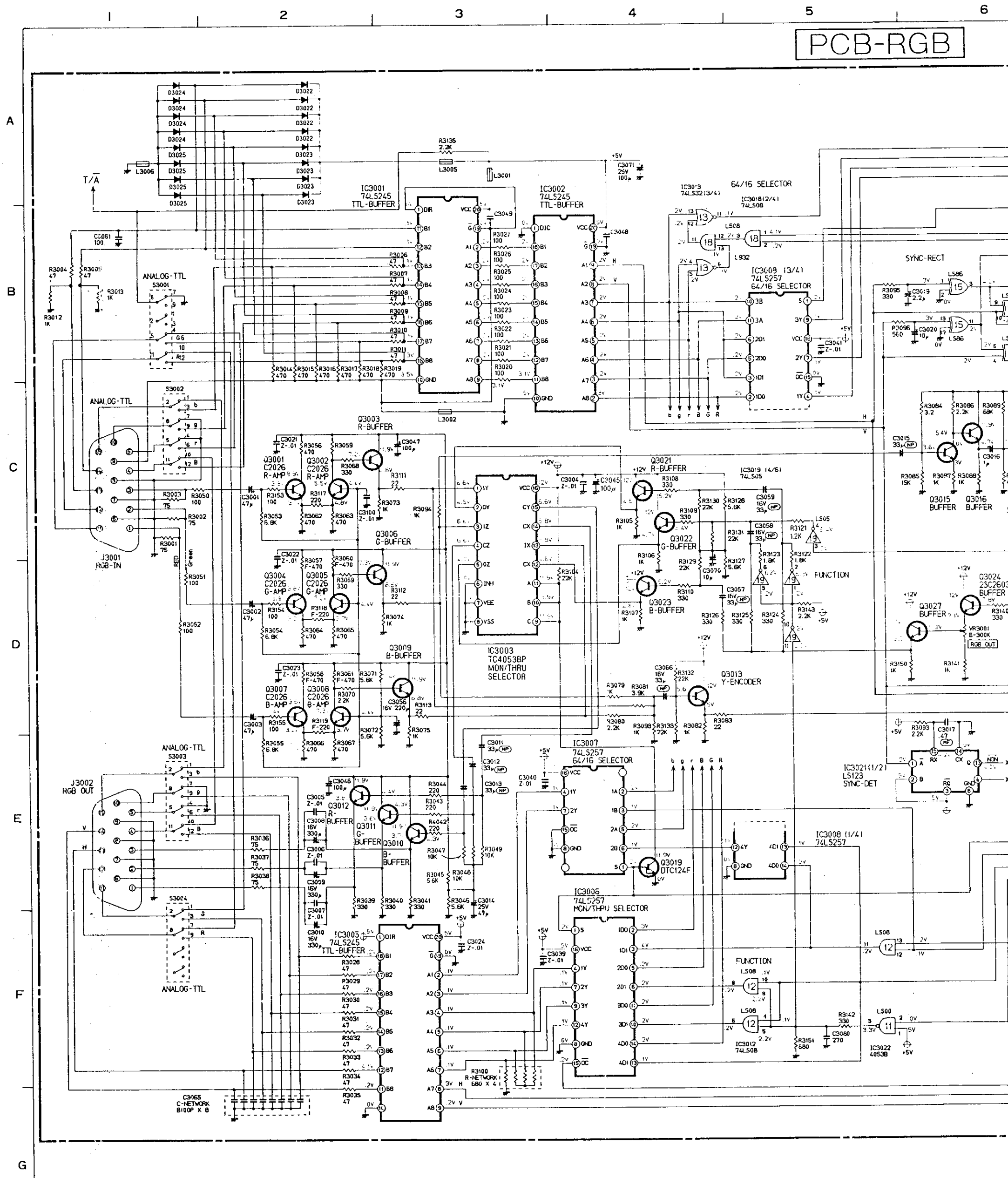


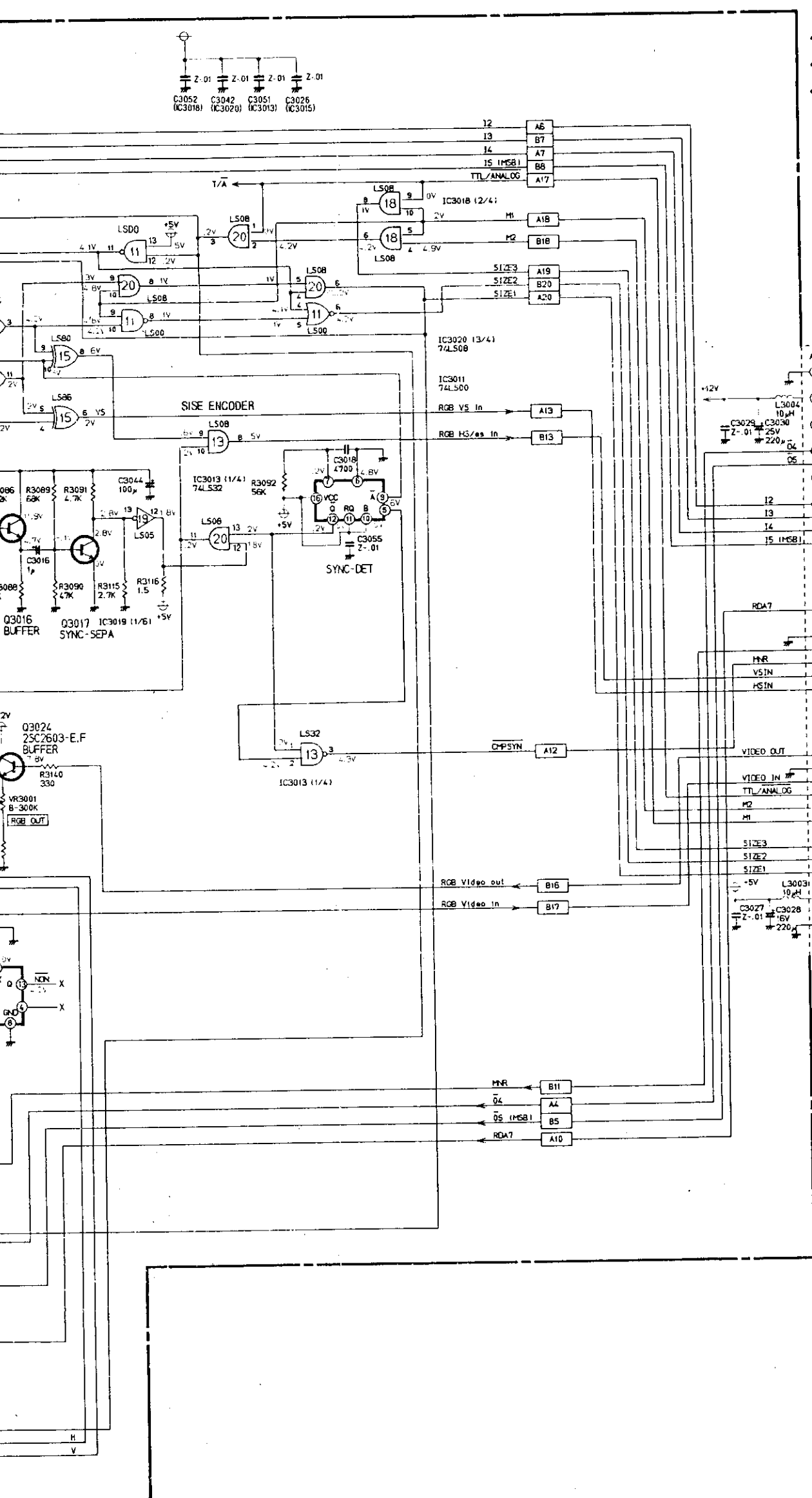


PCB-SW



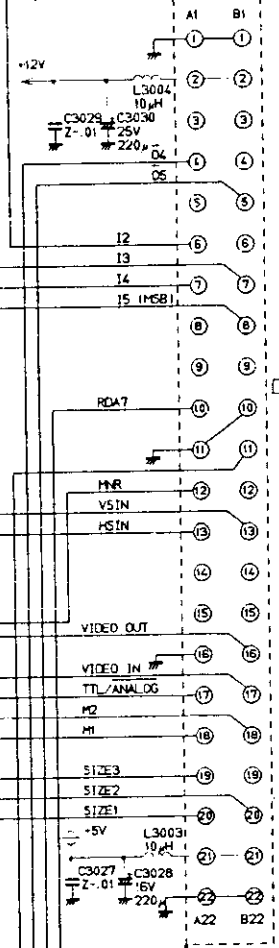
PCB-RGB



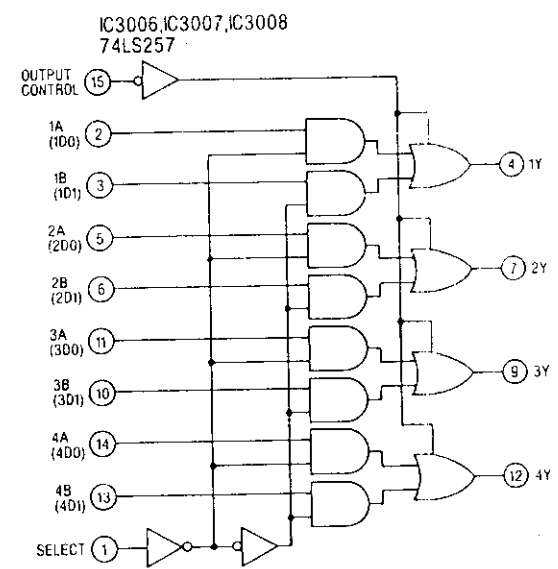


- If not specified TRANSISTORS are 2SC2603-EF
- If not specified DIODES are 1S2076A
- BEAD FERRITE

MT3



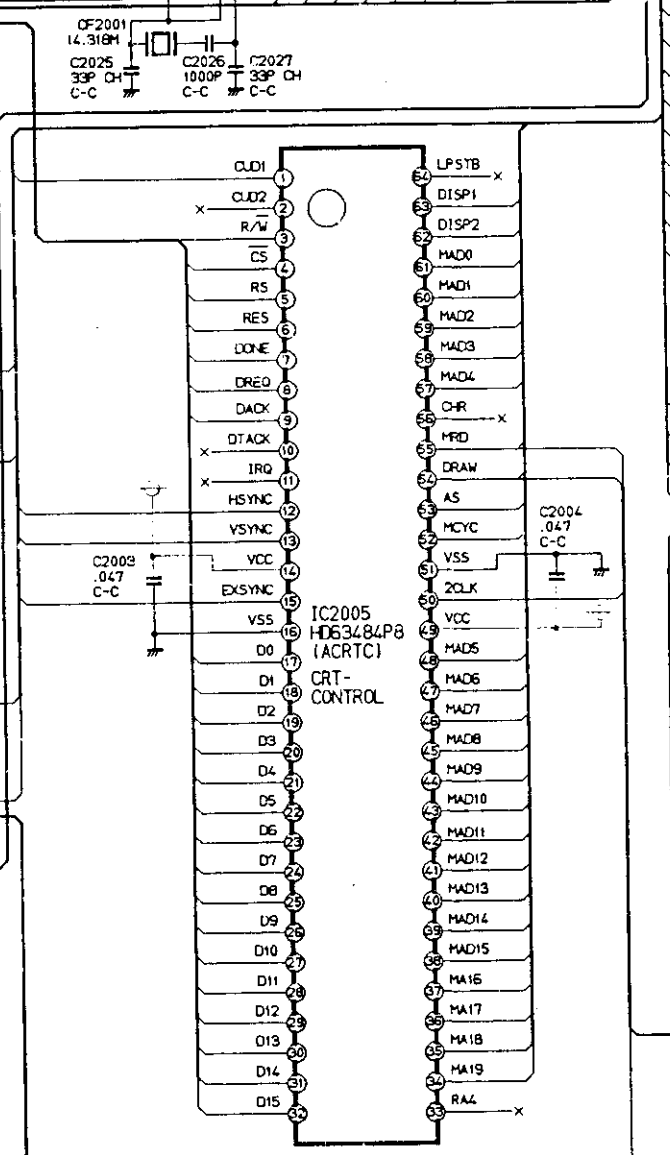
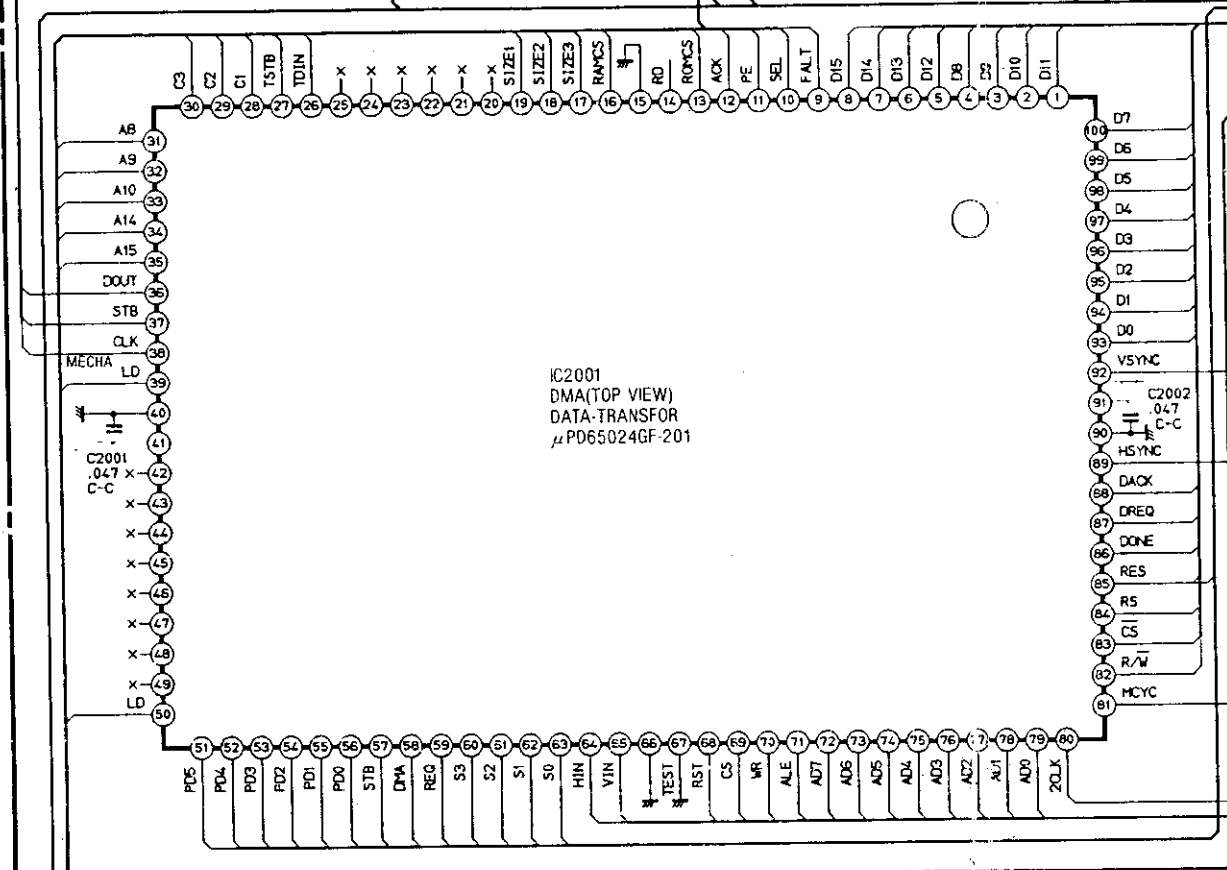
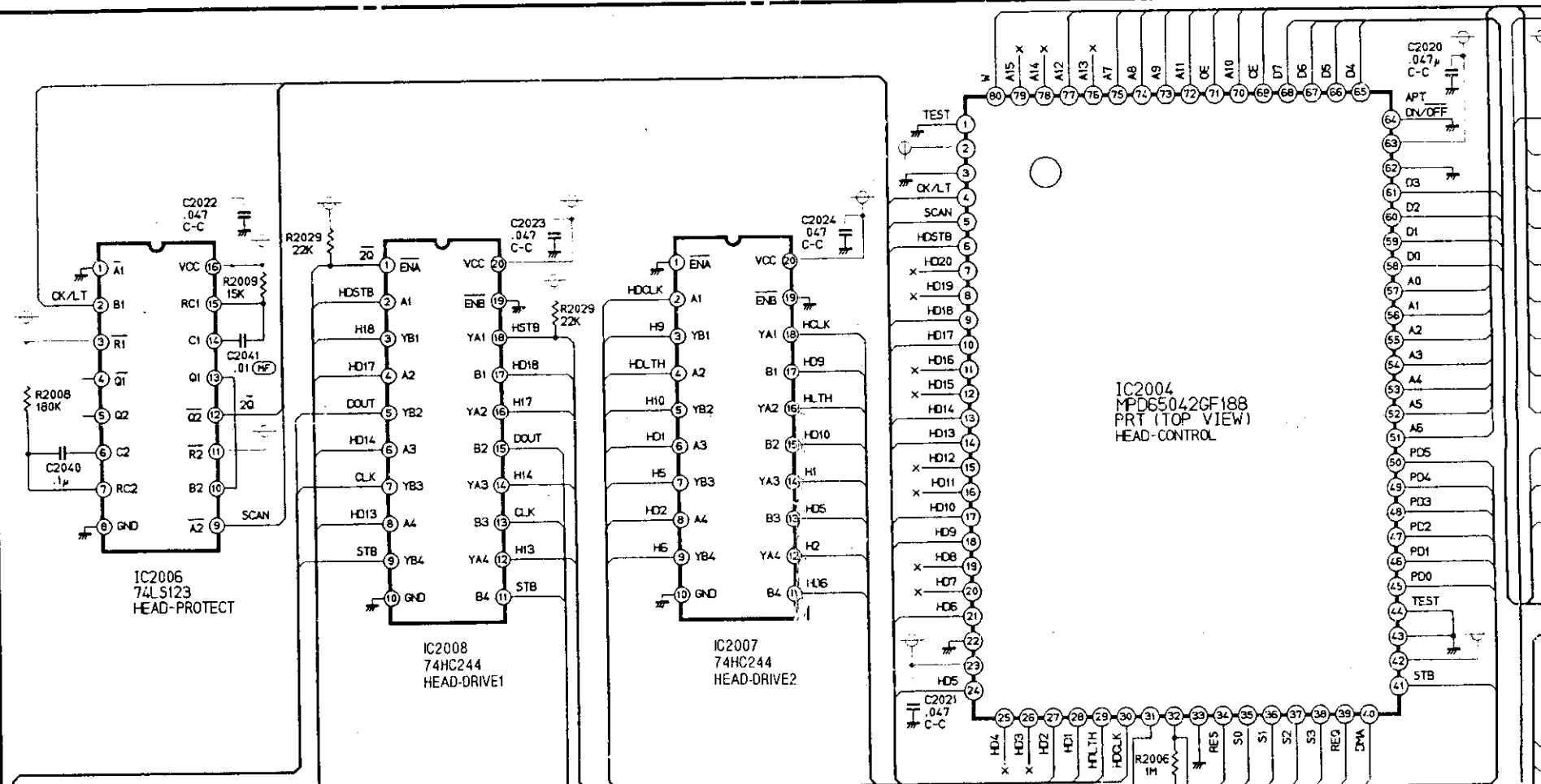
PWB-MOTHER
MT3



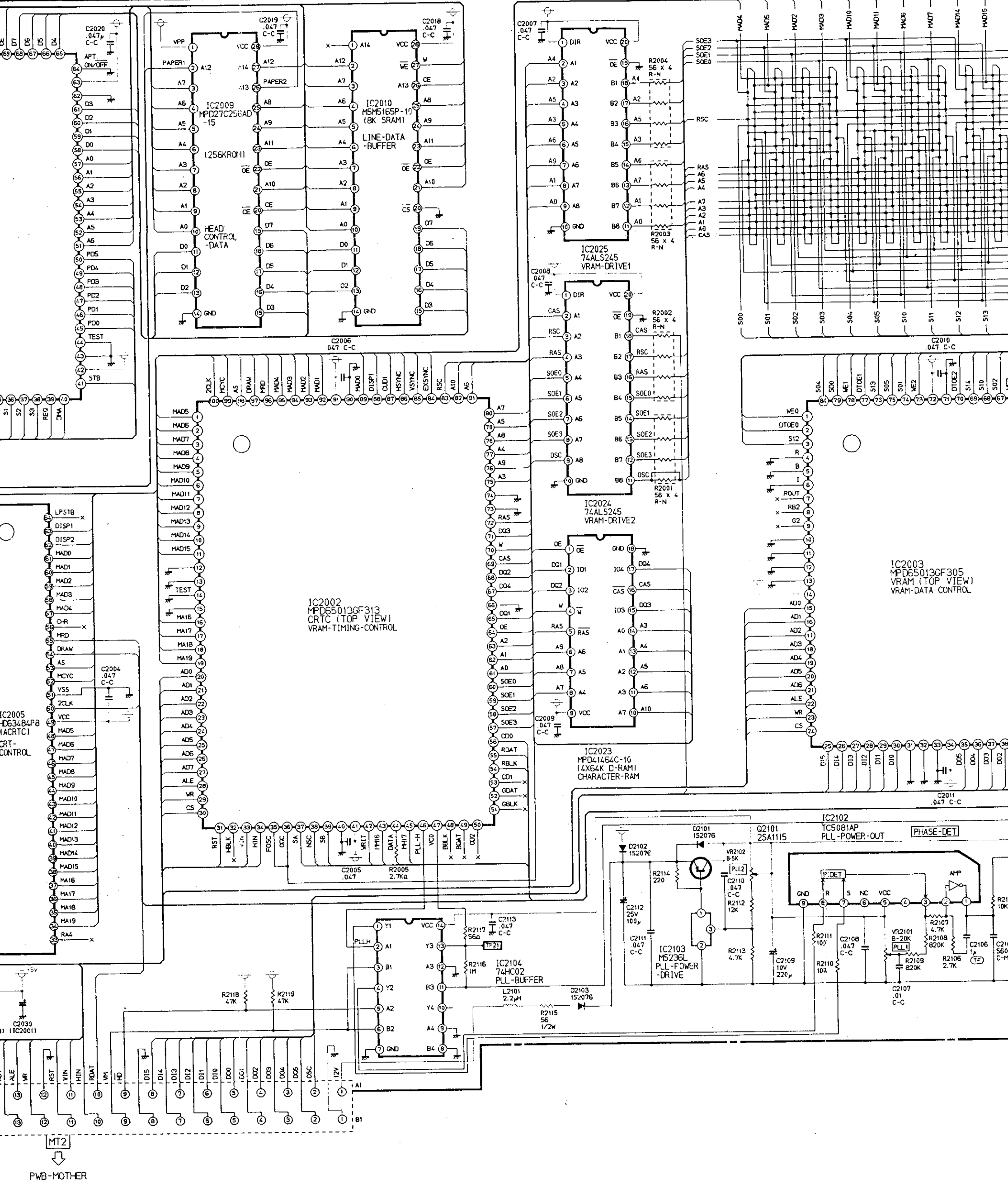
OUTPUT CONTROL	INPUTS		OUTPUT Y
	SELECT	A (D0) B (D1)	
H	X	X X	Z
L	L	L X	L
L	L	H X	H
L	H	X L	L
L	H	X H	H

H=HIGH Level L=LOW Level
X=Immaterial Z=High Impedance

A
B
C
D
E
F
G



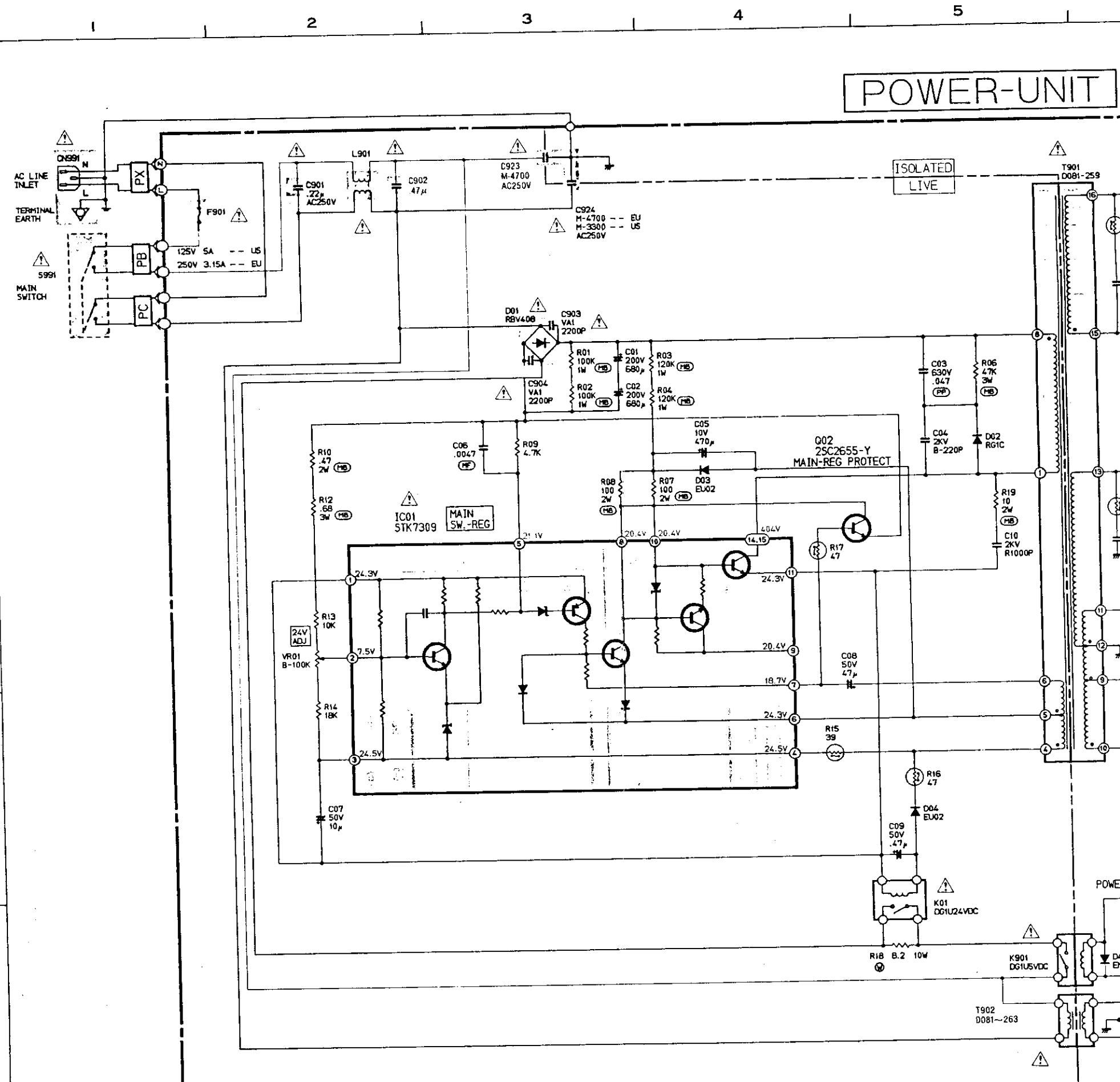
PCB-RAM



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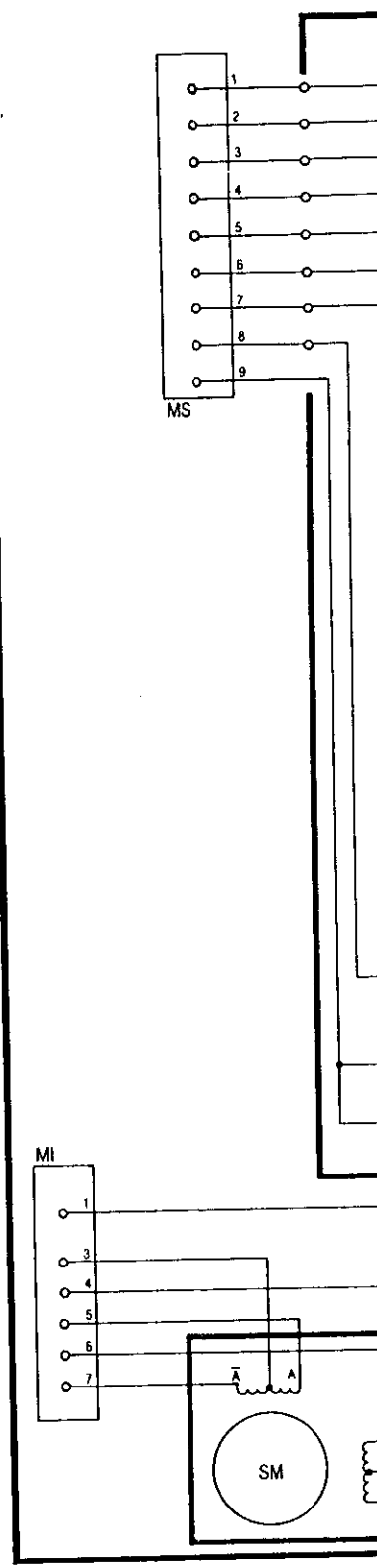
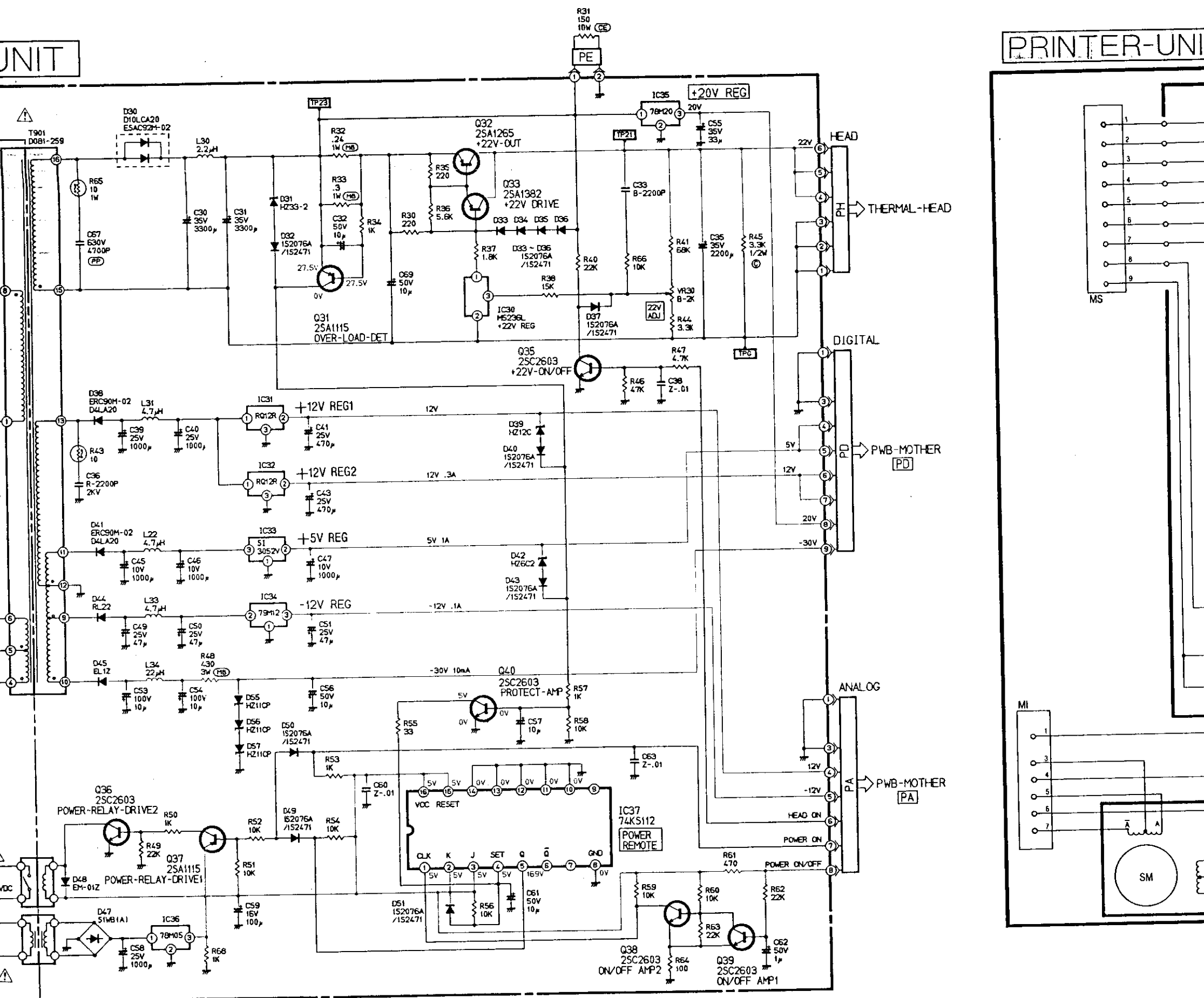
POWER-UNIT

A
B
C
D
E
F



UNIT

PRINTER-UNIT



PRINTER-UNIT

