

ORDER NO. KM49212397C1  
F7

# Service Manual

## and Technical Guide

TELEPHONE ANSWERING  
SYSTEM WITH FACSIMILE

# KX-F130

(for U.S.A.)



# Panasonic

# SPECIFICATIONS

This specifications is for U.S.A. version only.  
Refer to this simplified manual (cover) for other areas.

## 1. Integrated Telephone System (ITS) Section

Type: K type handset, Single line ITS  
Push button type 12 key dial pad  
Function: Speaker Phone (Volume control type)  
12 stations automatic dialer (30 digits)  
Auto redial  
Combination dialing  
28 speed dialer  
Ringer control (3-steps control type)  
Pulse dialing or DTMF (Tone) Dialing  
Handset Receiver Volume (3-steps control type)

## 2. Automatic Telephone Answering System (ATAS) Section

Type: 1 micro cassette automatic logic control mode  
Semiconductor record/playback mode OGM  
DTMF tone remote control  
Function: Remote turn on  
Message memo (Remote record/playback type)  
2 way record  
Call counter (Remote listening)  
Operation selectable 3 digits ID code  
CPC control  
TEL, FAX, TEL/FAX, ANS/FAX selector  
Paper curl reduction

## 3. Facsimile Section

Type: Desk top  
Applicable Lines: Public switched telephone network  
Compatibility: CCITT G3  
Document Size: MAX. 216 mm (8 $\frac{1}{2}$ " in width, MAX. 600 mm (23 $\frac{5}{8}$ " in length  
Effective Scanning Width: MAX. 208 mm (8 $\frac{3}{16}$ "  
Printing Paper Size: 216 mm (letter)×30 m roll (8 $\frac{1}{2}$ "×98 ft roll)  
Effective Printing Width: 208 mm (8 $\frac{3}{16}$ "  
Transmission Time\*: Approx. 30 sec/page (G3 Normal mode)  
Approx. 15 sec/page (Original mode)  
Scanning Density: Horizontal 8 pels/mm (203 pels/inch)  
Vertical 3.85 lines/mm (98 lines/inch)—Standard  
7.7 lines/mm (196 lines/inch)—Fine  
15.4 lines/mm (392 lines/inch)—Superfine  
Image Sensor Type: CCD image sensor  
Printer Type: Thermal printer  
Data Compression System: Modified Huffman (MH), Modified Read (MR)  
Modem Speed: 9600/7200/4800/2400 bps; Automatic fallback  
Function: 12 stations automatic transmission  
Automatic document feeder (Max. 10 page), Polling  
Paper save function, Copy function, Silentfax Receiving,  
Remote Fax Activation

## 4. General

Power Supply: AC 120 V, 60 Hz  
Power Consumption: Approx. 50 W  
2 Battery 3 V (Lithium Battery)...for Memory Backup and Timer Backup  
LCD: 16 digits  
Speaker: 5 cm (1 $\frac{3}{32}$ " PM dynamic  
Microphone: Condensator microphone (for OGM, MEMO/2 WAY, SP-Phone)  
Dimensions (H×W×D): 112×379×300 mm (4 $\frac{13}{32}$ ×14 $\frac{29}{32}$ ×11 $\frac{13}{16}$ )  
Weight: 4.9 kg (10 lb. 12.8 oz)

\*Transmission Time: Transmission time applies to text data using CCITT No. 1 test chart, between same machine models at maximum modem speed.  
Transmission time varies in actual usage.

Design and specifications are subject to change without notice.

# TROUBLESHOOTING GUIDE

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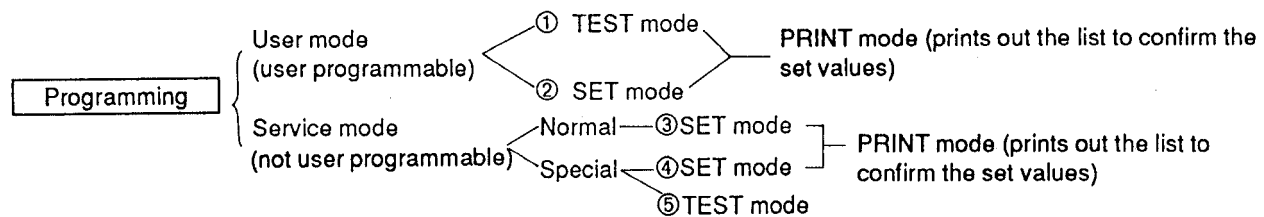
# 1. PROGRAMMING

The programming functions are used to program the various features and functions of the machine, and to test the machine. Programming can be done in both the on-hook and off-hook conditions. This facilitates communication between the user and the servicer while programming the machine.

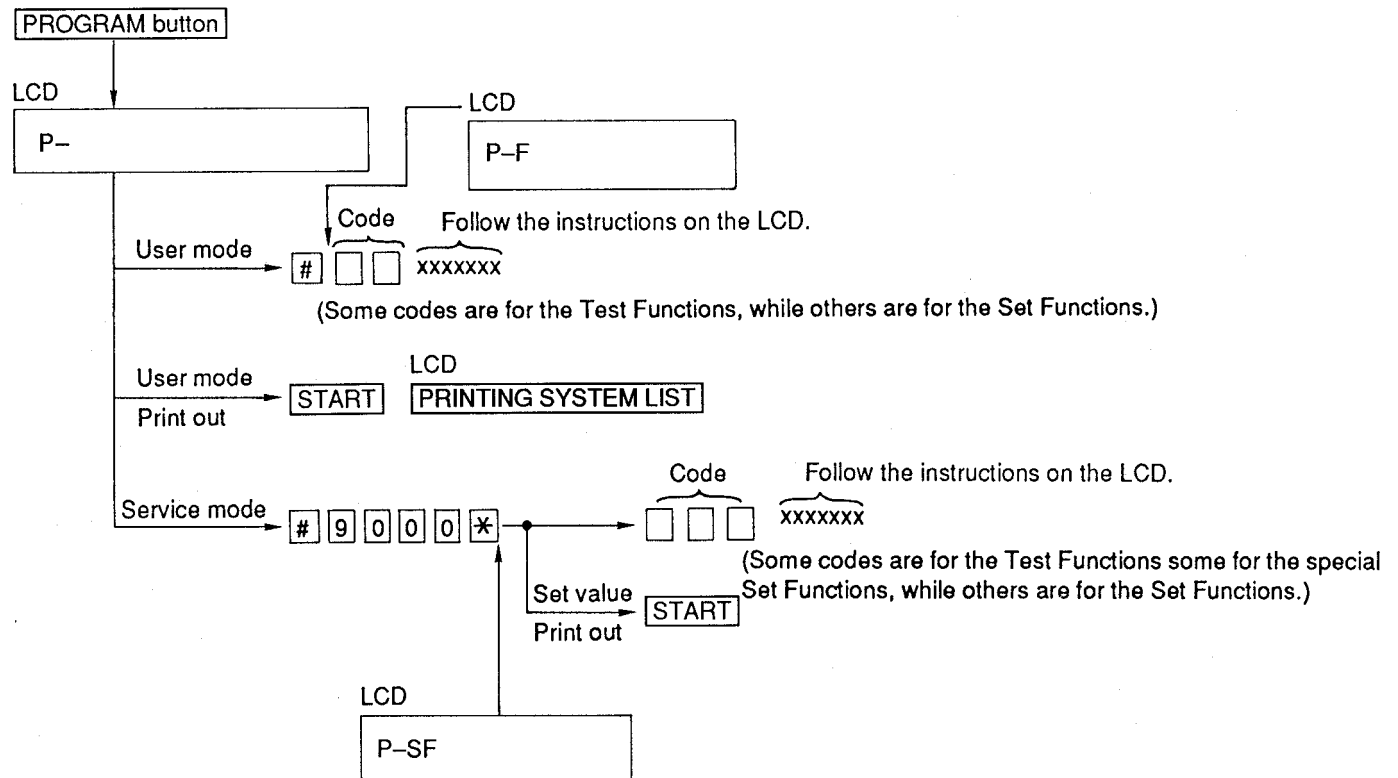
## 1-1. OPERATION

There are 2 basic categories of programming functions, the User Mode and the Service Mode. The Service Mode is further broken down into the normal and the special programs. The normal programs are those listed in the Operating Instructions and available to the user. The special programs are those listed only here and not displayed to the user. In both User and Service Mode, there are Set Functions and Test Functions. The Set Functions are used to program various features and functions, and the Test Functions are used to test various functions. The Set Functions are accessed by entering their code, changing the appropriate value, then pressing the SET key. The Test Functions are accessed by entering their code and pressing the key listed on the menu. While programming, to cancel any entry, press the STOP key.

## 1-2. OPERATION FLOW



### Operating Procedure



1-3. USER MODE (The list below is an example of the SYSTEM SETUP LIST the unit prints out.)

```
***** < BASIC FEATURE LIST > *****
*
*      #01 SET DATE                = Jan. 01 1992 12:01AM
*      #02 YOUR LOGO (I.E. COMPANY OR
*              INDIVIDUAL NAME) = Panasonic TAD/FAX
*      #03 YOUR TELEPHONE NUMBER  =
*      #04 PRINT TRANSMISSION REPORT = ERROR      [1=ON  2=ERROR  3=OFF]
*      #05 ANS/FAX RING COUNT     = 1            [1...4  0=TOLL SAVER *=RINGER OFF]
*      #06 FAX RING COUNT         = 1            [1...4]
*      #07 RECORDING TIME FOR TAD = VOX         [1=VOX  2=1MIN]
*      #08 REMOTE TAD ID          = 111
*      #09 PRINT ADVANCED SETTING LIST
*
*****
```

```
***** < ADVANCED FEATURE LIST > *****
*
*      #10 LOGO POSITION            = OUT        [1=OUT  2=IN  3=OFF]
*      #11 JOURNAL AUTO PRINT     = AUTO       [1=AUTO  2=MANUAL]
*      #12 MAIN PASSCODE          = 0000
*      #13 TX PASSCODE CHECK      = OFF        [1=ON   2=OFF]
*      #14 RX PASSCODE CHECK      = OFF        [1=ON   2=OFF]
*      #15 POLLING PASSWORD       = 0000
*      #16 DELAYED TRANSMISSION   = OFF        [1=ON   2=OFF]
*              START TIME        = 12:00AM
*              DESTINATION        =
*      #17 PRIVACY RING ID        = 333
*      #18 DAY/NIGHT MODE         = OFF        [1=ON   2=OFF]
*              DAY TIME           = 12:00AM
*              NIGHT TIME        = 12:00AM
*      #19 SILENT FAX RECOGNITION RING = 3        [3...8]
*      #20 REMOTE FAX ACTIVATION CODE = **
*      #21 PAPER SAVE FUNCTION    = OFF        [1=ON   2=OFF]
*      #22 MESSAGE ALERT         = OFF        [1=ON   2=OFF]
*      #24 EXTENSION COPY
*      #26 PRINT JOURNAL
*      #27 PRINT TEL LIST
*      #28 PRINTER TEST
*      #50 SET DEFAULT (#10 TO #22)
*      #9000* (SERVICE DATA SET UP)
*
*****
```

#### 1-4. SERVICE FUNCTION TABLE

Code	Function	Set Value	Effective Range	Default	Remarks
501	Pause time set	×100 ms.	000~600	050	
502	Flash time set	×10 ms.	01~99	70	
503	Dial speed select	1..10PPS 2..20PPS	1, 2	1	
510	VOX time select	1..6 seconds 2..4 seconds	1, 2	1	
520	CED frequency select	1..2100 Hz 2..1100 Hz	1, 2	1	
521	International mode select	1..On 2..Off	1, 2	1	
522	Auto recovery select	1..On 2..Off	1, 2	1	
523	Receive equalizer select	1..0.0 Km 2..1.8 Km 3..3.6 Km 4..7.2 Km	1~4	2	
524	Transmit equalizer select	1..0.0 Km 2..1.8 Km 3..3.6 Km 4..7.2 Km	1~4	2	
550	Memory clear (Refer to page 33.) Returns the set values of #04-#22 (user selectable) to default.				"START" input
551	ROM check (Refer to page 33.)				"START" input
552	DTMF single tone transmit select	1..On 2..Off	1, 2	2	Refer to page 31.
553	Monitor on FAX communication select	1..all phases 2..phase B 3..Off	1~3	3	
554	Modem test (Refer to page 33.)				"START" input
555	Scanner test (Refer to page 33.)				"START" input
556	Motor test (Refer to page 33.)				"START" input
557	LED test (Refer to page 33.)				"START" input
558	LCD test (Refer to page 33.)				"START" input
559	Document jam detection select	1..On 2..Off	1, 2	1	
561	KEY test (Refer to page 33.)				"START" input
563	CCD position adjustment value set	×1 mm	00~30	15	
570	BREAK % select	1..61% 2..67%	1, 2	1	
571	ITS auto redial time set	×number of times	00~99	14	
572	ITS auto redial line disconnection time set	× second	001~999	030	
573	Remote turn-on ring number set	×number of rings	01~99	15	

Code	Function	Set Value	Effective Range	Default	Remarks
574	Dial Tone Detection set	1..On 2..Off	1, 2	2	
580	TAM sequential tone detection select	1..On 2..Off	1, 2	1	
581	ICM Tape End Detection set	1..On 2..Off	1, 2	2	
582	2-way recording select	1..Enable 2..Disable	1, 2	1	
583	2-way beep time set	×1 ms.	000~999	000	
586	White line skip 1 select	1..On 2..Off	1, 2	1	
587	White line skip 2 select	1..On 2..Off	1, 2	1	
590	FAX auto redial time set	×number of times	00~99	05	
591	FAX auto redial line disconnection time set	×second	001~999	045	
592	CNG transmit select	1..auto/manual 2..auto 3..Off	1~3	1	
593	Time between CED and 300 bps	1..75 ms 2..500 ms 3..1 sec	1, 2, 3	1	
594	Overseas DIS detection select	1..detects at the 1st time 2..detects at the 2nd time	1, 2	1	
595	Receive error limit value set	×number of times	000~999	100	
596	Transmit level set	×dBm	-15~00	-10	The values entered without "minus sign" will be regarded as negative.
597	Transmit speed 2400BPS fixed mode select	1..On 2..Off	1, 2	2	

Code	Function	Set Value	Effective Range	Default	Remarks
717	Transmit speed select	1..9600BPS 2..7200BPS 3..4800BPS 4..2400BPS	1~4	1	The fall back starts from each speed.
718	Receive speed select	1..9600BPS 2..7200BPS 3..4800BPS 4..2400BPS	1~4	1	The fall back starts from each speed.
719	Ringer Off in TEL/FAX mode	1..On 2..Off	1, 2	1	Selects whether the ring is on or off when the unit receives an incoming signal in the TEL/FAX mode.
720	Manual tone detect	1..On 2..Off	1, 2	2	Sets the tone detection mode after dialling manually.
731	CPC mode select	1..A 2..B	1, 2	1	
732	Auto Disconnect	1..350 msec 2..1.8 sec	1, 2	1	
771	T1 Timer	1..35 sec 2..60 sec	1, 2	1	
—	User setting list output				"START" input

#### DTMF single tone transmit select

When set to ON (=1), the 12 keys and transmission frequencies are as shown.

Key	Frequency(Hz)	Key	Frequency(Hz)
"1"	697	"5"	1209
"2"	770	"6"	1336
"3"	852	"7"	1477
"4"	941		

When set to OFF (=2), the 12 keys and transmission frequencies are as shown.

Low(Hz) \ High(Hz)	1209	1336	1477
697	"1"	"2"	"3"
770	"4"	"5"	"6"
852	"7"	"8"	"9"
941	"*"	"0"	"#"



1-5. SERVICE MODE SETTING VALUES (Example of a printed out list)

```
***** SERVICE DATA LIST *****
*
* 501 PAUSE TIME      = 050*100ms[001...600]*100ms      *
* 502 FLASH TIME     = 70*10ms [01...99]*10ms          *
* 503 DIAL SPEED      = 10pps [1=10 2=20 ]pps          *
* 510 VOX TIME        = 6sec [1=6 2=4 ]sec            *
* 520 CED FREQ.       = 2100Hz [1=2100 2=1100]Hz       *
* 521 INTL. MODE      = ON [1=ON 2=OFF ]              *
* 522 AUTO STANDBY    = ON [1=ON 2=OFF ]              *
* 523 RX EQL.         = 1.8Km [1=0.0 2=1.8 3=3.6 4=7.2]Km *
* 524 TX EQL.         = 1.8Km [1=0.0 2=1.8 3=3.6 4=7.2]Km *
*
* << SPECIAL SERVICE SETTINGS >>
* 552 553 559 563 570 571 572 573 574 580 581 582 583 586 587 590 591 592 *
* 2 3 1 15 1 14 030 15 2 1 2 1 000 1 1 05 045 1 *
*
* 593 594 595 596 597 717 718 719 720 731 732 771 *
* 1 1 100 -10 2 1 1 1 2 1 1 1 *
*****
```

## 2. TEST FUNCTIONS

Test mode	Type of Mode	●Code <input type="checkbox"/> <input type="checkbox"/>	Function
		●Operation after code input.	
PRINT TEST	User mode	2 8	Print a test pattern and check the thermal head for abnormalities (missing dots, etc.), and also check the operation of the reception motor.
		START	
MOTOR TEST	Service Mode	5 5 6	Rotate the transmission and reception motors to check the operation of the motors.
		START	
MODEM TEST	Service Mode	5 5 4	Send four kinds of FAX signals to check the sending function of the modem. 1) 1100 Hz: Consecutive signal of EOM for tonal. 2) 2100 Hz: G2 carrier signal Consecutive of CED signal 3) G3, V29 training signal [modulation wave of carrier signal (1700 Hz)]
		START	
ROM CHECK	Service Mode	5 5 1	Indicate the version and check sum of the ROM.
		START	
SCAN CHECK	Service Mode	5 5 5	Turn on the LEDs of the image sensor and operate the read system.
		START	
LCD CHECK	Service Mode	5 5 8	Check the LCD indication. Illuminate all dots to check if they are normal.
		START	
DTMF SINGLE TEST	Service Mode	5 5 2	Output the DTMF by single tone.
		1..On 2..Off	
LED TEST	Service Mode	5 5 7	All LEDs flashes on and off, or is illuminated.
		START	
KEY CHECK	Service Mode	5 6 1	Check the operation button. Indicate the button code at LCD after the button is pressed.
		START {any key}	
FACTORY SET	Service Mode	5 5 0	Clear the memory in which the user can store data.
		START	

### BUTTON CODE TABLE

CODE	BUTTON NAME	CODE	BUTTON NAME	CODE	BUTTON NAME	CODE	BUTTON NAME
01	STOP	15	OGM REC	34	4	C4	STATION 5
02	RESOLUTION	16	ERASE	35	5	C5	STATION 6
03	LIGHT ORIGINAL	17	TAM STOP	36	6	C6	STATION 7
04	START	18	NEW MESSAGE	37	7	C7	STATION 8
05	POLLING	20	MENU	38	8	C8	STATION 9
06	COPY	21	SET	39	9	C9	STATION 10
08	SP-PHONE	22	HELP	3A	0	CA	STATION 11
09	REDIAL	23	CLEAR	3B	*	CB	STATION 12
0A	MUTE	24	DIRECTORY	3C	#		
0C	RECEIVE MODE	25	UP	3D	PAUSE		
10	ALL MESSAGE	26	DOWN	3E	FLASH		
11	MEMO	30	AUTO	C0	STATION 1		
12	FF	31	1	C1	STATION 2		
13	REW	32	2	C2	STATION 3		
14	OGM CHECK	33	3	C3	STATION 4		

### 3. COMMUNICATION ERROR FUNCTIONS

#### 3.1 OPERATION

1. Press the PROGRAM button.
2. Press the #, 2 and 6 buttons.
3. Press the START button.
4. Print out.

#### 3-2. ERROR CORD TABLE

CODE	RESULT	Message on LCD	MODE	Symptom	Counter-measure
A2	PRESSED THE STOP KEY	E-02	TX & RX	Communication was interrupted with the STOP button	
A3	DOCUMENT JAMMED	E-03	TX	Document paper is jammed	
A4	NO DOCUMENT	E-03	TX	No document paper	
A5	PRINTER OVERHEATED	E-05	RX	Thermal head is overheated	
A6	PAPER OUT	E-06	RX	Out of thermal paper	
A7	THE COVER WAS OPENED	E-07	TX & RX	Cover is open	
40	NO RESPONSE	E-04	TX	Transmission is finished when T1 TIMER is expired	1
41	COMMUNICATION ERROR	E-04	TX	DCN is received after DCS transmission	2
42	COMMUNICATION ERROR	E-04	TX	FTT is received after transmission of 2400BPS training signal	3
43	COMMUNICATION ERROR	E-04	TX	No response after post message is transmitted three times	4
44	COMMUNICATION ERROR	E-04	TX	PTN and PIN are received	5
46	COMMUNICATION ERROR	E-04	RX	No response after FTT is transmitted	6
48	COMMUNICATION ERROR	E-04	RX	No post message	7
49	COMMUNICATION ERROR	E-04	RX	RTN is transmitted	8
50	COMMUNICATION ERROR	E-04	RX	PIN is transmitted (to PRI-Q)	8
51	COMMUNICATION ERROR	E-04	RX	PIN is transmitted	8
52	NO RESPONSE	E-04	RX	Reception is finished when T1 TIMER is expired	9
53	COMMUNICATION ERROR	E-04	TX	DCN is received after transmission of NSC and DTC	10
54	COMMUNICATION ERROR	E-04	RX	DCN is received after DIS transmission	11
57	COMMUNICATION ERROR	E-04	TX	300BPS error	12
58	COMMUNICATION ERROR	E-04	RX	DCN is received after FTT transmission	13
59	COMMUNICATION ERROR	E-04	TX	DCN responds to post message	14
64	COMMUNICATION ERROR	E-04	TX	Polling is not possible	15
67	PASSCODE FAILED	E-09	TX & RX	Password is incorrect	16
68	COMMUNICATION ERROR	E-04	RX	No response at the other party after MCF or CFR is transmitted	13
70	COMMUNICATION ERROR	E-04	RX	DCN is received after CFR transmission	13
72	COMMUNICATION ERROR	E-04	RX	Carrier is cut when image signal is received	17
FF	COMMUNICATION ERROR	E-04	TX & RX	Modem error	12

TX=TRANSMISSION RX=RECEPTION

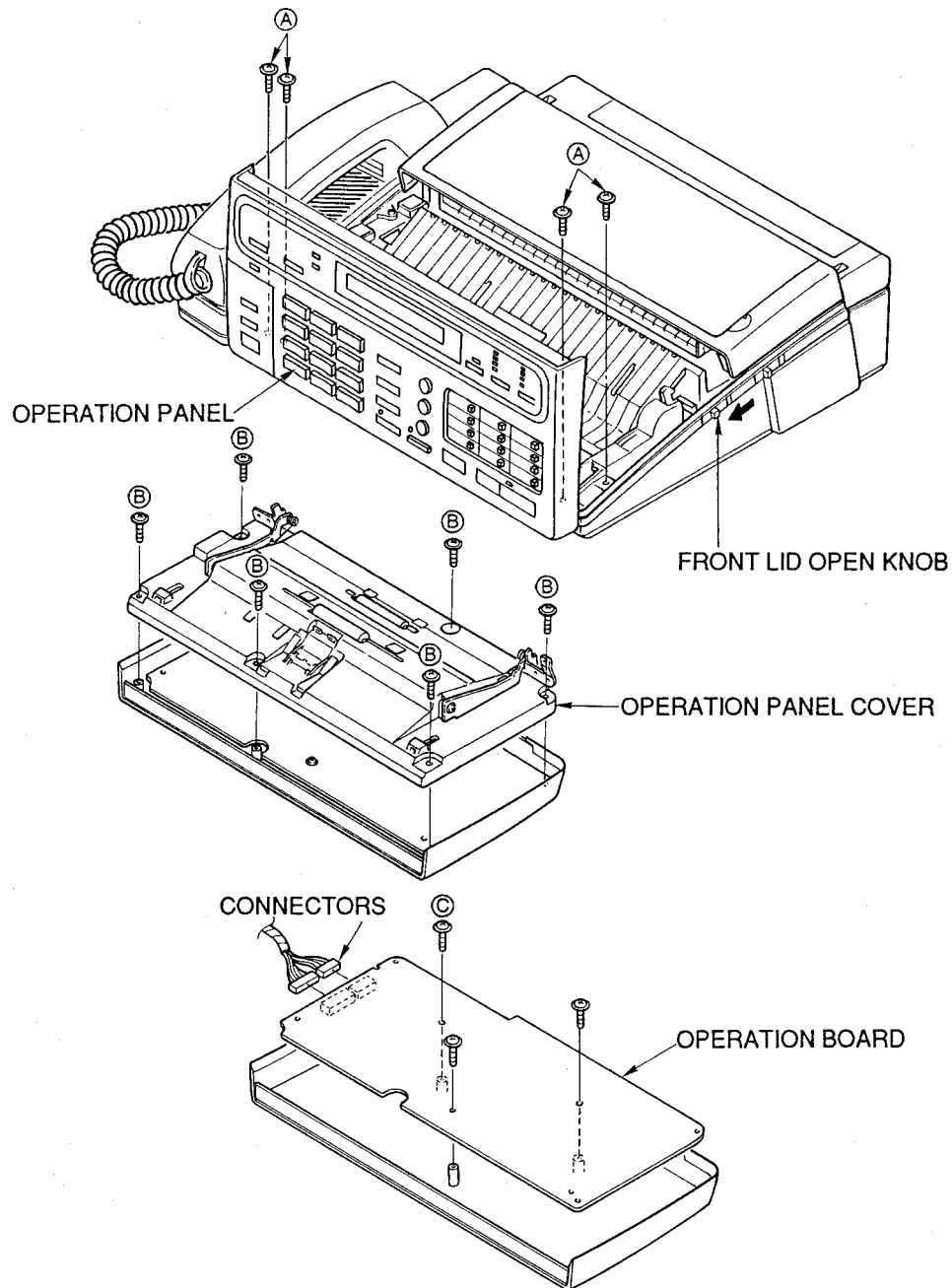
# DISASSEMBLY INSTRUCTIONS

Ref. No. 1

## HOW TO REMOVE THE OPERATION BOARD

Procedure  
1

- 1) Push the front lid open knob in direction of arrow to open the operation panel.
- 2) Remove the 4 screws (A) and remove the operation panel.
- 3) Remove the 6 screws (B) and remove the operation panel cover.
- 4) Remove the 3 screws (C).
- 5) Remove the 2 connectors and remove the operation board.



### HOW TO CLEAN:

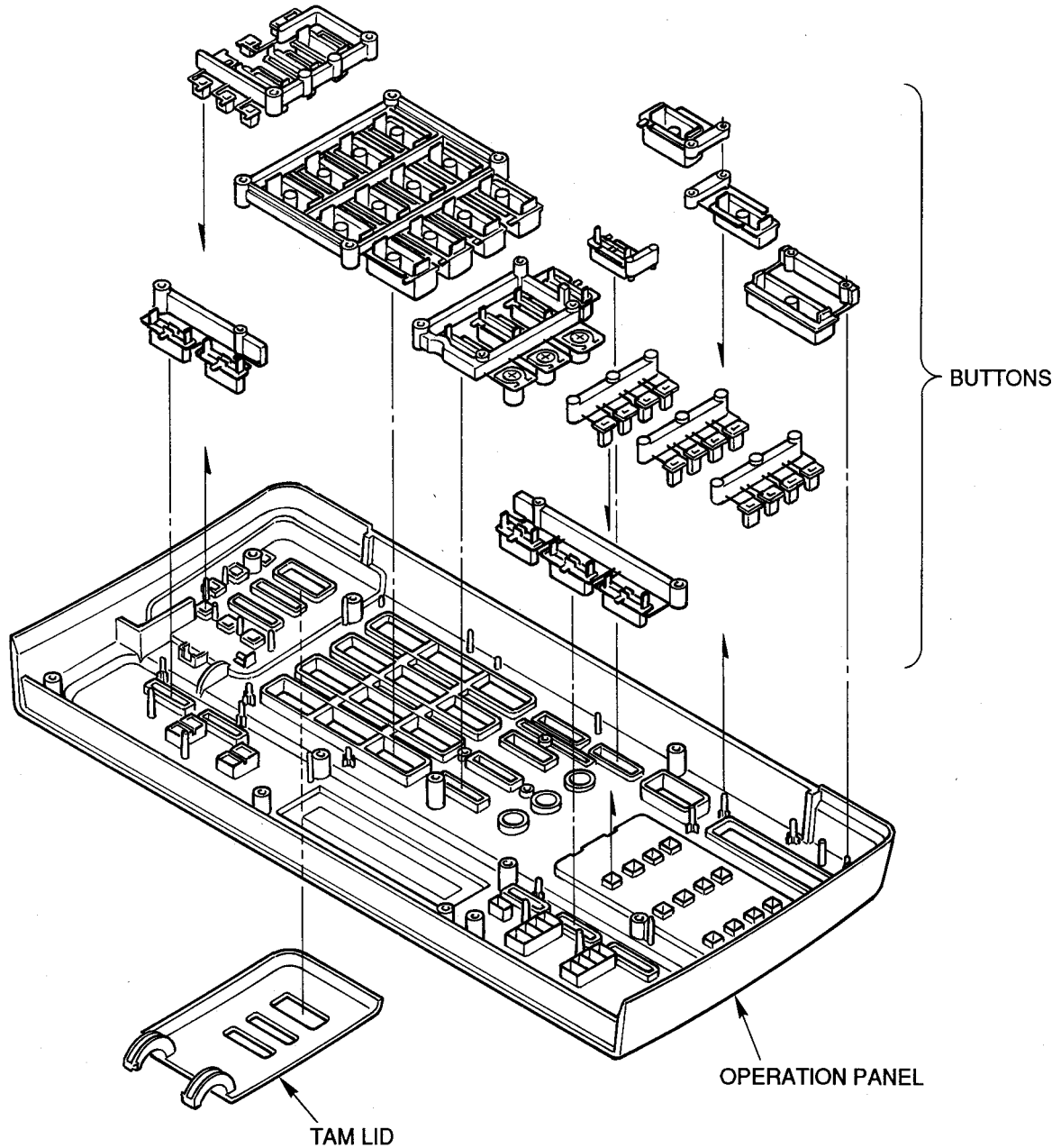
Clean the reading plate  
with cloth soaking in  
alcohol.

Ref. No. 2

## HOW TO REMOVE THE BUTTONS AND OPERATION PANEL

Procedure  
1→2

- 1) Remove each button from the operation panel and replace it.
- 2) Remove the one-touch dial button cover.
- 3) Replace the operation panel.

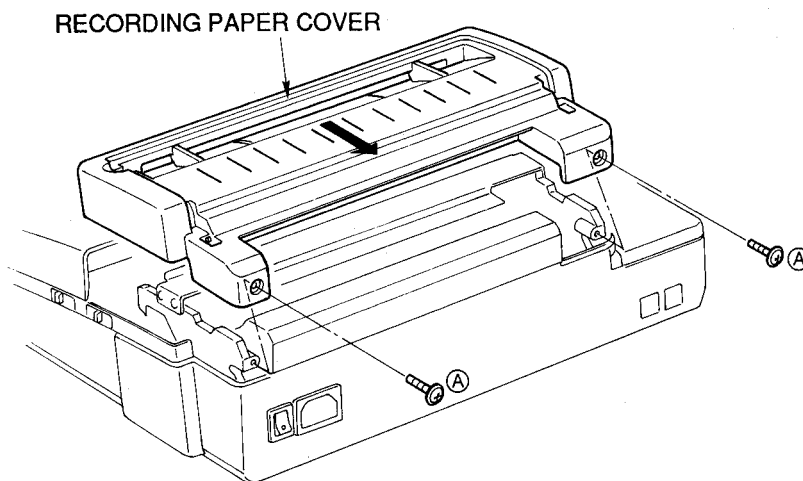
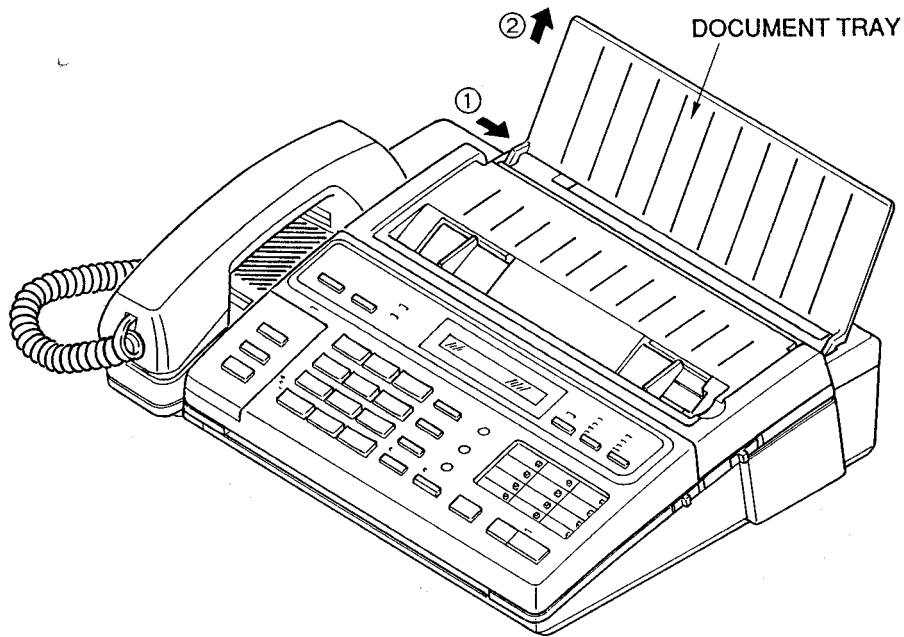


Ref. No. 3

## HOW TO REMOVE THE DOCUMENT TRAY AND RECORDING PAPER COVER

Procedure  
3

- 1) Push the installing section in direction of arrow to remove the document tray.
- 2) Remove the 2 screws (A).
- 3) Push the cover in direction of arrow to remove the recording paper cover.

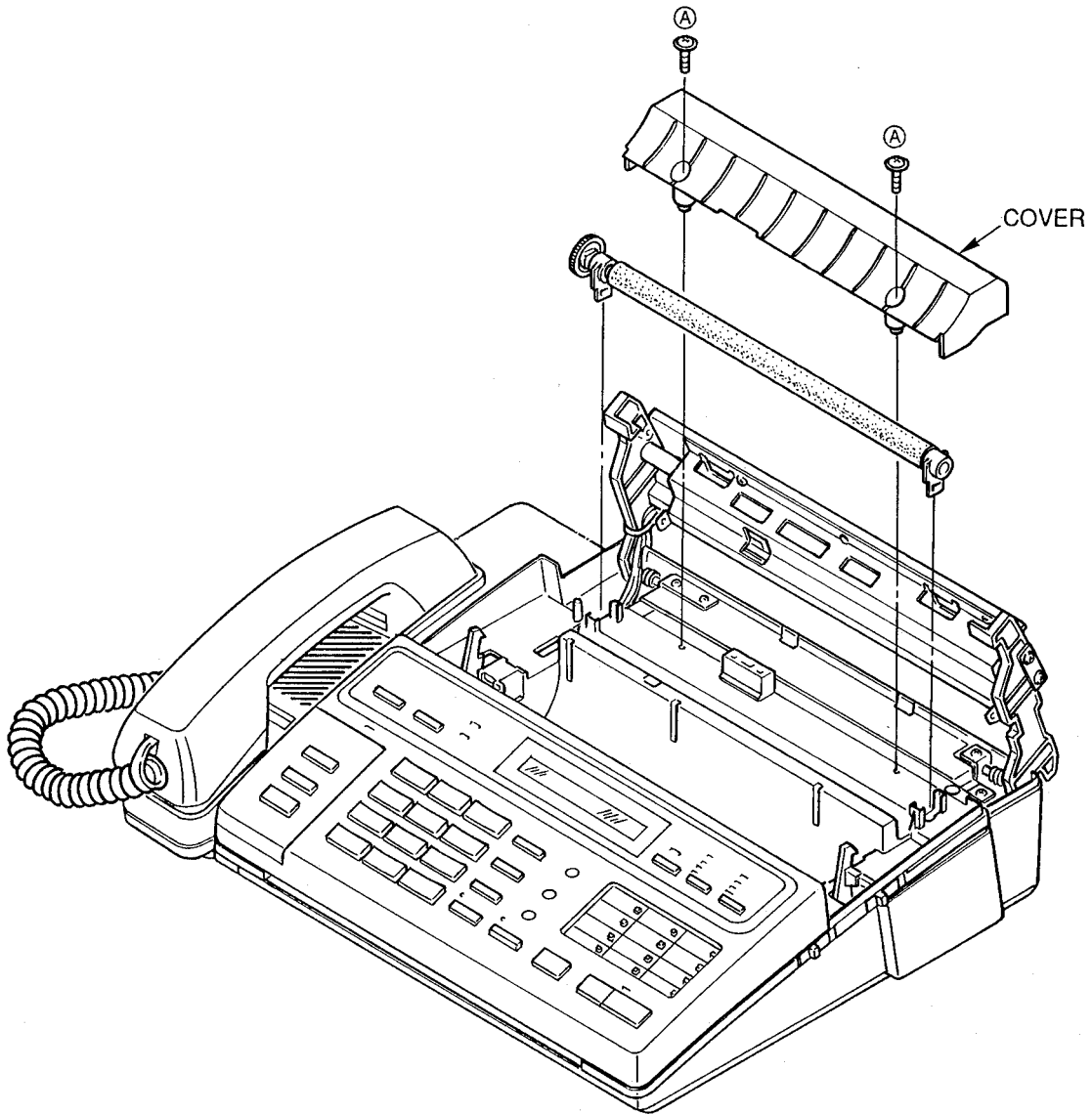


Ref. No. 4

## HOW TO REMOVE THE RECORDING PAPER ROLLER

Procedure  
3→4

- 1) Remove the 2 screws (A) and remove the cover.
- 2) Remove the recording paper roller.



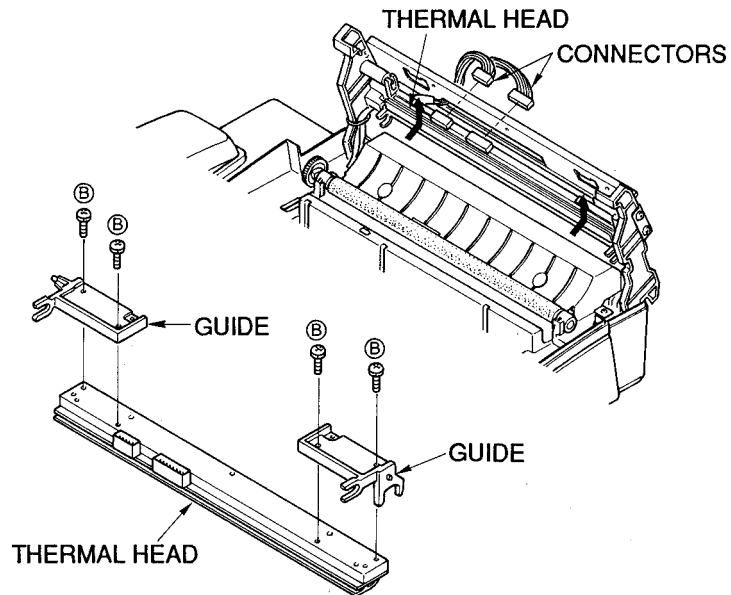
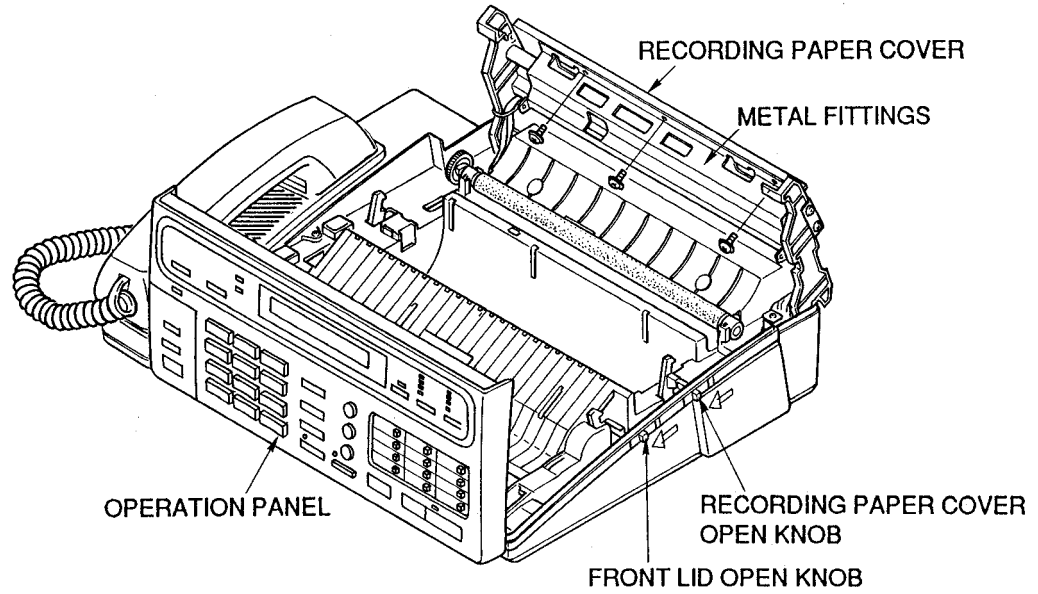
**HOW TO CLEAN:**  
Clean the roller with  
cloth soaking in  
alcohol.

Ref. No. 5

## HOW TO REMOVE THE THERMAL HEAD

Procedure  
3→5

- 1) Push the front lid open knob in direction of arrow to open the operation panel.
- 2) Push the recording paper cover open knob in direction of arrow to open the recording paper cover.
- 3) Remove the 3 screws (A) and remove the metal fittings.
- 4) Push the thermal head in direction of arrow to remove the thermal head.
- 5) Remove the 2 connectors of thermal head.
- 6) Remove the 4 screws (B) of thermal head to remove the guides.
- 7) Replace the thermal head.



### HOW TO CLEAN:

Clean the printing surface of thermal head with cloth soaking in alcohol.

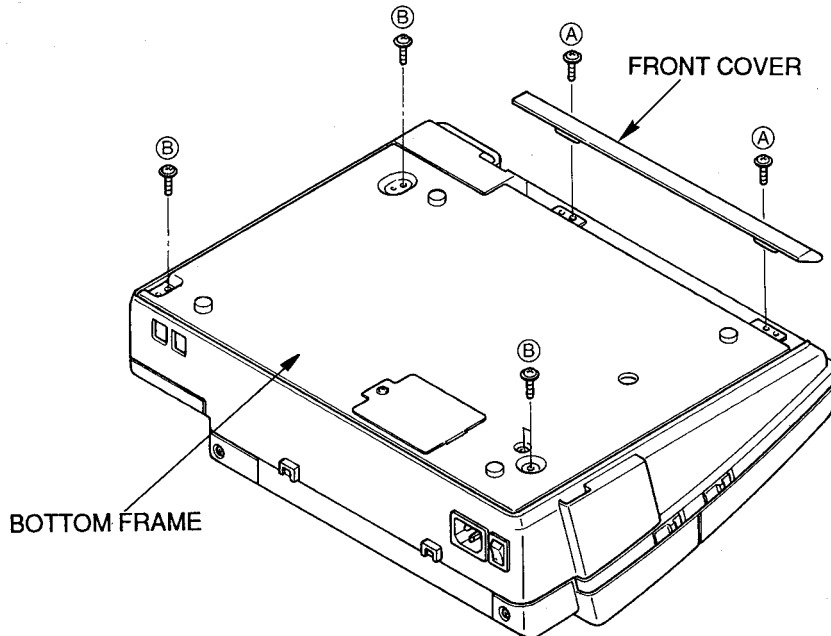


Ref. No. 6

## HOW TO REMOVE THE BOTTOM FRAME

Procedure  
6

- 1) Remove the 2 screws (A).
- 2) Remove the front cover.
- 3) Remove the 4 screws (B).
- 4) Remove the bottom frame.

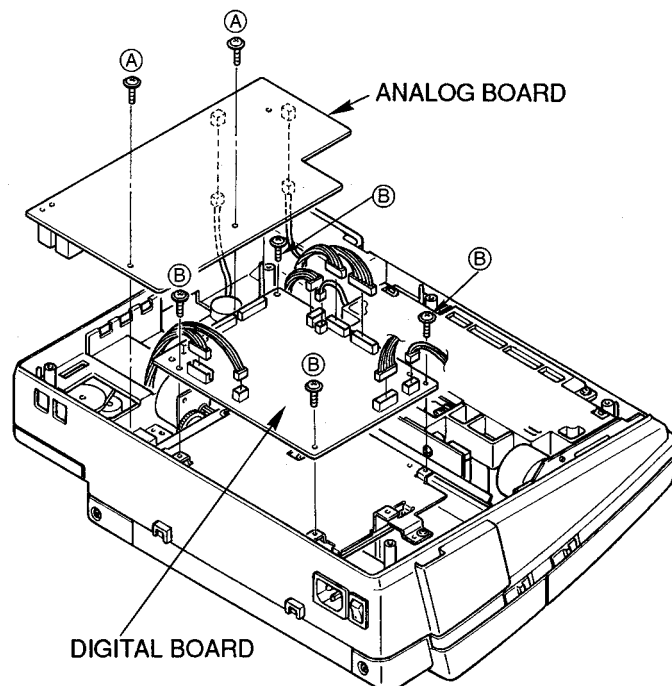


Ref. No. 7

## HOW TO REMOVE THE ANALOG AND DIGITAL BOARDS

Procedure  
6→7

- 1) Remove the 2 screws (A).
- 2) Remove the analog board.
- 3) Remove the 2 connectors.
- 4) Remove the 4 screws (B).
- 5) Remove the digital board.
- 6) Remove the 8 connectors.

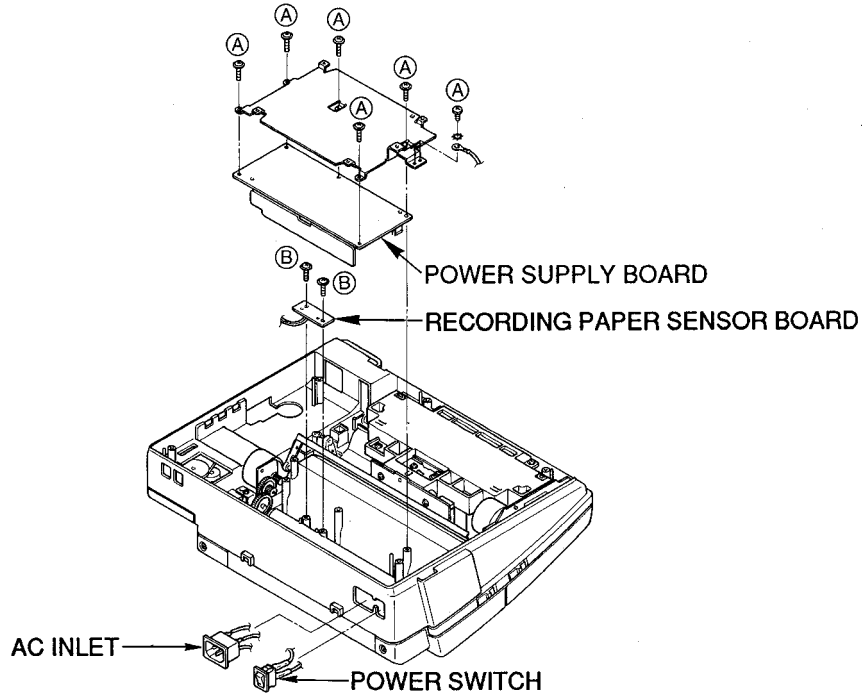


Ref. No. 8

### HOW TO REMOVE THE POWER SUPPLY BOARD, RECORDING PAPER SENSOR BOARD, AC INLET AND POWER SWITCH

Procedure  
6→7→8

- 1) Remove the 7 screws (A) and remove the power supply board.
- 2) Remove the 2 screws (B) and recording paper sensor board.
- 3) Remove the AC inlet and power switch.

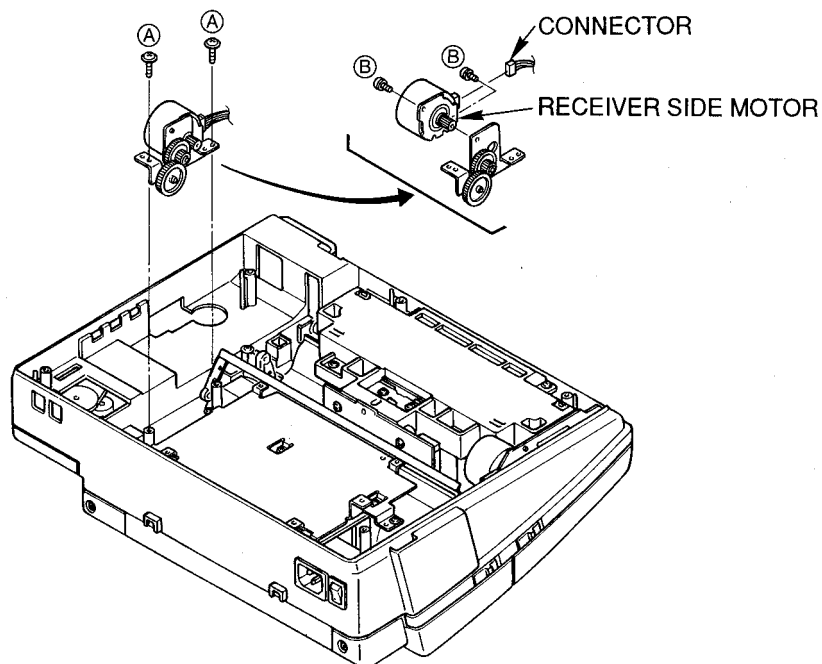


Ref. No. 9

### HOW TO REMOVE THE RECEIVER SIDE MOTOR

Procedure  
6→7→9

- 1) Remove the 2 screws (A).
- 2) Remove the motor section.
- 3) Remove the 2 screws (B).
- 4) Remove the connector.
- 5) Remove the receiver side motor.

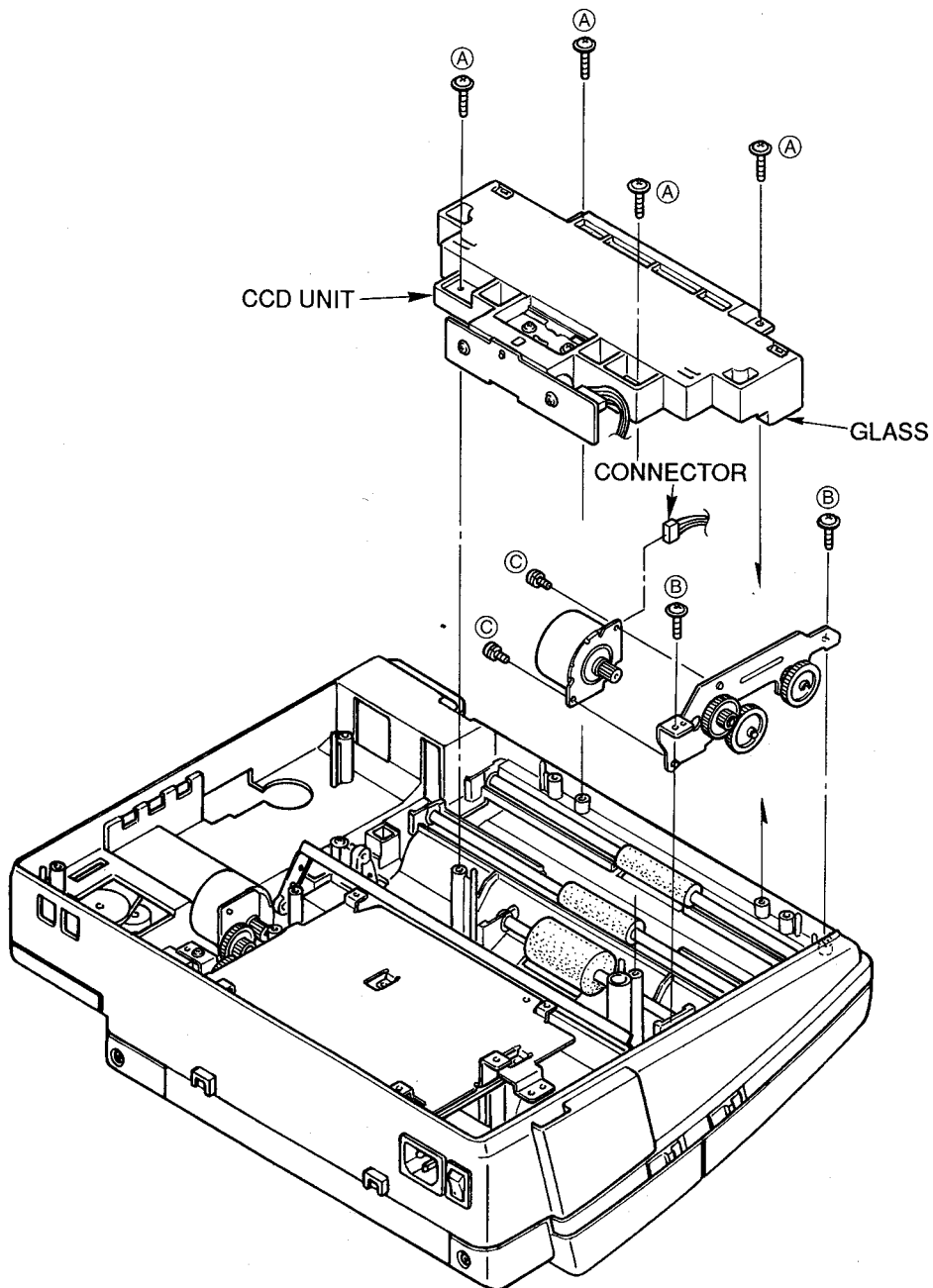


Ref. No. 10

## HOW TO REMOVE THE CCD UNIT AND TRANSMITTING SIDE MOTOR

Procedure  
6→7→10

- 1) Remove the 4 screws (A).
- 2) Remove the CCD unit.
- 3) Remove the 2 screws (B) and remove the transmitting motor section.
- 4) Remove the connector.
- 5) Remove the 2 screws (C) and replace the motor.



**HOW TO CLEAN:**  
Clean the glass of CCD unit with cloth soaking in alcohol.

**HOW TO REMOVE THE ROLLER**

Procedure  
6→7→10→  
11

- 1) Remove the spacer with minus screwdriver (small size) as showing in following Fig. A.
- 2) Remove the roller.
- 3) Remove the gear and spacer from roller shaft and replace roller.

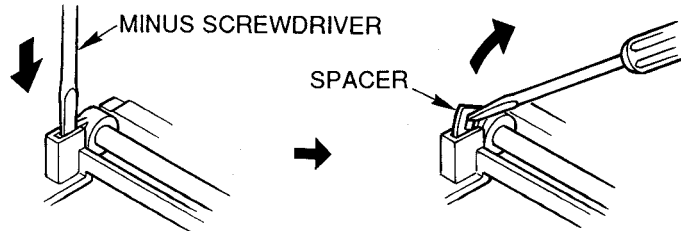
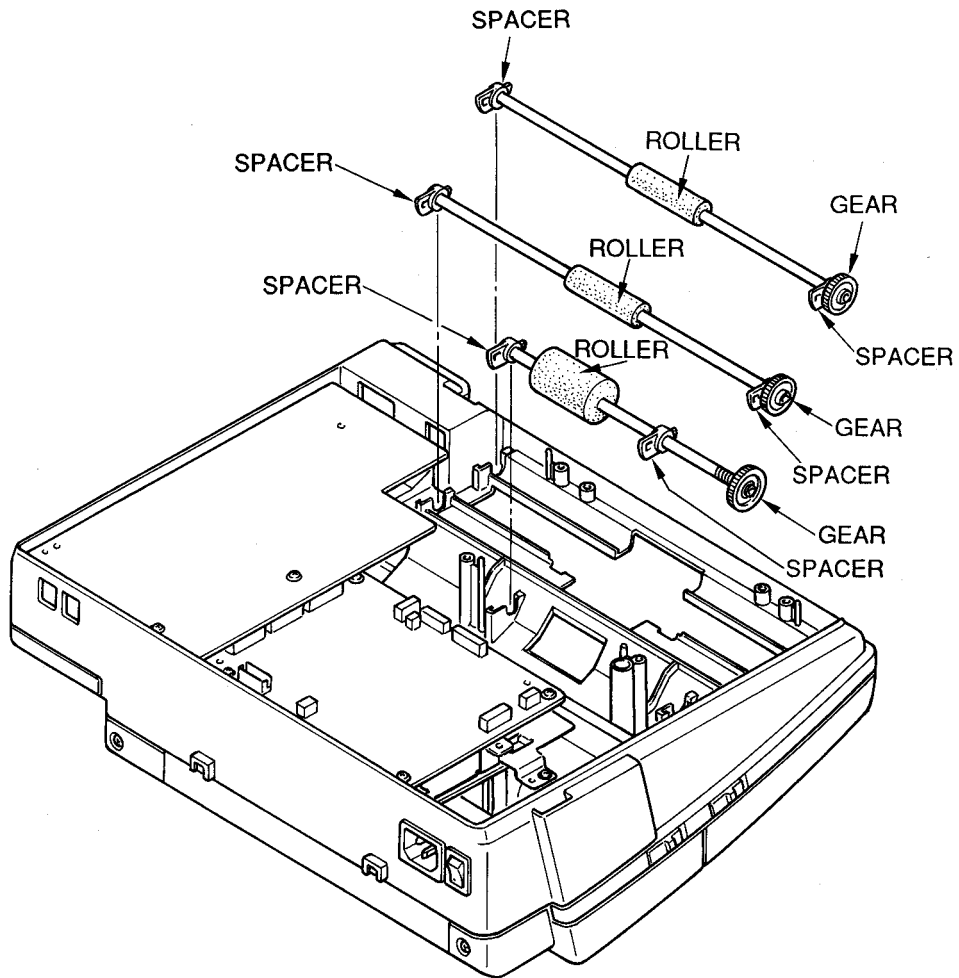


Fig. A

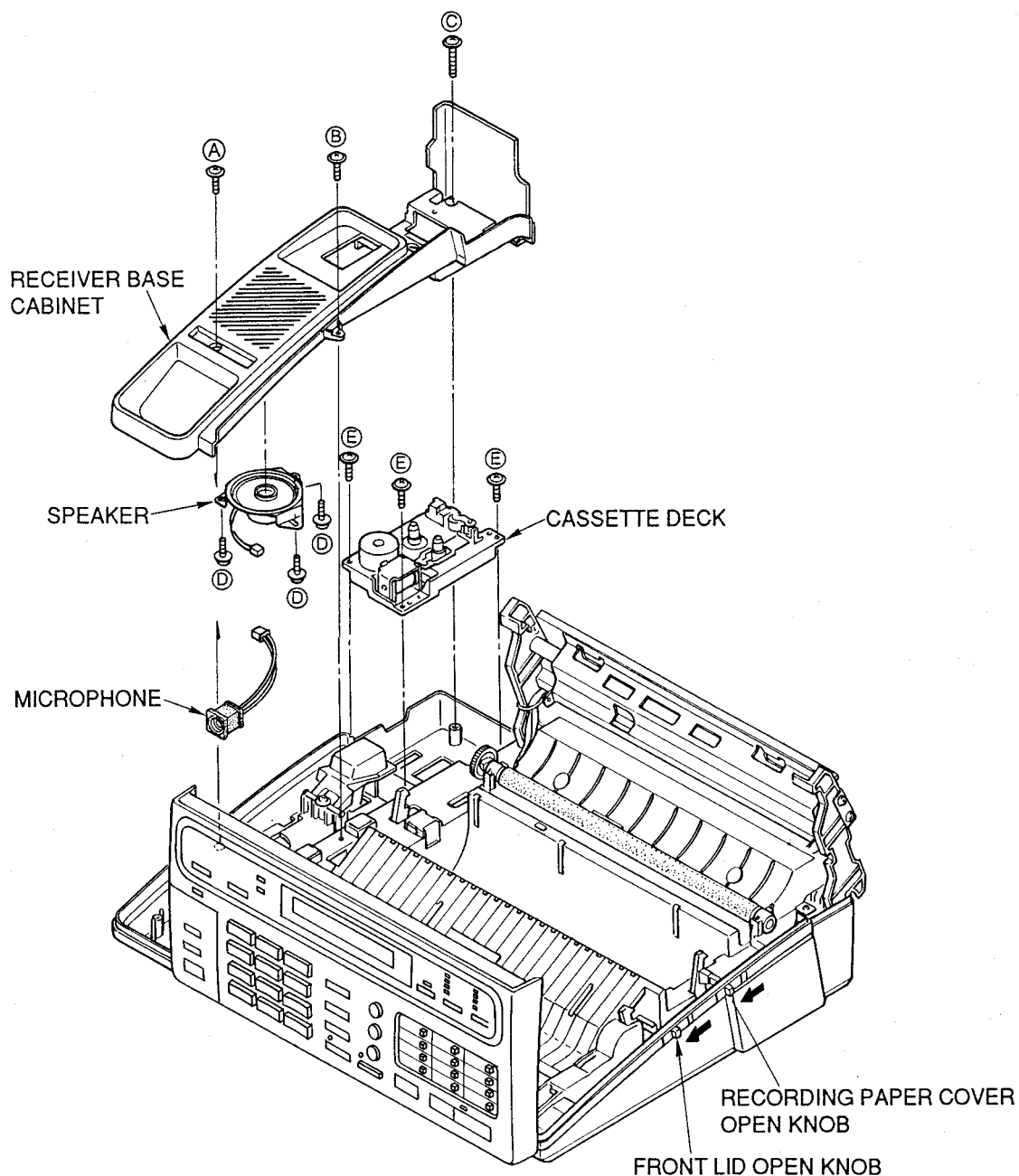


Ref. No.12

## HOW TO REMOVE THE RECEIVER BASE CAB., SPEAKER, MICROPHONE AND CASSETTE DECK

Procedure  
3→6→7→  
12

- 1) Push the recording paper cover open knob to open the recording paper cover.
- 2) Push the front lid open knob to open the operation panel.
- 3) Remove the each 1 screw (A, B, C).
- 4) Remove the receiver base cabinet.
- 5) Remove the 3 screws (D) and remove the speaker.
- 6) Remove the 3 screws (E).
- 7) Remove the cassette deck.

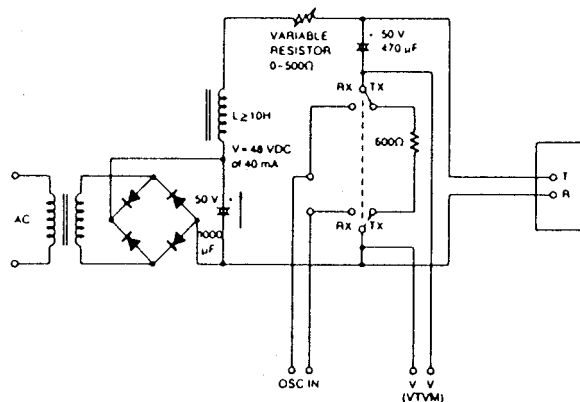


# ADJUSTMENTS

## 1. TABLE OF TEST EQUIPMENTS AND JIG

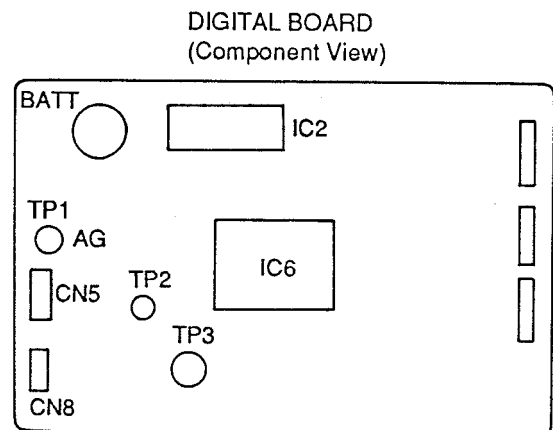
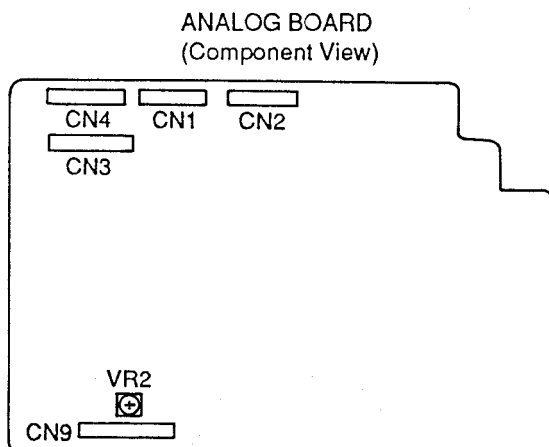
No.	Test Equipment and Jig Name	Jig No.	Adjustment Name
1	VTVM	—	Cassette Deck
2	Loop Simulator	—	FAX Transmission Level
3	Test Tape	QZZMWA or PQZZLCT 2401A	Cassette Deck
4	Ōscilloscope	—	Cassette Deck CCD
5	Frequency Counter	—	Cassette Deck
6	CCD Jig	PQZZF150M	CCD
7	Extension Cord	Refer to pages 196 and 214.	CCD etc.
8	Locating Tool	PQZZ2060Z	Cassette Deck

## 2. SCHEMATIC DIAGRAM OF LOOP SIMULATOR



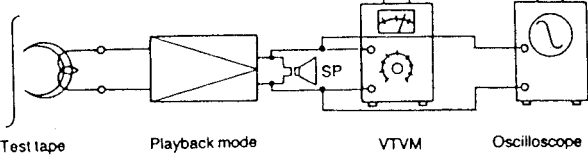
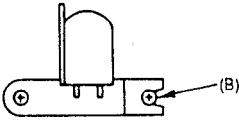
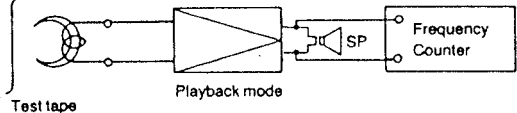
If a 48 V DC power supply is not available, a 20V DC power supply can be substituted. However, the variable resistor (0-500Ω) must be set to 0 ohms.

## 3. LOCATION OF TEST POINT AND VR



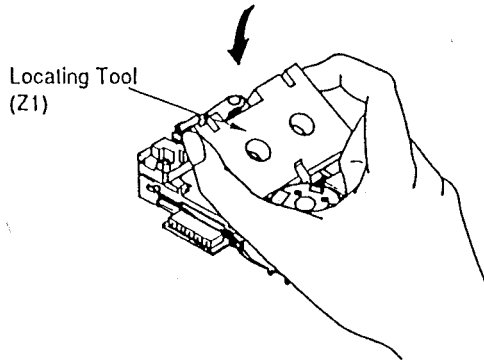
## 4. CASSETTE DECK ADJUSTMENT

- Notes: 1. Make sure the heads are clean.  
 2. Make sure the capstan and pressure roller are clean.  
 3. Room temperature for measuring and adjusting:  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ )  
 4. Test equipments are not treated as replacement parts.

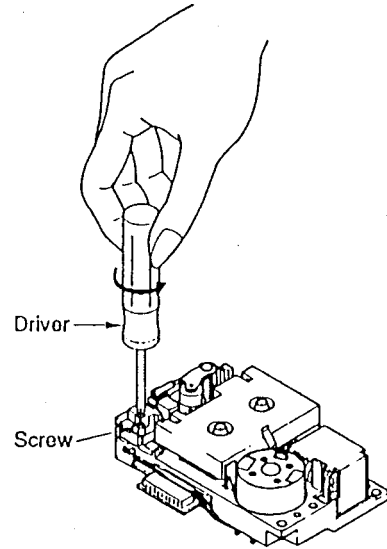
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
<p>1. Head azimuth adjustment</p>	<p>1. Play back the test tape (QZZMWA or PQZZLCT2401A).            2. Adjust screw (B) shown in Fig. A for maximum output at SP terminal.            (Test equipment connection is shown below.)</p>  <p style="text-align: center;">Test tape      Playback mode      SP      VTVM      Oscilloscope</p>	<p>* Record/playback head</p>  <p style="text-align: center;">Fig. A</p>
<p>2. Tape speed adjustment</p>	<p>1. Play back the test tape (QZZMWA or PQZZLCT2401A).            2. Adjust VR2 for <math>3000 \pm 50</math> Hz on frequency counter reading.</p>  <p style="text-align: center;">Test tape      Playback mode      SP      Frequency Counter</p>	

**Note:** Perform locating adjustment after changing or moving Erase Head or parts around it.

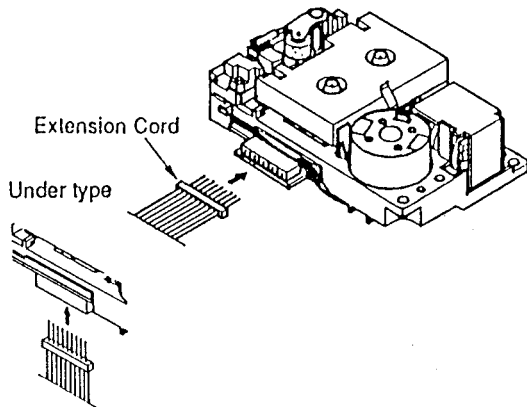
- 1** • Set the Locating Tool (Z1) on the DECK.



- 2** • Loosen the fixed screw of Erase Head.

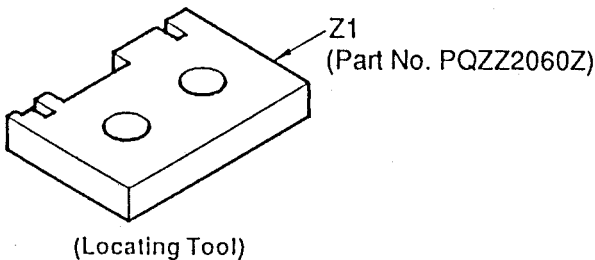
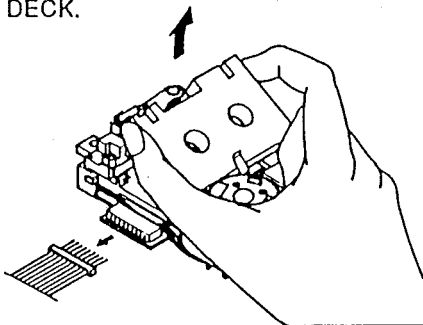


- 3** • Connect the DECK with the unit by extension cord and press the PLAY Button.

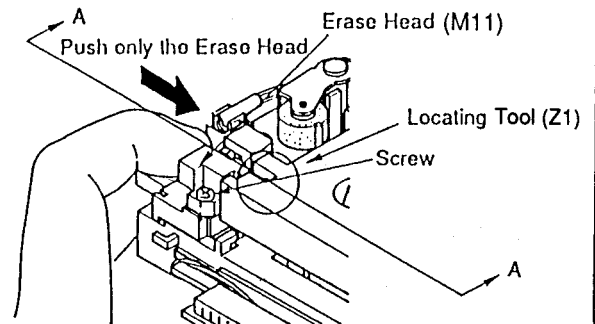


**Note:** Decks in some models are connected from under it by extension cord.

- 5** ① Press the STOP Button.  
② Remove the Locating Tool (Z1) and extension cord from the DECK.

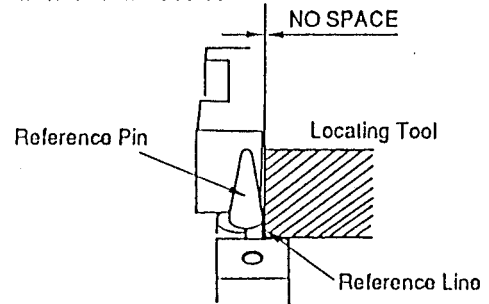


- 4** ① Push the back of Erase Head with finger to push only the top of Erase Head (M11) to the side of Locating Tool (Z1).  
② Tighten the Erase Head Screw while keeping the state shown in step ①.



**Note 1:** Do not give any pressure to another part when you press the Erase Head (M11). Otherwise, the correct justification cannot be made.

• Sectional view of A-A



**Note 2:** When attaching the Locating Tool to the Reference Pin, be sure to leave NO SPACE between them because the Reference Line is a standard of the deck's dimensions.



## 5. CCD ADJUSTMENTS

Perform the following adjustment after replacing lens and CCD board.

### PREPARATION:

- 1) Remove the CCD unit from set. (Refer to page 81.)
- 2) Make oscilloscope connections as shown in Fig. C.
- 3) Attach the CCD unit on the CCD TOOL.
- 4) Connect between CCD unit and digital board with extension cord (Part No. PQZZ8K15Z). (Refer to Fig. C.)
- 5) Connect between LED array and digital board with extension cord (Part No. PQZZ2K12 Z). (Refer to Fig. C.)
- 6) Power switch ON.
- 7) Press the PROGRAM button.
- 8) Press the #, 9, 0, 0, 0 and \* buttons.
- 9) Press the 5, 5 and 5 buttons.
- 10) Press the START button.

### Notes:

- 1) When replacing the lens, pay attention to the markings on the lens are white, yellow or orange. The number of the CCD spacers to use differs depending on the markings as follows.

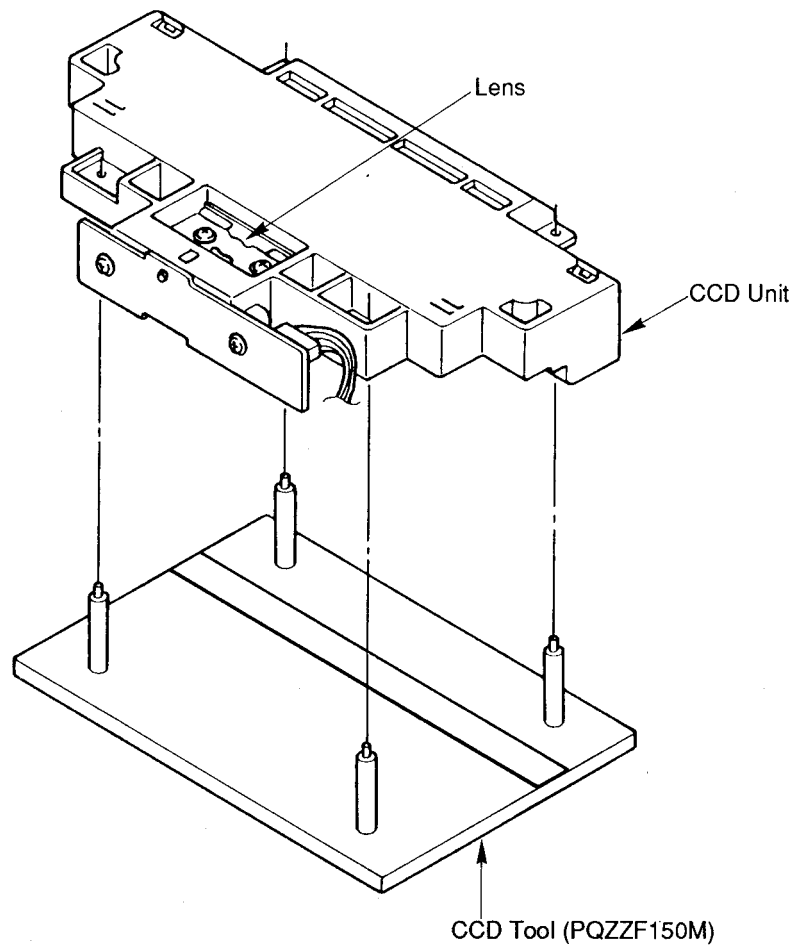
\* Refer to page 201 for the location of the CCD spacers.

- 2) Install the lens so that the marking (White or Yellow or Orange) on it is upper side.
- 3) Do not touch the glass face of the lens with the bare hand.

### Cleaning:

If the lens is dirty, clean it with a dry soft cloth.

Marking on the lens	Number of CCD Spacer
Orange	0 (not used)
White	1
Yellow	2



### Note:

Please adjust with covering topside of the lens by hands in order not to let in outdoor daylight.

**ADJUSTMENT:**

**LENS AND CCD READ POSITION ADJUSTMENT**

- 1) Loosen the lens fixing screw and CCD board fixing screw.
- 2) Adjust the position of the lens and CCD board so that the waveform appears as shown in the figure below.
- 3) Fix the lens fixing screw and CCD board fixing screw.

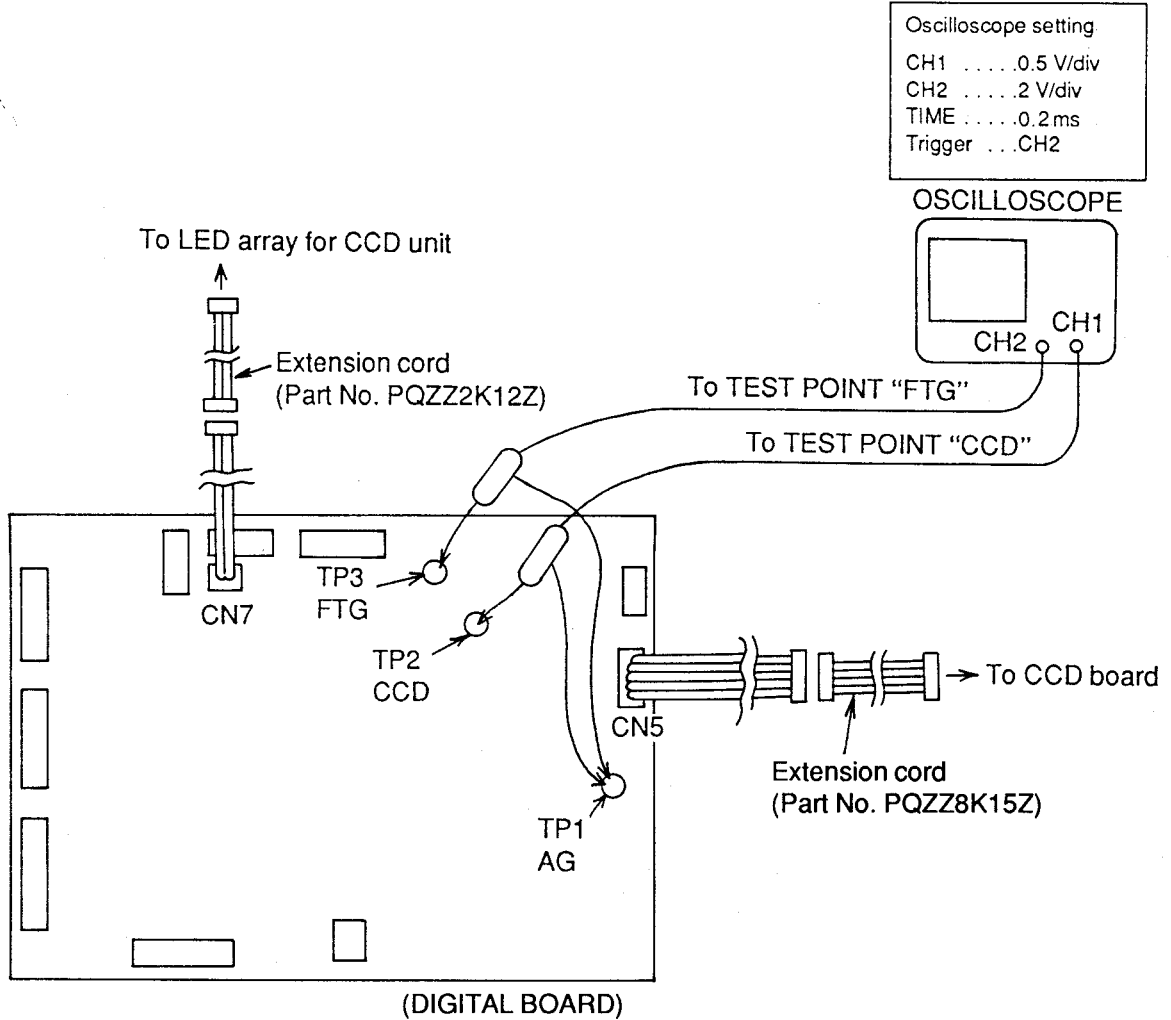
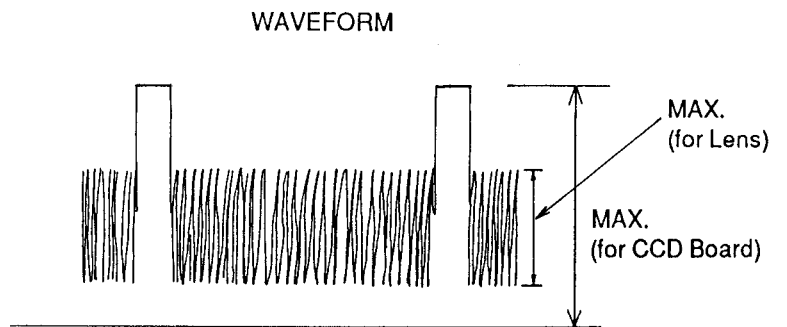
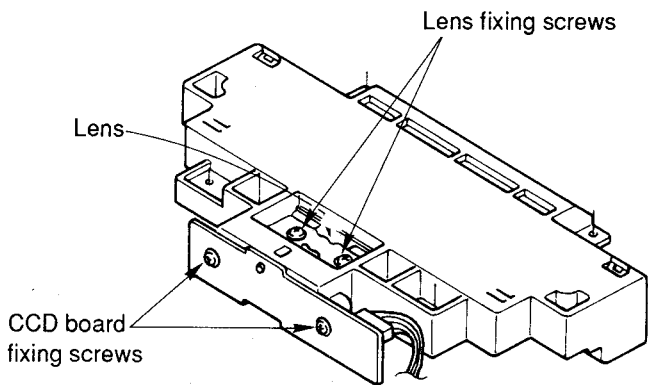


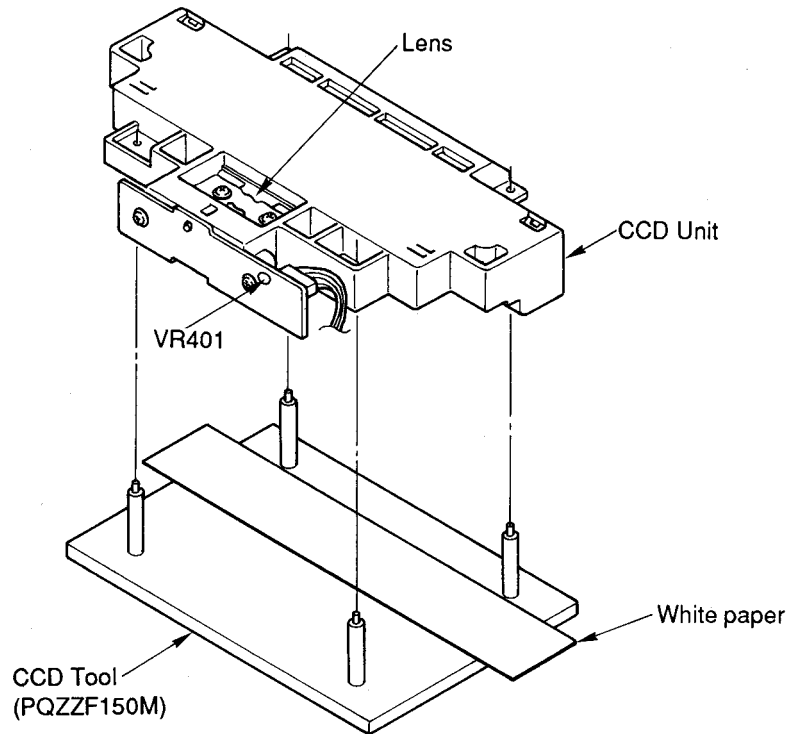
Fig. C



## WHITE LEVEL ADJUSTMENT

- 1) Remove the CCD unit from CCD TOOL.
- 2) Attach the white paper on the CCD TOOL.
- 3) Attach the CCD unit on the CCD TOOL.
- 4) Adjust VR401 on the CCD board so that the waveform becomes 2 V.

**Notes:** 1. After the adjustment is finished, assemble the unit by reversing above procedure.  
2. Please adjust with covering topside of the lens by hands in order not to let in outdoor daylight.



### WAVEFORM



## 6. DOCUMENT READ START POSITION ADJUSTMENT

- 1) Power Switch ON.
- 2) Copy the document, and confirm the read start position of the document.
- 3) If get out of position, adjust the read position.
- 4) Press the PROGRAM button.
- 5) Press the #, 9, 0, 0, 0, \* and 5, 6, 3 buttons.
- 6) Press the , SET and PROGRAM buttons.

30  
⋮ To move the image to the right direction  
16 ↑  
15 ← Standard (Default)  
14 ↓  
⋮ To move the image to the left direction  
00

\* The starting position of the reading shifts 1 mm as the number changes.

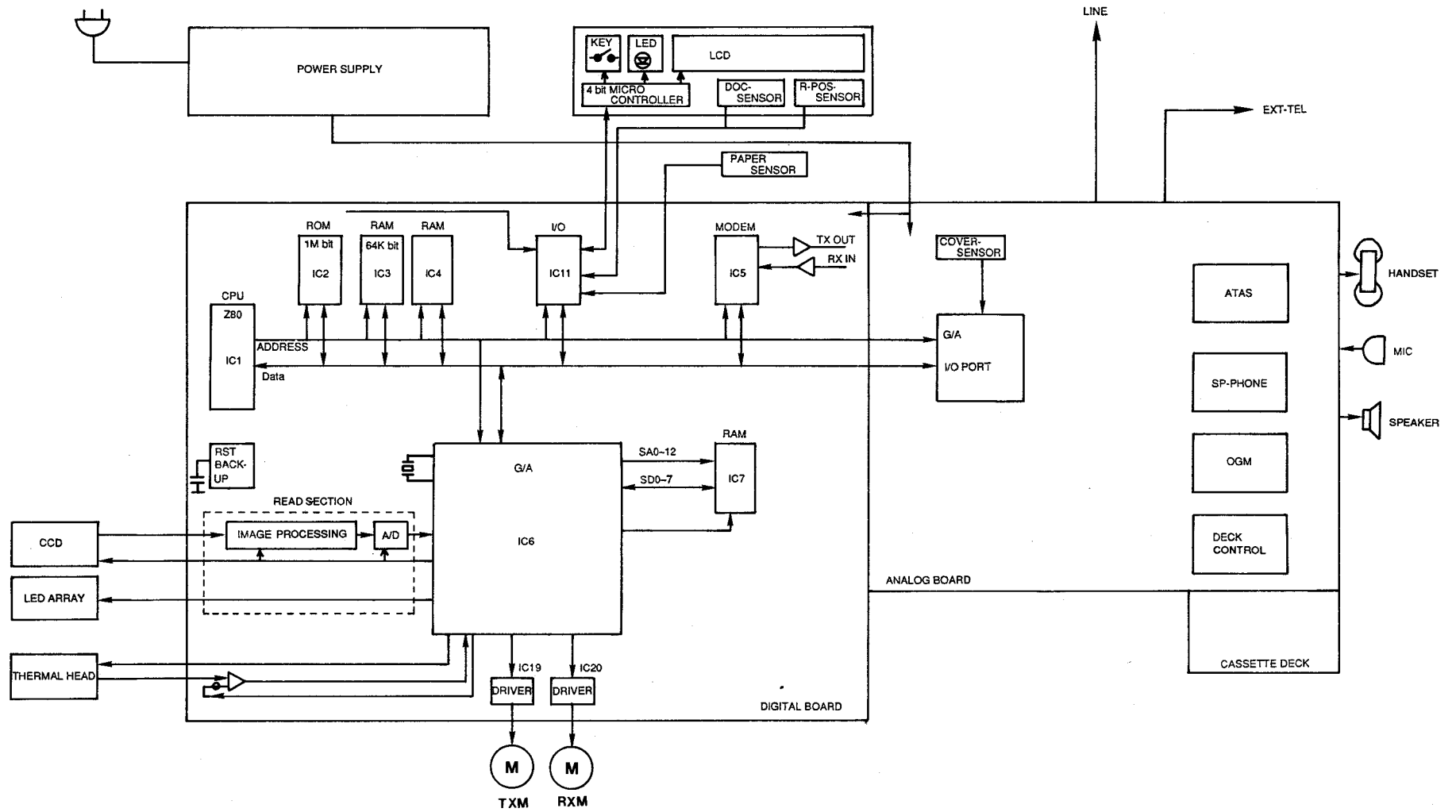
# CIRCUIT OPERATIONS

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## NOTE

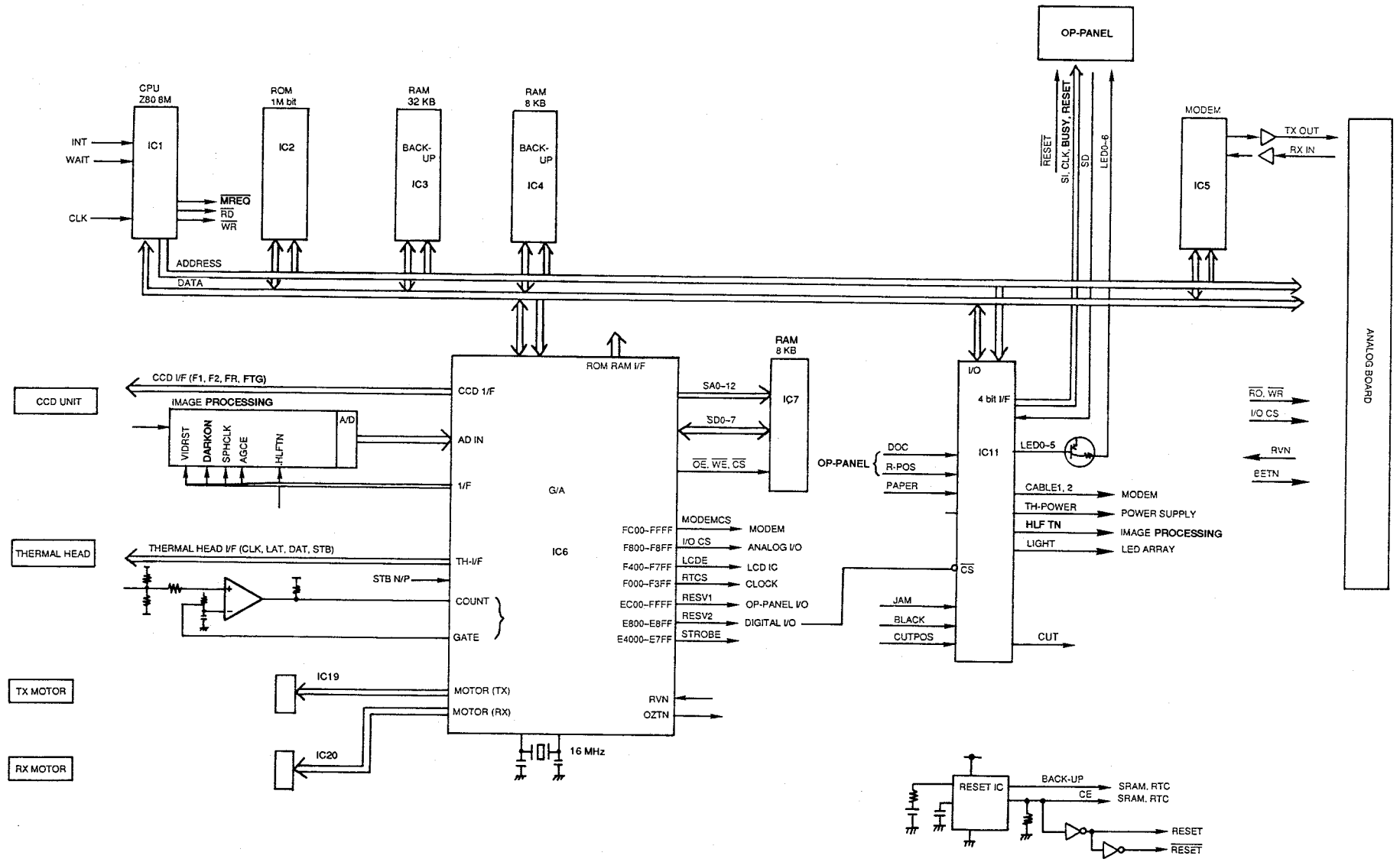
The circuit diagram may be modified at any time with the development of new technology.

### General Block Diagram

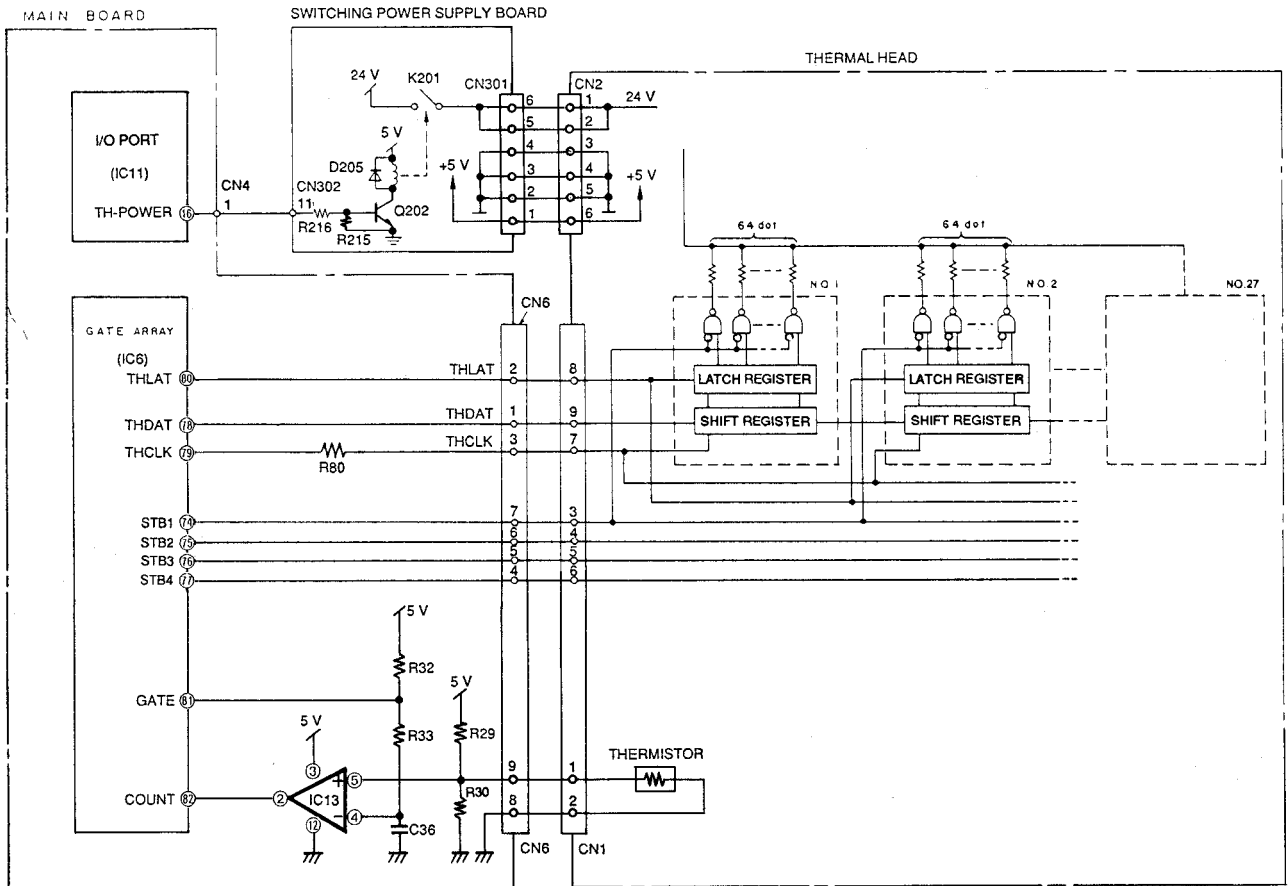


## 2. CONTROL SECTION

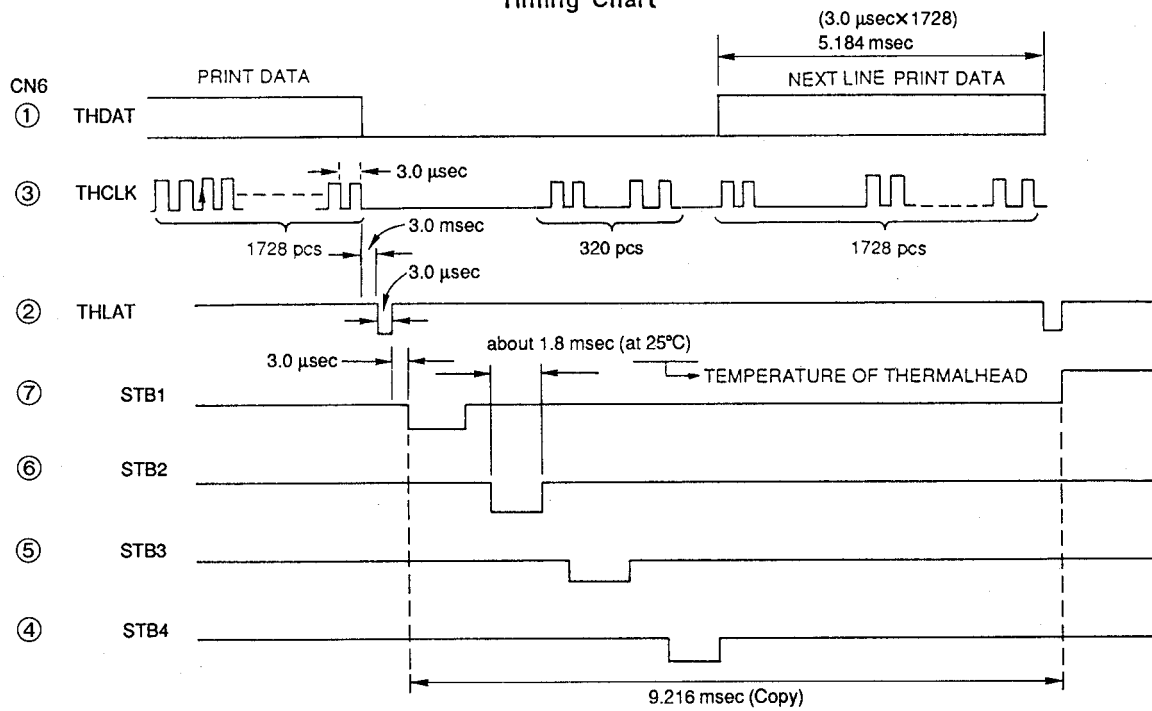
### 2-1. BLOCK DIAGRAM



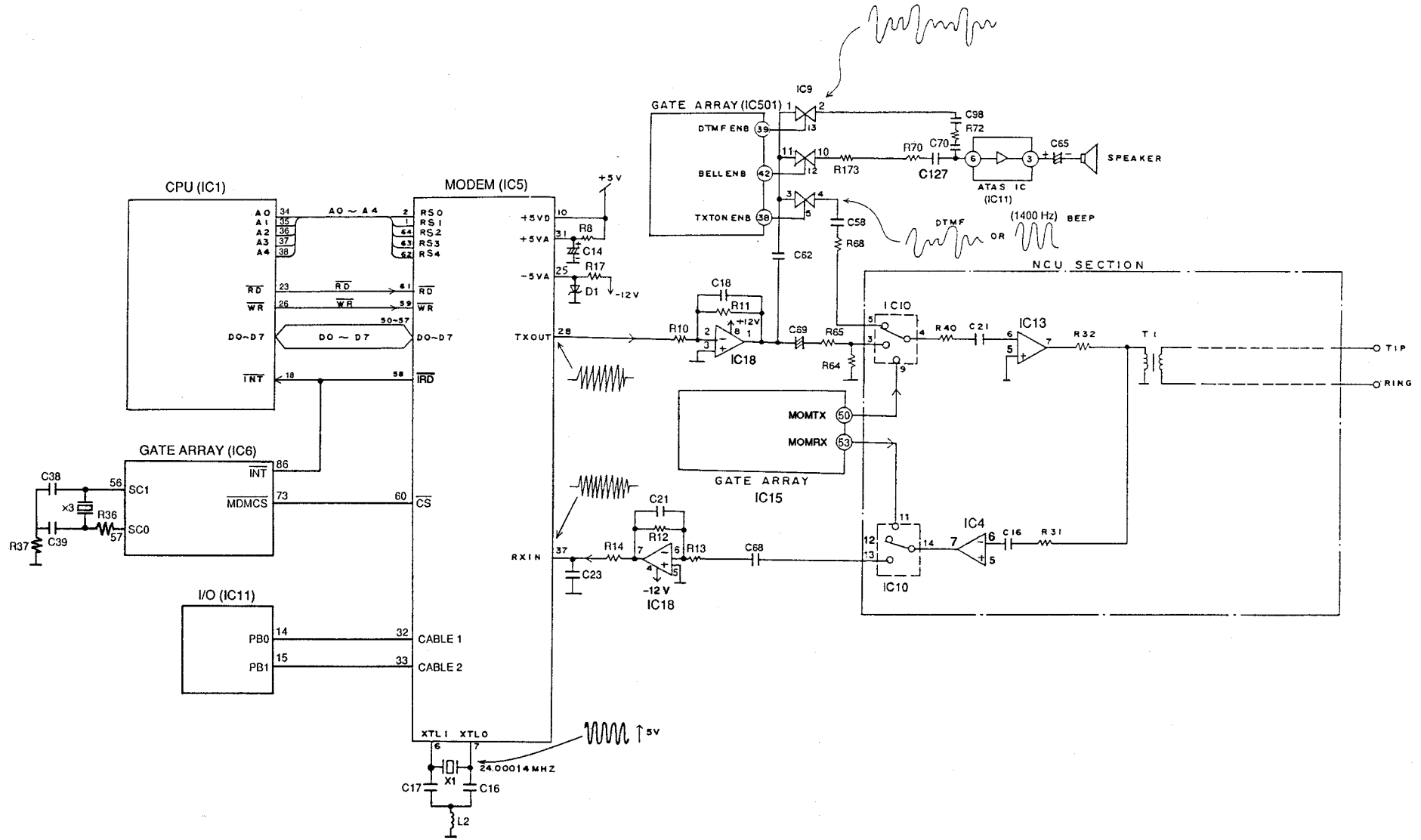
## Circuit Diagram



## Timing Chart

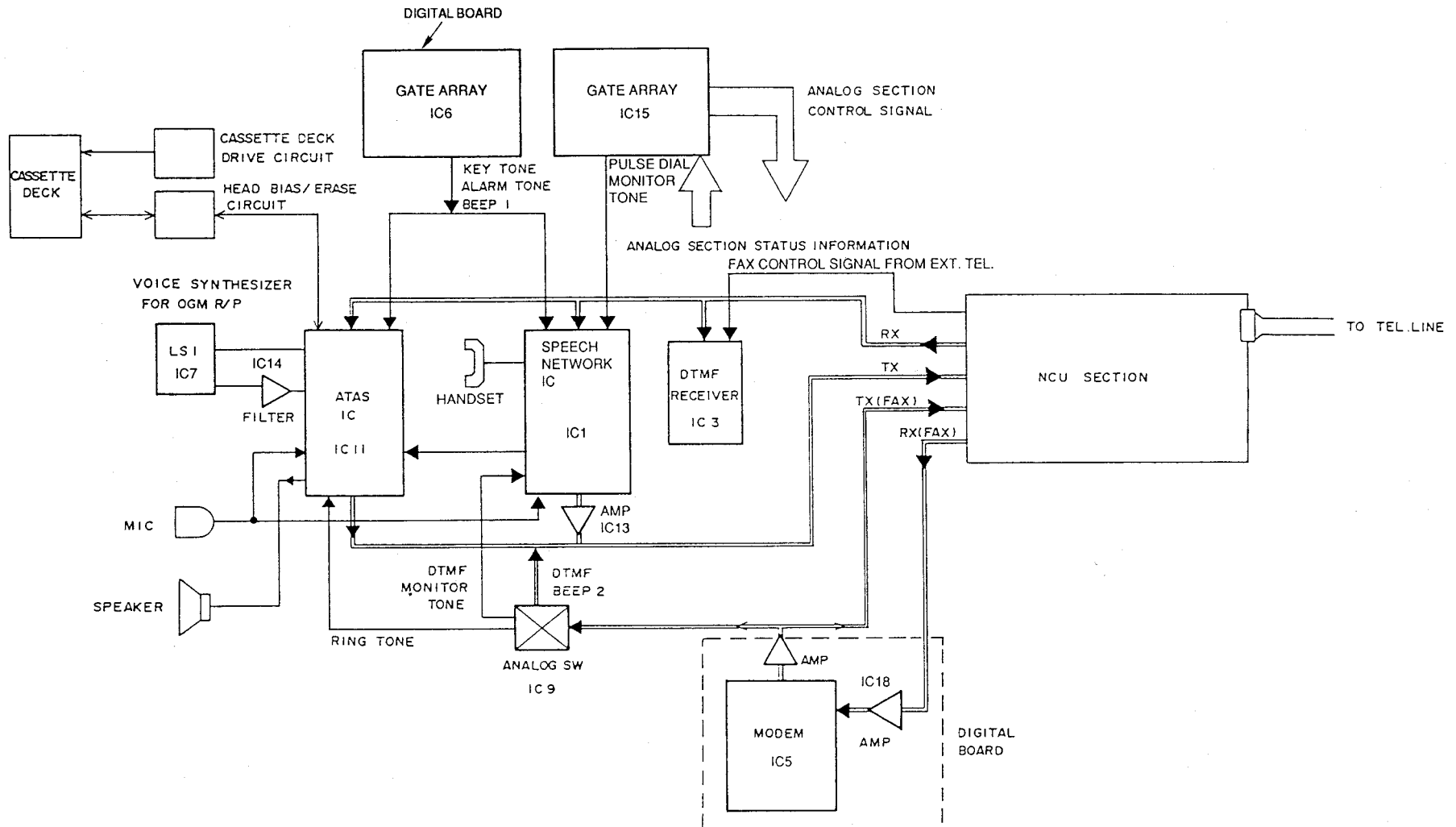


### Circuit Diagram





# Block Diagram



## 6-7. MULTIPLEXER (IC10)

This multiplexer is used for switching and selecting the transmission and reception system of the FAX circuit (modem) and the transmission and reception system of the ATAS/ITS circuit.

	Control	Switch Mode
ATAS/ITS Operation	TEL=High (pin 10) MODEMRX=Low (pin 11) MODEMTX=Low (pin 9)	Y-Y1 ON (pins 15-1) X-X0 ON (pins 14-12) Z-Z0 ON (pins 4-5)
FAX Operation	TEL=Low (pin 10) MODEMRX=High (pin 11) MODEMTX=High (pin 9)	Y-Y0 ON (pins 15-2) X-X1 ON (pins 14-13)
Pulse Dialing Operation	TEL=High (pin 10) MODEMRX=High (pin 11) MODEMTX=Low (pin 9)	Y-Y1 ON (pins 15-1) X-X1 ON (pins 14-13)

### Note:

As the modem executes tone detection the time of dialing, the ATAS/ITS circuit and the modem are connected to the reception system, i.e. MODEMRX=high level because of TEL=high level.

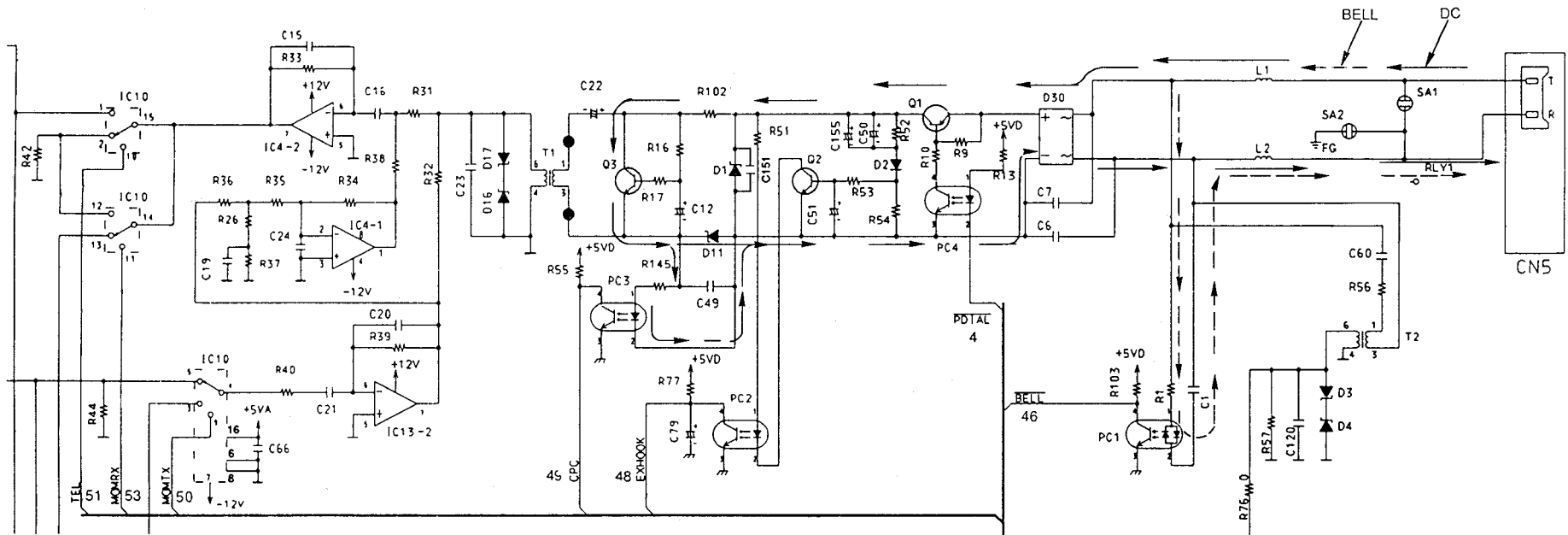
Control Mode for NCU Section Table

	Control Input to NCU					Control Output from NCU		
	RLY1 (make)	Q1 (OFF)	IC10 (15)-(1)	IC10 (14)-(13)	IC10 (4)-(3)	BELL	CPC	EX HOOK
	RLY 1	PDIAL	ON TEL	ON MODEMRX	ON MODEMTX			
Wait Condition	0	1	1	0	0	---	---	---
During the Bell Input	0	1	1	0	0	1/0	---	---
During the FAX Communication	1	0	1	0	1	---	----	---
During the ATAS/ITS Off-Hook	0	0	1	0	0	---	---	---
During the Pulse Dial	0	0/1	1	0	0	---	---	---
During the Tone Dial	0	0	1	0	1	---	---	---
CPC Input	0	0	1	0	0	---	0→1	---
External TEL Off-Hook of During the Off-Hook	---	---	---	---	---	---	---	0→1→0
External TEL On-Hook of During the On-Hook	---	---	---	---	---	---	---	---

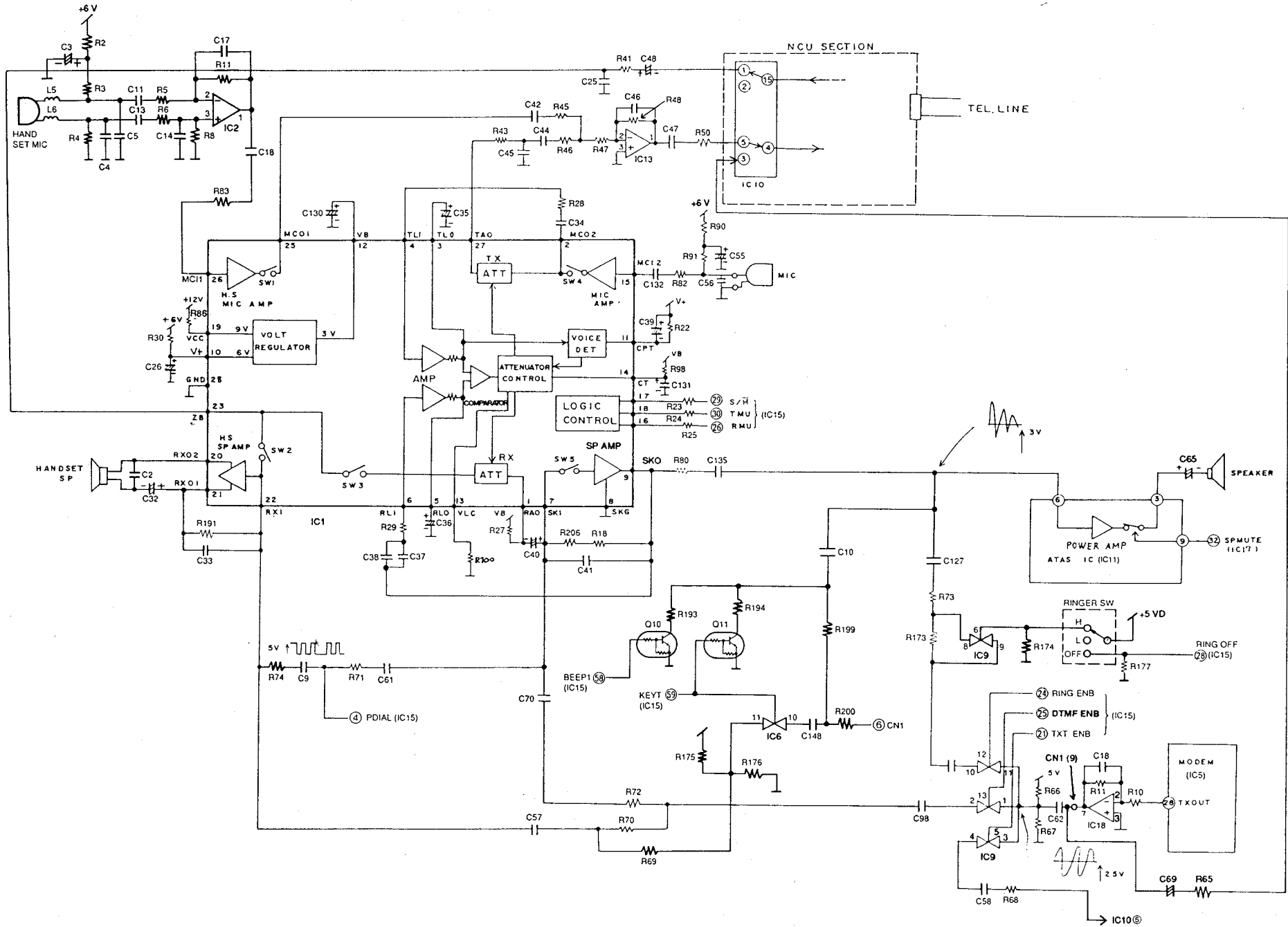
1: High Level (5V)

0: Low Level

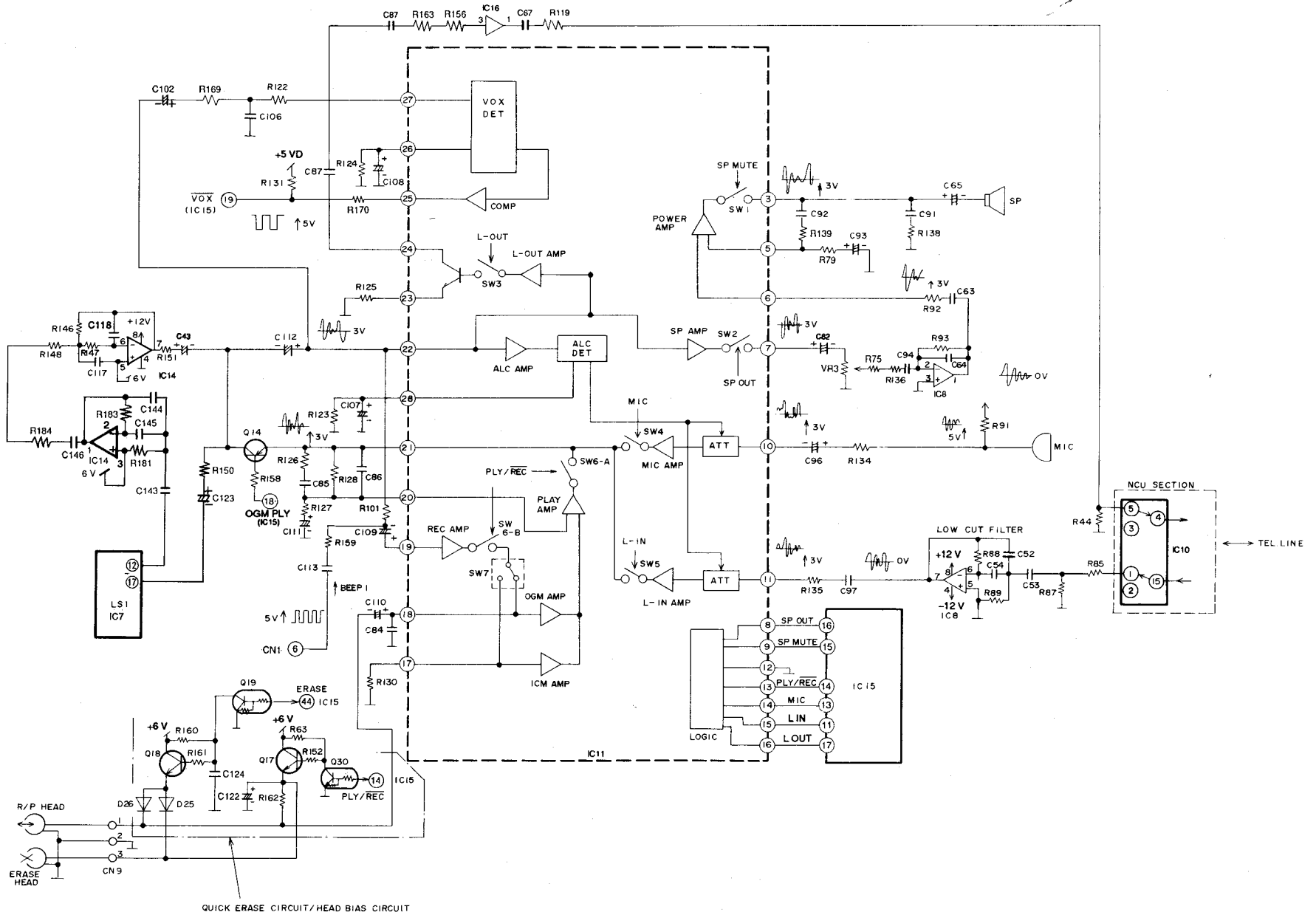
# Circuit Diagram



# Circuit Diagram



# Circuit Diagram

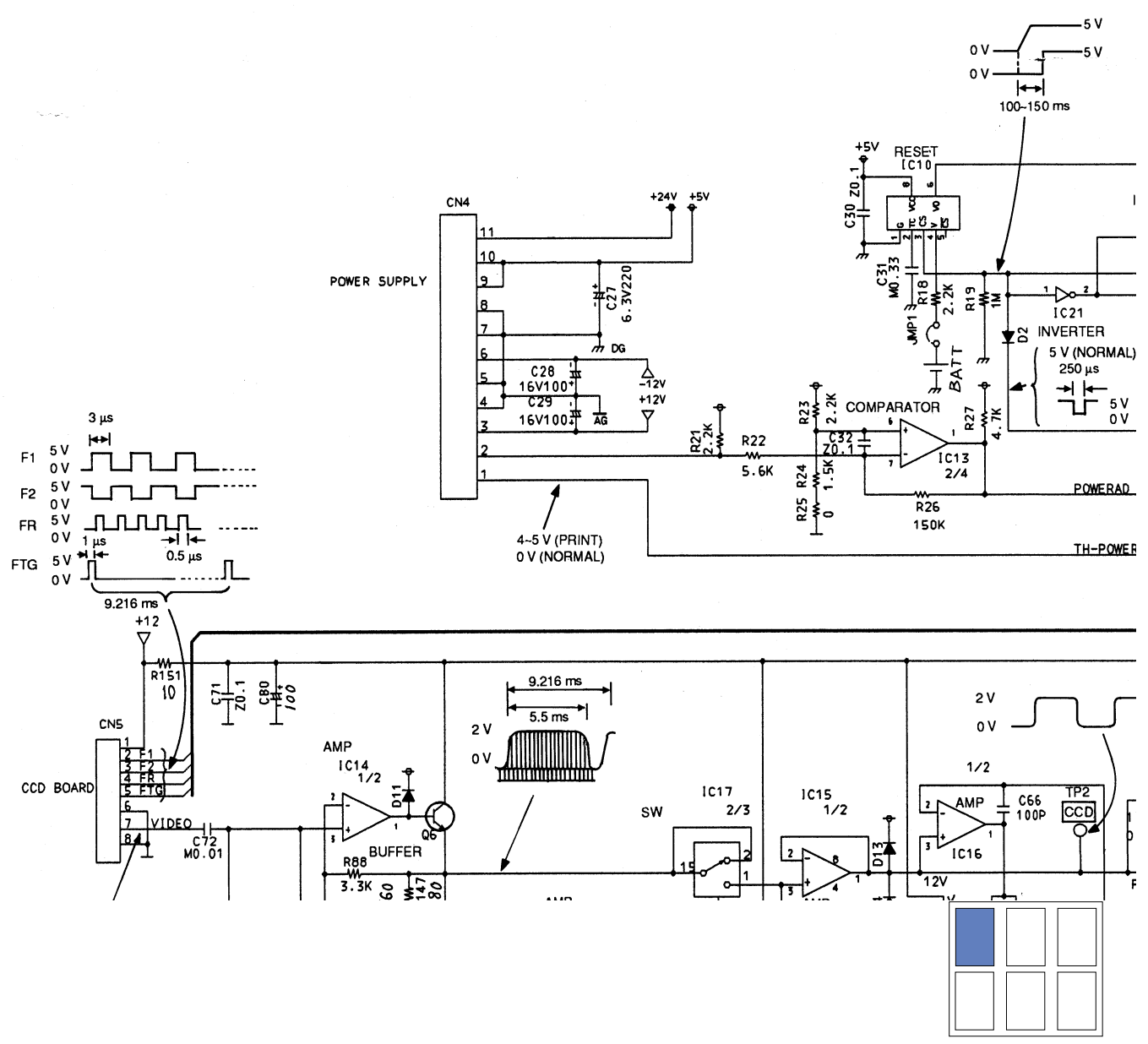


QUICK ERASE CIRCUIT/HEAD BIAS CIRCUIT

A  
B  
C  
D  
E  
F  
G  
H

- ◆ 5V
- 24V
- ▽ +12V
- △ -12V
- ≡ DG
- ⊥ AG
- ⊕ PG

D7	R121	56K
D6	R122	56K
D5	R123	56K
D4	R124	56K
D3	R125	56K
D2	R126	56K
D1	R127	56K
D0	R128	56K



# SCHEMATIC DIAGRAM (DIGITAL CIRCUIT)

7

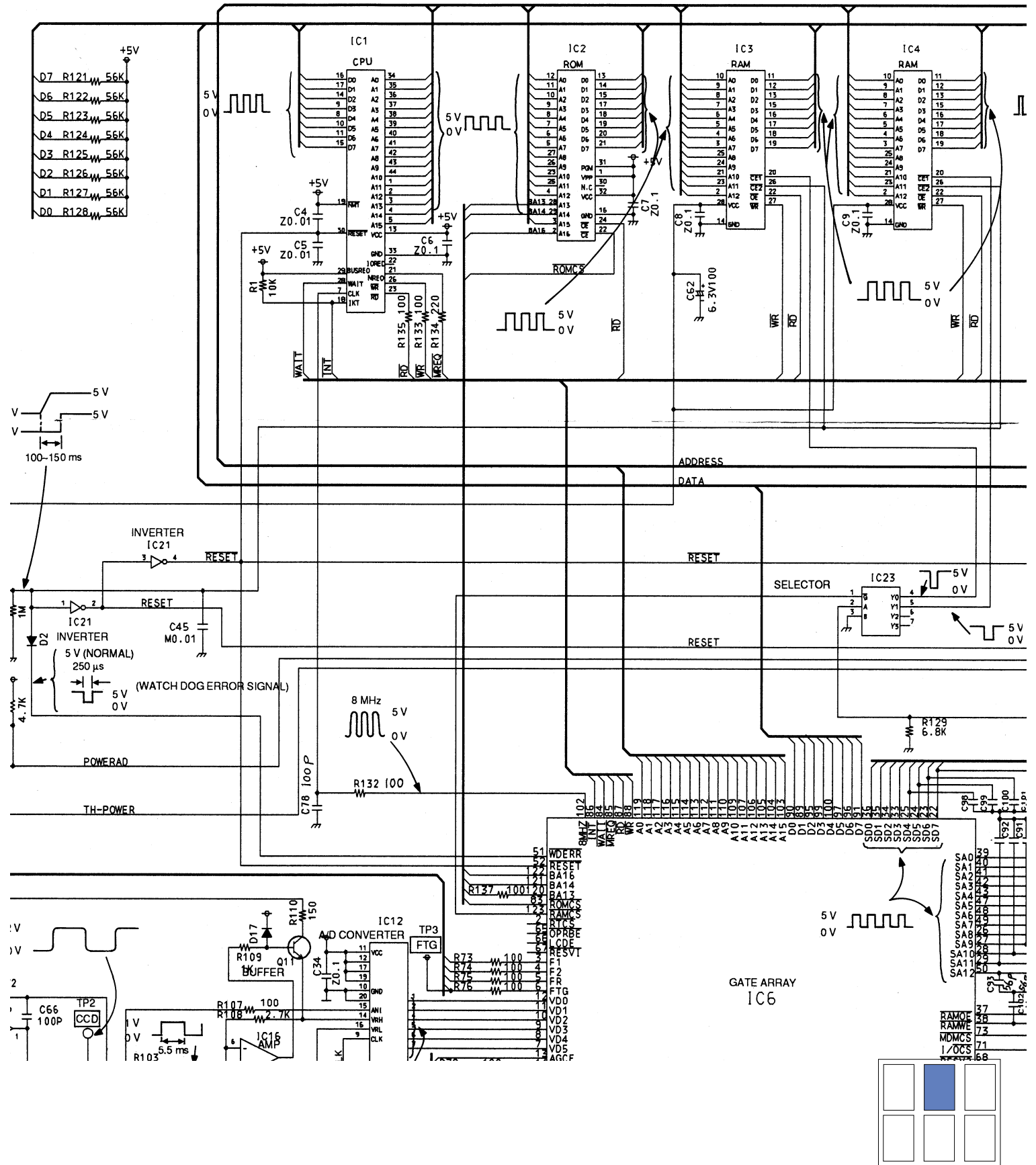
8

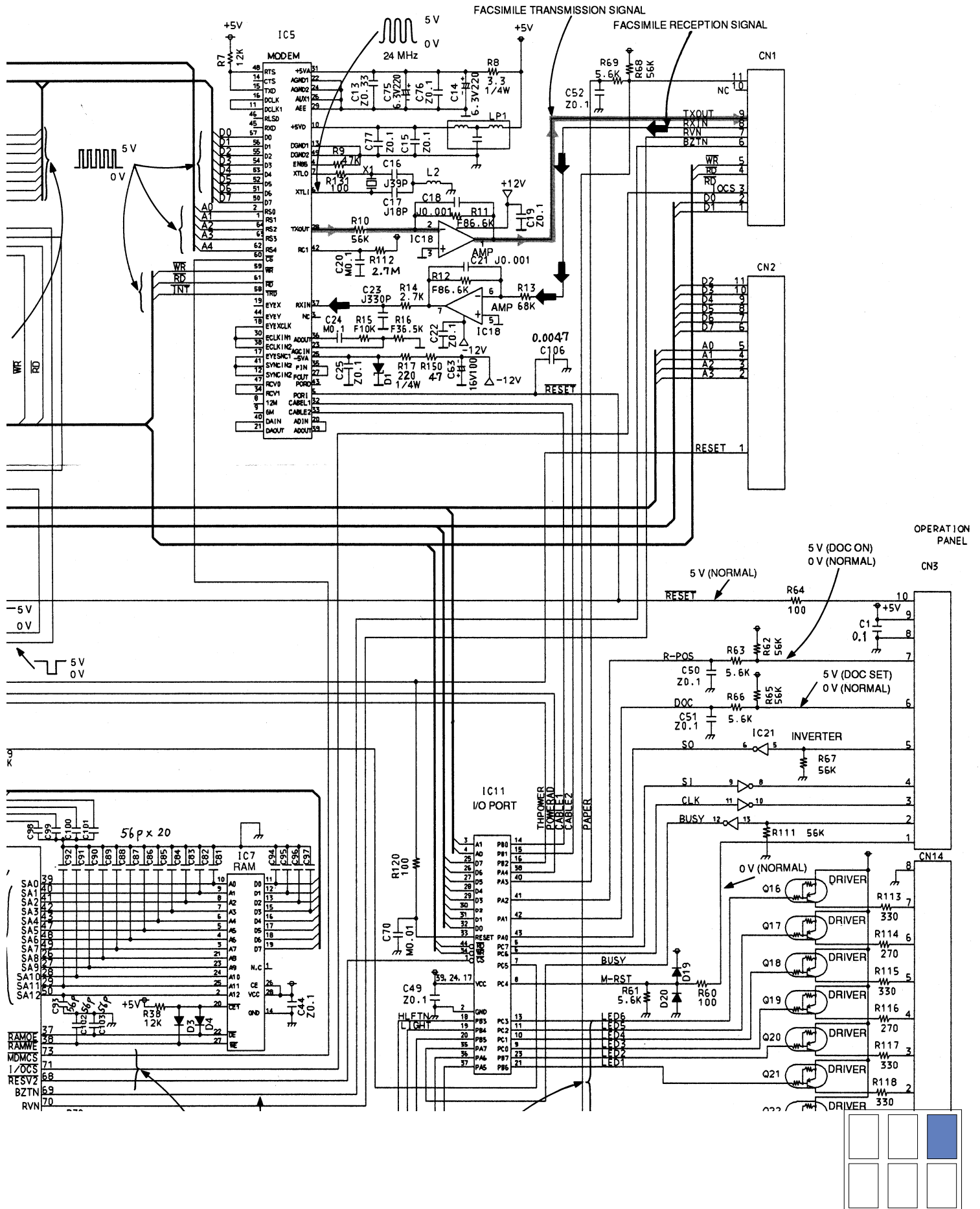
9

10

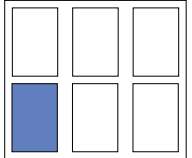
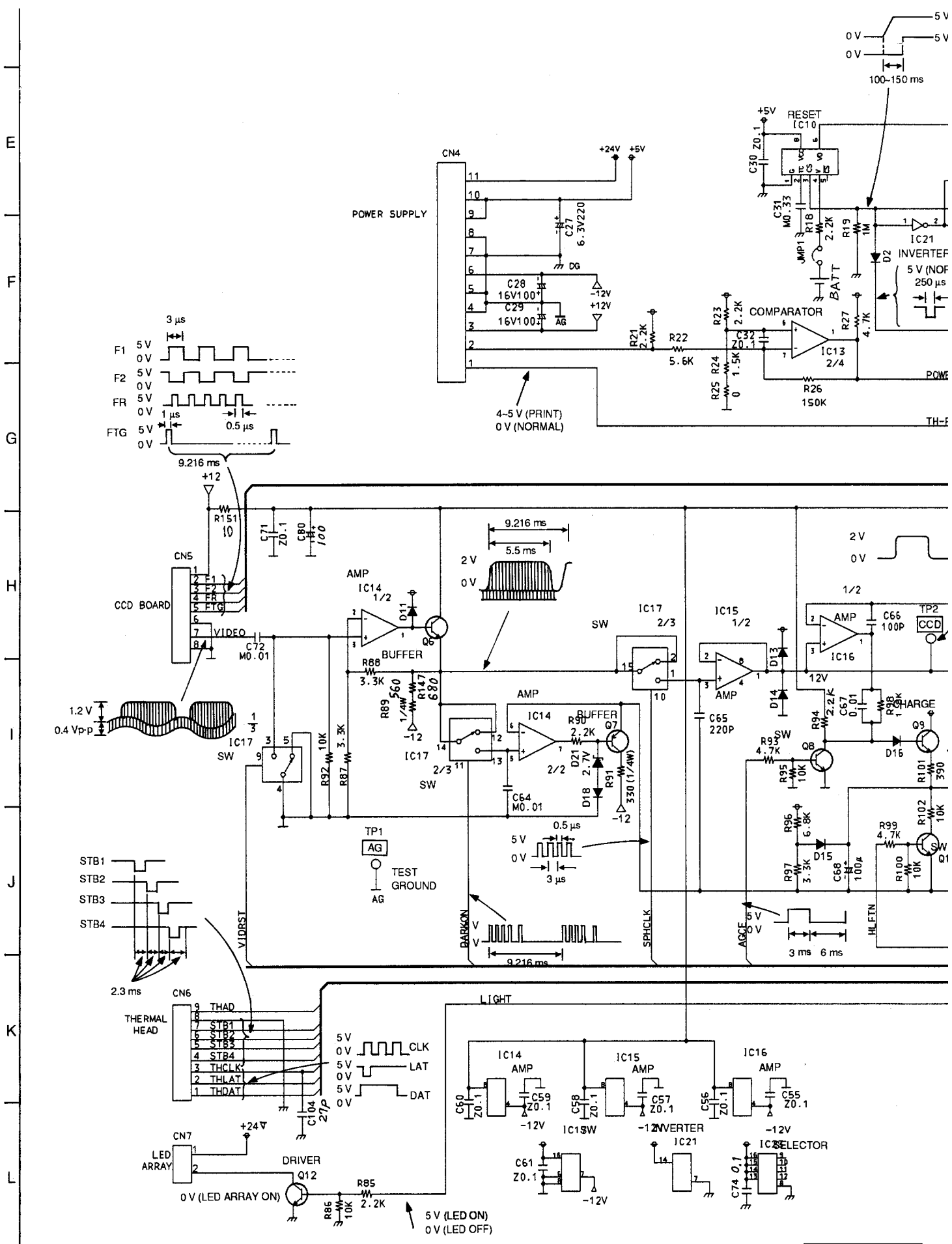
11

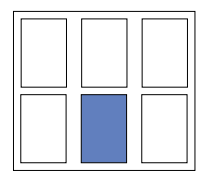
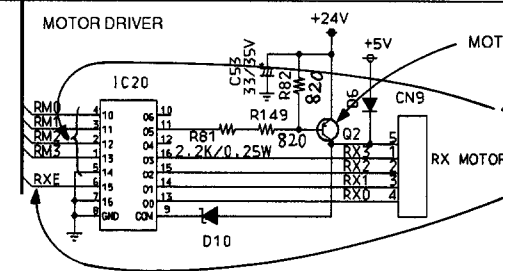
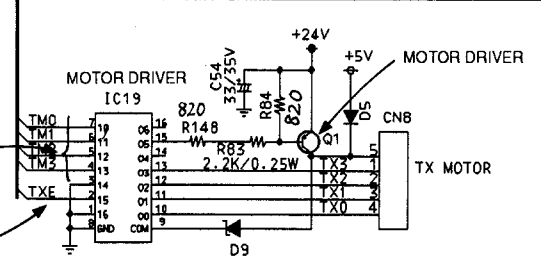
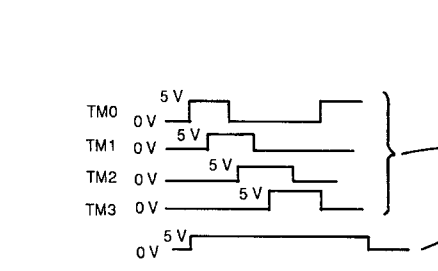
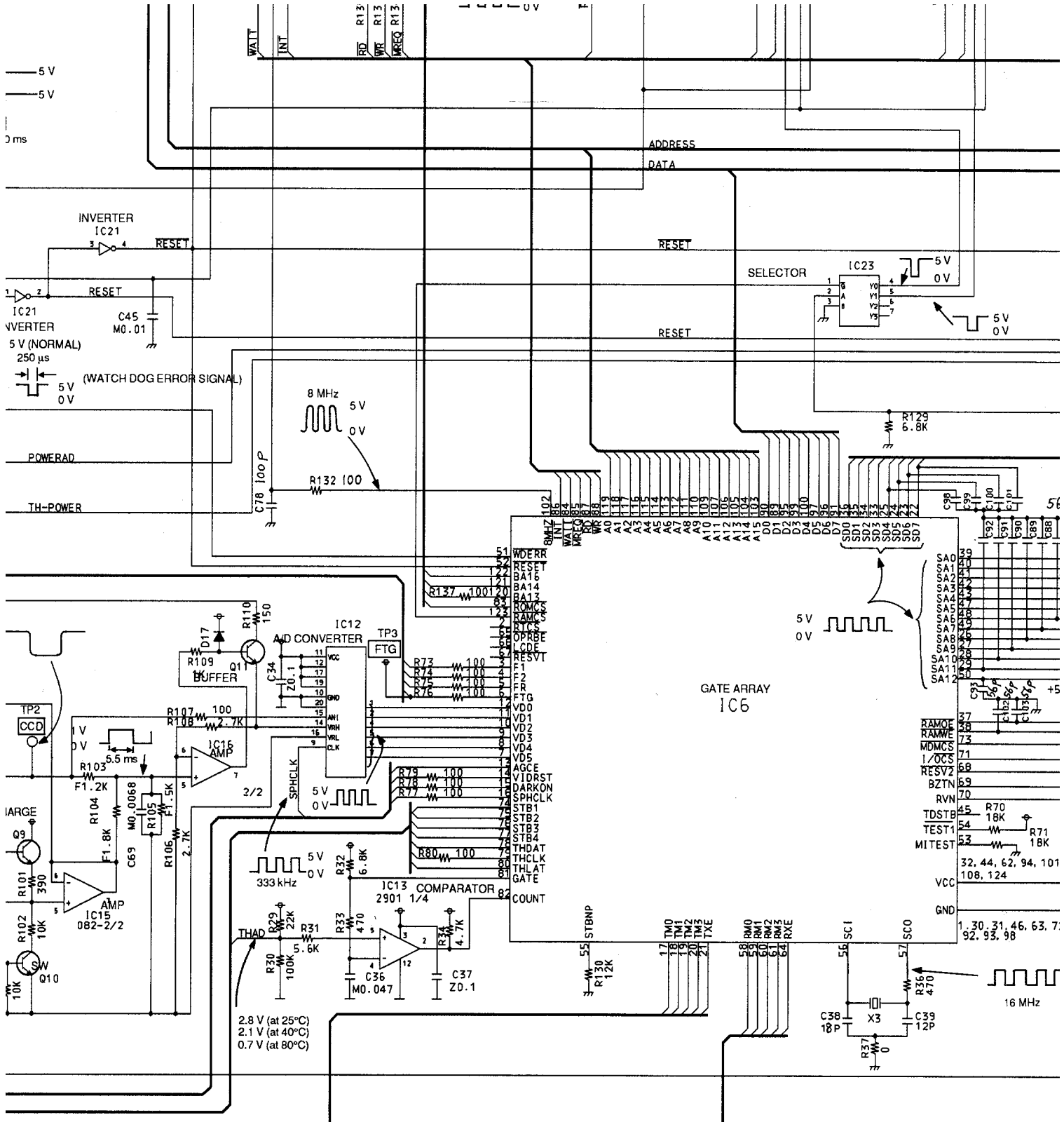
12



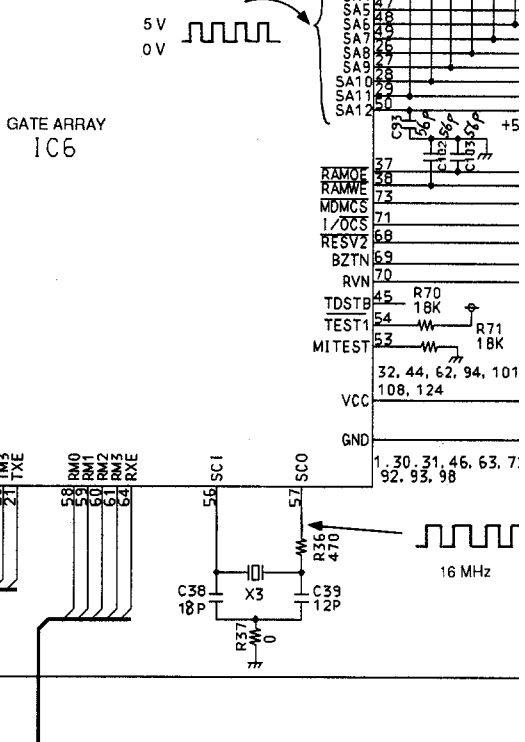
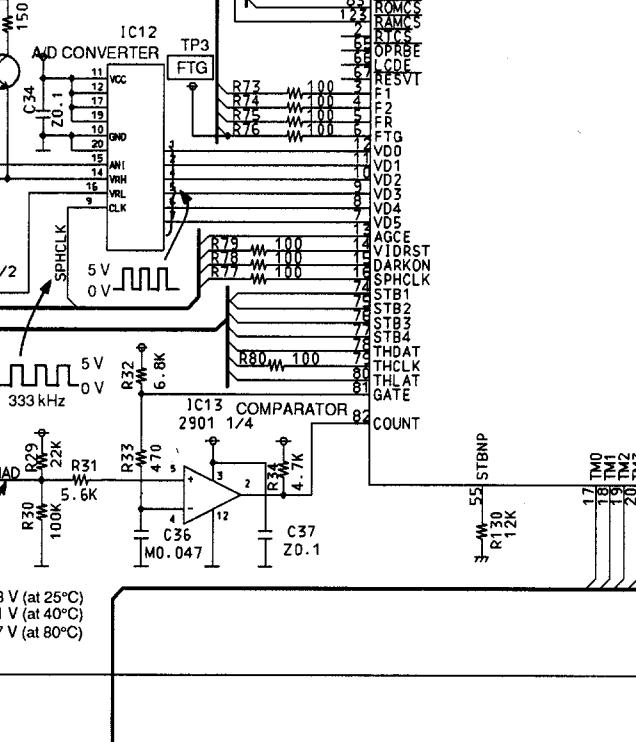
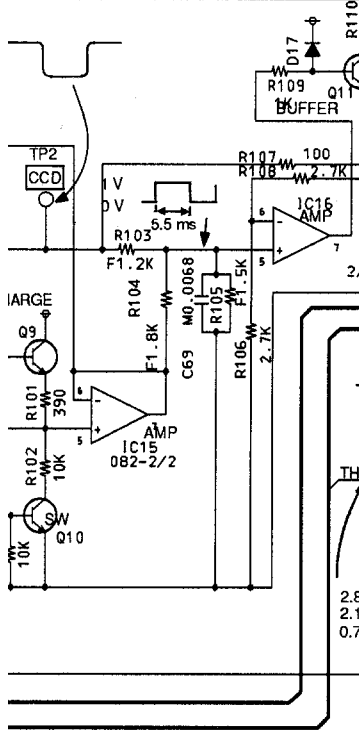
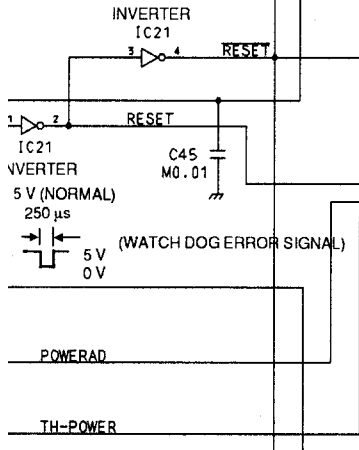


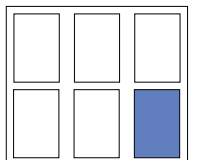
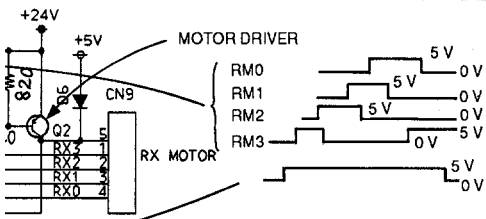
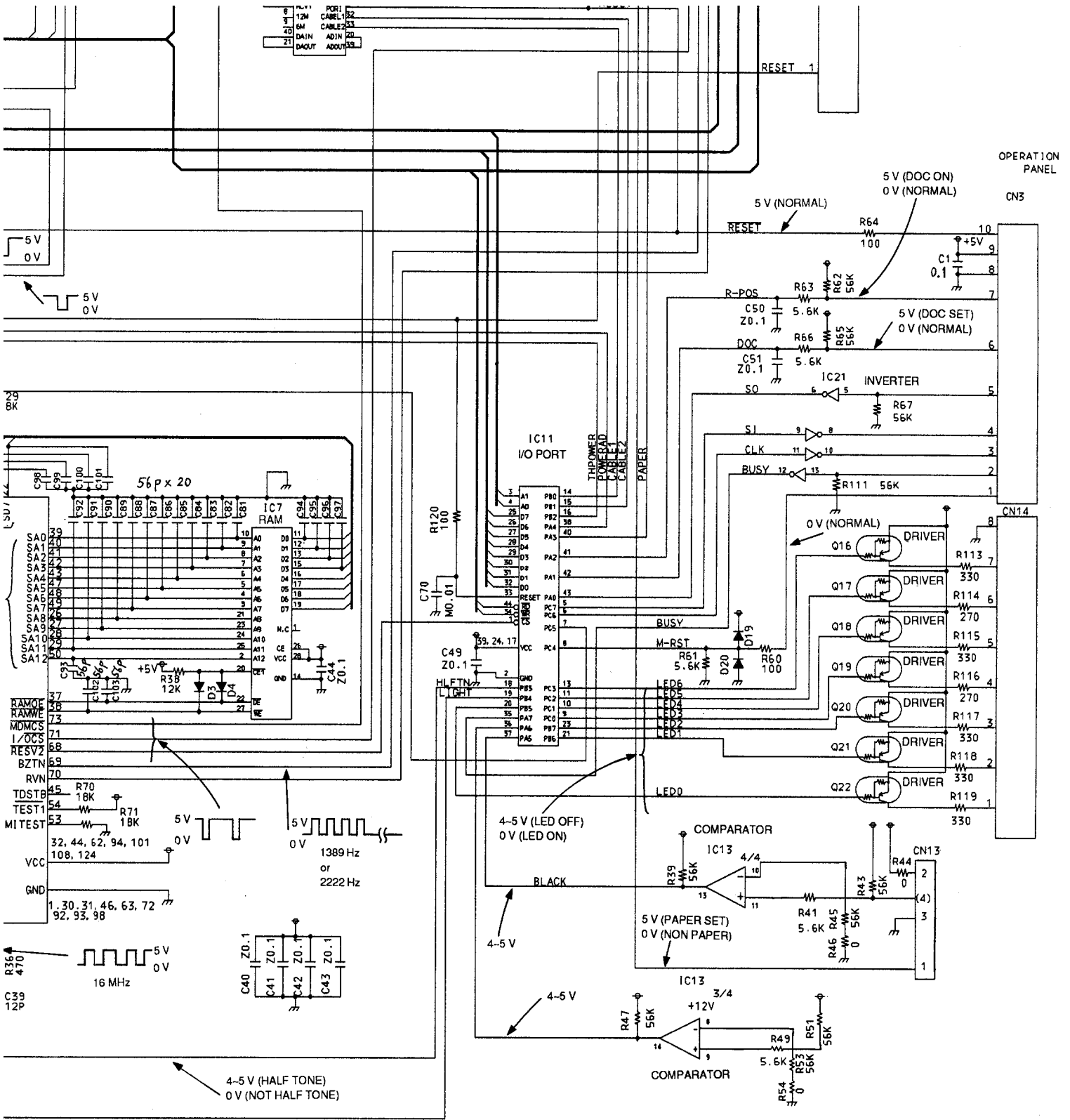






5 V  
5 V  
3 ms



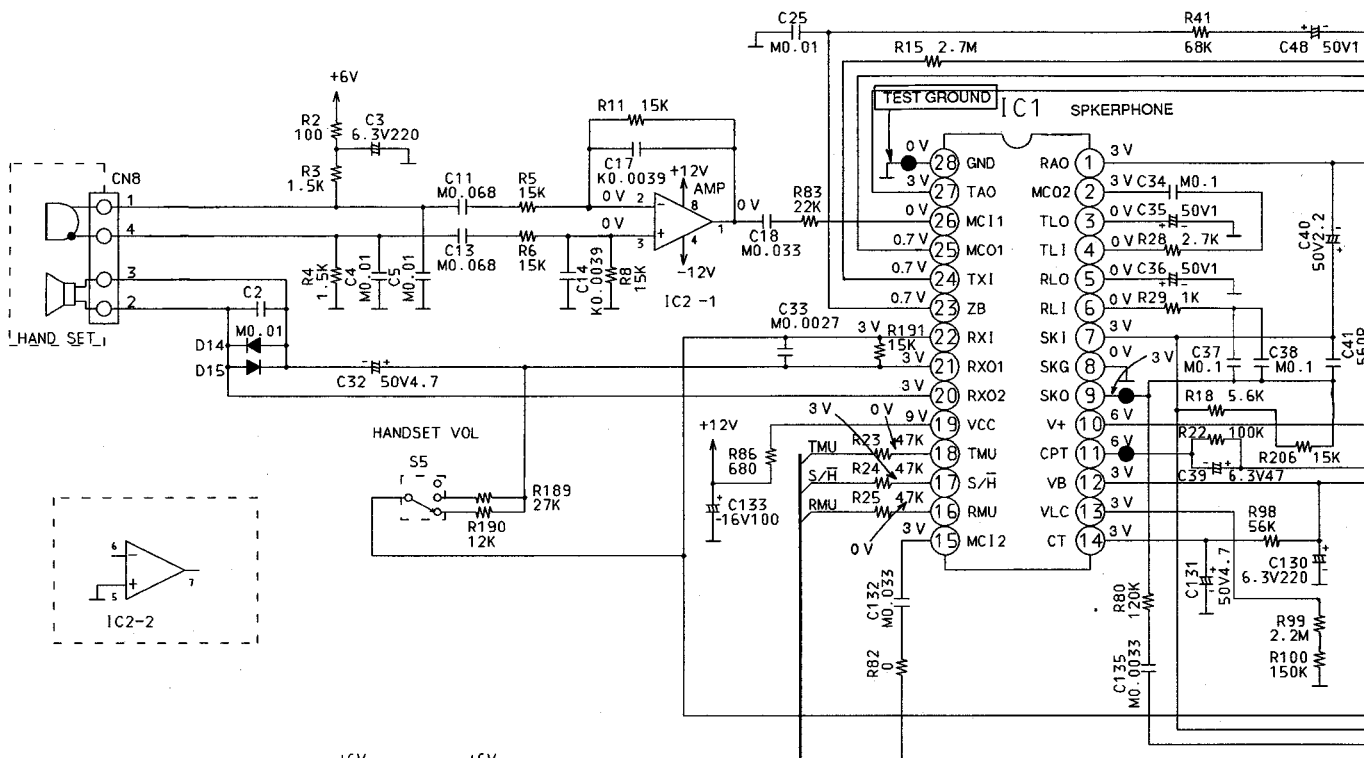


A

B

C

D

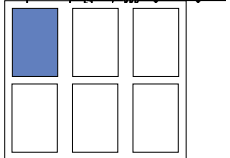
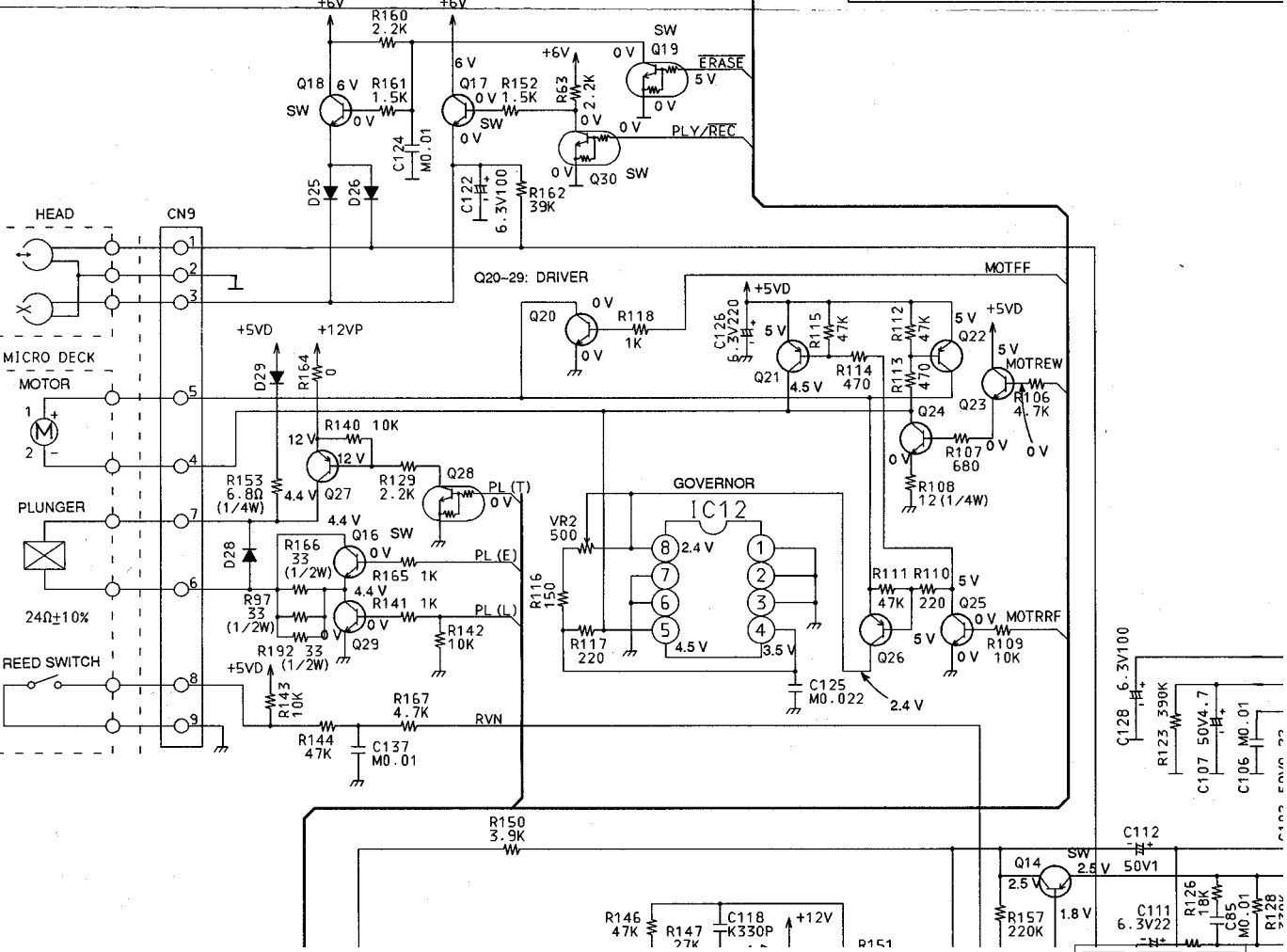


E

F

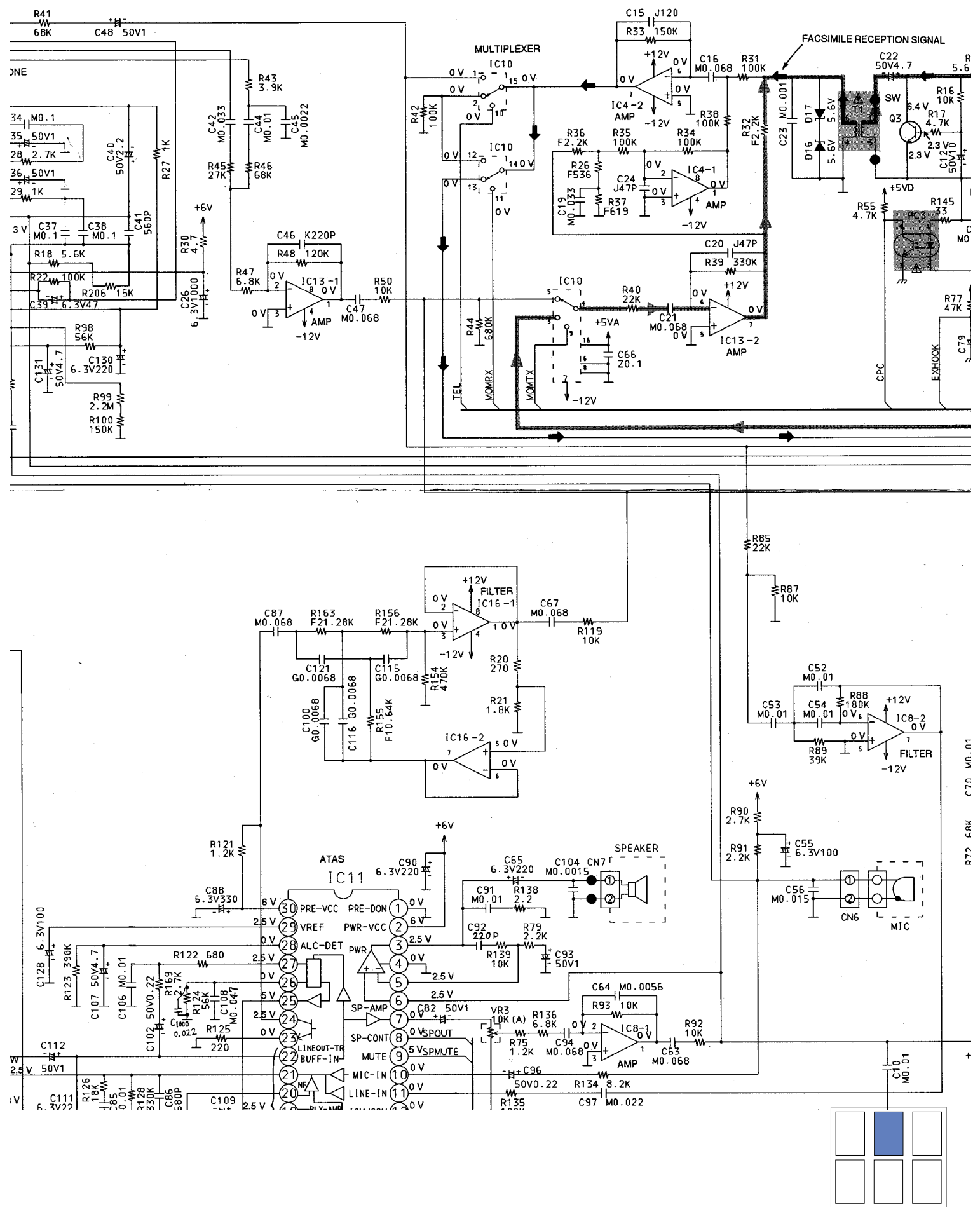
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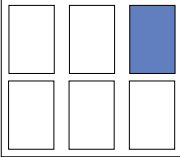
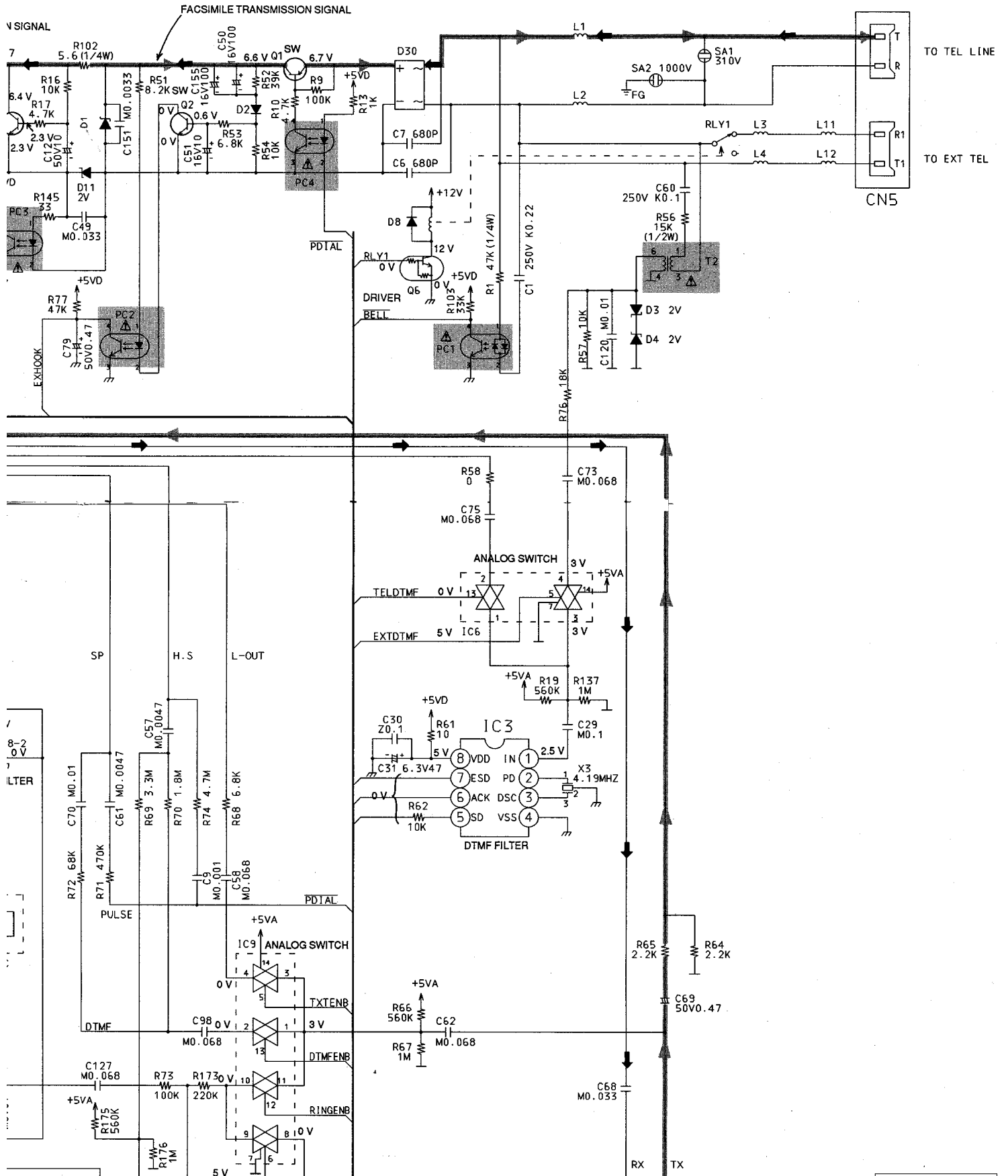
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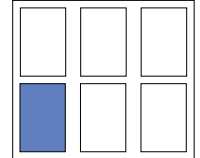
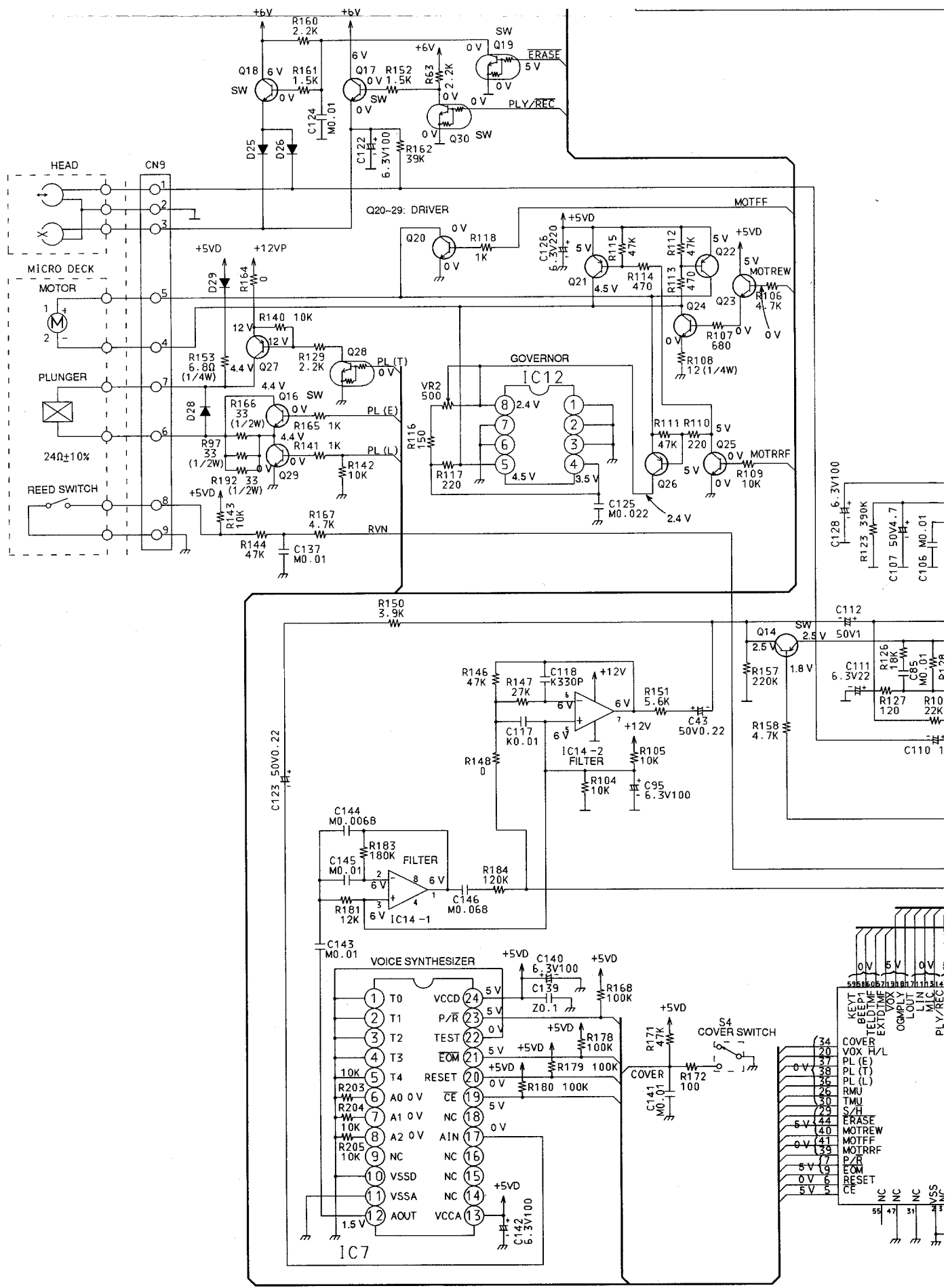
# SCHEMATIC DIAGRAM (ANALOG CIRCUIT)

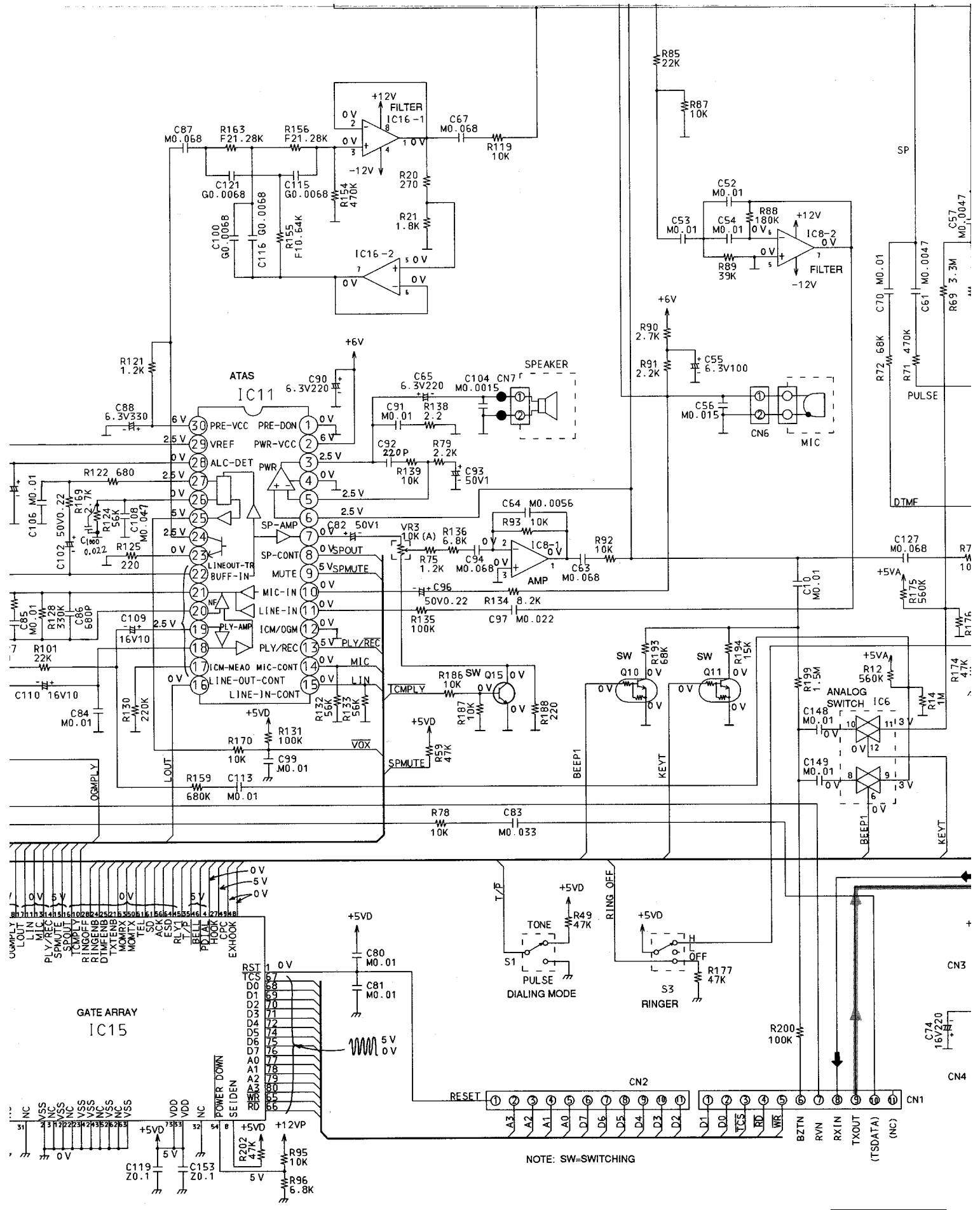
7                      8                      9                      10                      11                      12



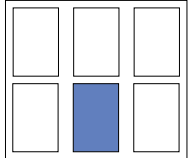


E  
F  
G  
H  
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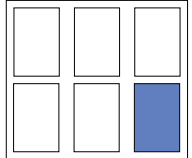
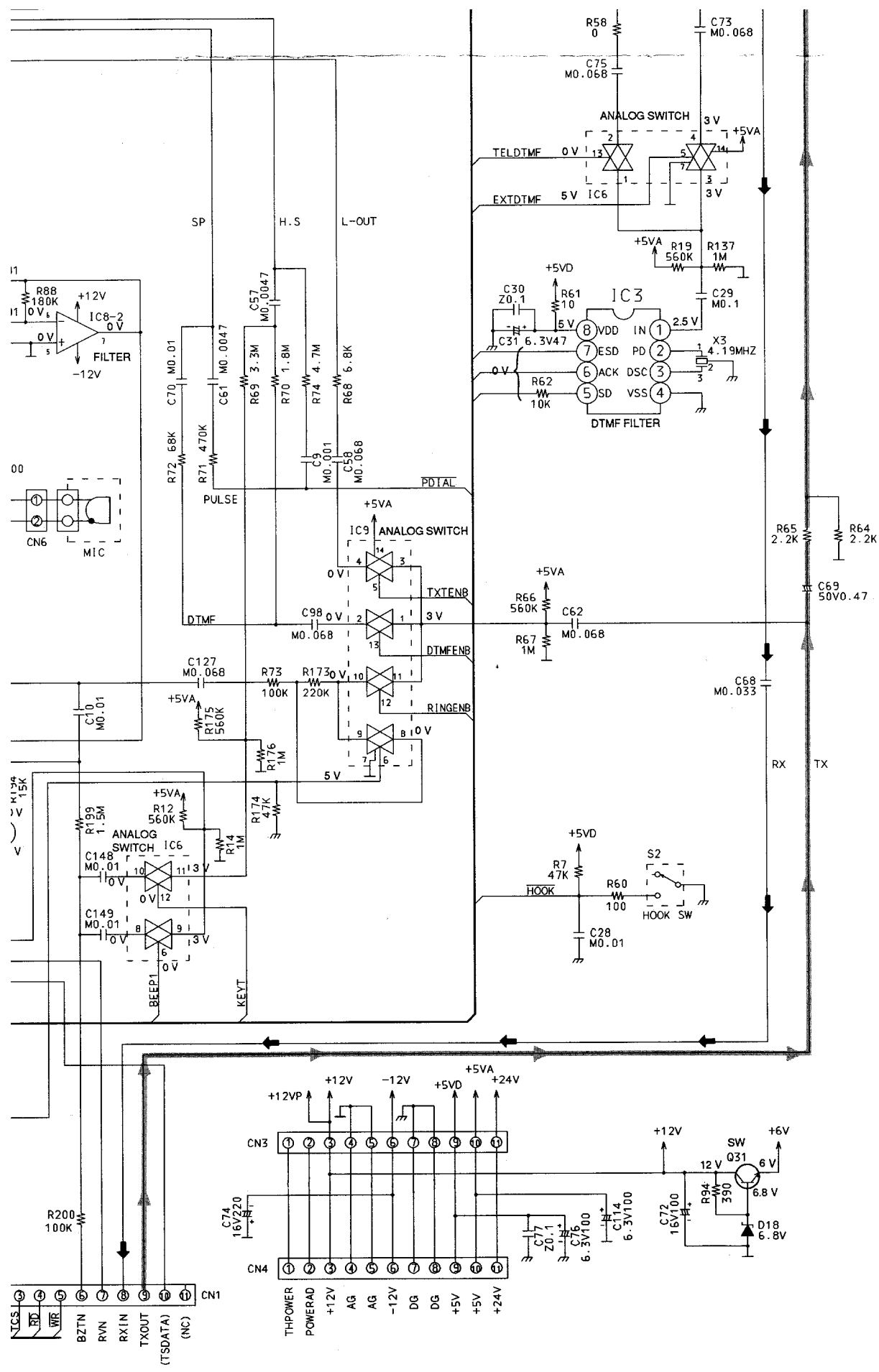




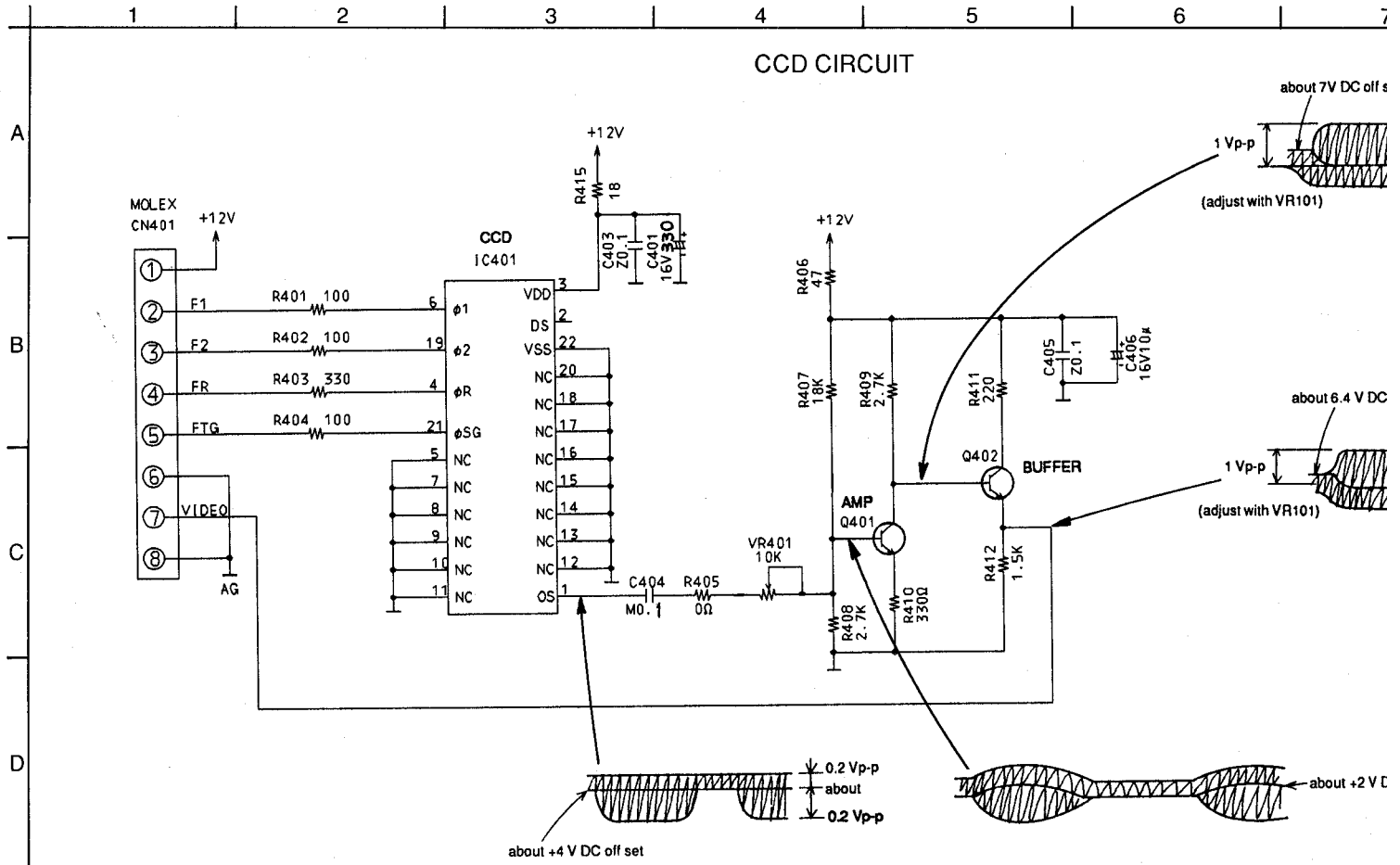
NOTE: SW=SWITCHING



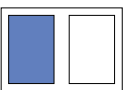
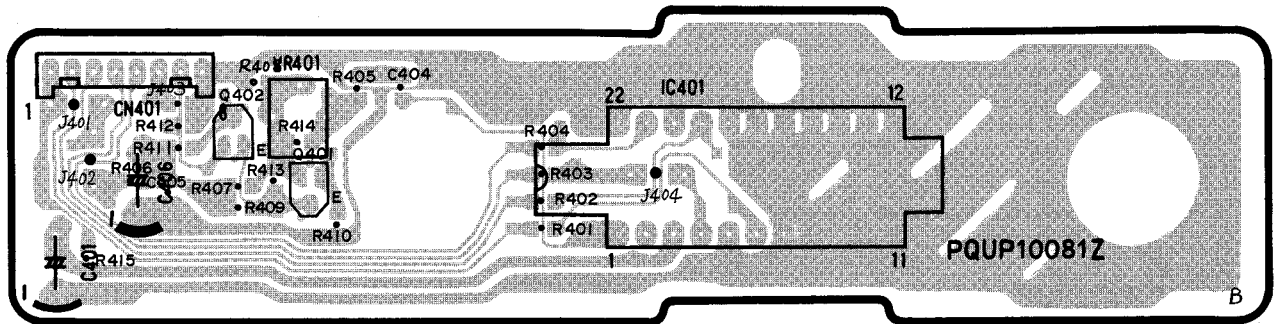




# SCHEMATIC DIAGRAM AND PHOTO



**CCD BOARD  
(COMPONENT VIEW)**



# M AND PRINTED CIRCUIT BOARD

7

8

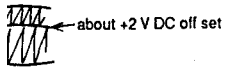
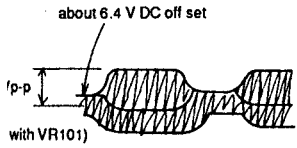
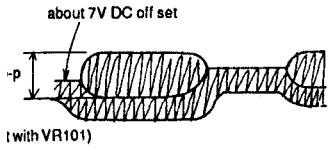
9

10

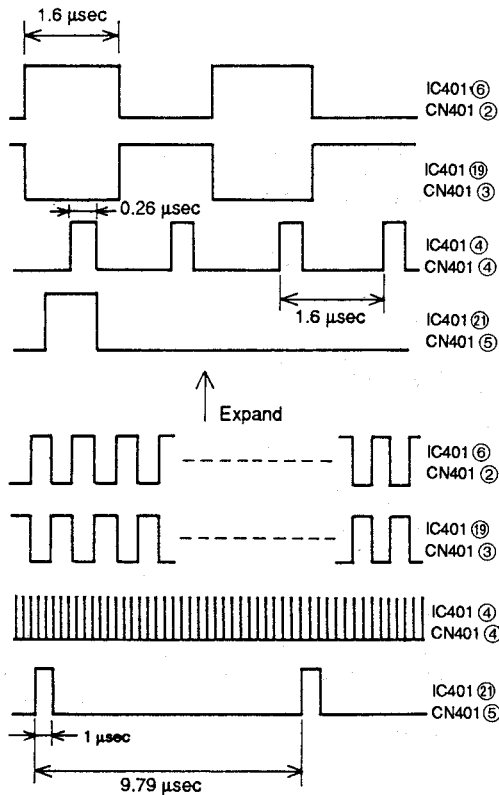
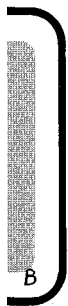
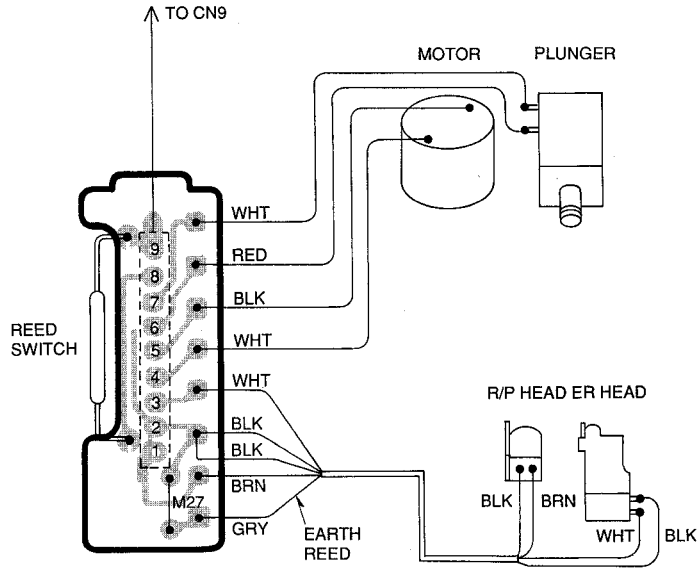
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12



13

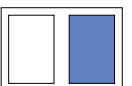


## CASSETTE DECK BOARD (COMPONENT VIEW)

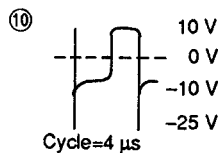
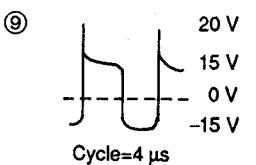
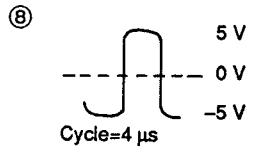
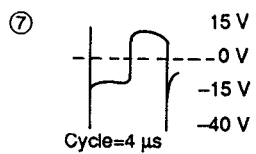
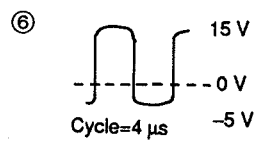
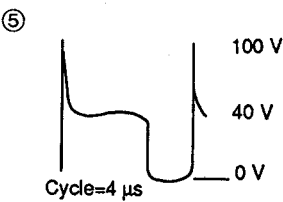
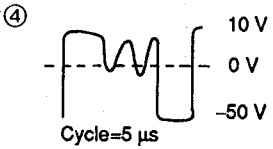
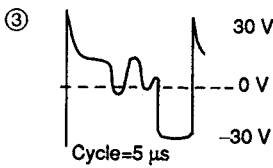
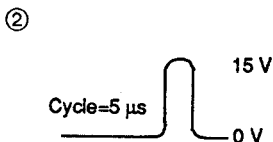
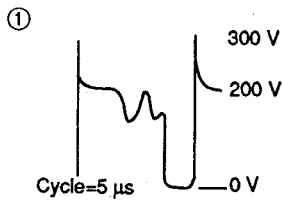
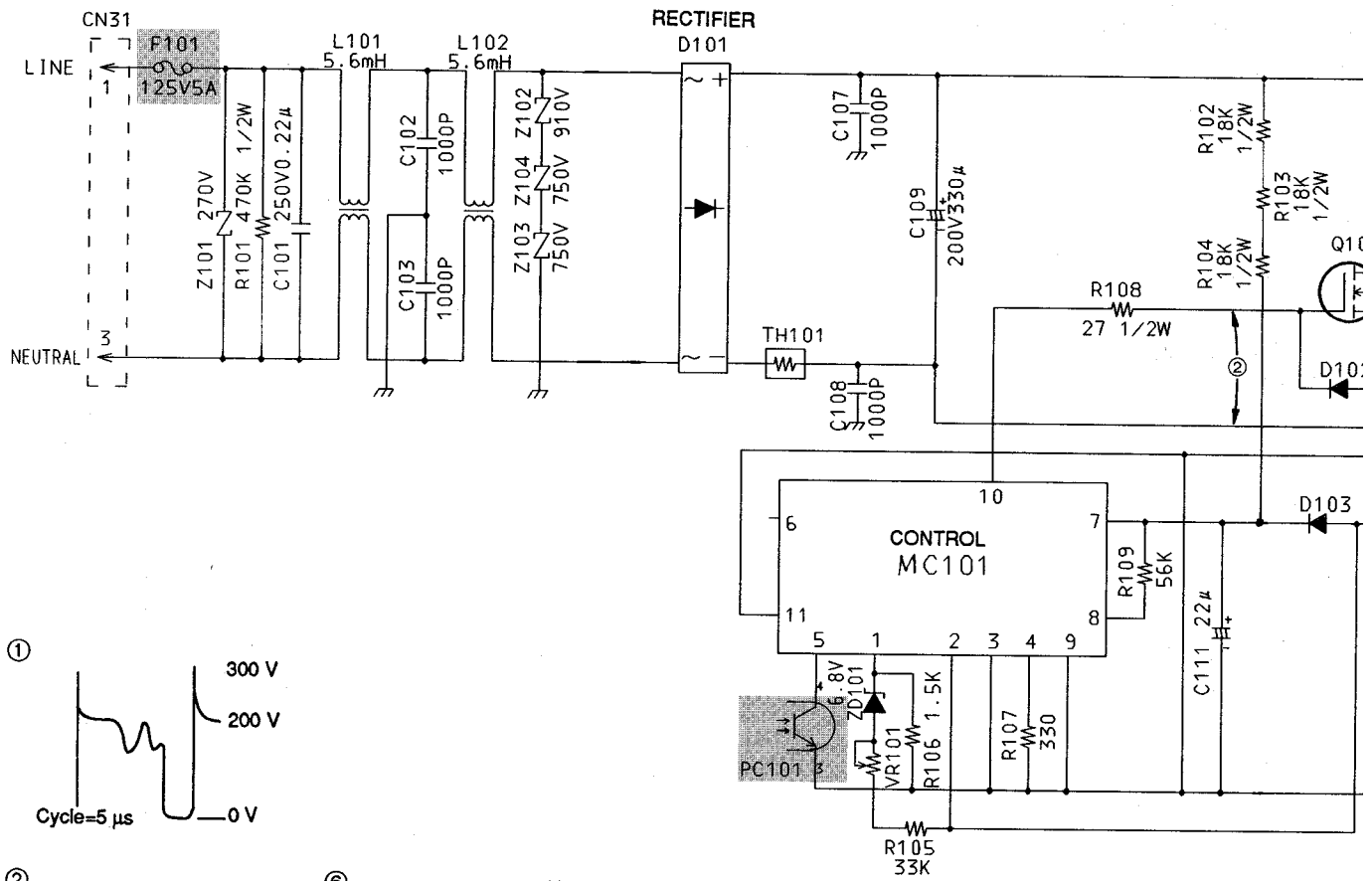


### Notes:

1. The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in  on the conductor indicates printed circuit on the front side of the printed circuit board.

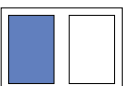


# SCHEMATIC DIAGRAM (SWITCHING)



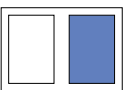
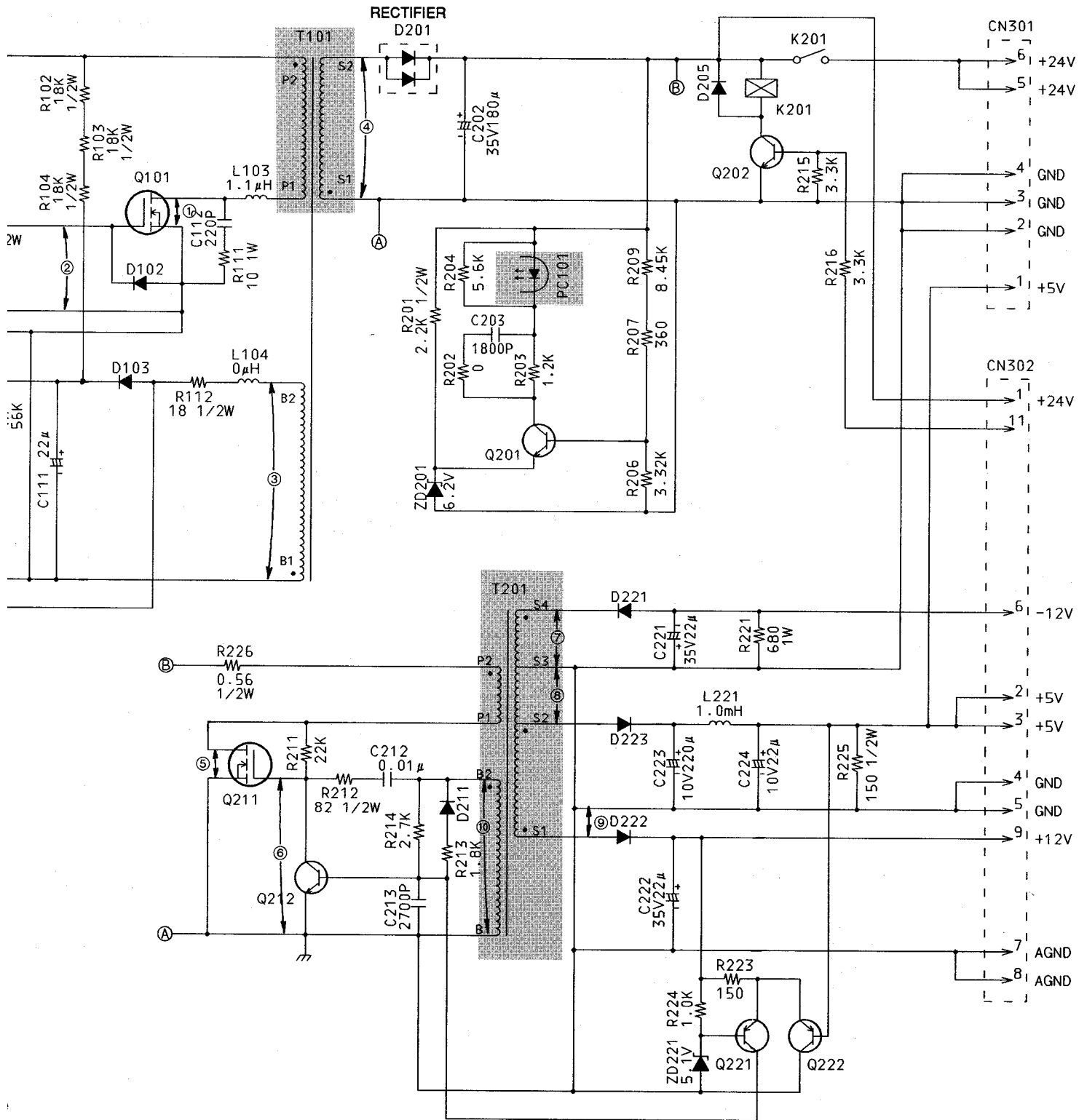
Note:  
The waveforms of ①~⑩ are rated load ones.

Note:  
When measuring the waveform on the primary circuit of the Switching Power Supply Board, be sure to insulate the ground of the oscilloscope's probe from the ground of its power supply.

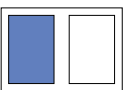
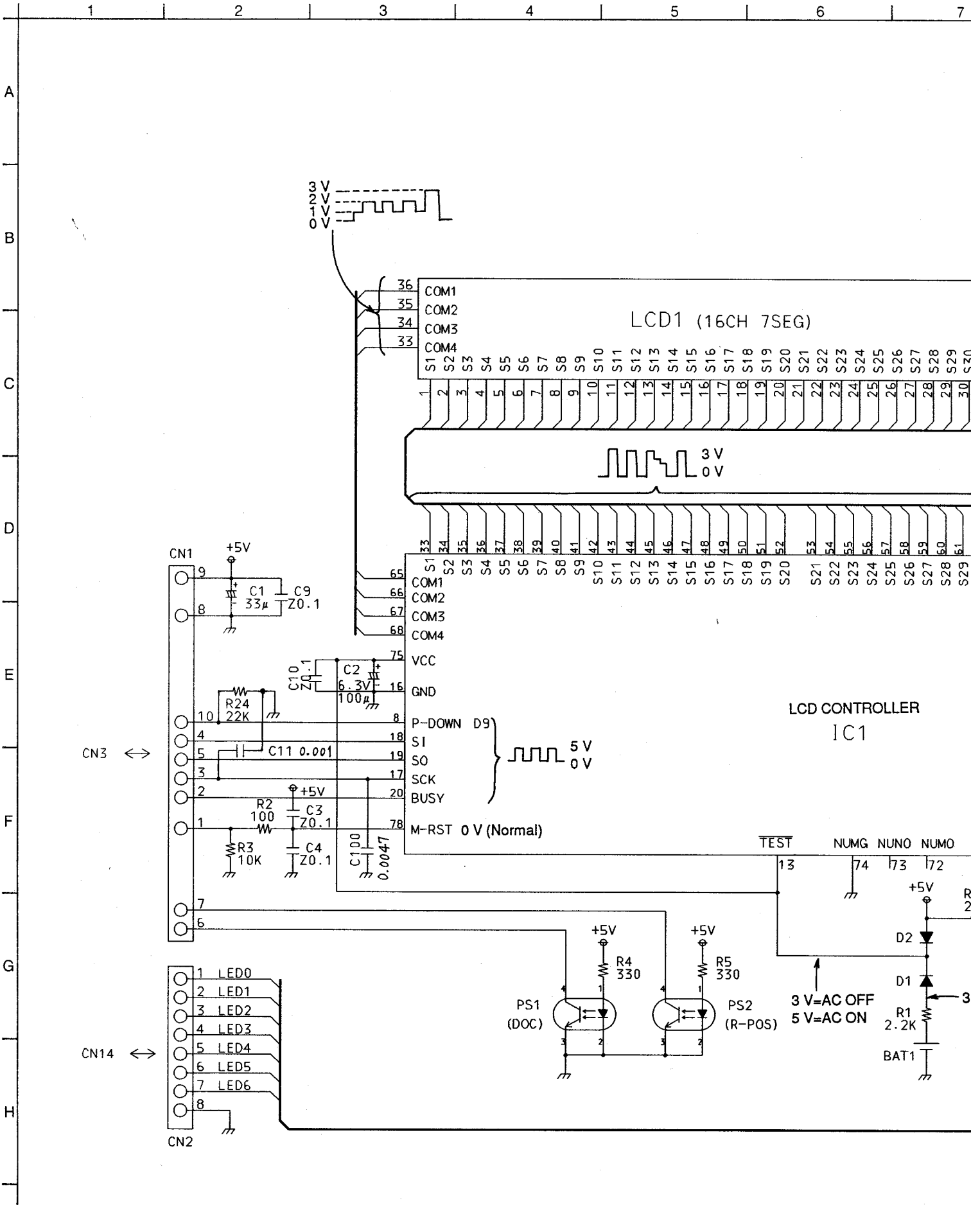


# RAM (SWITCHING POWER SUPPLY)

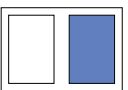
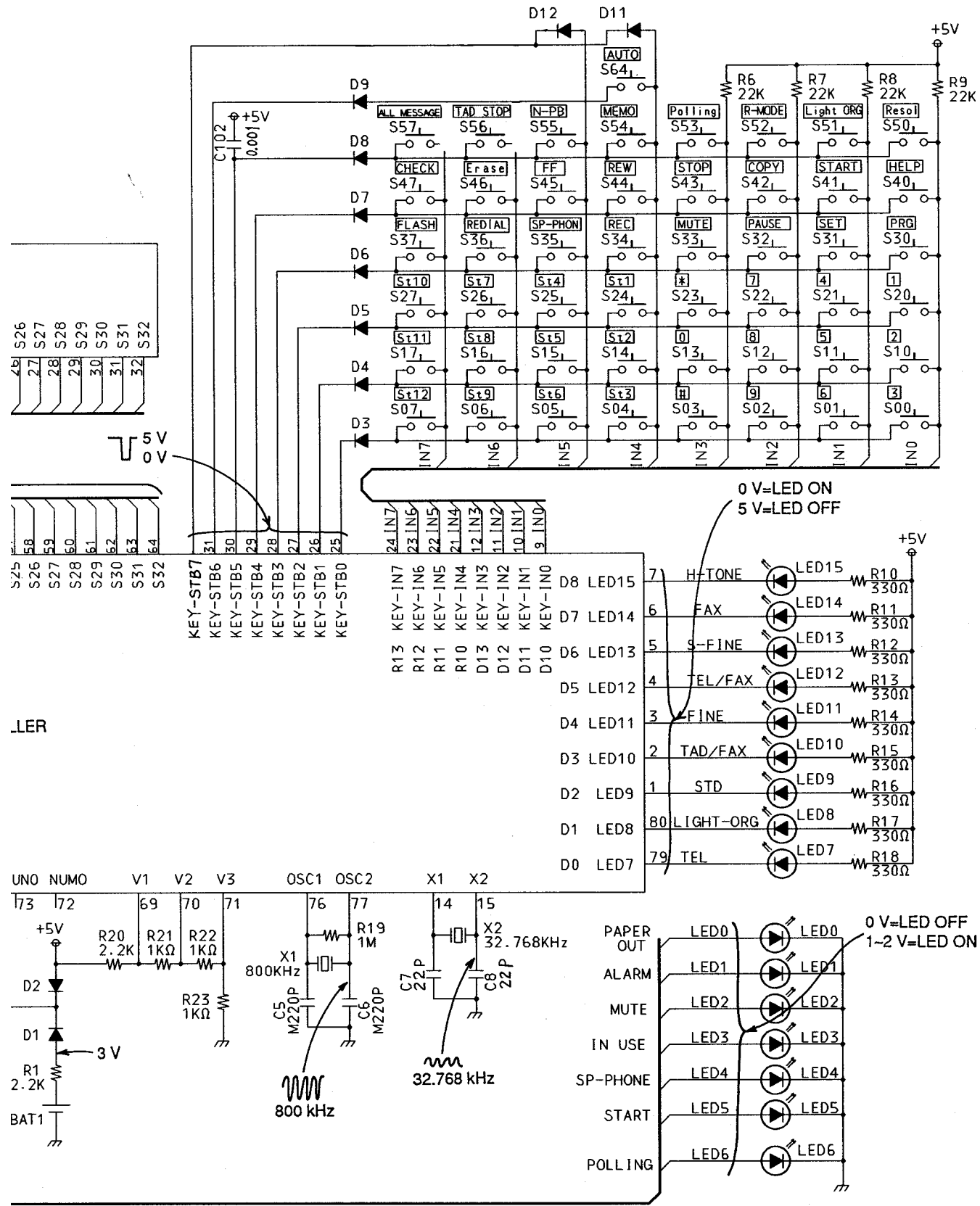
7                      8                      9                      10                      11                      12



# SCHEMATIC DIAGRAM (OF

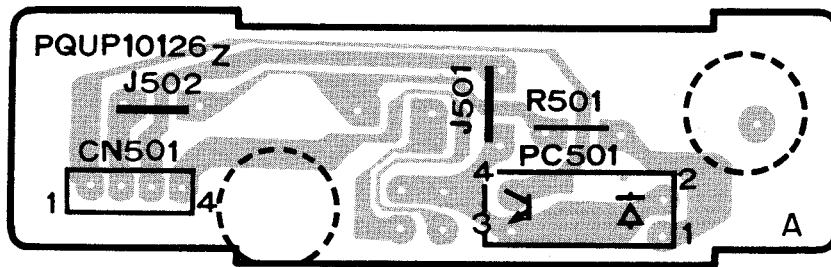


# AM (OPERATION CIRCUIT)

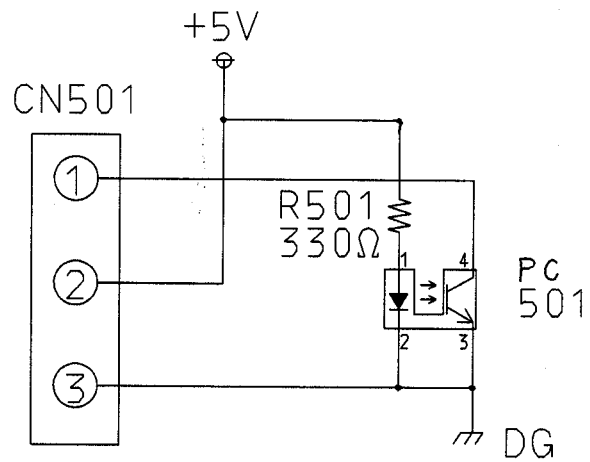


# PRINTED CIRCUIT BOARD (RECORDING PAPER SENSOR BOARD)

(COMPONENT VIEW)

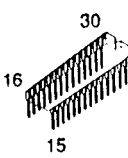
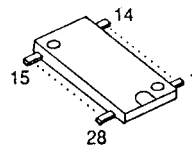
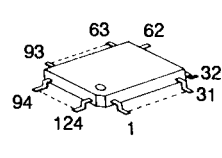
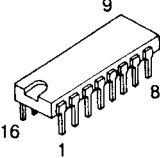
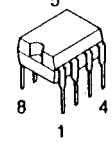
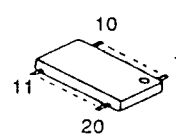
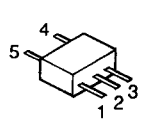
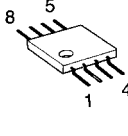
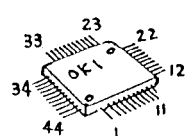
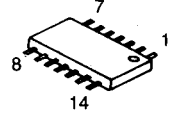
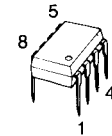
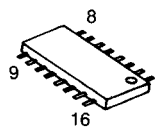
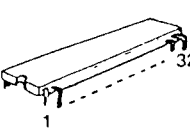
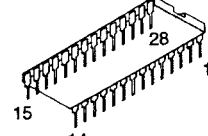
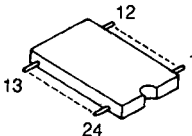
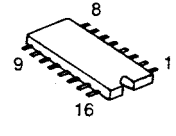
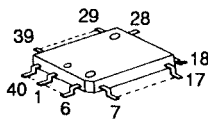
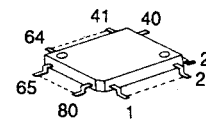
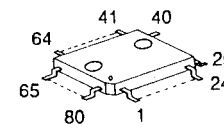
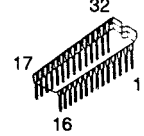
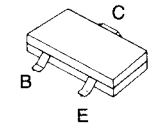
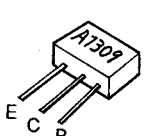
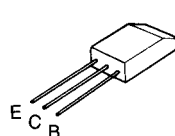
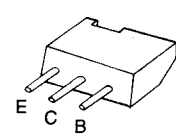
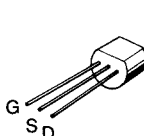
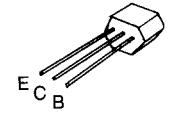
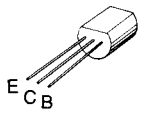
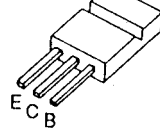
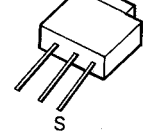
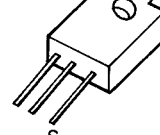
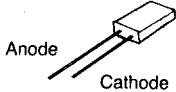
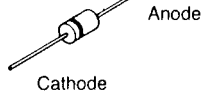

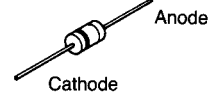
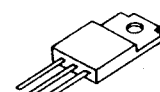


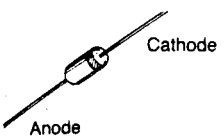
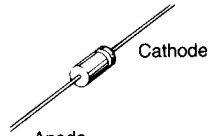
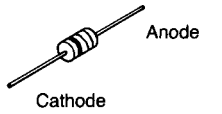
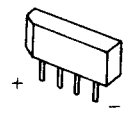
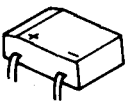
# SCHEMATIC DIAGRAM (RECORDING PAPER SENSOR CIRCUIT)



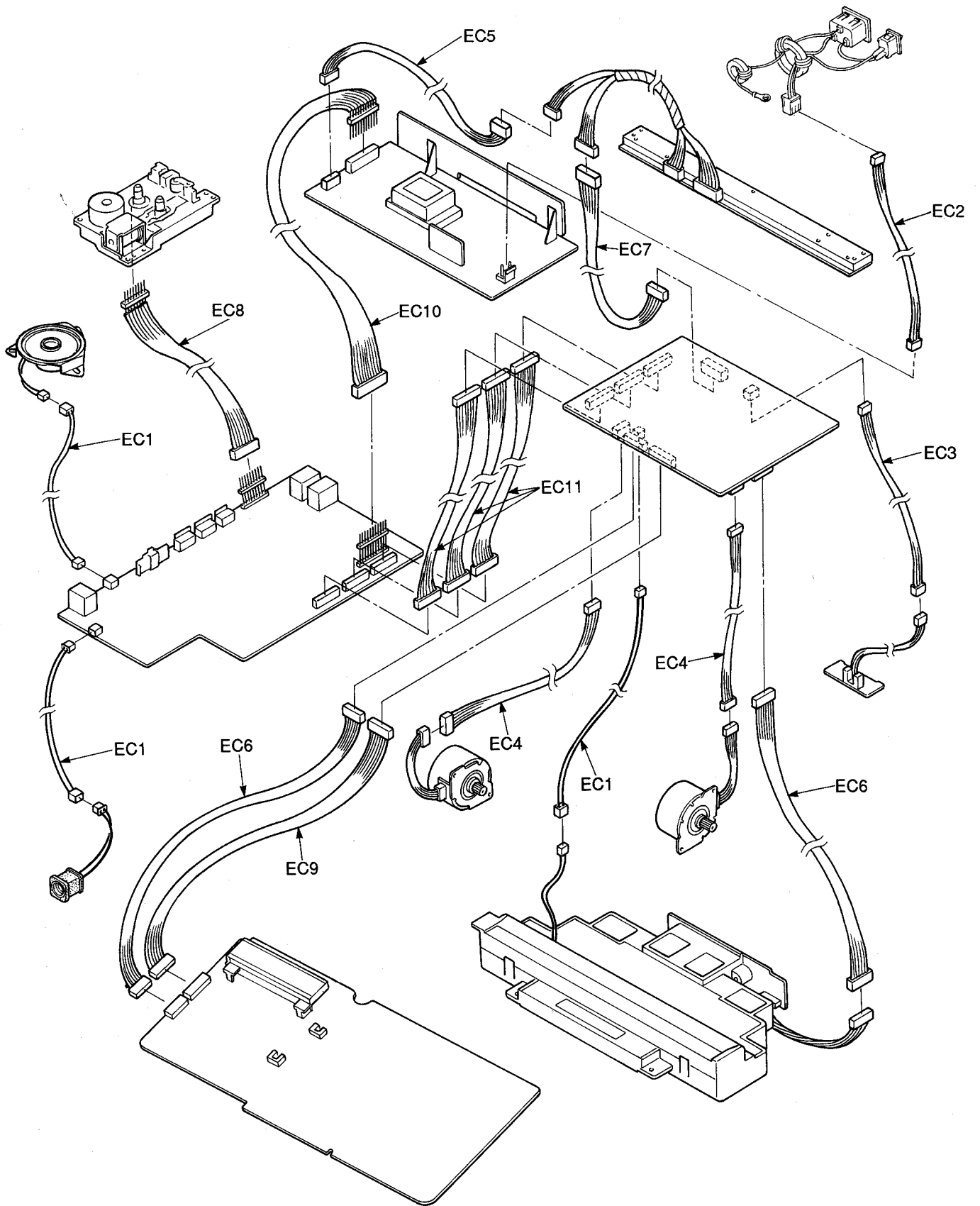


# TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 <p>AN6181NK</p>	 <p>MN4464S08LL</p>	 <p>MN5551</p>	 <p>PQVIBA12003</p>	 <p>PQVIXRU8871 PQVIBA6220</p>
 <p>PQVILC89066M</p>	 <p>PQVIMB7H139F</p>	 <p>PQVINJM4558M PQVINJM082BM PQVIMM1045BF</p>	 <p>PQVIMS8C5A2G</p>	 <p>PQVITC4066BF PQVINJM2901M PQVIM7H04F</p>
 <p>PQVINJM4558D</p>	 <p>PQVINJ4053BM</p>	 <p>PQVIR96MFX</p>	 <p>PQVISC79054A</p>	 <p>PQVITAD001M1</p>
 <p>PQVITC4053BF</p>	 <p>PQVIZ8400L8V</p>	 <p>PQVI4814A03F</p>	 <p>PQVI672191F</p>	 <p>PQWIF130M</p>
 <p>2SB1218A, 2SD1819A PQVTDTC143E PQVTDTA114YU</p>	 <p>2SA1309</p>	 <p>2SA1627</p>	 <p>2SD1994A 2SB1322, 2SC1652</p>	 <p>2SC1318</p>
 <p>2SC1740S, 2SC3311</p>	 <p>2SC2235</p>	 <p>2SD2136</p>	 <p>2SK1060</p>	 <p>2SK1102</p>
 <p>LN342GPX LN242RP</p>	 <p>PQVDHZS3A1 MA165</p>	 <p>MA4062, MA4068 MA4051, MA4056</p>	 <p>1SS147 MA4150, MA7200</p>	 <p>MA649</p>

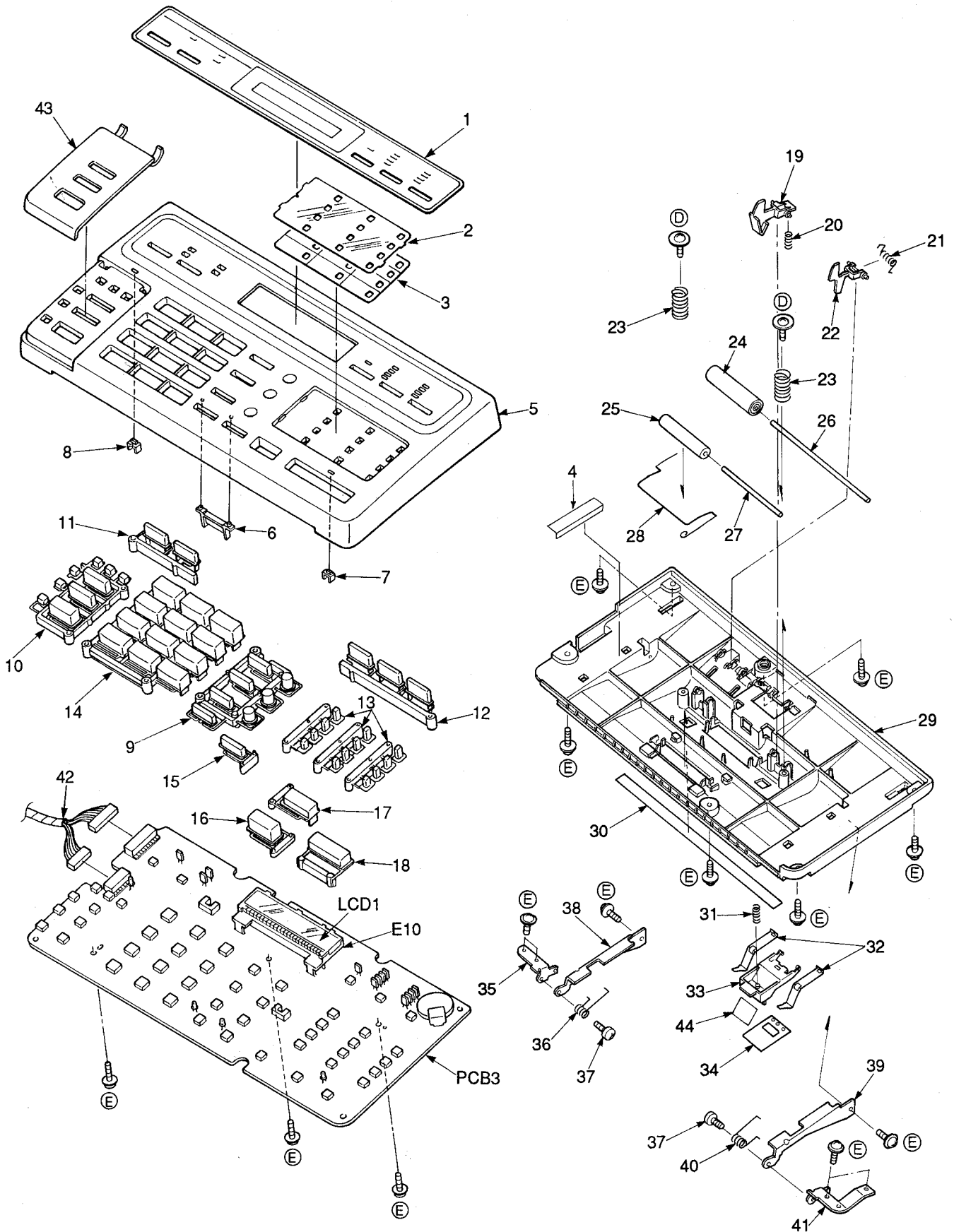
 <p>Anode</p> <p>Cathode</p> <p>1SS120, 1SS131 MA700A</p>	 <p>Anode</p> <p>Cathode</p> <p>PQVDERA81004 PQVDAL01Z</p>	 <p>Cathode</p> <p>Anode</p> <p>PQVDHVS2B1</p>	 <p>+</p> <p>-</p> <p>PQVDSLZ281B1 PQVDSLZ181B1</p>	 <p>+</p> <p>-</p> <p>PQVDS1YB40F1</p>
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# CONNECTOR LEAD AND EXTENSION CORD CONNECTING METHOD

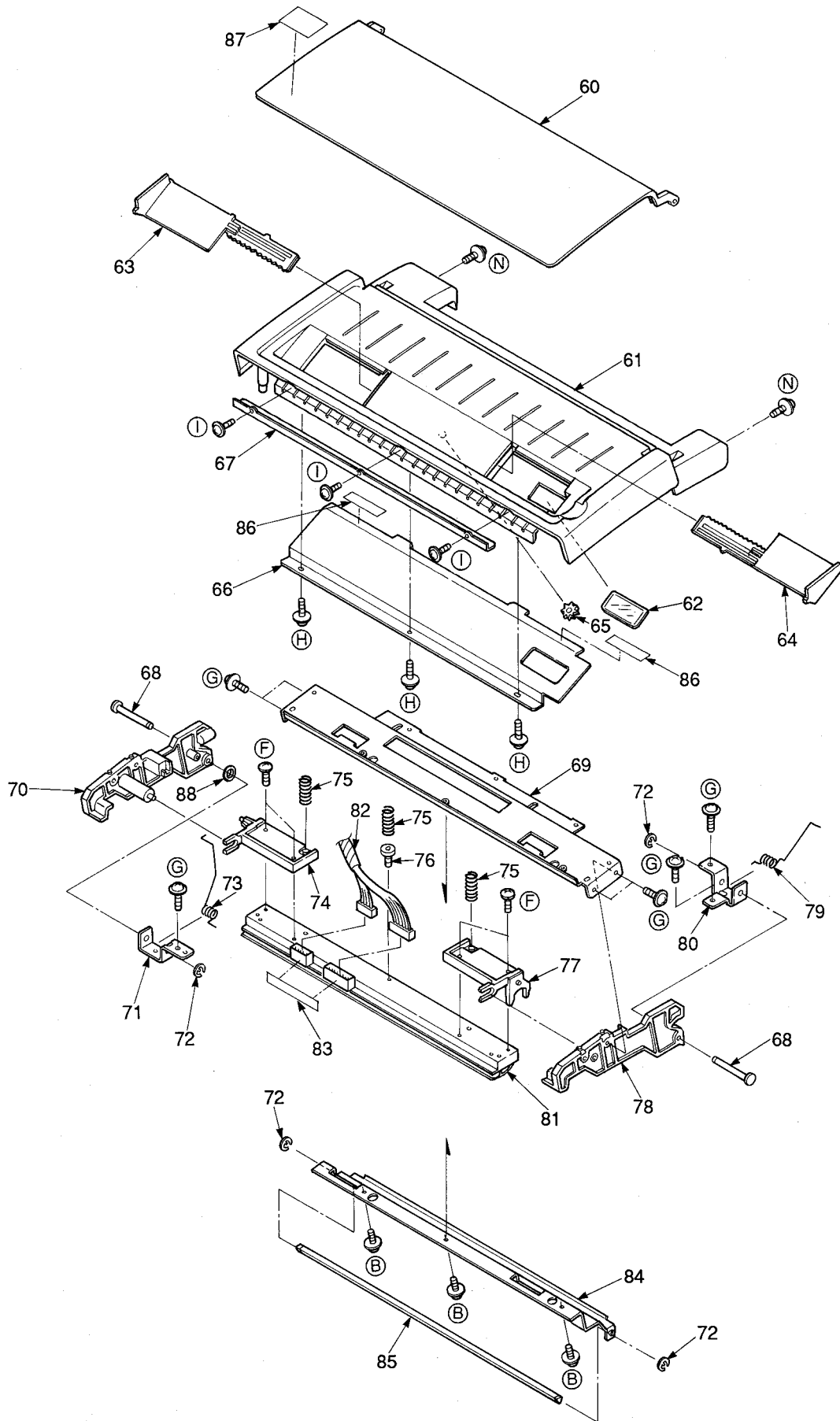


# CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION

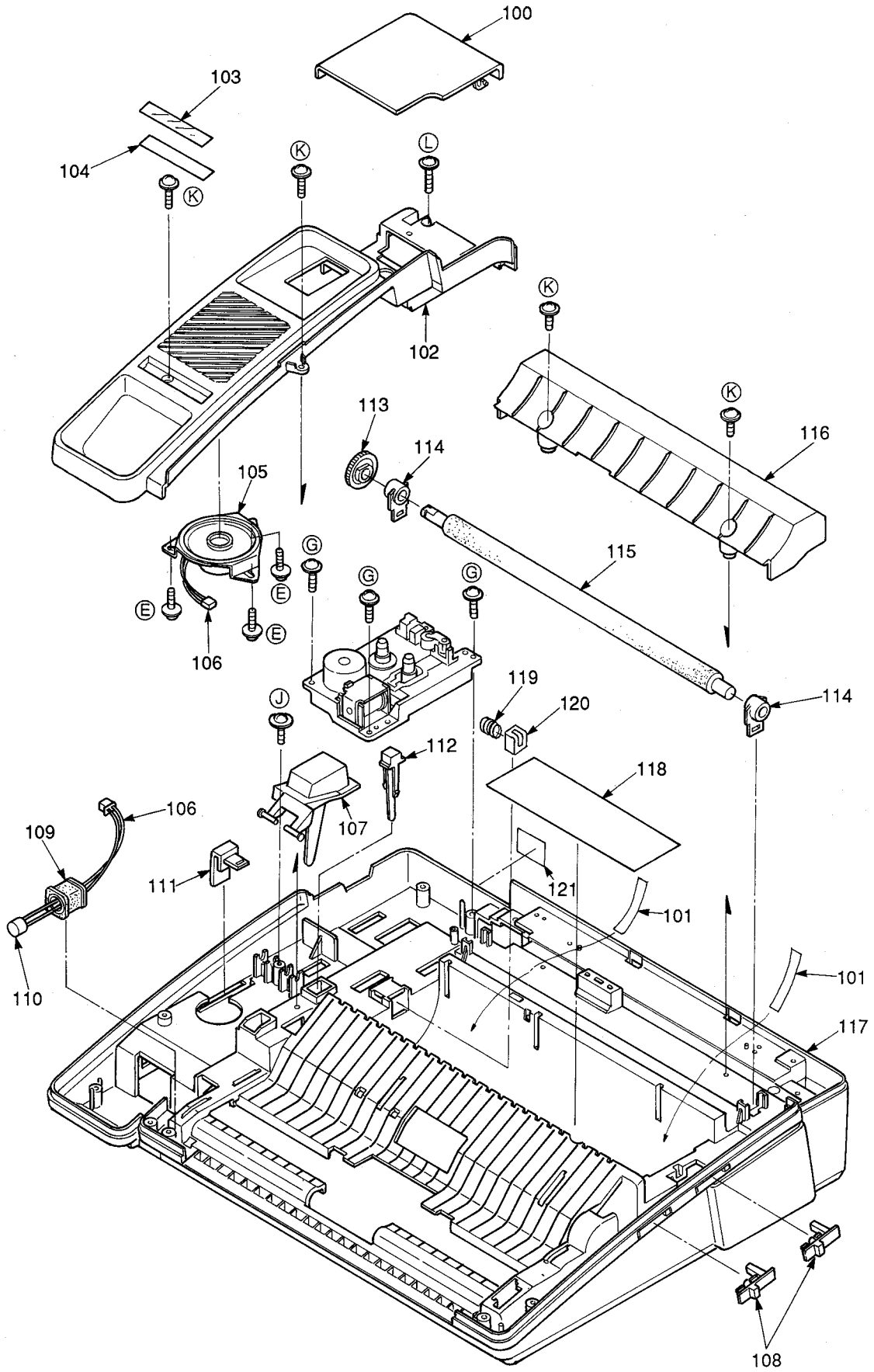
## 1. OPERATION PANEL SECTION



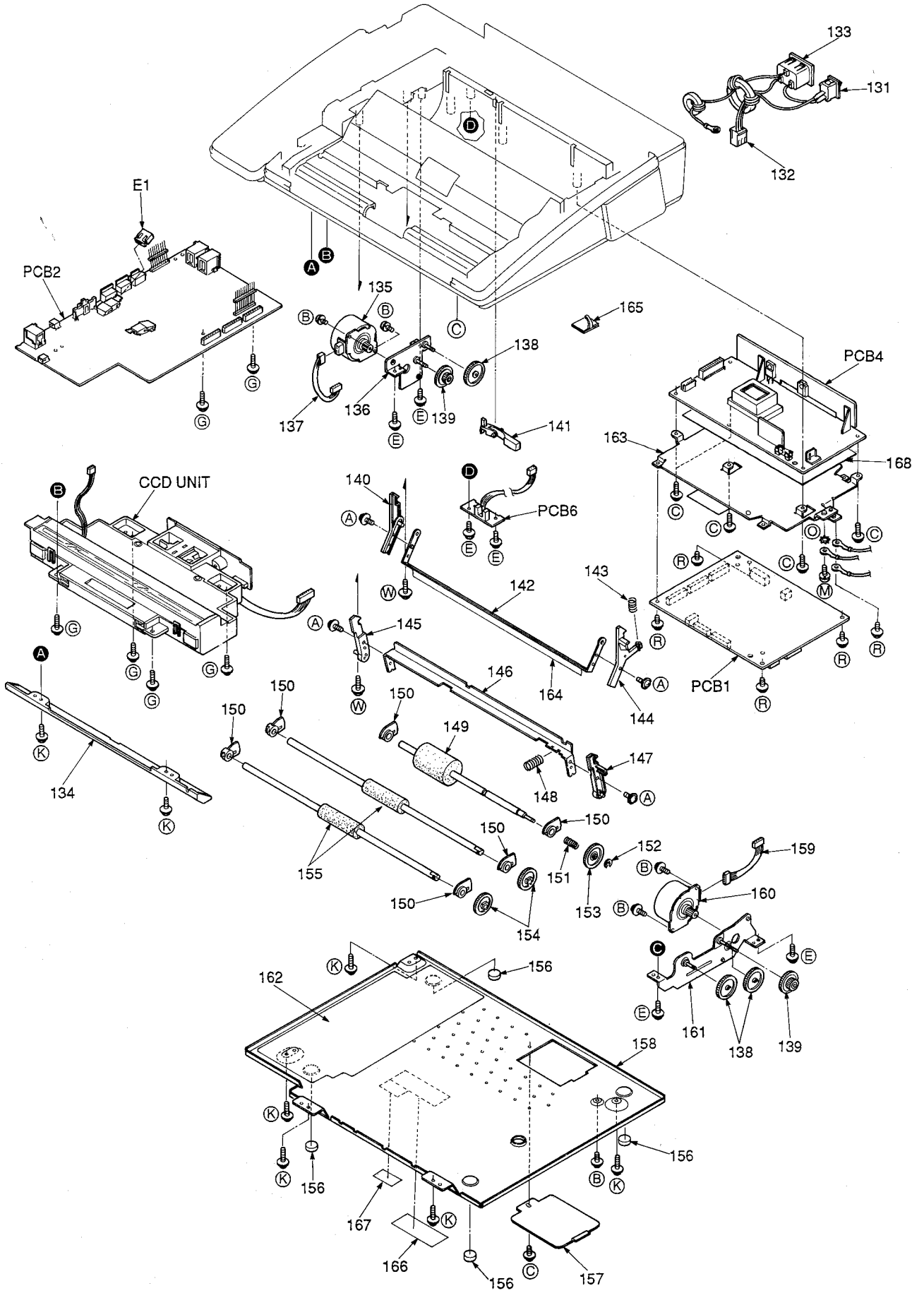
## 2. THERMAL HEAD SECTION



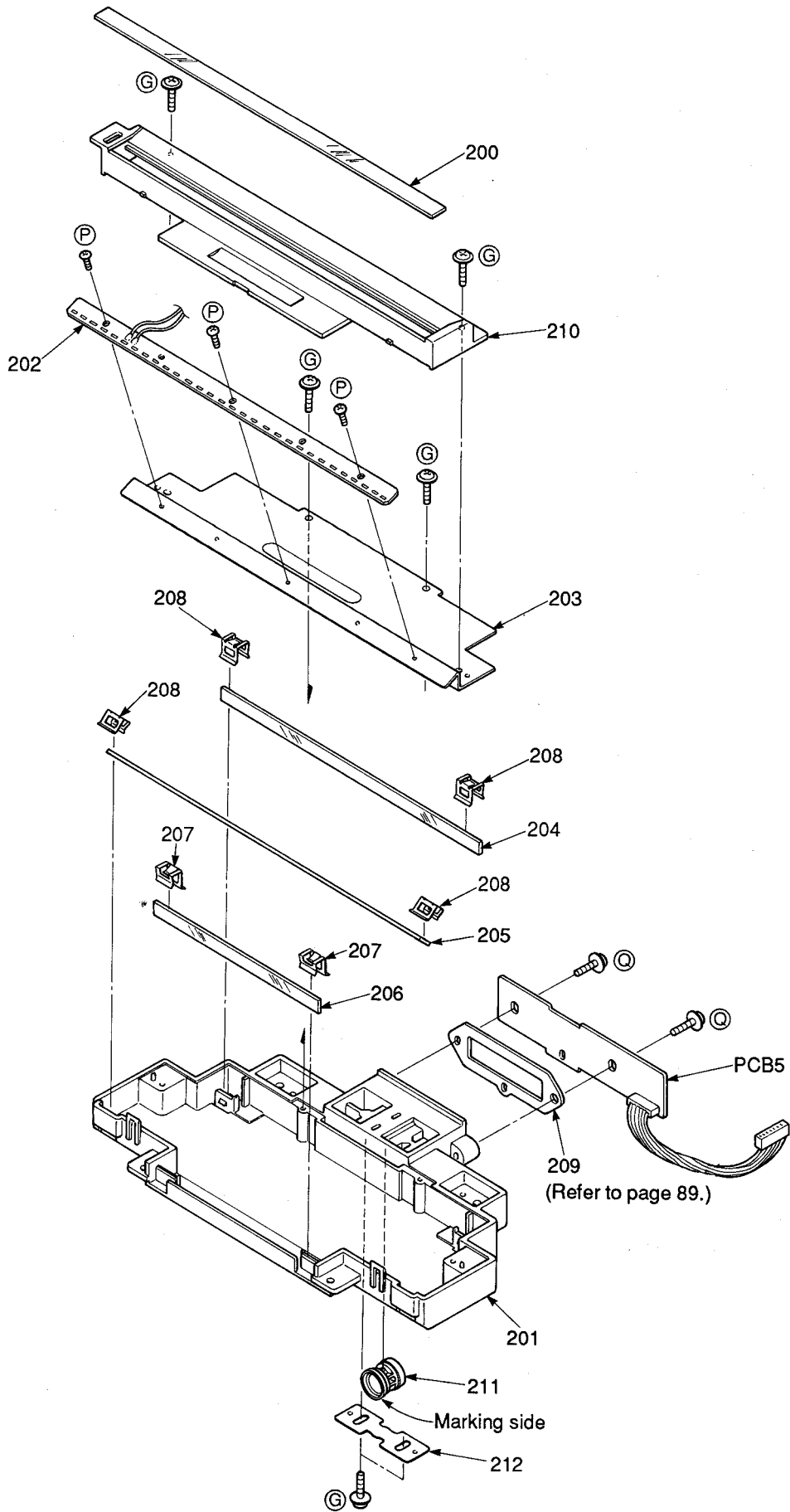
### 3. UPPER BODY SECTION



# 4. LOWER BODY SECTION

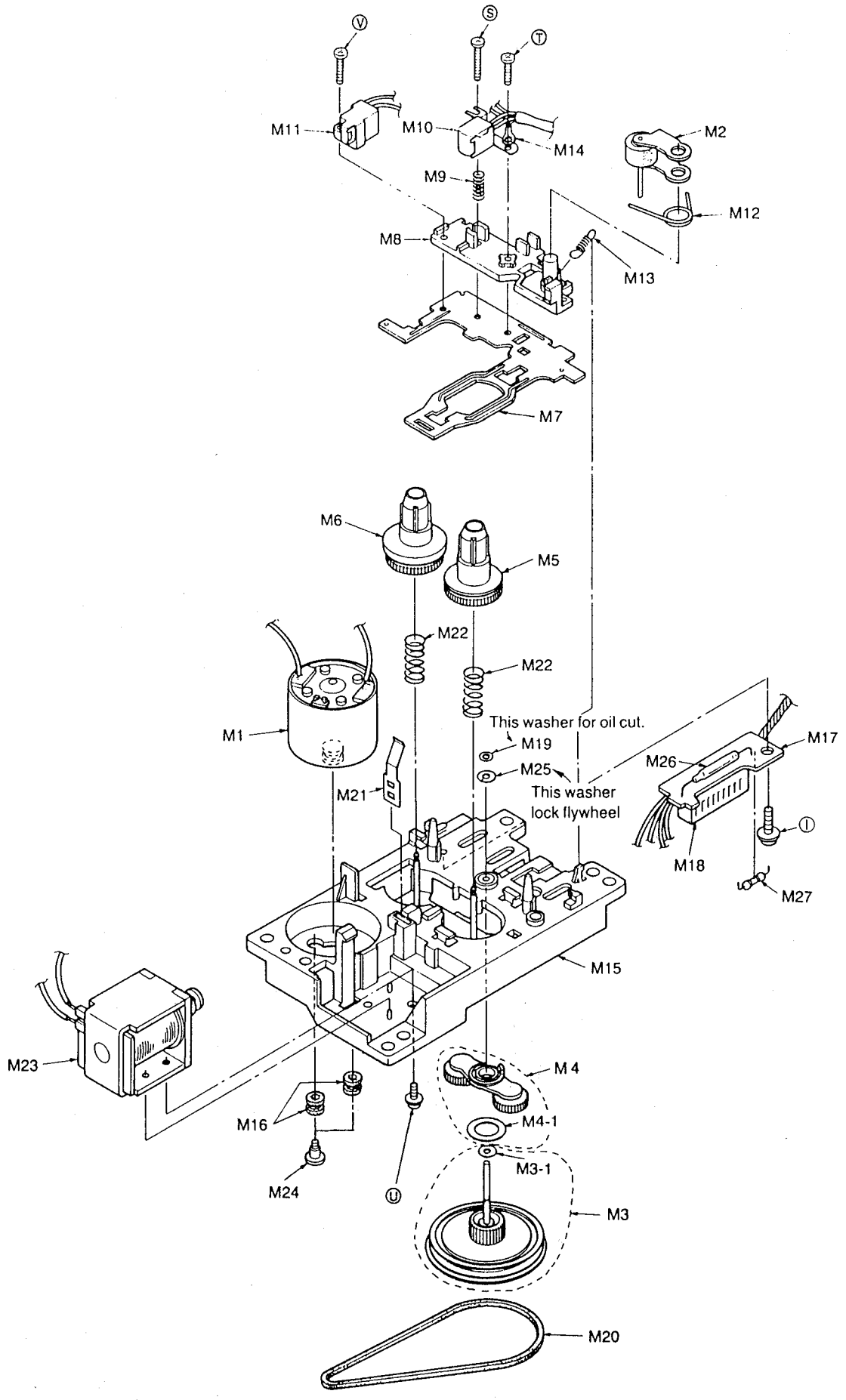


# 5. CCD UNIT SECTION




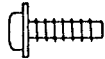
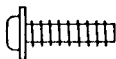

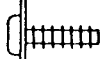





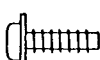







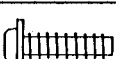

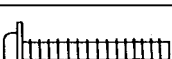




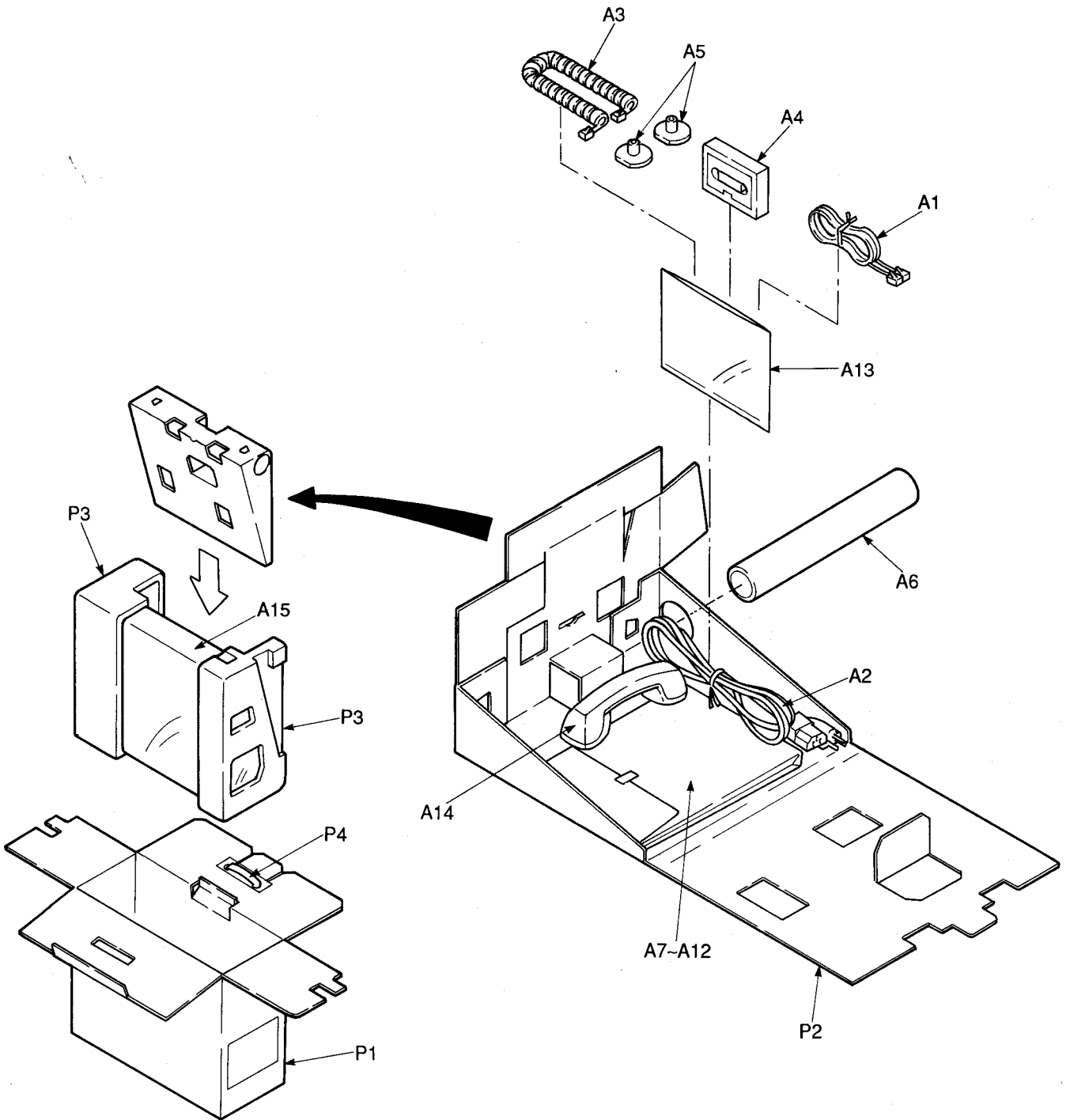
# 6. CASSETTE DECK SECTION



## 7. ACTUAL SIZE OF SCREWS AND WASHER

Ref. No.	Part No.	Figure	Ref. No.	Part No.	Figure
Ⓐ	XTW3+6L		Ⓜ	XSB4+6	
Ⓑ	XYC3+CF6		Ⓝ	XTW3+S10PFZ	
Ⓒ	XTW3+CS12P		Ⓓ	XWC4B	
Ⓓ	XTW3+W10P		Ⓟ	XTN26+4F	
Ⓔ	XTW3+S8M		Ⓖ	XYN3+F16	
Ⓕ	XYN3+F8		Ⓡ	XYC3+FF8C	
Ⓖ	XTW3+S10P		Ⓢ	XSN17+10FN-3	
Ⓗ	XTW3+S6P		Ⓣ	XSN17+6FZ-3	
Ⓘ	XTW26+6F		Ⓤ	XTW26+5LF	
Ⓝ	XTW3+W8P		Ⓥ	XSN17+7FN-3	
Ⓚ	XTW3+S12P		Ⓦ	PJHE5065Z	
Ⓛ	XTW3+S20P				

# ACCESSORIES AND PACKING MATERIALS



This replacement parts list is for U.S.A. version only. Refer to the simplified manual (cover) for other areas.

## REPLACEMENT PARTS LIST

Model KX-F130

### Notes:

- RTL (Retention Time Limited)  
The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- Important safety notice  
Components identified by the  $\Delta$  mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS  
Unless otherwise specified,  
All resistors are in ohms(  $\Omega$  ) K=1000 $\Omega$ , M=1000K $\Omega$   
All capacitors are in MICRO FARADS(  $\mu$ F ) P=  $\mu$ F  
\*Type & Wattage of Resistor

ERC: Solid	ERX: Metal Film	PQ4R: Carbon
ERD: Carbon	ERG: Metal Oxide	ERS: Fusible Resistor
PQRD: Carbon	ER0: Metal Film	ERF: Cement Resistor

Wattage					
10, 16: 1/8W	14, 25: 1/4W	12: 1/2W	1: 1W	2: 2W	3: 3W

Type	
ECFD: Semi-Conductor	ECCD, ECKD, ECBT, PQCBC: Ceramic
ECQS: Styrol	ECQE, ECQV, ECQG: Polyester
PQCUV: Chip	ECEA, ECSZ: Electrolytic
ECQMS: Mica	ECQP: Polypropylene

Voltage				
ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F: 3.15V	0J: 6.3V	1V: 35V
2A: 100V	1: 100V	1A: 10V	1A: 10V	50, 1H: 50V
2E: 250V	2: 200V	1V: 35V	1C: 16V	1J: 63V
2H: 500V		0J: 6.3V	1E, 25: 25V	2A: 100V

Ref. No.	Part No.	Part Name & Description	Pcs
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### CABINET, MECHANICAL AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Pcs
(1. OPERATION PANEL SECTION)			
1	PQGP10029Z	PANEL, LCD	1
2	PQGV10004Z	TRANSPARENT PLATE, TEL. NO. CARD	1
3	PQGD10038Z	CARD, TEL. (LARGE)	1
4	PQHX10193Z	SHEET	1
5	PQGG10013Z	OPERATION PANEL	1
6	PQGP10024Z	LED COVER-A	1
7	PQGP10025Z	LED COVER-B	1
8	PQGP10026Z	LED COVER-C	1
9	PQBX10059Z	BUTTON, FAX MENU, ITS	1
10	PQBX10060Z	BUTTON, TAM	1
11	PQBX10066Z	BUTTON, FAX FUNCTION	1
12	PQBX10065Z	BUTTON, FAX FUNCTION	1
13	PQBX10041X2	BUTTON, DIALER	3
14	PQBX10058Y2	BUTTON, DIAL	1
15	PQBC10047Z1	BUTTON, SP-PHONE	1
16	PQBC10044Z2	BUTTON, STOP/CLEAR	1
17	PQBC10046Z2	BUTTON, COPY	1
18	PQBC10045Z1	BUTTON, START	1
19	PQDE10010Y	LEVER, READ DETECTION	1
20	PQUS10019Z	SPRING-A, DOCUMENT DETECTION LEVER	1
21	PQUS315Z	SPRING-B, DOCUMENT DETECTION LEVER	1
22	PQDE10009Z	LEVER, DOCUMENT DETECTION	1
23	PQUS10011Z	SPRING, ROLLER	2
24	PQDR9685Z	SUB ROLLER-A	1
25	PQDR16Z	SUB ROLLER-B	1
26	PQDF10004Z	SHAFT-A, SUB ROLLER	1
27	PQDF9057Z	SHAFT-B, SUB ROLLER	1
28	PQUS10022Y	SPRING, SUB ROLLER	1
29	PQUV10002W	COVER, OPERATION PANEL	1
30	PQHX10078Y	READING PLATE	1
31	PQUS10010Z	SPRING, SEPARATION	1

Ref. No.	Part No.	Part Name & Description	Pcs
32	PQUS10008Z	SPRING, DOCUMENT FEED	2
33	PQHR10056Z	GUIDE	1
34	PQHG10038Y	SEPARATION RUBBER	1
35	PQMH10017Z	ANGLE-L, PANEL SIDE	1
36	PQUS10015Z	SPRING-L, PANEL OPEN/CLOSE	1
37	PQHD10010Y	SCREW	2
38	PQMH10015Z	ANGLE-L, PANEL OPEN/CLOSE	1
39	PQMH10016Z	ANGLE-R, PANEL OPEN/CLOSE	1
40	PQUS10016Z	SPRING-R, PANEL OPEN/CLOSE	1
41	PQMH10018Z	ANGLE-R, PANEL SIDE	1
42	PQJS18R77Y	CONNECTOR, 18P	1
43	PQKK10015X2	LID, TAM	1
44	PQHX10194Z	SHEET	1
(2. THERMAL HEAD SECTION)			
60	PQKE10005Y2	TRAY	1
61	PQKV10010Z2	COVER, RECORDING PAPER	1
62	PQGP10014Z	PANEL, RECORDING PAPER	1
63	PQKR10001Z2	GUIDE-L, DOCUMENT	1
64	PQKR10002Z2	GUIDE-R, DOCUMENT	1
65	PQDG10007Z	GEAR, DOCUMENT GUIDE	1
66	PQMD10007Z	ANGLE-A, RECORDING PAPER COVER	1
67	PQMD10010Z	ANGLE-B, RECORDING PAPER COVER	1
68	PQDF10008Z	SHAFT, ARM	2
69	PQMD10008Z	FRAME, RECORDING PAPER COVER	1
70	PQHR10054Z	ARM-L	1
71	PQMH10013Z	ANGLE-L	1
72	XUC25FY	RETAINING RING	4
73	PQUS10012Z	SPRING-L, ANGLE-L	1
74	PQDE10005Z	GUIDE-L, THERMAL HEAD	1
75	PQUS10009Z	SPRING, THERMAL HEAD	3
76	PQHD10012Z	SCREW	1
77	PQDE10006Z	GUIDE-R, THERMAL HEAD	1
78	PQHR10055Z	ARM-R	1
79	PQUS10013Z	SPRING-R, ANGLE-R	1
80	PQMH10014Z	ANGLE-R	1
81	PQJHS0002Z	THERMAL HEAD	1
82	PQJS15R78X	CONNECTOR, 15P	1
83	PQHX10080Z	INSULATOR SHEET-A	1
84	PQMD10009Z	FRAME, THERMAL HEAD	1
85	PQDF10003Z	SHAFT	1
86	PQHX10164Z	UL TAPE	2
87	Not Used		
88	PQMH10044Z	SPACER	1
(3. UPPER BODY SECTION)			
100	PQKK10010Z2	CASSETTE LID	1
101	PQHX10092Z	SHEET	2
102	PQKM10035Z2	CABINET BODY, HANDSET	1
103	PQHR576Z	TRANSPARENT PLATE, TEL. CARD	1
104	PQHP532X	CARD, TEL. (SMALL)	1
105	PQAS5P13Z	SPEAKER	1
106	PQJS02R70Z	CONNECTOR, 2P	2
107	PQBH10006Y2	BUTTON, HOOK	1
108	PQBD10015Y2	KNOB, OPEN	2
109	PQHG556Z	RUBBER PARTS, MIC COVER	1
110	PQJM128Z	BUILT-IN-MICROPHONE	1
111	PQBD10014Z3	KNOB, VOLUME	1
112	PQDE10007Z	LEVER, OPEN/CLOSE SENSOR	1
113	PQDG10004Z	GEAR, RECORDING ROLLER	1
114	PQDJ10001Z	SPACER, ROLLER	2
115	PQDN10001Z	ROLLER, RECORDING PAPER	1
116	PQKR10003Z2	GUIDE, RECORDING PAPER	1
117	PQKM10034Y2	CABINET BODY	1
118	PQQT10154Y	INDICATION LABEL	1
119	PQUS10027Z	SPRING, BACK TENSION	1

This replacement parts list is for U.S.A. version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
120	PQHR10066Z	SPACER	1	M7	PQFD82Y	HEAD BASE PLATE	1
121	PQHX10155Z	SHEET, EXT. TEL. JACK	1	M8	PQFW42Y	HEAD BASE	1
		(4. LOWER BODY SECTION)		M9	PQFS73Z	SPRING, RECORD/PLAYBACK HEAD	1
131	PQST1A05Z	SWITCH, POWER	1	M10	PQJH1M2X	HEAD, RECORD/PLAYBACK	1
132	PQJS2L94Z	CONNECTOR, 2P	1	M11	PQJH6M2Z	HEAD, ERASE	1
133	PQJP03S07Z	AC INLET	1	M12	PQFS109Z	SPRING, PINCH ROLLER	1
134	PQKV100082Z	COVER, FRONT	1	M13	PQFS110Z	SPRING, HEAD PLATE	1
135	PQJQ10005Z	RX MOTOR	1	M14	PQFJ2Z	TERMINAL	1
136	PQUA10002Z	CHASSIS-J, GEAR	1	M15	PQFC9909W	CHASSIS ASS'Y	1
137	PQJS05R66Z	CONNECTOR, 5P	1	M16	PQFI14Z	RUBBER PARTS, MOTOR SPACER	2
138	PQDG10003Z	GEAR-B, MIDDLE	3	M17	PQUP589Y	P. C. BOARD, REED SWITCH	1
139	PQDG10002Z	GEAR-A, MIDDLE	2	M18	PQJS9830Z	CONNECTOR, 9P	1
				M19	PQFN33Z	WASHER (FOR OIL CUT)	2
140	PQDE10001Z	LEVER-JL	1	M20	PQFB12Z	BELT	1
141	PQDE10008Z	LEVER, RECORDING PAPER SENSOR	1	M21	PQFD64Z	PLATE SPRING	1
142	PQMD10005Z	ANGLE-J	1	M22	PQFS82Z	SPRING, REEL TABLE	2
143	PQUS10017Z	SPRING-J	1	M23	PQFP126Y	PLUNGER	1
144	PQDE10002Z	LEVER-JR	1	M24	PQHD15Z	SCREW	2
145	PQDE10003Z	LEVER-SL	1	M25	PQFN49Z	WASHER (FOR LOCK OF FLYWHEEL)	1
146	PQMD10006Y	ANGLE-S	1	M26	PQSE91Z	REED SWITCH	1
147	PQDE10004Z	LEVER-SR	1	M27	ERDS2TJ563	RESISTOR, 56KΩ	1
148	PQUS10018Z	SPRING-S	1				
149	PQDN10002Z	ROLLER, SEPARATION	1	ACCESSORIES AND PACKING MATERIALS			
150	PQDJ10002Z	SPACER, ROLLER	6	A1	PQJA59V	CORD, TEL.	1
151	PQUS10014Z	SPRING, SEPARATION ROLLER	1	A2	PQJA200Z	CORD, AC	1
152	XUC2FY	RETAINING RING	1	A3	PQJA212N	CORD, HANDSET	1
153	PQDG10006Z	GEAR, SEPARATION ROLLER	1	A4	RT-N30-JT1P	MICRO CASSETTE TAPE	1
154	PQDG10005Z	GEAR, FEED ROLLER	2	A5	PQDJ10003Z	SPACER, RECORDING PAPER	2
155	PQDN10003Z	ROLLER, DOCUMENT FEED	2	A6	PQHP10023Z	RECORDING PAPER	1
156	PQHG10065Z	RUBBER FOOT	4	A7	PQX10277Z	INSTRUCTION BOOK	1
157	PQHM171Z	LID, ROM CHANGE	1	A8	PQQW10212Z	INSTRUCTION BOOK (QUICK REFERENCE) (ENGLISH)	1
158	PQMD10012Y	FRAME, BOTTOM	1	A9	PQQW10211Z	INSTRUCTION BOOK (QUICK REFERENCE) (SPANISH)	1
159	PQJS05R67Z	CONNECTOR, 5P	1	A10	PQQW10282Z	FAX CORRESPONDENCE SHEET	1
160	PQJQ10004Z	TX MOTOR	1	A11	PQOW10110Z	CARD, DIAL	1
161	PQUA10001Z	CHASSIS-S, GEAR	1	A12	PQPP10005Z	PROTECTION COVER (DOCUMENT)	1
162	PQHX10081X	INSULATOR SHEET-B	1	A13	XZB20X20A04	PROTECTION COVER (CORD)	1
163	PQMD10011Y	CHASSIS, POWER SUPPLY BOARD	1	A14	PQJX2PFA409Z	HANDSET	1
164	PQHR10139Z	COVER	1	A15	PQPH92Z	PROTECTION COVER (UNIT)	1
165	PQHR136Z	CLAMPER	3	P1	PQPK10202Z	GIFT BOX	1
166	PQQT10155Z	CAUTION LABEL, FCC	1	P2	PQPN10102Z	ACCESSORY BOX	1
167	PQQT10072Z	CAUTION LABEL	1	P3	PQPN10118Y	CUSHION-L/R	1
168	PQHX10082Z	INSULATOR SHEET-C	1	P4	PQPN935Z	HANDLE	1
		(5. CCD UNIT SECTION)		DIGITAL BOARD PARTS			
200	PQ0G10001Z	GLASS	1	PCB1	PQWP1F130M	DIGITAL BOARD ASS'Y (RTL)	1
201	PQUA10003Z	CHASSIS	1			(ICs)	
202	PQVDMK02A30	LED ARRAY	1	IC1	PQVIZ8400L8V	IC	1
203	PQMD10013Z	ANGLE	1	IC2	PQWIF130M	IC	1
204	PQ0M10002Z	MIRROR-2	1	IC3, 4	MN4464S08LL	IC	2
205	PQ0M10001Z	MIRROR-1	1	IC5	PQVIR96MFX	IC	1
206	PQ0M10003Z	MIRROR-3	1	IC6	MN5551	IC	1
207	PQUS272Z	SPRING-B, MIRROR	2	IC7	MN4464S08LL	IC	1
208	PQUS216Z	SPRING-A, MIRROR	4	IC10	PQVIMM1045BF	IC	1
209	PQHR9725Z	SPACER	1	IC11	PQVIMS8C5A2G	IC	1
210	PQUV10003Z	COVER	1	IC12	PQVILC89066M	IC	1
211	PQ0L6Y	LENS	1	IC13	PQVINJM2901M	IC	1
212	PQUS217Z	SPRING, LENS	1	IC14	PQVINJM082BM	IC	1
		(6. CASSETTE DECK SECTION)		IC15	PQVINJM082BM	IC	1
M1	PQFM9909Z	MOTOR ASS'Y	1	IC16	PQVINJM4558M	IC	1
M2	PQFD9913Z	PINCH ROLLER ASS'Y	1	IC17	PQVITC4053BF	IC	1
M3	PQFF9909Y	FLYWHEEL ASS'Y	1	IC18	PQVINJM4558M	IC	1
M3-1	PQFN35Z	WASHER-C	1	IC19	PQVIBA12003	IC	1
M4	PQFG9904Z	GEAR ASS'Y	1				
M4-1	PQFN48Z	WASHER-D	1				
M5	PQFR9912Z	TAKEUP REEL TABLE ASS'Y	1				
M6	PQFR9913Z	SUPPLY REEL TABLE ASS'Y	1				

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Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Value	Pcs
IC20	PQVIBA12003	IC	S 1	C30	PQCUV1E104MD	0.1	1
IC21	PQVIM7H04F	IC	S 1	C31	PQCUV1C334ZF	0.33	1
IC23	PQVIMB7H139F	IC	S 1	C32, 34	PQCUV1E104MD	0.1	2
		(TRANSISTORS)		C36	PQCUV1E473MD	0.047	1
Q1, 2	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	2	C37	PQCUV1E104MD	0.1	1
Q6	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 1	C38	PQCUV1H180JC	18P	1
Q7	2SB1218A	TRANSISTOR(SI)	1	C39	PQCUV1H120JC	12P	1
		(or 2SA1576R/2SA1603R)	S				
Q8-11	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 4	C40	PQCUV1E104MD	0.1	1
Q12	2SD1994A	TRANSISTOR(SI)	1	C41	PQCUV1E104MD	0.1	1
Q16-22	PQVTDTA114YU	TRANSISTOR(SI) (or UN5114)	S 7	C42	PQCUV1E104MD	0.1	1
		(DIODES)		C43	PQCUV1E104MD	0.1	1
D1	MA4051	DIODE(SI)	1	C44	PQCUV1E104MD	0.1	1
D2	1SS120	DIODE(SI)	1	C45	PQCUV1H103KB	0.01	1
D3	1SS120	DIODE(SI)	1	C49	PQCUV1E104MD	0.1	1
D4	1SS120	DIODE(SI)	1	C50	PQCUV1E104MD	0.1	1
D5	1SS147	DIODE(SI)	1	C51	PQCUV1E104MD	0.1	1
D6	1SS147	DIODE(SI)	1	C52	PQCUV1E104MD	0.1	1
D9	MA7200	DIODE(SI)	1	C53	ECEA1VKA330	33	1
D10	MA7200	DIODE(SI)	1	C54	ECEA1VKA330	33	1
D11	1SS120	DIODE(SI)	1	C55	PQCUV1E104MD	0.1	1
D13	1SS120	DIODE(SI)	1	C56	PQCUV1E104MD	0.1	1
D14	1SS120	DIODE(SI)	1	C57	PQCUV1E104MD	0.1	1
D15	1SS120	DIODE(SI)	1	C58	PQCUV1E104MD	0.1	1
D16	1SS120	DIODE(SI)	1	C59	PQCUV1E104MD	0.1	1
D17	1SS120	DIODE(SI)	1	C60	PQCUV1E104MD	0.1	1
D18	1SS120	DIODE(SI)	1	C61	PQCUV1E104MD	0.1	1
D19	1SS120	DIODE(SI)	1	C62	ECEA1CK101	100	S 1
D20	1SS120	DIODE(SI)	1	C63	ECEA1CK101	100	1
D21	PQVDHZS3A1	DIODE(SI)	S 1	C64	PQCUV1H103KB	0.01	1
		(FILTER & COIL)		C65	PQCUV1H221JC	220P	1
LP1	EXCEMT220B	NOISE FILTER	1	C66	PQCUV1H101JC	100P	1
L2	PQLQR1ET	COIL	1	C67	PQCUV1H103KB	0.01	1
		(CRYSTAL OSCILLATORS)		C68	ECEA1CK101	100	1
X1	PQVCJ2400N9Z	CRYSTAL OSCILLATOR	1	C69	PQCUV1H682KB	0.0068	1
X3	PQVCJ1600N9Z	CRYSTAL OSCILLATOR	1	C70	PQCUV1H103KB	0.01	1
		(CAPACITORS)		C71	PQCUV1E104MD	0.1	1
C1	PQCUV1E104MD	0.1	1	C72	PQCUV1H103KB	0.01	1
C4	PQCUV1H103KB	0.01	1	C74	PQCUV1E104MD	0.1	1
C5	PQCUV1H103KB	0.01	1	C75	ECEA0JK221	220	1
C6	PQCUV1E104MD	0.1	1	C76	PQCUV1E104MD	0.1	1
C7	PQCUV1E104MD	0.1	1	C77	PQCUV1E104MD	0.1	1
C8	PQCUV1E104MD	0.1	1	C78	PQCUV1H101JC	100P	1
C9	PQCUV1E104MD	0.1	1	C80	ECEA1CK101	100	1
C13	PQCUV1C334ZF	0.33	1	C81	ECUV1H560JCV	56P	1
C14	ECEA0JK221	220	1	C82	ECUV1H560JCV	56P	1
C15	PQCUV1E104MD	0.1	1	C83	ECUV1H560JCV	56P	1
C16	PQCUV1H390JC	39P	1	C84	ECUV1H560JCV	56P	1
C17	PQCUV1H180JC	18P	1	C85	ECUV1H560JCV	56P	1
C18	PQCUV1H102J	0.001	1	C86	ECUV1H560JCV	56P	1
C19	PQCUV1E104MD	0.1	1	C87	ECUV1H560JCV	56P	1
C20	PQCUV1E104MD	0.1	S 1	C88	ECUV1H560JCV	56P	1
C21	PQCUV1H102J	0.001	1	C89	ECUV1H560JCV	56P	1
C22	PQCUV1E104MD	0.1	1	C90	ECUV1H560JCV	56P	1
C23	PQCUV1H331JC	330P	1	C91	ECUV1H560JCV	56P	1
C24	PQCUV1E104MD	0.1	S 1	C92	ECUV1H560JCV	56P	1
C25	PQCUV1E104MD	0.1	1	C93	ECUV1H560JCV	56P	1
C27	ECEA0JK221	220	1	C94	ECUV1H560JCV	56P	1
C28, 29	ECEA1CK101	100	2	C95	ECUV1H560JCV	56P	1
				C96	ECUV1H560JCV	56P	1
				C97	ECUV1H560JCV	56P	1
				C98	ECUV1H560JCV	56P	1
				C99	ECUV1H560JCV	56P	1
				C100-103	ECUV1H560JCV	56P	4
				C104	PQCUV1H270JC	27P	1
				C106	PQCUV1H472KB	0.0047	1

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Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
		(RESISTORS)					
R1	PQ4R10XJ103	10K	1	R90	PQ4R10XJ222	2.2K	1
R7	PQ4R10XJ123	12K	1	R91	ERDS2TJ331	330	1
R8	ERDS2TJ3R3	3.3	1	R92	PQ4R10XJ103	10K	1
R9	PQ4R10XJ473	47K	1	R93	PQ4R10XJ472	4.7K	1
				R94	PQ4R10XJ222	2.2K	1
R10	PQ4R10XJ563	56K	1	R95	PQ4R10XJ103	10K	1
R11	PQ4R10XF8662	86.6K	1	R96	PQ4R10XJ682	6.8K	1
R12	PQ4R10XF8662	86.6K	1	R97	PQ4R10XJ332	3.3K	1
R13	PQ4R10XJ683	68K	1	R98	PQ4R10XJ182	1.8K	1
R14	PQ4R10XJ272	2.7K	1	R99	PQ4R10XJ472	4.7K	1
R15	PQ4R10XF1002	10K	1				
R16	PQ4R10XF3652	36.5K	1	R100	PQ4R10XJ103	10K	1
R17	ERDS2TJ221	220	1	R101	PQ4R10XJ391	390	1
R18	PQ4R10XJ222	2.2K	1	R102	PQ4R10XJ103	10K	1
R19	PQ4R10XJ105	1M	1	R103	ER016CKF1201	1.2K	1
				R104	ER016CKF1801	1.8K	1
R21	PQ4R10XJ222	2.2K	1	R105	ER016CKF1501	1.5K	1
R22	PQ4R10XJ562	5.6K	1	R106	PQ4R10XJ272	2.7K	1
R23	PQ4R10XJ222	2.2K	1	R107	PQ4R10XJ101	100	1
R24	PQ4R10XJ152	1.5K	1	R108	PQ4R10XJ272	2.7K	1
R25	PQ4R10XJ000	0	1	R109	PQ4R10XJ102	1K	1
R26	PQ4R10XJ154	150K	1				
R27	PQ4R10XJ472	4.7K	1	R110	PQ4R10XJ151	150	1
R29	PQ4R10XJ223	22K	1	R111	PQ4R10XJ563	56K	1
				R112	PQ4R10XJ275	2.7M	1
R30	PQ4R10XJ104	100K	1	R113	PQ4R10XJ331	330	1
R31	PQ4R10XJ562	5.6K	1	R114	PQ4R10XJ271	270	1
R32	PQ4R10XJ682	6.8K	1	R115	PQ4R10XJ331	330	1
R33	PQ4R10XJ471	470	1	R116	PQ4R10XJ271	270	1
R34	PQ4R10XJ472	4.7K	1	R117	PQ4R10XJ331	330	1
R36	PQ4R10XJ471	470	1	R118	PQ4R10XJ331	330	1
R37	PQ4R18XJ000	0	1	R119	PQ4R10XJ331	330	1
R38	PQ4R10XJ123	12K	1				
R39	PQ4R10XJ563	56K	1	R120	PQ4R10XJ101	100	1
				R121	PQ4R10XJ563	56K	1
R41	PQ4R10XJ562	5.6K	1	R122	PQ4R10XJ563	56K	1
R43	PQ4R10XJ563	56K	1	R123	PQ4R10XJ563	56K	1
R44	PQ4R10XJ000	0	1	R124	PQ4R10XJ563	56K	1
R45	PQ4R10XJ563	56K	1	R125	PQ4R10XJ563	56K	1
R46	PQ4R10XJ000	0	1	R126	PQ4R10XJ563	56K	1
R47	PQ4R10XJ563	56K	1	R127	PQ4R10XJ563	56K	1
R49	PQ4R10XJ562	5.6K	1	R128	PQ4R10XJ563	56K	1
				R129	PQ4R10XJ682	6.8K	1
R51	PQ4R10XJ563	56K	1				
R53	PQ4R10XJ563	56K	1	R130	PQ4R10XJ123	12K	1
R54	PQ4R10XJ000	0	1	R131	PQ4R10XJ101	100	1
				R132	PQ4R10XJ101	100	1
R60	PQ4R10XJ101	100	1	R133	PQ4R10XJ101	100	1
R61	PQ4R10XJ562	5.6K	1	R134	PQ4R10XJ221	220	1
R62	PQ4R10XJ563	56K	1	R135	PQ4R10XJ101	100	1
R63	PQ4R10XJ562	5.6K	1	R137	PQ4R10XJ101	100	1
R64	PQ4R10XJ101	100	1				
R65	PQ4R10XJ563	56K	1	R147	ERDS2TJ681	680	1
R66	PQ4R10XJ562	5.6K	1	R148	PQ4R18XJ821	820	1
R67	PQ4R10XJ563	56K	1	R149	PQ4R18XJ821	820	1
R68	PQ4R10XJ563	56K	1				
R69	PQ4R10XJ562	5.6K	1	R150	PQ4R18XJ470	47	1
				R151	PQ4R10XJ100	10	1
R70	PQ4R10XJ183	18K	1				
R71	PQ4R10XJ183	18K	1				
R73-80	PQ4R10XJ101	100	8				
						(BATTERY & CONNECTORS)	
R81	ERDS2TJ222	2.2K	1	BATT	PQPCR2032H09	LITHIUM BATTERY	1
R82	PQ4R10XJ821	820	1				
R83	ERDS2TJ222	2.2K	1	CN1	PQJP11A19Z	CONNECTOR, 11P	1
R84	PQ4R10XJ821	820	1	CN2	PQJP11A19Z	CONNECTOR, 11P	1
R85	PQ4R10XJ222	2.2K	1	CN3	PQJP10G100Z	CONNECTOR, 10P	1
R86	PQ4R10XJ103	10K	1	CN4	PQJP11A19Z	CONNECTOR, 11P	1
R87	PQ4R10XJ332	3.3K	1	CN5	PQJP08G100Z	CONNECTOR, 8P	1
R88	PQ4R10XJ332	3.3K	1	CN6	PQJP09G100Z	CONNECTOR, 9P	1
R89	ERDS2TJ561	560	1	CN7	PQJP02G100Z	CONNECTOR, 2P	1
				CN8, 9	PQJP05G100Z	CONNECTOR, 5P	2
				CN13	PQJP03G100Z	CONNECTOR, 3P	1
				CN14	PQJP08G100Z	CONNECTOR, 8P	1

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Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
ANALOG BOARD PARTS							
PCB2	PQLP10002M	ANALOG BOARD ASSY (RTL) <sup>△</sup>	1	L1	PQLE106	(COILS) COIL	S 1
IC1	PQVISC79054A	(ICs) IC	1	L2	PQLE106	COIL	S 1
IC2	PQVINJM4558D	IC	S 1	L3	PQLE106	COIL	S 1
IC3	PQVIMT3274AE	IC	S 1	L4	PQLE106	COIL	S 1
IC4	PQVINJM4558M	IC	1	L11, 12	PQLQR1ET	COIL (FERRITE BEAD)	2
IC6	PQVITC4066BF	IC	1	PC1	PQVIPC814K	(PHOTO ELECTRIC TRANSDUCERS) PHOTO COUPLER	<sup>△</sup> 1
IC7	PQVITAD001M1	IC	1	PC2	PQVIPC817CD	PHOTO COUPLER	<sup>△</sup> 1
IC8	PQVINJM4558D	IC	S 1	PC3	PQVIPC817CD	PHOTO COUPLER	<sup>△</sup> 1
IC9	PQVITC4066BF	IC	1	PC4	PQVITLP627	PHOTO COUPLER	<sup>△</sup> S 1
IC10	PQVINJ4053BM	IC	1	RLY1	PQSL135Z	(RELAY) RELAY	1
IC11	AN6181NK	IC	1	SA1	PQVDSAE310F1	(VARISTORS) VARISTOR (SURGE ABSORBER)	1
IC12	PQVIBA6220	IC	1	SA2	PQVDDSA102MS	VARISTOR (SURGE ABSORBER)	1
IC13	PQVINJM4558M	IC	1	S1	PQSS2A27Z	(SWITCHES) SWITCH, DIALING MODE	1
IC14	PQVINJM4558D	IC	S 1	S2	ESE14A211	SWITCH, HOOK	1
IC15	PQVI672191F	IC	S 1	S3	PQSS3A17Z	SWITCH, RINGER	1
IC16	PQVINJM4558M	IC	1	S4	ESE14A211	SWITCH, COVER	1
Q1	2SA1627	(TRANSISTORS) TRANSISTOR(SI)	1	S5	PQSS3A17Z	SWITCH, HANDSET VOLUME	1
Q2	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 1	T1	ETA14Y180AY	(TRANSFORMERS) TRANSFORMER	<sup>△</sup> S 1
Q3	2SC2235	TRANSISTOR(SI)	1	T2	PQLT8F5A	TRANSFORMER	<sup>△</sup> 1
Q6	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	VR2	EVNDXAA03B52	(VARIABLE RESISTORS) VARIABLE RESISTOR, 500Ω (B)	1
Q10	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	VR3	EWAUCCT50625	VARIABLE RESISTOR, VOLUME	1
Q11	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	X3	PQVBT4.19G2	(CERAMIC FILTER) CERAMIC FILTER	1
Q14	2SB1218A	TRANSISTOR(SI) (or 2SA1576R, 2SA1602F, 2SA1603R)	S 1	C1	ECQE2E224JZ	(CAPACITORS) 0.22	1
Q15	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 1	C2	PQCUV1H103KB	0.01	1
Q16	2SD1994A	TRANSISTOR(SI)	1	C3	ECEA1AU221	220	S 1
Q17	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 1	C4, 5	PQCUV1H103KB	0.01	2
Q18	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S 1	C6, 7	ECKD2H681KB	680P	2
Q19	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	C9	PQCUV1H102J	0.001	1
Q20	2SD1994A	TRANSISTOR(SI)	1	C10	PQCUV1H103KB	0.01	1
Q21	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	S 1	C11	PQCUV1C683MD	0.068	1
Q22	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	S 1	C12	ECEA1HKS100	10	1
Q23	2SC1740S	TRANSISTOR(SI)	1	C13	PQCUV1C683MD	0.068	1
Q24	2SC1652	TRANSISTOR(SI)	1	C14	PQCUV1H392KB	0.0039	1
Q25	2SC1652	TRANSISTOR(SI)	1	C15	PQCUV1H121JC	120P	1
Q26	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	S 1	C16	PQCUV1C683MD	0.068	1
Q27	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	S 1	C17	PQCUV1H392KB	0.0039	1
Q28	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	C18, 19	PQCUV1E333MD	0.033	2
Q29	2SD1994A	TRANSISTOR(SI)	1	C20	PQCUV1H470JC	47P	1
Q30	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S 1	C21	PQCUV1C683MD	0.068	1
Q31	2SD2136	TRANSISTOR(SI)	1	C22	ECEA1HKS4R7	4.7	1
D1	MA4150	(DIODES) DIODE(SI)	1	C23	PQCUV1H102J	0.001	1
D2	1SS131	DIODE(SI)	1	C24	PQCUV1H470JC	47P	1
D3	PQVDHZS2B1	DIODE(SI)	1	C25	PQCUV1H103KB	0.01	1
D4	PQVDHZS2B1	DIODE(SI)	1	C26	ECEA0JU102	1000	1
D8	1SS131	DIODE(SI)	1	C28	PQCUV1H103KB	0.01	1
D11	PQVDHZS2B1	DIODE(SI)	1	C29	PQCUV1E104MD	0.1	S 1
D14	1SS131	DIODE(SI)	1	C30	PQCUV1E104MD	0.1	1
D15	1SS131	DIODE(SI)	1	C31	ECEA1EU470	47	S 1
D16, 17	MA4056	DIODE(SI)	2	C32	ECEA1HKS4R7	4.7	1
D18	MA4068	DIODE(SI)	1				
D25, 26 ,28, 29	1SS131	DIODE(SI)	4				
D30	PQVDS1YB40F1	DIODE(SI)	1				



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Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Value	Pcs
C33	PQCUV1H272KB	0.0027	1	C111	ECEA0JKS220	22	1
C34	PQCUV1E104MD	0.1	S 1	C112	ECEA1HKS010	1	1
C35	ECEA1HKS010	1	1	C113	PQCUV1H103KB	0.01	1
C36	ECEA1HKS010	1	1	C114	ECEA1AU101	100	S 1
C37	PQCUV1E104MD	0.1	S 1	C115	ECHU1C682GA	0.0068	1
C38	PQCUV1E104MD	0.1	S 1	C116	ECQG1H682JZ	0.0068	S 1
C39	ECEA1CK5470	47	S 1	C117	PQCUV1H103KB	0.01	1
C40	ECEA1HKS2R2	2.2	1	C118	PQCUV1H331JC	330P	1
C41	PQCUV1H561JC	560P	1	C119	PQCUV1E104MD	0.1	1
C42	PQCUV1E333MD	0.033	1	C120	PQCUV1H103KB	0.01	1
C43	ECEA1HKSR22	0.22	1	C121	ECQG1H682JZ	0.0068	S 1
C44	PQCUV1H103KB	0.01	1	C122	ECEA1CK101	100	S 1
C45	PQCUV1H222KB	0.0022	1	C123	ECEA1HKSR22	0.22	1
C46	PQCUV1H221JC	220P	1	C124	PQCUV1H103KB	0.01	1
C47	PQCUV1C683MD	0.068	1	C125	PQCUV1H223KB	0.022	1
C48	ECEA1HKS010	1	1	C126	ECEA1AU221	220	S 1
C49	PQCUV1E333MD	0.033	1	C127	PQCUV1C683MD	0.068	1
C50	ECEA1CK101	100	1	C128	ECEA1AU101	100	S 1
C51	ECEA1CKS100	10	1	C130	ECEA1AU221	220	S 1
C52, 53, 54	PQCUV1H103KB	0.01	3	C131	ECEA1HKS4R7	4.7	1
C55	ECEA1AU101	100	S 1	C132	PQCUV1E333MD	0.033	1
C56	PQCUV1H153KB	0.015	1	C133	ECEA1EU101	100	S 1
C57	PQCUV1H472KB	0.0047	1	C135	PQCUV1H332KB	0.0033	1
C58	PQCUV1C683MD	0.068	1	C137	PQCUV1H103KB	0.01	1
C60	ECQE2E104KZ	0.1	1	C139	PQCUV1E104MD	0.1	1
C61	PQCUV1H472KB	0.0047	1	C140	ECEA1AU101	100	S 1
C62, 63	PQCUV1C683MD	0.068	2	C141	PQCUV1H103KB	0.01	1
C64	PQCUV1H562KB	0.0056	1	C142	ECEA1AU101	100	S 1
C65	ECEA1AU221	220	S 1	C143	PQCUV1H103KB	0.01	1
C66	PQCUV1E104MD	0.1	1	C144	PQCUV1H682KB	0.0068	1
C67	PQCUV1C683MD	0.068	1	C145	PQCUV1H103KB	0.01	1
C68	PQCUV1E333MD	0.033	1	C146	PQCUV1C683MD	0.068	1
C69	ECEA1HNR47S	0.47	1	C148, 149	PQCUV1H103KB	0.01	2
C70	PQCUV1H103KB	0.01	1	C151	PQCUV1H332KB	0.0033	1
C72	ECEA1EU101	100	S 1	C153	PQCUV1E104MD	0.1	1
C73	PQCUV1C683MD	0.068	1	C155	ECEA1CK101	100	1
C74	ECEA1CU221	220	1	C1000	ECUX1E223MB	0.022	1
C75	PQCUV1C683MD	0.068	1				
C76	ECEA1AU101	100	S 1				
C77	PQCUV1E104MD	0.1	1				
C79	ECEA1HKSR47	0.47	1				
C80, 81	PQCUV1H103KB	0.01	2	J12	PQ4R10XJ000	0	1
C82	ECEA1HKS010	1	1	J150, 151, 152	PQ4R18XJ000	0	3
C83	PQCUV1E333MD	0.033	1	J158	PQ4R10XJ000	0	1
C84, 85	PQCUV1H103KB	0.01	2	J171	PQ4R10XJ000	0	1
C86	PQCUV1H681JC	680P	1	J173	PQ4R10XJ000	0	1
C87	PQCUV1C683MD	0.068	1	J174	PQ4R10XJ000	0	1
C88	ECEA0JU331	330	1	J178	PQ4R10XJ000	0	1
C90	ECEA0JK221	220	1	J179	PQ4R10XJ000	0	1
C91	PQCUV1H103KB	0.01	1	J180	PQ4R10XJ000	0	1
C92	PQCUV1H391JC	390P	1	J181	PQ4R10XJ000	0	1
C93	ECEA1HKS010	1	1	J182	PQ4R18XJ000	0	1
C94	PQCUV1C683MD	0.068	1	J183	PQ4R10XJ000	0	1
C95	ECEA1AU101	100	S 1	J184	PQ4R10XJ000	0	1
C96	ECEA1HKSR22	0.22	1	J185	PQ4R10XJ000	0	1
C97	PQCUV1H223KB	0.022	1	J186	PQ4R10XJ000	0	1
C98	PQCUV1C683MD	0.068	1	J188	PQ4R10XJ000	0	1
C99	PQCUV1H103KB	0.01	1	J189	PQ4R10XJ000	0	1
C100	ECQG1H682JZ	0.0068	S 1	J190	PQ4R10XJ000	0	1
C102	ECEA1HKSR22	0.22	1	J191	PQ4R10XJ000	0	1
C104	PQCUV1H152KB	0.0015	1	J196	PQ4R10XJ000	0	1
C106	PQCUV1H103KB	0.01	1	J197	PQ4R10XJ000	0	1
C107	ECEA1HKS4R7	4.7	1	J200	PQ4R10XJ000	0	1
C108	PQCUV1E473MD	0.047	1	J202	PQ4R10XJ000	0	1
C109, 110	ECEA1CKS100	10	2	J203	PQ4R10XJ000	0	1

(RESISTORS)

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Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Value	Pcs
J204	PQ4R10XJ000	0	1	R48	PQ4R10XJ124	120K	1
J205	PQ4R10XJ000	0	1	R49	ERDS2TJ473	47K	1
J206	PQ4R10XJ000	0	1				
J207	PQ4R10XJ000	0	1	R50	PQ4R10XJ103	10K	1
J208	PQ4R10XJ000	0	1	R51	PQ4R10XJ822	8.2K	1
J209	PQ4R10XJ000	0	1	R52	PQ4R10XJ393	39K	1
				R53	PQ4R10XJ682	6.8K	1
J210	PQ4R10XJ000	0	1	R54	PQ4R10XJ103	10K	1
J212	PQ4R10XJ000	0	1	R55	PQ4R10XJ472	4.7K	1
J213	PQ4R10XJ000	0	1	R56	ERDS1TJ153	15K	1
J214	PQ4R10XJ000	0	1	R57	PQ4R10XJ103	10K	1
J215	PQ4R10XJ000	0	1	R58	PQ4R10XJ000	0	1
J217	PQ4R18XJ000	0	1	R59	PQ4R10XJ473	47K	1
J218	PQ4R10XJ000	0	1				
				R60	PQ4R10XJ101	100	1
J234	PQ4R10XJ000	0	1	R61	PQ4R10XJ100	10	1
J235	PQ4R10XJ000	0	1	R62	PQ4R18XJ103	10K	1
J236	PQ4R10XJ000	0	1	R63	PQ4R10XJ222	2.2K	1
				R64	PQ4R10XJ222	2.2K	1
J274	PQ4R10XJ000	0	1	R65	PQ4R10XJ222	2.2K	1
J275	PQ4R10XJ000	0	1	R66	PQ4R10XJ564	560K	1
J276	PQ4R10XJ000	0	1	R67	PQ4R10XJ105	1M	1
J278	PQ4R10XJ000	0	1	R68	PQ4R10XJ682	6.8K	1
				R69	PQ4R10XJ335	3.3M	1
J280	PQ4R10XJ000	0	1				
R1	ERD25TJ473	47K	1	R70	PQ4R10XJ185	1.8M	1
R2	ERDS2TJ101	100	1	R71	PQ4R10XJ474	470K	1
R3	PQ4R10XJ152	1.5K	1	R72	PQ4R10XJ683	68K	1
R4	PQ4R10XJ152	1.5K	1	R73	PQ4R10XJ104	100K	1
R5	PQ4R10XJ153	15K	1	R74	PQ4R10XJ475	4.7M	1
R6	PQ4R10XJ153	15K	1	R75	PQ4R18XJ122	1.2K	1
R7	PQ4R18XJ473	47K	1	R76	PQ4R10XJ183	18K	1
R8	PQ4R10XJ153	15K	1	R77	PQ4R10XJ473	47K	1
R9	PQ4R10XJ104	100K	1	R78	PQ4R10XJ103	10K	1
				R79	PQ4R10XJ222	2.2K	1
R10	ERDS2TJ472	4.7K	1				
R11	PQ4R10XJ153	15K	1	R80	PQ4R18XJ124	120K	1
R12	PQ4R10XJ564	560K	1	R83	PQ4R10XJ223	22K	1
R13	PQ4R10XJ102	1K	1	R85	ERD25TJ223	22K	1
R14	PQ4R10XJ105	1M	1	R86	PQ4R10XJ681	680	1
R15	PQ4R10XJ275	2.7M	1	R87	PQ4R10XJ103	10K	1
R16	PQ4R10XJ103	10K	1	R88	PQ4R10XJ184	180K	1
R17	PQ4R10XJ472	4.7K	1	R89	PQ4R10XJ393	39K	1
R18	PQ4R18XJ562	5.6K	1				
R19	ERD25TJ564	560K	1	R90	PQ4R10XJ272	2.7K	1
				R91	PQ4R10XJ222	2.2K	1
R20	PQ4R10XJ271	270	1	R92	PQ4R10XJ103	10K	1
R21	ERDS2TJ182	1.8K	1	R93	PQ4R10XJ103	10K	1
R22	PQ4R10XJ104	100K	1	R94	ERDS2TJ391	390	1
R23, 24, 25	PQ4R10XJ473	47K	3	R95	PQ4R10XJ103	10K	1
R26	ER016CKF5360	536	1	R96	PQ4R10XJ682	6.8K	1
R27	PQ4R10XJ102	1K	1	R97	ERDS1TJ330	33	1
R28	PQ4R10XJ272	2.7K	1	R98	PQ4R10XJ563	56K	1
R29	PQ4R10XJ102	1K	1	R99	PQ4R10XJ225	2.2M	1
R30	PQ4R18XJ4R7	4.7	1	R100	PQ4R18XJ154	150K	1
R31	PQ4R10XJ104	100K	1	R101	PQ4R10XJ223	22K	1
R32	ER016CKF2201	2.2K	1	R102	ERDS2TJ5R6	5.6	1
R33	PQ4R10XJ154	150K	1	R103	ERDS2TJ333	33K	1
R34, 35	PQ4R10XJ104	100K	2	R104, 105	PQ4R10XJ103	10K	2
R36	ER016CKF2201	2.2K	1	R106	PQ4R10XJ472	4.7K	1
R37	ER016CKF6190	619	1	R107	PQ4R10XJ681	680	1
R38	ERDS2TJ104	100K	1	R108	ERDS2TJ120	12	1
R39	PQ4R10XJ334	330K	1	R109	ERD25TJ103	10K	1
R40	PQ4R10XJ223	22K	1	R110	PQ4R10XJ221	220	1
R41	PQ4R10XJ683	68K	1	R111, 112	PQ4R10XJ473	47K	2
R42	PQ4R10XJ104	100K	1	R113, 114	PQ4R10XJ471	470	2
R43	PQ4R10XJ392	3.9K	1	R115	PQ4R10XJ473	47K	1
R44	PQ4R10XJ684	680K	1	R116	PQ4R10XJ151	150	1
R45	PQ4R10XJ273	27K	1	R117	PQ4R10XJ221	220	1
R46	PQ4R10XJ683	68K	1	R118	PQ4R10XJ102	1K	1
R47	PQ4R10XJ682	6.8K	1	R119	PQ4R10XJ103	10K	1

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Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
R121	PQ4R10XJ122	1.2K	1	R199	PQ4R10XJ155	1.5M	1
R122	PQ4R10XJ681	680	1	R200	PQ4R10XJ104	100K	1
R123	PQ4R10XJ394	390K	1	R202	ERDS2TJ473	47K	1
R124	PQ4R10XJ563	56K	1	R203	PQ4R10XJ103	10K	1
R125	PQ4R10XJ221	220	1	R204	PQ4R10XJ103	10K	1
R126	PQ4R10XJ183	18K	1	R205	PQ4R10XJ103	10K	1
R127	PQ4R10XJ121	120	1	R206	PQ4R10XJ153	15K	1
R128	PQ4R10XJ334	330K	1			(SPACER, CONNECTORS & JACKS)	
R129	PQ4R10XJ222	2.2K	1	E1	PQHR9451Y	SPACER, HOOK SWITCH	1
R130	PQ4R10XJ224	220K	1	CN1	PQJS11A10Z	CONNECTOR, 11P	1
R131	PQ4R10XJ104	100K	1	CN2	PQJS11A10Z	CONNECTOR, 11P	1
R132	PQ4R10XJ563	56K	1	CN3	PQJP11A17Z	CONNECTOR, 11P	1
R133	PQ4R10XJ563	56K	1	CN4	PQJS11A10Z	CONNECTOR, 11P	1
R134	PQ4R10XJ822	8.2K	1	CN5	PQJJ2TAA2Z	JACK, TEL.	1
R135	PQ4R10XJ104	100K	1	CN6, 7	PQJP02G100Z	CONNECTOR, 2P	2
R136	PQ4R10XJ682	6.8K	1	CN8	PQJJ1TB18Z	JACK, HANDSET	1
R137	PQ4R10XJ105	1M	1	CN9	PQJP09A18Z	CONNECTOR, 9P	1
R138	PQ4R10XJ2R2	2.2	1			OPERATION BOARD PARTS	
R139	PQ4R10XJ103	10K	1	PCB3	PQLP10005M	OPERATION BOARD ASS'Y (RTL)	1
R140	PQ4R10XJ103	10K	1			(IC)	
R141	PQ4R10XJ102	1K	1	IC1	PQVI4814A03F	IC	1
R142	PQ4R10XJ103	10K	1			(DIODES)	
R143	ERD25TJ103	10K	1	D1, 2	MA700A	DIODE(SI)	2
R144	PQ4R10XJ473	47K	1	D3	1SS131	DIODE(SI) (or 1SS120)	1
R145	ERDS2TJ330	33	1	D4	1SS131	DIODE(SI) (or 1SS120)	1
R146	PQ4R10XJ473	47K	1	D5	1SS131	DIODE(SI) (or 1SS120)	1
R147	PQ4R10XJ273	27K	1	D6	1SS131	DIODE(SI) (or 1SS120)	1
R148	PQ4R10XJ000	0	1	D7	1SS131	DIODE(SI) (or 1SS120)	1
R150	PQ4R10XJ392	3.9K	1	D8	1SS131	DIODE(SI) (or 1SS120)	1
R151	PQ4R10XJ562	5.6K	1	D9	1SS131	DIODE(SI) (or 1SS120)	1
R152	PQ4R10XJ152	1.5K	1	D11, 12	1SS131	DIODE(SI) (or 1SS120)	2
R153	ERDS2TJ6R8	6.8	1	LED0, 1	LN242RP	LED	S 2
R154	PQ4R10XJ474	470K	1	LED2	PQVDSLZ181B1	LED	1
R155	ER016KF10641	0.64K	1	LED3	PQVDSLZ281B1	LED	1
R156	ER016KF21281	1.28K	1	LED4	PQVDSLZ181B1	LED	1
R157	PQ4R10XJ224	220K	1	LED5	PQVDSLZ281B1	LED	1
R158	PQ4R10XJ472	4.7K	1	LED6	LN342GPX	LED	S 1
R159	PQ4R10XJ684	680K	1	LED7	LN342GPX	LED	S 1
R160	PQ4R10XJ222	2.2K	1	LED8	LN342GPX	LED	S 1
R161	PQ4R10XJ152	1.5K	1	LED9	LN342GPX	LED	S 1
R162	PQ4R10XJ393	39K	1	LED10	LN342GPX	LED	S 1
R163	ER016KF21281	1.28K	1	LED11	LN342GPX	LED	S 1
R165	PQ4R10XJ102	1K	1	LED12	LN342GPX	LED	S 1
R166	ERDS1TJ330	33	1	LED13	LN342GPX	LED	S 1
R167	PQ4R10XJ472	4.7K	1	LED14	LN342GPX	LED	S 1
R168	PQ4R10XJ104	100K	1	LED15	LN342GPX	LED	S 1
R169	PQ4R10XJ272	2.7K	1			(LCD)	
R170	PQ4R10XJ103	10K	1	LCD1	PQADCG945TSC	LIQUID CRYSTAL DISPLAY	1
R171	PQ4R10XJ473	47K	1			(PHOTO ELECTRIC TRANSDUCERS)	
R172	PQ4R10XJ101	100	1	PS1, 2	PQVISGKP01	SENSOR	2
R173	PQ4R10XJ224	220K	1			(SWITCHES)	
R174	PQ4R10XJ473	47K	1	S00-03	PQSH1A43Z	SWITCH	4
R175	PQ4R10XJ564	560K	1	S04-07	EVQ22405K	SWITCH	4
R176	PQ4R10XJ105	1M	1	S10-13	PQSH1A43Z	SWITCH	4
R177	PQ4R18XJ473	47K	1	S14-17	EVQ22405K	SWITCH	4
R178, 179, 180	PQ4R10XJ104	100K	3	S20-23	PQSH1A43Z	SWITCH	4
R181	PQ4R10XJ123	12K	1	S24-27	EVQ22405K	SWITCH	4
R183	PQ4R10XJ184	180K	1	S30-37	EVQ22405K	SWITCH	8
R184	PQ4R10XJ124	120K	1	S40-47	EVQ22405K	SWITCH	8
R186, 187	PQ4R10XJ103	10K	2	S50-57	EVQ22405K	SWITCH	8
R188	PQ4R10XJ221	220	1	S64	EVQ22405K	SWITCH	1
R189	PQ4R10XJ273	27K	1				
R190	PQ4R10XJ123	12K	1				
R191	PQ4R10XJ153	15K	1				
R192	ERDS1TJ330	33	1				
R193	PQ4R10XJ683	68K	1				
R194	PQ4R10XJ153	15K	1				

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Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
X1	PQVBB800J1	(FILTER & CRYSTAL OSCILLATOR)	1	D101	PQVDS1VBA60	(DIODES)	1
X2	PQVCL3276N6Z	CERAMIC FILTER	1	D102	MA165	DIODE(SI)	1
		CRYSTAL OSCILLATOR		D103	PQVDAL01Z	DIODE(SI)	1
		(CAPACITORS)		D201	MA649	DIODE(SI)	1
C2	ECEA1CK101	100	S 1	D205	MA165	DIODE(SI)	1
C3	PQCUV1E104MD	0.1	1	D211	MA165	DIODE(SI)	1
C4	PQCUV1E104MD	0.1	1	D221	PQVDAL01Z	DIODE(SI)	1
C5	PQCUV1H221JC	220P	1	D222	PQVDAL01Z	DIODE(SI)	1
C6	PQCUV1H221JC	220P	1	D223	PQVDERA81004	DIODE(SI)	1
C7, 8	PQCUV1H220JC	22P	2	ZD101	MA4068	DIODE(SI)	1
C9	PQCUV1E104MD	0.1	1	ZD201	MA4062	DIODE(SI)	1
C10	PQCUV1E104MD	0.1	1	ZD221	MA4051	DIODE(SI)	1
C11	PQCUV1H102J	0.001	1			(FUSE)	
C100	PQCUV1H472KB	0.0047	1	F101	PQBA1C50NBKL	FUSE	△ 1
C102	PQCBC1H102J	0.001	1			(RELAY)	
		(RESISTORS)		K201	PQSL138Z	RELAY	1
R1	PQ4R18XJ222	2.2K	1			(COILS & FILTER)	
R2	PQ4R10XJ101	100	1	L101, 102	ELF18D290	CHOKO COIL	2
R3	PQ4R10XJ103	10K	1	L103	EXCELD35	BEAD INDUCTOR	1
R4	PQ4R10XJ331	330	1	L221	ELEV1R0KA	CHOKO COIL	1
R5	PQ4R18XJ331	330	1			(PRINTED CIRCUIT BOARD)	
R6, 7	PQ4R18XJ223	22K	2	MC101	ML32E1	MODULE	1
R8, 9	PQ4R10XJ223	22K	2			(PHOTO ELECTRIC TRANSDUCER)	
R10	PQ4R10XJ331	330	1	PC101	PQVIPC817K	PHOTO COUPLER	△ 1
R11	PQ4R18XJ331	330	1			(THERMISTOR)	
R12-17	PQ4R10XJ331	330	6	TH101	TD4SFL8R0P	THERMISTOR	1
R18	PQ4R18XJ331	330	1			(TRANSFORMERS)	
R19	PQ4R10XJ105	1M	1	T101	ETB28KA802	TRANSFORMER	△ 1
R20	PQ4R10XJ222	2.2K	1	T201	ETB19KA15	TRANSFORMER	△ 1
R21	PQ4R10XJ102	1K	1			(VARIABLE RESISTOR)	
R22	PQ4R18XJ102	1K	1	VR101	TEASA01B54	SEMI-FIXED, 50KΩ(B)	1
R23	PQ4R10XJ102	1K	1			(VARISTORS)	
R24	PQ4R10XJ223	22K	1	Z101	ERZTV5Z271	VARISTOR	1
		(GUIDE, BATTERY & CONNECTORS)		Z102	ERZC10DK911U	VARISTOR	1
E10	PQHR10058Z	GUIDE, LCD	1	Z103	ERZC10DK751U	VARISTOR	1
BAT1	CR23541GUF	PRIMARY BATTERY	S 1	Z104	ERZC10DK751U	VARISTOR	1
CN1	PQJP10G90Z	CONNECTOR, 10P	1			(CAPACITORS)	
CN2	PQJP08G90Z	CONNECTOR, 8P	1	C101	ECQU2A224MN	0.22	1
				C102, 103	ECKRNS221MB	220P	2
				C107, 108	ECKRNS222ME	0.0022	2
				C109	EC0S2DA331BA	330	1
				C111	ECEA1VFS220	22	1
				C112	ECKD3A221KBN	220P	1
				C202	ECA1VFZ181	180P	1
				C203	ECQB1H182KF	0.0018	1
				C212	ECQB1H103JF	0.01	1
				C213	ECQB1H272JF	0.0027	1
				C221	ECEA1VFS220	22	1
				C222	ECEA1VFS220	22	1
				C223	ECA1AFZ221	220P	1
				C224	ECEA1AGE220	22	1
SWITCHING POWER SUPPLY BOARD PARTS							
PCB4	ETXA07D8A	POWER SUPPLY BOARD ASS'Y (RTL)	△ 1				
		(TRANSISTORS)					
Q101	2SK1102	TRANSISTOR(SI)	1				
		(or 2SK1567, 2SK1805, 2SK1982)	S				
Q201, 202	2SC3311	TRANSISTOR(SI) (or 2SC4640)	S 2				
Q211	2SK1060	TRANSISTOR(SI)	1				
		(or 2SK1299, 2SK1804)	S				
Q212	2SC1318	TRANSISTOR(SI) (or 2SC2274)	S 1				
Q221, 222	2SA1309	TRANSISTOR(SI) (or 2SA1782)	S 2				

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Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
				RECORDING PAPER SENSOR BOARD PARTS			
R101	ERDS1TJ474	(RESISTORS) 470K	1	PCB6	PQLP10009M	RECORDING PAPER SENSOR BOARD PARTS ASS'Y (RTL)	1
R102, 103, 104	ERDS1TJ183	18K	3	PC501	PQVIPS4506	(PHOTO ELECTRIC TRANSDUCER) SENSOR	S 1
R105	ERDS2TJ333	33K	1	R501	ERDS2TJ331	(RESISTOR) 330	1
R106	ERDS2TJ152	1.5K	1	CN501	PQJS03R68Y	(CONNECTOR) CONNECTOR, 3P	1
R107	ERDS2TJ331	330	1	FIXTURES AND TOOL			
R108	ERG12SJU270	27	1	EC1	PQZZ2K12Z	EXTENSION CORD, 2P	3
R109	ERDS2TJ562	5.6K	1	EC2	PQZZ2K13Z	EXTENSION CORD, 2P	1
R111	ERG1SJU100	10	1	EC3	PQZZ3K12Z	EXTENSION CORD, 3P	1
R112	ERDS1TJ180	18	1	EC4	PQZZ5K6Z	EXTENSION CORD, 5P	2
R201	ERDS1TJ222	2.2K	1	EC5	PQZZ6K14Z	EXTENSION CORD, 6P	1
R203	ERDS2TJ122	1.2K	1	EC6	PQZZ8K15Z	EXTENSION CORD, 8P	2
R204	ERDS2TJ562	5.6K	1	EC7	PQZZ9K7Z	EXTENSION CORD, 9P	1
R206	ER0S2TKF3321	3.32K	1	EC8	PQJS9K2Y	EXTENSION CORD, 9P	1
R207	ER0S2TKF3600	360	1	EC9	PQZZ10K8Z	EXTENSION CORD, 10P	1
R209	ER0S2TKF8451	8.45K	1	EC10	PQJS11K3Z	EXTENSION CORD, 11P	1
R211	ERDS2TJ223	22K	1	EC11	PQZZ11K8Z	EXTENSION CORD, 11P	3
R212	ERDS1TJ820	82	1	Notes: 1. CCD Tool, Test Tape and Extension Cords (Ref. No. EC1, EC2, EC5, EC6, EC10) are necessities for servicing. 2. Extension Cords (Ref. No. EC3, EC4, EC7, EC8, EC9, EC11) are useful for servicing. (They make servicing easy.)			
R213	ERDS2TJ182	1.8K	1				
R214	ERDS2TJ272	2.7K	1	CT	PQZZF150M	CCD TOOL	1
R215, 216	ERDS2TJ332	3.3K	2				
R221	ERG1SJU681	680	1				
R223	ERDS2TJ152	1.5K	1				
R224	ERDS2TJ102	1K	1				
R225	ERDS1TJ151	150	1				
R226	ERX12SJUR56	0.56	1				
CN31	PQJP2D98Z	(CONNECTORS) CONNECTOR, 3P	1				
CN301	PQJP6G100Z	CONNECTOR, 6P	1				
CN302	PQJS11X41Z	CONNECTOR, 11P	1				
CCD BOARD PARTS							
PCB5	PQWPF150M	CCD BOARD ASS'Y (RTL)	1				
IC2	PQWPF150M	(IC) IC (SUPPLIED BY CCD BOARD ASS'Y)	1				
Q401, 402	2SD1819A	(TRANSISTORS) TRANSISTOR(SI) (or 2SC4155R)	S 2				
VR401	EVNDXAA03B14	(VARIABLE RESISTOR) SEMI-FIXED, 10KΩ(B)	1				
C401	ECA1CFQ331B	(CAPACITORS) 330	1				
C403, 404, 405	PQCUV1E104MD	0.1	3				
C406	ECEA1CKS100	10	1				
J401-405	PQ4R18XJ000	(RESISTORS) 0	5				
R401, 402	PQ4R10XJ101	100	2				
R403	PQ4R10XJ331	330	1				
R404	PQ4R10XJ101	100	1				
R406	PQ4R10XJ470	47	1				
R407	PQ4R10XJ183	18K	1				
R408, 409	PQ4R10XJ272	2.7K	2				
R410	PQ4R10XJ331	330	1				
R411	PQ4R10XJ221	220	1				
R412	PQ4R10XJ152	1.5K	1				
R415	PQ4R10XJ180	18	1				
CN401	PQJS08R65Y	(CONNECTOR) CONNECTOR, 8P	1				