

SERVICE MANUAL

*THE KORG PROFESSIONAL
PERFORMANCE SERIES*

T-SERIES

T1 T2 T3

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KORG

1. SPECIFICATIONS

- 1) No. of VOICES : 16 voices / 16 oscillators at Single mode
8 voices / 16 oscillators at Double mode
- 2) KEYBOARD : 88 key for T1 / Type ME
(with initial & after touch capabilities)
76 key for T2 / Type FS
(with initial & after touch capabilities)
61 key for T3 / Type FS
(with initial & after touch capabilities)
- 3) TONE GENERATOR : OC (optimized covolution) system
by KORG exclusive LSI (MB87402, MB87403A)
- 4) WAVEFORMS : 190 waveforms by Sampling & DWGS and 85 waveforms
for SOUND SOURCE from DRUM & PERCUSSIONS
Those are contained in 16x4Mbit MASK ROMs
(64Mbit totally).
Further extensible to use sound data from the DSM-1
and other models for MIDI sample dump standards.
when equipped with optional RAMs
(using 512Kward x 16bit as the RAM area.)
- 5) QUANTIZATION : 16bit
- 6) SAMPLING FREQUENCY : 31.25 KHz
- 7) No. of PROGRAMS : 200 (BANK SW. 100 / A + 100 / B)
- 8) No. of COMBINATIONS : 100
- 9) SEQUENCER CAPACITY : Approx. 50000 notes, 20 songs / 200 patterns.
8 track, 8 Multi timbers
(dynamic voice allocation)
- 10) CARD SLOTS : #1 for PROG / SEQ DATA CARD
#2 for PCM DATA CARD
- 11) INPUT TERMINALS : Damper pedal, Assignable pedals 1 & 2
- 12) OUTPUT TERMINALS : 1/L & 2/R (Output impedance less than 10K ohms,
Remaining noise less than -80dBm/JIS-A)
3, 4 (Output impedance less than 1K ohms,
Remaining noise less than -80dBm/JIS-A)
Phones (Output impedance 100 ohms / STEREO)
- 13) MIDI TERMINALS : IN, THRU, OUT A1 & 2, OUT B1 & 2
- 14) DISPLAY : LCD with 240 x 64 full dot matrix

- 15) FLOPPY DISK DRIVE : Acceptable for a 3.5 inch dia 2HD disk, provided with the following formatting :
-Normal formatting
4 files / disk. 1 file contains 200 PROGs, 100 COMBIs, 64K byte Exclusive data and 50000 note SEQ data.
-PCM formatting
1 file / disk. 1 file contains 200 PROGs, 100 COMBIs, 64K byte Exclusive data, 5000 note SEQ data and 512K word (1MB) PCM data.
- 16) DIMENSIONS : 1475 x 507 x 117.5mm (T1)
1268 x 355 x 111.5mm (T2)
1058 x 355 x 111.5mm (T3)
- 17) WEIGHT : 35kg (T1), 15.5kg (T2), 13.0kg (T3)
- 18) POWER CONSUMPTION : 15W

ADVARSEL!

Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, og som beskrevet i service manualen. Batteriet må kun udskiftes med batterier af samme fabrikat og type.

Litiumparisto!

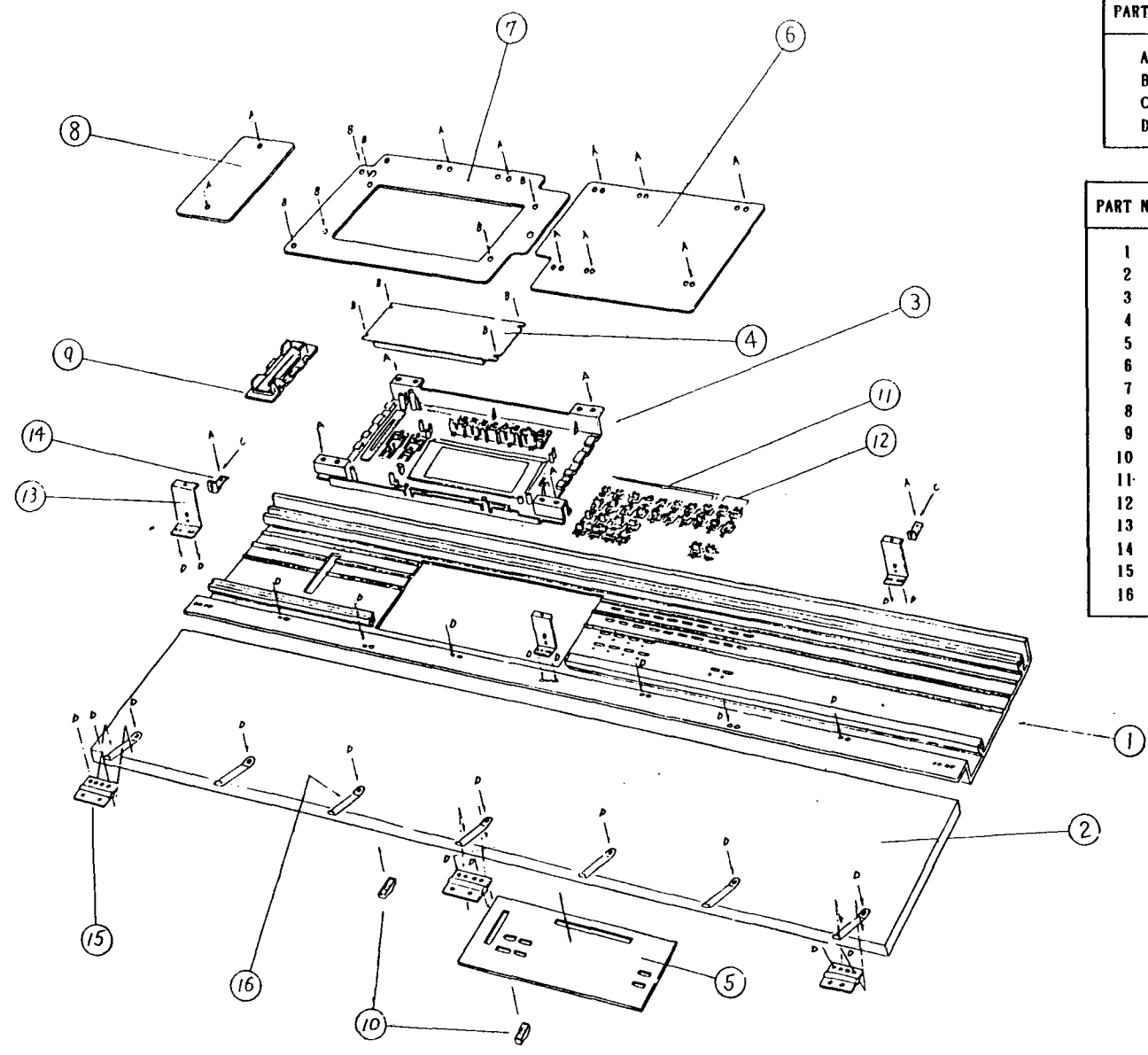
Pariston saa vaihtaa ainoastaan huoltohenkilöstö saman valmistajan vastaavalla tyypöllä. Virheellisestä käsittelystä syntyy räjähdysvaara.

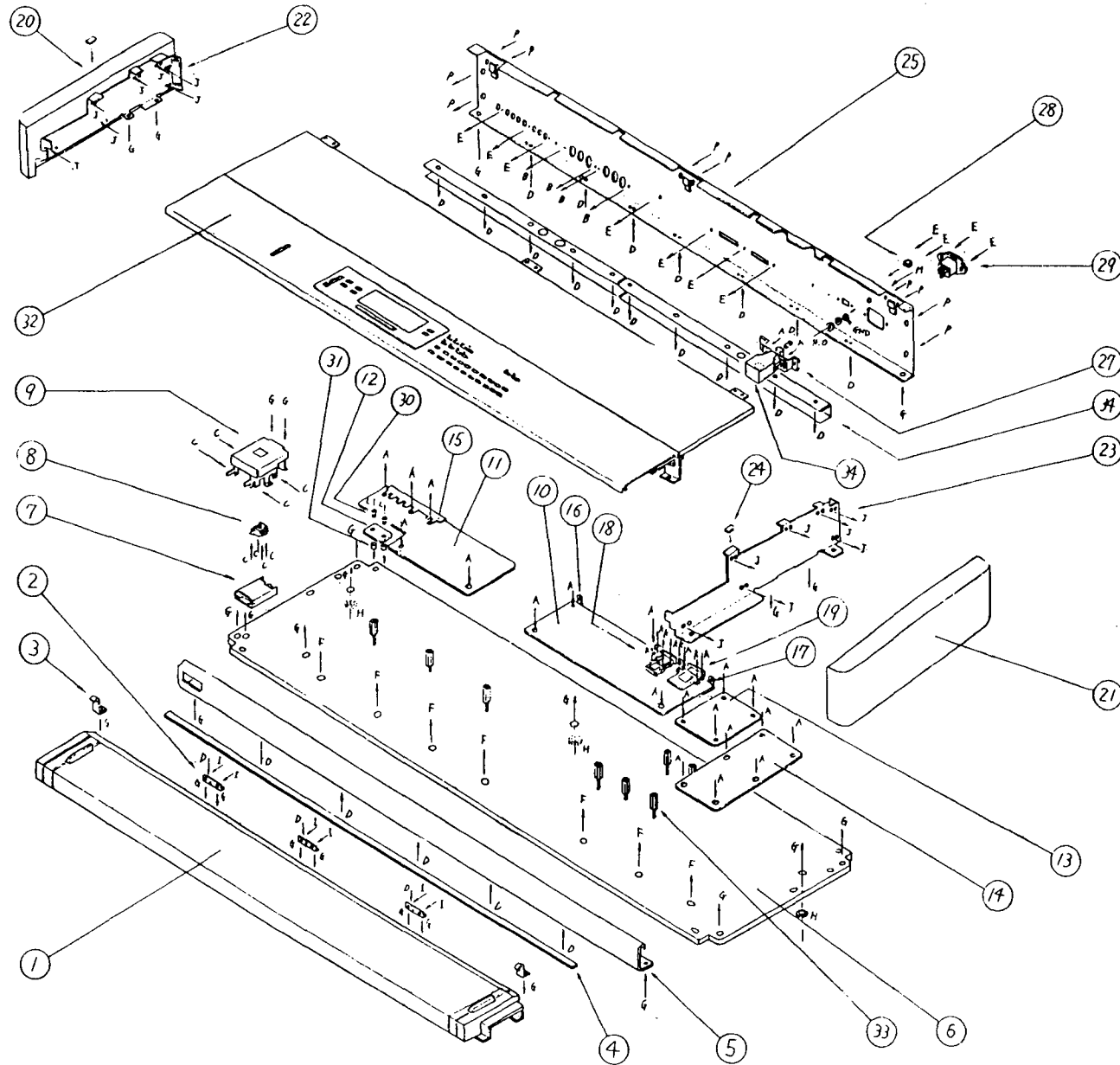
FOR T1

2. STRUCTURAL DIAGRAM

PART NO.	SCREWS	Q' TY
A	CT B ZNC 3x8	16
B	PLAX B BZNC 3x8	10
C	CT B ZNC 3x6	2
D	TPI B BZNC 3x10	25

PART NO.	PART NAME	PART CODE
1	FRONT PANEL	641008600
2	TOP PANEL	645012500
3	LCD HOOD	646033600
4	LCD	313002100
5	LCD WINDOW	630011000
6	P. C. BOARD KLM-1377	001137700
7	P. C. BOARD KLM-1378	001137700
8	P. C. BOARD KLM-1379	001137700
9	SLIDE VR FRAME	646028200
10	SLIDE VR KNOB	620019700
11	SW. KNOB NO. 4	620020203
12	SW. KNOB NO. 2	620020201
13	PANEL SUPPORT 1	641009500
14	PANEL SUPPORT 2	641009600
15	HINGE 1	641001100
16	GND SPRING (A)	640084900



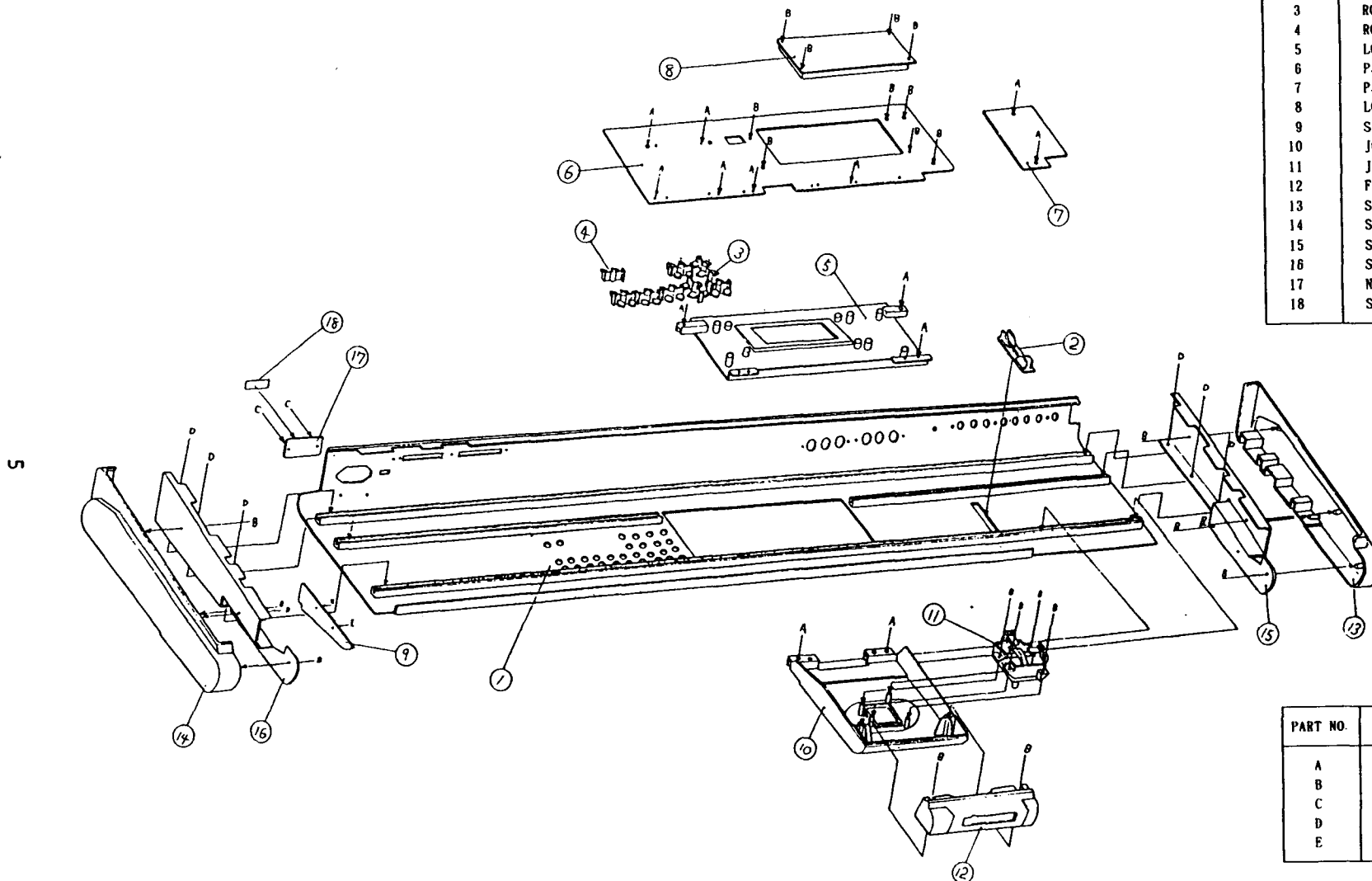


PART NO.	SCREWS, NUT & WASHER	Q'TY
A	CT B ZNC 3x8	23
B	PLAX B BZNC 3x8	4
C	CT B ZNC 3x6	8
D	TP1 B BZNC 3x10	25
E	CT B BZNC 3x8	11
F	FE WSE1 BZNC 5x20	7
G	FE FEW BZNC 4x16	24
H	WASHER (t:0.8)	3
I	TP2G B ZNC 4x8	6
J	TP1 B BZNC 3x16	14
K	PLAX B BZNC 3x10	6
L	TP1 B ZNC 3x22	2
M	CT B BZNC 4x10	1
N	FHN ZNC 4	1
O	TWU ZNC 4	1
P	TP2G FEW BZNC 3x8	10

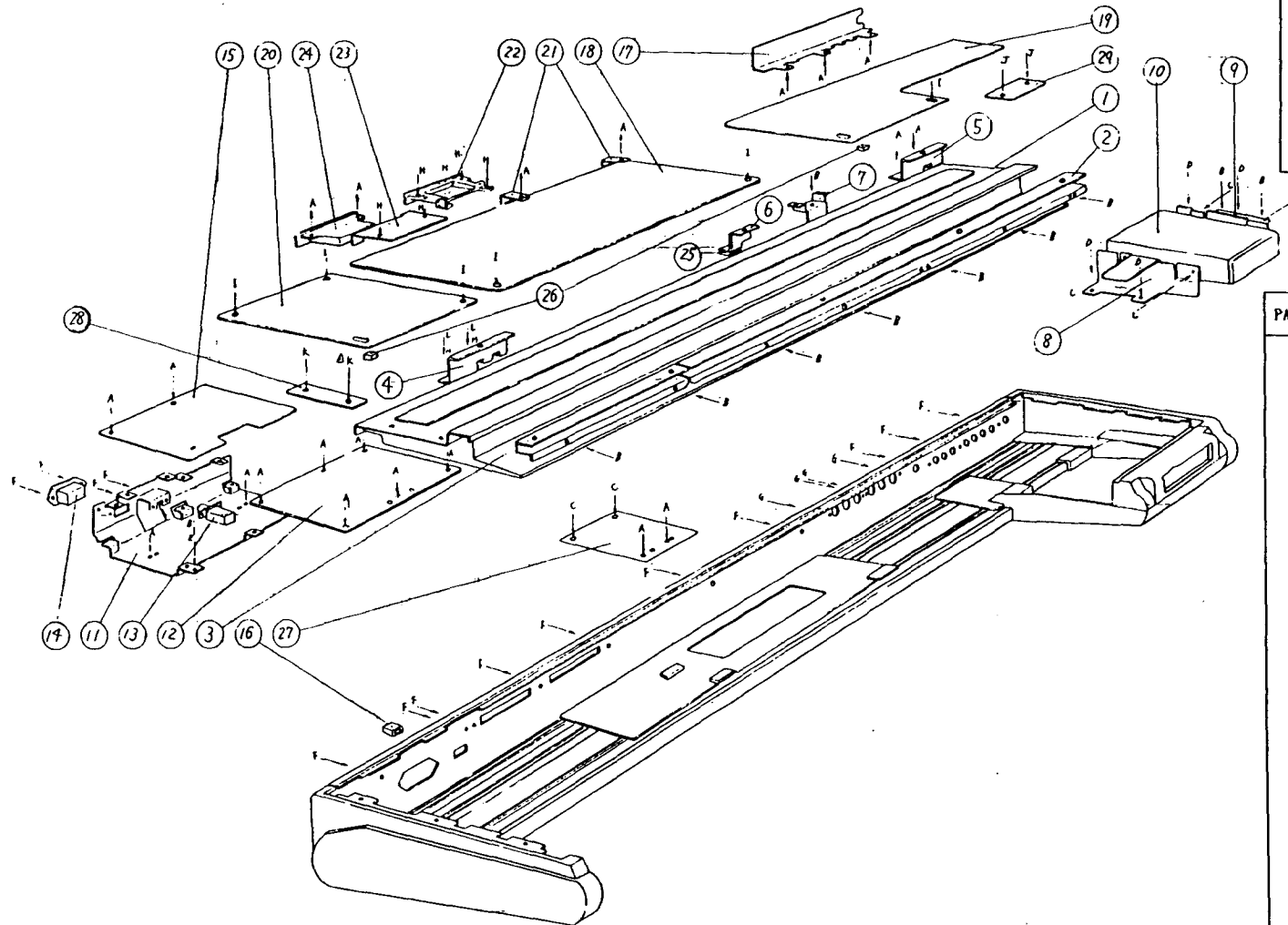
PART NO	PART NAME	PART CODE
1	KEYBOARD	420003300
2	KEYBOARD ANGLE	640079000
3	METAL FITTING OF KEYBOARD	640080200
4	CUSHION FOR KEYBOARD	550013000
5	BAR	630011200
6	BOTTOM PLATE	645012700
7	FDD	435000600
8	JOYSTICK ASSY.	
9	JOYSTICK PANEL	641008800
10	P. C. BOARD KLM-1370	001137001
11	P. C. BOARD KLM-1373	001137300
12	P. C. BOARD KLM-1380	001137700
13	P. C. BOARD KLM-1385	001138500
14	POWER SUPPLY BOARD	
15	JACK PLATE	641007800
16	ANGLE TYPE L	641008100
17	CARD ANGLE	640092000
18	CARD GUIDE	640088500
19	PCM CARD SLOT	646028300
20	SIDE PANEL L	645012600
21	SIDE PANEL R	645012601
22	SIDE CHASSIS L	641009000
23	SIDE CHASSIS R	641009001
24	SIDE PANEL CUSHION	500012000
25	REAR PANEL	641008700
26	POWER SW.	375006100
27	METAL FITTING OF POWER SW.	641009100
28	POWER SW KNOB	620021600
29	INLET SOCKET	
30	BUSHING TB-300	
31	BUSHING TA-305	
32	PANEL ASSY.	
33	STUD FOR P. C. BOARD	640076100
34	SHIELD SHEET A	630012300

FOR T2

PART NO.	PART NAME	PART CODE
1	PANEL	641010300
2	SLIDE VR FRAME	646028200
3	ROUND KNOB NO. 1 GS	620018901
4	ROUND KNOB NO. 3 GS	620019800
5	LCD HOOD	646033600
6	P. C. BOARD KLM-1371	001137100
7	P. C. BOARD KLM-1372	001137100
8	LCD	313002100
9	SIDE PLATE	646034000
10	JOYSTICK PANEL	646028600
11	JOYSTICK ASSY.	
12	FDD COVER	646033700
13	SIDE PANEL L	646028400
14	SIDE PANEL R	646028401
15	SIDE CHASSIS L	640091600
16	SIDE CHASSIS R	640091601
17	NAME PLATE	
18	SERIAL NO.	

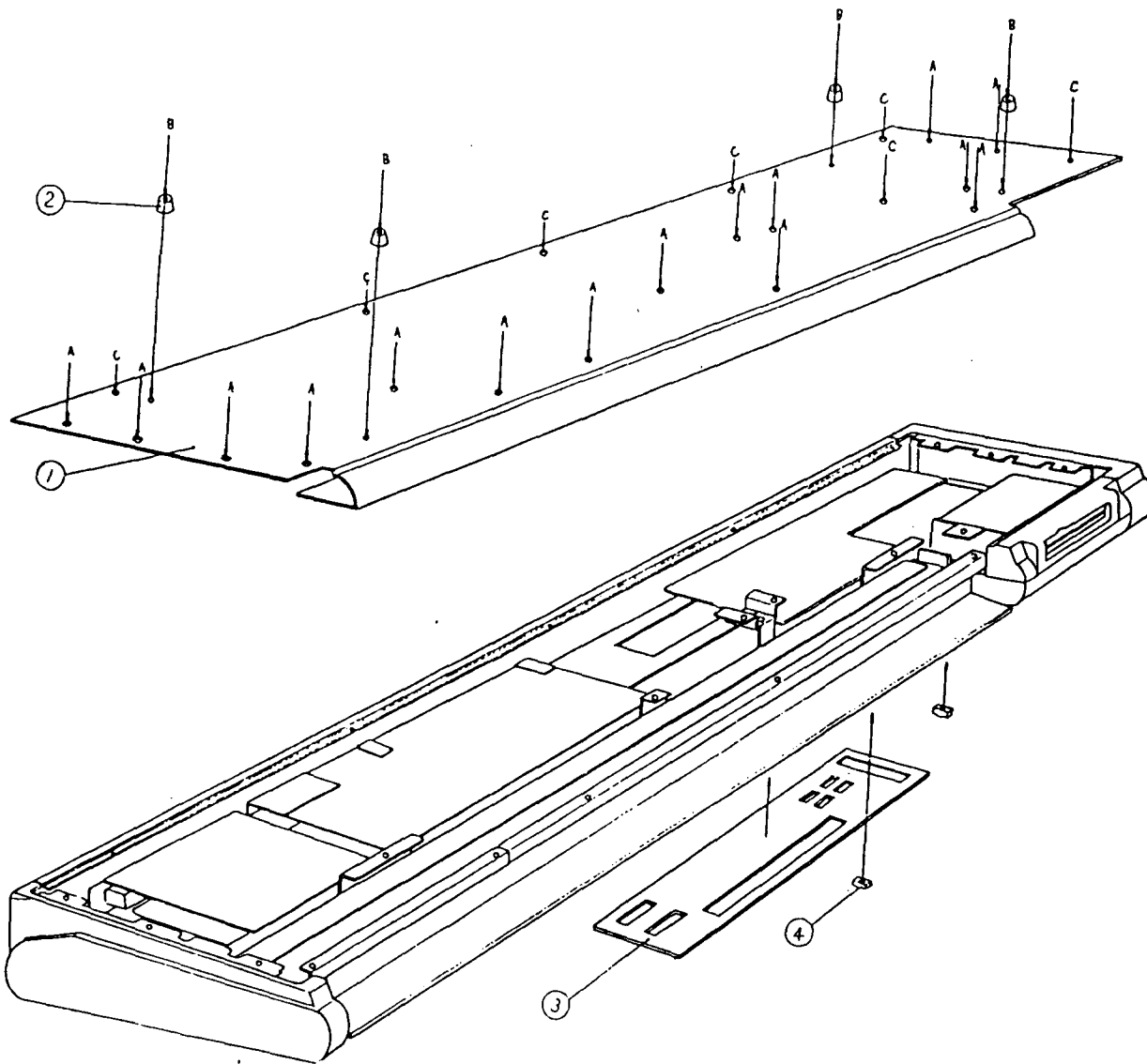


PART NO.	SCREWS	Q' TY
A	CT B ZMC 3x8	13
B	PLAX B BZMC 3x8	28
C	CT B BZMC 3x8	2
D	CT B ZMC 3x10	6
E	TS F BZMC 3x6	2



PART NO	SCREWS	Q' TY
A	CT B ZNC 3x8	21
B	CT B ZNC 4x10	11
C	CT B ZNC 3x6	6
D	TP2G B ZNC 4x20	4
E	TWU ZNC 4	1
F	CT B BZMC 3x8	13
G	PLAX B BZMC 3x8	4
H	PLAX B BZMC 3x10	6
I	TS FEW ZNC 3x6	6
J	TS B BZMC 3x12	2
K	TS SSE BZMC 4x10	1
L	TS B ZNC 3x4	2
M	WM ZNC 3	2

PART NO.	PART NAME	PART CODE
1	KEYBOARD	420004300
2	KEYBOARD FRONT ANGLE	641008300
3	KEYBOARD FRONT ANGLE 2	641009900
4	KEYBOARD REAR ANGLE A	641010000
5	KEYBOARD REAR ANGLE B	641010100
6	KEYBOARD REAR ANGLE C	641010200
7	KEYBOARD REAR SUPPORT	641009800
8	FDD ANGLE L	641008400
9	FDD ANGLE R	641008500
10	FDD	435000600
11	PU CHASSIS	641007700
12	POWER SUPPLY BOARD	
13	POWER SW.	375006100
14	INLET SOCKET	
15	ISOLATION COVER NO. 2	630011700
16	POWER SW. KNOB	620021600
17	JACK PLATE	641007800
18	P. C. BOARD KLM-1370	001137002
19	P. C. BOARD KLM-1373	001137300
20	P. C. BOARD KLM-1385	001138500
21	ANGLE TYPE L	641008100
22	CARD GUIDE	640088500
23	CARD ANGLE	640092000
24	PCM CARD SLOT	646028300
25	KEYBOARD REAR SPACER	500015400
26	RUBBER SPACER	500012900
27	SHIELD SHEET B	630012400
28	KEYBOARD PLATE	641010900
29	AFTER TOUCH P. C. BOARD	



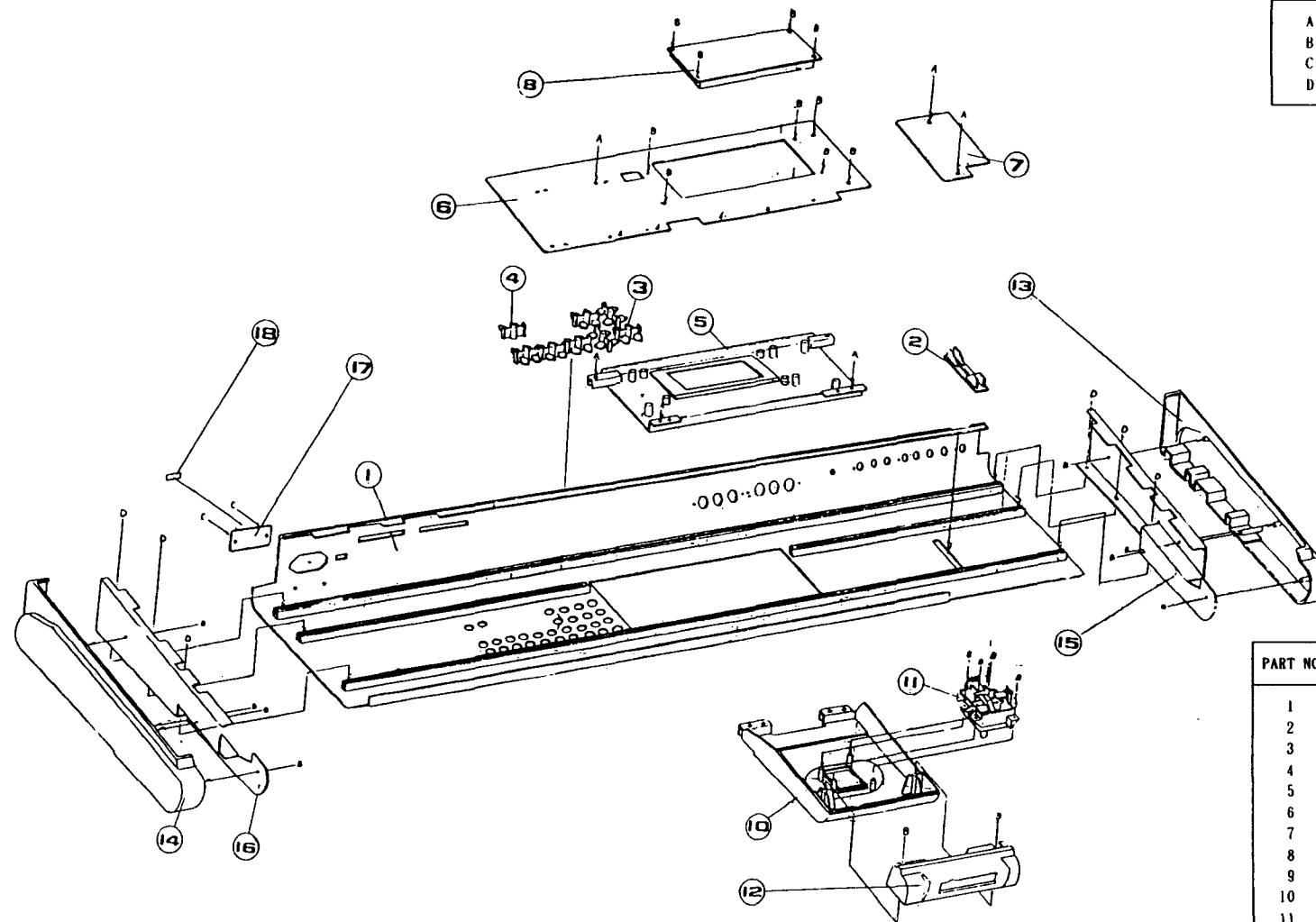
PART NO.	SCREWS	Q'TY
A	CT B BZMC 4x10	15
B	TP2G B BZMC 3x14	4

PART NO.	PART NAME	PART CODE
1	BOTTOM PLATE	641009700
2	RUBBER FOOT	500009500
3	LCD WINDOW	630011000
4	SLIDE VR KNOB	620019700

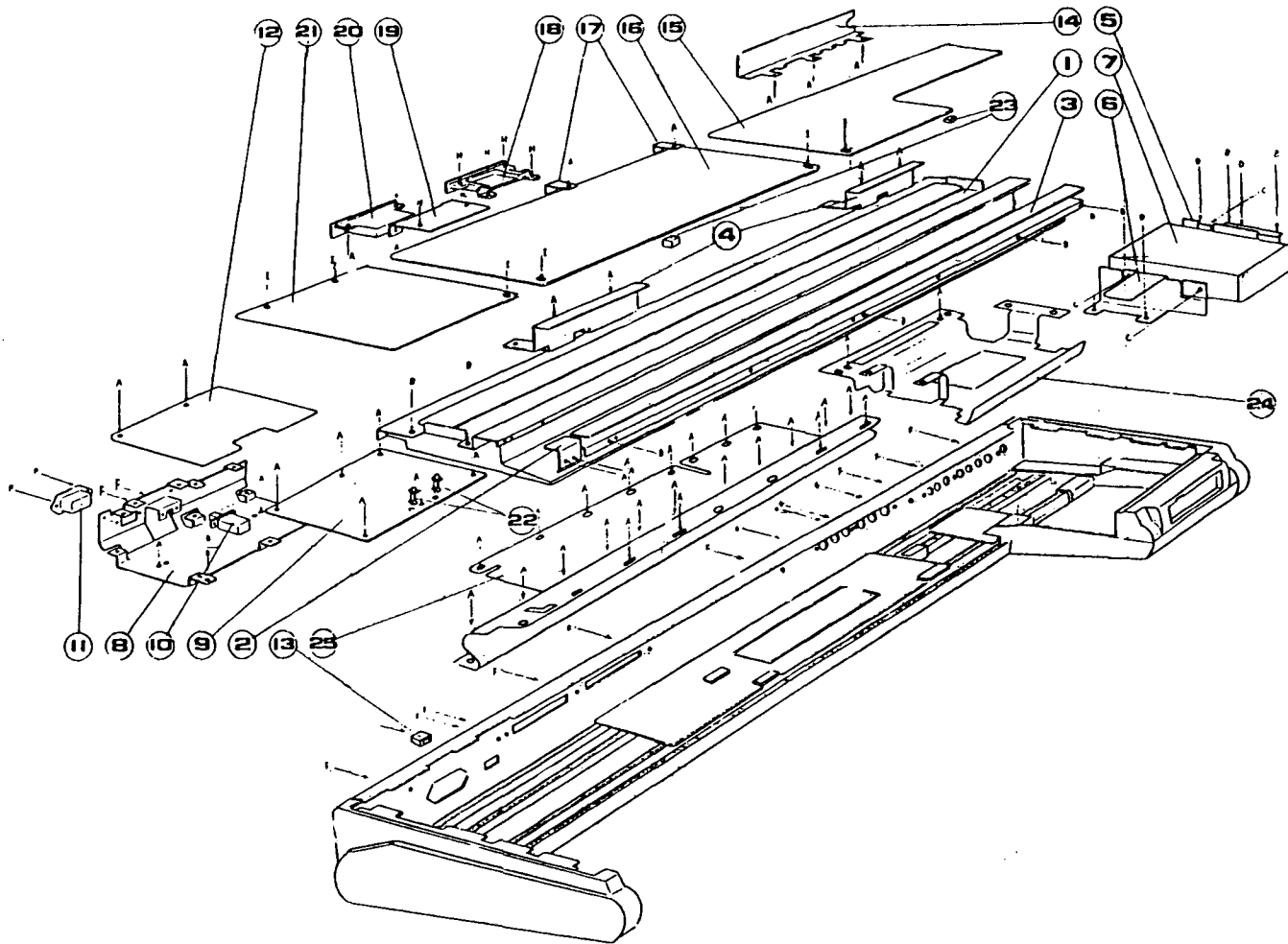
FOR T3

PART NO.	SCREWS	Q' TY
A	CT B ZNC 3x8	6
B	PLAX B BZNC 3x8	28
C	CT B BZNC 3x8	2
D	CT B ZNC 3x10	6

8

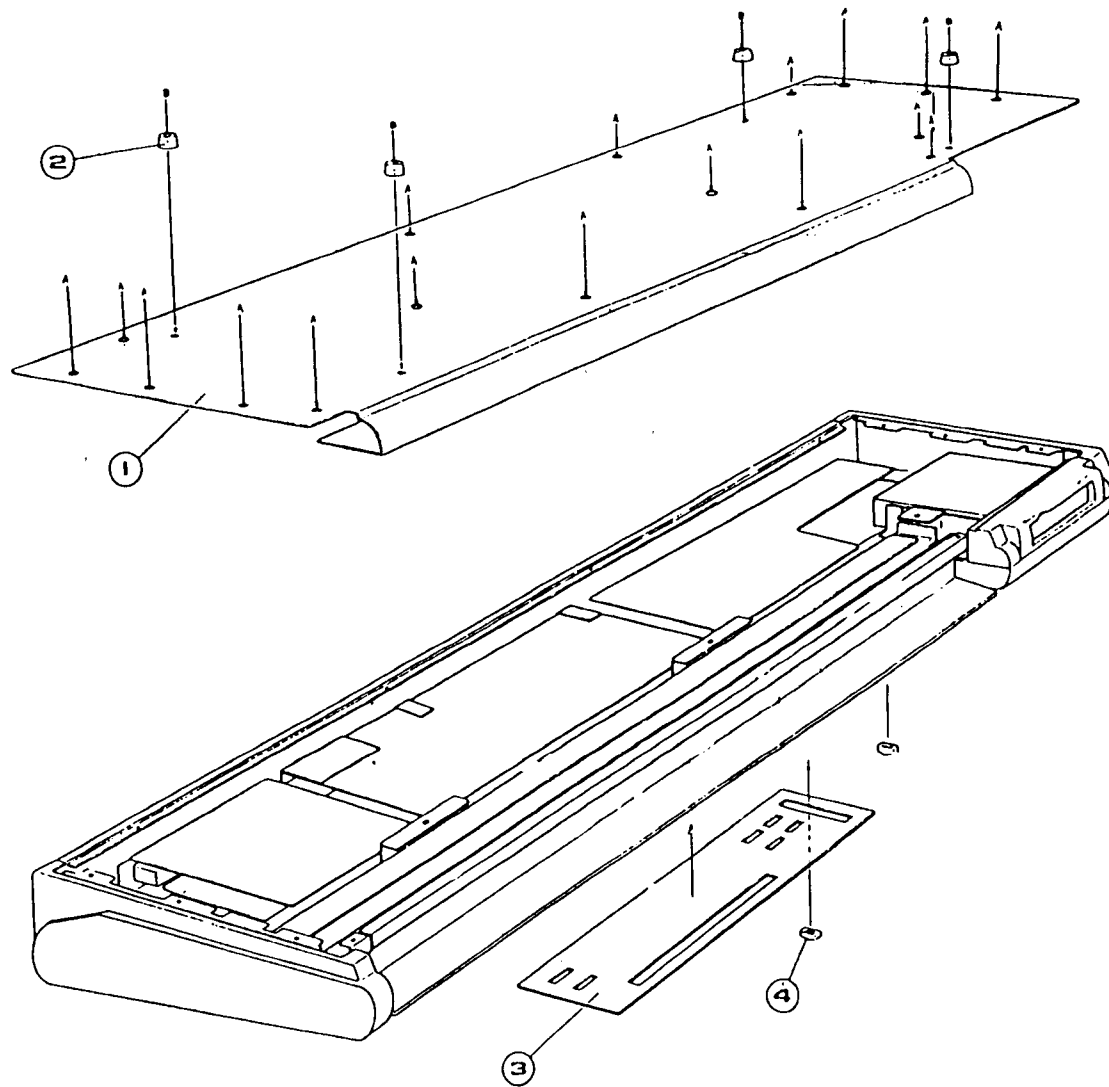


PART NO.	PART NAME	PART CODE
1	PANEL	641007500
2	SLIDE VR FRAME 1	646028200
3	ROUND KNOB NO. 1 GS	620018901
4	ROUND KNOB NO. 3 GS	620019800
5	LCD HOOD	646033600
6	P. C. BOARD KLM-1371	001137100
7	P. C. BOARD KLM-1372	001137100
8	LCD	313002100
9		
10	JOYSTICK PANEL	646028600
11	JOYSTICK ASSY.	
12	FDD COVER	646033700
13	SIDE PANEL L	646028400
14	SIDE PANEL R	646028401
15	SIDE CHASSIS L	640091600
16	SIDE CHASSIS R	640091601
17	NAME PLATE	
18	SERIAL NO.	



PART NO.	SCREWS & NUT	Q'TY
A	CT B ZNC 3x8	47
B	CT B ZNC 4x10	9
C	CT B ZNC 3x6	4
D	TP2G B ZNC 4x20	4
E	TWU ZNC 4	1
F	CT B BZMC 3x8	13
G	PLAX B BZMC 3x8	4
H	PLAX B BZMC 3x10	6
I	TS FEW ZNC 3x6	6

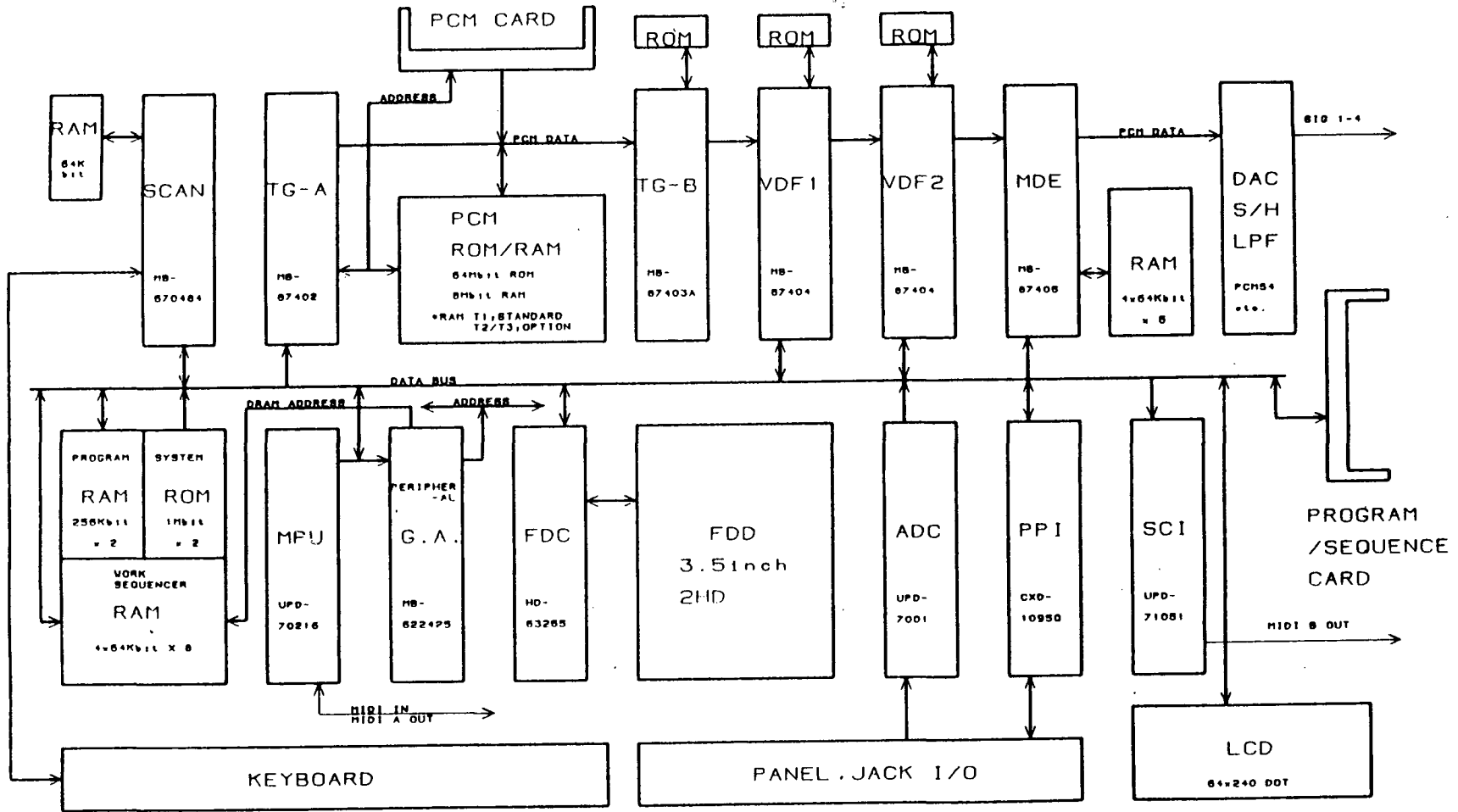
PART NO.	PART NAME	PART CODE
1	KEYBOARD	420004000
2	KEYBOARD SUPPORT	640094200
3	KEYBOARD FRONT ANGLE	641008300
4	KEYBOARD REAR ANGLE	641008000
5	FDD ANGLE L	641008400
6	FDD ANGLE R	641008500
7	FDD	435000600
8	PU CHASSIS	641007700
9	POWER SUPPLY BOARD	
10	POWER SW.	375006100
11	INLET SOCKET	
12	ISOLATION COVER	630011700
13	POWER SW. KNOB	620021600
14	JACK PLATE	641007800
15	P. C. BOARD KLM-1373	001137300
16	P. C. BOARD KLM-1370	001137003
17	ANGLE TYPE L	641008100
18	CARD GUIDE	640088500
19	CARD ANGLE	640092000
20	PCM CARD SLOT	646028300
21	P. C. BOARD KLM-1385	001138500
22	P. C. BOARD SPACER	540016800
23	RUBBER SPACER	500012900
24	JOYSTICK SHIELD SHEET	630011500
25	SHIELD SHEET	630011600



PART NO.	SCREWS	Q' TY
A	CT B BZMC 4x10	17
B	TP2G B BZMC 3x14	4

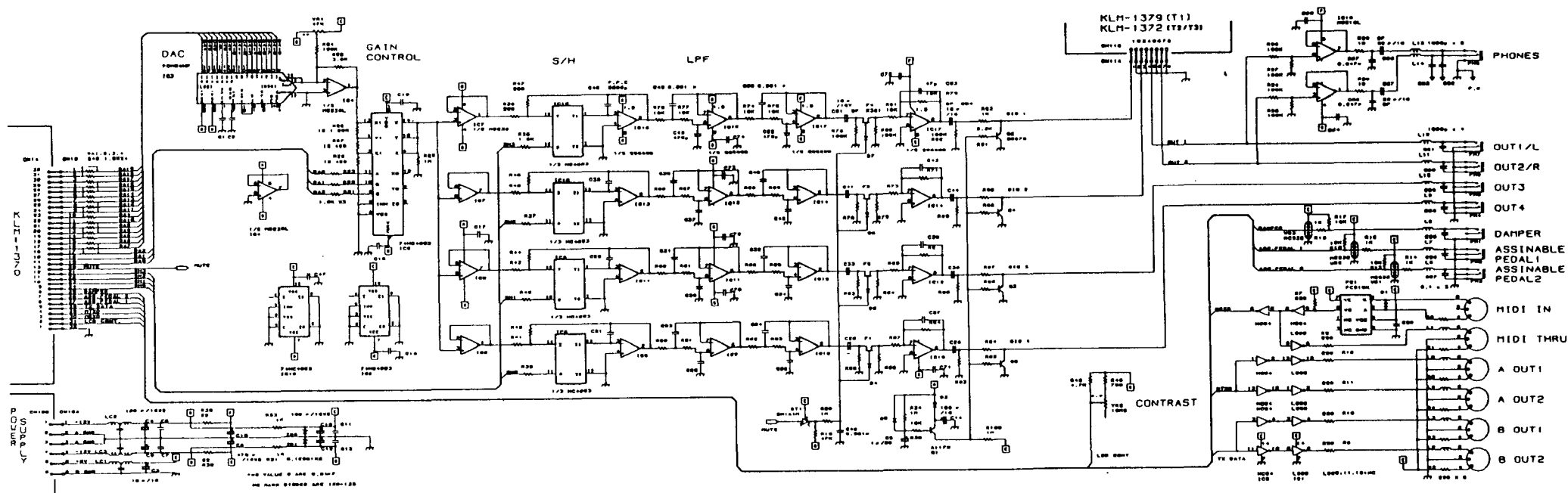
PART NO.	PART NAME	PART CODE
1	BOTTOM PLATE	641007600
2	RUBBER FOOT	500009500
3	LCD WINDOW	630011000
4	SLIDE VR KNOB	620019700

3. BLOCK DIAGRAM

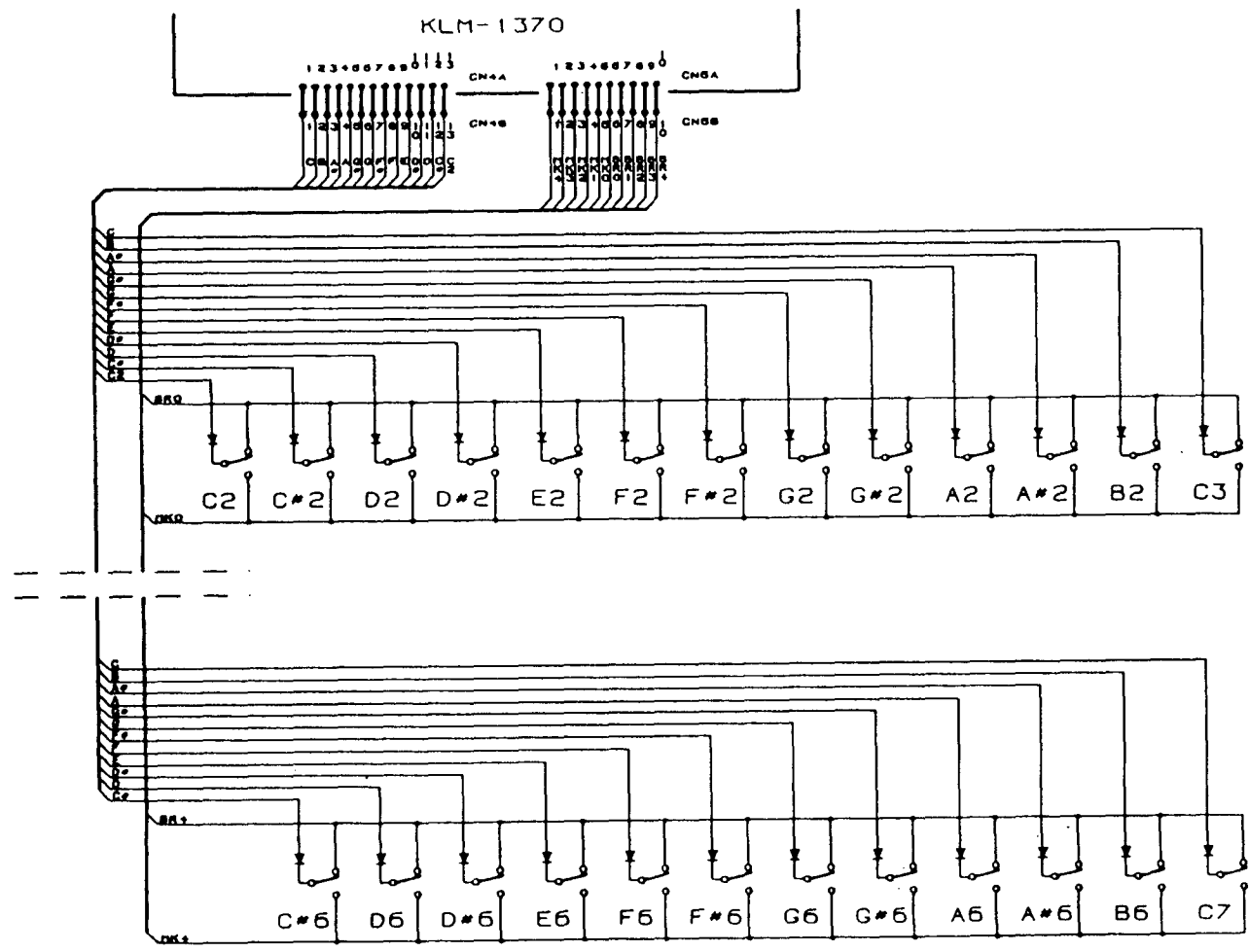


4. CIRCUIT DIAGRAM

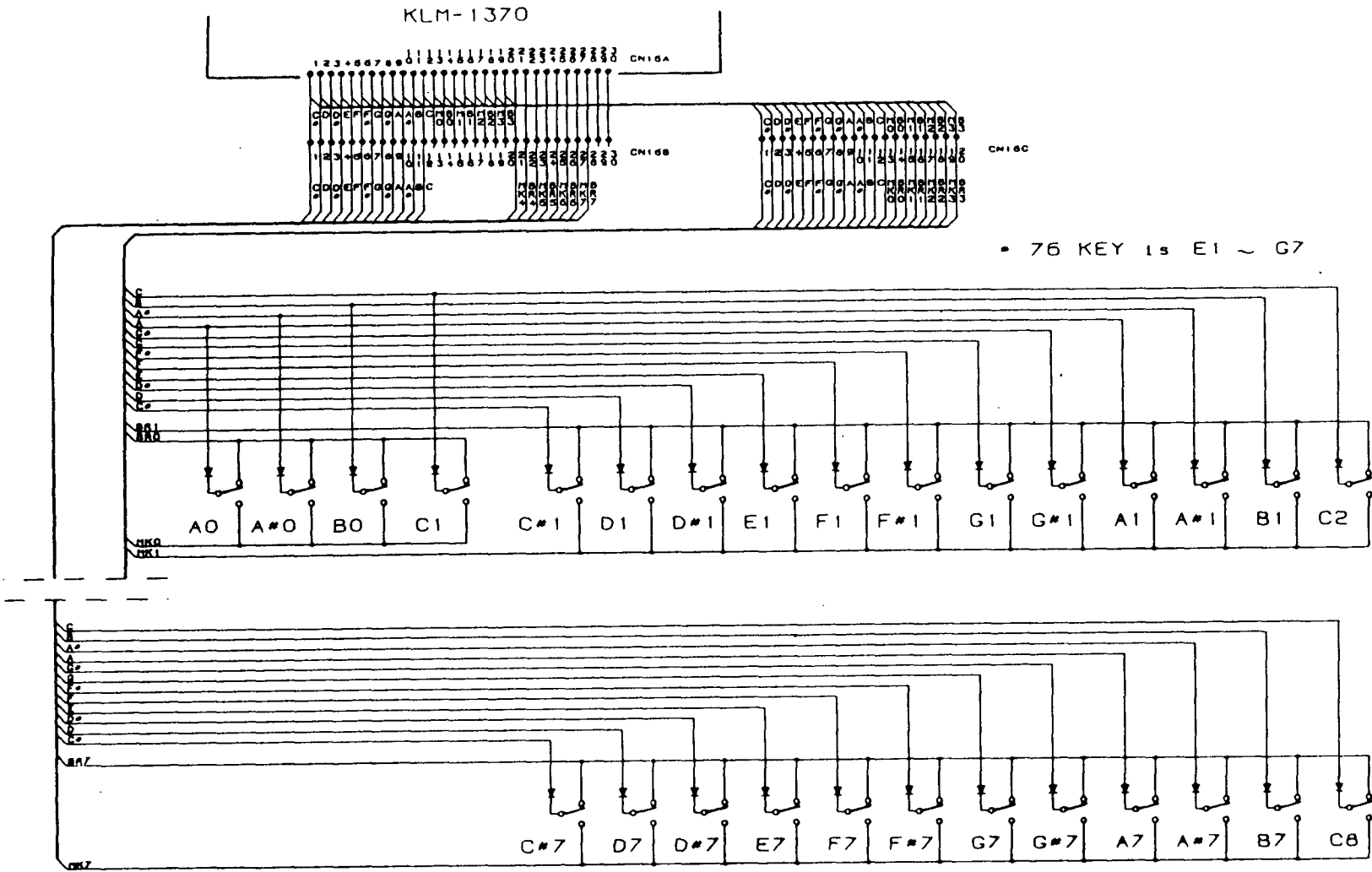
KLM-1373
DAC/LPF/JACK I/O



61-KEYBOARD MATRIX

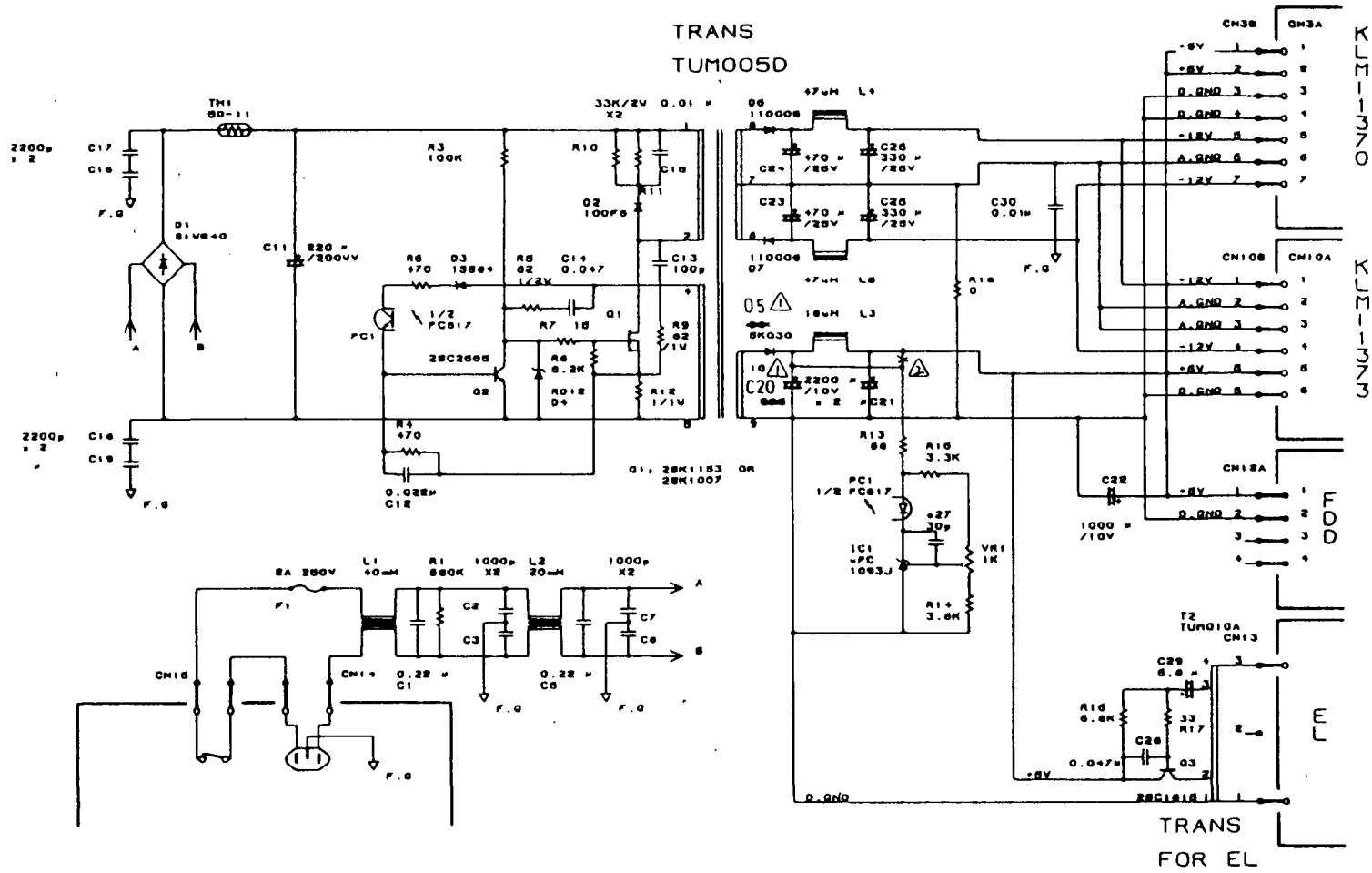


76/88-KEYBOARD MATRIX

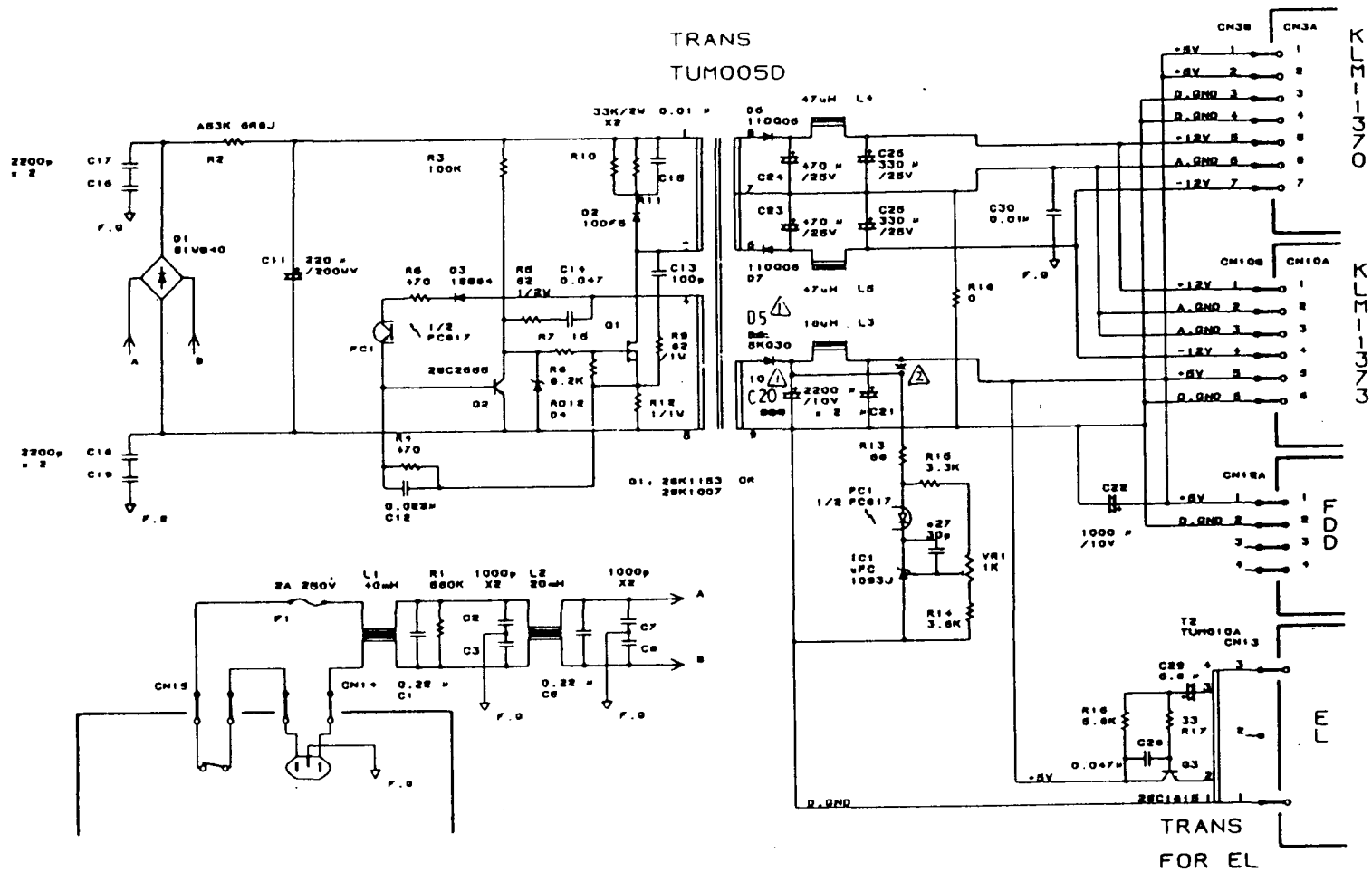


KLM-1374 POWER SUPPLY JAPAN, UL

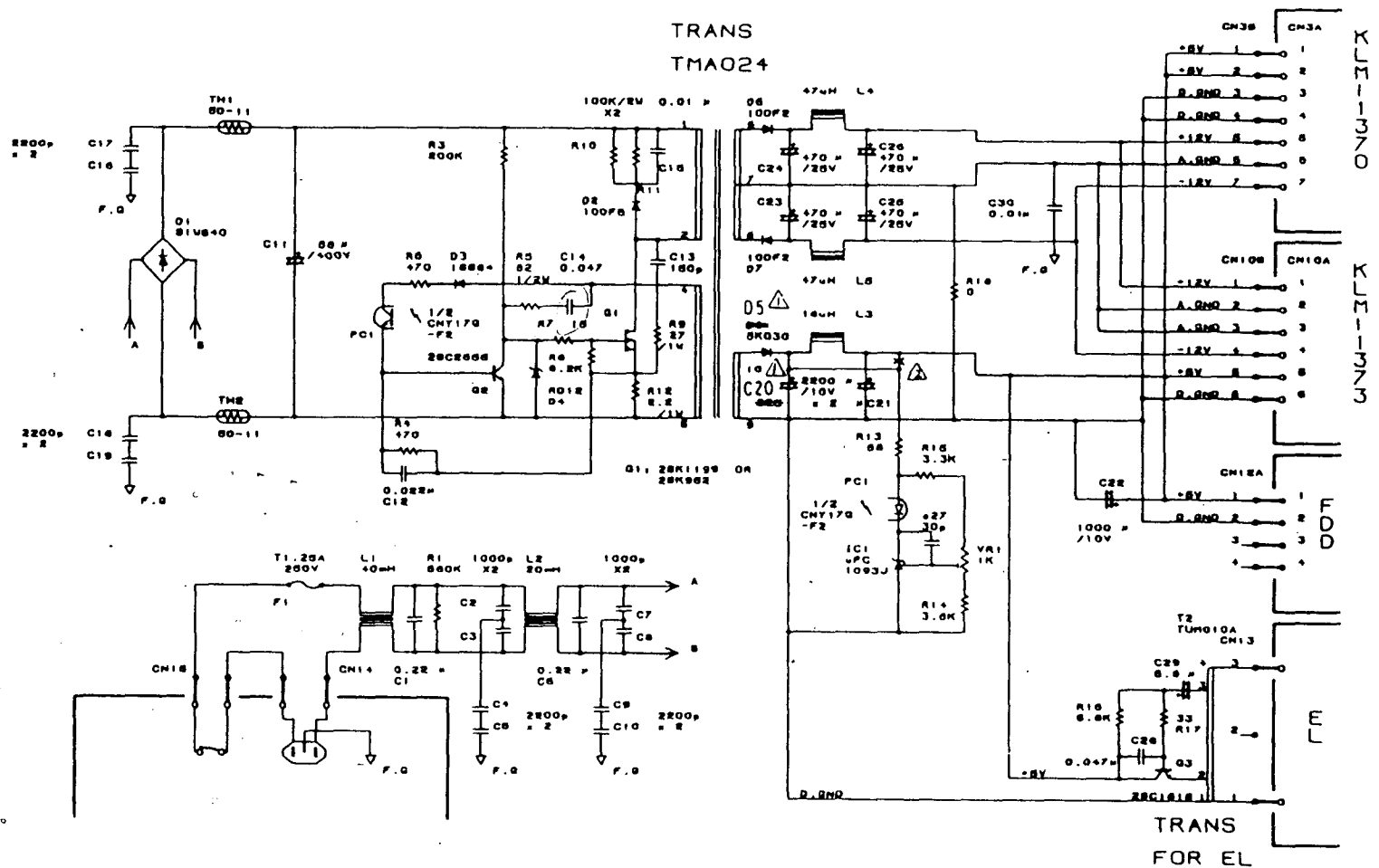
16



KLM-1375 POWER SUPPLY CSA

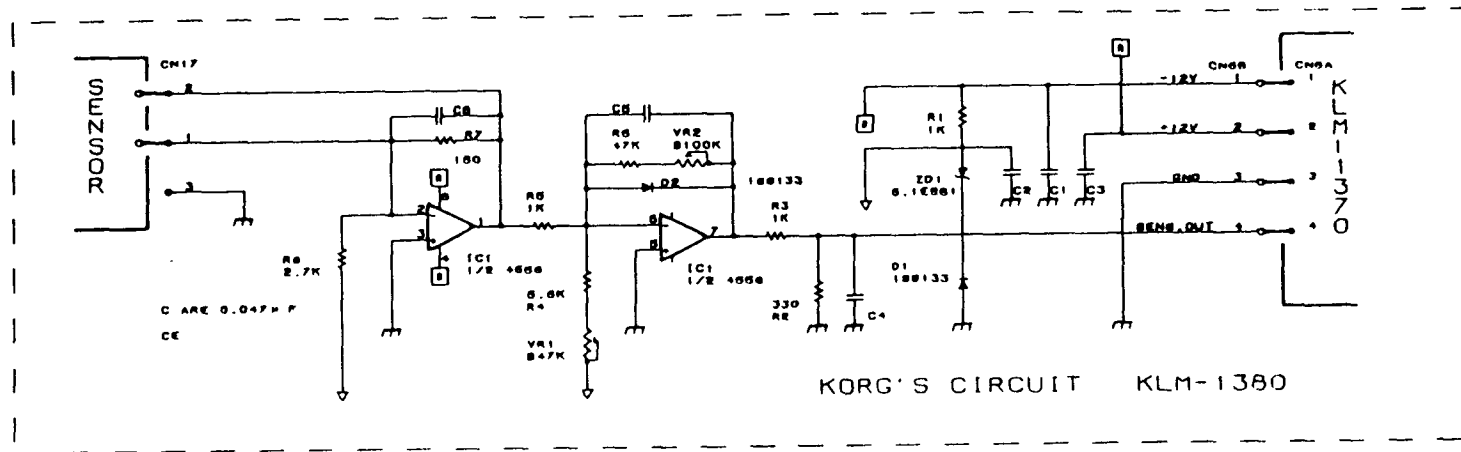


KLM-1376 POWER SUPPLY 220V, 240V



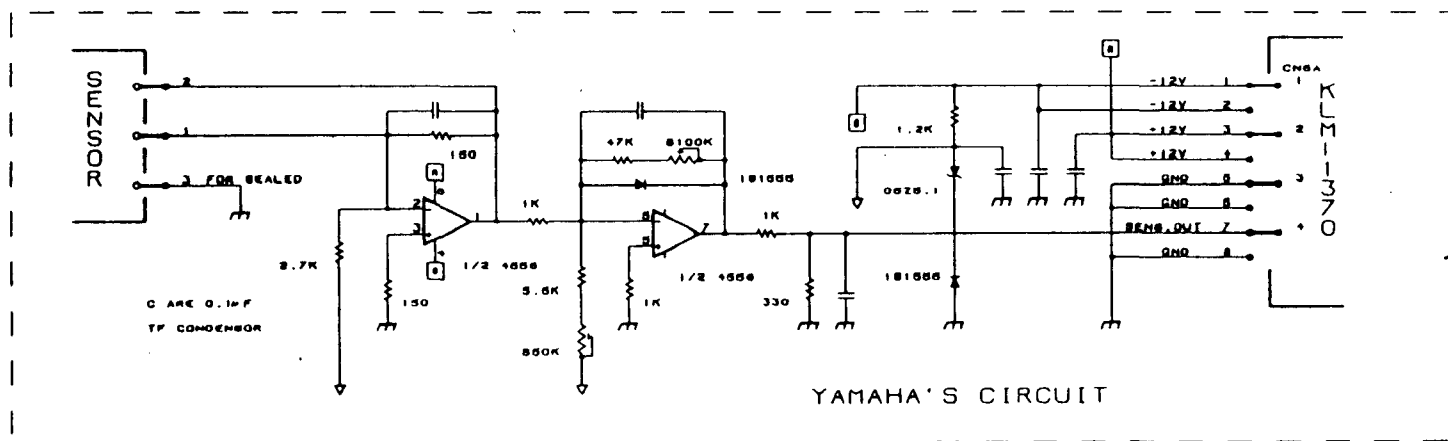
AFTER TOUCH SENS CIRCUIT

MODEL T1

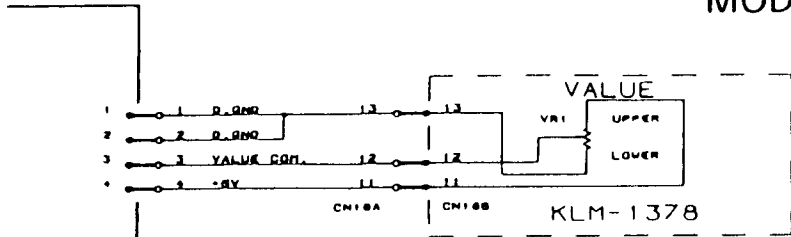


AFTER TOUCH SENS CIRCUIT

MODEL T2/T3

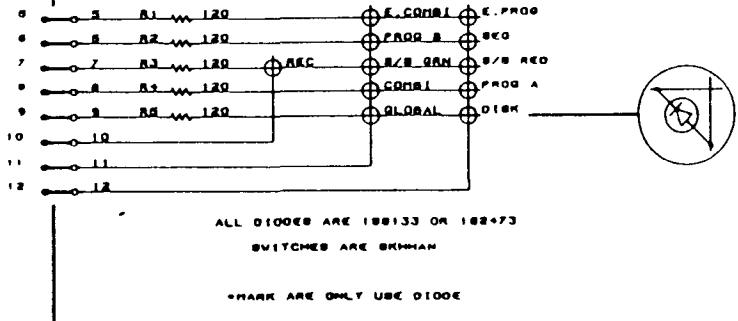
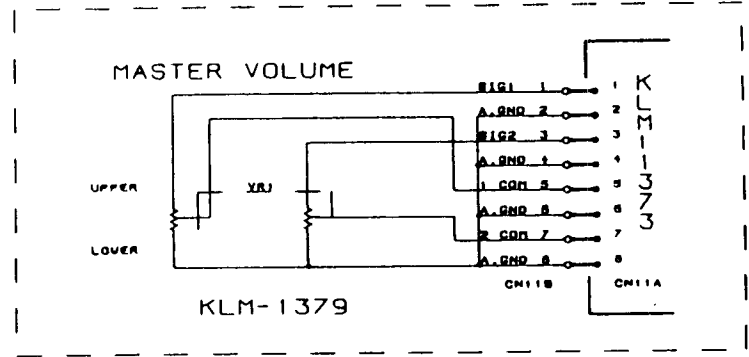


KLM-1377 MODEL T1 PANEL CIRCUIT



LED No.

COMBI	LED1
E.COMBI	LED2
PROG A	LED3
E.PROG	LED4
PROG B	LED5
E.PROG	LED6
GLOBAL	LED7
DISH	LED8
REC	LED9
S/S	LED10

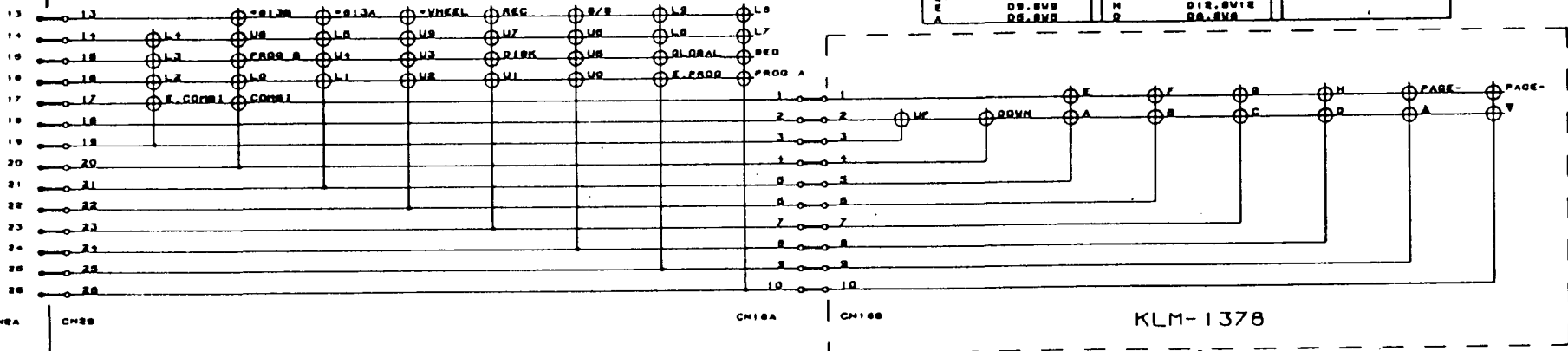


ALL DIODES ARE 100133 OR 100473
SWITCHES ARE BRHMAN
*MARK ARE ONLY USE DIOGE

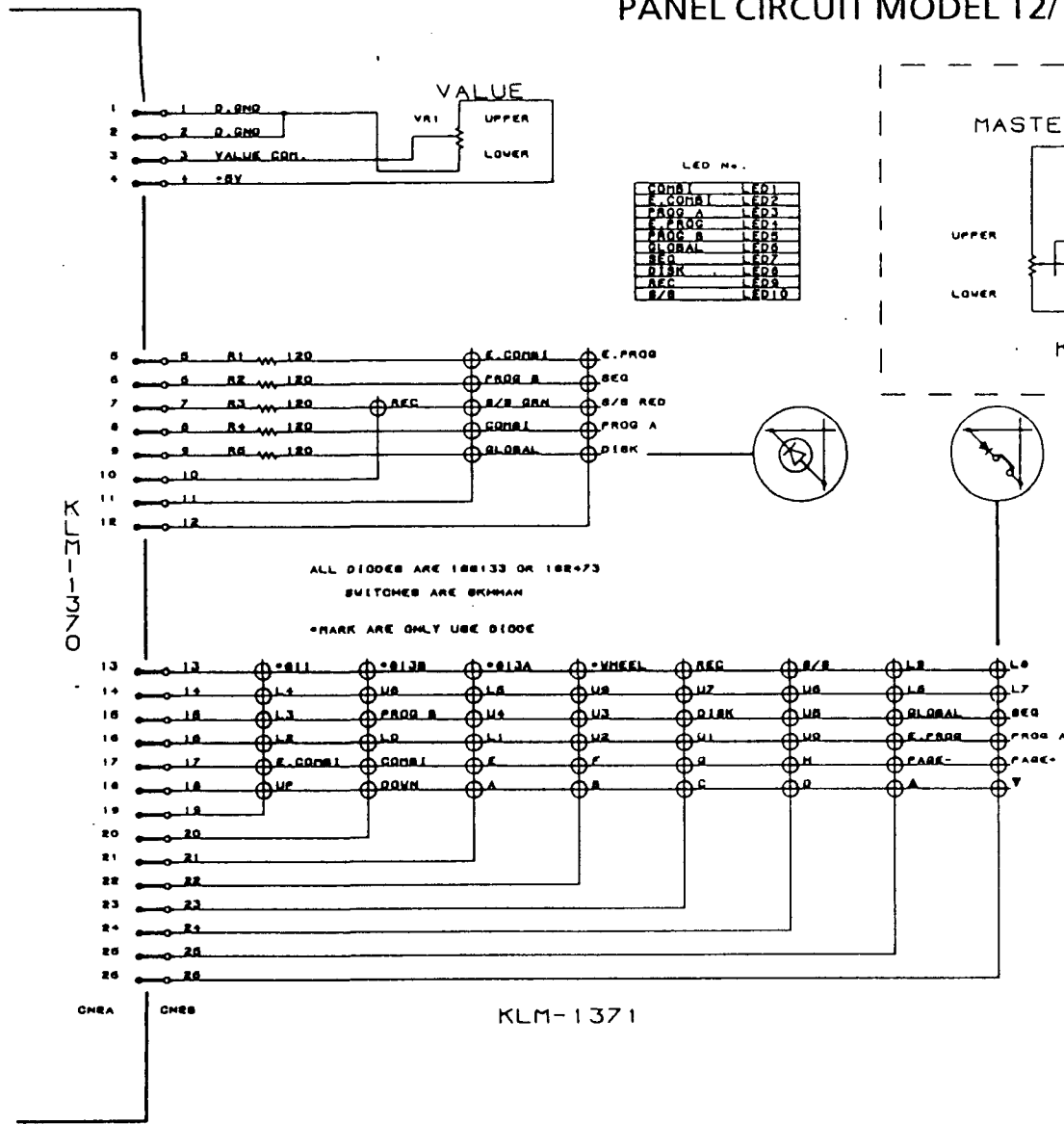
DIODE/SWITCH No.

L4	032.SW32	+WHEEL	035	L9	047.SW44
L3	030.SW30	U9	040.SW43	L6	039.SW36
LZ	026.SW26	U3	029.SW29	GLOBAL	024.SW24
E.COMBI	016.SW16	U2	028.SW28	E.PROG	020.SW20
UP	04.SW3	F	010.SW10	PAGE-	014.SW14
		R	05.SW5	A-	011.SW11
-013B	037	REC	042.SW42	L8	046.SW46
U6	044.SW44	U7	040.SW43	L7	041.SW41
PROG B	023.SW23	DISH	020.SW20	SEO	027.SW27
L0	010.SW10	U1	021.SW21	PROG A	019.SW19
COMBI	015.SW15	0	011.SW11	PAGE-	013.SW13
DOWN	03.SW3	C	02.SW2	V	02.SW2
-013A	036	S/S	043.SW43		
L6	034.SW34	U6	030.SW30		
U4	031.SW31	U5	033.SW33		
L1	022.SW22	U0	017.SW17		
E	05.SW5	H	018.SW18		
A	02.SW2	R	04.SW4		

XLE-PNO

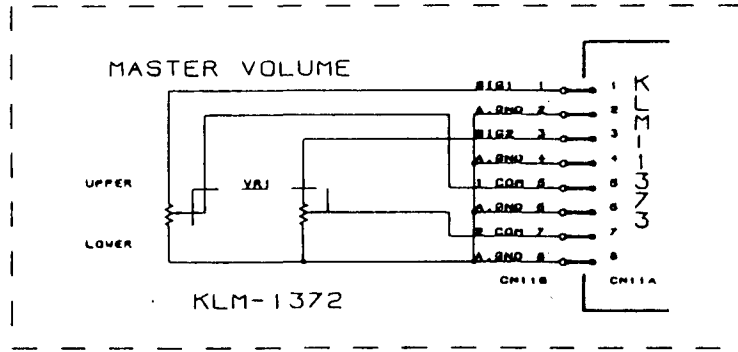


KLM-1371/1372 PANEL CIRCUIT MODEL T2/T3



LED No.

COMB1	LED1
E.COMB	LED2
PAGE A	LED3
E.PROG	LED4
PAGE B	LED5
GLOBAL	LED6
REC	LED7
DISK	LED8
S/B	LED9
S/B	LED10

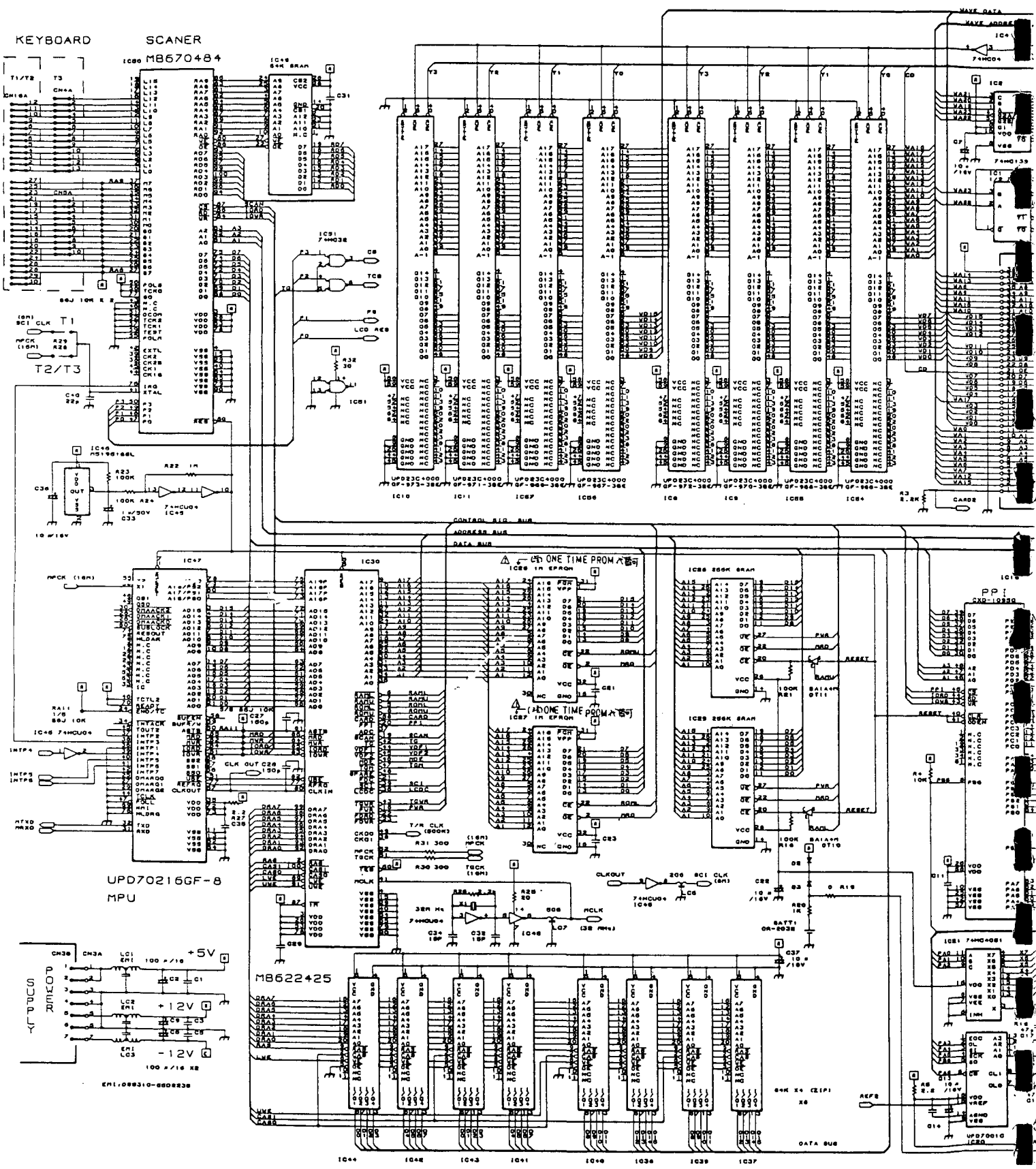


D34 / D35 T2/B
Link

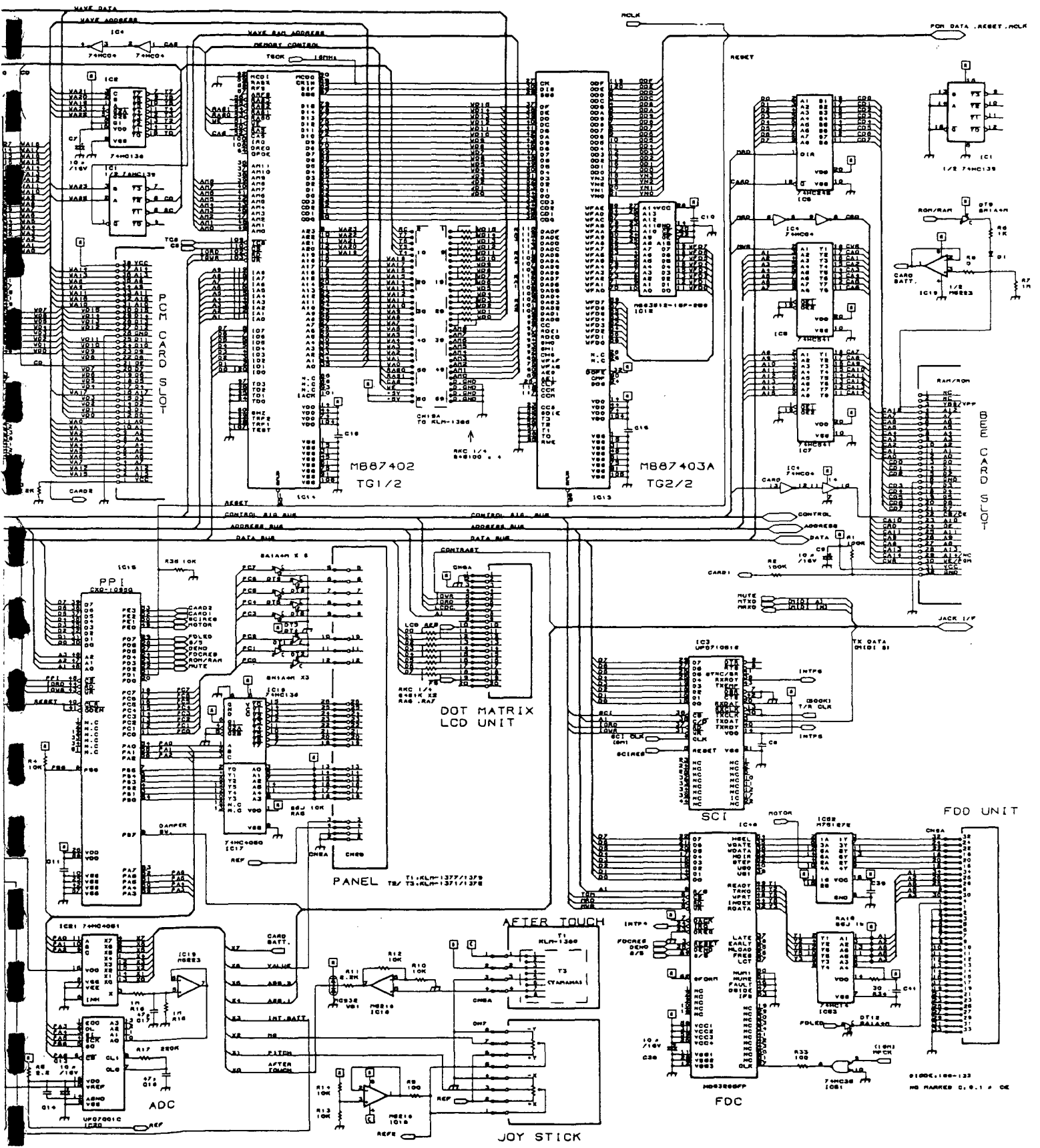
DIODE & SWITCH No.

*011	038	*WHEEL	033	L8	048.SW44
L4	037.SW32	U9	046.SW43	L8	039.SW36
L3	032.SW30	U3	031.SW28	GLOBAL	027.SW27
L2	024.SW23	U8	018.SW22	E.PROG	020.SW20
E.COMB1	014.SW16	F	010.SW10	PAGE-	014.SW14
UP	021.SW21	B	028.SW28	A	022.SW21
*013B	038	REC	041.SW36	L8	047.SW41
U6	044.SW40	U7	043.SW37	L7	040.SW37
PROG B	026.SW26	DISK	028.SW28	SEG	026.SW26
L0	022.SW18	U1	016.SW16	PROG A	021.SW18
COMB1	019.SW16	Q	011.SW11	PAGE-	013.SW13
DOWN	031.SW31	C	027.SW27	Y	011.SW11
*013A	034	S/B	042.SW42		
L5	036.SW34	U6	046.SW46		
U4	029.SW31	U5	030.SW33		
L1	023.SW24	U0	017.SW17		
D8.SW8	M	D12.SW12			
A	028.SW28	D	028.SW28		

22-a



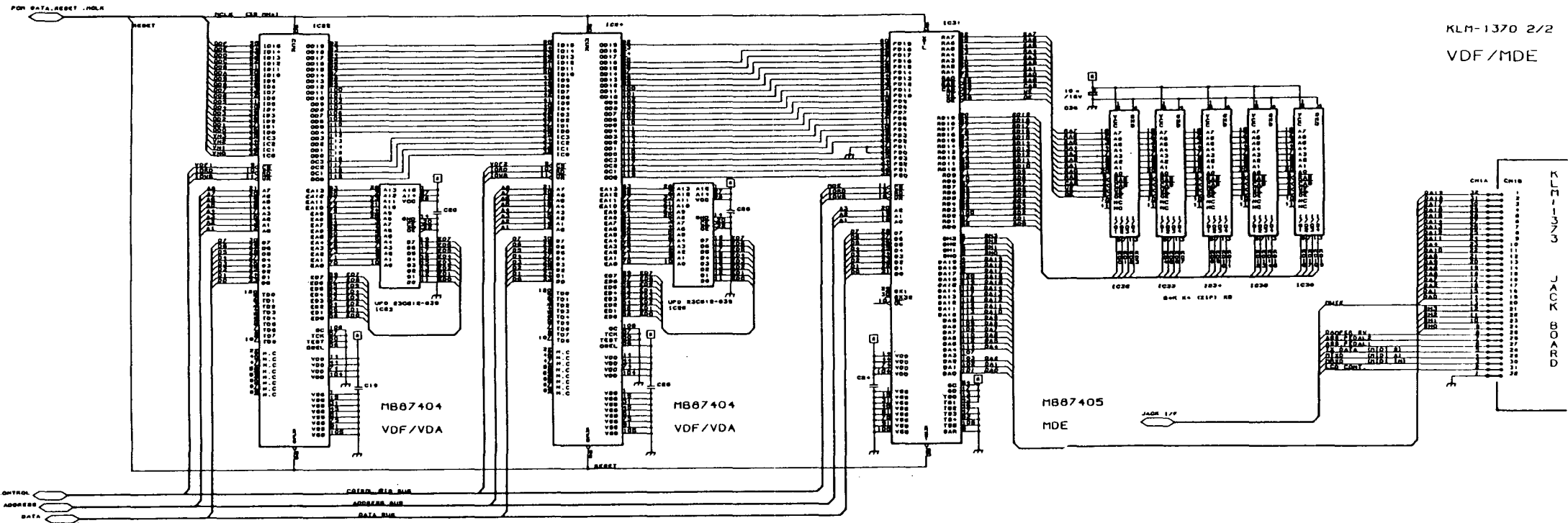
KLM-1370 1/2 MPU/TG/SCI/PPi
SCAN/MEMORY/FDC PCM ROM/AD/etc.

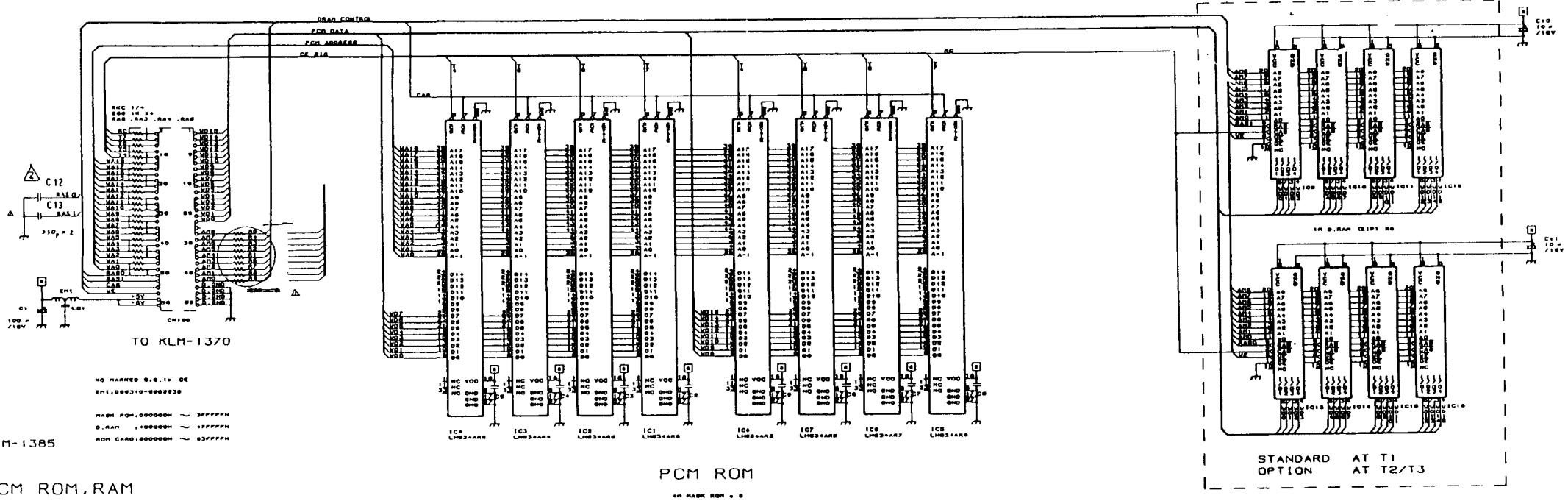


KLM-1370 (2/2)/KLM-1385

KLM-1370 2/2

VDF/MDE



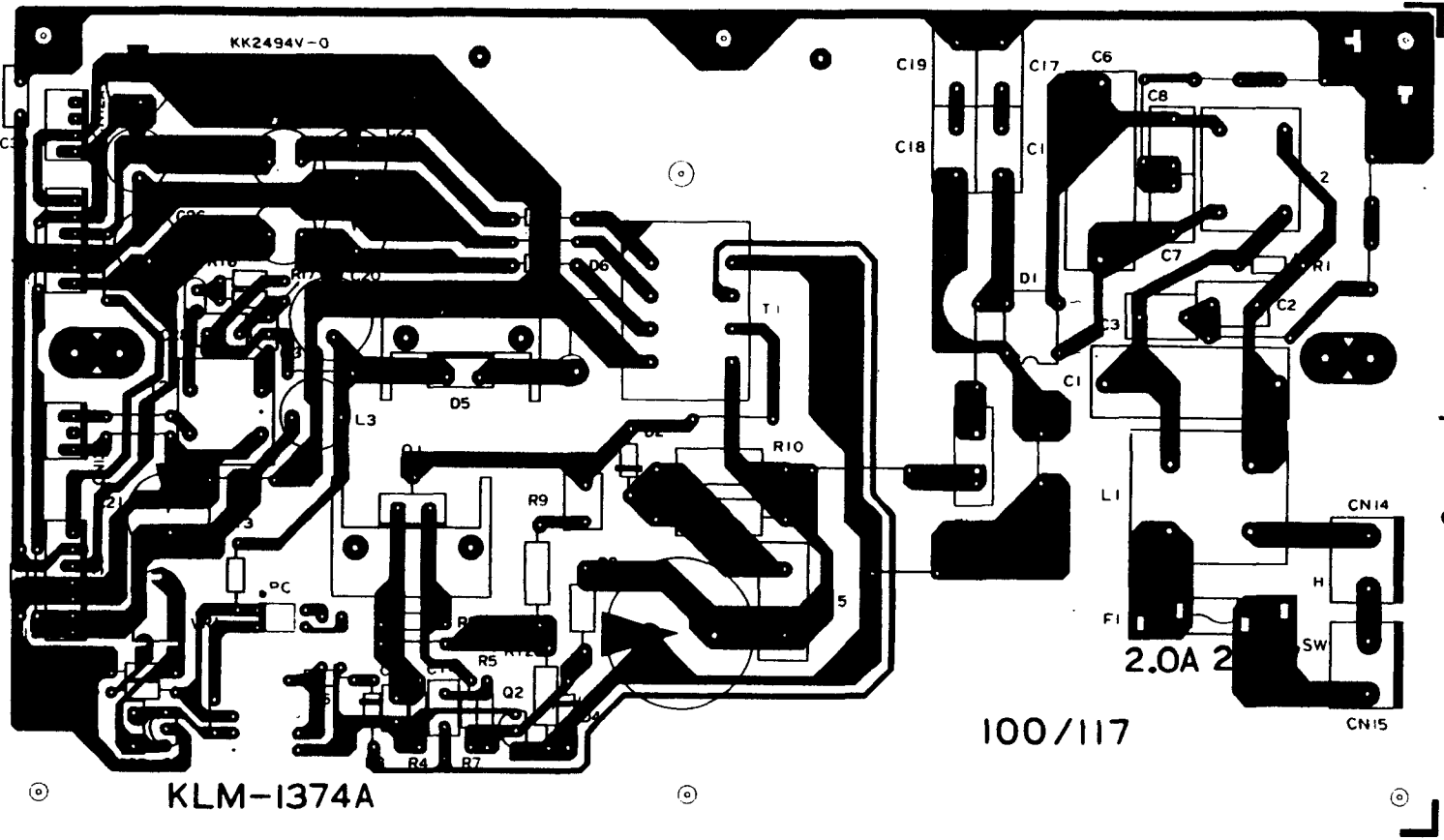


KLM-1385

PCM ROM.RAM

5. P.C. BOARD

KLM-1374 (FOR 100/117)



100-UL

CAUTION

TO REDUCE THE RISK OF FIRE,
REPLACE ONLY WITH
SAME-TYPE FUSE.

KLM-1374A

100/117

KLM-1375 (FOR 117 CN)

CSA

24

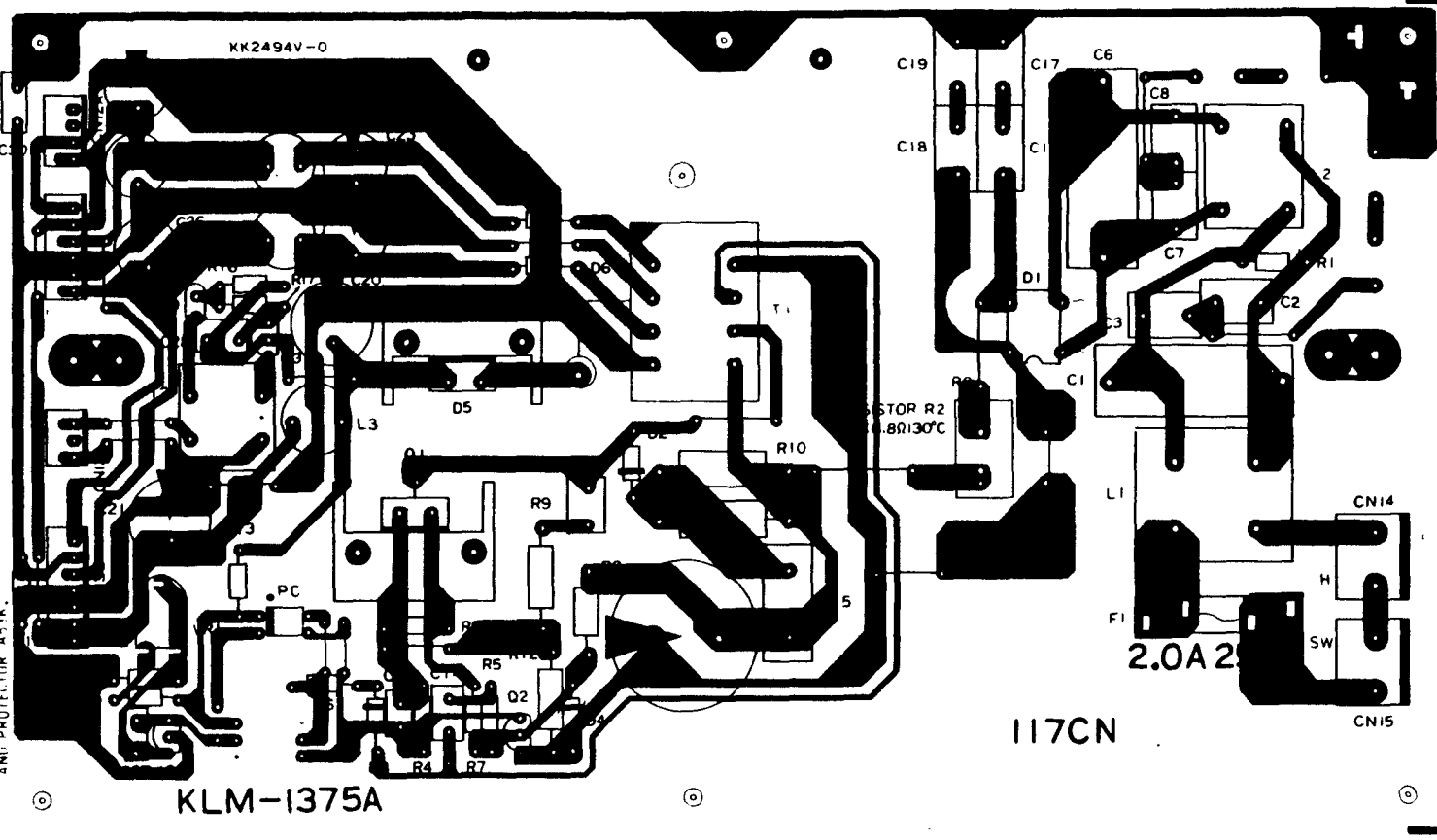
シロコ

CAUTION

TO REDUCE THE RISK OF FIRE,
REPLACE ONLY WITH
SAME TYPE FUSE
AND PROTECTOR AS 1K.

ATTENTION

AFIN DE REDUIRE LE RISQUE DE FEU,
REPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME
TYPE ET UNE PROTECTOR AS 1K DE MEME TYPE.



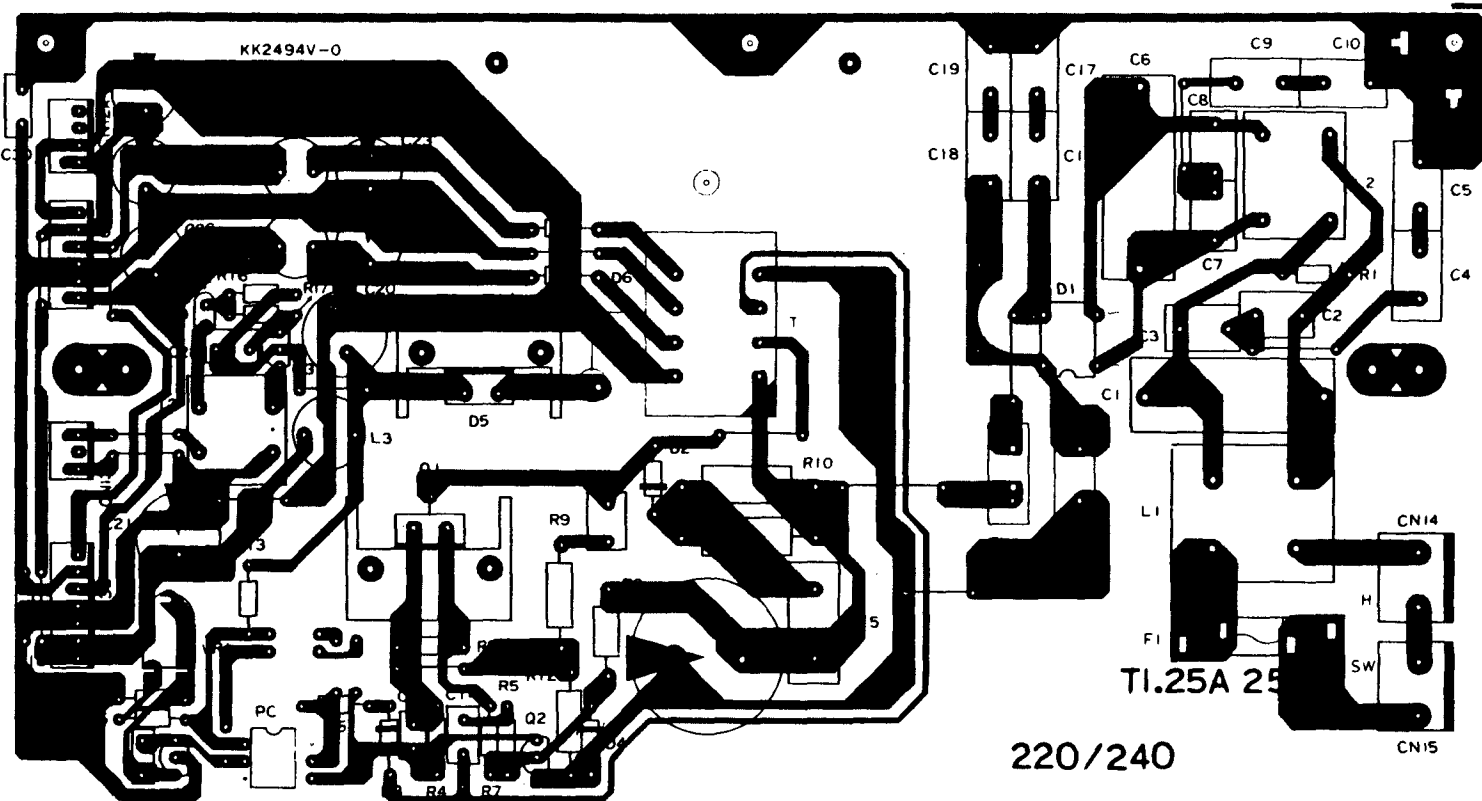
KLM-1376 (FOR 220/240)

25



CAUTION

TO REDUCE THE RISK OF FIRE,
REPLACE UNIT WITH
SAME TYPE UNIT.



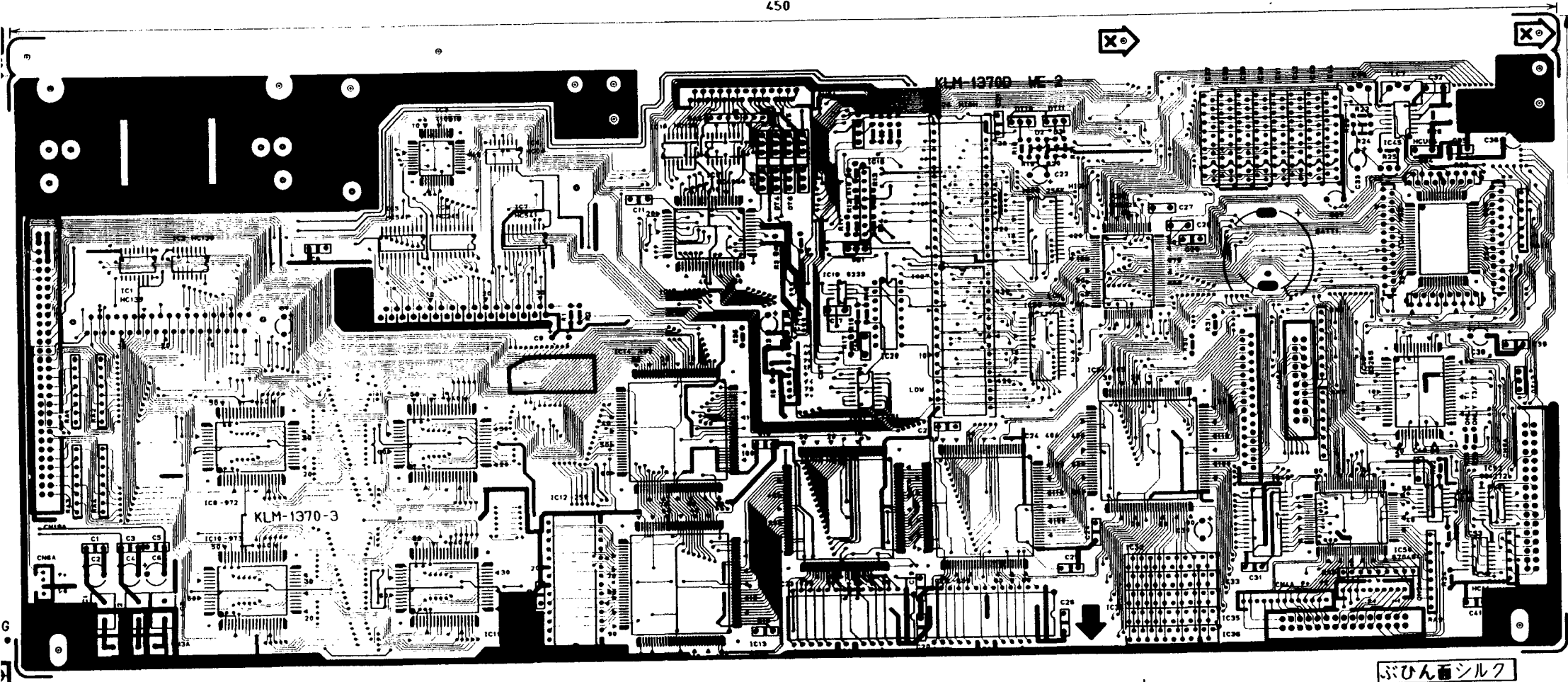
KLM-1376A

220/240

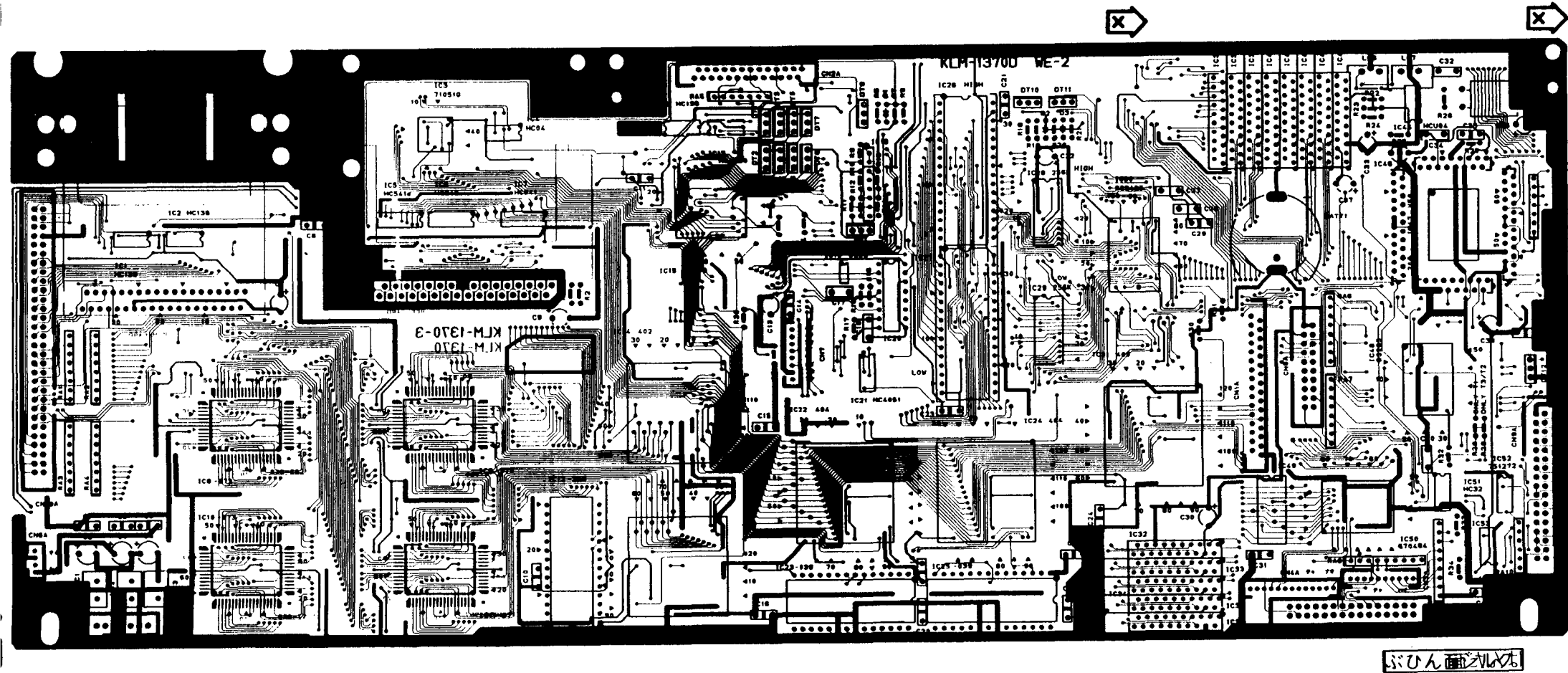


KLM-1370 (MOUNT PARTS SIDE)

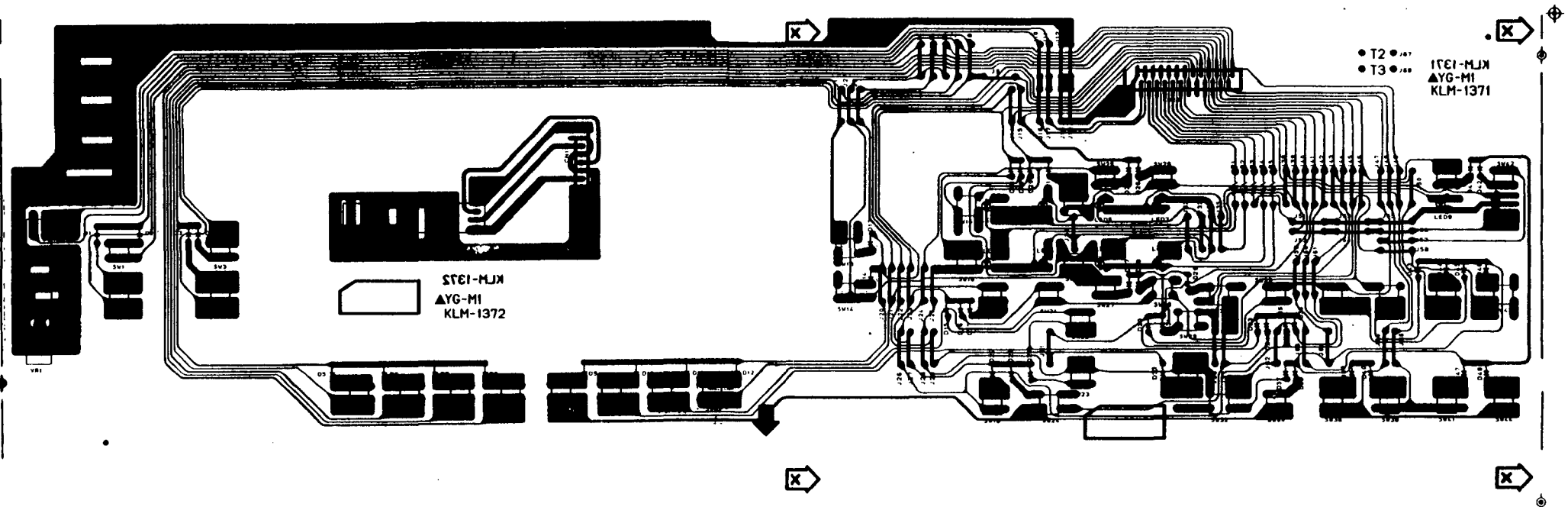
450



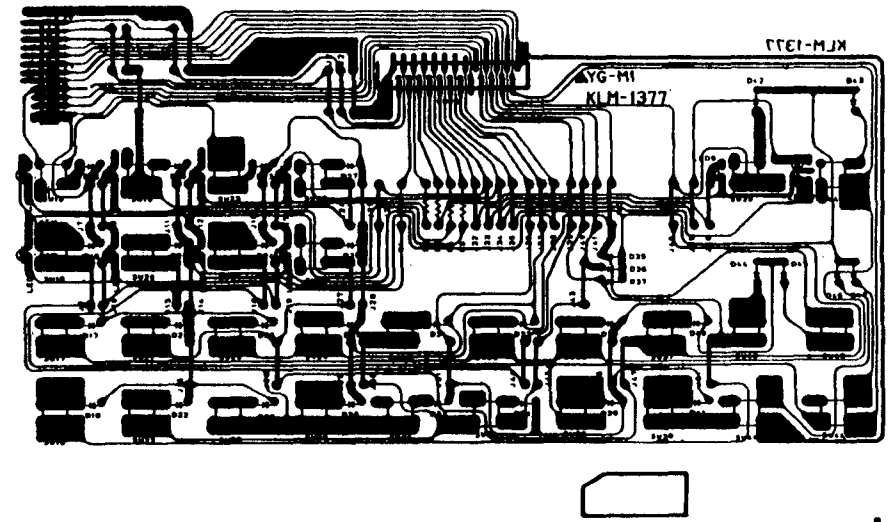
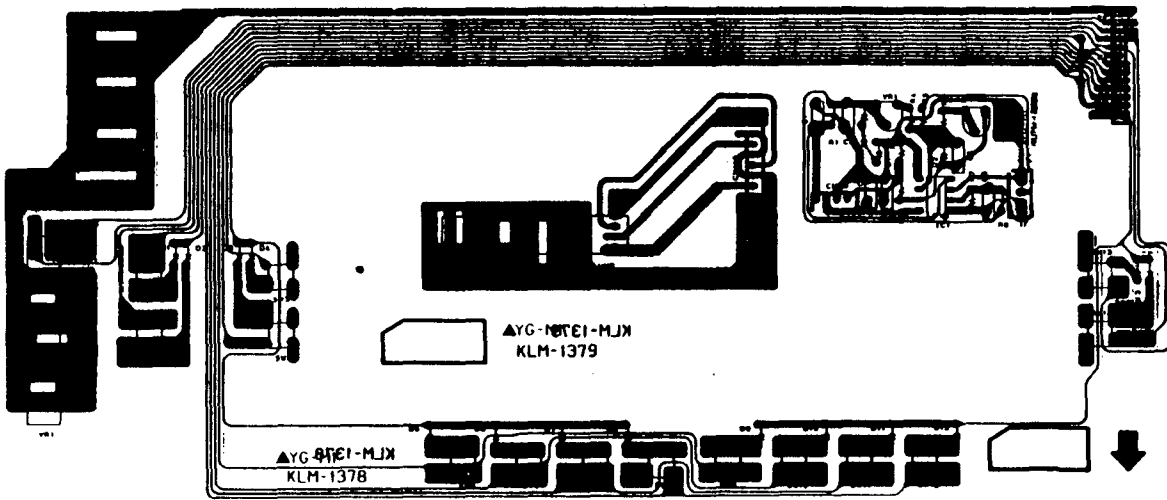
KLM-1370 (NO MOUNT PARTS SIDE)



KLM-1371/72

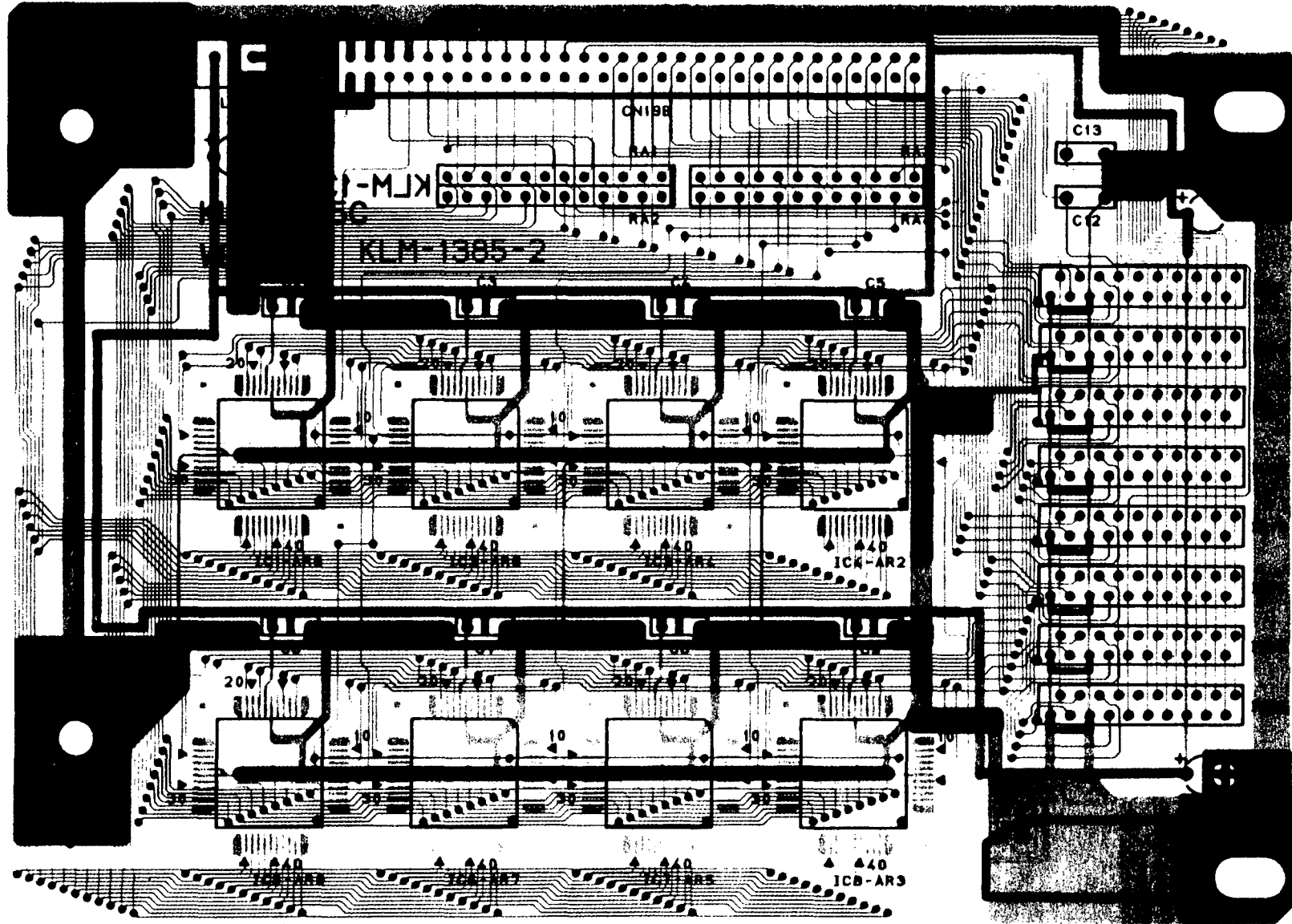


KLM-1377/80



KLM-1385C

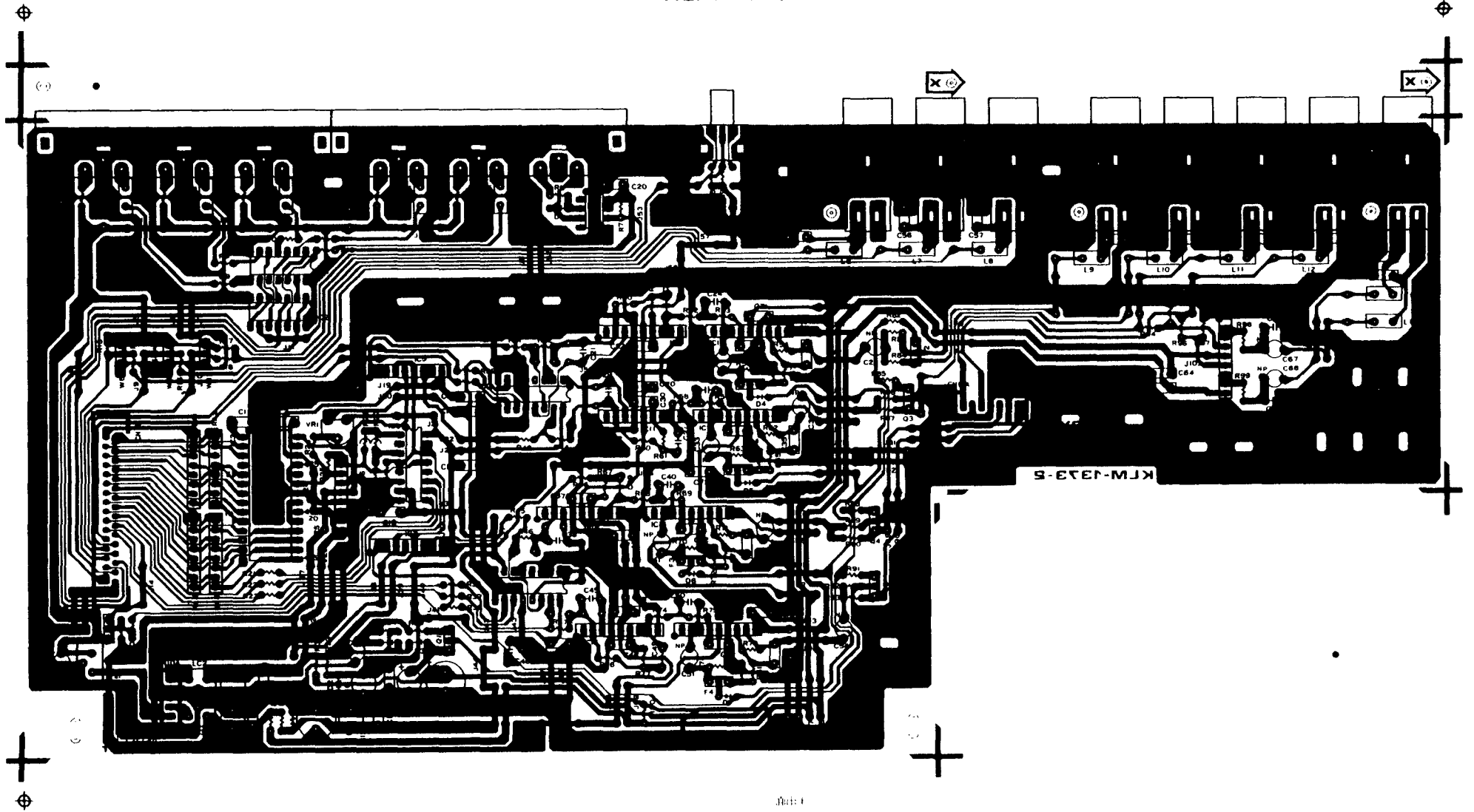
170



PG

KLM-1373

33



部品面

面: 1

6. CHECKS

INTRODUCTION

This section describes operational procedures and diagnostic self-checks for the T1 / T2 / T3. The followings are subjects to be checked in the self-check mode.

CAUTION

When this checking is done, the data of T1 / T2 / T3 are initialized. Please save the important data like users' data into the RAM card before you start the checking.

0. FDD (Floppy Disk Drive)

Execute Format / Write / Read and check the FDD and FDC (Floppy Disk Controller, HD632655) circuit.

1. AFTER TOUCH

Same as the after touch described in item 4 but including to check the function of A/D monitor.

2. PANEL SWs & LEDs

Check the SWs, LEDs and their connections with the panel PCB and check the PPI (Parallel Port Interface, CXD-1095Q) circuit.

3. LCD

Check the LCD unit and its connections.

4. KEYBOARD & AFTER TOUCH

Check the keyboard, its scanner (MB670484) circuit and the PCB for after touch.

5. MDE & VDF

Check MDE (MB87405), DRAM for the MDE, VDF 1 & 2 (MB87404), etc.

6. TG

Check TG1 and TG2 (MB87402, MB87403).

7. BASIC OUTPUT SIGNAL

Check the PCB circuit for jacks (OUTPUT terminals) with remaining noise, distortion and signal levels, etc.

8. A/D CONVERTER

Check A/D (UPD7001C, 74HC4051, etc.) circuits and their connections.

※BASIC OPERATION

The check item can be selected by pressing any of BANK / PAGE SWs 0~8 (upper row).

The check item can be shifted to the item just before / next from the item being checked currently by pressing the PAGE - / PAGE + SW.

The check item can be shifted to the next item by pressing the START / STOP SW.

To exit from the self-check, press the BANK / PAGE SW. 9 (upper row) and get an indication of "Quit" in the screen.

※MEASURING INSTRUMENTS REQUIRED FOR THE CHECK

Oscilloscope
Noisemeter (Equalization by IHFA)

<No. 0>FDD CHECK

Turn the POWER ON to start the FDD check while pressing the NUMBER SW 0 (LOWER row) and PROG A SW.

※ Note ! This start-up procedure does not cover the checks for MIDI, PCM ROM and battery voltage.

Press the NUMBER SW 0 (lower row) after the self-check mode has started and get an indication of " FDD check " in the screen.

The check can be started by pressing the CURSOR POSITION SW A~H below the indication of " Check No.1 " in the screen.

All the LEDs will light when the check has finished normally.
If there is an error, all the LEDs will blink
and the message will be indicated in the screen.

START-UP OF CHECK MODE

Press the NUMBER SW 0 (lower row) and PROG A SW,
and turn the POWER ON to start the check.

Confirm that there is no error indication in the screen.
Then the screen will proceed to item No. 2
When it starts correctly without any error indication.

During the start-up, battery voltage for memory back-up will be checked automatically. After that, the itemized check can be started.

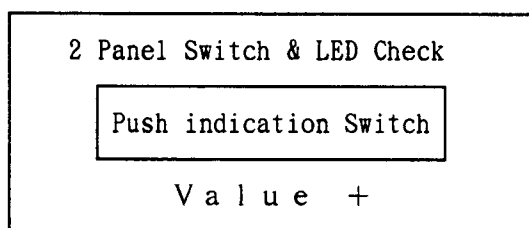
If there is an error in this check during the start-up, each error message in the screen will be as follows:

Battery voltage for memory back-up

The normal voltage (range) and the read voltage will be indicated in the hexadecimal notation composed of 0~FF.

For the above mentioned errors, all the LEDs will blink and the check will never proceed any more.

<No. 2> PANEL SW & LED



If the self-check has started normally, the screen will indicate like the above figure and the check will begin with the No. 2.

1. Confirm that all the LEDs light red. The lit LEDs are :
COMBI, PROG A, PROG B, SEQ, REC, START, STOP,
E. COMBI, E. PROG, GLOBAL, DISK.
2. Press the SWs according to the indication in the screen and confirm that the touch is normal and the corresponding LED lights. In case of START / STOP, it lights red during pressed and green during released.

<No. 3> LCD

1. The LCD screen will get flat in all the area.
2. Turn the CONTRAST VR so that the contrast will vary and confirm that there is no blurs in the indication.
3. Press the START / STOP SW to clear the screen.
4. It will proceed to the next item by pressing the START / STOP SW again.

<No. 4> KEYBOARD & AFTER TOUCH

1. Press the key indicated in the screen (starting from the higher note) with appropriate pressure one by one. Move to the next key after confirming that the velocity value is between the regulated range (20~100). If exceeding the range, all the LED will blink.

2. The screen will proceed to the after touch when finishing the velocity check for all keys. The indicated value must be changed smoothly according to the pressing force.

※The value should reach between 0 and 127.

3. It will proceed to the next item (MDE, VDF) by pressing the START / STOP SW.

<No. 5>MDE & VDF

1. Connect the oscilloscope to OUTPUT 1 and set the master volume at max.
2. Press a C key to get a waveform output with 4 bit length and confirm that the waveform does not change for approx. 2 seconds. (see FIG.1)
3. Press an F key and confirm that no sound by MDE 1 is output.
4. It will proceed to the next item (TG) by pressing the START / STOP SW.

<No. 6>TG

1. Press a C key / D key and confirm that there is no unusual noise in the OUTPUT respectively.
2. Press an E key and confirm that the waveform like FIG. 2 is output.
3. Press an F key and confirm that the waveform like FIG. 3 is output. Pressing a G key will result in the waveform like FIG. 4.
4. It will proceed to the next item (Basic Output) by pressing the START / STOP SW.

<No. 7>BASIC OUTPUT SIGNALS

1. Set the MASTER VOLUME at the max and measure the remaining noise.

※The output signals to be measured are specified by the CURSOR POSITION SWs A~F which correspond to as follows:

A~D *** OUTPUT 1~4 / E~F *** PHONE L/R

2. Press the VALUE ▼ SW. once to set the output level 8 and start to measure the signal level.

※Confirm that each output is within the regulated range for the noise level, signal level, frequency and distortion.

3. Slide the MASTER VOLUME and confirm that the signal level varies smoothly according to the movement.

4. It will proceed to the next item (A/D CONVERTER) by pressing the START / STOP SW.

<No. 8>A/D CONVERTER

1. Connect EXP-2 to ASS. PEDAL / SW. 1 and 2 located at the rear panel and FOOT SW. to DAMPER.
2. The screen will indicate JOYSTICK X-Y at first. Confirm that the indicated value changes smoothly according to the movement of the JOYSTICK X-Y. Each (X, Y) should reach -127 or +127 at the side and 0 at the center.
3. It will proceed to the screen indicating A/D other than the JOYSTICK by pressing the START / STOP SW.
4. The screen will indicate the values of slider, PEDAL 1, PEDAL 2, and the status of DAMPER. Confirm that the value changes smoothly according to the each movement and reaches between 0 and 127.
5. The screen will proceed to " Quit " by stepping the DAMPER ON.

<Quit>

1. It can be moved to any of check items by pressing a BANK / PAGE SW. 0~8 (Upper row) during the screen indication " Quit ".
 2. It will proceed to the preload by pressing the CURSOR POSITION key specified as " Quit " by the screen indication.
- ※RAM CHECK will be carried out internally while moving to the preload after pressing the " Quit ". If there is an error during the RAM CHECK, the screen will indicate the address in reverse color and all the LEDs will blink. The PCM RAM (T1 and option for T2, T3) will be also checked during this stage.
3. Set the preload disk after finishing the RAM CHECK.
 4. By pressing the CURSOR POSITION SW. specified as " LOAD " by the screen of preload, the preload will be carried out and it will exit from the self-check.
 5. The check can be finished after confirming that the preload is done normally.

<REFERENCE>

Regulated range / Check item NO. 7

	Remain Noise [dBm]	Signal Level [V]	Frequency [Hz]	Distortion [%]
OUT-1	-83.0 ↓	4.0 ~ 8.0	488	0.30 ↓
OUT-2	-83.0 ↓	4.0 ~ 8.0	412	0.30 ↓
OUT-3	-82.0 ↓	5.0 ~ 9.0	305	0.30 ↓
OUT-4	-82.0 ↓	5.0 ~ 9.0	244	0.30 ↓
PH-L	-89.0 ↓	2.0 ~ 4.5	549	0.30 ↓
PH-R	-89.0 ↓	2.0 ~ 4.5	610	0.30 ↓

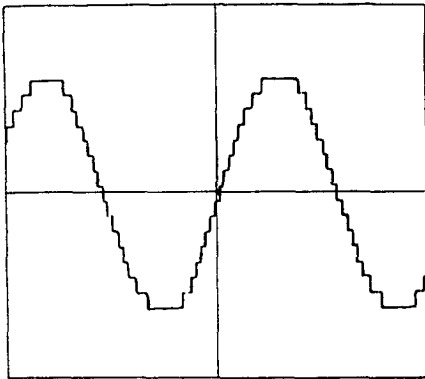


FIG. 1
(CHECK NO. 5) 1 V/div
2 ms/div

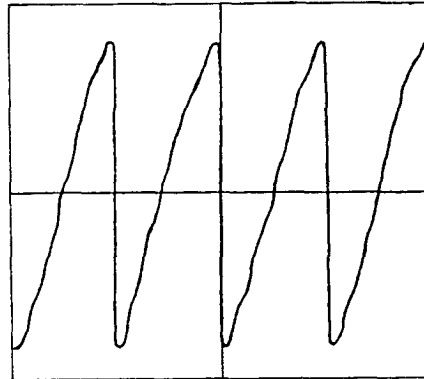


FIG. 2
(CHECK NO. 6) 0.2 V/div
0.2 ms/div

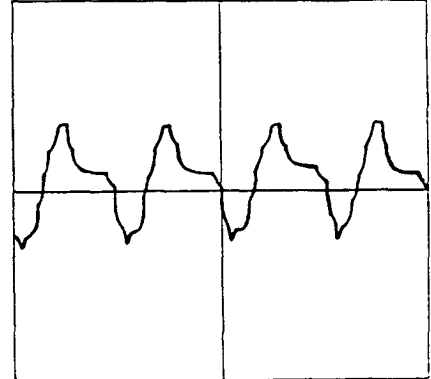


FIG. 3
(CHECK NO. 6) 0.2 V/div
0.5 ms/div

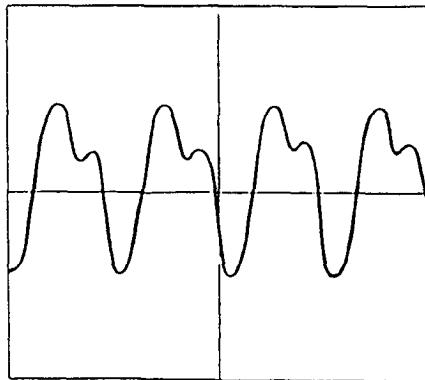


FIG. 4
(CHECK NO. 6) 0.2 V/div
0.5 ms/div

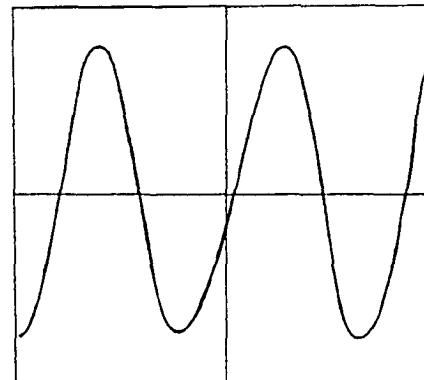


FIG. 5
(CHECK NO. 7) 1 V/div

7. REFERENCE DATA

HD63265SFP

PIN FUNCTION

PIN NO.	I/O	TERMINAL NAME	PIN NO.	I/O	TERMINAL NAME
1	-	NC	17	I/O	D4
2	-	NC	18	-	NC
3	I	RESET	19	-	NC
4	I	E (RD)	20	I/O	D5
5	I	R/W (WR)	21	I/O	D6
6	I	CS	22	I/O	D7
7	I	DACK	23	0	DREQ
8	I	RS	24	0	TRQ
9	-	NC	25	I	DEND
10	-	NC	26	-	VCC4
11	-	VSS1	27	-	CLK
12	-	VSS3	28	-	VSS2
13	I/O	D0	29	-	NC
14	I/O	D1	30	-	NC
15	I/O	D2	31	-	VCC2
16	I/O	D3	32	I	RDATA

PIN NO.	I/O	TERMINAL NAME	PIN NO.	I/O	TERMINAL NAME
33	-	NC	49	I	READY
34	-	NC	50	-	NC
35	0	WGATE	51	-	NC
36	0	WDATA	52	0	STEP
37	0	LATE	53	0	HD1R
38	0	EARLY	54	0	HSEL
39	0	US1	55	0	HLOAD
40	0	US0	56	0	FRES
41	-	NC	57	0	LCT
42	-	NC	58	-	VCC1
43	-	NC	59	-	VCC3
44	I	INDEX	60	I	NUM1
45	I	TRK0	61	I	NUM2
46	I	FAULT	62	I	SFORM
47	I	DSIDE	63	I	IFS
48	I	VPRT	64	I	8" / 5"

MB622425

PIN FUNCTION

PIN NO.	I/O	PIN NAME	PIN NO.	I/O	PIN NAME
1	0	CAS0	26	0	A5
2	0	RAS	27	0	A12
3	-	VDD	28	-	VDD
4	-	VSS	29	-	VSS
5	0	ROWL	30	0	A4
6	0	RAWL	31	0	A3
7	0	RAWU	32	0	A11
8	0	ROWU	33	0	A2
9	0	A17	34	0	A1
10	0	A16	35	0	A0
11	0	A13	36	0	LCDC
12	0	A15	37	0	ADC
13	0	A14	38	0	CK01
14	0	A8	39	0	SC1
15	-	VSS	40	-	VSS
16	0	A7	41	I	NCLK
17	0	A9	42	0	TG
18	0	PNR	43	0	TGWR
19	0	SCAN	44	0	VDF1
20	0	PPI	45	0	VDF2
21	0	FDC	46	0	NDE
22	0	FDRD	47	0	TGM
23	0	FDRR	48	0	SPARE
24	0	A10	49	0	CK00
25	0	A6	50	I	TES

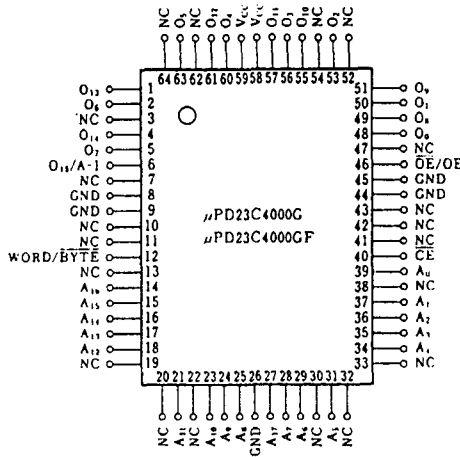
PIN NO.	I/O	PIN NAME	PIN NO.	I/O	PIN NAME
51	0	TCCR	76	I	A19P
52	0	MPCR	77	I	RFRQ
53	-	VDD	78	-	VDD
54	-	VSS	79	-	VSS
55	I	RES	80	I	CLKIN
56	I	AD0	81	I	ASTB
57	I	AD1	82	I	UBE
58	I	AD2	83	I	LOWR
59	I	AD3	84	I	MWR
60	I	AD4	85	I	LOAD
61	I	AD5	86	I	MWD
62	I	AD6	87	I	IM
63	I	AD7	88	0	CARD
64	I	AD8	89	0	LWE
65	-	VSS	90	-	VSS
66	I	AD9	91	0	UWE
67	I	AD10	92	0	DRA0
68	I	AD11	93	0	DRA1
69	I	AD12	94	0	DRA2
70	I	AD13	95	0	DRA3
71	I	AD14	96	0	DRA4
72	I	AD15	97	0	DRA5
73	I	A16P	98	0	DRA6
74	I	A17P	99	0	DRA7
75	I	A18P	100	0	CAS1

μPD23C4000

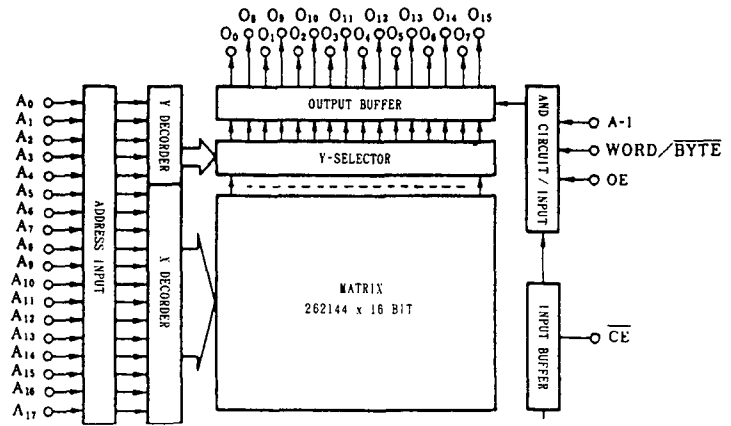
PIN FUNCTION

- A0-A17 : ADDRESS
- O0-07, 08-014 : OUTPUT
- O15/A-1 : OUTPUT 15 (WORD MODE)
LSB ADDRESS (BYTE MODE)
- \overline{CE} : CHIP ENABLE
- WORD / BYTE : MODE SELECT

PIN ASSIGNMENT

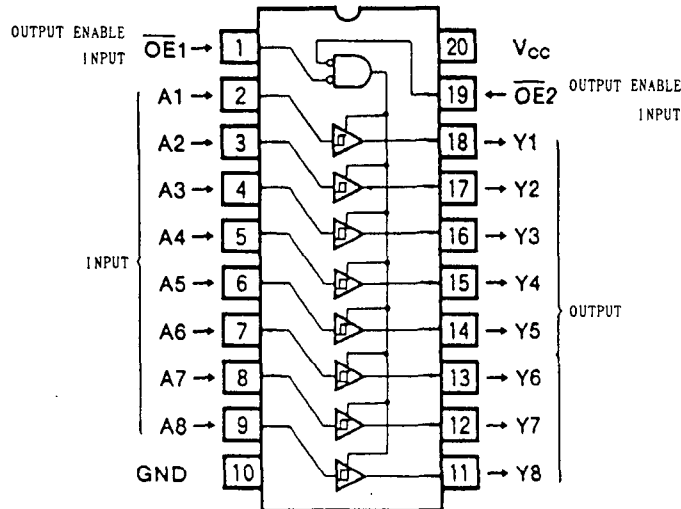


BLOCK DIAGRAM



M74HC541GS

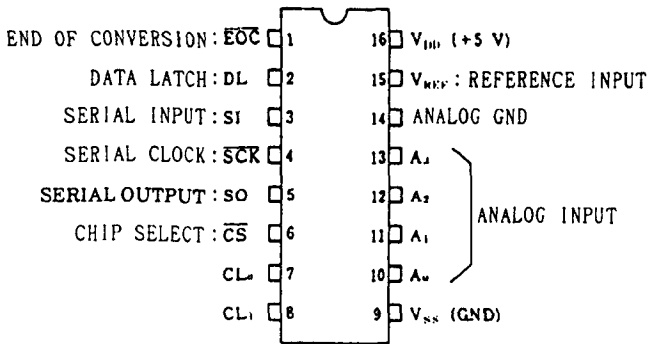
PIN ASSIGNMENT



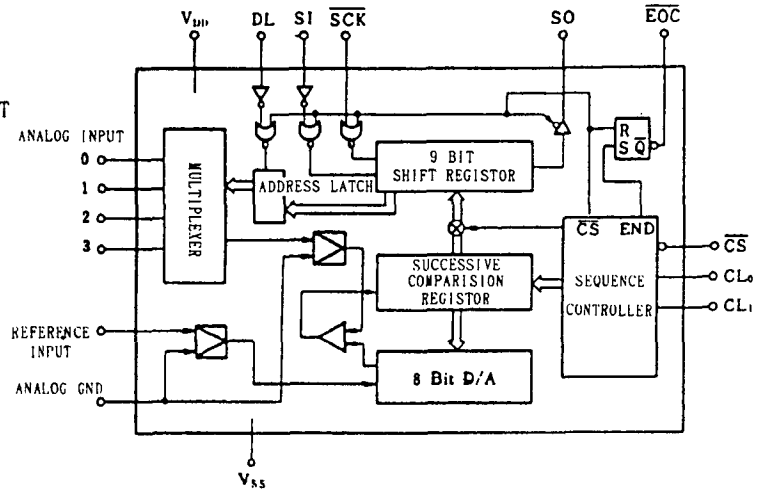
20P4
20P2N

μPD7001C

PIN ASSIGNMENT



BLOCK DIAGRAM

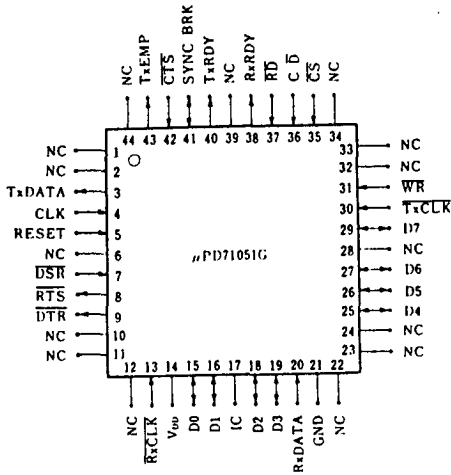


PIN FUNCTION

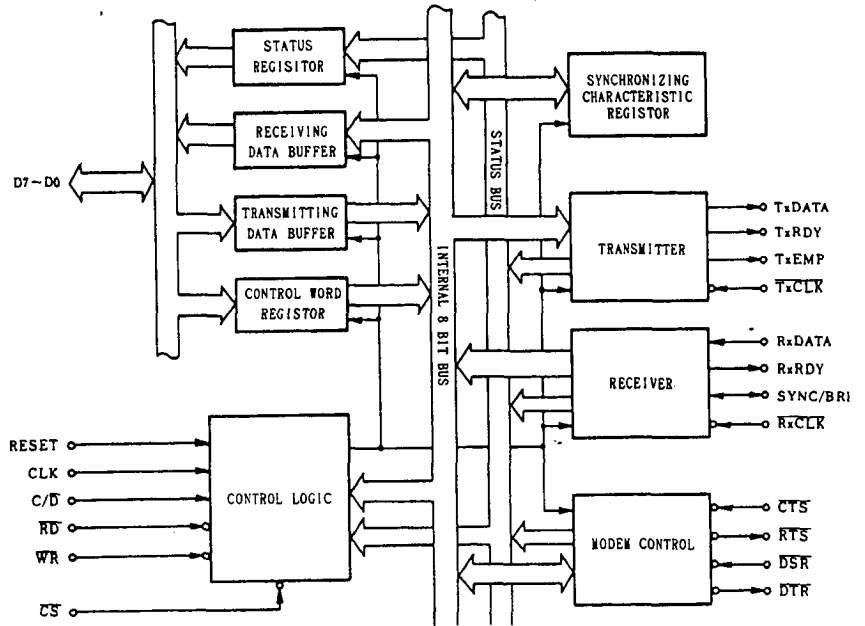
PIN NO.	I/O	MARK	PIN NAME	PIN NO.	I/O	MARK	PIN NAME
1	O	\overline{EOC}	END OF CONVERT	9	-	VSS	GND
2	I	DL	DATA LATCH	10	I	A0	ANALOG INPUT
3	I	SI	SERIAL INPUT	11	I	A1	ANALOG INPUT
4	I	\overline{SCK}	SERIAL CLOCK	12	I	A2	ANALOG INPUT
5	O	SO	SERIAL OUTPUT	13	I	A3	ANALOG INPUT
6	I	\overline{CS}	CHIP SELECT	14	-	GND	GND
7	-	CL0	CLOCK	15	-	VREF	REFERENCE IN.
8	-	CL1	CLOCK	16	-	VCC	POWER SUPPLY

μPD71051GB-384

PIN ASSIGNMENT



BLOCK DIAGRAM

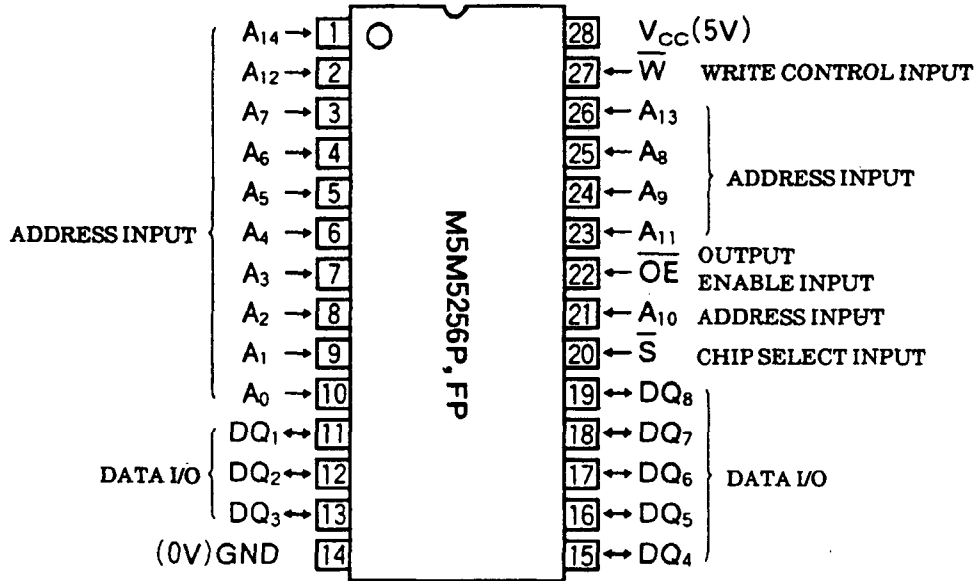


PIN FUNCTION

PIN NAME	I/O	FUNCTION	PIN NAME	I/O	FUNCTION
D7~D0	I/O	Data Bus	RTS	0	Request To Send
RESET	I	Reset	CTS	1	Clear To Send
CLK	I	Clock	TxDATA	0	Transmit Data
CS	I	Chip Select	TxRDY	0	Transmitter Ready
RD	I	Read Strobe	TxEMP	0	Transmitter Empty
WR	I	Write Strobe	TxCLK	1	Transmitter Clock
C / D	I	Control or Data	RxDATA	1	Receive Data
DSR	I	Data Set Ready	RxRDY	0	Receiver Ready
DTR	0	Data Terminal Ready	SYNC/BRK	I/O	Sync. / Break

M5M5256P, FP

PIN ASSIGNMENT



28P4(P)
28P2W(FP)

FOR T1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
BLOCK RESISTORS				
135005410	RKC1/8B5J 1K	1370		1
135006510	RKC1/8B6J 10K	1370		2
135008510	RKC1/8B8J 10K	1370		2
137004310	RKC1/4B4SJ 1000HM	1370		4
137004410	RKC1/8B4SJ 1K	1370		2
137004415	RKC1/4B4SJ 1.5K	1373		4
137006410	RKC1/4B6SJ 1K	1385		4
EMI FILTERS				
219050100	DSS310-55D223S	1370 1373 1385		3 3 1
219050800	NFV610-655 T2A 206	1370		1
219050900	NFV610-655 T2A 506	1370		1
ELECTROLYTIC CAPACITORS				
254003210	16V 10UF	1370 1385 1373		8 2 1
254003310	16V 100UF	1370 1385 1373		3 1 5
254003347	16V 470UF	1373		2
254006110	50V 1UF	1370 1373		1 1
254063210	16V 10UF	1373		8
254073222	16V 22UF	1373		2
PPC				
264003456	100V 5600PF	1373		4
TRANSISTORS				
304000050	2SA1175	1373		1
304020100	BA1A4M-T	1370		8
304020110	BN1A4M-T	1370 1373		4 1
304020180	2SC2878 A/B	1373		4

45

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
FET				
304060022	2SK381-T11-B/C	1373		4
LEDs				
312008100	RED/GRN VRP3312X	1377		1
312009600	AR3412S	-1380		9
LCD				
313002100	DMF5005N-EW	M. PRT		1
DIODE				
314001300	ISS-133	1370 1377- 1373		3 49 7
ZENER DIODE				
314023900	RD5. 1ESB1-T	1373 1377-		2 1
DOUBLE DIODE				
315000400	MC932-T12	1370 1373		1 3
ICs				
320001097	UPD74HC04C	1373		1
320001146	UPD70216GF-8-3B9	1370		1
320001151	UPD74HC4053	1373		3
320001162	UPD23C512EC-039	1370		2
320001174	UPD424256V-10	1385		8
320001222	UPD23C4000GF-966	1370		1
320001223	UPD23C4000GF-967	1370		1
320001224	UPD23C4000GF-968	1370		1
320001225	UPD23C4000GF-969	1370		1
320001226	UPD23C4000GF-970	1370		1
320001227	UPD23C4000GF-971	1370		1
320001228	UPD23C4000GF-972	1370		1
320001229	UPD23C4000GF-973	1370		1
320001233	UPD71051GB-3B4	1370		1

8. PARTS LIST

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
320001234	UPD43256AGU-10/15	1370		2
320001235	UPD7001C	1370		1
320004132	HD63265SFP	1370		1
320009001	NJM4558DV	1377-		1
320009085	NJM2068SD	1373		8
320010002	CXD1095Q	1370		1
320011026	M5216L	1373		1
320011063	M5218L	1370		1
320011076	M5238L	1373		3
320011078	M74LS05P	1373		1
320011089	M51951BSL	1370		1
320011100	M5M4464AL-12	1370		13
320011118	M751272FP	1370		1
320012049	MB87402PF	1370		1
320012050	MB87403APP	1370		1
320012051	MB87404PF	1370		2
320012052	MB87405PF	1370		1
320012055	MB670484PF	1370		1
320012058	MB83512-15P-259	1370		1
320012080	MB622425PF	1370		1
320012081	MBM27C1000-20Z-G	1370		2
320013018	LH5164LN	1370		1
320013019	LH534AR 2	1385		1
320013020	LH534AR 3	1385		1
320013021	LH534AR 4	1385		1
320013022	LH534AR 5	1385		1
320013023	LH534AR 6	1385		1
320013024	LH534AR 7	1385		1
320013025	LH534AR 8	1385		1
320013026	LH534AR 9	1385		1
320036006	PCM54HP-005	1373		1
324001005	UPD74HC14GS-E2	1370		1
324001006	UPD74HCU04GS-E2	1370		1
324001007	UPD74HC139GS-E2	1370		1
324001008	UPD74HC32GS-E2	1370		1
324001009	UPD74HC138GS-E2	1370		2
324001010	UPD74HC4050GS-E2	1370		1
324001011	UPD74HC04GS-E2	1370		1
324001012	UPD74HC245GS-E2	1370		1
324001013	UPD74HC4051GS-E2	1370		1
324001014	UPD74HC541GS-E2	1370		2
324011002	M5223FP	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
PHOTO COUPLER				
330001400	PC-910K	1373		1
CRYSTAL				
335005500	HC-49/U 32MHz	1370		1
P. C. BOARDS				
001137001	KLM-1370	ASSY.		1
001137300	KLM-1373	ASSY.		1
002137400	KLM-1374	ASSY.	117EX	1
			117US	1
			100JP	1
002137500	KLM-1375	ASSY.	117CN	1
002137600	KLM-1376	ASSY.	220GE	1
			220SE	1
			240UK	1
			220FR	1
			220SC	1
			220WG	1
			240AF	1
			240AU	1
			240GE	1
001137700	KLM-1377-1380	ASSY.		1
001138500	KLM-1385	ASSY.		1
SEMI FIXED VRs				
350002347	RH0615C 47K	1377-		1
		1373		1
350002410	RH0615C 100K	1377-		1
VRs				
360021200	RR09K1110AB2A 10KB	1373		1
360021300	RR1631110RZ2A 10KB	M. PRT		2
SLIDE VRs				
365007800	RS30111AC00NA 10KB	1377-		1
365008000	RS30112AC00 10KBx2	1377-		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
POWER SW.				
375006100	SLD-1P	M. PRT		1
TACT SW.				
375007500	SKHHAN	1377-		44
COIL				
402002300	BL02RN2-R62	1373		14
KEYBOARD				
420003300	101490 A-88	M. PRT		1
FDD				
435000600	DPP723E(2MB)	M. PRT		1
PHONE JACK				
454004400	YKB21-5010	1373		8
CONNECTORS				
471000301	TOP B3P-SHF-1	1377-		1
471000801	TOP B8P-SHF-1	1373		1
471070400	B4B-PH	1370		1
471070800	B8B-PH	1370		1
474004715	ZC-032	1370		1
		1373		1
BC CONNECTOR				
474009900	L-32	1370		1
CARD CONNECTORS				
474011100	FC-26	1377-		1
474011300	HGC0338	1370		1
474014300	ZC-026	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
HEADERS				
474014400	20P	1370		1
474014500	30P	1370		1
474014600	34P	1370		1
474014700	60P	1370		1
HARNESSES				
475001304	HNS-1304	1370		1
475001305	HNS-1305	1377-		1
475001306	HNS-1306	M. PRT		1
475001307	HNS-1307	M. PRT		1
475001308	HNS-1308	M. PRT		1
475001309	HNS-1309	1373		1
475001328	HNS-1328	1377-		1
475001329	HNS-1329	M. PRT		1
475001330	HNS-1330	M. PRT		1
475001331	HNS-1331	M. PRT		1
475001332	HNS-1332	M. PRT		1
475001333	HNS-1333	M. PRT		1
475001334	HNS-1334	M. PRT		1
475001335	HNS-1335	1377-		1
475001404	HNS-1404	1385		1
IC SOCKET				
480001324	32P DICF-32CS-E	1370		2
DIN JACK SOCKET				
480010180	M-1704	1373		2
SIDE PANEL CUSHION				
500012000		M. PRT		2
LITHIC BATTERY				
520001700	CR2032	M. PRT		1
BUSHINGS				
540005803	TA-305	M. PRT		2
540005900	TB-300	M. PRT		2

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
INLET SOCKET				
540012300	PA-125-BS	M. PRT	240UK	1
540012400	PA-125-CU	M. PRT	220GE	1
			240GE	1
			220SE	1
			240AF	1
			220WG	1
			240AU	1
			117CN	1
			117US	1
			220SC	1
			100JP	1
			220FR	1
			117EX	1
WASHER				
540016700	ZMC 0.8x5.7x19.6	M. PRT		3
SMCD HARNESSSES				
545020380	32X280BDX10	M. PRT		1
545020390	26X350ESX10	1377-		1
545020400	32X380BDX10	M. PRT		1
CUSHION FOR KEYBOARD				
550013800		M. PRT		1
LED SPACER				
575014800	LS-15-11	1377-		10
JOYSTICK LEVER KNOB				
620019600		M. PRT		1
SLIDE VR KNOB				
620019700		M. PRT		2
SW. KNOBS				
620020201	NO. 2	M. PRT		3

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
620020203	NO. 4	M. PRT		6
POWER SW. KNOB				
620021600	BLK	M. PRT		1
LCD WINDOW				
630011000		M. PRT		1
BAR				
630011200		M. PRT		1
SHIELD SHEET				
630012100	FOR KEYBOARD	M. PRT	117CN	2
			117US	2
			220WG	2
630012200	FOR PANEL	M. PRT	117US	1
			220WG	1
			117CN	1
630012300	A	M. PRT		2
STUD FOR P. C. BOARD				
640076100		M. PRT		8
KEYBOARD ANGLE				
640079000		M. PRT		3
METAL FITTING OF KEYBOARD				
640080200		M. PRT		2
CARD GUIDE				
640088500		M. PRT		1
WHEEL SPRING				
640089900		M. PRT		2

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
CARD ANGLE				
640092000		M. PRT		1
HINGE				
641001100	NO. 1	M. PRT		3
JACK PLATE				
641007800		M. PRT		1
MIDI SHIELD				
641007900	NO. 2	1373		2
ANGLE				
641008100	TYPE L	M. PRT		2
FRONT PANEL				
641008600		M. PRT		1
REAR PANEL				
641008700		M. PRT		1
JOYSTICK PANEL				
641008800		M. PRT		1
SIDE CHASSISES				
641009000	L	M. PRT		1
641009001	R	M. PRT		1
METAL FITTING OF POWER SW.				
641009100		M. PRT		1
PANEL SUPPORTS				
641009500	1	M. PRT		3
641009600	2	M. PRT		2

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
SHIELD ANGLE				
641010500		M. PRT	220WG 117CN 117US	1 1 1
NUT				
644003300	M3xL120	M. PRT		6
JOYSTICK LEVER PIN				
644003800		M. PRT		1
EARTH SPRING				
644005100	(E)	M. PRT	117US 117CN 220WG	8 8 8
TOP PANEL				
645012500		M. PRT		1
SIDE PANELS				
645012600	L	M. PRT		1
645012601	R	M. PRT		1
BOTTOM PLATE				
645012700		M. PRT		1
JOYSTICK SUPPORTS				
646027700	X	M. PRT		1
646027800	Y	M. PRT		1
JOYSTICK LEVER				
646027900		M. PRT		1
JOYSTICK BOX				
646028000		M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
SLIDE VR FRAME				
646028200	NO. 1	M. PRT		1
PCM CARD SLOT				
646028300		M. PRT		1
LCD HOOD				
646033600		M. PRT		1
BATTERY HOLDER				
649007400		1370		1
JOYSTICK VR PLATE				
646027600		M. PRT		2

FOR T2

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
BLOCK RESISTORS				
135005410	RKC1/8B5J 1K	1370		1
135006510	RKC1/8B6J 10K	1370		2
135008510	RKC1/8B8J 10K	1370		2
137004310	RKC1/4B4SJ 1000HM	1370		4
137004410	RKC1/8B4SJ 1K	1370		2
137004415	RKC1/4B4SJ 1.5K	1373		4
137006410	RKC1/4B6SJ 1K	1385		4
EMI FILTERS				
219050100	DSS310-55D223S	1370		3
		1373		3
		1385		1
219050800	NFV610-655 T2A 206	1370		1
219050900	NFV610-655 T2A 506	1370		1
ELECTROLYTIC CAPACITORS				
254003210	16V 10UF	1370		8
		1385		2
		1373		1
254003310	16V 100UF	1370		3
		1385		1
		1373		5
254003347	16V 470UF	1373		2
254006110	50V 1UF	1370		1
		1373		1
254063210	16V 10UF	1373		8
254073222	16V 22UF	1373		2
PPC				
264003456	100V 5600PF	1373		4
TRANSISTORS				
304000050	2SA1175	1373		1
304020100	BA1A4M-T	1370		8
304020110	BN1A4M-T	1370		4
		1373		1
304020180	2SC2878 A/B	1373		4

FOR T2

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
FET				
304060022	2SK381-T11-B-C	1373		4
LEDs				
312008500	GL5ED5	1371		1
312009500	HLMP-D101	-1372		9
LCD				
313002100	DMF5005N-EW	M. PRT		1
DIODE				
314001300	1SS-133	1370 1371- 1373		3 47 7
ZENER DIODE				
314023900	RD5. 1ESBI-T	1373		2
DOUBLE DIODE				
315000400	MC932-T12	1370 1373		1 3
ICs				
320001097	UPD74HC04C	1373		1
320001146	UPD70216GF-8-3B9	1370		1
320001151	UPD74HC4053	1373		3
320001162	UPD23C512EC-039	1370		2
320001222	UPD23C4000GF-966	1370		1
320001223	UPD23C4000GF-967	1370		1
320001224	UPD23C4000GF-968	1370		1
320001225	UPD23C4000GF-969	1370		1
320001226	UPD23C4000GF-970	1370		1
320001227	UPD23C4000GF-971	1370		1
320001228	UPD23C4000GF-972	1370		1
320001229	UPD23C4000GF-973	1370		1
320001233	UPD71051GB-3B4	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
320001234	UPD43256AGU-10-15	1370		2
320001235	UPD7001C	1370		1
320004132	HD63265SFP	1370		1
320009085	NJM2068SD	1373		8
320010002	CXD1095Q	1370		1
320011026	M5216L	1373		1
320011063	M5218L	1370		1
320011076	M5238L	1373		3
320011078	M74LS05P	1373		1
320011089	M51951BSL	1370		1
320011100	M5M4464AL-12	1370		13
320011118	M751272FP	1370		1
320012049	MB87402PF	1370		1
320012050	MB87403APF	1370		1
320012051	MB87404PF	1370		2
320012052	MB87405PF	1370		1
320012055	MB670484PF	1370		1
320012058	MB83512-15P-259	1370		1
320012080	MB622425PF	1370		1
320012081	MBM27C1000-20Z-G	1370		2
320013018	LH5164LN	1370		1
320013019	LH534AR 2	1385		1
320013020	LH534AR 3	1385		1
320013021	LH534AR 4	1385		1
320013022	LH534AR 5	1385		1
320013023	LH534AR 6	1385		1
320013024	LH534AR 7	1385		1
320013025	LH534AR 8	1385		1
320013026	LH534AR 9	1385		1
320036006	PCM54HP-005	1373		1
324001005	UPD74HC14GS-E2	1370		1
324001006	UPD74HCU04GS-E2	1370		1
324001007	UPD74HC139GS-E2	1370		1
324001008	UPD74HC32GS-E2	1370		1
324001009	UPD74HC138GS-E2	1370		2
324001010	UPD74HC4050GS-E2	1370		1
324001011	UPD74HC04GS-E2	1370		1
324001012	UPD74HC245GS-E2	1370		1
324001013	UPD74HC4051GS-E2	1370		1
324001014	UPD74HC541GS-E2	1370		2
324011002	M5223FP	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
PHOTO COUPLER				
330001400	PC-910K	1373		1
CRYSTAL				
335005500	HC-49/U 32MHz	1370		1
P. C. BOARDS				
001137002	KLM-1370	ASSY.		1
001137100	KLM-1371/1372	ASSY.		1
001137300	KLM-1373	ASSY.		1
002137400	KLM-1374	ASSY.	117EX 117US 100JP	1 1 1
002137500	KLM-1375	ASSY.	117CN	1
002137600	KLM-1376	ASSY.	220GE 220SE 240UK 220FR 220SC 220WG 240AF 240AU 240GE	1 1 1 1 1 1 1 1 1
001138500	KLM-1385	ASSY.		1
SEMI FIXED VR				
350002347	RH0615C 47K	1373		1
VRs				
360021200	RK09K1110AB2A 10KB	1373		1
360021300	RK1631110RZ2A 10KB	M. PRT		2
SLIDE VRs				
365007800	RS30111AC00NA 10KB	1371-		1
365008000	RS30112AC00 10KBx2	1371-		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
POWER SW.				
375006100	SLD-1P	M. PRT		1
TACT SW.				
375007500	SKHHAN	1371-		44
COIL				
402002300	BL02RN2-R62	1373		14
KEYBOARD				
420004300	FS-76	M. PRT		1
FDD				
435000600	DFP723E(2MB)	M. PRT		1
PHONE JACK				
454004400	YKB21-5010	1373		8
CONNECTORS				
471000801	TOP B8P-SHF-1	1373		1
471070400	B4B-PH	1370		1
471070800	B8B-PH	1370		1
474004715	ZC-032	1370		1
		1373		1
BC CONNECTOR				
474009900	L-32	1370		1
CARD CONNECTORS				
474011100	FC-26	1371-		1
474011300	HGC0338	1370		1
474014300	ZC-026	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
HEADERS				
474014400	20P	1370		1
474014500	30P	1370		1
474014600	34P	1370		1
474014700	60P	1370		1
HARNESSES				
475001377	HNS-1377	1370		1
475001378	HNS-1378	M. PRT		1
475001379	HNS-1379	M. PRT		1
475001380	HNS-1380	M. PRT		1
475001381	HNS-1381	M. PRT		1
475001382	HNS-1382	1373		1
475001383	HNS-1383	1371-		1
475001384	HNS-1384	M. PRT		1
475001385	HNS-1385	M. PRT		1
475001386	HNS-1386	M. PRT		1
475001387	HNS-1387	M. PRT		1
475001388	HNS-1388	M. PRT		1
475001403	HNS-1403	1385		1
IC SOCKET				
480001324	32P DDCF-32CS-E	1370		2
DIN JACK SOCKET				
480010180	M-1704	1373		2
KEYBOARD REAR SPACER				
500015400		M. PRT		3
LITHIC BATTERY				
520001700	CR2032	M. PRT		1
EMI FERRITE				
525000400		M. PRT	117US	1
		M. PRT	117CN	1
		M. PRT	220WG	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
INLET SOCKETS				
540012300	PA-125-BS	M. PRT	240UK	1
540012400	PA-125-CU	M. PRT	220GE	1
			240GE	1
			220SE	1
			240AF	1
			220WG	1
			240AU	1
			117CN	1
			117US	1
			220SC	1
			100JP	1
			220FR	1
			117EX	1
SMCD HARNESSES				
545020360	26X250ESX10	1371-		1
545020400	32X380BDX10	M. PRT		1
LED SPACERS				
575014600	LS-15-4 L=4mm	1371-		1
575014700	LS-15-3 L=3mm	1371-		1
ROUND KNOBS				
620018901	NO. 1GS	M. PRT		7
620019800	NO. 3GS	M. PRT		1
JOYSTICK LEVER KNOB				
620019600		M. PRT		1
SLIDE VR KNOB				
620019700		M. PRT		2
POWER SW. KNOB				
620021600	BLK	M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
LCD WINDOW				
630011000		M. PRT		1
JOYSTICK SHIELD SHEET				
630011500		M. PRT	117US 220WG 117CN	1 1 1
ISOLATION COVER				
630011700		M. PRT		1
SHIELD SHEET				
630012400	B	M. PRT	240GE 220SE 220GE 220FR 240UK 220SC 100JP 240AU 117EX 240AF	1 1 1 1 1 1 1 1 1 1
630012500		M. PRT	220WG 117CN 117US	1 1 1
CARD GUIDE				
640088500		M. PRT		1
WHEEL SPRING				
640089900		M. PRT		2
SIDE CHASSISES				
640091600	(L) M1	M. PRT		1
640091601	(R) M1	M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
CARD ANGLE				
640092000		M. PRT		1
PU CHASSIS				
641007700		M. PRT		1
JACK PLATE				
641007800		M. PRT		1
MIDI SHIELD				
641007900	NO. 2	M. PRT		2
ANGLE TYPE L				
641008100		M. PRT		2
KEYBOARD FRONT ANGLES				
641008300		M. PRT		1
641009900	2	M. PRT		1
FDD ANGLES				
641008400	L	M. PRT		1
641008500	R	M. PRT		1
BOTTOM PLATE				
641009700		M. PRT		1
KEYBOARD REAR SUPPORT				
641009800		M. PRT		1
KEYBOARD REAR ANGLES				
641010000	A	M. PRT		1
641010100	B	M. PRT		1
641010200	C	M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
PANEL				
641010300		M. PRT		1
KEYBOARD PLATE				
641010900		M. PRT		1
JOYSTICK LEVER PIN				
644003800		M. PRT		1
VR PLATE				
646027600		M. PRT		2
JOYSTICK SUPPORTS				
646027700	X	M. PRT		1
646027800	Y	M. PRT		1
JOYSTICK LEVER				
646027900		M. PRT		1
JOYSTICK BOX				
646028000		M. PRT		1
SLIDE VR FRAME 1				
646028200		M. PRT		1
PCM CARD SLOT				
646028300		M. PRT		1
SIDE PANELS				
646028400	L	M. PRT		1
646028401	R	M. PRT		1
JOYSTICK PANEL				
646028600		M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
LCD HOOD				
646033600		M. PRT		1
FDD COVER				
646033700		M. PRT		1
SIDE PLATE				
646034000		M. PRT		1
BATTERY HOLDER				
649007400		1370		1

FOR T3

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
BLOCK RESISTORS				
135005410	RKC1/8B5J 1K	1370		1
135006510	RKC1/8B6J 10K	1370		2
135008510	RKC1/8B8J 10K	1370		2
137004310	RKC1/4B4SJ 1000HM	1370		4
137004410	RKC1/8B4SJ 1K	1370		2
137004415	RKC1/4B4SJ 1.5K	1373		4
137006410	RKC1/4B6SJ 1K	1385		4
EMI FILTERS				
219050100	DSS310-55D223S	1370 1373 1385		3 3 1
219050800	NFV610-655 T2A 206	1370		1
219050900	NFV610-655 T2A 506	1370		1
ELECTROLYTIC CAPACITORS				
254003210	16V 10UF	1370 1385 1373		8 2 1
254003310	16V 100UF	1370 1385 1373		3 1 5
254003347	16V 470UF	1373		2
254006110	50V 1UF	1370 1373		1 1
254063210	16V 10UF	1373		8
254073222	16V 22UF	1373		2
PPC				
264003456	100V 5600PF	1373		4
TRANSISTORS				
304000050	2SA1175	1373		1
304020100	BA1A4M-T	1370		8
304020110	BN1A4M-T	1370 1373		4 1
304020180	2SC2878 A/B	1373		4

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
FET				
304060022	2SK381-T11-B/C	1373		4
LED				
312008500	GL5ED5	1371/2		1
312009500	HLMP-D101	1371/2		9
LCD				
313002100	DMF5005N-EW	M. PRT		1
DIODE				
314001300	1SS-133	1370 1371/2 1373		3 47 7
ZENER DIODE				
314023900	RD5. 1ESB1-T	1373		2
DOUBLE DIODE				
315000400	MC932-T12	1370 1373		1 3
ICs				
320001097	UPD74HC04C	1373		1
320001146	UPD70216GF-8-3B9	1370		1
320001151	UPD74HC4053	1373		3
320001162	UPD23C512EC-039	1370		2
320001222	UPD23C4000GF-966	1370		1
320001233	UPD23C4000GF-967	1370		1
320001224	UPD23C4000GF-968	1370		1
320001225	UPD23C4000GF-969	1370		1
320001226	UPD23C4000GF-970	1370		1
320001227	UPD23C4000GF-971	1370		1
320001228	UPD23C4000GF-972	1370		1
320001229	UPD23C4000GF-973	1370		1
320001233	UPD71051GB-3B4	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
320001234	UPD43256AGU-10	1370		2
320001235	UPD7001C	1370		1
320001132	HD63256SFP	1370		1
320009085	NJM2068SD	1373		8
320010002	CXD1095Q	1370		1
320011026	M5216L	1373		1
320011063	M5218L	1370		1
320011076	M5238L	1373		3
320011078	M74LS05P	1373		1
320011089	M51951BSL	1370		1
320011100	M5M4464AL-12	1370		13
320011118	M751272FP	1370		1
320012049	MB87402PF	1370		1
320012050	MB87403PF	1370		1
320012051	MB87404PF	1370		2
320012052	MB87405PF	1370		1
320012055	MB670484PF	1370		1
320012058	MB83512-15P-259	1370		1
320012080	MB622425PF	1370		1
320012081	MBM27C1000-20Z-G	1370		2
320013018	LH5164LN	1370		1
320013019	LH534AR2	1385		1
320013020	LH534AR3	1385		1
320013021	LH534AR4	1385		1
320013022	LH534AR5	1385		1
320013023	LH534AR6	1385		1
320013024	LH534AR7	1385		1
320013025	LH534AR8	1385		1
320013026	LH534AR9	1385		1
320036006	PCM54HP-005	1373		1
324001005	UPD74HC14GS-E2	1370		1
324001006	UPD74HCU04GS-E2	1370		1
324001007	UPD74HC139GS-E2	1370		1
324001008	UPD74HC32GS-E2	1370		1
324001009	UPD74HC138GS-E2	1370		2
324001010	UPD74HC4050GS-E2	1370		1
324001011	UPD74HC04GS-E2	1370		1
324001012	UPD74HC245GS-E2	1370		1
324001013	UPD74HC4051GS-E2	1370		1
324001014	UPD74HC541GS-E2	1370		2
324011002	M5223FP-73A	1370		1
PHOTO COUPLER				
335001400	PC-910K	1373		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
CRYSTAL				
335005500	HC-49/U 32MHz	1370		1
P. C. BOARDS				
001137003	KLM-1370	1370		1
001137100	KLM-1371/1372	1371/2		1
001137300	KLM-1373	1373		1
001138500	KLM-1385	1385		1
002137400	KLM-1374	1374	117US	1
			117EX	1
			100JP	1
002137500	KLM-1375	1375	17CN	1
002137600	KLM-1376	1376	220SE	1
			240GE	1
			220GE	1
			240UK	1
			220FR	1
			220SC	1
			220WG	1
			240AF	1
			240AU	1
SEMI FIXED VR				
350002347	RH0615C 47K	1373		1
VRs				
360021200	RK09K1110AB2A 10KB	1373		1
360021300	RK1631110R22A 10KB	M. PRT		2
SLIDE VRs				
365007800	RS30111AC 10KB	1371/2		1
365008000	RS30112AC 10KBx2	1371/2		1
POWER SW.				
375006100	SDL-1P	M. PRT		1
TACT SW.				
375007500	SKHHAN	1371/2		44

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
COIL				
402002300	BL02RN2-R62	1373		14
KEYBOARD				
420004000	FS-61	M. PRT		1
FDD				
435000600	DFF723E (2MB)	M. PRT		1
PHONE JACK				
454004400	YKB21-5010	1373		8
CONNECTORS				
471000801	TOP B8P-SHF-1	1373		1
471070400	B4B-PH	1370		1
471070800	B8B-PH	1370		1
471071000	B10B-PH	1370		1
471071300	B13B-PH	1370		1
CARD FIT CONNECTORS				
474004715	ZC-032	1370		1
		1373		1
474014300	ZC-026	1370		1
BC CONNECTOR				
474009900	L-32	1370		1
CARD CONNECTORS				
474011100	FC-26	1371/2		1
474011300	HGC0338	1370		1
HEADERS				
474014400	20P 5332-20T2	1370		1
474014600	34P 5332-34T2	1370		1
474014700	60P 5332-60GS1	1370		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
HARNESSES				
475001290	HNS-1290	M. PRT		1
475001291	HNS-1291	M. PRT		1
475001292	HNS-1292	M. PRT		1
475001293	HNS-1293	M. PRT		1
475001294	HNS-1294	M. PRT		1
475001295	HNS-1295	M. PRT		1
475001296	HNS-1296	M. PRT		1
475001297	HNS-1297	1373		1
475001298	HNS-1298	1371/2		1
475001299	HNS-1299	M. PRT		1
475001300	HNS-1300	M. PRT		1
475001301	HNS-1301	M. PRT		1
475001302	HNS-1302	M. PRT		1
475001352	HNS-1352	1385		1
IC SOCKET				
480001324	32P DICF-32CS-E	1370		2
DIN JACK SOCKET				
480010180	M-1704 (x3)	1373		2
LITHIC BATTERY				
520001700	CR2032	1370		1
EMI FERRITE				
525000400		M. PRT	220WG	1
			117CN	1
			117US	1
INLET SOCKETS				
540012300	PA-125-BS	M. PRT	240UK	1
540012400	PA-125-CU	M. PRT	220GE	1
			240GE	1
			240WG	1
			240AF	1
			220SE	1
			117EX	1
			240AU	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
540012400	PA-125 CU	M. PRT	117CN 117US 100JP 220FR 220SC	1 1 1 1 1
P. C. BOARD SPACER				
540016800	MSPLS-3	M. PRT		2
SMCD HARNESSSES				
545020360	26x250ESx10	1371/2		1
545020370	32x180BDx10	M. PRT		1
LED SPACERS				
575014600	LS-15-4 L=4mm	1371/2		9
575014700	LS-15-3 L=3mm	1371/2		1
ROUND KNOBS				
620018901	NO. 1GS	M. PRT		7
620019800	NO. 3GS	M. PRT		1
JOYSTICK LEVER KNOB				
620019600		M. PRT		1
SLIDE VR KNOB				
620019700		M. PRT		2
POWER SW. KNOB				
620021600	BLK	M. PRT		1
LCD WINDOW				
630011000		M. PRT		1
SHIELD SHEET				
630011500	FOR JOY STICK	M. PRT	117US/117CN/220WG	1
630011600		M. PRT	220WG	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
630011600		M. PRT	117CN 117US	1 1
630011900	B	M. PRT	220GE 220SC 117EX 240AF 240AU 100JP 240UK 220FR 240GE 220SE	1 1 1 1 1 1 1 1 1 1
CARD GUIDE				
640088500		M. PRT		1
WHEEL SPRING				
640089900		M. PRT		2
SIDE CHASSISES				
640091600	L (M1)	M. PRT		1
640091601	R (M1)	M. PRT		1
CARD ANGLE				
640092000		M. PRT		1
KEYBOARD SUPPORT				
640094200		M. PRT		1
PANEL				
641007500		M. PRT		1
BOTTOM PLATE				
641007600		M. PRT		1
PU CHASSIS				
641007700		M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
JACK PLATE				
641007800		M. PRT		1
MIDI SHIELD				
641007900	NO. 2	1373		2
KEYBOARD REAR ANGLE				
641008000		M. PRT		2
ANGLE TYPE L				
641008100		M. PRT		2
KEYBOARD FRONT ANGLE				
641008300		M. PRT		1
FDD ANGLE				
641008400	L	M. PRT		1
641008500	R	M. PRT		1
LEVER PIN				
644003800		M. PRT		1
VR PLATE				
646027600		M. PRT		2
JOYSTICK SUPPORTS				
646027700	X	M. PRT		1
646027800	Y	M. PRT		1
JOYSTICK LEVER				
646027900		M. PRT		1
JOYSTICK BOX				
646028000		M. PRT		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P. C. BOARD	IDENTIFICATION NO. FUNCTION	Q' TY
SLIDE VR FRAME 1				
646028200		M. PRT		1
PCM CARD SLOT				
646028300		M. PRT		1
SIDE PANELS				
646028400	L	M. PRT		1
646028401	R	M. PRT		1
JOYSTICK PANEL				
646028600		M. PRT		1
LCD HOOD				
646033600		M. PRT		1
FDD COVER				
646033700		M. PRT		1
BATTERY HOLDER				
649007400		1370		1

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