

SERVICE MANUAL

Interactive Music Workstation

i5S

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KORG

1.SPECIFICATIONS

Tone generation method	:	AI square synthesis system (full digital processing)
Tone generator	:	32 voices 32 oscillators (Single Mode) 16 voices 32 oscillators (Double Mode)
Keyboard	:	61 key with aftertouch sensitive TP-7
Waveform memory	:	16 Mbit Mask ROM x 3 (6 Mbyte) 340 MULTI sounds 164 DRUM sounds
Quantization	:	12 bit and 8 bit
Sampling frequency	:	31.25kHz
Programs	:	ROM ; 128 programs + 1 drum set program (for GM) ROM ; 192 programs + 13 drum set programs RAM ; 64 programs + 2 drum set programs
Styles	:	ROM ; 72 styles RAM ; 4 styles
Arrangements	:	ROM ; 128 arrangements RAM ; 64 arrangements
Backing sequencer	:	10 songs
Song play	:	SMF Play format 0 (Direct from Disk Play) format 1 16 tracks / 16 multi timbers
Sequencer memory	:	40,000 events (Backing sequencer + Sequencer)
Effects	:	47 multi digital effects
Memory backup	:	RAM (GLOBAL + PROGRAM + STYLE + ARRANGEMENT) backup battery CR2032 & IC M62021
Control inputs	:	Damper pedal, Assignable pedal1, EC5
Inputs	:	L/MONO (impedance L : 6.9k Ω MONO : 3.45k Ω) R (impedance : 6.9k Ω)
Outputs	:	L/MONO (impedance L : 1.1k Ω MONO : 550 Ω residual noise : less than -80dBm) R (impedance : 1.1k Ω residual noise : less than -80dBm) PHONES (impedance : 10 Ω residual noise : less than -84dBm)
MIDI	:	IN, OUT, THRU
TO HOST	:	Mini DIN 8pin connector (31.25KBPS, 38.4KBPS)
Display	:	20 x 2 LCD with LED back light
Floppy disk drive	:	3.5 inch 2DD/2HD disk drive (720k/1.44M MS-DOS format)
Power amplifier	:	10W x 2
Speakers	:	12cm x 2
Dimensions	:	1,024(W) x 344.8(D) x 117.5(H)mm
Weight	:	10.6kg
Power consumption	:	45W

* Specifications and design are subject to change without notice
for the purpose of product enhancement.

2.FULL VIEW

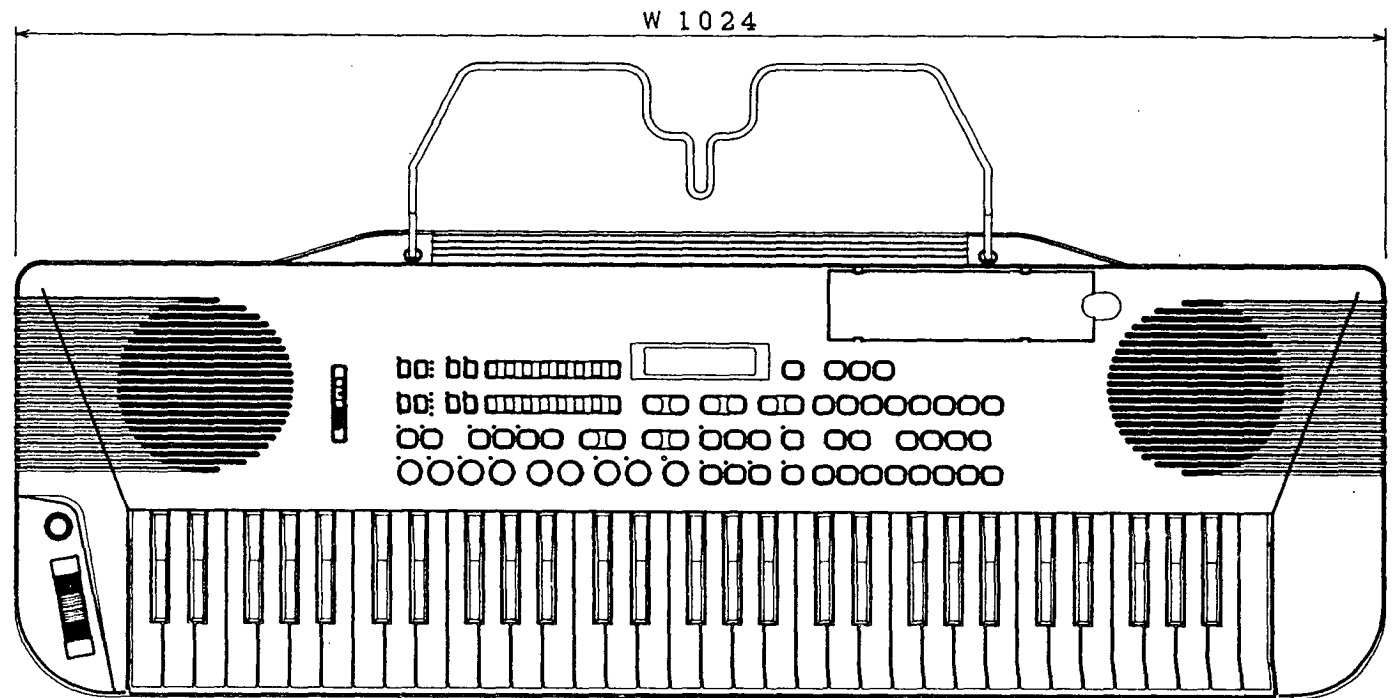
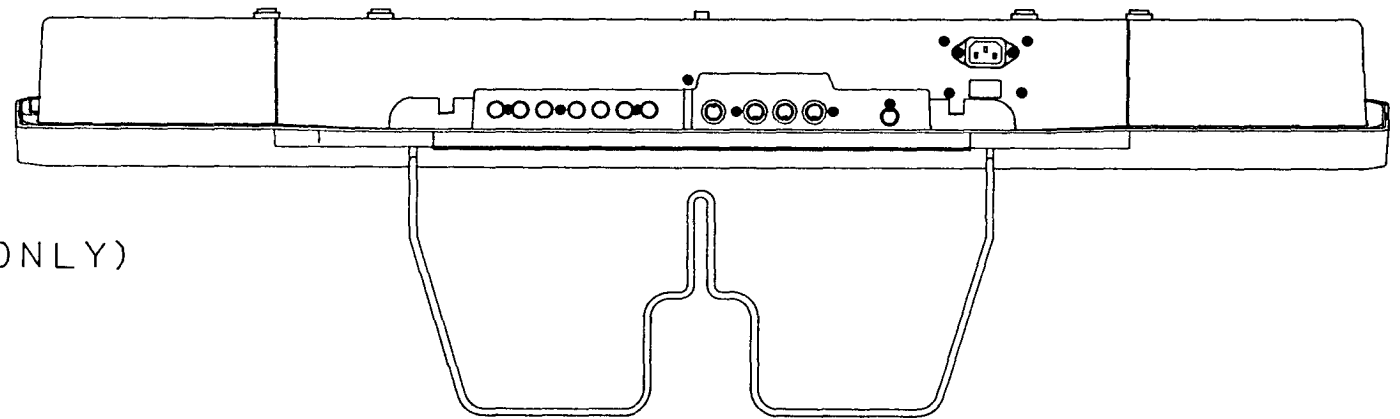
W=1024.0 mm

D= 344.8 mm

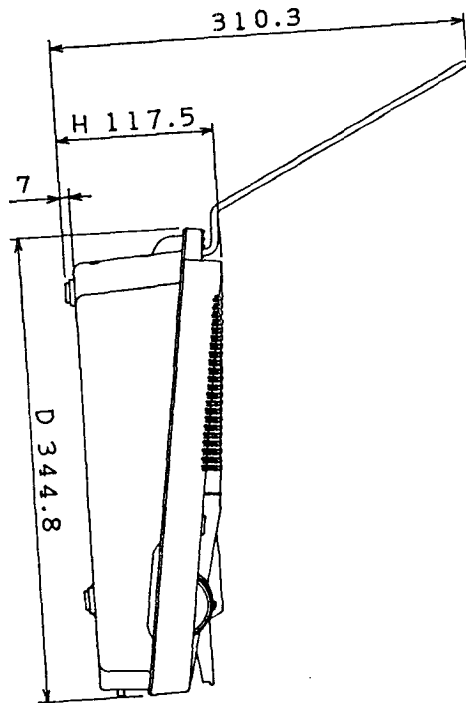
H= 117.5 mm

Weight=10.6 Kg

(PRODUCT ONLY)

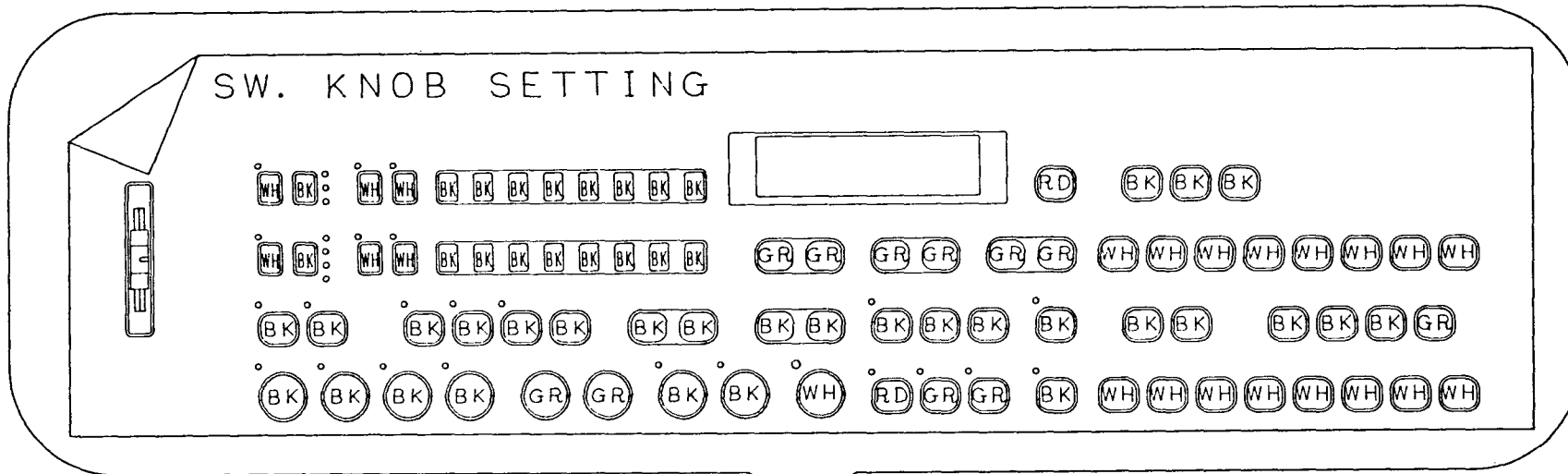


3

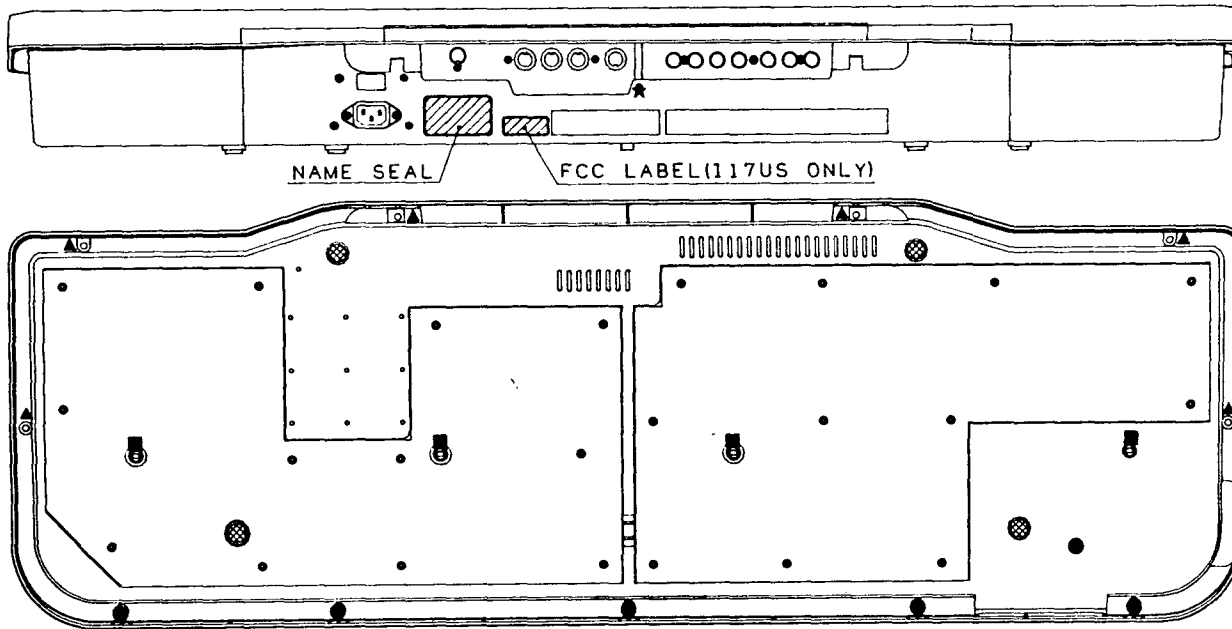


3. DISASSEMBLY

1. WHOLE ASSEMBLY



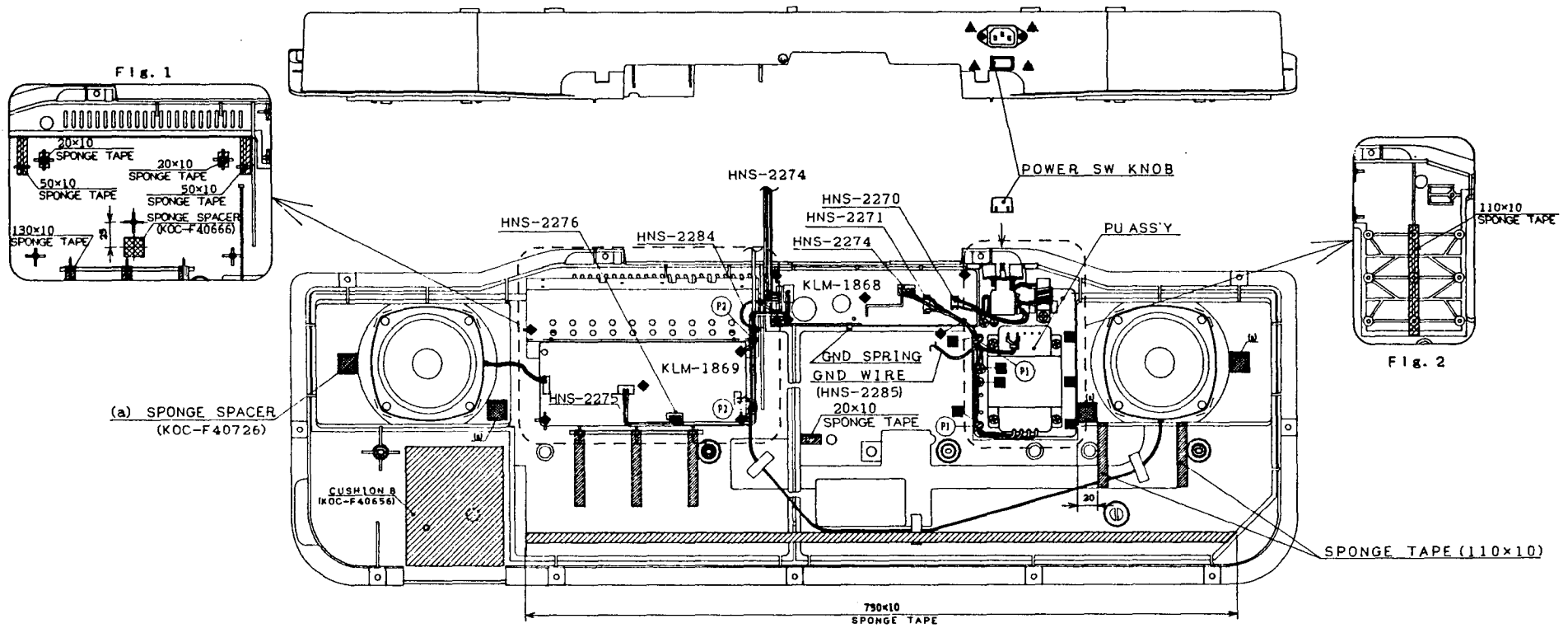
4



※ In case of removing the LOWER CASE assembly, remove all the following screws.

★	BT	B	BZMC	3×12	1
■	TP1	B	BZMC	3×14	4
●	BT	B	BZMC	4×10	6
▲	BT	B	BZMC	4×20	6
MARK	SCREWS				QTY

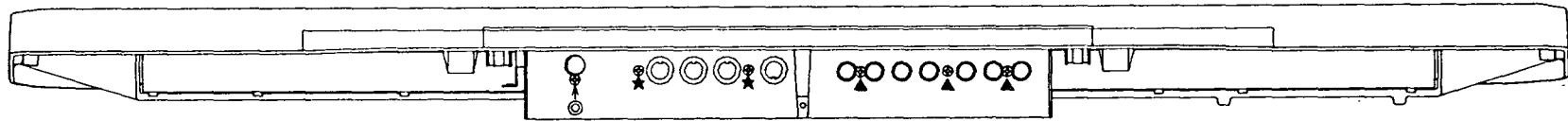
2. LOWER CASE ASSEMBLY



- (P1) : SPIRAL CLIP CS-6
- (P2) : SPIRAL CLIP CS-8

■	BT	B	ZMC	4x10	6
◆	BT	B	ZMC	3x8	10
▲	B	B	ZMC	3x8	4
MARK	SCREWS				QTY

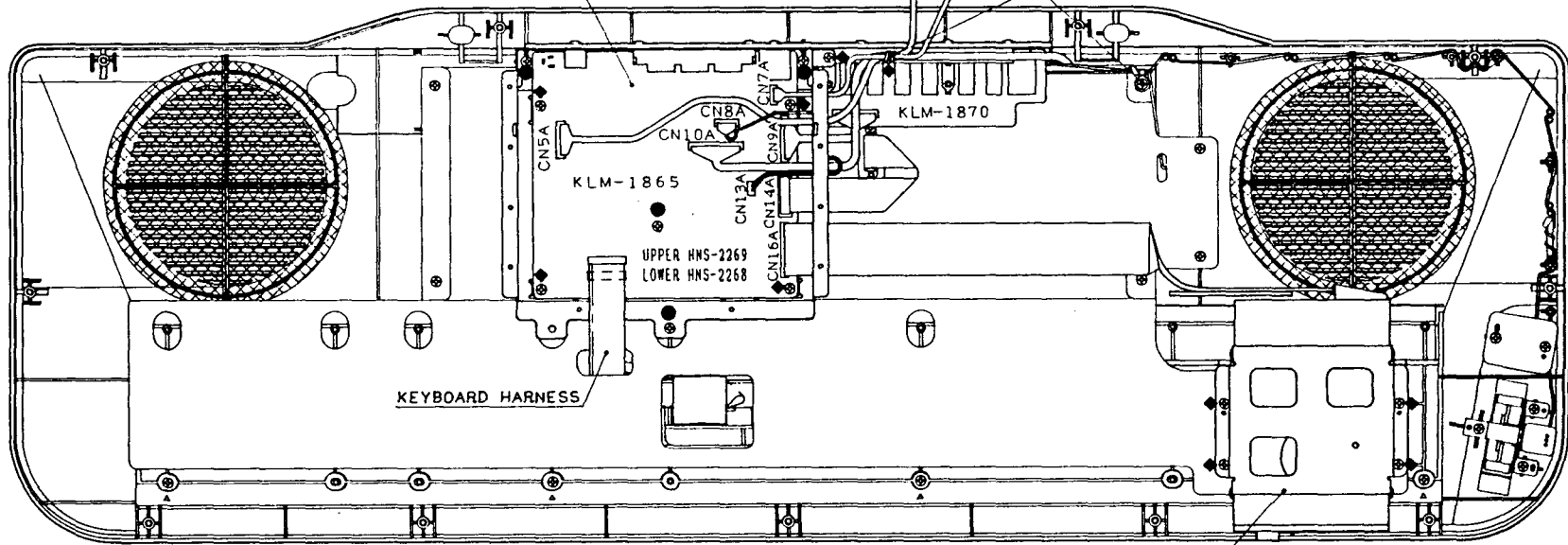
3. UPPER CASE ASSEMBLY (1/2)



MAIN P.C. BOARD WITH SHIELD CASE ASS'Y

HNS-2274 HNS-2276

SPIRAL CLIP



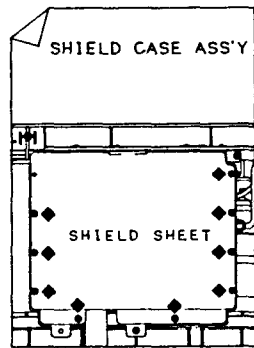
KLM-1865

UPPER HNS-2269
LOWER HNS-2268

KEYBOARD HARNESS

KLM-1870

FDD ASS'Y

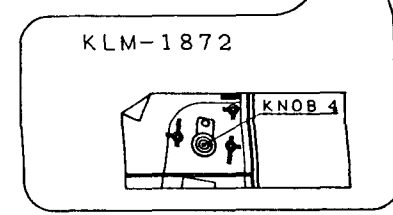
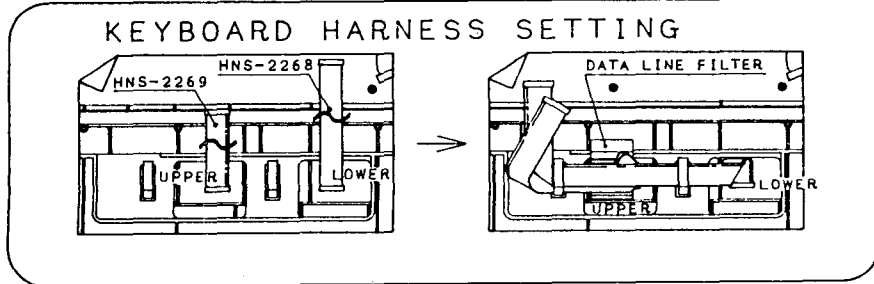
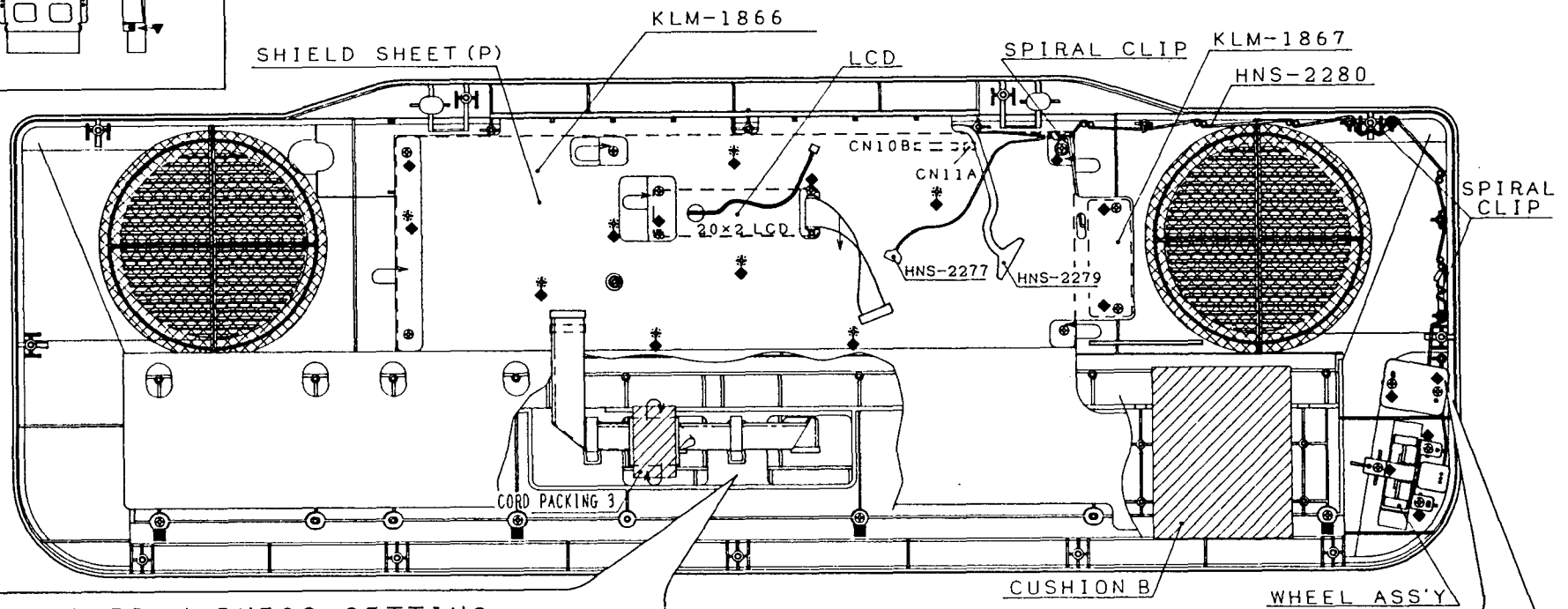
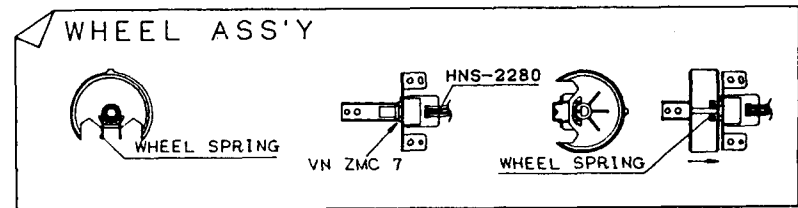
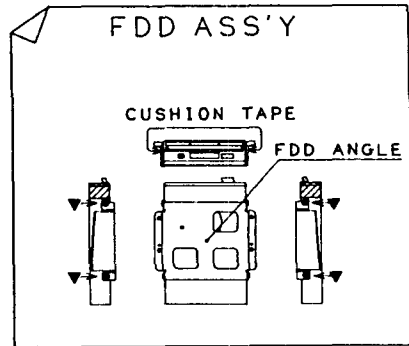


SHIELD CASE ASS'Y

SHIELD SHEET

◎	FE	B	BZ	MC	3x8	1
★	BT	B	BZ	MC	3x12	2
●	BT	B	BZ	MC	3x12	4
▲	BT	B	BZ	MC	3x8	20
◆	BT	B	BZ	MC	3x8	3
MARK	SCREWS					Q'TY

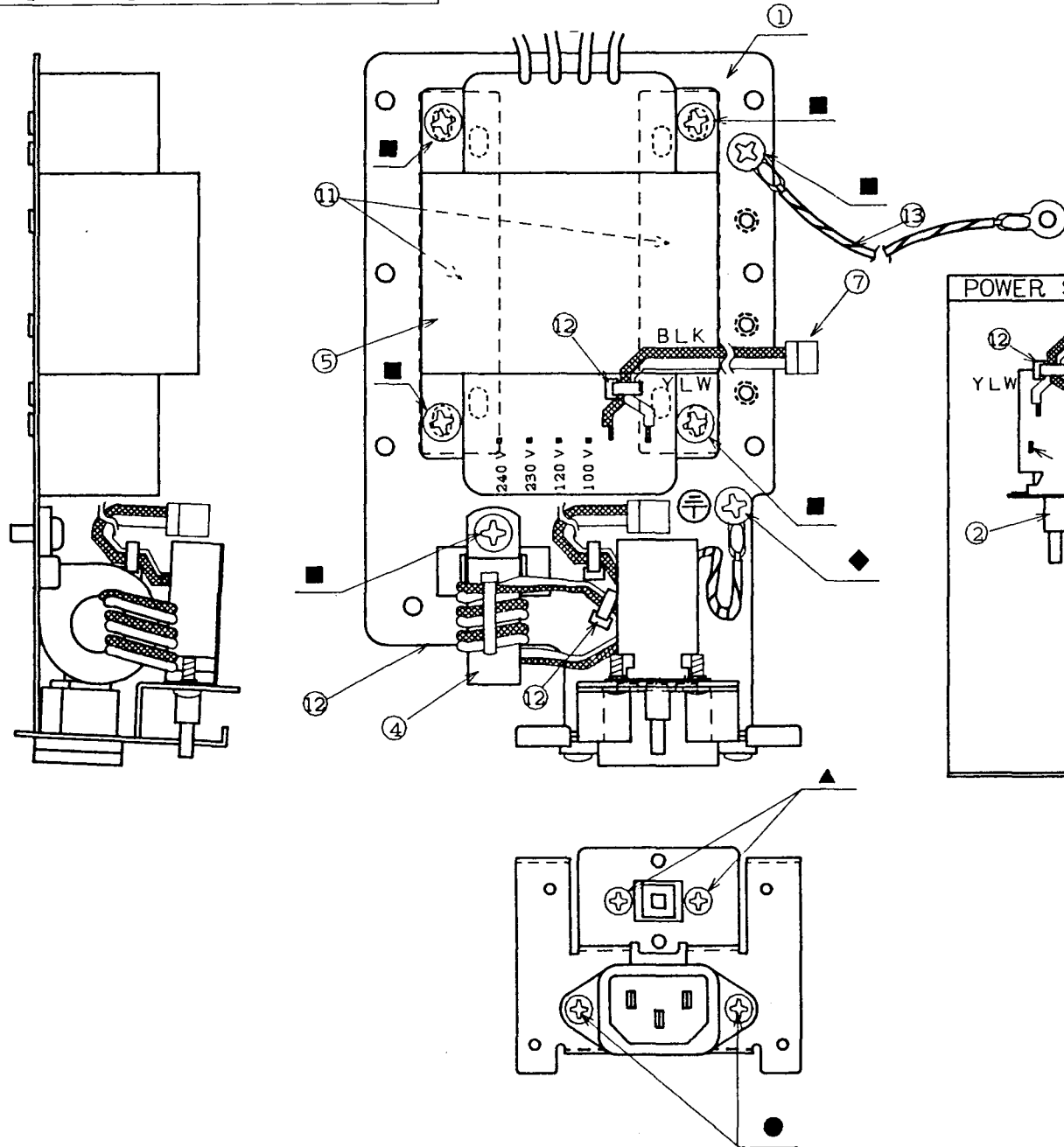
4. UPPER CASE ASSEMBLY (2/2)



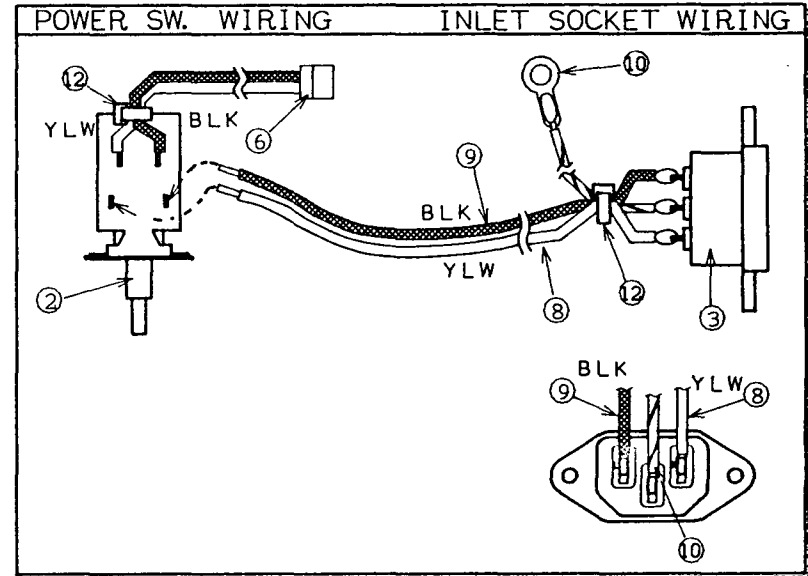
▼	FE	B	ZMC	3x4	4
◆	TP1	B	BZMC	3x14	4
■	BT	B	ZMC	3x8	25
MARK	SCREWS				Q'TY

5. POWER SUPPLY UNIT ASSEMBLY

8



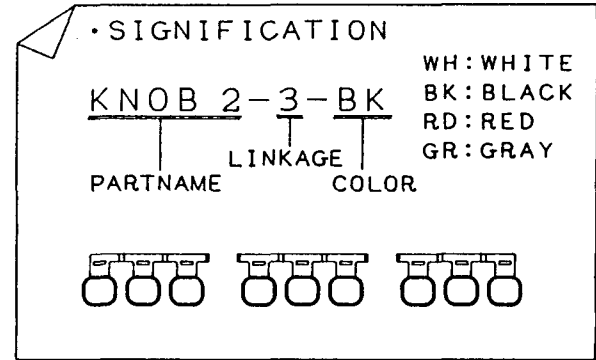
MARK	SCREWS	Q'TY
●	BT B BZMC 3×8	2
▲	FE B BZMC 3×8	2
◆	TS SSE ZMC 4×10	1
■	BT B ZMC 4×10	6



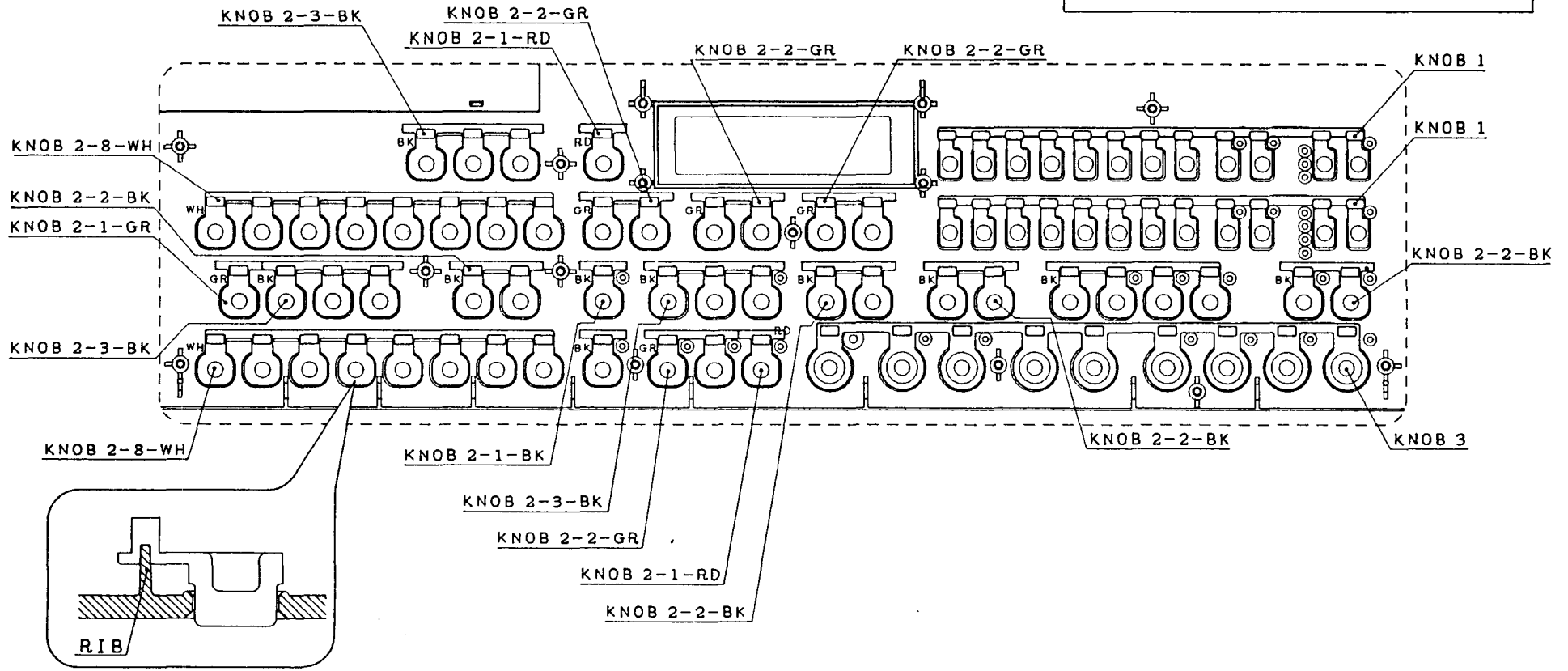
13	GND WIRE	HNS-2285	1
12	WIRE BAND	PLT-1M	5
11	CUSHION	KOC-F40394	2
10	GND WIRE (INLET)	HNS-2283	1
9	AC WIRE (BLACK)	HNS-2272	1
8	AC WIRE (YELLOW)	HNS-2273	1
7	HARNESS	HNS-2271	1
6	HARNESS	HNS-2270	1
5	POWER TRANSFORMER	TC-062	1
4	DATA LINE FILTER	ESD-R-25D-B	1
3	INLET SOCKET	SS-7B	1
2	POWER SW.	SDDFA3498A	1
1	PU CHASSIS	KOC-C30475	1
No.	PART NAME	IDENTIFICATION	QTY

6. SW. KNOB SETTING

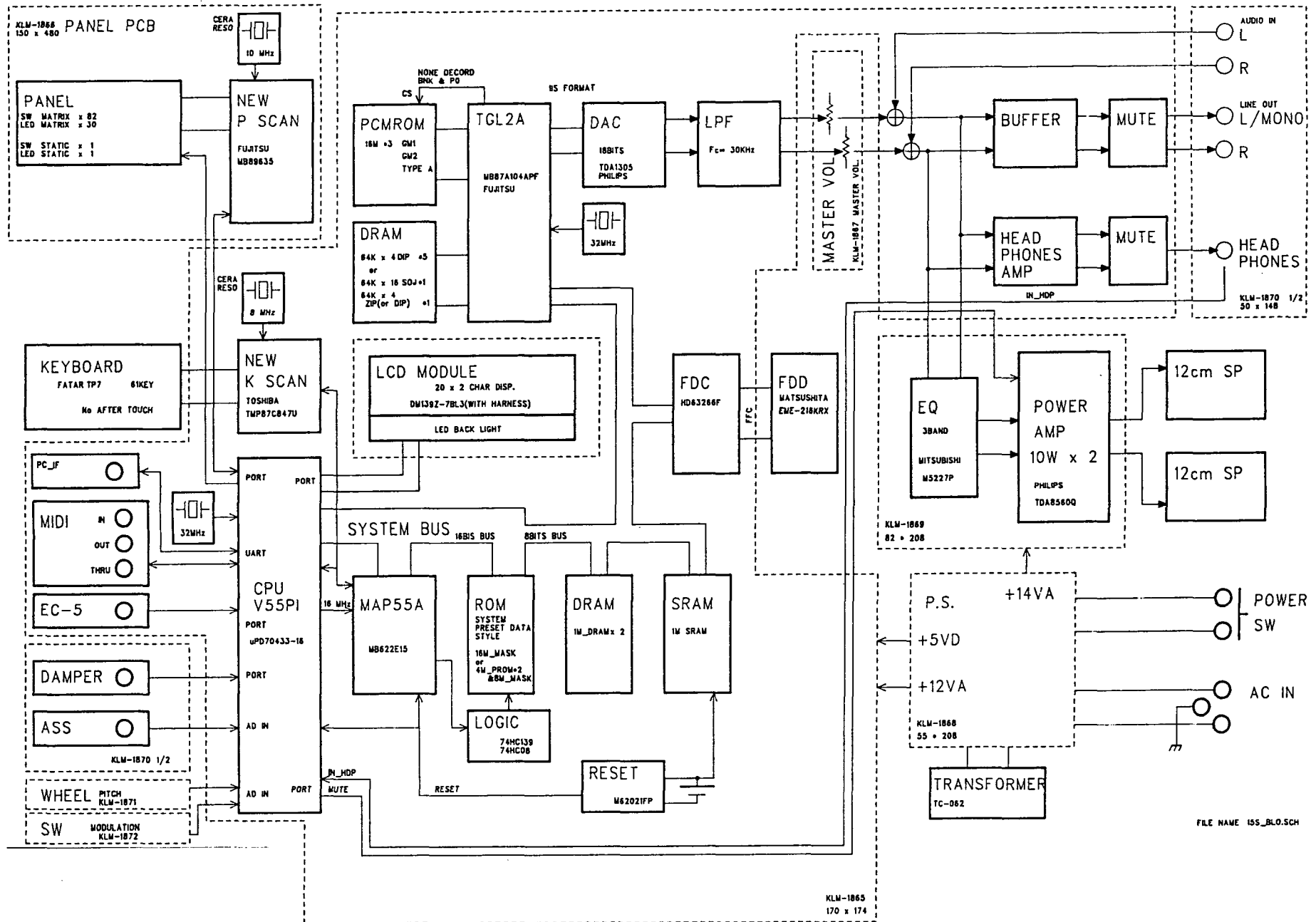
• KNOB 2					• KNOB 1 2 Pcs	
COLOR	WH	BK	RD	GR	• KNOB 3 1 Pc.	• KNOB 4 1 Pc.
LINKAGE						
KNOB 2-8	2 Pcs					
KNOB 2-4		1 Pc.				
KNOB 2-3		3 Pcs				
KNOB 2-2		4 Pcs		4 Pcs		
KNOB 2-1		2 Pcs	2 Pcs	1 Pc.		



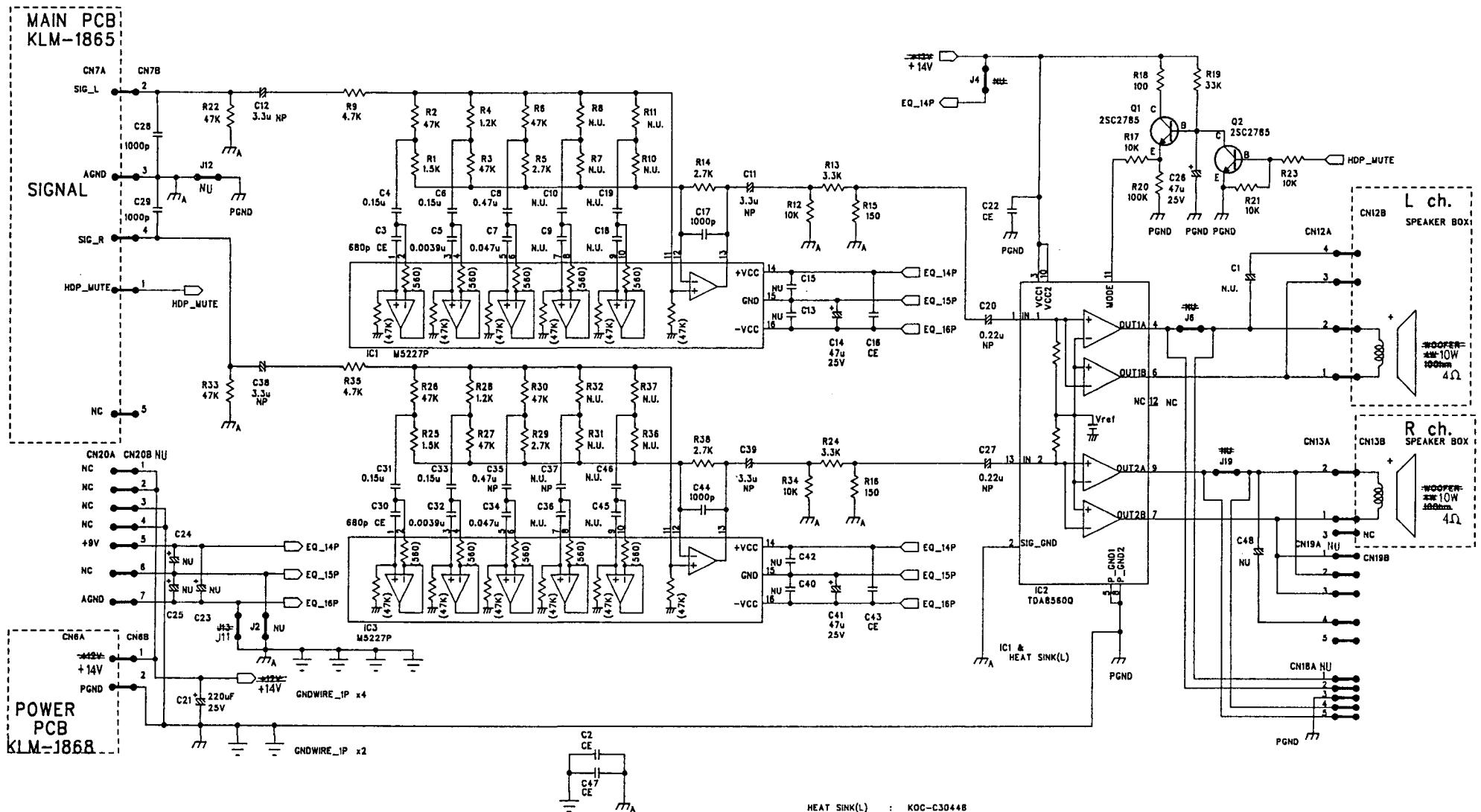
6



4. BLOCK DIAGRAM



5. CIRCUIT DIAGRAM



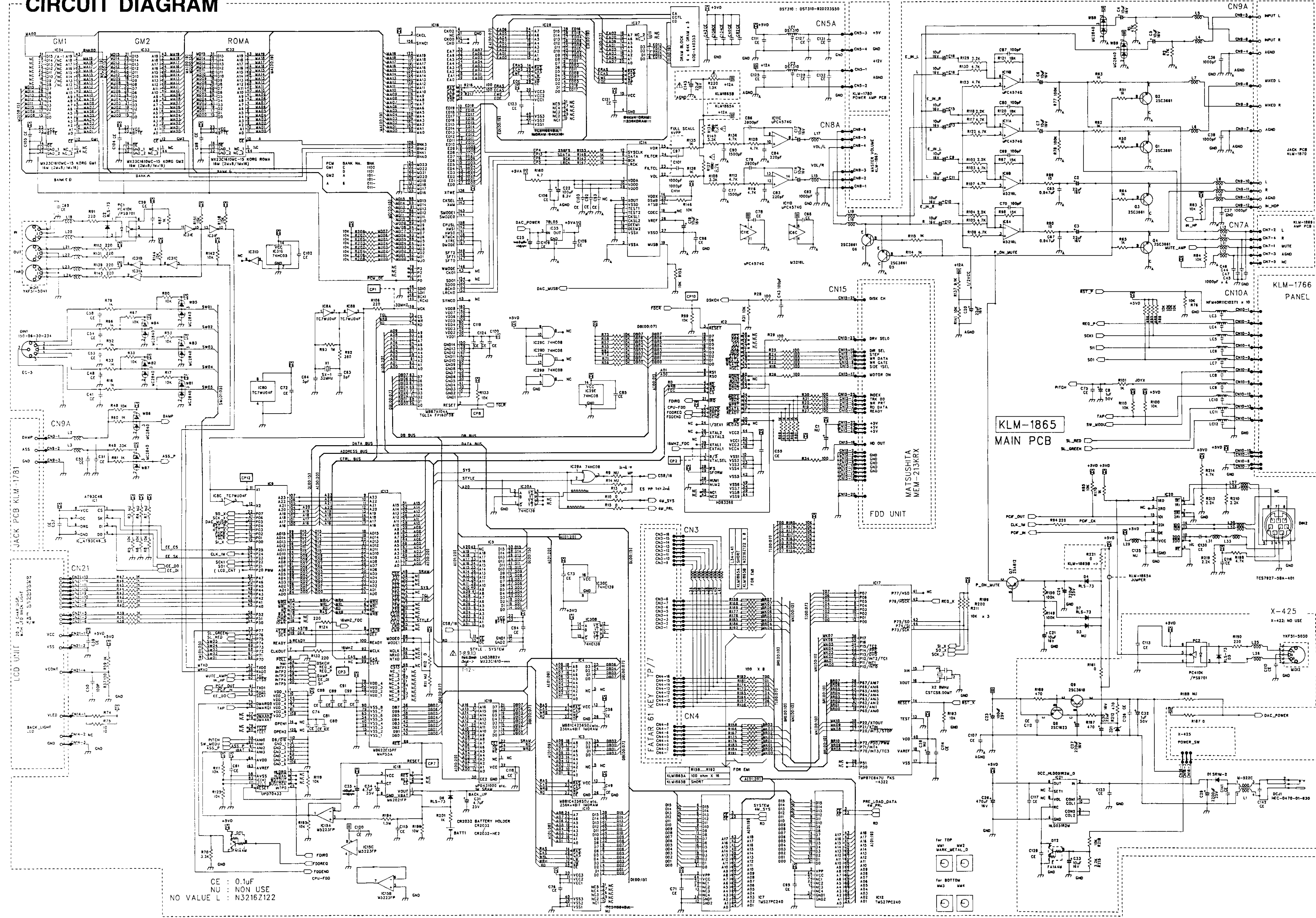
1 1

KLM-1869 AMP & EQ PCB

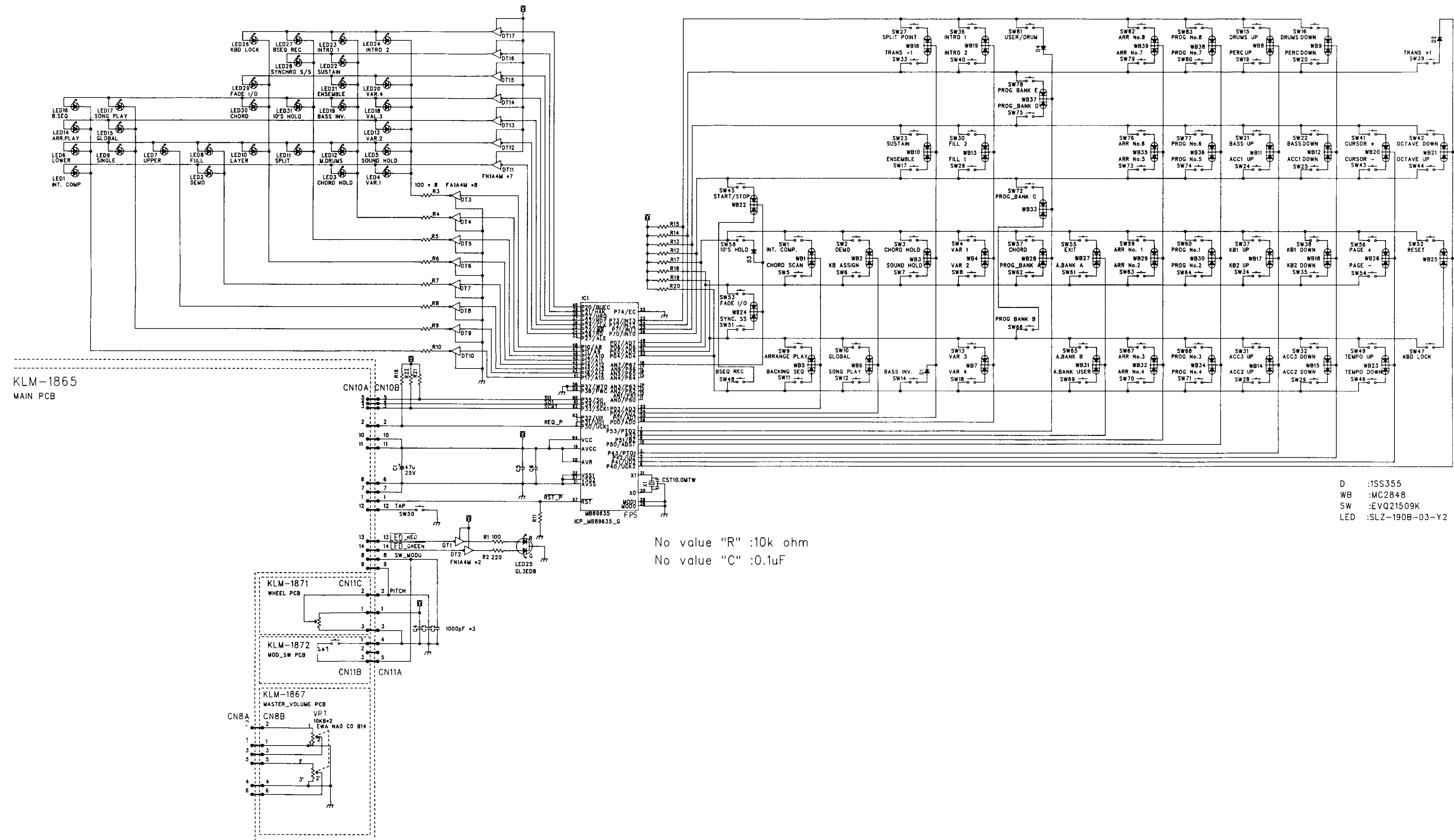
- HEAT SINK(L) : KOC-C30448
- L ANGLE(S) : KOC-C40871
- CE : 0.1u
- NU, N.U. : ND USE

KLM-1869

CIRCUIT DIAGRAM



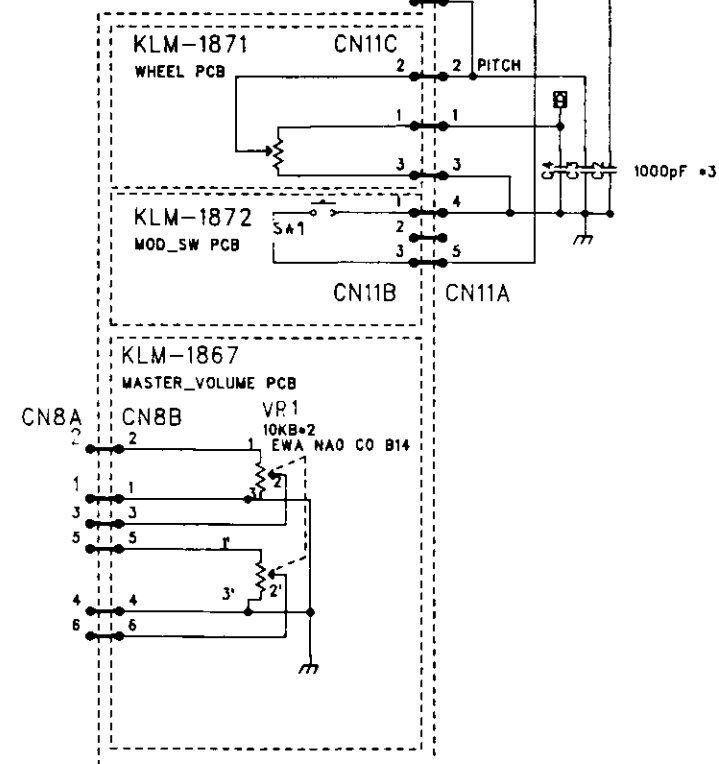
KLM-1866, 1867, 1871, 1872

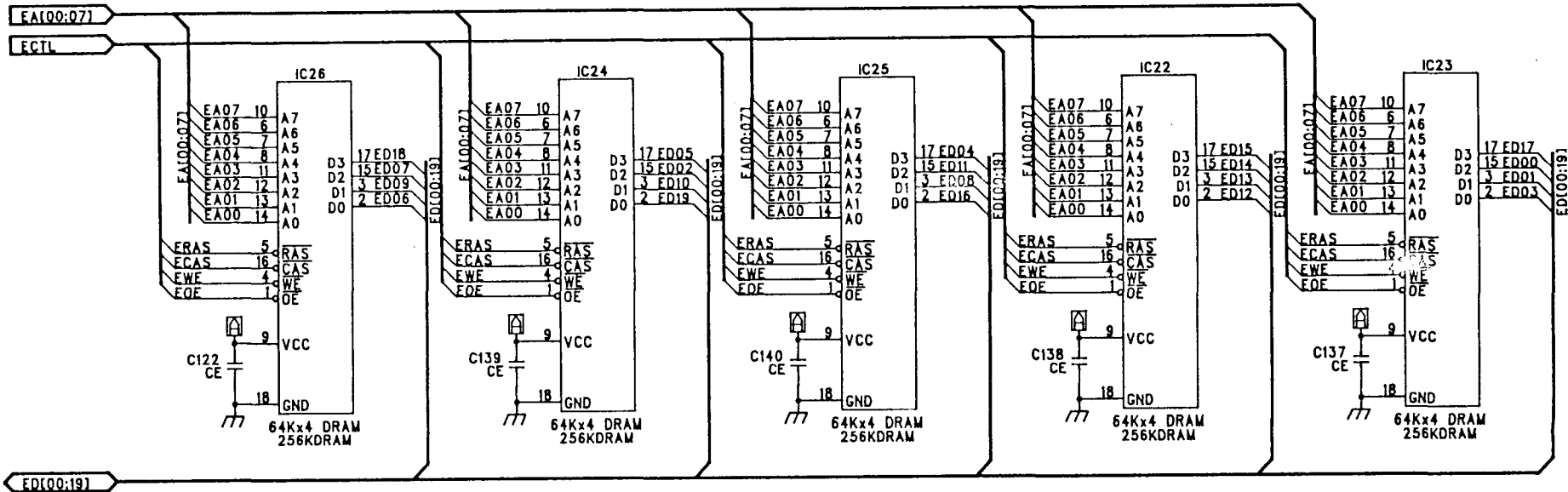


KLM-1865
MAIN PCB

D :ISS355
WB :MC2848
SW :EVQ21509K
LED :SLZ-1908-03-Y2

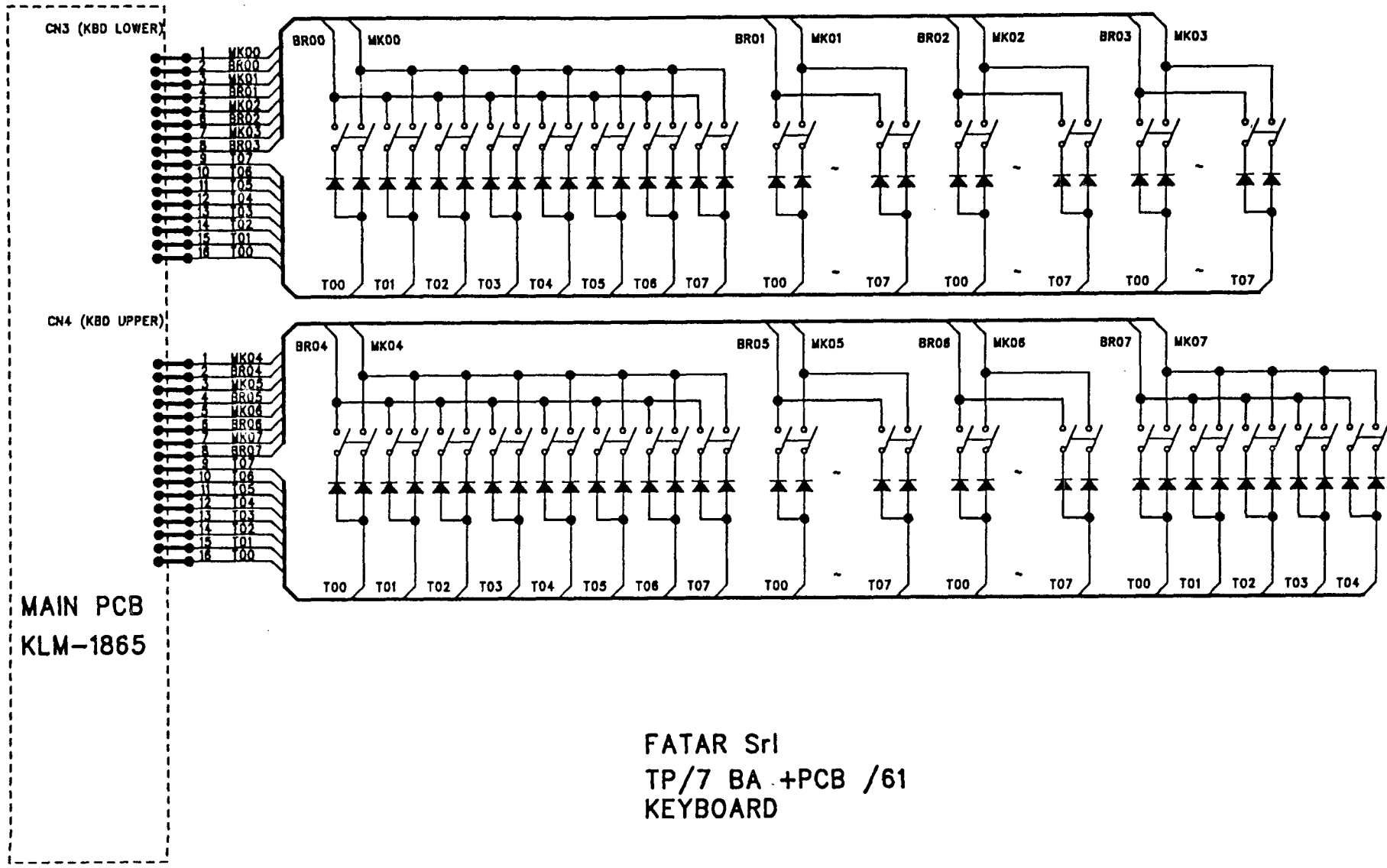
No value "R" :10k ohm
No value "C" :0.1uF

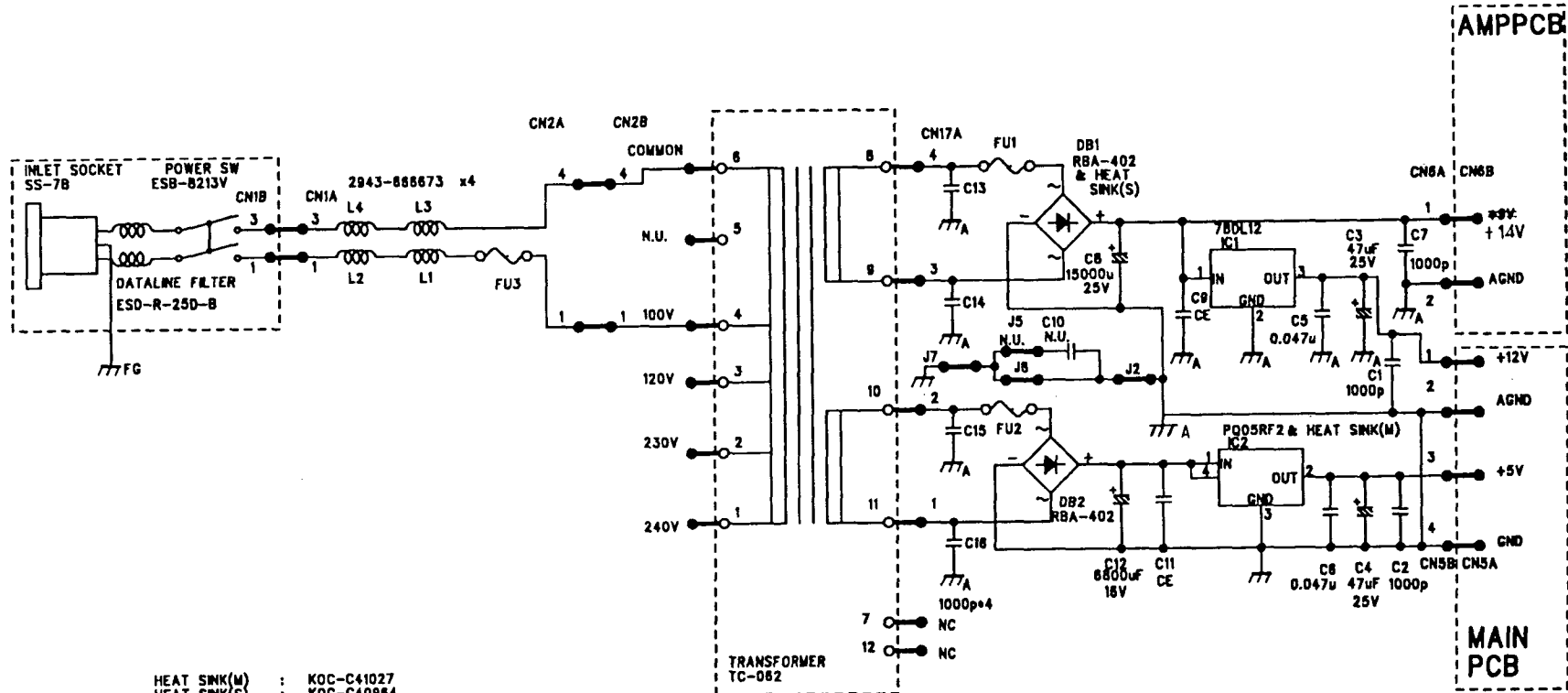




256KDRAM : IN41464P-10
etc.

KLM-1865 (2/2)





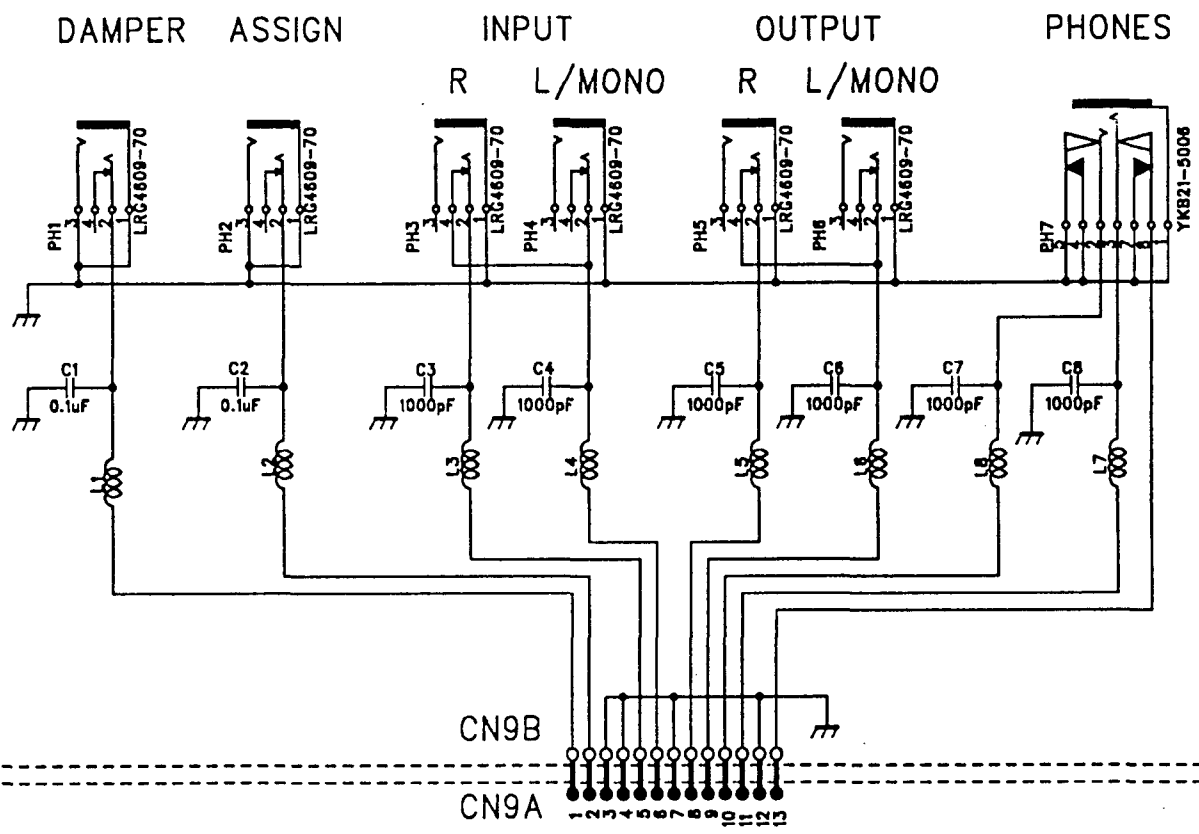
HEAT SINK(M) : KOC-C41027
 HEAT SINK(S) : KOC-C40964
 CE : 0.1u
 N.U. : NO USE

	FU1	FU2	FU3
100-117V	3.15A	3.15A	2A
230-240V	T3.15A	T3.15A	T1A

KLM-1868 POWER PCB

KLM-1868

JACK PCB
KLM-1870

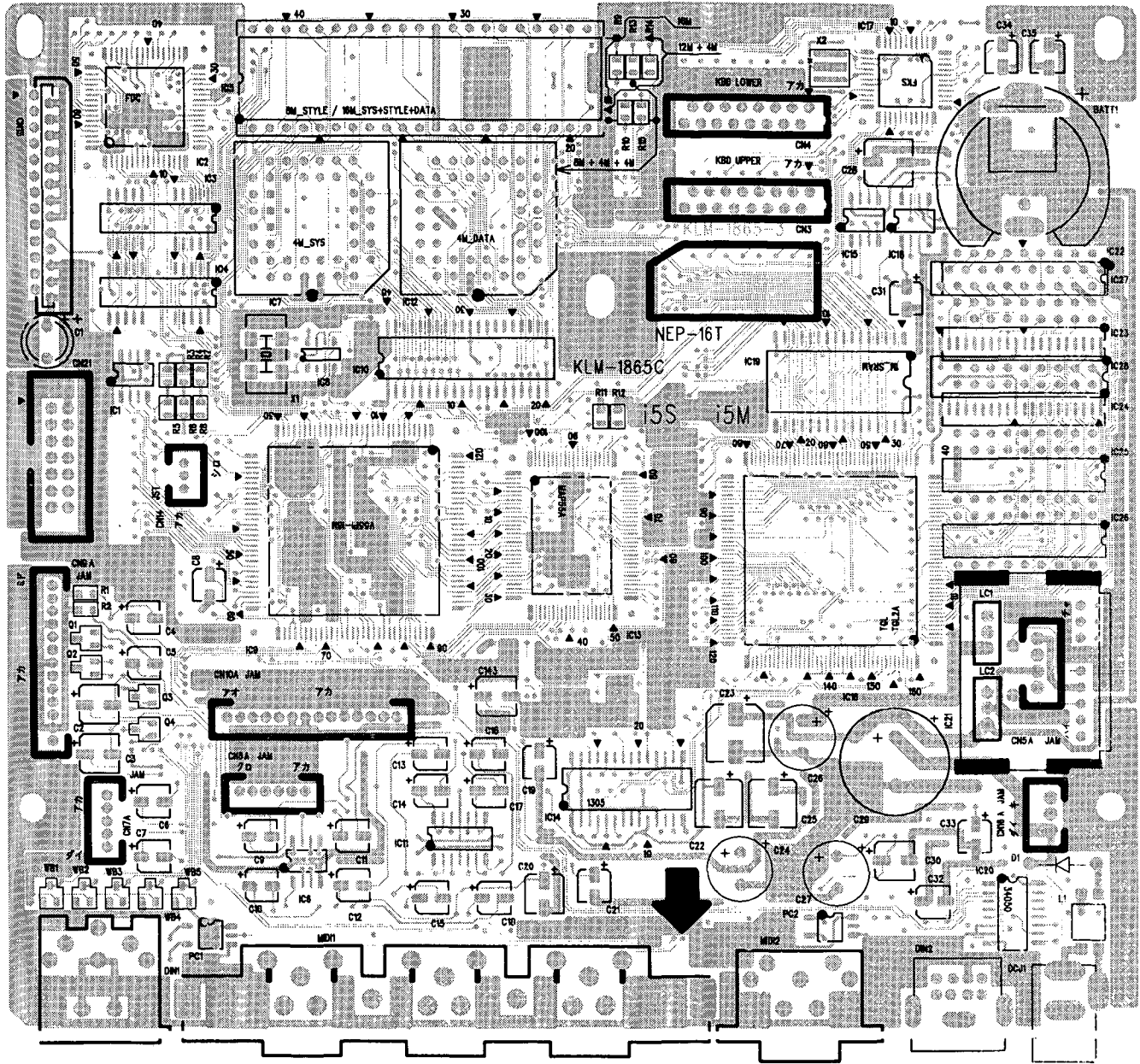


MAIN PCB
KLM-1865

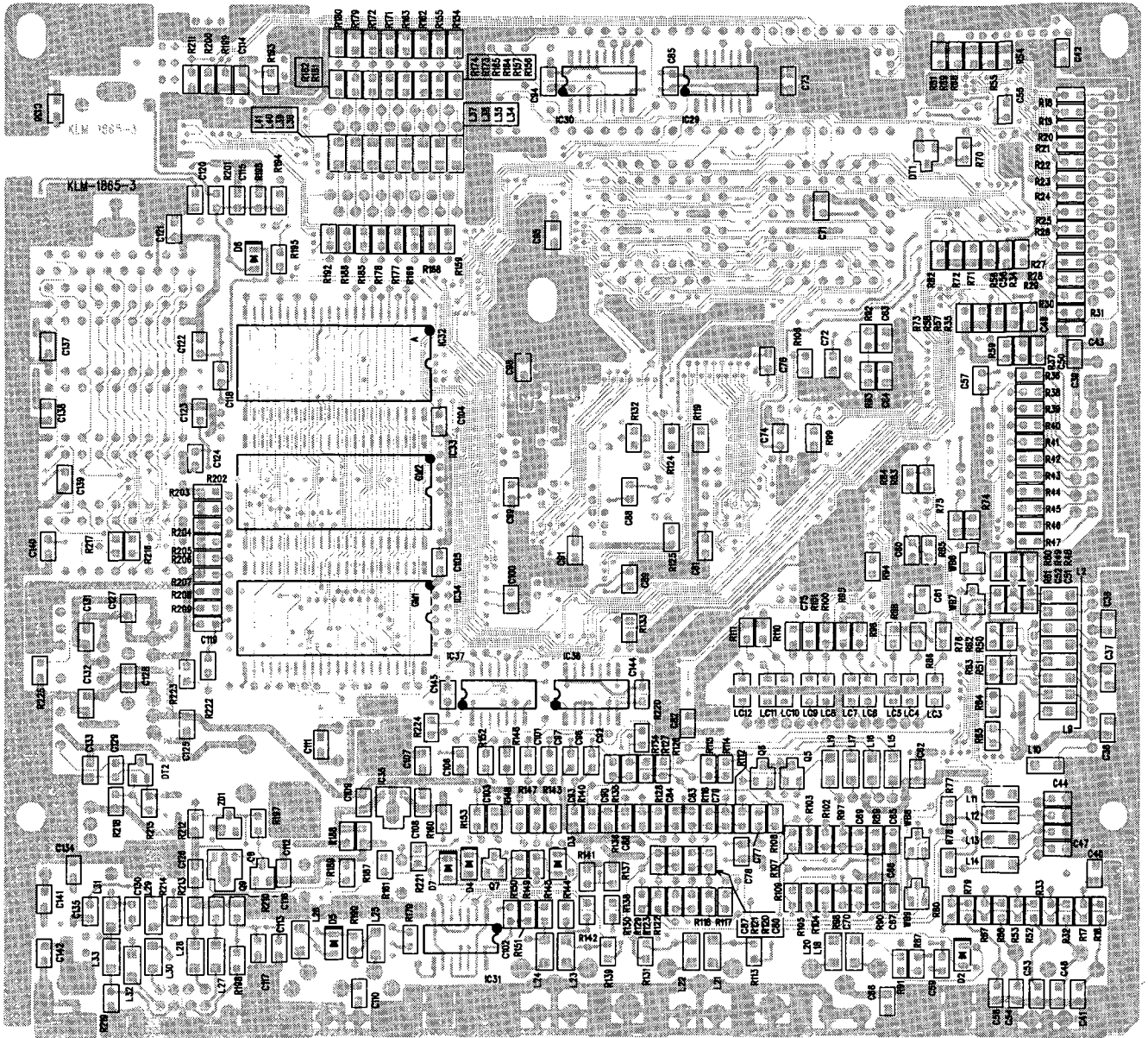
KLM-1870

6.P.C. BOARD

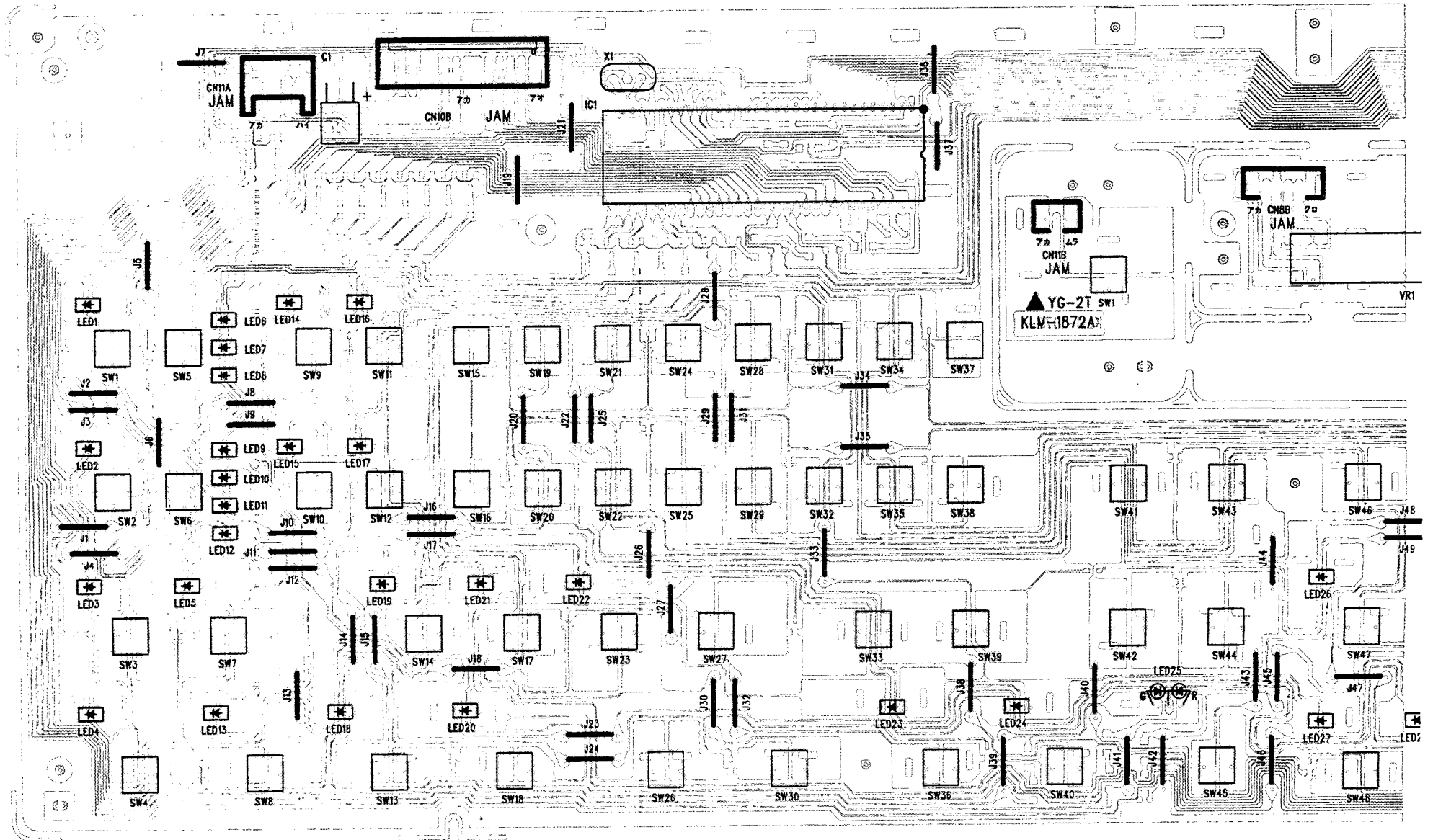
KLM-1865A (Component Side)



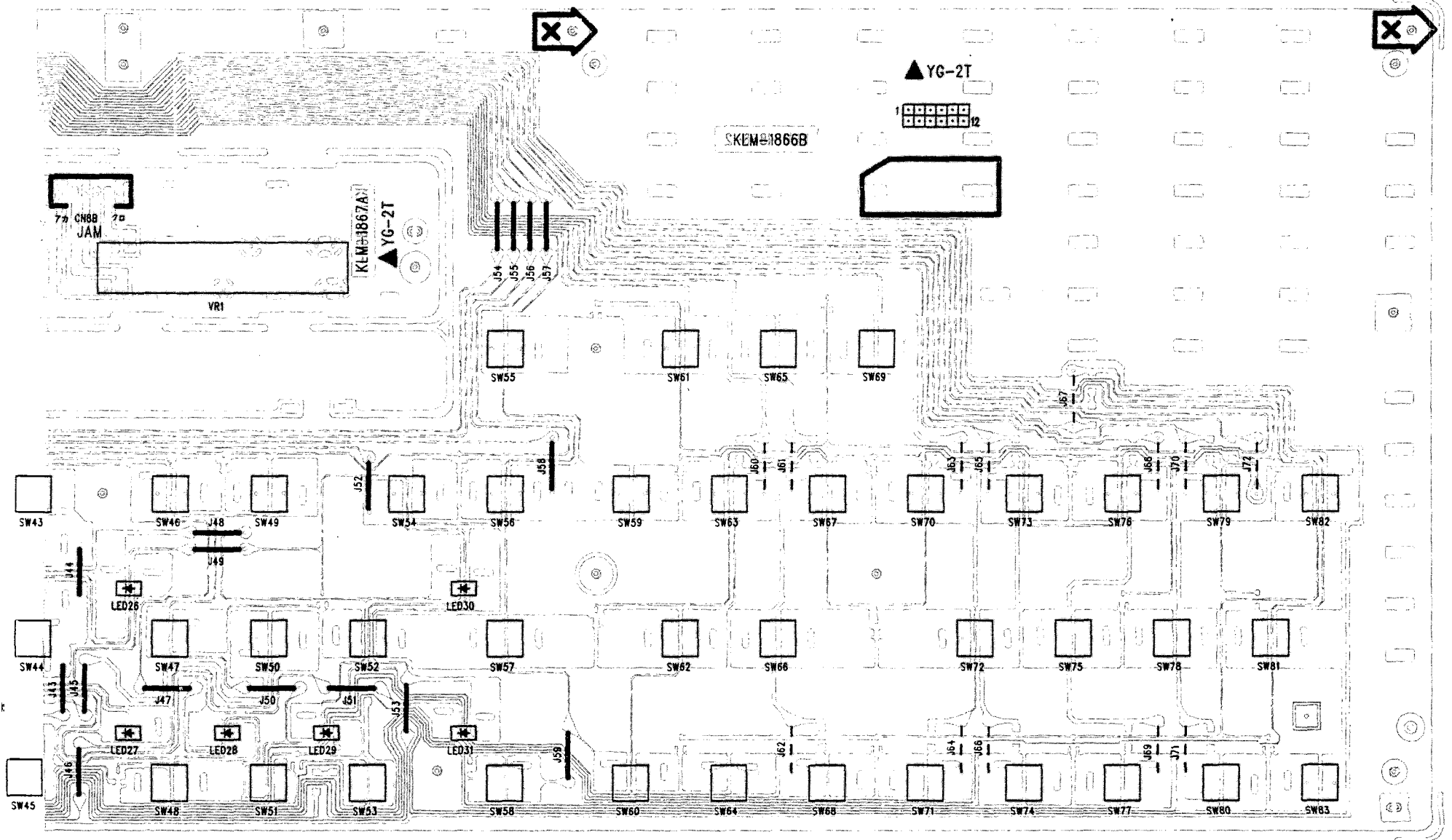
KLM-1865A (Soldering Side)



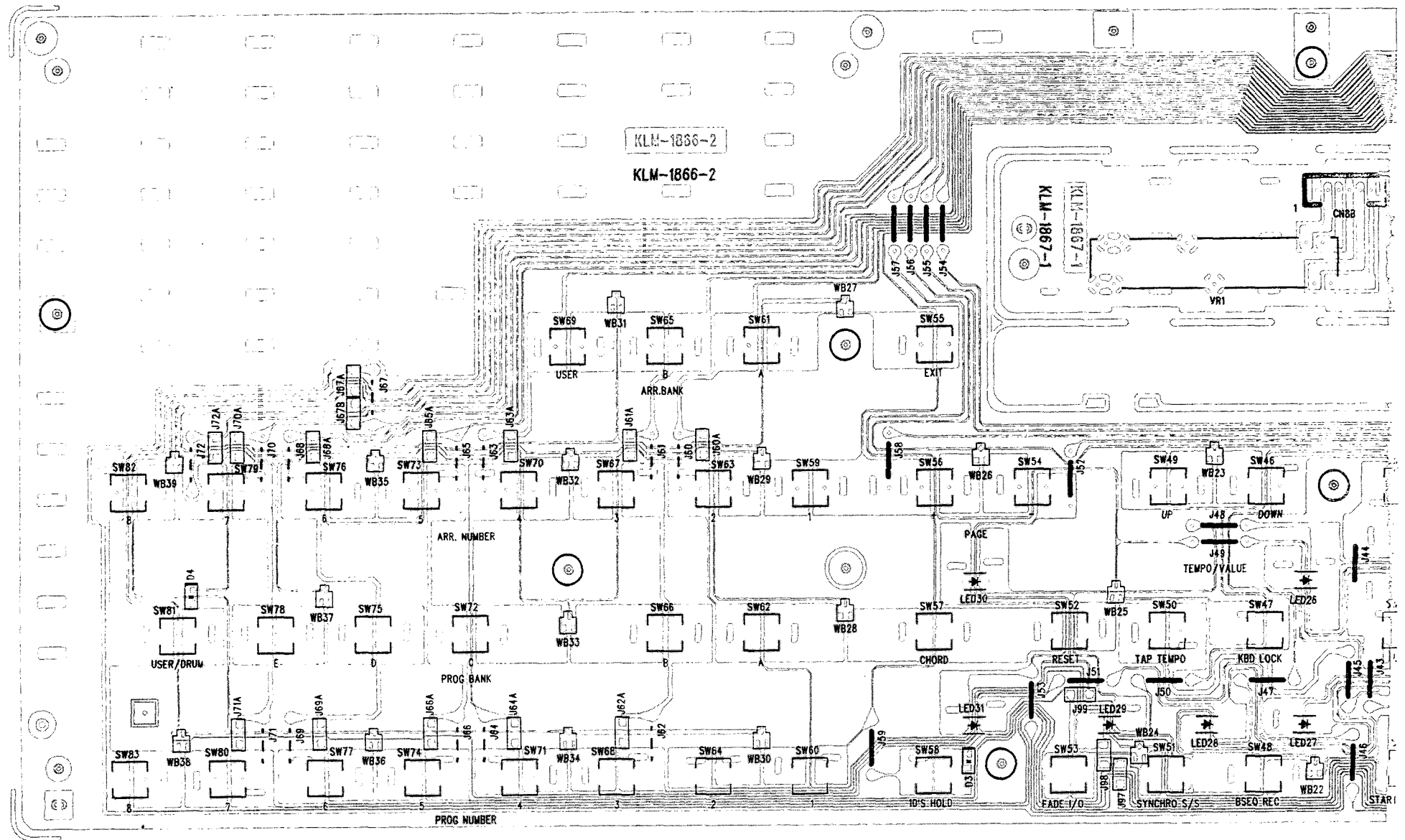
KLM-1866, 1867, 1872 (Component Side 1/2)



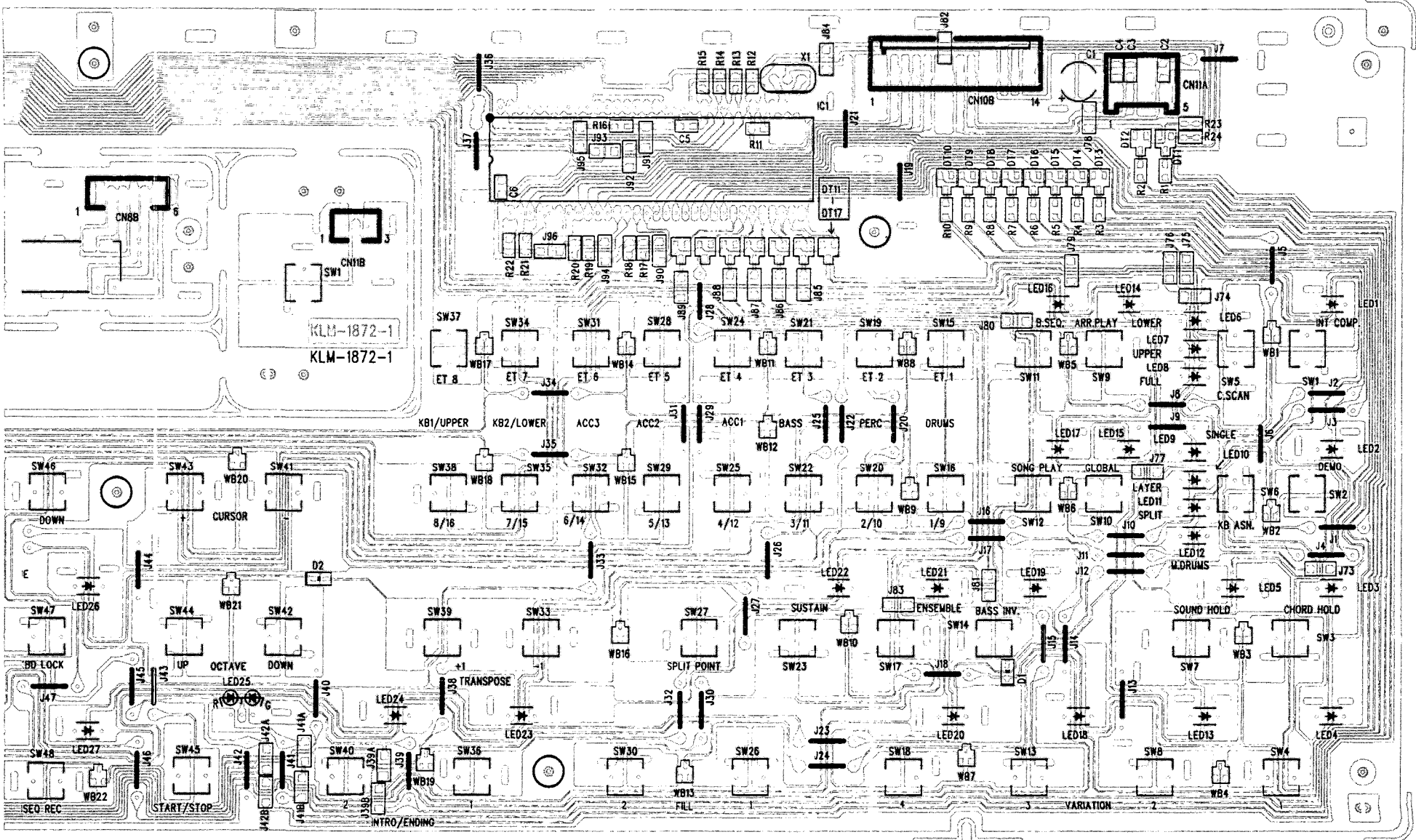
KLM-1866, 1867, 1872 (Component Side, 2/2)



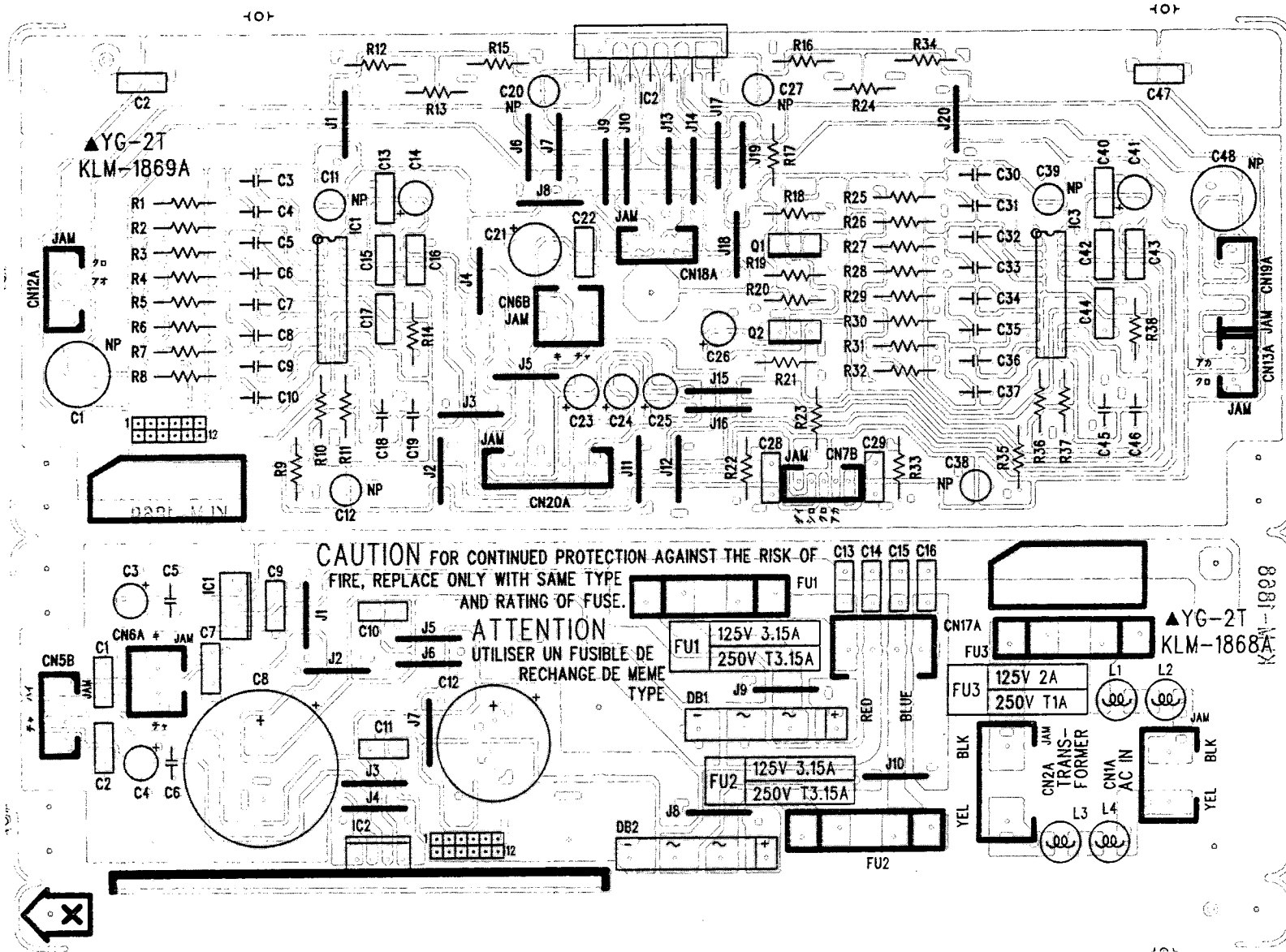
KLM-1866, 1867, 1872 (Non-component Side, 1/2)



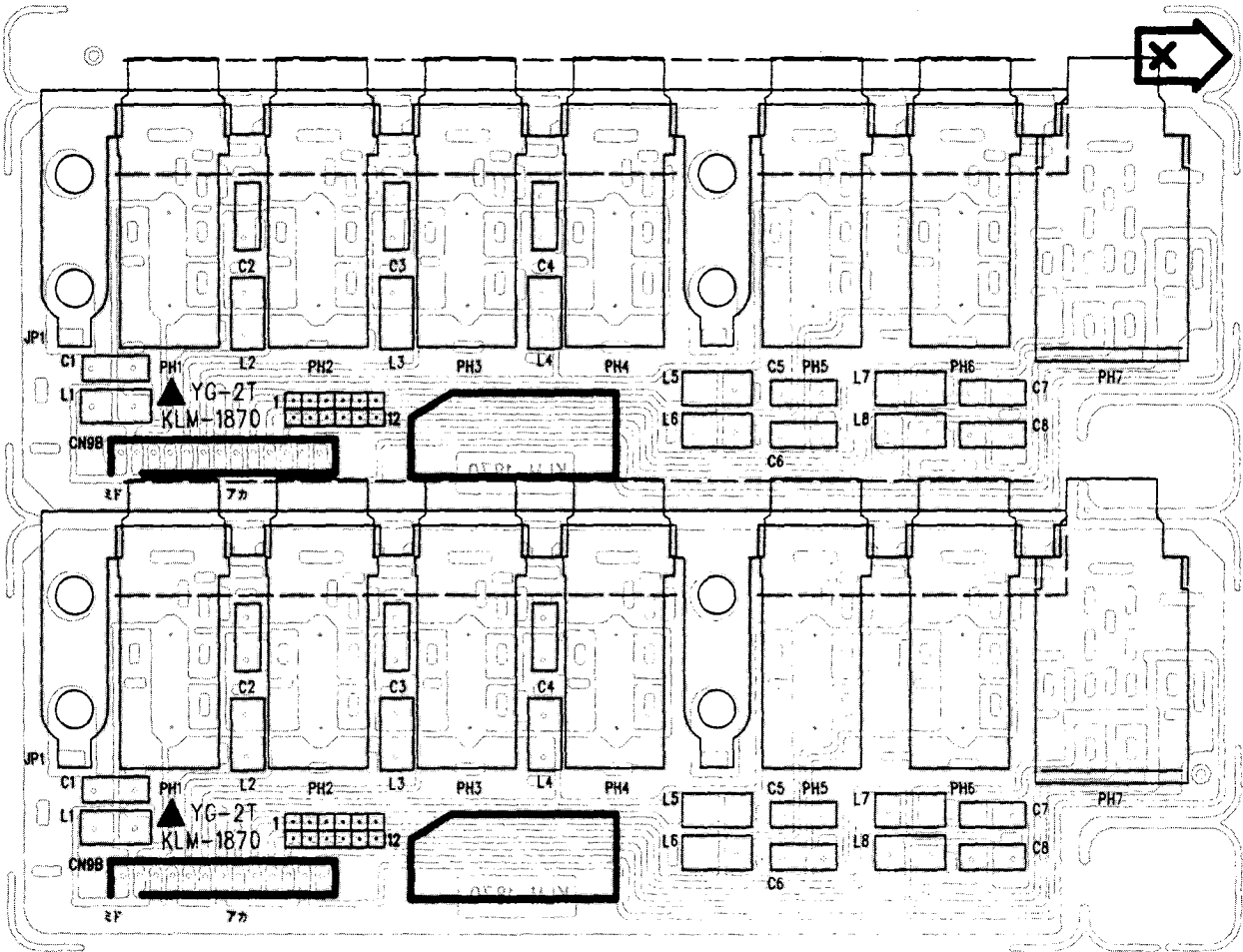
KLM-1866, 1867, 1872 (Non-component Side, 2/2)



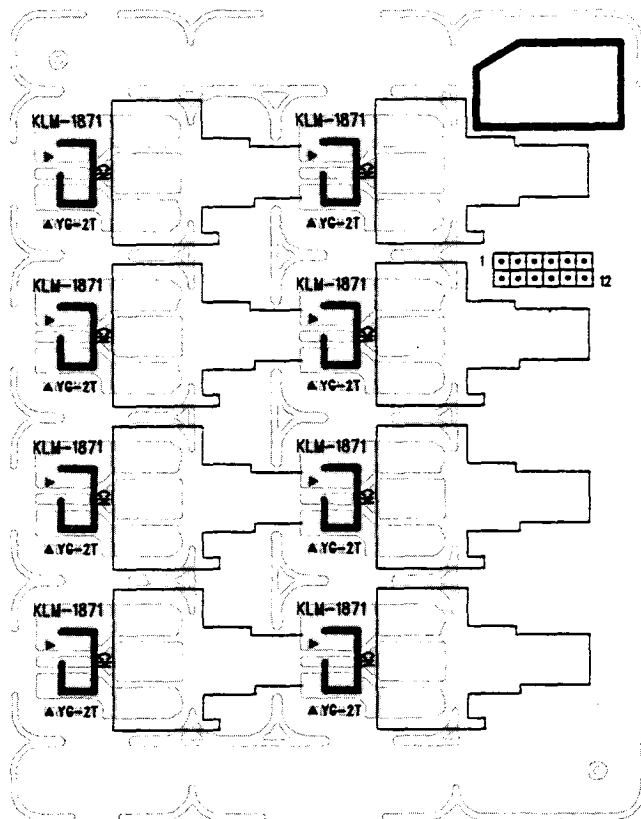
KLM-1868A, 1869A



KLM-1870



KLM-1871



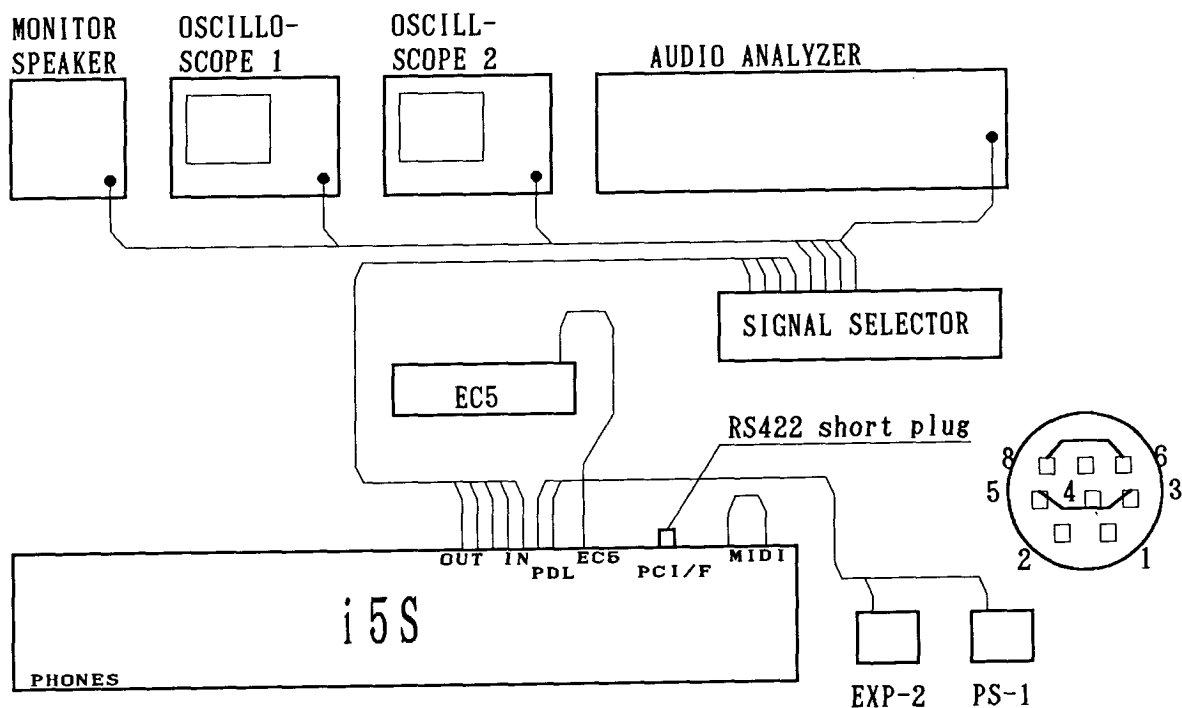
7. TEST MODE

★ Before entering the test mode

The i5S has a test mode with the diagnostic test card for checking various functions. When entering the test mode, the internal data of the i5S is initialized. Hence, if the i5S contains any necessary data, save this data on a floppy disk before starting the test.

The figure below shows the equipment and settings required for conducting the tests.

★ Standard Setup



Oscilloscope : time division 1ms/div
: Voltage range 2V

- Connect MIDI IN to MIDI OUT with a MIDI cable.
- Insert a formatted 2HD disk (type 1.44Mbytes IBM format) into the disk drive.

★ Entering Test Mode

- Turn the power switch ON while pressing both [ARR PLAY] and [GLOBAL].
- Internal tests are automatically run inside the unit when the test mode is started. If the results of these tests are all normal, the system proceeds to the external test Item 1, <Panel Switch & LED>.

WELCOME TO KORG	XXXX.YY.ZZ : Update data of system ROM
XXXX.YY.ZZ ROM:#**	*** : Version number of system ROM

- LCD screen at the start of the test mode.

1 Panel Switch & LED
[Eject a disk]

- LCD screen at the end of the internal tests.

Internal test item	1	2	3	4	(VARIATION LED) (○:on ⊗: off)
• System ROM CheckSum	⊗	⊗	⊗	⊗	
• Internal RAM Check	⊗	⊗	⊗	○	
• LCD RAM Check	⊗	⊗	○	⊗	
• FPS I/F Check	⊗	⊗	○	○	
• FKS I/F Check	⊗	○	⊗	⊗	
• TGL I/F Check	⊗	○	⊗	○	
• Battery Check	⊗	○	○	⊗	
• MIDI Check	⊗	○	○	○	
• PC I/F Check	○	⊗	⊗	⊗	
• PCM ROM Verify	○	⊗	⊗	○	
• Style ROM Verify	○	⊗	○	⊗	
• Headphones Check	○	⊗	○	○	

- During the internal tests, the VARIATION LEDs light up to indicate the test setup currently being conducted.
- If an abnormality is detected during the internal test, an error message appears on the LCD screen with the VARIATION LED indicating the current test step.

⊗ Note:

- Different tests will take place depending on which switches you press while turning the power ON, as indicated below:

[GLOBAL]+[B.SEQ] : Mode for omitting the MIDI, PCIF and Headphones test.
 [GLOBAL] : Mode for indicating only the system ROM version number.
 [GLOBAL]+[SONG PLAY] : Mode for initializing the internal RAM.
 [GLOBAL]+[SCAN] : Mode for omitting the internal tests.

★ Internal test

- ⊗ During the internal test, if an abnormality is detected, the test is interrupted at that point. Pressing [PROG NUM8] enables the system to proceed to the following test item.

○ Internal test item 0
 <System ROM Checksum>

Internal Test#00

- Compares checksum of the System ROM and conducts the testing of the System ROM and the Bus line.
- If an abnormality is detected, the LCD screen displays the following.

SystemROM CheckSum [Error: CheckSum]
--

○Internal test item 1
<Internal RAM Check> Internal Test#01

- Conducts a write/read test of the Internal RAM.
- If an abnormality is detected, the LCD screen displays the following.

InternalRAM Check
[Error: DRAM]

- When an abnormality is detected with DRAM

InternalRAM Check
[Error: SRAM]

- When an abnormality is detected with SRAM

○Internal test item 2
<LCD RAM Check> Internal Test#02

- Conducts a write/read test of the RAM inside the LCD module.
- If an abnormality is detected, the LCD screen displays the following.

LCDRAM Check
[Error: W/R]

○Internal test item 3
<FPS I/F Check> Internal Test#03

- Conducts an I/F check of the FPS(Falkor Panel Scanner).
- If an abnormality is detected, the LCD screen displays the following.

FPS I/F Check
[Error: FPS]

○Internal test item 4
<FKS I/F Check> Internal Test#04

- Conducts an I/F check of the FKS(Falkor Keyboard Scanner).
- If an abnormality is detected, the LCD screen displays the following.

FKS I/F Check
[Error: FKS]

○Internal test item 5
<TGL I/F Check> Internal Test#05

- Conducts an I/F check of the TGL.
- If an abnormality is detected, the LCD screen displays the following.

TGL I/F Check
[Error: TG I/F]

- When an abnormality is detected with the I/F of the TG section

TGL I/F Check
[Error: DF I/F]

- When an abnormality is detected with the I/F of the DF section

○Internal test item 6
<Battery Check>

Internal Test#06

- Conducts a test of the Backup Battery.
- If an abnormality is detected, the LCD screen displays the following.

```
Battery Check
[ Error: Low   ]
```

- When the battery voltage is under 3.0V

```
Battery Check
[ Error: High  ]
```

- When the battery voltage is high or the battery is not installed.

○Internal test item 7
<MIDI Check>

Internal Test#07

- Connects the MIDI IN and MIDI OUT and conducts a test on whether MIDI data output from the MIDI OUT is correctly input via the MIDI IN.
- If an abnormality is detected, the LCD screen displays the following.

```
MIDI Check
[ Error: OUT X IN]
```

- When MIDI OUT and IN are not connected

```
MIDI Check
[ Error: OUT-->IN]
```

- When the data output from MIDI OUT is not correctly input to MIDI IN

○Internal test item 8
<PC I/F Check>

Internal Test#08

- Conducts a test of the RS422(PC I/F) with the short plug.
- If an abnormality is detected, the LCD screen displays the following.

```
PC I/F Check
[ Error: OUT X IN]
```

- When the short plug is not connected

```
PC I/F Check
[ Error: OUT-->IN]
```

- When the data output from the output terminal is not correctly input to the input terminal

○Internal test item 9
<PCM Verify>

Internal Test#09

- Conducts a test of the PCM ROM Bus line.
- If an abnormality is detected, the LCD screen displays the following.

```
Address AABBBBBB
Data CCCC (DDDD)
```

○Internal test item 10
<Style Verify>

Internal Test#10

- Conducts a test of the Style ROM Bus line.
- If an abnormality is detected, the LCD screen displays the following.

```
Address ABBBBBBB
Data CC (DD)
```

AA : Bank at which an error is detected
BB : Address at which an error is detected
CC : Data(erroneous value) read at that time
DD : Correct value

○Internal test item 11
<Headphones check>

Internal Test#11

- Conducts a test of the headphone mute terminal.
- If an abnormality is detected(unplugged etc.), the LCD screen displays the following.

```
HeadPhone Check
[ Error: H.P. ]
```

★ External test

○ Switch operating specifications

[PROG NUM 8] : Advances the test step
[CURSOR >] : Advances the test step
[CURSOR <] : Returns the test step
[PAGE+] : Advances the test item
[PAGE-] : Returns the test item
[PROG NUM 1~4] : Selects and runs the test step
[ARR NUM 1] : Selects the test item 1(Panel Switch & LED)
[ARR NUM 2] : Selects the test item 2(LCD Check)
[ARR NUM 3] : Selects the test item 3(MDE Check)
[ARR NUM 4] : Selects the test item 4(LineIn Check)
[ARR NUM 5] : Selects the test item 5(Level Check)
[ARR NUM 6] : Selects the test item 6(Noise Check)
[ARR NUM 7] : Selects the test item 7(Speaker Check)
[ARR NUM 8] : Selects the test item 8(A/D converter)

○External test item 1
<Panel Switch & LED>

External Test#1

※ Set a floppy disk in the FDD before starting the test mode.

- Check whether all the LEDs are lit (including the access lamp for the FDD).

```
1 Panel Switch & LED
[ Eject a disk ]
```

- Eject the disk when "Eject a disk" is displayed on the LCD screen.

- As "Insert a disk" is displayed on the LCD screen when no disk is inserted, insert a disk.
- If "Insert a disk" is displayed though a disk has been inserted or if "Eject a disk" is displayed even after disk ejection, the FDD or its peripheral is abnormal.
- When the test is finished, press [PROG NUM 8] to proceed to the next test step.
- Press the switches according to the sequence indicated on the LCD screen.

1 Panel Switch & LED
COMPU MAGIC

←The switch which should be pressed next is indicated.

- Check that the LED of the switch to be pressed next is lit.
- Upon completing the testing of all the switches, proceed to the next test item.

○External test item 2

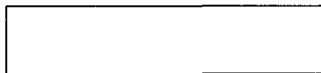
<LCD Check>

External Test#2

- Check whether all dots of the LCD are lit.
- Check whether the LCD backlight is lit.



- Press [PROG NUM 8].
- Check that the LCD screen is completely blank.



- Press [PROG NUM 8] and proceed to the next test item.

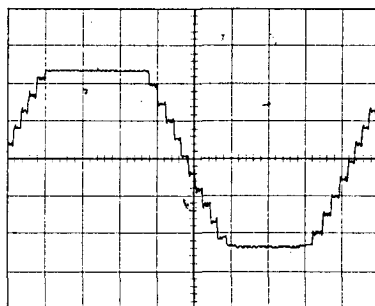
○External test item 3

<MDE Check>

External Test#3

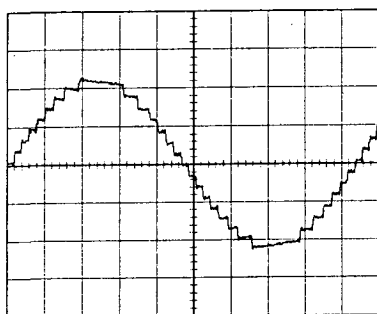
3 MDE Check
[MDE]

- Check whether the output waveform from the OUTPUT L/MONO is normal (see Fig.1).
 - Fig.1



- Adjust the master volume and check the output waveform(see Fig.2).

• Fig.2



- Check whether the output waveform from the OUTPUT L/MONO is normal.
- Press [PROG NUM 8] and proceed to the next test item.

○External test item 4

<LineIn Check>

External Test#4

- ※ Measure the master volume at MAX.
Measure OUTPUT L/MONO and OUTPUT R with the plug inserted.

| |
|------------------------------|
| 4 LineIn Check
[L][R] |
|------------------------------|

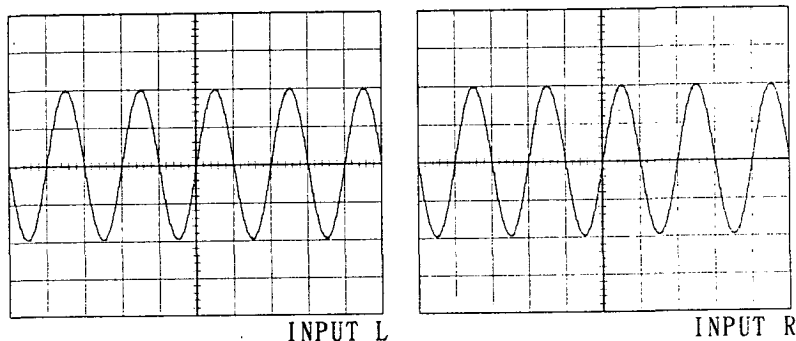
- ※ Parentheses [] in bold indicate the selected output.

- Input the signal(1KHz/-4.8dBu sine waveform) to the IN L/MONO and measure the output level of the OUTPUT L/MONO.
- Check that it is within the test range indicated in the table below and the output frequency is normal.
- Check that the observed waveform is sinusoidal without distortion as shown in Figure 3.
- Press [PROG NUM 8] and test IN R - OUTPUT R likewise.
- Press [PROG NUM 8] and proceed to the next test item.

• Output level test range

| | Output signal level | Frq. | Input signal |
|---------|----------------------|-------|------------------|
| INPUT L | 9.00 dBu ~ 13.00 dBu | 1 kHz | -4.8dBu 1kHz Sin |
| INPUT R | 9.00 dBu ~ 13.00 dBu | 1 KHz | -4.8dBu 1kHz Sin |

• Fig.3



○External test item 5

<Level Check>

External Test#5

- ※ Measure the PHONE L, PHONE R under a load of 32 ohms.
Measure by turning the master volume to MAX.
Measure both OUTPUT L/MONO and OUTPUT R with the plug inserted.

| |
|----------------------|
| 5 Level Check |
| [1][2][L][R] |

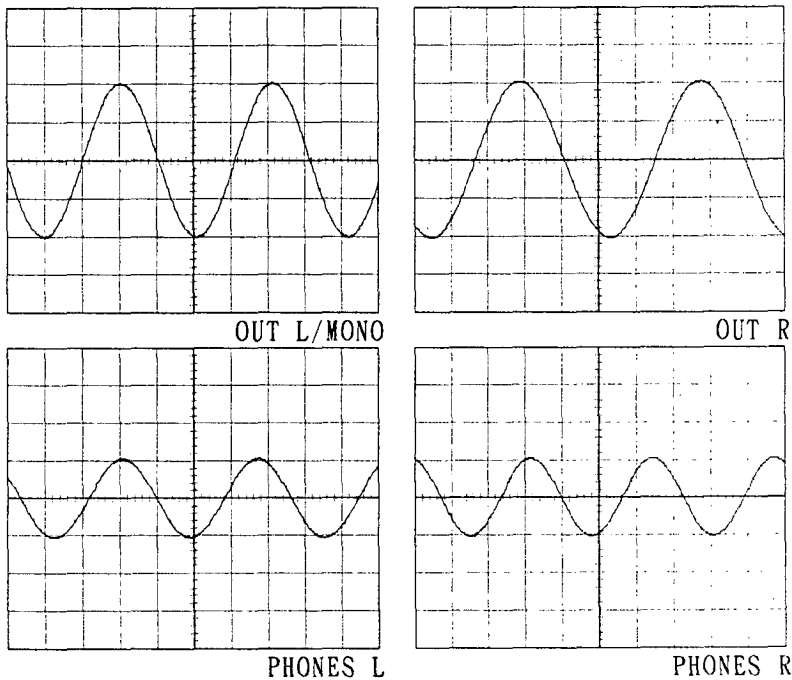
- ※ Parentheses [] in bold indicate the selected output.
 - Measure the output level of OUTPUT L/MONO.
 - Check that it is within the test range indicated in the table below and the output frequency is normal.
 - Check that the observed waveform is sinusoidal without distortion as shown in Figure 4.
 - Press [PROG NUM 8] and check likewise OUTPUT R, PHONE L and PHONE R.

- Output level test range

| | Output signal level | Frq. |
|---------|----------------------|--------|
| OUT L | 9.00 dBu ~ 13.00 dBu | 488 Hz |
| OUT R | 9.00 dBu ~ 13.00 dBu | 412 Hz |
| PHONE L | 3.00 dBu ~ 7.00 dBu | 548 Hz |
| PHONE R | 3.00 dBu ~ 7.00 dBu | 610 Hz |

- Press [PROG NUM 8] and proceed to the following test item.

- Fig.4



○External test item 6

<Noise Check>

External Test#6

- ※ Measure by turning the master volume to MAX.
Measure both OUTPUT L/MONO and OUTPUT R with the plug inserted.

| |
|---------------------------------------|
| 6 Noise Check
[1][2][L][R] |
|---------------------------------------|

- ※ Parentheses [] in bold indicate the selected output.

- Measure the noise level of OUTPUT L/MONO.
- Check that the level is within the test range as indicated in the table below.
- Check that the output waveform level is 0 with an oscilloscope.
- Press [PROG NUM 8] and test OUTPUT R, PHONE L and PHONE R likewise.
- Press [PROG NUM 8] and proceed to the following test item.

- Noise level test range

| | Output signal level |
|---------|----------------------|
| OUT L | less than -75.00 dBu |
| OUT R | less than -75.00 dBu |
| PHONE L | less than -80.00 dBu |
| PHONE R | less than -80.00 dBu |

○External test item 7

<Speaker Check>

External Test#7

- ※ Measure by turning the master volume to MAX.

| |
|-------------------------------|
| 7 Speaker Check
[L][R] |
|-------------------------------|

- ※ Parentheses [] in bold indicate the selected output.

- Check the sound from the speaker L.
- Check that the output sound(1kHz/sin waveform) has no distortion.
- Press [PROG NUM 8] and check the speaker R likewise.
- Press [PROG NUM 8] and proceed to the following test item.

○External test item 8

<A/D converter>

External Test#8

Step 1 <BendWheel & ModSw>

- ※ Care should be taken not to touch the BEND wheel when starting this test.

| |
|-----------------------|
| 00XX 00YY
BEND MOD |
|-----------------------|

- o : Displayed when either the maximum or minimum value is reached.
- ※XX : BEND wheel A/D value (MIN=00,MAX=FF,CENTER=80)
- YY : MOD switch A/D value (MIN=00,MAX=FF)

- Operate the BEND wheel in up and down directions to check that the maximum and minimum values of the X are reached.

- When the read A/D value with the BEND wheel at the center is other than $80H \pm 20H$ or if the BEND wheel is not at the center, the following message is displayed on the LCD at the start of the test.

```
8 A/D converter
[ Error: Bender ]
```

- BEND wheel test range
 - 20H : MIN DATA LIMIT
 - 80H-20H : CENTER LOW SIDE LIMIT
 - 80H+20H : CENTER UP SIDE LIMIT
 - DFH : MAX DATA LIMIT
- ✳ Set the condition of the BEND wheel at the start of the test mode to 80H (neutral).
- Press the MODE switch to confirm if the value reaches MAX or MIN.
- When the test completed normally, it proceeds to the following test automatically.

Step 2 <Pedal>

```
ooXX oo
ASS DMPR
```

- o : Displayed when either the maximum or minimum value is reached.
- XX : Assign pedal A/D value (MIN=00,MAX=7F)
- Operate ASSIGN pedal to MIN and then to MAX to check that the minimum value(00) and maximum value(7F) are displayed. Check that 'o' is displayed upon reach at MAX and MIN.
- Operate DAMPER pedal to ON and OFF, and check that 'o' is displayed.
- Press [PROG NUM 8] and proceed to the following test item.

Step 3 <EC5>

```
oo=A oo=B oo=C oo=D
oo=E
```

- o : Indicated when the EC5 is operated to ON and OFF
- Operate the EC5(A to E) to ON and OFF, and check that 'o' is displayed.
- When the test completed normally, it proceeds to the following test automatically.

Step 4 <A/D Monitor>

```
BeAA MoBB BtCC AsDD
```

- AA : BEND wheel A/D value (MIN=00,MAX=FF,SENER=80)
- BB : MOD switch A/D value (MIN=00,MAX=FF)
- CC : Backup battery A/D value (MIN=00,MAX=FF)
- DD : ASSIGN pedal A/D value (MIN=00,MAX=7F)
- Test step for monitoring respective A/D values.
- When the A/D values change, the change can be read in real time.
- Press [PROG NUM 8] and proceed to the following test item.

○External test item 9

<Keyboard>

External Test#9

| | |
|------------|------------|
| 9 Keyboard | Z |
| C 7 | (XXX)(YYY) |

XXX : Tested NOTE name

YYY : Measured velocity value

Z : H : When the monitored velocity value exceeds the upper limit

L : When the monitored velocity value is lower than the lower limit

- Operate the keyboard sequentially with the medium force from the highest key as displayed on the LCD.
- Proceed to the next key if the velocity value is between 55 and 99.
- Proceed to the next test automatically after the lowest key is operated.

○External test item 10

<PCMRom CheckSum>

External Test#10

※ In ordinary test, press [PROG NUM 8] to proceed to the next test.

| |
|----------------------|
| pcmX=YYYY/ZZZZ |
| [GM1][GM1][GM2][422] |

X : PCM ROM number

YYYY : Calculated value

ZZZZ : Expected value

- Press each of [PROG NUM 1] to [PROG NUM 4] for check-sum of the corresponding PCM ROM.
[PROG NUM 1] : [GM1]=pcmA=3300
[PROG NUM 2] : [GM1]=pcmB=B800
[PROG NUM 3] : [GM2]=pcmC=D9C6
[PROG NUM 4] : [422]=pcmD=E379
- Press [PROG NUM 8] to proceed to the next test after the end of the test.

○External test item 11

<Preload & 2DD Disk Check>

External Test#11

- Insert the preload disk and press any of [PROG NUM 1] to [PROG NUM 4] matching the destination, the preloading is executed.

| |
|----------------------|
| Preload |
| [USA][GER][ITA][UK] |

[PROG NUM 1] : 230WG = GER

[PROG NUM 2] : 230IT = ITA

[PROG NUM 3] : 230UK = UK

[PROG NUM 4] : OTHER = USA

- Execute the 2DD disk check automatically after finishing the preload correctly.

```
Preload
[ DiskCheck(2DD) ]
```

- Proceed to the ordinary mode after finishing the test correctly.
- If an abnormality is detected, the LCD screen displays the following.

```
Preload
[ Drive not Ready]
```

- No disk is inserted.

```
Preload
[ Data Error ]
```

- Data error

```
Preload
[ No File ]
```

- The file that should have been written for the test does not exist.

```
Preload
[ Hard Protect ]
```

- The disk is protected from writing.

```
Preload
[ Verify ]
```

- Verify error

```
Preload
[ Media Type ]
```

- The disk type is not 2DD.

★ End of the test

○ Preload check

- Press [ARR BANK USER] once, and press [ARR NUM 1] twice.
- Confirm that the indication is shown as follows;

- 230WG

```
ARR:U11 Polka 1
=120
```

- 230IT

```
ARR:U11 8 beat 1
=130
```

- 230UK

```
ARR:U11 Just Billy
=140
```

- OTHER

```
ARR:U11 Mick&Keith
=130
```

○ End of the test

- Eject the disk and turn the power off to end the test.

★ FDD test

○ External test item 0
<Disk Check>

External Test#0

0 Disk Check (X)
[FUL][SUB][2DD]

X: Indicates the timing of an error generated.

X=1 : Before formatting

X=2 : When formatting

X=3 : When verifying after the formatting

X=4 : When writing all the sectors

X=5 : When reading all the sectors

X=6 : When initializing the boot sector and the FAT

X=7 : When writing a file

X=8 : When reading and verifying a file

X=9 : When reading and verifying a file (DMA transmission)

- Turn the power ON while pressing [GLOBAL] and [BACKING SEQ] simultaneously.
- Press [PAGE -].
- Insert a floppy disk (a 2HD disk formatted with i5S) in the FDD and press [PROG NUM 1] to start the test.
- When [PROG NUM 2] is pressed, some part of tests (format type checking of the disk) is omitted and the testing can be conducted using unformatted disk.
- The selected test is enclosed in bold [] when the test starts.

0 Disk Check
[FUL][SUB][2DD]

- If an abnormality is detected, the following messages appear:

0 Disk Check (X)
[Drive not Ready]

- No disk is inserted.

0 Disk Check (X)
[Data Error]

- Data error

0 Disk Check (X)
[No File]

- The file that should have been written for the test does not exist.

0 Disk Check (X)
[Hard Protect]

- The disk is protected from writing.

0 Disk Check (X)
[Disk Type]

- The disk is not for the test

0 Disk Check (X)
[Verify]

- Verify error

0 Disk Check (X)
[Media Type]

- The disk type is not 2HD.
- The bold [] is cancelled when the test ends.

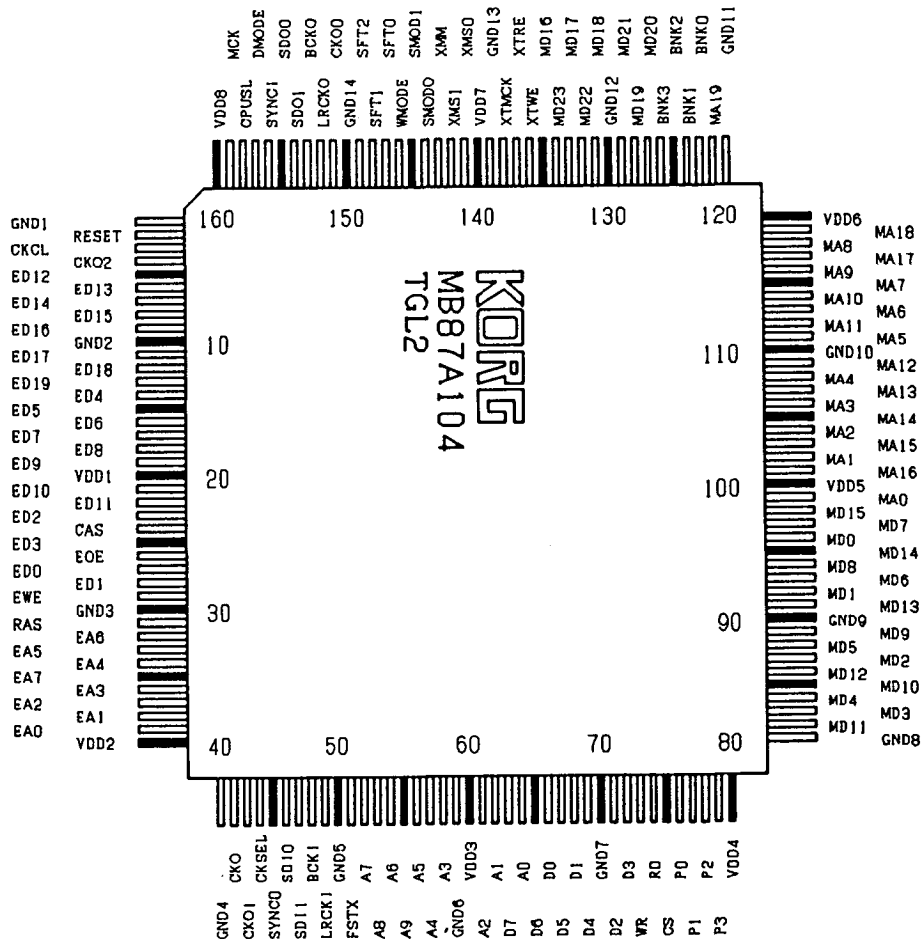
0 Disk Check (0)
[FUL][SUB][2DD]

- (0) is displayed when there is no error.

UPD70433GD-5BB(CPU) PIN FUNCTION

| PIN NAME | I/O | FUNCTION |
|-------------|-----|--|
| P00-P07 | I/O | PORT 0 |
| NMI | I | NON MASKABLE INTERRUPT |
| INTP0-INTP5 | I | EXTERNAL INTERRUPT REQUEST |
| P20-P21 | I/O | PORT 2 |
| TXD0-TXD1 | O | TRANSMIT DATA OUTPUT |
| RXD0-RXD1 | I | RECEIVE DATA INPUT |
| TXC | O | TRANSMIT CLOCK OUTPUT |
| CTS0 | I | ENABLING SIGNAL INPUT |
| SCK1 | O | SERIAL CLOCK OUTPUT |
| P40-P47 | I/O | PORT 4 |
| P50-P52 | I/O | PORT 5 |
| ANI0-ANI3 | I | ANALOG SIGNAL INPUT |
| P70-P77 | I/O | PORT 7 |
| DMARQ0-1 | I | DMA REQUEST SIGNAL INPUT |
| GND | --- | GROUND |
| VDD | --- | +5V POTENTIAL |
| AVSS | --- | ANALOG GROUND |
| AVDD | --- | ANALOG +5V POTENTIAL |
| AVREF | I | REFERENCE POTENTIAL INPUT
FOR A/D CONVERTER |
| RESET | I | SYSTEM RESET SIGNAL INPUT |
| X1, X2 | I | SYSTEM CLOCK INPUT |
| CLKOUT | O | SYSTEM CLOCK OUTPUT |
| ASTB | O | ADDRESS STROBE SIGNAL OUTPUT |
| RD | O | DATA READ STROBE SIGNAL OUTPUT |
| WRL | O | LOW BIT DATA WRITE STROBE SIGNAL OUTPUT |
| WRH | O | HIGH BIT DATA WRITE STROBE SIGNAL OUTPUT |
| READY | I | READY SIGNAL INPUT |
| DEX | O | DATA BUS ENABLE SIGNAL OUTPUT |
| RAS | O | DRAM ROW ADDRESS LATCH TIMING SIGNAL
OUTPUT |
| D8/D16 | I | BUS SIZE SELECT INPUT |
| BUSLOCK | O | BUS LOCK SIGNAL OUTPUT |
| POLL | I | POLL SIGNAL INPUT |
| HLDRQ | I | BUS HOLD REQUEST SIGNAL INPUT |
| HLDAK | O | BUS HOLD ACKNOWLEDGE SIGNAL OUTPUT |
| AD0-AD15 | I/O | ADDRESS/DATA SIGNAL |
| A16-A23 | O | ADDRESS SIGNAL OUTPUT |
| IORD | O | I/O READ STROBE SIGNAL OUTPUT |
| IOWR | O | I/O WRITE STROBE SIGNAL OUTPUT |
| DMAAK0-1 | O | DMA ACKNOWLEDGE SIGNAL OUTPUT |
| TCE0-TCE1 | O | DMA FINISH SIGNAL OUTPUT |

MB87A104APF-G-BND (TGL2) PIN ASSIGNMENT



MB87A104APF-G-BND (TGL2) PIN FUNCTIONS

| PIN NAME | I/O | FUNCTION |
|----------|-----|------------------------------|
| VDD | --- | +5V |
| VSS | --- | Ground |
| Rest | I | System Rest |
| MCK | I | Master Clock |
| CKO | O | 32MHz |
| CKO0-1 | O | CLK/2 duty 50% output |
| CKO2 | O | CLK/4 duty 50% output |
| CKSEL | I | Phase Analog Select for CKO0 |
| CKCL | I | CKO0 Reset input |
| SFTX | I | MIXER Gain Select |
| | | H: 4 times |
| XMM | I | for Test mode |
| XMS2-0 | I | for Test mode |
| XTMCK | I | for Test mode |
| XTRE | I | for Test mode |
| XTWE | I | for Test mode |
| for CPU | | |
| CPUSL | I | CPU select V25/H8 |
| CS | I | Chip select |
| WR | I | CPU WRITE pulse |
| RD | I | CPU READ pulse |
| A0-9 | I | CPU Address Bus |
| D0-9 | I/O | CPU Data Bus |
| P0-3 | O | Output Port |

| | | |
|----------------------------|-----|--|
| for PCM ROM ----- | | |
| MD0-15 | I/O | PCM Memory Data Bus 0-15 |
| MD16-23 | I | PCM Memory Data Bus 16-23 (for 2TGs mode) |
| MA0-19 | O | PCM Memory Address Bus |
| BNK0-3 | O | PCM Memory Bank Select |
| DMODE | I | DECODE Mode Select
H: Decode BNK#
L: Thru BNK# |
| WMODE | I | PCM Memory -word Select
H: 64 osc. , 2TGs Mode
L: 32 osc. , 1TG Mode |
| SYNCO | O | Counter Synchro Output (only 2TGs Mode) |
| SYNCI | I | Counter Synchro Input (only 2TGs Mode) |
| for Serial Interface ----- | | |
| SDO0-1 | O | Serial Data Outout 0,1
SDO0: C ch & D ch
SDO1: A ch & B ch |
| BCKO | O | Bit Clock Output (2MHz, 500nsec.) |
| LRCKO | O | LR Clock Output
L: R ch
H: L ch |
| SDI0-1 | I | Serial Data Input 0,1
SDI0: C ch & D ch
SDI1: A ch & B ch |
| BCKI | I | Bit Clock Input (2MHz, 500nsce.) |
| LRCKI | I | LR Clock Input
L: R ch
H: L ch |
| SMOD0-3 | I | Serial I/F Format Select |
| for DRAM ----- | | |
| EA0-7 | O | DRAM Address |
| ED0-19 | I/O | DRAM Data |
| EWE | O | DRAM WE |
| EOE | O | DRAM OE |
| RAS | O | DRAM RAS |
| CAS | O | DRAM CAS |

TGL2 CHECK POINTS

1. Voltage check of power supply

Check that a voltage of +5V ($\pm 5\%$) is input at the VDD pin.

$$4.75V \leq VDD \leq 5.25V$$

2. Check of input/output pins, regardless of the CPU interface setting

| PIN NAME | FUNCTION |
|----------|---|
| BCKO | 2.0 MHz bit clock signal outputs to the D/A converter. |
| LRCKO | 31.25 KHz L/R clock signal output to the D/A converter. |

If the voltage level of these pins is +3V or less, check the soldering of peripheral pins and the voltage of the connected device. Also, if any of these pins is 0V or +5V, check to see whether RESET(TGRES) or the master clock(32.0MHz) has been input. If RESET and MCK are normal, and the test mode setting pins have been set as below, check the soldering and the pattern on the circuit board.

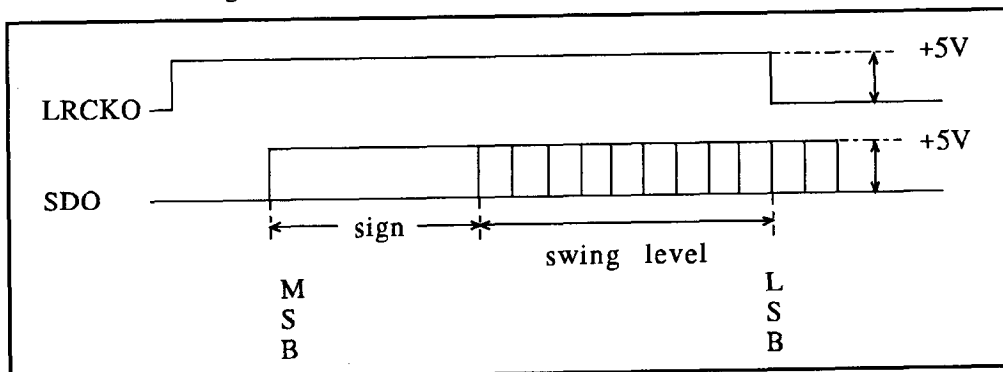
3. Check of input/output pins, when any key is on

| PIN NAME | FUNCTION |
|----------|-----------------------------|
| XCS, XWE | Control signal from the CPU |

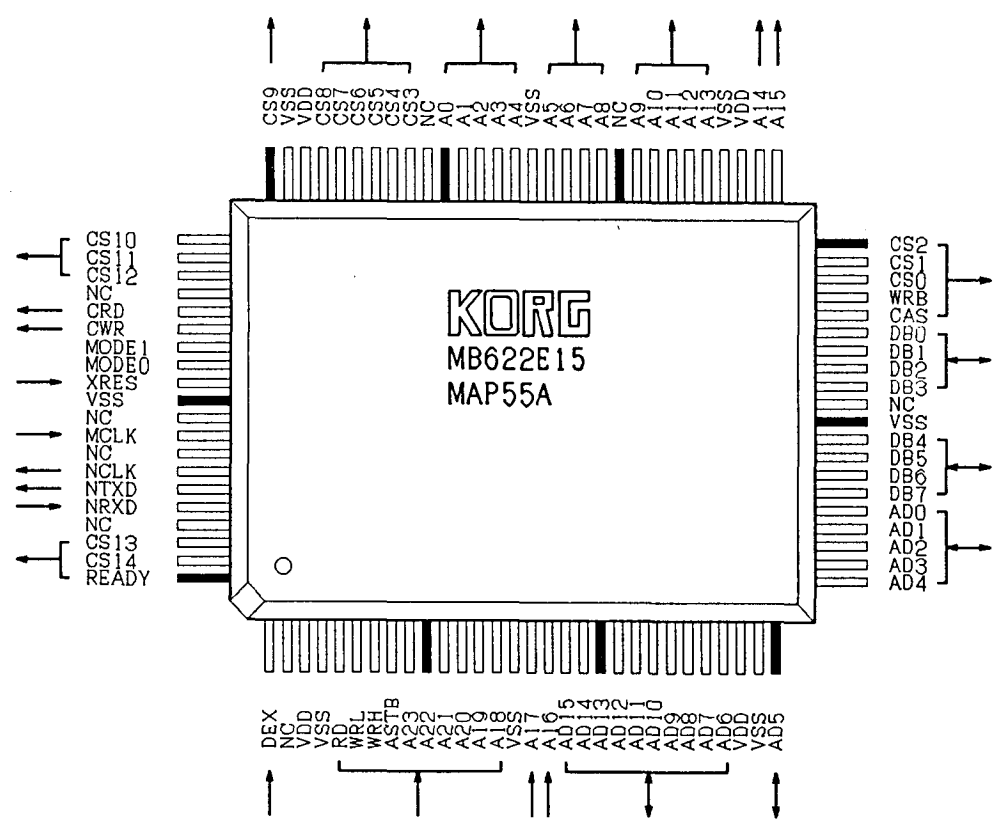
During KEY ON or PROG. CHANGE, check that a low level pulse signal is input from the CPU to the above pins(XCS, XWE). If these signals cannot be observed with the oscilloscope, check the CPU and its peripheral circuits.

| PIN NAME | FUNCTION |
|------------|---|
| SDO0, SDO1 | serial data output to the D/A converter |

In case of observing the waveform with the oscilloscope, it is best to input the LRCK0 clock signal to the external trigger input of the oscilloscope. If the serial data cannot be output, check the PCM address bus. To find whether normal serial data is output or not, check whether there is a different bit from the code bit at the left side of the leading and the trailing edge of LRCK0 on the oscilloscope screen.



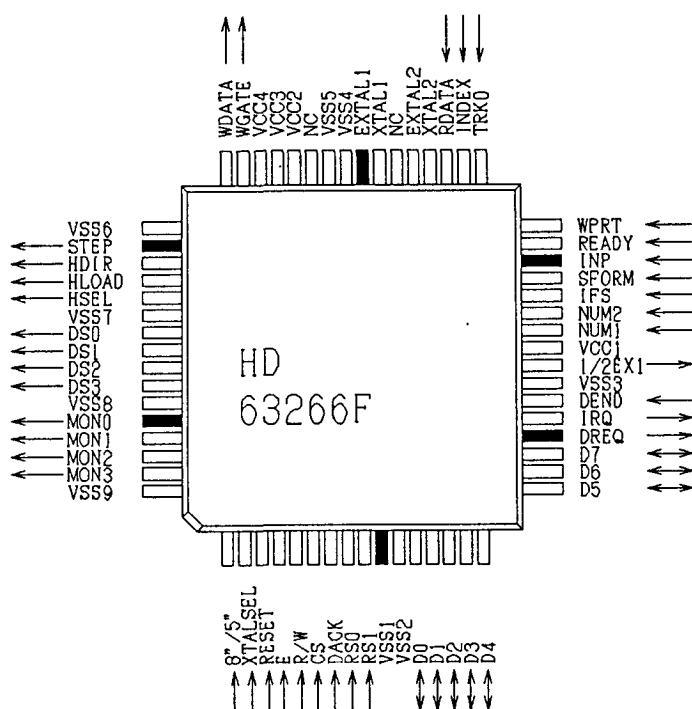
MB622E15 (MAP55A) PIN ASSIGNMENT



MB622E15(MAP55A) PIN FUNCTIONS

| PIN NO | PIN NAME | I/O | FUNCTION |
|--------|----------|-----|---------------------------------|
| 1 | DEX | I | V55 DEX INPUT |
| 5 | RD | I | V55 RD INPUT |
| 6 | WRL | I | V55 WRL INPUT |
| 7 | WRH | I | V55 WRH INPUT |
| 8 | ASTB | I | V55 ASTB INPUT |
| 9-14 | A23-18 | I | ADDRESS INPUT A23-16 |
| 16,17 | A17-16 | I | |
| 18-27 | AD15-6 | I/O | MULTIPLEX DATA BUS A15-0 |
| 30-35 | AD5-0 | I/O | |
| 36-39 | DB7-4 | I/O | 8BIT DATA BUS |
| 42-45 | DB3-0 | I/O | |
| 46 | CAS | O | DRAM CAS OUTPUT |
| 47 | WRB | O | WRITE PULSE OUTPUT |
| 48-50 | CS0-2 | O | CHIP SELECT OUTPUT |
| 51,52 | A15,14 | O | ADDRESS LATCH OUTPUT |
| 55-59 | A13-9 | O | |
| 62-64 | A8-6 | O | |
| 66-71 | A5-0 | O | |
| 72-77 | CS3-8 | O | CHIP SELECT OUTPUT |
| 80-83 | CS9-12 | O | |
| 85 | CRD | O | VDC READ PULSE OUTPUT |
| 86 | CWR | O | VDC WRITE PULSE OUTPUT |
| 87,88 | MODE1-0 | I | DECODE MODE SELECT |
| 89 | XRES | I | SYSTEM RESET INPUT |
| 92 | MCLK | I | MASTER CLOCK INPUT |
| 94 | NCLK | O | SERIAL I/F CLOCK OUTPUT |
| 95 | NTXD | O | SERIAL I/F TRANSMIT DATA OUTPUT |
| 96 | NRXD | I | SERIAL I/F RECIEVE DATA INPUT |
| 98,99 | CS13,14 | O | CHIP SELECT OUTPUT |
| 100 | READY | O | V55 READY OUTPUT |

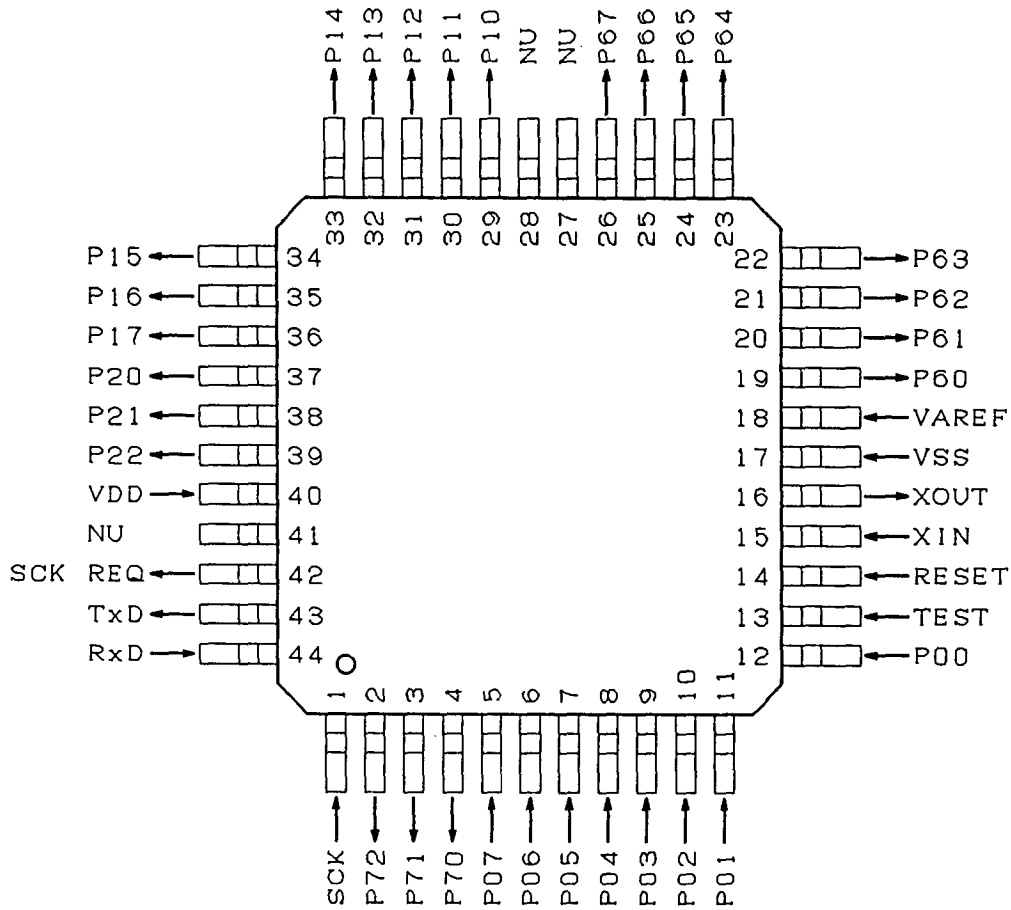
HD63266F (FDC) PIN ASSIGNMENT



HD63266F (FDC) PIN I/O

| PIN NO | I/O | PIN NAME | PIN NO | I/O | PIN NAME |
|--------|-----|----------|--------|-----|----------|
| 1 | I | 8"/5" | 33 | I | TRKO |
| 2 | I | XTALSEL | 34 | I | INDEX |
| 3 | I | RESET | 35 | I | RDATA |
| 4 | I | E,(RD) | 36 | --- | XTAL2 |
| 5 | I | R/W(WR) | 37 | --- | EXTAL2 |
| 6 | I | CS | 38 | --- | NC |
| 7 | I | DACK | 39 | --- | XTAL1 |
| 8 | I | RAS0 | 40 | --- | EXTAL1 |
| 9 | I | RAS1 | 41 | --- | Vss4 |
| 10 | --- | Vss1 | 42 | --- | Vss5 |
| 11 | --- | Vss2 | 43 | --- | NC |
| 12 | I/O | D0 | 44 | --- | Vcc2 |
| 13 | I/O | D1 | 45 | --- | Vcc3 |
| 14 | I/O | D2 | 46 | --- | Vcc4 |
| 15 | I/O | D3 | 47 | O | WGATE |
| 16 | I/O | D4 | 48 | O | WDATA |
| 17 | I/O | D5 | 49 | --- | Vss6 |
| 18 | I/O | D6 | 50 | O | STEP |
| 19 | I/O | D7 | 51 | O | HDIR |
| 20 | O | DREQ | 52 | O | HLOAD |
| 21 | O | IRQ | 53 | O | HSEL |
| 22 | I | DEND | 54 | --- | Vss7 |
| 23 | --- | Vss3 | 55 | O | DS0 |
| 24 | O | 1/2EX1 | 56 | O | DS1 |
| 25 | --- | Vcc1 | 57 | O | DS2 |
| 26 | I | NUM1 | 58 | O | DS3 |
| 27 | I | NUM2 | 59 | --- | Vss8 |
| 28 | I | IFS | 60 | O | MON0 |
| 29 | I | SFORM | 61 | O | MON1 |
| 30 | I | INP | 62 | O | MON2 |
| 31 | I | READY | 63 | O | MON3 |
| 32 | I | WPRT | 64 | --- | Vss9 |

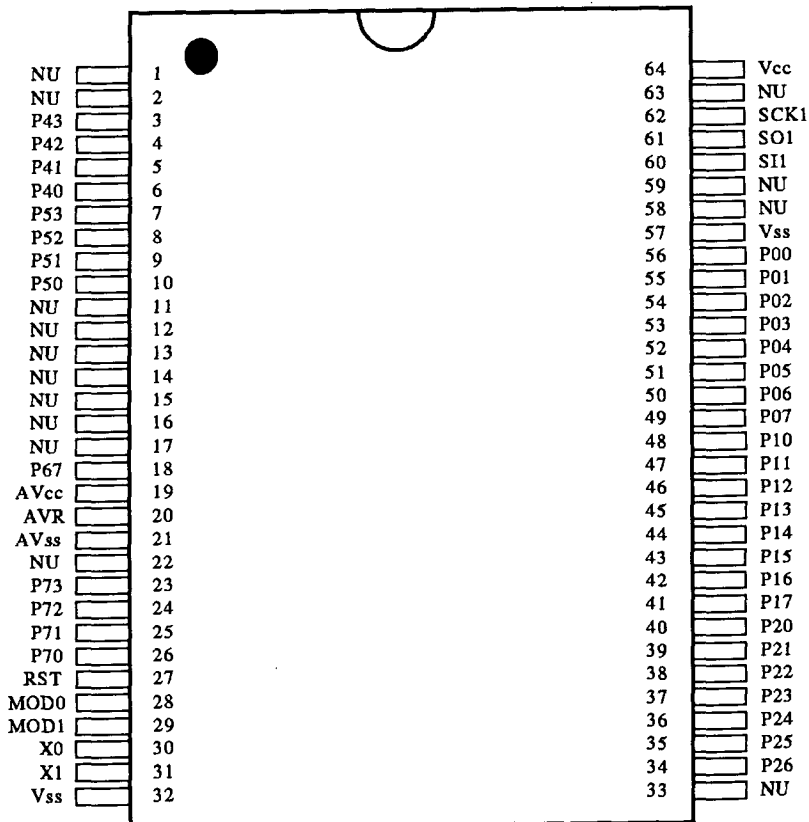
TMP87C847U-4322 (FKS) PIN ASSIGNMENT



TMP87C847U-4322 (FKS) I/O PORT MAPPING

| PORT NAME | I/O | FUNCTION | |
|-----------|-----|----------------------|-------------|
| PORT00-07 | I | DATA IN | Active High |
| PORT10-17 | O | MSCAN OUT (L) | Active Low |
| PORT20-22 | O | MSCAN OUT (U) | Active Low |
| PORT50 | --- | NO USED | |
| PORT51 | --- | NO USED | |
| PORT60-67 | O | BSCAN OUT (L) | Active Low |
| PORT70-72 | O | BSCAN OUT (U) | Active Low |
| SCK | I | SERIAL CLOCK | Active Low |
| RxD | I | DATA RECIEVE | |
| TxD | O | DATA TRANSMIT | |
| SCK REQ | O | SERIAL CLOCK REQUEST | Active Low |
| PORT77 | --- | NO USED (reserve) | |

MB89635RP-G-167-SH (FPS) PIN ASSIGNMENT

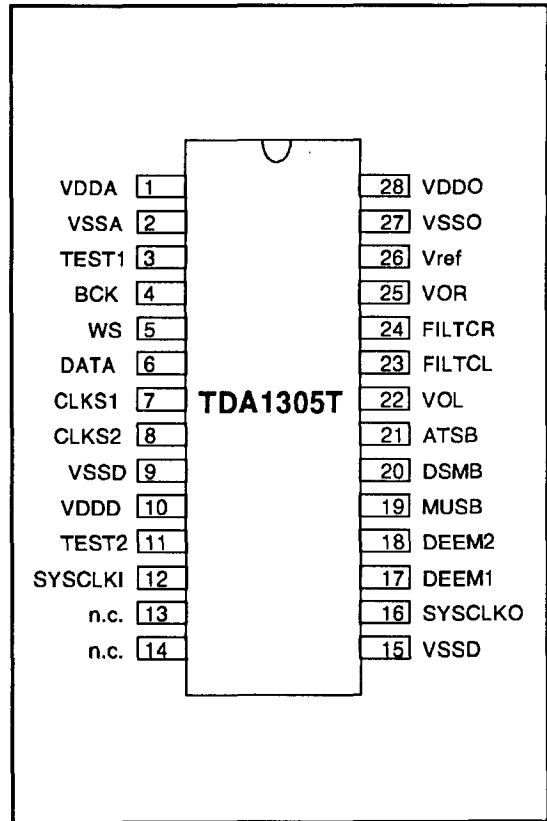


MB89635RP-G-167-SH (FPS) I/O PORT MAPPING

| PORT NAME | I/O | FUNCTION | |
|-----------|-----|----------------------|-------------|
| PORT00-03 | O | SWITCH SELECT (MU) | Active Low |
| PORT04-07 | I | SWITCHES IN (U) | Active Low |
| PORT10-17 | O | LED DATA | Active High |
| PORT20-26 | O | LED LINE | Active Low |
| PORT27 | --- | NO USED (LED LINE) | |
| SCK REQ | O | SERIAL CLOCK REQUEST | Active Low |
| UO | --- | NO USED | |
| UI | --- | NO USED | |
| SCK | I | SERIAL CLOCK | Active Low |
| SO | O | SERIAL DATA OUT | |
| SI | I | SERIAL DAT IN | |
| PORT36 | --- | NO USED | |
| PORT37 | --- | NO USED | |
| PORT40-43 | O | SWITCH SELECT (L) | Active Low |
| PORT50-53 | O | SWITCH SELECT (ML) | Active Low |
| PORT60-66 | --- | NO USED | |
| PORT67 | O | SWITCH SELECT (U) | Active Low |
| PORT70-73 | I | SWITCHES IN (L) | Active Low |
| PORT71 | --- | NO USED | |

TDA1305T(DAC) PIN FUNCTIONS

| SYMBOL | PIN | FUNCTION |
|----------|-----|--|
| VDDA | 1 | analog supply voltage |
| VSSA | 2 | analog ground |
| TEST1 | 3 | test input; pin should be connected to ground(internal pull-down resistor) |
| BCK | 4 | bit clock input |
| WS | 5 | word select input |
| DATA | 6 | data input |
| CLKS1 | 7 | clock selection 1 input |
| CLKS2 | 8 | clock selection 2 input |
| VSSD | 9 | digital ground |
| VDDD | 10 | digital supply voltage |
| TEST2 | 11 | test input; pin should be connected to ground(internal pull-down resistor) |
| SYSCCLKI | 12 | system clock input |
| n.c. | 13 | not connected(this pin should be left open-circuit) |
| n.c. | 14 | not connected(this pin should be left open-circuit) |
| VSSD | 15 | digital ground |
| SYSCCLKO | 16 | system clock output |
| DEEM1 | 17 | de-emphasis on/off; fDEEM 32kHz, 44kHz and 48kHz |
| DEEM2 | 18 | de-emphasis on/off; fDEEM 32kHz, 44kHz and 48kHz |
| MUSB | 19 | mute input(active LOW) |
| DSMB | 20 | double-speed mode input(active LOW) |
| ATSB | 21 | 12 dB attenuation input(active LOW) |
| VOL | 22 | left channel output |
| FILTCL | 23 | capacitor for left channel 1st order filter function should be connected between pins 22 and 23 |
| FILTCR | 23 | capacitor for right channel 1st order filter function should be connected between pins 25 and 24 |
| VOR | 25 | right channel output |
| VREF | 26 | internal reference voltage for output channels(0.5VDD) |
| VSSO | 27 | operational amplifier ground |
| VDDO | 28 | operational amplifier supply voltage |



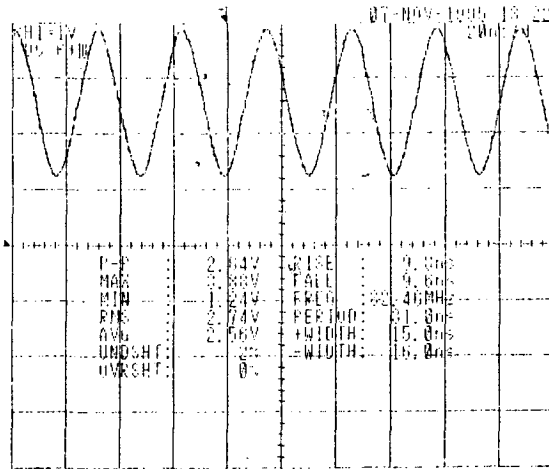
CHECK POINTS

1. CLOCK CIRCUIT - CPU/TGL2A

From 2pin of IC8
To 159pin(MCK) of IC16
and 12pin(X2) of IC9

f= 32.00MHz

signal name : 32MHZ

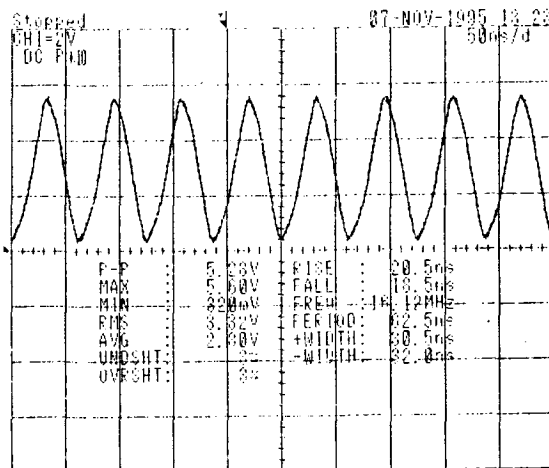


2. CPU - FDC

From 7pin(CLKOUT) of IC9
To 40pin(EXTAL1) of IC2

f= 16.00MHz

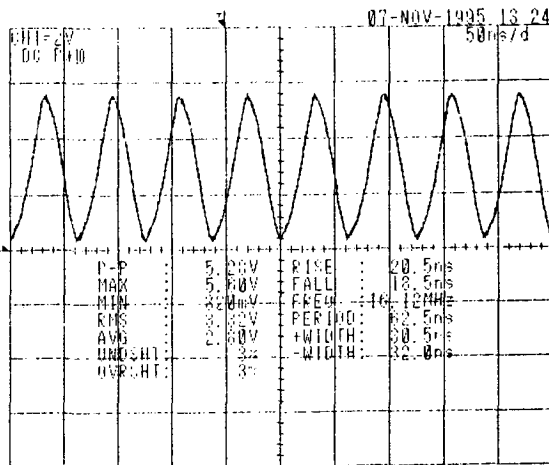
signal name : 16MHZ_FDC



3. CPU - MAP55A

From 7pin(CLKOUT) of IC9
To 92pin(MCLK) of IC13

f= 16.00MHz

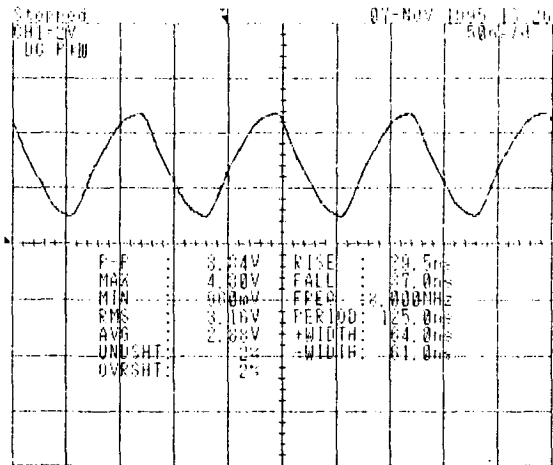


4. TGL2A - DAC

From 4pin(CKO2) of IC16
To 12pin(SYSCLK) of IC14

f= 8.00MHz

signal name : 256FS

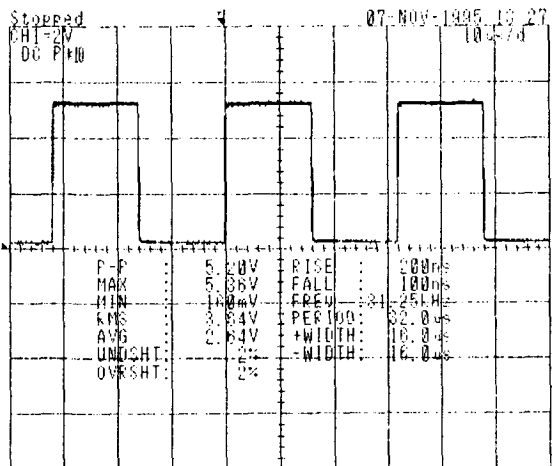


5. TGL2A - DAC

From 152pin(LRCKO) of IC16
To 5pin(LRCK) of IC14

f= 31.25KHz

signal name : LRCK

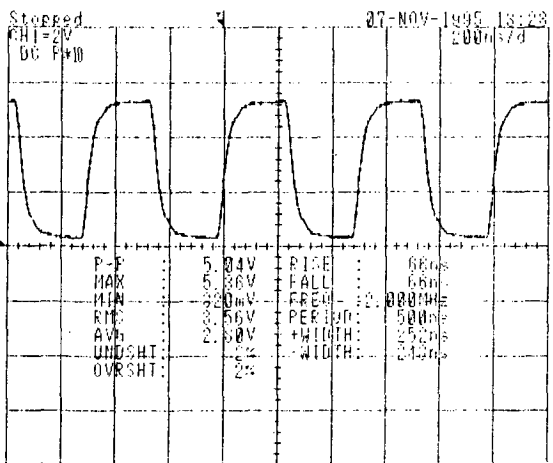


6. TGL2A - DAC

From 153pin(BCKO) of IC16
To 4pin(BCK) of IC14

f= 2.00MHz

signal name : BCK

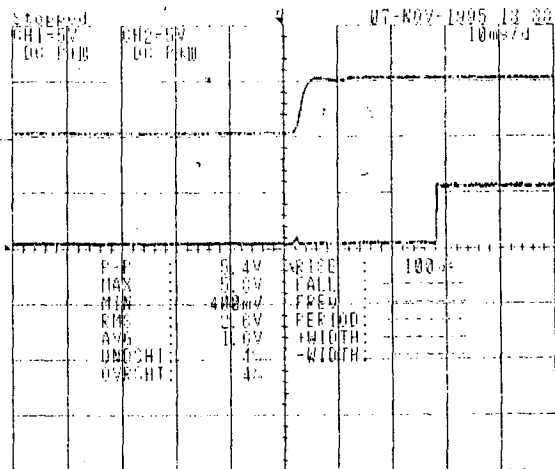


7. RESET - CPU/MAP55A/SRAM

From 7pin(RES) of IC18
 To 8pin(RESET) of IC9,
 89pin(RES) of IC13
 and 30pin(CE2) of IC19

※ When turn the power on

1ch : RESET signal
 2ch : +5V power supply



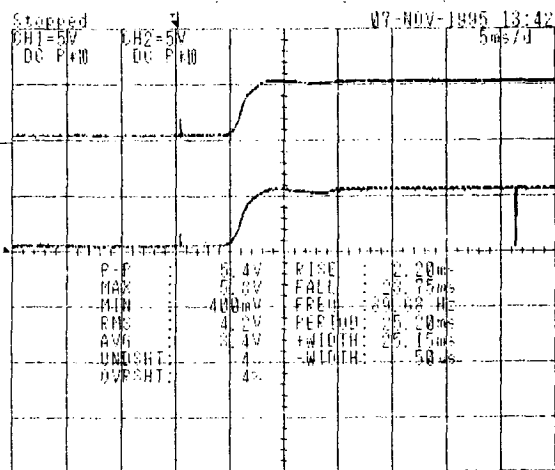
8. CPU - TGL2A

From 16pin(P01) of IC9
 To 2pin(RESET) of IC16

※ When turn the power on

signal name : TGLR

1ch : TGLR signal
 2ch : +5V power supply



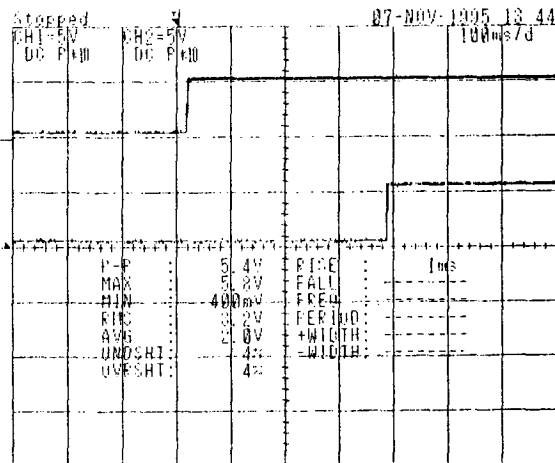
9. CPU - FKS

From 18pin(P03) of IC9
 To 14pin(RESET) of IC17

※ When turn the power on

signal name : RES_K

1ch : RES_K signal
 2ch : +5V power supply



10. CPU - FDC

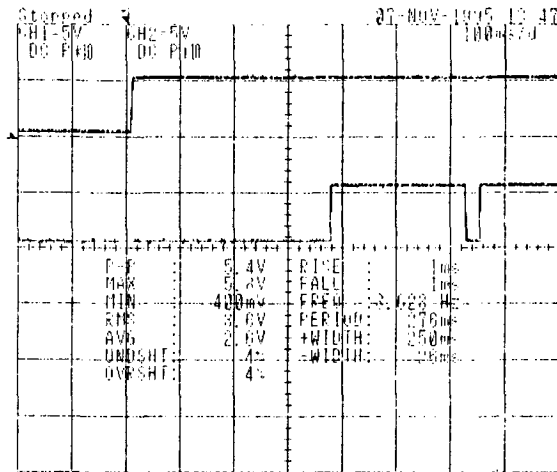
From 17pin(P02) of IC9
To 3pin(RESET) of IC2

※ When turn the power on

signal name : FDCR

1ch : FDCR signal

2ch : +5V power supply



11. CPU - FPS

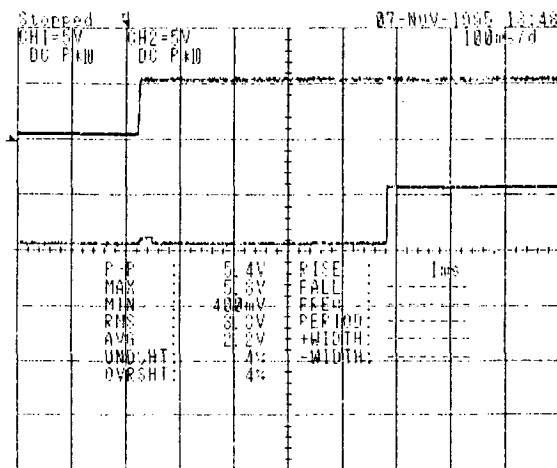
From 19pin(P04) of IC9
To 27pin(RST) of IC1 on KLM-1866

※ When turn the power on

signal name : RST_P

1ch : RET_P signal

2ch : +5V power supply



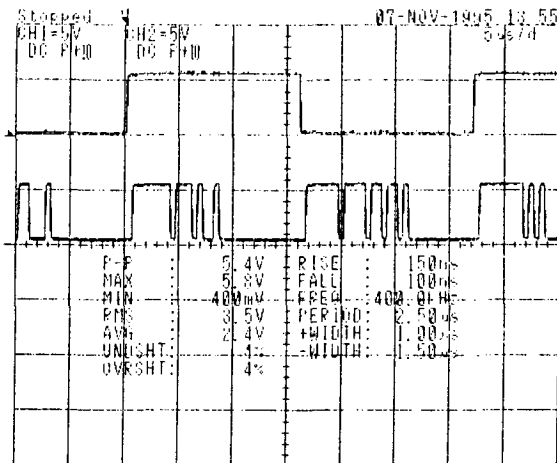
12. TGL2A - DAC

From 155pin(SDO0) of IC16
To 6pin(DATA) of IC14

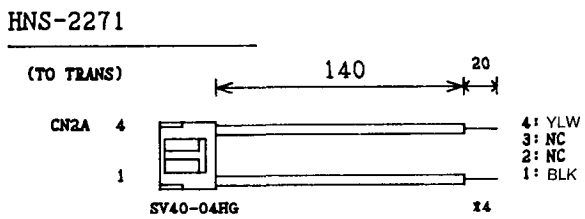
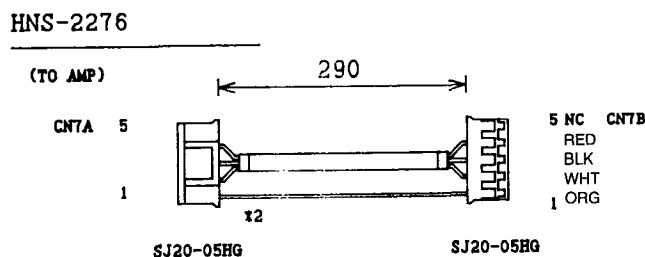
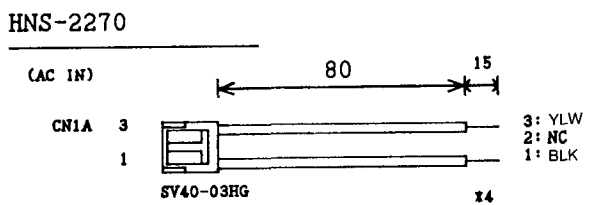
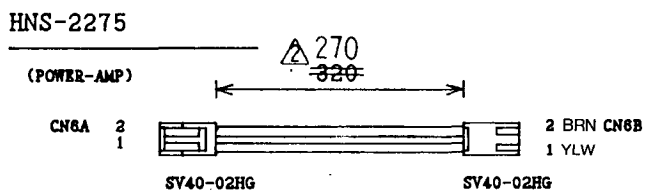
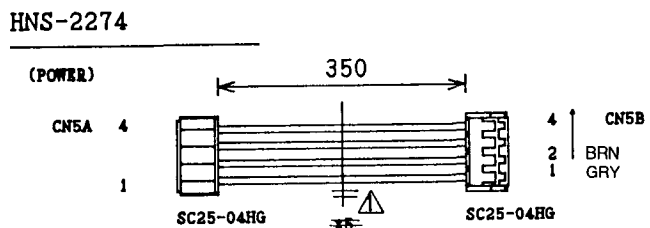
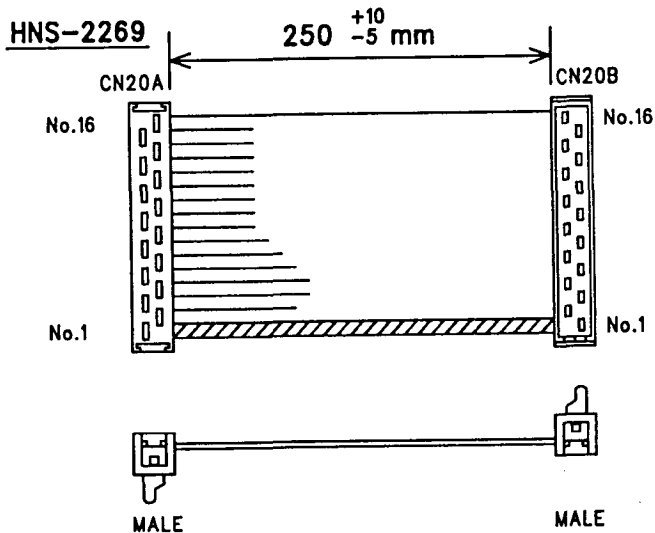
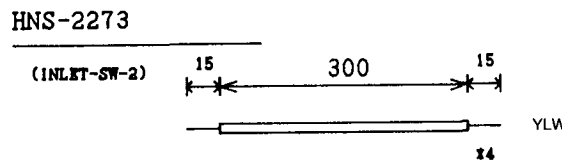
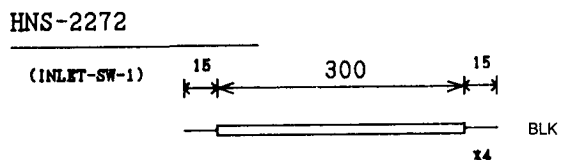
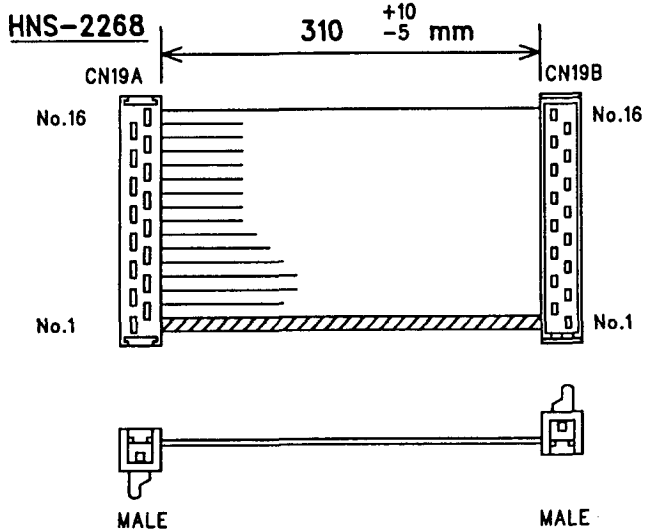
※ When MDE test waveform

Ch1: DATA

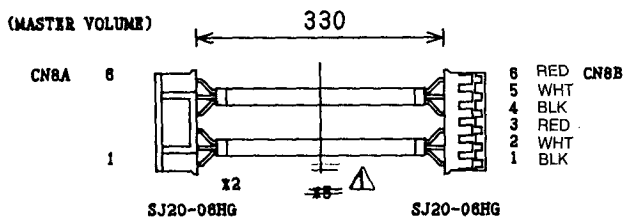
Ch2: LRCK



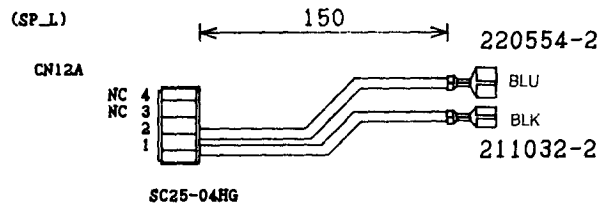
HARNESSES



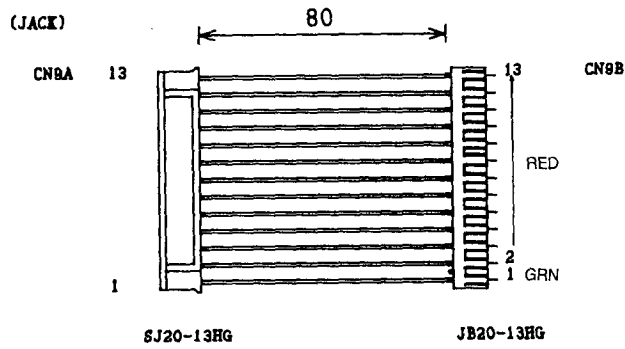
HNS-2277



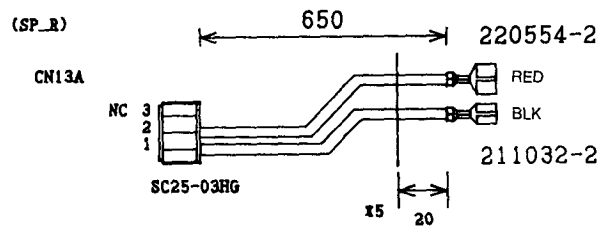
HNS-2281



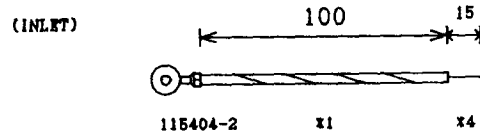
HNS-2278



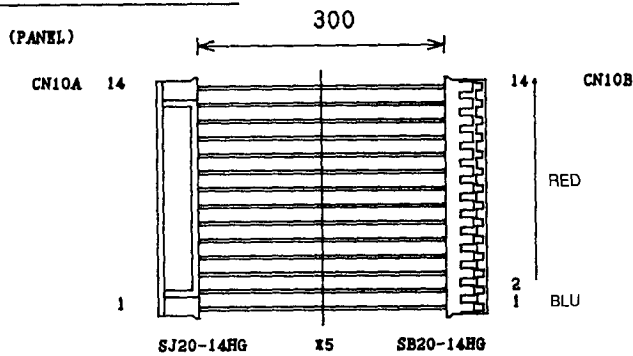
HNS-2282



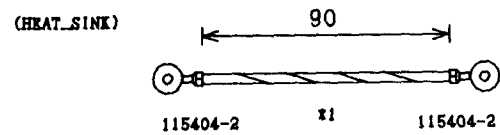
HNS-2283



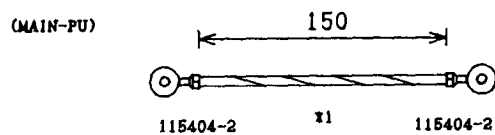
HNS-2279



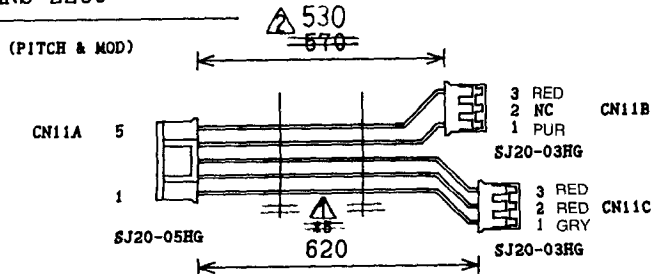
HNS-2284



HNS-2285



HNS-2280



9. WAVE ROM SOUND LIST

FOR MULTISOUNDS

| No. | MultiSound | GM1 | GM2 | ROMA | No. | MultiSound | GM1 | GM2 | ROMA |
|-----|-------------|-----|-----|------|-----|-------------|-----|-----|------|
| 000 | A. Piano 1 | ... | 011 | ... | 040 | Accordion | 009 | ... | ... |
| 001 | A. Piano1LP | ... | 011 | ... | 041 | AccordionLP | 009 | ... | ... |
| 002 | A. Piano 2 | ... | 010 | ... | 042 | Harmonica | 011 | ... | ... |
| 003 | E. Piano 1 | 006 | ... | ... | 043 | G. Guitar | 002 | 008 | ... |
| 004 | E. Piano1LP | 006 | ... | ... | 044 | G. GuitarLP | 002 | 008 | ... |
| 005 | E. Piano 2 | 001 | ... | 004 | 045 | F. Guitar | 002 | 006 | ... |
| 006 | E. Piano2LP | 001 | ... | 004 | 046 | F. GuitarLP | 002 | 006 | ... |
| 007 | Soft EP | ... | 009 | ... | 047 | F. Guitar V | 002 | 004 | ... |
| 008 | Soft EP LP | ... | 009 | ... | 048 | A. Gtr Harm | ... | ... | 002 |
| 009 | Hard EP | ... | ... | 009 | 049 | E. Guitar 1 | 001 | 007 | ... |
| 010 | Hard EP LP | ... | ... | 009 | 050 | E. Guitr1 V | 001 | 007 | ... |
| 011 | PianoPad 1 | ... | ... | 002 | 051 | E. Guitar 2 | ... | ... | 009 |
| 012 | PianoPad 2 | ... | ... | 002 | 052 | E. Guitar 3 | ... | 005 | ... |
| 013 | Clav | 005 | 002 | ... | 053 | MuteGuitar | 002 | 006 | ... |
| 014 | Clav LP | 005 | 002 | ... | 054 | Funky Gtr | ... | ... | 006 |
| 015 | Harpsicord | 008 | ... | ... | 055 | FunkyGtr V | ... | ... | 005 |
| 016 | HarpsicdLP | 008 | ... | ... | 056 | E. Gtr Harm | ... | ... | 005 |
| 017 | PercOrgan1 | ... | ... | 007 | 057 | DistGuitar | 019 | ... | ... |
| 018 | PercOrg1LP | ... | ... | 007 | 058 | Dist GtrLP | 019 | ... | ... |
| 019 | PercOrgan2 | 002 | 004 | ... | 059 | DistGuitrV | 019 | ... | ... |
| 020 | PercOrg2LP | 002 | 004 | ... | 060 | Over Drive | 016 | ... | ... |
| 021 | Organ 1 | ... | ... | 006 | 061 | OverDrv LP | 016 | ... | ... |
| 022 | Organ 1 LP | ... | ... | 006 | 062 | OverDrv F4 | 008 | ... | ... |
| 023 | Organ 2 | ... | ... | 006 | 063 | MuteDstGtr | ... | ... | 021 |
| 024 | Organ 2 LP | ... | ... | 006 | 064 | MtDstGtr V | ... | ... | 021 |
| 025 | Organ 3 | ... | 012 | ... | 065 | PowerChord | ... | ... | 047 |
| 026 | Organ 4 | ... | ... | 012 | 066 | PowerChd V | ... | ... | 008 |
| 027 | Organ 5 | ... | ... | 009 | 067 | OverDvChrd | 008 | ... | 043 |
| 028 | RotaryOrg1 | 004 | ... | ... | 068 | Gtr Slide | ... | ... | 002 |
| 029 | RotaryOrg2 | ... | ... | 011 | 069 | GtrSlide V | ... | ... | 002 |
| 030 | PipeOrgan1 | 006 | ... | ... | 070 | Sitar 1 | 002 | ... | ... |
| 031 | PipeOrg1LP | 006 | ... | ... | 071 | Sitar 2 | ... | ... | 006 |
| 032 | PipeOrgan2 | ... | ... | 007 | 072 | Sitar 2 LP | ... | ... | 006 |
| 033 | PipeOrg2LP | ... | ... | 007 | 073 | Santur | 003 | ... | ... |
| 034 | PipeOrgan3 | 009 | ... | ... | 074 | Bouzouki | ... | ... | 005 |
| 035 | PipeOrg3LP | 009 | ... | ... | 075 | BouzoukiLP | ... | ... | 005 |
| 036 | Musette | 006 | ... | ... | 076 | Banjo | 005 | ... | ... |
| 037 | Musette V | 006 | ... | ... | 077 | Shamisen | 004 | 002 | ... |
| 038 | Bandneon | ... | ... | 012 | 078 | Koto | 006 | ... | ... |
| 039 | BandneonLP | ... | ... | 012 | 079 | Uood | ... | ... | 003 |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

FOR MULITSOUNDS

| No. | MultiSound | GM1 | GM2 | ROMA | No. | MultiSound | GM1 | GM2 | ROMA |
|-----|------------|-----|-----|------|-----|------------|-----|-----|------|
| 080 | Harp | ... | 010 | ... | 120 | Pole | ... | ... | 001 |
| 081 | MandlinTrm | ... | ... | 007 | 121 | Pole LP | ... | ... | 001 |
| 082 | A.Bass 1 | ... | 006 | ... | 122 | Tubular | 005 | ... | ... |
| 083 | A.Bass1 LP | ... | 006 | ... | 123 | Split Drum | ... | 008 | 004 |
| 084 | A.Bass 2 | ... | ... | 006 | 124 | Split Bell | ... | 017 | 007 |
| 085 | A.Bass2 LP | ... | ... | 006 | 125 | Flute | ... | 007 | ... |
| 086 | E.Bass 1 | 002 | 004 | ... | 126 | Pan Flute | 003 | ... | ... |
| 087 | E.Bass1 LP | 002 | 004 | ... | 127 | PanFluteLP | 003 | ... | ... |
| 088 | E.Bass 2 | ... | ... | 008 | 128 | Shakuhachi | 006 | ... | ... |
| 089 | E.Bass2 LP | ... | ... | 008 | 129 | ShakhachLP | 006 | ... | ... |
| 090 | Pick Bass1 | 004 | 002 | ... | 130 | Bottle | 003 | ... | ... |
| 091 | PicBass1LP | 004 | 002 | ... | 131 | Recorder | 005 | ... | ... |
| 092 | Pick Bass2 | ... | ... | 008 | 132 | Ocarina | 002 | ... | ... |
| 093 | Fretless | 001 | 004 | ... | 133 | Oboe | 007 | ... | ... |
| 094 | FretlessLP | 001 | 004 | ... | 134 | EnglishHrn | 015 | ... | ... |
| 095 | Slap Bass1 | 006 | 001 | ... | 135 | Eng.HornLP | 015 | ... | ... |
| 096 | Slap Bass2 | 003 | 002 | ... | 136 | BasoonOboe | 004 | 008 | ... |
| 097 | SlpBass2LP | 003 | 002 | ... | 137 | BsonOboeLP | 004 | 008 | ... |
| 098 | Slap Bass3 | ... | ... | 010 | 138 | Clarinet | 011 | ... | ... |
| 099 | SynthBass1 | 003 | 002 | ... | 139 | ClarinetLP | 011 | ... | ... |
| 100 | SynBass1LP | 003 | 002 | ... | 140 | Bari Sax | 011 | ... | ... |
| 101 | SynthBass2 | 003 | 002 | ... | 141 | Bari.SaxLP | 011 | ... | ... |
| 102 | SynBass2LP | 003 | 002 | ... | 142 | Tenor Sax | 013 | ... | ... |
| 103 | House Bass | ... | ... | 006 | 143 | T.Sax LP | 013 | ... | ... |
| 104 | FM Bass | ... | ... | 004 | 144 | Alto Sax | 009 | ... | ... |
| 105 | FM Bass LP | ... | ... | 004 | 145 | A.Sax LP | 009 | ... | ... |
| 106 | Kalimba | ... | 002 | ... | 146 | SopranoSax | 012 | ... | ... |
| 107 | Music Box | 001 | 001 | ... | 147 | S.Sax LP | 012 | ... | ... |
| 108 | MusicBoxLP | 001 | 001 | ... | 148 | Tuba | 001 | 006 | ... |
| 109 | Log Drum | ... | ... | 005 | 149 | Tuba LP | 001 | 006 | ... |
| 110 | Marimba | ... | 005 | ... | 150 | Horn | 001 | 012 | ... |
| 111 | Xylophone | ... | 007 | ... | 151 | FlugelHorn | ... | ... | 007 |
| 112 | Vibe | ... | 005 | ... | 152 | Trombone 1 | 003 | 005 | ... |
| 113 | Celesta | ... | 002 | ... | 153 | Trombone 2 | 001 | 008 | ... |
| 114 | Glocken | ... | 005 | ... | 154 | Trumpet | 006 | 003 | ... |
| 115 | BrightBell | ... | 003 | ... | 155 | Trumpet LP | 006 | 003 | ... |
| 116 | B.Bell LP | ... | 003 | ... | 156 | Mute TP | 009 | ... | ... |
| 117 | Metal Bell | ... | 002 | ... | 157 | Mute TP LP | 009 | ... | ... |
| 118 | M.Bell LP | ... | 002 | ... | 158 | Brass 1 | ... | ... | 009 |
| 119 | Gamelan | ... | ... | 004 | 159 | Brass 1 LP | ... | ... | 009 |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

FOR MULTISOUNDS

| No. | MultiSound | GM1 | GM2 | ROMA | No. | MultiSound | GM1 | GM2 | ROMA |
|-----|------------|-----|-----|------|-----|------------|-----|-----|------|
| 160 | Brass 2 | 004 | ... | ... | 200 | Clicker | 003 | ... | ... |
| 161 | Brass 2 LP | 004 | ... | ... | 201 | Clicker NT | 001 | ... | ... |
| 162 | StringEns. | 009 | 004 | 005 | 202 | Crickets 1 | 001 | ... | ... |
| 163 | StrEns. V1 | 009 | 004 | 005 | 203 | Crickts1NT | 001 | ... | ... |
| 164 | StrEns. V2 | 009 | 004 | 005 | 204 | Crickets 2 | ... | ... | 001 |
| 165 | StrEns. V3 | 009 | 004 | 004 | 205 | Crickts2NT | ... | ... | 001 |
| 166 | AnaStrings | 005 | ... | ... | 206 | Magic Bell | ... | ... | 001 |
| 167 | PWM | 005 | ... | ... | 207 | Sporing | ... | 001 | ... |
| 168 | Violin | 010 | ... | ... | 208 | Rattle | ... | 002 | ... |
| 169 | Cello | 006 | ... | ... | 209 | Kava 1 | ... | ... | 001 |
| 170 | Cello LP | 006 | ... | ... | 210 | Kava 2 | ... | ... | 001 |
| 171 | Pizzicato | ... | 007 | ... | 211 | Fever 1 | 001 | ... | ... |
| 172 | Voice | 002 | ... | ... | 212 | Fever 2 | 001 | ... | ... |
| 173 | Choir | 006 | ... | ... | 213 | Zappers 1 | ... | ... | 001 |
| 174 | Soft Choir | 001 | ... | ... | 214 | Zappers 2 | ... | ... | 001 |
| 175 | Air Vox | 004 | ... | ... | 215 | Bugs | ... | 014 | ... |
| 176 | Doo Voice | 007 | ... | ... | 216 | Surfy | 001 | ... | ... |
| 177 | DooVoiceLP | 007 | ... | ... | 217 | SleighBell | 002 | ... | ... |
| 178 | Syn Vox | 002 | ... | ... | 218 | Elec Beat | ... | ... | 002 |
| 179 | Syn Vox LP | 002 | ... | ... | 219 | Idling | ... | 003 | ... |
| 180 | White Pad | 002 | ... | ... | 220 | EthnicBeat | ... | ... | 013 |
| 181 | Ether Bell | 004 | ... | ... | 221 | Taps | 001 | 001 | 004 |
| 182 | E.Bell LP | 004 | ... | ... | 222 | Tap 1 | 001 | ... | 002 |
| 183 | Mega Pad | 002 | ... | ... | 223 | Tap 2 | 001 | ... | 002 |
| 184 | Spectrum 1 | ... | ... | 003 | 224 | Tap 3 | 001 | ... | 002 |
| 185 | Spectrum 2 | ... | ... | 002 | 225 | Tap 4 | 001 | 001 | 001 |
| 186 | Stadium | 002 | ... | ... | 226 | Tap 5 | 001 | 001 | ... |
| 187 | Stadium NT | 002 | ... | ... | 227 | Orch Hit | 001 | ... | ... |
| 188 | BrushNoise | 013 | ... | ... | 228 | SnareRI/Ht | ... | ... | 002 |
| 189 | BruNoiseNT | 001 | ... | ... | 229 | Syn Snare | 001 | ... | ... |
| 190 | Steel Drum | 004 | ... | ... | 230 | Rev Snare | ... | ... | 013 |
| 191 | SteelDrmLP | 004 | ... | ... | 231 | PowerSnare | ... | 001 | ... |
| 192 | BrushSwirl | 013 | ... | ... | 232 | Orch Perc | 002 | 002 | 001 |
| 193 | Belltree | 001 | ... | ... | 233 | Crash Cym | 013 | ... | ... |
| 194 | BelltreeNT | 001 | ... | ... | 234 | CrashCymLP | 013 | ... | ... |
| 195 | BeltreV NT | 001 | ... | ... | 235 | CrashLP NT | 001 | ... | ... |
| 196 | Tri Roll | 004 | ... | ... | 236 | China Cym | 002 | ... | ... |
| 197 | TriRoll NT | 001 | ... | ... | 237 | Splash Cym | 002 | ... | ... |
| 198 | Telephon | 002 | ... | ... | 238 | Orch Crash | ... | ... | 013 |
| 199 | TelephonNT | 001 | ... | ... | 239 | Tite HH | 001 | ... | ... |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

FOR MULITSOUNDS

| No. | MultiSound | GM1 | GM2 | ROMA | No. | MultiSound | GM1 | GM2 | ROMA |
|-----|------------|-----|-----|------|-----|--------------|-----|-----|------|
| 240 | Tite HH NT | 001 | ... | ... | 280 | Gt Scratch | 001 | ... | ... |
| 241 | Bell Ride | ... | 002 | ... | 281 | Side Stick | ... | 001 | ... |
| 242 | Ping Ride | ... | 002 | ... | 282 | SideStikNT | ... | 001 | ... |
| 243 | Timpani | ... | 001 | ... | 283 | TimbleSide | ... | ... | 001 |
| 244 | Timpani LP | ... | 001 | ... | 284 | TimblSidNT | ... | ... | 001 |
| 245 | Cabasa | 013 | ... | ... | 285 | Syn Rim | ... | 001 | ... |
| 246 | Cabasa NT | 001 | ... | ... | 286 | Syn Rim NT | ... | 001 | ... |
| 247 | Agogo | ... | 001 | ... | 287 | Open HH | ... | 001 | ... |
| 248 | Cow Bell | ... | 001 | ... | 288 | OpenSyn HH | 001 | ... | ... |
| 249 | Low Bongo | ... | 001 | ... | 289 | CloseSynHH | ... | 001 | ... |
| 250 | Claves | ... | 001 | ... | 290 | Sagat | ... | ... | 001 |
| 251 | Timbale | ... | 001 | ... | 291 | Sagat NT | ... | ... | 001 |
| 252 | WoodBlock1 | ... | 001 | ... | 292 | Sagatty | ... | ... | 001 |
| 253 | WoodBlock2 | ... | 001 | ... | 293 | Sagatty NT | ... | ... | 001 |
| 254 | WoodBlock3 | ... | 001 | ... | 294 | JingleBell | 002 | ... | ... |
| 255 | Taiko Hit | ... | 001 | ... | 295 | Taiko | ... | 002 | ... |
| 256 | Syn Claves | ... | 001 | ... | 296 | Slap Bongo | ... | ... | 001 |
| 257 | Melo Tom | ... | 001 | ... | 297 | Open Conga | ... | 001 | ... |
| 258 | ProccesTom | 001 | ... | ... | 298 | Slap Conga | ... | ... | 001 |
| 259 | Syn Tom 1 | ... | 001 | ... | 299 | Palm Conga | ... | ... | 001 |
| 260 | Syn Tom 2 | ... | 002 | ... | 300 | Mute Conga | ... | 001 | ... |
| 261 | VocalSnare | ... | ... | 002 | 301 | Tabla 1 | ... | ... | 001 |
| 262 | Zap 1 | ... | ... | 001 | 302 | Tabla 2 | ... | ... | 001 |
| 263 | Zap 2 | ... | ... | 001 | 303 | Maracas | ... | 001 | ... |
| 264 | Fret Zap 1 | 001 | ... | ... | 304 | SynMaracas | ... | 001 | ... |
| 265 | Fret Zap 2 | 001 | ... | ... | 305 | SynMarcsNT | ... | 001 | ... |
| 266 | Vibra Slap | 013 | ... | ... | 306 | MuteTriang | 001 | ... | ... |
| 267 | Indust | ... | ... | 001 | 307 | OpenTriang | ... | 001 | ... |
| 268 | Thing | ... | ... | 002 | 308 | Guiro | ... | 002 | ... |
| 269 | Thing NT | ... | ... | 001 | 309 | Guiro LP | ... | 002 | ... |
| 270 | FingerSnap | ... | ... | 001 | 310 | Scratch Hi | 001 | ... | ... |
| 271 | FingSnapNT | ... | ... | 001 | 311 | ScratchHiNT | 001 | ... | ... |
| 272 | Tambourine | ... | 001 | ... | 312 | Scratch Lo | 001 | ... | ... |
| 273 | Hand Clap | ... | 001 | ... | 313 | ScratchLoNT | 001 | ... | ... |
| 274 | HandClapNT | ... | 001 | ... | 314 | ScratchDbl | ... | ... | 001 |
| 275 | Gun Shot | 001 | ... | ... | 315 | ScratchDbINT | ... | ... | 001 |
| 276 | Castanet | ... | 001 | ... | 316 | Mini 1a | ... | 001 | 009 |
| 277 | CastanetNT | ... | 001 | ... | 317 | Digital 1 | ... | 002 | 008 |
| 278 | Snap | ... | ... | 001 | 318 | VS 102 | ... | ... | 010 |
| 279 | Snap NT | ... | ... | 001 | 319 | VS 48 | ... | 001 | 009 |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

FOR MULITSOUNDS

| No. | MultiSound | GM1 | GM2 | ROMA |
|-----|--------------|-----|-----|------|
| 320 | [VS 52 | ... | 001 | 009 |
| 321 | [VS 58 | 009 | 001 | ... |
| 322 | [VS 71 | ... | 001 | 009 |
| 323 | [VS 72 | ... | 001 | 009 |
| 324 | [VS 88 | ... | 001 | 009 |
| 325 | [VS 89 | ... | 001 | 009 |
| 326 | [13-35 | ... | 001 | 009 |
| 327 | [DWGSOrgan1 | ... | 001 | 009 |
| 328 | [DWGSOrgan2 | ... | 001 | 009 |
| 329 | [DWGS E.P. | ... | 001 | 009 |
| 330 | [Saw | 009 | 001 | ... |
| 331 | [Square | 009 | 001 | ... |
| 332 | [Ramp | ... | 001 | 009 |
| 333 | [Pulse 25% | ... | 001 | 009 |
| 334 | [Pulse 8% | ... | 001 | 009 |
| 335 | [Pulse 4% | ... | 001 | 009 |
| 336 | [Syn Sine | ... | 010 | ... |
| 337 | [Sine | 001 | 009 | ... |
| 338 | [DJ Kit 1 | 009 | 001 | 009 |
| 339 | [DJ Kit 2 | 010 | 010 | 016 |
| 340 | [A.Piano 3 | ... | ... | ... |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

FOR DRUM SOUNDS

| No. | DrumSound | GM1 | GM2 | ROMA | No. | DrumSound | GM1 | GM2 | ROMA |
|-----|-------------|-----|-----|------|-----|------------|-----|-----|------|
| 000 | Fat Kick | ... | ... | 001 | 041 | Crash LP | 001 | ... | ... |
| 001 | Rock Kick | ... | ... | 001 | 042 | China Cym | 001 | ... | ... |
| 002 | Ambi.Kick | ... | ... | 001 | 043 | China LP | 001 | ... | ... |
| 003 | Crisp Kick | ... | ... | 001 | 044 | Splash Cym | 001 | ... | ... |
| 004 | Punch Kick | ... | ... | 001 | 045 | Splash LP | 001 | ... | ... |
| 005 | Real Kick | ... | 001 | ... | 046 | Orch Crash | ... | ... | 001 |
| 006 | Dance Kick | ... | ... | 001 | 047 | OrchCym LP | ... | ... | 001 |
| 007 | Gated Kick | ... | ... | 001 | 048 | Tite HH | 001 | ... | ... |
| 008 | ProcesKick | ... | 001 | ... | 049 | Open HH | ... | 001 | ... |
| 009 | Metal Kick | ... | 001 | ... | 050 | Pedal HH | 001 | ... | ... |
| 010 | Syn Kick 1 | ... | 001 | ... | 051 | CloseSynHH | ... | 001 | ... |
| 011 | Syn Kick 2 | ... | ... | 001 | 052 | Open SynHH | 001 | ... | ... |
| 012 | Syn Kick 3 | ... | ... | 001 | 053 | Sagat | ... | ... | 001 |
| 013 | Orch B. Drm | ... | ... | 001 | 054 | Ride Edge | ... | 001 | ... |
| 014 | Snare 1 | ... | ... | 001 | 055 | Ride Cup | ... | 001 | ... |
| 015 | Snare 2 | ... | ... | 001 | 056 | Ride Cym 1 | ... | ... | 001 |
| 016 | Snare 3 | ... | ... | 001 | 057 | Ride Cym 2 | ... | ... | 001 |
| 017 | Snare 4 | ... | ... | 001 | 058 | Tom Hi | ... | 001 | ... |
| 018 | PicloSnare | ... | ... | 001 | 059 | Tom Lo | ... | 001 | ... |
| 019 | Soft Snare | ... | ... | 001 | 060 | ProcessTom | 001 | ... | ... |
| 020 | LightSnare | ... | 001 | ... | 061 | SynTom1 Hi | ... | 001 | ... |
| 021 | TightSnare | ... | ... | 001 | 062 | SynTom1 Lo | ... | 001 | ... |
| 022 | Ambi.Snare | ... | ... | 001 | 063 | Syn Tom 2 | ... | 001 | ... |
| 023 | Rev Snare | ... | ... | 001 | 064 | Brush Tom | ... | 001 | ... |
| 024 | RollSnare1 | ... | ... | 001 | 065 | Agogo | ... | 001 | ... |
| 025 | RollSnare2 | ... | ... | 001 | 066 | Lo Bongo | ... | 001 | ... |
| 026 | Rock Snare | ... | 001 | ... | 067 | Hi Bongo | ... | 001 | ... |
| 027 | GatedSnare | ... | 001 | ... | 068 | Slap Bongo | ... | ... | 001 |
| 028 | PowerSnare | ... | 001 | ... | 069 | Claves | ... | 001 | ... |
| 029 | Syn Snare1 | ... | 001 | ... | 070 | Syn Claves | ... | 001 | ... |
| 030 | Syn Snare2 | 001 | ... | ... | 071 | Open Conga | ... | 001 | ... |
| 031 | Gun Shot | 001 | ... | ... | 072 | Slap Conga | ... | ... | 001 |
| 032 | Brush Slap | ... | 001 | ... | 073 | Palm Conga | ... | ... | 001 |
| 033 | BrushSwish | 001 | ... | ... | 074 | Mute Conga | ... | 001 | ... |
| 034 | BrushSwirl | 001 | ... | ... | 075 | Baya 1 | ... | ... | 001 |
| 035 | Brush Tap | ... | 001 | ... | 076 | Baya 2 | ... | ... | 001 |
| 036 | Side Stick | ... | 001 | ... | 077 | Tabla 1 | ... | ... | 001 |
| 037 | Syn Rim | ... | 001 | ... | 078 | Tabla 2 | ... | ... | 001 |
| 038 | VocalSnr 1 | ... | ... | 001 | 079 | Tabla 3 | ... | ... | 001 |
| 039 | VocalSnr 2 | ... | ... | 001 | 080 | Maracas | ... | 001 | ... |
| 040 | Crash Cym | 001 | ... | ... | 081 | Cabasa | 001 | ... | ... |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
ROMA: MX23C1610MC-15 KORG ROMA

FOR DRUM SOUNDS

| No. | DrumSound | GM1 | GM2 | ROMA | No. | DrumSound | GM1 | GM2 | ROMA |
|-----|------------|-----|-----|------|-----|------------|-----|-----|------|
| 082 | SynMaracas | ... | 001 | ... | 123 | Log Drum 5 | ... | ... | 001 |
| 083 | MuteTriang | 001 | ... | ... | 124 | Snap | ... | ... | 001 |
| 084 | OpenTriang | ... | 001 | ... | 125 | BrightBell | ... | 001 | ... |
| 085 | Tambourine | ... | 001 | ... | 126 | Metal Bell | ... | 001 | ... |
| 086 | Cowbell | ... | 001 | ... | 127 | Gamelan 1 | ... | ... | 001 |
| 087 | SynCowbell | 001 | ... | ... | 128 | Gamelan 2 | ... | ... | 001 |
| 088 | R-Timbal | ... | ... | 001 | 129 | Celeste | ... | 001 | ... |
| 089 | Hi Timbal | ... | 001 | ... | 130 | Glocken | ... | 001 | ... |
| 090 | Lo Timbal | ... | 001 | ... | 131 | Vibe 1 | ... | 001 | ... |
| 091 | WoodBlock1 | ... | 001 | ... | 132 | Vibe 2 | ... | 001 | ... |
| 092 | WoodBlock2 | ... | 001 | ... | 133 | Vibe 3 | ... | 001 | ... |
| 093 | WoodBlock3 | ... | 001 | ... | 134 | Vibe 4 | ... | 001 | ... |
| 094 | Hand Claps | ... | 001 | ... | 135 | Pole | ... | ... | 001 |
| 095 | Syn Claps | ... | ... | 001 | 136 | TubulBell1 | 001 | ... | ... |
| 096 | Zap 1 | ... | ... | 001 | 137 | TubulBell2 | 001 | ... | ... |
| 097 | Zap 2 | ... | ... | 001 | 138 | TubulBell3 | 001 | ... | ... |
| 098 | Scratch Hi | 001 | ... | ... | 139 | Gt Scratch | 001 | ... | ... |
| 099 | Scratch Lo | 001 | ... | ... | 140 | Chic 1 | ... | ... | 001 |
| 100 | ScratchDbI | ... | ... | 001 | 141 | Chic 2 | ... | ... | 001 |
| 101 | Thing | ... | ... | 001 | 142 | Spectrum 1 | ... | ... | 001 |
| 102 | Mute Cuica | ... | 001 | ... | 143 | Spectrum 2 | ... | ... | 001 |
| 103 | Open Cuica | ... | 001 | ... | 144 | Stadium | 001 | ... | ... |
| 104 | Vibraslap | 001 | ... | ... | 145 | BrushNoise | 001 | ... | ... |
| 105 | Guiro S | ... | 001 | ... | 146 | Gt Slide | ... | ... | 001 |
| 106 | Guiro L | ... | 001 | ... | 147 | Bell Tree | 001 | ... | ... |
| 107 | Castanet | ... | 001 | ... | 148 | Tri Roll | 001 | ... | ... |
| 108 | FingerSnap | ... | ... | 001 | 149 | JingleBell | 001 | ... | ... |
| 109 | Timbales | ... | ... | 001 | 150 | Whistle S | 001 | ... | ... |
| 110 | Kalimba 1 | ... | 001 | ... | 151 | Whistle L | 001 | ... | ... |
| 111 | Kalimba 2 | ... | 001 | ... | 152 | Timpani | ... | 001 | ... |
| 112 | Marimba 1 | ... | 001 | ... | 153 | Taiko Hi | ... | 001 | ... |
| 113 | Marimba 2 | ... | 001 | ... | 154 | Taiko Lo | ... | 001 | ... |
| 114 | Marimba 3 | ... | 001 | ... | 155 | Music Box1 | ... | 001 | ... |
| 115 | Marimba 4 | ... | 001 | ... | 156 | Music Box2 | 001 | ... | ... |
| 116 | Xylofon 1 | ... | 001 | ... | 157 | Clicker 1 | 001 | ... | ... |
| 117 | Xylofon 2 | ... | 001 | ... | 158 | Clicker 2 | 001 | ... | ... |
| 118 | Xylofon 3 | ... | 001 | ... | 159 | Clicker 3 | 001 | ... | ... |
| 119 | Log Drum 1 | ... | ... | 001 | 160 | Crickets | 001 | ... | ... |
| 120 | Log Drum 2 | ... | ... | 001 | 161 | Orch Hit | 001 | ... | ... |
| 121 | Log Drum 3 | ... | ... | 001 | 162 | Metronome1 | ... | 001 | ... |
| 122 | Log Drum 4 | ... | ... | 001 | 163 | Metronome2 | ... | 001 | ... |

GM1: MX23C1610MC-15 KORG GM1 GM2: MX23C1610MC-15 KORG GM2
 ROMA: MX23C1610MC-15 KORG ROMA

10.PARTS LIST

| PART CODE | PART NAME/SPECIFICATION | P.C.BOARD | NOTE | Q'TY | MARK |
|-----------|--------------------------------|-----------|----------------|------|------|
| 001186500 | PCB ASSEMBLY KLM-1865 | M.PART | MAIN | 1 | NEW |
| 001186600 | PCB ASSEMBLY KLM-1866/67/72 | M.PART | PAN,VOL,MOD | 1 | NEW |
| 001186800 | PCB ASSEMBLY KLM-1868/69 | M.PART | POWER/AMP | 1 | NEW |
| 001187000 | PCB ASSEMBLY KLM-1870 | M.PART | JACK | 1 | NEW |
| 001187100 | PCB ASSEMBLY KLM-1871 | M.PART | WHEEL | 1 | NEW |
| ----- | | | | | |
| 312010900 | LED GL3ED8 | 1866 | | 1 | |
| 312400100 | LED SLZ-190B-03-T2 | 1866 | | 30 | NEW |
| ----- | | | | | |
| 313003300 | LCD DM2023-7BL3 (W/HARNESS) | M.PART | | 1 | NEW |
| ----- | | | | | |
| 320001394 | IC LH538B2V | 1865 | STYLE | 1 | NEW |
| 320001529 | IC UPD70433GD-16-5BB | 1865 | CPU | 1 | |
| 320003212 | IC TMP87C847U-4322 | 1865 | KEY SCAN | 1 | NEW |
| 320003214 | IC TA78DL12S | 1868 | REGULATOR | 1 | NEW |
| 320004538 | IC HD63266F | 1865 | FDC | 1 | |
| 320011174 | IC M5227P | 1869 | OP_AMP | 2 | |
| 320012146 | IC MB622E15PF-G-LBND | 1865 | MAP55A | 1 | |
| 320012181 | IC MB87A104APF-G-BND | 1865 | TGL2 | 1 | |
| 320012205 | IC MB89635R-P-G-167-SH | 1866 | PANEL SCAN | 1 | NEW |
| 320013036 | IC PQ05RF2 | 1868 | REGULATOR | 1 | |
| 320021150 | IC TMS27PC240-12FNL | 1865 | SYSTEM/PRELOAD | 2 | NEW |
| 320038003 | IC TDA8560Q | 1869 | POWER AMP | 1 | |
| 320040004 | IC MX23C1610MC-15 KORG | GM1 1865 | WAVE_ROM | 1 | |
| 320040005 | IC MX23C1610MC-15 KORG | GM2 1865 | WAVE_ROM | 1 | |
| | or 320001546 UPD23C16026GX-350 | | | | |
| 320040006 | IC MX23C1610MC-15 KORG ROMA | 1865 | WAVE_ROM | 1 | |
| 320043001 | IC IN41464P-10 | 1865 | D_RAM | 5 | NEW |
| 324001016 | IC UPC4574G2-E2 (SOP) | 1865 | OP_AMP | 1 | |
| 324003010 | IC TCWU04F TE12L | 1865 | HC_MOS | 1 | NEW |
| 324004003 | IC HD74HC139FPER | 1865 | HC_MOS | 1 | |
| 324004012 | IC HD74HC08FPER | 1865 | HC_MOS | 1 | |
| 324004176 | IC HD74HC05FPER | 1865 | HC_MOS | 1 | |
| 324009004 | IC NJM78L05UA-TE2 | 1865 | REGULATOR | 1 | |
| 324011002 | IC M5223FP-600C (8P SOP) | 1865 | OP_AMP | 1 | |
| 324011004 | IC M5216FP-600C-TP3 | 1865 | OP_AMP | 1 | |
| 324011013 | IC M62021FP-600C | 1865 | RESET | 1 | |
| 324011021 | IC M5M34050FP-42A | 1865 | PC I/F | 1 | |
| 324011022 | IC M5M51008AFP-70L-TT4 | 1865 | S_RAM | 1 | |
| | or 320001335 UPD431000AGW-70L | | | | |
| | or 320042001 GM76C8128ALL-FW70 | | | | |
| 324012012 | IC MB81C4256A-70PJ-G-EF | 1865 | D_RAM | 2 | |
| 324038002 | IC TDA1305T/N1-T | 1865 | DAC | 1 | |
| ----- | | | | | |
| 334000500 | SB COIL SBT-0260 TF | 1870 | | 8 | |
| 334000600 | PHOTO COUPLER PC-410K-TP | 1865 | | 1 | |
| ----- | | | | | |
| 335009500 | CERAMIC OSC. CST10.0MTW | 1866 | | 1 | |
| 335400080 | CRYSTAL OSC SX-1 32.000MHZ | 1865 | | 1 | |
| 335400117 | CERAMIC OSC. CSTCS8.00MT-TC | 1865 | | 1 | NEW |
| ----- | | | | | |
| 360024100 | VR RK1631110TDAA | 1871 | | 1 | |
| 365009500 | SLIDE VR EWA NAO10B14 10KB | 1867 | | 1 | NEW |

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| PART CODE | PART NAME/SPECIFICATION | P.C.BOARD | NOTE | Q'TY | MARK |
|-----------|--------------------------------|-----------|------|-------|-------|
| 600005400 | AC CORD EC-652-E03 | M.PART | | 230GE | 1 |
| | | M.PART | | 230FR | 1 |
| | | M.PART | | 230WG | 1 |
| | | M.PART | | 230SC | 1 |
| | | M.PART | | 230IT | 1 |
| 600005500 | AC CORD UC-948-J01 | M.PART | | 117EX | 1 |
| 600005700 | AC CORD UC-953-J01 | M.PART | | 117US | 1 |
| | | M.PART | | 117CN | 1 |
| | | M.PART | | 240AU | 1 |
| ----- | | | | | |
| 620024600 | X-952 POWER SW KNOB E40304-2 | M.PART | | | 1 |
| 620027300 | X422 KNOB 2-8-WH H30081-8-WH | M.PART | | | 2 NEW |
| 620027400 | X-422 KNOB 1 KOC-E40405 | M.PART | | | 2 NEW |
| 620027500 | X422 KNOB 2-4-BK H30081-4-BK | M.PART | | | 1 NEW |
| 620027600 | X422 KNOB 2-3-BK H30081-3-BK | M.PART | | | 3 NEW |
| 620027700 | X422 KNOB 2-2-BK H30081-2-BK | M.PART | | | 4 NEW |
| 620027800 | X422 KNOB 2-2-GR H30081-2-GR | M.PART | | | 4 NEW |
| 620027900 | X422 KNOB 2-1-BK H30081-1-BK | M.PART | | | 2 NEW |
| 620028000 | X422 KNOB 2-1-RD H30081-1-RD | M.PART | | | 2 NEW |
| 620028100 | X422 KNOB 2-1-GR H30081-1-GR | M.PART | | | 1 NEW |
| 620028200 | X-422 KNOB 3 KOC-E40407 | M.PART | | | 1 NEW |
| 620028300 | X-422 KNOB 4 KOC-E40408 | M.PART | | | 1 NEW |
| 620028400 | X-631 SVR KNOB(YELLOW)E40239-4 | M.PART | | | 1 NEW |
| ----- | | | | | |
| 630022000 | X-422 LCD WINDOW KOC-E40409 | M.PART | | | 1 NEW |
| 630022100 | X-422 PARAMETER SHEET 1 | M.PART | | | 1 NEW |
| 630022200 | X-422 PARAMETER SHEET 2 | M.PART | | | 1 NEW |
| 630022300 | X-422 PARAMETER SHEET 3 | M.PART | | | 1 NEW |
| 630022400 | X-422 PARAMETER SHEET 4 | M.PART | | | 1 NEW |
| 630022500 | X-422 PARAMETER SHEET 5 | M.PART | | | 1 NEW |
| 630022600 | X-422 PARAMETER SHEET 6 | M.PART | | | 1 NEW |
| ----- | | | | | |
| 640087700 | GND SPRING C KOC-C40679 | M.PART | | | 1 NEW |
| ----- | | | | | |
| 641026901 | X-122 L TYPE ANGLE (SMALL) | 1868 | | | 1 |
| | | 1869 | | | 1 |
| 641041172 | X-323 JACK PLATE 2 KOC-C40693 | 1870 | | | 1 |
| 641041186 | X-323 HEAT SINK (S) KOC-C40964 | 1868 | | | 1 |
| 641041256 | X-422 WHEEL METAL FITTING ASSY | M.PART | | | 1 NEW |
| 641041257 | X-422 FDD ANGLE KOC-C41011 | M.PART | | | 1 NEW |
| 641041260 | X-422 MUSIC STAND KOC-C30472 | M.PART | | | 1 NEW |
| 641041261 | X-422 HEAT SINK (L) KOC-C30471 | 1869 | | | 1 NEW |
| 641041262 | X-422 HEAT SINK KOC-C41027 | 1868 | | | 1 NEW |
| 641041263 | X-422 PU CHASSIS KOC-C30475 | M.PART | | | 1 NEW |
| ----- | | | | | |
| 644007300 | X-410 WHEEL SPRING C40689-2 | M.PART | | | 1 |
| ----- | | | | | |
| 646050700 | X-410 WHEEL KOC-E30094-5 | M.PART | | | 1 |
| 646054300 | X-422/423 UPPER CASE E10120-1 | M.PART | | | 1 NEW |
| 646054400 | X-422 LOWER CASE ASSY E10121-1 | M.PART | | | 1 NEW |

| PART CODE | PART NAME/SPECIFICATION | P.C.BOARD | NOTE | Q'TY | MARK |
|-----------|-------------------------------|-----------|-------|------|------|
| 375012500 | POWER SW SDDF3-1A-2 | M.PART | | 1 | |
| 390000100 | TOUCH SW EVQ21509K-T | 1866 | | 83 | NEW |
| | | 1872 | | 1 | NEW |
| 400014100 | POWER TRANSFORMER TC-062 | M.PART | | 1 | NEW |
| 402004600 | COIL 2943-666673 | 1868 | | 4 | |
| 410004700 | SPEAKER CF120095-01 | M.PART | | 2 | NEW |
| 420005100 | KEYBOARD ASSY TP/7BA+PCB 61 | M.PART | | 1 | |
| 435001400 | FDD EME-216KR | M.PART | | 1 | NEW |
| 450003100 | PHONE JACK LGR4609-7000 | 1870 | | 6 | NEW |
| 454005600 | PHONE JACK YKB21-5006 | 1870 | | 1 | |
| 464002300 | FUSE 125V 2A SB2 | M.PART | 117US | 1 | |
| | | M.PART | 117CN | 1 | |
| | | M.PART | 117EX | 1 | |
| | | M.PART | 100JP | 1 | |
| 464002500 | FUSE 125V 3.15A SB3.15 | M.PART | 117US | 2 | |
| | | M.PART | 117CN | 2 | |
| | | M.PART | 117EX | 2 | |
| | | M.PART | 100JP | 2 | |
| 464062001 | FUSE 250V T1.0A | M.PART | 240AU | 1 | |
| | | M.PART | 230GE | 1 | |
| | | M.PART | 230FR | 1 | |
| | | M.PART | 230WG | 1 | |
| | | M.PART | 230SC | 1 | |
| | | M.PART | 230IT | 1 | |
| | | M.PART | 230UK | 1 | |
| 464062501 | FUSE 250V T3.15A | M.PART | 240AU | 2 | |
| | | M.PART | 230GE | 2 | |
| | | M.PART | 230FR | 2 | |
| | | M.PART | 230WG | 2 | |
| | | M.PART | 230SC | 2 | |
| | | M.PART | 230IT | 2 | |
| | | M.PART | 230UK | 2 | |
| 480010380 | DIN JACK YKF51-5041 (3P) | 1865 | | 1 | |
| 480010390 | IC SOCKET 42P DICF-42CS-E | 1865 | | 1 | |
| 480010440 | IC SOCKET PLPS-N44B-T | 1865 | | 2 | NEW |
| 520001900 | LITHIUM BATTERY CR2032-HE2 | M.PART | | 1 | |
| 525000100 | DATA LINE FILTER ESD-R-25D-B | M.PART | | 1 | |
| 540020200 | INLET SOCKET SS-7B | M.PART | | 1 | |
| 545050630 | FLAT CABLE TFL-125K-26-460 | M.PART | | 1 | NEW |
| 600005100 | AC CORD KP-610 GTBS-3 KS-31AY | M.PART | 230UK | 1 | |
| 600005300 | AC CORD DC-480-J01 | M.PART | 100JP | 1 | |

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig handling.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandør ren.

ADVERSEL

Lithiumbatteri – Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandør ren.

VARNING

Explosionsfara ved feilaktig batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

KORG

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