

SERVICE MANUAL

01/W_{FD}

01/W

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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 notes, with initial and aftertouch sensitivity

Waveform memory : PCM 48 Mbits

Effects : two digital multi-effect systems

Programs : 200 Programs

Combinations : 200 Combinations

Sequencer section : 10 Songs, 100 Patterns, maximum 48,000 notes
(for the 01/W, 7,000), 16 tracks, 16 timbers (dynamic
voice allocation)

Control inputs : Damper pedal, Assignable pedals 1,2

Outputs : 1/L, 2/R, 3, 4, headphones

Floppy disk drive : 3.5 inch 2DD (for Program/Combination/Drum Kit/Global
(01/WFD only) parameters/Sequence data/MIDI data)

PCM card slot : PCM data

PROG/SEQ card slot : for Program/Combination/Drum Kit/Global parameters
/Sequence data

MIDI : IN, OUT, THRU

Display : LCD 64 x 240 dots, full dot matrix, with backlight

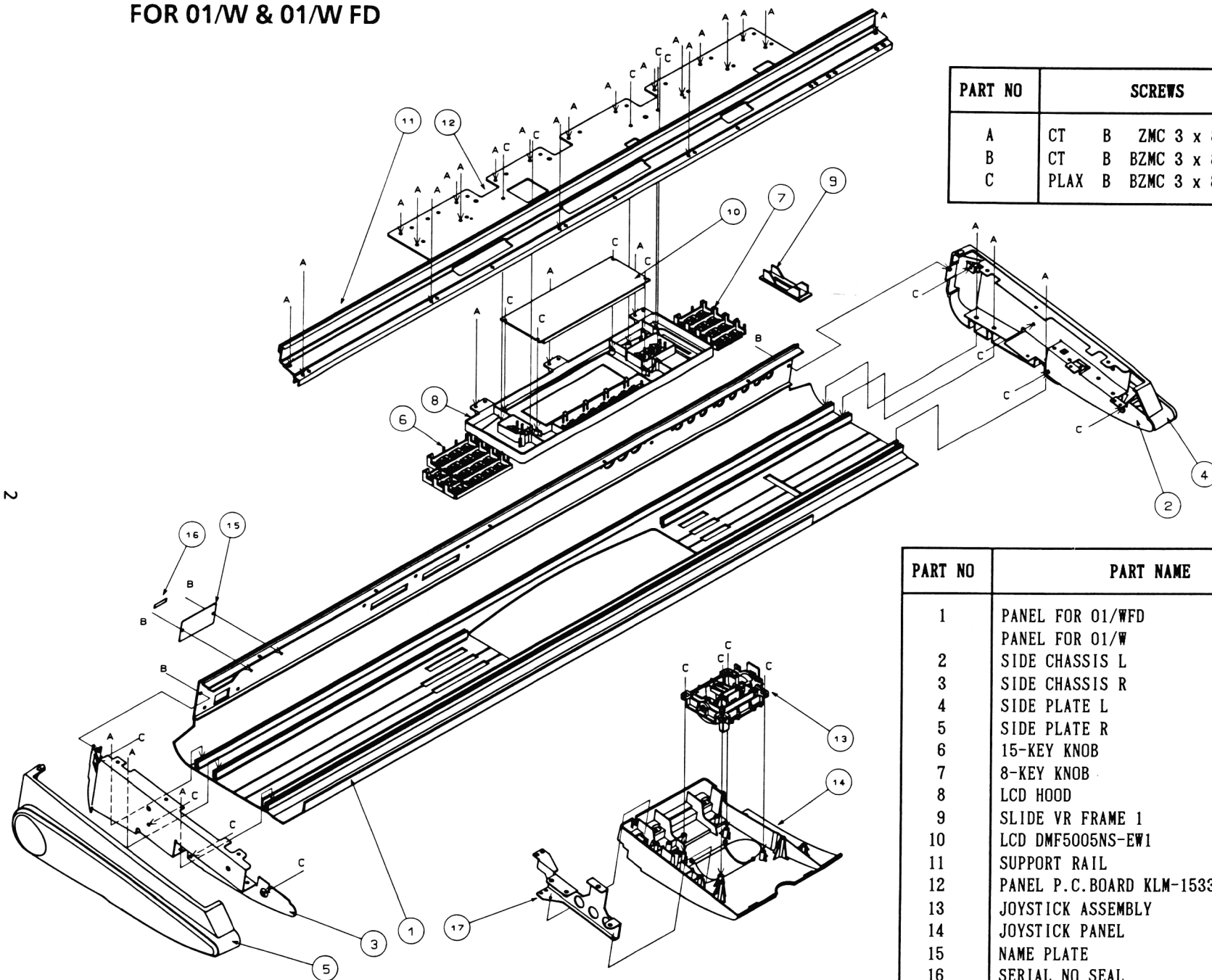
Power consumption : 20W

Dimensions : 1059.5(W) x 334(D) x 115.5(H) mm

Weight : 01/WFD...13.9kg 01/W...13.4kg

※ Appearance and specifications are subject to change without notice
for product improvement.

FOR 01/W & 01/W FD

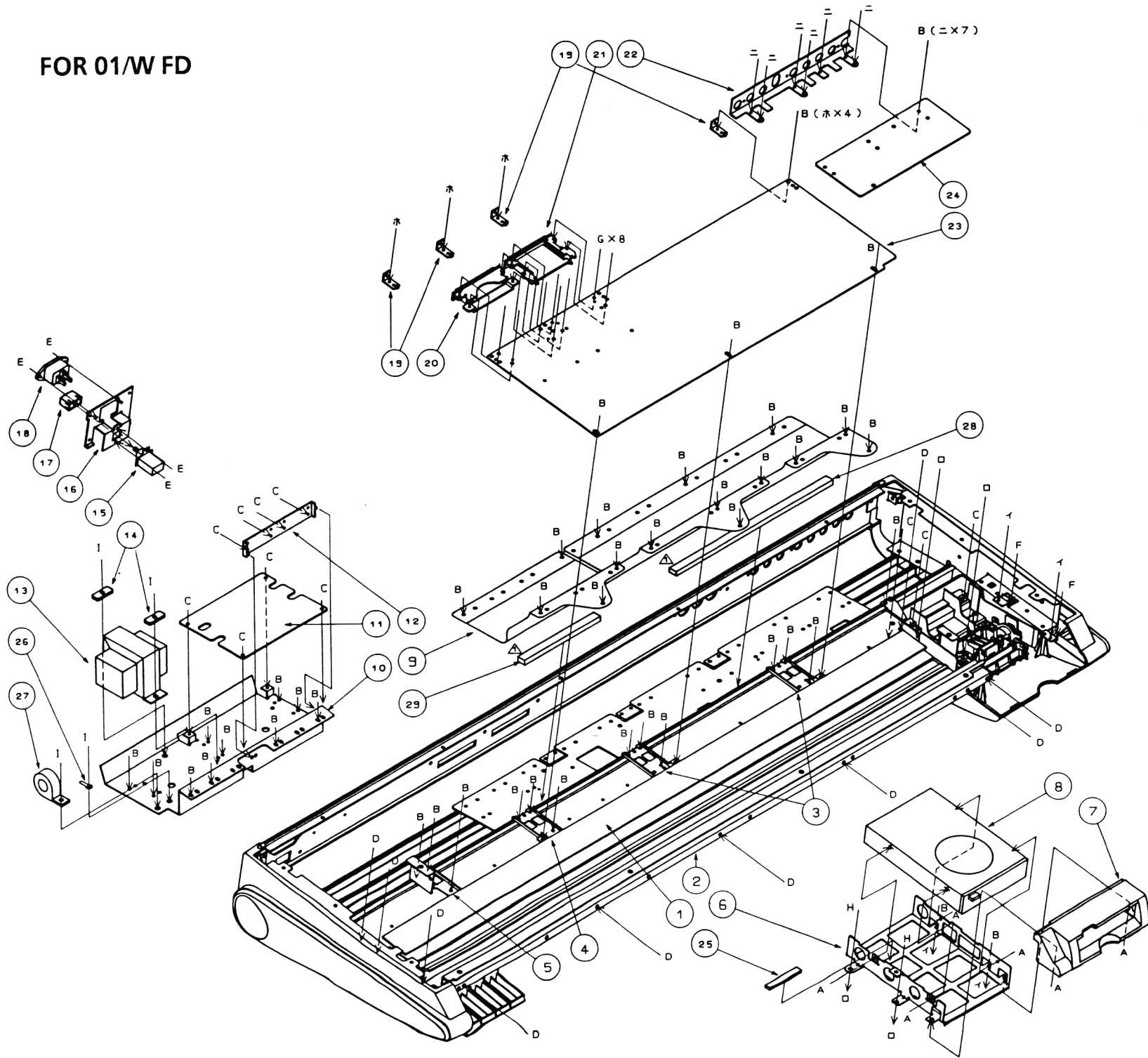


PART NO	SCREWS		PART CODE
A	CT	B ZMC 3 x 8	715230308
B	CT	B BZMC 3 x 8	715260308
C	PLAX	B BZMC 3 x 8	745060308

PART NO	PART NAME	PART CODE
1	PANEL FOR 01/WFD	641022100
	PANEL FOR 01/W	641025800
2	SIDE CHASSIS L	641021100
3	SIDE CHASSIS R	641021200
4	SIDE PLATE L	646038400
5	SIDE PLATE R	646038401
6	15-KEY KNOB	620023500
7	8-KEY KNOB	620023400
8	LCD HOOD	646038500
9	SLIDE VR FRAME 1	646028200
10	LCD DMF5005NS-EW1	313002500
11	SUPPORT RAIL	641021500
12	PANEL P.C.BOARD KLM-1533	001153300
13	JOYSTICK ASSEMBLY	-----
14	JOYSTICK PANEL	646039600
15	NAME PLATE	-----
16	SERIAL NO SEAL	-----
17	JOYSTICK PANEL SUPPORT	641021300

2. STRUCTURAL DIAGRAM

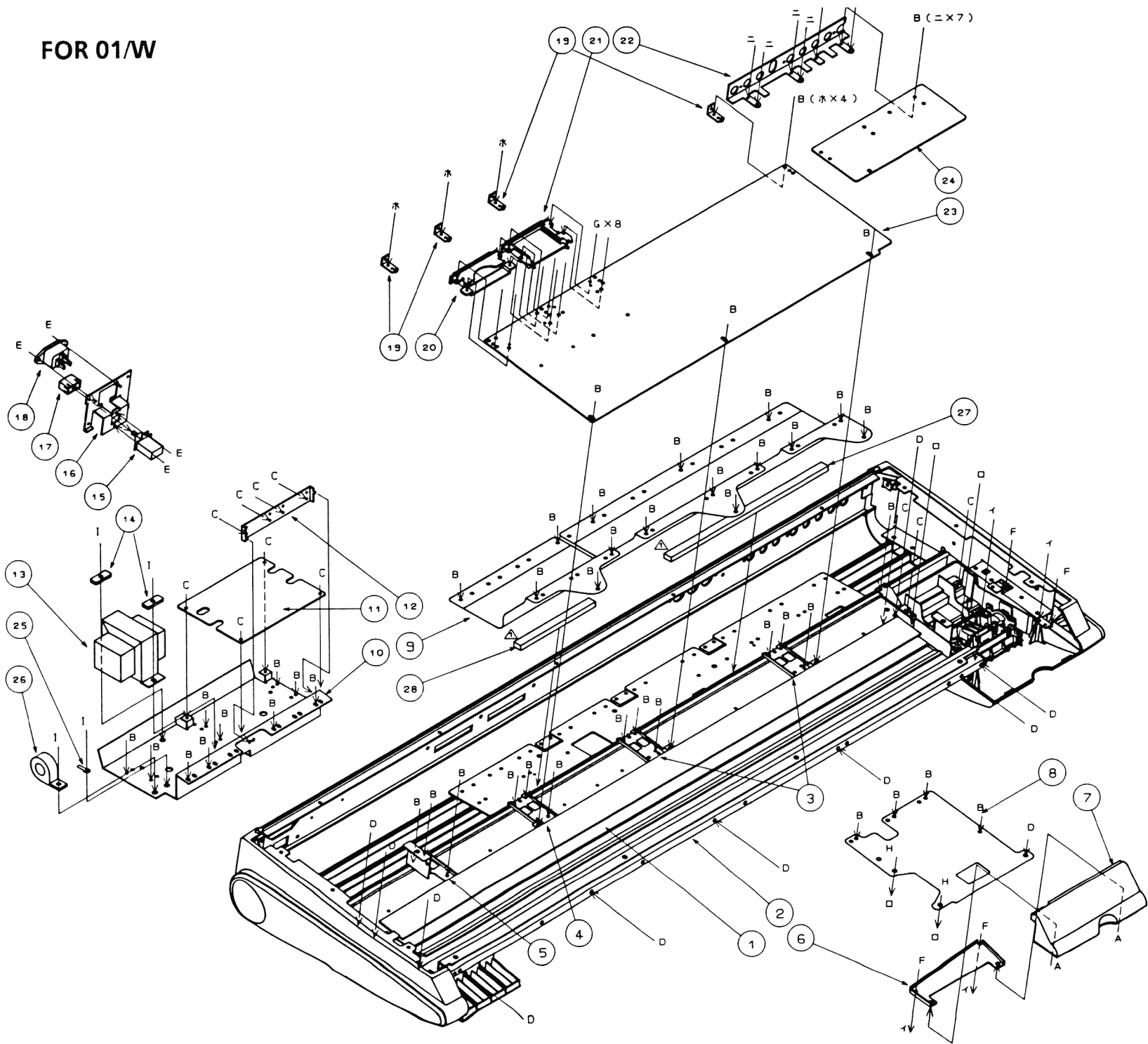
FOR 01/W FD



PART NO	PART NAME	PART CODE
1	KEYBOARD FS-61	420004000
2	KEYBOARD FRONT ANGLE	641020300
3	SUPPORT PLATE A	641020800
4	SUPPORT PLATE B	641020900
5	SUPPORT PLATE C	641021000
6	FDD ANGLE	641020500
7	FDD COVER	646038600
8	FDD DFP423E (1MB)	435000700
9	SHIELD SHEET	580030400
10	POWER UNIT CHASSIS	641020400
11	POWER SUPPLY P.C.BOARD KLM-1530	001153000
12	METAL FITTING OF REGULATOR	641020600
13	POWER TRANSFORMER TA-040	400012700
14	WASHER FOR POWER TRANSFORMER	641022900
15	POWER SW ESB-8213V	375007800
16	METAL FITTING OF POWER SW	641021400
17	POWER SW KNOB	620024600
18	INLET SOCKET	-----
19	L TYPE ANGLE	641019800
20	CARD GUIDE	646039400
21	CARD SLOT	646039500
22	JACK PLATE	641007800
23	MAIN P.C.BOARD KLM-1528	001152800
24	JACK P.C.BOARD KLM-1529	001152900
25	SHIELD FORM 71TS5-3	540018900
26	LUG ϕ 4 N-3	672001600
27	DATA LINE FILTER ESD-R-25D-B	525000100

PART NO	SCREWS			PART CODE
A	CT	B	ZMC 3 x 6	715230306
B	CT	B	ZMC 3 x 8	715230308
C	CT	B	ZMC 3 x 10	715230310
D	CT	B	ZMC 4 x 10	715230410
E	CT	B	BZMC 3 x 8	715260308
F	PLAX	B	BZMC 3 x 8	745060308
G	PLAX	B	BZMC 3 x 10	745060310
H	TP2G	B	ZMC 4 x 20	725030420
I	TS	SSE	BZMC 4 x 10	715160411

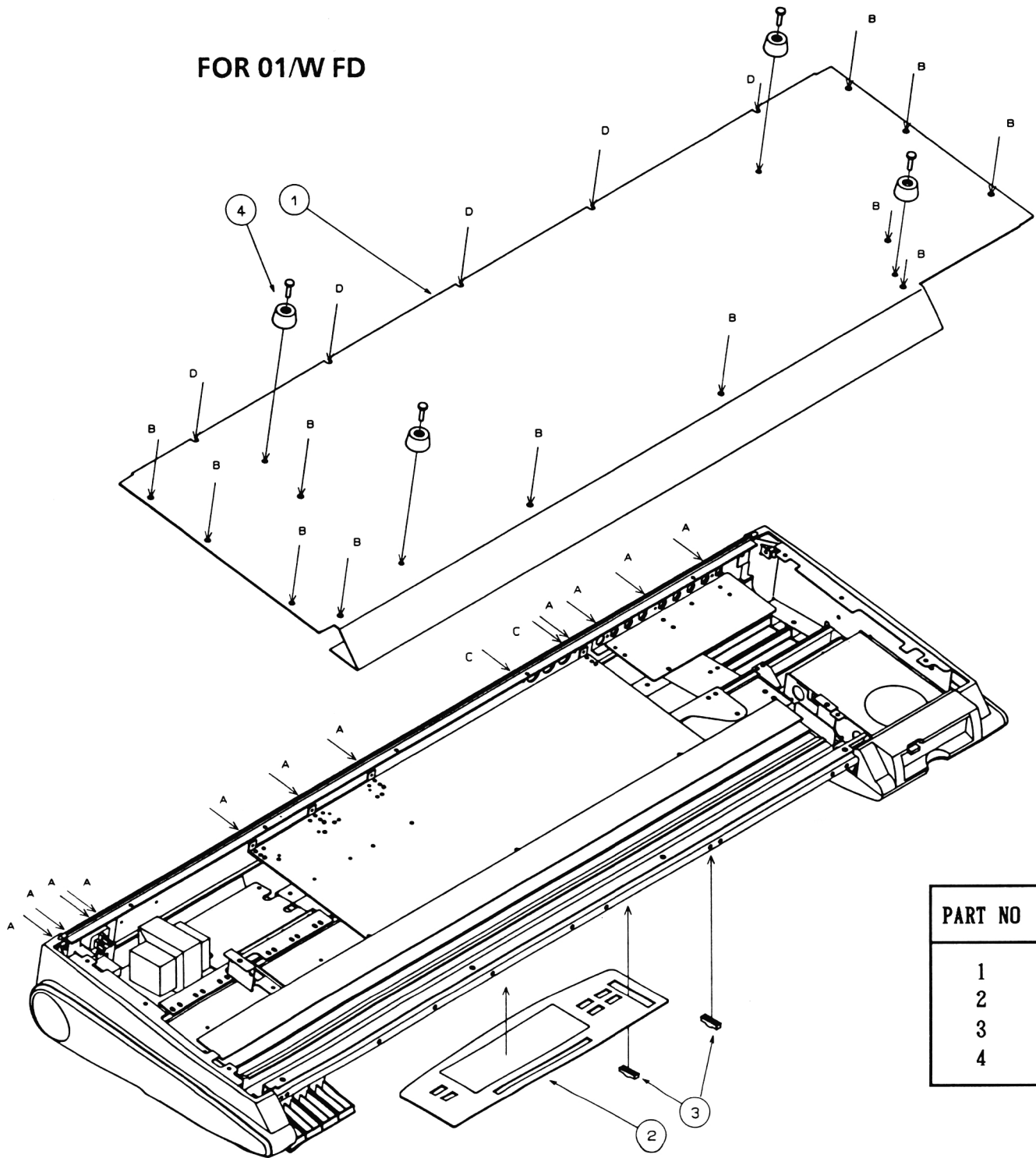
FOR 01/W



PART NO	PART NAME	PART CODE
1	KEYBOARD FS-61	420004000
2	KEYBOARD FRONT ANGLE	641020300
3	SUPPORT PLATE A	641020800
4	SUPPORT PLATE B	641020900
5	SUPPORT PLATE C	641021000
6	METAL FITTING OF JOYSTICK	641020700
7	JOYSTICK UNDER COVER	646039700
8	JOYSTICK SHIELD SHEET	580030500
9	SHIELD SHEET	580030400
10	POWER UNIT CHASSIS	641020400
11	POWER SUPPLY P.C.BOARD KLM-1530	001153000
12	METAL FITTING OF REGULATOR	641020600
13	POWER TRANSFORMER TA-040	400012700
14	WASHER FOR POWER TRANSFORMER	641022900
15	POWER SW ESB-8213V	375007800
16	METAL FITTING OF POWER SW	641021400
17	POWER SW KNOB	620024600
18	INLET SOCKET	-----
19	L TYPE ANGLE	641019800
20	CARD GUIDE	646039400
21	CARD SLOT	646039500
22	JACK PLATE	641007800
23	MAIN P.C.BOARD KLM-1537	001153700
24	JACK P.C.BOARD KLM-1529	001152900
25	LUG $\varnothing$ 4 N-3	672001600
26	DATA LINE FILTER ESD-R-25D-B	525000100

PART NO	SCREWS			PART CODE
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E	CT	B	BZMC 3 x 8	715260308
F	PLAX	B	BZMC 3 x 8	745060308
G	PLAX	B	BZMC 3 x 10	745060310
H	TP2G	B	ZMC 4 x 20	725030420
I	TS	SSE	BZMC 4 x 10	715160411

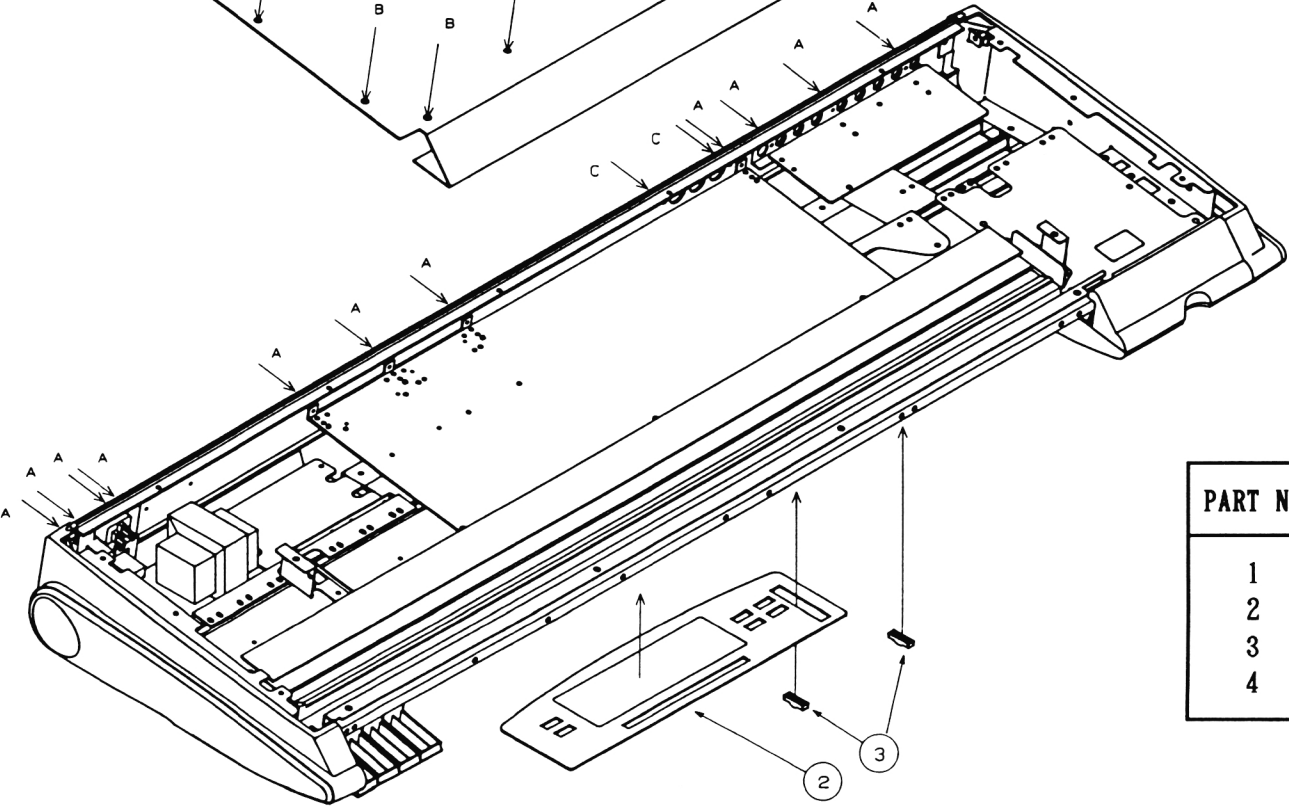
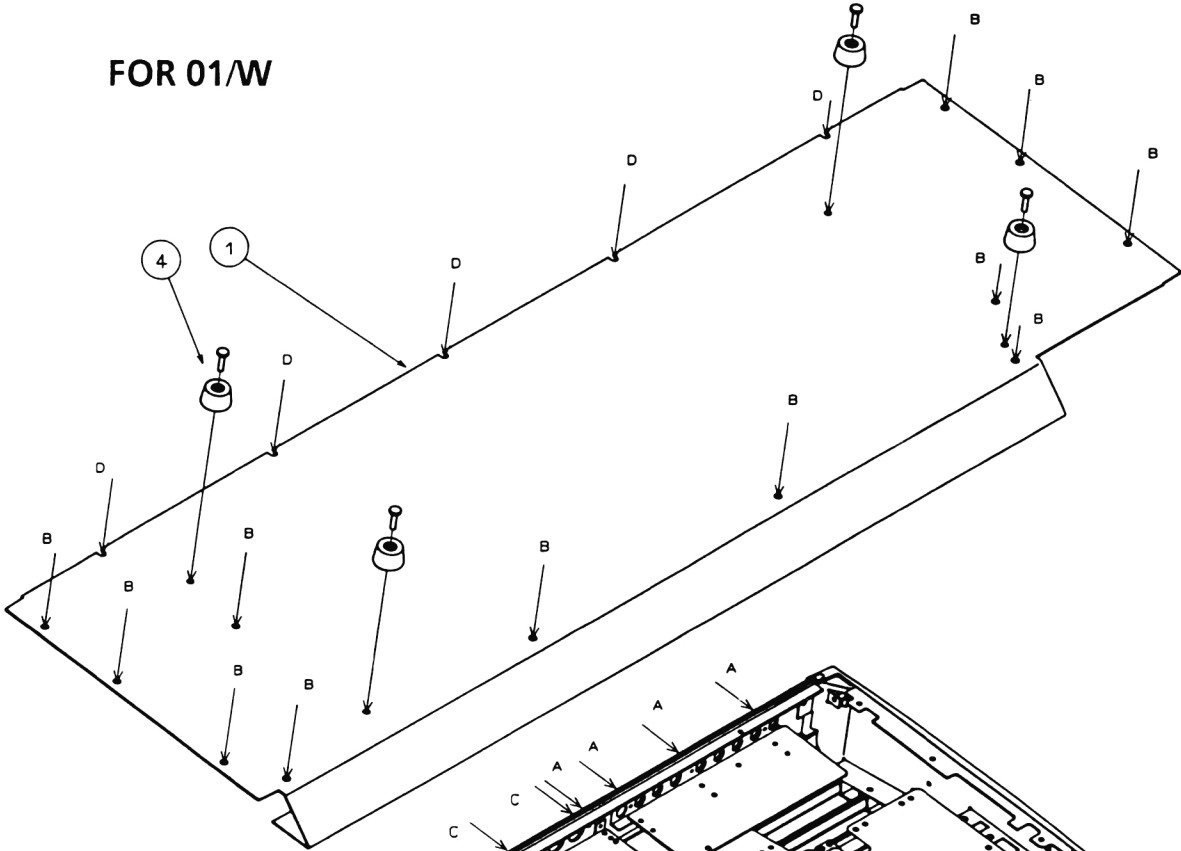
FOR 01/W FD



PART NO	SCREWS		PART CODE
A	CT	B BZMC 3 x 8	715260308
B	CT	B BZMC 4 x 10	715260410
C	PLAX	B BZMC 3 x 8	745060308
D	TS	SSE BZMC 4 x 10	715160411

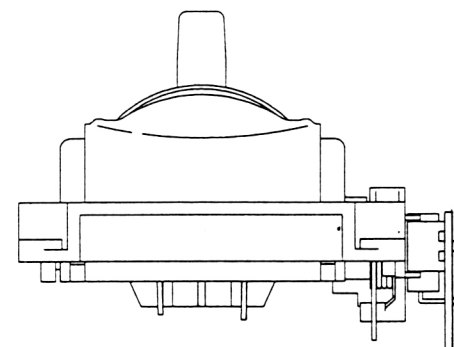
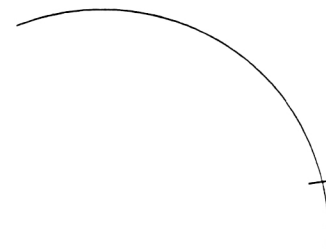
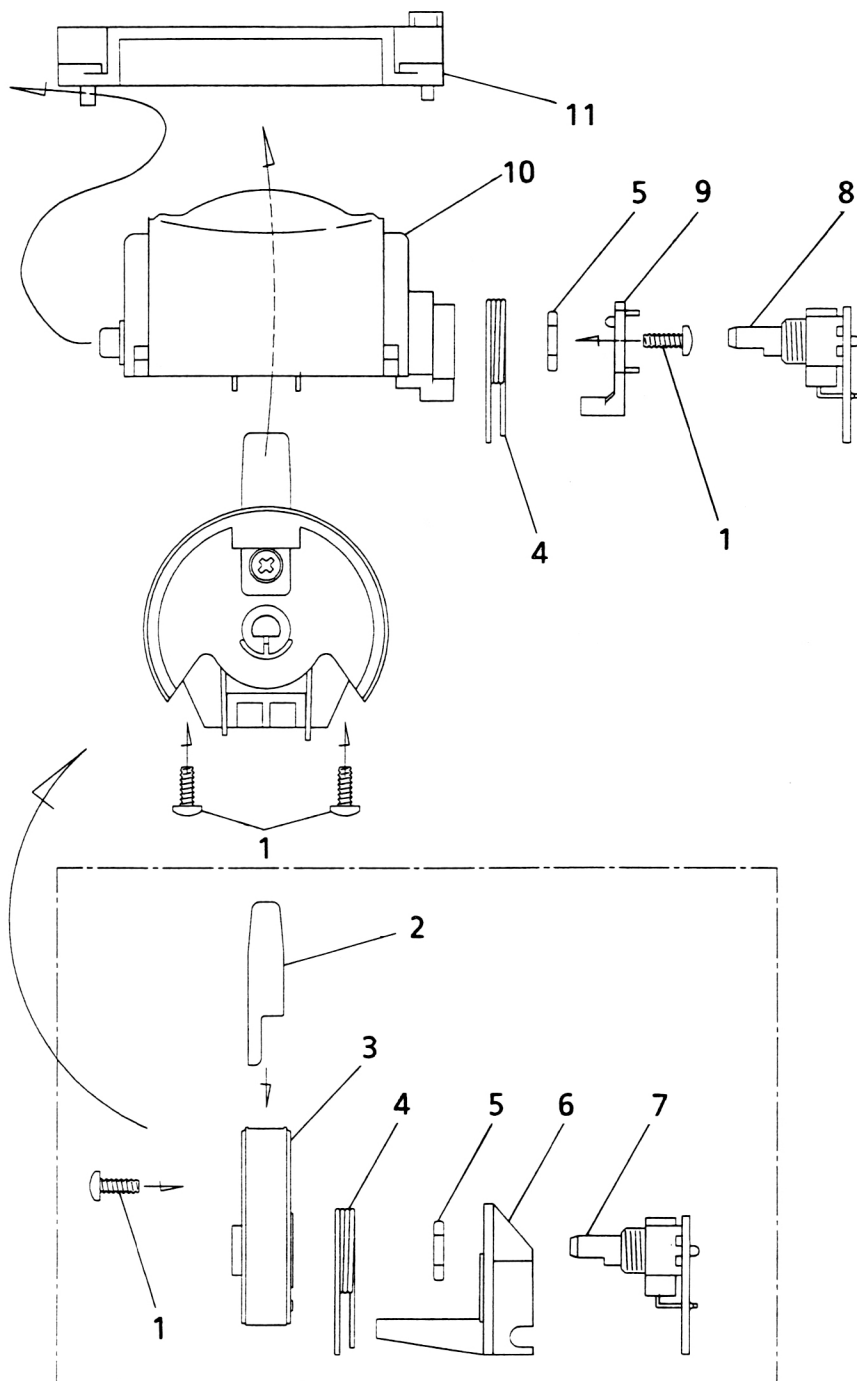
PART NO	PART NAME	PART CODE
1	LOWER CASE	641020200
2	LCD WINDOW	630015600
3	SLIDE VR KNOB	620019700
4	RUBBER FOOT FF-001	500018500

FOR 01/W



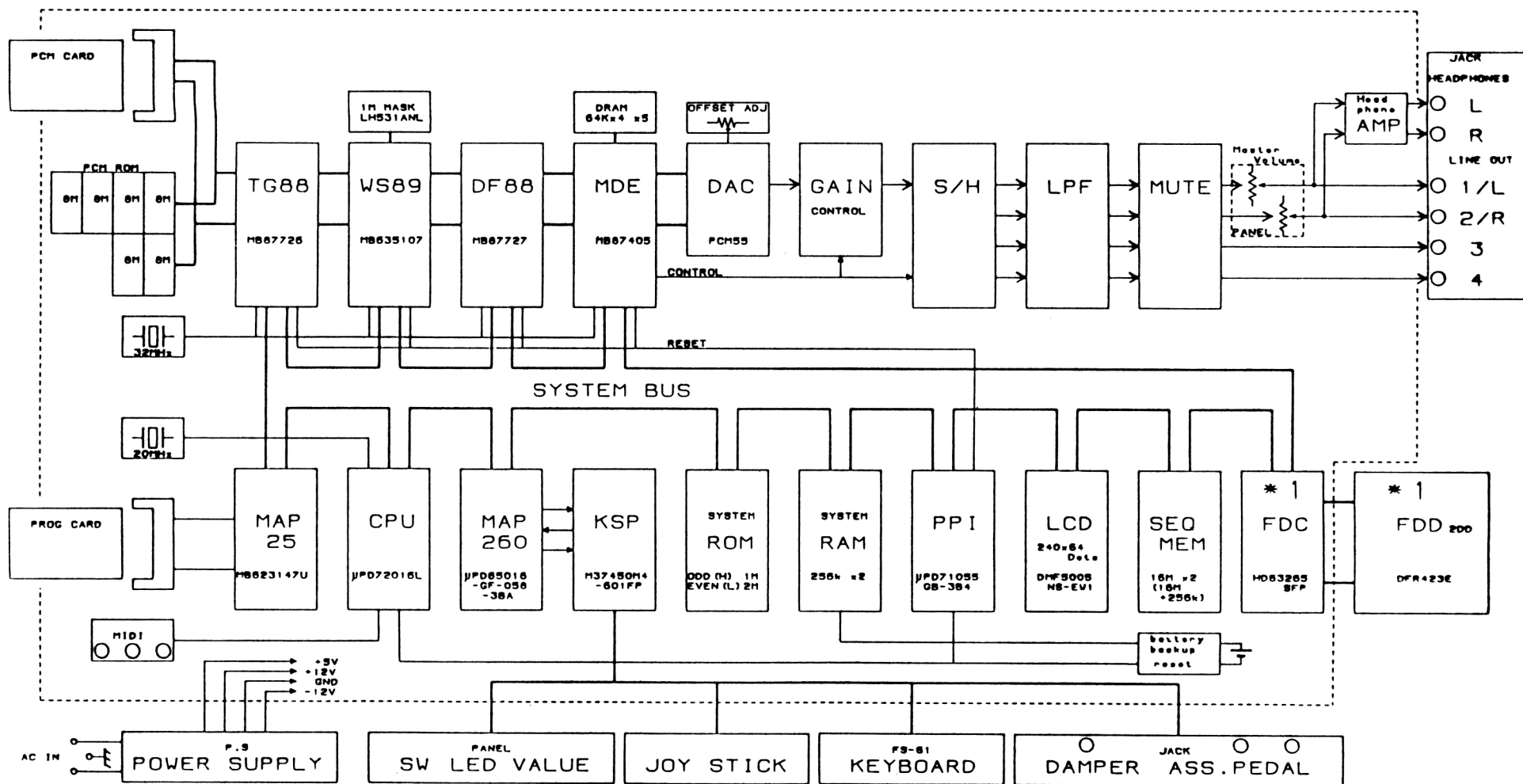
PART NO	SCREWS		PART CODE
A	CT	B BZMC 3 x 8	715260308
B	CT	B BZMC 4 x 10	715260410
C	PLAX	B BZMC 3 x 8	745060308
D	TS	SSE BZMC 4 x 10	715160411

PART NO	PART NAME	PART CODE
1	LOWER CASE	641020200
2	LCD WINDOW	630015600
3	SLIDE VR KNOB	620019700
4	RUBBER FOOT FF-001	500018500



PART NO	PART NAME	PART CODE
1	SCREW PLAX B BZMC 3 x 8	745060308
2	X-011/012 JOYSTICK LEVER	646039200
3	X-011/012 JOYSTICK WHEEL	646039300
4	X-011/012 WHEEL SPRING	644006200
5	NUT VN BZMC 9	773060902
6	X-011/012 WHEEL SUPPORT	646039100
7,8	VR RK11K1140 (SPECIAL CURVE B)	360023600
9	X-011/012 VR PLATE	646039000
10	X-011/012 JOYSTICK COVER	646040000
11	X-011/012 JOYSTICK FRAME	646038900

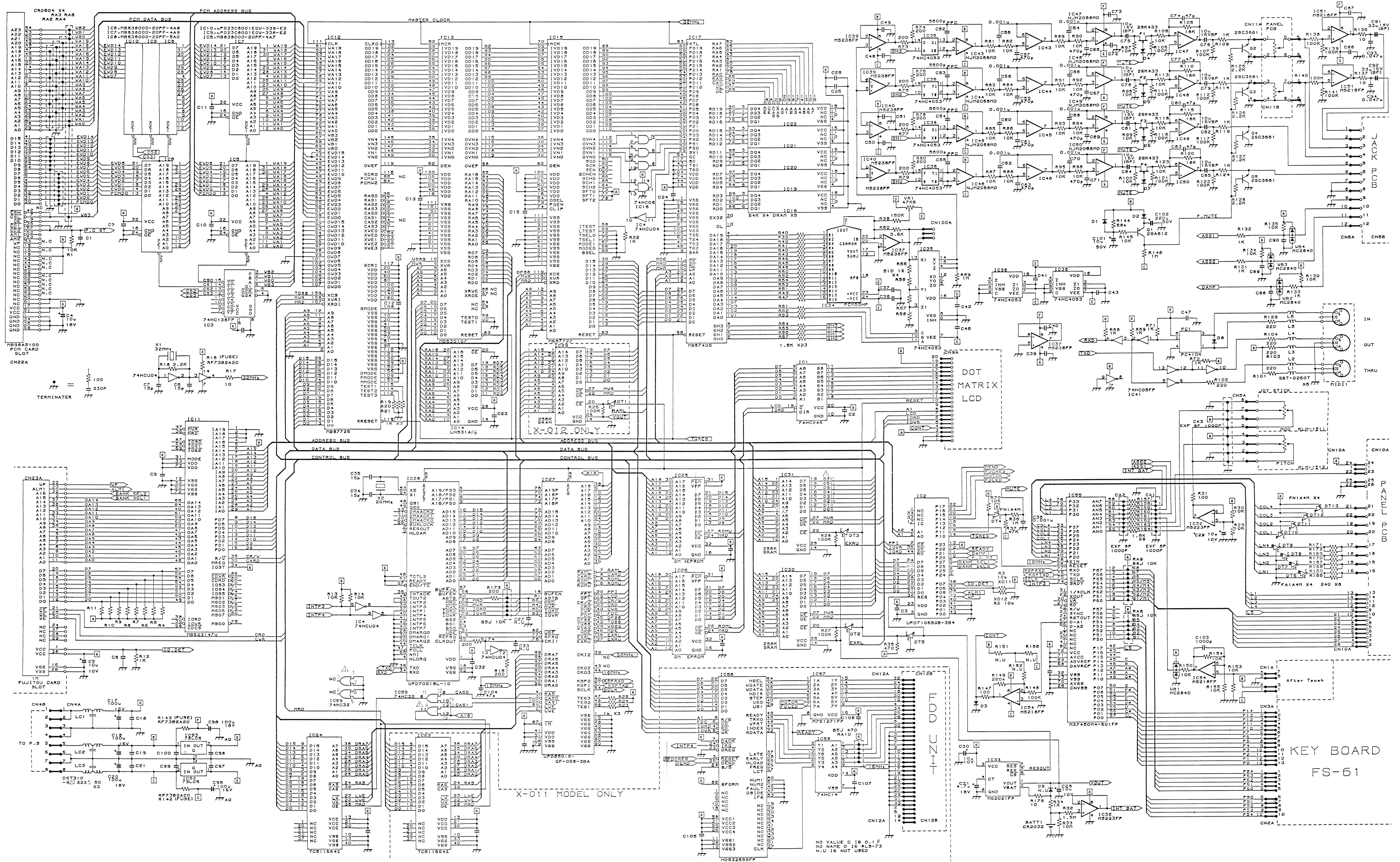
3. BLOCK DIAGRAM



*1 : 01/W FD ONLY

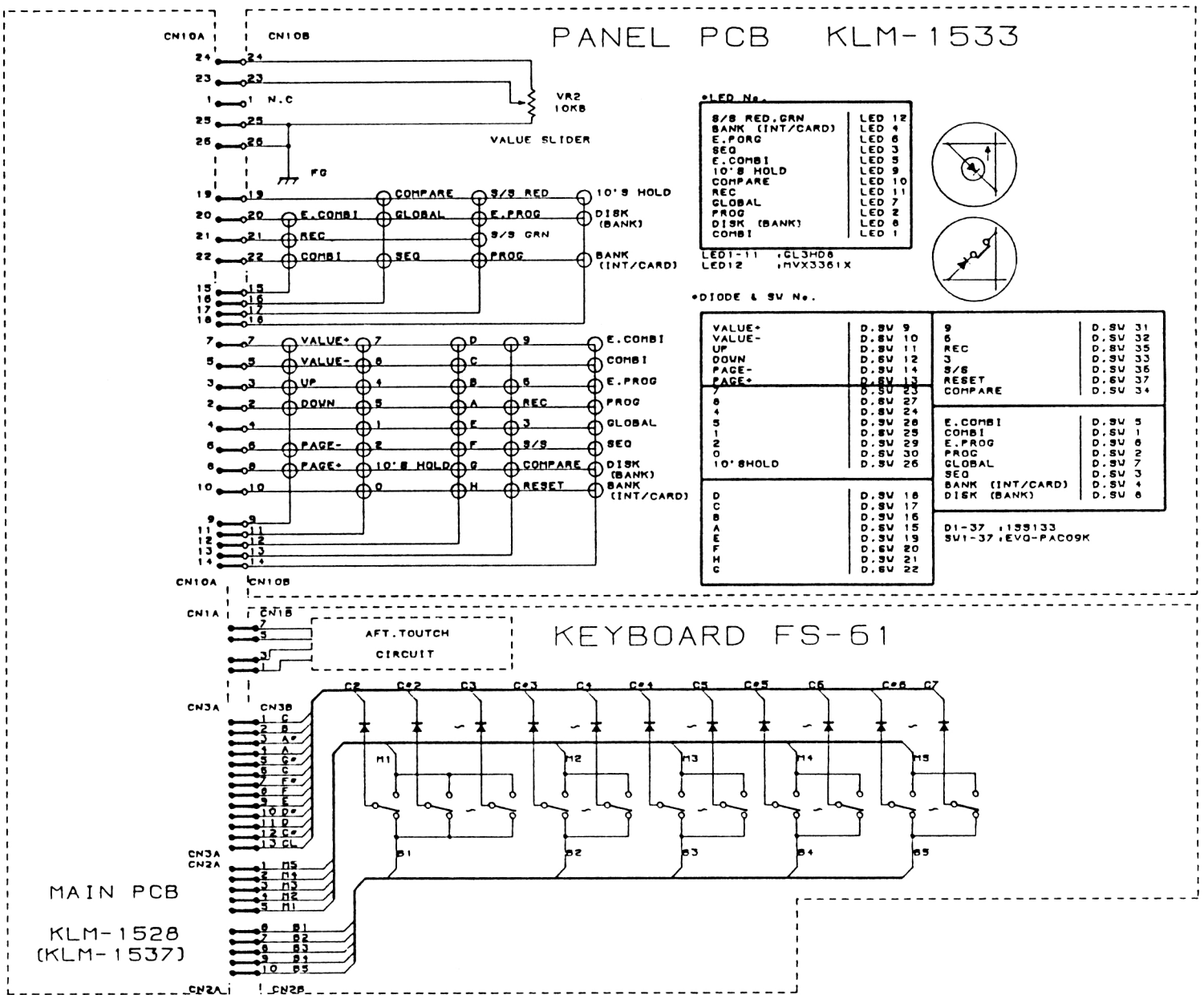
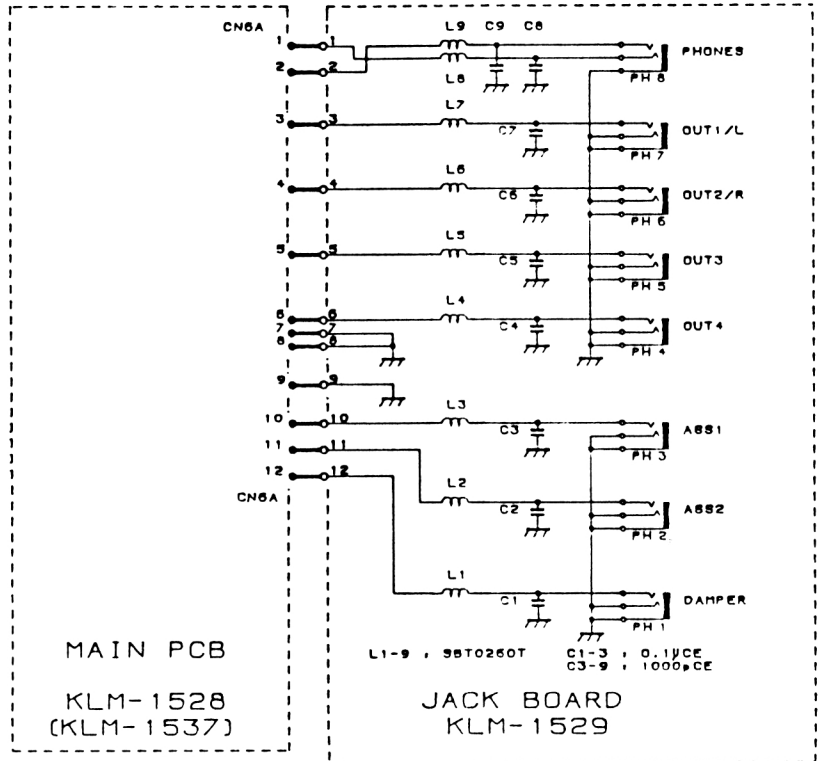
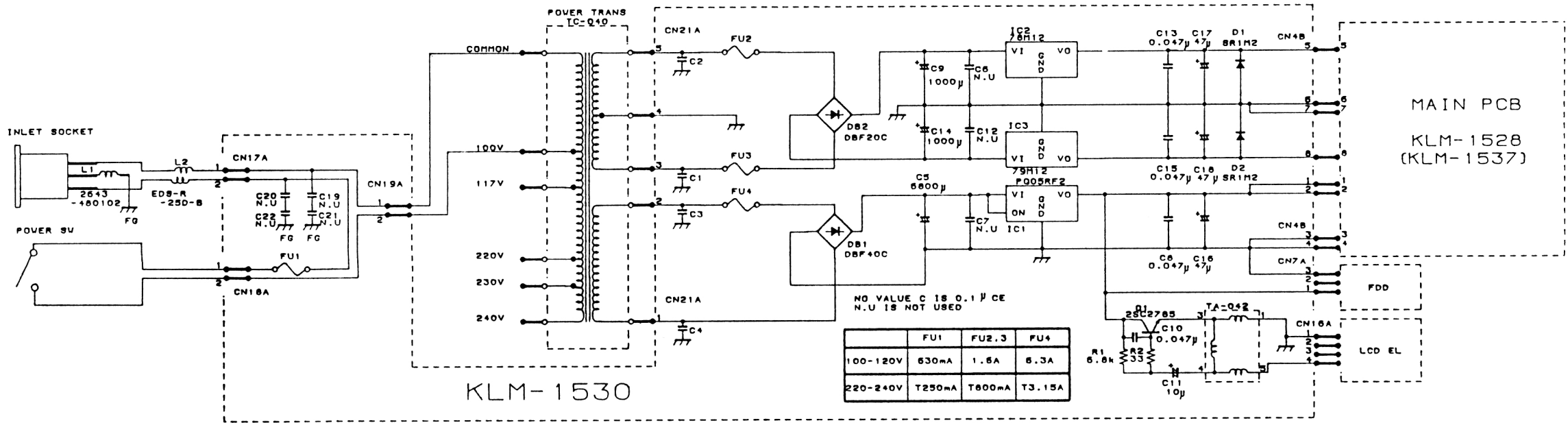
[] : 01/W

KLM-1528 [1537]



4. CIRCUIT DIAGRAM

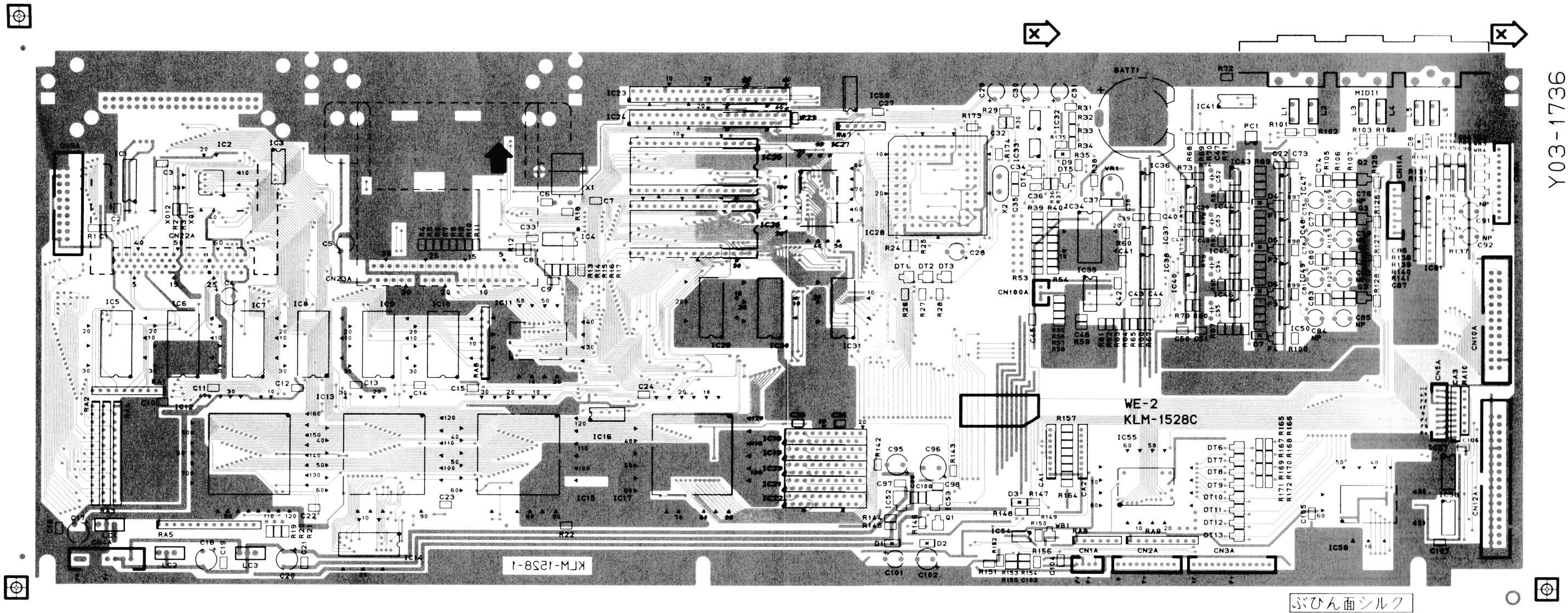
KLM-1529/30/33



[] : 01/W

5. P.C. BOARDS

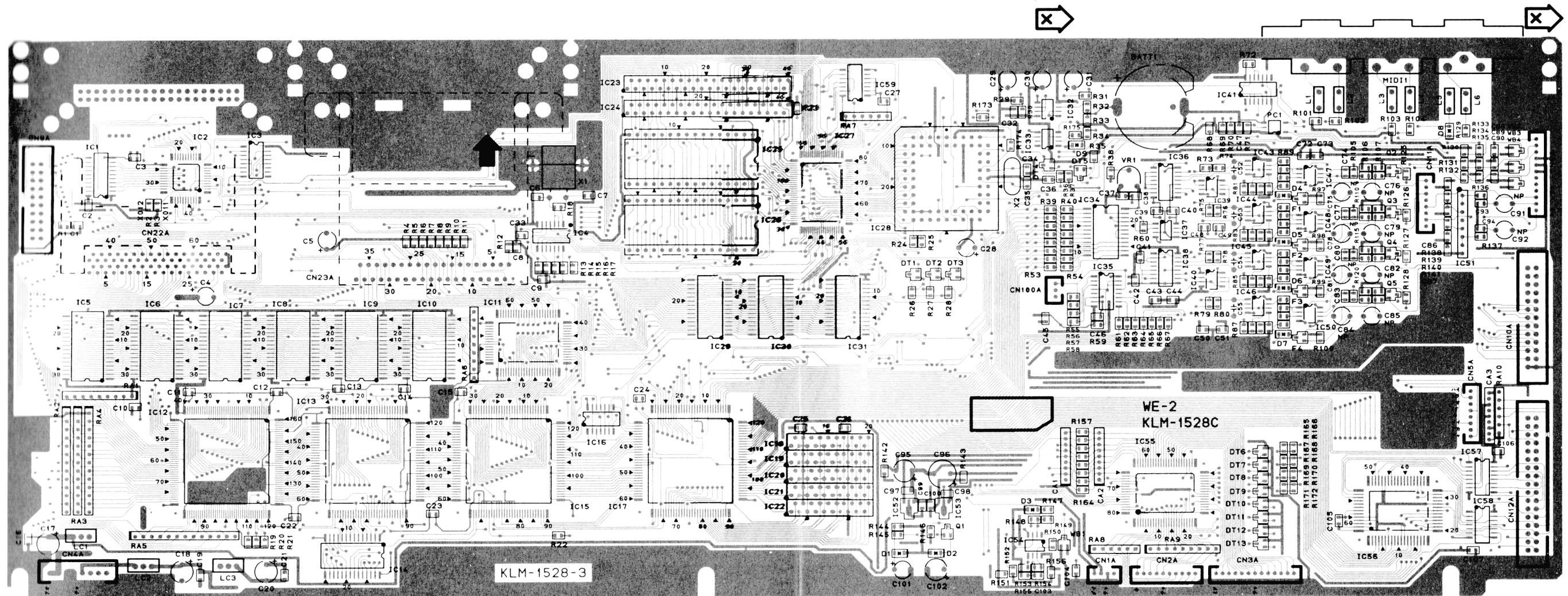
KLM-1528C (FOR 01/W FD)



NO MOUNT PARTS SIDE

IC25... 9104XX
IC26... 9105XX

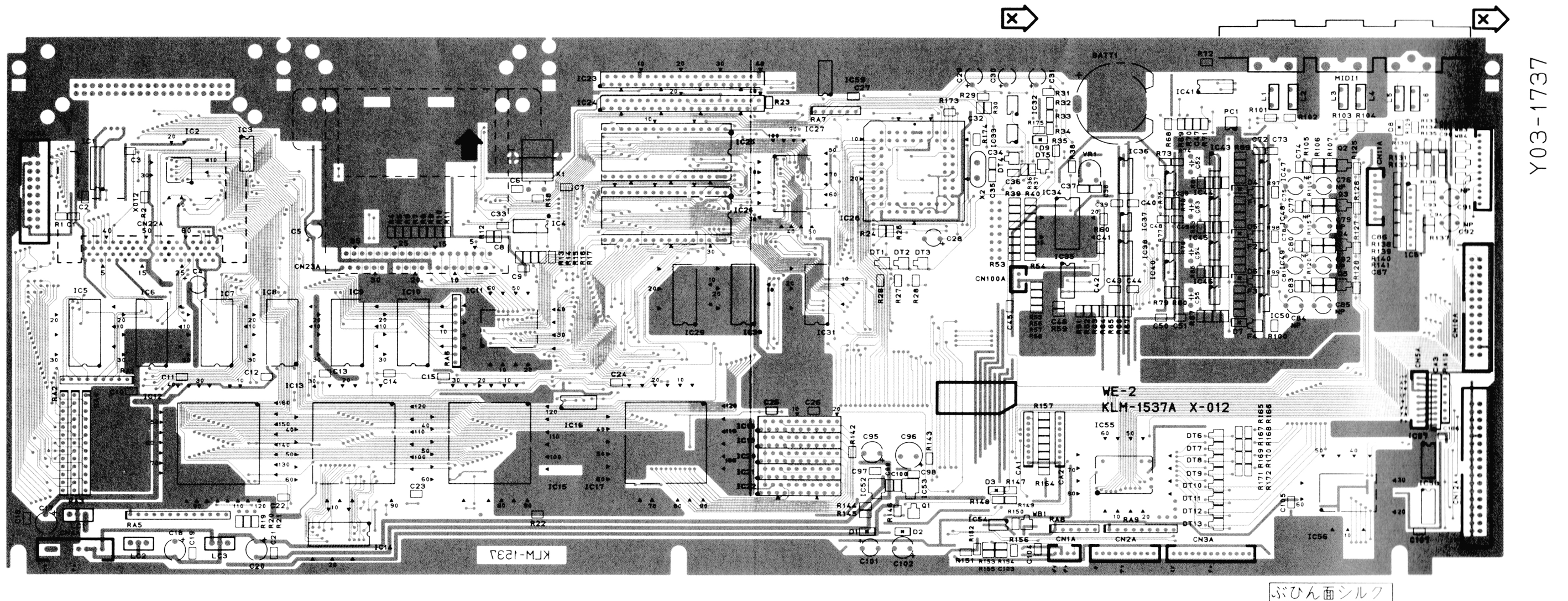
KLM-1528C (FOR 01/W FD)



MOUNT PARTS SIDE

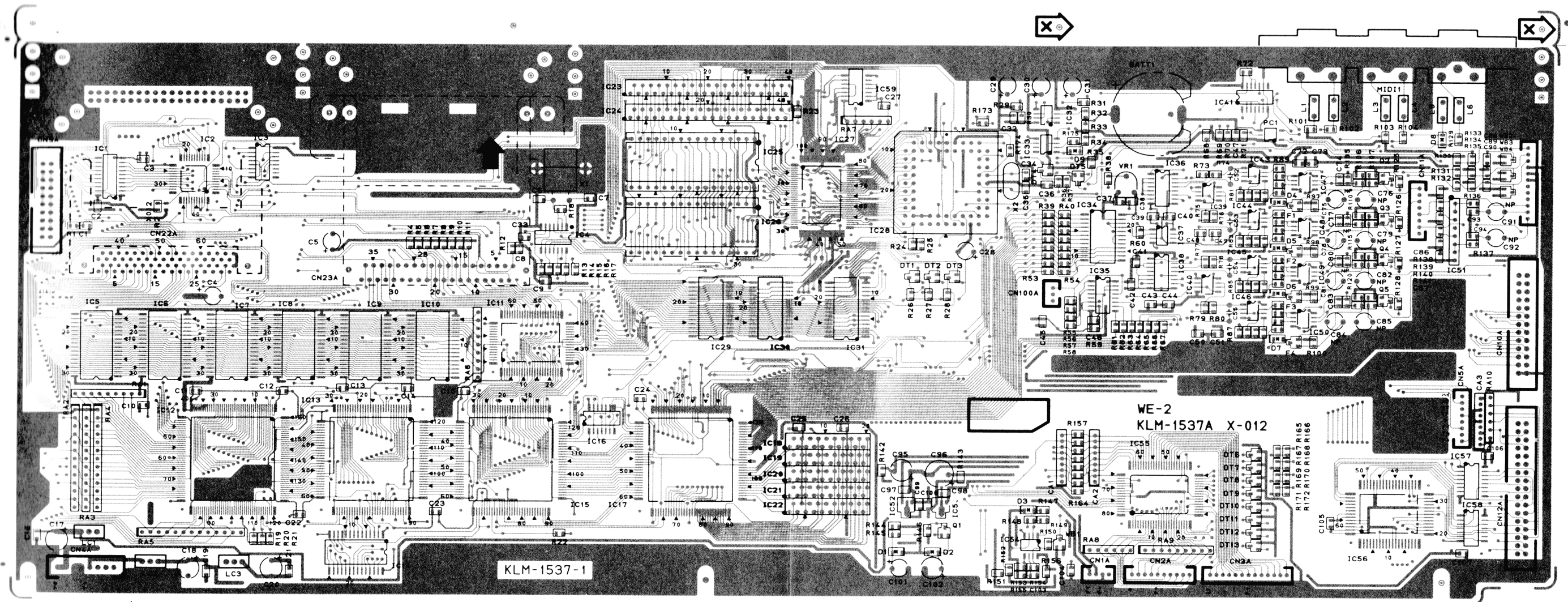
Y03-1736

KLM-1537A (FOR 01/W)



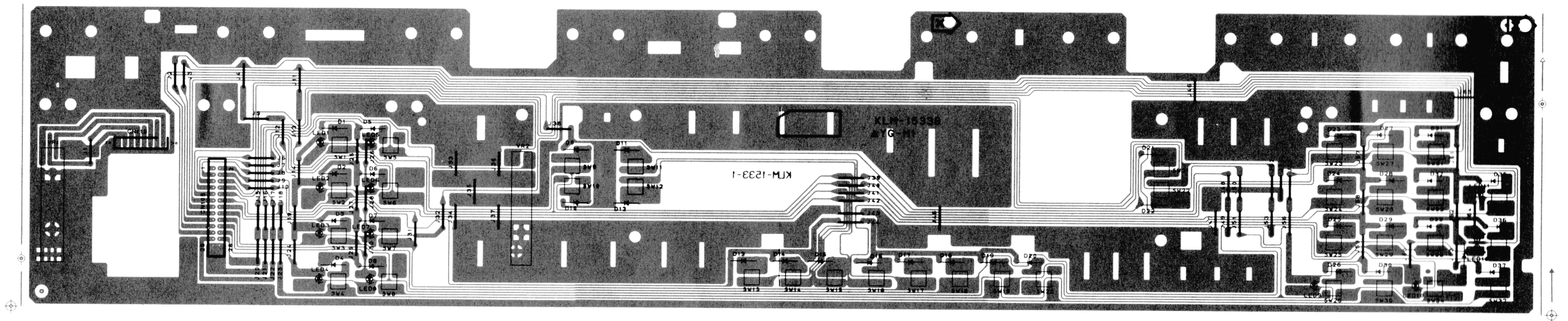
NO MOUNT PARTS SIDE

KLM-1537A (FOR 01/W)

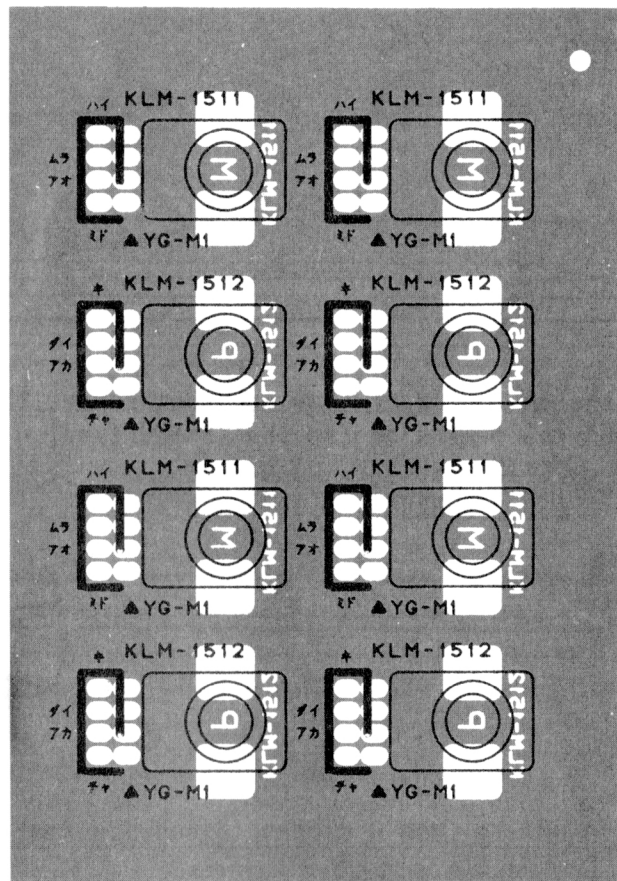


MOUNT PARTS SIDE

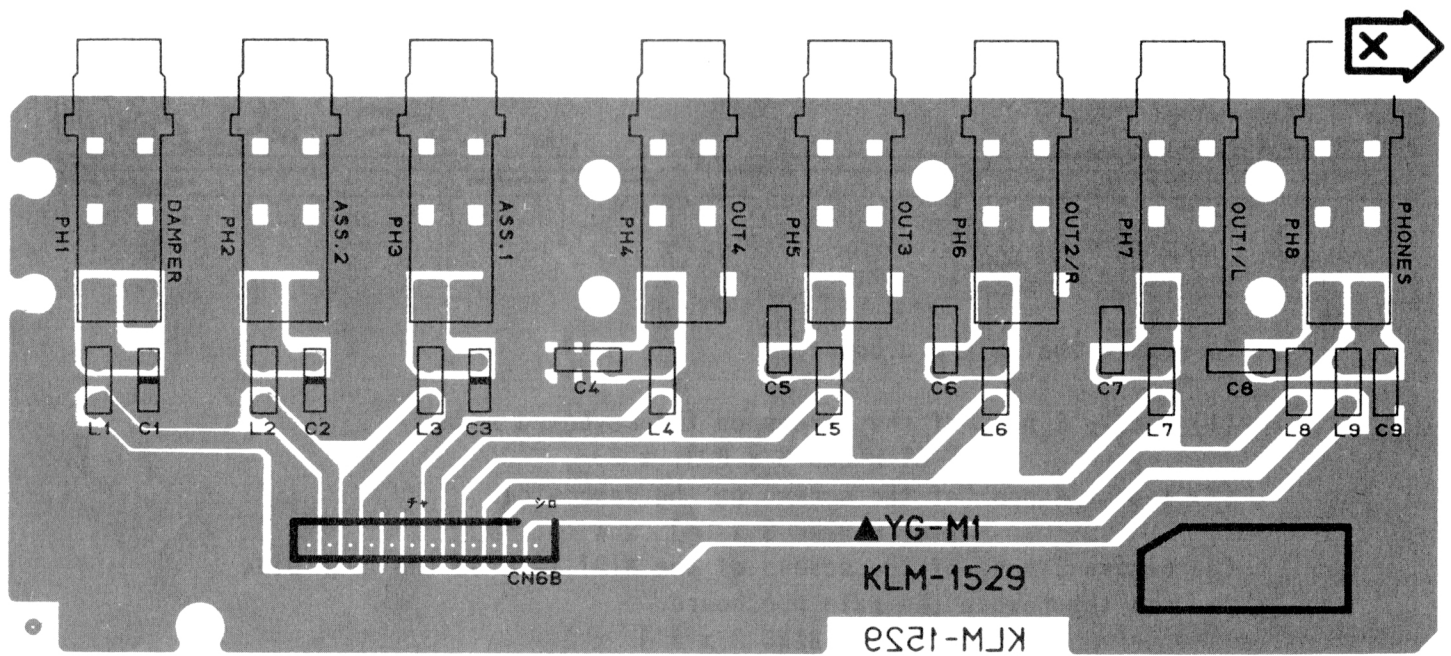
KLM-1533B



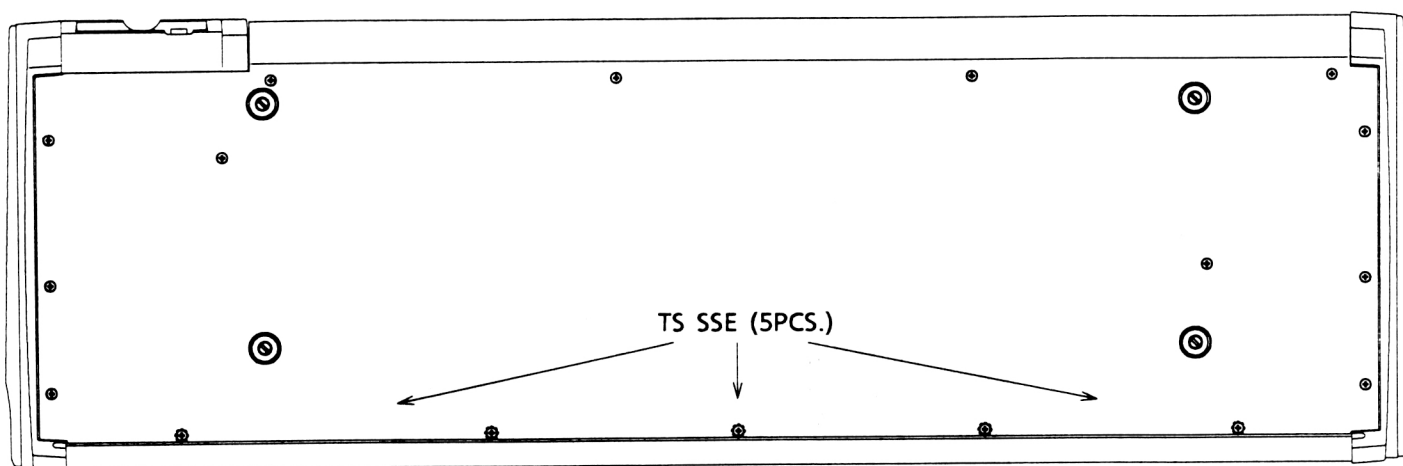
KLM-1511/12



KLM-1529



6. HOW TO DISASSEMBLE

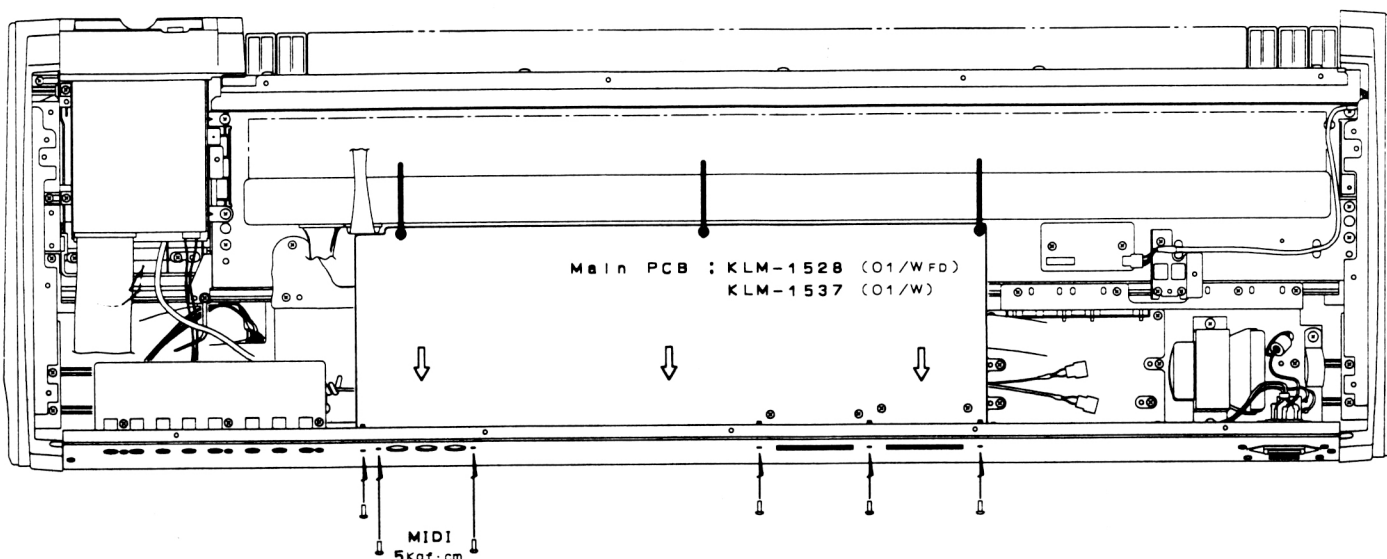
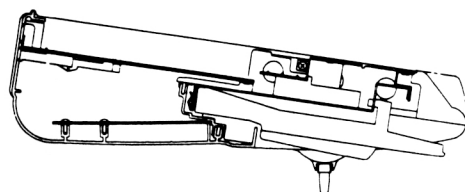


1. Remove the screws on the lower case and then remove the lower case.

※ The screws on the rear side are the TS SSE type.

[CT B BZMC 4 x 10] x 12

[TS SSE BZMC 4 x 10] x 5



2. To remove the main p.c.board,

(1) Remove 3 pcs. of the screws on the keyboard side.

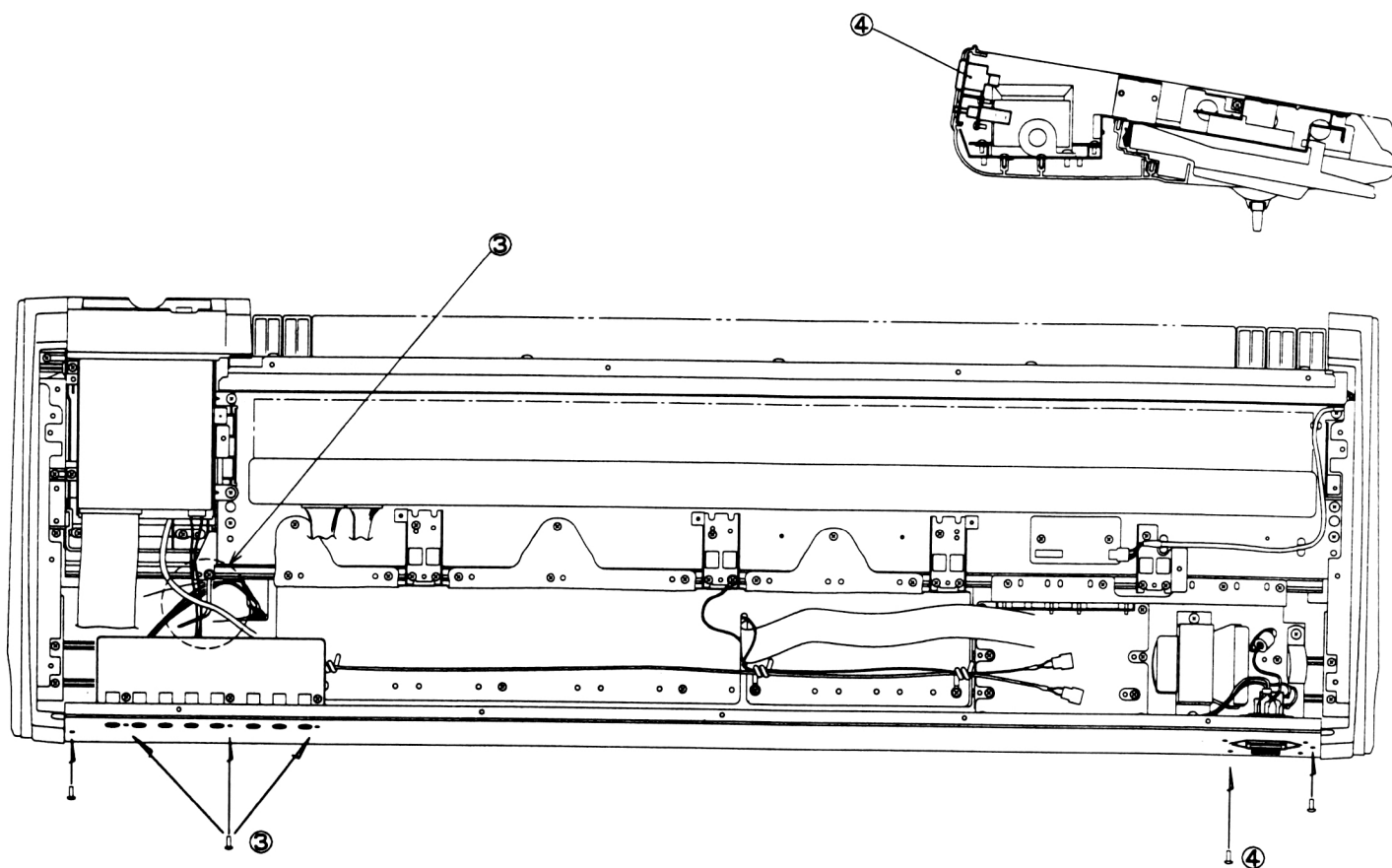
[CT B ZMC 3 x 8] x 3

(2) Remove 4 pcs. of the screws on the rear side.

[CT B BZMC 3 x 8] x 4

(3) Remove 2 pcs. of the screws of the MIDI jack on the rear side and then remove the main p.c.board.

[PLAX B BZMC 3 x 8] x 2

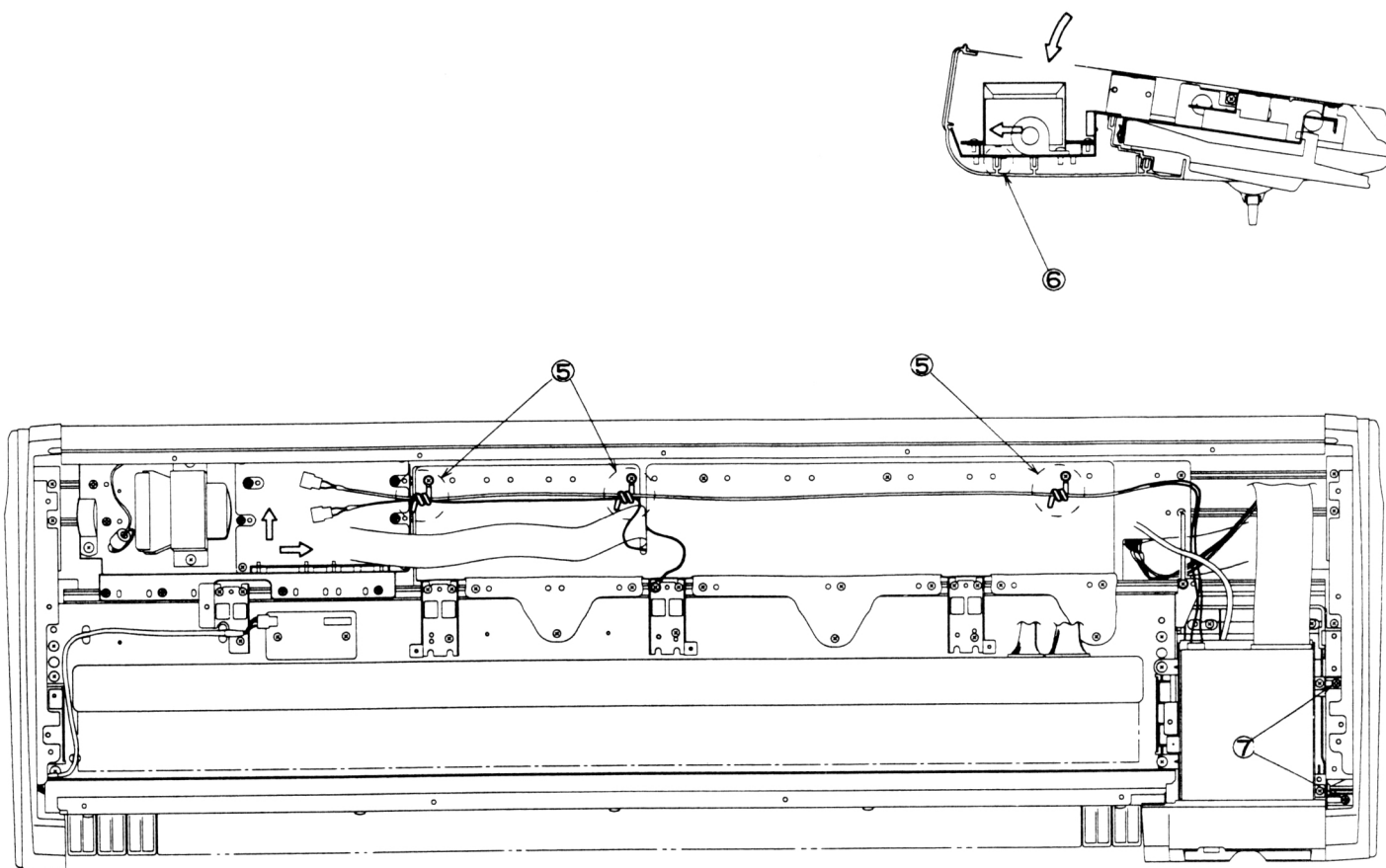


3. To remove the jack p.c.board, remove 3 pcs. of the screws on the rear side.

[CT B BZMC 3 x 8] x 3

4. To remove the power switch metal fittings, remove 4 pcs. of the screws on the rear side.

[CT B BZMC 3 x 8] x 4



5. Loose the spiral clip and remove the harness.

01/W ... 1 point

01/WFD ... 3 points (The figure is for the 01/WFD.)

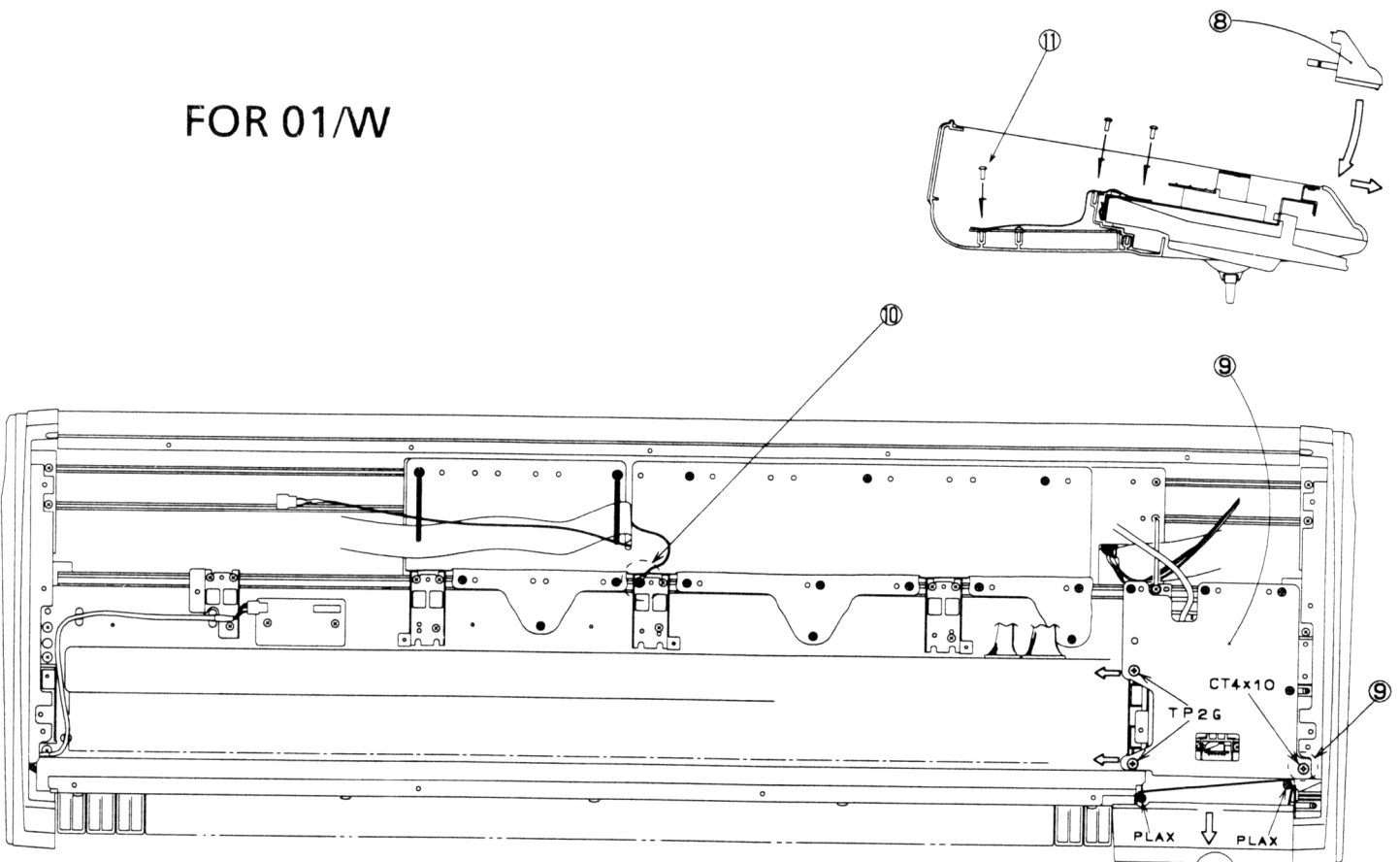
6. To remove the power supply unit, remove 10 pcs. of the screws on the unit.

[CT B ZMC 3 x 8] x 10

7. Remove the joystick panel and 2 pcs. of the screws on the side board.

[PLAX B BZMC 3 x 8] x 2

FOR 01/W



8. Remove 2 pcs. of the screws on the joystick under cover to remove it.
[PLAX B BZMC 3 x 8] x 2

9. Remove the joystick shield sheet.
[TP2G B ZMC 4 x 20] x 3
[CT B ZMC 3 x 8] x 4

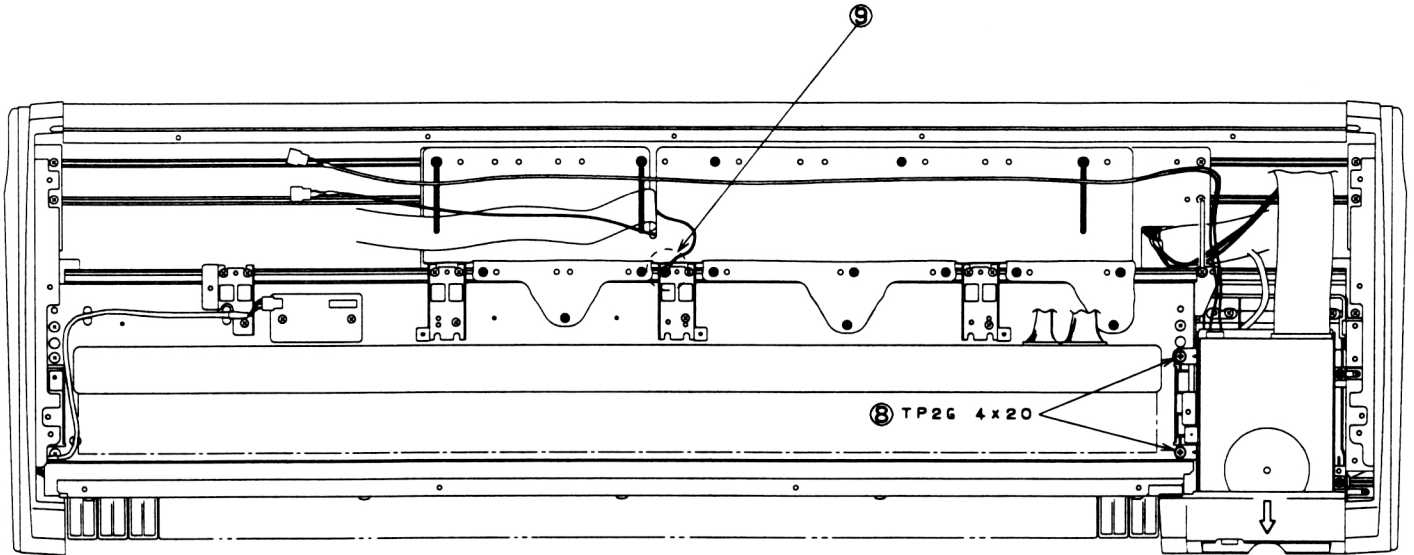
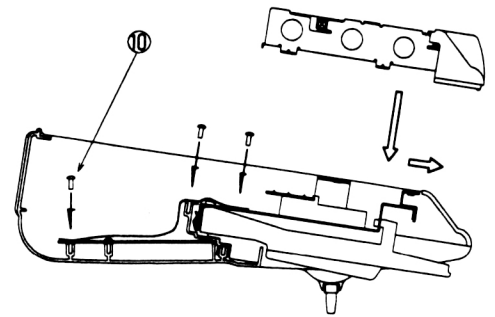
10. Remove the ground line of the LCD.
[CT B ZMC 3 x 8] x 1

11. To remove the shield sheet,

(1) Remove 7 pcs. of the screws on the support rail and 3 pcs. of the screws on the keyboard.
[CT B ZMC 3 x 8] x 10

(2) Remove 5 pcs. of the screws on the panel and remove the shield sheet.
[CT B ZMC 3 x 8] x 5

FOR 01/W FD



8. Remove the FDD assembly.

[CT B ZMC 3 x 8] x 2

[TP2G B ZMC 4 x 20] x 2

9. Remove the ground line of the LCD.

[CT B ZMC 3 x 8] x 1

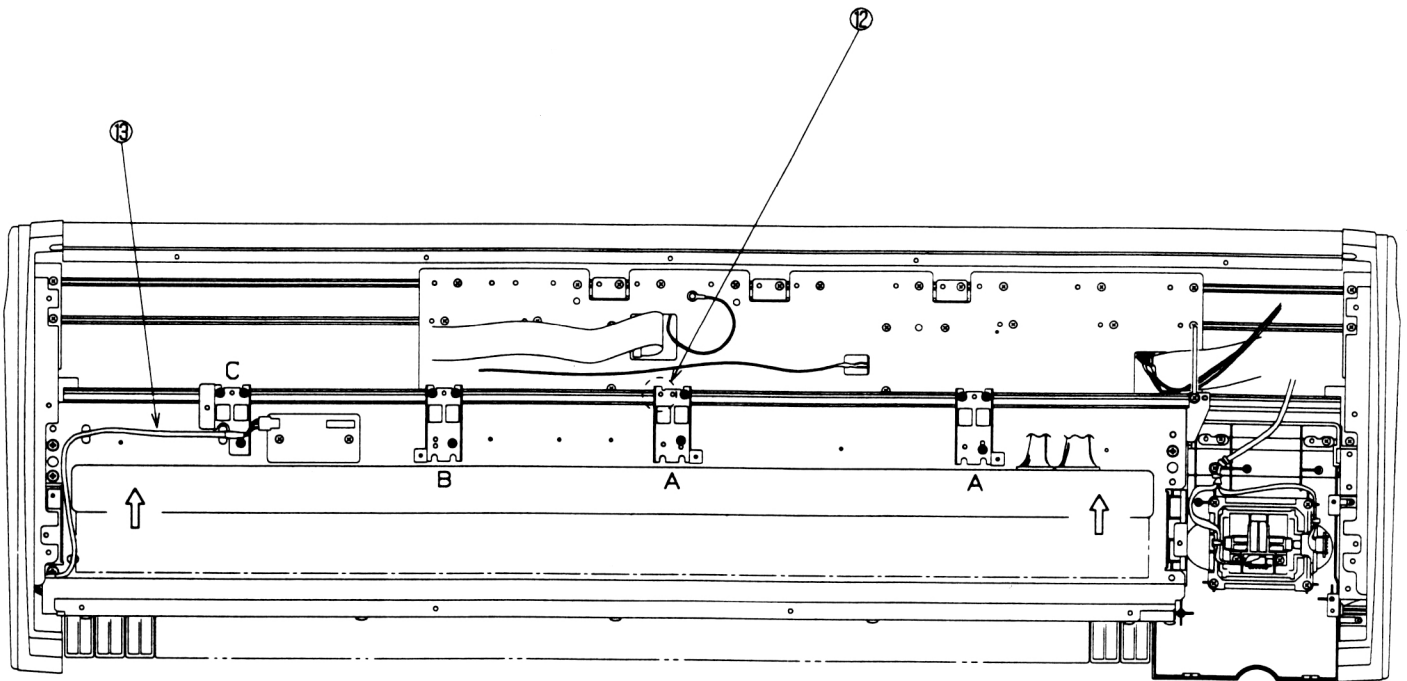
10. To remove the shield sheet,

(1) Remove 7 pcs. of screws on the support rail and 3 pcs. of the screws on the keyboard.

[CT B ZMC 3 x 8] x 10

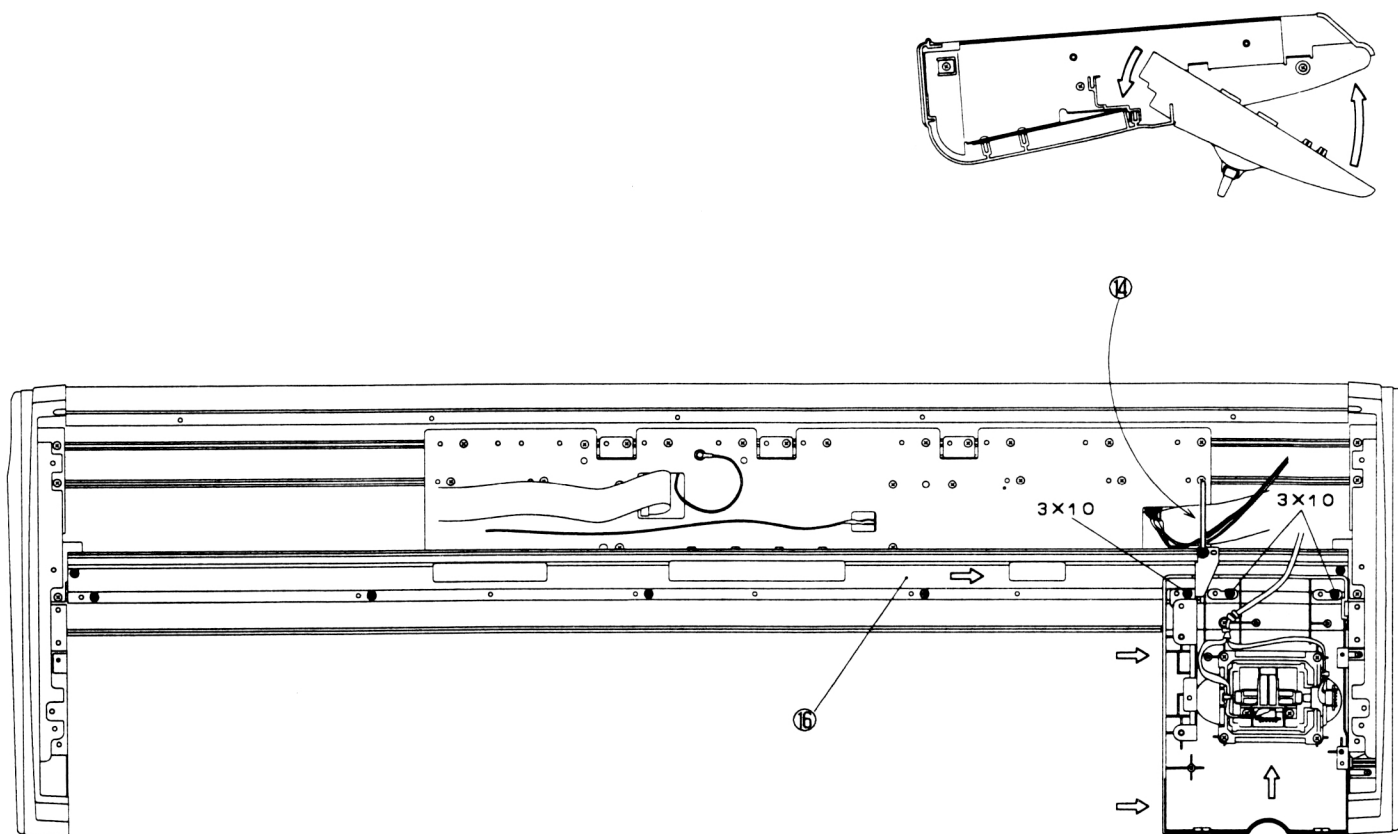
(2) Remove 5 pcs. of the screws on the panel and remove the shield sheet.

[CT B ZMC 3 x 8] x 5

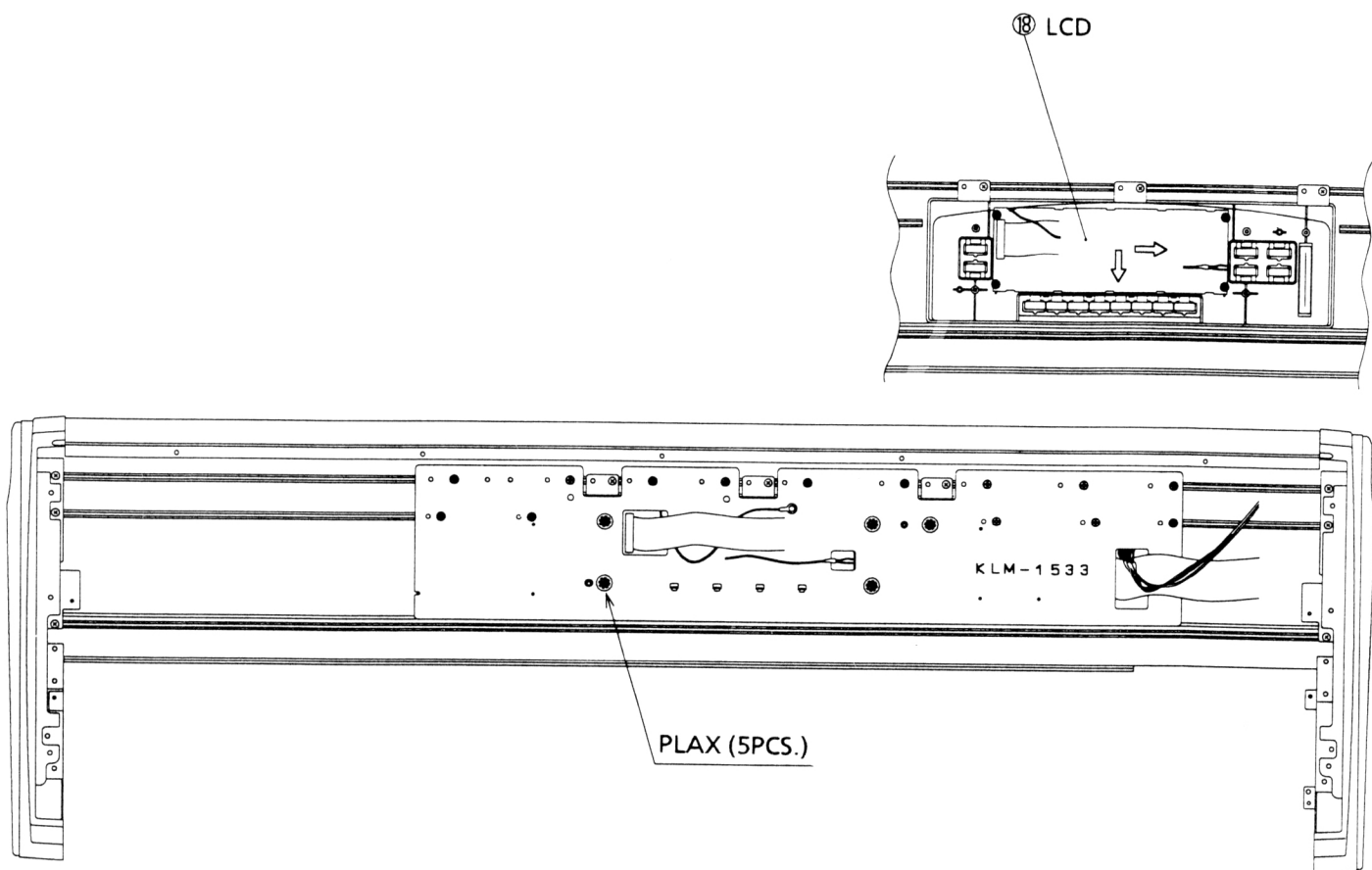


12. Remove the support boards A, B and C.
[CT B ZMC 3 x 8] x 11

13. Remove the keyboard.
[CT B ZMC 4 x 10] x 4



14. Remove the joystick panel support.
 [CT B ZMC 3 x 10] x 1
 [CT B ZMC 3 x 8] x 1
15. Remove the joystick panel.
 [CT B ZMC 3 x 10] x 2
16. Remove the support rail.
 [CT B ZMC 3 x 8] x 6



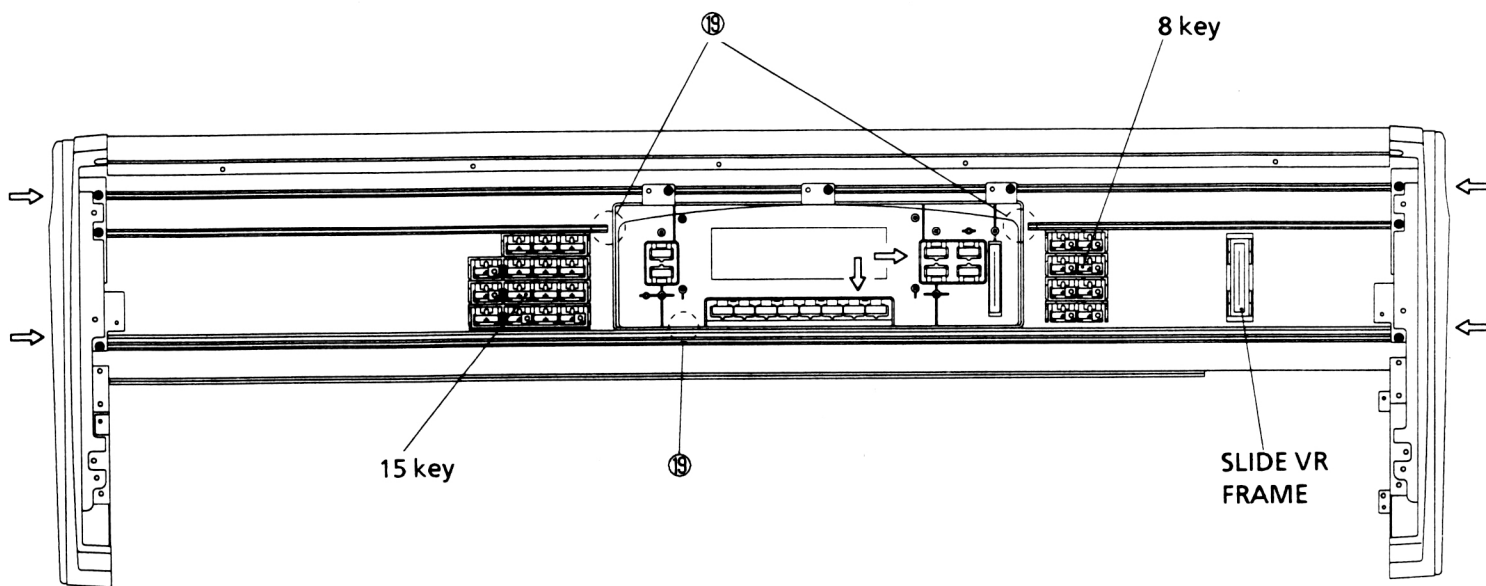
17. Remove the panel p.c.board (KLM-1533) after removing 19 pcs. of the screws on the panel.

[CT B ZMC 3 x 8] x 14

[PLAX B BZMC 3 x 8] x 5

18. Remove the LCD.

[PLAX B BZMC 3 x 8] x 4



19. Remove the LCD hood.

[CT B ZMC 3 x 8] x 3

20. Remove the side board L & R assembly.

7. HARDWARE SPECIFICATIONS

P.C. BOARDS :

KLM-1511/12	JOYSTICK P.C.B.
KLM-1528	MAIN P.C.B. FOR 01/WFD
KLM-1529	JACK P.C.B.
KLM-1530	POWER SUPPLY P.C.B.
KLM-1533	PANEL P.C.B.
KLM-1537	MAIN P.C.B. FOR 01/W

MAIN ICs :

UPD71055GB-10-3B4	- PPI (Peripheral Interface)
UPD70216L-10	- CPU
UPD65016GF-058-3BA	- MAP260 (Decoder)
HD63265SFP	- FDC (Flopy Disk Controller)
M37450M4-601FP	- KSP (Key Scan Processor)
MB87405PF	- MDE (Multi Digital Effect)
MB623147PF	- MAP25 (Decoder/Card Buffer)
MB87726PF	- TG88 (Tone Generater)
MB87727PF	- DF88 (Digital Filter)
MB635107PF-G-LBND	- WS89 (Wave Shaper)
PCM55HP	DAC (D/A Converter)
UPD23C8001EGW-338-E2	Wave ROM
UPD23C8001EGW-339-E2	Wave ROM
MB838000-20PF-G-4A7-EF	Wave ROM
MB838000-20PF-G-4A8-EF	Wave ROM
MB838000-20PF-G-4A9-EF	Wave ROM
MB838000-20PF-G-4A0-EF	Wave ROM
MB838000-10LPF-G-BND-EF	Wave ROM

8. DIAGNOSTIC TEST

《Before you start the diagnostic test》

Once this diagnostic test is started, the data in the 01/WFD (01/W) is initialized. If necessary data are memorized in it, please save the data into RAM cards or a floppy disk before starting the test.

《Starting the test program》

1. Connect MIDI IN and OUT with a MIDI cable.
2. Insert a PCM card (XSC-801) and a diagnostic test card into each card slot and turn the power ON.
At this time the protect switch of the test card must be OFF.
3. When the test program starts, the following tests are automatically carried out.

- * Internal RAM Test (Internal Test #00)
- * RAM Card Test (Internal Test #01)
- * LCD RAM Test (Internal Test #02)
- * TG & DF CPU I/F Test (Internal Test #03)
- * Internal Battery Test (Internal Test #04)
- * Card Battery Test (Internal Test #05)
- * MIDI Loop Test (Internal Test #06)
- * PCM ROM TG I/F Test (Internal Test #07)
- * PCM Card TG I/F Test (Internal Test #08)

If any error occurs to the result of the internal test, the error message will be indicated in the LCD and the panel LEDs will go on and off.

When the internal test finishes normally, the program proceeds to TEST 1 : SW & LED TEST.

Then, when you turn the power ON while pressing '3' and 'RESET' to start the test mode, you can omit the PCM card test and the MIDI loop test.

In case that the protect switch of the RAM card is ON at the internal test #01 : RAM CARD TEST, the following message is indicated in the LCD.

* Error : Protect

In case that an error occurs at the internal test #03 : TG I/F TEST, the following message is indicated in the LCD.

1) In case that an error occurs between the TG and the LCD,

- * Voice flag
- * TG too long busy
- * Voice on flag

2) In case that an error occurs between the DF and the CPU,

- * VDA
- * EXC
- * VDF
- * PAN

In case that MIDI IN and OUT are not connected with a MIDI cable at the internal test #06 : MIDI LOOP TEST, the following message is indicated in the LCD.

* Error : OUT -X-→ IN (no connect)

《TEST 2 : PANEL SW & LED TEST》

The test of the panel switches and the confirmation of the LED's lighting are carried out.

1. Confirm that all the LEDs light red.
2. Press each switch according to the turn which is indicated in the LCD and confirm that they work correctly.
The turn to press the switches is as follows.

In case of the 01/WFD

COMBI, PROG, SEQ, BANK, EDIT COMBI, EDIT PROG, GLOBAL, DISK,
▲, ▼, UP, DOWN, A, B, C, D, E, F, G, H, PAGE+, PAGE-,
7, 4, 1, 10's HOLD/-, 8, 5, 2, 0, 9, 6, 3,
COMPARE, REC/WRITE, START/STOP, RESET

In case of the 01/W

COMBI, PROG, SEQ, INT/CARD, EDIT COMBI, EDIT PROG, GLOBAL, BANK,
▲, ▼, UP, DOWN, A, B, C, D, E, F, G, H, PAGE+, PAGE-,
7, 4, 1, 10's HOLD/-, 8, 5, 2, 0, 9, 6, 3,
COMPARE, REC/WRITE, START/STOP, RESET

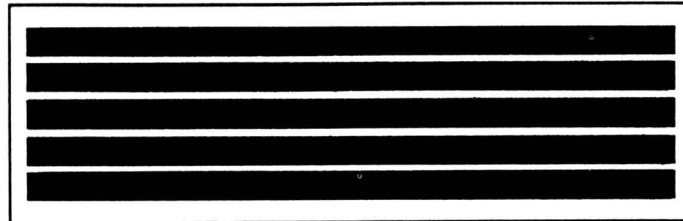
As for the switches whose LEDs light, confirm that the LEDs light red when the switches are pressed and then the LEDs light green when the switches are released.

3. When this check is finished to the RESET switch, the test program proceeds to the next automatically.

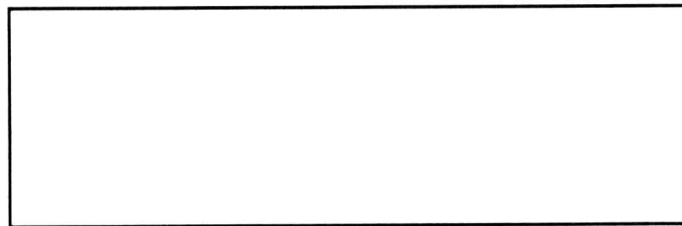
《TEST 3 : LCD PIXEL TEST》

The test of the LCD's indication is carried out.

1. Confirm that all the dots in the LCD light.
If nothing is wrong with the LCD, press RESET to proceed to the next.



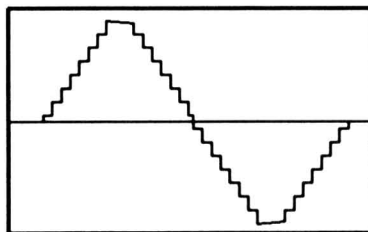
2. Confirm that all the dots in the LCD go out.
If nothing is wrong with the LCD, press RESET to proceed to the next.



《TEST 4 : MDE/DF TEST》

MDE and DF88 are checked.
Connect an oscilloscope to OUTPUT 1.

1. Confirm that the output waveform of the MDE test is as follows.



MDE TEST WAVEFORM

If this test is N.G., check the circuit connected with MDE (IC17)
and the analog circuit.

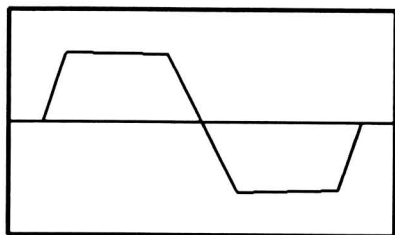
If this test is O.K., press RESET to proceed to the next.

2. Confirm that an explosion sound is output normally at the DF test.
If this test is N.G., check the circuit between DF88 (IC15) and MDE
(IC17).
If this test is O.K., press RESET to proceed to the next.

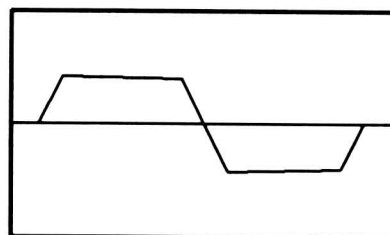
《TEST 5 : WS TEST》

WS is checked with its test waveform.

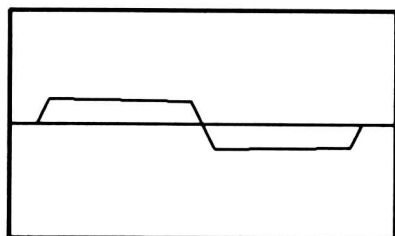
Confirm the following waveform appears when A, B, C or D is pressed.



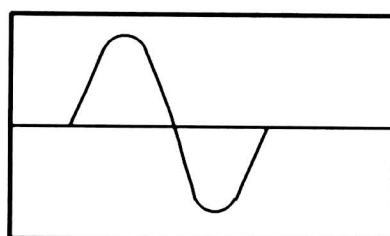
WS TEST WAVEFORM [A]



WS TEST WAVEFORM [B]



WS TEST WAVEFORM [C]



WS TEST WAVEFORM [D]

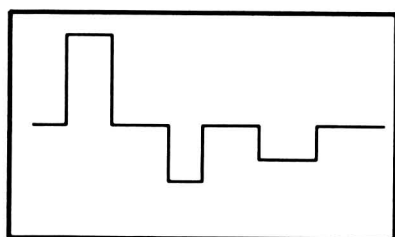
Check to the test waveform D and if this test is N.G., check the circuit connected with TG (IC12) and WS (IC13).

If this test is O.K., press RESET to proceed to the next.

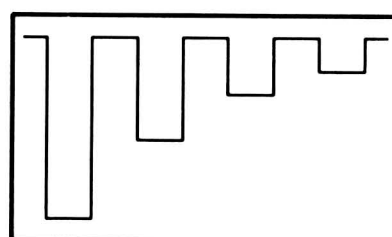
《TEST 6 : TG TEST》

TG is checked with its test waveform.

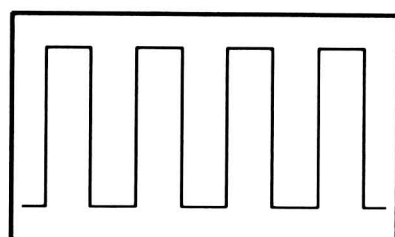
Confirm the following waveform appears when one of A~H is pressed.



TG TEST WAVEFORM [A]



TG TEST WAVEFORM [B] ~ [D]



TG TEST WAVEFORM [E] ~ [H]

The waveforms of B~D are different at their output levels.
 The waveforms of E~H are different at their terms of cycle.
 Check to the test waveform H and if this test is N.G., check the circuit connected with TG (IC12).

If this test is O.K., press RESET to proceed to the next.

《TEST 7 : NOISE & OUTPUT TEST》

The remaining noise and the output signal level from each output jack are checked.

Set the master VR to the MAX and connect an oscilloscope or a noise meter to the OUTPUT jack which is to be checked.

1. Press any of A~F switches and measure the noise level of each OUTPUT jack with a noise meter.
 Confirm that the noise level of each OUTPUT jack is less than the regulation.
 After confirming the noise level of Ph-R of 'F', press RESET to proceed to the next check.
2. Press any of A~F switches and measure the output signal level of each OUTPUT jack with an oscilloscope.
 Confirm that the signal level of each OUTPUT jack is less than the regulation and each is the sine wave.
 Also, confirm that each output signal level changes at OUT-1 and OUT-2 when the master VR is operated.
 After confirming the output signal level of Ph-R of 'F', press 'RESET' to proceed to the next.

	remaining noise	output signal level	frequency
OUT-1	-77.0dBu ↓	4.2 ~ 7.8 Vp-p	488 Hz
OUT-2	-77.0 dBu ↓	4.2 ~ 7.8 Vp-p	412 Hz
OUT-3	-76.0 dBu ↓	4.6 ~ 8.6 Vp-p	305 Hz
OUT-4	-76.0 dBu ↓	4.6 ~ 8.6 Vp-p	244 Hz
Ph-L	-78.0 dBu ↓	2.0 ~ 4.0 Vp-p	548 Hz
Ph-R	-78.0 dBu ↓	2.0 ~ 4.0 Vp-p	610 Hz

The regulations of the remaining noise and the output signal level

《TEST 8 : KEYBOARD & AFTERTOUCH TEST》

The contact of the keyboard, the velocity and the aftertouch are checked.

1. Press the keys from the top key (C7) in accordance with the indication in the LCD. When the value of the velocity is between 20 and 100, the test program proceeds to the next key.
When the check is finished to the bottom key (C2), it proceeds to the aftertouch check automatically.
2. Confirm that the aftertouch value is indicated in the LCD when any key is pressed strongly and the value changes between 0 and 127.
When this check is finished, press RESET to proceed to the next.

《TEST 9 : A/D TEST》

The A/D test of the joystick, the VALUE slider, the ASS. pedals 1 & 2, the damper pedal are carried out.

1. Confirm that the X and Y values of the joystick are indicated in the LCD and that each value changes when the joystick is operated.

When moved to left, Joy-X : -127.
When moved to right, Joy-X : 127.
When moved away from you, Joy-Y : 127.
When moved toward you, Joy-Y : -127.
When not moved, Joy-X, Y : 0.
When the check is finished, press RESET to proceed to the next.
2. Confirm that the value in the LCD changes between 0 (MIN) and 127 (MAX) when the VALUE slider is operated.
3. Confirm that the value in the LCD changes between 0 and 127 when an EXP-2 is connected to the ASS.pedal 1 or 2 and it is operated.
4. Connect a damper pedal to the damper jack and confirm that the value becomes ON when the pedal is pressed and that the value becomes OFF when the pedal is released.
When all the checks are finished, press RESET to proceed to the menu screen.

《MENU SCREEN》

Selecting any number of 0 - 9 in the LCD with ten keys allows you to test the following.

0 : FDD	5 : WS
1 : A/D Monitor	6 : TG
2 : Switch & LED	7 : Noise & Level
3 : LCD	8 : Keyboard & AT
4 : MDE / DF	9 : A/D Converter

There are some other functions which correspond to the 'A', 'B', 'D', 'G', 'H' switches.

A : PCM ROM Check Sum
B : PCM CARD Check Sum (For XSC-801)
D : SYSTEM ROM Check Sum
G : END → Refer to «FINISHING THE TEST MODE»
H : CPY → Refer to «COPY OF THE DIAGNOSTIC TEST CARD»

※ It takes a long time to complete A : PCM ROM Check Sum and B : PCM CARD Check Sum. Especially, it takes about 6 minutes to complete A : PCM ROM Check Sum.

1. PCM ROM Check Sum

The internal PCM ROM is checked.

The operation is as follows.

When 'A' is pressed, 'Wait a minute' is indicated and the check starts.

It takes about 6 minutes to complete this check.

When it is finished normally, 'Completed' is indicated in the LCD.

2. PCM CARD Check Sum

The PCM CARD XSC-801 is checked.

The operation is as follows.

Confirm that a PCM card is inserted into the PCM card slot.

When 'B' is pressed, 'Wait a minute' is indicated in the LCD and the check starts.

It takes about 2 minutes to complete this check.

When it is finished normally, 'Completed' is indicated in the LCD.

3. SYSTEM ROM Check Sum

The internal SYSTEM ROM is checked.

The operation is as follows.

When 'D' is pressed, 'Wait a moment' is indicated in the LCD and the check starts.

It takes only a few seconds to complete this check.

When it is finished normally, 'Completed' is indicated in the LCD.

«TEST 0 : FDD TEST»

The floppy disk drive is checked.(on the 01/WFD only)

It takes much longer to complete this test than the others. If you don't need to check it, proceed to «FINISHING THE TEST MODE».

1. Press '0'.

2. Insert the floppy disk for this check into the FDD and press 'CHECK' to start the FDD test.

The protector of this floppy disk must be OFF at this time.

It takes about 3 minutes to complete this test. If it is O.K., all the LEDs will light and 'Completed' will be indicated in the LCD. If it is N.G., all the LEDs will go on and off and the error message will be indicated in the LCD.

3. When the check is finished, press 'REC/WRITE' to proceed to the menu screen.

《FINISHING THE TEST MODE》

1. When the diagnostic test card and the PCM card are removed from each slot and 'END' is pressed, the preload data is loaded automatically and the program proceeds to the normal mode. But in case of the 01/WFD, the sequence data is not loaded.
2. After finishing the test mode, check the sound.

《COPY OF THE DIAGNOSTIC TEST CARD》

The 01/WFD and the 01/W have the copy function of the RAM card for the diagnostic test and the data can be copied into the the other RAM card. Note that the internal data is initialized by using this function as well as the diagnostic test because this test is in the test mode. The operation is as follows.

1. Insert the diagnostic test card into the PROG/SEQ DATA slot and set the protect switch of the RAM card to be OFF.
2. Turn the power ON while pressing '3' and 'RESET' to start the test mode.
3. When the test mode is started, press 'REC/WRITE' to proceed to the menu screen.
4. Remove the diagnostic test card from the slot and insert a new RAM card.
Set the protect switch of the card to be OFF.
5. When 'CPY' is pressed, 'Save Start' is indicated in the LCD and the test data is saved into the new RAM card.
When saving is completed, 'Completed' is indicated in the LCD.
6. Remove the RAM card and then press 'END' to finish the test mode.

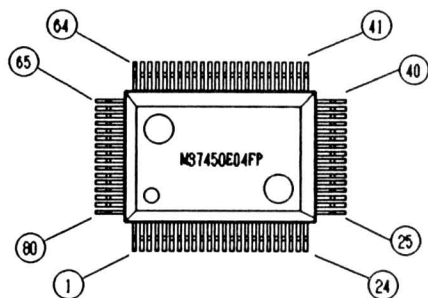
《INITIALIZING THE INTERNAL DATA》

When you turn the power ON while pressing 'RESET' and any of 'COMPARE', '3', '6' or '9' together, the version number of the system ROM is indicated in the LCD and the internal data is initialized. Then, if you would like to know the version number of the system ROM only, turn the power ON while pressing only 'RESET' - you will see the version number in the LCD without initializing the internal data.

9. REFERENCE DATA

M37450M4-601FP (KSP)

PIN ASSIGNMENT



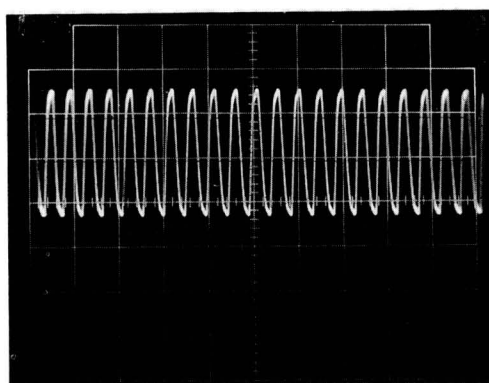
M37450M4-601FP

PIN FUNCTION

PIN MARK	PIN NAME	I/O	PIN MARK	PIN NAME	I/O
VCC, VSS	POWER SUPPLY	-	P50~P57	I/O PORT 5	I/O
CNVSS	CNVSS	I	P60~P67	I/O PORT 6	I/O
RESET	RESET IN	I	VREF	REFERENCE VOLT.	I
XIN	CLOCK IN	I	ADVREF	A-D REF.VOLTAGE	I
XOUT	CLOCK OUT	O	DAVREF	D-A REF.VOLTAGE	I
ϕ	TIMMING OUT	O	AVSS	ANALOG VSS	-
SYNC	SYNC.SIGNAL OUT	O	AVCC	ANALOG VCC	-
R/W	READ/WRITE STATUS OUT	O	D-A1 D-A2	ANALOG OUT	O O
P00~P07	I/O PORT 0	I/O	RD	READ SIG. OUT	O
P10~P17	I/O PORT 1	I/O	WR	WRITE SIG. OUT	O
P20~P27	I/O PORT 2	I/O	RESETOUT	RESET SIG. OUT	O
P30~P37	I/O PORT 3	I/O	RXD	SERIAL DATA IN	I
P40~P42	I/O PORT 4	I	TXD	SERIAL DATA OUT	O

CHECK POINT FOR M37450M4-601FP

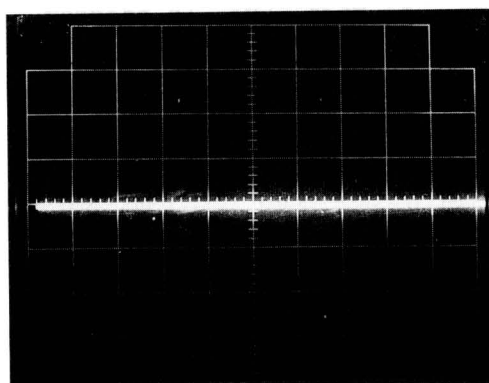
1.XIN (28pin)



T=0.1mS

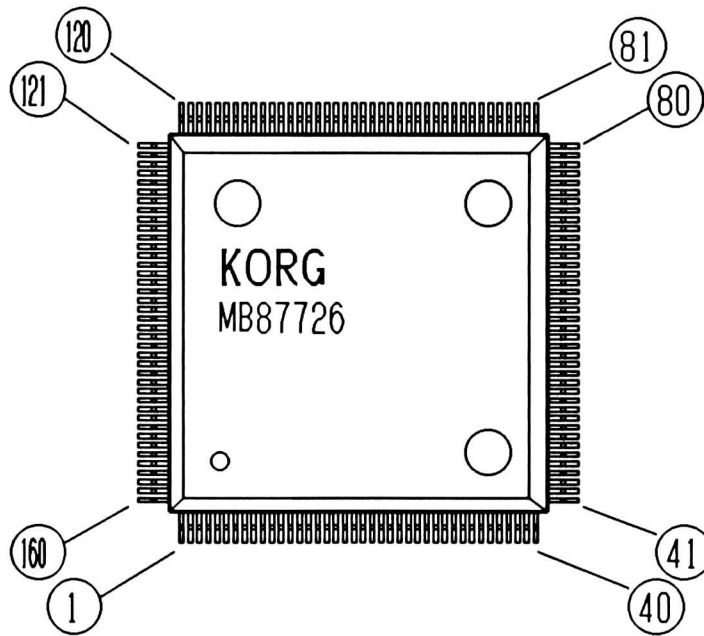
2V/0.2uS div

2.RXD (77pin)



2V/5mS div

MB87726 (TG88)
PIN ASSIGNMENT

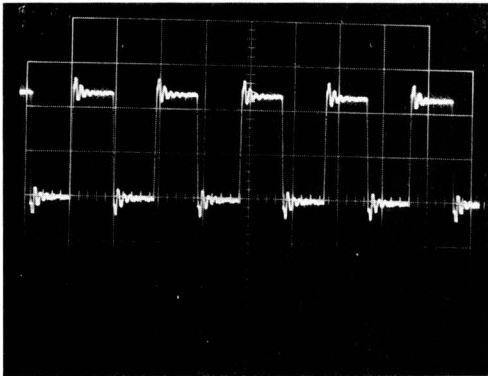


MB87726 (TG88)
PIN FUNCTION

PIN NAME	I/O	FUNCTION
VDD	-	+5V
VSS	-	GND
SMODE	I	Sub TG Mode (H:Sub TG L:Master TG)
FMODE	I	Sampling Rate Switch (H:48KHz L:30KHz)
XRESET	I	Low Active Initial Clear
CLK	I	Master Clock
XCRO	O	System Counter Reset for Sub TG Chip
XCRI	I	System Counter Reset from Master TG Chip
TEST0-3	I	Test Mode Selector
XCSI	I	Chip Select
XWRI	I	Write Pulse Input from CPU
XRDI	I	Read Pulse Input from CPU
A0-9	I	Address Input from CPU
D0-7	I/O	Data Input from CPU
D8-15	I/O	Data Input for 16bit Data Bus
DMODE	I	CPU I/F Data Bus Syze Select (L:8bit H:16bit)
EWDO-15	I	Even-address Wave Data In (from Wave ROM)
OWDO-15	I	Odd-address Wave Data In (from Wave ROM)
WAO-19	O	Address Bus for Wave ROM or RAM
WBO-3	O	Bank Number Out for Wave ROM (16 Banks)
ODO-19	O	Voice Data Out for External Filters or MDE
VNO-4	O	Voice Number Out
RAS0-3	O	for D-RAM
CAS0-3	O	for D-RAM
OWEO-3	O	Write Enable for MDE
OWEF	O	Write Enable for New Filter Chip (MB87727)

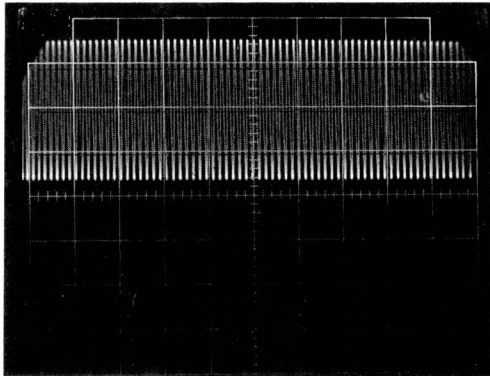
CHECK POINT FOR MB87726

1.O_{WEF} (119pin)



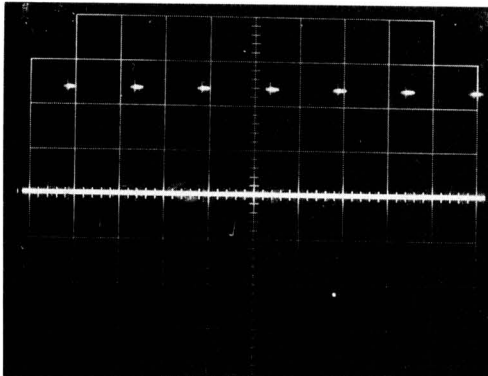
duty cycle of 50% $T=0.1\mu\text{S}$
2V/0.5uS div

2.CLK (111pin)



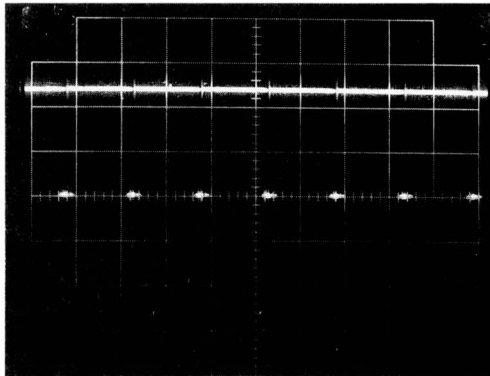
1V/0.2uS div

3.O_{D0}~O_{D18} (144~123pin)

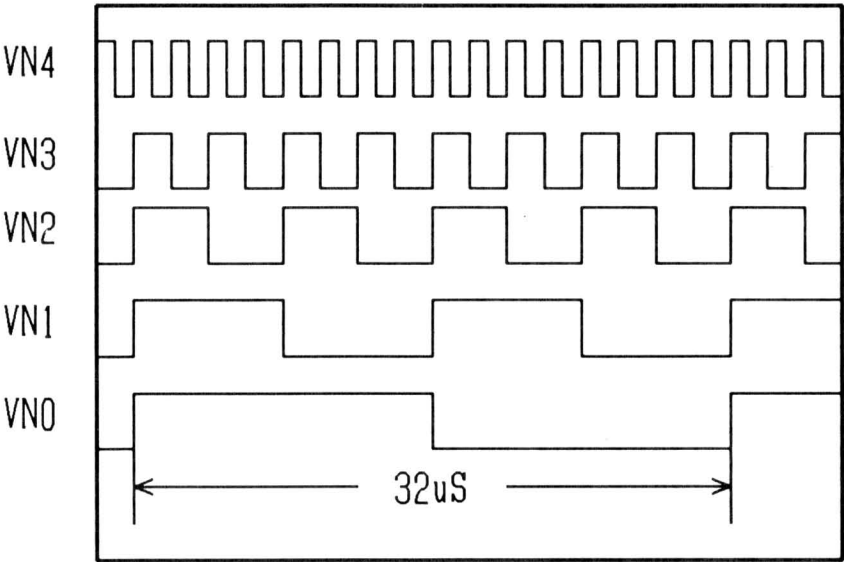


2V/20uS div

4.O_{D19} (122pin)

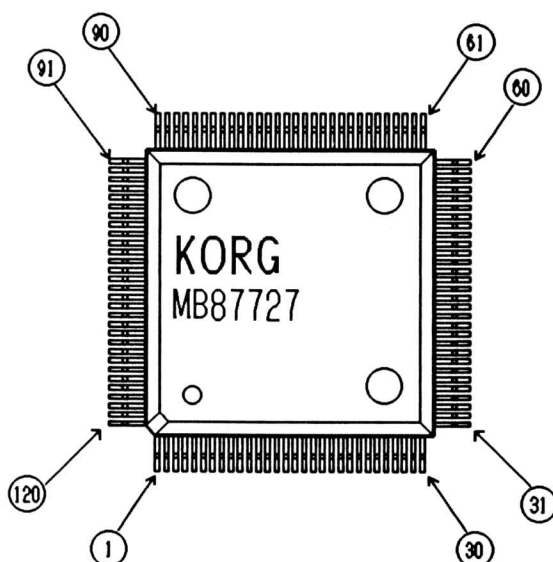


2V/20uS div



MB87727 (DF88)

PIN ASSIGNMENT

**MB87727 (DF88)**

PIN FUNCTION

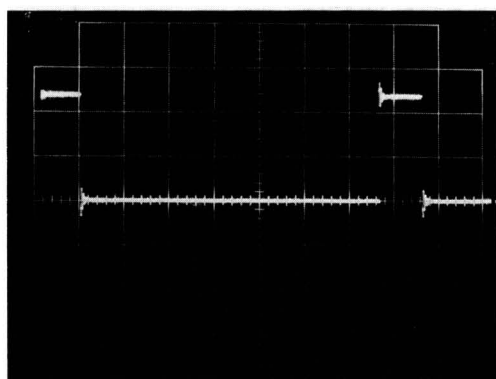
NO.	I/O	PIN NAME	GROUP	NOTE
1	-	VSS	-	
2	I	A0	A	CPU ADDRESS
3	I	A1		
4	I	A2		
5	I	A3		
6	I	A4		
7	I	A5		
8	I	A6		
9	I	A7		
10	I	A8		
11	-	VSS	-	
12	I	A9	B	CPU ADDRESS
13	I/O	D0		CPU DATA BUS
14	I/O	D1		
15	I/O	D2		
16	-	VDD	-	
17	I/O	D3	B	CPU DATA BUS
18	I/O	D4		
19	I/O	D5		
20	I/O	D6		
21	-	VSS	-	
22	I/O	D7	C	CPU DATA BUS
23	I/O	D8		
24	I/O	D9		
25	I/O	D10		
26	I/O	D11		
27	I/O	D12		
28	I/O	D13		
29	I/O	D14		
30	I/O	D15		

NO.	I/O	PIN NAME	GROUP	NOTE
31	-	VSS	-	
32	I	IVN0	D	TG VOICE NO.
33	I	IVN1		
34	I	IVN2		
35	I	IVN3		
36	I	IVN4		TG VOICE DATA
37	I	IVD0		
38	I	IVD1		
39	I	IVD2		
40	I	IVD3		
41	-	VSS	-	
42	I	IVD4	E	TG VOICE DATA
43	I	IVD5		
44	I	IVD6		
45	I	IVD7		
46	-	VDD	-	
47	I	IVD8	E	TG VOICE DATA
48	I	IVD9		
49	I	IVD10		
50	I	IVD11		
51	-	VSS	-	
52	I	IVD12	F	TG VOICE DATA
53	I	IVD13		
54	I	IVD14		
55	I	IVD15		
56	I	IVD16		
57	I	IVD17		
58	I	IVD18		
59	I	IVD19		
60	-	VDD	-	
61	-	VSS	-	
62	I	DEN	G	TG VOICE DATA ENABLE
63	I	XRES		SYSTEM RESET
64	I	OSEL		PARALLEL OUT FORMAT SELECT
65	I	BSEL		CPU DBUS BIT LENGTH SELECT
66	I	MODE0		FILTER MODE SELECT
67	I	MODE1		
68	I	ITEST		
69	I	LTEST		LSI TESTER MODE SELECT
70	I	MCK		MASTER CLOCK
71	-	VSS	-	
72	I	TSELO	H	NOT USE
73	I	TSEL1		
74	I	CLIP		OUTPUT DATA CLIPER ON/OFF
75	I	SFT0		DATA SHIFT SELECT BIT0
76	-	VDD	-	
77	I	SFT1	H	DATA SHIFT SELECT BIT1
78	I	SFT2		DATA SHIFT SELECT BIT2
79	O	POEN		PARALLEL OUT VOICE DATA ENABLE
80	O	SOD		SERIAL OUT DATA

NO.	I/O	PIN NAME	GROUP	NOTE
81	-	VSS	-	
82	0	SCK	I	SERIAL OUT BIT CLOCK
83	0	SEN		SERIAL OUT DATA ENABLE
84	0	SCH2		SERIAL OUT CH NO. BIT2
85	0	SCH1		SERIAL OUT CH NO. BIT1
86	0	SCH0		SERIAL OUT CH NO. BIT0
87	0	SCHEN		SERIAL OUT CH DATA ENABLE
88	0	OD19		VOICE/MIX
89	0	OD18		PARALLEL
90	0	OD17		OUTPUT
91	-	VSS	-	
92	0	OD16	J	OUTPUT
93	0	OD15		
94	0	OD14		
95	0	OD13		
96	0	OD12		
97	0	OD11		
98	0	OD10		
99	0	OD9		
100	0	OD8		
101	-	VSS	-	
102	0	OD7	K	OUTPUT
103	0	OD6		
104	0	OD5		
105	0	OD4		
106	-	VDD	-	
107	0	OD3	K	OUTPUT
108	0	OD2		
109	0	OD1		
110	0	OD0		
111	-	VSS	-	
112	0	OVN4	L	PARALLEL OUT
113	0	OVN3		VOICE NO.
114	0	OVN2		
115	0	OVN1		
116	0	OVNO		
117	I	XRD		CPU RD ENABLE
118	I	XWR		CPU WR ENABLE
119	I	XCS		CHIP SELECT
120	-	VDD	-	

CHECK POINT FOR MB87727

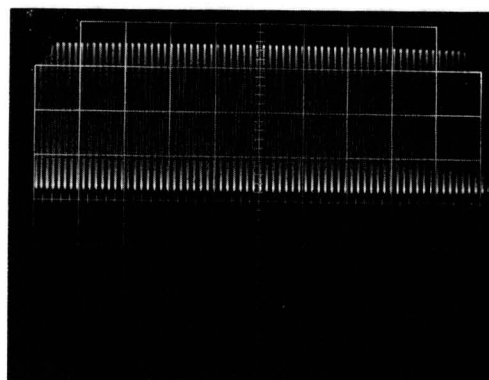
1.OVNO~OVN3 (116~113pin)



T=16uS

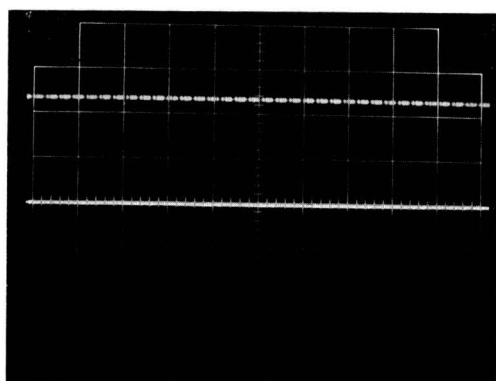
2V/2uS div

2.MCK (52pin)



2V/0.2uS div

3.OD0~OD19 (110~88pin)



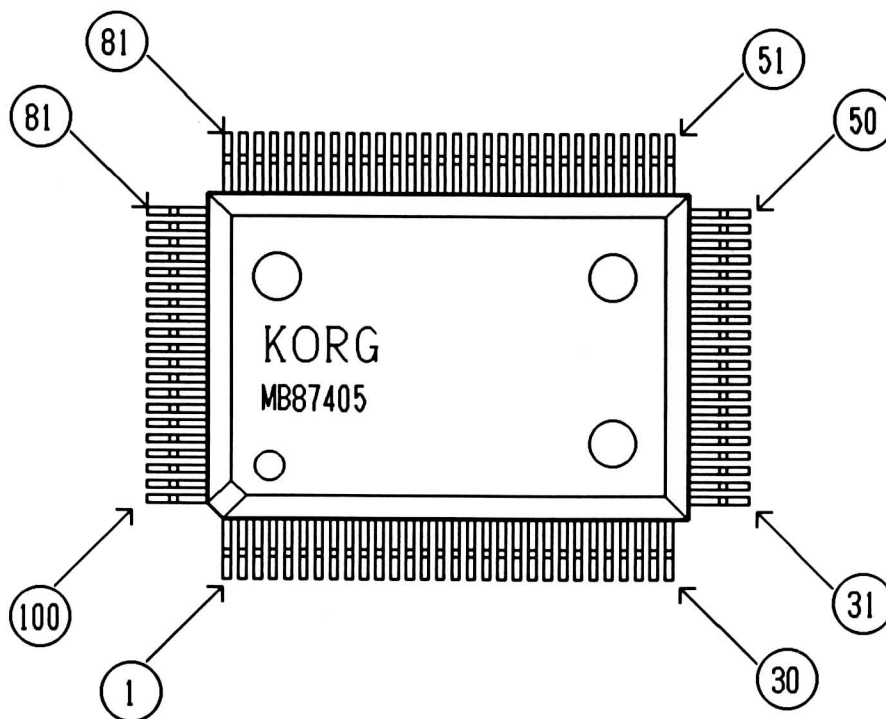
2V/0.1mS div

CLASSIFICATION OF TERMINALS FOR DF88

CLASSIFICATION	TERMINALS
CPU INTERFACE	BSEL, XCS, XRD, XWR A0~A9, D0~D15
PARALLEL OUT (MDE1 INTERFACE)	OSEL, OD0~OD19 OVNO~OVN4, POEN
SERIAL OUT (MDE2 INTERFACE)	SOD, SCK, SEN SCHO~SCH2, SCHEN
MIXER	SFT0~SFT2, CLIP
PARALLEL IN (TG, DF INTERFACE)	IVDO~IVD19 IVNO~IVN4, DEN
MASTER CLOCK	MCK
RESET	XRES
FILTER MODE	MODE0~MODE1
TEST MODE	ITEST, LTEST TSELO, TSEL1
POWER SUPPLY	VDD1~VDD6 VSS1~VSS12

MB87405 (MDE)

PIN ASSIGNMENT



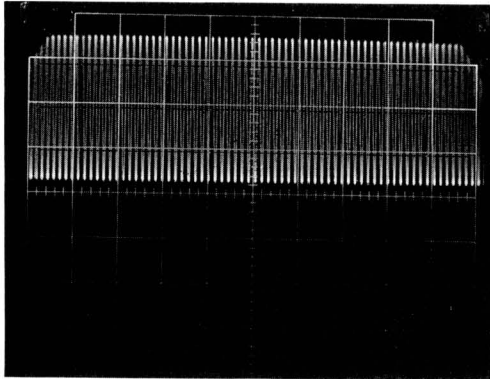
MB87405 (MDE)

PIN FUNCTION

PIN NAME	I/O	PIN NAME	I/O	PIN NAME	I/O
80	I	OE	O	SX1, SX32	O
CS	I	WE	O	PDO~PD19	I
RD	I	RA0~RA7	O	GC	I
WR	I	RDO~RD19	I/O	RESET	I
A0~A2	I	DA0~DA19	O	XTL	I
D0~D7	I/O	SH0~SH3	O	TS0~TS5	I
RAS	O	SAR	I	VDD0~VDD3	---
CAS	O	OL	O	VSS0~VSS7	---

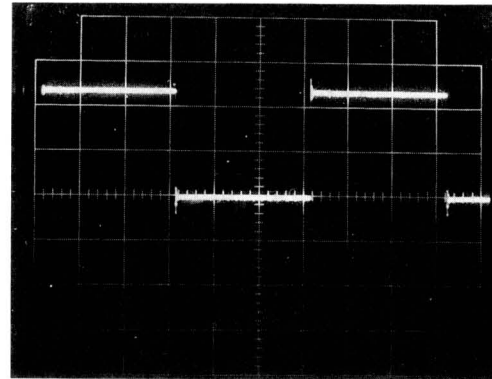
CHECK POINT FOR MB87405

1.XTL (63pin)



1V/0.2uS div

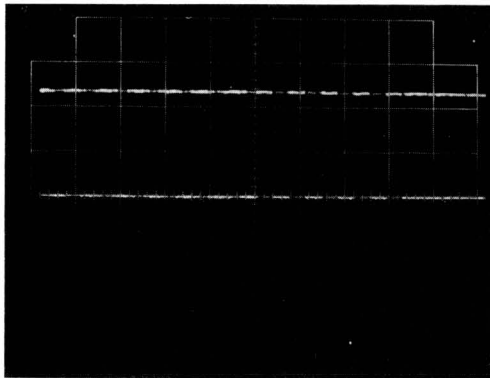
2.SX1 (29pin)



duty cycle of 50% T=32uS

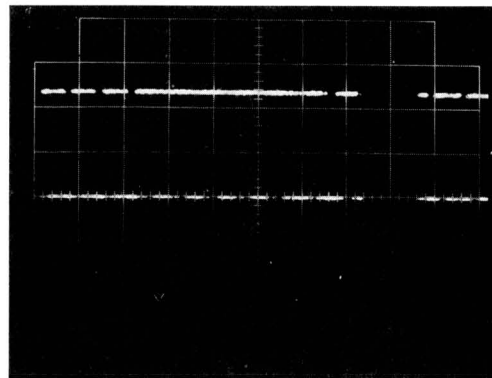
2V/5uS div

3.DA4~DA18 (114~120, 2, 3pin)



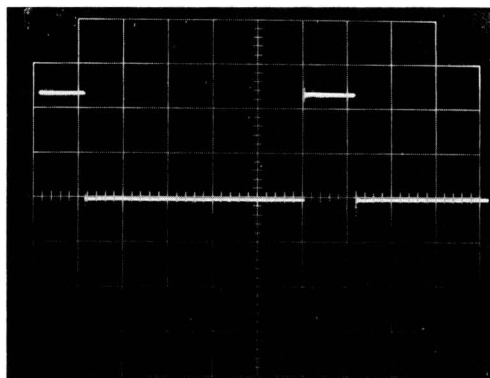
2V/2mS div

4.DA19 (4pin)



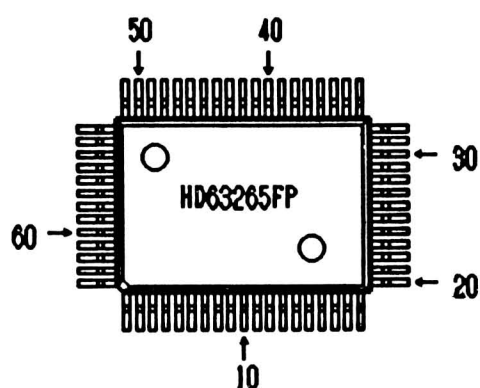
2V/10mS div

5.SH0~SH4 (5~8pin)



2V/5uS div

HD63265SFP (FDC) PIN ASSIGNMENT



HD63265SFP (FDC) 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	i RQ
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	HDiR
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	WPRT	64	I	8" / 5"

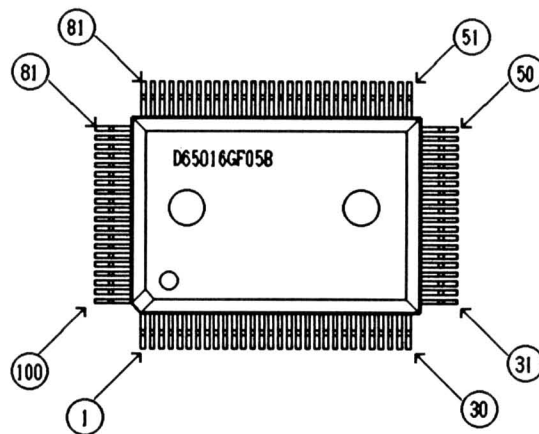
μPD71055GB-10-3B4 (PPI)

PIN FUNCTION

PIN NAME	I/O	FUNCTION	PIN NAME	I/O	FUNCTION
D7~D0	I/O	Data Bus	RESET	I	Reset
CS	I	Chip Select	P07~P00	I/O	I/O Port0
RD	I	Read Strobe	P17~P10	I/O	I/O Port1
WR	I	Write Strobe	P27~P20	I/O	I/O Port2
A1, A0	I	Address	IC	---	Internally Connected

μ PD65016GF (MAP260)

PIN ASSIGNMENT



μ PD65016-XXX-3BA (MAP260)

PIN FUNCTION

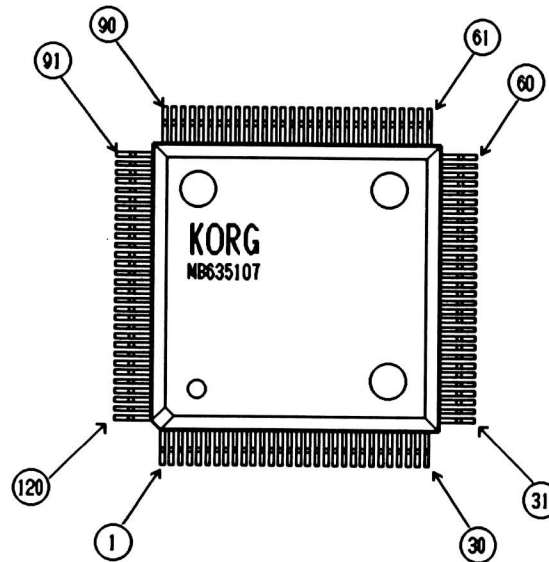
PIN NO.	PIN NAME	I/O	FUNCTION
01	GND-----		
02	VDD-----		
03	CAS0	0	column address strobe to D_RAM
04	RAS	0	row address strobe to D_RAM
05	ROML	0	lower byte ROM chip select
06	ROMU	0	upper byte ROM chip select
07	RAML	0	lower byte S_RAM chip select
08	RAMU	0	upper byte S_RAM chip select
09	A17	0	address out
10	A16	0	address out
11	A13	0	address out
12	A15	0	address out
13	A14	0	address out
14	A08	0	address out
15	GND-----		
16	A07	0	address out
17	A09	0	address out
18	PWR	0	S_RAM write enable (protectable write)
19	SP1	0	I/O chip select out
20	PPI	0	PPI chip select low active
21	FDC	0	FDC chip select low active
22	SP2	0	I/O chip select out
23	SP3	0	I/O chip select out
24	A10	0	address out
25	A06	0	address out
26	A05	0	address out
27	A12	0	address out
28	GND-----		
29	VDD-----		
30	A04	0	address out

PIN NO.	PIN NAME	I/O	FUNCTION
31	A03	0	address out
32	A11	0	address out
33	A02	0	address out
34	A01	0	address out
35	A00	0	address out
36	MSP1	0	memory chip select out
37	MSP2	0	memory chip select out
38	CK01	0	clock out
39	CK12	1	clock in
40	GND		
41	MCLK	1	master clock
42	TG88	0	TG88 chip select low active
43	CK02	0	clock out
44	CK03	0	clock out (1/2 CK12)
45	DF88	0	DF88 chip select low active
46	MDE	0	MDE chip select low active
47	TES3	1	TEST mode active high
48	SP1	0	chip select out
49	CK00	0	clock out
50	KSP	0	serial data out to key scanner (RxD)
51	KSPI	1	serial data in from key_scanner (TxD)
52	VDD		
53	GND		
54	SCLK	0	serial clock out to key_scanner (SCLK)
55	XRES	1	reset_input low active
56	AD00	1	address data multiplex in from V50FDC
57	AD01	1	address data multiplex in from V50FDC
58	AD02	1	address data multiplex in from V50FDC
59	AD03	1	address data multiplex in from V50FDC
60	AD04	1	address data multiplex in from V50FDC
61	AD05	1	address data multiplex in from V50FDC
62	AD06	1	address data multiplex in from V50FDC
63	AD07	1	address data multiplex in from V50FDC
64	AD08	1	address data multiplex in from V50FDC
65	GND		
66	AD09	1	address data multiplex in from V50FDC
67	AD10	1	address data multiplex in from V50FDC
68	AD11	1	address data multiplex in from V50FDC
69	AD12	1	address data multiplex in from V50FDC
70	AD13	1	address data multiplex in from V50FDC
71	AD14	1	address data multiplex in from V50FDC
72	AD15	1	address data multiplex in from V50FDC
73	A16P	1	address in from V50FDC
74	A17P	1	address in from V50FDC
75	A18P	1	address in from V50FDC
76	A19P	1	address in from V50FDC
77	RFRQ	1	from V50FDC
78	CK11	1	clock in
79	VDD		
80	GND		

PIN NO.	PIN NAME	I/O	FUNCTION
81	ASTB	I	address strobe in from V50FDC
82	UBE	I	upper bank enable in
83	IOWR	I	I/O write enable in from V50FDC
84	MWR	I	memory write enable in from V50FDC
85	IORD	I	I/O read enable in from V50FDC
86	MRDI	I	memory read enable in from V50FDC
87	1M	I	1M D_RAM mode select (low → 1M D_RAM)
88	TES1	I	TEST MODE
89	LWE	O	D_RAM lower byte write enable
90	TES2	I	TEST MODE
91	UWE	O	D_RAM upper byte write enable
92	DRA0	O	D_RAM address out
93	DRA1	O	D_RAM address out
94	DRA2	O	D_RAM address out
95	DRA3	O	D_RAM address out
96	DRA4	O	D_RAM address out
97	DRA5	O	D_RAM address out
98	DRA6	O	D_RAM address out
99	DRA7	O	D_RAM address out
100	CAS1	O	column address strobe to D_RAM

MB635107 (WS89)

PIN ASSIGNMENT



MB635107 (WS89)

PIN FUNCTION

PIN NAME	I/O	FUNCTION
A5~A0	I	CPU address in
D7~D0	I	CPU data in
XWR	I	CPU write enable
XCS	I	CPU chip select
IVD19~IDV0	I	sound data bus from TG88
IVN4~IVN0	I	voice number from TG88
DEN	I	data enable from TG88 (OWEF)
RA16~RA0	O	TABLE_ROM address
RD7~RD0	I	TABLE_ROM data
XRWE	O	S_RAM write enable for TABLE_RAM
XROE	O	S_RAM output enable for TABLE_RAM
OVD19~OVDO	O	sound data out to DF88
OVN4~OVNO	O	voice number out to DF88
OWEF	O	data enable to DF88
MCK	I	master clock
XRES	I	system reset
TEST1, 2	O	TEST MODE
VDD	---	+5V
VSS	---	GND

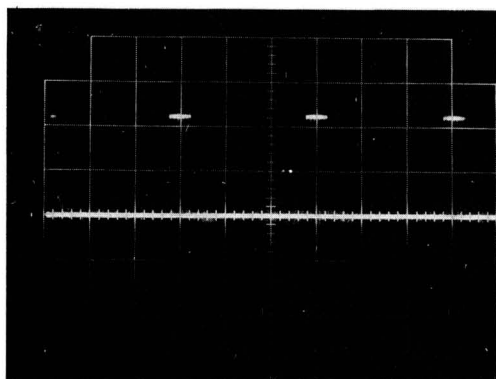
MB635107 (WS89) PIN I/O

NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME
1	---	VSS	26	I/O	RD4	51	---	VSS	76	---	VDD
2	I	A0	27	I/O	RD5	52	I	MCK	77	0	RA9
3	I	A1	28	I/O	RD6	53	I	IVD13	78	0	RA10
4	I	A2	29	I/O	RD7	54	I	IVD14	79	0	RA11
5	I	A3	30	I	IVN0	55	I	IVD15	80	0	RA12
6	I	A4	31	---	VSS	56	I	IVD16	81	---	VSS
7	I	A5	32	I	IVN1	57	I	IVD17	82	0	RA13
8	---	N.C.	33	I	IVN2	58	I	IVD18	83	0	RA14
9	I	XWR	34	I	IVN3	59	I	IVD19	84	0	RA15
10	I	XCS	35	I	IVN4	60	---	VDD	85	0	RA16
11	---	VSS	36	I	IVD0	61	---	VSS	86	0	XRWE
12	I	D0	37	I	IVD1	62	I	DEN	87	0	XROE
13	I	D1	38	I	IVD2	63	I	XRES	88	0	OWEF
14	I	D2	39	I	IVD3	64	---	N.C.	89	I	TEST0
15	I	D3	40	I	IVD4	65	---	N.C.	90	I	TEST1
16	---	VDD	41	---	VSS	66	0	RA0	91	---	VSS
17	I	D4	42	I	IVD5	67	0	RA1	92	0	OVD19
18	I	D5	43	I	IVD6	68	0	RA2	93	0	OVD18
19	I	D6	44	I	IVD7	69	0	RA3	94	0	OVD17
20	I	D7	45	I	IVD8	70	0	RA4	95	0	OVD16
21	---	VSS	46	---	VDD	71	---	VSS	96	0	OVD15
22	I/O	RDO	47	I	IVD9	72	0	RA5	97	0	OVD14
23	I/O	RD1	48	I	IVD10	73	0	RA6	98	0	OVD13
24	I/O	RD2	49	I	IVD11	74	0	RA7	99	0	OVD12
25	I/O	RD3	50	I	IVD12	75	0	RA8	100	0	OVD11

NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME
101	---	VSS	106	---	VDD	111	---	VSS	116	0	OVN3
102	0	OVD10	107	0	OVD6	112	0	OVD2	117	0	OVN2
103	0	OVD9	108	0	OVD5	113	0	OVD1	118	0	OVN1
104	0	OVD8	109	0	OVD4	114	0	OVD0	119	0	OVN0
105	0	OVD7	110	0	OVD3	115	0	OVN4	120	---	VDD

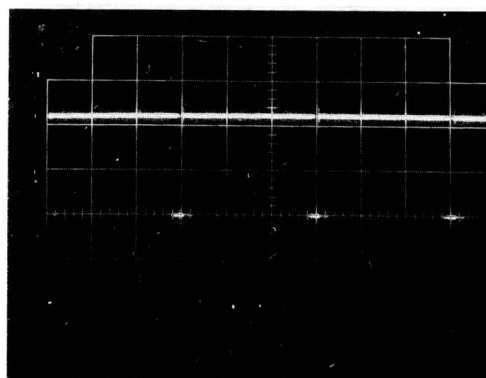
CHECK POINT FOR MB635107

1.0D18~0D0 (93~114pin)



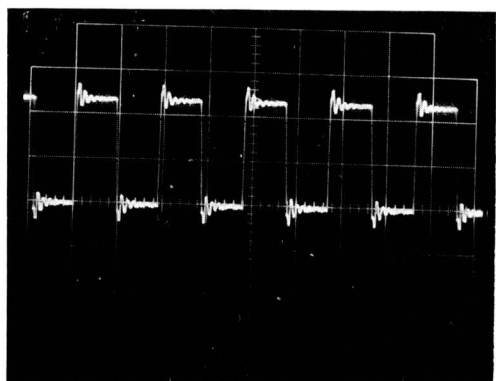
2V/5uS div

2.0D19 (92pin)



2V/5uS div

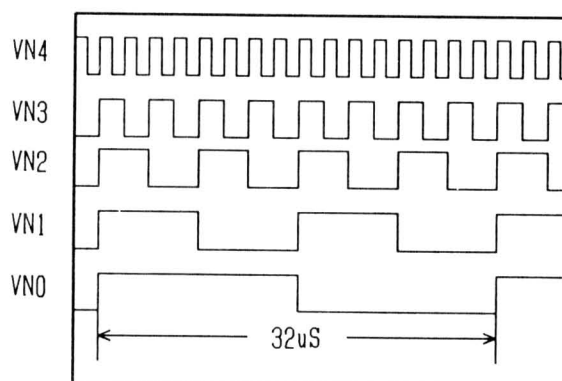
3.0WEF (88pin)



duty cycle of 50%

2V/0.5uS div

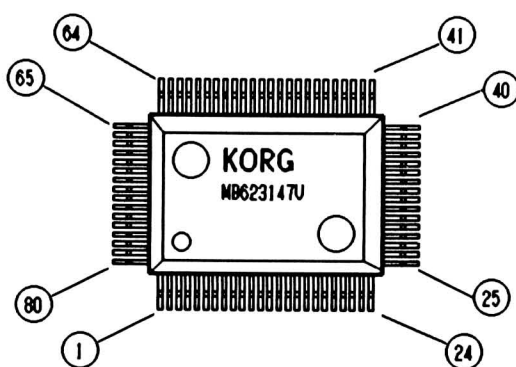
4.0VN4~0 (115~119pin)



duty cycle of 50%

MB623147U (MAP25)

PIN ASSIGNMENT

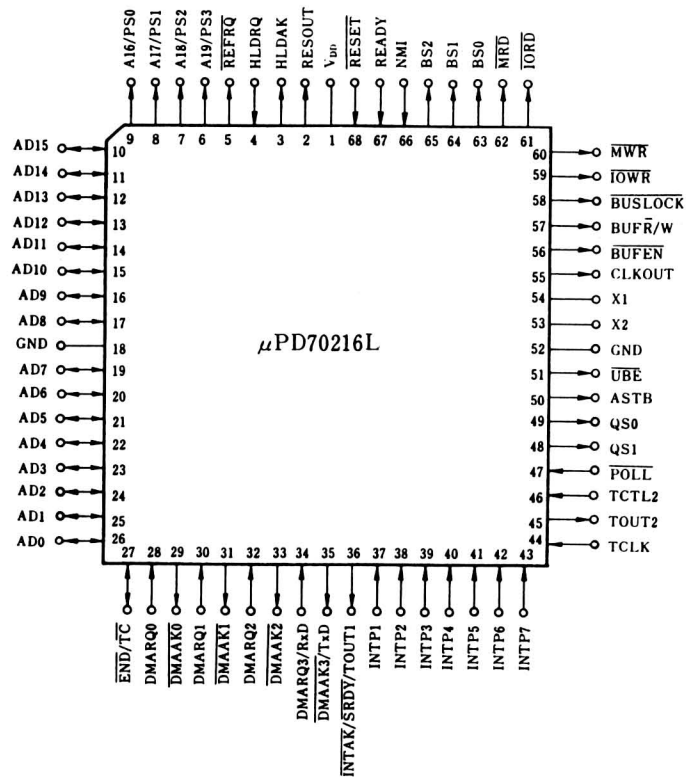


MB623147U (MAP25)

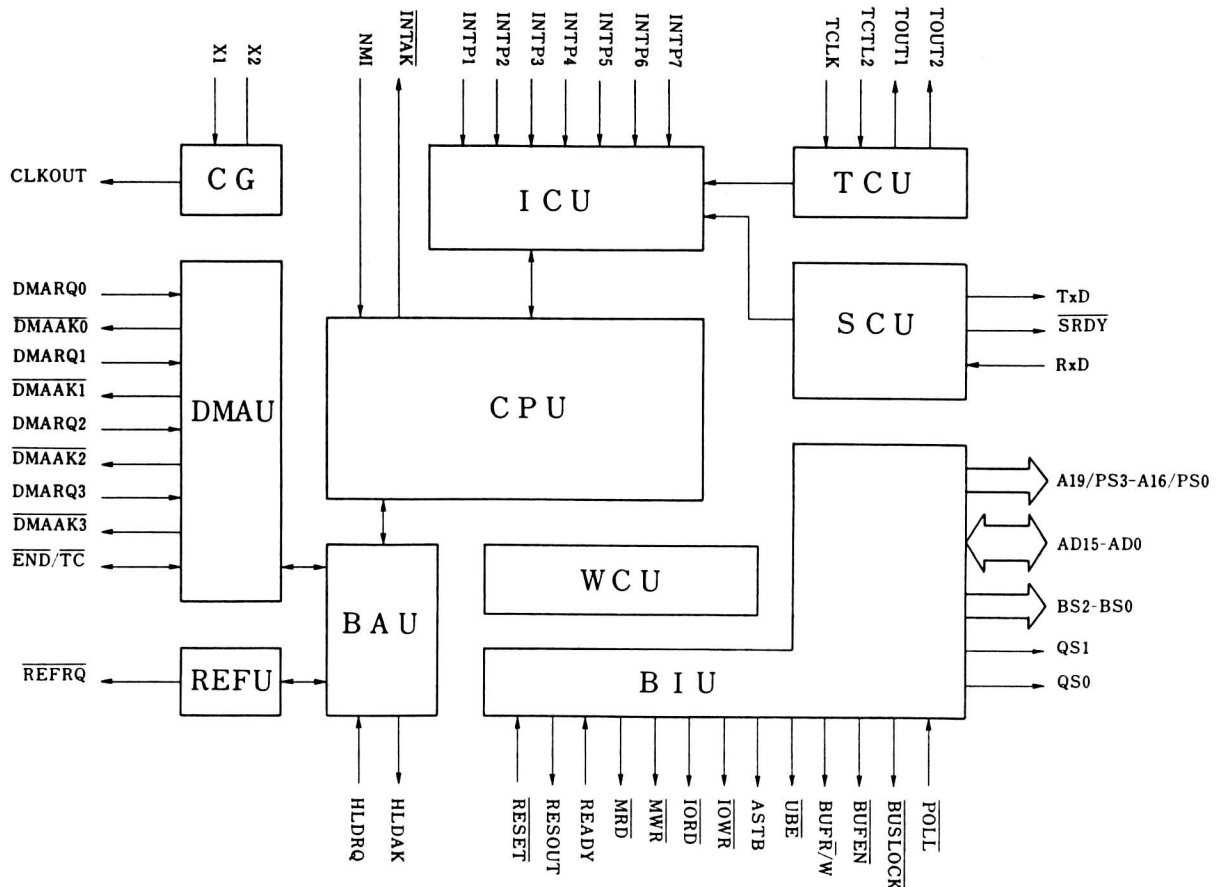
PIN FUNCTION

NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME	NO.	I/O	PIN NAME
1	I	IA19	21	I	IA8	41	0	OA7	61	0	OA11
2	I	IA18	22	I	IA7	42	0	OA6	62	0	OA9
3	I	IA17	23	I	IA6	43	0	OA5	63	0	OA8
4	I	IA16	24	I	IA5	44	0	OA4	64	0	OA13
5	I	IA15	25	I	IA4	45	0	OA3	65	0	OA14
6	I	IA14	26	I	IA3	46	0	OA2	66	0	CDWR
7	I	IA13	27	I	IA2	47	0	OA1	67	0	IOS0
8	I/O	PD7	28	I	IA1	48	0	OA0	68	0	IOS1
9	I/O	PD6	29	I	IA0	49	I/O	D0	69	0	IOS2
10	I/O	PD5	30	I	MREQ	50	I/O	D1	70	0	IOS3
11	I/O	PD4	31	I	MODE	51	I/O	D2	71	0	IOS4
12	---	VSS	32	---	VSS	52	---	VSS	72	---	VSS
13	I/O	PD3	33	---	VDD	53	I/O	D3	73	---	VDD
14	I/O	PD2	34	I	IOST	54	I/O	D4	74	0	IOS5
15	I/O	PD1	35	I	R/W	55	I/O	D5	75	0	MS00
16	I/O	PD0	36	0	MRD	56	I/O	D6	76	0	MS01
17	I	IA12	37	0	MWR	57	I/O	D7	77	0	MS02
18	I	IA11	38	0	IORD	58	0	CDCS	78	0	MS03
19	I	IA10	39	0	IOWR	59	0	OA10	79	0	MS06
20	I	IA9	40	0	OA12	60	0	CDRD	80	0	MS07

μ PD70216L-10 (CPU) PIN ASSIGNMENT



μ PD70216 INTERNAL BLOCK DIAGRAM



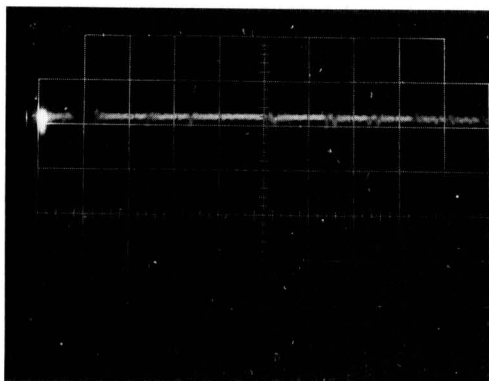
μ PD70216L-10 (CPU)

PIN FUNCTION

PIN NAME	I/O	FUNCTION
AD15-ADO	I/O	Address Bus/Data Bus
A19/PS3-A16/PS0	0	Address / Processor Status
REFRQ	0	Refresh Request
HLDRQ	I	Hold Request
HLDACK	I	Hold Acknowledge
RESET	I	Reset
RESOUT	0	Reset Output
READY	I	Ready
NMI	I	Non Maskable Interrupt
MRD	0	Memory Read Strobe
MWR	0	Memory Write Strobe
IORD	0	I/O Read Strobe
IOWR	0	I/O Write Strobe
ASTB	0	Address Strobe
UBE	0	Upper Byte Enable
BUSLOCK	0	Bus Lock
POLL	I	Poll
BUFR/W	0	Buffer Read/Write
BUFEN	0	Buffer Enable
X2-X1	I	Crystal IN
CLKOUT	0	Clock Output
BS2-BS0	0	Bus Status
QS1-QS0	0	Queue Status
TOUT2	0	Timer Output 2
TCTL2	I	Timer Control 2
TCLK	I	Timer Clock
INTP7-INTP1	I	Interrupt from Peripherals
INTACK	0	Interrupt Acknowledge
TxD	0	Transmit Data
RxD	I	Receive Data
DMAACK2-DMAACK0	0	DMA Acknowledge 2-0
DMARQ2-DMARQ0	I	DMA Request 2-0
END/TC	I/O	End/Terminal Count
VDD	-----	
GND	-----	
IC	-----	

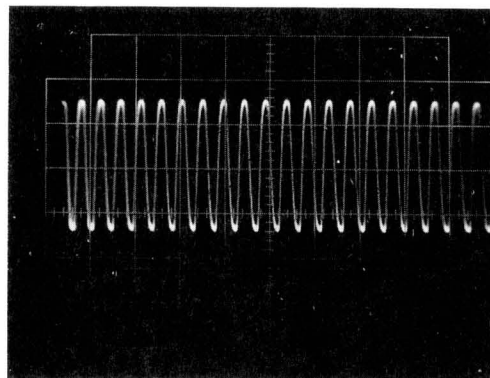
CHECK POINT FOR μ PD70216L-10

1. INTP3 (39pin)



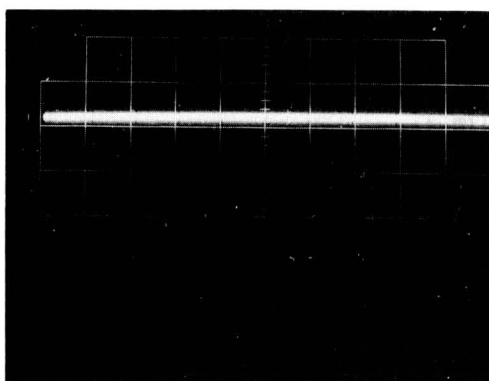
2V/20uS div

2. CLKOUT (55pin)



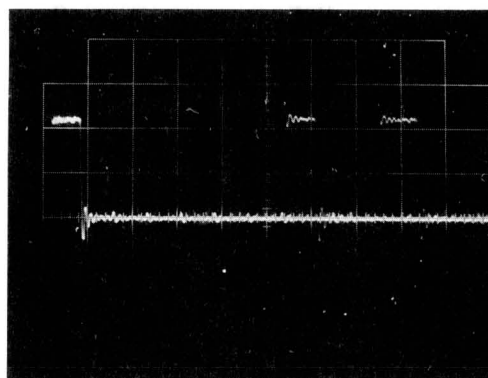
2V/0.2uS div

3. REFRQ (5pin)



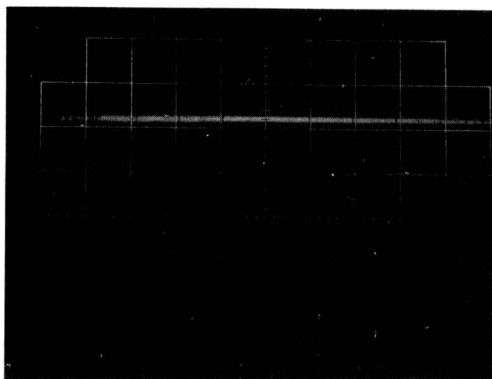
2V/20uS div

4. UBE (51pin)



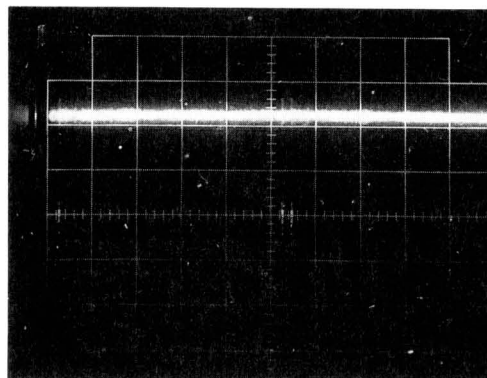
2V/0.5uS div

5. IOWR (59pin)



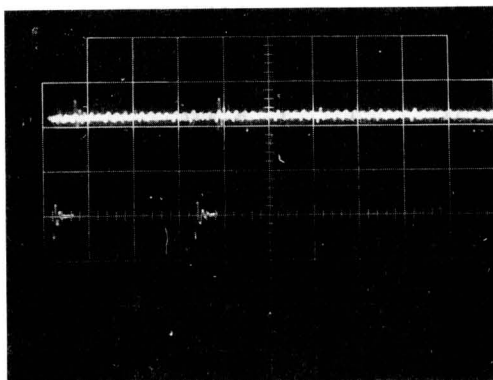
2V/0.5uS div

6. IORD (61pin)



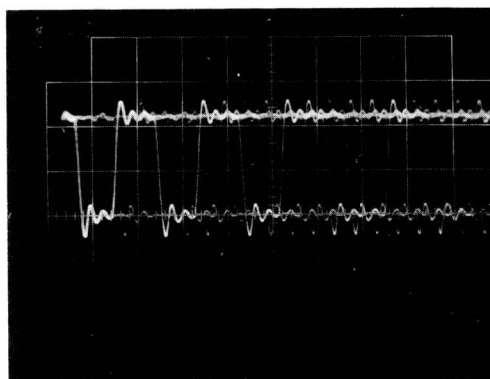
2V/20uS div

7.MWR (60pin)



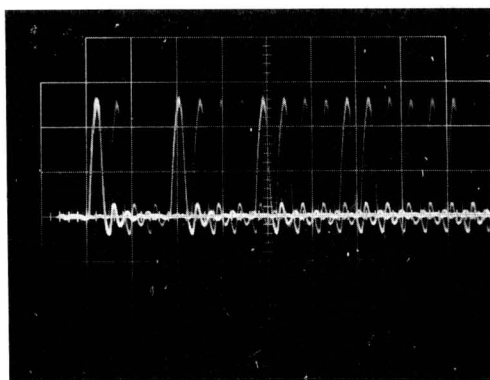
2V/2uS div

8.MRD (62pin)



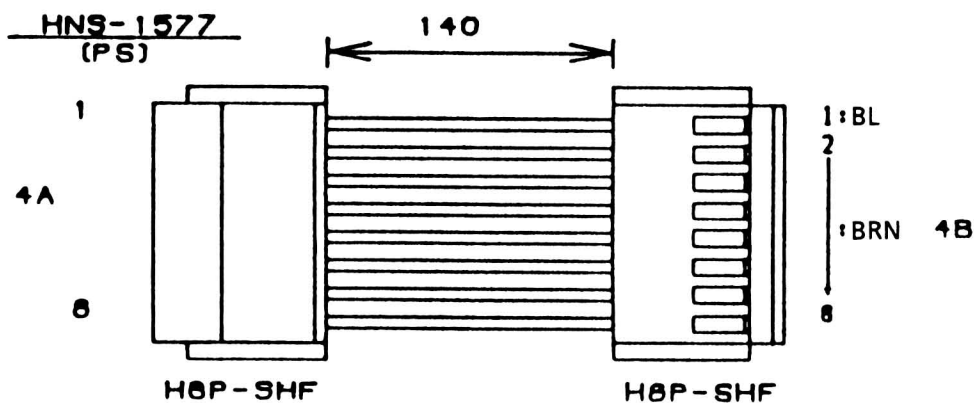
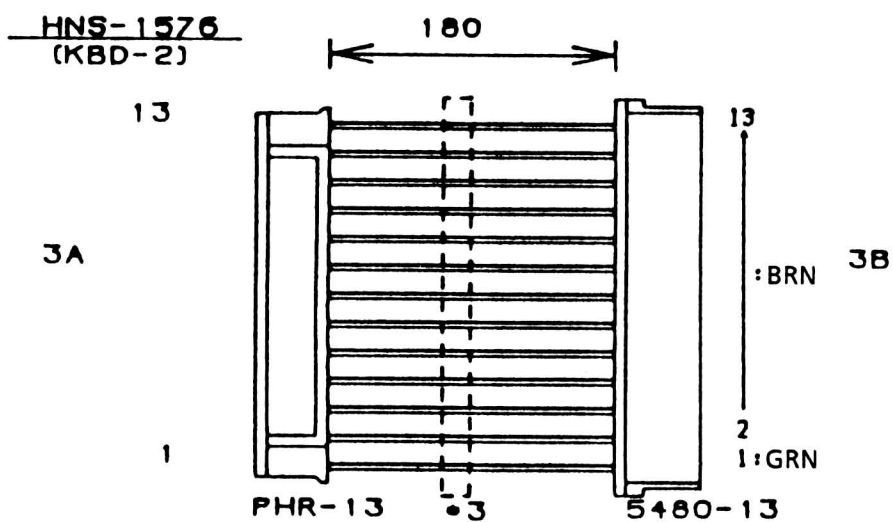
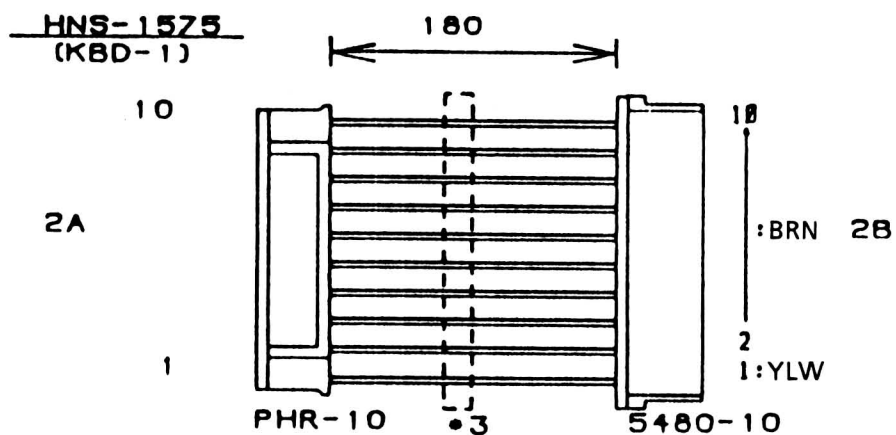
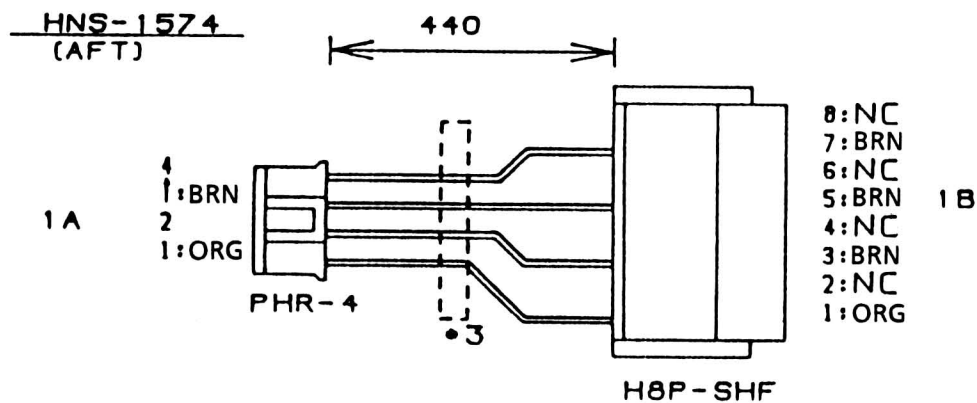
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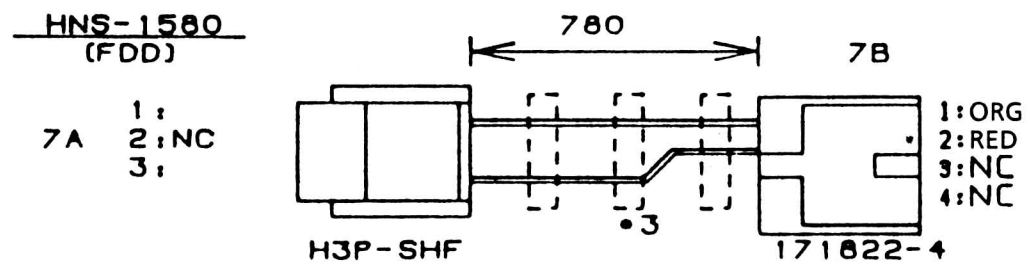
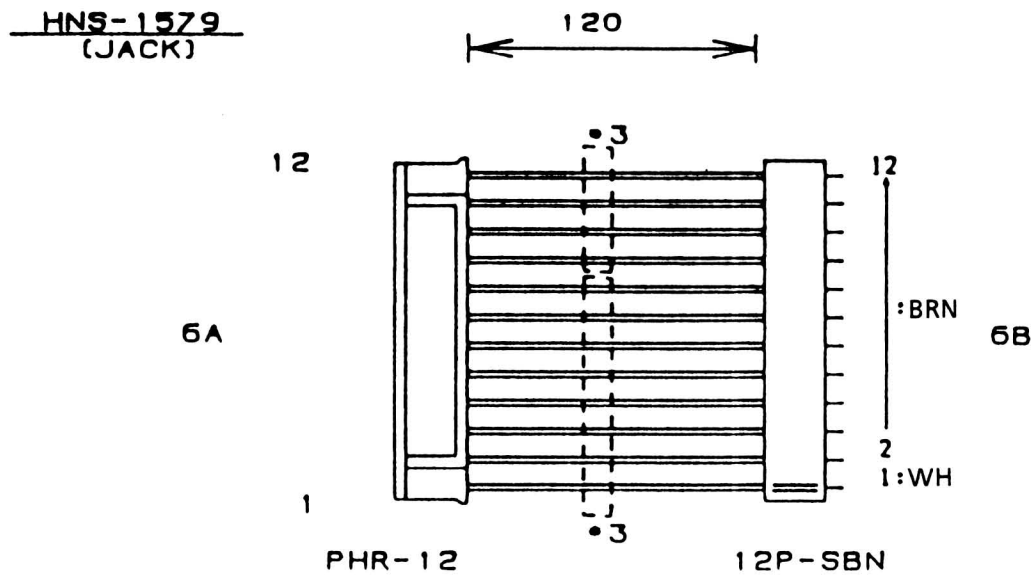
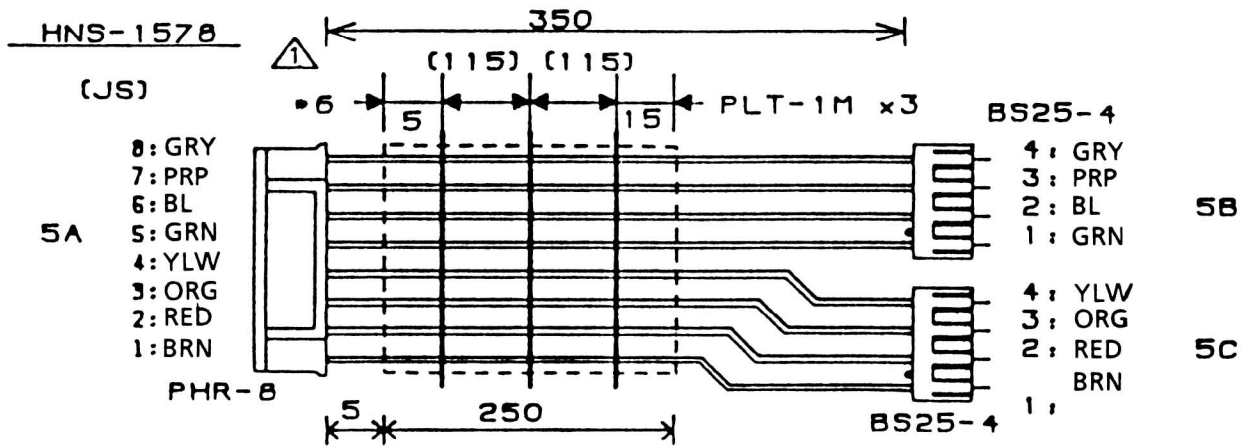
9.ASTB (50pin)



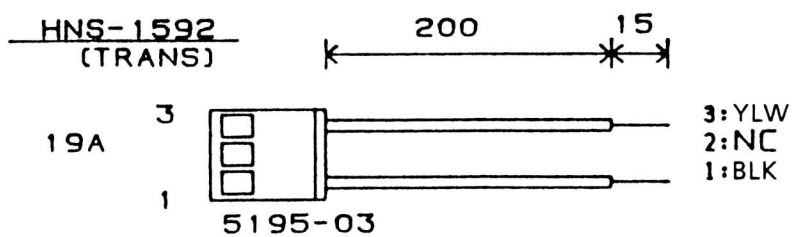
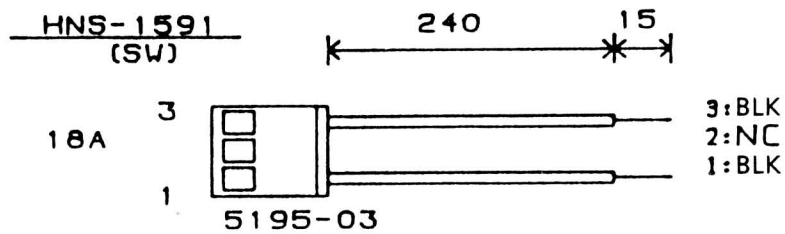
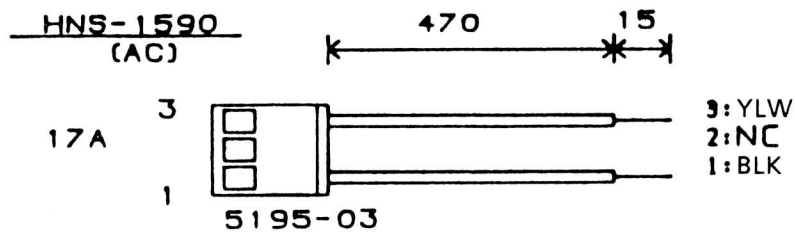
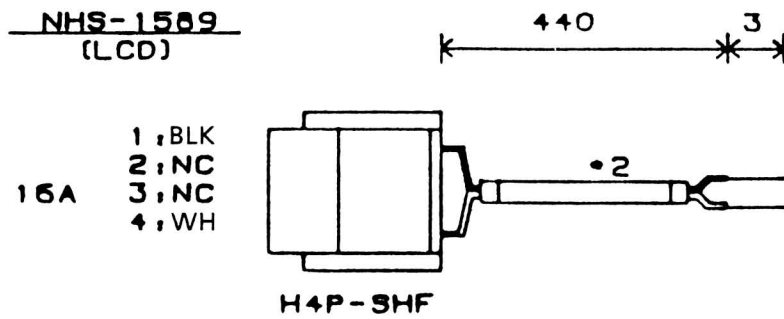
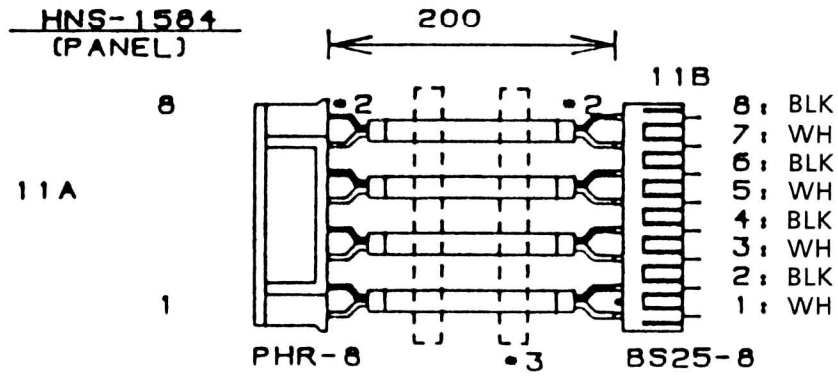
2V/0.2uS div

FOR HARNESSES

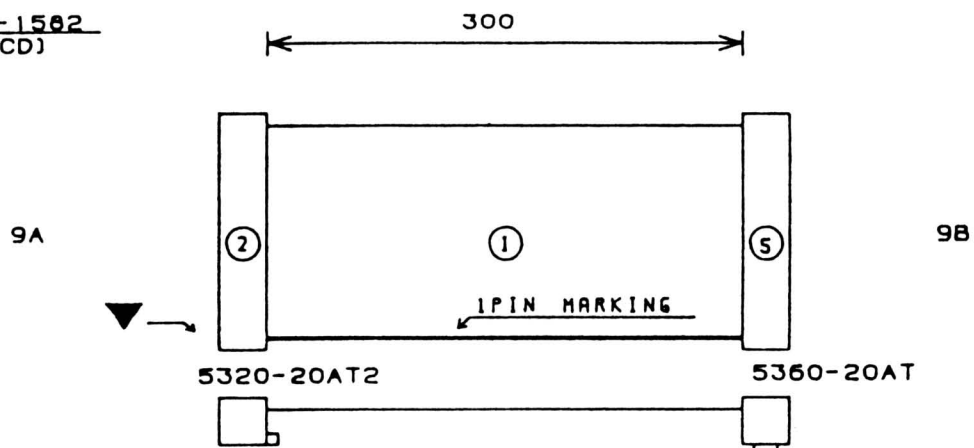




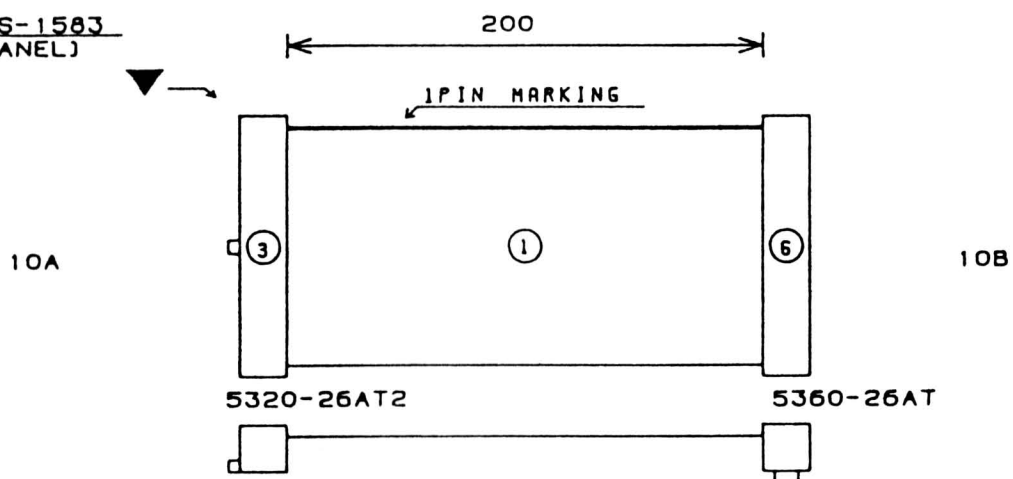
01/W FD ONLY



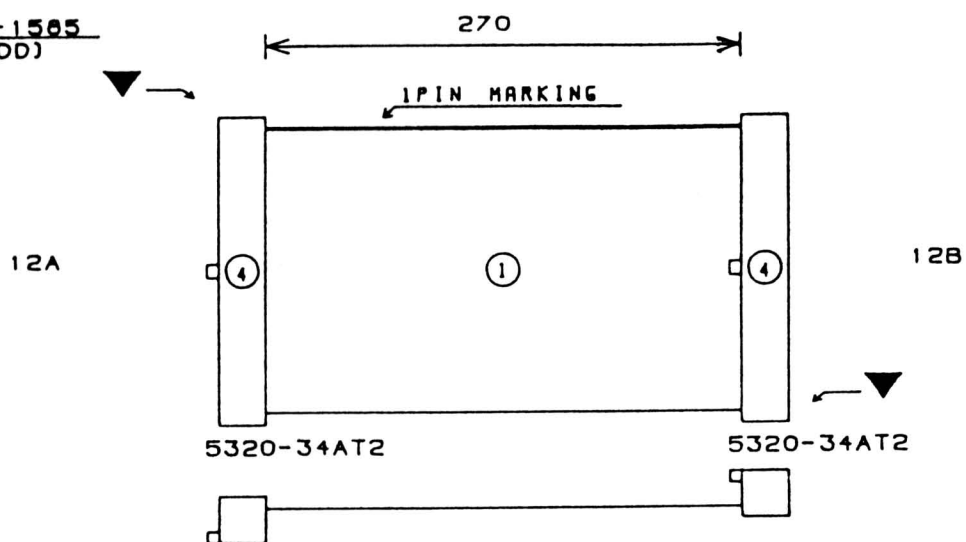
HNS-1502
(LCD)



HNS-1503
(PANEL)



HNS-1505
(FDD)



01/W FD ONLY

10. PARTS LIST

FOR 01/W FD

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
001151100	P.C.BOARD ASSEMBLY KLM-1511/12	1511/12	JOYSTICK PCB	1
001152800	P.C.BOARD ASSEMBLY KLM-1528	1528	MAIN PCB	1
001152900	P.C.BOARD ASSEMBLY KLM-1529	1529	JACK PCB	1
001153000	P.C.BOARD ASSEMBLY KLM-1530	1530	POWER SUPPLY	1
001153300	P.C.BOARD ASSEMBLY KLM-1533	1533	PANEL PCB	1
139010012	BLOCK R RGLD5X103J	1528		2
139010013	BLOCK R RGLD8X103J	1528		1
139010014	BLOCK R RGLD8X472J	1528		2
139010023	BLOCK R RGLD5X471J	1528		1
140010012	BLOCK CR CRD604	1528		4
184050220	FUSE R RF73B2ATD 20 OHM	1528		3
219401400	EMI FILTER DST310-92D223S50	1528		3
248015411	BLOCK C 50V 1000PFX8	1528		3
264003456	PPC 100V 5600PF J APSV	1528		4
304000070	TR 2SA812-T1 (M5-7)	1528		1
304020020	TR 2SC2785 T K	1530		1
304020230	TR 2SC3661-TA/TB(3K)	1528		4
304030130	TR FA1A4M-T1B	1528		7
304030140	TR FN1A4M-T1B	1528		5
304060070	FET 2SK433-T12-C	1528		4
310011300	BRIDGE DIODE DBF-20C	1530		1
310011400	BRIDGE DIODE DBF-40C	1530		1
312010700	LED GL3HD43	1533		11
312010900	LED GL3ED8	1533		1
313002500	LCD DMF5005NS-EW1	M.PART		1
314000300	DIODE 1S-2473 T-77	1533		37
314001400	DIODE RLS-73 TE-11	1528		8
314025700	DIODE SR1M-2 TP-B	1530		2
315000500	DOUBLE DIODE MC-2840-T12-1	1528		4
320001261	IC UPD71055GB-10-3B4	1528	PPI	1
320001272	IC UPD70216L-10	1528	CPU	1
320001283	IC UPD65016GF-058-3BA	1528	MAP260	1
320003202	IC TC511664Z-10	1528	DRAM	2
320004132	IC HD63265SFP (64P QFP)	1528	FD CONTROLLER	1
320009078	IC NJM78M12FA	1530	REGULATOR	1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
320009079	IC NJM79M12FA	1530	REGULATOR	1
320011026	IC M5216L	1528	OP AMP	1
320011100	IC M5M4464AL-12 (ZIP)	1528	DRAM	5
320011141	IC M5M27C2001K-15	1528	EP ROM (2M)	1
320011147	IC M37450M4-601FP (QFP)	1528	KSP	1
320012052	IC MB87405PF (QFP120)	1528	MDE	1
320012072	IC MB623147PF (QFP80)	1528	MAP25	1
320012084	IC MB87726PF (QFP160)	1528	TG88	1
320012085	IC MB87727PF (QFP120)	1528	DF88	1
320012092	IC MB635107PF-G-LBND	1528	WS89	1
320012120	IC MBM27C1001-15Z-G	1528	EP ROM (1M)	1
320013036	IC PQ05RF2	1530	REGULATOR	1
320036005	IC PCM55HP	1528	D/A CONVERTER	1
324001006	IC UPD74HCU04GS-E2 (SOP)	1528	HC MOS	1
324001034	IC UPD23C8001EGW-338-E2	1528	WAVE ROM	1
324001035	IC UPD23C8001EGW-339-E2	1528	WAVE ROM	1
324004004	IC HD74HC32FPER	1528	HC MOS	1
324004012	IC HD74HC08FPER	1528	HC MOS	1
324004016	IC HD74HC14FPER	1528	HC MOS	1
324004050	IC HD74HC138FPER	1528	HC MOS	1
324004092	IC HD74HC245FPER	1528	HC MOS	1
324004168	IC HD74HC4053FPER	1528	HC MOS	3
324009004	IC NJM78L05UA	1528	REGULATOR	1
324009005	IC NJM79L05UA	1528	REGULATOR	1
324009013	IC NJM2068MD-TE3	1528	OP AMP	8
324011002	IC M5223FP-73A (8P SOP)	1528	OP AMP	1
324011005	IC M5238FP-73A (8PSOP)	1528	OP AMP	3
324011006	IC M5218FP-73A (8PSOP)	1528	OP AMP	1
324011010	IC M751271FP (16P SOP)	1528	INVERTER	1
324011013	IC M62021FP-600C	1528	RESET	1
324011015	IC M74HC05FP-31B (SOP)	1528	HC MOS	1
324012002	IC MB838000-20PF-G-4A7-EF	1528	WAVE ROM	1
324012003	IC MB838000-20PF-G-4A8-EF	1528	WAVE ROM	1
324012004	IC MB838000-20PF-G-4A9-EF	1528	WAVE ROM	1
324012005	IC MB838000-20PF-G-5A0-EF	1528	WAVE ROM	1
324012006	IC MB84256A-10LPF-G-BND-EF	1528	SRAM	2
324013001	IC LH531AP6	1528	MASK ROM	1

334000500	SB COIL SBT-0260 TF	1528		6
		1529		9
334000600	PHOTO COUPLER PC-410K-TP	1528		1

335005500	CRYSTAL OSC. HC-49/U 32MHZ	1528		1
335006000	CRYSTAL OSC. AT-49 20.00MHZ	1528		1

350002347	SEMI FIXED VR RHO615C S4 47K	1528		1
360023600	VR RK11K1140(X-011/012) 10KB	1511/12		2
365007800	SLIDE VR RS30111AC00NB 10KB	1533		1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
365008000	SLIDE VR RS30112AC00JB 10KBX2	1533		1
375007800	POWER SW ESB-8213V	M. PART		1
375010500	CHIP SW EVQ-PAC09K-A	1533		37
400012500	INVERTER TRANSFORMER TA-042	1530		1
400012700	POWER TRANSFORMER TA-040	M. PART		1
420004000	KEYBOARD FS-61	M. PART		1
422006701	KEY TYPE C/F	M. PART		---
422006702	KEY TYPE D	M. PART		---
422006703	KEY TYPE B/E	M. PART		---
422006704	KEY TYPE G	M. PART		---
422006705	KEY TYPE A	M. PART		---
422006706	KEY TYPE HI-C	M. PART		---
422006707	KEY TYPE BLACK	M. PART		---
422006800	KEY SPRING AA05543	M. PART		---
422007200	KEY CONTACT NB10711 (FOR 13 POINTS)	M. PART		---
422007201	KEY CONTACT NB10712 (FOR 12 POINTS)	M. PART		---
422007800	KEY CONTACT ASSEMBLY NB11620	M. PART		---
435000700	FDD DFP423E (1MB)	M. PART		1
454004400	PHONE JACK YKB21-5010	1529		8
464002200	FUSE 125V 1.6A SB1.6	M. PART	117US	2
		M. PART	100JP	2
		M. PART	117EX	2
		M. PART	117CN	2
464002800	FUSE 125V 6.3A SB6.3	M. PART	117US	1
		M. PART	100JP	1
		M. PART	117EX	1
		M. PART	117CN	1
464021401	FUSE 250V 630MA SB630	M. PART	117US	1
		M. PART	100JP	1
		M. PART	117EX	1
		M. PART	117CN	1
464061401	FUSE 250V T250MA	M. PART	240GE	1
		M. PART	230GE	1
		M. PART	240AF	1
		M. PART	240AU	1
		M. PART	230WG	1
		M. PART	230SE	1
		M. PART	240UK	1
		M. PART	230SC	1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
464061401	FUSE 250V T250MA	M. PART	230FR	1
464061901	FUSE 250V T800MA	M. PART	240AU	2
		M. PART	240AF	2
		M. PART	230SE	2
		M. PART	240GE	2
		M. PART	230FR	2
		M. PART	230GE	2
		M. PART	230WG	2
		M. PART	240UK	2
		M. PART	230SC	2
464062501	FUSE 250V T3.15A	M. PART	240AU	1
		M. PART	240GE	1
		M. PART	230WG	1
		M. PART	240UK	1
		M. PART	230SC	1
		M. PART	230SE	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	240AF	1

471000301	CONNECTOR TOP B3P-SHF-1	1530		1
471000401	CONNECTOR TOP B4P-SHF-1	1530		1
471000801	CONNECTOR TOP B8P-SHF-1	1530		1
		1528		1
471050500	CONNECTOR TOP B5P-VH	1530		1
471070300	CONNECTOR TOP B3B-PH	1528		1
471070400	CONNECTOR TOP B4B-PH	1528		2
471070800	CONNECTOR TOP B8B-PH	1528		2
471071000	CONNECTOR TOP B10B-PH	1528		1
471071200	CONNECTOR TOP B12B-PH	1528		1
471071300	CONNECTOR TOP B13B-PH	1528		1
471090200	CONNECTOR TOP 5096-02C	1530		3
474011300	CARD CONNECTOR HGC0338-01-010	1528		1
474014400	HEADER 20P 5332-20T2	1528		1
474014600	HEADER 34P 5332-34T2	1528		1
474014701	HEADER 26P 5332-26T2	1528		1
474015400	CARD CONNECTOR FCN-565P068-G/C	1528		1

475001574	HARNESS HNS-1574	M. PART		1
475001575	HARNESS HNS-1575	M. PART		1
475001576	HARNESS HNS-1576	M. PART		1
475001577	HARNESS HNS-1577	M. PART		1
475001578	HARNESS HNS-1578 (BOARD IN)	1511/12		1
475001579	HARNESS HNS-1579 (BOARD IN)	1529		1
475001580	HARNESS HNS-1580	M. PART		1
475001582	HARNESS HNS-1582	M. PART		1
475001583	HARNESS HNS-1583 (BOARD IN)	1533		1
475001584	HARNESS HNS-1584 (BOARD IN)	1533		1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
475001585	HARNESS HNS-1585	M. PART		1
475001589	HARNESS HNS-1589	M. PART		1
475001590	HARNESS HNS-1590	M. PART		1
475001591	HARNESS HNS-1591	M. PART		1
475001592	HARNESS HNS-1592	M. PART		1
480001324	IC SOCKET 32P DICF-32CS-E	1528		2
480010200	3P DIN JACK SOCKET YKF51-5046	1528		1
480010340	IC SOCKET PLPS-N68B-T	1528		1
500018500	RUBBER FOOT FF-001	M. PART		4
515002300	FUSE HOLDER S-N5057 #01	1530		8
520001700	LITHIC BATTERY CR2032	1528		1
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
525000400	EMI FERRITE 2643-480102	1530		1
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		6
540008601	SPIRAL CLIP CS-6	M. PART		1
540012300	INLET SOCKET PA-125-BS	M. PART	240UK	1
540012400	INLET SOCKET PA-125-CU	M. PART	240GE	1
		M. PART	100JP	1
		M. PART	230SC	1
		M. PART	117EX	1
		M. PART	117CN	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	117US	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	240AU	1
540018900	SHIELD FORM 71TS5-3	M. PART		1
540019000	CLIP S-8	M. PART		1
575014600	LED SPACER LS-15-4 L=4mm	1533		11
575014700	LED SPACER LS-15-3 L=3mm	1533		1
580030400	X-011/012 SHIELD SHEET	M. PART		1
600003200	AC CORD UC-948-S01	M. PART	117EX	1
600003300	AC CORD UC-953-S01	M. PART	117CN	1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
600003300	AC CORD UC-953-S01	M. PART	117US	1
600003500	AC CORD SC-304-S01	M. PART	240AU	1
600003700	AC CORD BH-309-S01	M. PART	240UK	1
600003800	AC CORD DC-480-S01	M. PART	100JP	1
600004700	AC CORD EC-651-E05	M. PART	240GE	1
		M. PART	230GE	1
		M. PART	240AF	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	230FR	1
600004800	AC CORD EC-472-S01	M. PART	230SE	1
620019700	X-631 SLIDE VR KNOB	M. PART		2
620023400	X-011/012 8KEY KNOB	M. PART		1
620023500	X-011/012 15KEY KNOB	M. PART		1
620024600	X-952 POWER SW KNOB	M. PART		1
630015600	X-011/012 LCD WINDOW	M. PART		1
640084600	GROUNDING CONTACT	1530		3
641007800	X-813A JACK PLATE	M. PART		1
641019800	X-952 L TYPE ANGLE	M. PART		4
641020200	X-011/012 LOWER CASE	M. PART		1
641020300	X-011/012 KEYBOARD FRONT ANGLE	M. PART		1
641020400	X-011/012 POWER UNIT CHASSIS	M. PART		1
641020500	X-011 FDD ANGLE	M. PART		1
641020600	METAL FITTING OF REGULATOR	M. PART		1
641020800	X-011/012 SUPPORT PLATE A	M. PART		2
641020900	X-011/012 SUPPORT PLATE B	M. PART		1
641021000	X-011/012 SUPPORT PLATE C	M. PART		1
641021100	X-011/012 SIDE CHASSIS L	M. PART		1
641021200	X-011/012 SIDE CHASSIS R	M. PART		1
641021300	X-011/012 JOYSTICK PANEL SUPPORT	M. PART		1
641021400	METAL FITTING OF POWER SW	M. PART		1
641021500	X-011/012 SUPPORT RAIL	M. PART		1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
641022100	X-011 PANEL	M. PART		1
641022900	X-011/012 WASHER FOR P.TRNSFORMER	M. PART		2
644006200	X-011/012 WHEEL SPRING	M. PART		2
646028200	SLIDE VR FRAME 1	M. PART		1
646038400	X-011/012 SIDE PLATE L	M. PART		1
646038401	X-011/012 SIDE PLATE R	M. PART		1
646038500	X-011/012 LCD HOOD	M. PART		1
646038600	X-011 FDD COVER	M. PART		1
646038900	X-011/012 JOYSTICK FRAME	M. PART		1
646039000	X-011/012 VR PLATE	M. PART		1
646039100	X-011/012 WHEEL SUPPORT	M. PART		1
646039200	X-011/012 JOYSTICK LEVER	M. PART		1
646039300	X-011/012 JOYSTICK WHEEL	M. PART		1
646039400	X-011/012 CARD GUIDE	M. PART		1
646039500	X-011/012 CARD SLOT	M. PART		1
646039600	X-011/012 JOYSTICK PANEL	M. PART		1
646040000	X-011/012 JOYSTICK COVER	M. PART		1
649007400	BATTERY HOLDER	1528		1

FOR 01/W

PART CODE	PART NAME / SPECIFICATION	P.C. BOARD	NOTE	Q'TY
001151100	P.C. BOARD ASSEMBLY KLM-1511/12	1511/12	JOYSTICK PCB	1
001152900	P.C. BOARD ASSEMBLY KLM-1529	1529	JACK PCB	1
001153000	P.C. BOARD ASSEMBLY KLM-1530	1530	POWER SUPPLY	1
001153300	P.C. BOARD ASSEMBLY KLM-1533	1533	PANEL PCB	1
001153700	P.C. BOARD ASSEMBLY KLM-1537	1537	MAIN PCB	1
139010012	BLOCK R RGLD5X103J	1537		2
139010013	BLOCK R RGLD8X103J	1537		1
139010014	BLOCK R RGLD8X472J	1537		2
140010012	BLOCK CR CRD604	1537		4
184050220	FUSE R RF73B2ATD 20 OHM	1537		3
219401400	EMI FILTER DST310-92D223S50	1537		3
248015411	BLOCK C 50V 1000PF x 8	1537		3
264003456	PPC 100V 5600PF J APSV	1537		4
304000070	TR 2SA812-T1 (M5-7)	1537		1
304020020	TR 2SC2785 T K	1530		1
304020230	TR 2SC3661-TA/TB(3K)	1537		4
304030130	TR FA1A4M-T1B	1537		8
304030140	TR FN1A4M-T1B	1537		5
304060070	FET 2SK433-T12-C	1537		4
310011300	BRIDGE DIODE DBF-20C	1530		1
310011400	BRIDGE DIODE DBF-40C	1530		1
312010700	LED GL3HD43	1533		11
312010900	LED GL3ED8	1533		1
313002500	LCD DMF5005NS-EW1	M. PART		1
314000300	DIODE 1S-2473 T-77	1533		37
314001400	DIODE RLS-73 TE-11	1537		8
314025700	DIODE SR1M-2 TP-B	1530		2
315000500	DOUBLE DIODE MC-2840-T12-1	1537		4
320001261	IC UPD71055GB-10-3B4	1537	PPI	1
320001272	IC UPD70216L-10	1537	CPU	1
320001283	IC UPD65016GF-058-3BA	1537	MAP260	1
320003202	IC TC511664Z-10	1537	DRAM	1
320009078	IC NJM78M12FA	1530	REGULATOR	1
320009079	IC NJM79M12FA	1530	REGULATOR	1
320011026	IC M5216L	1537	OP AMP	1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
320011100	IC M5M4464AL-12 (ZIP)	1537	DRAM	5
320011141	IC M5M27C2001K-15	1537	EP ROM (2M)	1
320011147	IC M37450M4-601FP (QFP)	1537	KSP	1
320012052	IC MB87405PF (QFP120)	1537	MDE	1
320012072	IC MB623147PF (QFP80)	1537	MAP25	1
320012084	IC MB87726PF (QFP160)	1537	TG88	1
320012085	IC MB87727PF (QFP120)	1537	DF88	1
320012092	IC MB635107PF-G-LBND	1537	WS89	1
320012120	IC MBM27C1001-15Z-G	1537	EP ROM	1
320013036	IC PQ05RF2	1530	REGULATOR	1
320036005	IC PCM55HP	1537	D/A CONVERTER	1
324001006	IC UPD74HCU04GS-E2 (SOP)	1537	HC MOS	1
324001034	IC UPD23C8001EGW-338-E2	1537	WAVE ROM	1
324001035	IC UPD23C8001EGW-339-E2	1537	WAVE RM	1
324004004	IC HD74HC32FPER	1537	HC MOS	1
324004012	IC HD74HC08FPER	1537	HC MOS	1
324004050	IC HD74HC138FPER	1537	HC MOS	1
324004092	IC HD74HC245FPER	1537	HC MOS	1
324004168	IC HD74HC4053FPER	1537	HC MOS	3
324009004	IC NJM78L05UA	1537	REGULATOR	1
324009005	IC NJM79L05UA	1537	REGULATOR	1
324009013	IC NJM2068MD-TE3	1537	OP AMP	8
324011002	IC M5223FP-73A (8P SOP)	1537	OP AMP	1
324011005	IC M5238FP-73A (8PSOP)	1537	OP AMP	3
324011006	IC M5218FP-73A (8PSOP)	1537	OP AMP	1
324011013	IC M62021FP-600C	1537	RESET	1
324011015	IC M74HC05FP-31B (SOP)	1537	HC MOS	1
324012002	IC MB838000-20PF-G-4A7-EF	1537	WAVE ROM	1
324012003	IC MB838000-20PF-G-4A8-EF	1537	WAVE ROM	1
324012004	IC MB838000-20PF-G-4A9-EF	1537	WAVE ROM	1
324012005	IC MB838000-20PF-G-5A0-EF	1537	WAVE ROM	1
324012006	IC MB84256A-10LPF-G-BND-EF	1537	SRAM	3
324013001	IC LH531AP6	1537	MASK ROM	1

334000500	SB COIL SBT-0260 TF	1529		9
		1537		6
334000600	PHOTO COUPLER PC-410K-TP	1537		1

335005500	CRYSTAL OSC. HC-49/U 32MHZ	1537		1
335006000	CRYSTAL OSC. AT-49 20.00MHZ	1537		1

350002347	SEMI FIXED VR RH0615C S4 47K	1537		1
360023600	VR RK11K1140(X-011/012) 10KB	1511/12		2
365007800	SLIDE VR RS30111AC00NB 10KB	1533		1
365008000	SLIDE VR RS30112AC00JB 10KBX2	1533		1

375007800	POWER SW ESB-8213V	M.PART		1
375010500	CHIP SW EVQ-PAC09K-A	1533		37

PART CODE	PART NAME / SPECIFICATION	P.C. BOARD	NOTE	Q'TY
400012500	INVERTER TRANSFORMER TA-042	1530		1
400012700	POWER TRANSFORMER TA-040	M.PART		1
420004000	KEYBOARD FS-61	M.PART		1
422006701	KEY TYPE C/F	M.PART		---
422006702	KEY TYPE D	M.PART		---
422006703	KEY TYPE B/E	M.PART		---
422006704	KEY TYPE G	M.PART		---
422006705	KEY TYPE A	M.PART		---
422006706	KEY TYPE HI-C	M.PART		---
422006707	KEY TYPE BLACK	M.PART		---
422006800	KEY SPRING AA05543	M.PART		---
422007200	KEY CONTACT NB10711 (FOR 13 POINTS)	M.PART		---
422007201	KEY CONTACT NB10712 (FOR 12 POINTS)	M.PART		---
422007800	KEY CONTACT ASSEMBLY NB11620	M.PART		---
454004400	PHONE JACK YKB21-5010	1529		8
464002200	FUSE 125V 1.6A SB1.6	M.PART	117US	2
		M.PART	100JP	2
		M.PART	117EX	2
		M.PART	117CN	2
464002800	FUSE 125V 6.3A SB6.3	M.PART	117US	1
		M.PART	100JP	1
		M.PART	117EX	1
		M.PART	117CN	1
464021401	FUSE 250V 630MA SB630	M.PART	117US	1
		M.PART	100JP	1
		M.PART	117EX	1
		M.PART	117CN	1
464061401	FUSE 250V T250MA	M.PART	240GE	1
		M.PART	230GE	1
		M.PART	240AF	1
		M.PART	240AU	1
		M.PART	230SE	1
		M.PART	230SC	1
		M.PART	230FR	1
		M.PART	230WG	1
		M.PART	240UK	1
464061901	FUSE 250V T800MA	M.PART	240GE	2
		M.PART	240GE	2
		M.PART	240AF	2
		M.PART	240AU	2
		M.PART	230GE	2

PART CODE	PART NAME / SPECIFICATION	P.C. BOARD	NOTE	Q'TY
464061901	FUSE 250V T800MA	M. PART	230GE	2
		M. PART	230SE	2
464061901	FUSE 250V T800MA	M. PART	230FR	2
		M. PART	230WG	2
		M. PART	240UK	2
		M. PART	230SC	2
464062501	FUSE 250V T3.15A	M. PART	240AU	1
		M. PART	240GE	1
		M. PART	240UK	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	240AF	1
		M. PART	230SC	1
		M. PART	230WG	1
		M. PART	230SE	1

471000301	CONNECTOR TOP B3P-SHF-1	1530		1
471000401	CONNECTOR TOP B4P-SHF-1	1530		1
471000801	CONNECTOR TOP B8P-SHF-1	1530		1
		1537		1
471050500	CONNECTOR TOP B5P-VH	1530		1
471070300	CONNECTOR TOP B3B-PH	1537		1
471070400	CONNECTOR TOP B4B-PH	1537		2
471070800	CONNECTOR TOP B8B-PH	1537		2
471071000	CONNECTOR TOP B10B-PH	1537		1
471071200	CONNECTOR TOP B12B-PH	1537		1
471071300	CONNECTOR TOP B13B-PH	1537		1
471090200	CONNECTOR TOP 5096-02C	1530		3
474011300	CARD CONNECTOR HGC0338-01-010	1537		1
474014400	HEADER 20P 5332-20T2	1537		1
474014701	HEADER 26P 5332-26T2	1537		1
474015400	CARD CONNECTOR FCN-565P068-G/C	1537		1

475001574	HARNESS HNS-1574	M. PART		1
475001575	HARNESS HNS-1575	M. PART		1
475001576	HARNESS HNS-1576	M. PART		1
475001577	HARNESS HNS-1577	M. PART		1
475001578	HARNESS HNS-1578 (BOARD IN)	1511/12		1
475001579	HARNESS HNS-1579 (BOARD IN)	1529		1
475001582	HARNESS HNS-1582	M. PART		1
475001583	HARNESS HNS-1583 (BOARD IN)	1533		1
475001584	HARNESS HNS-1584 (BOARD IN)	1533		1
475001589	HARNESS HNS-1589	M. PART		1
475001590	HARNESS HNS-1590	M. PART		1
475001591	HARNESS HNS-1591	M. PART		1
475001592	HARNESS HNS-1592	M. PART		1

480001324	IC SOCKET 32P DICF-32CS-E	1537		2

PART CODE	PART NAME / SPECIFICATION	P.C. BOARD	NOTE	Q'TY
480010200	3P DIN JACK SOCKET YKF51-5046	1537		1
480010340	IC SOCKET PLPS-N68B-T	1537		1
500018500	RUBBER FOOT FF-001	M. PART		4
515002300	FUSE HOLDER S-N5057 #01	1530		8
520001700	LITHIC BATTERY CR2032	1537		1
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
525000400	EMI FERRITE 2643-480102	1530		1
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		6
540008601	SPIRAL CLIP CS-6	M. PART		1
540012300	INLET SOCKET PA-125-BS	M. PART	240UK	1
540012400	INLET SOCKET PA-125-CU	M. PART	117US	1
		M. PART	230SC	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230FR	1
		M. PART	230GE	1
		M. PART	240AF	1
		M. PART	240AU	1
		M. PART	240GE	1
		M. PART	117CN	1
		M. PART	117EX	1
		M. PART	100JP	1
575014600	LED SPACER LS-15-4 L=4mm	1533		11
575014700	LED SPACER LS-15-3 L=3mm	1533		1
580030400	X-011/012 SHIELD SHEET	M. PART		1
580030500	X-012 JOYSTICK SHIELD SHEET	M. PART		1
600003200	AC CORD UC-948-S01	M. PART	117EX	1
600003300	AC CORD UC-953-S01	M. PART	117CN	1
		M. PART	117US	1
600003500	AC CORD SC-304-S01	M. PART	240AU	1
600003700	AC CORD BH-309-S01	M. PART	240UK	1
600003800	AC CORD DC-480-S01	M. PART	100JP	1
600004700	AC CORD EC-651-E05	M. PART	230WG	1
		M. PART	230GE	1
		M. PART	230SC	1
		M. PART	240GE	1
		M. PART	230FR	1
		M. PART	240AF	1

PART CODE	PART NAME / SPECIFICATION	P.C.BOARD	NOTE	Q'TY
600004800	AC CORD EC-472-S01	M.PART	230SE	1
620019700	X-631 SLIDE VR KNOB	M.PART		2
620023400	X-011/012 8KEY KNOB	M.PART		1
620023500	X-011/012 15KEY KNOB	M.PART		1
620024600	X-952 POWER SW KNOB	M.PART		1
630015600	X-011/012 LCD WINDOW	M.PART		1
640084600	GROUNDING CONTACT	1530		3
641007800	X-813A JACK PLATE	M.PART		1
641019800	X-952 L TYPE ANGLE	M.PART		4
641020200	X-011/012 LOWER CASE	M.PART		1
641020300	X-011/012 KEYBOARD FRONT ANGLE	M.PART		1
641020400	X-011/012 POWER UNIT CHASSIS	M.PART		1
641020600	METAL FITTING OF REGULATOR	M.PART		1
641020700	X-012 METAL FITTING OF JOYSTICK	M.PART		1
641020800	X-011/012 SUPPORT PLATE A	M.PART		2
641020900	X-011/012 SUPPORT PLATE B	M.PART		1
641021000	X-011/012 SUPPORT PLATE C	M.PART		1
641021100	X-011/012 SIDE CHASSIS L	M.PART		1
641021200	X-011/012 SIDE CHASSIS R	M.PART		1
641021300	X-011/012 JOYSTICK PANEL SUPPORT	M.PART		1
641021400	METAL FITTING OF POWER SW	M.PART		1
641021500	X-011/012 SUPPORT RAIL	M.PART		1
641022900	X-011/012 WASHER FOR P.TRANSFORMER	M.PART		2
641025800	X-012 PANEL	M.PART		1
644006200	X-011/012 WHEEL SPRING	M.PART		2
646028200	SLIDE VR FRAME 1	M.PART		1
646038400	X-011/012 SIDE PLATE L	M.PART		1

PART CODE	PART NAME / SPECIFICATION	P.C. BOARD	NOTE	Q'TY
646038401	X-011/012 SIDE PLATE R	M. PART		1
646038500	X-011/012 LCD HOOD	M. PART		1
646038900	X-011/012 JOYSTICK FRAME	M. PART		1
646039000	X-011/012 VR PLATE	M. PART		1
646039100	X-011/012 WHEEL SUPPORT	M. PART		1
646039200	X-011/012 JOYSTICK LEVER	M. PART		1
646039300	X-011/012 JOYSTICK WHEEL	M. PART		1
646039400	X-011/012 CARD GUIDE	M. PART		1
646039500	X-011/012 CARD SLOT	M. PART		1
646039600	X-011/012 JOYSTICK PANEL	M. PART		1
646039700	X-012 JOYSTICK UNDER COVER	M. PART		1
646040000	X-011/012 JOYSTICK COVER	M. PART		1
649007400	BATTERY HOLDER	1537		1

MEMO

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 handtering.
Udskiftning må kun ske med batteri af samme
fabrikat og type.
Levér det brugte batteri tilbage til leverand ø ren.

ADVERSEL

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

VARNING

Explosionsfara vid felaktigt 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

KORG INC. 15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo 168
