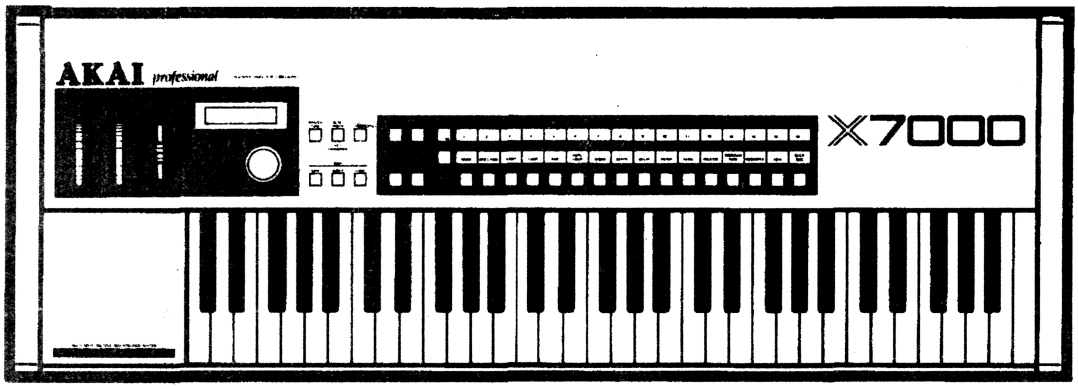
AKAI SERVICE MANUAL



SAMPLING KEYBOARD

MODEL X7000

D RAM

MODEL ASK70

SPECIFICATIONS

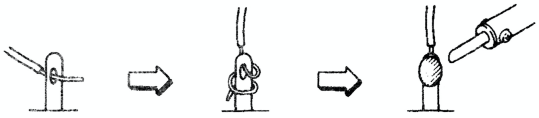
Key	61 key 5 octave c-c scale/velocity sensitive.	
Voice	6 voice	
Split	6 split areas (16 split areas with ASK70 memory expansion board)	
System	12 bit sampling	
	Sampling frequency	: 4 kHz – 40 kHz
	Sampling time	: 8 sec – 0.8 sec
	Frequency response	: 25 Hz – 16 kHz
	Voice	: 6 voice
	Range	: 6 octave
Data storage	Built-in 2.8 inch disk drive	
	Memory capacity	: 128k byte (total of side A & B)
	Number of tracks	: 1 track (spiral)
	Memory medium	: 2.8 inch disk
	Longevity (medium)	: 2000 passes
	Internal memory	: 6 sampled sounds (16 sampled with ASK70 memory expansion board)
Functions	Recording level	: min – max
	Monitor level	: min – max
	Output level	: min – max
	Recording mode	: new, over dub
	Edit section	: scan (start, end, loop)
		: scan mode (one shot, loop, alternating, drum trigger, auto loop, reverse, forward)
	LFO: (speed, depth, delay)	
	Output: (release, level, filter, velocity)	
	Tune: (master tune ± 100 cent, program tune ± 100 cent)	
	Transpose: (± 5 oct, constant pitch on/off)	
	Key range: (MIDI note 0 – 99)	
	Audio trigger: (on/off, MIDI note number)	
	Play key	
	Sample: (1, 2, 3, 4, 5, 6)	
	(16 with expansion memory card)	
MIDI	MIDI CH (1 – 16)	
	OMNI ON (special mono, mono, poly)	
	OMNI OFF (special mono, mono, poly)	
	MULTI MODE (special mono, mono, poly)	
Data	save, verify, load	
Display	LC display	
External jack	MIDI (in, out, thru)	
	Mic input jack	
	Line input jack	
	Line output jack	
Dimensions	1,039 (W) × 110 (H) × 346 (D) mm	
Weight	14 kg	
Optional accessory	ASK70 (memory expansion board/16 sampled sounds memories)	

* For improvement purposes, specifications and design are subject to change without notice.

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specifted replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locatoins.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms. but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be headphone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

★INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

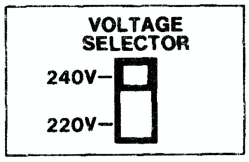
Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

VOLTAGE CONVERSION

([E, V, B, S] model only)

Before connecting the power cord, set the VOLTAGE SELECTOR located on the bottom plate with a screwdriver so that the correct voltage is indicated.



I. DISASSEMBLY

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photograph. Reassemble in reverse order.

1-1. HOW TO OPEN THE FRONT PANEL. (Refer to Fig. 1-1 and 1-3.)

1) Remove 8 screws as in Fig. 1-1, and open the front panel as shown Fig. 1-3.

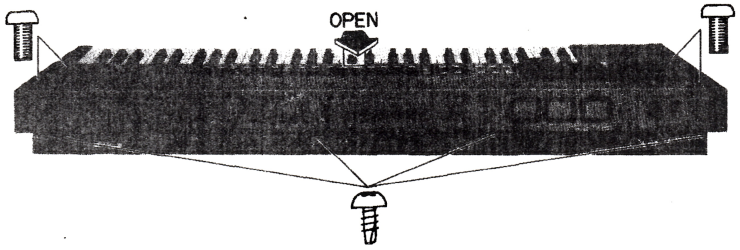


Fig. 1-1

1-2. HOW TO DISMANTLE THE KEYBOARD BLOCK. (Refer to Fig. 1-2 and 1-3.)

2) Remove 6 screws on the bottom plate, and disconnect the connectors J006 and J007.

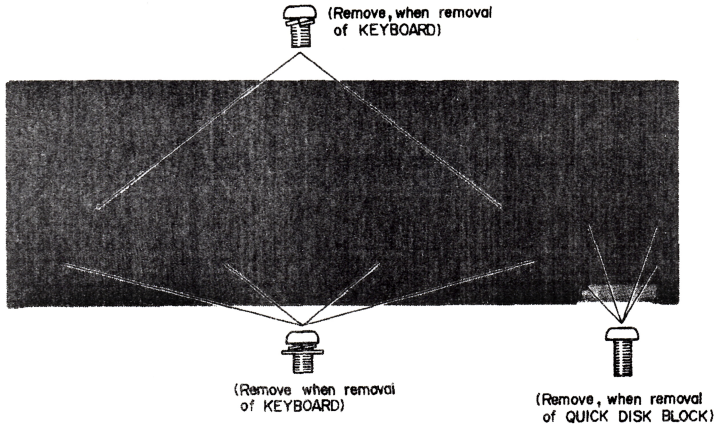


Fig. 1-2

1-3. HOW TO DISMANTLE THE QUICK DISK DRIVE BLOCK. (Refer to Fig. 1-2 and 1-3.)

1) Remove 2 screws as in the Fig. 1-3, then remove the DISK DRIVE COVER.
2) Disconnect the connector J009 on the QUICK DISK DRIVE BLOCK.
3) Remove 4 screws from Bottom side.

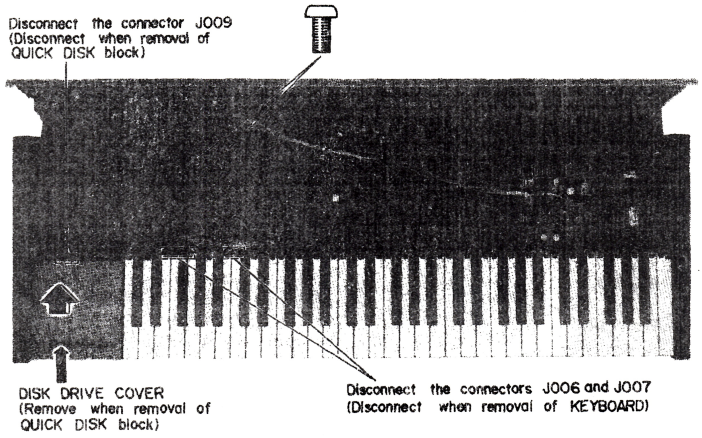
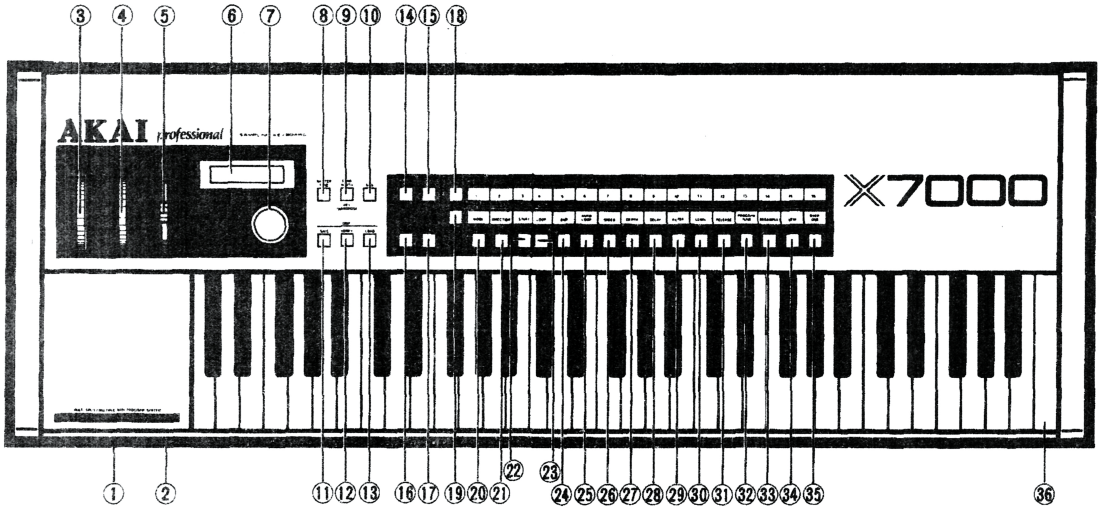


Fig. 1-3

II. CONTROLS

2-1. TOP PANEL



① **Disk Drive**
This disk drive is exclusively for use with 2.8-inch sampler disks.
NOTE: Insert the sampler disk straight into the drive, pushing gently until it stops. Inserting at a slant or handling roughly will reduce the life of the disk.

② **Disk Eject Button**
Press this button to eject the sampler disk.
NOTE: When the disk appears, pull it straight out gently.

③ **Pitch Bend Wheel**

④ **Modulation Wheel**
Use this wheel to vary the vibrato produced by the LFO.

⑤ **Volume Control**
Use this slide control to adjust the output level. The volume of the headphones is also adjusted with this control.

⑥ **Liquid Crystal Display (LCD)**
This is a 16-character LCD which displays various the messages and parameters. It is equipped with a back light, so the display is visible even on dark stages.

⑦ **Control Knob**
Use this knob to increase or decrease the parameter values and to switch the modes on and off. Use it in conjunction with the various mode buttons.

⑧ **Master Tune Button**
Press this button to tune the pitch of the X7000 with other instruments. Tuning by ±100 cents is possible using the control knob.

⑨ **Bend Width/Key Transpose Button**
Press this button to set the variable range for the pitch bend wheel. Setting of a maximum of ±1 octave is possible using the control knob. This mode switch can also be used for the key transpose setting. Use this when you wish to transpose the key for the entire keyboard.

⑩ **MIDI Button**
Press this button to set the MIDI channel or switch the MIDI mode.

⑪ **Save Button**
Press this button to save the X7000 sampled sound data (including edited data and program data) onto the 2.8-inch sampler disk.

⑫ **Verify Button**
Press this button to verify whether the sound data has been properly saved on the sampler disk.

⑬ **Load Button**
Press this button to load sound data from the sampler disk into the X7000.

⑭ **Transpose Button**
Press this button to transpose the pitch of the sampled sound.

⑮ **Constant Pitch Button**
Press this button to fix the pitch of the sampled sound. This function is useful to keep the pitch from changing due to percussion sound, effected sound, etc.

⑯ **Audio Trigger Button**
Use this button to set the pitch and indicate that you wish to playback the sampled sound by triggering it with external audio signals, for example from a mike or line. This function can also be used for triggered playback using a foot switch.

⑰ **Key Range Button**
Use this button to set the key range for the sampled sound. With the X7000, a maximum of 6 sounds can be assigned to 6 different key ranges. Also, if the ASK70 expansion memory board is used, it is possible to assign up to 16 sounds to 16 key ranges.

⑱ **Program Button**
Press this button to store combinations of key range assignments, to switch the program data mode upon loading, and to set or recall program numbers.

⑲ **Sample Number Button**
Press this button to set and recall the sampled sound numbers.

⑳ **Scanning/Mode Button**
The sampled sound can be played back with one of four types of scanning: one shot, looping, alternating, or drum trigger. Select the type of scanning by pressing this button then using the control knob.

㉑ **Scanning/Direction Button**
Sampled sound is usually played back in the forward direction, but of this button is pressed and the control knob is rotated, it can also be played back in the reverse direction.

㉒ **Splice/Start Point Button**
Press this button to set the start point for playback of the sampled sound.

㉓ **Splice/Looping Point Button**
The function in which the sampled sound is played back repeatedly is called "looping". Press this button to set the looping point of the sampled sound.

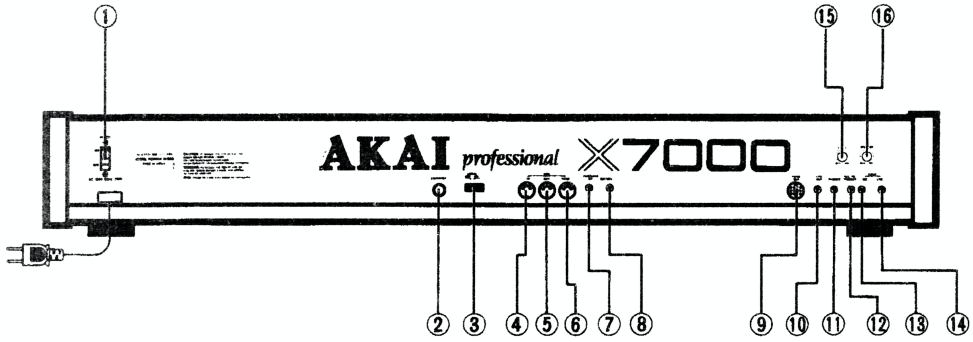
㉔ **Splice/End Point Button**
Press this button to set the end point for playback of the sampled sound.

㉕ **Splice/Auto Loop Button**
In a looping function, the Automatic splicing system is automatically called out and the optimum splicing point is found by equipped computer.

㉖ **LFO/Speed Button**
Vibrato can be applied to the sampled sound using an LFO (low-frequency oscillator). Press this button to set the LFO speed.

㉗ **LFO/Depth Button**
Press this button to set the depth of the vibrato effect.
㉘ **LFO/Delay Button**
Press this button to adjust the timing at which the vibrato effect starts.
㉙ **OUT/Filter Button**
Press this button to adjust the filter when you wish to make the sampled sound milder or change the tone depending on the key velocity.
㉚ **OUT/Level Button**
Press this button to set the sampled sound level or the amount of change in the dynamics depending on the key velocity.
㉛ **OUT/Release Button**
Press this button to adjust release time.
㉜ **Program Tune Button**
Press this button to adjust the pitch of the sampled sound. Tuning is possible by ±100 cents (in halfnote steps) using the rotary knob.
㉝ **Resample Button**
Press this button to compress the sampled sound data by 1/2. (see Page 26)
㉞ **NEW Button**
Press this button to perform a new sampling. When this button is pressed and sampling is performed, the previously sampled sound is erased.
㉟ **Over Dubbing Button**
Press this button to over dub sampled sounds and create sound data which is the combination of various sounds.
㊱ **Keyboard**
This is a 61 key, 5 octave, C scale, key velocity compatible keyboard. It can be split in up to 6 split areas (or 16 split areas when using the ASK70 expansion memory) by setting the key ranges for the sampled sounds.

2-2. REAR PANEL



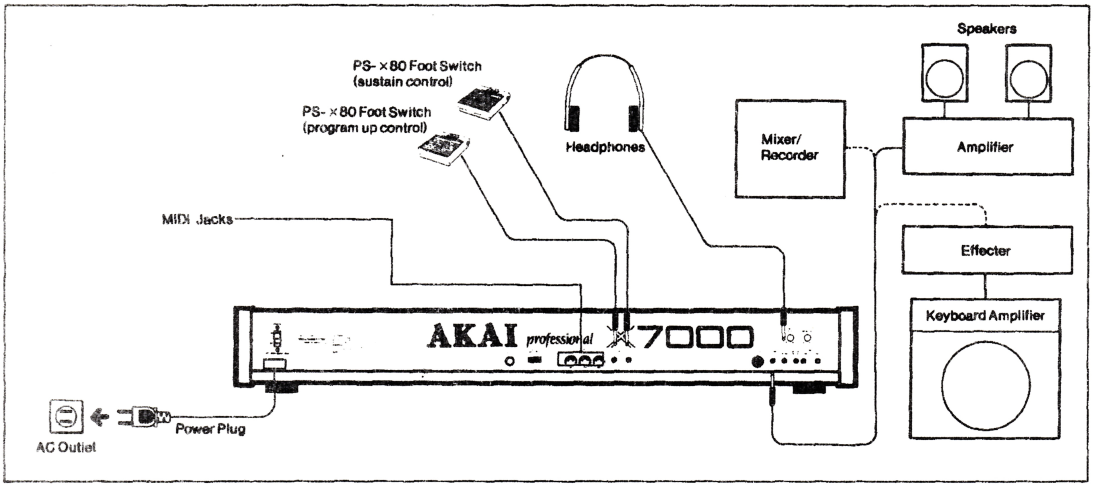
① **Power Switch**
Use this switch to turn the power on and off.
NOTE: Connect MIDI cables and external equipment before turning the power on.
② **Contrast Adjustment Knob**
Use this knob to adjust the contrast of the liquid crystal display. Adjust according to the lighting conditions under which the X7000 is operated.
③ **Local Switch (MIDI)**
When this switch is at off position, X7000's keyboard and internal sound source are disconnected, so that sounds does not come out even if you play X7000's keyboard. But the only MIDI signal accordingly as you played on X7000's keyboard is output from MIDI OUT jack.
Use this when performing with a sequencer, etc. using the X7000's sound source and X7000's keyboard as a master keyboard to control other MIDI equipped sound modules.
④ **MIDI IN Jack**
Use this jack to receive MIDI signals from other MIDI equipment.
⑤ **MIDI OUT Jack**
Use this jack to send MIDI signals to other MIDI equipment.
⑥ **MIDI THRU Jack**
MIDI signals input to the MIDI IN jack will be output unchanged from this jack.
⑦ **Program Up Foot Switch Jack**
Use this jack to connect a foot switch. The foot switch can be used to switch the memory bank numbers.
⑧ **Sustain Jack**
Use this jack to hold the sound (sustain) with a foot switch.
⑨ **VOICE OUT Jack**
The 8 voice signals are output separately from the DIN 13 pin jack.
⑩ **LINE OUT Jack**
This is an output jack for the sampled and monitor sounds. Connect it for example to an amplifier or mixer. This is a 6.3 mmϕ phone plug jack.
⑪ **PHONES Jack**
Use this jack to listen to the sound with stereo headphones. (The sound is monaural.)
⑫ **REC/PB TRIGGER Jack**
When a foot switch is connected to this jack, it can be used to begin sampling or for playback of the sampled sound.
⑬ **MIC IN Jack**
Use this input jack to sample directly from a mike or guitar. This is a 6.3 mmϕ phone plug jack with an input sensitivity of −60 dB.
⑭ **LINE IN Jack**
Use this jack to perform sampling from the LINE OUT jack of a keyboard or other audio equipment. This is a 6.3 mmϕ phone plug jack with an input sensitivity of −26 dB.
NOTE: When both the MIC and LINE IN jacks are used, the MIC input is given priority.
⑮ **Record Level Control**
Use this control to adjust the sampling recording level.
⑯ **Monitor Level Control**
Use this control to adjust the monitor level during sampling.

III. CONNECTIONS

The X7000 is not equipped with a built-in amplifier or speaker, so it must be used with another audio amplifier or keyboard amplifier and speakers.

Before Connecting

- Be sure to turn off the power for all equipment to be connected. Only plug in power cords after connections have been made.
- Insert the plugs securely into the jacks. Incomplete connections will result in noise or distortion.
- Hold the plug portion when disconnecting. Pulling on the cord will damage it.



IV. PRINCIPAL PARTS LOCATION

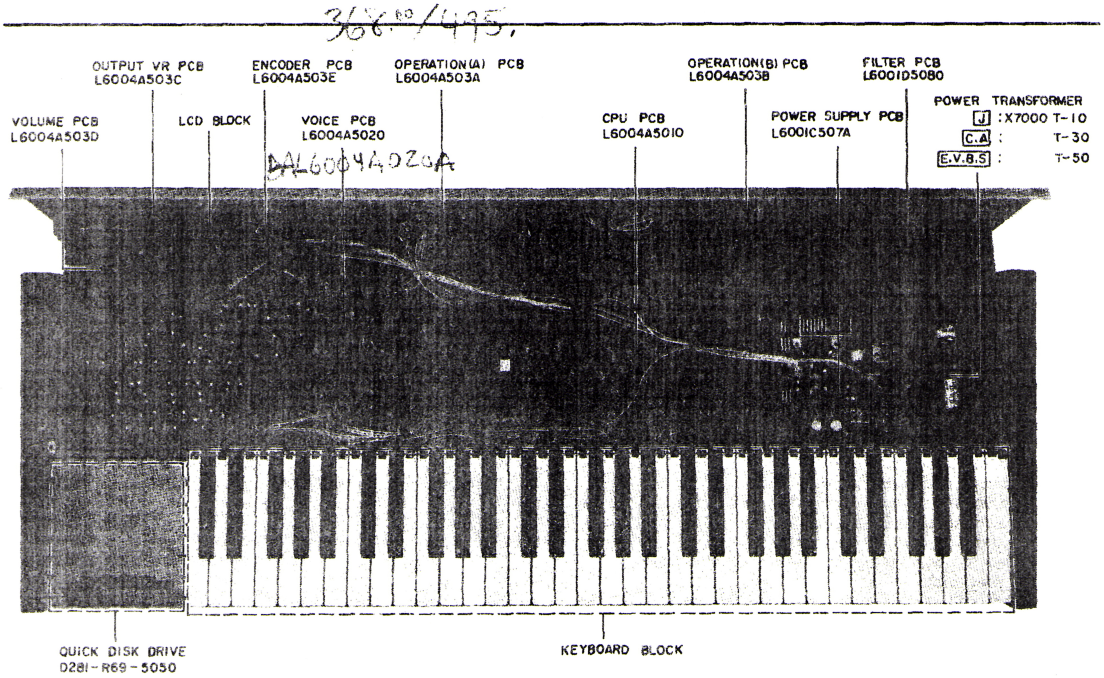


Fig. 4-1

V. ADJUSTMENT

5-1. OFF-SET ADJUSTMENT OF VOICE PCB

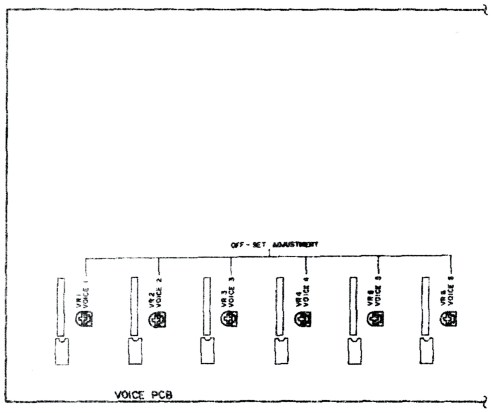


Fig. 5-1. VOICE PCB Adjustment Points

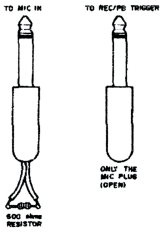


Fig. 5-2

1) Connect the 600 ohms dummy plug to MIC and only the Mic plug (open) to REC/PB TRIGGER on the rear panel. (Refer to Fig. 5-2.)
2) Set the following controls on the front panel as below.
   REC LEVEL..... MAX position
   MONITOR..... MIN position
   VOLUME..... MAX position

3) Set up the MIDI mode by MIDI button and CONTROL knob as follows.

MIDI button	Set up by CONTROL knob
1st Press	MIDI CHANNEL = 1
2nd Press	Multi Program
3rd Press	Special Mono

4) Set up the recording mode by NEW button and CONTROL knob as follows.

NEW button	Set up by CONTROL knob
1st Press	C3
2nd Press	BW = 16 kHz
3rd Press	Set cursol (□) to center
4th Press	Recording start

* When recording is completed, The LCD will read "Recording done".

5) Press NEW button and SAMPLE button next then set to S2 by CONTROL knob and repeat 4).
6) Repeat steps 4) and 5) until S6 (VOICE 6) is recorded.
7) Press PROGRAM button and select P1:S1:-:-:-:-:- by CONTROL knob and adjust VR1 (VOICE 1 OFF-SET) so that the click noise from the monitor speaker is minimum, When Press the C3 key.
8) Select the VOICE NO. by CONTROL knob and adjust VOICE 2 to VOICE 6 as same maner as in step 7).

VOICE NO.	LCD	ADJUSTMENT PART
VOICE 2	P2:S-:2:-:-:-:-	VR2
VOICE 3	P3:S-:-:3:-:-:-	VR3
VOICE 4	P4:S-:-:-:4:-:-	VR4
VOICE 5	P5:S-:-:-:-:5:-	VR5
VOICE 6	P6:S-:-:-:-:-:6	VR6

WHEEL AND MODULATION WHEEL

NOTE: Only when replaced the VR of the PITCH BEND or MODULATION, following adjustment is necessary.

6-1. WHEN REPLACED THE VR OF PITCH BEND

1) Mount the VR to the wheel, then coincide the markers on the wheel and VR shaft as shown Fig. 6-1 and tighten screw Ⓐ.
2) While press the any key, move the PITCH BEND WHEEL up and down by gradualy, confirm that the playing space at both direction from the center position are equal.
3) If they are not equal, loosen screw Ⓐ and adjust by slightly turning the VR shaft.

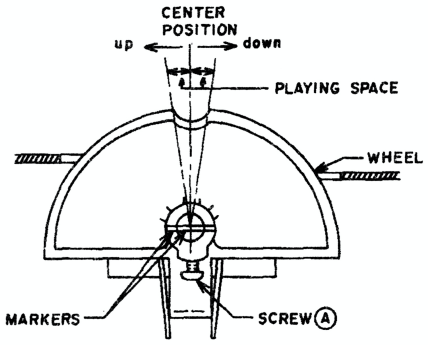


Fig. 6-1. Pitch Bend Wheel

6-2. WHEN REPLACED THE VR OF THE MODULATION

1) Mount the VR to the wheel and turn the wheel and VR shaft fully MAX position, then tighten the screw Ⓐ.

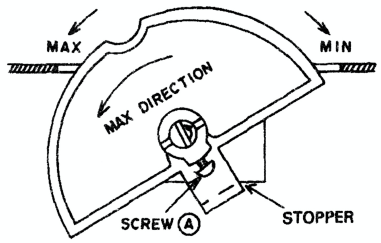


Fig. 6-2. Modulation Wheel

VII. MODEL X7000 MIDI IMPLEMENTATION CHART

[MIDI 6 Voice Digital Sampler **Keyboard**]

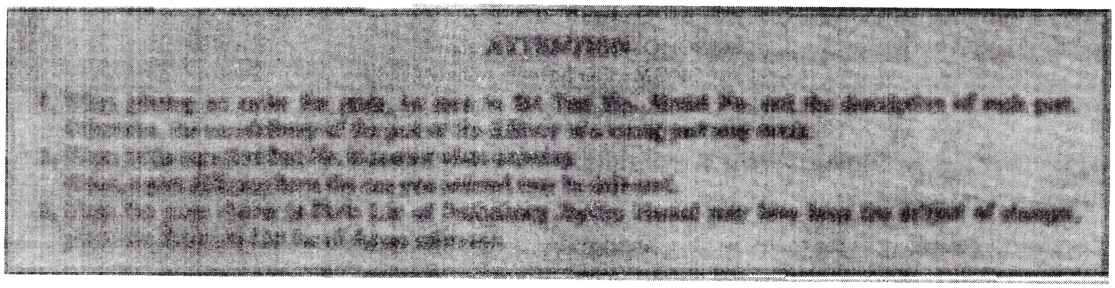
Model X7000 MIDI Implementation Chart Version: V1.0

Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed	1 1 – 16	1 1 – 16	
Default Mode Messages Altered	MODE 3 × **********	MODE 1 OMNI ON/OFF, P/M ×	
Note Number : True voice	36 – 96 *1 **********	0 – 127 0 – 127 *2	*1 Master Key Trans. ± 7 semitones *2 Depends on sampling rate
Velocity Note ON Note OFF	○ 9nH v = 1 – 127 ○ 8nH v = 0 – 127	○ 9nH v = 1 – 127 ○ 9nH v = 0 or 8nH v = 0 – 127	8nH: Velocity Release
After Key's Touch Ch's	× ×	× ○	
Pitch Bender	○	○	7 bit resolution
1 7 64 Control Change	○ × ○	○ ○ ○	Modulation wheel Volume Sustain foot sw
Prog Change : True #	○ 0 – 31 **********	○ 0 – 31	
System Exclusive	○	○	Sampling data ID: 47H
System : Song Pos : Song Sel Common : Tune	× × ×	× × ×	
System : Clock Real Time : Commands	× ×	× ×	
Aux : Local ON/OFF : All Notes OFF Messages : Active Sense : Reset	× × × ×	○ ○ (123) × ×	
Notes			

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○: Yes

Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×: No

VIII. PARTS LIST



HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

- SP (Service Parts) Classification
- A small "x" indicates that this part is not shown in the Photo or Illustration.
- This number corresponds with the individual parts index number in that figure.
- This number corresponds with the Figure Number.

b) PC Board

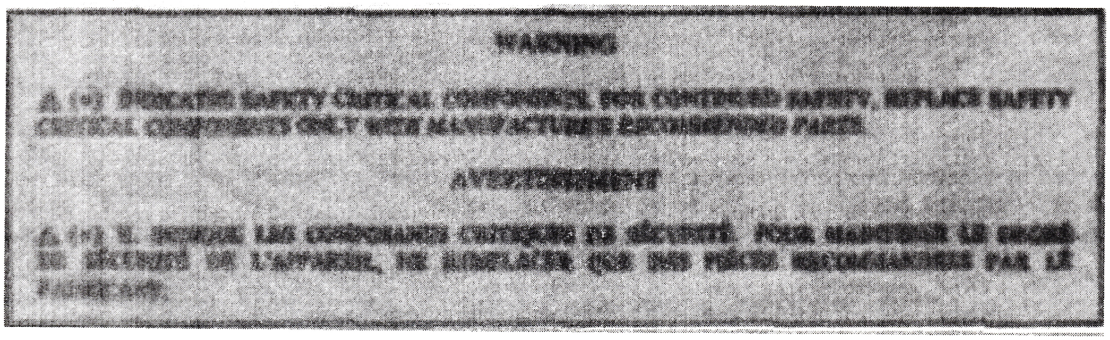
6. MAIN PC BOARD

REF. NO:	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

- Symbols for primary destination
  [A]: AAL(U.S.A.) [S]: SAA(Australia)
  [B]: BEAB(England) [U]: U/T(Universal Area)
  [C]: CSA(Canada) [V]: VDE(W. Germany)
  [E]: CEE(Europe) [Y]: Custom Version
  [J]: JPN(Japan)
- SP (Service Parts) Classification
- These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

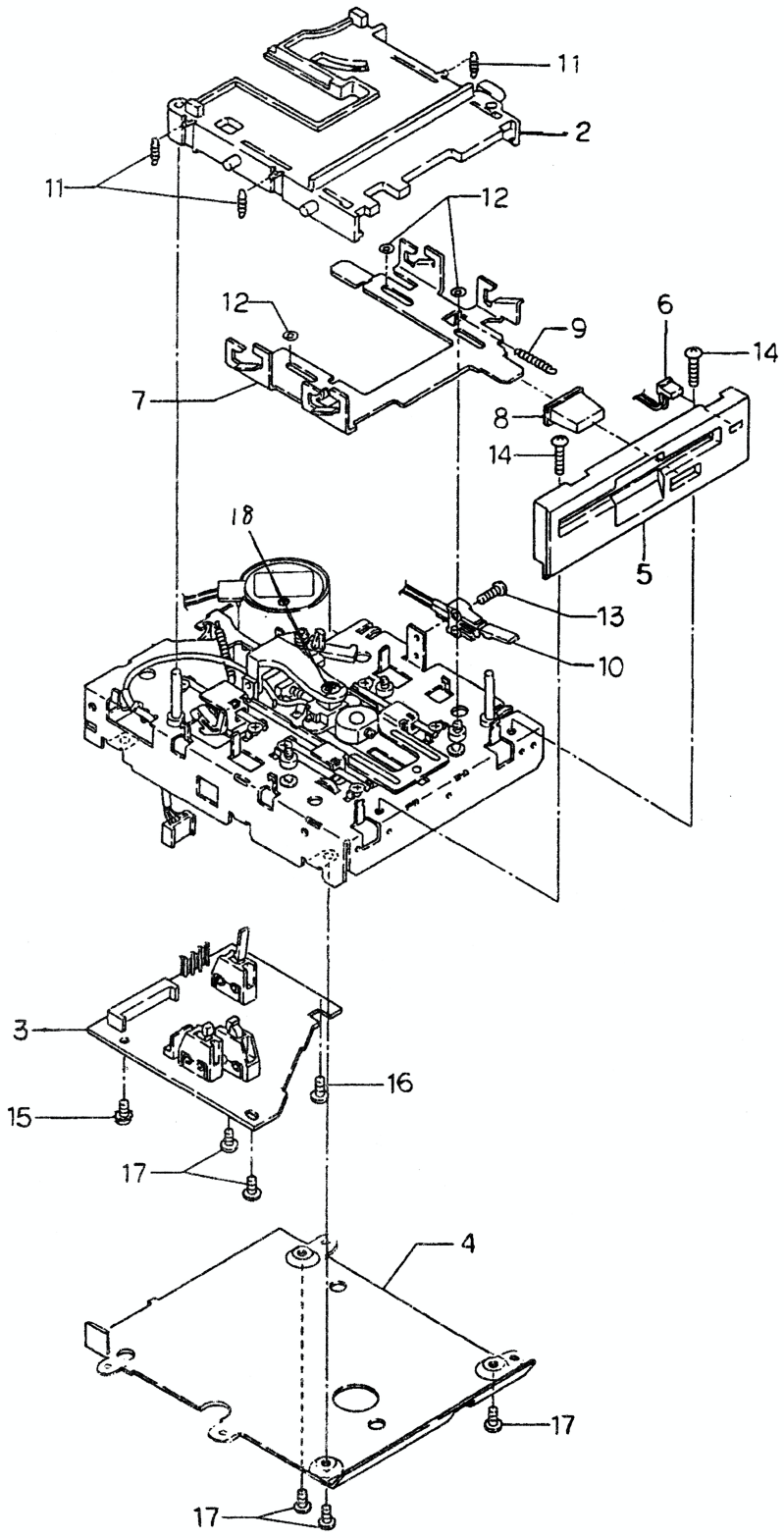
5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.



Model X7000

1. RECOMMENDED SPARE PARTS

Ref. No.	Part No.	Description
1	*BT-371650	TRANS POWER X7000T-10 (J)
2	*BT-371651	TRANS POWER X7000T-30 (C,A,Y1)
3	*BT-371652	TRANS POWER X7000T-50(E,V,S,S)
4	ED-719017	D LED ASSY
5	*ED-330319	D SILICON DBA108 100/1.0A
6	*ED-200213	D SILICON DBA40C-K15 200/2.6A
7	*ED-361055	D SILICON DS135E-UB1
8	ED-301911	D SILICON H DS448
9	ED-713919	D SILICON 1SS178
10	ED-343996	D ZENER H HZ12 B1
11	ED-331626	D ZENER H HZ3 B2
12	ED-331617	D ZENER H HZ6 A3
13	ED-706268	D ZENER H RD3.3E B1
14	*EF-306949	FUSE TSC A 250V 1.25A [J]
15	*EF-306952	FUSE TSC A 250V 4.00A [J]
16	*EF-309388	FUSE TSC A 250V 800MA [J]
17	*EF-308847	FUSE TSC 125V 1.60A [C,A,Y1]
18	*EF-306957	FUSE TSC 125V 4.00A [C,A,Y1]
19	*EF-305703	FUSE TSC 125V 630MA [C,A,Y1]
20	*EF-691007	FUSE SEMKO T 250V 3.15A [E,V,S]
21	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
22	*EF-359225	FUSE BET T 250V 3.15A [B]
23	*EF-355374	FUSE BET T 250V 500MA [B]
24	EI-360049	IC AM2504PC
25	EI-354283	IC BA6110
26	EI-390060	IC BA9201
27	EI-360050	IC BA9221
28	EI-366122	IC BU18400A-PS
29	EI-360045	IC DG211CJ
30	EI-719023	IC FD7201P
31	EI-360954	IC IR9311
32	EI-372120	IC LC3664N-12
33	EI-366119	IC MB87013
34	EI-366126	IC MB8863NM-G
35	EI-366121	IC MB89251AP-G
36	EI-360046	IC MF10CCN
37	EI-360058	IC MF6CN-50
38	EI-362553	IC MN41464-12
39	EI-356160	IC M5216P
40	EI-349719	IC M5218P
41	EI-360043	IC M5220P
42	EI-360565	IC M5223P
43	EI-359552	IC M5236L
44	EI-362588	IC M5238P
45	EI-307789	IC NJM4560D
46	*EI-359626	IC NJM78M15A
47	*EI-359628	IC NJM79M15A
48	EI-364253	IC PST520D-2
49	EI-360040	IC TC74HCU04P
50	EI-360037	IC TC74HC00P
51	EI-360038	IC TC74HC02P
52	EI-360026	IC TC74HC04P
53	EI-360039	IC TC74HC08P
54	EI-360025	IC TC74HC138P
55	EI-360035	IC TC74HC157P
56	EI-360048	IC TC74HC173P
57	EI-360054	IC TC74HC174P
58	EI-360053	IC TC74HC175P
59	EI-360029	IC TC74HC244P
60	EI-360032	IC TC74HC245P
61	EI-360042	IC TC74HC259P
62	EI-360036	IC TC74HC32P
63	EI-360030	IC TC74HC373P
64	EI-360047	IC TC74HC374P
65	EI-360031	IC TC74HC4040P
66	EI-371144	IC TC74HC540P
67	EI-365830	IC TC74HC670P
68	EI-360028	IC TC74HC74P
69	EI-360027	IC TC74HC86P
70	EI-367416	IC TMM27128AD-20X7000-V1.0
71	EI-372008	IC TMP82C37AP-5
72	EI-354197	IC UPC311C
73	EI-361275	IC UPD71054C
74	EI-371671	IC UPD78C11G-044-36
75	EI-354146	IC UPD8253C-2
76	EI-354232	IC UPD8279C-2
77	EI-354123	OSC CE CSA120MT 12.000000MHZ
78	EI-365528	OSC X'TAL NR-18 16.000000HZ
79	EI-366130	OSC X'TAL NR-18 6.5MHZ
80	EM-367434	IND LCD DM001Z-OAL7
81	EO-360068	COIL LF LF-2 B
82	EQ-348929	RELAY SIG G5A-237P 2TR 12V
83	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
84	*ES-367400	SW SEESAW EST-15729V 01-2
85	ES-719025	SW SKELETON SKD-8R
86	ES-719026	SW SKELETON SKD-8RL
87	*ES-306430	SW SLIDE J-S4013#01 01-2
88	ES-364255	SW SLIDE SSP322
89	ES-349474	SW TACT SKHHAM004A
90	ET-354167	DETECTOR PC900
91	ET-364060	TR DTC143ES
92	ET-308867	TR 2SA1015 O,Y,GR
93	ET-353899	TR 2SA1317 S,T,U
94	ET-338447	TR 2SA991 E,F
95	ET-365748	TR 2SB1223
96	ET-356817	TR 2SB891 Q,R
97	ET-316523	TR 2SC1844 F
98	ET-349883	TR 2SC3243 D,E F05
99	ET-353898	TR 2SC3330 F05
100	ET-360067	TR 2SC3330 T,U F05
101	ET-354083	TR 2SD1189 Q,R
102	ET-719024	TR 2SD773
103	EV-364321	VR ROTARY 12P10X0D B103
104	EV-354253	VR ROTARY 16P20X3T A503
105	EV-354254	VR ROTARY 16L10X0W 103 CUSTOM2
106	EV-365865	VR ROTARY V012LPH B202 L=20
107	EV-371644	VR SLIDE VJ4513-2PVN 3B203
108	EZ-370918	ROTARY ENCORDER EC16B W/C 24P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2. QUICK DISK D281-R69-500

Ref. No.	Part No.	Description
2-1	BB-366056	QUICK DISK D281-R69-5050
2-2	MZ-719014	DISK HOLDER ASSY
2-3	BA-719015	PC DISK BLK
2-5	BD-719016	PANEL FRONT
2-6	ED-719017	D LED ASSY
2-8	SB-719018	BUTTON EJECT
2-9	ZG-719019	SP EJECT PLATE
2-10	BS-719020	SW SKELETON MEDIA ASSY
2-11	ZG-719022	SP COIL -- SPRING-
2-18	AX-717097	PAD HEAD
2-19	MZ-719424	PROTECTOR HEAD QDD S700

3. P.C BOARD BLOCK

Ref. No.	Part No.	Description
3-1	BA-L6004A020A	PC VOICE BLK X7000
3-2	BA-L6004A030A	PC CPU BLK X7000
3-3	BA-L6004A060A	PC(#) OPERATION BLK X7000
3-4	BA-719015	PC DISK BLK

PC (#) OPERATION BLK CONSISTS OF FOLLOWING P.C BOARD.
* OPERATION (A) P.C BOARD
* OPERATION (B) P.C BOARD
* OUTPUT VR P.C BOARD
* VR P.C BOARD
* ENCORDER P.C BOARD

4. DISK P.C BOARD

Ref. No.	Part No.	Description
4-D1	ED-713919	D SILICON 1SS178
4-D2	ED-713919	D SILICON 1SS178
4-D3	ED-706268	D ZENER H RD3.3E B1
4-IC1	EI-307789	IC NJM4560D
4-IC2	EI-354197	IC UPC311C
4-IC3	EI-719023	IC FD7201P
4-SW1	ES-719025	SW SKELETON SKD-BR
4-SW2	ES-719026	SW SKELETON SKD-BRL
4-SW3	ES-719025	SW SKELETON SKD-BR
4-TR1	ET-308867	TR 2SA1015 O,Y,GR
4-TR2	ET-364060	TR DTC143ES
4-TR3	ET-364060	TR DTC143ES
4-TR4	ET-719024	TR 2SD773
4-TR6	ET-364060	TR DTC143ES

5. VOICE P.C BOARD

Ref. No.	Part No.	Description
5-D1	ED-301911	D SILICON H DS448
5-D2	ED-301911	D SILICON H DS448
5-D3	ED-301911	D SILICON H DS448
5-D4	ED-301911	D SILICON H DS448
5-D5	ED-301911	D SILICON H DS448
5-D6	ED-301911	D SILICON H DS448
5-D7	ED-301911	D SILICON H DS448
5-IC1	EI-360043	IC M5220P
5-IC2	EI-356160	IC M5216P
5-IC3	EI-349719	IC M5218P
5-IC4	EI-349719	IC M5218P
5-IC5	EI-360045	IC DG211CJ
5-IC6	EI-362588	IC M5238P
5-IC7	EI-360954	IC IR9311
5-IC8	EI-360050	IC BA9221
5-IC9	EI-360046	IC MF10CCN
5-IC10	EI-360050	IC BA9221
5-IC11	EI-362588	IC M5238P
5-IC12	EI-362588	IC M5238P
5-IC13	EI-362588	IC M5238P
5-IC14	EI-362588	IC M5238P
5-IC15	EI-362588	IC M5238P
5-IC16	EI-362588	IC M5238P
5-IC17	EI-360058	IC MF6CN-50
5-IC18	EI-360058	IC MF6CN-50
5-IC19	EI-360058	IC MF6CN-50
5-IC20	EI-360058	IC MF6CN-50
5-IC21	EI-360058	IC MF6CN-50
5-IC22	EI-360058	IC MF6CN-50
5-IC23	EI-354283	IC BA6110
5-IC24	EI-354283	IC BA6110
5-IC25	EI-354283	IC BA6110
5-IC26	EI-354283	IC BA6110
5-IC27	EI-354283	IC BA6110
5-IC28	EI-354283	IC BA6110
5-IC29	EI-360565	IC M5223P
5-IC30	EI-360565	IC M5223P
5-IC31	EI-360565	IC M5223P
5-IC32	EI-360565	IC M5223P
5-IC33	EI-360565	IC M5223P
5-IC34	EI-360565	IC M5223P
5-IC35	EI-360045	IC DG211CJ
5-IC36	EI-360045	IC DG211CJ
5-IC37	EI-360045	IC DG211CJ
5-IC38	EI-390060	IC BA9201
5-IC39	EI-390060	IC BA9201
5-IC40	EI-390060	IC BA9201
5-IC41	EI-390060	IC BA9201
5-IC42	EI-390060	IC BA9201
5-IC43	EI-390060	IC BA9201
5-IC44	EI-360037	IC TC74HC00P
5-IC45	EI-360026	IC TC74HC04P
5-IC46	EI-360036	IC TC74HC32P
5-IC47	EI-360026	IC TC74HC04P
5-IC48	EI-360053	IC TC74HC175P
5-IC49	EI-360054	IC TC74HC174P
5-IC50	EI-360049	IC AM2504PC
5-IC51	EI-360048	IC TC74HC173P
5-IC52	EI-360054	IC TC74HC174P
5-IC53	EI-360030	IC TC74HC373P
5-IC54	EI-360047	IC TC74HC374P
5-IC55	EI-360054	IC TC74HC174P
5-J1	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
5-J2	EJ-371648	PHONE J 3P HLJ4305-3060 W/NUT
5-J3	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
5-J4	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
5-J5	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
5-J6	EJ-360771	DIN J TCS5037-01-241 13P
5-RA1	EH-355561	COMP R EXB-R88 103K
5-RL1	EQ-348929	RELAY SIG G5A-237P 2TR 12V
5-R45	*ER-326169	R FUSE ERD2FC S10 1/4W 22R0G
5-R46	*ER-331188	R FUSE ERD2FC S10 1/4W 8R2J
5-TR1	ET-360067	TR 2SC3330 T,U F05
5-TR2	ET-360067	TR 2SC3330 T,U F05
5-TR3	ET-316523	TR 2SC1844 F
5-TR4	ET-338447	TR 2SA991 E,F
5-TR5	ET-316523	TR 2SC1844 F
5-TR6	ET-338447	TR 2SA991 E,F
5-TR7	ET-353899	TR 2SA1317 S,T,U
5-TR8	ET-353899	TR 2SA1317 S,T,U
5-TR9	ET-353899	TR 2SA1317 S,T,U
5-TR10	ET-353899	TR 2SA1317 S,T,U
5-TR11	ET-353899	TR 2SA1317 S,T,U
5-TR12	ET-353899	TR 2SA1317 S,T,U
5-VR1	EV-357619	R S-FIX H RH0615C15J 3P 104
5-VR2	EV-357619	R S-FIX H RH0615C15J 3P 104
5-VR3	EV-357619	R S-FIX H RH0615C15J 3P 104
5-VR4	EV-357619	R S-FIX H RH0615C15J 3P 104
5-VR5	EV-357619	R S-FIX H RH0615C15J 3P 104
5-VR6	EV-357619	R S-FIX H RH0615C15J 3P 104

6. CPU P.C BOARD

Ref. No.	Part No.	Description
6-D1	ED-301911	D SILICON H DS448
6-D2	ED-301911	D SILICON H DS448
6-D3	ED-301911	D SILICON H DS448
6-IC1	EI-371144	IC TC74HC540P
6-IC2	EI-360037	IC TC74HC00P
6-IC3	EI-362553	IC MN41464-12
6-IC4	EI-362553	IC MN41464-12
6-IC5	EI-362553	IC MN41464-12
6-IC6	EI-366126	IC MB8863NM-G
6-IC7	EI-360027	IC TC74HC86P
6-IC8	EI-360037	IC TC74HC00P
6-IC9	EI-372120	IC LC3664N-12
6-IC10	EI-366122	IC BU18400A-PS
6-IC11	EI-360040	IC TC74HCU04P
6-IC12	EI-362553	IC MN41464-12
6-IC13	EI-362553	IC MN41464-12
6-IC14	EI-362553	IC MN41464-12
6-IC15	EI-360036	IC TC74HC32P
6-IC16	EI-360031	IC TC74HC4040P
6-IC17	EI-362553	IC MN41464-12
6-IC18	EI-362553	IC MN41464-12
6-IC19	EI-362553	IC MN41464-12
6-IC20	EI-360027	IC TC74HC86P
6-IC21	EI-360026	IC TC74HC04P
6-IC22	EI-360038	IC TC74HC02P
6-IC23	EI-367416	IC TMM27128AD-20X7000-V1.0
6-IC24	EI-360030	IC TC74HC373P
6-IC25	EI-360029	IC TC74HC244P
6-IC26	EI-360026	IC TC74HC04P
6-IC27	EI-360035	IC TC74HC157P
6-IC28	EI-360025	IC TC74HC138P
6-IC29	EI-365830	IC TC74HC670P
6-IC30	EI-354146	IC UPD8253C-2
6-IC31	EI-361275	IC UPD71054C
6-IC32	EI-360028	IC TC74HC74P
6-IC33	EI-360039	IC TC74HC08P
6-IC34	EI-360025	IC TC74HC138P
6-IC35	EI-360025	IC TC74HC138P
6-IC36	EI-360036	IC TC74HC32P
6-IC37	EI-360037	IC TC74HC00P
6-IC38	EI-360035	IC TC74HC157P
6-IC39	EI-360025	IC TC74HC138P
6-IC40	EI-365830	IC TC74HC670P
6-IC41	EI-360028	IC TC74HC74P
6-IC42	EI-360028	IC TC74HC74P
6-IC43	EI-366121	IC MB89251AP-G
6-IC44	EI-360032	IC TC74HC245P
6-IC45	EI-360031	IC TC74HC4040P
6-IC46	EI-360037	IC TC74HC00P
6-IC47	EI-360036	IC TC74HC32P
6-IC48	EI-360036	IC TC74HC32P
6-IC49	EI-354146	IC UPD8253C-2
6-IC50	EI-361275	IC UPD71054C
6-IC51	EI-371144	IC TC74HC540P
6-IC52	EI-360037	IC TC74HC00P
6-IC53	EI-360026	IC TC74HC04P
6-IC54	EI-360037	IC TC74HC00P
6-IC55	EI-372008	IC TMP82C37AP-5
6-IC56	EI-366119	IC MB87013
6-IC57	EI-360042	IC TC74HC259P
6-IC58	EI-371671	IC UPD78C11G-044-36
6-IC59	EI-354232	IC UPD8279C-2
6-IC60	EI-372008	IC TMP82C37AP-5
6-IC61	EI-364253	IC PST520D-2
6-J1	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
6-J2	EJ-364322	PHONE J 2P HLJ0520-110 W/NUT
6-J3	EJ-364256	DIN J M1704 3P
6-PH1	ET-354167	DETECTOR PC900
6-RA1	EH-371680	COMP R EXB-R88 472K
6-RA2	EH-355561	COMP R EXB-R88 103K
6-RA3	EH-355561	COMP R EXB-R88 103K
6-RA4	EH-371681	COMP R EXB-R84 472K
6-RA5	EH-371682	COMP R EXB-R84 222K
6-RA6	EH-355561	COMP R EXB-R88 103K
6-RA7	EH-355561	COMP R EXB-R88 103K
6-SW1	ES-364255	SW SLIDE SSP322
6-TR1	ET-353898	TR 2SC3330 F05
6-VR1	EV-365865	VR ROTARY V012LPH B202 L = 20
6-X1	EI-365528	OSC X'TAL NR-18 16.000000HZ
6-X2	EI-366130	OSC X'TAL NR-18 6.5MHZ
6-X3	EI-354123	OSC CE CSA120MT 12.000000MHZ

7. POWER SUPPLY P.C BOARD

Ref. No.	Part No.	Description
7-D1	*ED-200213	D SILICON D8A40C-K15 200/2.6A
7-D2	ED-361055	D SILICON DS135E-UB1
7-D4	*ED-330319	D SILICON DBA10B 100/1.0A
7-D5	ED-331626	D ZENER H HZ3 B2
7-D6	*ED-343996	D ZENER H HZ12 B1
7-D10	*ED-361055	D SILICON DS135E-UB1
7-D11	*ED-361055	D SILICON DS135E-UB1
7-IC1	*EI-359552	IC M5236L
7-IC2	*EI-359626	IC NJM78M15A
7-IC3	*EI-359628	IC NJM79M15A
7-R1	ER-360725	R OMF H S12 FS 1W 221J
7-TR1	*ET-365748	TR 2SB1223
7-TR2	*ET-349883	TR 2SC3243 D,E F05
7-TR3	*ET-354083	TR 2SD1189 Q,R
7-TR4	ET-360067	TR 2SC3330 T,U F05
7-TR5	*ET-353899	TR 2SA1317 S,T,U
7-TR6	*ET-356817	TR 2SB891 Q,R
7-TR7	ET-360067	TR 2SC3330 T,U F05
7-TR8	ET-360067	TR 2SC3330 T,U F05
7-TR9	ET-360067	TR 2SC3330 T,U F05
7-F2	*EF-306952	FUSE TSC A 250V 4.00A [J]
7-F3	*EF-309388	FUSE TSC A 250V 800MA [J]
7-F4	*EF-309388	FUSE TSC A 250V 800MA [J]
7-F2A	*EF-306957	FUSE TSC 125V 4.00A [C,A,Y1]
7-F3A	*EF-305703	FUSE TSC 125V 630MA [C,A,Y1]
7-F4A	*EF-305703	FUSE TSC 125V 630MA [C,A,Y1]
7-F2B	*EF-691007	FUSE SEMKO T 250V 3.15A [E,V,S]
7-F3B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
7-F4B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
7-F2C	*EF-359225	FUSE BET T 250V 3.15A [B]
7-F3C	*EF-355374	FUSE BET T 250V 500MA [B]
7-F4C	*EF-355374	FUSE BET T 250V 500MA [B]

8. OPERATION (A) P.C BOARD

Ref. No.	Part No.	Description
8-D1	ED-331617	D ZENER H HZ6 A3
8-FR1	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
8-SW1	ES-349474	SW TACT SKHHAM004A
8-SW2	ES-349474	SW TACT SKHHAM004A
8-SW3	ES-349474	SW TACT SKHHAM004A
8-SW4	ES-349474	SW TACT SKHHAM004A
8-SW5	ES-349474	SW TACT SKHHAM004A
8-SW6	ES-349474	SW TACT SKHHAM004A
8-SW7	ES-349474	SW TACT SKHHAM004A
8-SW8	ES-349474	SW TACT SKHHAM004A
8-SW9	ES-349474	SW TACT SKHHAM004A
8-SW10	ES-349474	SW TACT SKHHAM004A
8-SW11	ES-349474	SW TACT SKHHAM004A
8-SW12	ES-349474	SW TACT SKHHAM004A
8-SW13	ES-349474	SW TACT SKHHAM004A
8-SW14	ES-349474	SW TACT SKHHAM004A
8-SW15	ES-349474	SW TACT SKHHAM004A
8-SW16	ES-349474	SW TACT SKHHAM004A
8-SW17	ES-349474	SW TACT SKHHAM004A
8-SW18	ES-349474	SW TACT SKHHAM004A
8-SW19	ES-349474	SW TACT SKHHAM004A
8-SW20	ES-349474	SW TACT SKHHAM004A
8-TR1	ET-354083	TR 2SD1189 Q,R

9. OPERATION (B) P.C BOARD

Ref. No.	Part No.	Description
9-SW1	ES-349474	SW TACT SKHHAM004A
9-SW2	ES-349474	SW TACT SKHHAM004A
9-SW3	ES-349474	SW TACT SKHHAM004A
9-SW4	ES-349474	SW TACT SKHHAM004A
9-SW5	ES-349474	SW TACT SKHHAM004A
9-SW6	ES-349474	SW TACT SKHHAM004A
9-SW7	ES-349474	SW TACT SKHHAM004A
9-SW8	ES-349474	SW TACT SKHHAM004A

10. OUTPUT VR P.C BOARD

Ref. No.	Part No.	Description
10-VR1	EV-371644	VR SLIDE VJ4513-2PVN 3B203

11. VR P.C BOARD

Ref. No.	Part No.	Description
11-VR1	EV-364321	VR ROTARY 12P10X0D B103
11-VR2	EV-364321	VR ROTARY 12P10X0D B103

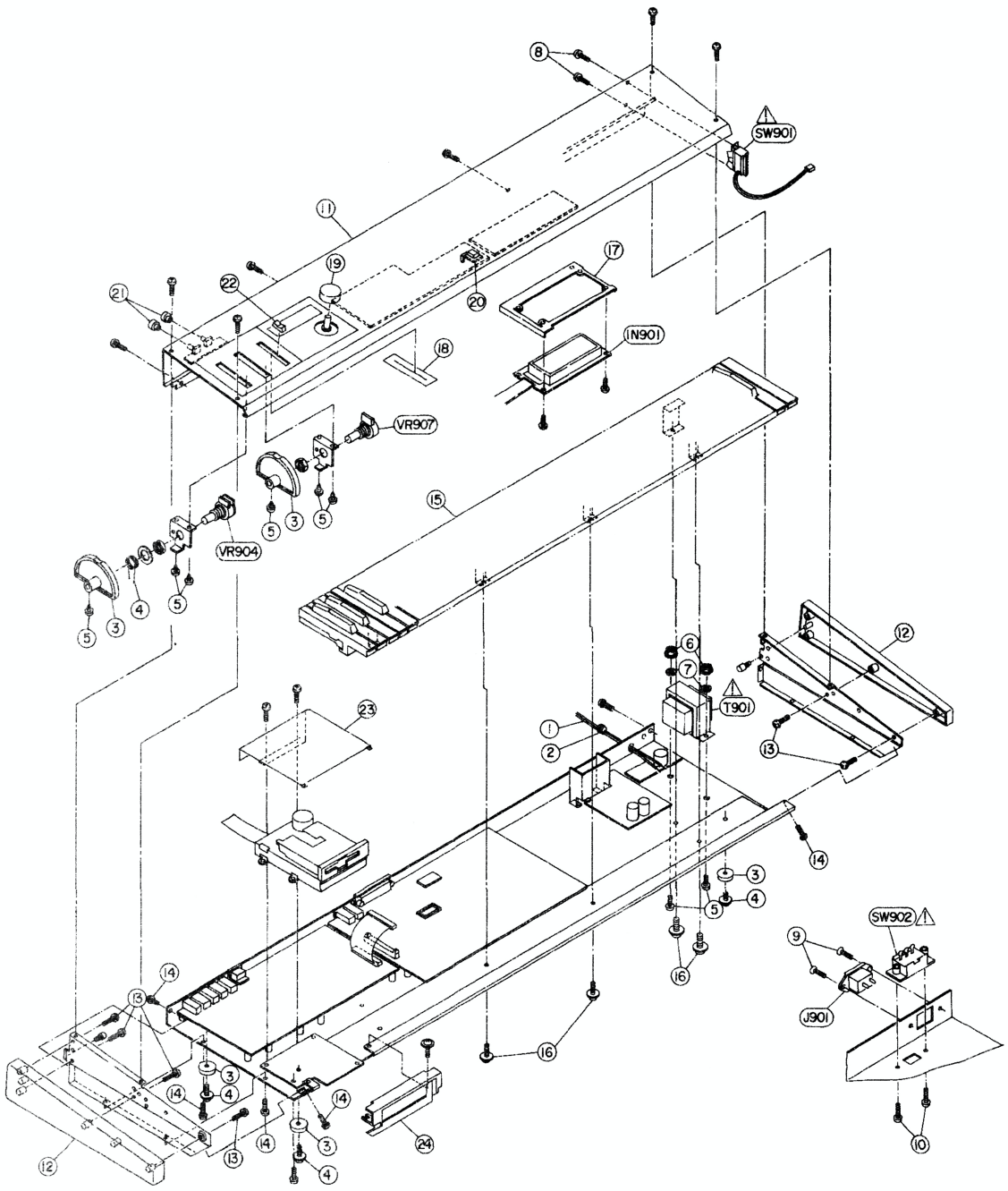
12. ENCORDER P.C BOARD

Ref. No.	Part No.	Description
12-VR1	EZ-370918	ROTARY ENCORDER EC16B W/C 24P

13. FILTER P.C BOARD

Ref. No.	Part No.	Description
13-C2	*EC-358450	C CE V DNS102MBE B 102M 400AC
13-C3	*EC-358450	C CE V DNS102MBE B 102M 400AC
13-FL1	*EO-360068	COIL LF LF-2 B
13-F1	*EF-306949	FUSE TSC A 250V 1.25A [J]
13-F1A	*EF-308847	FUSE TSC 125V 1.60A [C,A,Y1]
13-F1B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
13-F1C	*EF-355374	FUSE BET T 250V 500MA [B]

FINAL ASSEMBLY BLOCK



14. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
14-1	*EW-365947	AC CORD 250 SKP210KS17B A J [J]
14-1A	*EW-357931	AC CORD 3 CORES VM0033A SJT18A [C,Y1]
14-1B	*EW-366055	AC CORD 250 KP11WSJT18 UC [A]
14-1C	*EW-359641	AC CORD 2C KP-419C/KS-17 EV [E,V]
14-1D	*EW-358631	AC CORD 2C KS-17 LTBS2F BS [B]
14-1E	*EW-358630	AC CORD 2C KP560 LTSA2F KS17 S [S]
14-2	*EZ-302906	STRAIN RELIEF SR-6N-4 [C,A,Y1]
14-3	SA-332850	ROUND FOOT
14-4	ZS-360715	ST PAN30X08STL CMT C080
14-T901	*BT-371650	TRANS POWER X7000T-10 (J)
14-T901A	*BT-371651	TRANS POWER X7000T-30 (C,A,Y1)
14-T901B	*BT-371652	TRANS POWER X7000T-50(E,V,B,S)
14-5	ZS-365316	BID40X12STL NI3
14-6	ZW-413267	N FRANGE 40STL CMT
14-7	ZW-273892	TW40
14-SW901	*ES-367400	SW SEESAW EST-15729V 01-2
14-8	ZS-399295	BID30X06STL NI3
14-J901	*EJ-358633	SOCKET INLET SOT-17 2P [J,E,V,B,S]
14-9	ZS-362534	T2CTS30X10STL BNI
14-SW902	*ES-306430	SW SLIDE J-S4013#01 01-2 [E,V,B,S]
14-10	ZS-360952	PT BR30X08STL NI3
14-11	BD-B371609A	PANEL FRONT X7000(J) PART
14-11A	BD-B371609B	PANEL FRONT X7000(A,C,Y1) PART
14-11B	BD-B371609C	PANEL-F X7000(E,V,B,S) PART
14-12	SC-364225B	COVER SIDE(B)
14-13	ZS-362499	PT BID40X18STL NI3
14-14	ZS-341959	ST BID40X06STL NI3
14-15	BK-367399	KEYBOARD SWITCH ESK-7026 61KEY
14-16	ZS-365757	PAN50X08STL NI3 PW SW
14-IN901	EM-367434	IND LCD DM001Z-OAL7
14-17	SZ-362390	HOLDER LCD
14-18	SE-362389A-A	MASK VOLUME(A)
14-19	SK-362405	KNOB ROTARY (A)
14-20	SK-364216C	KNOB PUSH (C)
14-21	SK-322105	KNOB
14-22	SK-364219B	KNOB SLIDE(B)
14-23	SC-371612	COVER DISK DRIVE
14-24	SP-371613	PANEL DISK DRIVE
14-25	ZG-354553	SP BEND
14-26	MI-354552B	WHEEL(B)
14-27	EV-354253	VR ROTARY 16P20X3T A503
14-28	EV-354254	VR ROTARY 16L10XOW 103 CUSTOM2

Model ASK70

1. DRAM P.C BOARD

Ref. No.	Part No.	Description
1-IB1	EH-371596	COMP R RKC1/8B8 223J
1-IB2	EH-371598	COMP R RKC1/8B8 222J
1-IB3	EH-347743	COMP R RKC1/8B4 103J
1-IC1	EI-362553	IC MN41464-12
1-IC2	EI-362553	IC MN41464-12
1-IC3	EI-362553	IC MN41464-12
1-IC4	EI-362553	IC MN41464-12
1-IC5	EI-362553	IC MN41464-12
1-IC6	EI-362553	IC MN41464-12
1-IC7	EI-362553	IC MN41464-12
1-IC8	EI-362553	IC MN41464-12
1-IC9	EI-362553	IC MN41464-12
1-IC10	EI-362553	IC MN41464-12
1-IC11	EI-362553	IC MN41464-12
1-IC12	EI-362553	IC MN41464-12
1-IC13	EI-362553	IC MN41464-12
1-IC14	EI-362553	IC MN41464-12
1-IC15	EI-362553	IC MN41464-12
1-IC16	EI-360025	IC TC74HC138P
1-IC17	EI-365099	IC TC74HC14P
1-IC18	EI-360025	IC TC74HC138P
1-IC19	EI-360036	IC TC74HC32P
1-1	MH-371594	SPACER SUPPORT 3675

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Model X7000

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
AX-717097	2-18	EH-355561	6-RA2	EI-360037	6-IC54	EI-366121	6-IC43
BA-L6004A020A	3-1	EH-355561	6-RA3	EI-360038	51	EI-366122	28
BA-L6004A030A	3-2	EH-355561	6-RA6	EI-360038	6-IC22	EI-366122	6-IC10
BA-L6004A060A	3-3	EH-355561	6-RA7	EI-360039	53	EI-366126	34
BA-719015	2-3	EH-371680	6-RA1	EI-360039	6-IC33	EI-366126	6-IC6
BA-719015	3-4	EH-371681	6-RA4	EI-360040	49	EI-366130	79
BB-366056	2-1	EH-371682	6-RA5	EI-360040	6-IC11	EI-366130	6-X2
BD-8371609A	14-11	EI-307789	45	EI-360042	61	EI-367416	70
BD-8371609B	14-11A	EI-307789	4-IC1	EI-360042	6-IC57	EI-367416	6-IC23
BD-8371609C	14-11B	EI-349719	40	EI-360043	41	EI-371144	66
BD-719016	2-5	EI-349719	5-IC3	EI-360043	5-IC1	EI-371144	6-IC1
BK-367399	14-15	EI-349719	5-IC4	EI-360045	29	EI-371144	6-IC51
BS-719020	2-10	EI-354123	77	EI-360045	5-IC5	EI-371671	74
BT-371650	1	EI-354123	6-X3	EI-360045	5-IC35	EI-371671	6-IC58
BT-371650	14-T901	EI-354146	75	EI-360045	5-IC36	EI-372008	71
BT-371651	2	EI-354146	6-IC30	EI-360045	5-IC37	EI-372008	6-IC55
BT-371651	14-T901A	EI-354146	6-IC49	EI-360046	38	EI-372008	6-IC60
BT-371652	3	EI-354197	72	EI-360046	5-IC9	EI-372120	32
BT-371652	14-T901B	EI-354197	4-IC2	EI-360047	64	EI-372120	6-IC9
EC-358450	13-C2	EI-354232	76	EI-360047	5-IC54	EI-390060	26
EC-358450	13-C3	EI-354232	6-IC59	EI-360048	56	EI-390060	5-IC38
ED-200213	6	EI-354283	25	EI-360048	5-IC51	EI-390060	5-IC39
ED-200213	7-D1	EI-354283	5-IC23	EI-360049	24	EI-390060	5-IC40
ED-301911	8	EI-354283	5-IC24	EI-360049	5-IC50	EI-390060	5-IC41
ED-301911	5-D1	EI-354283	5-IC25	EI-360050	27	EI-390060	5-IC42
ED-301911	5-D2	EI-354283	5-IC26	EI-360050	5-IC8	EI-390060	5-IC43
ED-301911	5-D3	EI-354283	5-IC27	EI-360050	5-IC10	EI-719023	30
ED-301911	5-D4	EI-354283	5-IC28	EI-360053	58	EI-719023	4-IC3
ED-301911	5-D5	EI-356160	39	EI-360053	5-IC48	EJ-35B633	14-J901
ED-301911	5-D6	EI-356160	5-IC2	EI-360054	57	EJ-360771	5-J6
ED-301911	5-D7	EI-359552	43	EI-360054	5-IC49	EJ-364256	6-J3
ED-301911	6-D1	EI-359552	7-IC1	EI-360054	5-IC52	EJ-364322	5-J1
ED-301911	6-D2	EI-359626	46	EI-360054	5-IC55	EJ-364322	5-J3
ED-301911	6-D3	EI-359626	7-IC2	EI-360058	37	EJ-364322	5-J4
ED-330319	5	EI-359628	47	EI-360058	5-IC17	EJ-364322	5-J5
ED-330319	7-D4	EI-359628	7-IC3	EI-360058	5-IC18	EJ-364322	6-J1
ED-331617	12	EI-360025	54	EI-360058	5-IC19	EJ-364322	6-J2
ED-331617	8-D1	EI-360025	6-IC28	EI-360058	5-IC20	EJ-371648	5-J2
ED-331626	11	EI-360025	6-IC34	EI-360058	5-IC21	EM-367434	80
ED-331626	7-D5	EI-360025	6-IC35	EI-360058	5-IC22	EM-367434	14-IN901
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ED-361055	7-D11	EI-360026	6-IC26	EI-360565	5-IC33	ER-319455	8-FR1
ED-706268	13	EI-360026	6-IC53	EI-360565	5-IC34	ER-326169	5-R45
ED-706268	4-D3	EI-360027	69	EI-360954	31	ER-331188	5-R46
ED-713919	9	EI-360027	6-IC7	EI-360954	5-IC7	ER-360725	7-R1
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ED-713919	4-D2	EI-360028	68	EI-361275	6-IC31	ES-306430	14-SW902
ED-719017	4	EI-360028	6-IC32	EI-361275	6-IC50	ES-349474	89
ED-719017	2-6	EI-360028	6-IC41	EI-362553	38	ES-349474	8-SW1
EF-305703	19	EI-360028	6-IC42	EI-362553	6-IC3	ES-349474	8-SW2
EF-305703	7-F3A	EI-360029	59	EI-362553	6-IC4	ES-349474	8-SW3
EF-305703	7-F4A	EI-360029	6-IC25	EI-362553	6-IC5	ES-349474	8-SW4
EF-306949	14	EI-360030	63	EI-362553	6-IC12	ES-349474	8-SW5
EF-306949	13-F1	EI-360030	5-IC53	EI-362553	6-IC13	ES-349474	8-SW6
EF-306952	15	EI-360030	6-IC24	EI-362553	6-IC14	ES-349474	8-SW7
EF-306952	7-F2	EI-360031	65	EI-362553	6-IC17	ES-349474	8-SW8
EF-306957	18	EI-360031	6-IC16	EI-362553	6-IC18	ES-349474	8-SW9
EF-306957	7-F2A	EI-360031	6-IC45	EI-362553	6-IC19	ES-349474	8-SW10
EF-308847	17	EI-360032	60	EI-362588	44	ES-349474	8-SW11
EF-308847	13-F1A	EI-360032	6-IC44	EI-362588	5-IC6	ES-349474	8-SW12
EF-309388	16	EI-360035	55	EI-362588	5-IC11	ES-349474	8-SW13
EF-309388	7-F3	EI-360035	6-IC27	EI-362588	5-IC12	ES-349474	8-SW14
EF-309388	7-F4	EI-360035	6-IC38	EI-362588	5-IC13	ES-349474	8-SW15
EF-355374	23	EI-360036	62	EI-362588	5-IC14	ES-349474	8-SW16
EF-355374	7-F3C	EI-360036	5-IC46	EI-362588	5-IC15	ES-349474	8-SW17
EF-355374	7-F4C	EI-360036	6-IC15	EI-362588	5-IC16	ES-349474	8-SW18
EF-355374	13-F1C	EI-360036	6-IC36	EI-364253	48	ES-349474	8-SW19
EF-359225	22	EI-360036	6-IC47	EI-364253	6-IC61	ES-349474	8-SW20
EF-359225	7-F2C	EI-360036	6-IC48	EI-365528	78	ES-349474	9-SW1
EF-593706	21	EI-360037	50	EI-365528	6-X1	ES-349474	9-SW2
EF-593706	7-F3B	EI-360037	5-IC44	EI-365830	67	ES-349474	9-SW3
EF-593706	7-F4B	EI-360037	6-IC2	EI-365830	6-IC29	ES-349474	9-SW4
EF-593706	13-F1B	EI-360037	6-IC8	EI-365830	6-IC40	ES-349474	9-SW5
EF-691007	20	EI-360037	6-IC37	EI-366119	33	ES-349474	9-SW6
EF-691007	7-F2B	EI-360037	6-IC46	EI-366119	6-IC56	ES-349474	9-SW7
EH-355561	5-RA1	EI-360037	6-IC52	EI-366121	35	ES-349474	9-SW8

Model ASK70

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
ES-364255	88	SA-332850	14-3	EH-347743	1-IB3		
ES-364255	6-SW1	SB-719018	2-8	EH-371596	1-IB1		
ES-367400	84	SC-364225B	14-12	EH-371596	1-IB2		
ES-367400	14-SW901	SC-371612	14-23	EI-360025	1-IC16		
ES-719025	85	SE-362389A-A	14-18	EI-360025	1-IC18		
ES-719025	4-SW1	SK-322105	14-21	EI-360036	1-IC19		
ES-719025	4-SW3	SK-362405	14-19	EI-362553	1-IC1		
ES-719026	86	SK-364216C	14-20	EI-362553	1-IC2		
ES-719026	4-SW2	SK-3642198	14-22	EI-362553	1-IC3		
ET-308867	92	SP-371613	14-24	EI-362553	1-IC4		
ET-308867	4-TR1	SZ-362390	14-17	EI-362553	1-IC5		
ET-316523	97	ZG-354553	14-25	EI-362553	1-IC6		
ET-316523	5-TR3	ZG-719019	2-9	EI-362553	1-IC7		
ET-316523	5-TR5	ZG-719022	2-11	EI-362553	1-IC8		
ET-338447	94	ZS-341959	14-14	EI-362553	1-IC9		
ET-338447	5-TR4	ZS-360715	14-4	EI-362553	1-IC10		
ET-338447	5-TR6	ZS-360952	14-10	EI-362553	1-IC11		
ET-349883	98	ZS-362499	14-13	EI-362553	1-IC12		
ET-349883	7-TR2	ZS-362534	14-9	EI-362553	1-IC13		
ET-353898	99	ZS-365316	14-5	EI-362553	1-IC14		
ET-353898	6-TR1	ZS-365757	14-16	EI-362553	1-IC15		
ET-353899	93	ZS-399295	14-8	EI-365099	1-IC17		
ET-353899	5-TR7	ZW-273892	14-7	MH-371594	1-1		
ET-353899	5-TR8	ZW-413267	14-6				
ET-353899	5-TR9						
ET-353899	5-TR10						
ET-353899	5-TR11						
ET-353899	5-TR12						
ET-353899	7-TR5						
ET-354083	101						
ET-354083	7-TR3						
ET-354083	8-TR1						
ET-354167	90						
ET-354167	6-PH1						
ET-356817	96						
ET-356817	7-TR6						
ET-360067	100						
ET-360067	5-TR1						
ET-360067	5-TR2						
ET-360067	7-TR4						
ET-360067	7-TR7						
ET-360067	7-TR8						
ET-360067	7-TR9						
ET-364060	91						
ET-364060	4-TR2						
ET-364060	4-TR3						
ET-364060	4-TR6						
ET-365748	95						
ET-365748	7-TR1						
ET-719024	102						
ET-719024	4-TR4						
EV-354253	104						
EV-354253	14-27						
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EV-354254	14-28						
EV-357619	5-VR1						
EV-357619	5-VR2						
EV-357619	5-VR3						
EV-357619	5-VR4						
EV-357619	5-VR5						
EV-357619	5-VR6						
EV-364321	103						
EV-364321	11-VR1						
EV-364321	11-VR2						
EV-365865	106						
EV-365865	6-VR1						
EV-371644	107						
EV-371644	10-VR1						
EW-357931	14-1A						
EW-358630	14-1E						
EW-358631	14-1D						
EW-359841	14-1C						
EW-365947	14-1						
EW-366055	14-1B						
EZ-302906	14-2						
EZ-370918	108						
EZ-370918	12-VR1						
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MZ-719424	2-19						

AKAI

MODEL X7000

SCHEMATIC DIAGRAM AND PC BOARDS

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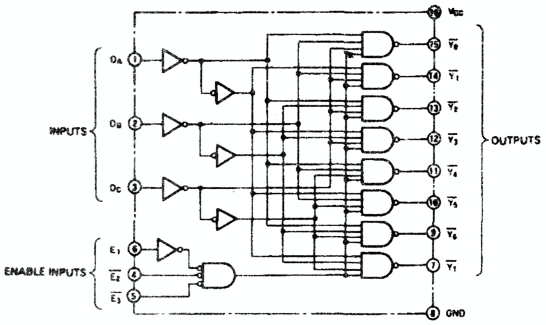
Information of ICs

NAME OF IC	FUNCTION
74HC00P	Quad 2 Input NAND
74HC04P	Hex Inverters
74HCU04	Hex Inverters
74HC32P	Quad 2 Input OR
74HC74P	Dual D-FFs with preset and clear
74HC86P	Quad 2 Input EX-OR
74HC138P	3 to 8 Demultiplexer
74HC157P	2 to 1 Data Selector
74HC173P	4 Bit Register 3-State
74HC174P	Hex D-FFs
74HC175P	Quad D-FFs
74HC245P	Octal 3-State Bus Tranceivers
74HC259P	8-Bit Addressable Latch
74HC373P	Octal D-FFs
74HC374P	4 x 4 Binary Maltiplier
74HC540P	Octal 3-State Buffer (Inverted)
74HC670P	4-4 Register Files (3-State)
74HC4040P	12 Stages Binary Counter
AM2504P	8-Bit/12-Bit Successive Apporoximation Registers
BA6110	Voltage Controlled Low Noise OP-Amplifier
BA9201-NS	8-Bit D/A Convertor with Latch
BA9221	12-Bit D/A Convertor
BU18400A-PS	8-Bit Micro Computer
DG211CJ	Quad Analog Switch
IR9311	Comparator

NAME OF IC	FUNCTION
LC3664N-12	8 x 8-Bit RAM
M5216P	Headphone Amplifier
M5218P	Dual Low Noise OP-Amplifier
M5220P	Dual Low Noise Voltage Amplifier
M5223P	Dual J-FET Input OP-Amplifier
M5236P	Variable Output Voltage Regulator
M5238P	Dual FET Input OP-Amplifier
MB8863NM-G	Asynchronus Communications Interface Adaptor
MB87013	Quick Disk Interface
MB89251AP-G	Universal Synchronus Receiver/ Transmitter
MB89254	Programmable Timer Control
MF6CN-50	6th Order Switched Capacitor Butter Worth Low Pass Filter
MF10CCN	Universal Switched Capacitor Filter
MN41464-12	4x 64 K-Bit N-Mos Dynamic RAM
NJM78M15	+15V Regulator
NJM79M15	-15V Regulator
PST520D-2	Reset
IMP82C37AP-5	Multi Mode DMA Controller
μPD78C11G-044-36	8-Bit Micro Computer with A/D Converter
μPD8253C-2	Programmable Interval Timer
μPD8279C-2	Programmable Key Board/Display Controller
TMM27128AP-20	8 x 16k-Bit EPROM

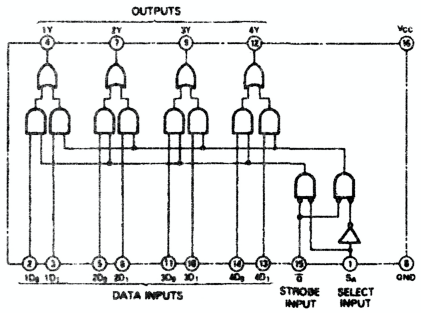
74HC138P (3 to 8 Demultiplexer)



TRUTH TABLE

INPUTS					OUTPUTS							
ENABLE		SELECT										
G1	G2*	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	H	L	H	H	H	H	H	H
H	L	L	H	L	H	H	L	H	H	H	H	H
H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	H	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	L	H	H
H	L	H	H	L	H	H	H	H	H	H	L	H
H	L	H	H	H	H	H	H	H	H	H	H	L

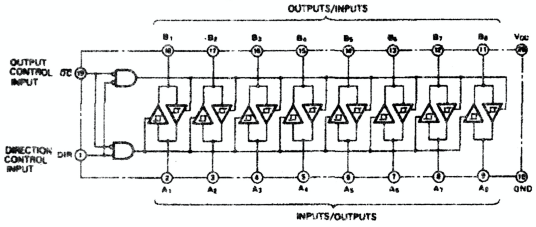
74HC157P (2 to 1 Data Selector)



TRUTH TABLE

INPUTS		OUTPUT Y
Select	Strobe G	
X	H	L
L	L	D_0
H	L	D_1

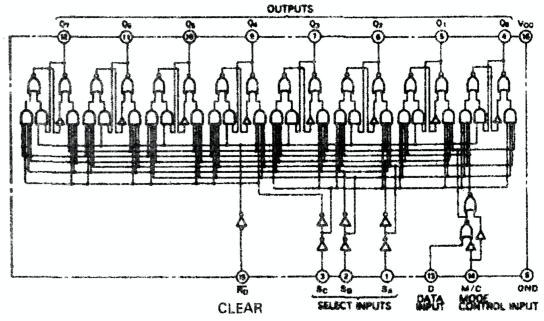
74HC245P (Octal 3 state Bus Transceiver)



TRUTH TABLE

	$\overline{G}$	DIR
A → B	L	H
B → A	L	L
A OFF B	H	H.L

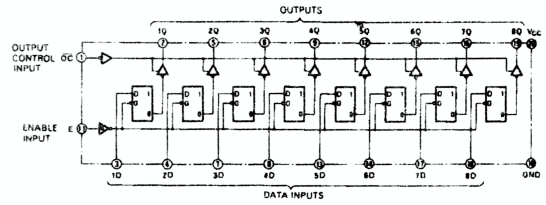
74HC259P (8 bit Addressable Latch)



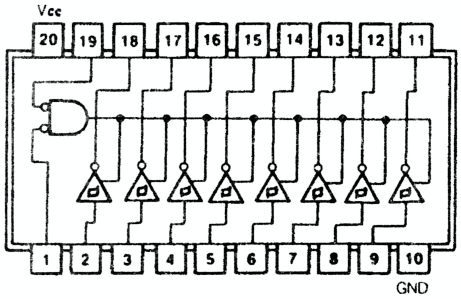
TRUTH TABLE

INPUTS		OUTPUT OF ADDRESSED LATCH	EACH OTHER OUTPUT	FUNCTION
CLEAR	$\overline{G}$			
H	L	D	Qi_0	Addressable Latch
H	H	Qi_0	Qi_0	Memory
L	L	D	L	8-Line Demultiplexer
L	H	L	L	Clear

74HC373P (Octal D-FFS)



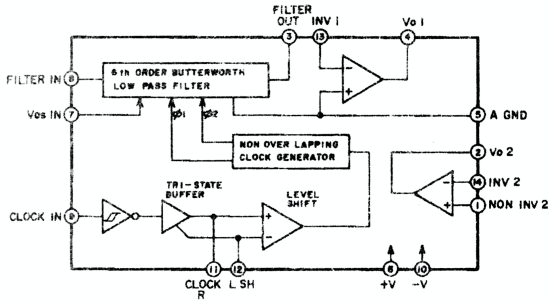
74HC540P (Octal 3 state Buffer (Inverted))

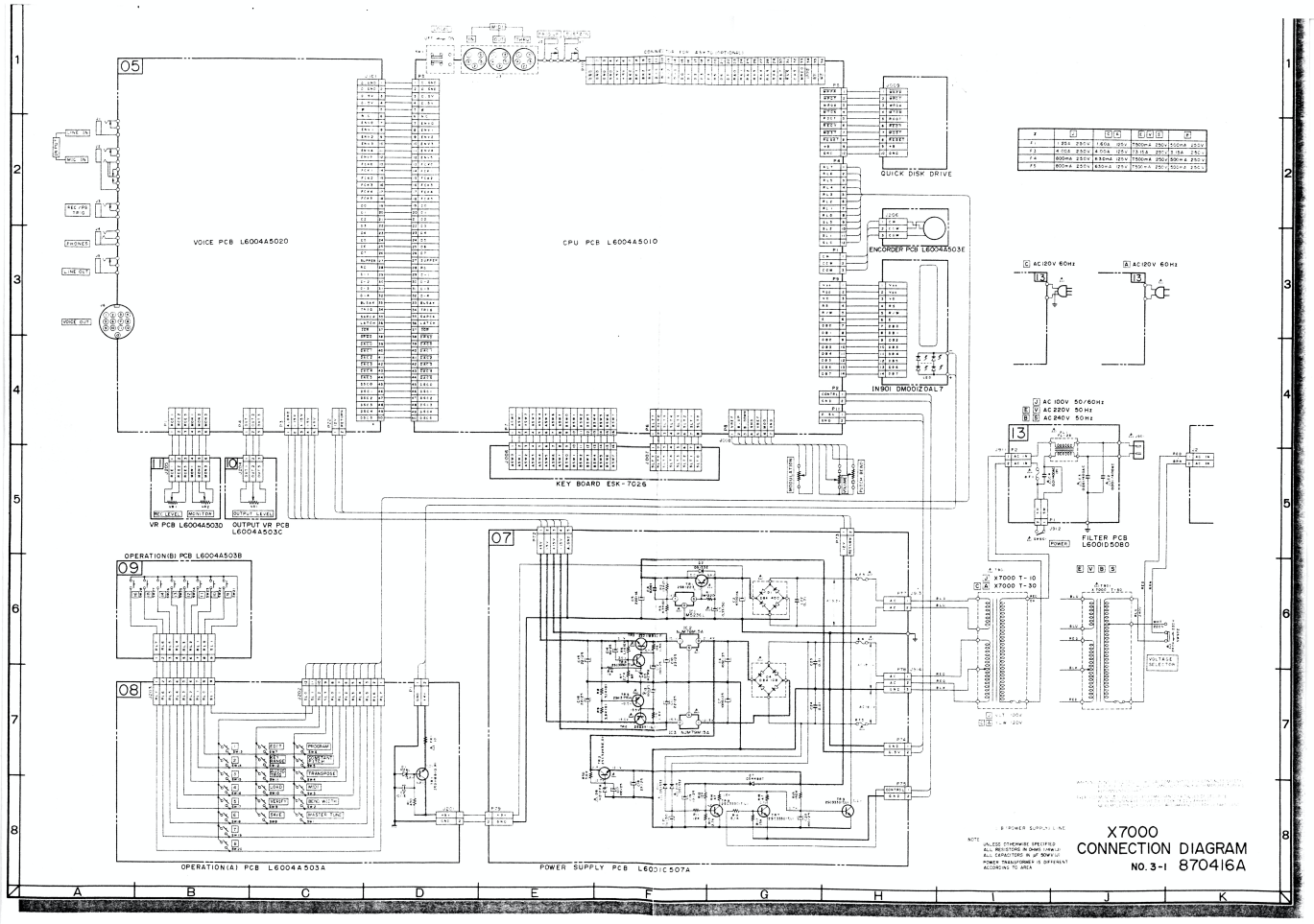


TRUTH TABLE

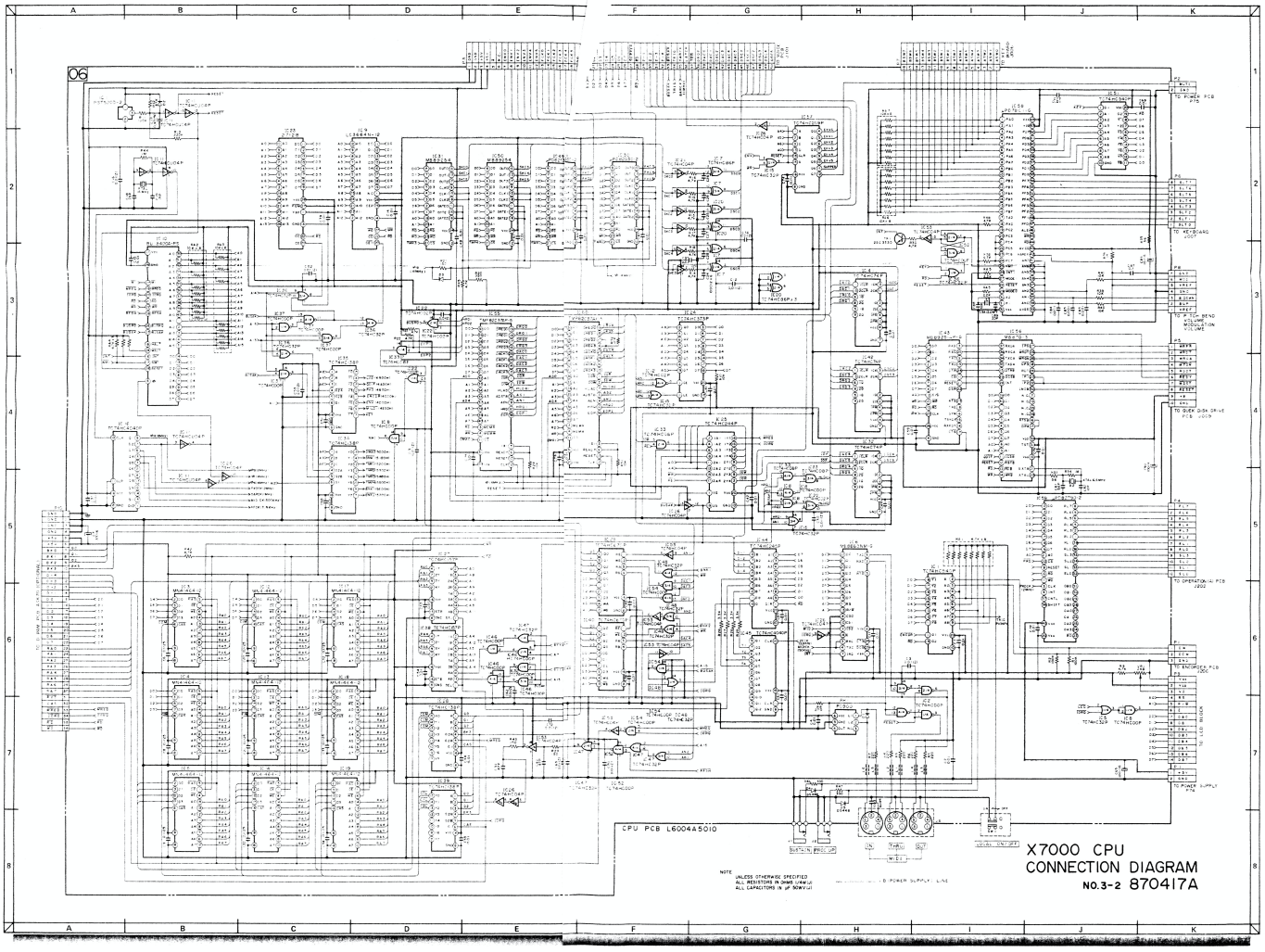
INPUT		OUTPUT
E_1	E_2	
L	L	$\overline{D}$
H	X	High Z
X	H	

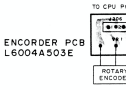
MF 6 CN – 50 (6th order switched capacitor Butter worth Low pass filter)

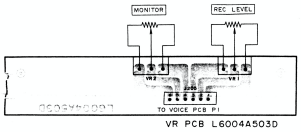



05
VOICE PCB L60044503O
CPU PCB L60044501O
QUICK DISK DRIVE
ENCORDER PCB L60044503E
IN90I DMDOI2OAL7
KEY BOARD ESK-7026
VR PCB L60044503O
OUTPUT VR PCB L60044503C
FILTER PCB L60OID5080
OPERATION(B) PCB L60044503B
OPERATION(A) PCB L60044503A
POWER SUPPLY PCB L603IC507A
X7000 T-10
X7000 T-30
X7000
CONNECTION DIAGRAM
NO.3-1 870416A

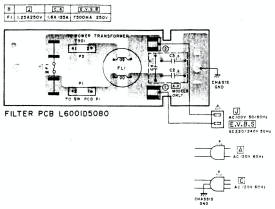
4

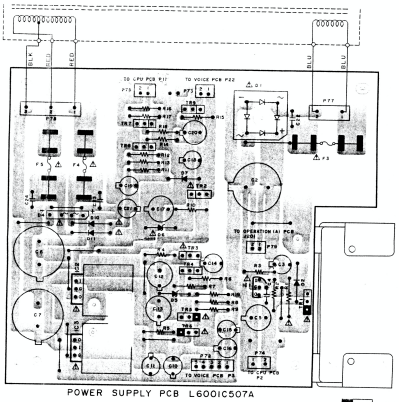

06
CPU PCB L6004A5010
X7000 CPU
CONNECTION DIAGRAM
NO.3-2 870417A



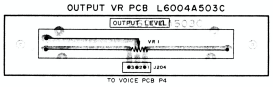


VR PCB L6004A503D

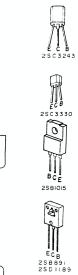




POWER SUPPLY PCB L6001C507A

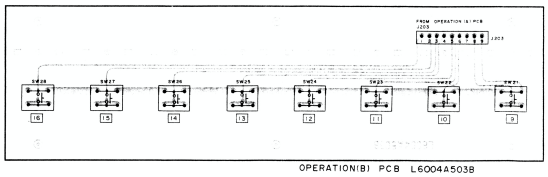


OUTPUT VR PCB L6004A503C

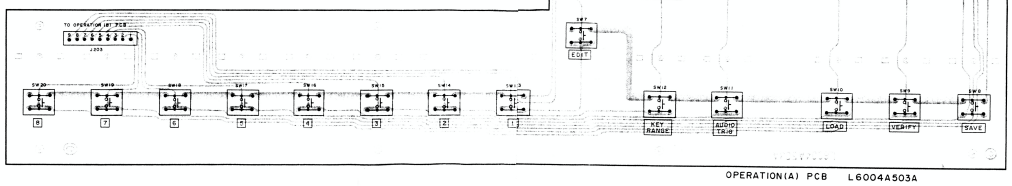


PNP TRANSISTOR

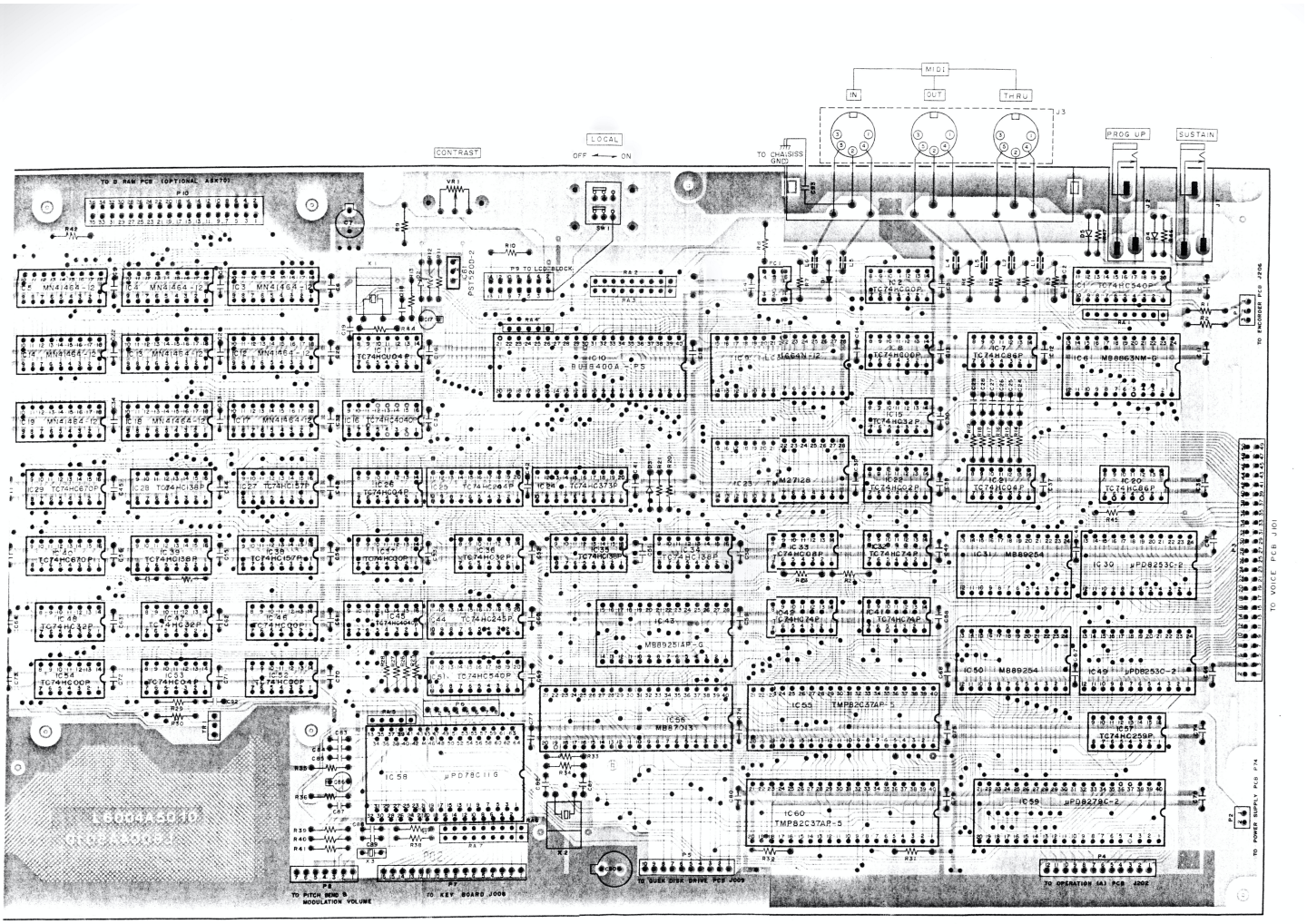
NPN TRANSISTOR



OPERATION(B) PCB L6004A503B



OPERATION(A) PCB L6004A503A


MIDI
IN
OUT
THRU
J3
CONTRAST
LOCAL
OFF
ON
TO CHASSIS GND
PROG UP
SUSTAIN
TO D RAM PCB (OPTIONAL ASK70)
P10
P9 TO LCD BLOCK
TO ENCODER PCB J705
TO VOICE PCB J101
TO POWER SUPPLY PCB P74
TO PITCH BEND & MODULATION VOLUME
TO KEY BOARD J003
TO DISK DRIVE PCB J003
TO OPERATION SW PCB J002
L6004A5010
IC1 TC74HC540P
IC2 TC74HC00P
IC3 MN41464-12
IC4 MB8863NM-G
IC5 LC51464N-12
IC6 TC74HC86P
IC7 TC74HC08P
IC8 TC74HC00P
IC9 TC74HC540P
IC10 BU9840A
IC11 TC74HC04P
IC12 TC74HC32P
IC13 TC74HC04P
IC14 TC74HC86P
IC15 TC74HC32P
IC16 TC74HC540P
IC17 MN41464-12
IC18 MN41464-12
IC19 MN41464-12
IC20 TC74HC670P
IC21 TC74HC138P
IC22 TC74HC157P
IC23 TC74HC00P
IC24 TC74HC32P
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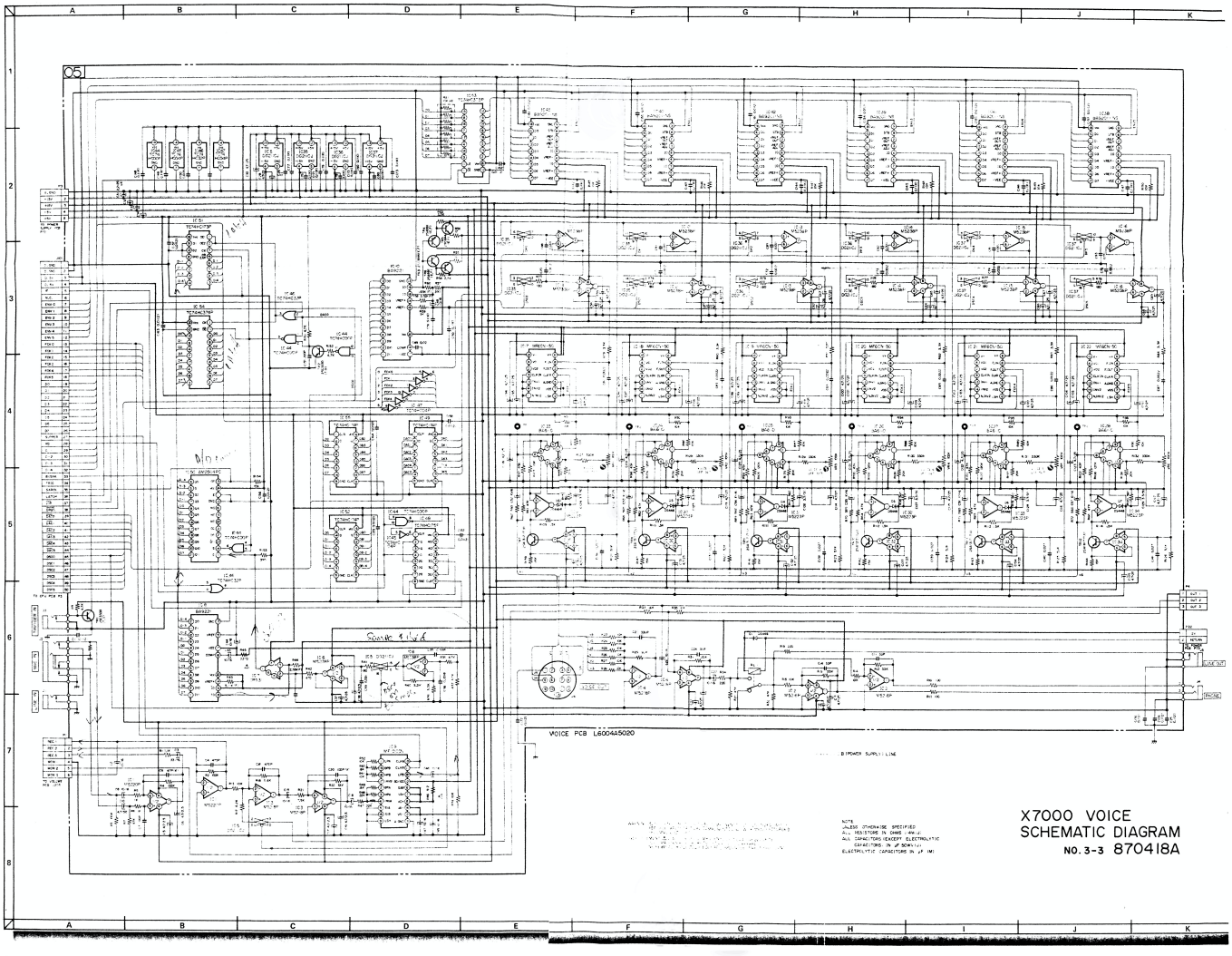
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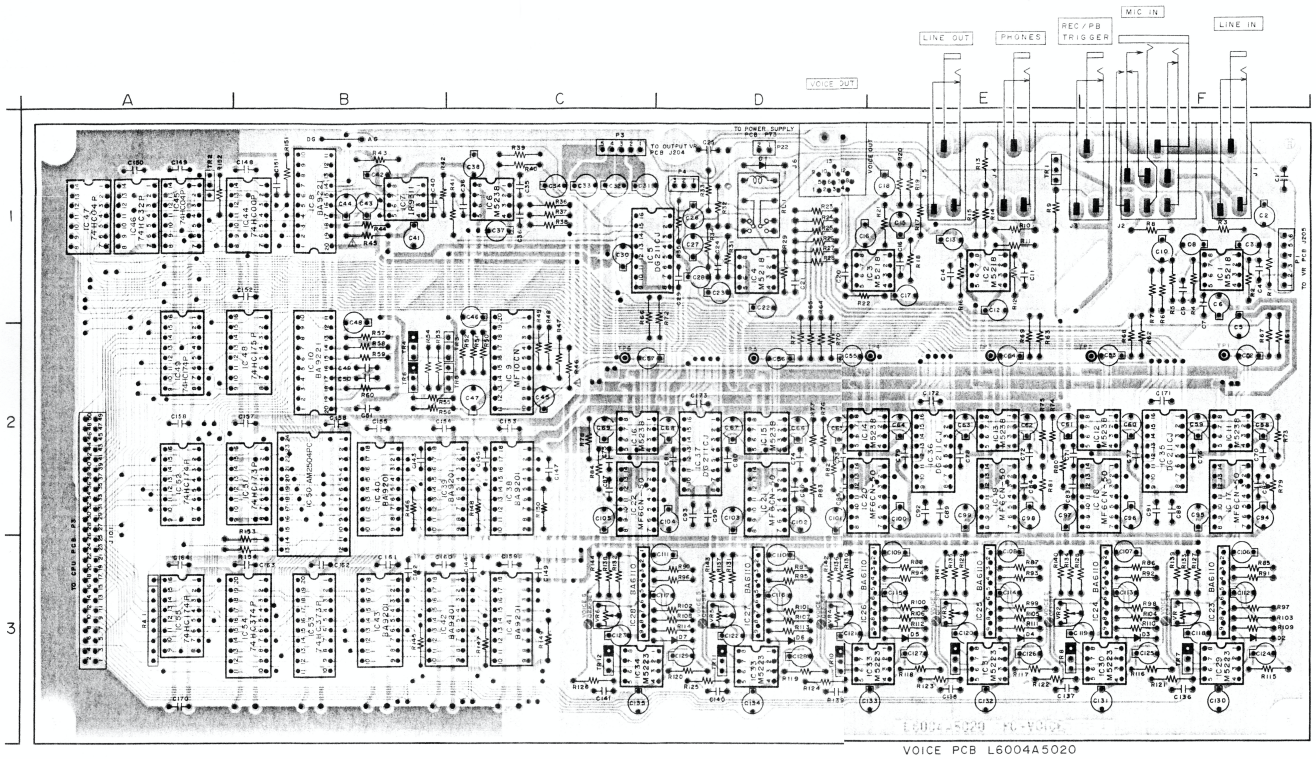
VOICE PCB L600A5020
X7000 VOICE
SCHEMATIC DIAGRAM
NO. 3-3 870418A



VOICE PCB L6004A5020

LOCATION OF COMPONENT

IC 1 ------F1
IC 2 ------E1
IC 3 ------D,E1
IC 4 ------D1
IC 5 ------C,D1
IC 6 ------C1
IC 7 ------B1
IC 8 ------B1
IC 9 ------C-1-2
IC10 ----- B2
IC11 ----- F2
IC12 ----- F2
IC13 ----- E2
IC14 ----- D,E2
IC15 ----- D2
IC16 -----C2
IC17 -----F2,3
IC18 -----F2
IC19 -----E2
IC20 -----D,E2
IC21 ---- D2
IC22 ---- C2
IC23 ---- F3
IC24 ---- F3
IC25 ---- E3
IC26 ---- E3
IC27 ---- D3
IC28 ---- G
IC29 ---- F3
IC30 ---- F3
IC31 ---- E3
IC32 ---- D,E3
IC33 ---- D3
IC34 ---- C3
IC35 ---- F2
IC36 ---- E2
IC37 ---- D2
IC38 ---- C2
IC39 ---- B,C2
IC40 ---- B2
IC41 ---- C3
IC42 ---- C3
IC43 ---- B3
IC44 ---- B1
IC45 ---- A1
IC46 ---- A1
IC47 ---- A1
IC48 ---- B2
IC49 ---- A2
IC50 ---- B2-3
IC51 ---- B2
IC52 ---- A2
IC53 ---- B3
IC54 ---- B3
IC55 ---- A3

TRANSISTOR

TR 1 ---- E1
TR 2 ---- A1
TR 3 ---- C2
TR 4 ---- B2
TR 5 ---- C2
TR 6 ---- B2
TR 7 ---- F3
TR 8 ---- E3
TR 9 ---- E3
TR10 ---- D3
TR11 ---- D3
TR12 ---- C3

CONNECTOR

P 1 ---- F1
P 3 ---- C1
P 4 ---- D1
P 22 ---- D1
J 1 ---- F1
J 2 ---- F1
J 3 ---- E,F1
J 4 ---- E1
J 5 ---- E1
J 6 ---- D1
J101 ---- A2,3

PNP TRANSISTOR
NPN TRANSISTOR

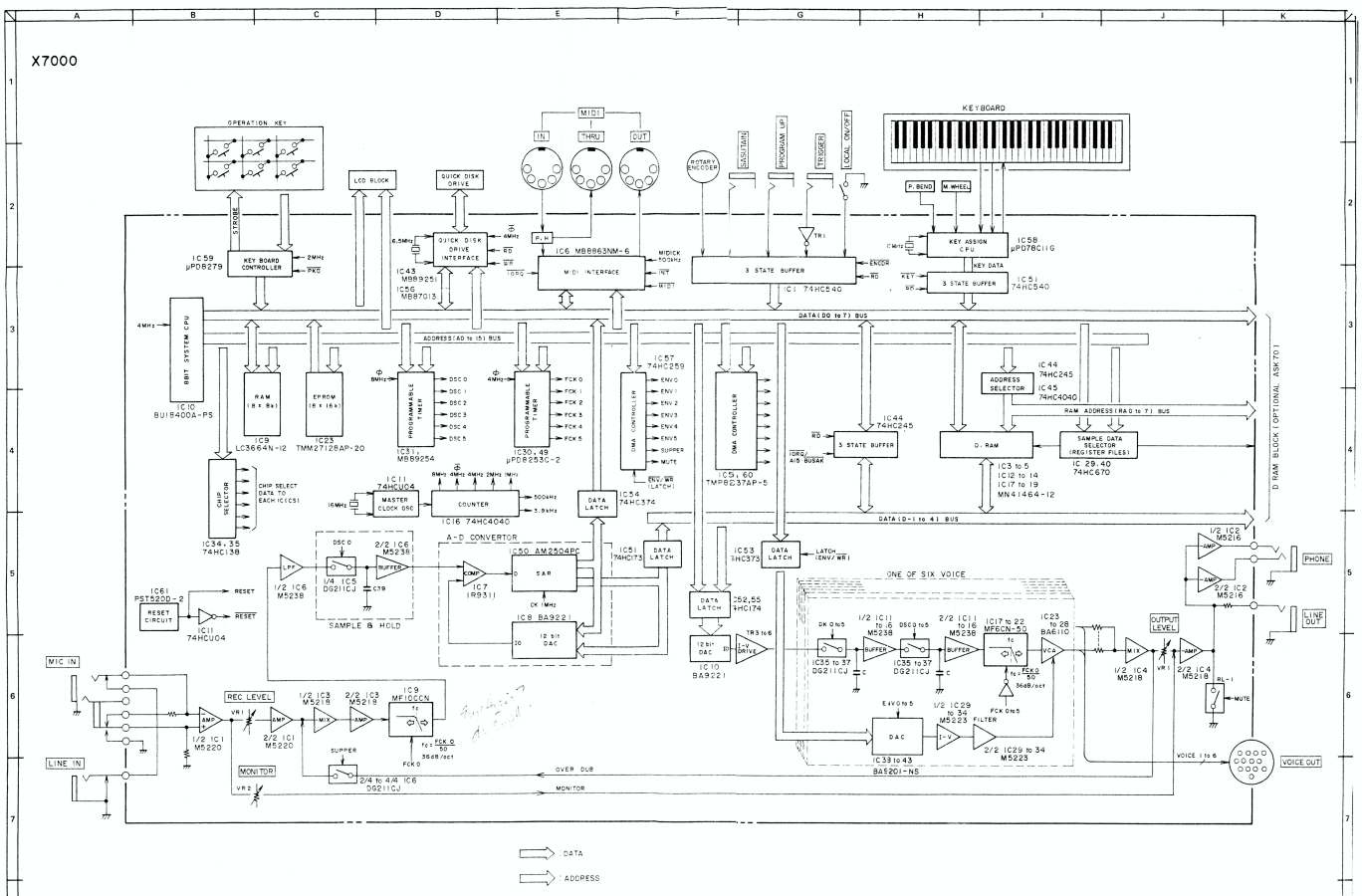
2SA131,7
2SC3330

2SA991
2SC1844

WARNING: INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: CECI INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.

X7000



X7000
BLOCK DIAGRAM
NO. 870415A

X7000

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