

SUPER JX JX-10

SERVICE NOTES *First Edition*

SPECIFICATIONS

Keyboard : 76 key, (E to G)

Memory Capacity

- a. Patch Memory
 - Internal Memory : 64
 - Memory Cartridge : 64
- b. Tone
 - Preset : 50
 - Internal Memory : 50
 - Memory Cartridge : 50
- c. Sequencer Data
 - (Using the supplied Memory cartridge M-16C or M-64C)

M-16C : Approx. 400 notes

M-64C : Approx. 1600 notes

Output:

- MIX
 - H = $8K\Omega$, +20dBm max.
 - M = $41K\Omega$ +5dBm max.
 - L = $47.8K\Omega$ -10dBm max.
- UPPER
 - L $3.3K\Omega$
 - R $3.3K\Omega$
- LOWER
 - L $3.3K\Omega$
 - R $3.3K\Omega$

HOLD PEDAL OFF : 0V ; ON : 5V

PEDAL SW OFF : 0V ; ON : 5V

C1, C2 0V-2.5V

Dimensions: 1186 (W) x 375 (D) x 101 (H) mm
46-11/16 x 14-3/4 x 4 in.

Weight: 14 kg/30 lb. 14 oz.

Power Consumption : 28W

Accessories

Connection Cord x 2

Memory Cartridge

M-16C x 1

M-64C x 1

Edit Map

Music Rest

Owner's Manual

MIDI Guide Book "MIDI"

Options

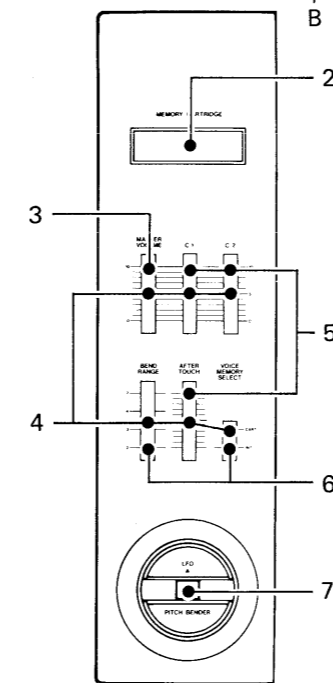
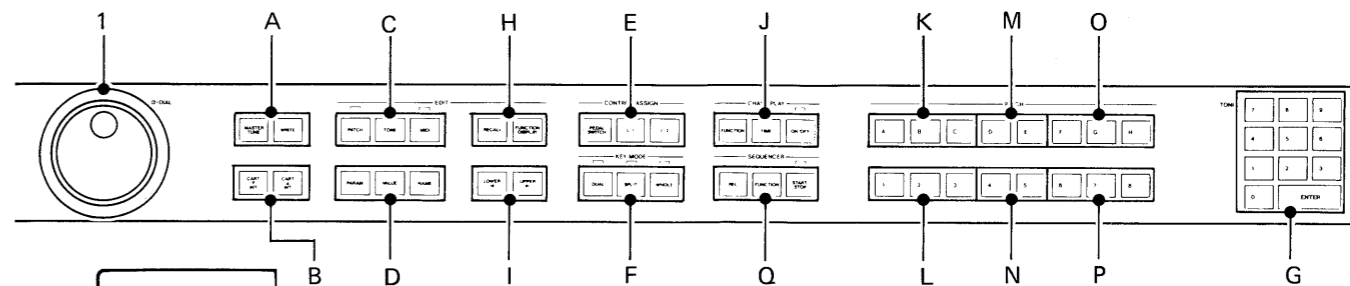
Programmer PG-800

Expression Pedal EV-5

Pedal Switch DP-6, DP-2

Memory Cartridge M-16C, M-64C

Carrying Case



No.	PART NAME	DESCRIPTION	PART NO.
1	α -Dial Knob		22485102
	Rotary Encoder	EC16B40B	13279792
	α -dial Escutcheon		22223314
2	Cartridge Socket Assy		7616505000
3	Slide Pot.	EWA HAO X15 D54	13359534
4	Knob		22485103
5	Slide Pot.	EWA NFE X15 B14	13339455
6	Slide SW	EWA NAM X15 300	13159509
7	Bender Unit	PB-11	23273795

LETTER	KEYTOP ASSY	PART NO.
A	MASTER TUNE, WRITE	22473775
B	CART ▶ INT, CART ◀ INT	22473776
C	PATCH, TONE, MIDI	22473777
D	PARAM, VALUE, NAME	22473778
E	PEDAL SWITCH, C1, C2	22473779
F	DUAL, SPLIT, WHOLE	22473780
G	TEN KEYS(0 - 9), ENTER	22473781
H	RECALL, FUNCTION DISPLAY	22473782
I	LOWER ◀, UPPER ▶	22473783
J	FUNCTION, TIME, ON/OFF	22473784
K	A, B, C	22473785
L	1, 2, 3	22473786
M	D, E	22473787
N	4, 5	22473788
O	F, G, H	22473789
P	6, 7, 8	22473790
Q	REC, FUNCTION, START/STOP	22473792

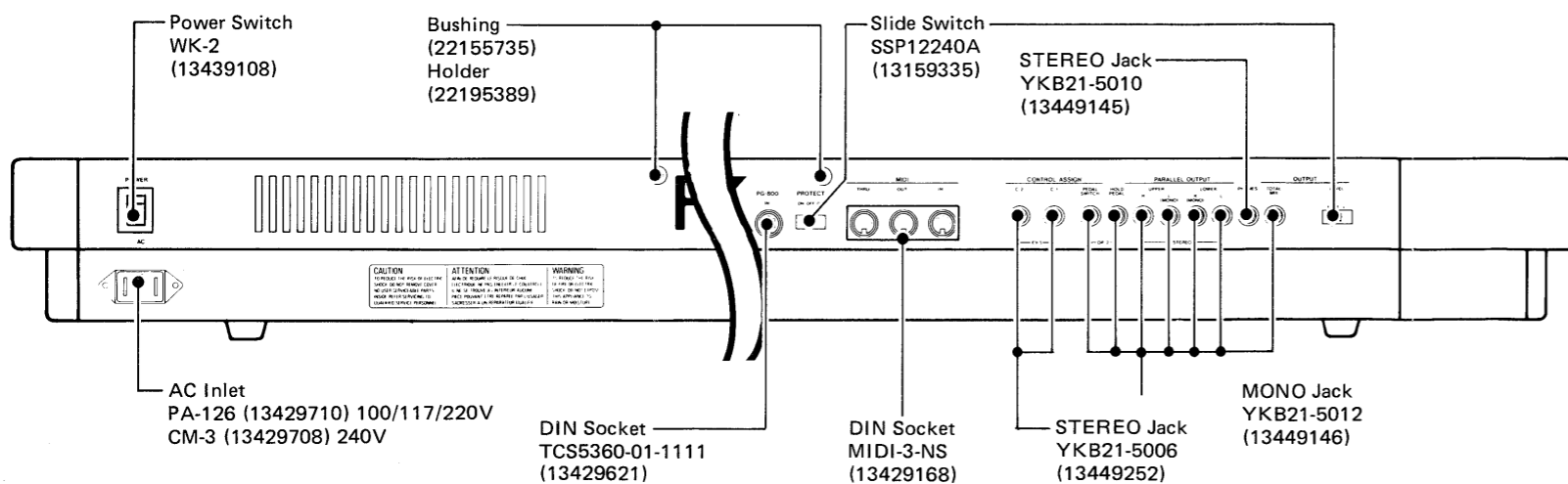
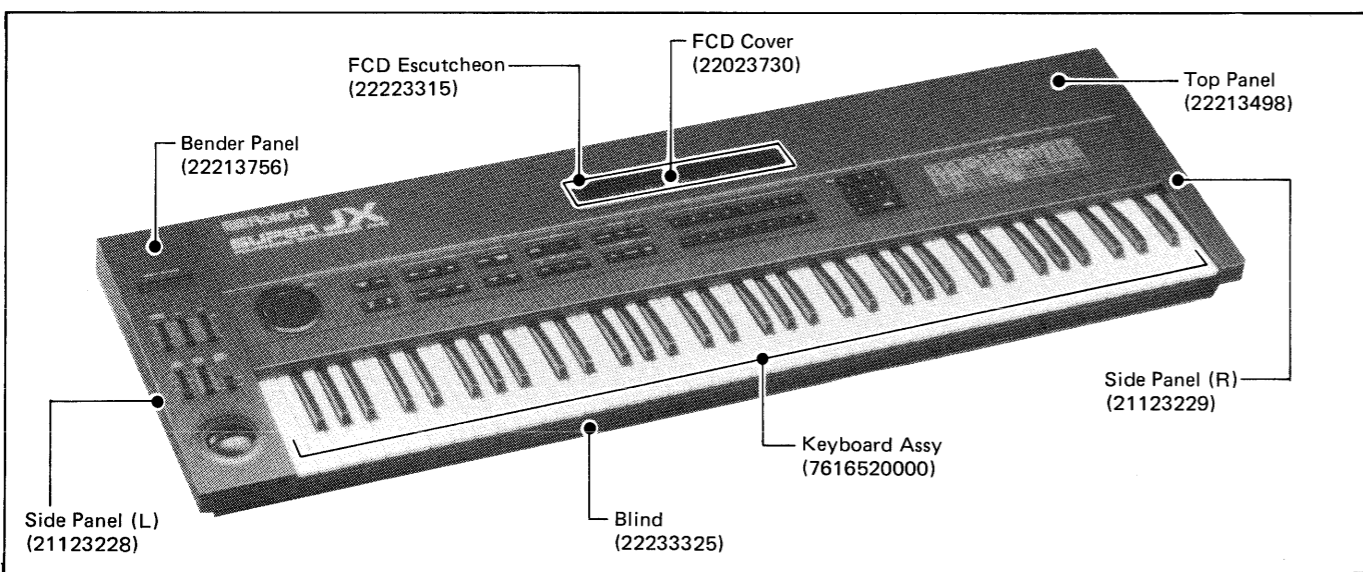
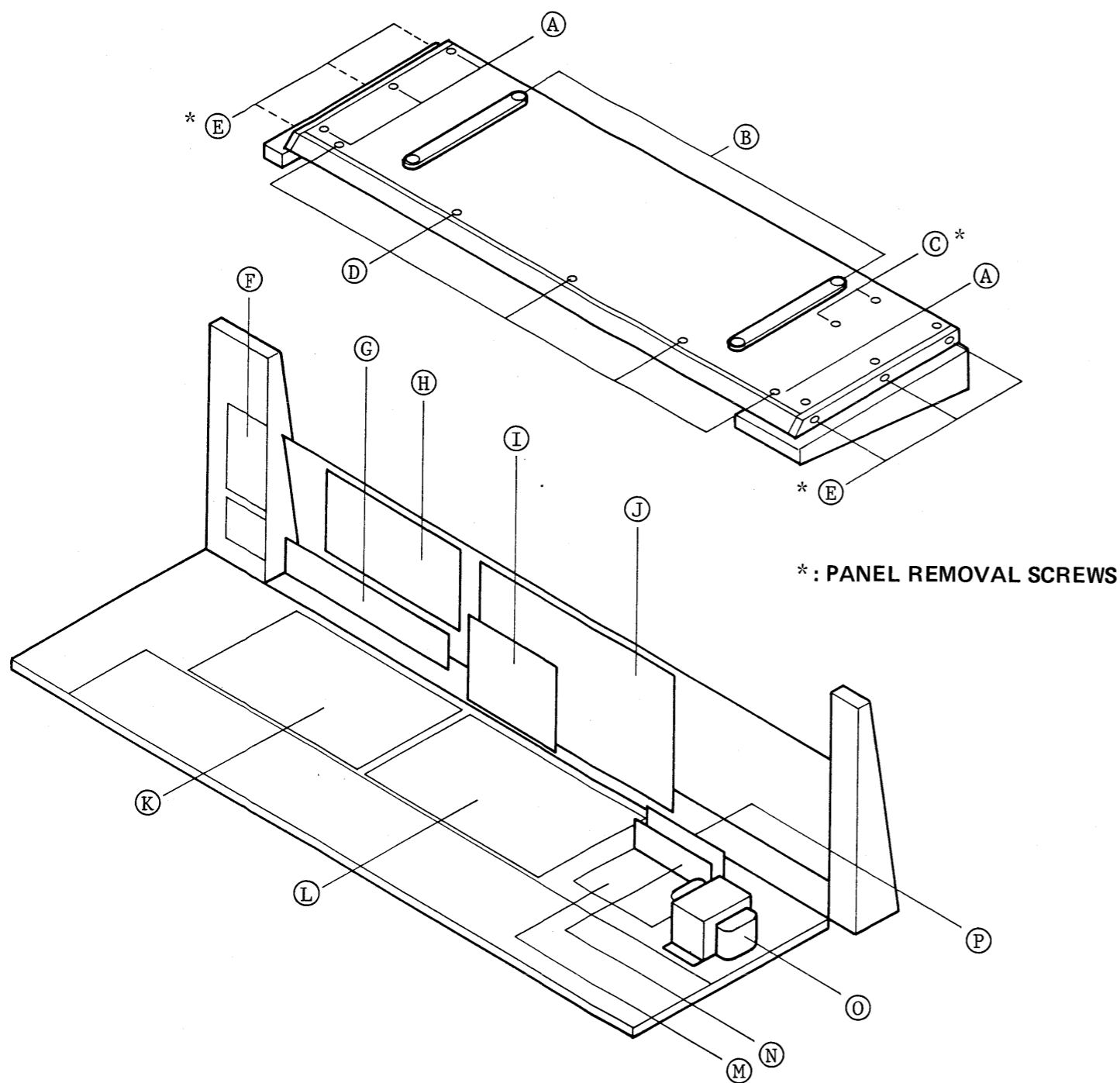
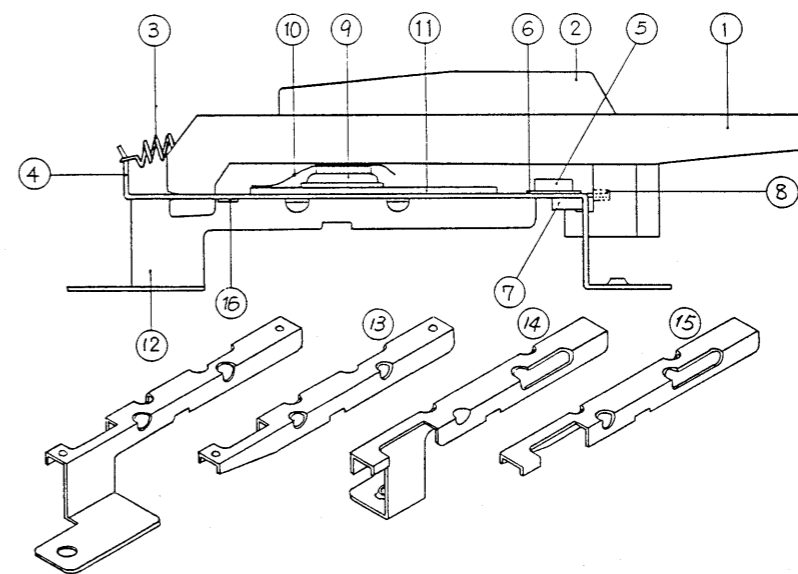


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*: PANEL REMOVAL SCREWS

1	22575216	NATURAL KEY C, F 257-216	8	22155716	GUIDE BUSH
	22575214	NATURAL KEY D 257-214	9	22185218	KEY SWITCH 12P 218-218
	22575217	NATURAL KEY E, B 257-217	10	22245146	SWITCH COVER 224-146 (24P)
	22575215	NATURAL KEY G 257-215		22245147	SWITCH COVER 224-147 (28P)
	22575213	NATURAL KEY A 257-213	11	7616522000	KEY SWITCH ASSY 24P LOW
	22575219	NATURAL KEY E' 257-219		7616523000	KEY SWITCH ASSY 24P MID
22575220	NATURAL KEY G' 257-220	7616524000		KEY SWITCH ASSY 28P HI	
2	22575212	SHARP KEY 257-212	12	22035131	STAND B-JX 203-131
3	22175176	KEY SPRING 217-176 (NATURAL KEY)	13	22125541	ANGLE B-JX 212-541
	22175177	KEY SPRING 217-177 (SHARP KEY)	14	22035130	STAND A-JX 203-130
4	22815521	CHASSIS 281-521	15	22125542	ANGLE A-JX 212-542
5	22265452	FELT 226-452	16	22135415	STOPPER A 213-415
6	23165664	AFTER TOUCH ASSY		22135418	STOPPER D 213-418
7	22265453	FELT 226-453			



LETTER	DESCRIPTION	PART NO.	LETTER	DESCRIPTION	PART NO.
(A)	3 x 16mm RH BLK with Washer		(I)	Assigner Board Assy	7616510000
(B)	Rubber Foot	22355129	(J)	Display Board Assy	7616529000
(C)	4 x 16mm Truss BLK		(K)	Module Board Assy (LOWER)	761657000
(D)	4 x 16mm Truss BLK		(L)	Module Board Assy (UPPER)	
(E)	3 x 12mm Binding Bayonet		(M)	Power Supply Board Assy	7616516100 100/117V 7616516400 220V 7616516500 240V
(F)	Volume Board Assy	7616530000	(N)	Head Sink	22463487
(G)	Jack Board Assy	7616519000	(O)	Power Transformer	22453443U0
(H)	Switch Board Assy	7616528000	(P)	Sub Heat Sink	22463488

PARTS LIST

PANEL, CASING

22213498	Top Panel
22213756	Bender Panel
21133147	Bottom Board
22233325	Blind Panel
21123228	Side Panel (left)
21123229	Side Panel (right)
22123197	Plate
22123550	Angle (Same for both R, L)

KNOB, BUTTON

22485103	Slide Pot., switch (Bender panel)
22485102	Radial
22473775	Keytop Assy A (MASTER TUNE, WRITE)
22473776	Keytop Assy B (CART → INT, CART ← INT)
22473777	Keytop Assy C (PATCH, TONE, MIDI)
22473778	Keytop Assy D (PALAM, VALUE, NAME)
22473779	Keytop Assy E (PEDAL SWITCH, C1, C2)
22473780	Keytop Assy F (DUAL, SPLIT, WHOLE)
22473781	Keytop Assy G (TEN KEYS, ENTER)
22473782	Keytop Assy H (RECALL, FUNCTION DISPLAY)
22473783	Keytop Assy I (+ LOWER, UPPER →)
22473784	Keytop Assy J (FUNCTION, TIME, ON/OFF)
22473785	Keytop Assy K (A B C)
22473786	Keytop Assy L (1 2 3)
22473787	Keytop Assy M (D E)
22473788	Keytop Assy N (4 5)
22473789	Keytop Assy O (F G H)
22473790	Keytop Assy P (6 7 8)
22473792	Keytop Assy Q (REC, FUNCTION, START/STOP)

SWITCH

13159509	EWA-NAM X15 300 (Portamento ON/OFF Bend range select)
13159335	SSSP12240A (Output level, Memory protect)
13129704	SKH CAB 131A (All key switches)
13279792	EC 16B 40B (Rotary encoder for radial)
13149108	WK2A44 3A (Power)

JACK, SOCKET

13449146	YKB21-5012 (MONO)
13449145	YKB21-5010 (STEREO)
13449252	YKB21-5006 (STEREO)
13429168	MIDI3-NS (5P DIN, triplet)
13429621	TCS5360-01-1111 (6P DIN, programmer)
13429710	AC Inlet PA-126 (100/117/220V)
13429708	AC Inlet CM-3 (240V)

MEMORY CARTRIDGE SOCKET

23425803	SHELL (Black)
23425165	PBR5-28U-T01-S (Socket)

POWER TRANSFORMER

2245344300	245-44300
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COIL

12449251	DC-DC Converter
12449244	SC-02-15E (Line filter)

RESONATOR

12389737	HC/U 16MHz (Crystal)
12389748	CSB600P (Ceralock)

PCB ASSY

7616510000	Assigner Board
7616507000	Module Board
7616516200	Power Supply Board (100/117V)
7616516400	Power Supply Board (220/240V)
7616519000	Jack Board
7616528000	Switch Board
7616529000	Display Board
7616530000	Volume Board

POTENTIOMETER

13339455	EWA-NFE X15 B14 (Slide Pot.)
13359354	EWA-NAO X15 D54 (Slide Pot.)
13339461	EWA-NFD X15 B14 (Slide Pot.)
13299193	EVN-D4A A00 B54 (Trimmer)
13299199	EVN-D4A A00 B13 (Trimmer)

IC

15229830	MB63H149PF-G-BND	(Dynamic gate array)
15179334	TC5564 PL-20	(C-MOS static RAM)
15179343F0	MB8416A-12-SK-G	(C-MOS static RAM)
15179733	TC27256 D-20-733	(ROM A Assigner board)
15179732	MBM2764-25Z-732	(ROM B LOWER Module board)
15179745	MBM2764-25Z-745	(ROM C UPPER Module board)
15179203	HD63B03RP	(CPU on assigner board)
12519150	μPD7001C	(8-bit A/D converter)
15179142F0	MBL8031AH-P-G	(CPU on Module board)
15179358	μPD8155HC-2	(8-bit static RAM)
15179185B0	M5M82C54 P-6-D-1	(Programmable counter)
15219149	MM5437	(Digital noise source)
15159503	TC40H000P	(C-MOS Inverter)
15159524	TC40H245P	(C-MOS Driver)
15159511	TC40H174P	(C-MOS D-FF)
15159508	TC40H373P	(C-MOS Latch)
15169301B0	M74LS00	(Quad NAND)
15169304B0	M74LS04	(Hex inverter)
15169308B0	M74LS30	(8-input NAND)
15169347B0	M74LS32	(Quad OR)
15169311H0	HD74LS74	(Dual D-FF)
15169318B0	M74LS138	(Decoder)
15169325B0	M74LS273	(8 D-FF)
15169327B0	M74LS367	(Hex buffer)
15169305B0	M74LS08	(Quad 2-input AND)
15169321B0	M74LS161	(Counter)
15159128T0	TC4050BP	(Hex buffer)
15159114T0	TC4052BP	(Analog switch)
15159115T0	TC4066BP	(Quad analog switch)
15159113D0	BU4051BP	(Analog switch)
15159124	HD14093	(Quad 2-input NAND)
15179240	μPD7538A-013	(Display 4-bit CPU)
15219159	μPD6300C	(FIP latch driver)
15189171	M5218P	(OP amp)
15189154J0	NJM064	(Quad op amp)
15219213	MN-3009	(BBD)
15169504	MN-3101	(BBD Driver)
15219157	M5241L	(VCA for electronic volume)
15189136	M5218L	(OP amp)
15229826	IR-3R05	(VCF-VCA Pack)
15199117	M5230L	(V-regulator)

TRANSISTOR

15119106	2SA733Q	
15129107	2SC945Q	
15119814	2SB1015-0	
15129827	2SD1406-0	
15119601	2SB605L	
151291300G	2SC1583G	
15129613	2SD1207S	
15119819	2SB507E	
15129820	2SD313E	
15129170	2SC945R	
Gm selected for Q6, Q7, Q10 of Module board VCF/VCA module; dotted in Red, Orange, Yellow or Green. 18 2SC945R (3 for each voice) on a given Module board should be of the same color dot for reproducing uniform timber.		

15139103	2SK30A-GR	
15119133	DTA114EF	(Digital transistor)
15129150	DTC114EF	(Digital transistor)

DIODE, LED, PHOTO COUPLER

15019125	1SS-133	
15019143	1S-116	
15019603	05Z9.1Z	
15019605	05Z43Y	
150196070X	05X6.2X	
15029718	FIP 32B 6R	(Fluorescent indicator)
15029206	GL3HD5 (LED)	
15229706	TLP-552 (Photo coupler)	
15019208	1SR-35-200	(Diode on Power supply board)
15019243	1B4B1 (Rectifier bridge)	
15019257	4D4B41 (Rectifier bridge)	

RESISTOR

13919313	RMLS 8-104J	(100k x 8 array)
13919321	RMLS 13-103J	(10k x 13 array)
13919310	RMLS 8-103J	(10k x 8 array)
13919308	RMLS 6-103J	(10k x 6 array)
13919147	RMLS 4-103J	(10k x 4 array)
13919335	RGLD 6-102J	(1k x 6 array)
13919146	RKM 14L 503F	(R-2R D/A array)
13919168	RMLS 4-224J	(220k x 4 array)
13919336	RMLS 8-224J	(220k x 8 array)
13919322	RMLS 4-102J	(1k x 4 array)

CAPACITOR

13529104	DE7150F472MVA1	(Line bypass)
13549216Y0	0.01μF 50V, G (±2%)	(Film)
13529116	DD107SL221G50V	(220pF, 50V)
13529128	DD107CH680J50V	(68pF, Temperature compensating)

FUSE, FUSE HOLDER

12559336	GG5 2A	(100/117V)
12559513	CEE T1A	(220/240V)
12199552	UF0005-02	(Fuse holder)

CONNECTOR HOUSING

13439263	5267-06A	
13439264	5267-07A	
13439265	5267-08A	
13439269	5267-09A	
13439278	5267-11A	
13439267	5267-12A	
13439266	5267-10A	
13439261	5267-04A	
13439285	5268-03A	
13439318	5268-11A	
13439273	5268-06A	
13439271	5268-02A	
13439272	5268-04A	
13439270	5268-08A	
13439280	Card fitting CF-028	(Sumi card connector)
13439315	Card fitting CF-034	(Sumi card connector)
13439316	Card fitting CF-127	(Sumi card connector)
13439317	Card fitting CF-134	(Sumi card connector)

AC CORD, CORD SET

13439801	PVFF 2.5m	(100V)
12369504	Cord bush SR-4N-4	(100V)
22193842	Cord holder	(100V)
13439812F0	VC-704-J01	(117V)
13439813F0	EC-210-J01	(220V)
13439814F0	SC-415-J06	(240V 3P, Australian)
13436846	BH-301-J01	(240V 3P, England)

COVER

22023730	FCD cover	
22253118	Bender shield cover	
22253122	Shield cover	
22243143	Slide volume cover 224-143	
22673503	Cover 267-503	(Heat sink)
22023736	LED cover 202-736	

COLLAR, BUSHING

12159713	Collar TA-305	(5mm)
12159734	Collar TA-307	(7mm)
12159733	Collar TA-310	(10mm)
12159715	Bushing TB-300	

FLAT CABLE

13479189	Sumi card SMCD 28 x 700-BD10P1.25	
13479184	Sumi card SMCD 34 x 250-AD x 10	
13479185	Sumi card SMCD 27 x 100-AD x 10	

HEAT SINK

22463487	246-487	
22463488	Sub 246-488	
22465124	246-124 (Rectifier 4D4B41)	

WIRING

23493388	A	
23493389	B	
23493390	C	

CUSHION

22263366	Cushion A	
22263367	Cushion B	
22263368	Cushion C	

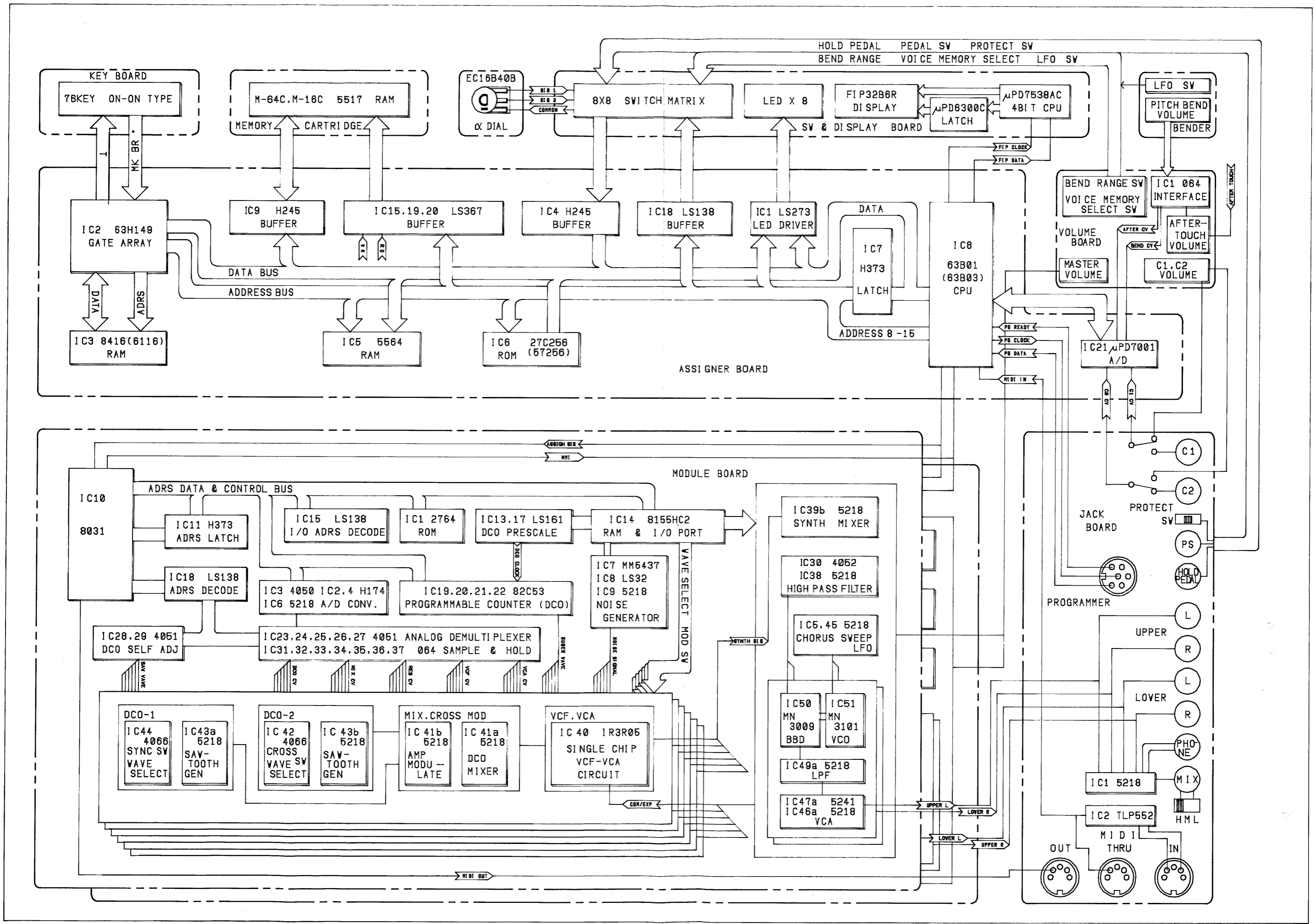
MISCELLANEOUS

22223314	Escutcheon (dial)	
22223315	Escutcheon (FCD cover)	
22193621	Music Rest	
22155735	Bush 215-735 (Music rest)	
22195389	Holder 219-389 (Music rest)	
22373607	Memory Cartridge M-16C (Sequencer data)	
22373608	Memory Cartridge M-64C (Sound backup)	
22393119	Edit map (Magnet sheet)	
12569252	Lithium Battery CR-2450	
13429523	IC Socket SMO-28-S6T	
12359105	Rubber foot G-7 weight	
12449266	Ferrite beads inductor BL01 RN1-A62 (EMI filter)	
23273795	Bender unit PB-11 (Black type)	
22150524	Boss nut #524 (H=8mm)	
22193830	Jack board holder 219-830	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

BLOCK DIAGRAM

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V



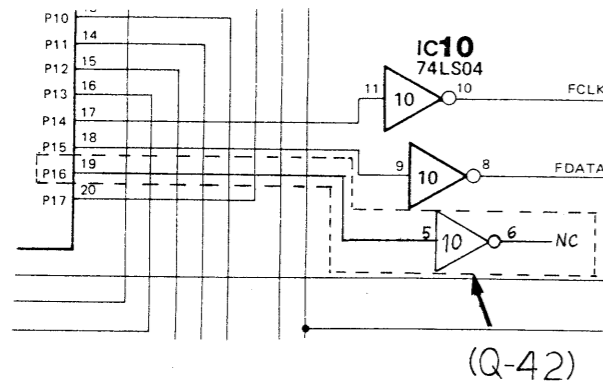
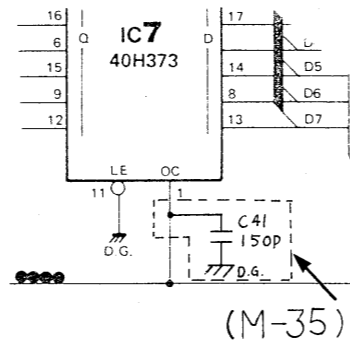
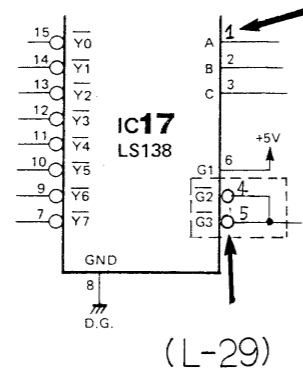
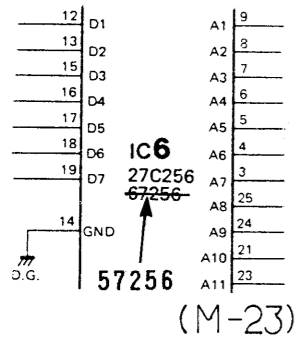
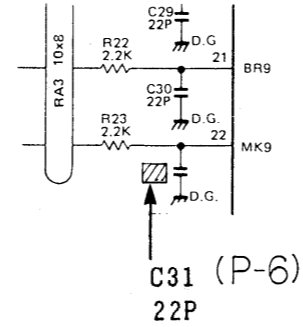
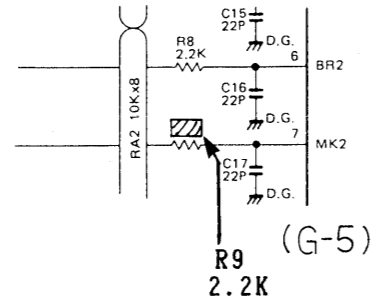
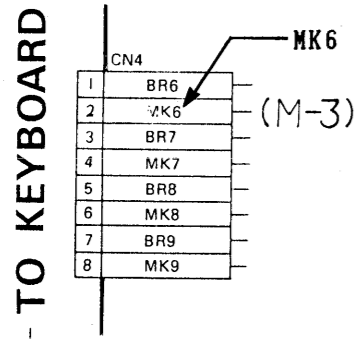
訂正及び追加
CHANGE, CORRECTION & SUPPLEMENT

下図の箇所を修正願います。

Schematic Diagram Correction
6 ページ Page 6

ASSIGNER BOARD

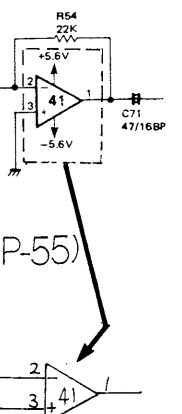
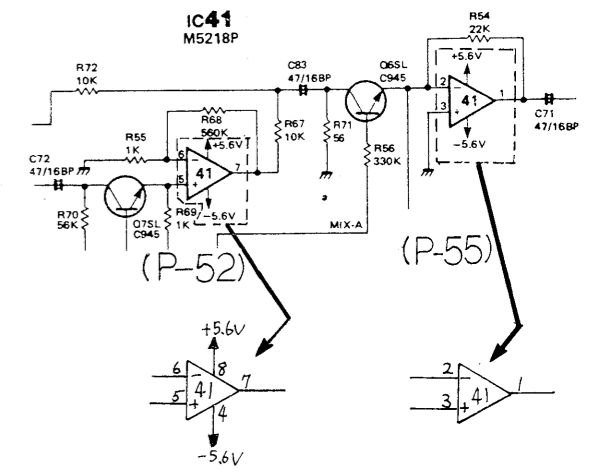
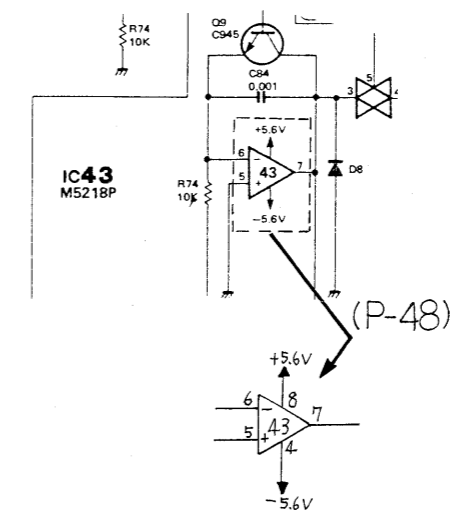
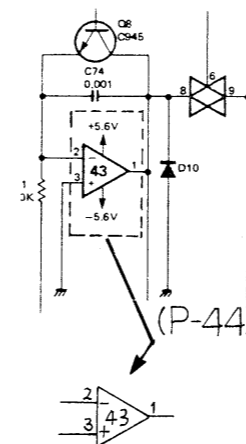
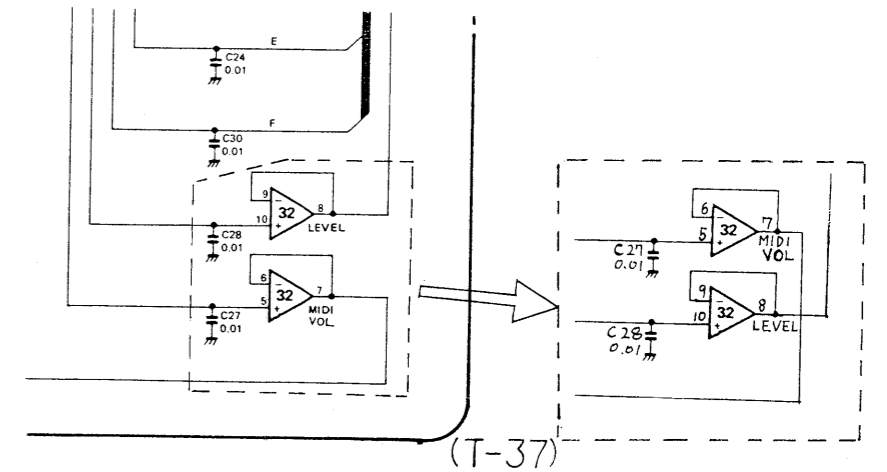
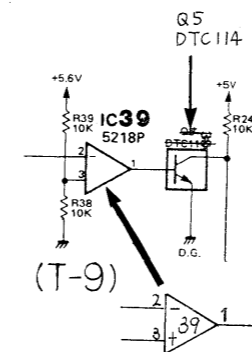
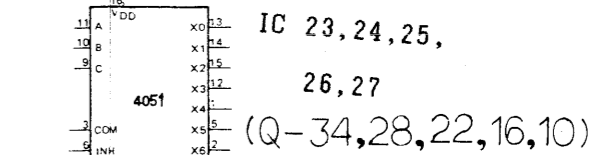
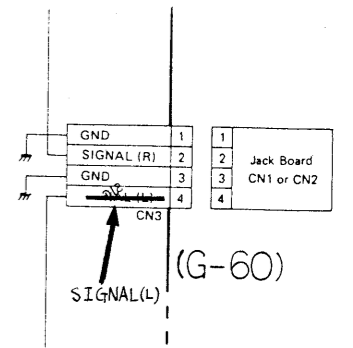
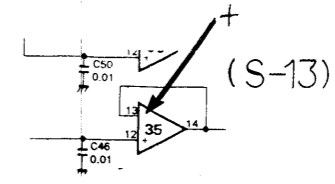
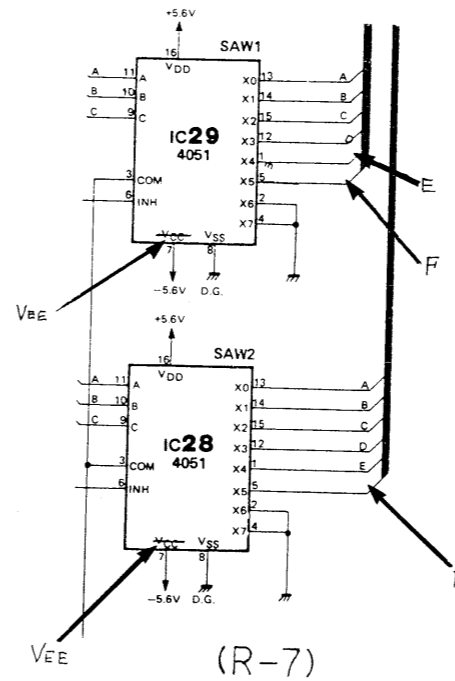
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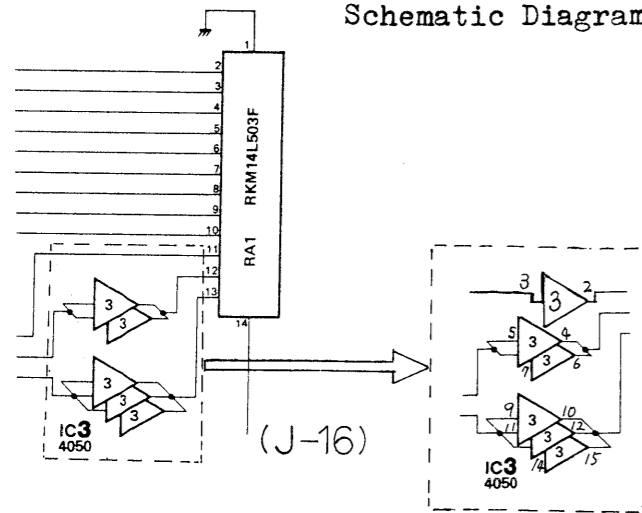
ASSIGER BOARD

(W-38)

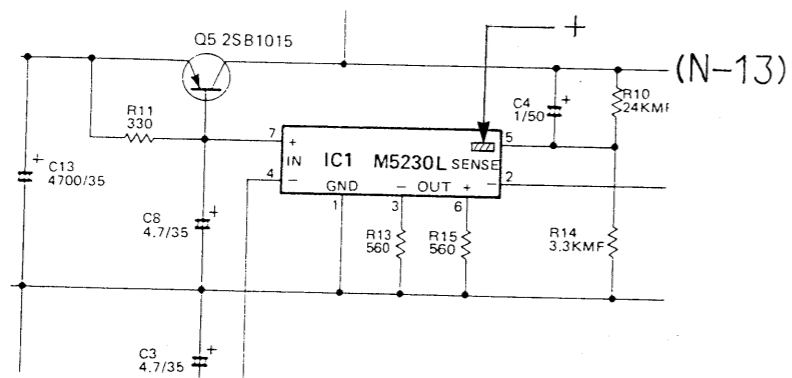
Schematic Diagram Correction



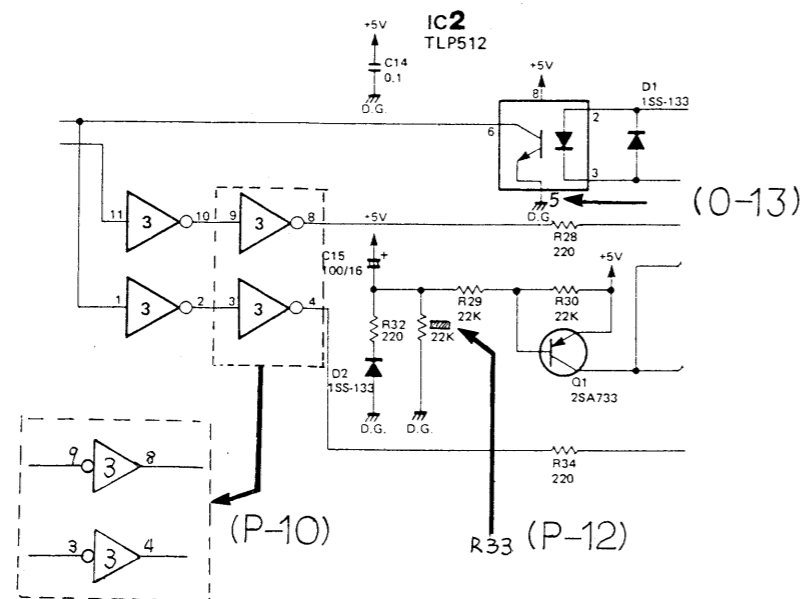
Schematic Diagram Correction



Schematic Diagram Correction



JACK BOARD



下記注意文は北欧諸国向専用です。

The labels below must be attached to the JX-10 service notes that is to be referenced in DNS ruling countries.

ADVARSEL!
 Lithiumbatteri. Eksplosionsfare.
 Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanual.
 Lithium batteri må kun udskiftes med samme type og fabrikat.

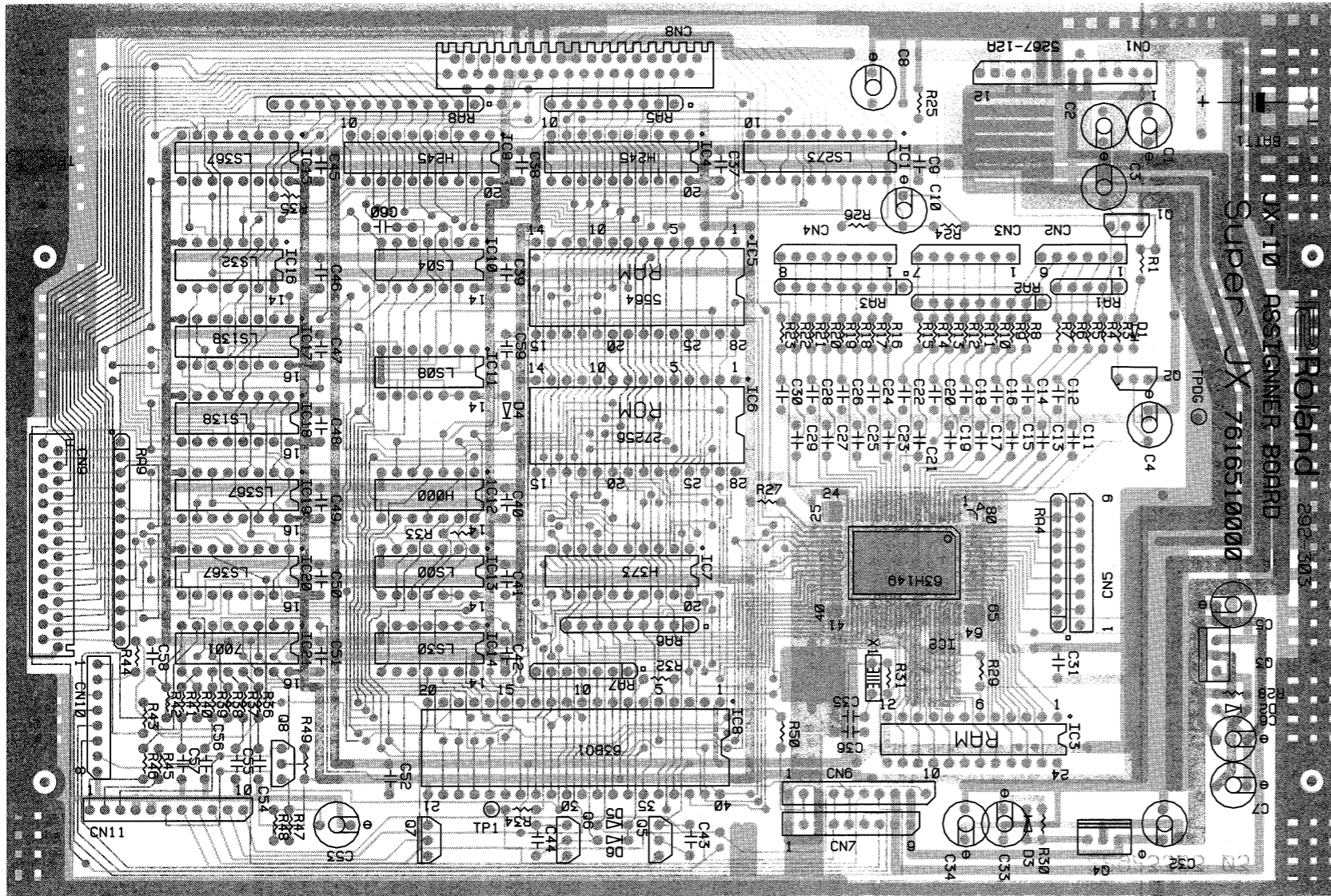
VARNING!
 Lithiumbatteri. Explosionsrisk.
 Får endast bytas av behörig servicetekniker. Se instruktioner i servicemanualen.
 Lithium batteri för endast ersättes med samma typ och fabrikat.

ADVARSEL!
 Lithiumbatteri. Fare for eksplotion.
 Må bare skiftes av kvalifisert tekniker som beskrevet i servicemanualen.
 Lithium batteri må kun utskiftes med samme type og fabrikat.

VAROITUS!
 Lithiumparisto. Rajahdysvaara.
 Pariston saa vaihtaa ainoastaan alan ammottimies.
 Kun vaihat lithium pariston KAYTA saman valmistajan samaa tyyppiä.

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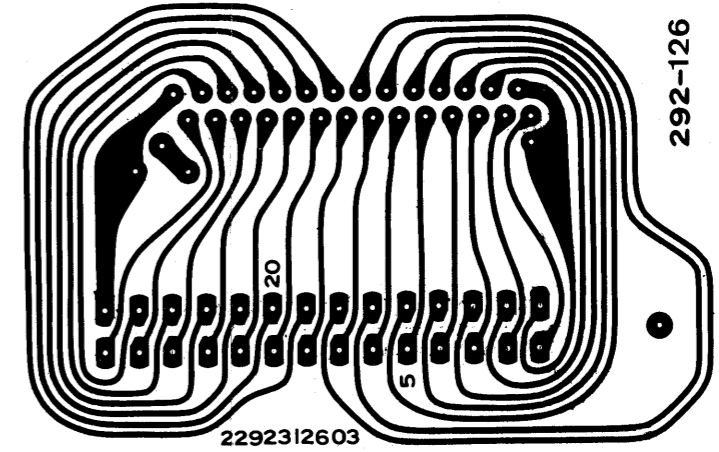
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ASSIGNER BOARD

76165100 00 (pcb22923303 03)

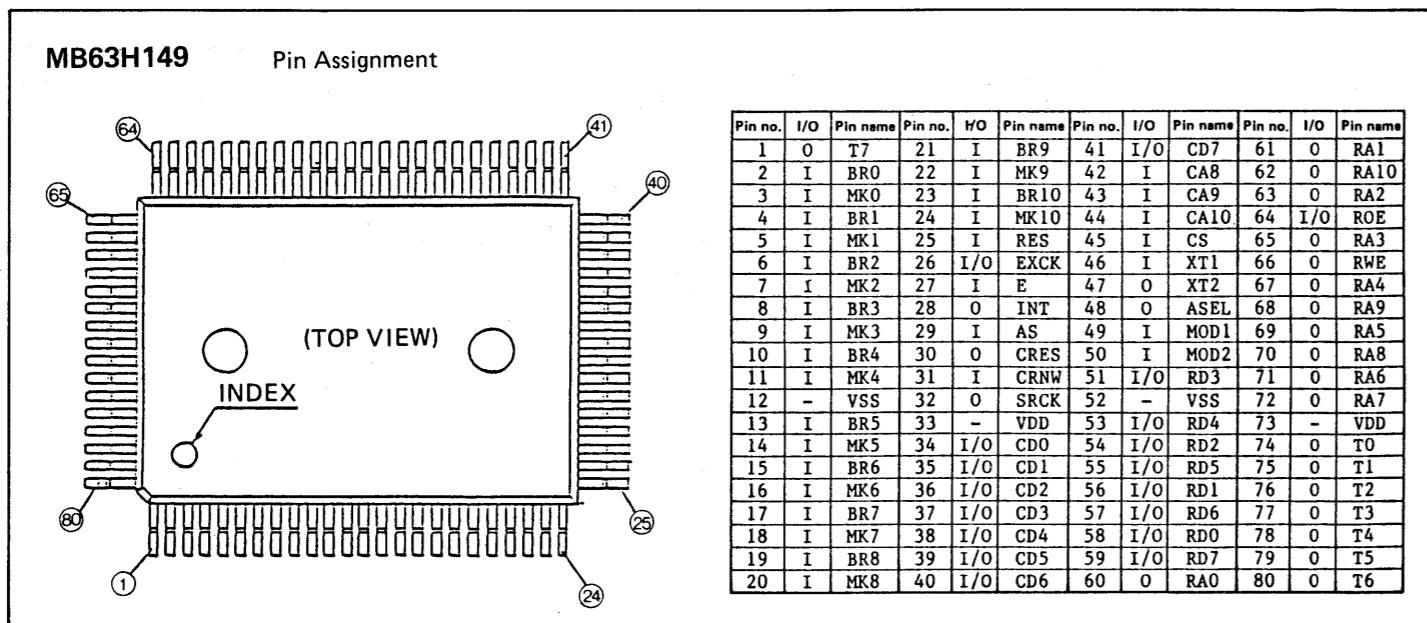
PARTS SIDE 部品面



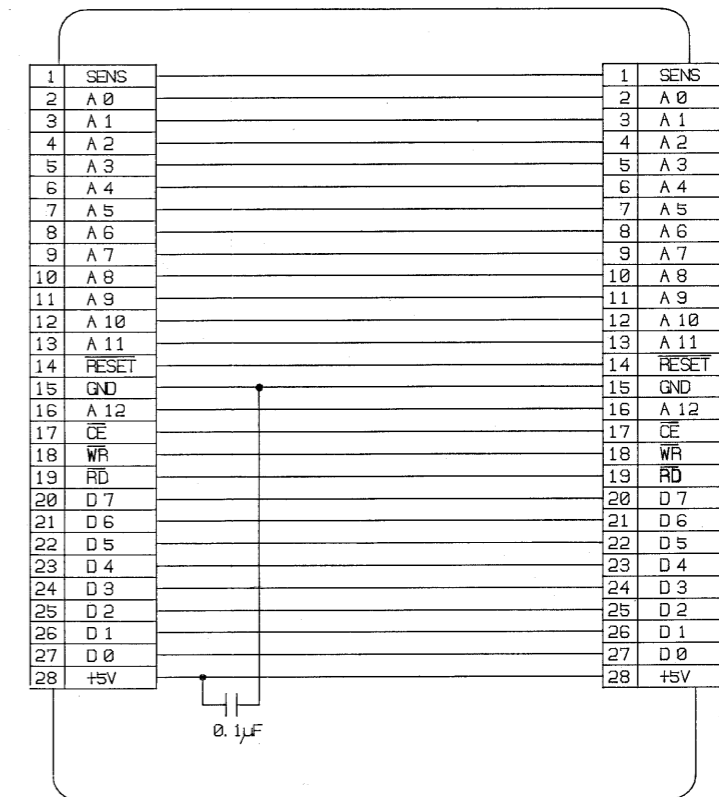
SOLDER SIDE 半田面

CARTRIDGE BOARD

76165050 00 (pcb22923126 03)



to Memory Cartridge

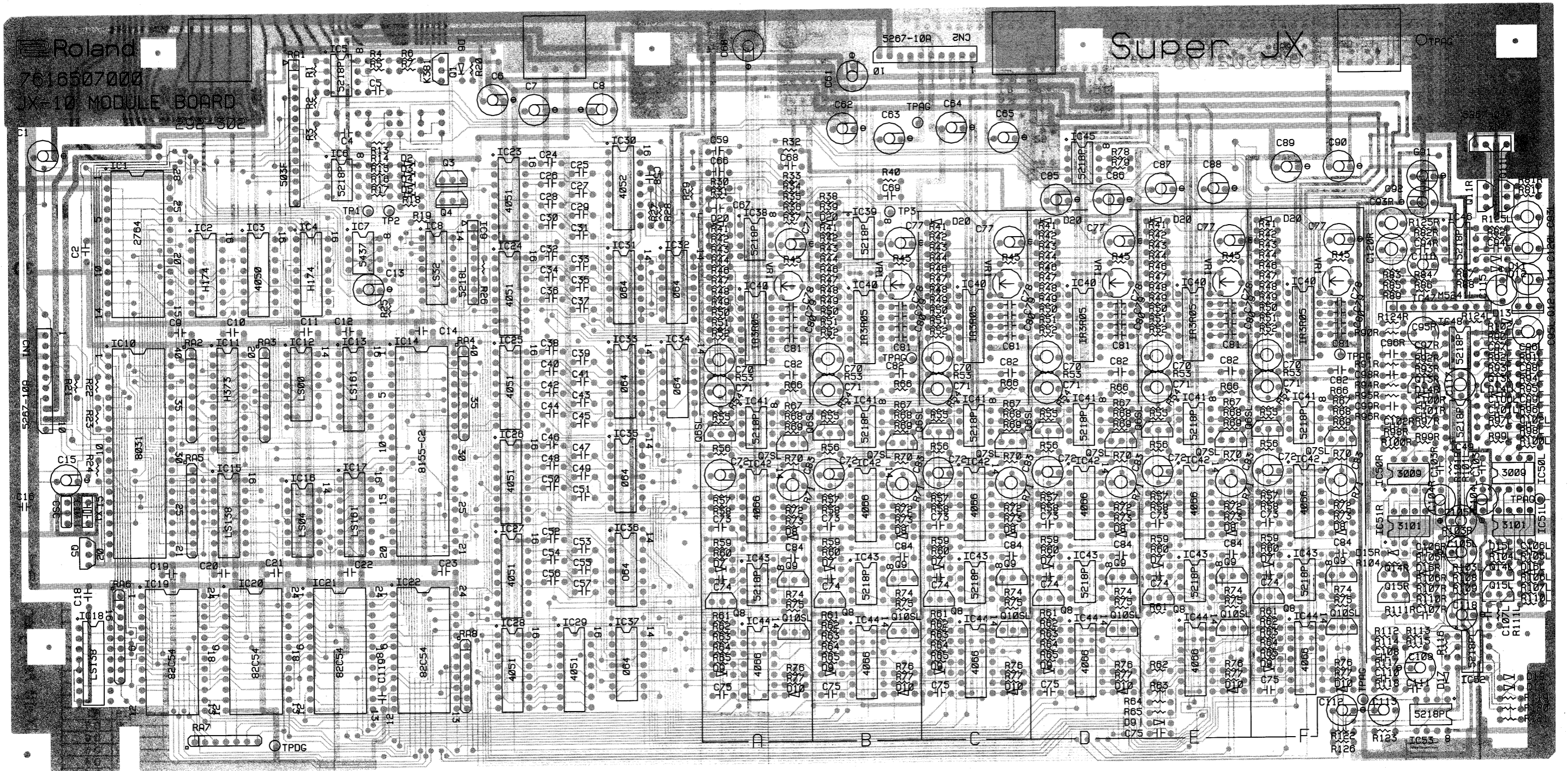


to JX-10 Assigner Board

JX-10 Memory Cartridge Board

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Super JX

Roland
7616507000
JX-10 MODULE BOARD
PCB-302

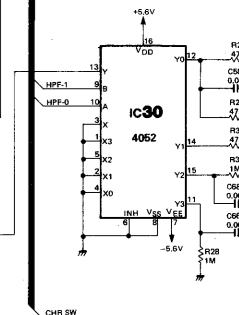
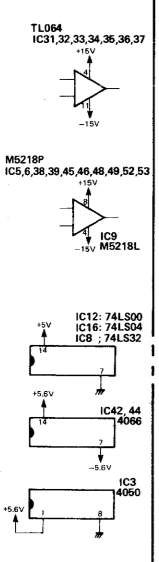
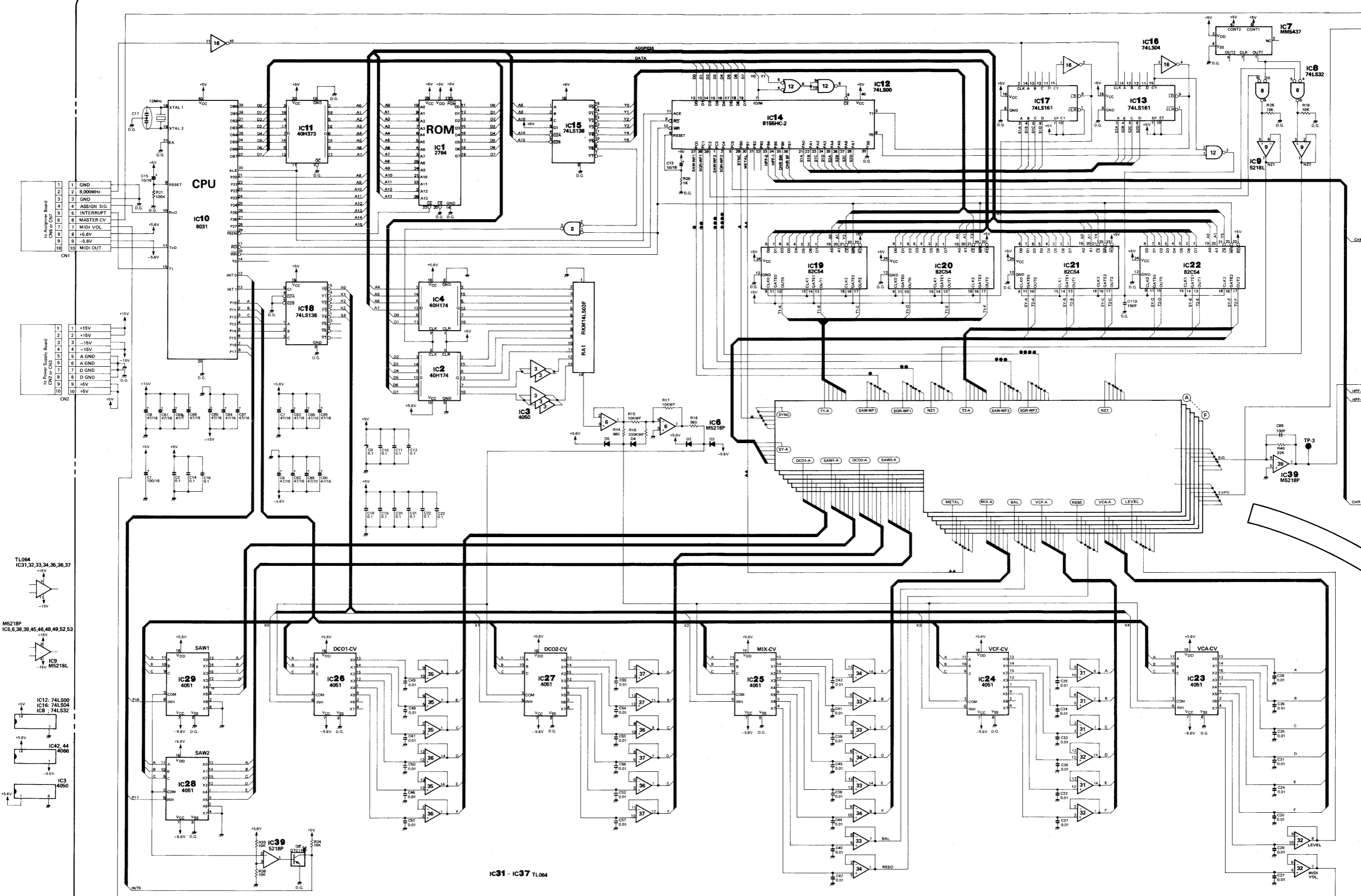
MODULE BOARD
76165070 00 (pcb22923302 03)

PARTS SIDE 部品面

CIRCUIT DIAGRAM

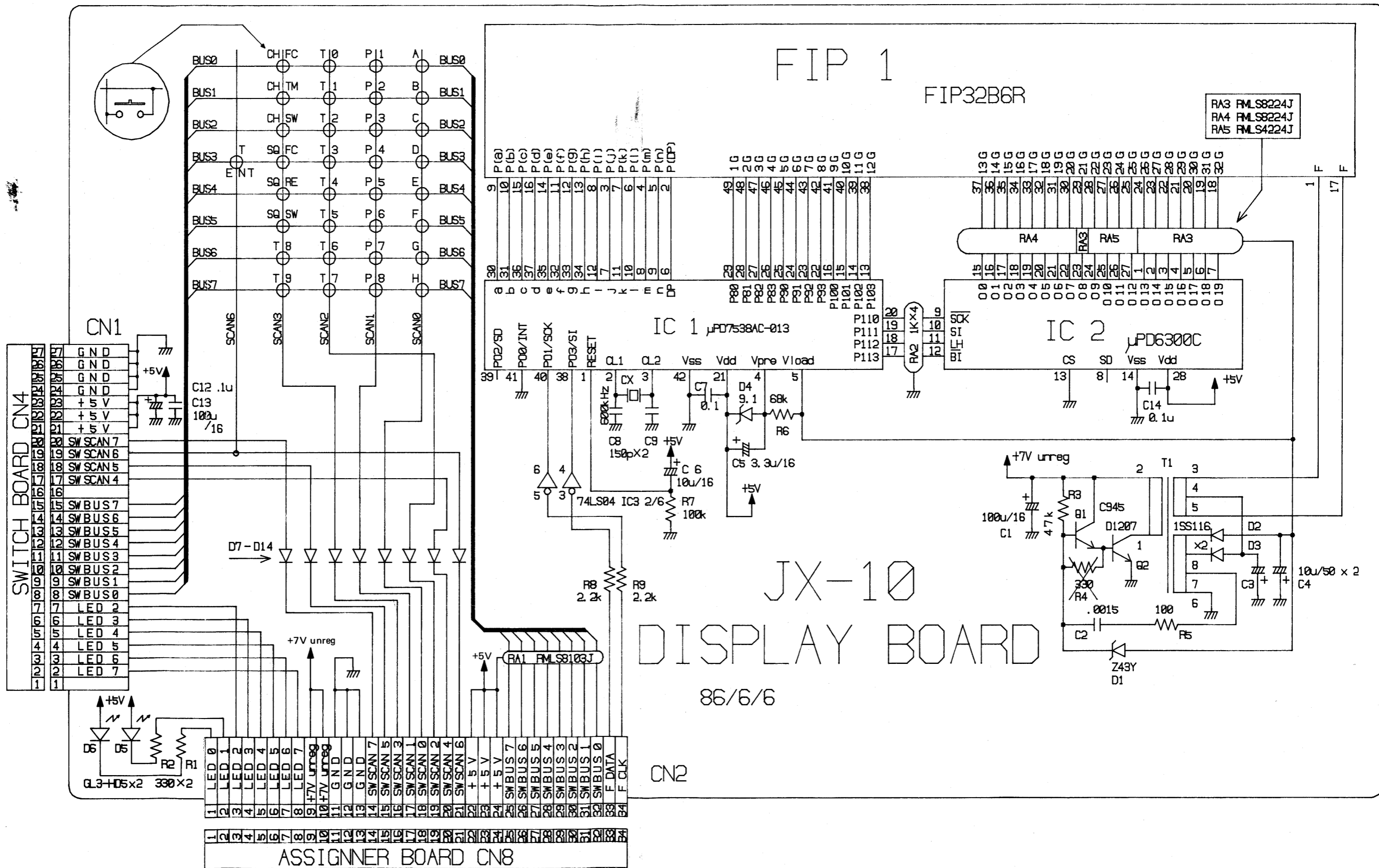
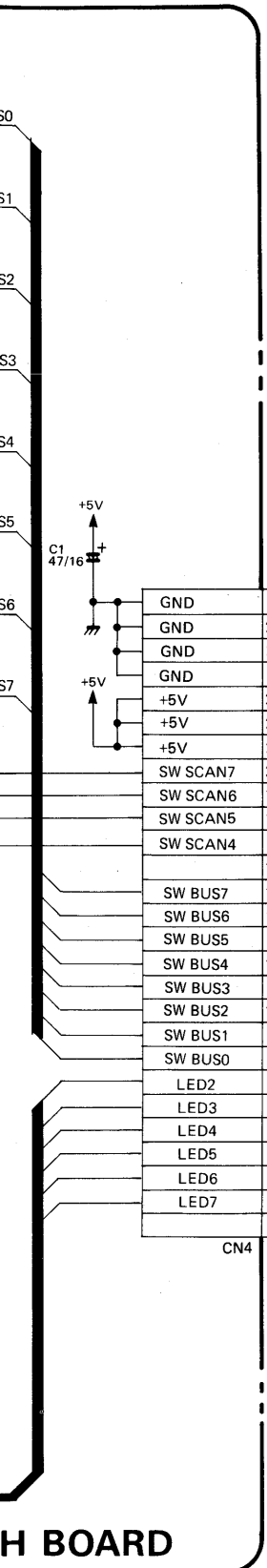
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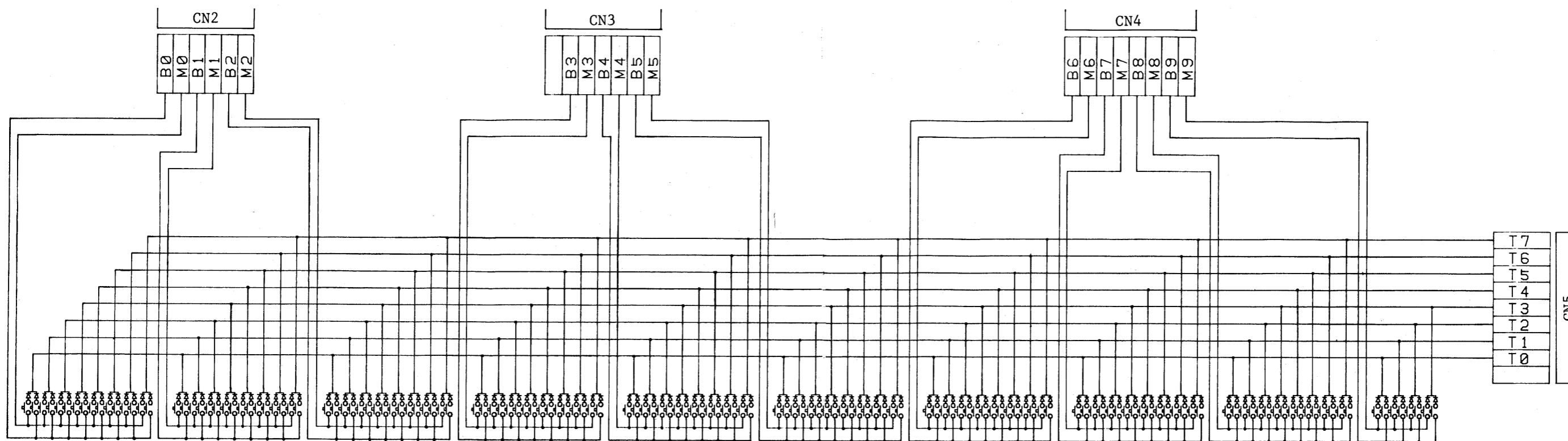
IC31 - IC37 TL064

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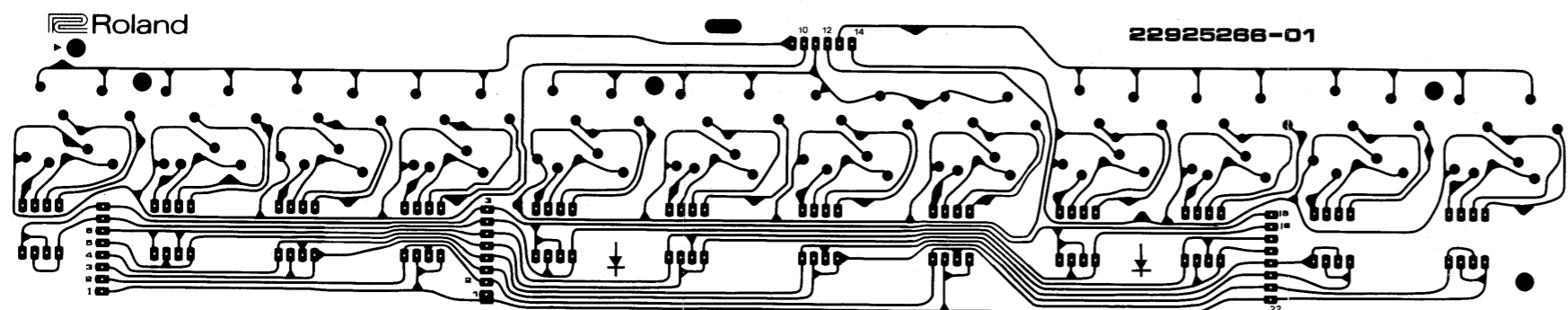


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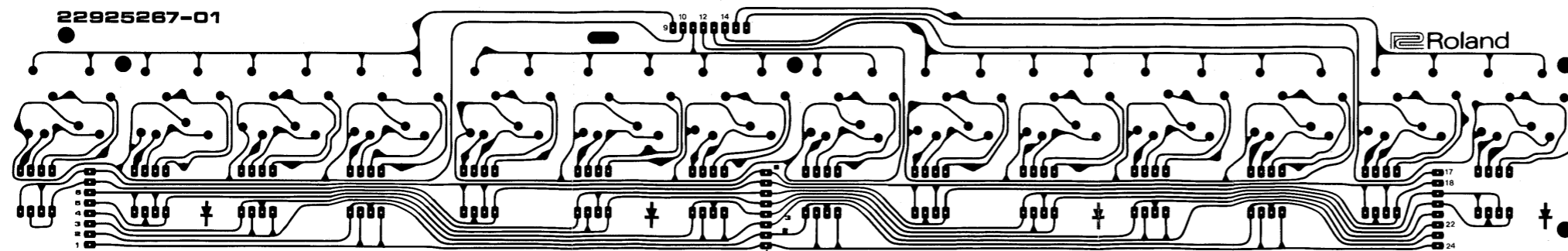
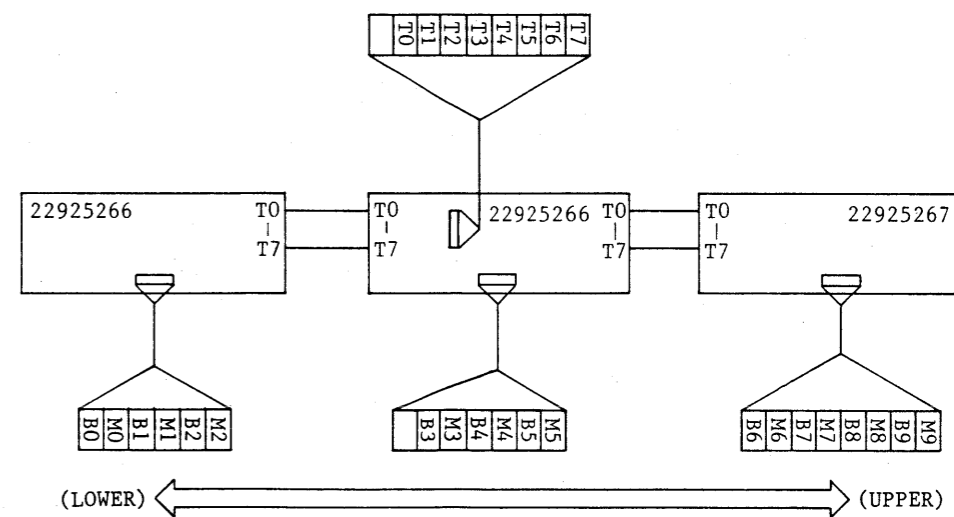
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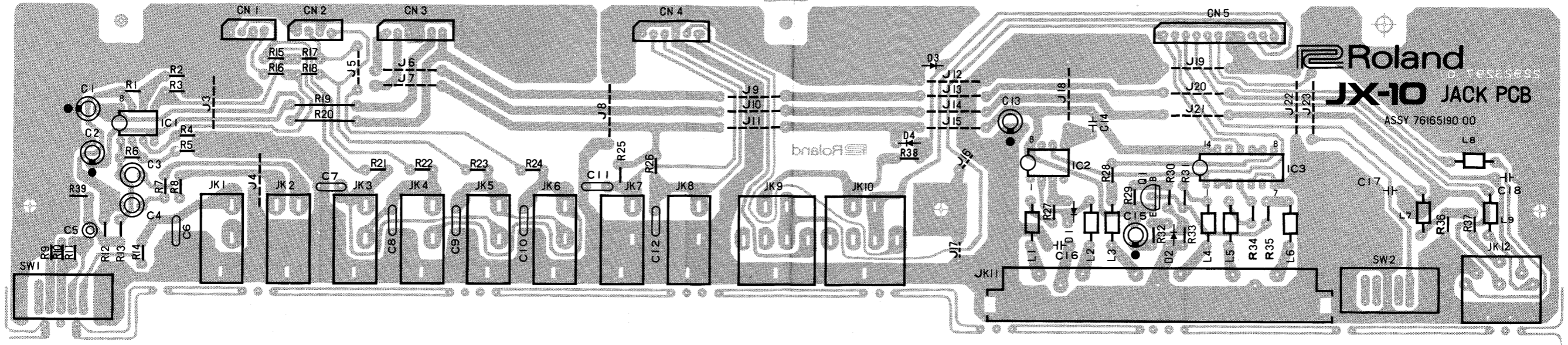
KEYBOARD PCB



(p c b 22925266-01)



(p c b 22925267-01)

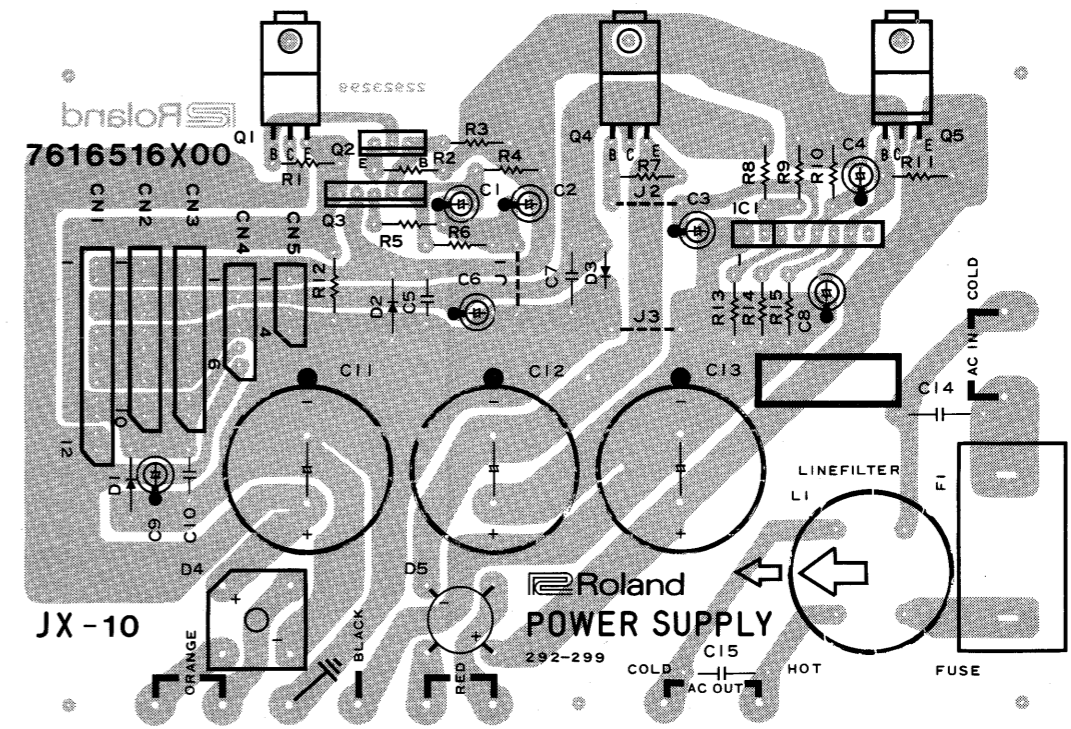
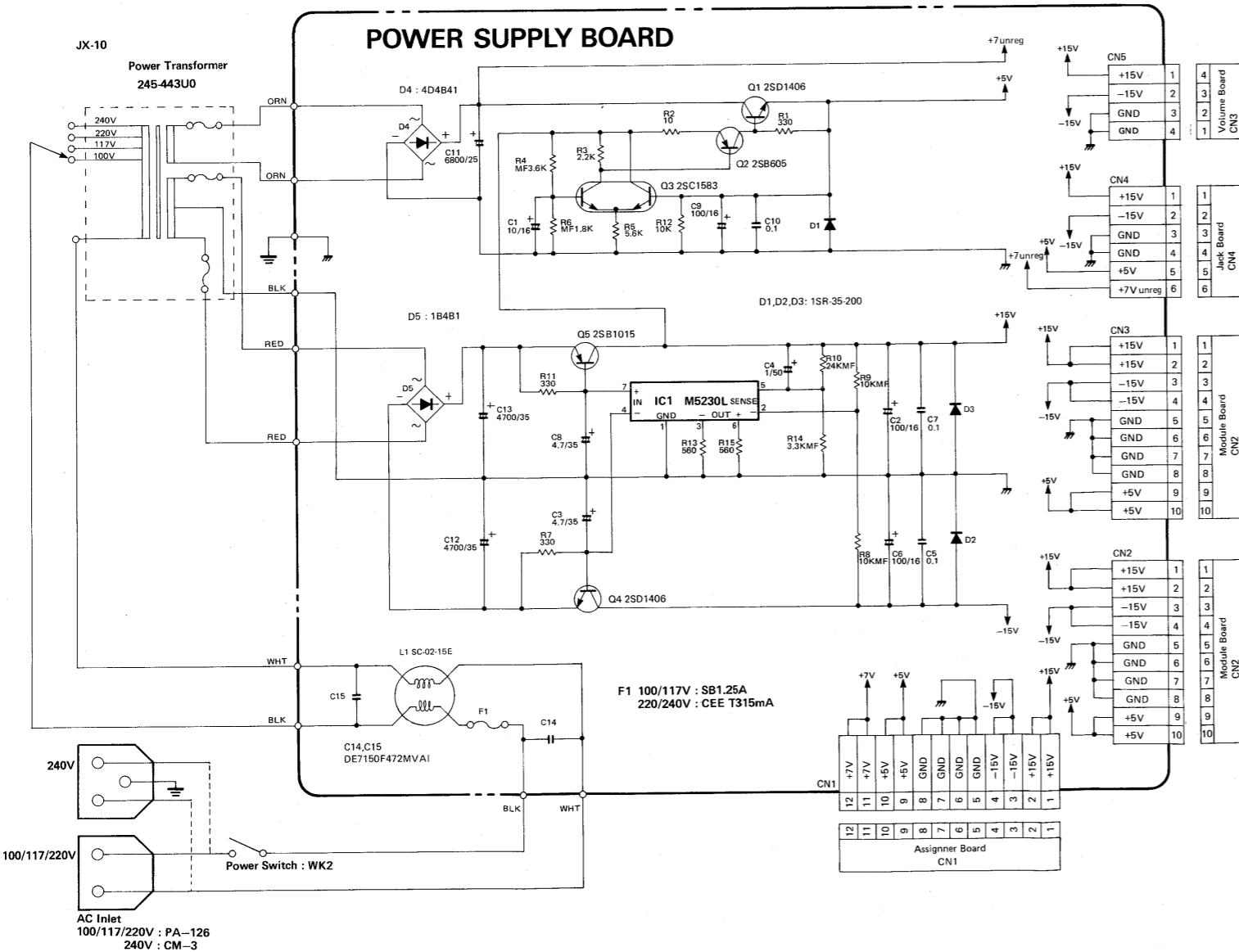


JACK BOARD

PARTS SIDE 部品面

76165190 00 (pcb22923297 01)

CIRCUIT DIAGRAM

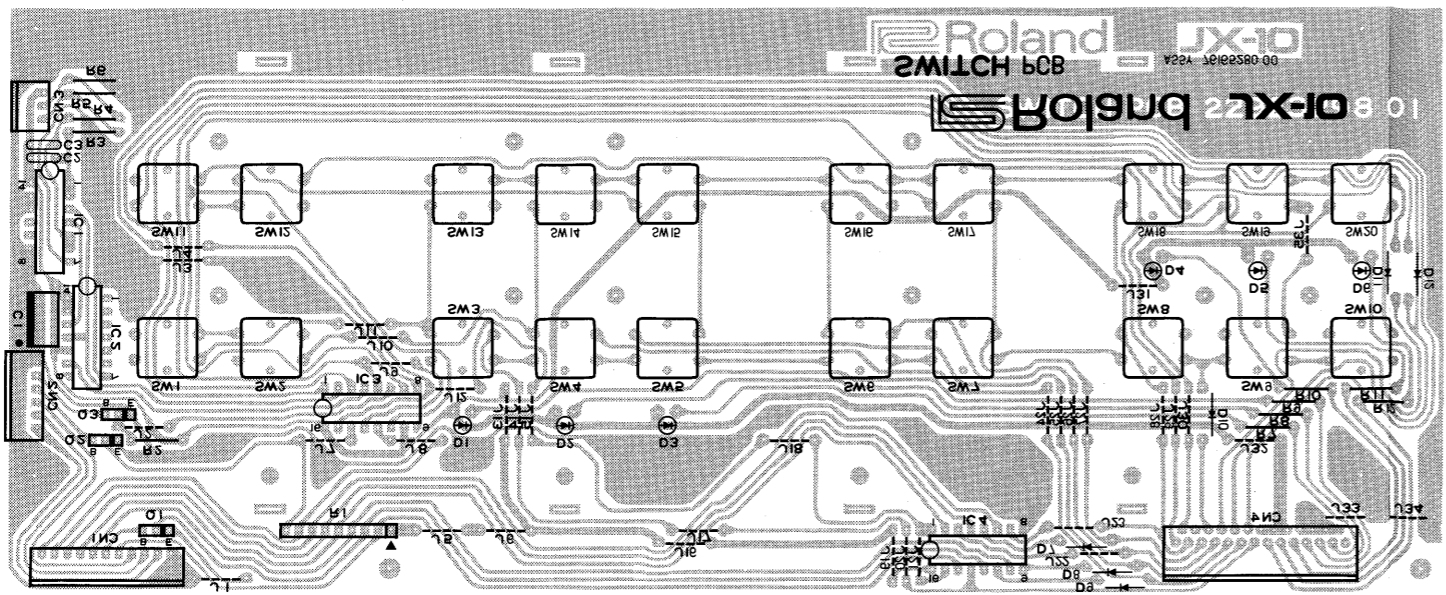


PARTS SIDE 部品面

POWER SUPPLY BOARD

- 100/117V 76165162 00 (pcb22923299 00)
- 220V 76165164 00 (pcb22923299 00)
- 240V 76165165 00 (pcb22923299 00)

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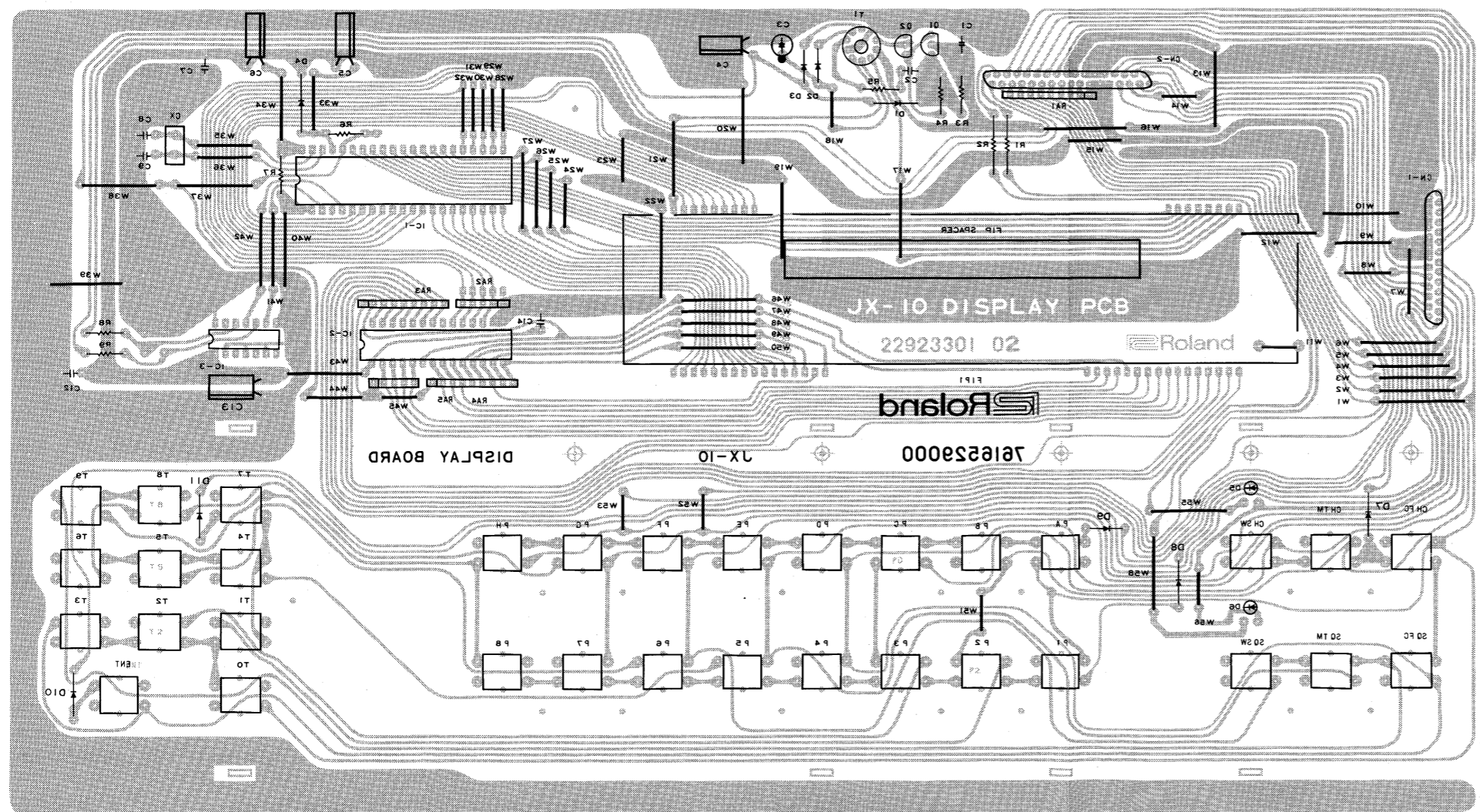
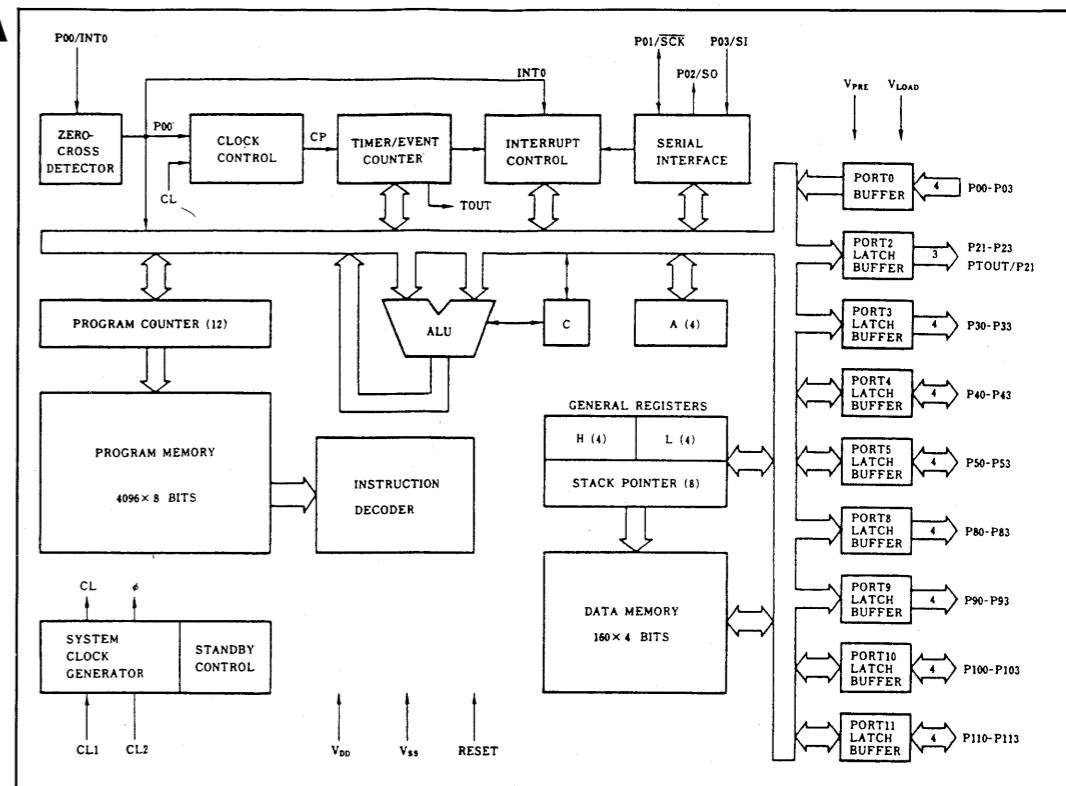


SWITCH BOARD

76165280 00 (pcb22923298 01)

SOLDER SIDE 半田面

IC DATA

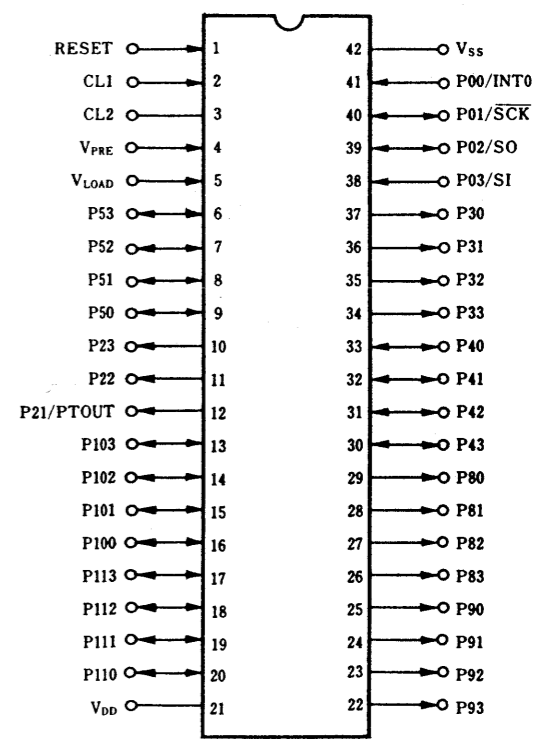


DISPLAY BOARD

76165290 00 (pcb22923301 02)

SOLDER SIDE 半田面

端子接続図 (Top View)



CIRCUIT DIAGRAM

MIDI IMPLEMENTATION

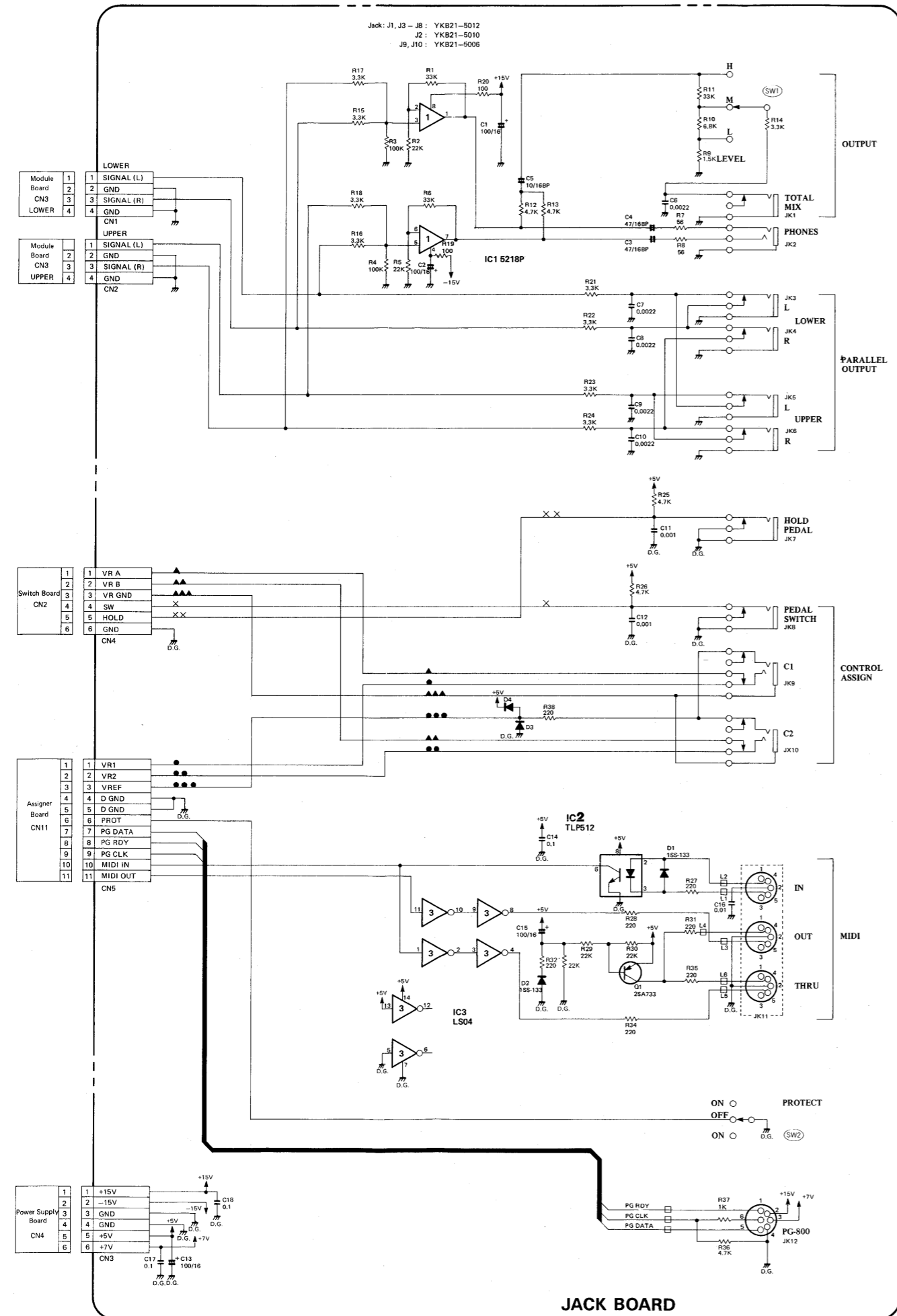
[12 voice polyphonic synthesizer]

Date : Feb. 21 1986

Model JX-10

MIDI Implementation Chart

Version : 1.01



Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed	UP:1-16 LO:1-16 UP:1-16 LO:1-16	UP:1-16 LO:1-16 LO:1-16 LO:1-16	memorized
Mode Default Messages Altered	Mode 3 OMNI OFF, POLY *****	Mode 3 x	
Note Number : True voice	28 - 103 *****	0 - 127 21 - 108	
Velocity Note ON Note OFF	o x 9n v=0	o v=1-127 x	
After Touch	x o	x *	
Pitch Bender	*	* 2/3/4/7 semi	8 bits reso.
Control Change	1	*	* Modulation
	5	o	o Portamento Time
	7	*	* Volume
	64	*	* Hold SW
	65	*	* Portamento SW
Prog Change : True #	* 0-99 (0-127) *****	* 0-99 (0-127) 0-99 (0-127)	**
System Exclusive	*	*	
System Common	Song Pos Song Sel Tune	x x x	x x x
System Real Time	!Clock Commands	o When sequencer cartridge is set	x
Aux Messages	Local ON/OFF All Notes OFF Active Sense Reset	x o x x	o o (123-127) x x
Notes	* Can be set to o or x manually, and memorized. ** As tone# : 0-99 (100-127 ignored if received.) As patch# : 0-127 As optional Prog# (transmitted only) : 0-127 See each implementation notes for details.		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
 Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

JX-10 MIDI IMPLEMENTATION Ver 1.01 Feb. 21 1986

*** JX-10 MIDI IMPLEMENTATION ***
Version 1.01
Feb. 21 1986

1. TRANSMITTED DATA

Status	Second	Third	Description	
1001 nnnn	0kkk kkkk	0000 0000	Note OFF kkkkkkk = 28 - 103	
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkkk = 28 - 103 vvvvvvv = 1 - 127	
1011 nnnn	0000 0001	0vvv vvvv	Modulation vvvvvvv = 0 - 127	*1
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127	
1011 nnnn	0000 0111	0vvv vvvv	Volume vvvvvvv = 0 - 127	*1,*2
1011 nnnn	0100 0000	0111 1111	Hold ON	*1
1011 nnnn	0100 0000	0000 0000	Hold OFF	*1
1011 nnnn	0100 0001	0111 1111	Portamento ON	*1
1011 nnnn	0100 0001	0000 0000	Portamento OFF	*1
1100 nnnn	0ppp pppp		Program Change ppppppp = 0 - 99 (0 - 127)	*1,*3
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127	
1110 nnnn	0vvv vvvv	0vvv vvvv	Pitch Bender Change	*1
1011 nnnn	0111 1011	0000 0000	ALL NOTES OFF	*4
1011 nnnn	0111 1100	0000 0000	OMNI OFF	*5
1011 nnnn	0111 1111	0000 0000	POLY ON	*5
1111 1000			Timing clock	*6
1111 1010			Start	*6
1111 1100			Stop	*6

Notes :

Normally, transmitting channel depends on UPPER/LOWER CHANNEL and KEY MODE.
If MIDI SEND OPTION UPPER/LOWER CHANNEL and MIDI SEND OPTION KEY MODE is set, channels are followed to its settings.

- *1 Transmitted if the corresponding function switch is ON.
- *2 a. When 'C1' or 'C2' slider is assigned as VOLUME, and moved :
The value is transmitted if the corresponding function switch is ON.
b. When PATCH # is changed :
MIDI SEND OPTION VOLUME is transmitted if it was set.
- *3 a. When TONE # is changed :
TONE # is transmitted if the corresponding function switch is ON.
ppppppp = 0 - 99 : TONE No. 1 - 100
b. When PATCH No. is changed :
TONE # for new PATCH is transmitted. (See note a.)
If OPTION PROGRAM CHANGE NUMBER is set, the Number is transmitted instead of TONE #.
ppppppp = 0 - 127 : PROGRAM CHANGE NUMBER 1 - 128
If PATCH MEMORY CHANNEL is set, PATCH # is transmitted to PATCH MEMORY CHANNEL, after transmitting TONE # (or OPTION PROGRAM CHANGE NUMBER).
ppppppp = 0 - 63 : Internal Memory PATCH A1 - H8
64 - 127 : Cartridge Memory PATCH A1 - H8
- *4 When all keys on the keyboard are released, this message is sent.
- *5 When power is first applied while MIDI button being held down, these messages are transmitted for all channels (1-16).
- *6 When the CARTRIDGE - that stores sequence data - is set.

2. RECOGNIZED RECEIVE DATA

Status	Second	Third	Description	
1000 nnnn	0kkk kkkk	0vvv vvvv	Note OFF, velocity ignored	
1001 nnnn	0kkk kkkk	0000 0000	Note OFF kkkkkkk = 0 - 127 (21 - 108) *1	
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkkk = 0 - 127 (21 - 108) *1 vvvvvvv = 1 - 127	
1011 nnnn	0000 0001	0vvv vvvv	Modulation vvvvvvv = 0 - 127	*2
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127	
1011 nnnn	0000 0111	0vvv vvvv	Volume vvvvvvv = 0 - 127	*2

1011 nnnn	0100 0000	01xx xxxx	Hold ON	*2
1011 nnnn	0100 0000	00xx xxxx	Hold OFF	*2
1011 nnnn	0100 0001	01xx xxxx	Portamento ON	*2
1011 nnnn	0100 0001	00xx xxxx	Portamento OFF	*2
1100 nnnn	0ppp pppp		Program Change vvvvvvv = 0 - 127 (0 - 99) *2,*3	
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127	*2
1110 nnnn	0vxx xxxx	0vvv vvvv	Pitch Bender Change	*2
1011 nnnn	0111 1010	0000 0000	Local OFF	*2
1011 nnnn	0111 1010	0111 1111	Local ON	*2
1011 nnnn	0111 1011	0000 0000	ALL NOTES OFF	

Notes :

- All messages except PATCH# (Program Change) are received from UPPER and/or LOWER CHANNEL according to KEY MODE.
- *1 Note numbers outside of the range 21 - 108 are transposed to the nearest octave inside this range.
- *2 Received if the corresponding function switch is ON.
- *3 a. When PATCH MEMORY CHANNEL is OFF :
Received as TONE # if the corresponding function switch is ON.
ppppppp = 0 - 99 : TONE No. 1 - 100
b. When PATCH MEMORY CHANNEL is set :
Received as PATCH #, from PATCH MEMORY CHANNEL.
ppppppp = 0 - 63 : Internal Memory PATCH A1 - H8
64 - 127 : Cartridge Memory PATCH A1 - H8

3. HANDSHAKING COMMUNICATION

- * How to enter to 'DUMP' or 'LOAD' mode :
1. Press both MIDI and WRITE button.
2. Select DUMP or LOAD by ALPHA-DIAL, then press ENTER.

- * Exclusive messages are transmitted and received if SYSTEM EXCLUSIVE (MIDI FUNCTION #11) is ON.

3.1 Message type

3.1.1 Want to send a file (WSF)

Byte	Description	
a 1111 0000	Exclusive status	
b 0100 0001	Roland ID #	
c 0100 0000	Operation code = WSF	
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #	
e 0010 0100	Format type (JX-10)	
f 0fff ffff	File name (1 byte)	*1
g 0sss ssss	Check sum	*2
h 1111 0111	End of System Exclusive	

3.1.2 Request a file (RQF)

Byte	Description	
a 1111 0000	Exclusive status	
b 0100 0001	Roland ID #	
c 0100 0001	Operation code = RQF	
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #	
e 0010 0100	Format type (JX-10)	
f 0fff ffff	File name (1 byte)	*1
g 0sss ssss	Check sum	*2
h 1111 0111	End of System Exclusive	

Notes :

- *1 There are two kinds of file names as shown below.

Byte	Description
e 0001 0110	Memory Cartridge M-16C
e 0110 0100	Memory Cartridge M-64C

- *2 Summed value of the byte of file name and the check sum must be 0 (7bits).

3.1.3 Data (DAT)

Byte	Description	
a 1111 0000	Exclusive status	
b 0100 0001	Roland ID #	
c 0100 0010	Operation code = DAT	
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #	
e 0010 0100	Format type (JX-10)	*1
f 0000 tttt	CARTRIDGE MEMORY data (repeated 256 times = 128 bytes)	
g 0sss ssss	Check sum	*2
h 1111 0111	End of System Exclusive	

Notes :

- *1 CARTRIDGE MEMORY data is sent in four-bit nibbles.

*data format

CRTRIDGE MEMORY data	send data
byte	byte
1 aaaa bbbb	1 0000 aaaa
	2 0000 bbbb
2 cccc dddd	3 0000 cccc
	4 0000 dddd

- *2 Summed value of the all bytes in data and the check sum must be 0 (7bits).

3.1.4 Acknowledge (ACK)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0100 0011	Operation code = ACK
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0100	Format type (JX-10)
f 1111 0111	End of System Exclusive

3.1.5 End of file (EOF)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0100 0101	Operation code = EOF
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0100	Format type (JX-10)
f 1111 0111	End of System Exclusive

3.1.6 Communication error (ERR)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0100 1110	Operation code = ERR
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0100	Format type (JX-10)
f 1111 0111	End of System Exclusive

3.1.7 Rejection (RJC)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0100 1111	Operation code = RJC
d 0000 nnnn	Unit # = UPPER MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0100	Format type (JX-10)
f 1111 0111	End of System Exclusive

3.2 Sequence of communication

3.2.1 In the 'Dump' mode.

this unit	message	objective unit
-----	-----	-----
	WSF ----->	
	<----- ACK or (RQF)	
	DAT ----->	
	<----- ACK	
	:	
	DAT ----->	
	<----- ACK	
	:	
	EOF ----->	
	<----- ACK	

3.2.2 In the 'Load' mode.

this unit	message	objective unit
-----	-----	-----
	RQF ----->	
	(<----- WSF	
	ACK ----->)	
	<----- DAT	
	ACK ----->	
	:	
	DAT ----->	
	ACK ----->	
	<----- EOF	
	ACK ----->	

Notes :

- * This unit sends RJC and the sequence is discontinued when it receives ERR or detects some error.
- * This unit sends RJC when the sequence is discontinued manually.
- * This unit stops the sequence if unit receives RJC.
- * IF the CARTRIDGE is M-16C, then DAT message repeats 16 times.
IF the CARTRIDGE is M-64C, then DAT message repeats 64 times.

CHANGE INFORMATION

Preventing Sound Leakage
EFF SN 640305 Affected PCB: Module Board

Add 3.3k (R126) in parallel to C112.
This filters out unwanted high harmonics components in a sound.

Making Aftertouch Adjust-free
EFF SN 695830 Affected PCB: Volume Board
The factory experience proved that the aftertouch sensor needs no adjusting of its output. In order to eliminate unnecessary adjustment and retain positive connection, the trimmerpot, if exists, on VOLUME board should be set at FCCW position or jumper-shorted. Fig. E.

ROM Version
The latest version(July 1986) of ROMs A, B and C is 2.00.
The ROM version number system in the JX-10 is that whenever one of three ROMs is revised, other two ROMs are also renumbered to the new version. The version display program is stored in ROM A only.
The software revision shown in the table below have been done on ROM A only -- ROM B and ROM C of Vers. 1.72-2.00 retain unchanged program.

変更案内

○音もれの防止 SN 640325 から

高い周波数で音もれが発生する場合があります。それを防止するためモジュール・ボードの C 112 と並列に R 126 3.3K を追加。

○アフタータッチ調整 VR (ボリューム・ボード 2KB) 削除 (無調整) SN 695850 から

SN 695850 未満の製品は調整 VR を左へ回しきるか、または Fig. E のようにショートしてください。

○ROM Version
1986年7月現在 ROM (A), (B), (C) の最新は 2.00 です。

Fig. F に示す変更は ROM (A) についてのみ行われています。従って ROM (B) 及び (C) のプログラムは Ver1.72-2.00 を通じて変わりません。

[注意: ROM バージョン表示について JX-10 では、混乱を避けるため 3 個のいずれかのプログラムが変更された場合、他の 2 個のバージョンも同時に変更されます。]

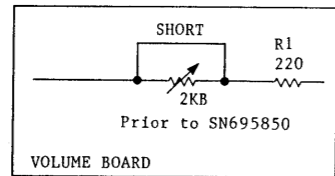


Fig. E

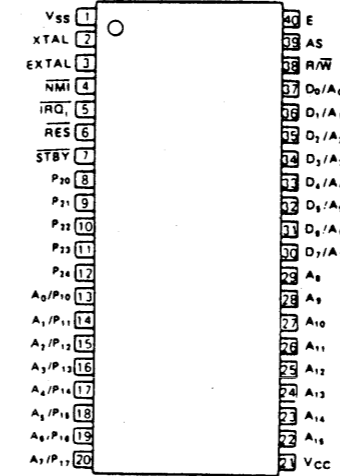
		Part No.
ROM(A)	ASSIGNER BOARD IC6	15179733
ROM(B)	LOWER MODULE BOARD IC1	15179732
ROM(C)	UPPER MODULE BOARD IC1	15179745

ROM(A) Version No.	Serial Number	改善された症状	What is cured
1.72	Prior to 650679		
1.80	650680 650789	一度も PATCH WRITE モードへ入らずに REWRITE VOICE を行うと、PATCH ナンバーが元とは異なるナンバーに書き変わってしまう。 PATCH MEMORY のエディット時において、ファクタ 17 [KEY MODE] の UPPER WHOLE と LOWER WHOLE とを逆に書き込んでしまう。	When REWRITE VOICE is done without entering PATCH WRITE, the current PATCH NUMBER will be memorized incorrectly. In PATCH MEMORY edit, factor 17 KEY MODE sets [UPPER WHOLE and LOWER WHOLE] reversely.
1.90	650790 673899	キーを押さえた状態で PATCH CHANGE を行うとクリックノイズがでる。 MIDI IMPLEMENTATION では、MIDI SW を押しながら電源 SW をいれると下記のメッセージが出力することになっているが、実際には出力しない。 *POLY ON *OMNI OFF TONE EDIT 時に、PATCH ファクタ 18 [TOTAL VOLUME] の値が無視され、TONE パラメータ 61 [VCA LEVEL] の値のみで音量が設定されてしまう。 TONE EDIT 後、TONE RECALL を行っても TONE パラメータ 61 [VCA LEVEL] の値が元の値に戻らない。	Resetting PATCH CHANGE while holding a key(s) induces click noise. Discrepancy in MIDI IMPLEMENTATION: It says " when power is first applied while MIDI switch is being pressed, the following messages are transmitted" [POLY ON and OMNI OFF]. This is not true. With TONE edit, PATCH FACTOR 18 [TOTAL VOLUME] is ignored and the loudness is determined only by TONE parameter 61 [VCA LEVEL]. TONE RECALL after TONE edit cannot recall parameter 61 [VCA LEVEL].
2.0	673900 UP	以下の設定時において、LOWER 側の設定が UNISON (1 キーについて 2 モジュール発音する。) であるにもかかわらず、3 キー中 2 つのキーが単音で発音してしまう。 KEY MODE : DUAL UPPER ASSIGN : UNISON 以外 LOWER ASSIGN : UNISON HOLD ペダルを踏み込み、アフタータッチをかけながら HOLD ペダルを離す。 その後、アフタータッチをかけないようにしてキーを弾いても、LOWER モジュールのみアフタータッチ効果がでてしまう。 [但し、その後一度でもアフタータッチをかけると正常にもどる。]	Although set at UNISON, two among three keys in LOWER keyboard are assigned only one voice each. Either of the following settings will see the problem. KEY MODE: DUAL LOWER ASSIGN: UNISON UPPER ASSIGN: other than UNISON When a key is after-touched before HOLD pedal is released, all subsequent non-aftertouch keys will have the aftertouch effect on lower modules even if HOLD pedal has been kept unpressed. Once any key is played aftertouch this condition returns to normal.

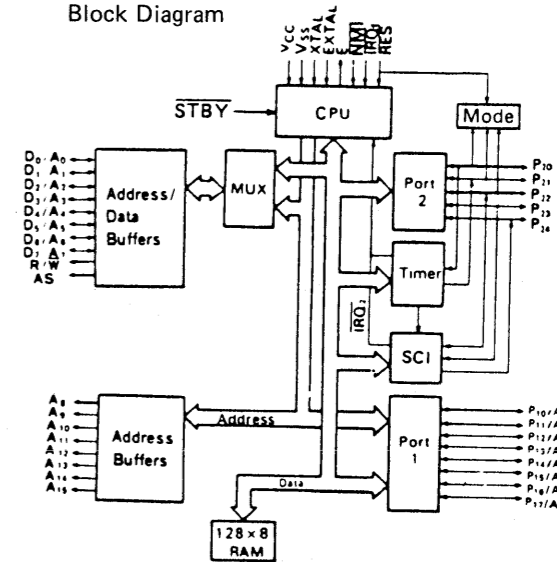
IC DATA

HD63B03RP

Pin Configuration (Top View)

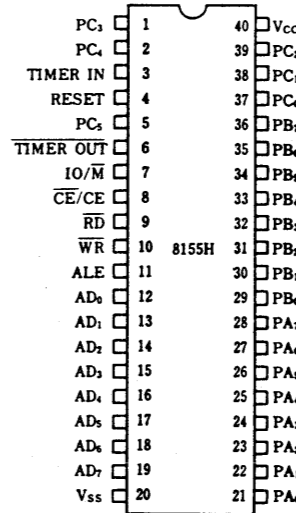


Block Diagram

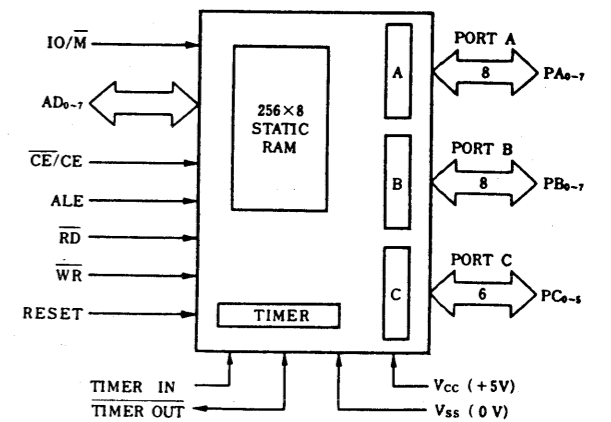


μPD8155HC

Pin Configuration (Top View)

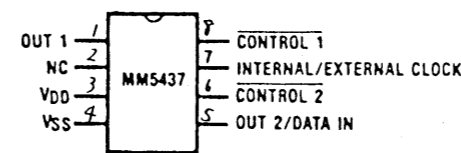


Block Diagram



MM5437

Pin Configuration (Top View)



Block Diagram

