

JX-8P/PG-800 SERVICE NOTES

First Edition

SPECIFICATIONS

Keyboard
61 keys

Memory Capacity
Preset 64 Patch Programs
Internal Memory 32 Patch Programs
External Memory 32 Patch Programs (Memory Cartridge)

Dimensions
977(W) x 375(D) x 92(H) mm
38-7/16"(W) x 14-3/4"(D) x 3-9/16"(H)

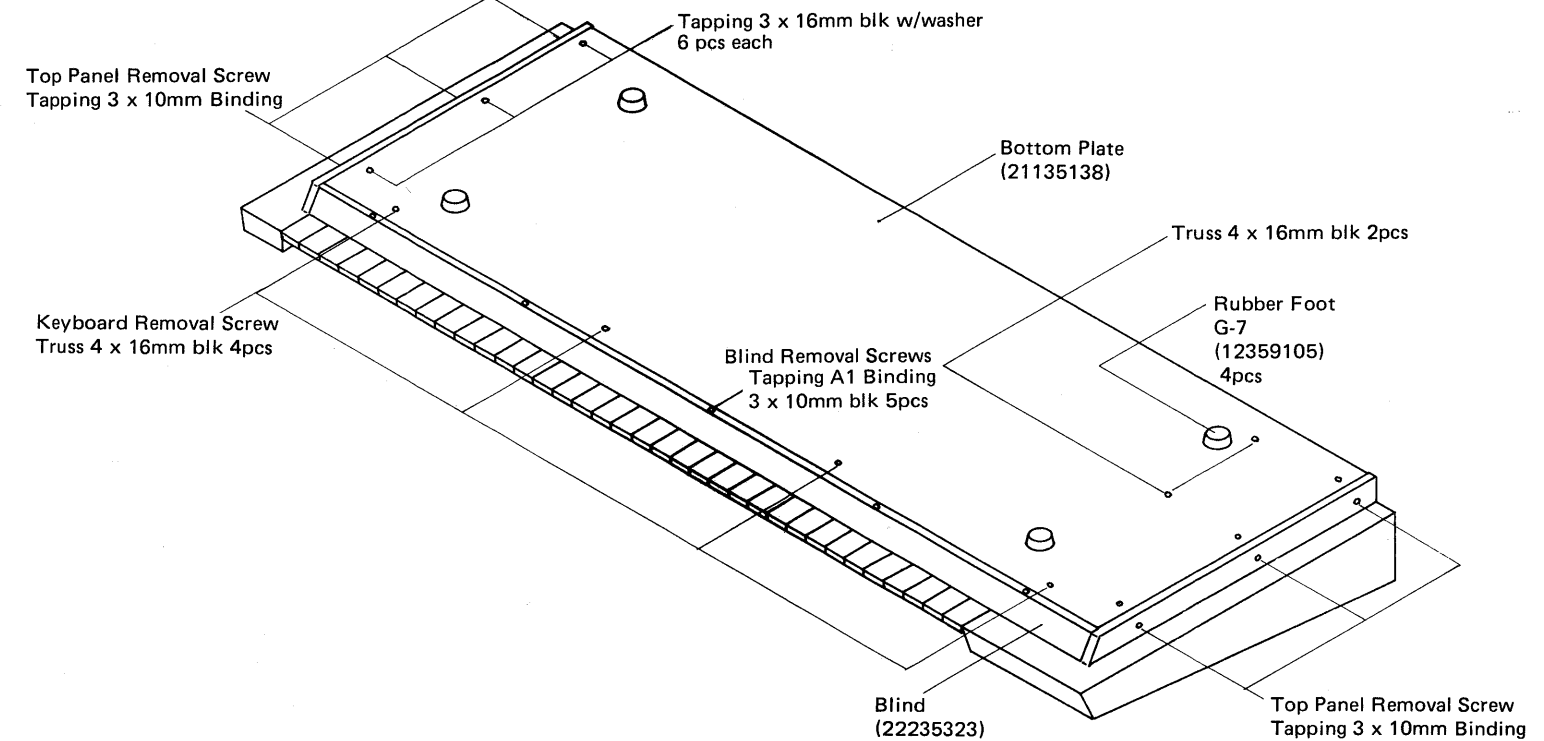
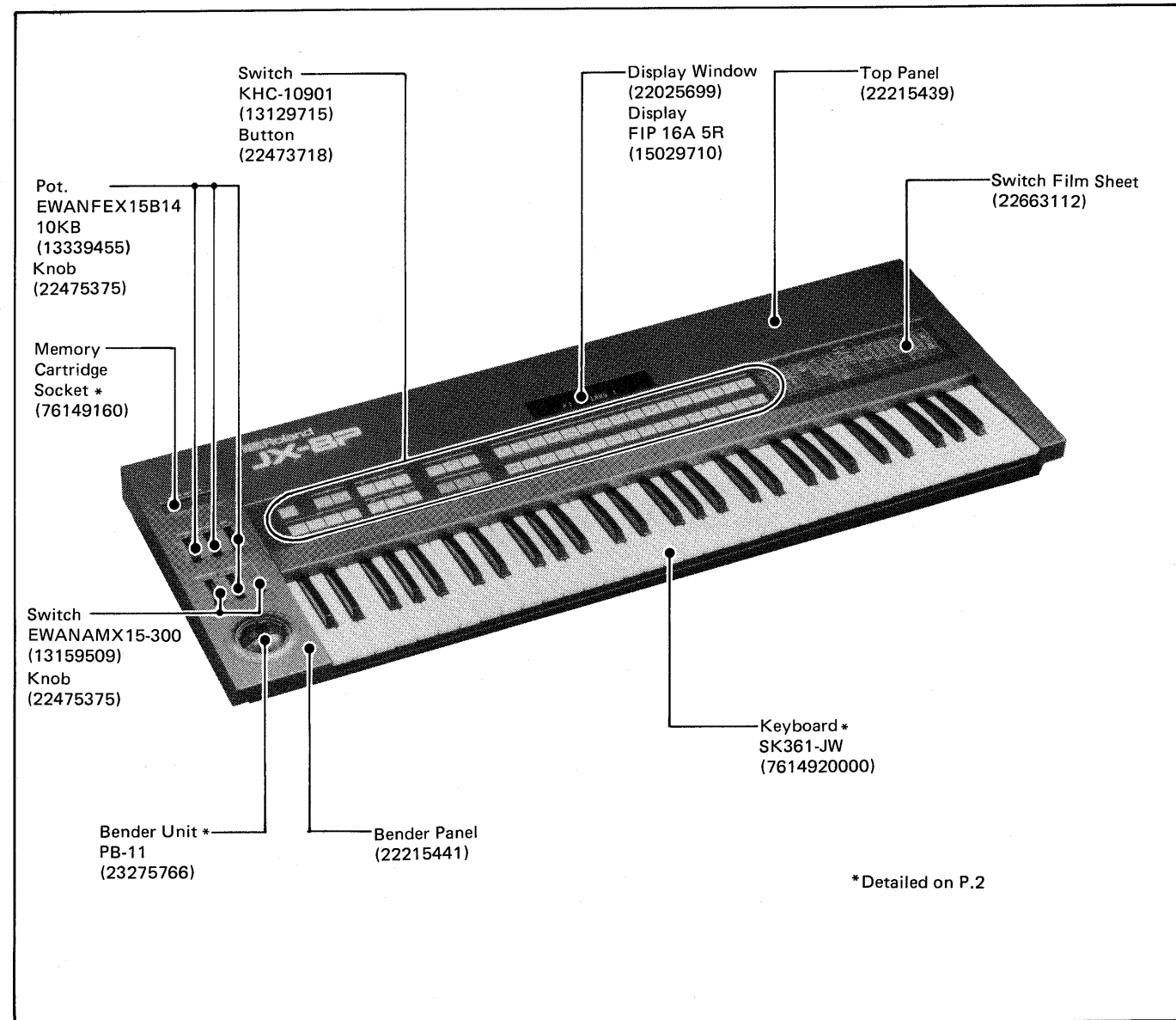
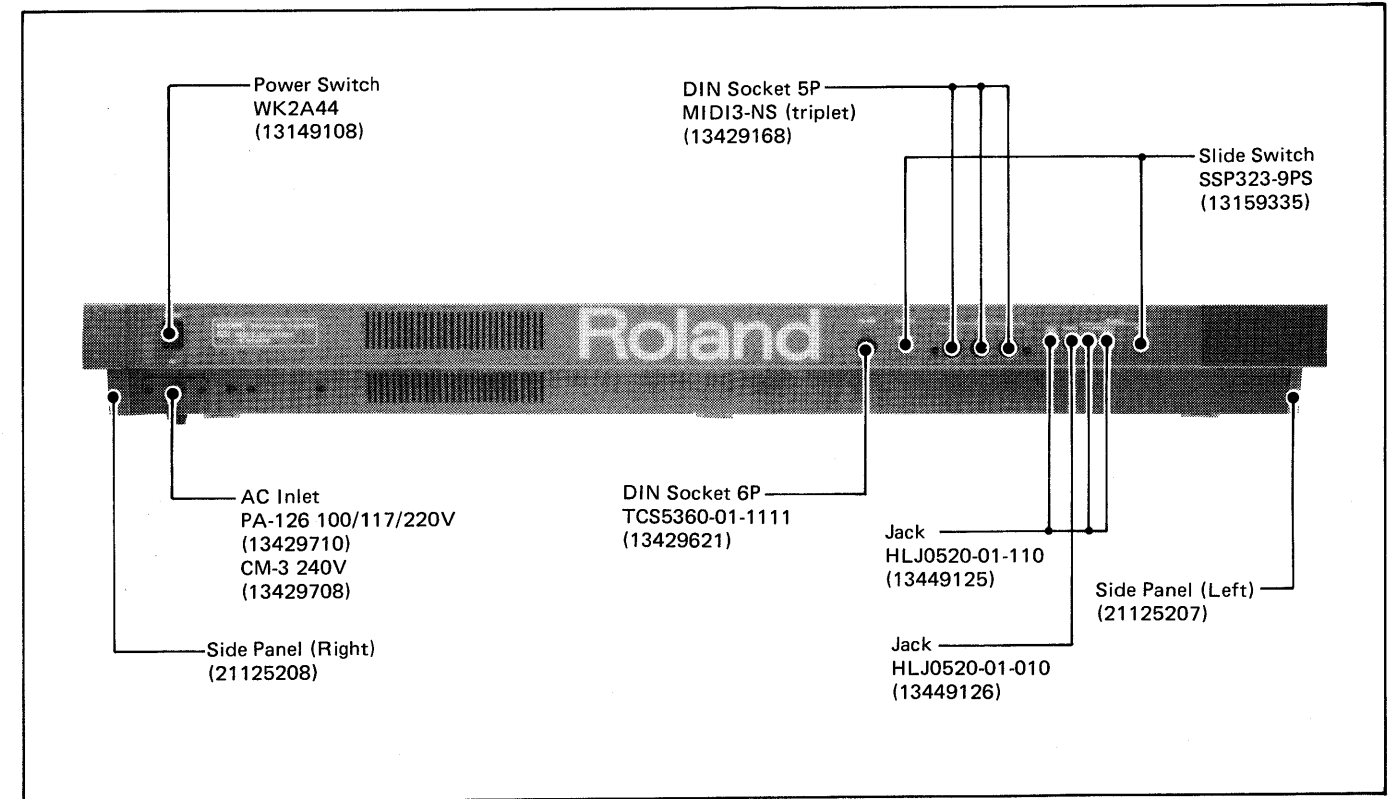
Weight
11.5kg
25 lb 60 oz

Consumption
25W

Accessories
Connections Cables x 2

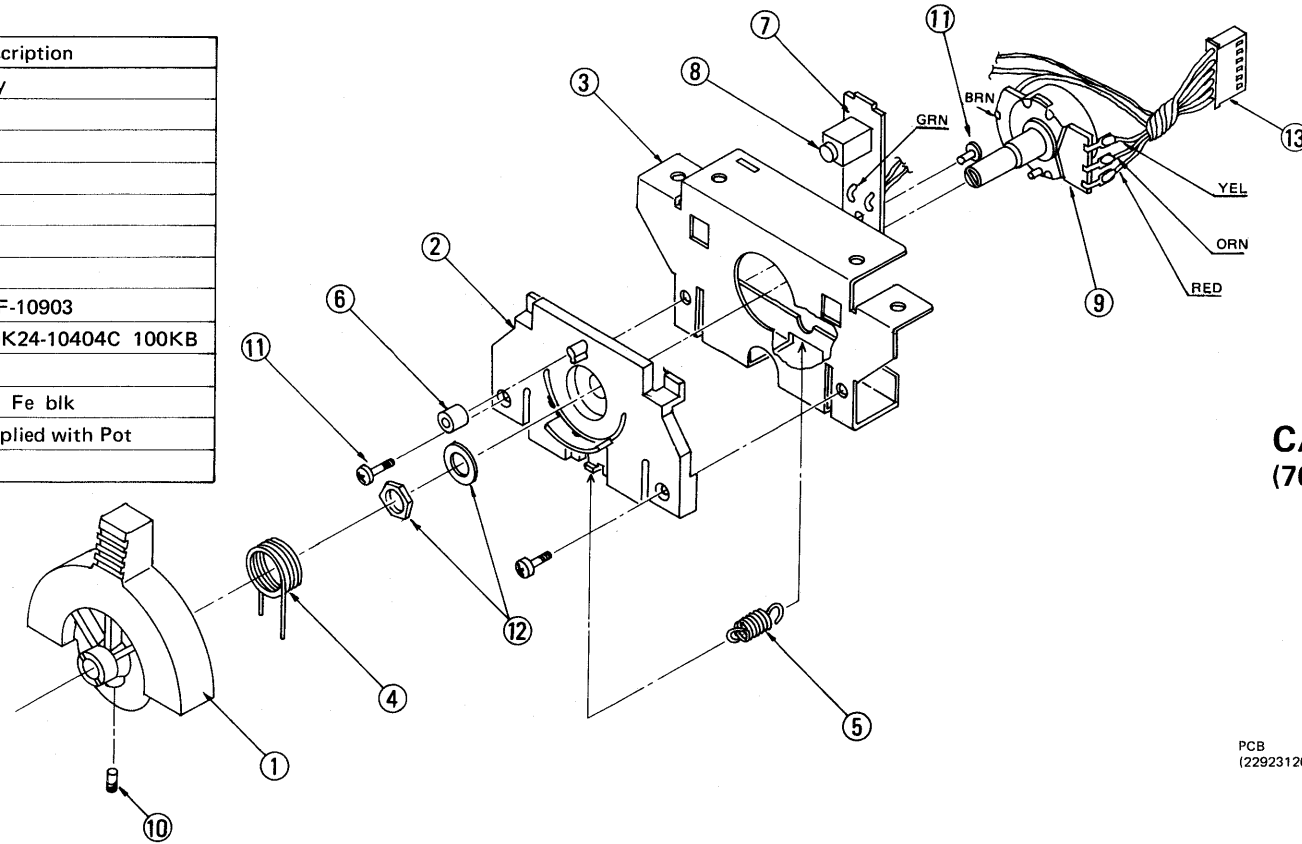
Options
Programmer PG-800
Memory Cartridge M-16C
Pedal Switch DP-2
Carrying Case AB-2

Output
Stereo/Mono : 5Ω
Headphones : 8Ω, Stereo

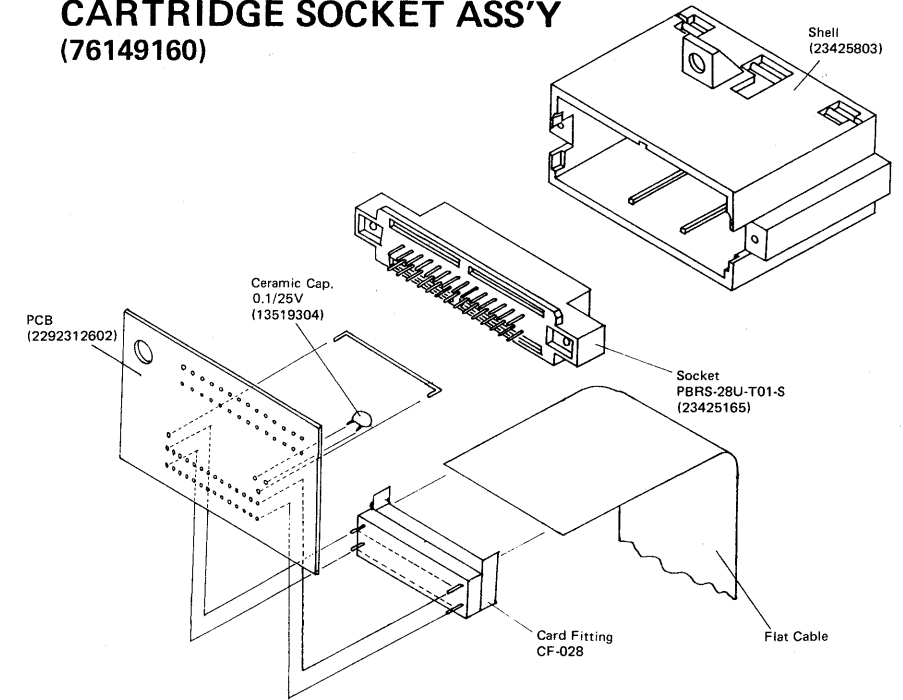


PITCH BENDER PB-11
(23275766)

Location	Part Name	Part Number	QTY	Description
1	Lever	22145602	1	grey
2	Base	22355331	1	
3	Bracket	22285432	1	
4	Spring	22175148	1	
5	Spring	22175149	1	
6	Cushion	107H066	1	
7	PCB	22915933	1	
8	Switch	13169609	1	KEF-10903
9	Potentiometer	13259701	1	S20K24-10404C 100KB
10	Hex socket set screw		1	
11	Screw 2 x 6mm		3	Pan Fe blk
12	Volume nut/washer		1	Supplied with Pot
13	Wiring Assy E	23463912	1	

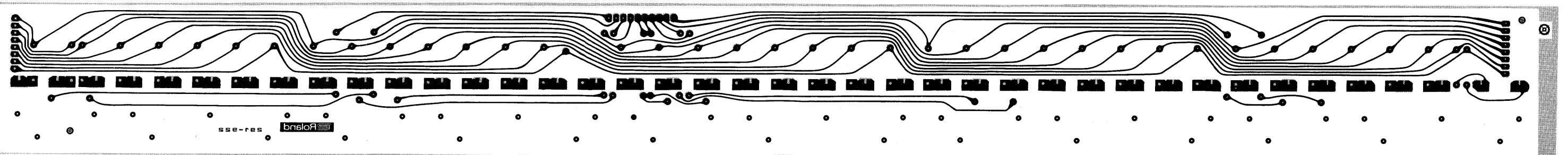
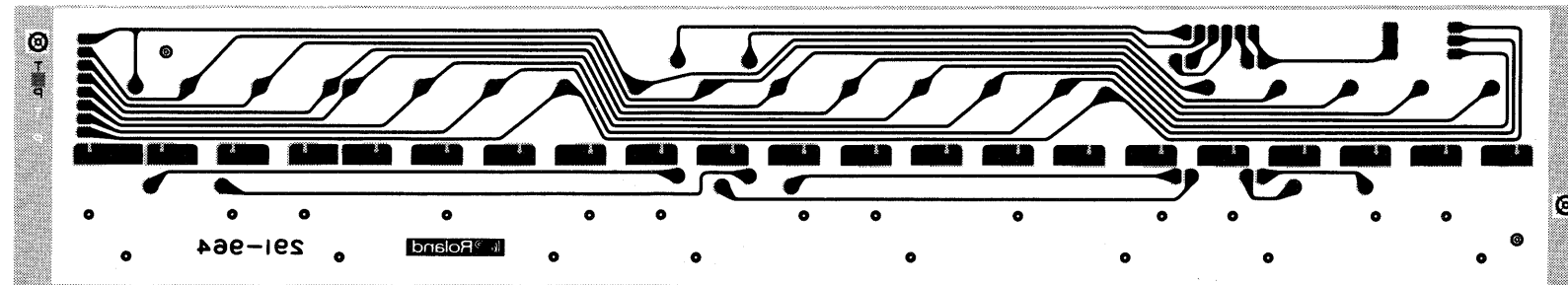
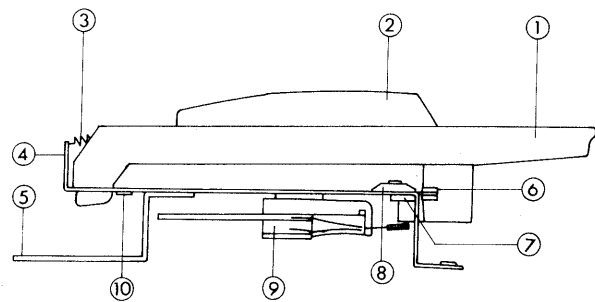


CARTRIDGE SOCKET ASS'Y
(76149160)



KEYBOARD SK-361-JW Parts List
(7614920000)

1	22575136	Natural Key C, F
	22575137	Natural Key D
	22575135	Natural Key E, B
	22575138	Natural Key G
	22575134	Natural Key A
	22575139	Natural Key C, F
2	22575140	Sharp Key
3	22175132	Natural Keyspring
	22175133	Sharp Keyspring
4	22815468	Chassis
5	22035120	Chassis Stand
6	22155716	Guide Bushing
7	22265403	Level Felt
8	23165656	After Touch
9	23165652	Switch PCB 21P (pcb 291-964)
	23165653	Switch PCB 40P (pcb 291-922)
10	22135406	Key Stopper



PARTS LIST (JX-8P)

PANEL, CASING		
22215439	Top Panel	
22215441	Bender Panel	
22663112	Switch Film Sheet	
22025699	Display Window	
21135138	Bottom Plate	
22235323	Blind	
21125207	Side Panel	Left
21125208	Side Panel	Right
22125166	Plate	Side Panel Holder, Right
22195519	Angle	Same for both R, L

KNOB, BUTTON		
22475375	Knob	Bender Panel
22473718	Button	KHC-10901

SWITCH		
13159509	EWA-NAM X15 300	Portamento ON/OFF, Bend Range Select

13159335	SSP323-9PS	Output Level, Memory Protect
13129715	KHC-10901	Panel, Touch
13149108	WK2A44	Power

JACK, SOCKET		
13449125	HLJ-0520-01-110	OUTPUT, HOLD
13449126	HLJ-0520-01-010	PHONES
13429168	MIDI3-NS DIN 5P (triplet)	MIDI
13429621	TCS5360-01-1111 DIN 6P	PROGRAMMER
13429710	AC Inlet PA-126	100/117/220V
13429708	AC Inlet CM-3	240V

MEMORY CARTRIDGE SOCKET		
76149160	Ass,y (including the following two)	
23425803	Shell	
23425165	PBR5-28U-T01-S	Socket

POWER TRANSFORMER		
22455355N0		100V
22455356C0 or 22455417C0		117V
22455357D0 or 22455418D0		220/240V

COIL		
12449251	DC-DC Converter	
12449229	FKOB160MH15	Line Filter

RESONATOR		
12389737	HC/U 16MHz	Crystal
12389738	CSB400P	Ceralock

PCB		
76149060	Main Board (pcb 2291399102)	
	or (pcb 2291399104) SN530350-up	

76149130	Switch Board 1 (pcb 2292311401)	
76149100	Switch Board 2 (pcb 22923115)	
	Splittable, including the following three PCBs:	
	76149120-1 Switch Board 2 (pcb 2292311502-1)	
	76149120-2 Volume Board (pcb 2292311502-2)	
	7614910 X Filter Board (pcb 2292311502-3)	
	Order should specify Line Voltage for correct fuse value on Filter Board.	

76149180	Power Supply Board (pcb 22923112)	
----------	-----------------------------------	--

POTENTIOMETER		
13339455	EWA-NFE X15 B14	
13299193	EVN-D4A A00 B54	Trimmer
13299195	EVN-D4A A00 B14	Trimmer

IC (Digital)		
15229824	MB63H130	Dynamic Gate Array for pcb 2291399100-2291399102
	or	
15229830	MB63H149	Dynamic Gate Array SN530350-up or pcb 2291399103-up.
		Both ICs are incompatible with each other.

15179203	HD63B03	Assigner 8 bit CMOS MCU
15179319	i-8051-319	Synth 8-bit CPU
15179201	UPD7537-014	Display 4-bit CPU
15179342	HM6116-2	8-bit CMOS RAM
15179317	TC5517APL	2K byte CMOS RAM
15179110N0	UPD8253C-2	Programmable Counter
15179341	UPD8155HC	8-bit Static RAM
15219150	UPD7001C	8-bit A/D Converter
15219149	MM5437	Digital Noise Source
15179675	M5L-27128K-2	ROM A (ASSIGNER)
		16K x 8, 200ns EPROM (ROM A of Ver.2.2 and below and of Ver.3.0 are incompatible with each other. See CHANGE INFORMATION).
15179674	TMM2764	ROM B (SYNTH) 8K x 8 EPROM
	or	
15179699	M5L-2364-211P	ROM B Mask ROM
		Upward compatible from EPROM B's of all versions since there is no difference between ROM B versions in program.

15159128H0	HD14050BP	Hex Buffer
15159113H0	HD14051BP	Analog Switch
15159114H0	HD14052BP	Analog Switch
15159115H0	HD14066BP	Quad Analog Switch
15159503	TC40H000P	CMOS Inverter
15159511	TC40H174P	CMOS D-FF
15159524	TC40H245P	CMOS Driver
15159508	TC40H373P	CMOS Latch
15169304H0	HD74LS04P	Hex Inverter
15169308H0	HD74LS30P	8-input NAND
15169339H0	HD74LS32P	Quad OR
15169318H0	HD74LS138P	Decoder
15169321H0	HD74LS161P	Counter
15169322H0	HD74LS174P	Hex D-FF
15169327H0	HD74LS367P	Hex Buffer
15169301H0	HD74LS00P	Quad NAND
15169304H0	HD74LS04P	Hex Inverter

IC (Analog)		
15229826	IR-3R05	VCF-VCA Pack
15219213	MN-3009	BBD
15169504	MN-3101	BBD Driver
15189105	UPC4558C	OP amp
15189154	TL-064	Quad OP amp
15189136	M5218L	OP amp
15199117	M5230L	V-regulator
15199106	UPC7805	5V Regulator

TRANSISTOR		
15119106	2SA733Q	
15129107	2SC945Q	
15119108	2SA798G	dual transistor
15129613	2SD1207	
15119815	2SB834Y or 15119814	2SB1015 or 15119819 2SB507
15129201	2SD880Y or 15129827	2SD1406 or 15129820 2SD313
15139103	2SK30A-GR	
15129107	2SC945Q	
	Gm selected for Q15, Q16 and Q19 of Main Board	
	VCF/VCA Module; dotted in Red, Orange, Yellow or Green. 18 2SC945Q (3 for each voice) on a given Main Board should be of the same color dot for reproducing uniform timbre.	
15119133	DTA114	digital transistor
15129150	DTC114	digital transistor

DIODE, LED, PHOTO COUPLER		
15019125	1SS-133	
15019143	1SS-116	

15019607	05Z6.2X	zener
15019603	05Z9.1Z	zener
15019605	05Z43Y	zener
	04AZ3.0	zener
15229706	TLP-552	photo coupler
15029177	GL-5HD5	LED
15029710	FIP 16A 5R	fluorescent indicator
15019236	W02	rectifier bridge

RESISTOR		
13919335	RGLD 6 x 102J	1K x 6 array
13919146	RKM14L503F	R-2R D/A array
13919313	RMLS 8-104J	100K x 8 array
13919308	RMLS 6-103J	10K x 6 array
13919310	RMLS 8-103J	10K x 8 array
13919321	RML13-103J	10K x 13 array
13799710D0	CRB20FX 10kΩ	metal oxide
13799725D0	CRB20FX 330kΩ	metal oxide
13799724D0	CRB20FX 6.8kΩ	metal oxide
13799723D0	CRB20FX 4.7kΩ	metal oxide
13769173K0	SN14K2EF 10kΩ	metal oxide
13769182K0	SN14K2EF 24kΩ	metal oxide
13769161K0	SN14K2EF 3.3kΩ	metal oxide
15229921	ERSA33G561T 560Ω	posistor

CAPACITOR		
13529104	DE7150F472MVA1	line bypass
13549216Y0	0.01μF 50V, G (±2%)	film
13529116	DD107SL221G50V	220pF, 50V

FUSE, FUSE HOLDER		
12559336	GG5 2A	100/117V
12559508	CEE T250mA	220/240V
12199552	UF0005-02	fuse holder

CONNECTOR HOUSING		
13439266	5267-10A	
13439267	5267-12A	
13439277	5267-14A	
13439261	5267-04A	
13439285	5268-03A	
13439272	5268-04A	
13439273	5268-06A	
13439270	5268-08A	
13439274	5268-09A	
13439276	5268-12A	
13439280	Card Fitting CF-028	

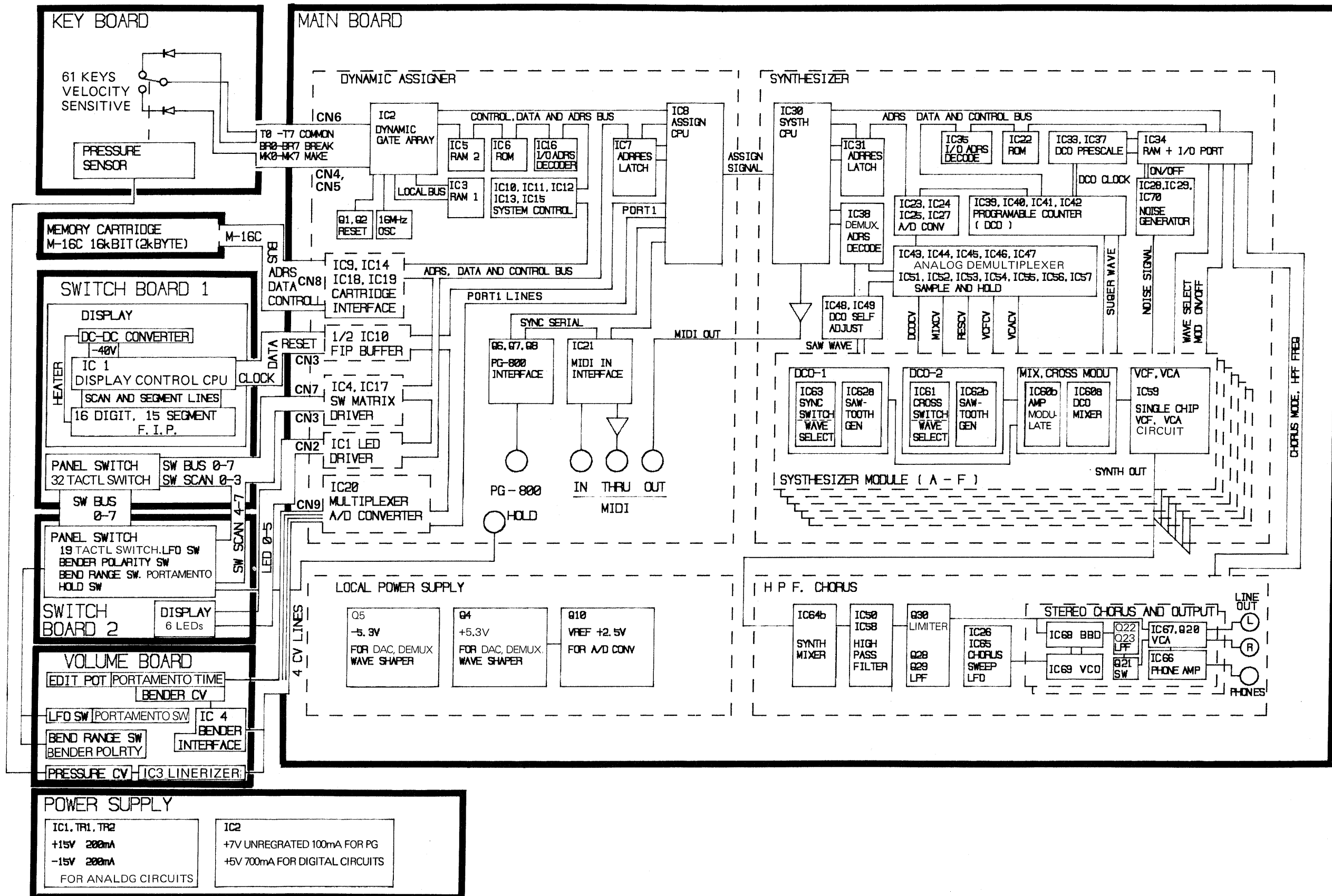
AC CORD, CORD SET		
13439801	PVFF 2.5m	100V
13439812F0	VC-704-J01	117V
13439813F0	EC-210-J01	220V
13439814F0	SC-415-J06	240V 3P, Australian
13436846	BH-301-J01	240V 3P, England

OTHERS		
12569149	Lithium Battery BR2325-HC	
22463129	Heat Sink 246-129	
2216353401	FIP Spacer	
22253118	Bender Shield Cover	
2225311901	Shield Cover	
22263309	Cushion	
2224345202	Slide Pot Cover	
2267350201	Cover 267-502	
2202569902	FCD Cover 202-699	display window
23275766	Bender PB-11	
1347915901	Sumi Card	
	SMCD28x800-BD10 P1.25	flat cable
23463908	Wiring Ass'y A	
23463909	Wiring Ass'y B	
12369504	Cord Bushing SR-4N-4	100V
22193728	Cord Holder	100V

BLOCK DIAGRAM

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

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



CIRCUIT DESCRIPTION

The major circuits of the JX-8P on the Main Board are classified into two by their function: Assigner and Synthesizer, each has the dedicated CPU.

ASSIGNER

This section is further divided into two; Interface and Assigner.

Interface deals with MIDI communication and reads information from the keyboard, panel controls, memory cartridge, programmer PG-800, etc.

Assigner allocates each module (a pair of voices) to a key being played on the built in or MIDI keyboard.

SYNTHESIZER

This section contains 6 2-voice synthesizer modules and is very similar to those found on Roland JX-3P, MKS-30 and GR-700 in circuit configuration.

As those circuits are repeated on Service Notes of those brother models, not covered in this Notes.

ADJUSTMENT

JX-8P is provided with built-in test program which runs only in the test mode.

ENTERING TEST MODE

1. While pressing TONE PIANO 2 and PIANO 3, switch the power ON.
2. When the display has read [P1 PIANO 1], verify that repeating a key will light KEY MODE and AFTER TOUCH buttons one by one while continuously half-lighting POLY. A full-lit button indicates the module currently assigned to a key as shown below.

SOLO	A	VOLUME	D
UNISON	B	BRILLIANCE	E
POLY	C	VIBRATO	F

CREATING THE TEST TONE

CAUTIONS: Allow at least five minutes for warm-up before proceeding to adjustment.
Do not use PG-800 in this mode.

1. Press EDIT PARAMETER. The display will read [11 DC01 RANG 16'].
2. Set the following parameters to the value respectively by selecting a TONE number and resetting EDIT knob. The parameters not listed will not affect the procedure.

NUMBER	PARAMETER	VALUE
11	DCO 1 RANG	8'
12	DCO 1 WF	SQUR
13	DCO 1 TUNE	00
14	DCO 1 LFO	0
15	DCO 1 ENV	0
41	MIX DCO 1	99
42	MIX DCO 2	0
43	MIX ENV	0
52	VCF FREQ	54
53	VCF RES	99
54	VCF LFO	0
55	VCF ENV	0
56	VCF KEY	0
61	VCA LEVEL	70
62	VCA MODE	GATE
64	CHORUS	OFF

ADJUSTING

1. Connect the scope to the OUTPUT jack or TP5 of the MAIN BOARD.
2. Press A above middle C - 442Hz.
3. Adjust the trimmer of the module being indicated by the lit LED so that the waveform shows its full amplitude.
4. In a similar way adjust the remaining modules but press the A key for each module.
5. When the adjustment has finished, return to the normal mode by pressing MASTER TUNE or switch the power off.

調整仕様

JX-8Pには調整用プログラムが内蔵されています。このプログラムはテストモードにしないと走りません。

テストモード

1. PIANO 2,3を同時に押しながら電源を入れます。
JX-8Pはテストモードとなり、「P1 PIANO1」が表示され、KEY MODEのPOLYが点灯します。
2. 鍵盤を弾くごとにKEYMODE, AFTER TOUCHのいずれかのLEDが点灯します。
LEDとモジュールの対応は英文中の表の通りです。POLY(連続半点灯)は対応したモジュールがアサインされた場合、一段と明るくなります。

調整用音色

テスト音を下記の手順で設定します。

注. PG-800は使用しないこと。

電源ON後約5分待つこと。

1. EDIT PARAMETERを押す。「11 DC01 RANG 16」が表示されます。
2. 英文中の指示値にパラメータを設定する。指示の無いパラメータは無関係です。

調整

1. オシロスコープをOUTPUTジャック、またはメイン基板のTP5に接続します。
2. A4(442Hz)キーを押します。
3. 現在アサインされているモジュールをKEY MODE/AFTER TOUCH LEDで確認、そのモジュールの半固定を調整して出力を最大にします。
4. A4キーを押し直し、別のモジュールを同様に調整して行きます。
5. 調整終了後ノーマルモードに戻るにはMASTER TUNEを押すか、電源を一旦OFFにします。

IC DATA

MB63H130 Pin Assignment

Pin no.	I/O	Pin name	Pin no.	I/O	Pin name	Pin no.	I/O	Pin name	Pin no.	I/O	Pin name
1	O	T7	21	I	BR9	41	I	CD7	61	O	RA1
2	I	BR0	22	I	MK9	42	I	CA8	62	O	RA10
3	I	MK0	23	I	BR10	43	I	CA9	63	O	RA2
4	I	BR1	24	I	MK10	44	I	CA10	64	I/O	ROE
5	I	MK1	25	I	RES	45	I	CS	65	O	RA3
6	I	BR2	26	I	E	46	I	XT1	66	O	RWE
7	I	MK2	27	O	EXCK	47	O	XT2	67	O	RA4
8	I	BR3	28	I	AS	48	O	ASEL	68	O	RA9
9	I	MK3	29	O	CRES	49	I	MOD1	69	O	RA5
10	I	BR4	30	I	CRNW	50	I	MOD2	70	O	RA8
11	I	MK4	31	O	SRCK	51	I/O	RD3	71	O	RA6
12	-	VSS	32	-	NC	52	-	VSS	72	O	RA7
13	I	BR5	33	-	VDD	53	I/O	RD4	73	-	VDD
14	I	MK5	34	I/O	CDO	54	I/O	RD2	74	O	T0
15	I	BR6	35	I/O	CD1	55	I/O	RD5	75	O	T1
16	I	MK6	36	I/O	CD2	56	I/O	RD1	76	O	T2
17	I	BR7	37	I/O	CD3	57	I/O	RD6	77	O	T3
18	I	MK7	38	I/O	CD4	58	I/O	RDO	78	O	T4
19	I	BR8	39	I/O	CD5	59	I/O	RD7	79	O	T5
20	I	MK8	40	I/O	CD6	60	O	RA0	80	O	T6

MB63H149 Pin Assignment

Pin no.	I/O	Pin name	Pin no.	I/O	Pin name	Pin no.	I/O	Pin name	Pin no.	I/O	Pin name
1	O	T7	21	I	BR9	41	I/O	CD7	61	O	RA1
2	I	BR0	22	I	MK9	42	I	CA8	62	O	RA10
3	I	MK0	23	I	BR10	43	I	CA9	63	O	RA2
4	I	BR1	24	I	MK10	44	I	CA10	64	I/O	ROE
5	I	MK1	25	I	RES	45	I	CS	65	O	RA3
6	I	BR2	26	I/O	EXCK	46	I	XT1	66	O	RWE
7	I	MK2	27	I	E	47	O	XT2	67	O	RA4
8	I	BR3	28	O	INT	48	O	ASEL	68	O	RA9
9	I	MK3	29	I	AS	49	I	MOD1	69	O	RA5
10	I	BR4	30	O	CRES	50	I	MOD2	70	O	RA8
11	I	MK4	31	I	CRNW	51	I/O	RD3	71	O	RA6
12	-	VSS	32	O	SRCK	52	-	VSS	72	O	RA7
13	I	BR5	33	-	VDD	53	I/O	RD4	73	-	VDD
14	I	MK5	34	I/O	CDO	54	I/O	RD2	74	O	T0
15	I	BR6	35	I/O	CD1	55	I/O	RD5	75	O	T1
16	I	MK6	36	I/O	CD2	56	I/O	RD1	76	O	T2
17	I	BR7	37	I/O	CD3	57	I/O	RD6	77	O	T3
18	I	MK7	38	I/O	CD4	58	I/O	RDO	78	O	T4
19	I	BR8	39	I/O	CD5	59	I/O	RD7	79	O	T5
20	I	MK8	40	I/O	CD6	60	O	RA0	80	O	T6

HD63B03RP Pin Configuration (Top View) and Block Diagram

μPD7537C Pin Configuration (Top View) and Block Diagram

CHANGE INFORMATION

Since the release of the JX-8P some engineering changes have been made to improve the performance and reliability of the unit.

Interchangeable 互換性有
Substitutive 先印方向のみ 代替可能
Incompatible 互換性無

EFFECTIVE SN 実施製番	DESCRIPTION 変更内容 (理由)	MAIN BOARD ASSEMBLY	GATE ARRAY IC2 MAIN BOARD	ROM A IC6 MAIN BOARD	ROM B IC22 MAIN BOARD
480300	<p>Operational speed of ROM A is somewhat low when compared with that of the CPU IC8 HD63B08 and the ROM sometimes misses access to its memory cells, causing program runaway; the phenomenon will be no display or no sound. As a solution CE is advanced by bypassing IC16 to provide the ROM with more accessing time margin. In field service changing to a high speed ROM M5L27128K-2 is recommended for easier improvement with no CE reconnection. The high speed ROM is implemented at the factory with SN514700 for double safety.</p>	76149060 pcb 2291399102	MB63H130	M5L27128K Ver. 1.1	TMM2764 Ver. 1.1 Although the software in ROM B remains unchanged, its revision number is updated in pace with that of ROM A to avoid confusion around version number. 本表中のROM Bはバージョン別、にかかわらず、全てプログラムは同じ。しかし混乱を避けるためROM Aの変更に合わせてバージョン別、は更新されている。
480420	<p>Pressing HOLD Pedal while After Touch is On also holds A.T. effect via MIDI message on a downstream synthesizer. The effect continues on the subsequent notes even they are played after the release of the pedal. ROM A of Ver. 2.0 cures this problem.</p>			M5L27128K Ver. 2.0	TMM2764 Ver. 2.0
480589	<p>The software in PROM A of Ver. 2.1 allows the modules to increase the total volume of the voice outputs. Also the software recognizes MIDI Program Change message after receipt of MIDI Local OFF message.</p>			M5L27128K Ver. 2.1	TMM2764 Ver. 2.1
490600	<p>This change conforms to the requirement placed by some specification. Components in both original and revised circuits are interchangeable if R28-R31 are so arranged to the diagram. 安全規格に適合させるため、左側のトランジスタを右側のものと置換える場合には、R28-R31の定数変更も同時に行う必要がある。</p>			SN514700 M5L27128K-2	
528250	<p>Attempt to write into Preset Bank results in error message displayed as "SELECT BANK C!". However, this message would not be displayed if WRITE button is pressed while Preset B [-P....] Bank is selected. PROM A ver. 2.2 cures this problem.</p>			M5L27128K-2 Ver. 2.2	TMM2764 Ver. 2.2
530350	<p>Gate Array is changed to the newly designed one. To provide electric connections between the new gate and the peripherals (see block diagram), some conductor patterns are re-laid out on the new PCB. Software in ROM A is also revised to meet the new function. CAUTION: ROM A of Ver. 3.0 will not work with the old GATE Array, making itself incompatible with ones of Ver. 2.2 and below. 性能向上のためゲート・アレイIC8を新設計のものに変更、これに伴いROM Aのプログラム変更。図に示すことIC2とIC8間の接続が一部異なるため基板のレイアウトも変更。 注：基板完成品としては新旧間に互換性がある。</p>	76149060 pcb 2291399103 or pcb 2291399104	MB63H149	M5L27128K-2 Ver. 3.0	TMM2764 Ver. 3.0
542750	<p>VREF circuit is modified to have adjustable positive voltage (+5.6V). 基準電圧回路を調整可能型 (基準電圧5.6V) に変更。</p> <p>VREF circuit is returned back to the previous configuration with some mounting holes for trimmer, transistor, etc. made idle. NOTE: VREF differs between fixed and adjustable ones since their temperature coefficients are of opposite direction. 固定式でも十分な電圧精度が保たれることが立証されたので再び前の回路へ変更。 注：固定型と調整型とは回路の温度係数が異なるため基準電圧も異なる。</p>				(EPROM)
543050	<p>ROM B of EPROM is replaced by a cost effective mask ROM. ROM BをEP ROMからMASK ROMに変更、但し、プログラムの内容は変わらない。</p>				M5L2364-211P (MASK ROM)

Pressing HOLD Pedal ON and OFF with AFTER TOUCH ON while depressing any key on the JX-8P keyboard sometimes generates incorrect MIDI OUT message upon HOLD pedal (7F).
90 40 51 D0 80 D0 7F B0 40 7F D0 FF B0 40 00
KEY ON AFTER TOUCH HOLD ON HOLD OFF

Must always be 7F, but varies with AFTER TOUCH knob setting and Key Pressure. FF = System Reset; this will be generated when the amount of AFTER TOUCH and key pressure are at maximum.

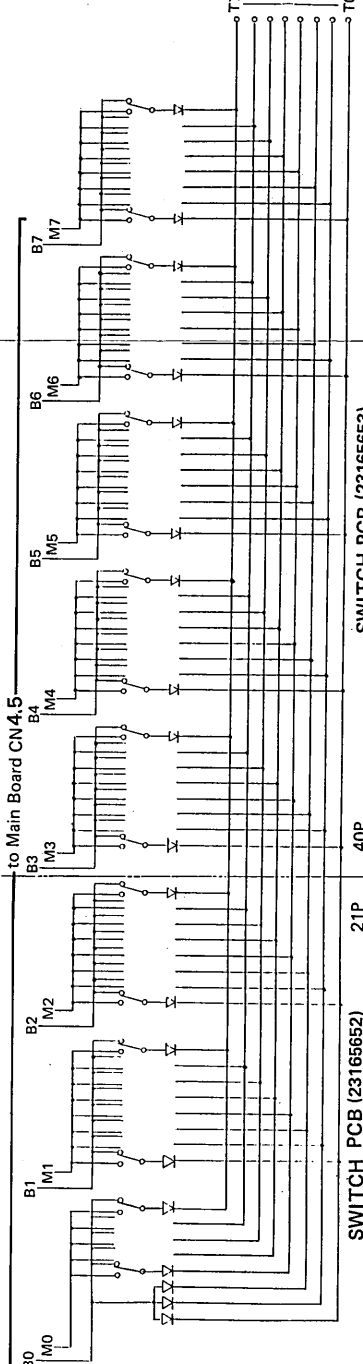
ROM A of Ver. 3.1 cures this problem.
NOTE: ROM A's of Ver. 2.0 to 2.2, being incompatible with ROM A of Ver. 3.1, are to be replaced with Ver. 2.3.
SWITCH FILM SHEET
Changed to 22663115. Sound Names on TONE SELECTOR buttons are deleted. スイッチ・フィルムシートのトーン・セレクトボタンから青色名を削除する。

MUSIC REST And TOP PANEL
Music Rest is furnished on later products. Effective Serial Number is not fixed on the day of the issue.

アプター・タッチON時に鍵盤を押し続けながら、HOLDペダルをON、OFFさせる時、ペダルOFF時に7Fであるべきデータが、上に示す様に真なった直で送り出されることがある。このデータ値は、アプター・タッチボタンの位置、および鍵盤圧によって異なる。上例は、両方が最大の値である。ROM A Ver. 3.1に交換すれば解決する。但し、Ver. 2.2以前のROM Aは互換性が無いので、Ver. 2.3を使用すること。

MAIN BOARD ASSIGNER

KEYBOARD



O
N
M
L
K
J
I
H
G
F
E
D
C
B
A

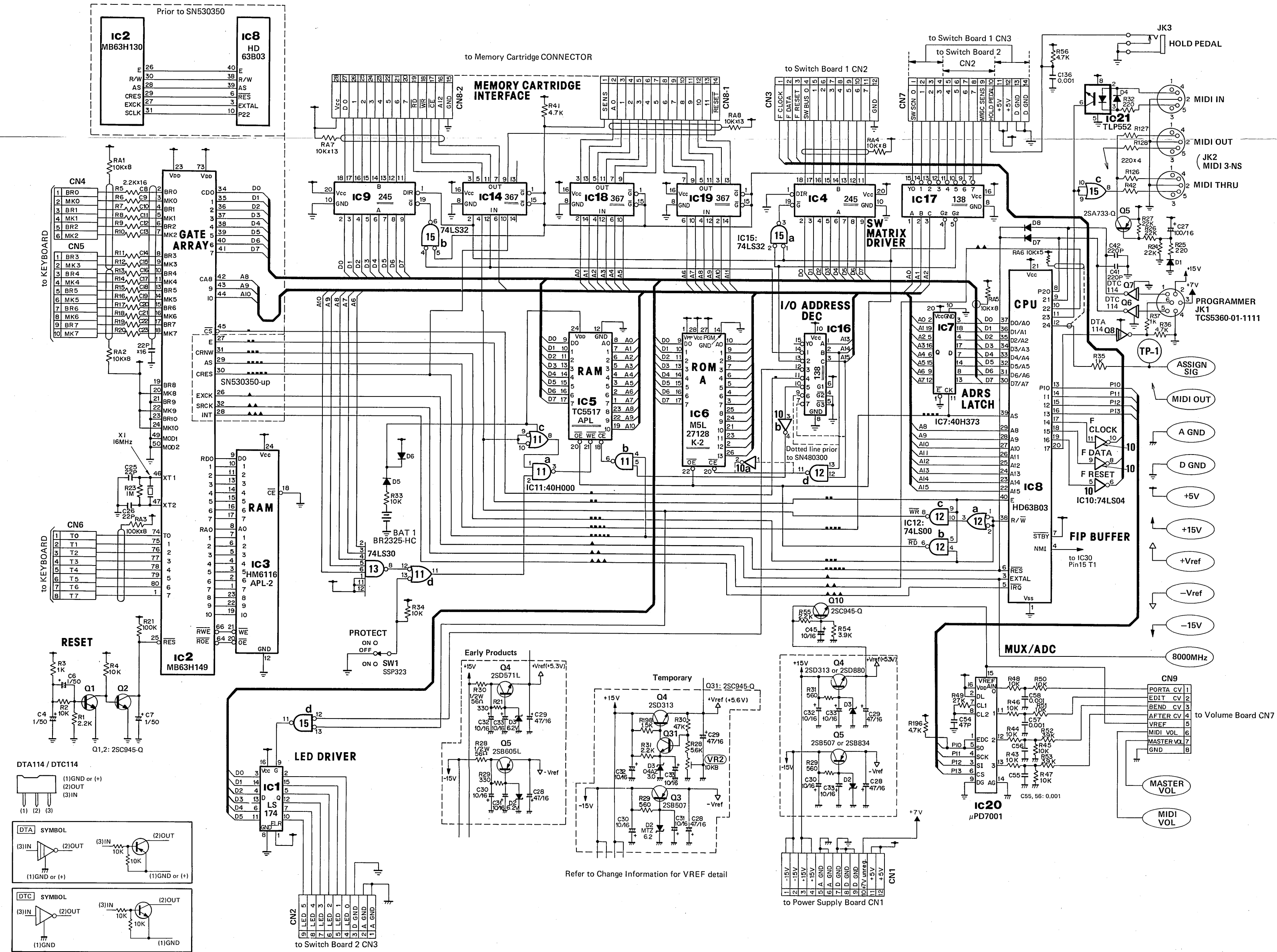
SWITCH PCB (23165653)

SWITCH PCB (23165652)

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM (ASSIGNER)

For the Q's and IC's not listed here, see table on P.11.

IC CIRCUIT NO.	SCHEM LOCATION	Q CIRCUIT NO.	SCHEM LOCATION
1	C-5	1	D-2
2	E-3	2	D-3
3	G-5	3	C-11
4	L-13	4	E-8
5	I-10	4	D-11
6	I-12	5	E-14
7	J-15	6	L-18
8	H-17	5	K-18
9	L-6	7	K-18
10a	H-12	8	J-18
10b	I-13	10	F-13
10c	H-18	31	D-11
10d	H-18		
10e	I-18		
11a	H-9	2	C-12
11b	H-10		
11c	H-9		
11d	F-7	1	E-7
12	H-13		
13	G-6		
14	L-8		
15a	L-13		
15b	L-7		
15c	L-18		
15d	D-5		
16	J-14		
17	L-15		
18	L-10		
19	L-12		
20	C-16		
21	N-18		



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

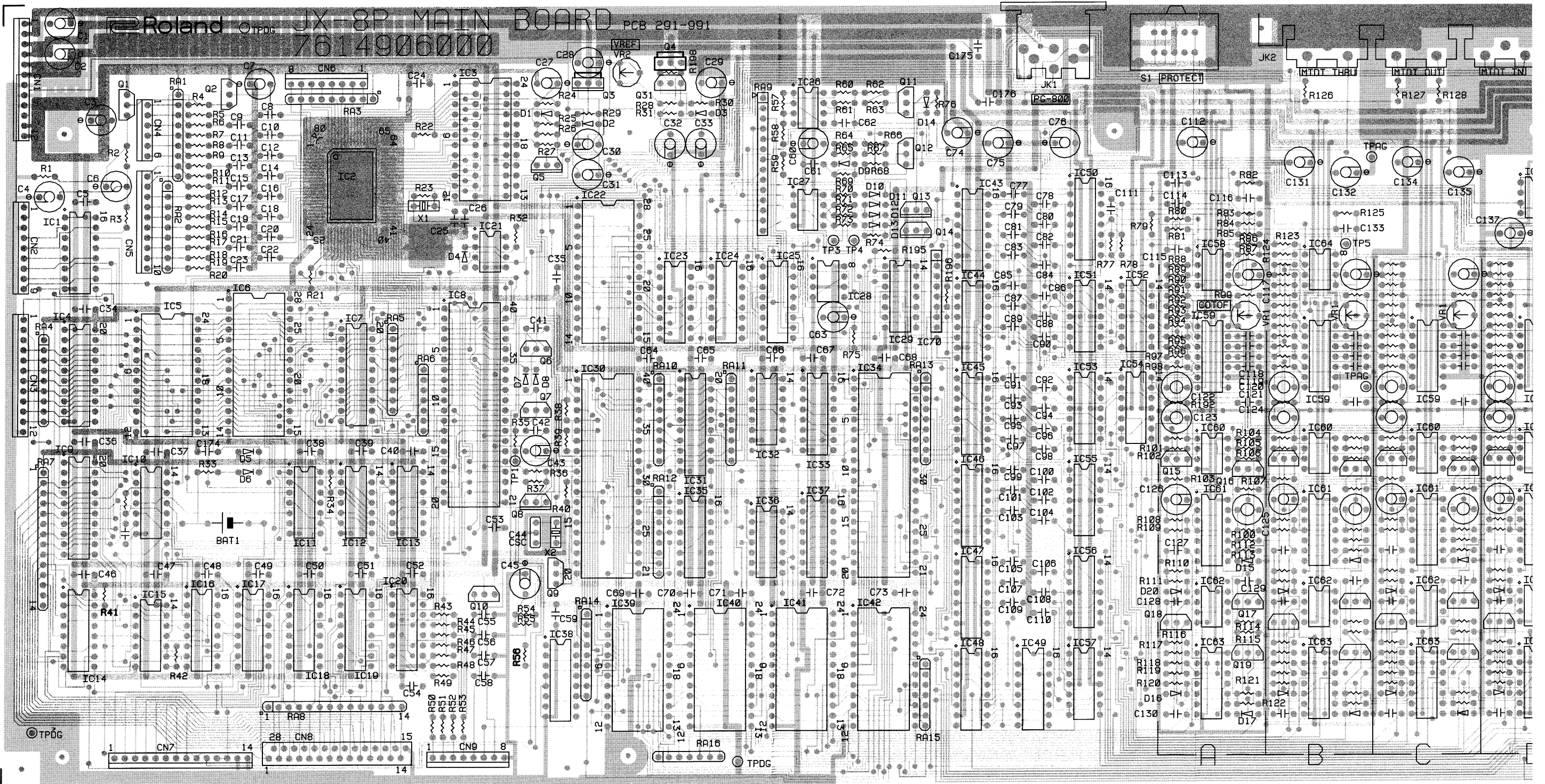
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

MAIN BOARD (PARTIAL)
76149060
 (pcb 2291399102) or
 (pcb 2291399104) SN530350-up

LAYOUT 2291399104

For checking paths to Gate Array of MB63H130 on PCB 22913102, trace tracks on the actual PCB referring to the boxed diagrams on page 8.

Continued overleaf



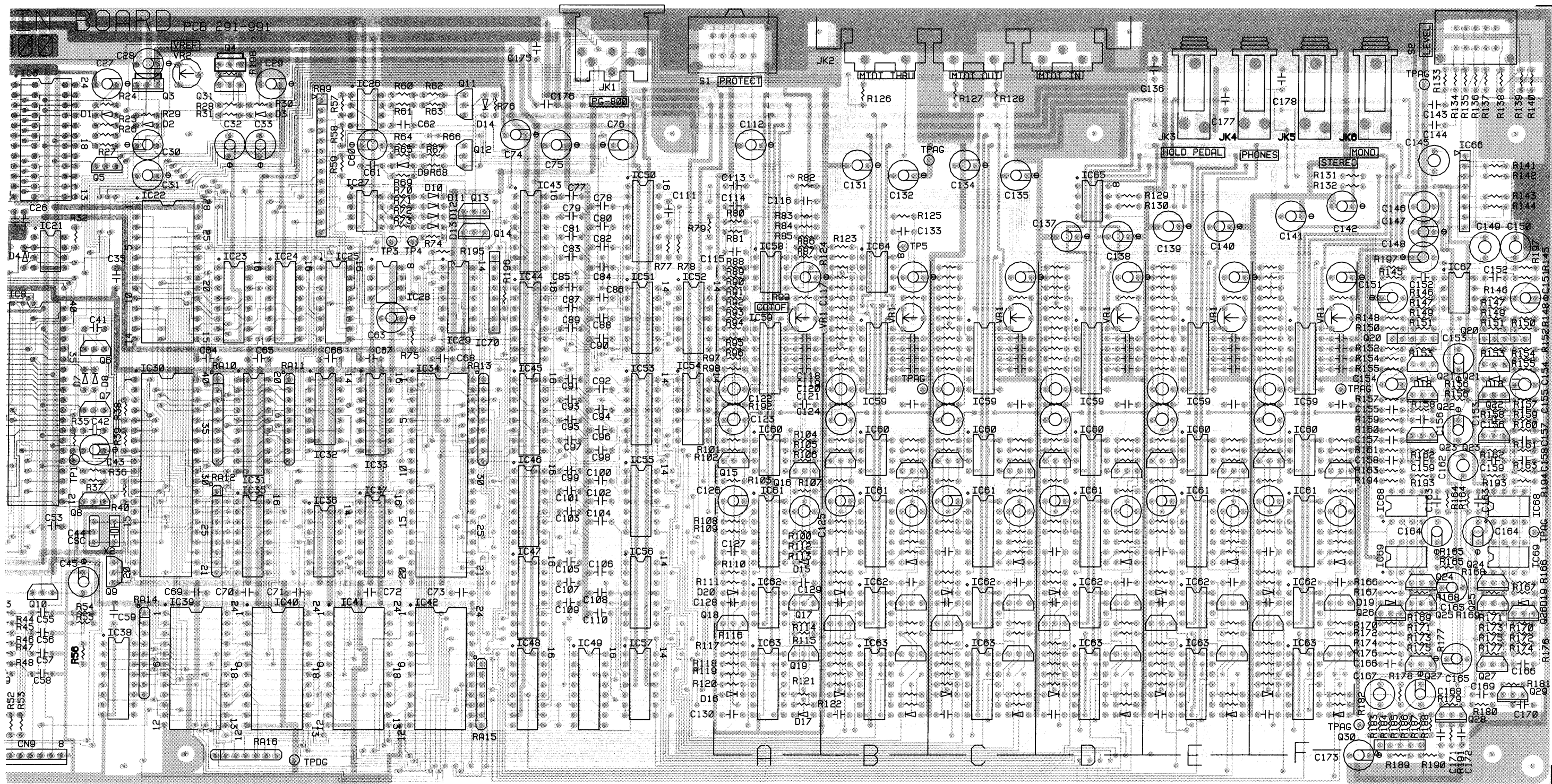
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

MAIN BOARD (PARTIAL)

76149060

(pcb 2291399102) or

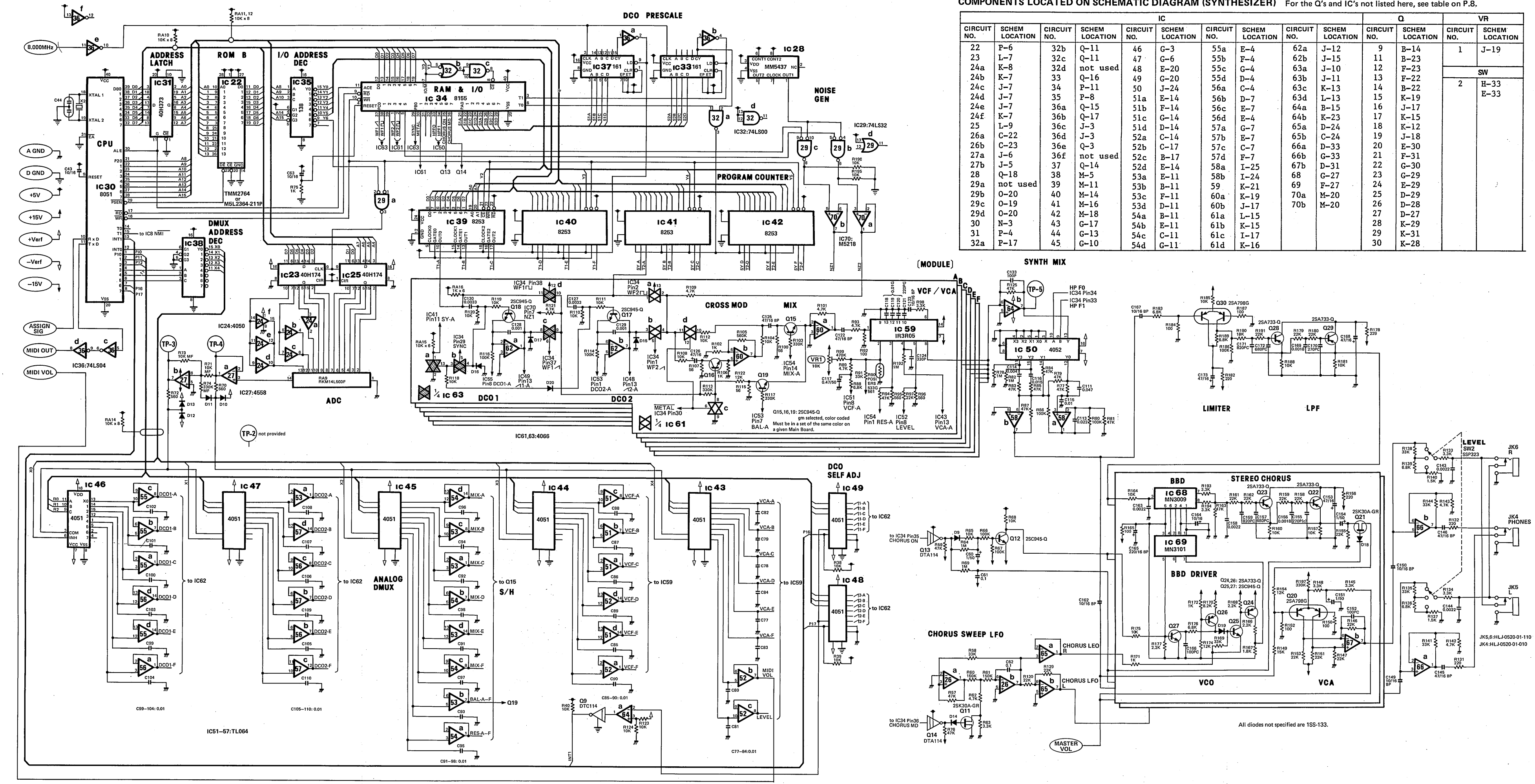
(pcb 2291399104) SN530350-up



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

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM (SYNTHESIZER) For the Q's and IC's not listed here, see table on P.8.

IC		IC		IC		IC		IC		IC	
CIRCUIT NO.	SCHEM LOCATION	CIRCUIT NO.	SCHEM LOCATION	CIRCUIT NO.	SCHEM LOCATION	CIRCUIT NO.	SCHEM LOCATION	CIRCUIT NO.	SCHEM LOCATION	CIRCUIT NO.	SCHEM LOCATION
22	P-6	32b	Q-11	46	G-3	55a	E-4	62a	J-12	9	B-14
23	L-7	32c	Q-11	47	G-6	55b	F-4	62b	J-15	11	B-23
24a	K-8	32d	not used	48	E-20	55c	G-4	63a	J-10	12	F-23
24b	K-7	33	Q-16	49	G-20	55d	D-4	63b	J-11	13	F-22
24c	J-7	34	P-11	50	J-24	56a	C-4	63c	K-13	14	B-22
24d	J-7	35	P-8	51a	E-14	56b	D-7	63d	L-13	15	K-19
24e	J-7	36a	Q-15	51b	F-14	56c	E-7	64a	B-15	16	J-17
24f	K-7	36b	Q-17	51c	G-14	56d	E-4	64b	K-23	17	K-15
25	L-9	36c	Q-3	51d	D-14	57a	G-7	65a	D-24	18	K-12
26a	C-22	36d	Q-3	52a	C-14	57b	E-7	65b	C-24	19	J-18
26b	C-23	36e	Q-3	52b	C-17	57c	C-7	66a	D-33	20	E-30
27a	J-6	36f	not used	52c	B-17	57d	F-7	66b	G-33	21	F-31
27b	J-5	37	Q-14	52d	F-14	58a	I-25	67b	D-31	22	G-30
28	Q-18	38	N-5	53a	E-11	58b	I-24	68	G-27	23	G-29
29a	not used	39	M-11	53b	B-11	59	K-21	69	F-27	24	E-29
29b	Q-20	40	M-14	53c	F-11	60a	K-19	70a	M-20	25	D-29
29c	O-19	41	N-16	53d	D-11	60b	J-17	70b	M-20	26	D-28
29d	Q-20	42	N-18	54a	B-11	61a	L-15			27	D-27
30	N-3	43	G-17	54b	E-11	61b	K-15			28	K-29
31	F-4	44	G-13	54c	C-11	61c	I-17			29	K-31
32a	F-17	45	G-10	54d	G-11	61d	K-16			30	K-28



MAIN BOARD SYNTHESIZER

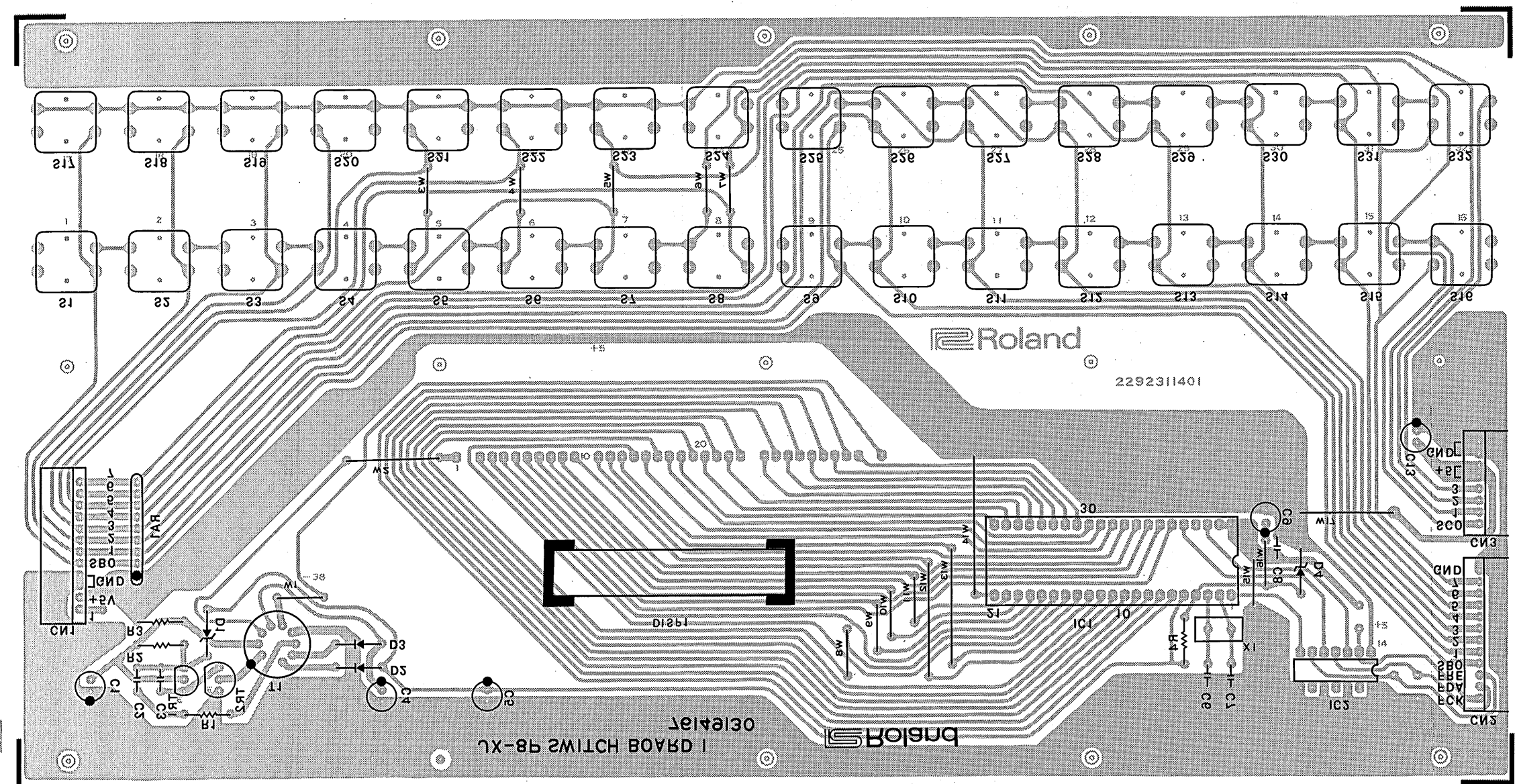
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A

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

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 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

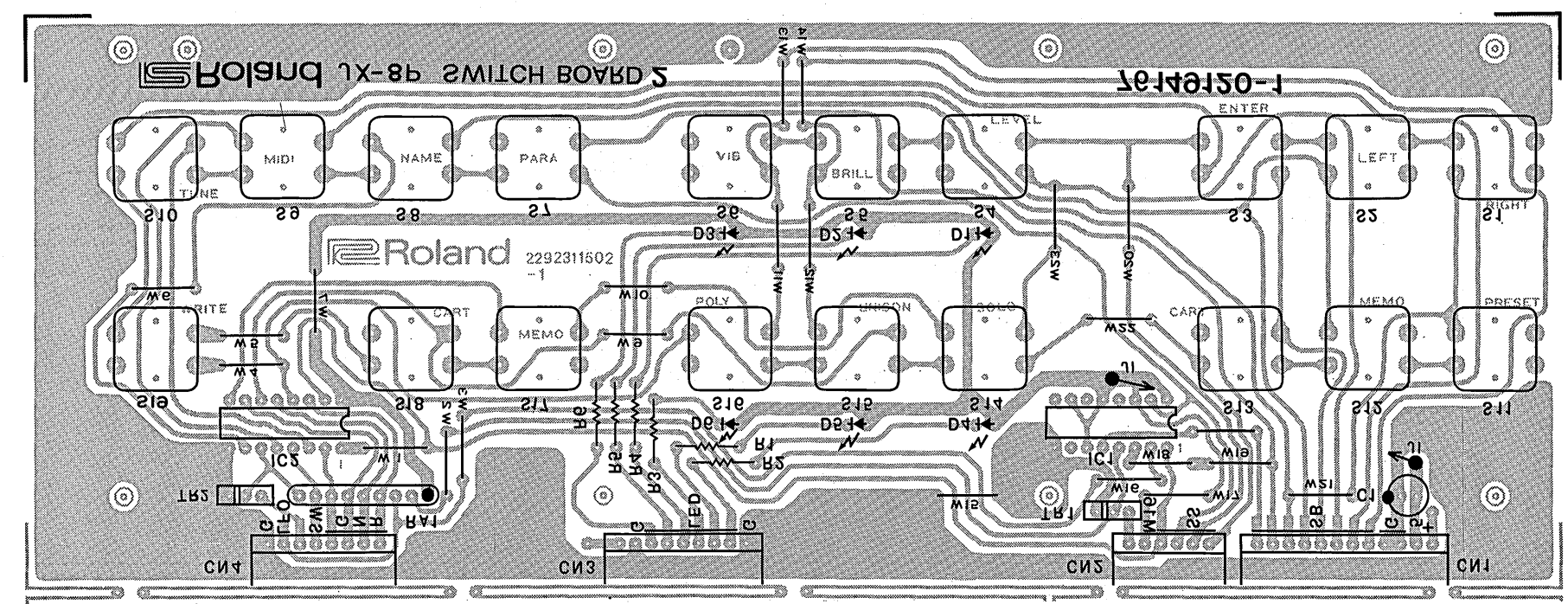
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V

SWITCH BOARD 1 76149130 (pcb 2292311401)

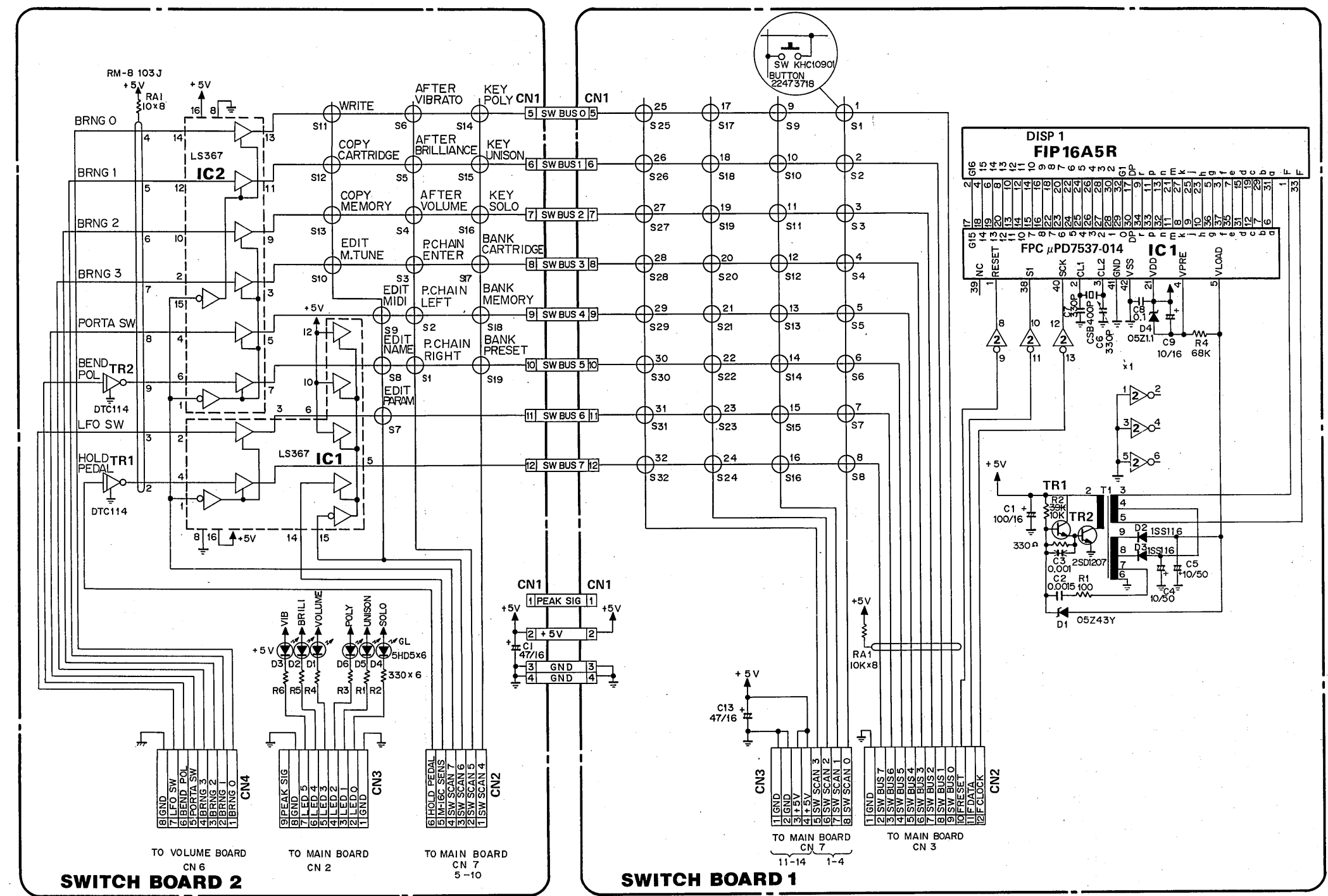


SWITCH BOARD 2

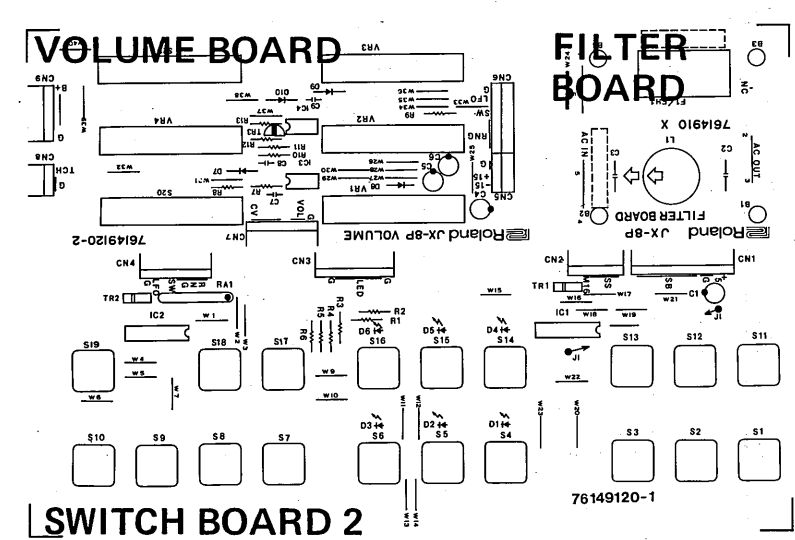
76149120-1 (pcb 2292311502-1)
Replacement for Switch Board 2, Volume Board and Filter Board.



View from foil side



Replacement For SWITCH BOARD 2 VOLUME BOARD FILTER BOARD
These three PCBs will be supplied in a set of three PCBs assembled on a splittable PCB as shown here.
Representative: Switch Board 2 76149100.
When ordering, specify the line voltage.

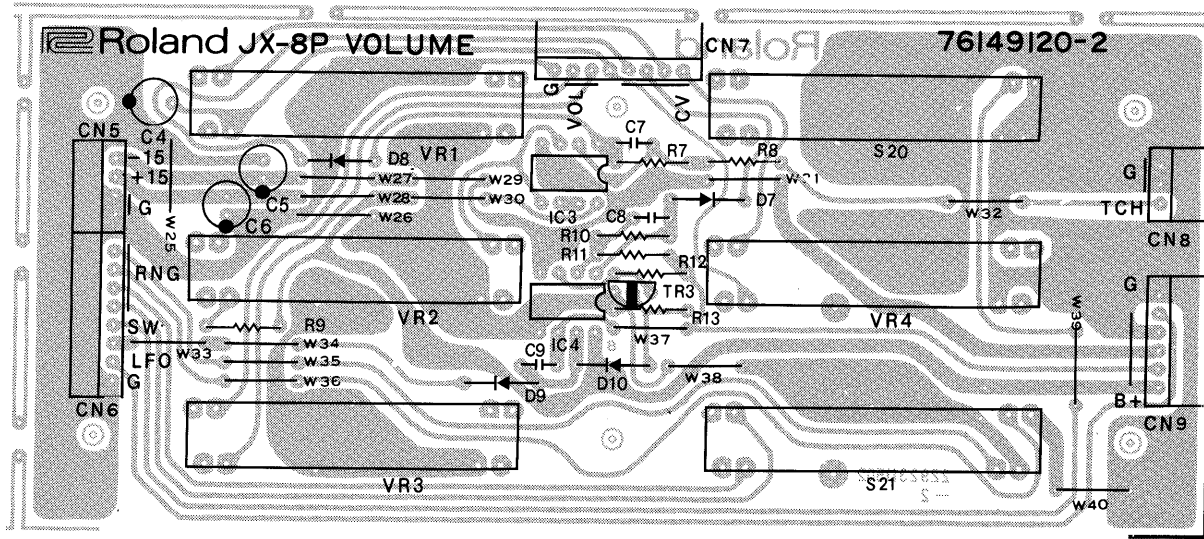


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

VOLUME BOARD

76149120-2
(pcb 2292311502-2)

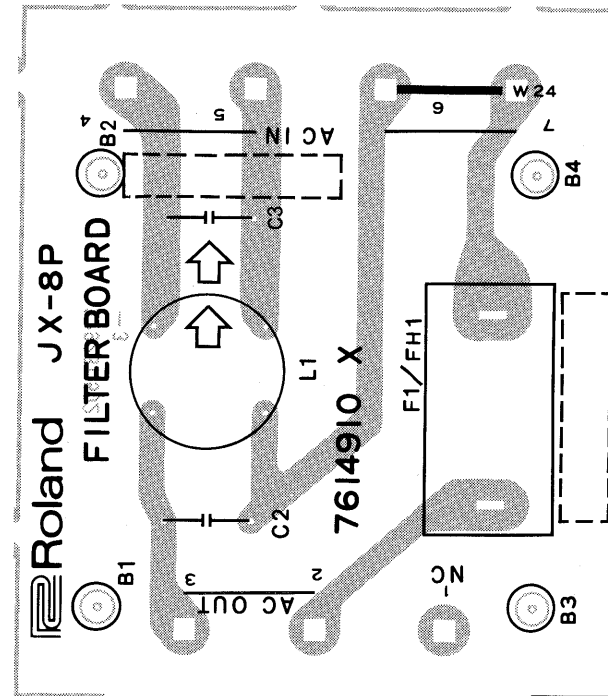
Replacement for Volume Board will be supplied in the splittable PCB set of Volume Board, Switch Board 2 and Filter Board.



View from foil side

FILTER BOARD

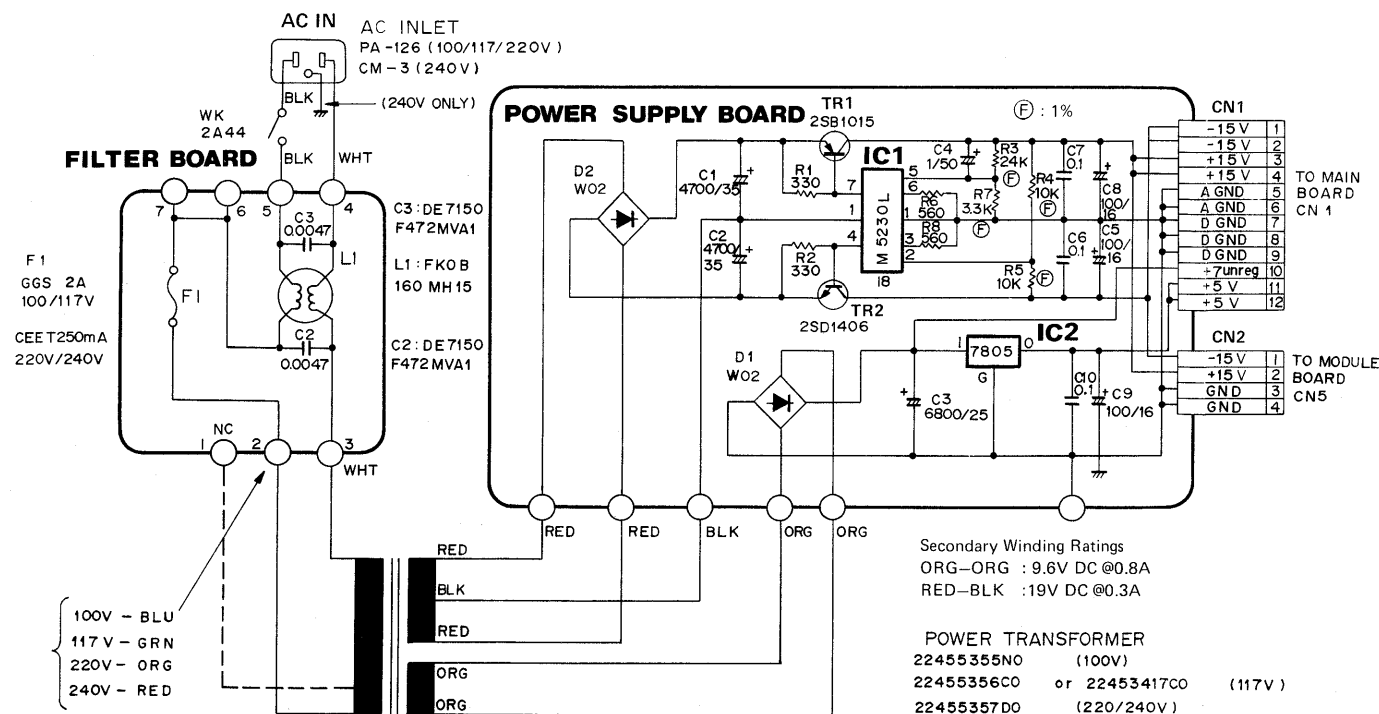
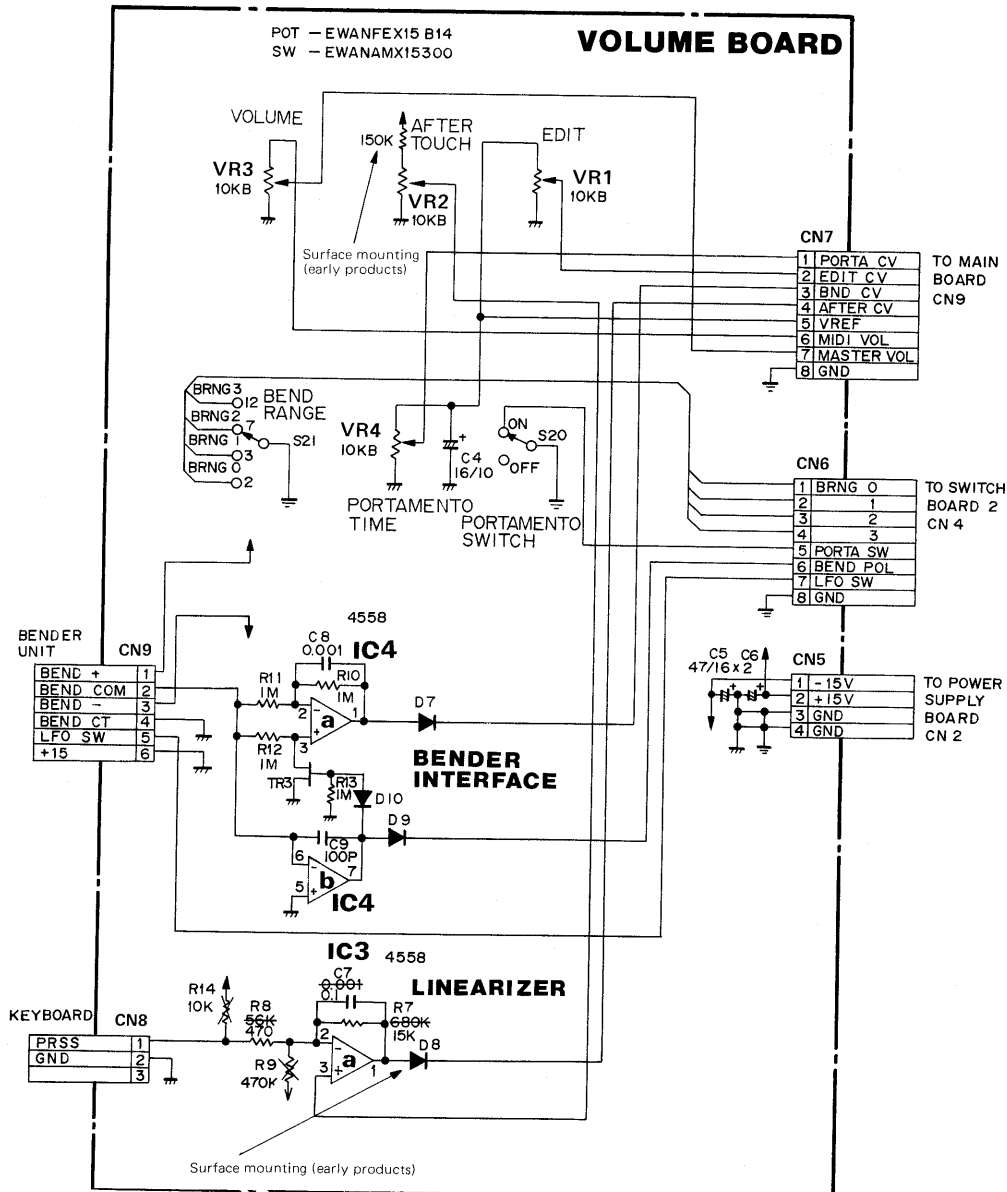
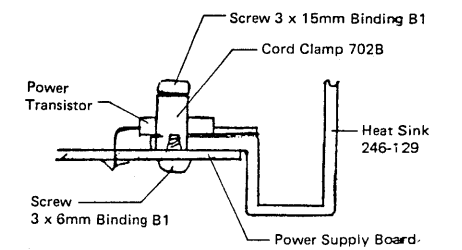
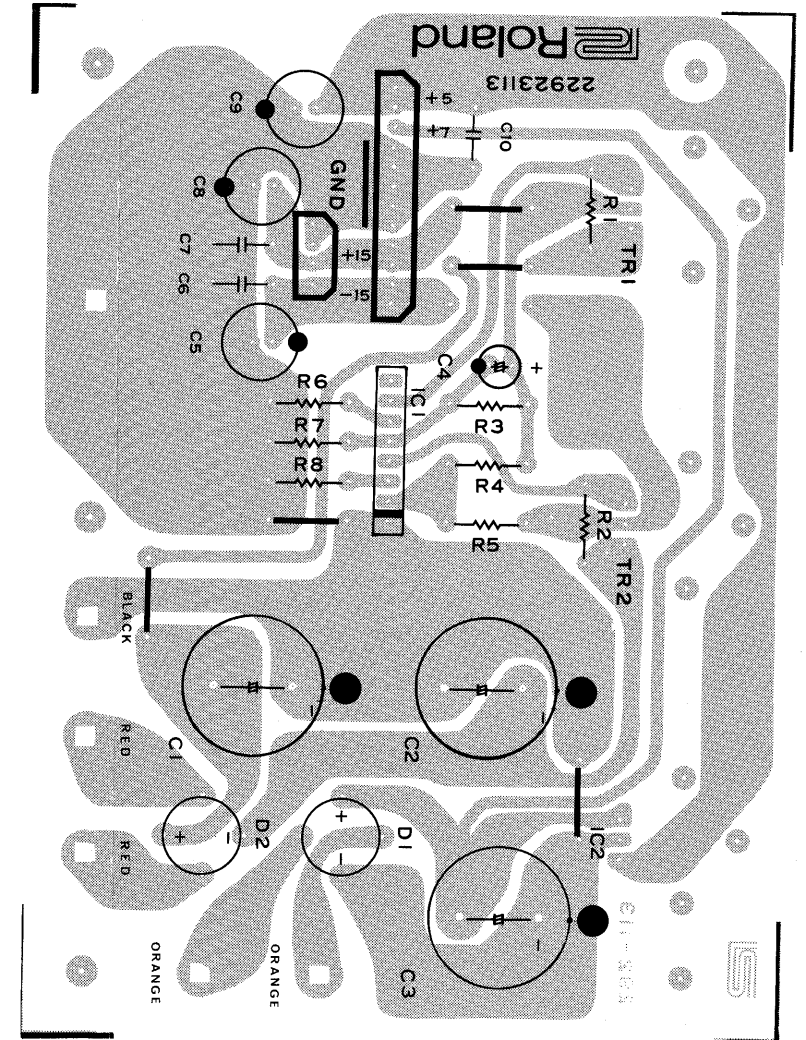
7614910X (pcb 2292311502-3)



Replacement for Filter Board will be supplied in the splittable PCB set of Filter Board, Volume Board and Switch Board 2.

POWER SUPPLY BOARD

76149180 (pcb 22923112)



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

MIDI IMPLEMENTATION

1. TRANSMITTED DATA

Status	Second	Third	Description
1001 nnnn	0kkk kkkk	0000 0000	Note OFF kkkkkkk = 36 - 96
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkkk = 36 - 96 vvvvvvv = 1 - 127
1011 nnnn	0000 0001	0vvv vvvv	Modulation vvvvvvv = 0 - 127
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127
1011 nnnn	0100 0000	0xxx xxxx	Hold ON xxxxxxx = 1 - 127
1011 nnnn	0100 0000	0000 0000	Hold OFF
1011 nnnn	0100 0001	0xxx xxxx	Portamento ON xxxxxxx = 1 - 127
1011 nnnn	0100 0001	0000 0000	Portamento OFF
1100 nnnn	0ppp pppp		Program Change ppppppp = 0 - 127
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127
1110 nnnn	0000 0000	0vvv vvvv	Pitch Bender Change
1011 nnnn	0111 1011	0000 0000	ALL NOTES OFF
1011 nnnn	0111 1100	0000 0000	OMNI OFF
1011 nnnn	0111 1101	0000 0000	OMNI ON
1011 nnnn	0111 1111	0000 0000	POLY ON
1111 1110			Active Sensing

Notes:

- *1 Transmitted if the corresponding function switch is ON.
- *2 0 - 31 : Internal Memory
32 - 63 : Memory Cartridge
64 - 95 : Preset #1
95 - 127 : Preset #2

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)
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkkk = 0 - 127 (21 - 108) vvvvvvv = 1 - 127
1011 nnnn	0000 0001	0vvv vvvv	Modulation vvvvvvv = 0 - 127
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127
1011 nnnn	0000 0111	0vvv vvvv	Volume vvvvvvv = 0 - 127
1011 nnnn	0100 0000	0xxx xxxx	Hold ON xxxxxxx = 1 - 127
1011 nnnn	0100 0000	0000 0000	Hold OFF
1011 nnnn	0100 0001	0xxx xxxx	Portamento ON xxxxxxx = 1 - 127
1011 nnnn	0100 0001	0000 0000	Portamento OFF
1100 nnnn	0ppp pppp		Program Change ppppppp = 0 - 127
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127
1110 nnnn	0000 0000	0vvv vvvv	Pitch Bender Change
1011 nnnn	0111 1010	0000 0000	Local OFF
1011 nnnn	0111 1010	0111 1111	Local ON
1011 nnnn	0111 1011	0000 0000	ALL NOTES OFF
1011 nnnn	0111 1100	0000 0000	OMNI OFF
1011 nnnn	0111 1101	0000 0000	OMNI ON
1011 nnnn	0111 1110	0000 mmmm	ALL NOTES OFF (MONO ON)
1011 nnnn	0111 1111	0000 0000	POLY ON
1111 1110			Active Sensing

Notes:

- *1 Note numbers outside of the range 21 - 108 are transposed to the nearest octave inside this range.
 - *2 Mode Messages (123 - 127) are also recognized as ALL NOTES OFF. MONO ON messages are ignored.
 - *3 Received if the corresponding function switch is ON.
 - *4 0 - 31 : Internal Memory
32 - 63 : Memory Cartridge
64 - 95 : Preset #1
95 - 127 : Preset #2
- When the memory cartridge is not connected, 32 thru 63 are ignored.

3. TRANSMITTED EXCLUSIVE MESSAGES

3.1 All Tone Parameters (APR)
When the 'Tone Button' is pressed.

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0011 0101	Operation code = APR (all parameters)
d 0000 nnnn	Unit # = MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0001	Format type (JX-8P)
f 0010 0000	Level # = 1
g 0000 0001	Group #
h 0vvv vvvv	Value (0 - 127)
i 1111 0111	In sequence (59 byte total) End of System Exclusive

3.2 Individual Tone Parameter (IPR)
When the Parameter is changed.

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0011 0110	Operation code = IPR (individual parameter)
d 0000 nnnn	Unit # = MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0001	Format type
f 0010 0000	Level # = 1
g 0000 0001	Group #
h 0ppp pppp	Parameter # (0 - 58)
i 0vvv vvvv	Value (0 - 127)
j 1111 0111	h and i (repetitively) End of System Exclusive

Note:

Parameter #	Function	Value
0-9	NAME-0..9	In ASCII
10	Undefined	
11	DCO-1 RANGE	0 - 31 = 16' 32 - 63 = 8' 64 - 95 = 4' 96 - 127 = 2'
12	DCO-1 WAVEFORM	0 - 31 = Noise 32 - 63 = Sawtooth Wave 64 - 95 = Pulse Wave 96 - 127 = Square Wave
13	DCO-1 TUNE	0 - 127 (-1 oct -- +1 oct)
14	DCO-1 LFO MOD DEPTH	0 - 127
15	DCO-1 ENV MOD DEPTH	0 - 127
16	DCO-2 RANGE	0 - 31 = 16' 32 - 63 = 8' 64 - 95 = 4' 96 - 127 = 2'
17	DCO-2 WAVEFORM	0 - 31 = Noise 32 - 63 = Sawtooth Wave 64 - 95 = Pulse Wave 96 - 127 = Square Wave
18	DCO-2 CROSSMOD	0 - 31 = OFF 32 - 63 = SYNC 1 64 - 95 = SYNC 2 96 - 127 = XMOD (cross modulation)
19	DCO-2 TUNE	0 - 127 (-1 oct -- +1 oct)
20	DCO-2 FINE TUNE	0 - 127 (-50 cent -- +50 cent)
21	DCO-2 LFO MOD DEPTH	0 - 127
22	DCO-1 ENV MOD DEPTH	0 - 127
23	Undefined	
24	Undefined	
25	Undefined	
26	DCO DYNAMICS	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
27	DCO ENV MODE	0 - 31 = ENV-2 Inverted 32 - 63 = ENV-2 Normal 64 - 95 = ENV-1 Inverted 96 - 127 = ENV-1 Normal
28	MIXER DCO-1	0 - 127
29	MIXER DCO-2	0 - 127
30	MIXER ENV MOD DEPTH	0 - 127
31	MIXER DYNAMICS	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
32	MIXER ENV MODE	0 - 31 = ENV-2 Inverted 32 - 63 = ENV-2 Normal 64 - 95 = ENV-1 Inverted 96 - 127 = ENV-1 Normal
33	HPF CUTOFF FREQ	0 - 31 = 0 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
34	VCF CUTOFF FREQ	0 - 127
35	VCF RESONANCE	0 - 127
36	VCF LFO MOD DEPTH	0 - 127
37	VCF ENV MOD DEPTH	0 - 127
38	VCF KEY FOLLOW	0 - 127
39	VCF DYNAMICS	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
40	VCF ENV MODE	0 - 31 = ENV-2 Inverted 32 - 63 = ENV-2 Normal 64 - 95 = ENV-1 Inverted 96 - 127 = ENV-1 Normal
41	VCA LEVEL	0 - 127
42	VCA DYNAMICS	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
43	CHORUS	0 - 31 = OFF 32 - 63 = 1 64 - 127 = 2

44	LFO WAVEFORM	0 - 31 = Random 32 - 63 = Square Wave 64 - 127 = Triangle Wave
45	LFO DELAY TIME	0 - 127
46	LFO RATE	0 - 127
47	ENV-1 ATTACK TIME	0 - 127
48	ENV-1 DECAY TIME	0 - 127
49	ENV-1 SUSTAIN LEVEL	0 - 127
50	ENV-1 RELEASE TIME	0 - 127
51	ENV-1 KEY FOLLOW	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
52	ENV-2 ATTACK TIME	0 - 127
53	ENV-2 DECAY TIME	0 - 127
54	ENV-2 SUSTAIN LEVEL	0 - 127
55	ENV-2 RELEASE TIME	0 - 127
56	ENV-2 KEY FOLLOW	0 - 31 = OFF 32 - 63 = 1 64 - 95 = 2 96 - 127 = 3
57	Undefined	
58	VCA ENV MODE	0 - 63 = Gate 64 - 127 = ENV-2 Normal

3.3 All Patch Parameters (APR)
When the 'Patch Chain' button is pressed.

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0011 0101	Operation code = APR (all parameters)
d 0000 nnnn	Unit # = MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0001	Format type (JX-8P)
f 0011 0000	Level # = 2
g 0000 0001	Group #
h 0vvv vvvv	Value (0 - 127)
i 1111 0111	In sequence (9 byte total) End of System Exclusive

3.4 Individual Patch Parameter (IPR)
When the Patch Parameter is changed.

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0011 0110	Operation code = IPR (individual parameter)
d 0000 nnnn	Unit # = MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0001	Format type
f 0011 0000	Level # = 2
g 0000 0001	Group #
h 0ppp pppp	Parameter # (0 - 8)
i 0vvv vvvv	Value (0 - 127)
j 1111 0111	h and i (repetitively) End of System Exclusive

Note:

Parameter #	Function	Value
0	BEND RANGE	0 = 2 Semi Tones 32 = 3 Semi Tones 64 = 4 Semi Tones 96 = 7 Semi Tones
1	PORTAMENTO TIME	0 - 127
2	PORTAMENTO SW	0 = OFF 64 = ON
3	ASSIGN MODE SELECT	0 = Poly-1 1 = Unison-1 2 = Solo-1 4 = Poly-2 5 = Unison-2 6 = Solo-2
4	AFTER TOUCH SELECT	0 = OFF 1 = Vibrato ON 2 = Brilliance ON 4 = Volume ON
5	BEND LFO DEPTH	0 - 127
6	UNISON DETUNE	0 - 127
7	TONE NUMBER	0 - 31
8	BANK NUMBER	0 - 3

4. RECOGNIZED EXCLUSIVE MESSAGES

4.1 Program number (PGR)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0011 0100	Operation code = PGR (program number)
d 0000 nnnn	Unit # = MIDI basic channel, nnnn = 0 - 15 where nnnn + 1 = channel #
e 0010 0001	Format type (JX-8P)
f 0010 0000	Level # = 1
g 0000 0001	Group #
h 0xxx xxxx	Extension of program #
i 0ppp pppp	Program # ('Program Number')
j 0fff ffff	Function #
k 1111 0111	End of System Exclusive

Note:

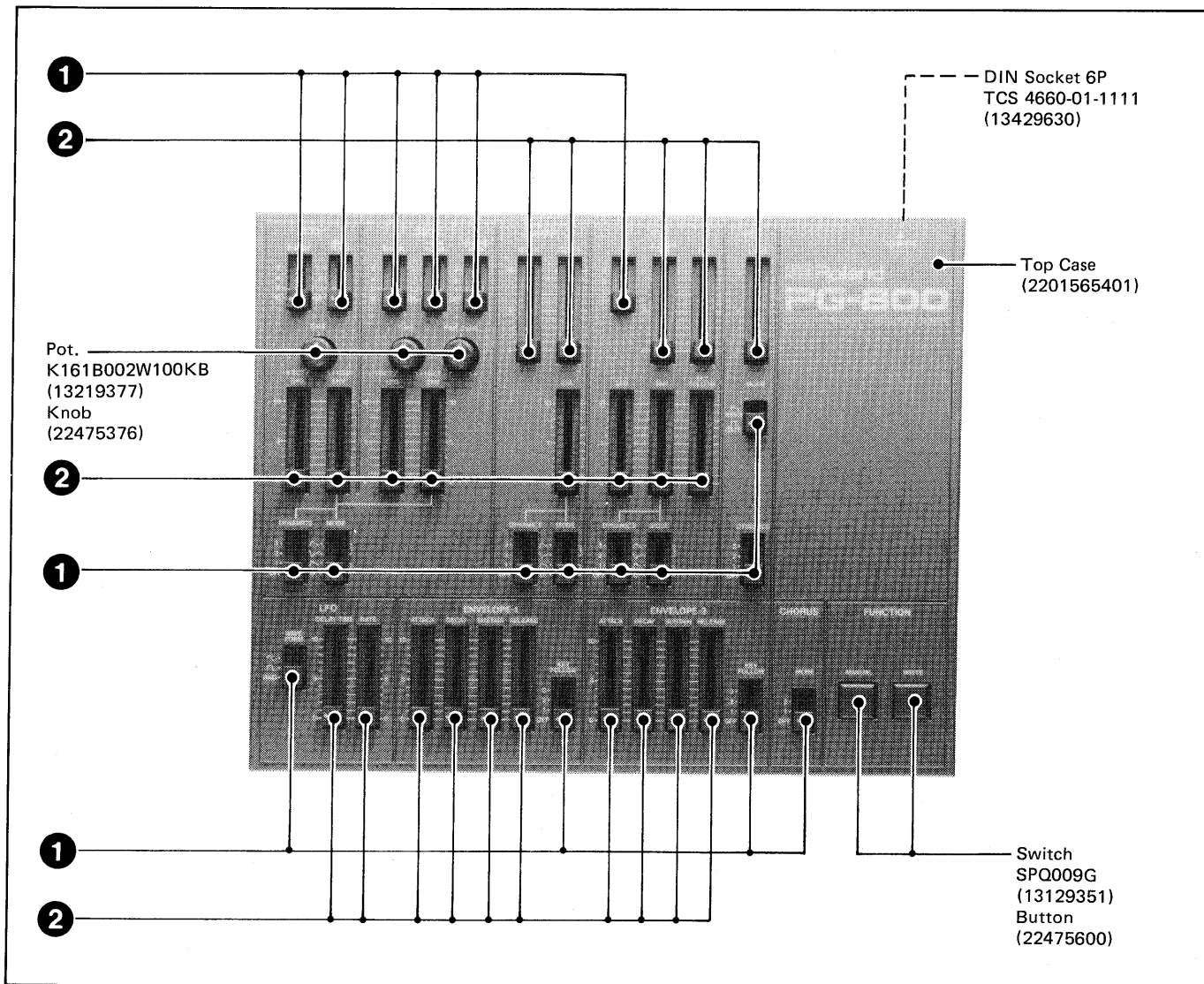
Write data to memory with the program #
xxx xxxx = 0
fff ffff = 2
Manual mode Flag
xxx xxxx = 127
fff ffff = 0

4.2 Other Exclusive messages described in section 3.

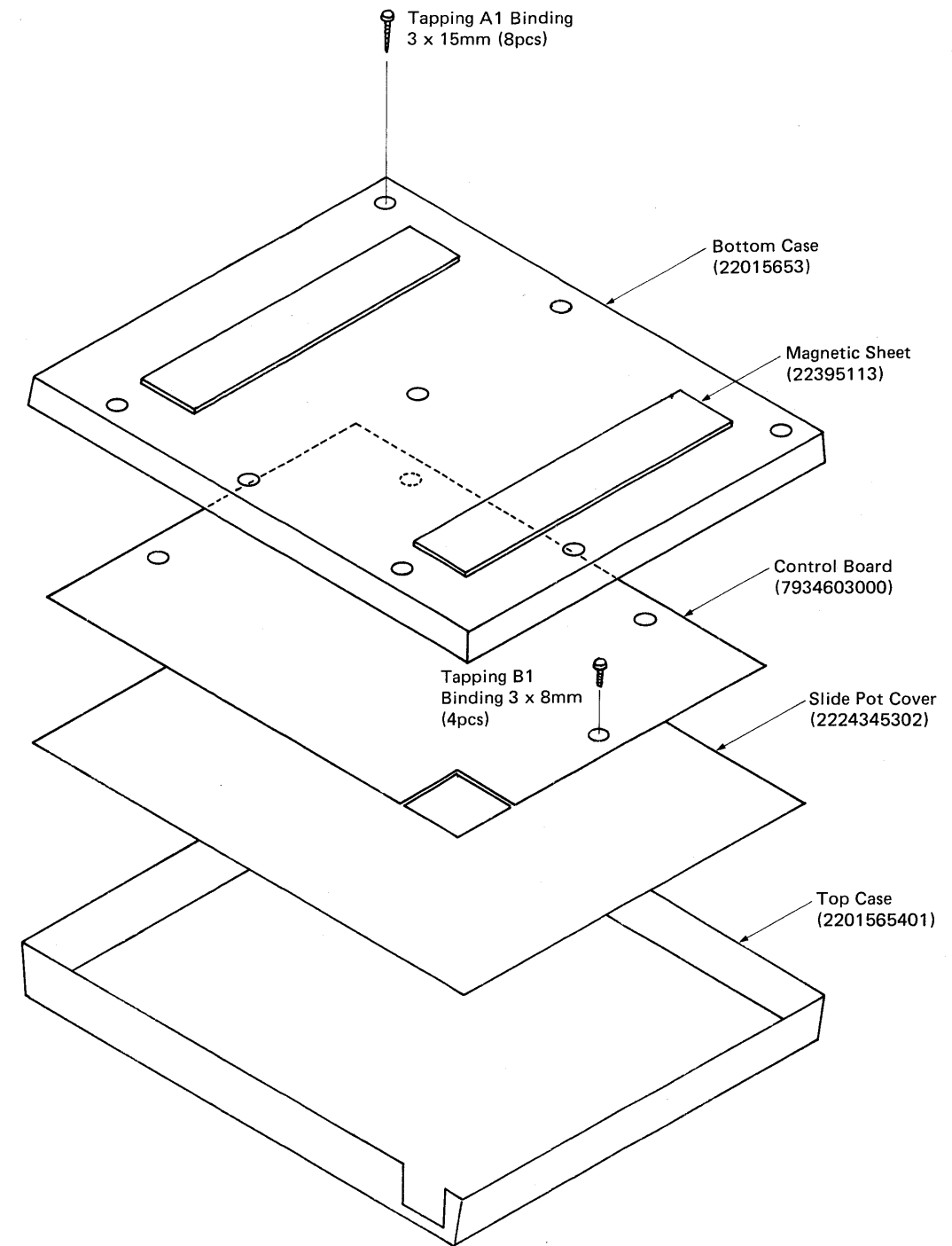
PG-800

SPECIFICATIONS

Dimensions 265(W) x 215(D) x 27(H) mm
 10-7/16 x 8-7/16 x 1-1/16 in
 Weight 680g / 1 lb 8 oz



1 Pot. EWAKF8X15B15 100KB (13379868) } Knob (22475375)
 2 Pot. EWANFEX15B15 100KB (13339453) }



PARTS LIST (PG-800)

CASE		
2201565401	Top Case	
22015653	Bottom Case	
KNOB, BUTTON		
22475375	Knob	slide pot
22475376	Knob	rotary pot
22475600	Button	push switch
SOCKET		
13429630	TCS4660-01-1111	6P DIN
PCB		
7934603000	Control Board (pcb 2292312301)	
IC		
15179202	μPD8048HC-191	CPU
15129150	μPD7001C	A/D converter
15159113H0	HD14051BP	Single 8-CH MUX/DMUX

TRANSISTOR		
15129150	2SD880-Y	
15129107	2SC945-Q	
15119133	DTA114C	digital
15129150	DTC114C	digital
RESONATOR		
12389800	KMFC1005T1	6MHz, ceramic
POTENTIOMETER		
13219377	K161B002W-100KB	rotary
13339453	EWANFEX15-B15	slide 30mm travel
13339868	EWAKF8X15-B15	slide with click 15mm travel
SWITCH		
13129351	SPQ009G	
RESISTOR ARRAY		
13919310	EM-8 103J 10K x 8	

EMI FILTER		
13529105	DSS31055D223S	
DIODE		
15019103	1S2473	
150196130Z	05Z-5.6	zener
OTHERS		
2224345301	Slider Cover	
22395113	Magnetic Sheet	
22013703	Carrying Case	commercially available

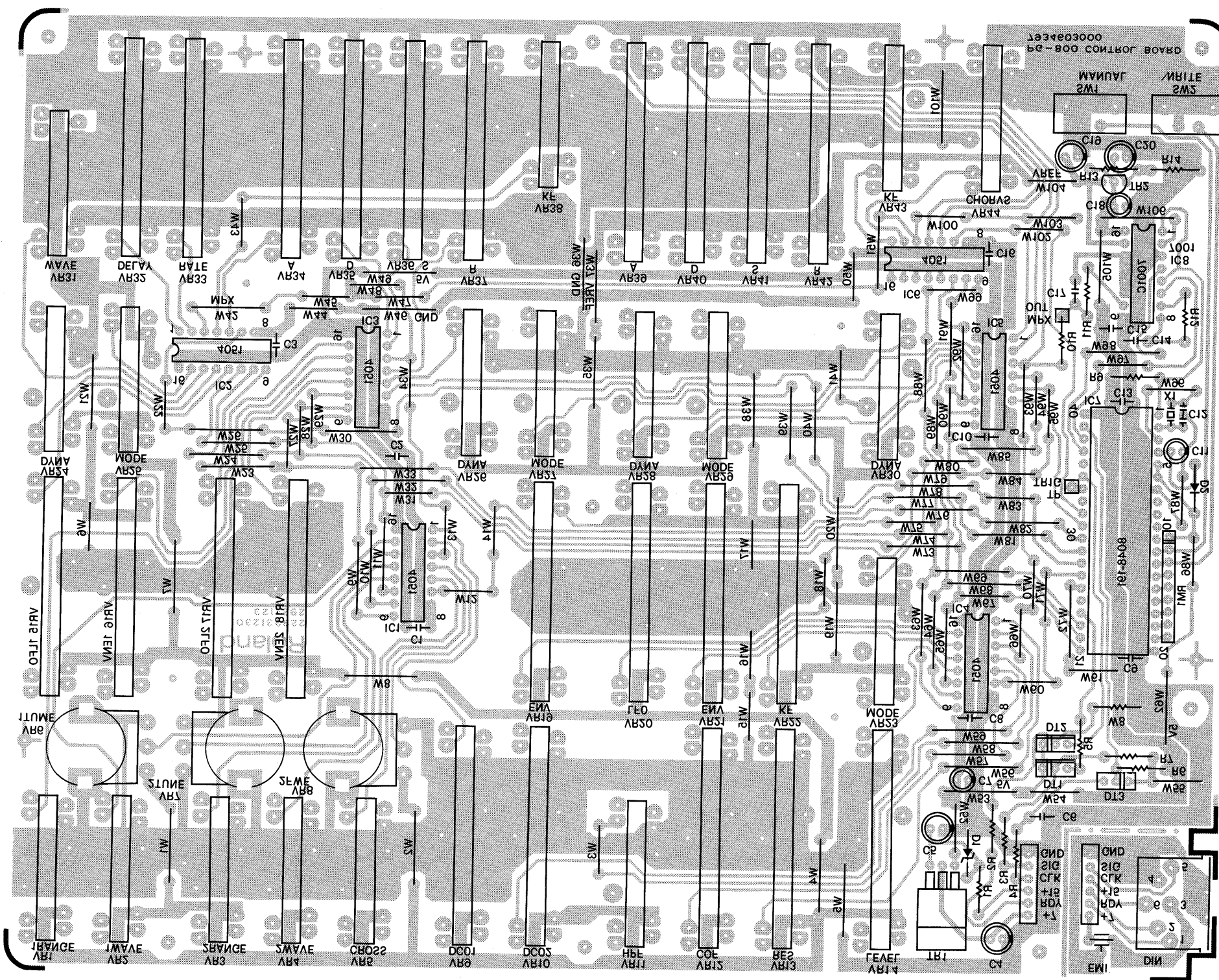
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

CONTROL BOARD

7934603000

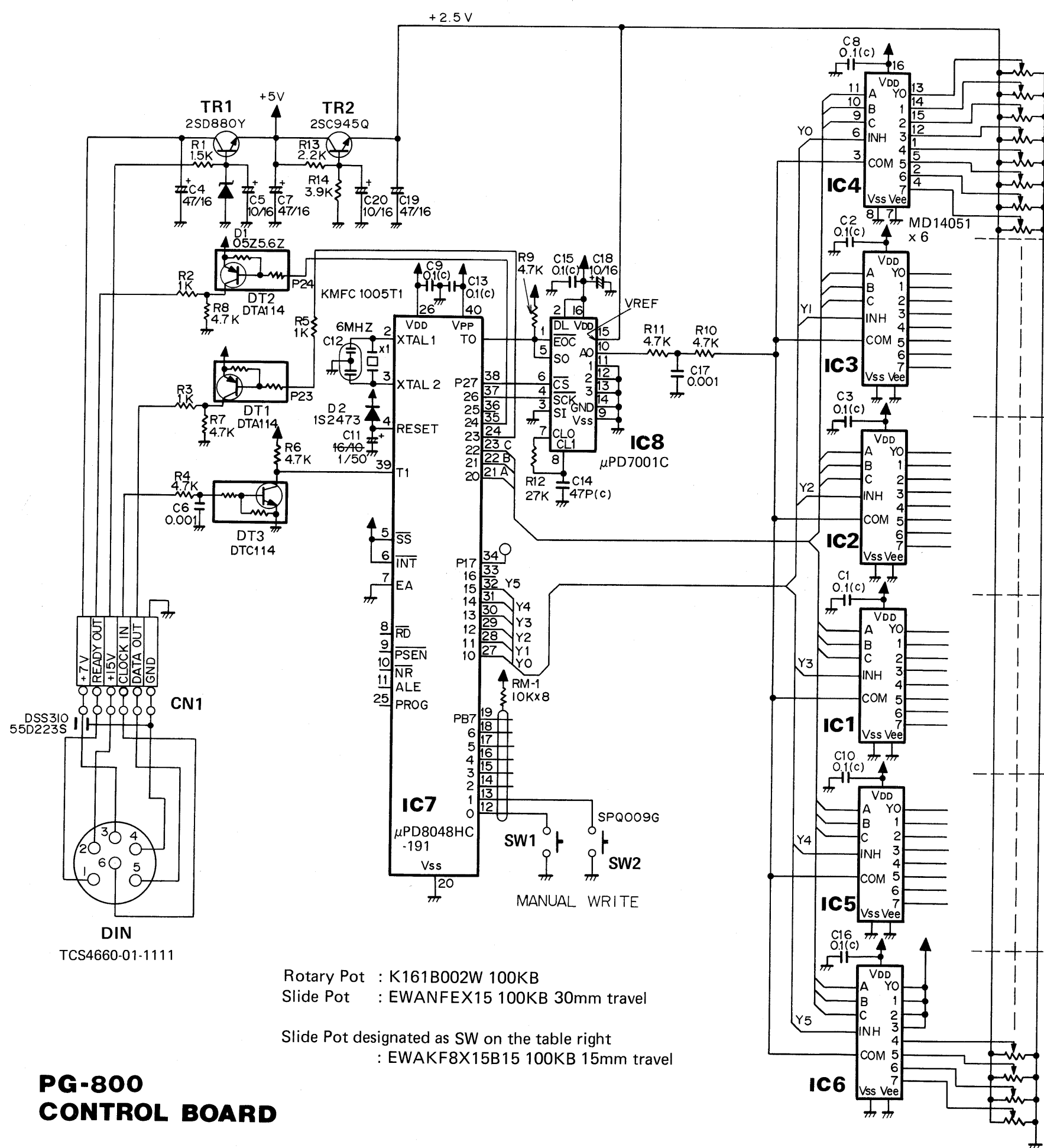
(pcb 2292312301)

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



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 40

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



Rotary Pot : K161B002W 100KB
 Slide Pot : EWANFEX15 100KB 30mm travel
 Slide Pot designated as SW on the table right : EWAKF8X15B15 100KB 15mm travel

PG-800 CONTROL BOARD

LEGEND	VR	FUNCTION				
		POT SLIDER	POT ROTARY	SW 4P	SW 3P	SW 2P
VCF KEYF	VR22	○				
VCF ENV	VR21	○				
VCF LFO	VR20	○				
VCA LEVEL	VR14	○				
VCF RES	VR13	○				
VCF FREQ	VR12	○				
HPF	VR11			○		
MIX DC02	VR10	○				
DC01 RANGE	VR1			○		
DC01 ENV	VR16	○				
DC02 LFO	VR17	○				
DC02 ENV	VR18	○				
ENV1 D	VR35	○				
MIX DYNA	VR26			○		
ENV1 S	VR36	○				
ENV1 R	VR37	○				
DCO DYNA	VR24			○		
LFO WAVE	VR31				○	
DCO ENV MODE	VR25			○		
DCO1 LFO	VR15	○				
LFO DELAY	VR32	○				
ENV1 A	VR34	○				
LFO RATE	VR33	○				
ENV1 KEYF	VR38				○	
DCO2 TUNE	VR7		○			
DCO1 TUNE	VR6		○			
DCO1 WAVE	VR2			○		
DCO2 RANGE	VR3			○		
MIX DC01	VR9	○				
DC2 WAVE	VR4				○	
DCO2 FINE	VR8		○			
DCO2 CROSS	VR5				○	
VCF ENV MODE	VR29				○	
VCF DYNA	VR28				○	
MIX ENV MODE	VR27				○	
VCA DYNA	VR30			○		
ENV2 S	VR41	○				
MIX ENV	VR19	○				
ENV2 R	VR42	○				
VCA MODE	VR23					○
undefind						
undefind						
undefind						
undefind						
ENV2 KEYF	VR43			○		
ENV2 D	VR40	○				
CHORUS	VR44				○	
ENV2 A	VR39	○				