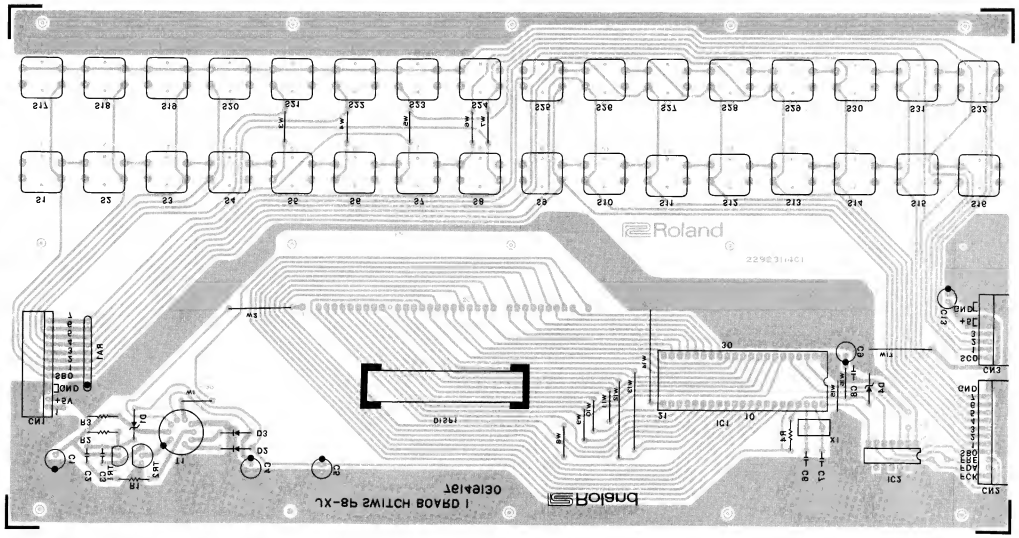
MAIN BOARD
SYNTHESIZER

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

IC								Q				VR	
CIRCUIT NO.	SCHEM LOCATION	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	1	J-19
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	SW	
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	2	H-33
24d	J-7	35	P-8	51a	E-14	56b	D-7	63d	L-13	15	K-19		E-33
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	J-3	51d	D-14	57a	G-7	65a	D-24	18	K-12		
26a	C-22	36d	J-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	E-14	58a	I-25	67b	D-31	22	G-30		
28	Q-18	38	M-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	O-20	40	M-14	53c	F-11	60a	K-19	70a	M-20	25	D-29		
29c	O-19	41	M-16	53d	D-11	60b	J-17	70b	M-20	26	D-28		
29d	O-20	42	M-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	P-4	44	G-13	54c	C-11	61c	I-17			29	K-31		
32a	P-17	45	G-10	54d	G-11	61d	K-16			30	K-28		

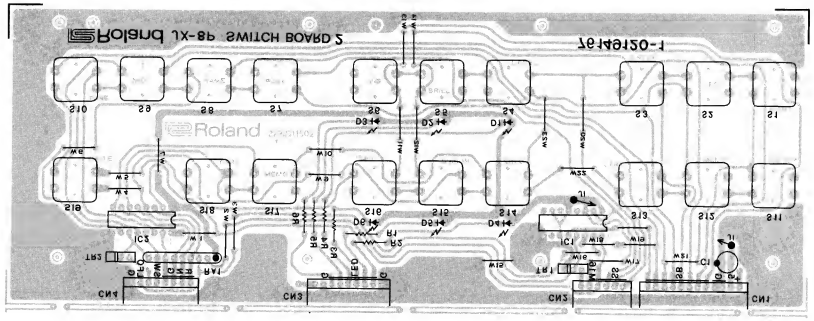
SWITCH BOARD 1 76149130 (pcb 2292311401)



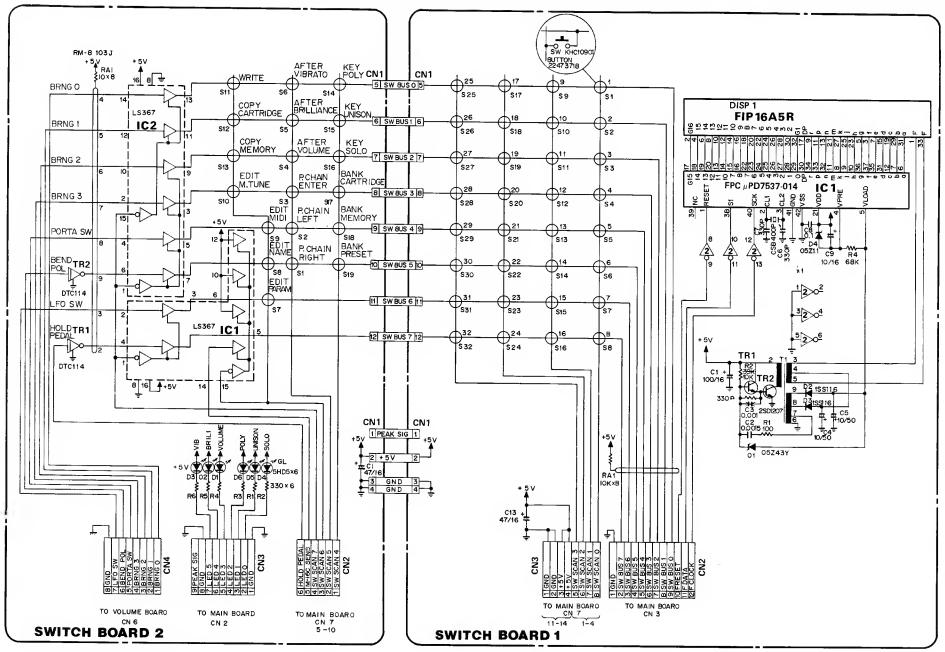
SWITCH BOARD 2

76149120-1
(pcb 2292311502-1)

Replacement for Switch Board will be in a set of Switch Board 2, Volume Board and Filter Board.

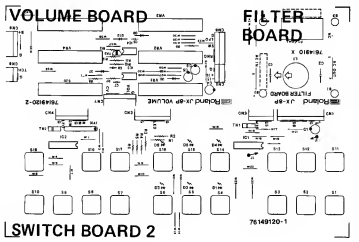


View from foil side



Replacement For
SWITCH BOARD 2
VOLUME BOARD
FILTER BOARD

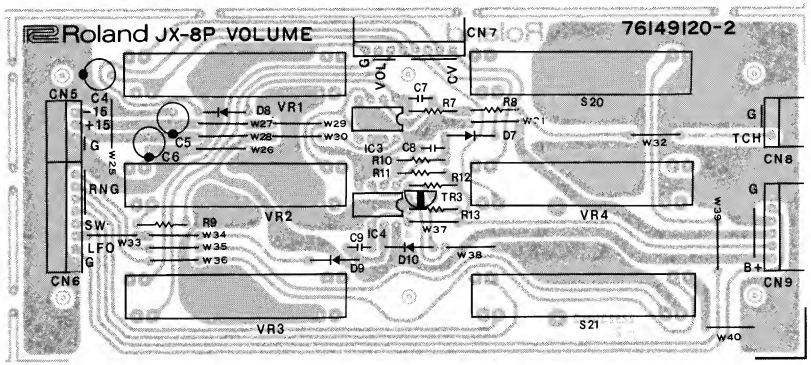
These three PCBs will be supplied in a set of three PCBs assembled on a splittable PCB as shown here.
Representative: Switch Board 2 76149100.
When ordering, specify the line voltage.



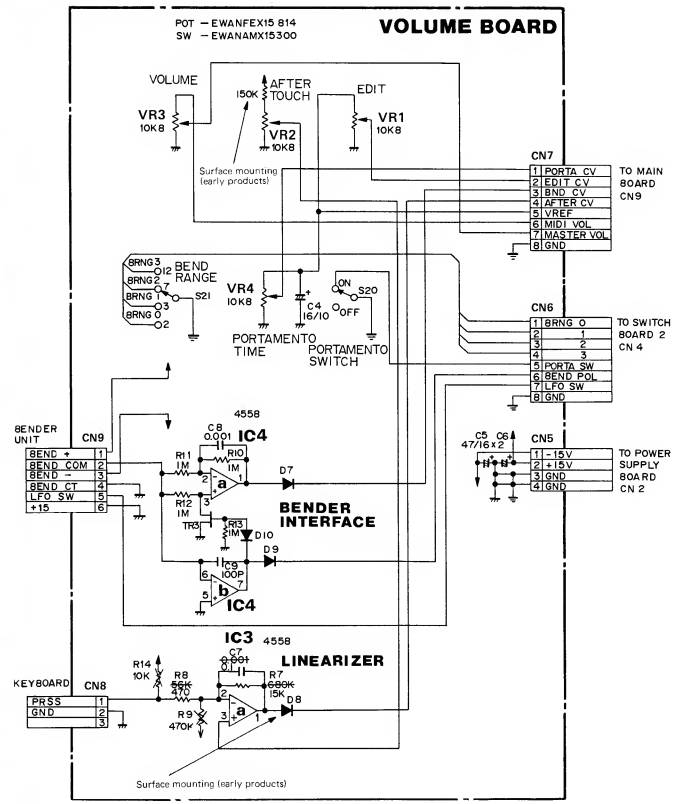
VOLUME BOARD

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.

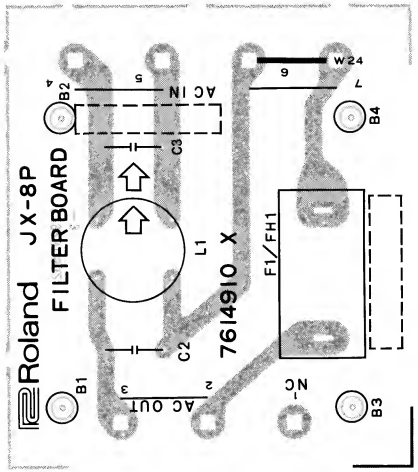


View from foil side

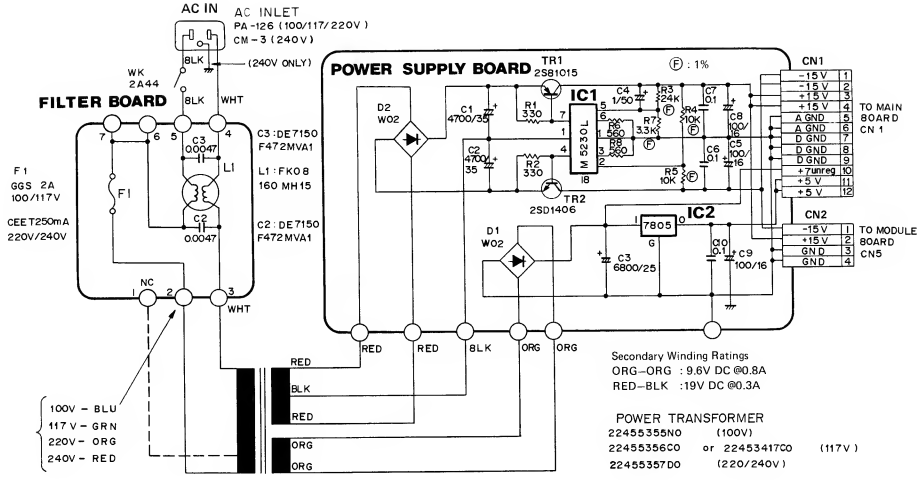


FILTER BOARD

7614910X **(pcb 2292311502-3)**

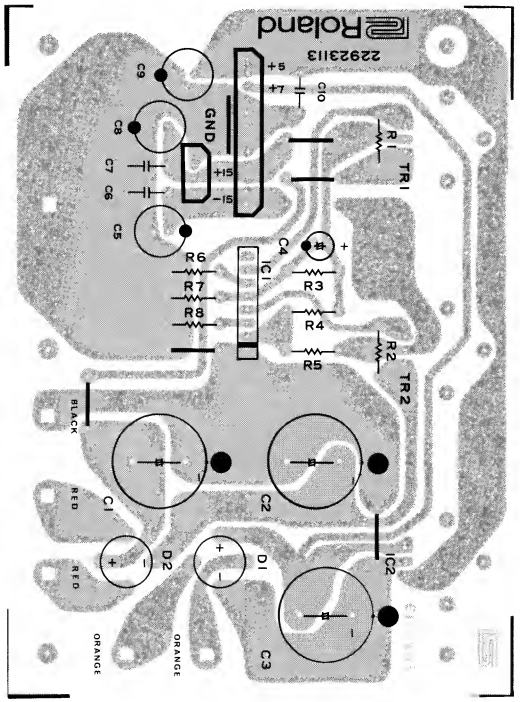


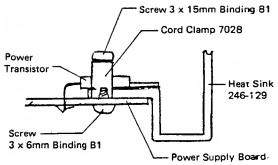
Replacement for Filter Board will be supplied in the splittable PCB set of Filter Board, Volume Board and Switch Board 2.



POWER SUPPLY BOARD

76149180 **(pcb 22923112)**





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	*1
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127	*1
1011 nnnn	0100 0000	0xxx xxxx	Hold ON xxxxxxx = 1 - 127	*1
1011 nnnn	0100 0000	0000 0000	Hold OFF	*1
1011 nnnn	0100 0001	0xxx xxxx	Portamento ON xxxxxxx = 1 - 127	*1
1011 nnnn	0100 0001	0000 0000	Portamento OFF	*1
1100 nnnn	0ppp pppp		Program Change ppppppp = 0 - 127	*1, *2
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127	*1
1110 nnnn	0000 0000	0vvv vvvv	Pitch Bender Change	*1
1011 nnnn	0111 1011	0000 0000	ALL NOTES OFF	
1011 nnnn	0111 1100	0000 0000	OMN1 OFF	
1011 nnnn	0111 1101	0000 0000	OMNI ON	
1011 nnnn	0111 1111	0000 0000	POLY ON	
1111 1110			Active Sensing	*1

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)	*1
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkkk = 0 - 127 (21 - 108) vvvvvvv = 1 - 127	*1
1011 nnnn	0000 0001	0vvv vvvv	Modulation vvvvvvv = 0 - 127	*3
1011 nnnn	0000 0101	0vvv vvvv	Portamento time vvvvvvv = 0 - 127	*3
1011 nnnn	0000 0111	0vvv vvvv	Volume vvvvvvv = 0 - 127	*3
1011 nnnn	0100 0000	0xxx xxxx	Hold ON xxxxxxx = 1 - 127	*3
1011 nnnn	0100 0000	0000 0000	Hold OFF	*3
1011 nnnn	0100 0001	0xxx xxxx	Portamento ON xxxxxxx = 1 - 127	*3
1011 nnnn	0100 0001	0000 0000	Portamento OFF	*3
1100 nnnn	0ppp pppp		Program Change ppppppp = 0 - 127	*3, *4
1101 nnnn	0vvv vvvv		Channel After Touch vvvvvvv = 0 - 127	*3
1110 nnnn	0000 0000	0vvv vvvv	Pitch Bender Change	*3
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	OMN1 OFF	*2
1011 nnnn	0111 1101	0000 0000	OMN1 ON	*2
1011 nnnn	0111 1110	0000 mmmm	ALL NOTES OFF (MONO ON)	*2
1011 nnnn	0111 1111	0000 0000	POLY ON	*2
1111 1110			Active Sensing	*3

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)
:	In sequence (59 byte total)
i 1111 0111	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)
:	h and i (repetitively)
j 1111 0111	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)
:	In sequence (9 byte total)
i 1111 0111	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)
:	h and i (repetitively)
j 1111 0111	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:

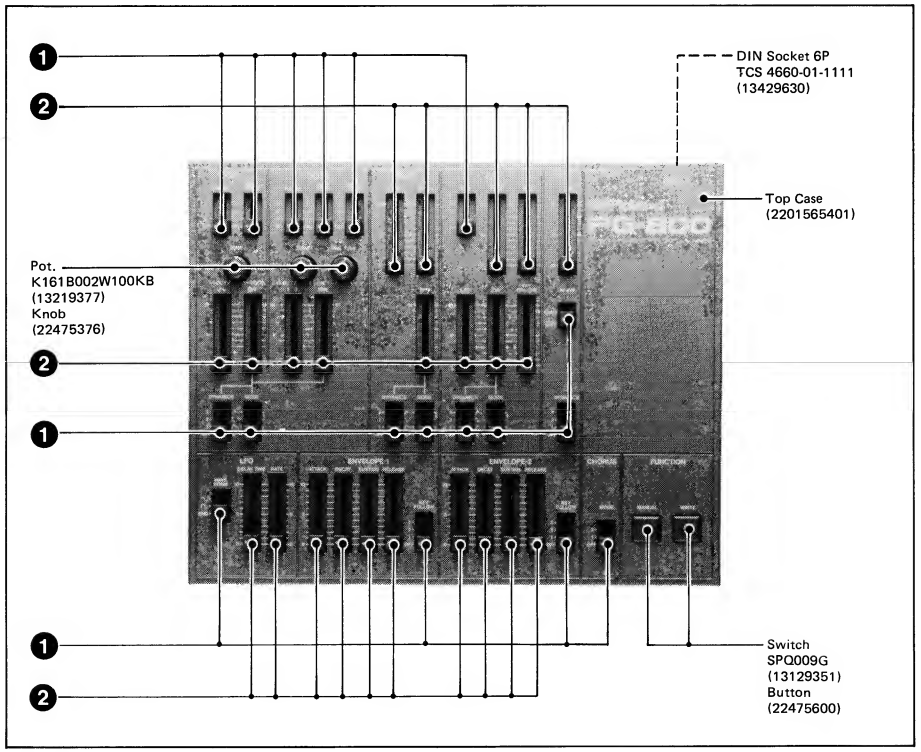
Write data to memory with the program #
xxx xxxx = 0
fff ffff = 2
Manual mode Flag
xxx xxxx = 127
fff ffff = 0

4.2 Other Exclusive messages described in section 3.

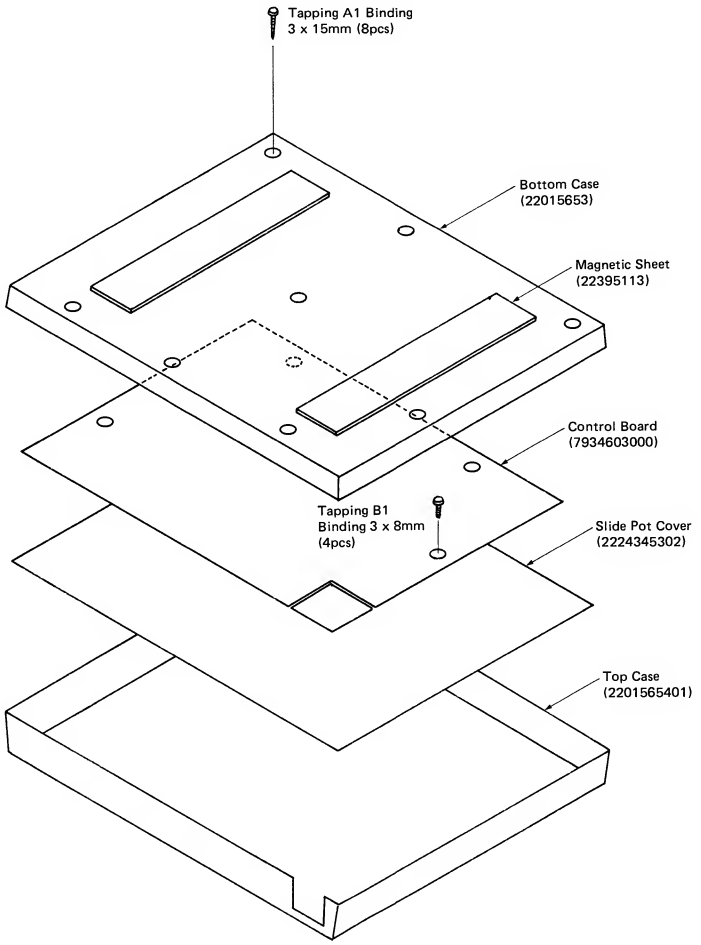
PG-800

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



❶ Pot. EWAKF8X15B15 100KB (13379868) } Knob (22475375)
❷ 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

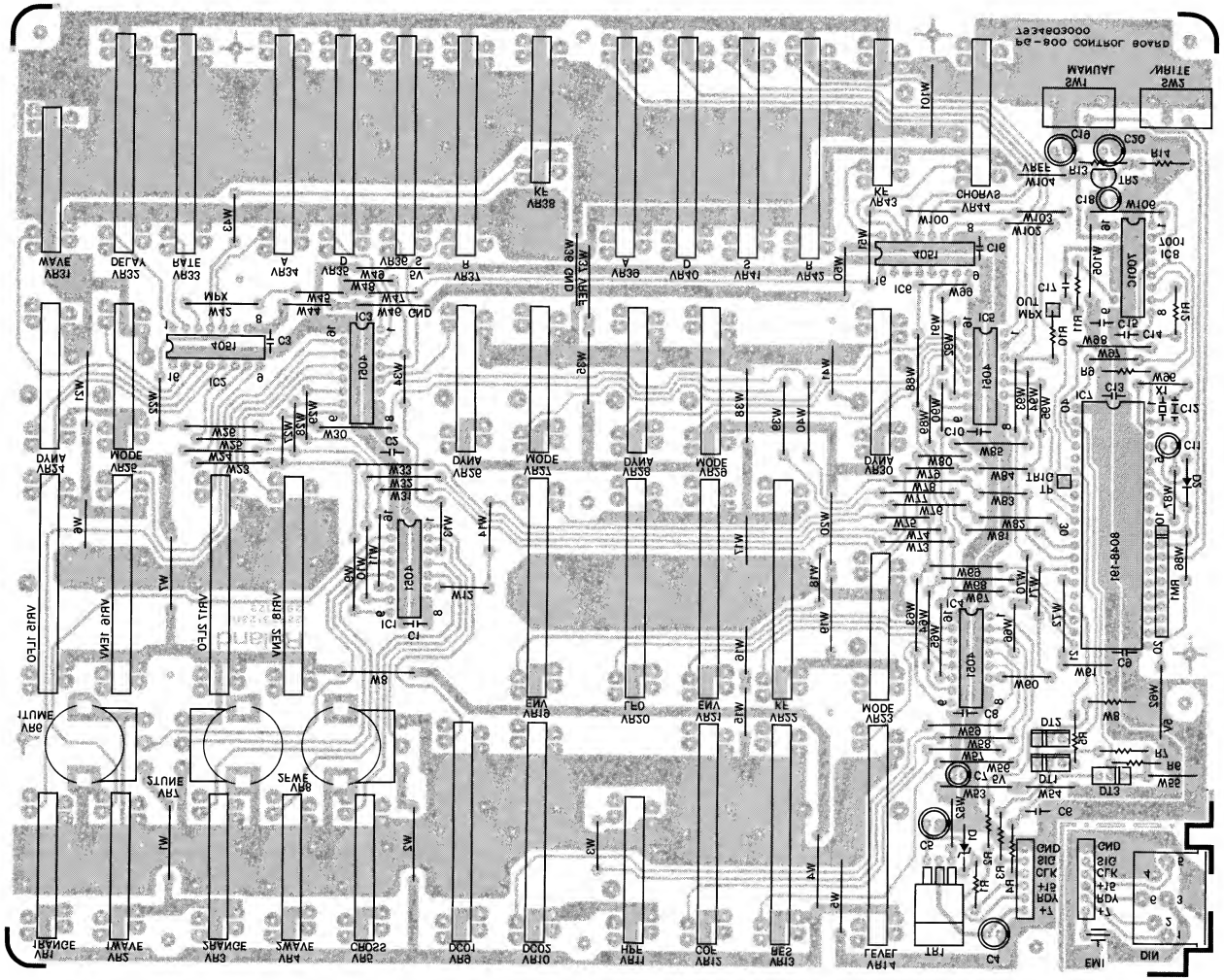
OTHERS

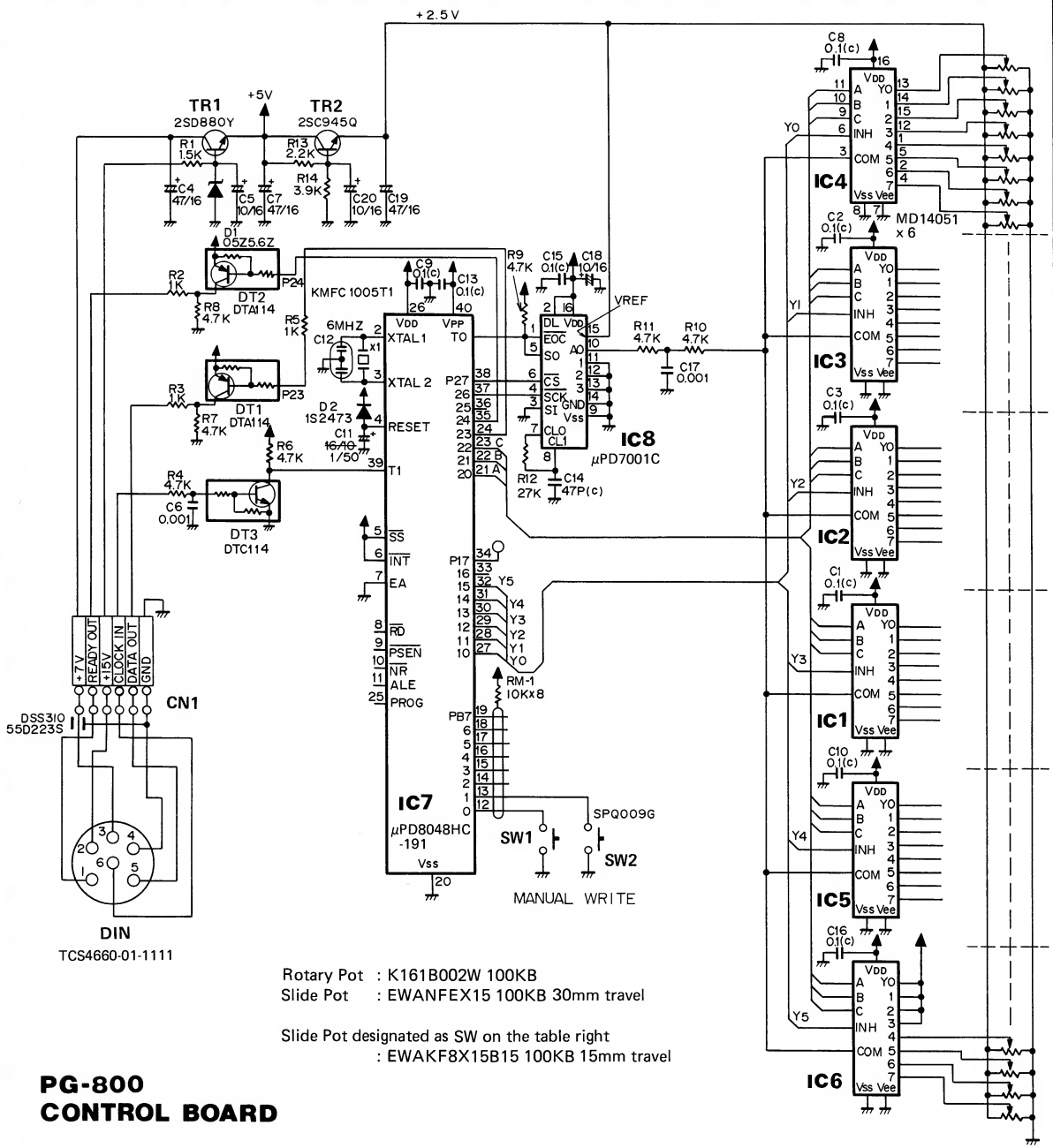
2224345301	Slider Cover	
22395113	Magnetic Sheet	
22013703	Carrying Case	commercially available

CONTROL BOARD

7934603000

(pcb 2292312301)





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 DCO2	VR10	○				
DCO1 RANGE	VR1			○		
DCO1 ENV	VR16	○				
DCO2 LFO	VR17	○				
DCO2 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 DCO1	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	○				