

ROCK-OLA



G-2331

CONVERSION KIT

PARTS LIST &
INSTRUCTIONS

NIBBLER

PARTS LIST

G-2331 CONVERSION KIT

ITEM NO.	PART NO.	DESCRIPTION
1	G-6483-A	Game P.C.B. and Brackets Assembly
	CONSISTS OF THE FOLLOWING:	
	G-6486-A	SK-7 P.C.B.
	G-6487-A	SK-8 P.C.B.
	G-6145-A	50 Conductor Ribbon Cable
2	G-6068-1A	Main Cable Assembly
3	G-6478	Top Window - Nibbler
4	G-6520	Parts List and Instructions
5	G-6481	Schematic - Game P.C.B.

INTRODUCTION

HOW TO OPERATE NIBBLER

Nibbler is an exciting maze game.

The object of the game is to nibble all the bonus objects in the maze without nibbling the Nibbler.

The mazes and bonus objects are varied so that 32 waves must be completed to see all patterns.

Each wave is faster and more difficult than the preceding wave.

The game continues at maximum difficulty after the 32nd wave.

ROCK-OLA GAMES

POWER SUPPLY REQUIREMENTS

15 CIRCUIT AMP PLUG

PIN	WIRE	CONNECTION	
1	BLACK	COIN COM	
2	RED	+12 VDC	
3	RED	+12 VDC	
4	BLACK/WHT	LOGIC COMM.	
5			
6	ORANGE/BLK	8 VAC	MERMAID ONLY
7	ORANGE/GREEN	8 VAC	
8	PINK	+5 VDC	
9	PINK	+5 VDC	
10	PINK	+5 VDC	
11	ORN/WHT	POWER GRD	
12			
13	BLUE	-5 VDC	FANTASY VOICE PCB ONLY
14	RED/WHT	25 VAC	COCKTAIL CONTROL PANEL LIGHTS
15	RED/BLK	25 VAC	

G-2333 CABLES AND CREDIT COUNTER
P.C.B. KIT IS AVAILABLE FOR CONVERSION
OF GAMES OTHER THAN ROCK-OLA

KIT CONSISTS OF:

- (1) G-6105-A CREDIT COUNTER P.C.B.
- (1) G-5316-A 2 CKT PLUG & CABLE ASSEMBLY
- (1) G-5317-A 3 CKT PLUG & CABLE ASSEMBLY
- (1) G-5318-A 5 CKT PLUG & CABLE ASSEMBLY
- (1) G-5319-A 9 CKT PLUG & CABLE ASSEMBLY
- (1) G-5322-A 15 CKT PLUG & CABLE ASSEMBLY

"NIBBLER" OPTION SWITCHES
(LOCATED ON GAME BOARD)

CHANGE OF DIP SWITCH								
DESCRIPTION	8P. DIP SWITCH POSITION (DS1)							
NIBBLERS	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
3	OFF	OFF						
4	ON	OFF						
5	OFF	ON						
6	ON	ON						
NIBBLER PAUSE AT CORNERS			OFF					
UPRIGHT				OFF				
COCKTAIL				ON				
DIAGNOSTICS OFF					OFF			
DIAGNOSTICS ON					ON			
FREE PLAY						ON		
COINAGE								
1 COIN / 1 PLAY							OFF	OFF
2 COINS / 1 PLAY							ON	OFF
2 COINS / 3 PLAYS							OFF	ON
4 COINS / 3 PLAYS							ON	ON

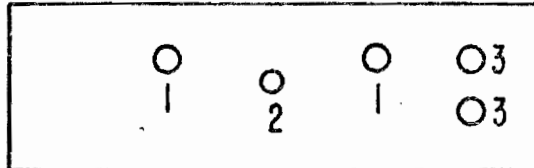
NORMAL SETTING: 3 NIBBLERS PER PLAYER
1 COIN / 1 PLAY

NORMAL SWITCH SETTINGS: ALL SWITCHES OFF
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TURN OFF POWER TO GAME BEFORE CHANGING SWITCH POSITIONS
NEW SWITCH POSITIONS BECOME EFFECTIVE ON POWER UP

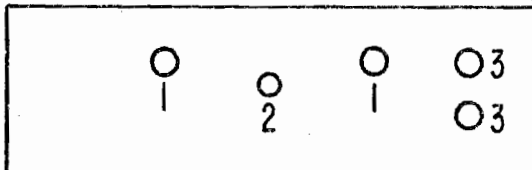
CONTROL PANELS

MERMAID KIT #G-2328



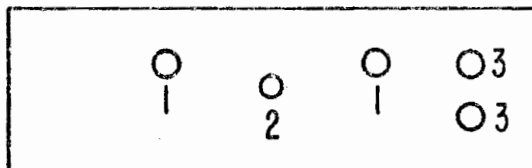
- 1 - Reverse Sail Button (2)
- 2 - 8 Way Joystick (1)
RMC #G-6046-A
- 3 - Player 1 & 2 Buttons (2)

SURVIVAL KIT #G-2329



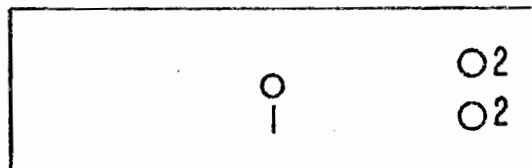
- 1 - Fire Button (2)
- 2 - 8 Way Joystick (1)
RMC #G-6046-A
- 3 - Player 1 & 2 Buttons (2)

EYES KIT #G-2330



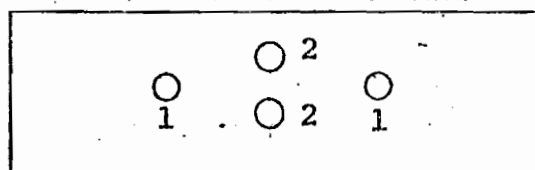
- 1 - Fire Button (2)
- 2 - 4 Way Joystick (1)
RMC #G-5431-1A
- 3 - Player 1 & 2 Buttons (2)

NIBBLER KIT #G-2331



- 1 - 4 Way Joystick - Heavy Duty (1)
RMC #G-6477-A
- 2 - Player 1 & 2 Buttons (2)

LEVERS KIT #G-2332



- 1 - 4 Way Joystick (2)
RMC #G-5431-1A
- 2 - Player 1 & 2 Buttons (2)

NIBBLER DIAGNOSTICS

On power-up, the diagnostic program (which is inside the game software) first checks that it can read and write to the RAM, and calculates sumchecks for the PROMs which are compared against values stored in software. The diagnostics are run regardless of the setting of the diagnostic dip switch (switch 5); the use of the switch will be described later.

If RAM IC13 is bad, the program may not be able to run at all, in which case a low oscillating sound is made (until the power is turned off).

If IC13 is OK, the program then checks the rest of the RAMs and PROMs and displays the results. If any of the RAM is bad (status = FAIL), the display will be messed up, but may still be readable.

If the diagnostic program won't work, then either PROM IC10 or IC14 is bad. If the diagnostic program works but indicates that any IC has failed, the game may work (but probably won't work well). Note that IC14 does not get a sumcheck, but if the diagnostic program works, and the letters and numbers on the CRT look OK (and IC67 and 68 are OK), then IC14 is OK.

After displaying the status of the RAMs and PROMs, the screen is then filled with a grid pattern for aligning the CRT. Now, if the diagnostic dip switch is OFF, the program goes immediately to the game. There are no further diagnostics.

If the diagnostic dip switch is ON, the grid pattern stays on the screen until one of the following buttons is pushed:

- 1 player start: the program goes immediately to the game; there are no further diagnostics, and the dip switch will have no affect until the power is turned off and back on again.
- 2 player start: the diagnostics are re-run from the beginning; by keeping this button pushed, it is possible to continuously repeat the diagnostics.

Further Note: If the dip switch is ON, it is possible to retain the screen which gives the results of the diagnostics by pushing the joystick down before the grid is written (on a cocktail table, use the player 1 joystick). Otherwise the information is only visible for about 2 seconds. If the dip switch is OFF, it is NOT possible to retain this information; the game will enter the attract mode regardless of the buttons (until credits are entered).

SK-8 P.C. BOARD ASSEMBLY

G-6487-A

ITEM NO.	PART NO.	DESCRIPTION	REF. DES.	MFGR. PART NO.
1	G-6016	Octal D Flip-Flop	IC1, IC2, IC52, IC55, IC59, IC60	74LS374
2	G-6120	Octal Bus Driver, Invert.	IC3	74LS240
3	G-0689	Quad 2 To 1 Multiplexer	IC4, IC21, IC22, IC23, IC24, IC25, IC26, IC28, IC56, IC57, IC58, IC64	74LS157
4	G-6122	CRT Controller	IC5	HD46505SP
5	G-0708-04	Color Matrix PROM "B6"	IC6	6331-1J
6	G-0708-05	Color Matrix PROM "F5"	IC7	6331-1J
7	G-0679	Hex Inverter	IC8, IC30	74LS04
8	G-6013	4 Bit Adder	IC9, IC10, IC11, IC15, IC20	74LS283
9	G-0686	Quad 2-Input Exclusive Or	IC12, IC13, IC14, IC27	74LS86
10	53706	Dual D Latch	IC16	74LS74
11	G-6009	Hex D-Type Flip-Flop	IC17, IC18, IC29, IC39, IC53	74LS174
12	G-0680	Quad 2-Input And Gate	IC19, IC54	74LS08
13	G-0681	Triple 3-Input Nand Gate	IC31, IC42, IC62, IC63	74LS10
14	G-6019	RAM - 1K X 4	IC32, IC33, IC34, IC35, IC36, IC37	2114
15	G-6005	1 Of 8 Decoder/ Demultiplexer	IC38, IC49	74LS138
16	G-0683	Quad 2-Input Or Gate	IC40	74LS32
17	G-6117	Quad Bus Buffer Gate	IC41	74LS125
18	G-6121	Octal Buffer, Invert.	IC43, IC44, IC45, IC46, IC47, IC48, IC76, IC77, IC78, IC79	74LS244
19	G-0960-57	Background PROM	IC50	2732
20	G-0960-58	Background PROM	IC51	2732
21	G-0687	Dual J-K Flip-Flop	IC61	74LS107
22	G-6119	8 Bit Shift Register	IC65, IC66, IC74, IC75	74LS166
23	G-0688	8 To 1 Multiplexer	IC69, IC70	74LS151
24	G-6118	Quad Exclusive Or Gate	IC71	74LS136
25	G-0678	Quad 2-Input Nor Gate	IC72	74LS02
26	G-0677	Quad 2-Input Nand Gate	IC73	74LS00
27	G-6123	RAM 2K X 8	IC67, IC68	MSM 2128
28	49264	Resistor 1/4W 5%	R1, R2, R3, R5, R8, R10, R13, R16, R18	470 OHM
29	53982	Resistor 1/4W 5%	R4, R9, R11, R12, R17, R19	220 OHM
30	51564	Resistor 1/4W 5%	R6, R7, R14, R15, R21, R24	1K OHM
31	51289	Resistor 1/4W 5%	R20	100 OHM
32	53978	Resistor Pack	RA1, RA2	1K OHM X 8
33	G-6137	Capacitor, Disc 25V	PC	.1 MFD
34	53327	Capacitor, Disc 63V	Back Side	100 PF
35	51303	6 Station Dip Switch SPST	DS2	
36	51304	8 Station Dip Switch SPST	DS1	
37	52724	16 Contact Solder Dip Socket	IC6, IC7	
38	52723	18 Contact Solder Dip Socket	IC32, IC33, IC34, IC35, IC36, IC37	
39	52722	24 Contact Solder Dip Socket	IC50, IC51, IC67, IC68	
40	53711	40 Contact Solder Dip Socket	IC5	
41	G-6172	50 Circuit Header	SN1, SN2	
42	ST-10943	P.C. Board Support		

NIBBLER

GAME P.C. BOARD ASSEMBLY

G-6480-A

ITEM NO.	PART NO.	DESCRIPTION	REQ'D
1	G-6486-A	SK-7 P.C. Board Assembly	1
2	G-6487-A	SK-8 P.C. Board Assembly	1
3	G-6145-A	50 Conductor Ribbon Cable Assembly	2

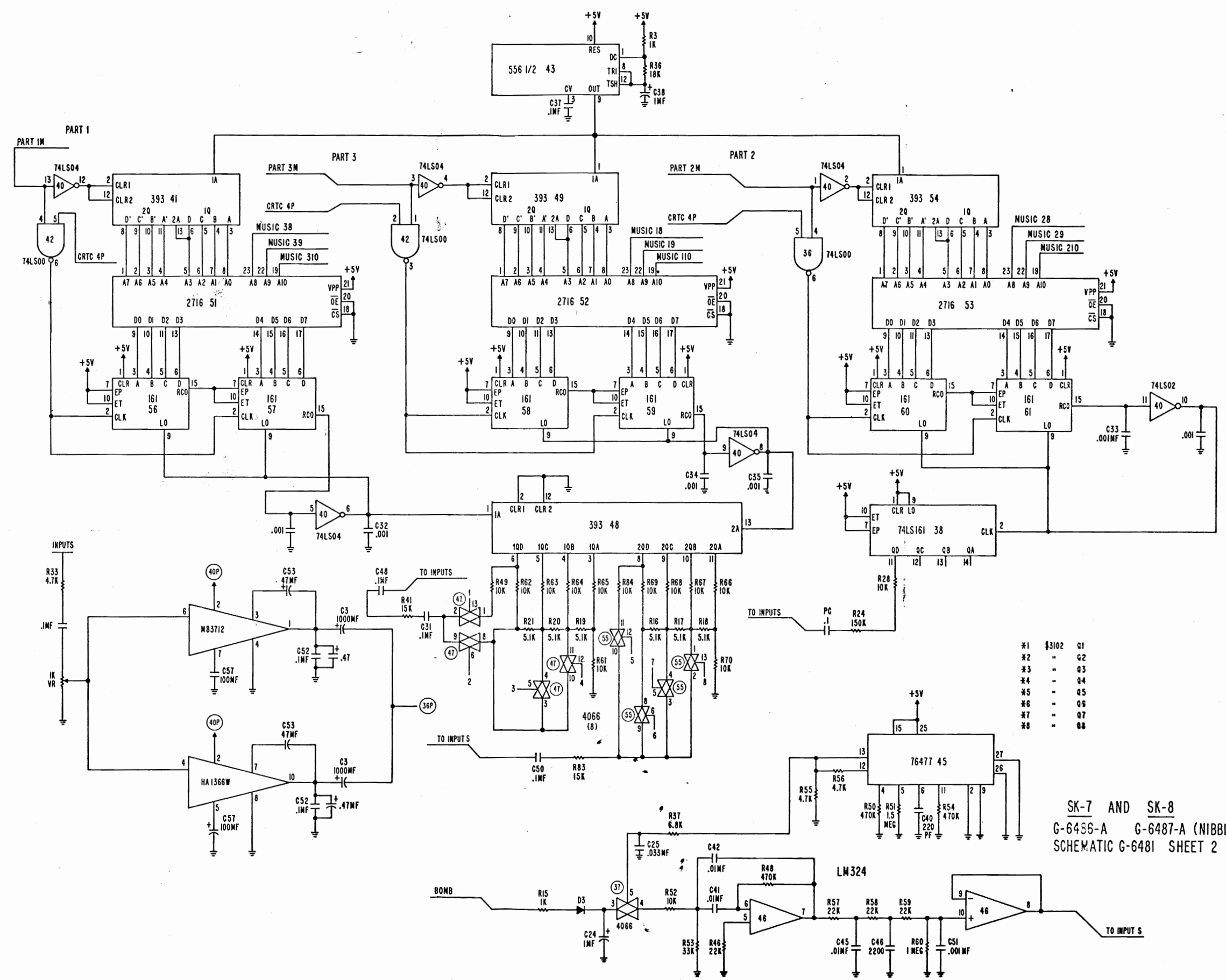
SK-7 P.C. BOARD ASSEMBLY

G-6486-A

ITEM NO.	PART NO.	DESCRIPTION	REF. DES.	MFGR. PART NO.
1	G-6121	Octal Buffer, Invert	IC1, IC2, IC3, IC4	74LS244
2	G-0686	Exclusive Or	IC5	74LS86
3	G-6124	4 To 16 Decoder/ Demultiplexer	IC6	74LS154
4	G-0960-48	Game Program No. 1	IC7	2732
5	G-0960-49	Game Program No. 2	IC8	2732
6	G-0960-50	Game Program No. 3	IC9	2732
7	G-0960-51	Game Program No. 4	IC10	2732
8	G-0960-52	Game Program No. 5	IC12	2732
9	G-0960-53	Game Program No. 6	IC14	2732
10	G-0960-54	Game Program No. 7	IC15	2732
11	G-0960-55	Game Program No. 8	IC16	2732
12	G-0960-56	Game Program No. 9	IC17	2732
13	G-6129	CPU	IC11	6502
14	G-6128	1024 X 8-Bit Static Ram	IC13	4118
15	G-6127	Monostable Multivibrator	IC18	74121
16	51991	Timer	IC19	555
17	G-6126	Hex Inverter	IC20	74LS05
18	G-6117	Quad Bus Buffer Gate	IC21	74LS125
19	G-0679	Hex Inverter	IC22, IC27, IC39, IC40	74LS04
20	G-0678	Nor Gate	IC23	74LS02
21	G-0681	Nand Gate	IC24	74LS10
22	53706	Dual D Latch	IC25	74LS74
23	G-0690	Binary Counter	IC26	74LS163
24	G-6120	Octal Bus Driver Invert	IC28, IC29, IC30	74LS240
25	G-6012	Octal D Type Flip-Flop	IC31, IC32, IC33, IC34	74LS273
26	G-6125	Dual 2-4 Line Decoder	IC35	74LS155
27	G-0677	Quad 2-Input Nand Gate	IC36, IC42	74LS00
28	G-6020	Quad Analog Switch	IC37, IC47, IC55	4066
29	G-0697	Dual 4 Bit Counter	IC41, IC48, IC49, IC54	74LS393
30	52560	Dual Timer	IC43	556
31	G-0683	Or Gate	IC44	74LS32
32	G-6181	Sound Generator	IC45	SN76477
33	G-6142	Lower Power Quad Oper. Amplifier	IC46	LM324
34	G-0959-44	Sound Program No. 1	IC52	2716
35	G-0959-45	Sound Program No. 3	IC53	2716
36	G-6008	4 Bit Binary Counter	IC38, IC56, IC57, IC58, IC59, IC60, IC61	74LS161
37	52358	Resistor 1/4 Watt 5%	R1, R2, R3, R4, R5, R6, R14	2.2K OHM
38	51291	Resistor 1/4 Watt 5%	R7, R46, R57, R58, R59	22K OHM
39	50966	Resistor 1/4 Watt 5%	R8, R52	100K OHM

SK-7 P.C. BOARD ASSEMBLY
G-6486-A

ITEM NO.	PART NO.	DESCRIPTION	REF. DES.	MFGR. PART NO.
34	G-0959-44	Sound Program No. 1	IC52	2716
35	G-0959-45	Sound Program No. 3	IC53	2716
36	G-6008	4 Bit Binary Counter	IC38, IC56, IC57, IC58, IC59, IC60, IC61	74LS161
37	52358	Resistor 1/4 Watt 5%	R1, R2, R3, R4, R5, R6, R14	2.2K OHM
38	51291	Resistor 1/4 Watt 5%	R7, R46, R57, R58, R59	22K OHM
39	50966	Resistor 1/4 Watt 5%	R8, R52	100K OHM
40	53982	Resistor 1/4 Watt 5%	R9, R10	220 OHM
41	52563	Resistor 1/4 Watt 5%	R11	560 OHM
42	53863	Resistor 1/4 Watt 5%	R12	1.8K OHM
43	51294	Resistor 1/4 Watt 5%	R13, R56	47K OHM
44	51564	Resistor 1/4 Watt 5%	R15, R23, R30, R31, R32, R35	1K OHM
45	51568	Resistor 1/4 Watt 5%	R16, R17, R18, R19, R20, R21	5.1K OHM
46	49264	Resistor 1/4 Watt 5%	R22, R29, RA3, RA4, RA5, RA6	470 OHM
47	50968	Resistor 1/4 Watt 5%	R24	150K OHM
48	51293	Resistor 1/4 Watt 5%	R28, R49, R61 Thru R70, R84	10K OHM
49	51292	Resistor 1/4 Watt 5%	R33, R55	4.7K OHM
50	52380	Resistor 1/4 Watt 5%	R36	18K OHM
51	51571	Resistor 1/4 Watt 5%	R37	6.8K OHM
52	53838	Resistor 1/4 Watt 5%	R39, R40	150 OHM
53	52348	Resistor 1/4 Watt 5%	R41, R83	15K OHM
54	49268	Resistor 1/4 Watt 5%	R47, R53	33K OHM
55	53593	Resistor 1/4 Watt 5%	R48, R50, R54	470K OHM
56	53883	Resistor 1/4 Watt 5%	R51	1.5 MEG OHM
57	52734	Resistor 1/4 Watt 5%	R60	1 MEG OHM
58	53978	Resistor Pack	RA1, RA2	1K OHM X 8
59	53892	Capacitor, Electrolytic 25V	C1, C2, C3	1000 MFD
60	G-6173	Capacitor, Electrolytic 16V	C53	47 MFD
61	G-6169	Capacitor, Electrolytic 16V	C57	100 MFD
62	G-6174	Capacitor, Film 25V	C52	.1 MFD
63	G-6178	Capacitor, Film 50V	C25	.033 MFD
64	G-0940	Capacitor, Disc 50V	C4, C32, C33, C34, C35, C51	.001 MFD
65	53994	Capacitor, Disc 50V	C6, C41, C42, C45	.01 MFD
66	G-6176	Capacitor, Disc 50V	C54, C55	470 PF
67	G-6177	Capacitor, Disc 50V	C40	220 PF
68	53993	Capacitor, Disc 50V	C46	2200 PF
69	G-6137	Capacitor, Disc 25V	C8 Thru C23, C31, C37, C39, C48, C50, C56 All PC	.1 MFD
70	G-0805	Capacitor, Tantalum 35V	C5	.47 MFD
71	52561	Capacitor, Tantalum 16V	C7	10 MFD
72	G-6179	Capacitor, Tantalum 16V	C29, C30	22 MFD
73	52359	Capacitor, Tantalum 35V	C24, C38	1 MFD
74	G-0811	Signal Diode	D1, D2, D3	IN914
75	G-6166	Crystal, 11.289 MHZ	X-TAL	
76	G-6167	Trim Control	VRL	1K OHM
77	G-6168	Heat Sink		
78	G-6021	Audio Amplifier		MB3712
79	52722	24 Contact Solder Dip Skt		
80	53711	40 Contact Solder Dip Skt		
81	G-6171	20 Circ. Right Angle Header w/Extractor		
82	G-6172	50 Circ. Right Angle Header w/Extractor	CN1, CN2	
83	ST-10945	P.C. Board Support (5/8")		
84	G-0940	Capacitor, Disc 50V	PIN U To Z	1000 PF



- *1 #3102 Q1
- *2 " Q2
- *3 " Q3
- *4 " Q4
- *5 " Q5
- *6 " Q6
- *7 " Q7
- *8 " Q8

SK-7 AND SK-8
 G-6486-A G-6487-A (NIBBLER)
 SCHEMATIC G-6481 SHEET 2 OF 3

