

### Cougar [3.5mm] Full Kit

Item	Description	Qty	Designator	Package
	<b>HARDWARE</b>			
1	PLUGPACK - 12VDC @ 5.0A	1		-
2	M3 x 10mm Bolt PH	4		-
	<b>PANEL</b>			
3	Cougar Front Panel V1.1	1		-
	<b>KITS</b>			
4	Octave Switcher 3U Component Kit V5	2		-
5	Cougar - Expander [3.5mm] Hardware Kit V0.0	1		-
6	Cougar - Expander Component Kit P0.2	1		-
7	Cougar PCB Set V2.3	1		-
8	Cougar - ASM2 Component Kit V2.3	1		-
9	Cougar - ASM-2 [3.5mm] Hardware Kit V0.0	1		-

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**Octave Switcher 3U Component Kit**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	33pF Ceramic C0G	1	C1	0805
2	100nF Ceramic Z5U	2	C2, C3	0805
<b>CONNECTOR</b>				
3	4-way 0.1inch Straight Header	1	J1	2.54MM
4	4-way 0.1inch Crimp Housing	1	J1	-
5	Crimp to suit 0.1inch Series MTA	4		-
<b>LINEAR</b>				
6	TL082	1	U1	SO-8
<b>RESISTOR</b>				
7	75R 1%	1	R10	0805
8	10K 1%	7	R2, R3, R4, R5, R7, R8, R9	0805
9	75K 1%	2	R1, R6	0805
			NB: 10V Rails	
10	95K3 1%	2	R1, R6	0805
			NB: 12V Rails	
11	127K 1%	2	R1, R6	0805
			NB: 15V Rails	
<b>SWITCH</b>				
12	1P5W - Right-angle PCB	1	S1	-
<b>TRIMPOT</b>				
13	10K 25TV Cermet	2	P1, P2	T93YA
14	100K 20TV Cermet	1	P3	T93YA

**MonoDAC [Cougar - Expander Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	33pF 5% Ceramic	2	C403, C405	RAD-0.2N
2	10nF 63V Polyester	7	C401, C402, C404, C501, C502, C503, C504	RAD-0.2
3	100nF 63V Polyester	1	C406	RAD-0.2
4	100nF Ceramic	13	C101, C102, C103, C301, C302, C304, C305, C407, C408, C409, C410, C505,	RAD-0.2N
			C506	
5	22uF 50V Electrolytic	1	C303	RB-D5.0-P2.0
	<b>CONNECTOR</b>			
6	4-way 0.1inch Crimp Housing	2	J402, J501	-
7	5-way 0.1inch Crimp Housing	1	J401	2.54MM
8	4-way 0.1inch Straight Header	2	J402, J501	2.54MM
9	2-way 0.1inch Crimp Housing	2	D102, J202	2.54MM
10	16-pin IC Socket 0.3inch	1	U303	DIP-16
11	8-pin IC Socket 0.3inch	5	U201, U301, U302, U402, U403	DIP-8
12	40-pin IC Socket 0.6inch	1	U101	DIP-40
13	3-way 0.1inch Straight Header	3	J201, P402, P403	2.54MM
14	5-way 0.1inch Straight Header	1	J401	2.54MM
15	Jumper Shunt - Red	1	JP101	2.54MM
16	14-pin IC Socket 0.3inch	2	U401, U501	DIP-14
17	3-way 0.1inch Crimp Housing	3	J201, P402, P403	2.54MM
18	1x2 Pin 9mm Header	1	JP101	2.54MM
19	2-way 0.1inch Straight Header	2	D102, J202	2.54MM
	<b>CRYSTAL</b>			
20	16MHz Oscillator	1	X101	DIL-8
	<b>DIODE</b>			
21	1N4148	1	D201	DIODE-0.3
22	BAT48 Schottky Diode	1	D301	DIODE-0.3
23	LM329 6V9 Precision	1	D401	TO-92

**MonoDAC [Cougar - Expander Component Kit]**

Item	Description	Qty	Designator	Package
	<b>LINEAR</b>			
24	OP295 - Dual, Rail-Rail Opamp	2	U402, U403	DIP-8
25	6N138 - Opto-coupler	1	U201	DIP-8
26	OP495 - Quad, Rail-Rail Opamp	2	U401, U501	DIP-8
27	AD8300 - 12-bit Serial A/D Converter	1	U301	DIP-8
28	ATMEGA16-16PU	1	U101	DIP-40
29	TL072 Dual JFET Opamp	1	U701	DIP-8
30	AD712	1	U302	-
	<b>LOGIC</b>			
31	CD4051 - Single 8-channel Multiplexer	1	U303	DIP-16
	<b>RESISTOR</b>			
32	10R 1% 0.5W Metal Film	1	R305	AXIAL-0.4
33	75R 1% 0.5W Metal Film	7	R408, R413, R414, R501, R502, R503, R504	AXIAL-0.4
34	100R 1% 0.5W Metal Film	1	R314	AXIAL-0.4
35	220R 1% 0.5W Metal Film	4	R200, R201, R202, R205	AXIAL-0.4
36	1K0 1% 0.5W Metal Film	4	R102, R103, R402, R419	AXIAL-0.4
37	1K5 1% 0.5W Metal Film	1	R208	AXIAL-0.4
38	3K3 1% 0.5W Metal Film	5	R104, R306, R307, R308, R309	AXIAL-0.4
39	4K7 1% 0.5W Metal Film	6	R203, R301, R310, R311, R312, R313	AXIAL-0.4
40	10K 1% 0.5W Metal Film	11	R101, R403, R407, R409, R410, R411, R412, R415, R416, R417, R418	AXIAL-0.4
41	11K 1% 0.5W Metal Film	1	R303	AXIAL-0.4
42	12K 1% 0.5W Metal Film	2	R108, R302	AXIAL-0.4
43	15K 1% 0.5W Metal Film	2	R109, R207	AXIAL-0.4
44	22K 1% 0.5W Metal Film	1	R304	AXIAL-0.4
45	33K 1% 0.5W Metal Film	1	R204	AXIAL-0.4
46	47K 1% 0.5W Metal Film	4	R401, R404, R405, R406	AXIAL-0.4
47	4 x 1K Commoned Resistor Network	2	R106, R107	SIP-5
	<b>SWITCH</b>			
48	4PST DIP	1	S101	DIP-8



Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**CGS36 [Cougar - Expander Component Kit]**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	10nF 5% Ceramic, Medium K	1	C701	RAD-0.2N
<b>CONNECTOR</b>				
2	5-way 0.1inch Crimp Housing	1	J701	2.54MM
3	16-pin IC Socket 0.3inch	4	U801, U802, U803, U804	DIP-16
4	8-pin IC Socket 0.3inch	1	U701	DIP-8
5	8-way 0.1inch Crimp Housing	1	J901	2.54MM
6	8-way 0.1inch Straight Header	1	J901	2.54MM
7	5-way 0.1inch Straight Header	1	J701	2.54MM
<b>DIODE</b>				
8	1N4148	17	D801, D802, D803, D804, D805, D806, D807, D808, D809, D901, D902, D903, D904, D905, D906, D907, D908	DIODE-0.3
<b>LOGIC</b>				
9	CD4017 - Decade Counter/Divider	4	U801, U802, U803, U804	DIP-16
<b>RESISTOR</b>				
10	1K0 1% 0.5W Metal Film	7	R902, R904, R907, R910, R912, R915, R917	AXIAL-0.4
11	1K5 1% 0.5W Metal Film	7	R901, R903, R906, R909, R911, R914, R916	AXIAL-0.4
12	10K 1% 0.5W Metal Film	1	R706	AXIAL-0.4
13	15K 1% 0.5W Metal Film	2	R701, R704	AXIAL-0.4
14	100K 1% 0.5W Metal Film	12	R702, R703, R705, R707, R801, R802, R803, R804, R805, R905, R908, R913	AXIAL-0.4
<b>TRANSISTOR</b>				
15	BC547B NPN Transistor	7	Q901, Q902, Q903, Q904, Q905, Q906, Q907	TO-92

**ED1122 [Cougar - Expander Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	100nF Ceramic	7	C6, C12, C13, C14, C15, C16, C17	RAD-0.2N
2	1uF 35V Tantalum	1	C7	RB-D5.0-P5.0
3	10uF 35V Electrolytic	2	C10, C11	RB-D5.0-P2.0
4	100uF 35V Electrolytic	2	C3, C8	RB-D8.0-P3.5
5	470uF 50V Electrolytic	1	C1	RB-D10.0-P5.0
6	4u7 Ceramic X7R	4	C2, C4, C5, C9	0805
	<b>CONNECTOR</b>			
7	KK396 - 4-way Straight - Locking Header	1	J3	-
8	KK396 - 4-way Crimp Housing	1	J3	3.96MM
9	FASTON 6.3mm x 0.8mm PCB TAB	2	J1, J2	-
	<b>DIODE</b>			
10	1N4004 200V 1A	2	D1, D2	DIODE-0.4
	<b>LINEAR</b>			
11	7805 +5V 1A Fixed Voltage Regulator	1	U2	TO-220
12	PTN78000A - Isolated -3 to -15V 9W DC/DC Converter	1	U1	-
	<b>INDUCTOR</b>			
13	Ferrite Bead - 0.45uH 7A	3	L1, L2, L3	AXIAL-0.3
	<b>RESISTOR</b>			
14	2K0 1% 0.5W Metal Film	1	R1	AXIAL-0.4
15	2K2 1% 0.5W Metal Film	2	R2, R3	AXIAL-0.4

Bill of Materials for Cougar [3.5mm] Full Kit V2.3

Item	Description	Qty	Designator	Package









Bill of Materials for Cougar [3.5mm] Full Kit V2.3

Item	Description	Qty	Designator	Package





Item	Description	Qty	Designator	Package





Item	Description	Qty	Designator	Package





Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**VCF2 [Cougar - ASM2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>RESISTOR</b>			
1	100K 1% 0.5W Metal Film	1	XR846	AXIAL-0.4







**VCO 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	18pF 5% Ceramic	1	C111	RAD-0.2N
2	33pF 5% Ceramic	1	C110	RAD-0.2N
3	100pF 5% Ceramic	1	C109	RAD-0.2N
4	2200pF 2.5% Polystyrene	1	C104	AXIAL-0.4
5	100nF Ceramic	5	C100, C101, C102, C103, C150	RAD-0.2N
6	680nF 63V Polyester	1	C112	RAD-0.2X
	<b>CONNECTOR</b>			
7	8-pin Wirewrap IC Socket 0.3inch	1	U101	-
8	5-way 0.1inch Straight Header	1	J101	2.54MM
9	14-pin IC Socket 0.3inch	3	U100, U103, U153	DIP-14
10	6-way 0.1inch Crimp Housing	1	J100	2.54MM
11	5-way 0.1inch Crimp Housing	1	J101	2.54MM
12	4-way 0.1inch Crimp Housing	1	J102	-
13	8-pin IC Socket 0.3inch	2	Q101, U105	DIP-8
14	6-way 0.1inch Straight Header	1	J100	2.54MM
15	4-way 0.1inch Straight Header	1	J102	2.54MM
	<b>DIODE</b>			
16	BAT48 Schottky Diode	2	D103, D104	DIODE-0.3
17	1N4148	4	D100, D101, D102, D106	DIODE-0.3
	<b>LINEAR</b>			
18	LT1014 - Quad Low-drift Opamp	1	U100	-
19	LM311 - Comparator	1	U102	DIP-8
20	CA3140 Opamp	1	U101	DIP-8
			NB: U101 & U151 see modification	
21	TL081 JFET Opamp	1	U105	DIP-8
22	TL084 Quad JFET Opamp	1	U103	DIP-14



**VCO 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>RESISTOR</b>			
23	TEMPCO - PT146 1K 3500ppm	1	Q101	AXIAL-0.5
24	Wire Link	1	LK100	TO FIT
25	62R 1% 0.5W Metal Film	1	R137	AXIAL-0.4
			NB: 50ppm	
26	680R 1% 0.5W Metal Film	1	R112	AXIAL-0.4
27	1K0 1% 0.5W Metal Film	4	R121, R123, R124, R146	AXIAL-0.4
28	1K5 1% 0.5W Metal Film	1	R143	AXIAL-0.4
29	2K2 1% 0.5W Metal Film	1	R141	AXIAL-0.4
30	3K0 1% 0.5W Metal Film	1	R144	AXIAL-0.4
31	3K3 1% 0.5W Metal Film	1	R139	AXIAL-0.4
32	3K9 1% 0.5W Metal Film	1	R116	AXIAL-0.4
33	10K 1% 0.5W Metal Film	8	R114, R115, R117, R118, R120, R122, R126, R147	AXIAL-0.4
34	13K 1% 0.5W Metal Film	1	R129	AXIAL-0.4
35	15K 1% 0.5W Metal Film	3	R125, R127, R128	AXIAL-0.4
36	20K 1% 0.5W Metal Film	1	R131	AXIAL-0.4
37	47K 1% 0.5W Metal Film	1	R100A	AXIAL-0.4
38	56K 1% 0.5W Metal Film	2	R130, R133	AXIAL-0.4
39	68K 1% 0.5W Metal Film	1	R113	AXIAL-0.4
40	75K 1% 0.5W Metal Film	1	R132	AXIAL-0.4
41	91K 1% 0.5W Metal Film	1	R108	AXIAL-0.4
42	100K 1% 0.5W Metal Film	8	R102, R103, R109, R110, R111, R148, R149, R150A	AXIAL-0.4
43	100K 0.1% Metal Film	4	R104, R105, R106, R107	AXIAL-0.4
44	300K 1% 0.5W Metal Film	2	R140, R145	AXIAL-0.4
45	390K 1% 0.5W Metal Film	1	R138	AXIAL-0.4
46	560K 1% 0.5W Metal Film	2	R134, R135	AXIAL-0.4
47	750K 1% 0.5W Metal Film	1	R136	AXIAL-0.4
48	887K 1% 0.5W Metal Film	1	R101	AXIAL-0.4
49	1M0 1% 0.5W Metal Film	1	R119	AXIAL-0.4
50	2M2 1% 0.5W Metal Film	1	R142	AXIAL-0.4
51	3M0 1% 0.5W Metal Film	1	R100	AXIAL-0.4

## VCO 1 [ASM-2 Component Kit]

Item	Description	Qty	Designator	Package
	<b>TRANSISTOR</b>			
52	LS312 - Dual Matched NPN Transistors	1	Q101	DIP-8
53	J108 JFET	1	Q100	TO-92
54	2N3904 NPN Transistor	1	Q103	TO-92
	<b>TRIMPOT</b>			
55	10K 25TV Cermet	2	P104, P107	T93YA
56	50K 25TV Cermet	1	P101	T93YA
57	100K 20TV Cermet	5	P100, P102, P103, P105, P106	T93YA

**VCF 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	10pF 5% Ceramic	2	C201, C203	RAD-0.2N
2	330pF 5% Ceramic	2	C202, C204	RAD-0.2N
3	100nF Ceramic	4	C205, C206, C207, C208	RAD-0.2N
	<b>CONNECTOR</b>			
4	14-pin IC Socket 0.3inch	1	U207	DIP-14
5	4-way 0.1inch Crimp Housing	3	J201, J202, J203	-
6	3-way 0.1inch Straight Header	1	P204	2.54MM
7	3-way 0.1inch Crimp Housing	1	P204	2.54MM
8	2-way 0.1inch Straight Header	1	J204	2.54MM
9	2-way 0.1inch Crimp Housing	1	J204	2.54MM
10	8-pin IC Socket 0.3inch	6	U201, U202, U203, U204, U205, U206	DIP-8
11	4-way 0.1inch Straight Header	3	J201, J202, J203	2.54MM
	<b>LINEAR</b>			
12	CA3080 - Transconductance Opamp	2	U203, U205	DIP-8
13	CA3140 Opamp	3	U202, U204, U206	DIP-8
			NB: U101 & U151 see modification	
14	TL082 Dual JFET Opamp	1	U201	DIP-8
15	TL084 Quad JFET Opamp	1	U207	DIP-14
	<b>RESISTOR</b>			
16	22R 1% 0.5W Metal Film	2	R221, R226	AXIAL-0.4
17	47R 1% 0.5W Metal Film	1	R243	AXIAL-0.4
18	220R 1% 0.5W Metal Film	2	R222, R228	AXIAL-0.4
19	390R 1% 0.5W Metal Film	1	R210	AXIAL-0.4
20	1K0 1% 0.5W Metal Film	4	R237, R238, R239, R240	AXIAL-0.4
21	2K0 1% 0.5W Metal Film	1	R208	AXIAL-0.4
22	10K 1% 0.5W Metal Film	2	R220, R225	AXIAL-0.4
23	15K 1% 0.5W Metal Film	1	R219	AXIAL-0.4
24	18K 1% 0.5W Metal Film	2	R224, R229	AXIAL-0.4
25	20K 1% 0.5W Metal Film	1	R209	AXIAL-0.4

**VCF 1 [ASM-2 Component Kit]**

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Designator</b>	<b>Package</b>
26	27K 1% 0.5W Metal Film	1	R216	AXIAL-0.4
27	33K 1% 0.5W Metal Film	1	R241	AXIAL-0.4
28	47K 1% 0.5W Metal Film	2	R205, R242	AXIAL-0.4
29	51K 1% 0.5W Metal Film	1	R204	AXIAL-0.4
30	100K 1% 0.5W Metal Film	14	R201, R202, R203, R206, R207, R212, R213, R214, R215, R217, R218, R234,	AXIAL-0.4
			R235, R236	
31	150K 1% 0.5W Metal Film	1	R211	AXIAL-0.4
32	1M0 1% 0.5W Metal Film	2	R223, R227	AXIAL-0.4
	<b>TRANSISTOR</b>			
33	2N3906 PNP Transistor	2	Q202, Q203	TO-92
34	2N3904 NPN Transistor	1	Q201	TO-92
	<b>TRIMPOT</b>			
35	100R 25TV Cermet	1	P201	T93YA
36	100K 20TV Cermet	2	P202, P203	T93YA

**VCA 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	10pF 5% Ceramic	1	C301	RAD-0.2N
2	100nF Ceramic	2	C302, C303	RAD-0.2N
	<b>CONNECTOR</b>			
3	4-way 0.1inch Crimp Housing	1	J301	-
4	3-way 0.1inch Straight Header	1	J302	2.54MM
5	3-way 0.1inch Crimp Housing	1	J302	2.54MM
6	8-pin IC Socket 0.3inch	2	U301, U302	DIP-8
7	4-way 0.1inch Straight Header	1	J301	2.54MM
	<b>DIODE</b>			
8	1N4148	2	D301, D302	DIODE-0.3
	<b>LINEAR</b>			
9	CA3080 - Transconductance Opamp	1	U302	DIP-8
10	TL082 Dual JFET Opamp	1	U301	DIP-8
	<b>RESISTOR</b>			
11	220R 1% 0.5W Metal Film	2	R305, R307	AXIAL-0.4
12	1K0 1% 0.5W Metal Film	1	R310	AXIAL-0.4
13	100K 1% 0.5W Metal Film	6	R301, R302, R303, R304, R306, R311	AXIAL-0.4
14	560K 1% 0.5W Metal Film	1	R309	AXIAL-0.4
15	1M0 1% 0.5W Metal Film	1	R308	AXIAL-0.4
	<b>TRIMPOT</b>			
16	100K 20TV Cermet	1	P301	T93YA

**ADSR 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	10nF 63V Polyester	2	C402, C403	RAD-0.2
2	100nF Ceramic	2	C404, C405	RAD-0.2N
3	4.7uF 35V Tantalum	1	C401	RB-D6.5-P5.0
	<b>CONNECTOR</b>			
4	14-pin IC Socket 0.3inch	1	U404	DIP-14
5	3-way 0.1inch Straight Header	5	J401, P402, P403, P404, P405	2.54MM
6	3-way 0.1inch Crimp Housing	5	J401, P402, P403, P404, P405	2.54MM
7	2-way 0.1inch Straight Header	2	J402, J452	2.54MM
8	2-way 0.1inch Crimp Housing	2	J402, J452	2.54MM
9	8-pin IC Socket 0.3inch	3	U401, U402, U405	DIP-8
10	16-pin IC Socket 0.3inch	1	U403	DIP-16
	<b>DIODE</b>			
11	1N4148	3	D401, D402, D403	DIODE-0.3
	<b>LINEAR</b>			
12	LM358 - Dual Opamp	2	U402, U405	DIP-8
13	TL082 Dual JFET Opamp	1	U401	DIP-8
	<b>LOGIC</b>			
14	CD4002 - Dual 4-input NOR Gate	1	U404	DIP-14
15	CD4053 - Triple 2-channel Multiplexer	1	U403	DIP-16
	<b>RESISTOR</b>			
16	470R 1% 0.5W Metal Film	1	R405	AXIAL-0.4
17	1K0 1% 0.5W Metal Film	1	R406	AXIAL-0.4
18	1K5 1% 0.5W Metal Film	1	R407	AXIAL-0.4
19	10K 1% 0.5W Metal Film	1	R404	AXIAL-0.4
20	47K 1% 0.5W Metal Film	1	R402	AXIAL-0.4
21	75K 1% 0.5W Metal Film	1	R403	AXIAL-0.4
22	100K 1% 0.5W Metal Film	4	R401, R408, R409, R410	AXIAL-0.4

**ADSR 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>TRIMPOT</b>			
23	100K 20TV Cermet	2	P400, P406	T93YA

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**VCLFO 1 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	100nF Ceramic	2	C502, C503	RAD-0.2N
2	470nF 63V Polyester	1	C501	RAD-0.2X
	<b>CONNECTOR</b>			
3	14-pin IC Socket 0.3inch	1	U501	DIP-14
4	3-way 0.1inch Straight Header	4	J501, P501, P502, P503	2.54MM
5	3-way 0.1inch Crimp Housing	4	J501, P501, P502, P503	2.54MM
6	2-way 0.1inch Straight Header	1	J502	2.54MM
7	2-way 0.1inch Crimp Housing	1	J502	2.54MM
8	8-pin IC Socket 0.3inch	1	U502	DIP-8
	<b>DIODE</b>			
9	1N4148	3	D501, D502, D503	DIODE-0.3
	<b>LINEAR</b>			
10	TL081 JFET Opamp	1	U502	DIP-8
11	TL084 Quad JFET Opamp	1	U501	DIP-14
	<b>RESISTOR</b>			
12	47R 1% 0.5W Metal Film	1	R507	AXIAL-0.4
13	470R 1% 0.5W Metal Film	1	R514	AXIAL-0.4
14	1K0 1% 0.5W Metal Film	1	R511	AXIAL-0.4
15	1K5 1% 0.5W Metal Film	2	R515, R516	AXIAL-0.4
16	3K0 1% 0.5W Metal Film	1	R512	AXIAL-0.4
17	10K 1% 0.5W Metal Film	2	R506, R518	AXIAL-0.4
18	22K 1% 0.5W Metal Film	1	R513	AXIAL-0.4
19	47K 1% 0.5W Metal Film	1	R502	AXIAL-0.4
20	68K 1% 0.5W Metal Film	2	R508, R509	AXIAL-0.4
21	100K 1% 0.5W Metal Film	5	R501, R503, R504, R505, R510	AXIAL-0.4
22	330K 1% 0.5W Metal Film	1	R517	AXIAL-0.4





**NOISE [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	5n6 63V Polyester	1	C604	RAD-0.2
2	8n2F 63V Polyester	2	C603, C607	RAD-0.2
3	100nF 63V Polyester	2	C601, C608	RAD-0.2
4	220nF 63V Polyester	1	C606	RAD-0.2
5	2.2uF Electrolytic	1	C605	RB-D5.0-P2.0
6	4.7uF 35V Tantalum	1	C602	RB-D6.5-P5.0
7	10uF 35V Electrolytic	2	C609, C610	RB-D5.0-P2.0
	<b>CONNECTOR</b>			
8	3-way 0.1inch Straight Header	3	J601, P602, P603	2.54MM
9	3-way 0.1inch Crimp Housing	3	J601, P602, P603	2.54MM
10	8-pin IC Socket 0.3inch	2	U601, U602	DIP-8
	<b>LINEAR</b>			
11	LM1458 - Dual Opamp	1	U602	DIP-8
12	TL082 Dual JFET Opamp	1	U601	DIP-8
	<b>RESISTOR</b>			
13	22R 1% 0.5W Metal Film	2	R618, R619	AXIAL-0.4
14	470R 1% 0.5W Metal Film	2	R605, R606	AXIAL-0.4
15	1K0 1% 0.5W Metal Film	3	R614, R615, R616	AXIAL-0.4
16	2K2 1% 0.5W Metal Film	1	R602	AXIAL-0.4
17	2K7 1% 0.5W Metal Film	2	R608, R609	AXIAL-0.4
18	3K3 1% 0.5W Metal Film	1	R610	AXIAL-0.4
19	15K 1% 0.5W Metal Film	1	R620	AXIAL-0.4
20	22K 1% 0.5W Metal Film	2	R611, R612	AXIAL-0.4
21	68K 1% 0.5W Metal Film	1	R617	AXIAL-0.4
22	100K 1% 0.5W Metal Film	1	R613	AXIAL-0.4
23	1M0 1% 0.5W Metal Film	3	R601, R603, R604	AXIAL-0.4

**NOISE [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>TRANSISTOR</b>			
24	2N3904 NPN Transistor	1	Q601	TO-92
	<b>TRIMPOT</b>			
25	100K 20TV Cermet	1	P601	T93YA

### GLIDE [ASM-2 Component Kit]

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	100nF Ceramic	2	C703, C702	RAD-0.2N
2	1000nF 63V Polyester	1	C701	RAD-0.2X
<b>CONNECTOR</b>				
3	3-way 0.1inch Straight Header	3	JP701, JP702, P701	2.54MM
4	3-way 0.1inch Crimp Housing	3	JP701, JP702, P701	2.54MM
5	2-way 0.1inch Straight Header	1	J701	2.54MM
6	2-way 0.1inch Crimp Housing	1	J701	2.54MM
7	8-pin IC Socket 0.3inch	1	U701	DIP-8
<b>LINEAR</b>				
8	TL082 Dual JFET Opamp	1	U701	DIP-8
<b>RESISTOR</b>				
9	10R 1% 0.5W Metal Film	1	R702	AXIAL-0.4
10	330R 1% 0.5W Metal Film	1	R701	AXIAL-0.4

**VCF 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	1nF 63V Polyester	1	C806	RAD-0.2
2	10nF 63V Polyester	1	C807	RAD-0.2
3	68nF 63V Polyester	4	C802, C803, C804, C805	RAD-0.2
4	100nF Ceramic	2	C811, C812	RAD-0.2N
5	680nF 63V Polyester	1	C818	RAD-0.2X
6	10uF 35V Tantalum	2	C801, C809	RB-D7.5-P5.0
7	220uF 25V Electrolytic	1	C808	RB-PD10.0-P5.0
	<b>CONNECTOR</b>			
8	9-way 0.1inch Crimp Housing	1	J801	-
9	9-way 0.1" Straight Header	1	J801	-
10	14-pin IC Socket 0.3inch	3	U801, U804, U805	DIP-14
11	3-way 0.1inch Straight Header	2	P801, P805	2.54MM
12	3-way 0.1inch Crimp Housing	2	P801, P805	2.54MM
13	8-pin IC Socket 0.3inch	2	U802, U803	DIP-8
	<b>DIODE</b>			
14	1N4148	1	D801	DIODE-0.3
	<b>LINEAR</b>			
15	LF412 - Dual Bi-FET Opamp	2	U802, U803	DIP-8
16	TL084 Quad JFET Opamp	1	U801	DIP-14
	<b>RESISTOR</b>			
17	150R 1% 0.5W Metal Film	4	R809, R810, R811, R812	AXIAL-0.4
18	200R 1% 0.5W Metal Film	1	R814	AXIAL-0.4
19	390R 1% 0.5W Metal Film	1	R808	AXIAL-0.4
20	680R 1% 0.5W Metal Film	1	R832	AXIAL-0.4
21	1K0 1% 0.5W Metal Film	7	R813, R815, R817, R818, R824, R835, R843	AXIAL-0.4
22	1K5 1% 0.5W Metal Film	1	R830	AXIAL-0.4
23	1K82 1% 0.5W Metal Film	1	R840	AXIAL-0.4
24	2K2 1% 0.5W Metal Film	2	R836, R841	AXIAL-0.4

**VCF 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
25	2K4 1% 0.5W Metal Film	1	R831	AXIAL-0.4
26	3K3 1% 0.5W Metal Film	1	R846	AXIAL-0.4
27	6K8 1% 0.5W Metal Film	2	R819, R820	AXIAL-0.4
28	10K 1% 0.5W Metal Film	4	R821, R822, R838, R842	AXIAL-0.4
29	36K 1% 0.5W Metal Film	1	R839	AXIAL-0.4
30	39K 1% 0.5W Metal Film	1	R807	AXIAL-0.4
31	47K 1% 0.5W Metal Film	1	R805	AXIAL-0.4
32	100K 1% 0.5W Metal Film	11	R801, R802, R803, R804, R806, R825, R826, R827, R828, R829, R847	AXIAL-0.4
33	200K 1% 0.5W Metal Film	1	R823	AXIAL-0.4
34	1M0 1% 0.5W Metal Film	3	R816, R833, R834	AXIAL-0.4
	<b>TRANSISTOR</b>			
35	CA3046 5 NPN Transistors	2	U804, U805	DIP-14
36	BC549C NPN Transistor	6	Q801, Q802, Q803, Q804, Q805, Q806	TO-92
	<b>TRIMPOT</b>			
37	200R 25TV Cermet	1	P802	T93YA
38	500R 25TV Cermet	1	P807	T93YA
39	1K 25TV Cermet	1	P804	T93YA
40	100K 20TV Cermet	2	P803, P806	T93YA

**S&H [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	2.2nF 63V Polyester	1	C903	RAD-0.2
2	100nF Ceramic	2	C905, C906	RAD-0.2N
3	680nF 63V Polyester	1	C902	RAD-0.2X
4	1000nF 63V Polyester	1	C904	RAD-0.2X
	<b>CONNECTOR</b>			
5	14-pin IC Socket 0.3inch	2	U901, U903	DIP-14
6	4-way 0.1inch Crimp Housing	2	J901, J902	-
7	3-way 0.1inch Straight Header	1	P901	2.54MM
8	3-way 0.1inch Crimp Housing	1	P901	2.54MM
9	2-way 0.1inch Straight Header	1	D905	2.54MM
10	2-way 0.1inch Crimp Housing	1	D905	2.54MM
11	8-pin IC Socket 0.3inch	1	U902	DIP-8
12	4-way 0.1inch Straight Header	2	J901, J902	2.54MM
	<b>DIODE</b>			
13	1N4148	3	D901, D902, D904	DIODE-0.3
	<b>LINEAR</b>			
14	CA3140 Opamp	1	U902	DIP-8
			NB: U101 & U151 see modification	
15	TL084 Quad JFET Opamp	1	U901	DIP-14
	<b>LOGIC</b>			
16	CD40106 - Hex Schmitt Trigger	1	U903	DIP-14
	<b>RESISTOR</b>			
17	1K0 1% 0.5W Metal Film	5	R901, R903, R909, R910, R915	AXIAL-0.4
18	2K2 1% 0.5W Metal Film	2	R905, R908	AXIAL-0.4
19	4K7 1% 0.5W Metal Film	1	R904	AXIAL-0.4
20	10K 1% 0.5W Metal Film	1	R912	AXIAL-0.4
21	12K 1% 0.5W Metal Film	1	R907	AXIAL-0.4





**ADSR 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	10nF 63V Polyester	2	C452, C453	RAD-0.2
2	100nF Ceramic	2	C454, C455	RAD-0.2N
3	4.7uF 35V Tantalum	1	C451	RB-D6.5-P5.0
	<b>CONNECTOR</b>			
4	14-pin IC Socket 0.3inch	1	U454	DIP-14
5	3-way 0.1inch Straight Header	5	J451, P452, P453, P454, P455	2.54MM
6	3-way 0.1inch Crimp Housing	5	J451, P452, P453, P454, P455	2.54MM
7	8-pin IC Socket 0.3inch	3	U451, U452, U455	DIP-8
8	16-pin IC Socket 0.3inch	1	U453	DIP-16
	<b>DIODE</b>			
9	1N4148	3	D451, D452, D453	DIODE-0.3
	<b>LINEAR</b>			
10	LM358 - Dual Opamp	2	U452, U455	DIP-8
11	TL082 Dual JFET Opamp	1	U451	DIP-8
	<b>LOGIC</b>			
12	CD4002 - Dual 4-input NOR Gate	1	U454	DIP-14
13	CD4053 - Triple 2-channel Multiplexer	1	U453	DIP-16
	<b>RESISTOR</b>			
14	470R 1% 0.5W Metal Film	1	R455	AXIAL-0.4
15	1K0 1% 0.5W Metal Film	1	R456	AXIAL-0.4
16	1K5 1% 0.5W Metal Film	1	R457	AXIAL-0.4
17	10K 1% 0.5W Metal Film	1	R454	AXIAL-0.4
18	47K 1% 0.5W Metal Film	1	R452	AXIAL-0.4
19	75K 1% 0.5W Metal Film	1	R453	AXIAL-0.4
20	100K 1% 0.5W Metal Film	4	R451, R458, R459, R460	AXIAL-0.4



**VCO 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	18pF 5% Ceramic	1	C161	RAD-0.2N
2	33pF 5% Ceramic	1	C160	RAD-0.2N
3	100pF 5% Ceramic	1	C159	RAD-0.2N
4	2200pF 2.5% Polystyrene	1	C154	AXIAL-0.4
5	100nF Ceramic	3	C151, C152, C153	RAD-0.2N
6	680nF 63V Polyester	1	C162	RAD-0.2X
	<b>CONNECTOR</b>			
7	8-pin Wirewrap IC Socket 0.3inch	1	U151	-
8	5-way 0.1inch Straight Header	1	J151	2.54MM
9	14-pin IC Socket 0.3inch	1	U150	DIP-14
10	6-way 0.1inch Crimp Housing	1	J150	2.54MM
11	5-way 0.1inch Crimp Housing	1	J151	2.54MM
12	4-way 0.1inch Crimp Housing	1	J152	-
13	8-pin IC Socket 0.3inch	3	Q151, U152, U155	DIP-8
14	6-way 0.1inch Straight Header	1	J150	2.54MM
15	4-way 0.1inch Straight Header	1	J152	2.54MM
	<b>DIODE</b>			
16	BAT48 Schottky Diode	2	D153, D154	DIODE-0.3
17	1N4148	4	D150, D151, D152, D156	DIODE-0.3
	<b>LINEAR</b>			
18	LT1014 - Quad Low-drift Opamp	1	U150	-
19	LM311 - Comparator	1	U152	DIP-8
20	CA3140 Opamp	1	U151	DIP-8
			NB: U101 & U151 see modification	
21	TL081 JFET Opamp	1	U155	DIP-8
22	TL084 Quad JFET Opamp	1	U153	DIP-14

**VCO 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>RESISTOR</b>			
23	TEMPCO - PT146 1K 3500ppm	1	Q151	AXIAL-0.5
24	Wire Link	1	LK150	TO FIT
25	62R 1% 0.5W Metal Film	1	R187	AXIAL-0.4
			NB: 50ppm	
26	680R 1% 0.5W Metal Film	1	R162	AXIAL-0.4
27	1K0 1% 0.5W Metal Film	4	R171, R173, R174, R196	AXIAL-0.4
28	1K5 1% 0.5W Metal Film	1	R193	AXIAL-0.4
29	2K2 1% 0.5W Metal Film	1	R191	AXIAL-0.4
30	3K0 1% 0.5W Metal Film	1	R194	AXIAL-0.4
31	3K3 1% 0.5W Metal Film	1	R189	AXIAL-0.4
32	3K9 1% 0.5W Metal Film	1	R166	AXIAL-0.4
33	10K 1% 0.5W Metal Film	8	R164, R165, R167, R168, R170, R172, R176, R197	AXIAL-0.4
34	13K 1% 0.5W Metal Film	1	R179	AXIAL-0.4
35	15K 1% 0.5W Metal Film	3	R175, R177, R178	AXIAL-0.4
36	20K 1% 0.5W Metal Film	1	R181	AXIAL-0.4
37	47K 1% 0.5W Metal Film	1	R150A	AXIAL-0.4
38	56K 1% 0.5W Metal Film	2	R180, R183	AXIAL-0.4
39	68K 1% 0.5W Metal Film	1	R163	AXIAL-0.4
40	75K 1% 0.5W Metal Film	1	R182	AXIAL-0.4
41	91K 1% 0.5W Metal Film	1	R158	AXIAL-0.4
42	100K 1% 0.5W Metal Film	7	R152, R153, R159, R160, R161, R198, R199	AXIAL-0.4
43	100K 0.1% Metal Film	4	R154, R155, R156, R157	AXIAL-0.4
44	300K 1% 0.5W Metal Film	2	R190, R195	AXIAL-0.4
45	390K 1% 0.5W Metal Film	1	R188	AXIAL-0.4
46	560K 1% 0.5W Metal Film	2	R184, R185	AXIAL-0.4
47	750K 1% 0.5W Metal Film	1	R186	AXIAL-0.4
48	887K 1% 0.5W Metal Film	1	R151	AXIAL-0.4
49	1M0 1% 0.5W Metal Film	1	R169	AXIAL-0.4
50	2M2 1% 0.5W Metal Film	1	R192	AXIAL-0.4
51	3M0 1% 0.5W Metal Film	1	R150	AXIAL-0.4



Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**VCLFO 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	100nF Ceramic	2	C552, C553	RAD-0.2N
2	470nF 63V Polyester	1	C551	RAD-0.2X
	<b>CONNECTOR</b>			
3	14-pin IC Socket 0.3inch	1	U551	DIP-14
4	3-way 0.1inch Straight Header	4	J551, P551, P552, P553	2.54MM
5	3-way 0.1inch Crimp Housing	4	J551, P551, P552, P553	2.54MM
6	2-way 0.1inch Straight Header	1	J552	2.54MM
7	2-way 0.1inch Crimp Housing	1	J552	2.54MM
8	8-pin IC Socket 0.3inch	1	U552	DIP-8
	<b>DIODE</b>			
9	1N4148	3	D551, D552, D553	DIODE-0.3
	<b>LINEAR</b>			
10	TL081 JFET Opamp	1	U552	DIP-8
11	TL084 Quad JFET Opamp	1	U551	DIP-14
	<b>RESISTOR</b>			
12	47R 1% 0.5W Metal Film	1	R557	AXIAL-0.4
13	470R 1% 0.5W Metal Film	1	R564	AXIAL-0.4
14	1K0 1% 0.5W Metal Film	1	R561	AXIAL-0.4
15	1K5 1% 0.5W Metal Film	2	R565, R566	AXIAL-0.4
16	3K0 1% 0.5W Metal Film	1	R562	AXIAL-0.4
17	10K 1% 0.5W Metal Film	2	R556, R568	AXIAL-0.4
18	22K 1% 0.5W Metal Film	1	R563	AXIAL-0.4
19	47K 1% 0.5W Metal Film	1	R552	AXIAL-0.4
20	68K 1% 0.5W Metal Film	2	R558, R559	AXIAL-0.4
21	100K 1% 0.5W Metal Film	5	R551, R553, R554, R555, R560	AXIAL-0.4
22	330K 1% 0.5W Metal Film	1	R567	AXIAL-0.4

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**VCLFO 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>TRIMPOT</b>			
23	10K 25TV Cermet	1	P555	T93YA
24	100K 20TV Cermet	1	P554	T93YA

**VCA 2 [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
	<b>CAPACITOR</b>			
1	10pF 5% Ceramic	1	C351	RAD-0.2N
2	100nF Ceramic	2	C352, C353	RAD-0.2N
	<b>CONNECTOR</b>			
3	4-way 0.1inch Crimp Housing	1	J351	-
4	3-way 0.1inch Straight Header	1	J352	2.54MM
5	3-way 0.1inch Crimp Housing	1	J352	2.54MM
6	8-pin IC Socket 0.3inch	2	U352, U351	DIP-8
7	4-way 0.1inch Straight Header	1	J351	2.54MM
	<b>DIODE</b>			
8	1N4148	2	D351, D352	DIODE-0.3
	<b>LINEAR</b>			
9	CA3080 - Transconductance Opamp	1	U352	DIP-8
10	TL082 Dual JFET Opamp	1	U351	DIP-8
	<b>RESISTOR</b>			
11	220R 1% 0.5W Metal Film	2	R355, R357	AXIAL-0.4
12	1K0 1% 0.5W Metal Film	1	R360	AXIAL-0.4
13	100K 1% 0.5W Metal Film	6	R351, R352, R353, R354, R356, R361	AXIAL-0.4
14	560K 1% 0.5W Metal Film	1	R359	AXIAL-0.4
15	1M0 1% 0.5W Metal Film	1	R358	AXIAL-0.4
	<b>TRIMPOT</b>			
16	100K 20TV Cermet	1	P351	T93YA



Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**Headphone-Left [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	100nF Ceramic	2	C2602, C2603	RAD-0.2N
2	1uF 35V Bipolar Electrolytic	1	C2601	RB-D6.3-P2.5
<b>CONNECTOR</b>				
3	3-way 0.1inch Straight Header	1	P2601	2.54MM
4	3-way 0.1inch Crimp Housing	1	P2601	2.54MM
5	2-way 0.1inch Straight Header	2	J2601, J2602	2.54MM
6	2-way 0.1inch Crimp Housing	2	J2601, J2602	2.54MM
7	8-pin IC Socket 0.3inch	3	U2601, U2602, U2603	DIP-8
<b>LINEAR</b>				
8	OPA134 - Audio Opamp	3	6U2601, 6U2602, 6U2603	DIP-8
<b>RESISTOR</b>				
9	10R 1% 0.5W Metal Film	1	R2607	AXIAL-0.4
10	51R 1% 0.5W Metal Film	2	R2605, R2606	AXIAL-0.4
11	6K8 1% 0.5W Metal Film	1	R2603	AXIAL-0.4
12	10K 1% 0.5W Metal Film	1	R2604	AXIAL-0.4
13	15K 1% 0.5W Metal Film	1	R2601	AXIAL-0.4
14	100K 1% 0.5W Metal Film	2	R2602, R2608	AXIAL-0.4

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**Headphone-Right [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	100nF Ceramic	2	C2612, C2613	RAD-0.2N
2	1uF 35V Bipolar Electrolytic	1	C2611	RB-D6.3-P2.5
<b>CONNECTOR</b>				
3	2-way 0.1inch Straight Header	2	J2611, J2612	2.54MM
4	2-way 0.1inch Crimp Housing	2	J2611, J2612	2.54MM
5	8-pin IC Socket 0.3inch	3	U2611, U2612, U2613	DIP-8
<b>LINEAR</b>				
6	OPA134 - Audio Opamp	3	U2611, U2612, U2613	DIP-8
<b>RESISTOR</b>				
7	10R 1% 0.5W Metal Film	1	R2617	AXIAL-0.4
8	51R 1% 0.5W Metal Film	2	R2615, R2616	AXIAL-0.4
9	6K8 1% 0.5W Metal Film	1	R2613	AXIAL-0.4
10	10K 1% 0.5W Metal Film	1	R2614	AXIAL-0.4
11	15K 1% 0.5W Metal Film	1	R2611	AXIAL-0.4
12	100K 1% 0.5W Metal Film	2	R2612, R2618	AXIAL-0.4

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**Ring Mod [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	100nF Ceramic	2	C1605, C1606	RAD-0.2N
2	120nF 63V Polyester	2	C1602, C1603	RAD-0.2
3	470nF 63V Polyester	1	C1604	RAD-0.2X
4	100uF 35V Electrolytic	1	C1601	RB-D8.0-P3.5
<b>CONNECTOR</b>				
5	14-pin IC Socket 0.3inch	1	U1601	DIP-14
6	3-way 0.1inch Straight Header	1	J1601	2.54MM
7	3-way 0.1inch Crimp Housing	1	J1601	2.54MM
8	8-pin IC Socket 0.3inch	1	U1602	DIP-8
<b>LINEAR</b>				
9	MC1496 - Balanced Modulator/Demodulator	1	U1601	DIP-14
10	TL081 JFET Opamp	1	U1602	DIP-8
<b>RESISTOR</b>				
11	1K0 1% 0.5W Metal Film	1	R1621	AXIAL-0.4
12	1K2 1% 0.5W Metal Film	2	R1615, R1616	AXIAL-0.4
13	1K5 1% 0.5W Metal Film	2	R1606, R1607	AXIAL-0.4
14	2K7 1% 0.5W Metal Film	4	R1603, R1604, R1611, R1613	AXIAL-0.4
15	6K8 1% 0.5W Metal Film	3	R1610, R1612, R1614	AXIAL-0.4
16	12K 1% 0.5W Metal Film	2	R1602, R1605	AXIAL-0.4
17	15K 1% 0.5W Metal Film	2	R1617, R1618	AXIAL-0.4
18	100K 1% 0.5W Metal Film	4	R1601, R1608, R1619, R1620	AXIAL-0.4
<b>TRIMPOT</b>				
19	200R 25TV Cermet	1	P1601	T93YA
20	500R 25TV Cermet	1	P1602	T93YA

**PSU [ASM-2 Component Kit]**

Item	Description	Qty	Designator	Package
<b>CAPACITOR</b>				
1	100nF Ceramic	4	C5, C7, C9, C10	RAD-0.2N
2	1uF 35V Tantalum	2	C6, C8	RB-D5.0-P5.0
3	10uF 35V Electrolytic	2	C1, C3	RB-D5.0-P2.0
<b>CONNECTOR</b>				
4	3-way 0.1inch Straight Header	3	J1, J2, J3	2.54MM
5	3-way 0.1inch Crimp Housing	3	J1, J2, J3	2.54MM
<b>LINEAR</b>				
6	LM317LZ - Adjustable Positive Voltage Regulator	1	U3 NB: See modification	TO-92
7	LM337LZ - Adjustable Negative Voltage Regulator	1	U4 NB: See modification	TO-92
<b>INDUCTOR</b>				
8	Ferrite Bead - 0.45uH 7A	2	L1, L2	AXIAL-0.3
<b>RESISTOR</b>				
9	Wire Link	1	LK1	TO FIT
10	200R 1% 0.5W Metal Film	2	R3, R6	AXIAL-0.4
11	1K4 1% 0.5W Metal Film	2	R1, R4	AXIAL-0.4
<b>TRIMPOT</b>				
12	100R 25TV Cermet	2	P1, P2	T93YA

# MonoDAC [Cougar - Expander [3.5mm] Hardware Kit]

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	5-PIN DIN Panel Socket	2	J201, J202	-
			NB: Mount on boat	
2	3.5mm Mono PCB Socket - Yellow	1	J405	-
3	3.5mm Mono PCB Socket - Green	2	J403, J404	-
4	3.5mm Stereo Socket - Panel	2	J406, J407	-
	<b>HARDWARE</b>			
5	KNOB - Panther Hi-contrast Blue	2	P402, P403	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
6	3mm Clear Lens Mount	1	D102	-
7	3mm HE-Green LED	1	D102	-
	<b>POTENTIOMETER</b>			
8	50KB LIN - 18T Spline	2	P402, P403	ALPHA 16MM
	<b>SWITCH</b>			
9	SPDT PB Panel [ON-MOM]	1	S102	-
10	SPDT Panel [ON-ON]	1	S103	-
			NB: S	

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**Pulse-Divider [Cougar - Expander [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
<b>CONNECTOR</b>				
1	3.5mm Mono PCB Socket - Yellow	4	J902, J903, J904, J905	-
2	3.5mm Mono PCB Socket - Green	4	J502, J503, J504, J505	-
3	3.5mm Mono PCB Socket - Red	2	J702, J908	-









Item	Description	Qty	Designator	Package

**ADSR 1 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - Green	1	XJ404	-
2	3.5mm Mono PCB Socket - Red	2	XJ403, XJ405	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	4	P402, P403, P404, P405	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
4	3mm HE-Yellow LED	1	J402	-
5	3mm Clear Lens Mount	1	J402	-
	<b>POTENTIOMETER</b>			
6	100KB LIN - 18T Spline	1	P402	ALPHA 16MM
7	1MA LOG - 18T Spline	3	P403, P404, P405	ALPHA 16MM
	<b>SWITCH</b>			
8	SPDT PB Panel [ON-MOM]	1	S401	-

**ADSR 2 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - Green	1	XJ454	-
2	3.5mm Mono PCB Socket - Red	2	XJ453, XJ455	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	4	P402, P453, P454, P455	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
4	3mm HE-Yellow LED	1	J402	-
5	3mm Clear Lens Mount	1	J402	-
	<b>POTENTIOMETER</b>			
6	100KB LIN - 18T Spline	1	P402	ALPHA 16MM
7	1MA LOG - 18T Spline	3	P453, P454, P455	ALPHA 16MM
	<b>SWITCH</b>			
8	SPDT PB Panel [ON-MOM]	1	S401	-

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**GLIDE [Cougar - ASM-2 [3.5mm] Hardware Kit]**

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Designator</b>	<b>Package</b>
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - Green	1	XJ703	-
2	3.5mm Mono PCB Socket - Blue	1	XJ702	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	1	P701	18T SPLINE
	<b>POTENTIOMETER</b>			
4	1MA LOG - 18T Spline	1	P701	ALPHA 16MM
	<b>SWITCH</b>			
5	DPDT Panel [ON-ON]	1	JP701	-

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**LFO 1 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	2	XJ504, XJ504	-
2	3.5mm Mono PCB Socket - Blue	1	XJ505	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	3	P501, P502, P503	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
4	3mm HE-Red LED	1	J502	-
5	3mm Clear Lens Mount	1	J502	-
	<b>POTENTIOMETER</b>			
6	100KB LIN - 18T Spline	2	P501, P502	ALPHA 16MM
7	100KA LOG - 18T Spline	1	P503	ALPHA 16MM

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**LFO 2 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	2	XJ553, XJ554	-
2	3.5mm Mono PCB Socket - Blue	1	XJ555	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	3	P551, P552, P553	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
4	3mm HE-Red LED	1	J552	-
5	3mm Clear Lens Mount	1	J552	-
	<b>POTENTIOMETER</b>			
6	100KB LIN - 18T Spline	2	P551, P552	ALPHA 16MM
7	100KA LOG - 18T Spline	1	P553	ALPHA 16MM

**NOISE [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	3	XJ602, XJ603, XJ604	-
	<b>HARDWARE</b>			
2	KNOB - Panther Hi-contrast Blue	2	P602, P603	18T SPLINE
	<b>POTENTIOMETER</b>			
3	100KB LIN - 18T Spline	2	P602, P603	ALPHA 16MM





**RING MODULATOR [Cougar - ASM-2 [3.5mm] Hardware Kit]**

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Designator</b>	<b>Package</b>
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	1	XJ1604	-
2	3.5mm Mono PCB Socket - Black	2	XJ1602, XJ1603	-
	<b>HARDWARE</b>			
3	KNOB - Panther Hi-contrast Blue	2	P1603, P1604	18T SPLINE
	<b>POTENTIOMETER</b>			
4	100KA LOG - 18T Spline	2	P1603, P1604	ALPHA 16MM

**SAMPLE & HOLD [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	1	XJ905	-
2	3.5mm Mono PCB Socket - Yellow	3	J907, J910, J911	-
3	3.5mm Mono PCB Socket - Green	1	XJ908	-
4	3.5mm Mono PCB Socket - Blue	1	XJ909	-
5	3.5mm Mono PCB Socket - Red	1	X906	-
6	3.5mm Mono PCB Socket - Black	1	XJ904	-
	<b>HARDWARE</b>			
7	KNOB - Panther Hi-contrast Blue	3	P901, P902, P903	18T SPLINE
	<b>OPTO-ELECTRONIC</b>			
8	3mm HE-Green LED	1	D905	-
9	3mm Clear Lens Mount	1	D905	-
	<b>POTENTIOMETER</b>			
10	100KB LIN - 18T Spline	2	P902, P903	ALPHA 16MM
11	1MB LIN - 18T Spline	1	P901	ALPHA 16MM

Bill of Materials for Cougar [3.5mm] Full Kit V2.3  
**VCA 1 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

Item	Description	Qty	Designator	Package
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	1	XJ308	-
2	3.5mm Mono PCB Socket - Blue	2	XJ303, XJ304	-
3	3.5mm Mono PCB Socket - Black	3	XJ305, XJ306, XJ307	-
	<b>HARDWARE</b>			
4	KNOB - Panther Hi-contrast Blue	6	P302, P303, P304, P305, P306, P307	18T SPLINE
	<b>POTENTIOMETER</b>			
5	100KB LIN - 18T Spline	3	P302, P303, P304	ALPHA 16MM
6	100KA LOG - 18T Spline	3	P305, P306, P307	ALPHA 16MM

**VCA 2 [Cougar - ASM-2 [3.5mm] Hardware Kit]**

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Designator</b>	<b>Package</b>
<b>CONNECTOR</b>				
1	3.5mm Mono PCB Socket - White	1	XJ358	-
2	3.5mm Mono PCB Socket - Blue	2	XJ353, XJ354	-
3	3.5mm Mono PCB Socket - Black	3	XJ355, XJ356, XJ357	-
<b>HARDWARE</b>				
4	KNOB - Panther Hi-contrast Blue	6	P352, P353, P354, P355, P356, P357	18T SPLINE
<b>POTENTIOMETER</b>				
5	100KB LIN - 18T Spline	3	P352, P353, P354	ALPHA 16MM
6	100KA LOG - 18T Spline	3	P355, P356, P357	ALPHA 16MM



## VCF 2 [Cougar - ASM-2 [3.5mm] Hardware Kit]

Item	Description	Qty	Designator	Package
<b>CONNECTOR</b>				
1	3.5mm Mono PCB Socket - White	1	XJ808	-
2	3.5mm Mono PCB Socket - Blue	4	XJ806, XJ807, XJ808, XJ819	-
3	3.5mm Mono PCB Socket - Black	4	XJ802, XJ803, XJ804, XJ805	-
<b>HARDWARE</b>				
4	KNOB - Panther Hi-contrast Blue	10	P801, P805, P808, P809, P810, P811, P812, P813, P814, P815	18T SPLINE
<b>POTENTIOMETER</b>				
5	50KA LOG - 18T Spline	1	P805	ALPHA 16MM
6	100KB LIN - 18T Spline	9	P801, P808, P809, P810, P811, P812, P813, P814, P815	ALPHA 16MM

VCO 1 [Cougar - ASM-2 [3.5mm] Hardware Kit]

Item	Description	Qty	Designator	Package
<b>CONNECTOR</b>				
1	3.5mm Mono PCB Socket - White	4	XJ141, XJ142, XJ143, XJ144	-
2	3.5mm Mono PCB Socket - Blue	7	XJ110, XJ111, XJ112, XJ114, XJ115, XJ117, XJ118	-
3	3.5mm Mono PCB Socket - Red	1	XJ116	-
<b>HARDWARE</b>				
4	KNOB - Panther Hi-contrast Blue	11	P110, P111, P112, P113, P114, P115, P116, P117, P118, P119, TRANSPOSE1	18T SPLINE
<b>POTENTIOMETER</b>				
5	100KB LIN - 18T Spline	10	P110, P111, P112, P113, P114, P115, P116, P117, P118, P119	ALPHA 16MM
6	100KB LIN Dual-gang - 18T Spline	1	P2601	ALPHA 16MM - DUAL
<b>SWITCH</b>				
7	SPDT Panel [ON-ON]	1	S110	-



## VCO 2 [Cougar - ASM-2 [3.5mm] Hardware Kit]

Item	Description	Qty	Designator	Package
<b>CONNECTOR</b>				
1	3.5mm Mono PCB Socket - White	4	XJ191, XJ192, XJ193, XJ194	-
2	3.5mm Mono PCB Socket - Blue	6	XJ160, XJ161, XJ162, XJ164, XJ165, XJ167	-
3	3.5mm Mono PCB Socket - Red	1	XJ166	-
<b>HARDWARE</b>				
4	KNOB - Panther Hi-contrast Blue	10	P160, P161, P162, P163, P164, P165, P166, P167, P168, TRANSPOSE2	18T SPLINE
<b>POTENTIOMETER</b>				
5	100KB LIN - 18T Spline	9	P158, P159, P160, P161, P162, P163, P164, P165, P166	ALPHA 16MM
<b>SWITCH</b>				
6	SPDT Panel [ON-ON]	2	S160, S161	-

**Multiples [Cougar - ASM-2 [3.5mm] Hardware Kit]**

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Designator</b>	<b>Package</b>
	<b>CONNECTOR</b>			
1	3.5mm Mono PCB Socket - White	6	J1008, J1009, J1014, J1017, J1018, J1615	-
2	3.5mm Mono PCB Socket - Green	6	J1002, J1003, J1005, J1006, J1011, J1012	-
3	3.5mm Mono PCB Socket - Blue	3	J1001, J1004, J1010	-
4	3.5mm Mono PCB Socket - Black	3	J1007, J1013, J1016	-



