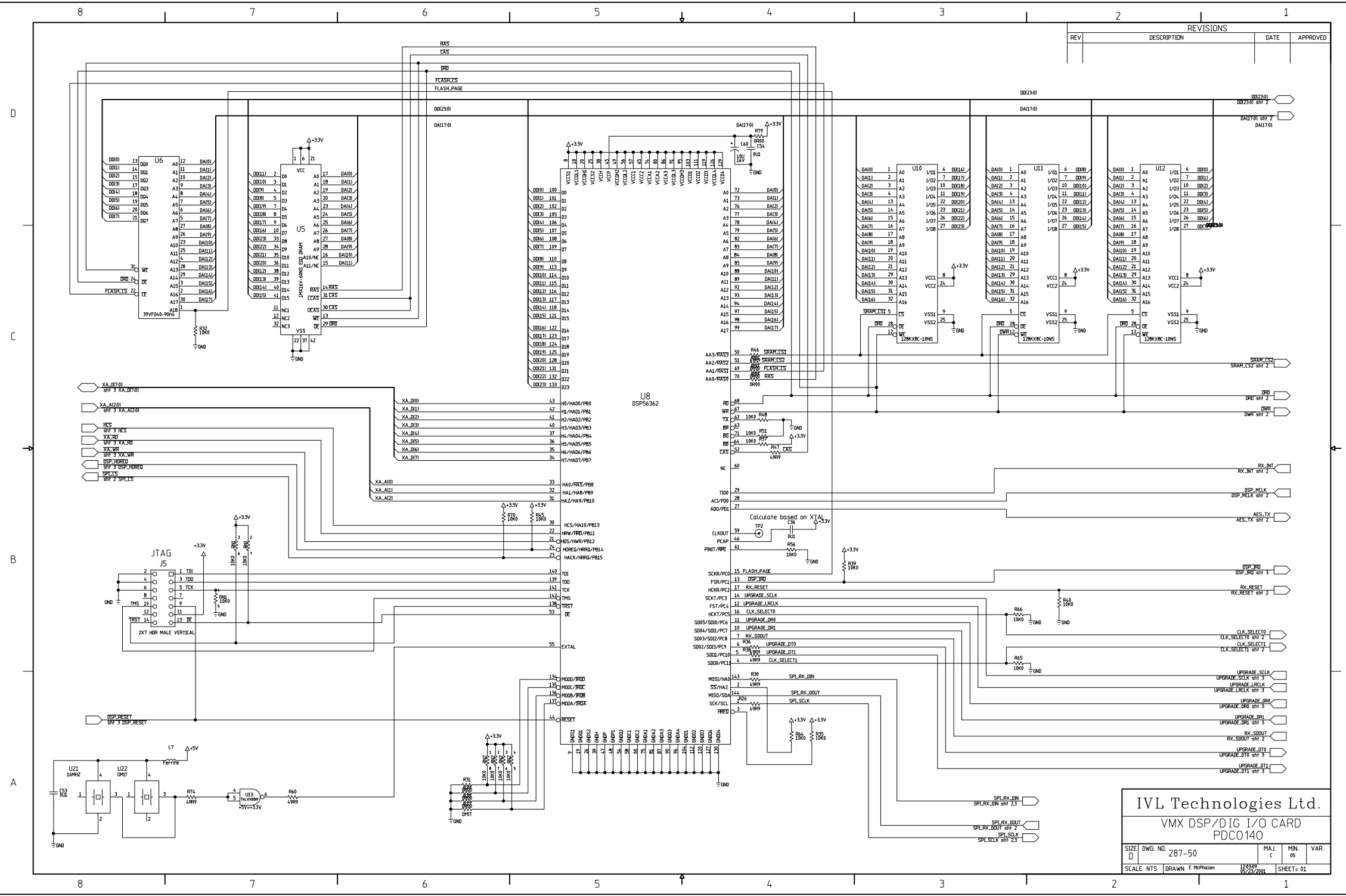
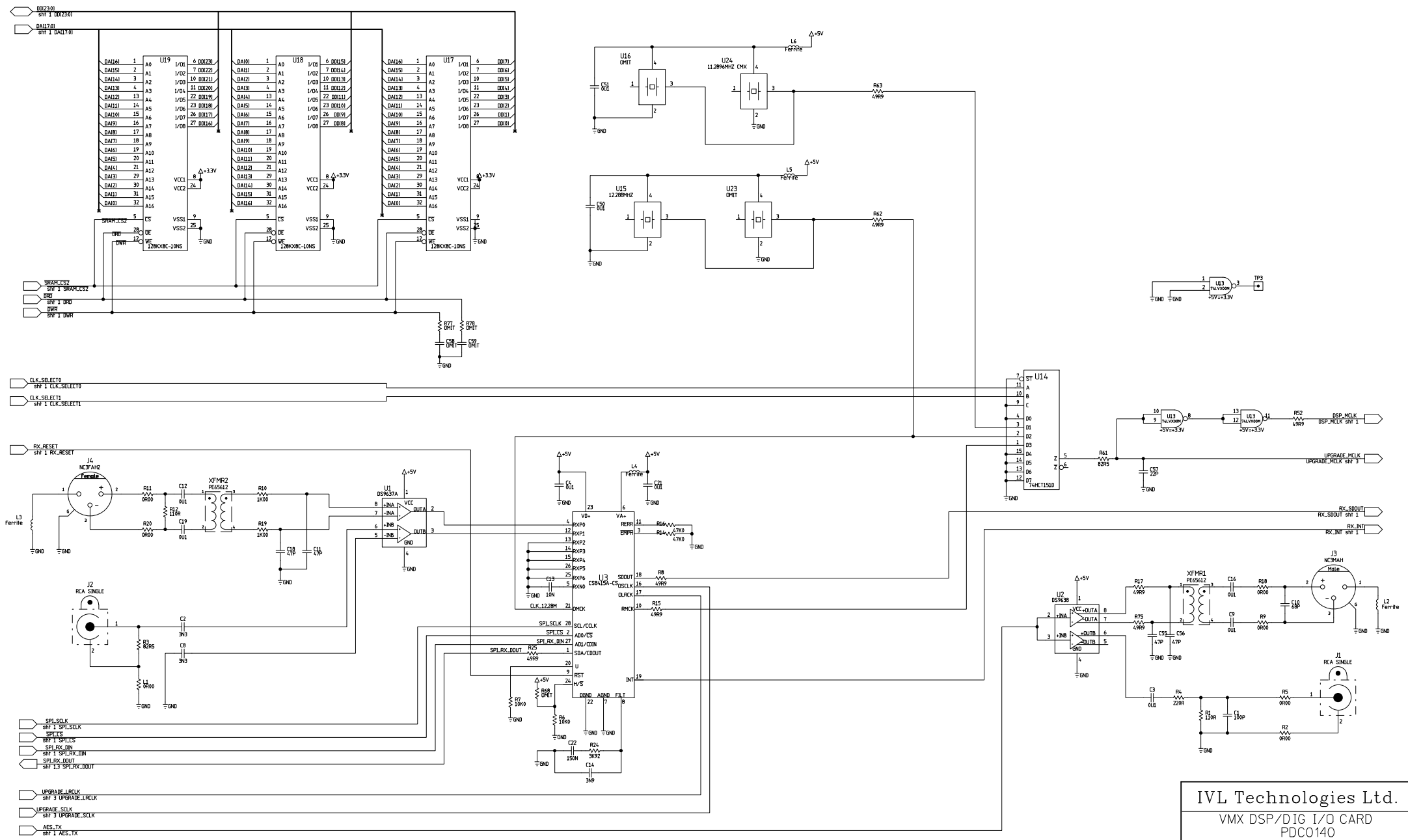


REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



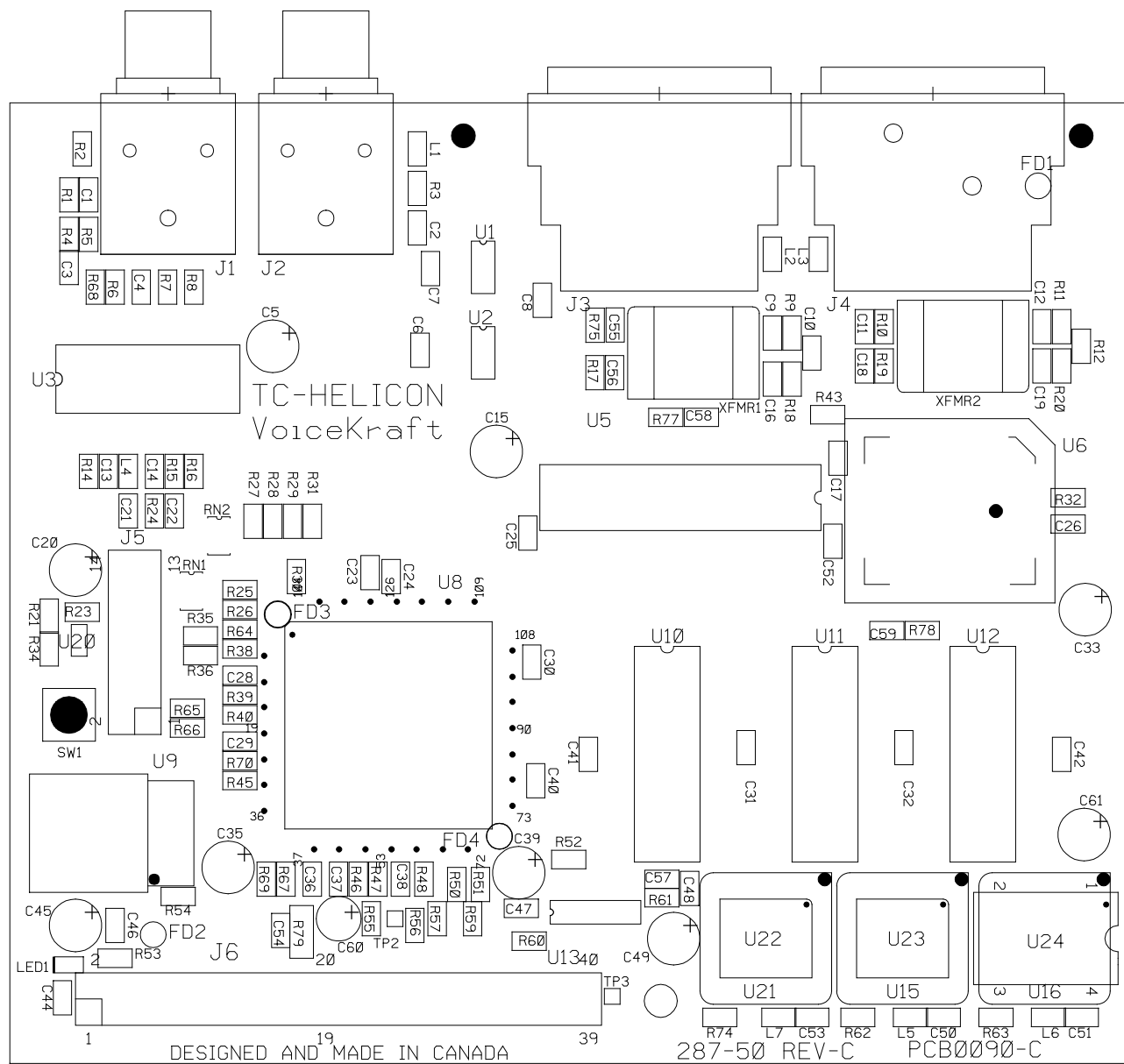
IVL Technologies Ltd.			
VMX DSP/DIG I/O CARD			
PDC0140			
SIZE	DWG. NO	MAJ. c	MIN. 05
D	287-50		
SCALE: NTS	DRAWN: E McPherson	12/21/99	58/23/2001
			SHEETS: 01

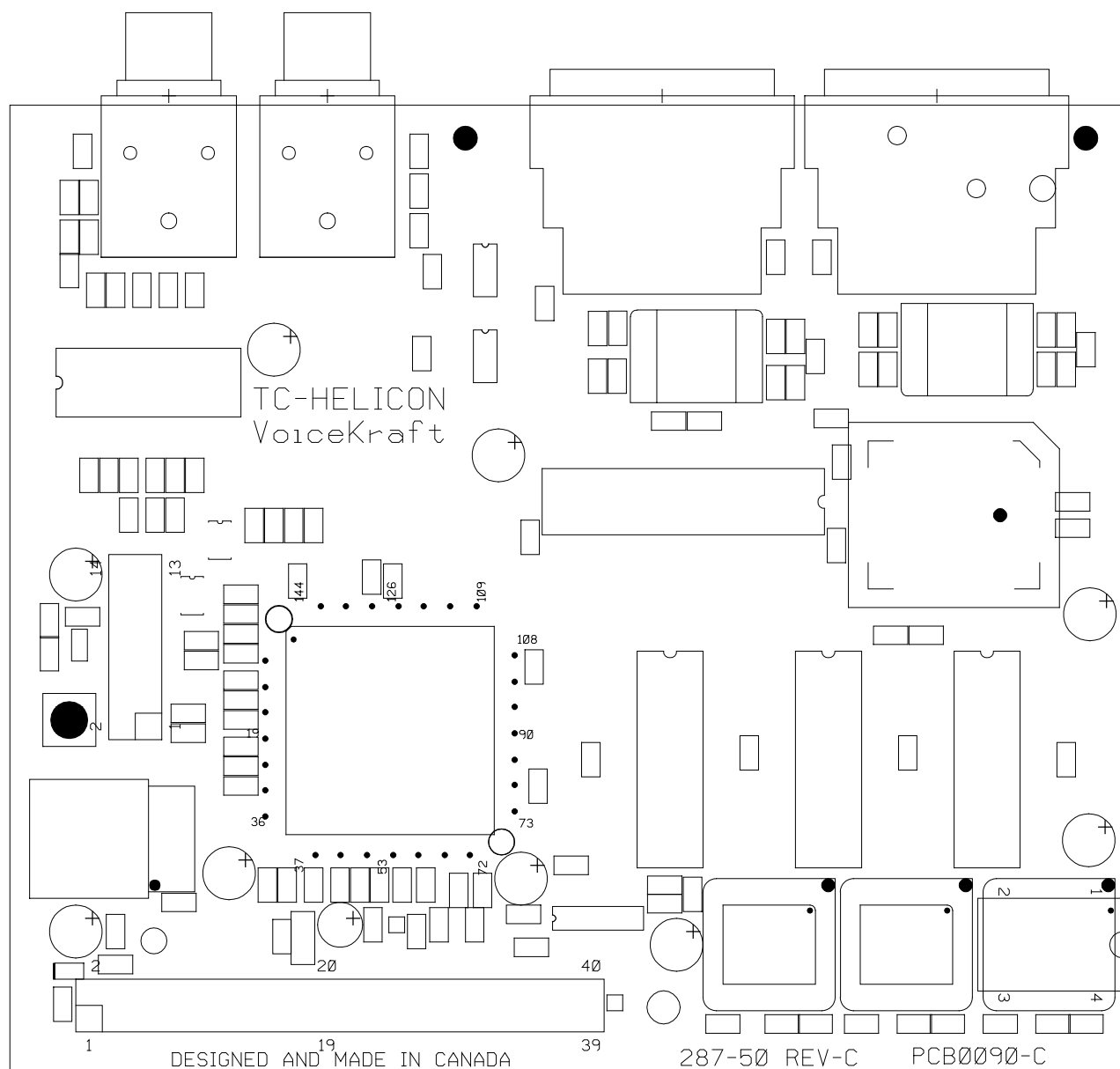
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

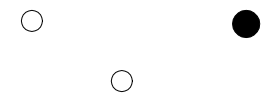
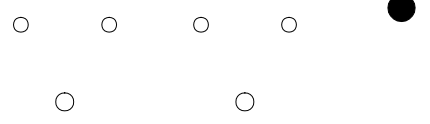


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PDC0140

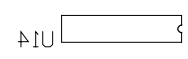
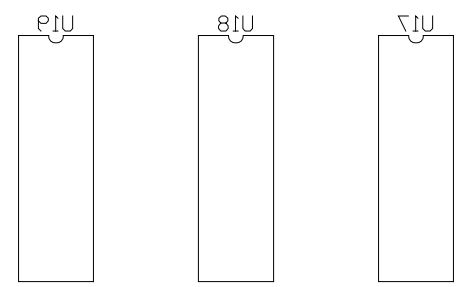
SIZE	DWG. NO.	MAJ.	MIN.	VAR.
D	287-50	c	05	
SCALE: NTS	DRAWN: E McPherson	12/01/99	28/12/2001	SHEETS: 02







TC-HELICON
VoiceKraft



DESIGNED AND MADE IN CANADA

287-50 REV-C

PCB0090-C

Bill of Materials

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Job Name :PDC0140-C05

Extraction Date: 05/23/01 12:11:59

<u>Item</u>	<u>Side</u>	<u>Comp Type</u>	<u>Ref</u>	<u>Value</u>	<u>Description</u>	<u>Visual Part:</u>
1	BOTTOM	SMD	U14	74HCT151D	74HCT151D, 8 INPUT MULTIPLEXER, SOIC16	ICS0193
2	BOTTOM	SMD	U17	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
3	BOTTOM	SMD	U18	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
4	BOTTOM	SMD	U19	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
5	TOP	SMD	C1	100P	CAP,CHIP,0805,10%,50V,X7R	CPS0026
6	TOP	SMD	C10	68P	CAP,CHIP,0805,10%,50V,X7R	CPS0038
7	TOP	SMD	C11	47P	CAP,CHIP,0805,10%,50V,X7R	CPS0035
8	TOP	SMD	C12	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
9	TOP	SMD	C13	10N	CAP,CHIP,0805,10%,50V,X7R	CPS0002
10	TOP	SMD	C14	3N9	CAP,CHIP,0805,10%,50V,X7R	CPS0058
11	TOP	SMD	C16	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
12	TOP	SMD	C17	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
13	TOP	SMD	C18	47P	CAP,CHIP,0805,10%,50V,X7R	CPS0035
14	TOP	SMD	C19	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
15	TOP	SMD	C2	3N3	CAP,CHIP,0805,10%,50V,X7R	CPS0049
16	TOP	SMD	C21	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
17	TOP	SMD	C22	150N	CAP,CHIP,0805,10%,50V,X7R	CPS0057
18	TOP	SMD	C23	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
19	TOP	SMD	C24	100P	CAP,CHIP,0805,10%,50V,X7R	CPS0026
20	TOP	SMD	C25	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
21	TOP	SMD	C26	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
22	TOP	SMD	C28	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
23	TOP	SMD	C29	100P	CAP,CHIP,0805,10%,50V,X7R	CPS0026
24	TOP	SMD	C3	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
25	TOP	SMD	C30	100P	CAP,CHIP,0805,10%,50V,X7R	CPS0026
26	TOP	SMD	C31	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
27	TOP	SMD	C32	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
28	TOP	SMD	C36	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
29	TOP	SMD	C37	100P	CAP,CHIP,0805,10%,50V,X7R	CPS0026
30	TOP	SMD	C38	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
31	TOP	SMD	C4	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
32	TOP	SMD	C40	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
33	TOP	SMD	C41	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
34	TOP	SMD	C42	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
35	TOP	SMD	C44	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
36	TOP	SMD	C46	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
37	TOP	SMD	C47	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
38	TOP	SMD	C48	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
39	TOP	SMD	C50	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
40	TOP	SMD	C51	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
41	TOP	SMD	C52	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
42	TOP	SMD	C53	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
43	TOP	SMD	C54	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
44	TOP	SMD	C55	47P	CAP,CHIP,0805,10%,50V,X7R	CPS0035
45	TOP	SMD	C56	47P	CAP,CHIP,0805,10%,50V,X7R	CPS0035
46	TOP	SMD	C57	22P	CAP,CHIP,0805,10%,50V,X7R	CPS0004
47	TOP	SMD	C58	OMIT	OMIT,CAP,CHIP,0805,10%,50V,X7R	OMIT-CM08
48	TOP	SMD	C59	OMIT	OMIT,CAP,CHIP,0805,10%,50V,X7R	OMIT-CM08
49	TOP	SMD	C6	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
50	TOP	SMD	C7	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
51	TOP	SMD	C8	3N3	CAP,CHIP,0805,10%,50V,X7R	CPS0049
52	TOP	SMD	C9	0U1	CAP,CHIP,0805,10%,50V,X7R	CPS0001
53	TOP	SMD	L1	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
54	TOP	SMD	L2	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
55	TOP	SMD	L3	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
56	TOP	SMD	L4	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
57	TOP	SMD	L5	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
58	TOP	SMD	L6	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
59	TOP	SMD	L7	Ferrite	FERRITE BEAD, 600R, 0805 SMD	INS0001
60	TOP	SMD	LED1	RED	RED,LED,CHIP,0603	LDS0002
61	TOP	SMD	R1	110R	RES,CHIP,0805,1%,METAL-FILM	RSS0167
62	TOP	SMD	R10	1K00	RES,CHIP,0805,1%,METAL-FILM	RSS0007
63	TOP	SMD	R11	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
64	TOP	SMD	R12	110R	RES,CHIP,0805,1%,METAL-FILM	RSS0167
65	TOP	SMD	R14	47K0	RES,CHIP,0805,1%,METAL-FILM	RSS0179
66	TOP	SMD	R15	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
67	TOP	SMD	R16	47K0	RES,CHIP,0805,1%,METAL-FILM	RSS0179
68	TOP	SMD	R17	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
69	TOP	SMD	R18	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
70	TOP	SMD	R19	1K00	RES,CHIP,0805,1%,METAL-FILM	RSS0007
71	TOP	SMD	R2	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
72	TOP	SMD	R20	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037

Bill of Materials

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Job Name :PDC0140-C05

Extraction Date: 05/23/01 12:11:59

Item	Side	Comp Type	Ref	Value	Description	Visual Part:
73	TOP	SMD	R21	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
74	TOP	SMD	R23	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
75	TOP	SMD	R24	3K92	RES,CHIP,0805,1%,METAL-FILM	RSS0126
76	TOP	SMD	R25	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
77	TOP	SMD	R26	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
78	TOP	SMD	R27	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
79	TOP	SMD	R28	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
80	TOP	SMD	R29	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
81	TOP	SMD	R3	82R5	RES,CHIP,0805,1%,METAL-FILM	RSS0194
82	TOP	SMD	R30	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
83	TOP	SMD	R31	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
84	TOP	SMD	R32	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
85	TOP	SMD	R34	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
86	TOP	SMD	R35	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
87	TOP	SMD	R36	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
88	TOP	SMD	R38	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
89	TOP	SMD	R39	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
90	TOP	SMD	R4	220R	RES,CHIP,0805,1%,METAL-FILM	RSS0009
91	TOP	SMD	R40	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
92	TOP	SMD	R43	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
93	TOP	SMD	R45	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
94	TOP	SMD	R46	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
95	TOP	SMD	R47	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
96	TOP	SMD	R48	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
97	TOP	SMD	R5	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
98	TOP	SMD	R50	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
99	TOP	SMD	R51	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
100	TOP	SMD	R52	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
101	TOP	SMD	R53	1K00	RES,CHIP,0805,1%,METAL-FILM	RSS0007
102	TOP	SMD	R54	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
103	TOP	SMD	R55	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
104	TOP	SMD	R56	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
105	TOP	SMD	R57	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
106	TOP	SMD	R59	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
107	TOP	SMD	R6	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
108	TOP	SMD	R60	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
109	TOP	SMD	R61	82R5	RES,CHIP,0805,1%,METAL-FILM	RSS0194
110	TOP	SMD	R62	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
111	TOP	SMD	R63	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
112	TOP	SMD	R64	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
113	TOP	SMD	R65	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
114	TOP	SMD	R66	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
115	TOP	SMD	R67	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
116	TOP	SMD	R68	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
117	TOP	SMD	R69	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
118	TOP	SMD	R7	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
119	TOP	SMD	R70	10K0	RES,CHIP,0805,1%,METAL-FILM	RSS0002
120	TOP	SMD	R74	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
121	TOP	SMD	R75	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
122	TOP	SMD	R77	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
123	TOP	SMD	R78	OMIT	OMIT,RES,CHIP,0805,1%,METAL-FILM	OMIT-RM08
124	TOP	SMD	R79	0R00	RES,CHIP,1206,1%,METAL-FILM	RSS0047
125	TOP	SMD	R8	49R9	RES,CHIP,0805,1%,METAL-FILM	RSS0163
126	TOP	SMD	R9	0R00	RES,CHIP,0805,1%,METAL-FILM	RSS0037
127	TOP	SMD	RN1	10K0	RES NETWORK, CHIP, 1206, 5%, CARBON FILM	RSS0182
128	TOP	SMD	RN2	10K0	RES NETWORK, CHIP, 1206, 5%, CARBON FILM	RSS0182
129	TOP	SMD	U1	DS9637A	DS9637A ,DUAL RS422 RECEIVER,SOIC8	ICS0110
130	TOP	SMD	U10	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
131	TOP	SMD	U11	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
132	TOP	SMD	U12	128KX8C-10NS	128KX8C-10NS,Revolutionary Pin Out,1 MBIT SRAM, 32SOJ 400 SPACING	ICS0180
133	TOP	SMD	U13	74LVX00M	74LVX00M, QUAD 2 INPUT NAND GATE, LOW VOLTAGE, SOIC14	ICS0080
134	TOP	SMD	U2	DS9638	DS9638 ,RS-422 DUAL HIGH SPEED DIFFERENTIAL LINE DRIVER	ICS0157
135	TOP	SMD	U20	ADM811MART	ADM811MART VOLTAGE MONITOR @ 4.38V WITH SWITCH RESET INPUTICS0185	
136	TOP	SMD	U22	OMIT	OMIT CLOCK OSCILLATOR MODULE, SMD, ASL SERIES	OMIT-OSC,4
137	TOP	SMD	U23	OMIT	OMIT CLOCK OSCILLATOR MODULE, SMD, ASL SERIES	OMIT-OSC,4
138	TOP	SMD	U24	11.2896MHZ CMX	11.2896MHZ CLOCK OSCILLATOR MODULE, SMD CITIZEN,CMX	OSC0020
139	TOP	SMD	U3	CS8415A-CS	CS8415A-CS, AES/EBU Digital Audio Receiver, SOIC28	ICS0182
140	TOP	SMD	U5	1MX16V-60NS EDO DRAM	1MX16V-60NS, 3.3V, 16 MBIT EDO DRAM, 42SOJ 400 SPACING	ICS0181
141	TOP	SMD	U6	39VF040-90ns	512KX8C-90NS 4 MBIT FLASH, 32RECT JLEAD 7X9, LOW POWER 3.3VOLT ICS0221	
142	TOP	SMD	U8	DSP56362	DSP 56362 100Mhz 144 PIN FQFP MOTOROLA	ICS0163
143	TOP	SMD	U9	LP3965ES-3.3	LP3965ES-3.3 3.3 VOLT 1.5AMP, ULTRA LOW DROPOUT LINEAR REGULATICS0184	
144	TOP	THRU_COMP	C15	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033

Bill of Materials

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Job Name :PDC0140-C05

Extraction Date: 05/23/01 12:11:59

<u>Item</u>	<u>Side</u>	<u>Comp Type</u>	<u>Ref</u>	<u>Value</u>	<u>Description</u>	<u>Visual Part:</u>
145	TOP	THRU_COMP	C20	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
146	TOP	THRU_COMP	C33	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
147	TOP	THRU_COMP	C35	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
148	TOP	THRU_COMP	C39	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
149	TOP	THRU_COMP	C45	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
150	TOP	THRU_COMP	C49	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
151	TOP	THRU_COMP	C5	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
152	TOP	THRU_COMP	C60	10U	CAP, ELECTROLYTIC RADIAL, RAD4X5, 20%, 16V	CPT0029
153	TOP	THRU_COMP	C61	10U	CAP, ELECTROLYTIC RADIAL, RAD5X11, 20%, 25V	CPT0033
154	TOP	THRU_COMP	J1	RCA SINGLE	RCA JACK SINGLE RIGHT ANGLE PCB MOUNT	JCK0013
155	TOP	THRU_COMP	J2	RCA SINGLE	RCA JACK SINGLE RIGHT ANGLE PCB MOUNT	JCK0013
156	TOP	THRU_COMP	J3	NC3MAH	NC3MAH, MALE XLR CONNECTOR	JCK0028
157	TOP	THRU_COMP	J4	NC3FAH2	NC3FAH2, FEMALE XLR CONNECTOR	JCK0025
158	TOP	THRU_COMP	J5	2X7 HDR MALE VERTICA	HDR 2X7, 0.1" Spacing, Male, Vertical	HDT0026
159	TOP	THRU_COMP	J6	2X20 HDR MALE VERTIC	HDR 2X20, 0.1" Spacing, Male, Vertical	HDT0051
160	TOP	THRU_COMP	SW1	OMIT	OMIT B3F MOMENTARY SWITCH	OMIT-SW, F
161	TOP	THRU_COMP	U15	12.288MHZ	12.288MHZ CLOCK OSCILLATOR MODULE, 8DIP	OSC0019
162	TOP	THRU_COMP	U16	OMIT	OMIT CLOCK OSCILLATOR MODULE, 8DIP	OMIT-OSC, S
163	TOP	THRU_COMP	U21	16MHZ	16MHZ CLOCK OSCILLATOR MODULE, 8DIP	OSC0005
164	TOP	THRU_COMP	XFMR1	PE65612	Pulse PE65612 Audio Transformer	TFR0010
165	TOP	THRU_COMP	XFMR2	PE65612	Pulse PE65612 Audio Transformer	TFR0010