

KENWOOD

NTSC COLOR PATTERN GENERATOR

# CG-921

PAL COLOR PATTERN GENERATOR

# CG-922

## SERVICE MANUAL

KENWOOD CORPORATION



## WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

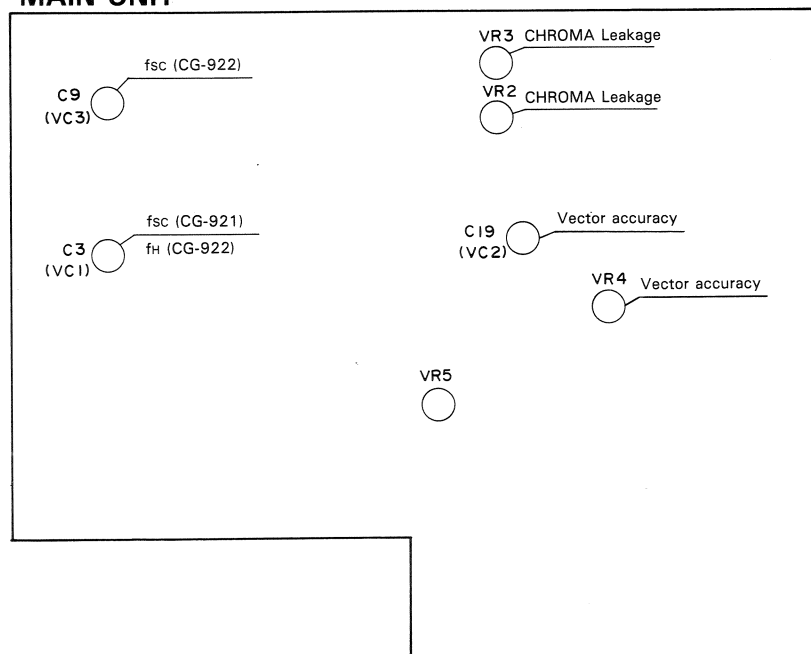
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## ADJUSTMENT

Item	Adjustment	Procedure
fsc (CG-921)	VC1 (C3)	<ul style="list-style-type: none"> <li>• Connect a frequency counter to U1 pin 19.</li> <li>• Adjust to 3.579545 MHz <math>\pm</math> 5 Hz.</li> </ul>
fsc (CG-922)	VC3 (C9)	<ul style="list-style-type: none"> <li>• Connect a frequency counter to U1 pin 19.</li> <li>• Adjust to 4.43361875 MHz <math>\pm</math> 5 Hz</li> </ul>
fH (CG-922)	VC1 (C3)	<ul style="list-style-type: none"> <li>• Adjust the voltage at U1 pin 24 (R3) to 2.5 V DC.</li> </ul>
CHROMA amplitude	L3	<ul style="list-style-type: none"> <li>• Output the color-bar signal and connect VIDEO OUT to an oscilloscope.</li> <li>• Maximize the chrominance signal amplitude.</li> </ul>
CHROMA leakage	VR2 VR3	<ul style="list-style-type: none"> <li>• Output the color-bar signal and connect VIDEO OUT to an oscilloscope.</li> <li>• Minimize the chrominance signal leakage component (back porch, 75% white)</li> </ul>
Vector accuracy	VR4 VC2 (C19)	<ul style="list-style-type: none"> <li>• Output the color-bar signal and connect VIDEO OUT to a vectorscope.</li> <li>• Adjust the amplitude with VR4, and adjust the phase with VC2.</li> </ul>
SIF	L5	<ul style="list-style-type: none"> <li>• Turn RF ON.</li> <li>• Connect RF OUT to a spectrum analyzer.</li> <li>• Adjust so that SIF = 5.5 MHz <math>\pm</math> 50 kHz.</li> </ul>

### MAIN UNIT



# PARTS LIST

## CG-921 Y77-1280-00

REF. NO	PARTS NO	NAME & DESCRIPTION
A02-0528-12		CASE ASS'Y (TOP)
A02-0534-02		CASE ASS'Y (BOTTOM)
A21-1184-04		DECORATIVE PANEL
A22-0889-03		SUB PANEL
B20-0936-24		DIAL SCALE
B42-3802-04		LABEL; SERIAL. NO.
B63-0057-00		INSTRUCTION MANUAL; ENG./JAP.
E30-1427-05		CORD WITH PIN PLUG
E30-1897-05		ANTENNA CABLE; NTSC
F07-0952-03		BATTERY COVER
G13-0713-04		CUSHION
H10-2808-33		FOAMED STYRENE PAD (R)
H10-2809-23		FOAMED STYRENE PAD (L)
H25-0078-04		VINYL BAG
H53-0043-04		CARTON BOX
J02-0505-04		FOOT
J21-2886-04		HOLDER FOR BATTERY
J21-2887-04		HOLDER FOR BATTERY
J31-0616-04		COLLAR; FOR DIAL
K01-0531-03		HANDLE
K23-0813-03		KNOB
K27-0590-04		PUSH BOTTON; GRAYWHITE
K27-0591-04		PUSH BOTTON; ORANGE
N53-3008-41		SCREW, FLAT HD TAPPING 3X8
N89-3006-41		SCREW, BINDING TAPTITE 3X6
W02-2105-08		MAIN UNIT
W02-2176-08		PANEL UNIT

## CG-922 Y77-1290-00

REF. NO	PARTS NO	NAME & DESCRIPTION
A02-0528-12		CASE ASS'Y (TOP)
A02-0534-12		CASE ASS'Y (BOTTOM)
A21-1185-04		DECORATIVE PANEL
A22-0889-03		SUB PANEL
B20-0937-24		DIAL SCALE
B42-3801-04		LABEL; SERIAL. NO.
B63-0057-00		INSTRUCTION MANUAL; ENG./JAP.
E30-1427-05		CORD WITH PIN PLUG
E30-1898-05		ANTENNA CABLE; PAL
F07-0952-03		BATTERY COVER
G13-0713-04		CUSHION
H10-2808-33		FOAMED STYRENE PAD (R)
H10-2809-23		FOAMED STYRENE PAD (L)
H25-0078-04		VINYL BAG
H53-0044-04		CARTON BOX
J02-0505-04		FOOT
J21-2886-04		HOLDER FOR BATTERY
J21-2887-04		HOLDER FOR BATTERY
J31-0616-04		COLLAR; FOR DIAL
K01-0531-13		HANDLE
K23-0813-03		KNOB
K27-0590-04		PUSH BOTTON; GRAYWHITE
K27-0591-04		PUSH BOTTON; ORANGE
N53-3008-41		SCREW, FLAT HD TAPPING 3X8
N89-3006-41		SCREW, BINDING TAPTITE 3X6
W02-2106-08		MAIN UNIT
W02-2176-08		PANEL UNIT

## CG-921 MAIN UNIT W02-2105-08

REF. NO	PARTS NO	NAME & DESCRIPTION
BT1	W02-2003-05	RF CONVERTER
BT1	W09-0415-08	BATTERY
C5	CM93BD2A220J	CAP. MICA 22P 5% 100V
C10	CK45B1H222K	CAP. CERAMIC 2200P 10% 50V
C11	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C12	CM93BD2A470J	CAP. MICA 47P 5% 100V

REF. NO	PARTS NO	NAME & DESCRIPTION
C15	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C16	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C17	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C18	CM93BD2A680J	CAP. MICA 68P 5% 100V
C19	NO USE	
C20	CM93BD2A300J	CAP. MICA 30P 5% 100V
C21	CE04EW1E220M	CAP. ELECTRO 22 20% 25V
C22	CM93BD2A101J	CAP. MICA 100P 5% 100V
C23	CM93BD2A470J	CAP. MICA 47P 5% 100V
C24	NO USE	
C25	CE04EW1E101M	CAP. ELECTRO 100 20% 25V
C26	CE04EW1E101M	CAP. ELECTRO 100 20% 25V
C27	CE04EW1E471M	CAP. ELECTRO 470 20% 25V
C28	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C29	CE04EW1V470M	CAP. ELECTRO 47 20% 35V
C30	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C31	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C32	NO USE	
C33	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C34	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C35	C91-2569-08	CAP. MYLAR 300P 5% 50V
C36	CM93BD2A471J	CAP. MICA 470P 5% 100V
C37	CM93BD2A104J	CAP. MICA 0.1 5% 100V
C38	CK45B1H222K	CAP. CERAMIC 2200P 10% 50V
C39	CK45B1H222K	CAP. CERAMIC 2200P 10% 50V
C40	CK45B1H103K	CAP. CERAMIC 0.01 10% 50V
C41	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C42	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C43	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C44	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C45	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C46	CK45F1H103Z	CAP. CERAMIC 0.01 20% 50V
C50	CM93BD2A472J	CAP. MICA 4700P 5% 100V
C51	CM93BD2A220J	CAP. MICA 22P 5% 100V
C52	NO USE	
C53	CM93BD2A102J	CAP. MICA 1000P 5% 100V
CN2	E40-3361-05	PIN CONNECTOR 2P
D5	CM93BD2A220J	CAP. MICA 22P 5% 100V
D6	1S1588	DIODE
D7	1S1588	DIODE
D8	1S1588	DIODE
D9	NO USE	
D10	1S1588	DIODE
D11	NO USE	
D12	1S1588	DIODE
D13	1S1588	DIODE
D14	1S1588	DIODE
D15	NO USE	
D16	1S1588	DIODE
D17	1S1588	DIODE
D18	1S1588	DIODE
D19	1S1588	DIODE
D20	1S1588	DIODE
D21	1S1588	DIODE
D22	1S1588	DIODE
D23	1S1588	DIODE
D26	1S1588	DIODE
D27	1S1588	DIODE
D28	NO USE	
D29	1S1588	DIODE
D30	HZ27-3	DIODE, ZENER 27.9V
D31	FC52M	DIODE
D32	10D1	DIODE
D33	1S1588	DIODE
D34	1S1588	DIODE
J1	E63-0601-08	PIN JACK
J2	NO USE	
J3	E03-0212-08	DC CONNECTOR
L1	L77-1060-05	CRYSTAL RESONATOR (14.31818MHZ)
L2	L39-0536-08	COIL
L3	L37-0052-05	MATCHING COIL
L4	L39-0538-08	COIL
L5	L39-0539-05	COIL 10K
Q3	2SA1015(Y)	TR. SI, PNP
Q4	2SC1815(Y)	TR. SI, NPN
Q5	2SA1015(Y)	TR. SI, PNP
Q6	2SC1815(Y)	TR. SI, NPN
Q7	2SC1815(Y)	TR. SI, NPN
Q8	2SC1815(Y)	TR. SI, NPN

# PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION			
R8	RN14DK2E1503F	RES. METAL FILM 150K	1%	1/4W	
R9	RD14BB2E100J	RES. CARBON 10	5%	1/4W	
R10	RD14BB2E103J	RES. CARBON 10K	5%	1/4W	
R11	RD14BB2E104J	RES. CARBON 100K	5%	1/4W	
R12	RD14BB2E104J	RES. CARBON 100K	5%	1/4W	
R13	RD14BB2E103J	RES. CARBON 10K	5%	1/4W	
R14	RD14BB2E472J	RES. CARBON 4.7K	5%	1/4W	
R15	RD14BB2E473J	RES. CARBON 47K	5%	1/4W	
R16	RD14BB2E473J	RES. CARBON 47K	5%	1/4W	
R17	RD14BB2E473J	RES. CARBON 47K	5%	1/4W	
R18	RD14BB2E473J	RES. CARBON 47K	5%	1/4W	
R19	RD14BB2E103J	RES. CARBON 10K	5%	1/4W	
R20	RD14BB2E103J	RES. CARBON 10K	5%	1/4W	

R30	RN14BK2E6801F	RES. METAL FILM 6.8K	1%	1/4W	
R31	RN14BK2E3902F	RES. METAL FILM 39K	1%	1/4W	
R32	RN14BK2E8201F	RES. METAL FILM 8.2K	1%	1/4W	
R33		NO USE			
R34	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	
R35	RN14BK2E2702F	RES. METAL FILM 27K	1%	1/4W	
R36	RN14BK2E1302F	RES. METAL FILM 13K	1%	1/4W	
R37	RN14BK2E1302F	RES. METAL FILM 13K	1%	1/4W	
R38	RN14BK2E8451F	RES. METAL FILM 8.45K	1%	1/4W	
R39	RN14BK2E4302F	RES. METAL FILM 43K	1%	1/4W	
R40	RN14BK2E1602F	RES. METAL FILM 16K	1%	1/4W	
R41	RN14BK2E8201F	RES. METAL FILM 8.2K	1%	1/4W	
R42	RN14BK2E4702F	RES. METAL FILM 47K	1%	1/4W	

R45	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R46	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R47	RN14BK2E4702F	RES. METAL FILM 47K	1%	1/4W	
R48	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R49	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R50	RN14BK2E4702F	RES. METAL FILM 47K	1%	1/4W	
R51	RD14BB2E272J	RES. CARBON 2.7K	5%	1/4W	
R52	RN14BK2E1001F	RES. METAL FILM 1K	1%	1/4W	
R53	RN14BK2E1001F	RES. METAL FILM 1K	1%	1/4W	
R54	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R55	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R56	RN14BK2E1001F	RES. METAL FILM 1K	1%	1/4W	
R57	RN14BK2E1401F	RES. METAL FILM 1.4K	1%	1/4W	
R58	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R59	RN14BK2E1501F	RES. METAL FILM 1.5K	1%	1/4W	
R60	RN14BK2E2201F	RES. METAL FILM 2.2K	1%	1/4W	
R61	RD14BB2E102J	RES. CARBON 1K	5%	1/4W	
R62	RN14BK2E1601F	RES. METAL FILM 1.6K	1%	1/4W	
R63	RD14BB2E101J	RES. CARBON 100	5%	1/4W	
R64	RN14BK2E1001F	RES. METAL FILM 1K	1%	1/4W	
R65	RN14BK2E3300F	RES. METAL FILM 330	1%	1/4W	
R66	RN14BK2E4700F	RES. METAL FILM 470	1%	1/4W	
R67	RN14BK2E6880F	RES. METAL FILM 68.0	1%	1/4W	
R68	RD14BB2E223J	RES. CARBON 22K	5%	1/4W	
R69	RD14BB2E473J	RES. CARBON 47K	5%	1/4W	
R70	RN14BK2E1001F	RES. METAL FILM 1K	1%	1/4W	
R71	RD14BB2E153J	RES. CARBON 15K	5%	1/4W	
R72	RD14BB2E102J	RES. CARBON 1K	5%	1/4W	
R73	RD14BB2E102J	RES. CARBON 1K	5%	1/4W	
R74	RN14BK2E2000F	RES. METAL FILM 200	1%	1/4W	
R75	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	
R76	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	
R77	RN14BK2E1000F	RES. METAL FILM 100	1%	1/4W	
R78	RN14BK2E2202F	RES. METAL FILM 22K	1%	1/4W	
R79	RN14BK2E6192F	RES. METAL FILM 61.9K	1%	1/4W	
R80	RN14BK2E1202F	RES. METAL FILM 12K	1%	1/4W	
R81	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	
R82	RN14BK2E1003F	RES. METAL FILM 100K	1%	1/4W	
R83	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	
R84	RN14BK2E1003F	RES. METAL FILM 100K	1%	1/4W	
R85	RN14BK2E1002F	RES. METAL FILM 10K	1%	1/4W	

R90	RN14BK2E1601F	RES. METAL FILM 1.6K	1%	1/4W	
R91	RD14BB2E222J	RES. CARBON 2.2K	5%	1/4W	
R92	RD14BB2E103J	RES. CARBON 10K	5%	1/4W	

U1	CXD1217M	IC, SYNC. SIGNAL GENERATOR			
U2	TC74HC393AN	IC, DUAL BINARY COUNTER			
U3	TC74HC73AN	IC, DUAL J-K FLIP-FLOP WITH CLR			
U4	TC74HC393AN	IC, DUAL BINARY COUNTER			
U5	TC74HC04AN	IC, HEX INVERTER			
U6	TC74HC86AN	IC, QUAD EXCLUSIVE OR GATE			
U7	TC74HC73AN	IC, DUAL J-K FLIP-FLOP WITH CLR			
U8	TC74HC27AN	IC, TRIPLE 3-INPUT NOR GATE			
U9	TC74HC32AN	IC, QUAD 2-INPUT OR GATE			
U10	TC74HC00AN	IC, QUAD 2-INPUT NAND GATE			
U11	MC1496P	IC, BALANCED MODEM			
U12	MC1496P	IC, BALANCED MODEM			

REF. NO	PARTS NO	NAME & DESCRIPTION			
U13	TA78L005P	IC, 3-TERMINAL REGULATOR			
VC1	C05-0482-08	CAP. TRIMMER	40P		
VC2	C05-0482-08	CAP. TRIMMER	40P		
VR2	R29-5503-08	RES. SEMI FIXED	220K		
VR3	R29-5503-08	RES. SEMI FIXED	220K		
VR4	R29-1512-08	RES. SEMI FIXED	4.7K		
VR5	R12-0857-08	RES. SEMI FIXED	470 B		

## CG-922 MAIN UNIT W02-2106-08

REF. NO	PARTS NO	NAME & DESCRIPTION				
BT1	W02-2002-05	RF CONVERTER				
	W09-0415-08	BATTERY				
C1	CE04EW1C100M	CAP. ELECTRO	10	20%	16V	
C2	CM93BD2A330J	CAP. MICA	33P	5%	100V	
C3		NO USE				
C4	CM93BD2A470J	CAP. MICA	47P	5%	100V	
C5	CM93BD2A220J	CAP. MICA	22P	5%	100V	
C6	CM93BD2A102J	CAP. MICA	1000P	5%	100V	
C7	CM93BD2A102J	CAP. MICA	1000P	5%	100V	
C8	CM93BD2A101J	CAP. MICA	100P	5%	100V	
C9		NO USE				
C10	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V	
C11	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C12	CM93BD2A470J	CAP. MICA	47P	5%	100V	
C13		NO USE				
C14	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C15	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C16	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C17	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C18	CM93BD2A680J	CAP. MICA	68P	5%	100V	
C21	CE04EW1E220M	CAP. ELECTRO	22	20%	25V	
C22	CM93BD2A101J	CAP. MICA	100P	5%	100V	
C23	CM93BD2A470J	CAP. MICA	47P	5%	100V	
C24		NO USE				
C25	CE04EW1E101M	CAP. ELECTRO	100	20%	25V	
C26	CE04EW1E101M	CAP. ELECTRO	100	20%	25V	
C27	CE04EW1E471M	CAP. ELECTRO	470	20%	25V	
C28	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C29	CE04EW1V470M	CAP. ELECTRO	47	20%	35V	
C30	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C31	CE04EW1C100M	CAP. ELECTRO	10	20%	16V	
C32		NO USE				
C33	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C34	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C35	C91-2569-08	CAP. MYLAR	300P	5%	50V	
C36	CM93BD2A471J	CAP. MICA	470P	5%	100V	
C37	CM93BD2A104J	CAP. MICA	0.1	5%	100V	
C38	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V	
C39	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V	
C40	CK45B1H103K	CAP. CERAMIC	0.01	10%	50V	
C41	CE04EW1C100M	CAP. ELECTRO	10	20%	16V	
C42	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C43	CE04EW1C100M	CAP. ELECTRO	10	20%	16V	
C44	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C45	CE04EW1C100M	CAP. ELECTRO	10	20%	16V	
C46	CK45F1H103Z	CAP. CERAMIC	0.01	20%	50V	
C50	CM93BD2A472J	CAP. MICA	4700P	5%	100V	
C53	CM93BD2A102J	CAP. MICA	1000P	5%	100V	
CN2	E40-3361-05	PIN CONNECTOR	2P			

D5	FC54M	DIODE				
D6	1S1588	DIODE				
D7		NO USE				
D8	1S1588	DIODE				
D9	1S1588	DIODE				
D10		NO USE				
D11	1S1588	DIODE				
D12	1S1588	DIODE				
D13	1S1588	DIODE				
D14	1S1588	DIODE				
D15	1S1588	DIODE				
D16	1S1588	DIODE				
D17	1S1588	DIODE				

# PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION			
D18	1S1588	DIODE			
D19	1S1588	DIODE			
D20	1S1588	DIODE			
D21	1S1588	DIODE			
D22	1S1588	DIODE			
D23	1S1588	DIODE			
D27	1S1588	DIODE			
D28	1S1588	DIODE			
D29	1S1588	DIODE			
D30	HZ273	DIODE	2.0V		
D31	FC52M	DIODE			
D32	10D1	DIODE			
D33	1S1588	DIODE			
D34	1S1588	DIODE			
J1	E63-0601-08	PIN JACK			
J2	NO USE				
J3	E03-0212-08	DC CONNECTOR			
L1	L39-0540-08	COIL			
L2	L39-0536-08	COIL			
L3	L37-0052-05	MATCHING COIL			
L4	L39-0538-08	COIL			
L5	L39-0539-05	COIL	10K		
Q1	2SC1815(Y)	TR. SI, NPN			
Q2	2SC1815(Y)	TR. SI, NPN			
Q3	2SA1115(Y)	TR. SI, PNP			
Q4	2SC1815(Y)	TR. SI, NPN			
Q5	2SA1115(Y)	TR. SI, PNP			
Q6	2SC1815(Y)	TR. SI, NPN			
Q7	2SC1815(Y)	TR. SI, NPN			
Q8	2SC1815(Y)	TR. SI, NPN			
R1	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R2	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R3	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R4	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R5	NO USE				
R6	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R7	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R8	RN14BK2E4302F	RES. METAL FILM	43K	1%	1/4W
R9					
R10	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R11	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R12	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R13	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R14	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R15	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R16	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R17	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R18	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R19	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R20	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R30	RN14BK2E6201F	RES. METAL FILM	6.2K	1%	1/4W
R31	RN14BK2E4302F	RES. METAL FILM	43K	1%	1/4W
R32	RN14BK2E8201F	RES. METAL FILM	8.2K	1%	1/4W
R33	RN14BK2E2002F	RES. METAL FILM	20K	1%	1/4W
R34	RN14BK2E1102F	RES. METAL FILM	11K	1%	1/4W
R35	RN14BK2E3002F	RES. METAL FILM	30K	1%	1/4W
R36	RN14BK2E1502F	RES. METAL FILM	15K	1%	1/4W
R37	RN14BK2E2202F	RES. METAL FILM	22K	1%	1/4W
R38	RN14BK2E8201F	RES. METAL FILM	8.2K	1%	1/4W
R39	RN14BK2E4302F	RES. METAL FILM	43K	1%	1/4W
R40	RN14BK2E1602F	RES. METAL FILM	16K	1%	1/4W
R41	RN14BK2E8201F	RES. METAL FILM	8.2K	1%	1/4W
R42	NO USE				
R43	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R44	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R45	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R46	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R47	RN14BK2E4702F	RES. METAL FILM	47K	1%	1/4W
R48	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R49	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R50	RN14BK2E4702F	RES. METAL FILM	47K	1%	1/4W
R51	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R52	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R53	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R54	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R55	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R56	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R57	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R58	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R59	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W

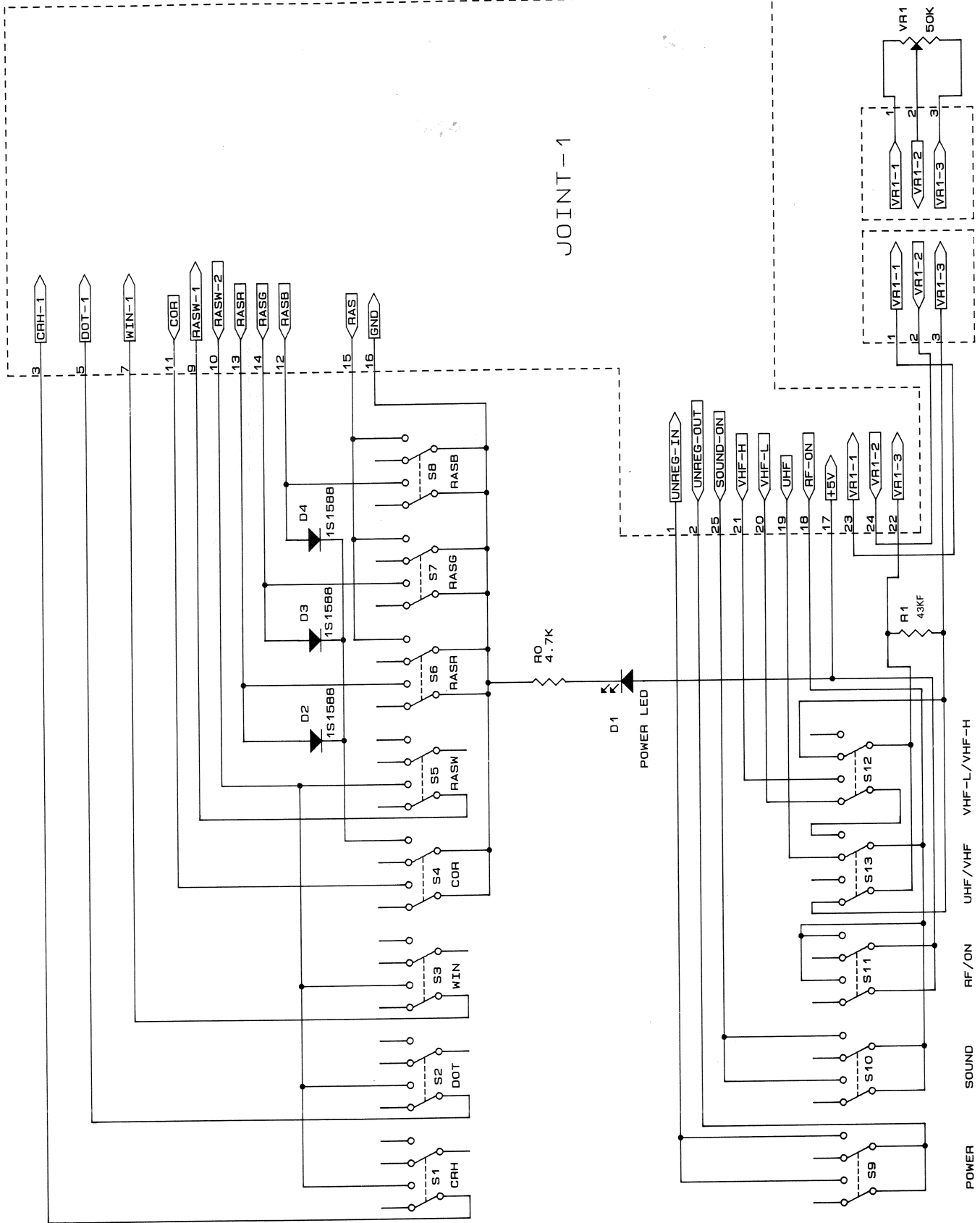
REF. NO	PARTS NO	NAME & DESCRIPTION			
R60	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R61	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R62	RN14BK2E1601F	RES. METAL FILM	1.6K	1%	1/4W
R63	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R64	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R65	RN14BK2E3300F	RES. METAL FILM	330	1%	1/4W
R66	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R67	RN14BK2E6800F	RES. METAL FILM	68.0	1%	1/4W
R68	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R69	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R70	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R71	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R72	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R73	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R74	RN14BK2E2000F	RES. METAL FILM	200	1%	1/4W
R75	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R76	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R77	RN14BK2E1000F	RES. METAL FILM	100	1%	1/4W
R78	RN14BK2E2202F	RES. METAL FILM	22K	1%	1/4W
R79	RN14BK2E7502F	RES. METAL FILM	75K	1%	1/4W
R80	RN14BK2E1202F	RES. METAL FILM	12K	1%	1/4W
R81	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R82	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R83	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R84	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R85	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R90	RN14BK2E1601F	RES. METAL FILM	1.6K	1%	1/4W
R91	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R92	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
U1	CXD1217M	IC, SYNC. SIGNAL GENERATOR			
U2	TC74HC393AN	IC, DUAL BINARY COUNTER			
U3	TC74HC73AN	IC, DUAL J-K FLIP-FLOP WITH CLR			
U4	TC74HC393AN	IC, DUAL BINARY COUNTER			
U5	TC74HC04AN	IC, HEX INVERTER			
U6	TC74HC86AN	IC, DUAL EXCLUSIVE OR GATE			
U7	TC74HC73AN	IC, DUAL J-K FLIP-FLOP WITH CLR			
U8	TC74HC27AN	IC, TRIPLE 3-INPUT NOR GATE			
U9	TC74HC32AN	IC, QUAD 2-INPUT OR GATE			
U10	TC74HC00AN	IC, QUAD 2-INPUT NAND GATE			
U11	MC1496P	IC, BALANCED MODEM			
U12	MC1496P	IC, BALANCED MODEM			
U13	TA78L005P	IC, 3-TERMINAL REGULATOR			
VC1	C05-0482-08	CAP. TRIMMER	40P		
VC2	C05-0482-08	CAP. TRIMMER	40P		
VC3	C05-0482-08	CAP. TRIMMER	40P		
VR2	R29-5503-08	RES. SEMI FIXED	220K		
VR3	R29-5503-08	RES. SEMI FIXED	220K		
VR4	R29-1512-08	RES. SEMI FIXED	4.7K		
VR5	R12-0857-08	RES. SEMI FIXED	470 B		
X1	L77-1061-05	CRYSTAL RESONATOR	(17.73447MHZ)		

## PANEL UNIT W02-2176-08

REF. NO	PARTS NO	NAME & DESCRIPTION			
CN2	E40-3362-05	PIN CONNECTOR	3P		
D1	B30-0998-08	LED, RED			
D2	1S1588	DIODE			
D3	1S1588	DIODE			
D4	1S1588	DIODE			
RO	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R1	RN14BK2E4302F	RES. METAL FILM	43K	1%	1/4W
S1	S68-0624-08	SWITCH			
S2	S68-0624-08	SWITCH			
S3	S68-0624-08	SWITCH			
S4	S68-0624-08	SWITCH			
S5	S68-0624-08	SWITCH			
S6	S68-0624-08	SWITCH			
S7	S68-0624-08	SWITCH			
S8	S68-0624-08	SWITCH			
S9	S68-0625-08	SWITCH			
S10	S68-0625-08	SWITCH			
S11	S68-0625-08	SWITCH			
S12	S68-0625-08	SWITCH			
S13	S68-0625-08	SWITCH			
VR1	R29-4502-05	V. R.	50K		

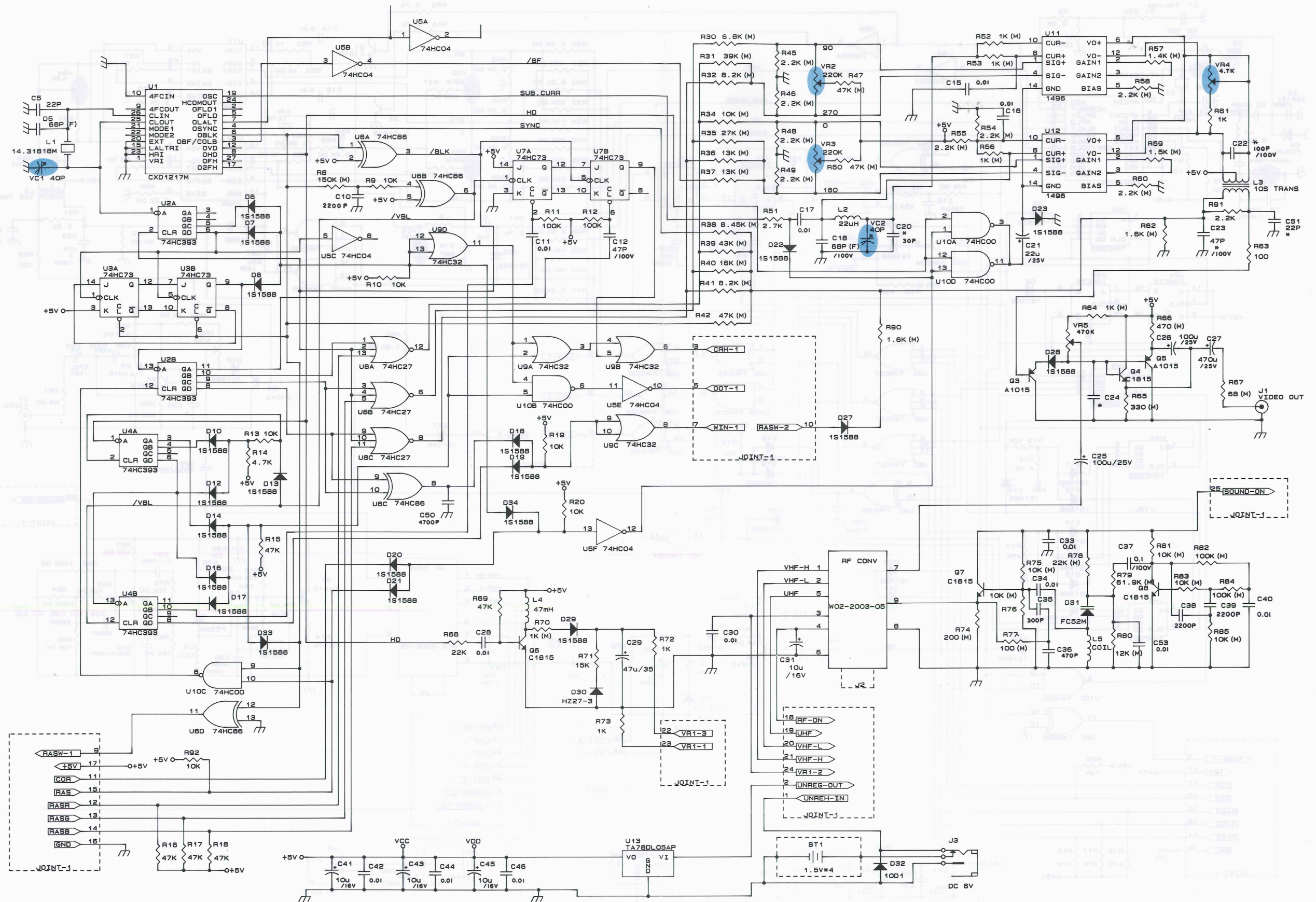
# CG-921/CG-922 SCHEMATIC DIAGRAM

Panel Unit (W02-2176-08)



# CG-921 SCHEMATIC DIAGRAM

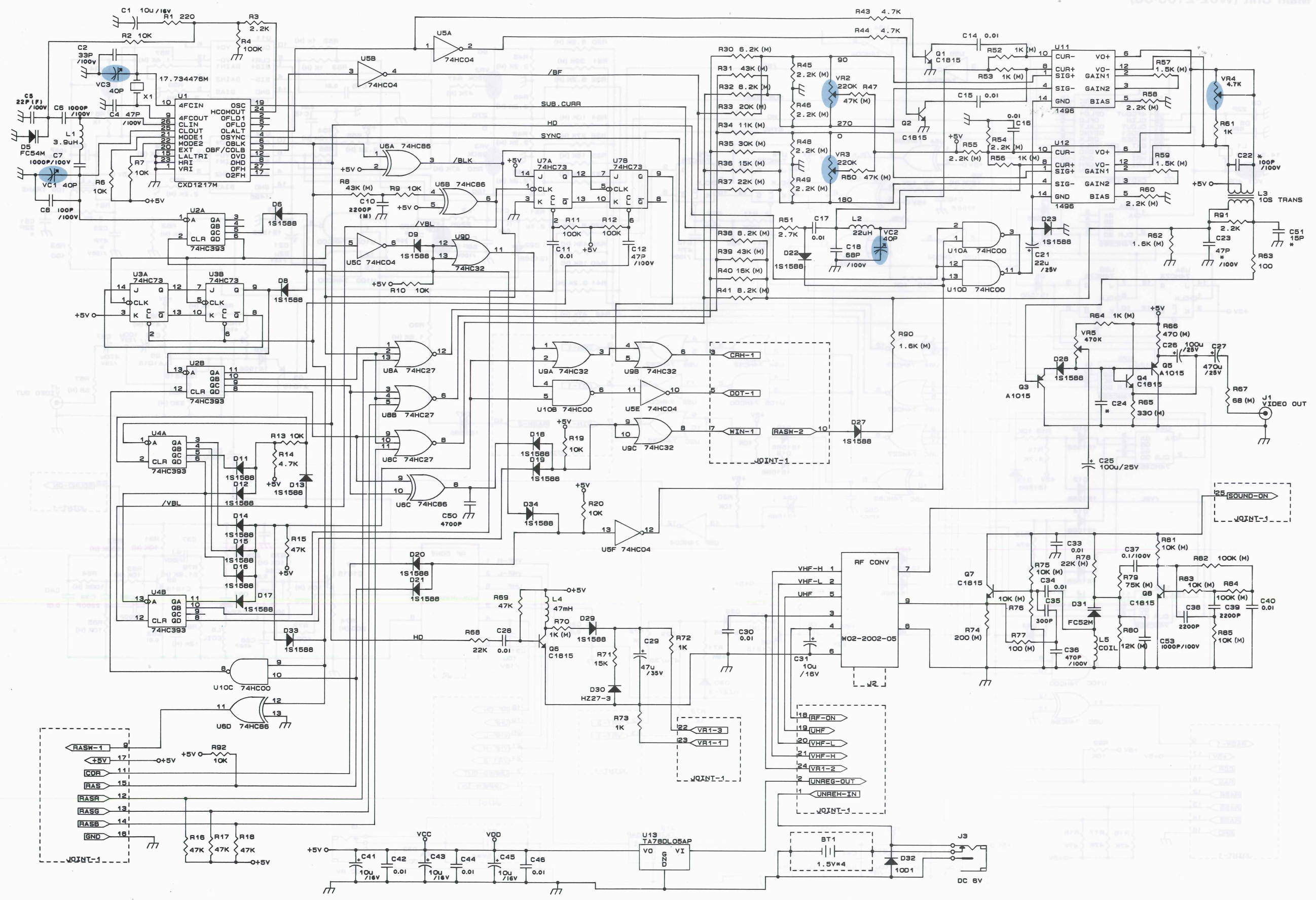
Main Unit (W02-2105-08)



# CG-922 SCHEMATIC DIAGRAM

Main Unit (W02-2106-08)

(80-3015-W02) rirU niaM

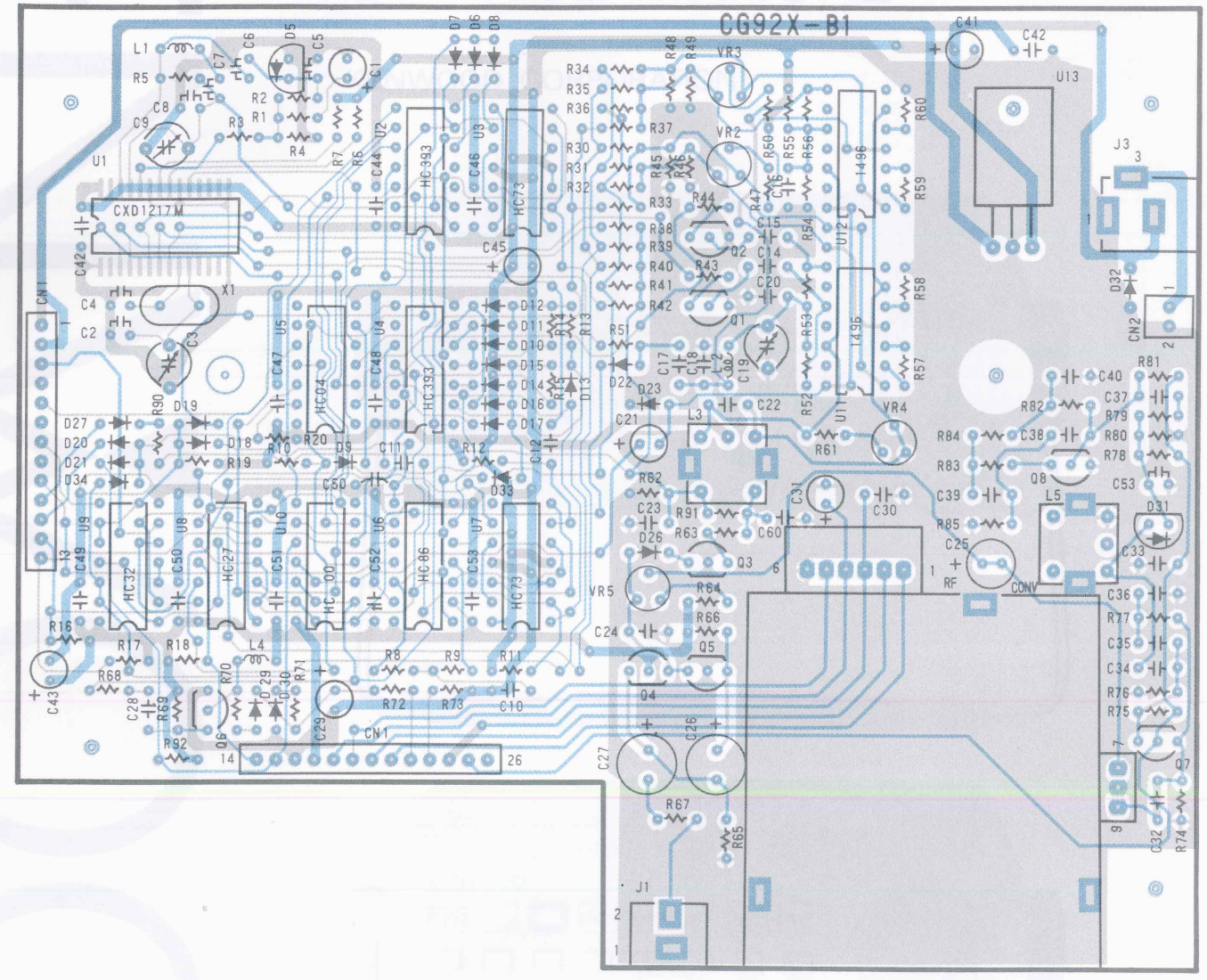




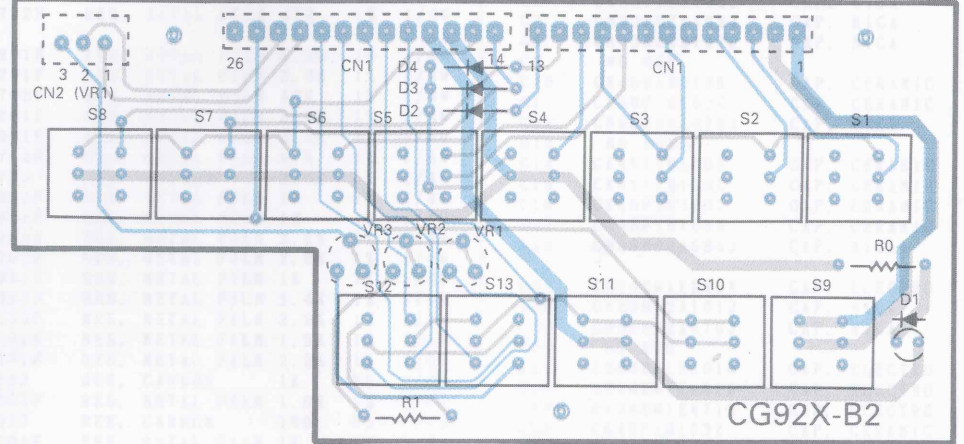
### P.C. BOARD

### PARTS LIST

Main Unit



Panel Unit



Pattern side view

CG 922 MAIN UNIT

W02-2108-08

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