

Bill Of Materials

WR-1000e receiver

FCC ID: HNL-WREXT

BILL OF MATERIALS: WINRADIO

11 May 98 20:05

DESCRIPTION	QTY PER UNIT	REFERENCE DESIGNATORS
RECEIVER PCB (Common Parts):		
Capacitor, ceramic, SMD 0805, 0p47 $\pm$.25p, COG	3	C40, C54, C163
Capacitor, ceramic, SMD 0805, 1p5 $\pm$.25p, COG	1	C187
Capacitor, ceramic, SMD 0805, 1p8 $\pm$.25p, COG	1	C85
Capacitor, ceramic, SMD 0805, 2p2 $\pm$.25p, COG	4	C29, C165, C184, C189
Capacitor, ceramic, SMD 0805, 2p7 $\pm$.25p, COG	3	C61, C148, C193
Capacitor, ceramic, SMD 0805, 3p3 $\pm$.25p, COG	6	C31, C44, C155, C158, C182, C183
Capacitor, ceramic, SMD 0805, 3p9 $\pm$.25p, COG	5	C39, C41, C48, C150, C169
Capacitor, ceramic, SMD 0805, 4p7 $\pm$.25p, COG	4	C24, C27, C72, C147
Capacitor, ceramic, SMD 0805, 5p6 $\pm$.25p, COG	3	C13, C16, C18
Capacitor, ceramic, SMD 1206, 5p6 $\pm$.25p, COG	1	C305
Capacitor, ceramic, SMD 0805, 6p8 $\pm$.25p, COG	3	C19, C64, C82
Capacitor, ceramic, SMD 0805, 8p2 $\pm$.25p, COG	1	C308
Capacitor, ceramic, SMD 0805, 10p $\pm$ 5%, COG	2	C46, C70
Capacitor, ceramic, SMD 0805, 12p $\pm$ 2%, COG	1	C63
Capacitor, ceramic, SMD 0805, 15p $\pm$ 2%, COG	4	C25, C59, C83, C191
Capacitor, ceramic, SMD 0805, 18p $\pm$ 2%, COG	4	C47, C62, C94, C152
Capacitor, ceramic, SMD 0805, 22p $\pm$ 2%, COG	6	C43, C81, C143, C144, C145, C179
Capacitor, ceramic, SMD 1206, 22p $\pm$ 2%, COG	1	C306
Capacitor, ceramic, SMD 0805, 27p $\pm$ 2%, COG	4	C56, C71, C89, C140
Capacitor, ceramic, SMD 0805, 33p $\pm$ 2%, COG	6	C52, C53, C55, C58, C67, C141
Capacitor, ceramic, SMD 0805, 47p $\pm$ 5%, COG	3	C36, C86, C96
Capacitor, ceramic, SMD 0805, 68p $\pm$ 2%, COG	4	C8, C10, C12, C14
Capacitor, ceramic, 0.2" pitch, 100p $\pm$ 2%, N750	1	C87
Capacitor, ceramic, SMD 0805, 120p $\pm$ 2%, COG	2	C11, C192
Capacitor, ceramic, SMD 0805, 270p $\pm$ 2%, COG	3	C45, C88, C92
Capacitor, ceramic, SMD 0805, 330p $\pm$ 5%, COG	13	C117, C123, C199, C200, C201, C202, C203, C204, C205, C206, C217, C218, C219
Capacitor, ceramic, SMD 0805, 560p $\pm$ 2%, COG	3	C76, C101, C116
Capacitor, ceramic, SMD 0805, 1n $\pm$ 5%, COG	27	C15, C20, C28, C37, C38, C69, C90, C115, C124, C153, C154, C162, C172, C176, C180, C181, C185, C186, C188, C190, C194, C195, C197, C198, C209, C211, C216
Capacitor, ceramic, SMD 1206, 1n8 $\pm$ 2%, COG	2	C93, C133
Capacitor, ceramic, SMD 0805, 10n $\pm$ 10%, X7R	26	C9, C22, C23, C32, C35, C42, C49, C50, C51, C60, C65, C74, C75, C91, C99, C103, C105, C106, C107, C112, C142, C149, C156, C159, C160, C170
Capacitor, ceramic, SMD 0805, 22n $\pm$ 5%, X7R	12	C66, C110, C111, C113, C114, C122, C126, C127, C128, C134, C161, C301
Capacitor, ceramic, SMD 0805, 39n $\pm$ 5%, X7R	5	C2, C5, C7, C33, C109
Capacitor, ceramic, SMD 0805, 100n $\pm$ 10%, X7R	2	C167, C168
Capacitor, ceramic, SMD 0805, 100n $\pm$ 10%, X7R or Y5V	31	C1, C4, C6, C17, C21, C30, C68, C73, C77, C78, C84, C95, C98, C108, C118, C119, C125, C129, C130, C131, C135, C139, C212, C213, C214, C215, C222, C223, C224, C225, C228
Capacitor, ceramic, SMD 1206, 100n $\pm$ 10%, X7R	1	C303
Capacitor, electro., 4u7 25V, low profile, 1.5mm pitch	2	C100, C132
Capacitor, electro., 22u 16V, low profile, 1.5mm pitch	2	C102, C104
Capacitor, electro., 100u 16V, low profile, 2.5mm pitch	16	C79, C97, C120, C136, C137, C146, C171, C177, C178, C207, C208, C221, C226, C229, C230, C307
Capacitor, trimmer, 5mm, 2.7 - 10p, NPO	1	CV1
Diode, varicap, 1SV217	5	D23, D28, D29, D30, D31
Diode, signal, BAS16	5	D5, D6, D7, D8, D25
Diode, zener, BZX84-C4V7	1	D24
Diode, schottky, HSMS-2927	1	D16
Diode, PIN, MMBV3401-LT1	12	D10, D11, D13, D14, D17, D18, D19, D20, D21, D22, D26, D27
Diode, PIN, MMBV3700-LT1	7	D1, D2, D3, D4, D9, D12, D15
Filter, ceramic, 10.7 MHz, LT10.7MA5 or similar	2	FL4, FL5
Filter, ceramic, 455 kHz, LTW33-455HT or similar	1	FL3
Filter, crystal, 58.075 MHz, Rosetta 58F4	2	FL1A, FL1B
Filter, helical, 556 MHz (WM-0116)	1	T4

Coil, 10.4nH	(WM-0102)	2	L15, L19
Coil, 14.8nH	(WM-0103)	3	L7, L9, L12
Coil, 26.7nH	(WM-0104)	1	L8
Inductor, wideband, 12uH	(WM-0107)	1	L13
Inductor, fixed, SMD 1206, 500 ohm		1	L10
Inductor, fixed, SMD 1206, 150nH		1	L5
Inductor, fixed, SMD 1206, 220nH		2	L4, L6
Inductor, fixed, SMD 1206, 10uH		2	L16, L17
Inductor, fixed, upright 8mm dia, 680uH		1	L20
Plug, 2.54mm spacing, 16x2 pin		1	PL1
Transistor, BC808		1	Q13
Transistor, BC848		3	Q10, Q11, Q20
Transistor, BFG67		10	Q1, Q2, Q3, Q4, Q14, Q15, Q16, Q17, Q18, Q19
Transistor, BFS17A		5	Q5, Q6, Q7, Q9, Q12
Transistor, MUN2114-T1		9	Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30
Resistor, SMD 0805, 0R (zero ohm link)		1	R36
Resistor, SMD 0805, 10R $\pm$ 5%		2	R98, R102
Resistor, SMD 0805, 33R $\pm$ 5%		3	R58, R79, R151
Resistor, SMD 0805, 68R $\pm$ 5%		3	R3, R7, R18
Resistor, SMD 0805, 100R $\pm$ 5%		18	R22, R24, R26, R35, R40, R49, R56, R60, R72, R108, R114, R125, R127, R136, R139, R142, R144, R150
Resistor, SMD 0805, 220R $\pm$ 5%		6	R5, R15, R29, R39, R99, R137
Resistor, SMD 1206, 330R $\pm$ 5%		1	R302
Resistor, SMD 0805, 470R $\pm$ 2%		7	R30, R34, R53, R59, R61, R143, R148
Resistor, SMD 0805, 680R $\pm$ 5%		2	R27, R28
Resistor, SMD 0805, 1k2 $\pm$ 5%		6	R4, R12, R17, R42, R63, R95
Resistor, SMD 1206, 1k2 $\pm$ 5%		1	R304
Resistor, SMD 0805, 2k2 $\pm$ 2%		10	R19, R73, R104, R129, R130, R131, R132, R149, R160, R161
Resistor, SMD 0805, 2k7 $\pm$ 5%		12	R2, R6, R8, R9, R10, R11, R13, R48, R64, R65, R103, R106
Resistor, SMD 0805, 4k7 $\pm$ 5%		2	R77, R135
Resistor, SMD 0805, 5k6 $\pm$ 2%		7	R46, R74, R76, R78, R81, R82, R93
Resistor, SMD 0805, 6k8 $\pm$ 5%		8	R41, R44, R47, R122, R126, R134, R155, R163
Resistor, SMD 0805, 12k $\pm$ 5%		11	R16, R75, R92, R96, R112, R113, R115, R116, R124, R133, R164
Resistor, SMD 0805, 18k $\pm$ 5%		2	R120, R121
Resistor, SMD 0805, 22k $\pm$ 5%		12	R55, R66, R70, R71, R84, R85, R86, R87, R109, R162, R300, R301
Resistor, SMD 0805, 27k $\pm$ 1%		1	R156
Resistor, SMD 0805, 33k $\pm$ 5%		2	R69, R154
Resistor, SMD 0805, 47k $\pm$ 5%		16	R20, R38, R43, R45, R67, R68, R91, R107, R110, R123, R138, R140, R141, R146, R147, R152
Resistor, SMD 0805, 100k $\pm$ 1%		8	R14, R54, R90, R93, R97, R105, R111, R153
Resistor, SMD 0805, 150k $\pm$ 5%		4	R21, R23, R25, R62
Resistor, SMD 0805, 470k $\pm$ 1%		4	R33, R37, R118, R119
Resistor, SMD 1206, 4M7 $\pm$ 5%		2	R101, R117
Resistor, variable cermet, 20k		1	RV1
Transformer, variable, 0.054uH	(WM-0110)	2	T24, T25
Transformer, variable, 0.082uH	(WM-0111)	2	T3, T6
Transformer, variable, 0.39uH	(WM-0112)	9	T5, T7, T8, T9, T10, T20, T21, T22, T23
Transformer, variable, 0.68uH	(WM-0113)	2	T11, T16
Transformer, variable, 4.7uH	(WM-0114)	1	T14
Transformer, variable, 10.7MHz	(WM-0115)	1	T19
Transformer, variable, 220uH	(WM-0108)	4	T13, T15, T17, T18
Transformer, variable, 680uH	(WM-0109)	1	T12
Transformer, balun (type 1)	(WM-0105)	1	T2
Transformer, balun (type 2)	(WM-0126)	1	T1
Test point, red		64	TP1, TP2, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP44, TP45, TP46, TP47, TP48, TP49, TP50, TP51, TP52, TP53, TP54, TP55, TP56,

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		TP57, TP58, TP59, TP60, TP61, TP62, TP63, TP64, TP65
Integrated circuit, LM324M	1	U6
Integrated circuit, LM337LZ	1	U14
Integrated circuit, LM386M-1	1	U9
Integrated circuit, LM7805CT	1	U16
Integrated circuit, LM833M	1	U13
Integrated circuit, MC3372D	1	U2
Integrated circuit, MC74HC00AD	1	U21
Integrated circuit, MC74HC02AD	1	U20
Integrated circuit, MC74HCU04AD	1	U11
Integrated circuit, MC74HC574ADW	3	U15, U18, U19
Integrated circuit, MC14052BD	1	U7
Integrated circuit, MC145191F	1	U12
Integrated circuit, NE612AD	2	U3, U4
Integrated circuit, TA7640AP	1	U5
Integrated circuit, uPC1676G	1	U1
Integrated circuit, X9314WS	1	U8
Quartz crystal, 12.800 MHz, 20pf, HC41 holder	1	Y3
Quartz crystal, 47.375 MHz, 5pf, HC41 holder	1	Y2
Quartz crystal, 57.620 MHz, series, HC41 holder	1	Y1
Printed circuit card, receiver	1	N/A
Shield, VCO	1	N/A
ADDITIONAL ITEMS (Version A only):		
Resistor, SMD 0805, 0R (zero ohm link)	2	R89, R94
ADDITIONAL ITEMS (Version B only):		
Resistor, SMD 0805, 0R (zero ohm link)	1	R88
Integrated circuit, MC14053BD	1	U10
RESERVED ITEMS (Possible future use only):		
Capacitor, ceramic, SMD 0805, (reserved)	(TBA)	C157, C166, C174, C175
Discriminator, ceramic, 455 kHz (reserved)	(TBA)	FL2
Resistor, SMD 0805, (reserved)	(TBA)	R153

EXTERNAL BACKPLANE (WA-0304)

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DESCRIPTION	QTY	DESIGNATOR
Capacitor, 0805, 27pF $\pm$ 2% C0G	3	C1 C2 C100
Capacitor, 0805, 330pF $\pm$ 5% C0G	1	C102
Capacitor, 0805, 1nF $\pm$ 5% C0G	2	C101 C104
Capacitor, 0805, 27nF $\pm$ 10% X7R	1	C13
Capacitor, 0805, 39nF $\pm$ 10% X7R	1	C11
Capacitor, 0805, 100nF $\pm$ 10% X7R or Y5V	12	C3 C4 C7 C8 C10 C12 C85 C95
		C96 C97 C103 C105
Capacitor, 1206, 1uF $\pm$ 10%, 16V, Y5V	2	C5 C82
Capacitor, electrolytic, 4.7uF 16V, 1.5mm pitch	3	C87 C88 C89
Capacitor, electrolytic, 22uF 16V, 1.5mm pitch	2	C81 C83
Capacitor, electrolytic, 100uF 16V, 2.5mm pitch	1	C90
Capacitor, electrolytic, 2200uF 16V, axial	1	C86
Diode, 1N4002	1	D82
Diode, BAT54A	1	D84
Diode, BZX84-C4V7	1	D1
Diode, light emitting, red, min. rectangular	1	D81
Ferrite choke, 6 hole prewound	5	L51 L52 L53 L71 L72
Ferrite choke, radial, 22uH (Robotron)	5	L81 L82 L95
Speaker, 57mm, 250mW, 8ohm, Keyrin 57-8B	1	LS1
Plug, 2 pin, 90 deg	1	PL41
Socket, DB9F 90 deg	1	J32
Socket, DB15F-HD, 90 deg (PCMCIA)	1	J1
Socket, power jack, 2.1mm pin	1	J81
Transistor, BC848	1	Q83
Transistor, BD140	1	Q81
Transistor, BFS17A or 2SC2714	1	Q100
Transistor, PHN210	1	Q82
Link, 0805, zero ohm	5	LK1 LK2 LK81 LK82 R71
Resistor, 0805, 100R $\pm$ 5%	10	R22 R23 R24 R25 R26 R27 R28
		R29 R34 R70
Resistor, 0805, 390R $\pm$ 1%	1	R9
Resistor, 0805, 680R $\pm$ 5%	3	R66 R67 R68
Resistor, 0805, 1k $\pm$ 5%	1	R112
Resistor, 0805, 1k2 $\pm$ 5%	18	R6 R51 R52 R53 R54 R55 R56
		R57 R58 R59 R60 R61 R62 R64
		R65 R69 R92 R93
Resistor, 0805, 1k5 $\pm$ 5%	1	R81
Resistor, 0805, 4k7 $\pm$ 5%	2	R11 R13
Resistor, 0805, 10k $\pm$ 5%	7	R2 R17 R18 R19 R20 R21 R111
Resistor, 0805, 22k $\pm$ 5%	2	R11 R97
Resistor, 0805, 47k $\pm$ 5%	5	R3 R4 R15 R16 R89
Resistor, 0805, 100k $\pm$ 1%	3	R8 R30 R63
Resistor, 0805, 1M $\pm$ 5%	1	R113
Resistor, 1206, 4M7 $\pm$ 5%	1	R1
Socket, stereo jack, 3.5mm switched	1	SK1
Speaker cable assy, Aria	1	SK41
Socket, Precidip 415-91-232-41-001	1	SK51
Socket, RCA	1	SK52
Switch, min. DPDT toggle	1	SW81
Transformer, WM-0135	1	T81
Integrated circuit, DS1233DZ-10	1	U1
Integrated circuit, SN75188D (DS1488M)	1	U31
Integrated circuit, SN75C189AD (DS14C89M)	1	U32
Integrated circuit, LM324M	1	U4
Integrated circuit, LM7805CT	1	U84
Integrated circuit, MC14017BD	1	U100
Integrated circuit, MC68HC705B5	1	U2
Integrated circuit, MC74AC74D	1	U82
Integrated circuit, MC74HC04D	1	U86
Crystal, 2.4567MHz $\pm$ 30ppm, HC49/U	1	Y2
Crystal, 3.6864MHz $\pm$ 30ppm, HC49/U	1	Y3

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RECEIVER PCB (Common Parts):

Capacitor, ceramic, SMD 0805, 0p47 $\pm$.25p, COG	3	C40, C54, C163
Capacitor, ceramic, SMD 0805, 1p5 $\pm$.25p, COG	1	C187
Capacitor, ceramic, SMD 0805, 1p8 $\pm$.25p, COG	1	C85
Capacitor, ceramic, SMD 0805, 2p2 $\pm$.25p, COG	4	C29, C165, C184, C189
Capacitor, ceramic, SMD 0805, 2p7 $\pm$.25p, COG	3	C61, C148, C193
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Capacitor, ceramic, SMD 0805, 3p9 $\pm$.25p, COG	5	C39, C41, C48, C150, C169
Capacitor, ceramic, SMD 0805, 4p7 $\pm$.25p, COG	4	C24, C27, C72, C147
Capacitor, ceramic, SMD 0805, 5p6 $\pm$.25p, COG	3	C13, C16, C18
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Capacitor, ceramic, SMD 0805, 8p2 $\pm$.25p, COG	1	C308
Capacitor, ceramic, SMD 0805, 10p $\pm$ 5%, COG	2	C46, C70
Capacitor, ceramic, SMD 0805, 12p $\pm$ 2%, COG	1	C63
Capacitor, ceramic, SMD 0805, 15p $\pm$ 2%, COG	4	C25, C59, C83, C191
Capacitor, ceramic, SMD 0805, 18p $\pm$ 2%, COG	4	C47, C62, C94, C152
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Capacitor, ceramic, SMD 0805, 68p $\pm$ 2%, COG	4	C8, C10, C12, C14
Capacitor, ceramic, 0.2" pitch, 100p $\pm$ 2%, N750	1	C87
Capacitor, ceramic, SMD 0805, 120p $\pm$ 2%, COG	2	C11, C192
Capacitor, ceramic, SMD 0805, 270p $\pm$ 2%, COG	3	C45, C88, C92
Capacitor, ceramic, SMD 0805, 330p $\pm$ 5%, COG	13	C117, C123, C199, C200, C201, C202, C203, C204, C205, C206, C217, C218, C219
Capacitor, ceramic, SMD 0805, 560p $\pm$ 2%, COG	3	C76, C101, C116
Capacitor, ceramic, SMD 0805, 1n $\pm$ 5%, COG	27	C15, C20, C28, C37, C38, C69, C90, C115, C124, C153, C154, C162, C172, C176, C180, C181, C185, C186, C188, C190, C194, C195, C197, C198, C209, C211, C216
Capacitor, ceramic, SMD 1206, 1n8 $\pm$ 2%, COG	2	C93, C133
Capacitor, ceramic, SMD 0805, 10n $\pm$ 10%, X7R	26	C9, C22, C23, C32, C35, C42, C49, C50, C51, C60, C65, C74, C75, C91, C99, C103, C105, C106, C107, C112, C142, C149, C156, C159, C160, C170
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Capacitor, ceramic, SMD 0805, 39n $\pm$ 5%, X7R	5	C2, C5, C7, C33, C109
Capacitor, ceramic, SMD 0805, 100n $\pm$ 10%, X7R	2	C167, C168
Capacitor, ceramic, SMD 0805, 100n $\pm$ 10%, X7R or Y5V	31	C1, C4, C6, C17, C21, C30, C68, C73, C77, C78, C84, C95, C98, C108, C118, C119, C125, C129, C130, C131, C135, C139, C212, C213, C214, C215, C222, C223, C224, C225, C228
Capacitor, ceramic, SMD 1206, 100n $\pm$ 10%, X7R	1	C303
Capacitor, electro., 4u7 25V, low profile, 1.5mm pitch	2	C100, C132
Capacitor, electro., 22u 16V, low profile, 1.5mm pitch	2	C102, C104
Capacitor, electro., 100u 16V, low profile, 2.5mm pitch	16	C79, C97, C120, C136, C137, C146, C171, C177, C178, C207, C208, C221, C226, C229, C230, C307
Capacitor, trimmer, 5mm, 2.7 - 10p, NPO	1	CV1
Diode, varicap, 1SV217	5	D23, D28, D29, D30, D31
Diode, signal, BAS16	5	D5, D6, D7, D8, D25
Diode, zener, BZX84-C4V7	1	D24
Diode, schottky, HSMS-2827	1	D16
Diode, PIN, MMBV3401-LT1	12	D10, D11, D13, D14, D17, D18, D19, D20, D21, D22, D26, D27
Diode, PIN, MMBV3700-LT1	7	D1, D2, D3, D4, D9, D12, D15
Filter, ceramic, 10.7 MHz, LT10.7MA5 or similar	2	FL4, FL5
Filter, ceramic, 455 kHz, LTW33-455HT or similar	1	FL3
Filter, crystal, 58.075 MHz, Rosetta 58F4	2	FL1A, FL1B
Filter, helical, 556 MHz (WM-0116)	1	T4
Filter, helical, 614 MHz (WM-0117)	1	T26
Coil, 6.2uH (WM-0101)	3	L11, L14, L18

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Coil, 10.4nH	(WM-0102)	2	L15, L19
Coil, 14.8nH	(WM-0103)	3	L7, L9, L12
Coil, 26.7nH	(WM-0104)	1	L8
Inductor, wideband, 12uH	(WM-0107)	1	L13
Inductor, fixed, SMD 1206, 500 ohm		1	L10
Inductor, fixed, SMD 1206, 150nH		1	L5
Inductor, fixed, SMD 1206, 220nH		2	L4, L6
Inductor, fixed, SMD 1206, 10uH		2	L16, L17
Inductor, fixed, upright 8mm dia, 680uH		1	L20
Plug, 2.54mm spacing, 16x2 pin		1	PL1
Transistor, BC808		1	Q13
Transistor, BC848		3	Q10, Q11, Q20
Transistor, BFC67		10	Q1, Q2, Q3, Q4, Q14, Q15, Q16, Q17, Q18, Q19
Transistor, BFS17A		5	Q5, Q6, Q7, Q9, Q12
Transistor, MUN2114-T1		9	Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30
Resistor, SMD 0805, 0R (zero ohm link)		1	R36
Resistor, SMD 0805, 10R $\pm$ 5%		2	R98, R102
Resistor, SMD 0805, 33R $\pm$ 5%		3	R58, R79, R151
Resistor, SMD 0805, 68R $\pm$ 5%		3	R3, R7, R18
Resistor, SMD 0805, 100R $\pm$ 5%		18	R22, R24, R26, R35, R40, R49, R56, R60, R72, R108, R114, R125, R127, R136, R139, R142, R144, R150
Resistor, SMD 0805, 220R $\pm$ 5%		6	R5, R15, R29, R39, R99, R137
Resistor, SMD 1206, 330R $\pm$ 5%		1	R302
Resistor, SMD 0805, 470R $\pm$ 2%		7	R30, R34, R53, R59, R61, R143, R148
Resistor, SMD 0805, 680R $\pm$ 5%		2	R27, R28
Resistor, SMD 0805, 1k2 $\pm$ 5%		6	R4, R12, R17, R42, R63, R95
Resistor, SMD 1206, 1k2 $\pm$ 5%		1	R304
Resistor, SMD 0805, 2k2 $\pm$ 2%		10	R19, R73, R104, R129, R130, R131, R132, R149, R160, R161
Resistor, SMD 0805, 2k7 $\pm$ 5%		12	R2, R6, R8, R9, R10, R11, R13, R48, R64, R65, R103, R106
Resistor, SMD 0805, 4k7 $\pm$ 5%		2	R77, R135
Resistor, SMD 0805, 5k6 $\pm$ 2%		7	R46, R74, R76, R78, R81, R82, R83
Resistor, SMD 0805, 6k8 $\pm$ 5%		8	R41, R44, R47, R122, R126, R134, R155, R163
Resistor, SMD 0805, 12k $\pm$ 5%		11	R16, R75, R92, R96, R112, R113, R115, R116, R124, R133, R164
Resistor, SMD 0805, 18k $\pm$ 5%		2	R120, R121
Resistor, SMD 0805, 22k $\pm$ 5%		12	R55, R66, R70, R71, R84, R85, R86, R87, R109, R162, R300, R301
Resistor, SMD 0805, 27k $\pm$ 1%		1	R156
Resistor, SMD 0805, 33k $\pm$ 5%		2	R69, R154
Resistor, SMD 0805, 47k $\pm$ 5%		16	R20, R38, R43, R45, R67, R68, R91, R107, R110, R123, R138, R140, R141, R146, R147, R152
Resistor, SMD 0805, 100k $\pm$ 1%		8	R14, R54, R90, R93, R97, R105, R111, R153
Resistor, SMD 0805, 150k $\pm$ 5%		4	R21, R23, R25, R62
Resistor, SMD 0805, 470k $\pm$ 1%		4	R33, R37, R118, R119
Resistor, SMD 1206, 4M7 $\pm$ 5%		2	R101, R117
Resistor, variable cermet, 20k		1	RV1
Transformer, variable, 0.054uH	(WM-0110)	2	T24, T25
Transformer, variable, 0.082uH	(WM-0111)	2	T3, T6
Transformer, variable, 0.39uH	(WM-0112)	9	T5, T7, T8, T9, T10, T20, T21, T22, T23
Transformer, variable, 0.68uH	(WM-0113)	2	T11, T16
Transformer, variable, 4.7uH	(WM-0114)	1	T14
Transformer, variable, 10.7MHz	(WM-0115)	1	T19
Transformer, variable, 220uH	(WM-0108)	4	T13, T15, T17, T18
Transformer, variable, 680uH	(WM-0109)	1	T12
Transformer, balun (type 1)	(WM-0105)	1	T2
Transformer, balun (type 2)	(WM-0126)	1	T1
Test point, red		64	TP1, TP2, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP44, TP45, TP46, TP47, TP48, TP49, TP50, TP51, TP52, TP53, TP54, TP55, TP56,

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		TP57, TP58, TP59, TP60, TP61, TP62, TP63, TP64, TP65
Integrated circuit, LM324M	1	U6
Integrated circuit, LM337LZ	1	U14
Integrated circuit, LM386M-1	1	U9
Integrated circuit, LM7805CT	1	U16
Integrated circuit, LM833M	1	U13
Integrated circuit, MC3372D	1	U2
Integrated circuit, MC74HC00AD	1	U21
Integrated circuit, MC74HC02AD	1	U20
Integrated circuit, MC74HCU04AD	1	U11
Integrated circuit, MC74HC574ADW	3	U15, U18, U19
Integrated circuit, MC14052BD	1	U7
Integrated circuit, MC145191F	1	U12
Integrated circuit, NE612AD	2	U3, U4
Integrated circuit, TA7640AP	1	U5
Integrated circuit, uPC1676G	1	U1
Integrated circuit, X9314WS	1	U8
Quartz crystal, 12.800 MHz, 20pf, HC41 holder	1	Y3
Quartz crystal, 47.375 MHz, 5pf, HC41 holder	1	Y2
Quartz crystal, 57.620 MHz, series, HC41 holder	1	Y1
Printed circuit card, receiver	1	N/A
Shield, VCO	1	N/A
ADDITIONAL ITEMS (Version A only):		
Resistor, SMD 0805, 0R (zero ohm link)	2	R89, R94
ADDITIONAL ITEMS (Version B only):		
Resistor, SMD 0805, 0R (zero ohm link)	1	R98
Integrated circuit, MC14053BD	1	U10
RESERVED ITEMS (Possible future use only):		
Capacitor, ceramic, SMD 0805, (reserved)	(TBA)	C157, C166, C174, C175
Discriminator, ceramic, 455 kHz (reserved)	(TBA)	FI2
Resistor, SMD 0805, (reserved)	(TBA)	R153

BILL OF MATERIALS: CRYSTAL SWITCH (WINRADIO)

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DESCRIPTION	QTY PER UNIT	REFERENCE DESIGNATORS
Capacitor, ceramic 0805, 15p $\pm$ 5%, COG	1	C1
Trimmer, 6.5~30p, Murata TZC03-P300-A110 or similar	1	CV1
Diode, PIN, MMBV3401-LT1	2	D1 D2
Inductor, SMD 0805, 1.5uH $\pm$ 10%	2	L1 L2
Transistor, BC848	1	Q1
Resistor, SMD 0805, 1k2 $\pm$ 5%	2	R2 R4
Resistor, SMD 0805, 4k7 $\pm$ 5%	2	R1 R5
Resistor, SMD 0805, 100k $\pm$ 5%	1	R3
Quartz crystal, 57.607MHz, series, HC41 holder	1	Y2
Quartz crystal, 57.620MHz, series, HC41 holder	1	Y1
Printed circuit board, WB-0102	1	

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Bill Of Materials

BFO Board

Part	Used	PartType	Designators
1	-	Not used	N/A
2	2	1SV217	D1 D2
3	1	1k2	R1
4	1	1u5	L2
5	1	3n9	C1
6	1	10k	R5
7	1	22p	C4
8	1	27k	R4
9	1	33u	L1
10	1	47k	R6
11	8	100n	C2 C5 C6 C7 C8 C9 C10 C11
12	1	270p	C3
13	1	MC74HC4060	U1
14	1	MC145191	U2
15	2	ZERO	R3 R7

EXTERNAL BACKPLANE (WA-0304)

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DESCRIPTION	QTY	DESIGNATOR
Capacitor, 0805, 27pF $\pm$ 2% C0G	3	C1 C2 C100
Capacitor, 0805, 330pF $\pm$ 5% C0G	1	C102
Capacitor, 0805, 1nF $\pm$ 5% C0G	2	C101 C104
Capacitor, 0805, 27nF $\pm$ 10% X7R	1	C13
Capacitor, 0805, 39nF $\pm$ 10% X7R	1	C11
Capacitor, 0805, 100nF $\pm$ 10% X7R or Y5V	12	C3 C4 C7 C8 C10 C12 C85 C95 C96 C97 C103 C105
Capacitor, 1206, 1uF $\pm$ 10%, 16V, Y5V	2	C5 C82
Capacitor, electrolytic, 4.7uF 16V, 1.5mm pitch	3	C87 C88 C89
Capacitor, electrolytic, 22uF 16V, 1.5mm pitch	2	C81 C83
Capacitor, electrolytic, 100uF 16V, 2.5mm pitch	1	C90
Capacitor, electrolytic, 2200uF 16V, axial	1	C86
Diode, 1N4002	1	D82
Diode, BAT54A	1	D84
Diode, BZX84-C4V7	1	D1
Diode, light emitting, red, min. rectangular	1	D81
Ferrite choke, 6 hole prewound	5	L51 L52 L53 L71 L72
Ferrite choke, radial, 22uH (Robotron)	5	L81 L82 L95
Speaker, 57mm, 250mW, 8ohm, Keyrin 57-8B	1	LS1
Plug, 2 pin, 90 deg	1	PL41
Socket, DB9F 90 deg	1	J32
Socket, DB15F-HD, 90 deg (PCMCIA)	1	J1
Socket, power jack, 2.1mm pin	1	J81
Transistor, BC848	1	Q83
Transistor, BD140	1	Q81
Transistor, BFS17A or 2SC2714	1	Q100
Transistor, PHN210	1	Q82
Link, 0805, zero ohm	5	LK1 LK2 LK81 LK82 R71
Resistor, 0805, 100R $\pm$ 5%	10	R22 R23 R24 R25 R26 R27 R28 R29 R34 R70
Resistor, 0805, 390R $\pm$ 1%	1	R9
Resistor, 0805, 680R $\pm$ 5%	3	R66 R67 R68
Resistor, 0805, 1k $\pm$ 5%	1	R112
Resistor, 0805, 1k2 $\pm$ 5%	18	R6 R51 R52 R53 R54 R55 R56 R57 R58 R59 R60 R61 R62 R64 R65 R69 R92 R93
Resistor, 0805, 1k5 $\pm$ 5%	1	R81
Resistor, 0805, 4k7 $\pm$ 5%	2	R11 R13
Resistor, 0805, 10k $\pm$ 5%	7	R2 R17 R18 R19 R20 R21 R111
Resistor, 0805, 22k $\pm$ 5%	2	R11 R97
Resistor, 0805, 47k $\pm$ 5%	5	R3 R4 R15 R16 R89
Resistor, 0805, 100k $\pm$ 1%	3	R8 R30 R63
Resistor, 0805, 1M $\pm$ 5%	1	R113
Resistor, 1206, 4M7 $\pm$ 5%	1	R1
Socket, stereo jack, 3.5mm switched	1	SK1
Speaker cable assy, Aria	1	SK41
Socket, Precidip 415-91-232-41-001	1	SK51
Socket, RCA	1	SK52
Switch, min. DPDT toggle	1	SW81
Transformer, WM-0135	1	T81
Integrated circuit, DS1233DZ-10	1	U1
Integrated circuit, SN75188D (DS1488M)	1	U31
Integrated circuit, SN75C189AD (DS14C89M)	1	U32
Integrated circuit, LM324M	1	U4
Integrated circuit, LM7805CT	1	U84
Integrated circuit, MC14017BD	1	U100
Integrated circuit, MC68HC705B5	1	U2
Integrated circuit, MC74AC74D	1	U82
Integrated circuit, MC74HC04D	1	U86
Crystal, 2.4567MHz $\pm$ 30ppm, HC49/U	1	Y2
Crystal, 3.6864MHz $\pm$ 30ppm, HC49/U	1	Y3