

Norcal Sierra From ARRL Handbook

Sourced March 2008 by Aaron Lyons, N9SKN

Parts list complete for both 40 and 30 meters. The 20, 17, 15 meter band module crystals are not included, see notes below

QTY	DESCRIPTION	PART NUMBER	SOURCE	URL
1	Main circuit board + 4 band boards set	none	Far Circuits	http://www.farcircuits.net/
1	C54, Main Tune Cap, 5-40 (9-45pF in stk)	junk box		
1	Connector, Band Module	S3355-ND	Digi-Key	www.digikey.com
25	Abracon MFG +-20PPM X1 - X7 4.915 Mhz, HC-49, match 50Hz, 18pF	815-AB-4.9152-B2	Mouser	www.mouser.com
1	X8, 40m, 15.000 Mhz xtal, Citizen	300-8497-ND	Digi-Key	
1	X8, 30m, 18.000 Mhz xtal, Citizen	300-8504-ND	Digi-Key	
	X8, 20m, 22.000 Mhz xtal		See notes below	
	X8, 17m, 26.000 Mhz xtal		See notes below	
	X8, 15m, 29.000 Mhz xtal		See notes below	
35	C1,C2, C33, C36, C64, C66, C70, 9-50pF Note these are <u>flat</u> trimmers - 7 req per band (Xicon mfg.) Alternate: Futurlec part no. C50PTC	24AA024	Mouser	
2	C16, C38, flat trimmers 9-50 pF Note these are <u>flat</u> trimmers (Xicon mfg.)	24AA024	Mouser	
1	C52, Air Variable trimmer, 2-24 pF	junk box	junk box	
1	C53, 180pF NPO disc	140-50N5-181J-RC	Mouser	
1	C56, 3900pF Poly	23PS239	Mouser	
2	C57, C58 1200pF Poly	23PS212	Mouser	
3	1 pF disc cap, band module, 100v NPO	140-100N2-1R0D-RC	Mouser	
5	2pF disc cap, band module, sub 2.2pF	140-100N2-2R2D-RC	Mouser	
2	5pF disc cap, band module, sub 4.7pF	140-100N2-4R7D-RC	Mouser	
2	47pF disc cap, band module, 100v NPO	140-100N5-470J-RC	Mouser	
4	150pF disc cap, band module, 50v NPO	140-50N5-151J	Mouser	
2	220 pF disc cap, band module, 50v NPO	140-50N5-221J-RC	Mouser	
6	330 pF disc cap, band module	140-50S5-331J-RC	Mouser	
1	470 pF disc cap, band module	140-50S5-471J-RC	Mouser	
1	560pF disc cap, band module	140-50S5-561J-RC	Mouser	
1	820pF disc cap, band module	140-50S5-821J	Mouser	
3	5pF, disc = 4.7pF sub	140-50N5-4R7D-RC	Mouser	

2	27pF, disc	140-50N5-270J-TB-RC	Mouser	
2	39pF, disc	140-50N2-390J-RC	Mouser	
3	47pF, disc	140-50N5-470J-RC	Mouser	
2	68pF, disc	140-50N2-680J-RC	Mouser	
3	150pF, disc	140-50N5-151J-TB-RC	Mouser	
1	180pF, NPO disc	140-50N5-181J-RC	Mouser	
7	270pF, disc, MAIN TRX	140-50N5-271J-TB-RC	Mouser	
2	1200pF = 0.0012 uF	81-RPE5C1H122J2P1A03	Mouser	
1	3900pF = 0.0039 uF, disc	81-RPE5CH392J2M1D03A	Mouser	
5	.01uF, multilayer ceramic, MAIN TRX	80-C315C103J1R-TR	Mouser	
15	.047uF, multilayer ceramic	581-SR215C473J	Mouser	
4	.1uF, multilayer ceramic, MAIN TRX	581-SR275C104K	Mouser	
1	.22uF, multilayer ceramic	80-C322C224J5R	Mouser	
3	2.2uF, electrolytic	140-XRL50V2.2-RC	Mouser	
1	2.2uF, electrolytic	140-NPRL50V2.2-RC	Mouser	
1	3.3uF, electrolytic	140-MLRL50V3.3-RC	Mouser	
1	10uF, electrolytic	140-MLRL50V10-RC	Mouser	
2	22uF, electrolytic	140-XRL50V22-RC	Mouser	
2	100uF, electrolytic	140-XRL50V100-RC	Mouser	
2	D6, D10 1N5819 diode	512-1N5819	Mouser	
1	D7, 1N4753A diode	512-1N4753A	Mouser	
1	D8, MV2104 equiv = NTE612	526-NTE612	Mouser	
1	Q5, U310 FET	781-U310-E3	Mouser	
8	1N914, diode	512-1N914A	Mouser	
2	2N4124	512-2N4124BU	Mouser	
1	2N4126	512-2N4126BU	Mouser	
2	2N4416	610-2N4416A	Mouser	
1	2N2222A, metal can	511-2N2222A	Mouser	
3	2N3553, TO-39 pkg. (NTE341 alternate; check pinout)	2N3553	Futurlec.com	www.futurlec.com
1	Heatsink for 2N3553, TO-39 package	junk box	junk box	
1	U1, LM358N Dual Op Amp	512-LM358N	Mouser	
4	U2, U4, U7, U8, SA602AN mix/osc	771-SA602AN/01	Mouser	
1	U3, LM386N-1 audio amp	LM386N-1-ND	Digi-Key	
1	U5, MC1350P equiv = NTE746 IF amp	526-NTE746	Mouser	
1	U6, LM393N dual comp	512-LM393N	Mouser	
1	U9, AN78L08-ND = Fairchild MC78L08ACP	512-MC78L08ACP	Mouser	
2	R1, R8, PC mt 1k pot	31CW301	Mouser	
1	R8, 1k pot, 16mm, panel mount, RF Gain	31JN301-F	Mouser	
1	R1, 1k pot with swx, 16mm, panel mt, AF Gain	313-1100F-1K	Mouser	
1	R17, 10k pot, 17mm, panel mt, RIT	31CN401-F	Mouser	

3	R14, R101, S/RFmtr, 500 ohm trimmer	594-63P501	Mouser	
1	22 ohm fixed 1/4w	660-CFS1/4CT52R220J	Mouser	
1	56 ohm fixed 1/4w	660-CFS1/4CT52R560J	Mouser	
3	100 ohm fixed 1/4w	660-CFS1/4C101J	Mouser	
1	390 ohm fixed 1/4w	660-CFS1/4CT52R391J	Mouser	
1	1K ohm fixed 1/4w	660-CFS1/4C102J	Mouser	
1	1.8K ohm fixed 1/4w	660-CFS1/4CT52R182J	Mouser	
2	3.6K ohm fixed 1/4w	660-CFS1/4CT52R362J	Mouser	
3	5.1K ohm fixed 1/4w	660-CFS1/4CT52R512J	Mouser	
2	12K ohm fixed 1/4w	660-CFS1/4CT52R123J	Mouser	
7	47K ohm fixed 1/4w	660-CF1/4CT26A473J	Mouser	
2	10M ohm fixed 1/4w	R010M14W	Futurlec.com	
1	20k pot, S/RF trimmer	594-63P203	Mouser	
1	5k pot, S/RF trimmer	594-63P502	Mouser	
1	Ferrite Bead for 2N2222A (See Mod Sheet)	FB-43-201	Amidon Assoc.	www.amidoncorp.com
1	RFC1, FT-37-61 core	FT-37-61	Amidon Assoc.	
2	RFC2, RFC3, FT-37-43 core	FT-37-43	Amidon Assoc.	
1	RFC4, mini choke, 1 mH	43LS103	Mouser	
1	T2, FT-37-43 core	FT-37-43	Amidon Assoc.	
1	L2, Mini RFC, 15 uH	43LS155	Mouser	
2	L10, L11, FT-37-61 core	FT-37-61	Amidon Assoc.	
1	L7, 19 uH	T68-7	Amidon Assoc.	
2	FT-37-61, core, band module	FT-37-61	Amidon Assoc.	
24	T-37-2, core, band module	T-37-2	Amidon Assoc.	
16	T-37-6, core, band module	T-37-6	Amidon Assoc.	
Optional / Custom / Additional Items				
6	Small control knobs (Optional)			
1	Main tune knob (Optional)	450-1755	Mouser	
1	Norcal FCC-1 display / counter (Optional)	FCC-1	Norcal	www.norcalqrp.org
1	Norcal keyer (Optional)	Norcal Keyer	Norcal	
1	Meter, for S/RF(Optional)	FS23	Surplus Sales Nebraska	www.surplussales.com

Notes from N9SKN's build:

Items I had in my modest junk box were not sourced.

Some of the semiconductors may be hard to find.

Some builders have used the NTE341 in place of the 2N3553 for increased power output and better availability. Check the pinout.

The MC1350P may not be readily available. The NTE746 is equivalent.

The optional metering circuitry (S/RF Meter) parts are included in this list
Meter circuit was built "Manhattan Style" using the Handbook circuit rather than the FAR PC board version

R100 and R101 on the FAR band module boards are not called out in the Handbook version and not used

FLAT trimmer caps are only available for band modules - VERTICAL / RIGHT ANGLE type no longer available by the mfg
This should only be a minor inconvenience during alignment.

No ABX on this Norcal / ARRL version

Also needed: Enclosure, switches, connectors, magnet wire, RG-174

I found crystals for 20, 17, 15m band module boards to be expensive from International; check with Wilderness Radio
I did not build the 20, 17 and 15 meter modules but this list includes all other items for those modules for shipping convenience

Filter crystals can be matched with the crystal tester that is part of "HF Test Set" by N6BM; see 4SQR Club, <http://4sqr.com/kits/>
The Norcal FCC-1 frequency display/counter module can be used in direct mode with this tester to match X1-X5 within 50Hz.