

# K2 OWNER'S MANUAL ERRATA

Rev. I-7, March 19, 2017

**MAKE THESE CHANGES TO YOUR REV. I MANUAL BEFORE YOU BEGIN ASSEMBLY OR ANNOTATE THE MANUAL TO REFER TO THIS ERRATA.**

- 1. Page 20, Right Column:** Under Inventory, delete "It is not necessary to inventory the resistors..." The resistors are no longer available on a tape. They are supplied loose. In the assembly procedure the correct colors are listed when each resistor is installed. Also Figure 3-4 on page 10 shows the resistor color code so you can check the values with your DMM. Be aware that the values shown by your DMM may not be exact, depending upon the tolerance of the resistor and the accuracy of your DMM. Also, some resistors may have an extra color band for the tolerance. Start with the band nearest the end of the resistor and read the first three bands to determine the value.
- 2. Page 20, Right Column, Second Checkbox Step:** Delete U1 from the list and delete the associated note.
- 3. Page 20, Right Column, Third Checkbox Step:** After the third check-box step insert a note to refer to this errata and perform the following check-box steps to install U1.



The NE602/SA602 integrated circuits (ICs) have been replaced by surface-mount RoHS compliant SA612AD ICs. The SA612AD ICs are furnished pre-installed on tiny printed circuit "carrier" boards that mount in the spaces originally provided for the 8-pin dual in-line (DIP) parts. The new parts are supplied in ESD-safe bags marked *SA612AD mounted on SMT1A*. There are three identical ICs, each in a separate bag with the wire needed to mount them. The kit also contains a 1350 amplifier I.C. mounted on a similar carrier board. It is supplied in an ESD-safe bag marked *MC1350 mounted on SMT1A*. Do not confuse the 612 mixers with the 1350 amplifier IC. You can confirm which are the mixers by noting that the numbers on the top of the SA612AD ICs include "612". Similarly, the number "1350" appears on the top of the MC1350 amplifier IC. You may need a good magnifier to read them.

Locate one of the *SA612AD mounted on SMT1A IC* bags. Inside is a length of wire, the IC on small carrier board and an instruction sheet. Install the IC as shown on the instruction sheet. If the carrier board with the IC presses against the side of crystal X1 so the solder pads do not line up with the solder pads on the Control board, carefully sand the side of the carrier board until it fits.

- 4. Page 25, Left Column:** Underline the following sentence in the note at the top of the column. It is very important to take ESD precautions before handling these ICs to avoid electrostatic damage:

Touch a grounded surface before handling each IC.

5. **Page 51, Right Column, Fourth and Fifth Checkbox Steps (Installing Q22):** Replace the steps with the following;

Place the star heat sink onto Q22 (2N5109). You will need to open the gap on the heat sink to allow Q22 to fit. Q22 must be inserted so its shoulder presses against the heat sink. To do this, place the heat sink flat on your work surface in insert a common flat screwdriver in the slot, then twist the screwdriver to pry the slot open so the transistor slips into the center opening until the shoulder on the transistor case is firmly against the heat sink.

Install Q22 in the space marked to the right of the Elecraft label. Be sure Q22 is flat against the pc board and solder it in place.

6. **Page 53, Left Column:** Delete the first checkbox step.

7. **Page 52, Right Column, First Checkbox Step:** U10 and U11 are now supplied mounted on SMT1A carrier boards identical to U1 on page 1 of this errata. Delete U10 and U11 from the list in the step and add the step below.

Locate one of the *SA612AD mounted on SMT1A* bags. Inside is a length of wire, the IC on small carrier board and an instruction sheet. Install the IC as shown on the instruction sheet.

\_ Install U10.

\_ Install U11.

8. **Page 52, Right Column:** Delete the note about the 1350 after the first checkbox step and delete the second and third checkbox steps, associated notes and the illustration. Add the step below.

Locate the *MC1350 mounted on SMT1A* bag. . Inside is a length of wire, the IC on small carrier board and an instruction sheet. Install the IC as described in the instruction sheet at U12.

9. **Page 60, Left Column, note, second and third checkbox steps:** Change SMT1B to *BAP64-05 diode mounted on SMT1B Carrier Board*.

- 10. Page 68:** Replace the page with page 4 of this errata. It documents the changes required in the procedure to install trimmer capacitors C21 through C46.
- 11. Appendix A, K2 Packing Box Parts List, Page 1:** Delete KN1 (Main Tuning Knob). A new main tuning knob with finger grip is supplied as part of the K2 Encoder Assembly E850539.
- 12. Appendix A, K2 RF Board Parts List, Page 3:** Replace the page with page 5 of this errata showing the revised entries for C32, C34, C21, C23, C44, C46 and D36.
- 13. Appendix A, K2 RF Board Parts List, Page 7:** Replace the page with page 6 of this errata showing the revised entries for U10 and U11.
- 14. Appendix A, K2 Control Board Parts List, Page 3:** Replace the page with page 7 of this errata showing the revised entry for U1.

Install the following 1/4-watt resistors, starting with R46 which is just to the left of I/O controller U1.

\_\_ R46, 270 (RED-VIO-BRN) ⇒ \_\_ R45, 47 (YEL-VIO-BLK)  
 \_\_ R59, 4.7 k (YEL-VIO-RED) \_\_ R61, 120 (BRN-RED-BRN)  
 \_\_ R49, 120 (BRN-RED-BRN) \_\_ R40, 470 (YEL-VIO-BRN)  
 \_\_ R41, 560 (GRN-BLU-BRN) \_\_ R55, 33 (ORG-ORG-BLK)

\_\_ R53, 4.7 ohms (YEL-VIO-GLD)  
 \_\_ R56, 33 (ORG-ORG-BLK)  
 \_\_ R54, 4.7 ohms (YEL-VIO-GLD)  
 \_\_ R60, 100 ohms (BRN-BLK-BRN)  
 \_\_ R62, 2.7 k (RED-VIO-RED)  
 \_\_ R67, 1.5 k, 1% (BRN-GRN-BLK-BRN)  
 \_\_ R68, 226 ohms, 1% (RED-RED-BLU-BLK)



The 150 pF and 3.3 pF capacitors to be installed below may be hard to identify. See capacitor information on page 9.

Install the capacitors listed below. C12 is near the back left corner. Note: C13 and C14 will not be installed; they are included with the 160 m/RX Antenna option (K160RX).

\_\_ C12, 560 (561) ⇒ \_\_ C11, 1800 (182) ⇒ \_\_ C26, .001 (102)  
 \_\_ C16, 1800 (182) \_\_ C15, 560 (561) \_\_ C22, 3.3 pF (3.3)  
 \_\_ C20, 47 (47) \_\_ C19, 330 (331) \_\_ C30, 470 (471)  
 \_\_ C24, 47 (47) \_\_ C25, 330 (331) \_\_ C35, 56 (56)  
 \_\_ C37, .001 (102) \_\_ C36, 470 (471) \_\_ C33, 2.2 pF (2.2)

\_\_ C49, .001 (102) \_\_ C31, 56 (56) \_\_ C42, 330 (331)  
 \_\_ C43, 33 (33) \_\_ C48, 330 (331) \_\_ C47, 33 (33)  
 \_\_ C45, 1 pF (1) \_\_ C115, .01 (103) \_\_ C117, .047 (473)  
 \_\_ C118, .01 (103) \_\_ C116, 33 (33) \_\_ C121, 0.01 (103)  
 \_\_ C120, .01 (103) \_\_ C131, 0.1 (104)

\_\_ C124, 0.1 (104) \_\_ C130, 0.1 (104) \_\_ C128, 680 (681)

\_\_ C129, .01 (103) \_\_ C127, 680 (681) \_\_ C191, 1800 (182)  
 \_\_ C190, 1200 (122) \_\_ C197, 100 (101) \_\_ C198, 27 (27)  
 \_\_ C210, 82 (82) \_\_ C211, 10 (10) \_\_ C218, 150 (151)  
 \_\_ C219, 12 (12) \_\_ C138, .047 (473) \_\_ C222, 100 (101)  
 \_\_ C221, 39 (39) \_\_ C220, 220 (221) \_\_ C214, 68 (68)  
 \_\_ C213, 33 (33) \_\_ C212, 150 (151) \_\_ C203, 47 (47)  
 \_\_ C199, 220 (221) \_\_ C200, 150 (151) \_\_ C202, 120 (121)  
 \_\_ C201, 220 (221) \_\_ C192, 1200 (122)

The trimmer capacitors installed in this step are furnished in separate bags labeled by Elecraft part number. There are four in bag E540002 and two in bag E540020. Do not mix them up. The trimmers may be of either type shown in Figure 6-23. Install the trimmers listed below, starting with C21 from the E540002 bag, near the back-left corner. Orient the flat side of each trimmer capacitor (see Figure 6-23) with the flat side of its component outline. This orientation is required to prevent RF pickup during alignment.

\_\_ C21, E540002 \_\_ C23, E540002  
 \_\_ C32, E540002 \_\_ C34, E540002  
 \_\_ C44, E540020 \_\_ C46, E540020

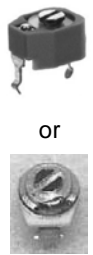
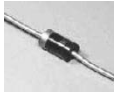








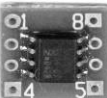




Figure 6-23




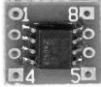
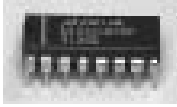
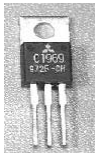

Install L5, a 33  $\mu$ H RF choke (ORG-ORG-BLK), near the back-left corner.

Install the following transistors, which are located near the I/O Controller (U1).

\_\_ Q10, 2N7000 \_\_ Q11, PN2222A \_\_ Q13, PN2222A

Appendix A K2 RF Board Parts List (p/n E850001A and E850001B)					
PICTURE	Designators	Value	Description	Part Number	QTY
 or	C44, C46,	var, 50-20 pF	Trimmer capacitor in bag marked with the Part Number. <b>Do not mix these with other parts.</b>	E540020	2
	C21, C23, C32, C34	var, 10-50 pF	Trimmer capacitor in bag marked with the Part Number. <b>Do not mix these with other parts.</b>	E540002	4
	D9	1N5711	orange glass body	E560004	1
	D1, D2, D3, D4, D5, D6, D7	1N4007	large black body, silver band	E560001	7
	D8, D11, D13, D18, D40, D41	1N4148	clear or blue glass body	E560002	6
	D36	BAP64-05 diode mounted on SMT1B Carrier Board	pin diode supplied on pc daughterboard	E120014	1
	D10	95SQ015	ultra-low-drop shottky diode, 9A, very large black body	E560009	1
	D12	SB530 (alternate: 1N5821)	shottky diode, 5A, very large black body	E560003	1
	D16, D23, D24, D25, D26, D39 (also D19-D20--see description)	MV209	TO-92, 2 leads D19-D20 supplied with K60XV option	E560006	6
	D17, D21, D22, D29, D30, D31, D32, D33, D34, D37, D38	1SV149	TO-92, 2 leads	E560005	11
	F1	RGE300	Resettable fuse; (YELLOW) "G300" Looks like a larger monolithic cap.	E980018	1
	J8	10x2,female socket	10 x 2 female socket	E620038	1
	J7	18x2,female socket	18 x 2 female socket	E620039	1

<b>Appendix A K2 RF Board Parts List (p/n E850001A and E850001B)</b>					
<b>PICTURE</b>	<b>Designators</b>	<b>Value</b>	<b>Description</b>	<b>Part Number</b>	<b>QTY</b>
	U3, U9	LT1252	8 pin DIP, VFO Buffer; TX Buffer	E600020	2
	U5	LTC1451	8 pin DIP, 12-Bit DAC for Reference Freq. Of PLL	E600030	1
	U6	LMC662	8 pin DIP, (rail-to-rail out); PLL Loop filter	E600026	1
	U10, U11	SA612AD mounted on SMT1A	Mixer SMC on SMT1A carrier board with a length of #24 wire and installation instruction sheet	E850727	2
	U12	MC1350 mounted on SMT1A	IF Amp/AGC SMC on SMT1A carrier board with a length of #24 wire and installation instruction sheet	E850726	1
	U8	78L05	5-volt reg. (100mA)	E600029	1
	U4	MC145170P2 (or P1)	16 pin DIP, PLL	E600016	1
	W1, W2, W3, W5, W6	1" bare wire	Use component leads		0
	X1 (X2 not used)	12096 kHz	PLL reference oscillator crystal; HC-49	E850007	1
	X3, X4	4915.2 kHz	BFO crystals; matched set; HC-49 Typical labeling: ECS D 4.91 -S	E850008	2
	X5, X6, X7, X8, X9, X10, X11	4913.6 kHz	Filter crystals; matched set, HC-49 Typical labeling: ECS V 4.9136-S	E850006	7
	Z5	4.000MHz Resonator	Ceramic resonator w/caps; 0.2% tolerance	E660001	1

Appendix A K2 Control Board Parts List (p/n E850002)					
PICTURE	Designators	Value	Description	Part Number	QTY
	R1	50K Trimmer	AGC Threshold	E520011	1
	RP5	470,5R ISO "10A3-471G"	SIP resistor pack, 10 pins; ALT: "770103471"	E510015	1
	RP1	3.9K,5R ISO "770103392"	SIP resistor pack, 10 pins; ALT: "10A3392G"	E510014	1
	RP6	5.1K,5R ISO "770103512"	Sip resistor pack, 10 pins; ALT: "10A3512G"	E510013	1
	RP7	33K,4R ISO "8A3-333G"	SIP resistor pack, 8 pins; ALT: "77083333"	E510016	1
	RP3	47K,5R ISO "10A3-473G"	SIP resistor pack, 10 pins; ALT: 770103473"	E510007	1
	RP2, RP4	82K,4R ISO "77083823"	SIP resistor pack, 8 pins; ALT: "08A3823G"	E510011	2
	U2	LM833N	Dual Op Amp, 8 pins	E600012	1
	U3	LMC6482AIN	Dual Op Amp, 8 pins	E600011	1
	U9	LM380N-8	Audio Amplifier, 8 pins	E600019	1
	U7	25LC320	EEPROM; 4K x 8, 8 pins	E600009	1
	U1	SA612AD mounted on SMT1A	Mixer SMC on SMT1A carrier board with a length of #24 wire and installation instruction sheet	E850727	1
	U10	LMC660	Quad Op Amp, 14 pins	E600025	1
	U8	MAX534	Quad, 8-bit DAC, 16 pins	E600031	1
	U4	LM2930T-8	8 Volt regulator, TO-220 Pkg.	E600018	1
	U5	78M05 Alt: 7805, 7805T, L7805	5 Volt regulator, TO-220 Pkg.	E600024	1
	U6	PIC18C452	MCU, Programmed, 40 pins	E610002	1