

Elecraft K2 Encoder Installation Instructions

E740177

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Introduction

The original encoder used in the K2 has been replaced by a newer type. The new encoder has a small “pony board” containing a PIC microcontroller that provides the same output signals to the K2 as the original encoder. A replacement main tuning knob is included because the new encoder has a slightly larger diameter shaft than the original. The new knob comes with an integrated finger dimple and rubber grip.

Tools Required

- No. 1 Phillips screwdriver.
- Flush cutters that can trim soldered leads flush with the pc board.
- Long nose pliers.
- Temperature controlled ESD-safe soldering iron with rosin core small diameter solder.
- If you are replacing the encoder in an existing K2, you’ll need desoldering braid or a solder sucker to clear solder from pads on the front panel board.
- A grounded wrist strap and ESD dissipating mat are recommended whenever you work inside your K2.
- 5/64” (2 mm) Allen wrench (supplied with your K2 for its original knob).

Components Supplied

DESCRIPTION	QTY.	ELECRAFT PART NO.
PC Board	1	E100442
Encoder	1	E640020
Lock Washer, 1/2” (13mm)	1	E700150
Nut, 1/2” (13mm), Hex	1	E700125
Main Tuning Knob, Weighted, 1/4” (6.5mm) Shaft	1	E980181
Rubber Finger Grip	1	E980182
Resistor, 10K (brn,blk,org) 5%, 1/8 watt	2	E500092
Capacitor, 0.1µF (104)	2	E530020
PIC K2 Encoder, Programmed (ENCDRV1)	1	E620314

Procedure

⚠ Observe ESD precautions when working inside your K3. Wear an ESD wrist strap or touch an unpainted, metal ground frequently while working.

If your K2 is fully assembled, you will need to remove the front panel assembly. See your K2 Owner's manual or KPA100 Owner's manual for details if needed. Note that there are six screws holding the front panel assembly, two at the top lip and two on the bottom lip of the front panel and two that pass through the control board into standoffs on the front panel board (the control board is the board standing vertically directly behind the front panel assembly).

Install the resistors, capacitors and PIC on the pc board as shown in Figure 1. **Be sure to align the notched end of the PIC with the notch in the silkscreen outline on the pc board.** Solder and trim the leads flush with the reverse side of the PC board.

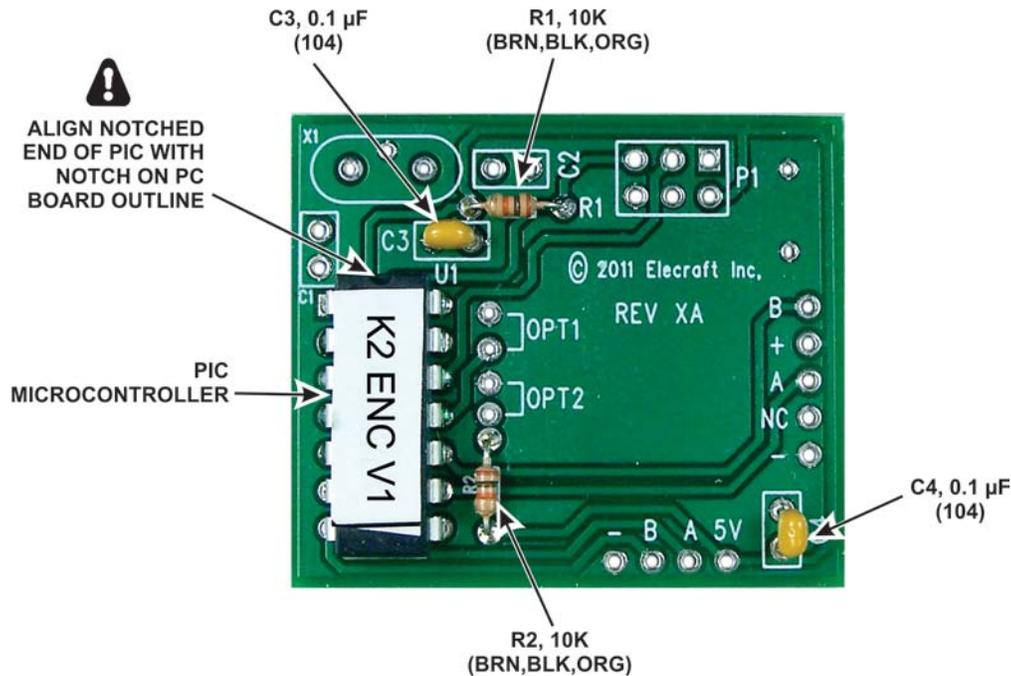


Figure 1. Installing Components on the PC Board.

Note that no components are installed at locations X1, C2, P1 C1, OP1 or OPT2. Those locations are not used.

☐ Install the encoder on the pc board as shown in Figure 2. The leads pass through the pads marked B, +, A, NC and -. Be sure the encoder is flat against the board. Hint: Hold the encoder in place against the board, wet the tip of your soldering iron with a drop of solder and touch it to a lead to “tack” it in place. If the encoder is not flat against the pc board, press it against the board while reheating the soldered lead. Once it is in place, solder the remaining leads and then, if needed, touch up the first lead you tacked in place.

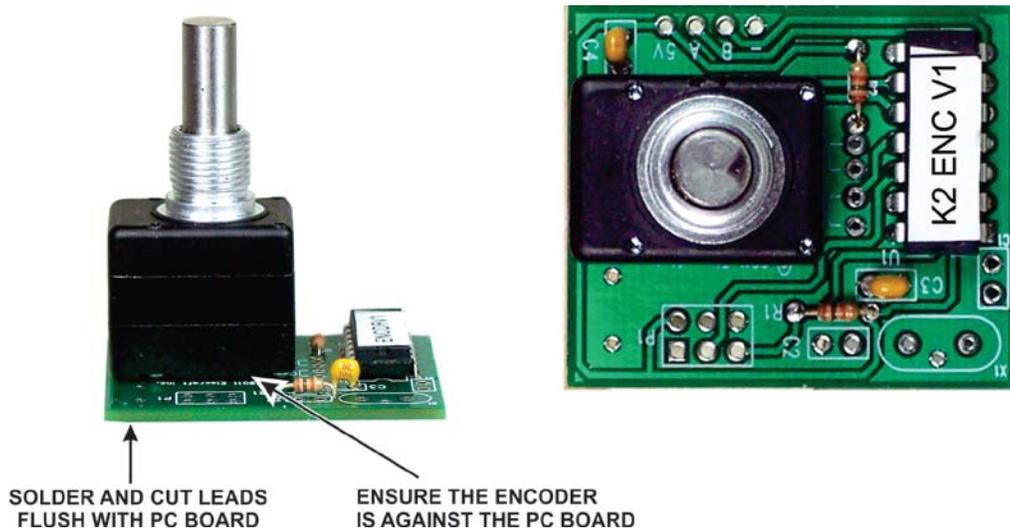


Figure 2. Installing the Encoder on the PC Board.

☐ Install the encoder in the front panel assembly as shown in Figure 3. Fit the threaded shaft of the encoder through the hole in the front panel and pass the four wires you installed on the front panel board earlier through the corresponding holes in the encoder pc board. Be sure the wires do not cross or touch each other. Solder and trim the wires flush.

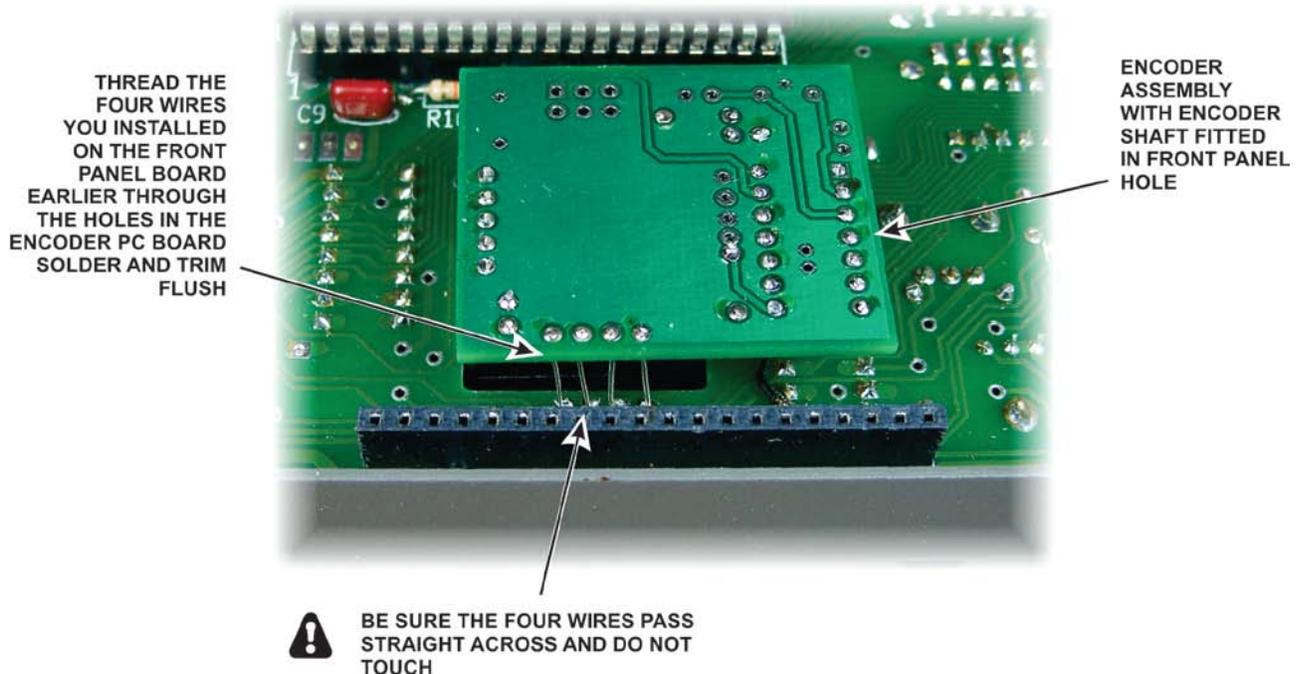


Figure 3. Installing the Encoder Assembly on the K2 Front Panel Assembly.

- Check the non-component side of the pc board (facing upward in Figure 3) to ensure all the leads are cut flush. When installed there is very little space between it and the pc board behind it in the K2. Any excess lead length may cause a short circuit.
- Secure the encoder shaft to the front panel with the supplied lock washer and 1/2" (13mm) hex nut.
- If you are assembling a K2 kit, continue with the construction on pg 33 of the K2 Owner's Manual to install the small knobs, and then refer to *Installing the Main Tuning Knob* below for mounting the new knob with the finger grip. If replacing an encoder in an assembled K2, install the new knob as described below and then replace the front panel assembly on the K2.

Installing the Main Tuning Knob

- Install the main tuning knob as shown in Figure 4.



Figure 4. Installing the Main Tuning Knob.

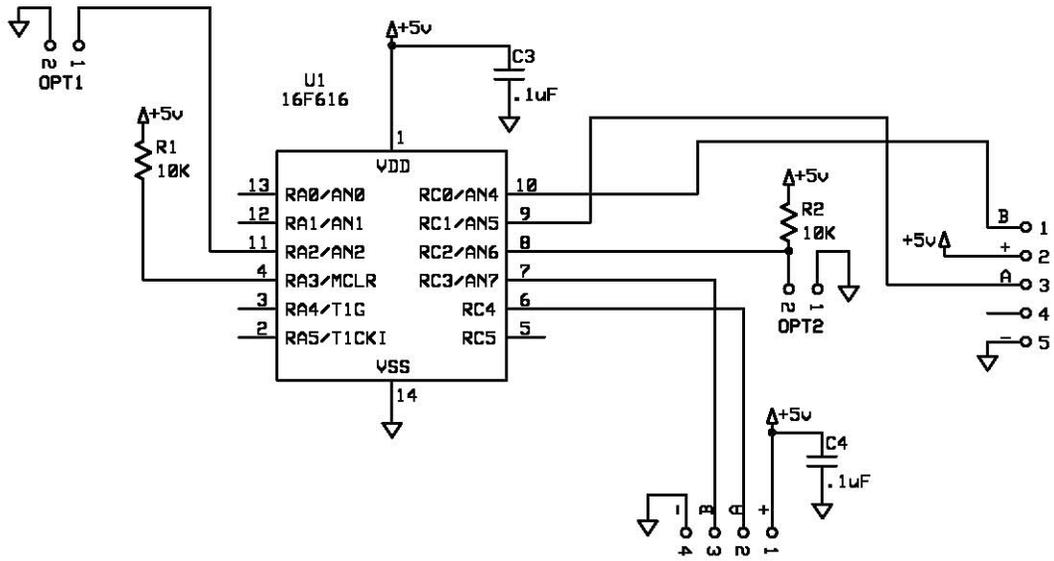
Adjusting Main Tuning Knob Turning Resistance

To adjust the turning resistance you need to remove the rubber finger grip. Use your fingernails or, if needed, a small flat tool, to work the finger grip off of the knob at the place shown in Figure 5. Turn the knob, moving the finger grip off in small increments until it is free. Then loosen the set screw to adjust the resistance by pressing the knob against the felt washer or pulling it away. A common starting point is to turn the K2 front panel upward so the weight of the knob sets the pressure against the felt washer.



Figure 5. Removing the Finger Grip.

Schematic Diagram



Customer Service and Support

Technical Assistance

You can send e-mail to support@elecraft.com and we will respond quickly – typically the same day Monday through Friday. If you need replacement parts, send an e-mail to parts@elecraft.com. Telephone assistance is available from 9 A.M. to 5 P.M. Pacific time (weekdays only) at 831-763-4211. Please use e-mail rather than calling when possible since this gives us a written record of the details of your problem and allows us to handle a larger number of requests each day.

Repair / Alignment Service

If necessary, you may return your Elecraft product to us for repair or alignment. (Note: We offer unlimited email and phone support, so please try that route first as we can usually help you find the problem quickly.)

IMPORTANT: You must contact Elecraft before mailing your product to obtain authorization for the return, what address to ship it to and current information on repair fees and turnaround times. (Frequently we can determine the cause of your problem and save you the trouble of shipping it back to us.) Our repair location may be different from our factory address. We will give you the address to ship your kit to at the time of repair authorization. *Packages shipped to the factory address without authorization will incur an additional shipping charge for reshipment to our repair depot.*

Elecraft 1-Year Limited Warranty

This warranty is effective as of the date of first consumer purchase (or if shipped from the factory, the date the product is shipped to the customer). It covers both our kits and fully assembled products. For kits, before requesting warranty service, you should fully complete the assembly, carefully following all instructions in the manual.

Who is covered: This warranty covers the original owner of the Elecraft product as disclosed to Elecraft at the time of order. Elecraft products transferred by the purchaser to a third party, either by sale, gift, or other method, who is not disclosed to Elecraft at the time of original order, are not covered by this warranty. If the Elecraft product is being bought indirectly for a third party, the third party's name and address must be provided at time of order to ensure warranty coverage.

What is covered: During the first year after date of purchase, Elecraft will replace defective or missing parts free of charge (post-paid). We will also correct any malfunction to kits or assembled units caused by defective parts and materials. Purchaser pays inbound shipping to us for warranty repair; we pay shipping to return the repaired equipment to you by UPS ground service or equivalent to the continental USA and Canada. For Alaska, Hawaii, and other destinations outside the U.S. and Canada, actual return shipping cost is paid by the owner.

What is not covered: This warranty does not cover correction of kit assembly errors. It also does not cover misalignment; repair of damage caused by misuse, negligence, battery leakage or corrosion, or builder modifications; or any performance malfunctions involving non-Elecraft accessory equipment. The use of acid-core solder, water-soluble flux solder, or any corrosive or conductive flux or solvent will void this warranty in its entirety. Also not covered is reimbursement for loss of use, inconvenience, customer assembly or alignment time, or cost of unauthorized service.

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