

Elecraft KXAT2 Automatic Antenna Tuner Installation Instructions

Revision B, June 26, 2017

E740294

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Introduction

The KXAT2 internal automatic antenna tuner converts a wide range of impedances presented by antennas to a value close to 50 ohms, non reactive (i.e. low SWR) for the KXAT2 itself. This allows the transmitter in the KX2 to deliver full RF power in transmit and can also improve sensitivity in receive.

Even many non-resonant “random” wire antennas can be used effectively with the KXAT2 installed.


When commanded to tune, the KXAT2 searches for the best match (lowest SWR to the transmitter). Once a tuning solution has been located, the solution is stored so that retuning requires less than 1 second. One tuning solution is stored for each band.

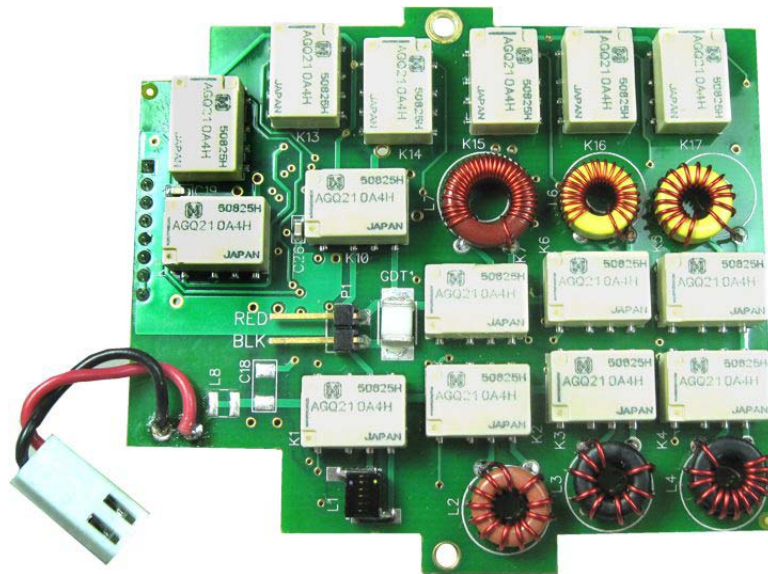
The KXAT2 is a single pc board (see below) that fits inside the KX2 enclosure.

If you would like Elecraft to install this modification for you, contact Elecraft technical support at k3support@elecraft.com or call 831-763-4211.

IMPORTANT!

A modification was released shortly after KX2 production began that further reduces harmonic energy in the transmitter output. If you have an early KX2 that has not been modified, it is most conveniently done while installing the KXAT2. The necessary parts are included with this kit. No soldering or special tools are required. Simply follow the steps that refer to installing the modification where you encounter them in the following procedure.

 ESD-Sensitive! A grounded wrist strap and ESD dissipating mat are recommended whenever you work inside your K3. Optionally, touch a bare metal ground frequently while working.



KXAT2 Antenna Tuner Option Circuit Board

Tools Required

1. A No 1 Phillips-head screwdriver.
2. Thin nose (1/8" or 3 mm) pliers to hold nuts with limited clearance space (see Figure 6 on page 5).
3. You may need a small rule to accurately measure 7/16" if our KX2 does not have the Harmonic Reduction modification already installed. (See the *Harmonic Reduction Installation* instructions included with this kit for details.)
4. A soft surface that you can lay the KX2 on without scratching the LCD cover or case.
5. A grounded wrist strap and ESD dissipating mat are recommended whenever you work inside your KX2. Optionally, touch a bare metal ground frequently while working.

Procedure

- Disconnect all cables and, if used, external power from your KX3.
- With the KX2 face down, loosen the two thumb screws and carefully remove the bottom cover as shown in Figure 1. Take care to avoid pulling on the cable leading to the speaker.

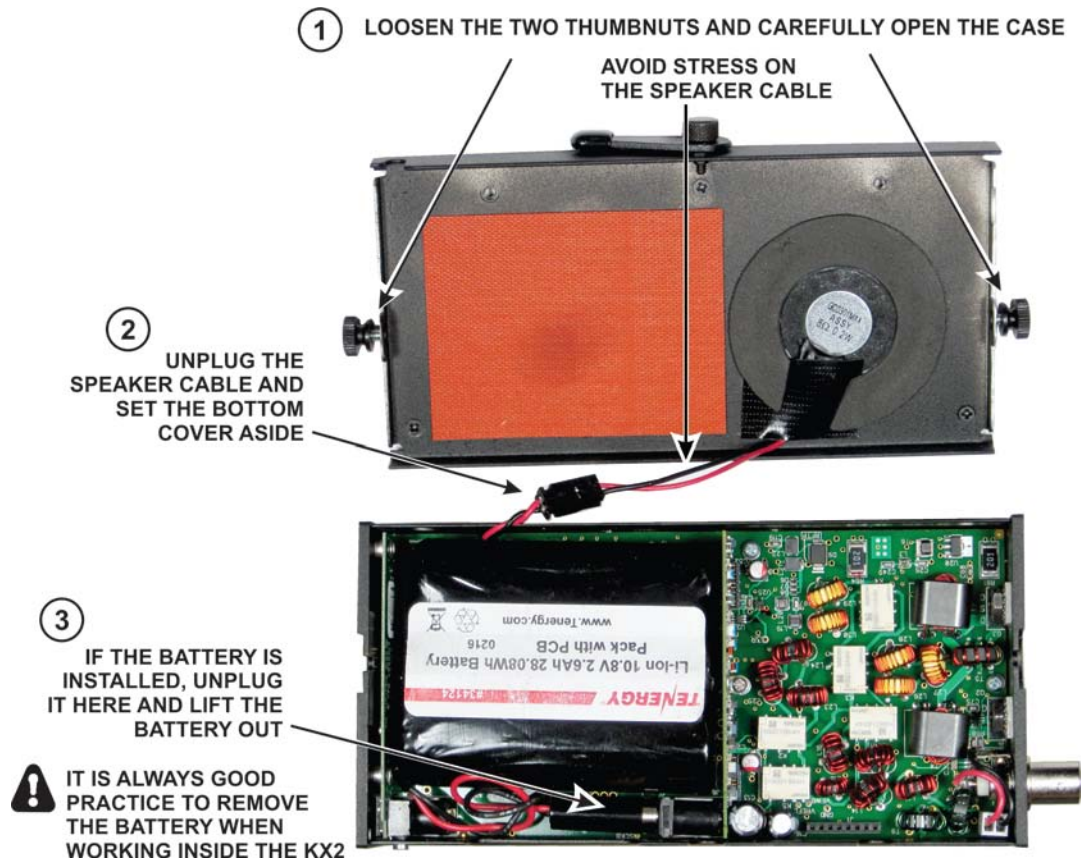


Figure 1. Opening the KX2.

Check to see if your KX2 has the Harmonic Suppression modification. The modification has been made if your KX2 has the copper strap and thermal insulators under the transistors mounted on the end plate as shown in Figure 2. If the transistors in your KX2 have the thermal insulators and copper strap, skip this step. Otherwise, turn to the *K3 Harmonic Reduction Instructions* included with this kit and install the modification starting with Figure 2 and the associated step on page 2. Stop after installing the copper tape as shown in Figure 5 on page 4 and resume installing the KXAT2.

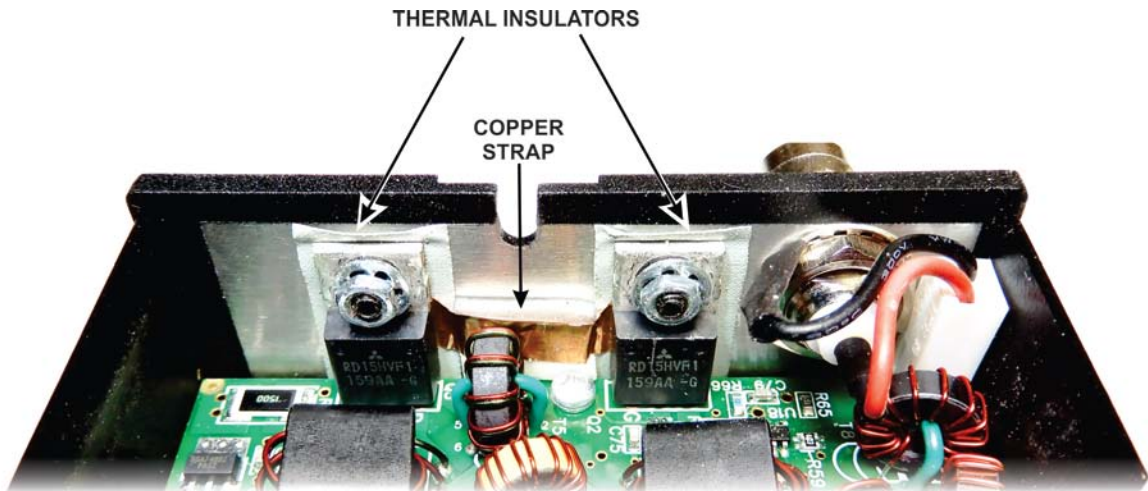


Figure 2. Checking for the Harmonic Suppression Modification.

If you just installed the Harmonic Reduction modification, the end plate is already off. Skip to the next step. Otherwise, remove the end plate with the antenna connector as shown in Figure 3. The screw marked “Do Not Remove” connects to nothing inside the KX2. It ensures proper spacing between two circuit boards.

⚠ Take care to avoid losing the nuts, lock washers and shoulder washers holding the transistors inside your KX2 (see Figure 6 on page 5).

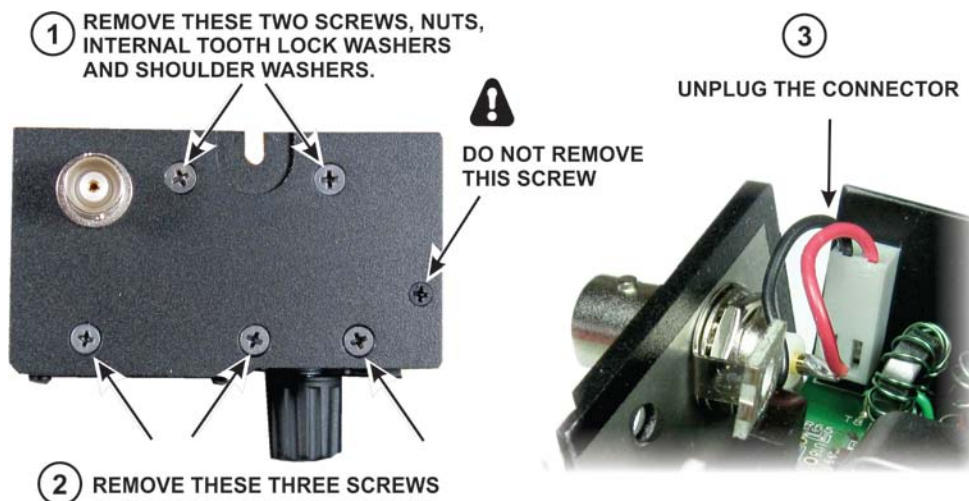


Figure 3. Removing the KX2 End Plate.

□ Remove the screw and lock washer shown in Figure 4. Note that a tab held by the screw holds the adjacent KXBPF board in place. Take care not to dislodge the KXBPF board while installing the KXAT2 board in the next step.

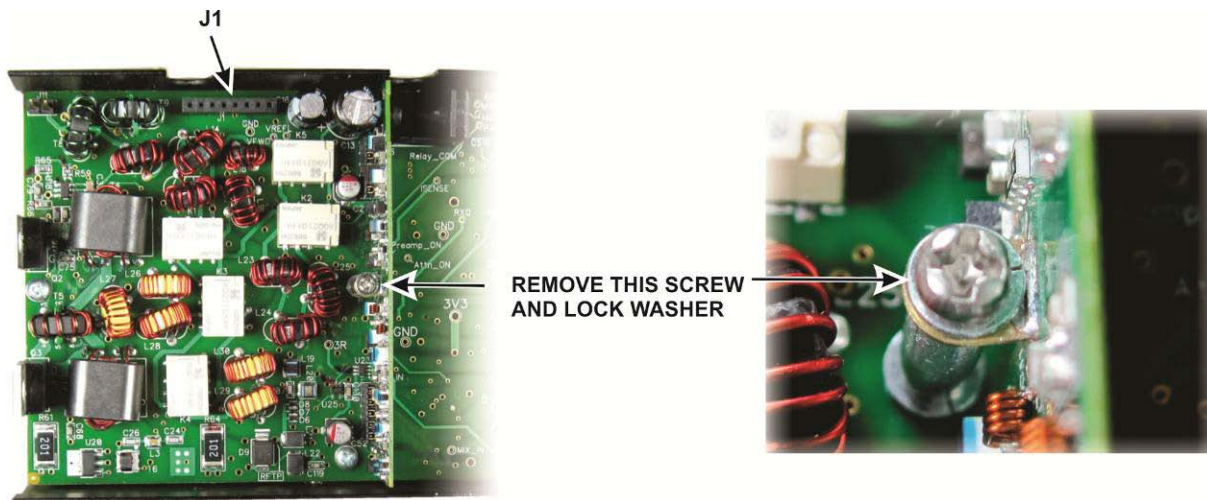


Figure 4. Removing Retaining Screw and Lock Washer.

□ Position the KXAT2 board as shown over the area of the KX2 RF module between the KXBPF board and then end. Connector J1 on the KXAT2 board plugs into J1 on the RF module shown in Figure 4. When J1 is properly mated the hole for the screw and washer will be aligned over the spacer.

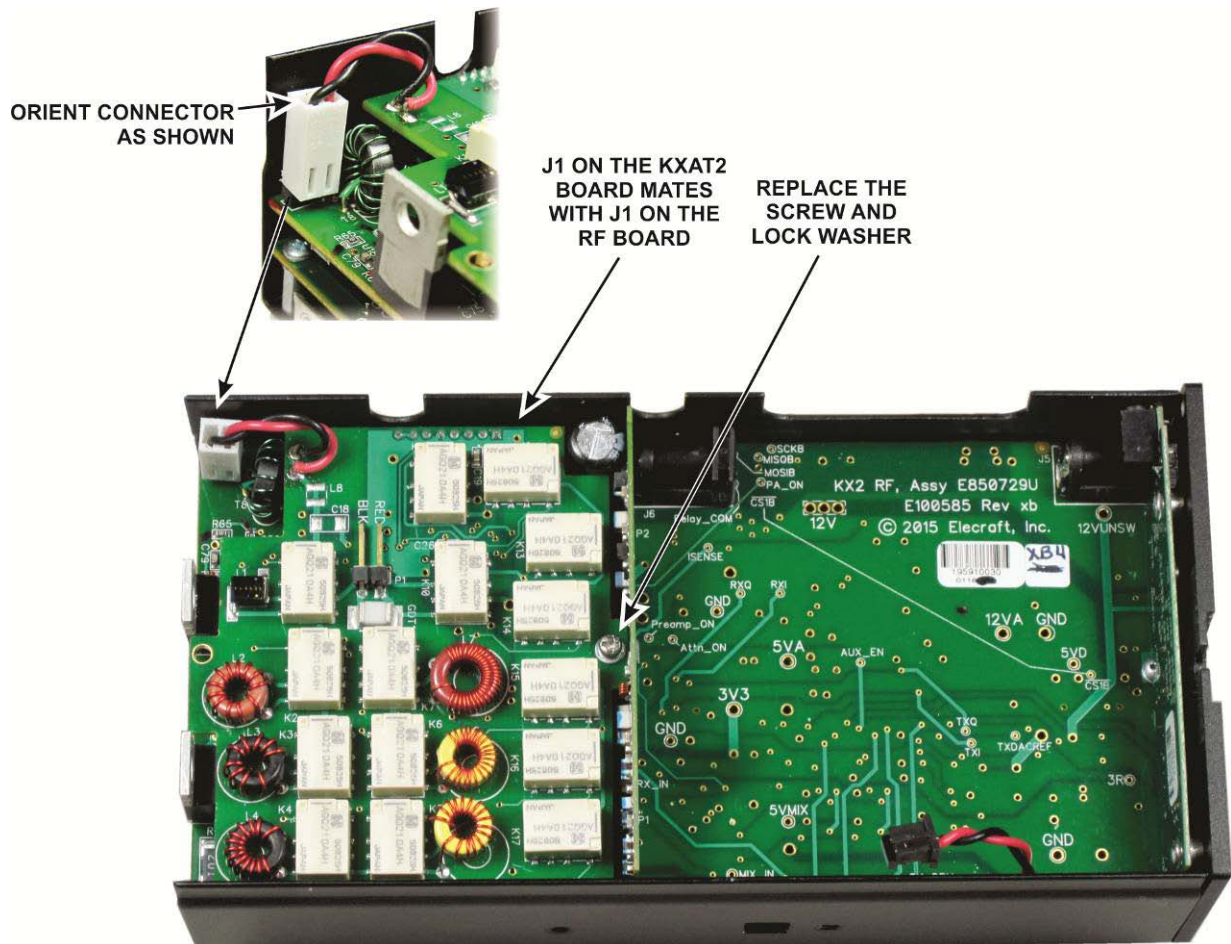


Figure 5. Mounting the KXAT2 Board.

- Replace the end plate starting with the three short screws near the front panel (see Figure 3 on page 3) and then install the transistor mounting hardware as shown in Figure 6.

⚠ Be careful to avoid moving or damaging the inductors and other components on the KXAT2 board.

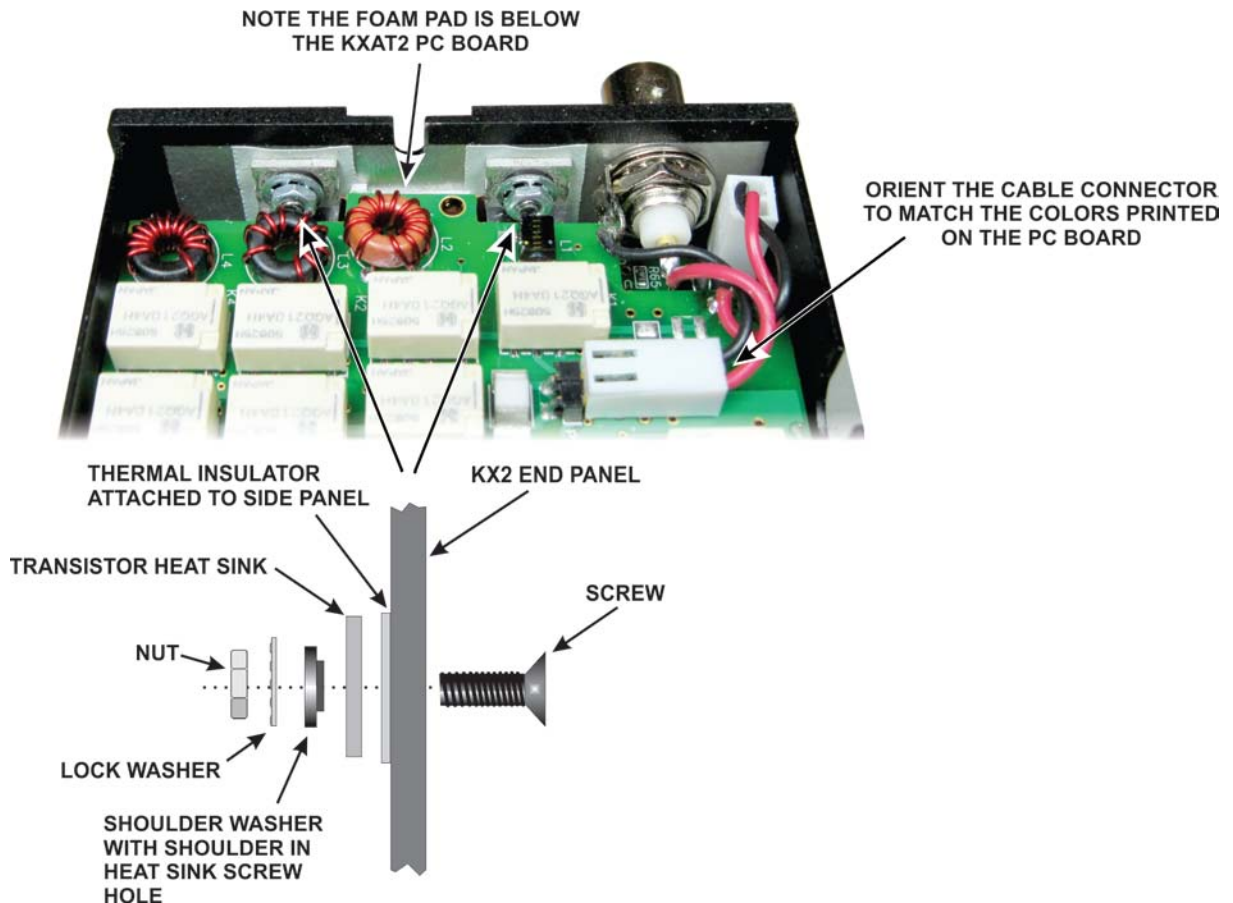


Figure 6. Finishing the KXAT2 Installation

- Plug the cable from the antenna connector P1 on the KXAT2 board as shown in Figure 6.
- If used, replace the internal battery and plug it in as shown in Figure 1 on page 2.
- Reconnect the speaker cable and replace the bottom cover. If the battery is installed, position the speaker connector next to the side of the enclosure to allow the cover to close easily.

That completes the installation of the KXAT2 option.

⚠ The KXAT2 will not be active until you enable it. See *Option Manual Enables* in your KX2 Owner's Manual.

See *Transmit Controls and ATU Tuning* in your KX2 Owner's Manual for details about using your KXAT2.

Elecraft's 1-Year Limited Warranty

This warranty is effective as of the date of first consumer purchase (or if shipped from factory, date product is shipped to 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 to Elecraft at time of order to insure 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 Elecraft for warranty repair, Elecraft will pay shipping to return the repaired equipment to you by UPS ground service or equivalent to the continental USA and Canada. Alaska, Hawaii and outside U.S. and Canada actual return shipping cost paid by 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, 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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