

# ELECRAFT Application Note

## Modifying the K3 CW Keying Rise Time

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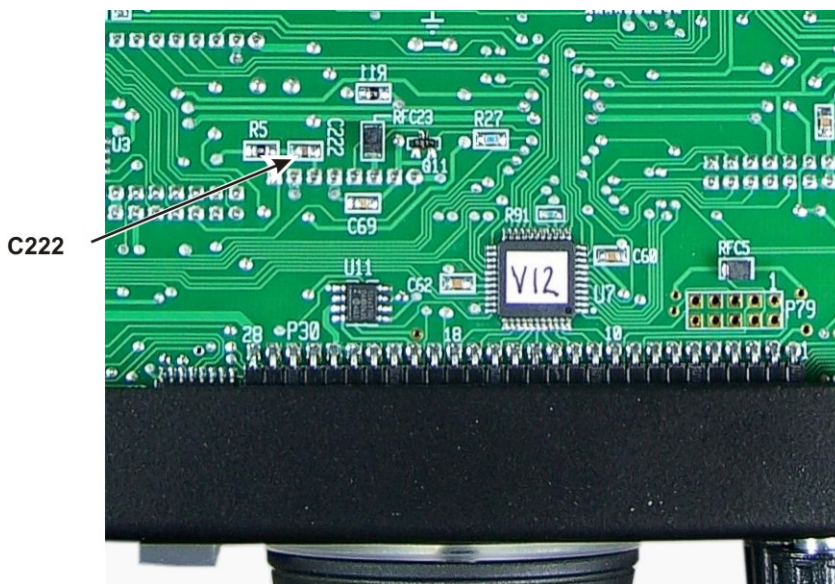
### Background

Some owners prefer a faster CW keying waveform rise time. The rise time can be reduced from about 8 milliseconds to 5 milliseconds without affecting the fall time by replacing one capacitor on the K3 main RF board with a capacitor of any value between 0.1 to 0.27  $\mu\text{F}$ . The replacement capacitor may be an SMD type or a conventional leaded part of any convenient voltage rating.

**⚠ This modification requires the removal of a SMD capacitor on the bottom of the RF board. You do not need special SMD soldering tools, but you must be comfortable with soldering on the pc board.**

### Procedure

- Disconnect power from your K3 and set it upside down on a clean workspace with the front panel toward you.
- The bottom cover has two sections. Remove only the forward section nearest the front panel. It is held in place with seven black pan head screws (Do *not* loosen the zinc plated screws holding the front feet and tilt stand).
- Locate surface mount capacitor C222. It is near the center, almost directly behind the VFO A tuning knob (see Figure 1).



**⚠**  
ESD SENSITIVE!  
WEAR A GROUNDED  
WRIST STRAP OR TOUCH  
AN UNPAINTED METAL  
GROUND BEFORE HANDLING.

Figure 1. C222 Location on the Bottom of the RF board.

Remove the existing capacitor C222. If you do not have SMD tools, there are several ways you can do this. **Important:** however you remove C222, avoid damaging the pc board. Sacrifice the inexpensive part, and protect the circuit board!

1. Probably the easiest and safest way to remove the part without special tools is to use a pair of sharp diagonal cutters to cut the part through the brown center section, then remove the two end pieces, one at a time.
2. If you have two soldering irons, heat both ends of the capacitor at the same time and the part can easily dislodge and be removed.
3. If you have only one soldering iron, use solder wick (or a solder sucker) to remove the solder from each terminal until the part lifts free. Once almost all of the solder has been removed, it helps to put the tip of a thin knife blade under the center and lift *gently* while heating each end. Use only a small amount of pressure. You do not want to lift or damage the circuit trace.

Install the new capacitor. If you are installing a leaded part, it's best to use one with 0.1" lead spacing. Keep the leads short and be sure you don't create a solder bridge between the solder pads (See Figure 2.)

DO NOT USE EXCESS  
SOLDER. BE SURE THERE  
IS NO SOLDER BRIDGE  
BETWEEN THE LEADS.

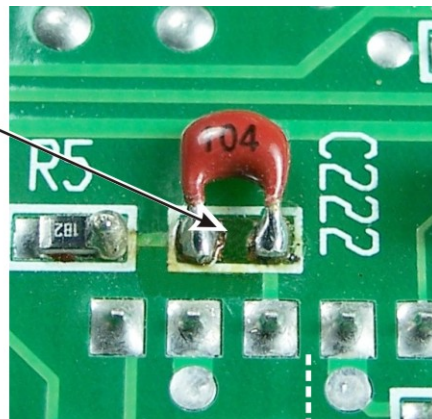


Figure 2. Replacement C222 Installed Using a Leaded Capacitor.

Replace the bottom cover. Be sure to replace all seven black, 4-40 pan head screws. The electrical and mechanical integrity of the K3 depends upon all the case screws being installed and snug.

That completes the modification of your K3.