

## Reforming electrolytic capacitors with the **Heathkit IT-11**.

Do not try to reform a capacitor above its rated voltage and make sure that the polarity is correct.

Start with the voltage switch set to a value much lower than the rated voltage of the capacitor.

Set the lever switch on the left to "**Electrolytic**".

Set the lever switch on the right to "**Leakage**".

The eye may stay open, close momentarily and then open, or close and stay closed. If it closes and does not open after about 15 minutes, then the capacitor is beyond recovery.

If the eye opens, then switch the voltage level to a higher value, step by step, until the rated voltage of the capacitor is reached, or until the eye closes and stays closed, whichever comes first.

Change the switch on the right to "**Discharge**". The eye will close for a moment and then reopen. Switch back to "**Leakage**" and the eye will close. This time it may slowly open after a few minutes. Repeat the procedure a couple of times. The eye should open slightly faster each time you switch back to "**Leakage**". Leave the capacitor connected for about half an hour.

Change the voltage switch to a higher value, one step at a time, hold at each step until the eye opens and repeat the above "**Discharge**" and "**Leakage**" procedure.

You may reach a point where the eye will not open, even if the test voltage is below the rated capacitor voltage. Then set the voltage switch to a value that corresponds to the rated capacitor voltage, or the closest value below the rated voltage, and leave it there for several hours. This will not damage the tester and will not likely damage the capacitor.

If the eye is still closed, then find out at what voltage the eye opens. It will most likely be at a higher voltage than it was before. Again, leave it connected for several hours, even for a longer time than before. Eventually it should open at the rated voltage.

Change the switch to "**Discharge**". The eye should close for several seconds and then open. Go back and forth between "**Leakage**" and "**Discharge**" noting that the eye closes and then opens.

## Measuring the capacitance of electrolytic capacitors.

Set the right hand switch to "**Discharge**" leaving it there until the eye opens. Then set it to "**Bridge**".

If the rated value of the capacitor is higher than **20 $\mu$ F**, then set the range switch to "**C EXT SCALE**". If the rated value is lower than **20 $\mu$ F**, then set the range switch to "**C X1**".

Slowly rotate the bridge dial until the eye opens. Read the value on the scale that corresponds to the selected range. If the reading is close to the end of rotation of the dial indicated more or less than **20**, try the other range.

Turn the "**% POWER FACTOR**" knob to open the eye wider. Go back to the bridge dial and fine tune it for maximum opening. Go back and forth between the two knobs several times.

The "**% POWER FACTOR**" is typically between **5%** and **10%** for old capacitors.