NeoLoch   NLT-28P-12LED-5S

Assembly Instructions

Your kit should contain the following items. If you find a part missing, please contact NeoLoch for a replacement.

Kit contents:
- 1 – Printed Circuit Board
- 1 – 28 Pin ZIF Socket
- 1 – 40 Pin Socket
- 1 – 6-pin Right Angle Strip Header
- 1 – 7805 5 Volt Voltage Regulator
- 1 – 0.33uF Capactitor
- 6 – 2x5mm Green LEDs
- 6 – 2x5mm Red LEDs
- 12 – 390 Ohm Resistors (Orange White Brown)
- 2 – 0.1uF Ceramic Capacitors
- 1 – 1K Ohm Resistor (Brown Black Red)
- 2 – 10K Ohm Resistor (Brown Black Orange)
- 1 – 3.3K Ohm Resistor (Orange, Orange, Red)
- 1 – 15K Ohm Resistor (Brown, Green, Orange)
- 1 – 20K Ohm Resistor (Red, Black, Orange)
- 5 – Tactile Momentary Contact Switch
- 1 – PIC16F884 Microcontroller
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When assembling the board you'll notice that some pads are square while the others are round. The square pad is a pin 1 indicator and will aid in the board's assembly.
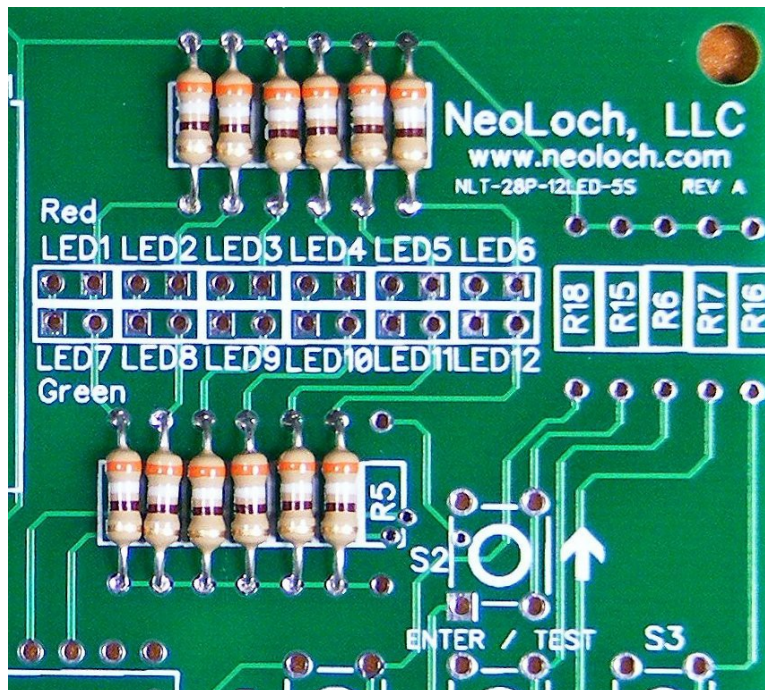
Preliminary

Step One – 390 Ohm Resistors
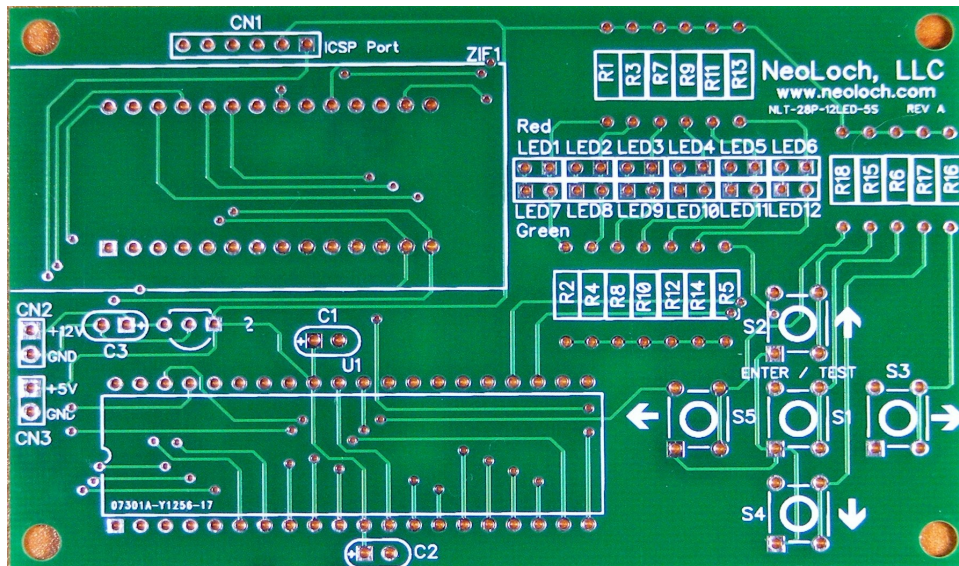
Most of the board will progress from the lowest profile parts to the highest. So we'll begin with installing the resistors. First up, the 390 Ohm resistors used to control current flow into and out of the LEDs.

1) Solder the 390Ω (orange, white, brown) resistors into R1 – R4 and R7 – R14

Step Three – Control Resistors For Switch Array

Now let's begin soldering in the resistors to control the voltages supplied to the MCU from the switch array. It's critical that each resistor is soldered into the correct footprint so that MCU can correctly identify which switch is being pressed.
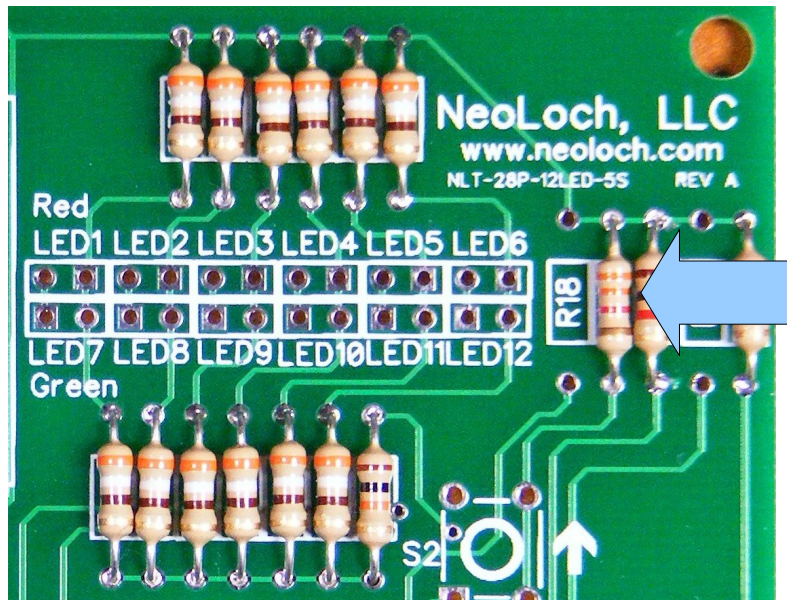
1) **Solder the 10K ohm resistors (Brown, Black, Orange) into R5 and R16**
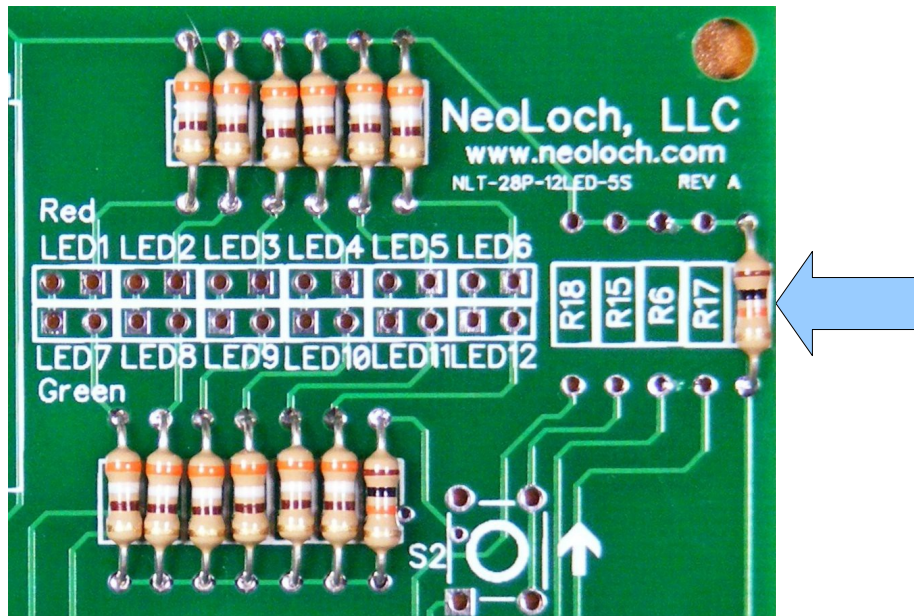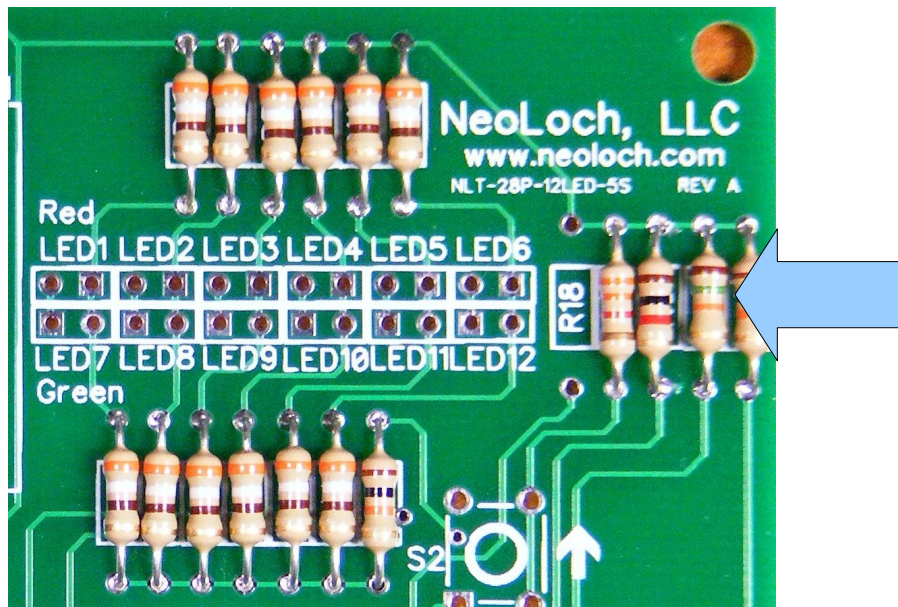

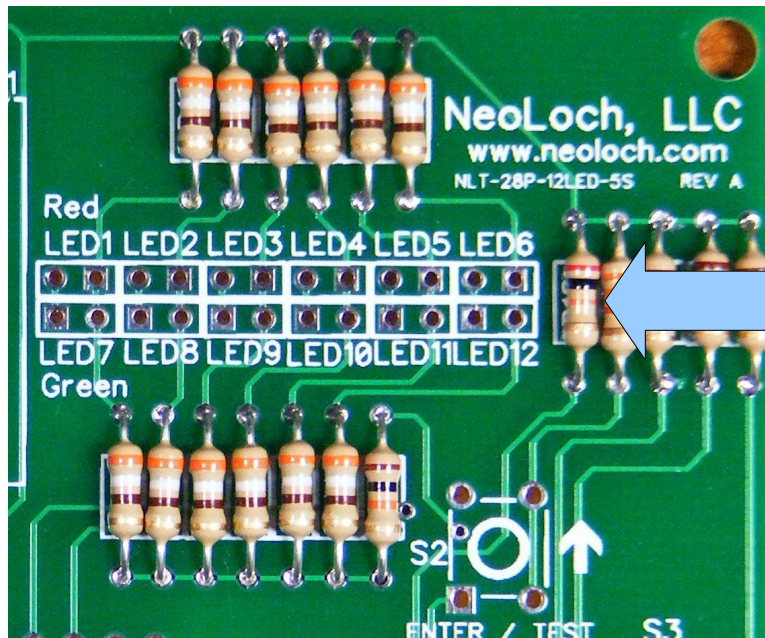2) **Solder the 1K ohm resistor (Brown, Black, Red) into R6**
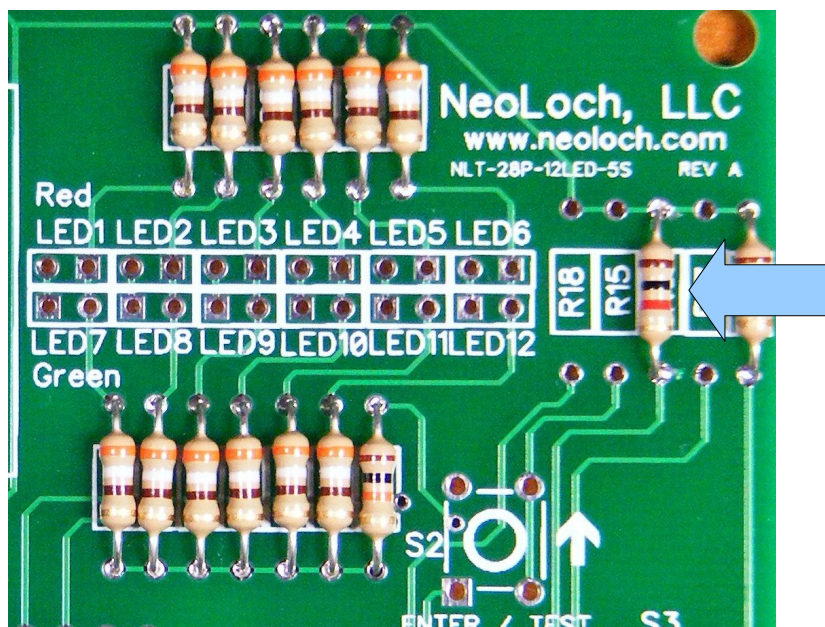
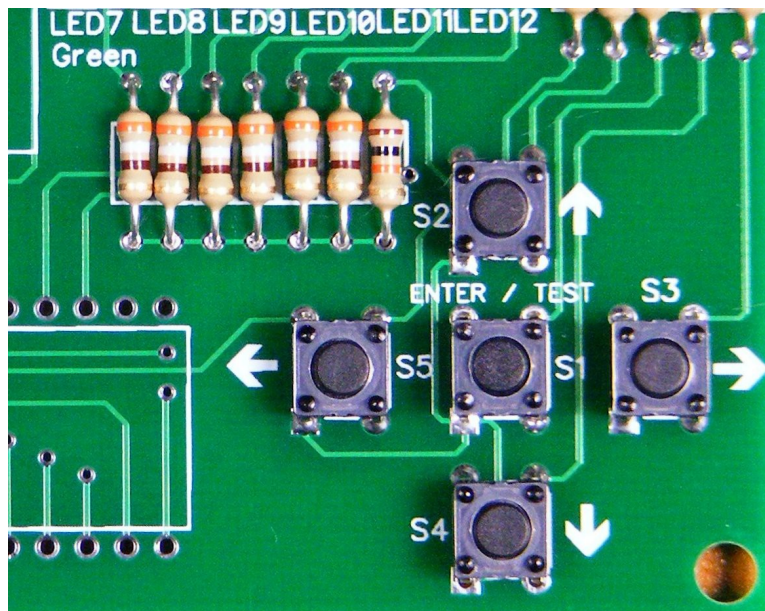3) **Solder the 3.3K ohm resistor (Orange, Orange, Red) into R15**

4) **Solder the 15K ohm resistor (Brown, Green, Orange) into R17**
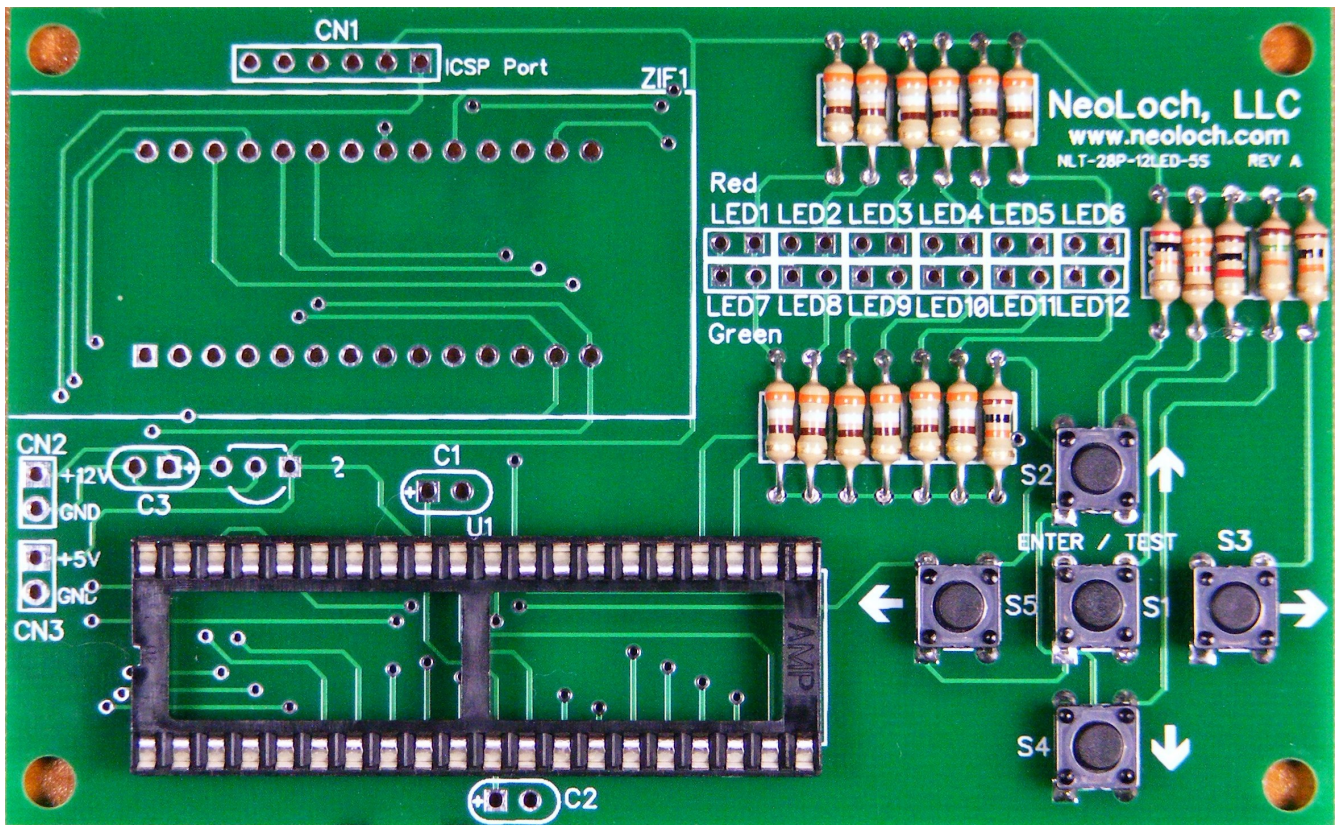
5) Solder the 20K ohm resistor (Red, Black, Orange) into R18


Step Four – Solder in Switches.

Step Five – 40 Pin Socket

    A socket is included for the microcontroller to sit in. Though this part is optional, it will allow you to not only use the tester as a programmer for a wide range of Microchip 40 pin microcontrollers, but also upgrade the tester to a more powerful microcontroller. It is therefor recommended that the socket be installed.

Step Six – ICSP Header (Optional)
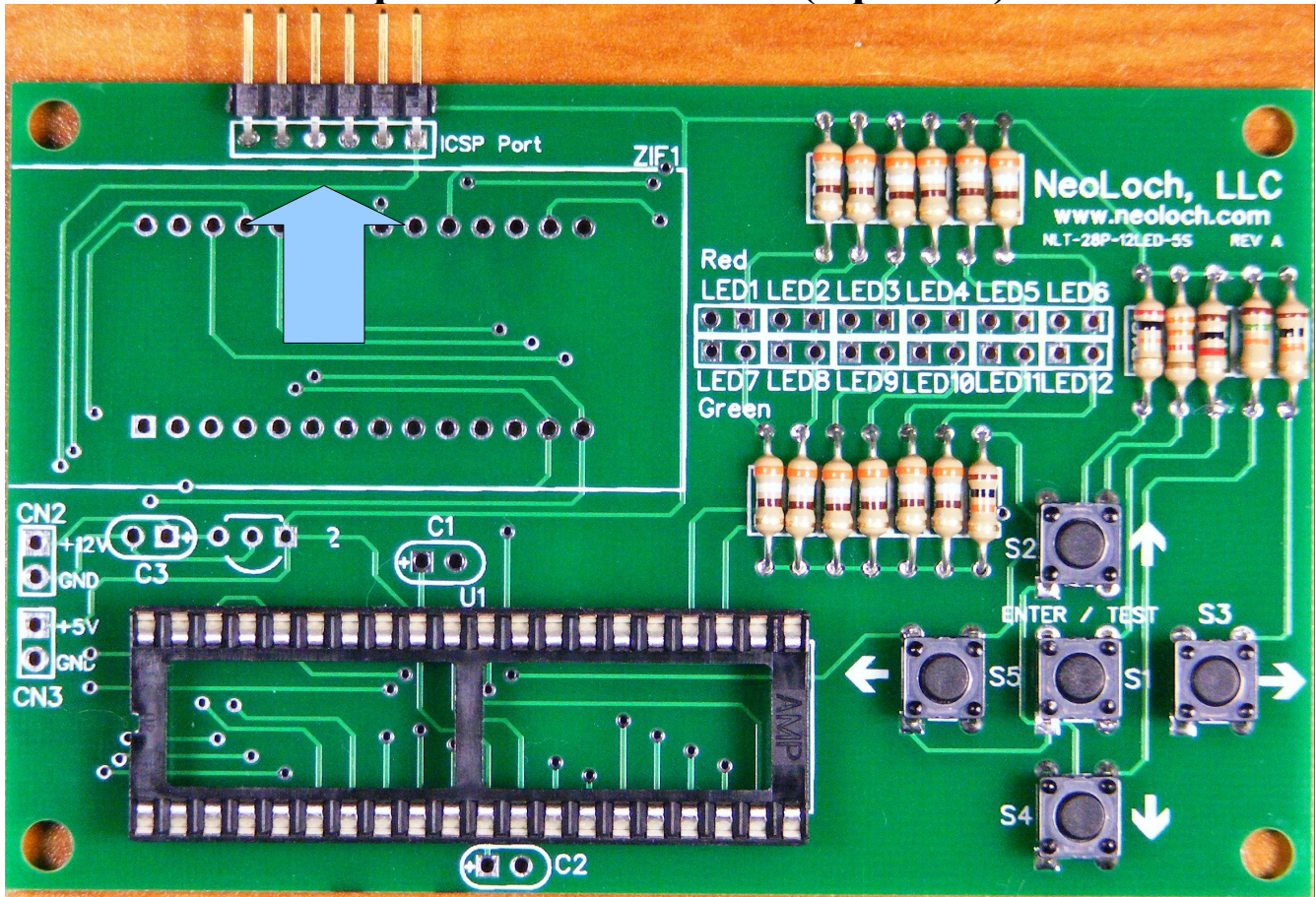
If you plan on writing your own programs for the tester, you'll want to solder in the right angle pin strip header to the ICSP port.

Step Seven – LEDs
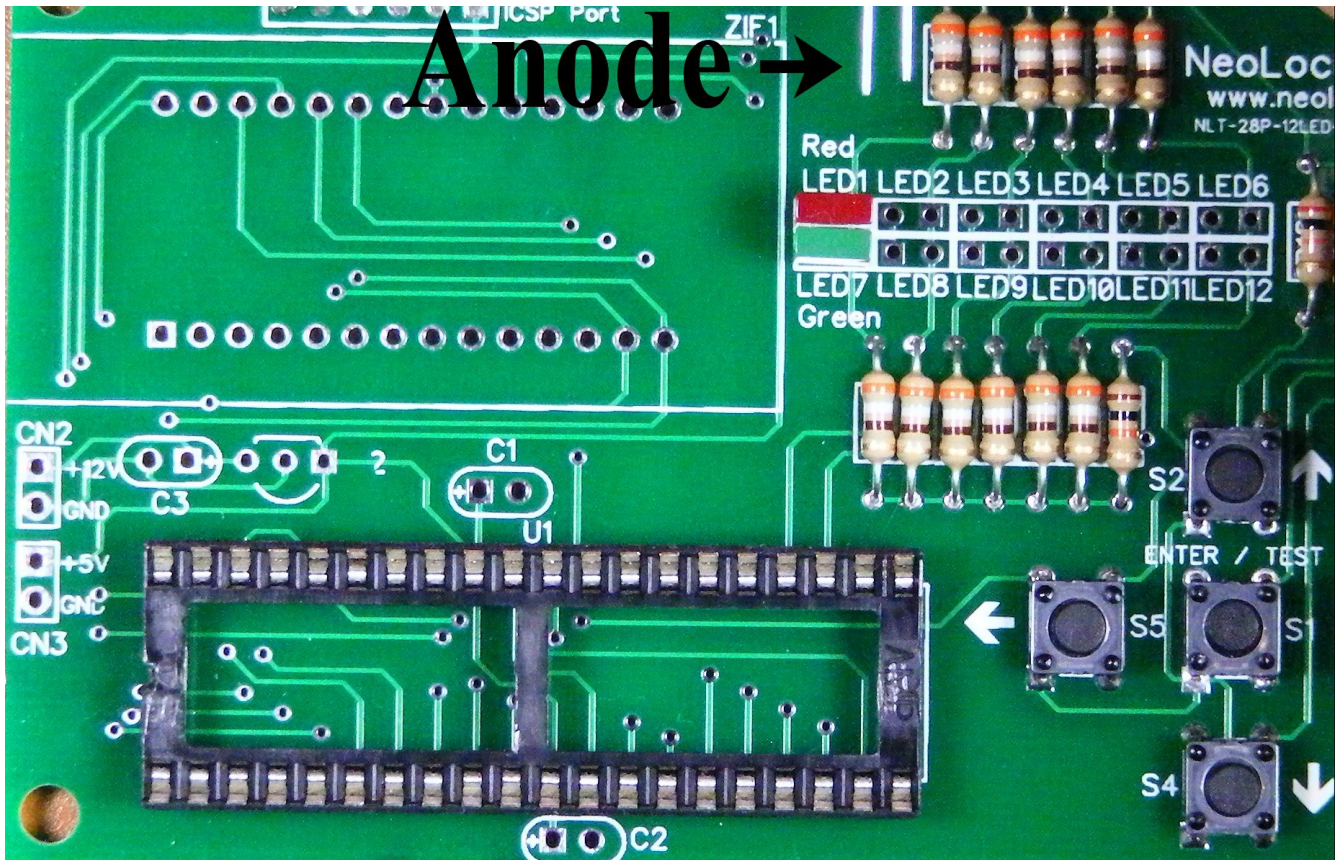
Your kit comes with a total of 12 LEDs, six green and six red. The red LEDs go in the top row while the green LEDs go in the bottom row. It's important to orient the LEDS correctly or they will not operate properly.

LEDs have two leads. The longer lead is the anode and the shorter lead is the cathode. The cathode is considered pin 1 and will almost always go in the hole with the square pad. In the above picture the leads for a LED are shown at the top with the anode labeled.

The order LEDs are installed in isn't critical, just be sure that you install all the green LEDs along the bottom row with the shorter lead in the hole with the square pad (pin 1). And the red LEDs in the top row with the shorter lead, the cathode, inserted into the hole with the square lead.
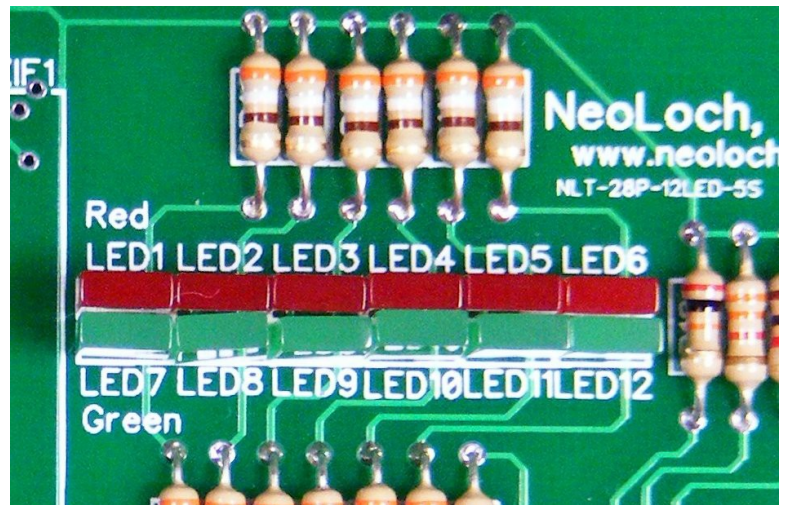

Step Eight – Voltage Regulator
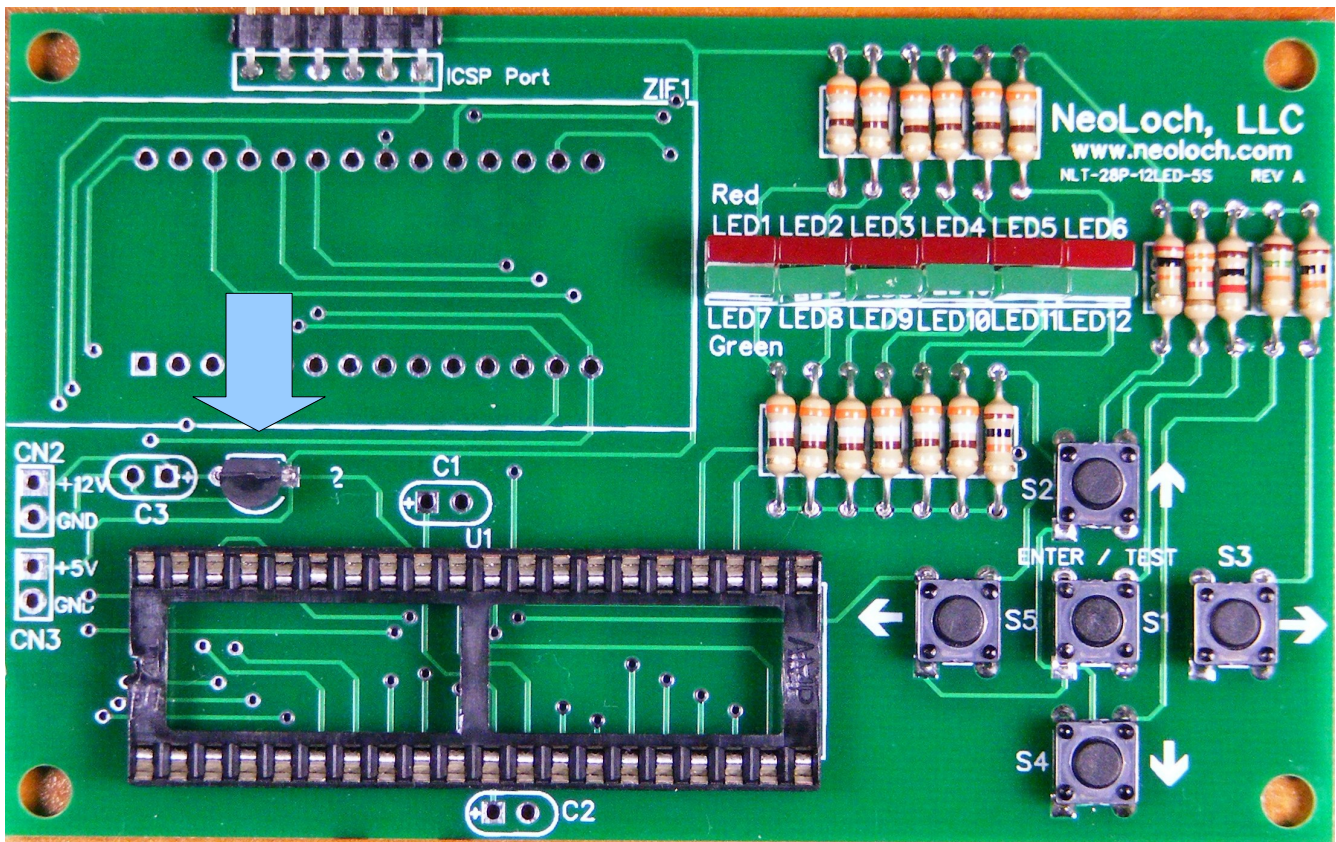
If you plan on powering the tester with a supply voltage greater than 5.5V, then you'll want to install the voltage regulator. Orient the 7805 voltage regulator so that it matches the silkscreen on the PC board. Be very careful not to over heat this part, excessive heat can and most probably will damage the regulator. The best way to do this is solder one pin of the regulator, allow the part to cool for 5 seconds and the solder the next pin. Repeat this process for the last pin.

Next, install the .33uF capacitor in C3. This capacitor is polarized, so make sure the longer lead goes into the hole with the square pad.
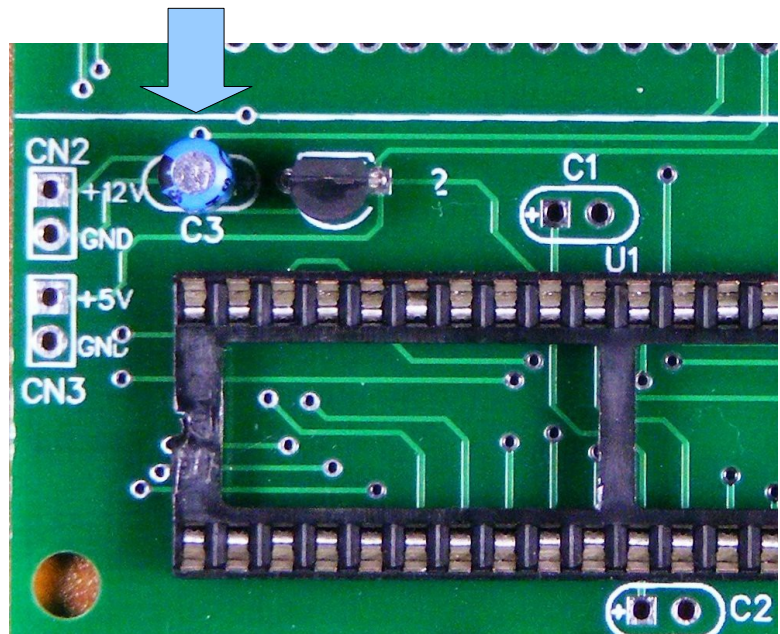
Step Nine – Bypass Capacitors
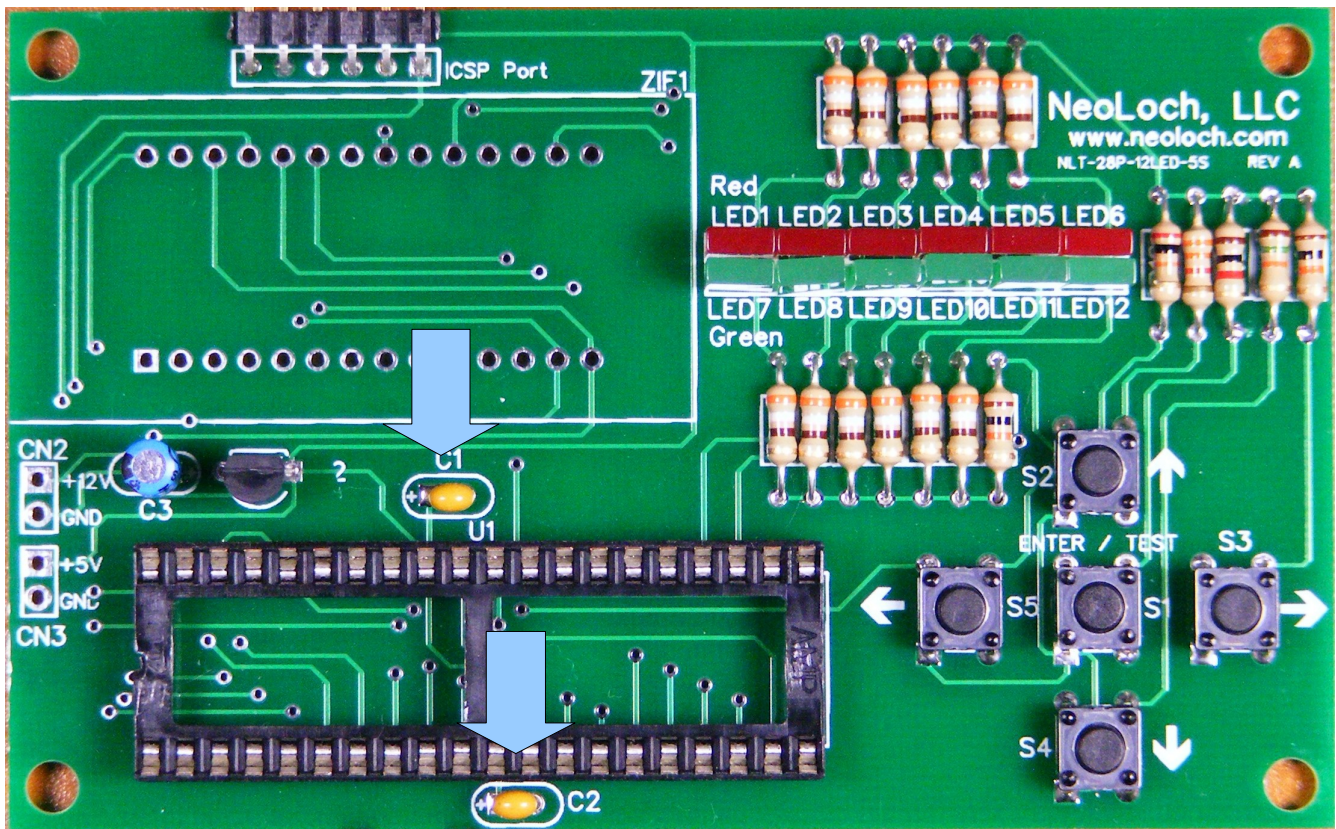
Install the two 0.1uF MLCC capacitors into C1 and C2. These capacitrors are not polarized, so you don't have to worry about the orientation of the capacitors.

Step Ten – ZIF Socket
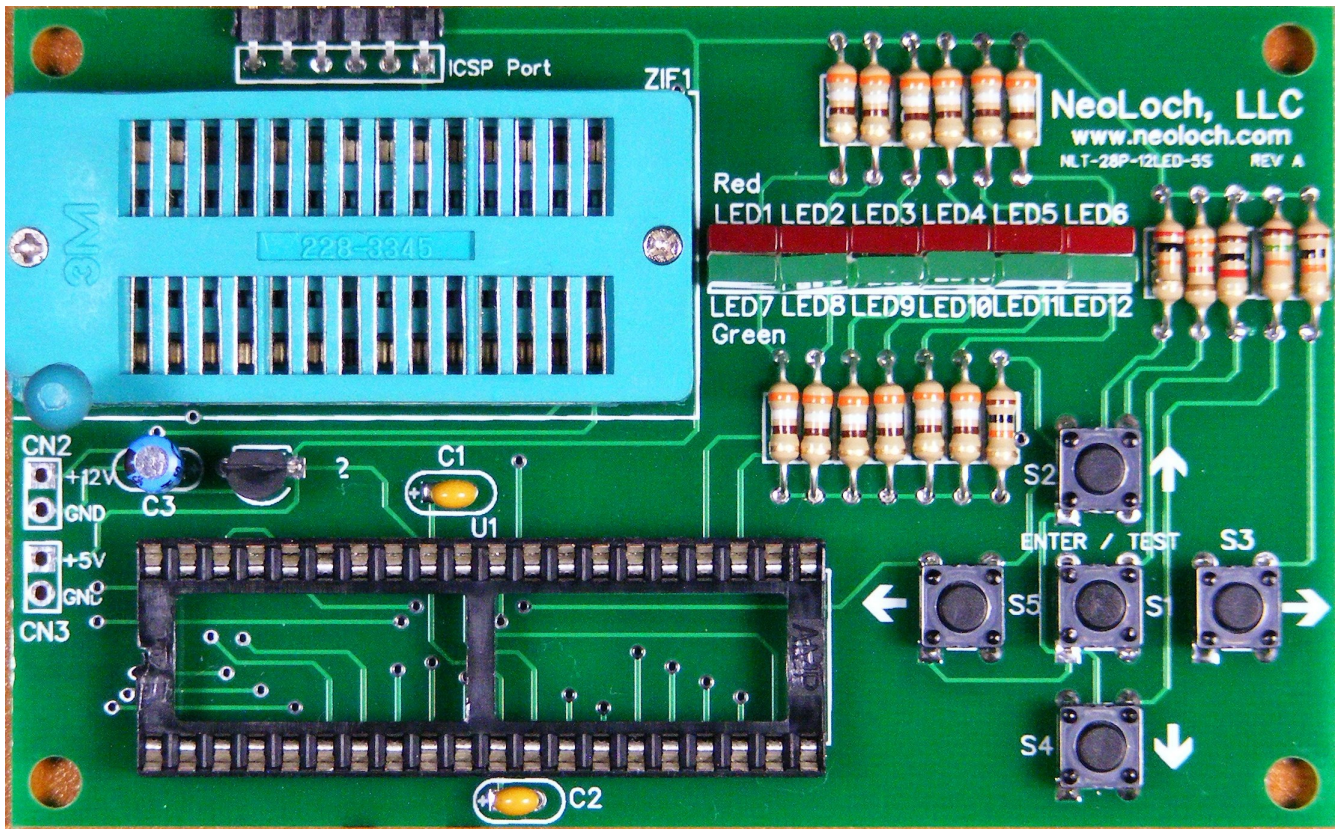
    To make installing the ZIF socket easier, make sure the lever is in the up position, this release tension on the pins and aids in inserting the ZIF socket into the PC board. Once the ZIF socket in inserted, solder one pin and then verify the ZIF socket is seated properly before soldering the rest of the pins.

Step Eleven – Insert MCU Into Socket
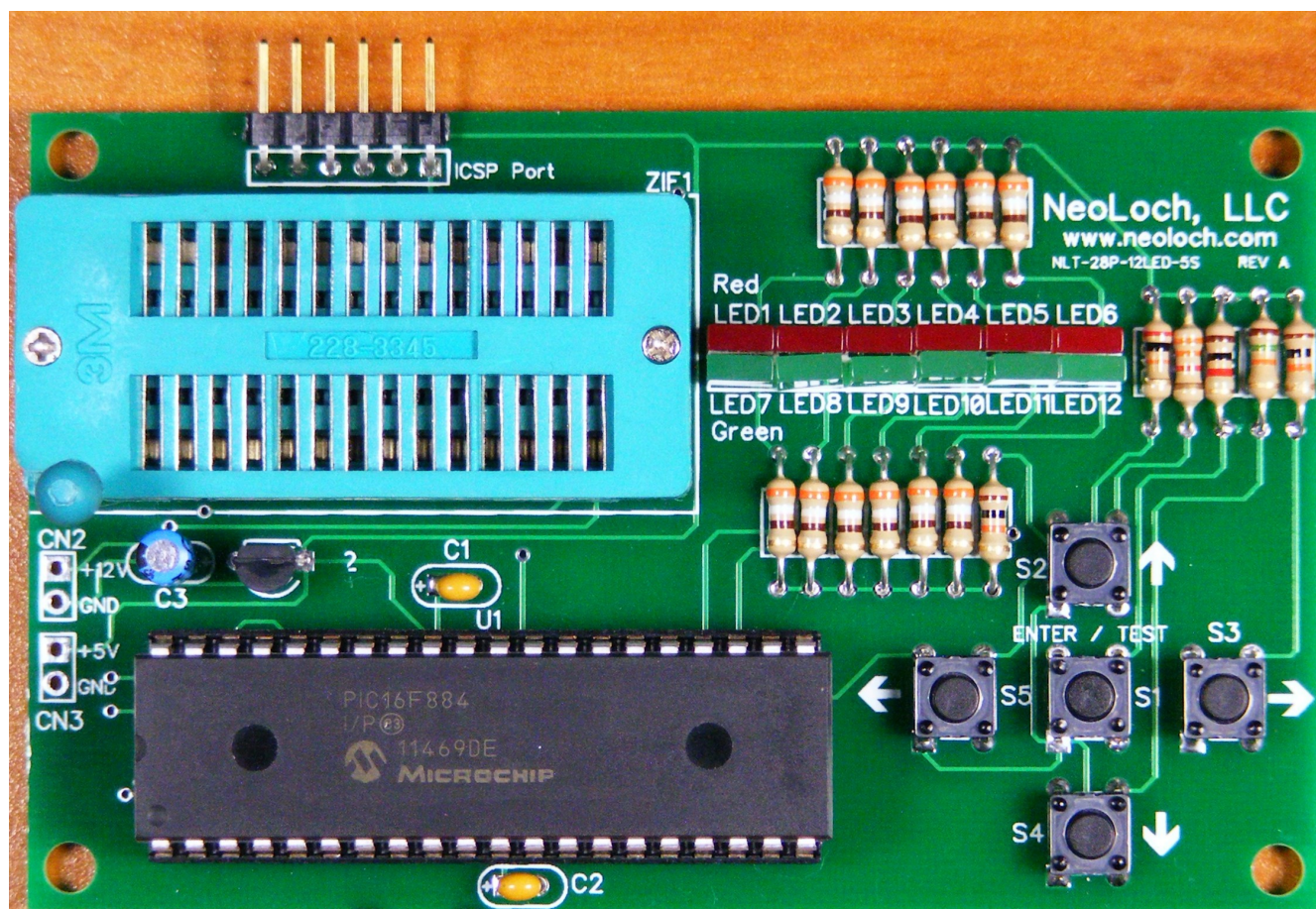
Every MCU is programmed and verified before shipment, so the MCU pins will already be adjusted for easy insertion into the socket. However, be extra careful during this process as it's easy to bend a lead that may have been bent in or out slightly.

If the MCU feels like it doesn't want to go into the socket then one of the pins is catching on something it shouldn't be. Adjust the pins in or out slightly and with great care to correct the issue.

To test the unit and make sure it's working, please see the datasheet for current tester operation.

Step Twelve – Testing

Once the unit is assembled, it's time to test and make sure it's working. For this you'll need to supply either a 5V power source to the 5V input or 7V to 12V on the 12V input. DO NOT put more than +5V on the 5V input, this can and probably will damage the tester.

After the unit is powered the version number will be displayed on the red LEDs and the leftmost LED (LED1 or LED7) will begin blinking. This indicates the unit is ready.

To test a 5101 RAM IC:
- Insert the RAM into the ZIF socket (Pin 1 is is closet to lever.)
- Push the lever down.
- Press the up arrow button to select 5101 test.
- Press the enter / test button (center switch) to begin testing.

To test a 6264 RAM IC:
- Insert the RAM into the ZIF socket (Pin 1 is is closet to lever.)
- Push the lever down.
- Press the right arrow button to select 6264 test.
- Press the enter / test button (center switch) to begin testing.

Troubleshooting

If your board doesn't work, try these solutions before contacting NeoLoch for assistance.

1. Check to make sure that the ground and power pin are being supplied correctly. Check for proper voltage supply.
2. Check all the solder joints to make sure nothing was missed. If even a single pin isn't soldered correctly on the ZIF socket or the 40 pin socket, the tester won't work correctly.
3. If the tester still doesn't work, it's possible your PIC isn't programmed. Though we make every effort to make sure the processor is programmed before leaving, a mistake does happen from time to time. If you have access to a PICkit, try programming the PIC with the current firmware available from our website. You can find it on the information page for 5101 RAM tester . If you don't have access to a programmer, then contact NeoLoch directly for further assistance.