**Tips and safely on Laser installation and use:**

**1. Trying the test button the first time may not produce a burn mark on the work table; my unit had to have the mirrors and light path adjusted before the laser would hit the table. It was knocked that far off line in shipping. The CO2 laser beam is invisible. You cannot see reflections off shiny surfaces. Reflections can cause permanent blindness. Keep the cover closed when the laser is in operation. Do not place anything into the light path.**

**2. Use 50% distilled water and 50% automobile antifreeze as coolant. This mixture will inhibit the growth of bacteria and slime inside the laser tube. Use only distilled water in the mixture. Regular household water or bottled water has minerals that will collect on the glass tubes causing hot spots and will cause the tube to fail early.**

**3. The optimum water temperature for a C02 laser is 22 ~ 25 degrees C. Be careful of thermal shock when adding water for coolant. Water temperature over 10 degrees different from ambient temperature can cause thermal shock that can break the laser tube. Add the water slowly while the pump is running and the laser is turned off. High water temperature will shorten the life of the laser tube and water temperature too cold will lower the output wattage. Use a thermometer and keep it in the 22-25 degrees C range.**

**4. When aligning the light path using the paper targets taped to the mirrors. The smoke will collect on the mirrors from just a quick test firing and must be removed before the next test shot.**

**5. Use only pure alcohol to clean the lens with a cotton q-tip. Saturate the q-tip in alcohol, touch to a cloth so it is saturated but not dripping. Use a light rolling motion to remove the debris. Allow lens and mirrors to dry before reuse.**

**6. If your unit came with a plastic "smoke pipe" do not use. Use a metal dryer vent pipe. The plastic ones can catch fire and cause static electricity from the air/material moving through the pipe. The sparks can cause a fire.**

**7. One foot of flexible vent pipe, the one with the spring is equal to 4 feet of smooth metal pipe. Each 90 degree bend is equal to 8 feet of smooth metal pipe when calculating air flow.**

**8. Make sure the laser ground connection is connected to a good earth ground. The laser uses 20 k volt for triggering. A loose or bad connection can cause the case to become electrified at very high voltage unless you have a good ground. This will really ruin your day if you touch the machine.**