

## CO<sub>2</sub> Retrofit Instructions For the New Standard Miniature Light Trap—Model 1012

### Parts included in the CO<sub>2</sub> retrofit (see Figure 1)

1. The regulator unit. This includes a regulator body that has attached (1) a brass connector and white plastic washer for attachment to the CO<sub>2</sub> tank—a, (2) a low pressure gauge—b, and (3) a fitting to attach the CO<sub>2</sub> line (1/8" ID tubing) that goes up to the trap—c.

2. An approximately 6-foot long flexible tube with in-line micro-filter and the 0.007" orifice—d. This line is terminated with a female locking Luer fitting—e, and is used to attach the line to the bottom of the white aluminum plate supporting the electronics of the trap—f.

3. A solenoid-operated gas shut-off valve with two wires—g.

4. An adhesive-backed clip to attach the shut-off valve to the white aluminum plate—h.

5. Two short pieces of 1/16" ID tubing—i.

6. A 8-32 threaded right-angle fitting to connect the 1/16" ID tubing to the acrylic body of the trap—j.

7. Instruction set.

8. An in-line 0.005" ID orifice (not shown) that can be used in lieu of the 0.007" ID orifice to obtain different flow rates (see Table 1).

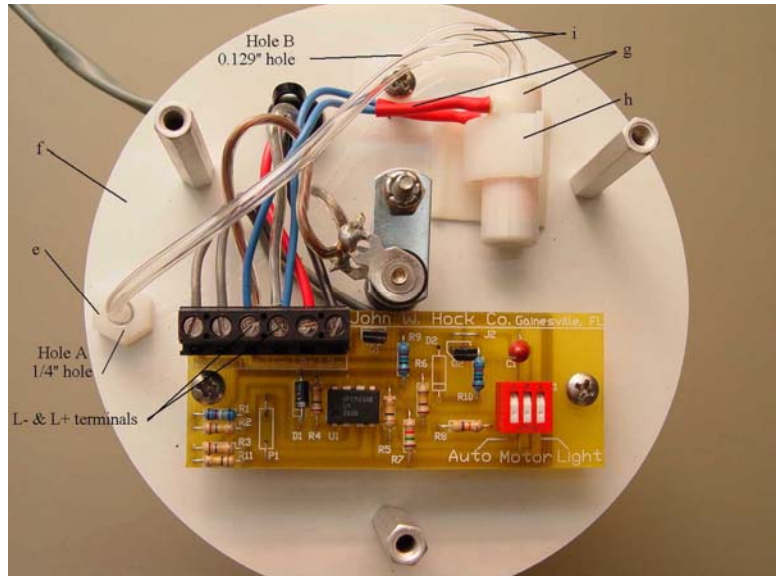


Figure 1. Top view of plate

### Instructions

1. Drill two holes in the white aluminum plate as shown in Figure 2. The hole at **A** is 1/4" in diameter, the hole at **B** is 0.129" in diameter (a #30 drill). Use figure to locate holes in their proper locations.

2. Drill and then tap with an 8-32 tap a hole in the acrylic body of the trap at the location shown in figure 1. This tapped hole should be directly under hole **B** and below the support screw connecting the body of the trap with the white aluminum plate as seen in figure C. Screw in the 90°-angle fitting with the 1/16" barb for the tubing pointing up.

3. Attach the male Luer fitting into the underside of the white aluminum plate and secure with the white nylon threaded nut as shown in the figures.

4. Attach the valve as shown in

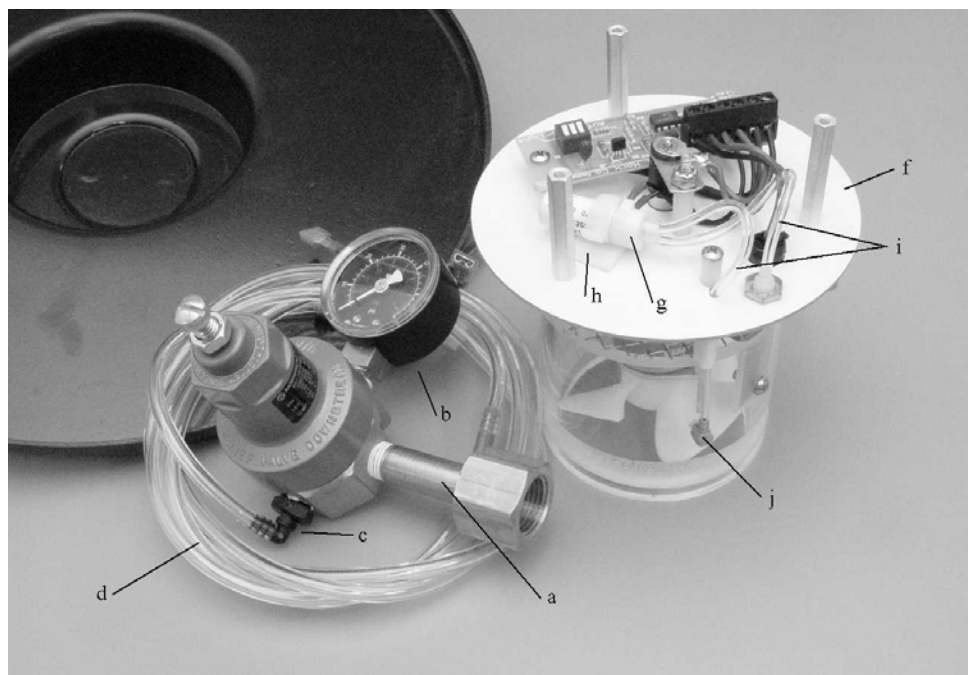


Figure 2. View of installed system with regulator.

Figures 2 and 3 using the adhesive-backed attachment clip.

5. Secure the two blue wires into the terminal block on the circuit board in locations labeled L- and L+ on the circuit board. Polarity of the blue wires does not matter. These terminals also have the wires going to the light holder as well.

6. Attach 1/16" ID tubing between the angle fitting, through the aluminum plate, and onto one of the barbs on the valve. Connect another piece of 1/16" ID tubing between the second barb on the valve and the barb on the top of the male Luer that was put into the white aluminum plate.

### Details for the Model 1012-CO2 operation

Connect and tighten with a wrench the regulator/gauge to the CO2 tank making sure the nylon washer is in place; when shipped, this thick washer is attached with a plastic tie to the regulator/gauge. Turn on the valve on the CO2 tank and adjust the pressure indicated on the gauge using the slotted Fillister screw on the front of the regulator. The nut on the adjusting screw is a jamb nut; loosen it slightly before adjusting, and then tighten it a bit while holding the adjustment screw. The regulator is preset to 5 psi at our factory. After the pressure is set, connect and screw together the locking Luer female connector attached to the regulator/gauge via a six-foot long piece of 1/8" ID tubing to the male Luer fitting on the underside of the white plate.

Table 1. Combinations of pressure and orifice size to give CO2 release rates ranging from 100 to 500 ml per minute. Scientist differ as to recommended flow rates, but most recommend between 250 and 500.

Orifice diameter	Flow rate (ml per minute)	
	5 psi	15 psi
0.005"	100	200
0.007"	250	500

Next to the regulator you will find an in-line 43-micron filter. Towards the other end of the 1/8" ID tube and near the female Luer fitting that attaches to the underside of the trap, an in-line orifice labeled ".007" indicating its size. Note the arrow indicating flow direction if you change the aqua orifice for the 0.005" orifice to obtain the lower flow rates.

