

# DELUXE MINI CO2 FILL STATION

UNITED STATES PATENT NUMBER 6,263,927,B1

## **SAFETY FIRST!**

**NOTE: THIS FILL STATION IS NOT INTENDED FOR HIGH VOLUME COMMERCIAL USE!!**

***ALWAYS WEAR EYE PROTECTION WHEN WORKING WITH COMPRESSED GAS! VENTING GAS DOES ACCELERATE PARTICLES OF DIRT AND DEBRIS TO HIGH VELOCITY. KEEP ALL PERSONS WITHOUT EYE PROTECTION OUT OF THE IMMEDIATE AREA!***

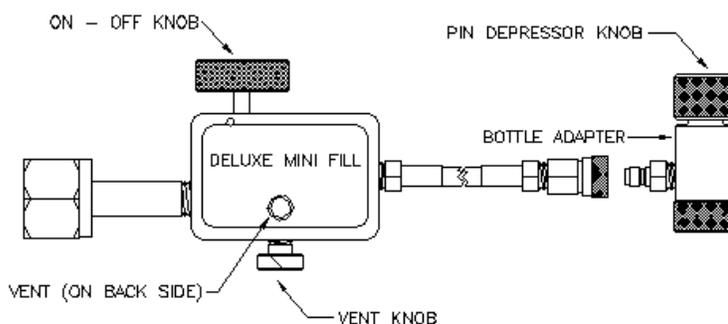
***ALWAYS WEAR GLOVES TO PROTECT YOUR HANDS FROM EXTREME COLD. THE ACTION OF VENTING DOWN A CO2 BOTTLE CAN PRODUCE TEMPERATURES AS LOW AS -130 F. IMMEDIATE AND DESTRUCTIVE FREEZING OF EXPOSED FLESH IS POSSIBLE.***

***THE FILL STATION MUST BE USED IN AREAS WITH ADEQUATE VENTILATION!!***

### SETTING UP THE FILL STATION

Before you even remove the safety cap on the bulk cylinder, the bulk cylinder ***MUST*** be solidly secured to a post or wall bracket. If the cylinder were to be knocked over, the valve could be broken off, and the cylinder "Launched".

Your Deluxe Mini-Fill is equipped with a standard "CGA 320" fitting on the input side. This fitting will connect to any standard CO2 bulk tank in the United States. Please note that the threads are right-handed, and that a sealing washer (included) is required.



The bulk supply tank you connect to must always be equipped with an internal "dip tube" because it is necessary to dispense the liquid CO2 from the bottom of the bulk supply tank.

***YOU WILL NOT BE ABLE TO DISPENSE A COMPLETE FILL FROM A NON DIP TUBE TANK!***

On the backside of the fill station is a vent port. For safety reasons, this port must be directed away from the operator and bystanders. This port is equipped with 1/8 NPT threads so that if desired, a vent hose or muffler may be attached. Do not use a bronze sintered muffler!!

### SERVICE & MAINTENANCE

Routine maintenance consists of simply applying a drop of oil periodically on the threads of the vent knob, also on the ON-OFF knob threads. The "O" ring in the UFA will also benefit from occasional oiling.

If gas leakage is noted around the ON-OFF knob on the Deluxe Mini Fill Station, it indicates that the "O" ring on the valve shaft has worn or been damaged. To change this "O" ring, simply tap out the retaining roll pin with a 1/8" pin punch, and screw out the knob. You can then replace the "O" ring with the spare provided with your fill station. Be sure to replace the retaining roll pin.

22 May 2003

# DOING THE FILL

## A SCALE IS REQUIRED TO PROPERLY FILL CO2 BOTTLES!

### OPERATION 1: CHECKING OUT THE BOTTLE

In order to properly fill a CO2 bottle, you need some basic information, all of this information comes right off the Federally required stamped markings on the bottle. The stamping will look similar to the line shown below:

DOT – 3AL 1800 H5058 MFG 04^94 – 20 OZ CO2

#### WHAT DOES IT MEAN??

DOT	Department of Transportation (a Federal Agency).
3AL	The specification standard the bottle conforms to.
1800	The working pressure rating of the bottle.
H5058 MFG	The model and manufacturer of the bottle.
09-02	The production date of the bottle
20 OZ CO2	The amount of CO2 the bottle is rated to hold.

In the United States, it is Federal Law that any gas storage vessel over two inches in diameter must be periodically re-tested. If the bottle is steel or aluminum, it must be re-tested every five years. **IF THE PRODUCTION DATE ON THE BOTTLE INDICATES THAT THE BOTTLE IS MORE THAN 5 YEARS OLD, DO NOT FILL IT UNLESS THERE ARE ADDITIONAL STAMPINGS INDICATING THAT IT HAS BEEN RE-TESTED.**

### NEVER PUT MORE THAN THE RATED AMOUNT OF CO2 INTO A BOTTLE!!

If you find that there is no marking or label on the bottle that indicates the proper amount of CO2, DO NOT GUESS! If you are not sure what the rated fill is, do not fill the bottle.

Since a correct CO2 fill is determined by weight, your first action will be to vent any residual CO2 in the bottle so that you can establish an accurate empty weight.

### THE ONLY WAY YOU CAN BE SURE A CO2 BOTTLE IS COMPLETELY EMPTY IS IF IT IS WARM TO THE TOUCH, AND SHOWS NO INTERNAL PRESSURE.

The general condition of the bottle is also important. Always take a moment to examine the bottle for dents, gouges or other significant damage. Do not fill a bottle that has been abused or damaged. Reference CGA pamphlet CGA C-6 and CGA C-6.1

### OPERATION 2: HOOKING UP!

#### **NOTE: A SCALE, PREFERABLY WITH A ZERO FUNCTION IS REQUIRED!!!**

**Step one: Attachment.** MAKE SURE THE ON – OFF KNOB AND THE VENT KNOB ON THE FILL STATION IS IN THE OFF POSITION. Screw the bottle into the fill adapter. Do not attach the fill adapter to the fill hose yet!

**Step two: Purging.** Purge off the residual CO2 in the bottle. It is necessary to do this because you must decrease the pressure in the bottle for the transfer from the bulk tank to take place. You do this by inverting the bottle so that the valve is at the bottom, and turning the knob on the fill adapter clockwise to depress the valve pin. **POINT THE BOTTLE IN A SAFE DIRECTION AWAY FROM ALL PERSONS!** Vent until gas ceases to be exhausted. The “Inverted Dump” is used because it prevents excessive chilling of the bottle, and subsequent dry ice formation.

**Step three: Weighing.** When there is no residual CO2 in the bottle, weigh the empty bottle (with the Fill Adapter still attached) to determine the Empty Weight.

**Step four: Filling.** Zero out the scale, Connect the Fill Adapter and bottle to the fill hose, making sure that the Quick Disconnect clicks into its locked position. Open the On-Off Knob on the bulk tank. Open the on-off knob on the fill station. The gas will start to flow into the paintball bottle. **WATCH THE SCALE DO NOT FILL THE PAINTBALL BOTTLE BEYOND ITS RATED CAPACITY. TURN THE ON-OFF KNOB ON THE FILL STATION TO OFF WHEN THE PAINTBALL BOTTLE IS FILLED TO ITS CAPACITY.**

**Step five: Disconnecting** Turn the knob on the bottle adapter counterclockwise to allow the pin valve in the bottle to close. Open the vent knob to vent any CO2 that may be trapped in the hose. Unscrew the bottle from the fill adapter.

**Step six:** Final weighing. Re-weigh the bottle to make sure the weight is correct.

**THIS IS THE MOST IMPORTANT STEP IN THE WHOLE OPERATION! DO NOT OMIT IT!!!**