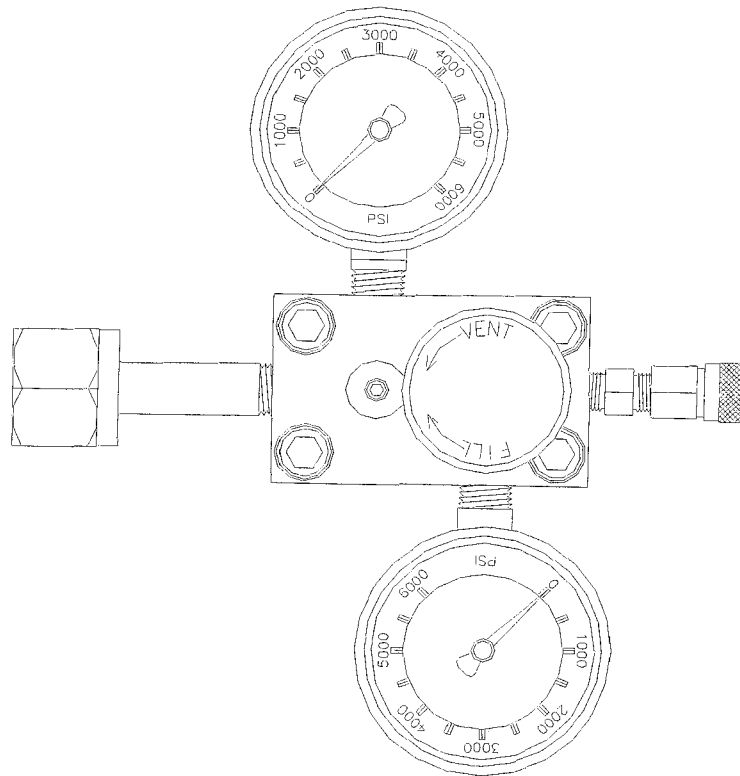
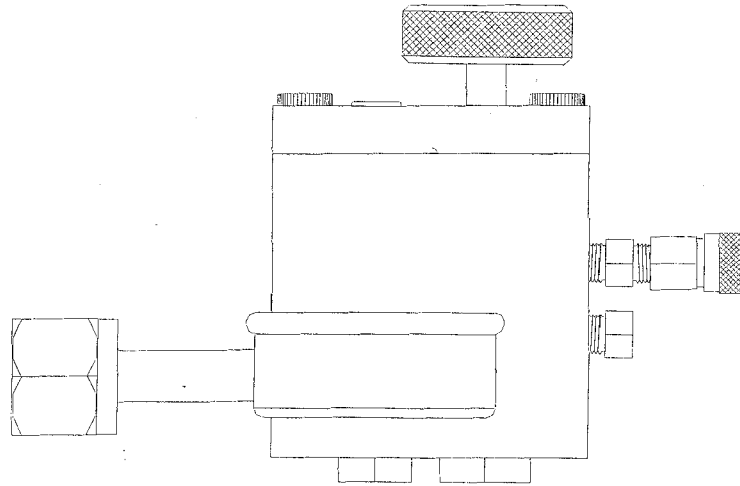


HPA NITROGEN FILL STATION



OWNERS MANUAL

12 APRIL 2004

SPECIFICATIONS

MAX INPUT PRESSURE	6000 PSI
MAX RATED OUTPUT PRESSURE	5000 PSI
RANGE OF ADJUSTMENT	0 – 5000 PSI
GAS COMPATIBILITY	NITROGEN, HIGH PRESSURE AIR (HPA)
CGA FITTING	CGA677 STD L.H. THREAD (4501-6000 PSI Nitrogen) OPTIONAL FITTINGS AVAILABLE 0000 - 3000 PSI Nitrogen CGA 580 3001 - 4500 PSI Nitrogen CGA 680 3000 - 4500 PSI HPA CGA 347
STANDARD GAUGES	INPUT & OUTPUT
FILL ADAPTOR	Stainless Steel 5000 PSI RATED "QD" TYPE (See Note 2)

NOTE 1: The fill station is intended for use with Nitrogen, HPA (High Pressure Air), and any of the other commonly available inert gases. **UNDER NO CIRCUMSTANCES SHOULD THIS FILL STATION BE USED WITH OXYGEN!!!** This unit is also not certified for use with combustible, corrosive, or toxic gases.

NOTE 2: The Fill Station is delivered with a 5000 PSI stainless steel "QD" style fill adapter to allow the attachment of the systems to be recharged. This is by far the most common adapter, and is in widespread service on most systems currently on the market. The user must be aware that this QD is rated for a 5000 PSI working pressure, and must only be replaced with a 5000 PSI rated QD! Call 815-477-0007 for replacement QDs.

NOTE 3: Do not attempt to disassemble or service the internal components of this Fill Station. All service must be performed by the factory. Disassembly will void your warranty! For service and technical questions call: 815-477-0007.

Do not hook up your High Pressure Fill Station until you have read and understood the SETUP portion of this manual.

SETUP

The first step is to properly secure the supply cylinder to prevent tipping. This can be accomplished by chaining the cylinder to a wall or post or by securing the tank in a commercially available safety skid. Now attach the fill station to the bulk tank you are using for your gas supply. Before attempting to do this, verify that your fill station is equipped with the correct CGA fitting for the type of supply tank you plan on using. (If there is a question regarding the CGA type of a given cylinder, just look at the valve. The CGA number should be stamped into one of the wrenching flats on the valve.)

Once you have confirmed that you have the correct fitting, you can now attach your fill station to the supply cylinder. (It should be noted that some of the CGA thread standards use left handed threads.) Before doing this, however, make sure that you have put on your safety goggles. **ALWAYS WEAR SAFETY GOGGLES WHEN WORKING WITH HIGH PRESSURE GAS!!**

Do not use excessive torque when tightening the CGA fitting. Tighten the fitting only enough to eliminate any leaks. Remember; most of the cylinder valves are brass, and can be damaged by excessive torque.

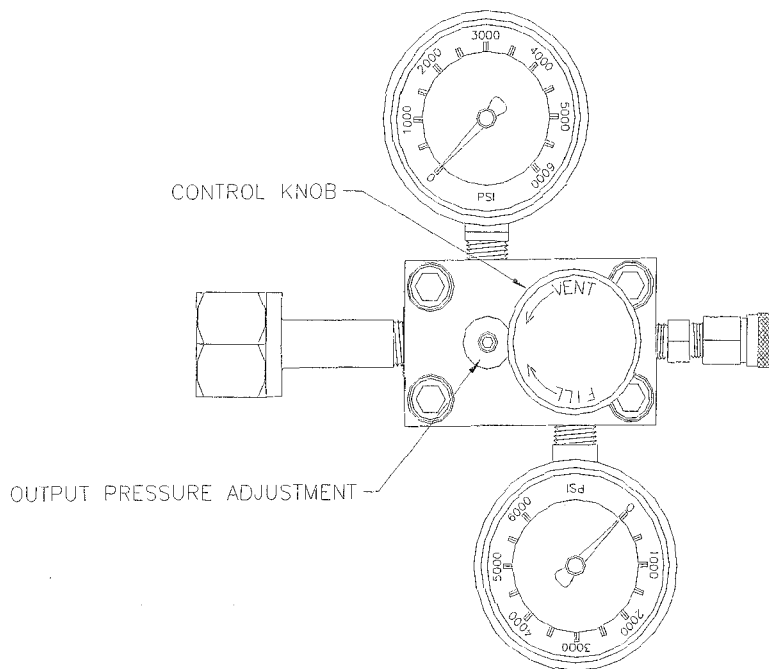
Once you have your Fill Station connected, test the connection by SLOWLY turning on the valve on the supply cylinder. You should hear no leaks or flow after the initial hiss. If gas starts to flow out of the fill connection, turn the control knob on the Fill Station counter-clockwise until the flow stops. This can occur if someone has turned the control knob too far clockwise prior to you connecting the Fill Station to a gas source.

THE OPERATING CONTROLS

A description of the operating controls follows. Do not hook up your High Pressure Fill Station until you have read and understood the SETUP portion of this manual.

There are two user controls on the fill station. They are the Output Pressure Adjustment and the Control Knob.

Your Fill Station is equipped with two gauges, which show you your delivery pressure (Labeled "OUTPUT GAUGE" on the Fill Station body) and how much gas is left in your supply cylinder. (Labeled "BULK TANK GAUGE" on the Fill Station body.)



OUTPUT PRESSURE ADJUSTMENT:

The Output Pressure Adjustment allows the operator to set the pressure that will be dispensed. It is located on the top of the Fill Station, next to the control knob, and is set with a 1/8 inch Allen key. Because it is a flush adjusting screw, it is not prone to being bumped or tampered with.

THE CONTROL KNOB:

The Control Knob is a single control that manages both the gas delivery to the system to be filled, and the purging of the fill line to allow disconnection.

NOTE: DO NOT OVER-RANGE THE CONTROL KNOB! DAMAGE TO THE CONTROL VALVE CAN RESULT!

THE MAXIMUM PRESSURE DELIVERED BY THE FILL STATION IS ALWAYS DETERMINED BY THE PRESSURE IN THE BULK TANK. THE BULK TANK PRESSURE MUST BE GREATER THAN THE OUTPUT SETTING ON THE SYSTEM.

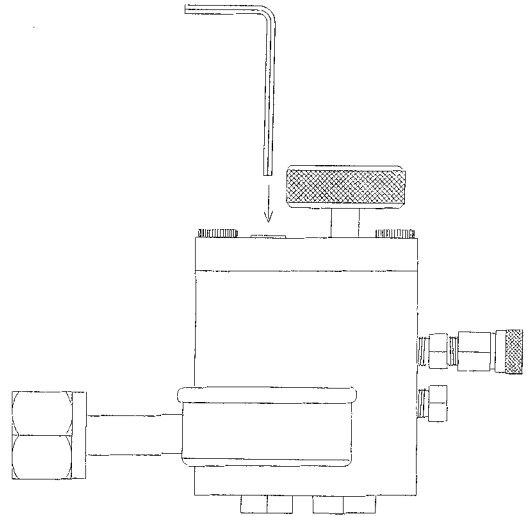
Once your Fill Station has been connected to the bulk tank and pressurized, in accordance with the procedures outline in the "SETUP" section of this manual, you can now set the delivery pressure.

Using a 1/8 Allen key, slowly turn the Delivery Pressure Adjustment clockwise until the output gauge shows the desired fill pressure. **DO NOT EXCEED THE PRESSURE RATING ON THE BOTTLE YOU ARE FILLING**

Do not over-adjust, as this will cause damage to internal regulator pin resulting in leaks.

Remember: You cannot dispense more pressure than the "Bulk Tank" gauge indicates!

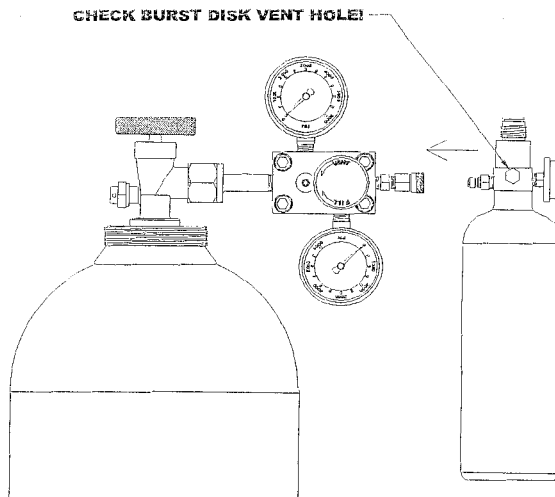
If you need to reduce the output pressure, turn the Delivery Pressure Adjustment counter-clockwise. **When reducing pressure, the output gauge will not show the true lower pressure reading until you have allowed the gas from the previous setting to vent by using the Control Knob!**



Prior to hooking up a system to be recharged, it is good policy to verify the rating on the burst disk, and to confirm that the vent hole is unobstructed.

Connect the system to be recharged to the QD, and make sure that the QD has properly locked on the fill nipple. Turn the Control Knob clockwise until you hear the flow of gas start. Turn the Control Knob approximately 1/4 turn further, and wait for the sound of the gas flow to stop. Once you hear the flow cease, turn the Control Knob counter-clockwise until you hear the connection vent down. Once the venting has ceased, you will be able to disconnect the system from the fill station.

NOTE: If you are not able to easily unlock the QD, it is an indication that pressure may still be present. If this occurs, turn the Control Knob counter-clockwise another full turn to allow complete venting of the connection.



The Fill Station's internal regulator controls the pressure being delivered to the system, so there is no possibility of an accidental overfill.

Even though the Control Knob controls the gas flow during fill operations, it is good practice to turn the cylinder valve off if the Fill Station is going to be left unattended, or if you have finished operations for the day.

FILL OPERATIONS

MOST IMPORTANT! KNOW THE BOTTLE YOU'RE FILLING!

In order to properly fill a high pressure bottle, you need some basic information, and virtually all of this information comes right off the label and the stamped markings on the bottle. Because there are Federal Standards involved, this information is found in the form of a standard data line. An example taken from an aluminum bottle is shown below.

DOT – 3AL 3000 H5058 ACME 04^97

OR

DOT – E11005 3000PSI M4927 10-02

OR

DOT – E11194 4500PSI M4927 10-02

While this information line may look confusing at first, it is really quite simple. This line of data breaks down like this:

DOT	Department of Transportation (a Federal Agency).
3AL,E11005,E11194	The specification standard the bottle conforms to.
3000,3000PSI, 4500PSI	The working pressure rating of the bottle.
H5058 ACME,M4927	The model and or manufacturer of the bottle.
04^97,10-02	The production date of the bottle. MONTH & YEAR

SOME BOTTLE LABELS MAY HAVE A REFERENCE TO "TC" WHICH IS THE TRANSPORT CANADA SPECIFICATION. THE BOTTLES PRESSURE WILL BE EXPRESSED IN BAR.

The first bit of information you need is the production date on the bottle. In the United States, it is Federal Law that any gas storage vessel over two inches in diameter must be periodically re-tested. Depending on the type of bottle, and the manufacturer, the re-test period may be either three or five years. As a fill operator, the very first thing you should check is the date on the bottle. As you can see in our example, our aluminum bottle was born in April of 1997. This particular bottle has a five year re-test interval, so it would be illegal to refill this bottle after April of 2002. (At least until it had been re-tested and re-marked.) NOTE: SOME OF THE FIBERGLASS AND CARBON FIBER BOTTLES REFERENCE WHEN THE BOTTLE IS TO BE RETESTED.

The next piece of information you want is the Working Pressure Rating. As you can see, this information is also present in the data line on the bottle.

- > Refer to the label on the bottle for pressure rating and test dates.
- > UNDER NO CIRCUMSTANCES FILL AN OUT-OF-DATE BOTTLE!
- > NEVER EXCEED THE PRESSURE RATING OF THE BOTTLE!!!
- > Examine the bottle for dents, gouges or other significant damage. Do not fill a bottle that has been abused or damaged.

For more information, consult the Compressed Gas Association pamphlets C-6, C-6.1, & C-6.2. These are available online at WWW.CGANET.COM.

IF YOU FIND THAT THERE IS NO MARKING ON THE BOTTLE OR THE LABEL HAS BEEN OBSCURED, DO NOT FILL THE BOTTLE!!!