BoonDocker LLC
LIQUID NITROUS
Idaho Falls, ID — www.boondockers.com — 208-542-4411

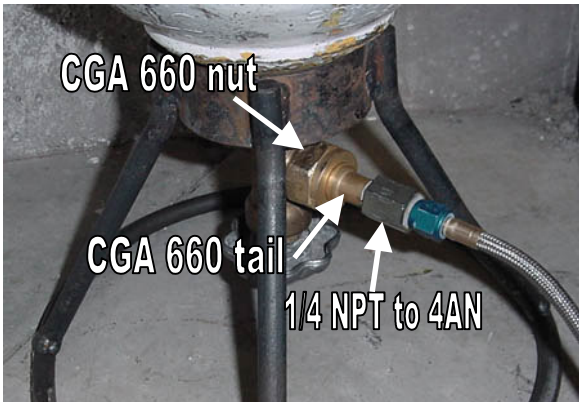
BoonDocker Nitrous Refill Pump Kit

Kit Contents:

1 – pump
1 – air regulator/filter
1 – ball valve
1 – nitrous filter
2. – ¼" NPT male to 4AN fitting
3 – ¼" NPT male coupler
1 – ½" NPT female to ¼" NPT female reducer bushing
1 – CGA 660 nut
1 – CGA 660 tail
1 – ¼" NPT female to 4AN fitting
1 – 52" braided hose
1 – 3' braded hose
1 – digital fish scale

Cylinder Adaptor:

Most large industrial nitrous cylinders have a CGA 660 fitting. Install the nut, tail piece, and 4AN fitting as shown.



Note: Some cylinders do not contain a siphon tube. Look for a label on the bottle. There will be a label that says "siphoned", "syphoned", or "eductor tube" if the bottle has a tube. Often there is no label if there is no siphon tube. If the cylinder does not contain a siphon tube, a stand (shown in picture) will need to be installed on the bottle so the bottle can be turned upside down.

Pump Assembly:

Assemble the regulator and pump as shown in the picture. An airchuck fitting will need to be supplied.

The air regulator should be run between 100 to 125psi.

Filling Instructions:

Non-medical grade nitrous oxide contains a very small amount of sulfur dioxide (combines with water in your lungs and forms sulfuric acid if breathed too much). This is the same nitrous that is used for all nitrous oxide systems, usually with the name "Ny-trous+".

Fill the bottle according to the weights below. We do not recommend overfilling the bottle – when the bottle gets hot, it will rupture the blow-off disk.

***note**: all weights are in fractions of pounds, not ounces*	**Bottle Size**		
	2.5 lb AL Bottle	**2.9 lb CF Bottle**	**4.1 lb CF Bottle**
Weight of Cylinder & Gas	6.3 lb	6.0 lb	7.8 lb
Weight of Cylinder Empty	3.8 lb	3.1 lb	3.7 lb
Weight of Gas	2.5 lb	2.9 lb	4.1 lb

Important Note1: Escaping nitrous vapor is extremely cold (-128 deg F) and will cause freeze burns if it contacts skin. Wear gloves and eye protection before performing any of the steps below.

Important Note2: Always use a scale to determine how much to fill a bottle. A bottle can easily be overfilled.

1. Weigh the bottle being filled on a scale. Note this weight and compare to the weight of **cylinder & gas** marked on bottle – the difference will be the amount of nitrous needed to fill the bottle.

2. If the pump is not already connected to the large cylinder, connect a braided hose from the cylinder to the pump inlet (marked IN). Connect the transfer line from pump outlet (marked OUT) to the bottle being filled. Make sure the hose does not change the weight reading on the scale too much (the weight usually increases by 2 oz – this can be compensated for when filling).

3. Open the valve on the bottle being filled first.

4. Open the valve on the large cylinder. Nitrous will transfer from the large cylinder, through the pump, to the smaller bottle until the pressures equalize.

5. To operate the pump, turn the ball valve so air pressure is now applied to the pump. The pump should now operate and start to transfer nitrous.

   Note: If vapor is being pumped instead of liquid, the line going to the smaller bottle, as well as the bottle itself will start to heat up (the vapor is being compressed back to a liquid). Be sure liquid nitrous is being drawn from the large cylinder.

6. When the proper weight of the smaller bottle has been reached, shut off the ball valve to the pump.

7. Shut off the valves on the large cylinder and small bottle. Make sure both valves are fully closed.

8. Slightly loosen the transfer line on the bottle being filled and allow the nitrous pressure in the line to escape (1/2 to 1 turn is sufficient). Be careful, the escaping nitrous will freeze anything it touches.

9. After the nitrous pressure has been relieved (be sure no pressure is left in the line), completely disconnect the line from the small bottle.

10. Recheck the weight of the bottle being filled to make sure it does not exceed the maximum fill weight.