St. Pat's Guide to
Kegging the World's Finest Homebrew

Caution
Don't lay the CO_2 cylinder on its side while the valve is open. If liquid CO_2 should flow into the regulator, then expand, the sudden pressure increase can damage the regulator or valve on the CO_2 cylinder. When you have the CO_2 cylinder filled, keep it upright until it warms up. Expansion of liquid CO_2 in the valve stem can cause the safety release to blow. Store CO_2 indoors at moderate temperatures. Don't sit it outside in the hot sun.

Leak detection
Children's bubble soap solution works very well for detecting leaks.

Care of Soda Kegs
See Sealing Kegs on page 40 of the catalog.

Additional Information
The little book ***Draft Beer Facts*** contains detailed information on carbonation, tubing resistance, and trouble shooting information.

Carbonation
You can carbonate beer using corn sugar and/or using the CO_2 tank. It makes no detectable difference in the taste.

Carbonation is the amount of CO_2, a gas, dissolved in the beer. Fermentation of 1 cup of corn sugar will produce the same amount of carbonation in 5 gallons whether the beer's in 48 bottles or 1 keg. Therefore, if you are going to carbonate your beer with corn sugar only, use the same amount for kegging as for bottling. However, if you attach the soda keg to a CO_2 tank during conditioning, then you have an additional source of carbonation. Thus, use less corn sugar.

You can also use the CO_2 tank alone to carbonate your beer. This is usually what I do because it is very quick and the beer is ready to drink much sooner. Here's the procedure I use.

Sanitize the keg with iodophor (1/2 oz in 5 gallons water). Iodophor need not be rinsed. Siphon the beer into the keg. Try to minimize foaming. Put on lid and hook up the CO_2 cylinder. Pressurize to 20-30 psi to seat the lid O-ring. Vent some gas to remove oxygen from the keg. (You may flush the keg with CO_2 before racking the beer over to insure that virtually no O_2 is present.) Now shake the keg vigorously. This will dissolve CO_2 in the beer. You will hear CO_2 entering the keg as you do this. The beer is carbonated in a few minutes. Turn the regulator pressure down to the 10-16 psi range as discussed below. After chilling the beer, you will need to shake it up again to get the proper carbonation.

*M*any times the O-ring will not seal if you intially pressurize to only 10-15 psi. Initially overpressurize to seat the lid o-ring and then you may back off the pressure and the lid will remain sealed. Lubricate the O-ring with food grade silicone (see catalog page 17) to greatly facilitate sealing. Use water if you don't have silicone.

The amount of CO_2 dissolved in beer (carbonation) depends on pressure and temperature. Increasing the pressure increases the carbonation. Decreasing the temperature increases the carbonation as well. This is why a warm can of Pepsi vents a lot of gas when opened. The CO_2 is in the head space above the warm pop and not dissolved in the pop. If your beer is at 44°F, then try carbonating with a pressure of 12 psi. If the beer is warmer, say 54°F, you need 18 psi to get the same carbonation.

One problem with kegging is adjusting the carbonation level correctly while at the same time avoiding excessive foaming when dispensing. The problem is that the pressure needed for carbonation, the pressure on the low pressure gauge, is much greater than needed to dispense, which results in dispensing the beer too fast which causes foaming. (Beer is typically dispensed at about 2 oz/second.) One solution is to turn the pressure down when dispensing. This works but you have to keep adjusting the regulator or the carbonation will eventually drop too low.
There is a permanent solution based on the

fact that the resistance of the tubing to the flowing beer causes a pressure drop. The idea is to cut the pressure from ~12-15 psi in the keg to about ~2 - 4 psi at the tap. 1/4" I.D. vinyl tubing will result in 0.60 psi drop per foot. So it would take about 20' to get the proper drop. However, 3/16" I.D. diameter vinyl tubing will drop the pressure 2.2 psi per foot. Thus, the 5 feet of 3/16" tubing in our systems thus drops the pressure appropriately and essentially eliminates excessive foaming. St. Pat's was the first shop to offer this simple solution for home draft systems. Incidentally, there is a pressure drop of 1 psi/vertical foot so you can simply raise or lower the faucet to fine tune the flow. (The pressure change (actually increase) is -1/2 psi/ft if the faucet is below the top of the keg.)

The type of faucet you use also makes a difference in the amount of foam. The picnic faucets are the poorest in this regard while the chrome faucets are better. But with proper adjustment of your tubing, you can essentially make the choice of faucet unimportant. Regardless of the faucet, it is very important to open the faucet all the way when dispensing to minimize foaming.

One other cause of foaming is constricting the flow by crimping the tubing. Another little known cause of foaming is somewhat unique to soda kegs. The dip tube in many soda kegs goes right to the bottom of the keg. This is great for getting every last drop of Pepsi but not so great for beer makers because it may constrict the flow and contribute to foaming. Simply cut 1/2" off the dip tube to remedy this problem.

Other Notes

Cutting 1/2" off the dip tube has the advantage of drawing the beer off above the sediment. This helps in serving clear beer. There are a couple of other things you can do to serve clear beer. One is to filter the beer (see Filtering Beer Handout). You can also stick a stainless steel or bronze pot scrubber, available from most grocery stores, on the bottom of the dip tube. Pot scrubbers have the added advantage of catching hops if you choose to dry hop in the keg. You can also rack the beer over into another keg after the sediment has settled.

A filter system can be used to remove chill haze if this is a problem. See the Filtering Beer Handout for details.

If you have a 5 gallon and a 3 gallon keg, you can initially keg the batch in the 5 gallon and then transfer a couple of gallons at a time to the 3 gallon. Fill the 3 gallon keg through the Liquid Out tube to prevent oxidation.

You do not need to keep the CO_2 tank hooked up to the keg all of the time. A pressurized keg will stay sealed for months. Sealed kegged beer will keep at least as long if not longer than bottled beer because bottle caps slowly leak air.

An extra refrigerator is not required if you use 3 gallon soda keg. The 3 gallon keg will lay down nicely on the top shelf of most any refrigerator and still leave room for a few 6 packs of beer. Just give it a charge of CO_2 after drawing a pitcher or two.

You can also bottle sediment free beer from your keg with a counter-pressure bottle filler (See Counter Pressure Bottle Filler Handout) or simply attach a short (~10") length of 3/8" i.d. vinyl tubing to the black plastic faucet and fill beer bottles. Turn the pressure down (~4 psi) so the bottles fill very slowly. The kegged beer must be cold and properly carbonated. Cap each bottle as you fill it to prevent it from losing carbonation. Chilling the bottles before filling will also help.

Have your CO_2 tank refilled at welding or gas supply stores or fire extinguisher dealers. We fill ours at Grinnell Fire on Grand Avenue.

The high pressure gauge does not indicate how much gas is in the cylinder. It only tells you if it has any CO_2 or is empty. The gauge measures the pressure of gas above the surface of the liquid CO_2. If there is any CO_2 liquid, this pressure is nominally the same, ~800 psi. You can tell how much CO_2 is present by weighing the cylinder. A full 5 lb cylinder weighs 5 pounds more than an empty one.

Kegs can be cleaned by immersing the entire keg in soapy water. You may wish to remove the tank plugs, dip tubes and thoroughly clean those to remove old soda syrup. (Be careful not to mix parts from different kegs.)

St.Patrick's of Texas
BREWERS SUPPLY

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This information is available at the St. Pat's website.
www.stpats.com