**Brac Systems Technical Advisory #005**

**Priority: Requires Immediate Attention!**

**Issue:** Air pressure pre-charge of captive air tank

**Background:** The captive air tank of the Brac System contains a synthetic bladder which keeps the air and the water isolated from each other within the tank. Air pressure is added through a valve in the top of the tank, which assists in maintaining a consistent water pressure within the greywater lines.

The industry standard air pressure setting should be 22psi less than the maximum water pressure cutoff. On a system with a water pressure setting of 20-40psi, the air pressure pre-charge should be 18psi. On a system with a water pressure setting of 30-50psi, the air pressure pre-charge should be 28psi.

On some of our systems shipped prior to October 31, 2006, we have discovered that the tanks were pre-charged to 18psi, while our standard water pressure setting is 30-50psi. This condition results in the bladder being overfilled with water, which could cause it to burst, or at least shorten the bladder's life. The symptom of a burst bladder would be the rapid cycling on and off of the pump during a light water flow load on the system, such as near the very end of a toilet tank filling, when the ballcock in the toilet is beginning to close off.

If you have modified the water pressure of the pump on a particular installation, you will need to calculate a different air pre-charge. To calculate, subtract 22psi from the maximum pressure of the setting you are using.

Examples:

| Range of water pressure | Air pre-charge setting |
|---|---|
| 20-40psi | 18psi |
| 30-50psi | 28psi |
| 40-60psi | 38psi |
| 50-70psi | 48psi |

**Action required:** Any recycling systems shipped from our production plant prior to November 01, 2006, (all models with a serial number of BW200-10117 and earlier) need to have the air pressure in the captive air tank checked, and if necessary, corrected prior to installation. Any systems that have already been installed must be checked as soon as possible. All systems we ship in the future will already be checked and corrected, but a follow up check by the installer is never a bad idea. Under normal circumstances, once the pressure is set correctly, there is no need for further monitoring of the air pressure.

**Solution:** Please use the following instructions to ensure that the air pressure of any systems you have in stock, or have installed, is proper.

- **Tools required**
    1. Standard tire air-pressure gauge reading PSI (pounds per square inch).
    2. Air compressor with tire fitting, or a bicycle pump.

- **Uninstalled systems**
    1. Remove the lid of the Brac System.
    2. Unscrew the black plastic cap from the top of the pressure tank.
    3. Using a standard tire pressure gauge, check the pressure in the tank. It should read 28psi.
    4. Using a compressor or bicycle pump with standard tire connector, correct the pressure if necessary.
    5. Replace plastic cap and lid.

- **Installed systems** (Air pre-charge **must** be measured **without any water pressure** in the system)
    1. Unplug the Brac System from the electric source.
    2. Hold a bucket under the irrigation faucet, and open the faucet to release all water pressure from the pump and tank. (until no more water flows from the irrigation faucet.)
    3. Close faucet.
    4. Follow steps 1-5 of "**Uninstalled systems**" above.
    5. Plug system back in. (Re-priming of pump may be necessary, but if a fresh water bypass is installed, opening the bypass for a few seconds will instantly prime the system.)

November 2, 2006

**UPDATE – August 6, 2007**

When correcting air pressure, do not exceed the recommended psi for your pump's water pressure range setting. It has come to our attention that the symptom of a rapid on-off cycling of the pump can also be caused by too much pressure in the captive air tank, relative to the maximum cut-off setting of the jet pump. Set the pump and pressure tank settings according to the table above. (The air pressure should be at 22 psi lower than the maximum cut-off pressure setting of the pump.)