

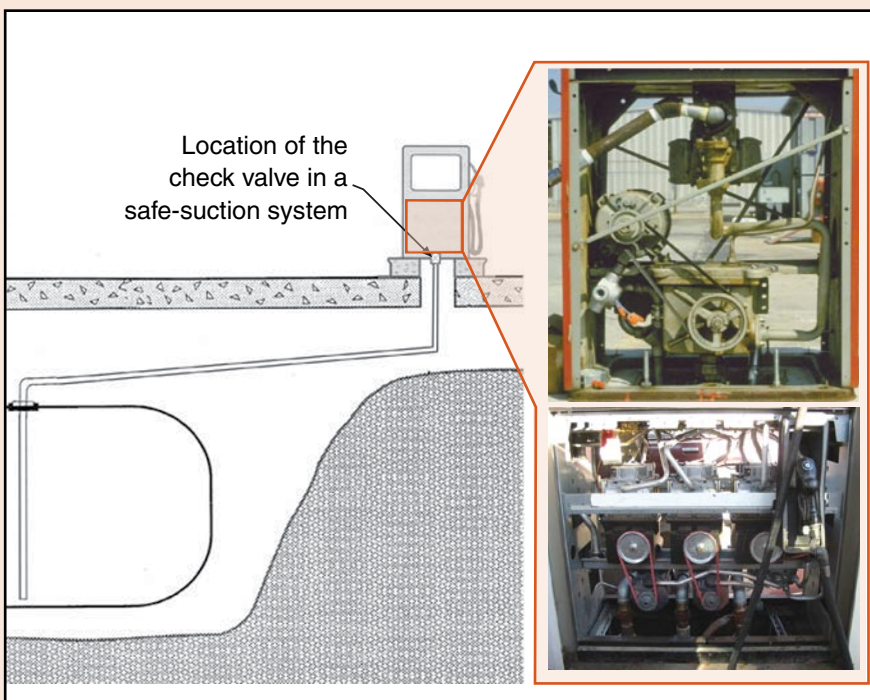
PIPING: SUCTION PUMPING SYSTEMS

In a suction pumping system, the pump is inside the dispenser cabinet, and the fuel is drawn from the tank by suction (like sucking liquid through a straw). It is relatively easy to tell when suction piping has a hole in it because the pump will not operate properly—try drinking through a straw with a hole in it.

Fuel pumping systems have check valves that keep the piping full of liquid when the pump is turned off. The check valve opens whenever liquid is flowing toward the nozzle, and closes automatically whenever liquid tries to flow back toward the tank. It operates wherever it is located in the piping run—you can hold liquid in a straw by blocking the opening of the straw with either your finger at the bottom of the straw or your tongue at the top, or by squeezing the straw in the middle.

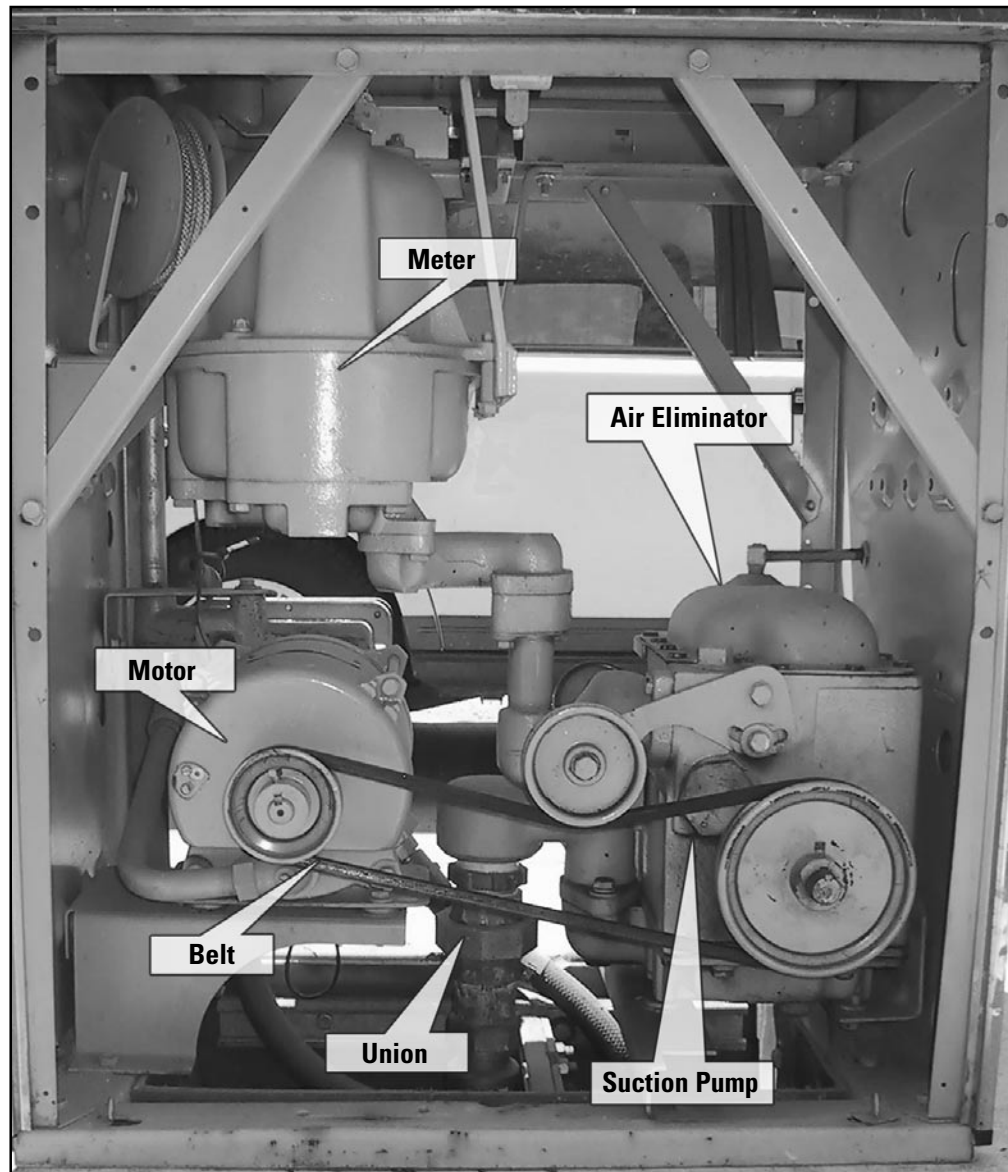
However, the location of the check valve in the fuel piping does make a difference with regard to leak detection. Maine suction-system regulations require the check valve to be located at the top of the piping, just below the suction pump. This is known as “safe” suction because if a hole develops in the piping, air will be drawn into the pipe and the fuel will fall back into the tank, but there will be no leakage to the environment. This type of installation is referred to as a “conforming” suction system, because it conforms to DEP regulations.

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Photos courtesy of Marcel Moreau Associates, Portland, Maine. Illustration by Chigako Wilson.

EXAMPLES OF SUCTION PUMPING SYSTEMS. *You can always tell when you have a suction pump because there will be pulleys and a rubber belt inside the cabinet.*



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All suction pumps contain the components identified in this picture, but the parts may differ in appearance and how they are arranged within the cabinet.

If the pump makes strange noises when it is first turned on and takes a little longer for fuel to come out of the nozzle—these are indications that you may have a leak.

HOW DO YOU KNOW IF YOUR SUCTION SYSTEM IS LEAKING?

If there is a hole in the piping, air will enter the pipe, the pump will make strange noises when it is first turned on, and it will take a little longer for fuel to come out of the nozzle. These are indications that you may have a leak. Call the DEP to report a suspected release and call your service technician right away to investigate the problem.

Even if you have safe-suction piping, any product above the check valve in the dispenser piping or the pump itself cannot drain back to the tank and could leak into the environment. It is a good idea to have a dispenser sump

underneath your suction pump to catch these kinds of leaks before they get into the environment. If you don't have a dispenser sump that is continuously monitored for leaks (see *TankSmart* Double-Walled Piping module), then you should remove the dispenser cabinet cover and look inside for signs of leaks on a monthly basis.

LEAK DETECTION FOR SUCTION PIPING

In terms of leak detection, safe-suction piping is as painless as leak detection gets. If you have safe suction, you should have documentation (usually from the installer) that states the following:

- There is only one check valve in the piping system and it is located immediately below the pump.
- The pump is higher than the tank and the piping slopes uniformly from the pump down to the tank.

NOTE: If you have a situation where the pump is lower than the tank (e.g., a marina or an aboveground tank) you can NOT use this safe-suction technique to meet your leak detection requirements. For information on your leak detection requirements:

- If your piping is double-walled, refer to the *TankSmart* Double-Walled Piping module.
- If your piping is single-walled, refer to the *TankSmart* Daily Inventory & Statistical Inventory Analysis module.

**Report evidence of a possible leak to
the DEP's Tanks Unit**

207-287-2651

or call the 24-hour Spill Hotline

1-800-482-0777

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