

Service Tips

WIT Club News – August 1999

LP SYSTEM

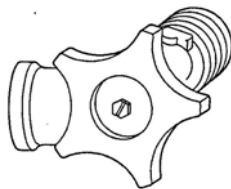
In correspondence with our Tips article on LP Gas, following is an overview of the various valves, regulators, and lines you may encounter which allow for filling the tank and delivering LP to the appliances in your coach.

SERVICE VALVE (ASME TANK)

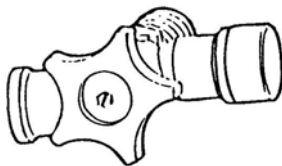
The service valve allows the LP vapor removal passage on the tank or cylinder to be opened or closed. The service valve is designed to be closed leak-free by hand. Do NOT use a wrench or other device to open or close the valve.

ASME TANK SERVICE VALVE

ASME tanks may use one of two styles of service valves:



SERVICE VALVE

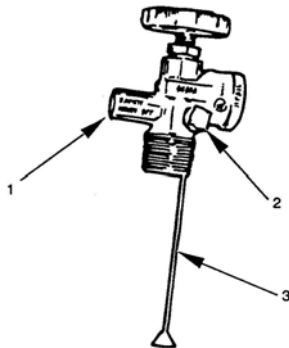


SERVICE VALVE WITH VAPOR RELIEF SAFETY DEVICE

Always replace a service valve with a similar valve.

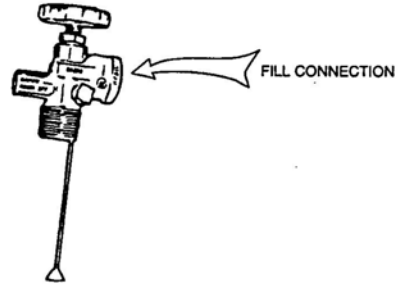
DOT CYLINDER SERVICE VALVE

DOT cylinder service valves also contain a vapor relief safety device, 20% outage valve, and dip tube.



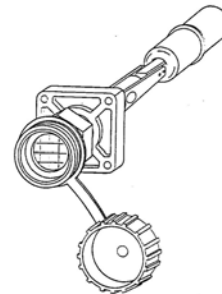
1. Vapor relief safety device.
2. 20% outage valve.
3. Dip tube.

DOT Cylinders are filled through the service valve.



FILL VALVES

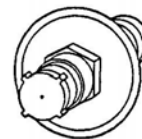
The fill valve allows the tank or cylinder to be filled with LP. It is the connection into which the fill device is placed.



AUTOMATIC STOP FILL VALVE

On ASME tanks the fill valve incorporates an 80% shutoff device which is to prevent overfilling of the tank. This device has been a required feature for ASME tanks on motor homes since 1983.

20% LIQUID LEVEL OUTAGE VALVE (ASME TANK)



20% LIQUID LEVEL GAUGE

The purpose of the 20% liquid level outage valve is to give a positive indication when the LP tank is filled to the 80% level with liquid propane. (20% vapor space remaining.) The valve is to be opened and left open while the tank is being filled with LP. As the tank fills, LP vapor emits from the valve outlet. When the liquid level in the tank reaches the level of the valve, liquid (white fog) will appear at the gauge outlet. At this time, the tank is filled to the legal limit. Stop filling immediately and disconnect fill hose from filler valve. Close outage valve.

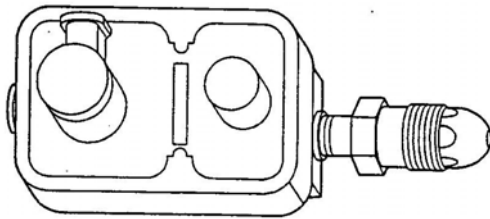
CAUTION

Vehicle should be parked on a level surface when LP tank is being filled. If tank is not level, overfilling can result.

LP GAS REGULATOR

General:

The regulator is the heart of the LP gas system. It is an automatic device with working parts that move continuously. It should be protected from the elements which could cause it to malfunction.



REGULATOR

Regular Function:

The function of the regulator is to reduce a high and varied inlet pressure from the LP tank to a safe and consistent low outlet pressure to the gas appliances. Normal tank pressure can vary depending on the outside temperature from a high of 250 psi to a low of 7 psi. The regulator's job is to reduce it to 6.35 ounces or 11" water column (W.C.) outlet pressure and supply fuel downstream at this pressure in the required volume to efficiently operate each appliance as demand is made.

The LP system is equipped with a two-stage regulator. It is actually two regulators contained in one housing. The first stage, or high pressure regulator, reduces the pressure to about 10 to 13 psi and sends it on to the second stage low pressure regulator which reduces pressure to 11" W.C. or 6.35 ounces per square inch. Use of the two-stage regulator reduces the likelihood of problems such as pilot outages, freeze up, etc.

REGULATOR MAINTENANCE

The LP regulator is equipped with a vent because it is constantly "breathing." The diaphragm of the regulator moves down and draws air into the bonnet or adjustment spring housing. The diaphragm then moves up and air is expelled through the vent. In the event that excess pressure builds up in the lower housing or body of the regulator, a relief mechanism vents it to the atmosphere. Check the vent frequently. It should be clean and free of water, corrosion, or obstructions. Clogging of this vent is the most

common cause of regulator malfunction. A small particle of dirt, pipe dope, or other foreign matter entering the inlet can result in higher than normal pressure (high lockup) and/or loss of fuel. If the vent becomes clogged, a toothbrush makes an ideal cleaning tool.

REGULATOR FREEZE UP

A regulator does not freeze, nor will LP gas. As the gas passes through the regulator, it expands and cools. Moisture in the gas or in the regulator will condense and turn into ice during any weather. This ice can build up and block the orifice thereby cutting off the fuel supply.

FLEXIBLE LP HOSE

The flexible LP hose is used to conduct LP gas vapor from the regulator to the LP supply system that feeds the appliances in the coach.



The major enemies of LP hoses are sunlight (ultraviolet rays) and ozone. Hoses should be checked frequently. Inspect hoses for signs of deterioration and weather check before each season and each time the LP tank is filled. Protect hoses from direct sunlight when possible. Replace with properly rated U.L. or C.G.A. listed replacement hose assemblies.

LP SYSTEM MANIFOLD

The LP system manifold accepts LP gas vapor from the flexible hose and then acts as a distribution point for the tubing that runs to the appliances. It is located beneath the floor of the vehicle and is constructed of 1/2" iron pipe.

COPPER TUBING

Type "F" copper tubing with flare fittings is used to conduct LP gas vapor from the manifold to the appliances.

We hope this information has been of interest to you. Remember to consult with a qualified LP Gas professional if you encounter any problems with the LP system in your Winnebago Industries motor home.