

4-12 LPG System

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The motor home is equipped with a permanently mounted 30 gallon (102 pounds of fuel-net) LP gas tank, which is the energy source for the cooktop (range) and an alternative source for the refrigerator.

4-12.1 LPG Tank and Controls

The LPG supply tank is located in an unlocked compartment behind the rear axle on the passenger side of the motor home. LPG system controls include a main gas service valve, solenoid shut-off valve, two stage pressure regulator, filler connection with Auto Stop (80%) fill valve, 20% vapor (stop filling when liquid appears) valve, and the pressure relief valve.

▲WARNING: When the motor home is to be stored in a confined area, turn off the LPG at the main tank shutoff valve. With the LPG leak detector, this may now be accomplished by turning off the LPG Master Switch on the galley panel.

LPG tank level can be monitored at the tank monitor panel located in the pantry.

4-12.1.1 Fuel Requirements

Liquefied petroleum gas is a material composed of various hydrocarbons such as propane, butane, or a mixture thereof. In its gaseous form (vaporized), it is colorless and has a garlic-scented additive to ensure detection. In addition to being highly flammable, it is also dangerous to inhale. For ease of transportation and storage, LPG is compressed into a liquid state and stored in this form within the LPG tank. As fuel is used, vapor passes from the top of the tank into the two-stage pressure regulator and to the various gas appliances.

Appliances do not function if the LP gas does not vaporize. Butane does not vaporize below 32 degrees Fahrenheit (the freezing point of water), but propane continues to vaporize down to 44 degrees below zero. Propane has become the main type of LP gas used in RVs in recent years. Your LP supplier has the correct type or blend for your locale. If your travels take you into an area where climate differs, ask your LP dealer for his recommendations. The names of LP suppliers can be found in the yellow pages of the telephone directory under "Gas-Liquefied Petroleum-Bottled & Bulk." Many campgrounds now have LP gas fill facilities, as do some service stations.

Prevent condensation and possible regulator or line freeze-ups when filling the tank by requesting the dealer to add a small amount of methyl alcohol to the fill up. A common mixture is one ounce of methyl alcohol to each 20 pounds of LPG.

NOTE: Liquefied petroleum gas is heavier than air.

4-12.2 Filling the LP Gas Tank

When the tank is being filled, the service valve must be closed and the 80% liquid level valve (20% vapor valve) must be open. The 80% auto stop fill valve may close before liquid appears at the 80% liquid level valve, but if liquid does appear, stop filling immediately; the tank is filled to its LP capacity. Close the liquid level valve. Do not use a wrench to tighten this valve or the service valve; they are designed to be closed leak-tight by hand. If you cannot hand-tighten properly, the valve probably needs repair or replacement.

!!CAUTION: Be sure that the main LPG supply is shut off during refueling to prevent accidental ignition of gas fumes by appliance igniters.

!!CAUTION: All gas appliances must be cut off before filling the LPG tank. Check gas lines and fittings periodically for tightness and leakage.

4-12.2.1 Regulator

The two-stage pressure regulator regulates the pressure of the LPG supplied to the appliances. The regulator functions automatically and is factory-preset to provide the correct line pressure. Do not attempt to tamper with or reset the regulator! Even a small variation above the normal gas line pressure can be sufficient to create a dangerous situation and cause possible damage to individual appliance components. If there is any doubt about the regulator setting, it can be checked by your Wanderlodge dealer or LPG supplier. The correct setting is 11-14 inch water column.

4-12.2.2 Operation

To operate any LPG appliance, the main gas (Service) valve must be open. In addition, individual valves at each appliance must be opened prior to use. When first used, or after a refill, there may be some air in the gas lines, which escapes, when you open a range burner or similar LP gas valve. The air may extinguish your match or igniter the first time or two before you get ignition. Remember, too, that when you close the tank's service valve some of the gas will remain in the lines. To completely bleed the lines of gas, close the tank's service valve and light a range burner to use up the excess. When the flame burns out, turn the range burner off.

4-12.3 Checking for Leaks

Periodically check the LP system for possible leakage. Do not wait for an alarm condition to occur before correcting a leak! Although the entire system and associated appliances undergo extensive factory testing for leakage, road shocks and heavy vibrations may loosen or damage piping or fittings. Leaks will usually become noticeable by the characteristic odor of the garlic-scented gas additive. To check, turn off all burners and pilot lights. Open all doors and windows. Open LPG tank service valve and use an ammonia and chlorine free soap-bubble solution on all connections. Any bubbles are evidence of leakage.

NOTE: The gas leakage detectors may momentarily sound an alarm when the engine is initially started or when a heavy electrical load is placed on the system. Further, the ultra sensitive response of these units may also cause an alarm to be given in the presence of certain pressurized-can sprays or cleaning agents. Do not assume! Always determine the reason for this vital alarm being given!

4-12.4 LPG Consumption

Most gas appliances are intermittently operated; however, operation during cold weather conditions does cause heavy consumption. The amount of LPG consumption depends on the total use and the manner in which these appliances are used.

Note that each gallon (4 1/4 lb.) of LPG fuel produces approximately 91,500 BTUs of heat energy. The LPG tank used in your motor home will furnish over 2.1 million BTUs.

For your guidance in estimating your anticipated fuel consumption, the following is a listing of typical appliance consumption ratings when the appliance is operated for one hour:

Refrigerator:	1,500 BTUs
Cooktop Burners	5,200 BTUs each

4-12.5 LPG System Warnings

▲WARNING: LP gas containers are not be placed or stored inside the vehicle. LP gas containers are equipped with safety devices, which relieve excessive pressure by discharging gas to the atmosphere.

NOTE: The compartment the LPG tank is located in is NOT intended for storage – Do not place any items on, under or around the LPG tank.

▲WARNING: It is not safe to use cooking appliances for comfort heat.

This warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliance(s) will avoid dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating as the danger of asphyxiation is greater when the appliance is used for long periods of time.

Cooking appliances need fresh air for safe operation. Before operation:

1. Open overhead vent or turn on exhaust fan.
2. Open window.

A warning label has been located near the LP gas container. This label reads:

▲WARNING: Do not fill container(s) to more than 80 percent of capacity.

Overfilling the LP gas container can result in uncontrolled gas flow, which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas.

▲WARNING: Portable fuel-burning equipment, including wood and charcoal grills and stoves, are not to be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

▲WARNING: Do not bring or store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result.

The following label has been placed in the vehicle near the range area:

IF YOU SMELL GAS

1. Extinguish any open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the gas supply at the tank valve(s) or gas supply connection.
4. Open doors and other ventilating openings.
5. Leave the area until odor clears.
6. Have the gas system checked and leakage source corrected before using again.

LP gas regulators must always be installed with the diaphragm vent facing downward. This minimizes any chances of vent blockage, which could result in excessive gas pressure causing fire or explosion.

▲WARNING: Never check for leaks with an open flame. Do not check copper plumbing lines for leaks using ammoniated or chlorinated household-type detergents. These can cause cracks to form on the line and brass fittings. If the leak cannot be located, take the unit to your Wanderlodge dealer or LPG supplier.

4-12.6 LPG Leak Detector System

The system has been developed to the point where it is unique; it shuts off the LP gas at the high-pressure source, yet holds the valve open to provide ample appliance flow with a minimum amount of current usage.

Three components make up the system:

1. **Gas Detection Control Unit:** mounted in toe kick of the kitchen base cabinet. This is the “brains” of the system and provides an electrical signal to the solenoid valve when LPG service is required.
2. **Solenoid Valve:** installed in the high pressure LPG line feeding the two-stage regulator. It is a “normally closed” solenoid valve and has a special winding of 22 ohms (approximate) resistance, so it uses very little current in the “hold open” position. In order to close the valve, it is only necessary to break the circuit. This provides a “fail-safe” feature in the event of loss of 12-volt power.
3. **LPG Master switch:** located on the galley panel.

The following events will result in an open/low voltage circuit and allow the solenoid valve to close and shut off the LPG supply:

1. Pushing the switch to "OFF" on the LPG MASTER switch or the Gas Detection Control Unit. Green light will go out.
2. The Gas Detection Control Unit senses the presence of LP gas (or can be triggered by a propane lighter or even hair spray!). Green light goes out, Red light comes on, along with audible signal.
3. The Electronic Master switch is turned off. Green light will go out.

NOTE: System is not Master Switch Activated.

In order to restore LP gas flow to the motor home, use the following procedures corresponding to the events above:

1. Push switch on the LPG MASTER and the Gas Detection Control Unit to "ON." Green light will come on.
2. Correct the cause of LP gas leak or determine if other fumes caused the shut down. Green light will come on.
3. Turn Electronic Master Switch on. Green light will come on.

NOTE: Because of the presence of an excess flow valve in the LPG tank outlet (safety feature); sometimes an appliance may not relight after a shutdown. In this circumstance, wait five (5) minutes for LPG pressures to equalize before relighting.