

## 15 / PROPANE GAS SYSTEM

Propane gas is used to operate the range, oven, furnace, water heater, and the refrigerator (when 120-volt AC power is unavailable). The gas is stored in portable DOT cylinders.

In its natural state, propane is colorless and odorless. An odorant is added to the gas at the refinery to give it a very distinct odor – similar to onions or garlic. You may smell this odor occasionally, especially after filling the tank. The filling process requires venting a small amount of gas, and sometimes high outdoor temperatures can cause expansion of the gas in the cylinder, and venting of the excess pressure through the safety valve. Another reason, and probably the most common, is that the odorant tends to settle near the bottom of the cylinder and as the cylinder gets closer to empty, the concentrated odorant becomes more obvious. Any time you smell gas, you should investigate the cause. It is possible that you may not be sensitive to the odorant used, and therefore would not notice the smell of gas. That is why it is very important that you pay attention to the propane leak detector installed in your trailer. **If the leak detector sounds, or 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 cylinder valves.**
- 4. Open doors and other ventilation openings.**
- 5. Evacuate the trailer of all occupants.**
- 6. Have the gas system checked and the leak source corrected before using the system again.**

***Read all appliance literature, including the information on the propane cylinders and regulator, provided in the Owner's Information Packet. Follow any instructions provided in the appliance manuals.***



**If a leak is detected, do not continue to use the propane system until the leak is repaired.**



**Follow the instructions and warnings noted in the appliance and equipment owner's manuals as well as the ones listed here.**

## PROPANE SAFETY PRECAUTIONS

Propane is highly flammable and is potentially explosive if not handled properly. It is not poisonous, but can cause drowsiness and may result in suffocation. If you maintain the system properly, you can expect nearly trouble-free operation. Always observe the following when handling and using propane:

- ▶ **Do not obstruct access to the cylinders. Access to the cylinders is critical in an emergency.**
- ▶ **Inspect the entire propane system for leaks or damaged parts before each trip and before filling the cylinders.**
- ▶ **Never check for leaks with an open flame. Use an approved leak detection solution or a non-ammoniated, non-chlorinated soap solution only. If the leak cannot be located, take the trailer to a propane service facility.**
- ▶ **Do not attempt to fill the propane cylinders yourself. Filling should be done only by qualified personnel using the required special tools and fittings.**
- ▶ **When filling the propane cylinders, use extreme caution and make sure others do also. Keep any flame, spark or anything that might produce a spark at least 25 feet from the filling operation. DO NOT SMOKE.**
- ▶ **Observe the warning label located near the propane cylinders. The label reads "DO NOT FILL CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY."**
- ▶ **Alterations, even as simple as mounting a plaque, can cause an unseen propane, water or electrical line to be damaged. Any nailing, screwing, drilling, or similar operation on or in the trailer could be hazardous. Always be careful when drilling holes or fastening objects to the trailer.**
- ▶ **Turn off the main propane valve, pilot lights, appliances, and their ignitors when filling the propane cylinders and/or tow vehicle fuel tank.**
- ▶ **Burning propane consumes oxygen in your trailer. Keep your trailer properly ventilated at all times, especially when the oven or stove is in use.**

- ▶ Do not place or store propane tanks or cylinders, gasoline or other flammable liquids inside the trailer (Standard models only. Carrying these items in cargo hauler models is permitted.)
- ▶ Do not use any other propane container other than the ones furnished with your trailer without being sure that all connecting components are compatible, and that it meets all applicable regulations and codes.
- ▶ Do not use cooking appliances for comfort heating.
- ▶ Before opening the main propane valve, be sure that all inside valves and burners are closed.
- ▶ Make sure all appliances, plumbing and outside vents are open and free from obstructions such as ice and snow. Make sure the breather vent on the propane regulator is clean and clear of obstructions.
- ▶ Make sure the regulator vent is facing downward.
- ▶ Portable fuel-burning equipment, including wood and charcoal grills and stoves, should not be used inside the trailer. The use of this equipment inside the trailer may cause fires or asphyxiation.
- ▶ Do not use a wrench or pliers to close the main shut-off valve. This valve is designed to be closed leak tight by hand. If a tool is required to stop a leak, the valve probably needs repair or replacement.
- ▶ If you do not have the special tools and training necessary, do not attempt to repair or modify propane system components.
- ▶ Annual maintenance on the propane system, appliances, and equipment should be done only by an authorized dealer or repair facility.
- ▶ Insects can build nests in the burners of the various appliances and equipment. The burners and orifices in the propane gas appliances and equipment should be cleaned out by an authorized dealer or repair facility whenever necessary, but no less frequently than each year.
- ▶ Always think safety.

## PROPANE SYSTEM COMPONENTS

The propane system consists of the propane cylinders with overfill protection devices (OPD), the automatic change over regulator, hoses, and associated pipe and tubing. All components meet UL or CSA requirements. The system has been tested and approved for use in your trailer, and has been performance tested at both the factory and the dealership. You should check the system for leaks periodically. Twice a year, or after a long storage period, the system should be checked by a qualified propane service facility. Check hoses for signs of deterioration every time you have the propane cylinders filled or serviced. Be sure any replacements meet original performance specifications. See the ***“Care and Maintenance”*** chapter for details on leak testing and system service. A gas leak detector is installed in your trailer that will detect the presence of propane and sound an alarm. A description of this device is in the ***“Safety First”*** chapter, and detailed operating instructions are included in your Owner’s Information Packet.

### **CAUTION**

**The supply cylinder is not completely empty until the red indicator is fully visible in the indicator window. There will still be pressure in the empty cylinder.**

### **WARNING**

**With a cylinder removed, the hose from the regulator must be capped. Gas will escape to the atmosphere through the open connection if pressure in the supply cylinder drops to 5 psi (red indicator flag visible). If the changeover lever is turned to the disconnected side gas will escape.**

The regulator reduces the pressure of the gas from the cylinders to a safe, even level for use by the appliances. The regulator is adjusted for the proper pressure and is rechecked by your dealer. Do not adjust the regulator. If necessary, have the regulator checked and adjusted by an authorized propane service facility.

The automatic changeover feature allows an uninterrupted flow of gas to the system as long as both cylinders’ main valves are open. The arrow on the changeover lever points to the supply cylinder. When the supply cylinder becomes empty, the control will automatically begin to draw gas from the reserve cylinder. An indicator on the changeover will show red. By turning the arrow on the changeover lever to the reserve cylinder, the red indicator will disappear as long as there is gas in the reserve cylinder.

## FILLING THE PROPANE TANKS

Your trailer is equipped with two propane cylinders. When one cylinder becomes empty, you can switch over to the other without interrupting the gas flow. This makes it convenient when you are located at a location that may be a long way from a gas supplier.

Your propane system is equipped with a Type I cylinder connector. This connector makes it as easy to connect and disconnect as a garden hose.

The Type I connection system uses the excess flow pigtail hose, distinguished by the large green nylon swivel nut. The green swivel nut attaches to the outside of the cylinder valve with right hand threads. Tighten the swivel nut by hand. DO NOT use tools.

The safety features of this system prevent gas from flowing unless the connection is tight and will limit excessive gas flow. In cases of extreme heat, 240° to 300°F, at the connection, the connection to the cylinder will be shut down.

The empty cylinder can be removed without disturbing the gas flow to the system.

1. Before removing an empty cylinder for refilling, close the main valve on the empty cylinder – hand tighten only. Rotate the changeover lever on the regulator so that it points to the full cylinder.
2. Loosen the hand nut attaching the flexible hose to the cylinder.
3. Loosen the wing nut holding the retaining bracket for each cylinder. Remove the empty cylinder. Install the plastic plug in the cylinder port.
4. Have the empty cylinder filled at a safe distance from the trailer. Caution the fill station attendant not to overfill the cylinder. All DOT propane cylinders have overfill protection devices (OPD) which will prevent overfilling.
5. Place the refilled cylinder back on the trailer. Secure the cylinder with the retaining bracket and wing nut.

### **WARNING**

**The propane gas system in your trailer is designed for propane gas only. Do not connect natural gas to this system.**

### **WARNING**

**The propane regulator must always be installed with the diaphragm vent facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage, which could result in excessive gas pressure causing fire or explosion.**

**Open the tank main valve slowly. Opening the tank main valve quickly can be hard on the regulator diaphragm and result in leaks.**

6. Remove the plastic plug and connect the flexible hose to the cylinder. Tighten the hand nut securely but not overtight.
7. Slowly open the main valve on the cylinder. Do not “snap” open the valve. The sudden pressure surge can damage the regulator diaphragm components. Test the connection for leaks with propane leak detector solution or a soapy solution that *does not contain ammonia or chlorine*.

Take empty propane cylinders to a propane gas supplier or service station which sells propane. Do not attempt to fill the cylinders yourself. The cylinders can legally be filled to 80% of each cylinder's total capacity. Filling a cylinder to 80% allows for 20% vapor and expansion space. A built-in safety feature indicates when the cylinder has been filled to the 80% level. Overfilling propane cylinders can result in uncontrolled gas flow which can cause fire or explosion. A properly filled cylinder will contain 80% of its volume as liquid propane.

A simple way to determine the level of liquid in a propane cylinder is to slowly pour a pot of hot water down the side of the cylinder, warming a path from top to bottom. Wait 10 seconds. Now run your hand down the path warmed by the water until you feel a cold line – this indicates the liquid level. Be sure to wipe the cylinder dry to prevent rust spots.

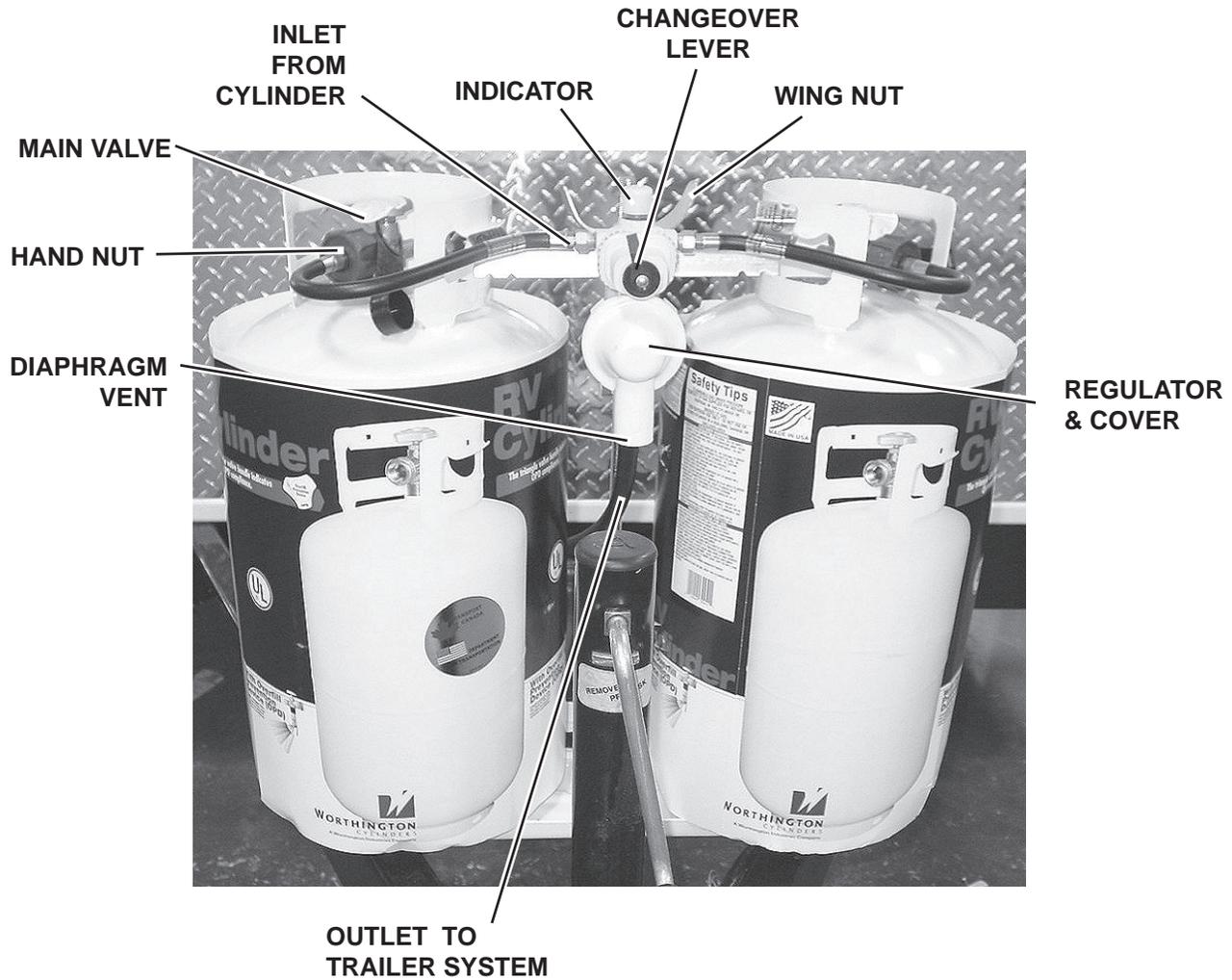
If the cylinder is to be put in storage for a length of time or is empty, close the main valve on the cylinder and install the plug in the cylinder port. This will minimize entry of moisture in the regulator or cylinder. Moisture can cause freezing damage in the regulator.

### **USING PROPANE IN LOW TEMPERATURES**

If you expect to use the system in cold temperatures, be sure to use a gas mixture that will not freeze up. Your local propane gas service facility can advise you on the best mixture of gas for your anticipated traveling needs. As long as the system components are kept above the vapor point of the gas, the system will function in low temperatures. Different gas blends are available, and you should contact your gas supplier for information on blends appropriate for your needs and the areas where you will be traveling.

Propane systems can freeze up during extremely cold weather. Although properly blended gas does not freeze, moisture or water vapor in the system or absorbed by the gas can freeze and partially or totally block the flow of gas. You can help prevent propane system freeze up:

1. If you are unsure whether a cylinder is completely moisture-free, have your propane supplier inject a special, approved antifreeze or deicer into the cylinder.
2. Use the proper blend of gas for your traveling area. With the proper blend, freeze up is unlikely. If you do experience freeze up, have your propane service facility service the cylinders and regulator as required. **NEVER TRY TO RESTORE GAS FLOW WITH ANY OPEN FLAME DEVICE.**



***Typical Propane System Components  
(Component arrangement may differ depending on model)***

