



# *Owners Manual*

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Welcome to the Outfitter family! We want to thank you again for selecting an Outfitter for your camping pleasure. Your Outfitter was manufactured under the supervision of over 40 years of RV manufacturing experience utilizing the finest components and materials available in the industry. Our engineering, quality, construction, and equipment are designed for your safety and comfort.

We have prepared this owners manual to assist you with the operation and maintenance of your camper. We hope it will aid you in the enjoyment and understanding of the many features of your unit. It was designed to provide you with information that applies to your camper and its basic systems along with specific information on components. Your understanding of the LP gas system, water distribution system, equipment and accessories will assure you of obtaining the very best performance possible from your camper. This understanding and proper maintenance is essential for maintaining your warranty with us.

At the time of delivery you were given a thorough check-out with appropriate explanations for operation and maintenance of all systems and equipment. This check out is in no way intended to inform you of all information and safety procedures for you to follow. It is only an overview. By accepting your camper you agree to thoroughly read and understand the individual booklets and brochures along with this manual, relating to the systems, appliances and equipment included with your purchase. Improper adjustments, alterations, service or maintenance to your camper or one of its many components and accessories can cause injury or property damage as well as invalidation of your warranty.

It is very important that you notify us immediately if you incur any problems that you feel are warranty related. This action will assure you the best service and maintenance available during your warranty period.

***Again we thank you for selecting an Outfitter camper. Please contact our Service Department for repairs, alterations, or simply to answer questions regarding your camper and its warranty.***

***If you have any additional questions or comments on our product please give us a call. We love to receive photos of our customers enjoying their camping experiences so keep us in mind as you travel throughout Colorado and the United States.***

***HAPPY CAMPING!!!!***

## **CO LEAK DETECTOR**

Your CO leak detector is operating at all times as long as it has power either from the RV battery or a direct 110v source. This detector will only operate when supplied with operating voltage. This detector is a safety device. When the alarm sounds on this device and the RED alarm indicator light flashes, they indicate the presence of carbon monoxide (CO) **which can be FATAL**. The alarm will continue to sound until the carbon monoxide has dissipated or until the mute button is activated.

### **IF ALARM SOUNDS:**

1. Press the mute button
2. Call your emergency services (fire department or 911)
3. Immediately move to fresh air outside or by an open door or window. Do a head count to check that all persons are accounted for? Do not re-enter the premises or move away from the open door or window until the emergency service personnel have arrived, the premises have been aired out, and your alarm returns to its normal condition.
4. After following steps 1-3, if your alarm reactivates within a 24 hour period, repeat steps 1-3 and call a qualified appliance technician.

**Caution:** This alarm will only indicate the presence of carbon monoxide (CO) gas at the sensor. CO gas may be present in other areas of the RV.

NOTE: This detector runs continuously on battery power. To avoid draining your battery (during the times when you are storing your camper) you will need to remove the fuse from the fuse holder located on the positive terminal of the camper battery. **DO THIS ONLY WHEN YOU ARE NOT GOING TO BE USING THE CAMPER FOR LONG PERIODS OF TIME AND ARE NOT CHARGING THE BATTERY. NEVER REMOVE THE FUSE WHEN THE CAMPER IS IN USE OR YOUR DETECTOR WILL NOT FUNCTION!**

## **WATER STORAGE TANK**

Your camper is equipped with a polyethylene water tank. This tank was designed to be filled by gravity flow only. DO NOT ATTEMPT to fill this tank under pressure. Do not force hose into tank-fill as this will create pressure in the tank which will result in damage to the water tank. A tank that has been expanded under pressure will not be covered under camper warranty.

A high percentage of distaste that occurs is generally a result of the use of a garden type hose for filling the system. Non-toxic hoses are widely available for this purpose and are recommended. Distaste may also occur from non chlorinated water systems such as wells.

### **SANITIZING INSTRUCTIONS FOR POTABLE WATER SYSTEMS**

The following procedure is recommended for sanitizing your water system.

1. Prepare a sodium hypo chlorite solution using potable water and a household bleach (5 1/2% or 6%) in the ratio of 1/4 cup bleach (Clorox) to 1 gallon of water. This solution is approved and recommended by health officials.
2. Pour a gallon of hypo chlorite solution for each 15 gallons of capacity into an empty potable water system.
3. Add enough potable water to completely fill the water system. (Be sure to evacuate all trapped air by venting tile system to atmosphere and resealing.)
4. Allow closed system to stand for three hours.
5. Drain the hypo chlorite solution from the system and refill with potable water.
6. Excessive hypo chlorite taste or odor remaining in the potable water systems is removed by rinsing the system with a vinegar solution mixed in the ratio of 1 quart vinegar to 5 gallons of water.
7. Drain the system and flush with potable water.

Plastic tank connections are designed to seal dry. Such compounds as sealants, pipe dopes, greases, petroleum jellies, etc. cause polyethylene to crack and therefore are not recommended. Normally, hand tightening will provide adequate sealing but a slight tightening with a wrench is sometimes necessary. Do not over-tighten plastic fittings as both the fitting and seal will be damaged. The water tanks are manufactured from polyethylene, a "thermo" plastic material. Because polyethylene is a thermoplastic it can be heated and reshaped with the aid of a soldering iron or a propane torch. In the event the tank is punctured it can be easily repaired by forming the material in the surrounding area to fill the puncture. There are no solvents, glues, epoxies, caulking or cements that will make a permanent repair. Repairs are made by plastic "welding".

**Hint:** The process of cleaning or rinsing your tanks is best accomplished if the vehicle is driven a short distance (agitating the mixture) before the fluids are drained from the tank.

## **AUTOMATIC WATER PUMP**

The automatic water pump turns on and off as the faucets are opened and closed. The following procedures should be performed for the initial starting of the pump or if the pump has not been in use for some time.

1. Check the level of fresh water in tank, making sure that the tank is at least ¼ full of water. (If your camper is not self-contained it is equipped with a single fixture pump and faucet. When switched on, this pump will deliver an uninterrupted flow of water until switched off. It is important that this type of pump NEVER be activated in a "dry" situation or it will cause immediate failure of the pump. )
2. Open all interior faucets and turn on the power to the pump. (Your camper is equipped with a pump switch with an ON and OFF position. The switch must be in the ON position for the pump to operate. The OFF position acts as a safety device when the pump is not in operation. We recommend that the pump switch be in the OFF position when the camper is in transit or not being used.
3. Keep faucets open until all air is cleared from the lines. If your camper is equipped with a water heater remember that the pump fills the 6 gallon water heater tank first before reaching the faucets, so be sure to refill your fresh water storage tank.
4. Close all faucets and you are ready for operation.

NOTE: In areas with water pressure exceeding 45 PSI, it is recommended that a water pressure regulator be installed.

### **Troubleshooting checklist:**

#### **Symptom**

Motor does not operate

#### **Look for**

Switch in ON position?  
Low battery?  
Are the wires disconnected?  
Blown fuse?  
Frozen pump head?

Pump does not prime

Water tank 1/4 full?  
Kinked or clogged inlet hoses?  
Inlet hose tight?

Pump runs but water sputters

Check clamps on input side for tightness.  
Allow time to clear air from lines.

Pump does not shut off

Switch OFF?

If the switch is in the off position try lightly tapping the switch. Check your power source to be sure it is 12V DC. (If your battery level is less than 10V the low voltage may provide enough energy for the motor to run but not enough to reach the shut-off pressure.)

If the pump cycles on and off in short intervals there is probably a leak in the line. Check all fittings and joints. Correct all leaks no matter how small. Check the faucets. If no leaks are detected, shut the pump off. Remove the output hose where it joins the main plumbing line.

Insert a plug in the end of the output hose and clamp it. Turn the switch on. The pump should come on for a few seconds and shut itself off. If it remains off, the problem is not in the pump, it is in the system. It may be that the water heater tank (if so equipped) is holding air and as this air is absorbed by the water, the pressure goes down, turning the pump on. Try bleeding the hot water lines again.

## **TOILET OPERATION**

If your camper is not self-contained you may skip this page.

Thoroughly read and understand the individual manual relating to your toilet along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty.

### **Sealand Traveler Toilet**

1. Add water to the toilet before using. Lift or raise the flush lever until desired water level is reached. Generally more water is required only when flushing solids.
2. To flush toilet, push lever all the way down until contents leaves toilet. Water flow pressures vary at different locations, and therefore holding the flush lever down for 4-8 seconds may be required.
3. Release flush lever by allowing it to snap back, which permits positive sealing around the flush ball.
4. A small amount of water should remain in bowl.
5. Make sure all guests understand the operation of your toilet.
6. Use only a good biodegradable tissue and holding tank deodorants to maintain a trouble-free system.
7. Don't use chlorine or caustic chemicals, such as laundry bleach or drain opening types in the system. These products damage the seal in toilets and dump valves.
8. Don't allow foreign objects to be flushed through the toilet. DO NOT dispose of sanitary napkins or other non-dissolving items in toilet.
9. Carry a few spare parts to avoid problems that may arise. Sealand Technology, Inc. has several repair kits that *will* save you both time and expense should a problem arise.
10. Don't allow small problems to go unsolved. As soon as a problem is detected, correct it.

Troubleshooting checklist:

#### **Symptom**

Toilet emits odor (flush ball closed)

Toilet emits odor (flush ball open)

Water will not stay in bowl

#### **Look for**

Water *in* overflow trap? (Add water through overflow holes)

Good brand deodorant?

Obstructed vent line?

Loose clamp ring?

Improper seal around flush ball due to dirt or debris on underside of Teflon ball seal?

Worn or damaged seal?

Worn or damaged flush ball?

Cracked half clamps?

\*\* NOTE: See the winterizing section of this manual for instructions on winterizing your camper. Warranty claims CANNOT BE HONORED for damage caused by freezing.

## **WASTE HOLDING TANK**

It is the responsibility of the camper owner to monitor the liquid levels in the waste holding tank and empty it as necessary. Check local regulations governing dumping procedures. The following procedure is recommended for emptying the waste holding tank.

1. Attach drain hose to the quick coupler hose adapter and secure the hose to the adapter with a hose clamp. Attach coupler with drain hose to main sewer termination of camper. The size of the drain outlet may vary. Some National Parks require 3" drain on black (sewer) water.
2. Insert drain hose in sewer outlet of dumping station.
3. Pull spade valve on waste holding tank.
4. Close spade valve after all waste water has been discharged. It is recommended that the waste holding tank be flushed with soap and water after draining whenever possible.

If liquids are to be contained in the waste holding tanks when the temperature may reach 28° F or below we recommend that 1 quart of permanent type antifreeze be poured into waste holding tank. The amount will be determined by the extremity of the cold. Remember that the use of petroleum products or acetones may cause damage to your tank, fittings or drain hose.

**CAUTION:** Use only ethylene-glycol base antifreeze. DO NOT use antifreeze with stop-leak. Read the contents label carefully on any antifreeze you purchase for use in your recreational vehicle.

**Hint:** Drain black waste tank before draining gray waste tank to aid in flushing solids.

**\*\* NOTE:** See the winterizing section of this manual for instructions on winterizing your camper. Warranty claims CANNOT BE HONORED for damage caused by freezing.

## **LIQUEFIED PETROLEUM GAS SYSTEM**

It is imperative that you understand the LPG system in your camper. Under proper conditions and handling it is safe and economical and provides modern living conveniences no matter where one travels.

Thoroughly read and understand the individual manual relating to your LP system along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty. Be sure you know where your gas shut off valve for all appliances is located so that you will know how and where to turn off the gas supply when necessary.

### **IMPORTANT CHARACTERISTICS OF LP GAS**

1. It is colorless.
2. It has a distinctive odor which the owner should learn to recognize.
3. It is compressed into a liquid form for easy storage and transportation.
4. LP gas is known by other names, the most common being "butane" and "propane". Butane and propane differ in their basic qualities.
  - a. Butane burns hotter than propane but when the temperature drops to 32° F or lower it will not turn into a gas vapor. It remains in a liquid state.
  - b. Propane freezes at -44° F and is more desirable in colder or freezing temperatures.
5. LP gas is stored in a special cylinder tank in a liquid form under high pressure. As it is used it passes through a regulator which reduces the pressure. When liquid gas hits the atmosphere it expands many times its original volume and turns into a gas vapor. It is this vapor form only that is used for cooking, heating and refrigerating.
6. LP gas is heavier than air and will settle toward the ground when released into the atmosphere. Therefore it will take longer to dissipate and disappear.
7. Keep cylinder away from all open flames and never strike a match when you are aware of the presence (or odor) of LP gas.

### **WARNING: IF YOU SMELL GAS:**

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Don't touch electric switches, or use any phone or radio
- Do not start your vehicle's engine or electric generator
- Extinguish any open flame
- Shut gas off at LP gas bottle
- Contact the nearest LP gas supplier, or a qualified LP gas appliance service person for repairs
- If you can not reach your gas supplier, call the Fire Department
- Do not turn on the gas supply until the problem has been repaired

### **FOR YOUR SAFETY**

1. Do not store or use gasoline or other flammable vapors and liquids near any appliance.
2. Shut off all gas appliances when refueling or traveling. This includes all pilot lights.
3. All gas line fittings should be checked for leaks at least twice a year. Please contact a qualified service technician for this service.

## **FILLING YOUR LP GAS CONTAINER**

Caution! Overfilling is hazardous! \*\* A warning label has been located near the LP-gas container. This label reads: DO NOT FILL CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY. Do not overfill your LP gas container. Overfilling can result in uncontrolled gas flow which can cause fire or explosion. A properly filled container will contain approximately 80% of its volume as liquid LP-gas. Stop filling when liquid appears at the fixed liquid level gauge.

Every LP-gas container is equipped with a fixed liquid level gauge which contacts the liquid level at 80% of container capacity allowing 20% for expansion. LP containers not equipped with a fixed liquid level gauge can only be filled by weight. LP gas containers must not be filled over 80% of total capacity. Propane expands approximately 1.5% for each 10° F that temperature rises.

BE SURE THAT ONLY QUALIFIED PERSONNEL FILL YOUR CONTAINER and be sure you transport the container in the horizontal position. If your container is overfilled, excessive pressure could develop within the container causing the relief valve to open, relieving pressure to a safe level at which time it will automatically close. However, LP gas released through the safety relief equipped with a visible gauge to monitor the amount of gas in the container DO NOT use the gauge for filling.

\*\* **WARNING:** LP-gas containers shall not be placed or stored inside the vehicle. These containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere.

Hint: To determine the level of gas in the container pour a glass of hot water over the tank. Run your hands along the side of the container from the top to the bottom. The part of the container that is "warm to touch" indicates the empty portion. The "cool to touch" area indicates the presence of gas.

**CAUTION: WHEN REFILLING YOUR VEHICLE GAS TANK BE SURE THAT ALL PILOT FLAMES IN YOUR CAMPER ARE OFF!!!**

\*\* **WARNING:** DO NOT BRING OR STORE PORTABLE FUEL-BURNING EQUIPMENT (INCLUDING WOOD AND CHARCOAL GRILLS & STOVES) INSIDE THIS VEHICLE. THE USE OF THIS EQUIPMENT INSIDE CAN CAUSE FIRES OR ASPHYXIA/ION.

**DO NOT BRING OR STORE LP-GAS CONTAINERS, GASOLINE, OR OTHER FLAMMABLE LIQUIDS INSIDE THE VEHICLE BECAUSE A FIRE OR EXPLOSION CAN RESULT.**

## **LP GAS REGULATOR**

LP Gas regulators reduce the pressure of LP Gas vapor from tank pressure to 6 ¼ oz or 11" water column for use at the appliances. The regulator is the heart of the LP gas System and although it seldom requires service, care should be taken to protect it from the elements which could cause it to malfunction. In addition, your LP gas system should be kept free of moisture which could cause the regulator to freeze-up.

\*\* LP-Gas regulators 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 that could result in excessive gas pressure causing fire or explosion.

## **LP GAS LEAK DETECTOR**

Your LP leak detector is operating at all times as long as it has power either from the RV battery or a direct 110v source. This detector will only operate when supplied with operating voltage. This detector is a safety device. When on, the detector's green operating LED will light. After 60 seconds, the detector will begin monitoring the environment for combustible vapors. The propane you use to cook, refrigerate, and heat with is combustible. Your gas leak detector has a self-check circuit which runs at all times while the detector is powered. In the event that the circuit fails, a failure alarm will sound and the operating indicator will cease to light.

It is important to be aware of the difference between a gas leak versus gas escaping from an unlit, open burner. Pure propane vapors from a leaking pipe or gas fitting are heavier than air and will build up their heaviest concentration at the leak and float down until they mix with air. Gas from open burners is intentionally mixed with air to induce burning and will dissipate into the air. When mixed with air, the gas becomes only marginally heavier than air and will expand outward. If a gas burner is left on, the area around the burner, range, and adjoining counter space will be combustible and can cause injury and damage if ignited. This condition will exist for an extended time period and eventually the gas will reach the detector's location and be detected. **This detector only indicates the presence of propane gas at its sensor. Combustible levels of propane gas may be present in other areas.**

Should a leak occur, when the gas reaches the detector in sufficient concentration, your detector will produce a pulsating alarm sound and the RED alarm LED will light. This alarm will continue to sound until the gas has dissipated or until the mute button is pressed. **When the alarm sounds, open all doors and major windows to air out the area, and turn the gas off at the tank. Do not reenter the affected area until the alarm stops sounding. If the alarm sounds a second time after the gas is turned back on, leave the gas off and have a qualified gas dealer or RV service center make the necessary repairs.** The mute button only stops the alarm from sounding for 60 seconds. The alarm will re-occur if gas is still present.

NOTE: This detector runs continuously on battery power. To avoid draining your battery (during the times when you are storing your camper) you will need to remove the fuse from the fuse holder located on the positive terminal of the camper battery. **DO THIS ONLY WHEN YOU ARE NOT GOING TO BE USING THE CAMPER FOR LONG PERIODS OF TIME AND ARE NOT CHARGING THE BATTERY.**

**NEVER REMOVE THE FUSE WHEN THE CAMPER IS IN USE OR YOUR DETECTOR WILL NOT FUNCTION!**

## **LP GAS COOKTOP RANGE**

Thoroughly read and understand the individual manual relating to your range along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty. Be sure you know where your gas shut off valve for the range and all other appliances is located, so that you will know how and where to turn off the gas supply when necessary.

### **WARNING: IF YOU SMELL GAS:**

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Don't touch electric switches, or use any phone or radio
- Do not start your vehicle's engine or electric generator
- Extinguish any open flame
- Shut gas off at LP gas bottle
- Contact the nearest LP gas supplier, or a qualified LP gas appliance service person for repairs
- If you can not reach your gas supplier, call the Fire Department
- Do not turn on the gas supply until the problem has been repaired

### **FOR YOUR SAFETY**

1. Do not store or use gasoline or other flammable vapors and liquids near this or any other appliance.
2. Your gas operated range is for use with LP gas only.
3. Shut off all gas appliances when refueling or traveling. This includes pilot lights.
4. Cooking appliances need fresh air for safe operation. Before operation open overhead vent, turn on exhaust fan and open a window slightly while using any range. Gas flame consumes oxygen which has to be replaced to assure proper 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 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.

**CAUTION:** Do not use your range as a heater! Inside burners (those not vented to the outside) rapidly exhaust the oxygen in the camper. Use of your range or oven (if equipped) in this manner creates a life-threatening situation. \*\*The following warning label has been located in the cooking area to remind the user to provide an adequate supply of fresh air for combustion: **WARNING: IT IS NOT SAFE TO USE COOKING APPLIANCES FOR COMFORT HEATING**

### **OPERATION**

For safe operation, top burners should always be adjusted so that the flame never extends beyond the edge of the cooking utensil.

To light range pilot:

1. Verify that gas supply is on.
2. Lift or remove range top.
3. Turn the appropriate burner knob counter-clockwise to ON or LITE. Do not attempt to light more than one burner at a time.
4. Turn the SPARK knob clockwise one "click". If the burner fails to light, continue turning the SPARK knob clockwise until the burner lights.
5. To extinguish the top burner flame, turn the appropriate burner knob clockwise to OFF.

For models equipped with an oven:

OPERATION

To light oven pilot (if equipped):

1. Verify that gas supply is sufficient
2. Push in oven control knob and rotate counterclockwise to PILOT ON position.
3. Light oven pilot located at back of oven to the left of the oven burner
4. To extinguish oven pilot, push in oven control knob and turn clockwise to OFF position

Note: The oven pilot may be slow in lighting due to initial air in the gas lines. The oven is equipped with a safety ignition system that requires a minimum of 30 seconds to operate after turning the oven knob on. This delay is normal.

To light the oven burner:

1. Light the oven pilot as described 1-3 above
2. With the oven control knob set to PILOT ON, push in and rotate the knob counter-clockwise to the desired temperature setting. The oven will pre-heat in approximately 10 minutes. For best results, always pre-heat the oven before use.
3. To extinguish the oven burner, rotate the knob clockwise to PILOT ON. The pilot will remain lit.
4. For complete shutdown, push in and rotate the knob clockwise to OFF.

Never cover the ventilation holes above the oven burner. When broiling, center the broiler pan under the flame. Move and turn the food over frequently to ensure even browning and cooking.

MAINTENANCE

To keep your range looking bright and new, wipe all surfaces as soon as possible after spills or spotting. Pitting and discoloration may result if spills are allowed to remain for any length of time on stainless steel. Use a soft cloth along with warm soapy water only. Grit or acid-type cleaners should never be used. Never wash surfaces while they are still warm.

Oven cleaner may be used on the oven interior. Follow the directions on the cleaner container.

Be sure to protect the aluminum gas tubing, thermostat sending bulb and electrical components from the cleaner.

Troubleshooting checklist:

**Symptom**

Pilot won't light or stay lit

**Look for**

Supply valve Closed?  
Insufficient gas supply?  
Insufficient gas pressure?  
Blocked pilot orifice or flash tube?  
Pilot flame too high or too low?  
Pilot flame cover is out of position and/or coated with carbon?  
Pilot flame is blown out?

Burners won't light or stay lit

insufficient gas pressure?  
Incorrect air/gas mixture?

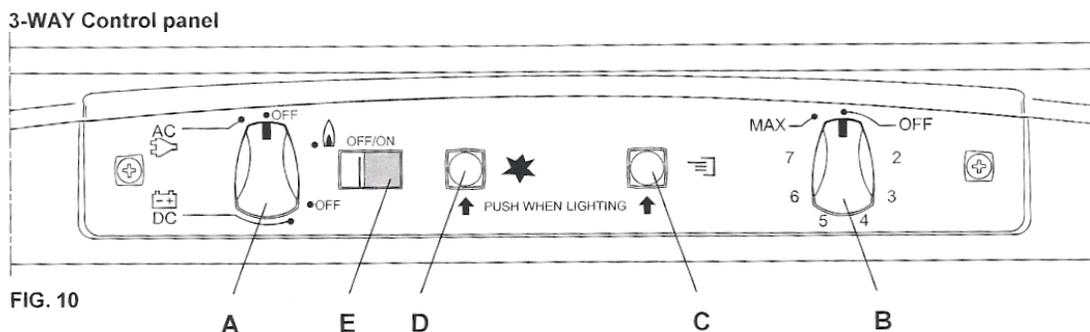
Burner lights but flame is too low

Improper gas pressure?  
Incorrect air/gas mixture?

Oven cooks unevenly

Poor oven ventilation?

## **LP GAS/ ELECTRIC REFRIGERATOR**



Thoroughly read and understand the individual manual relating to your refrigerator along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty. Be sure you know where your gas shut off valve for the refrigerator and all other appliances is located, so that you will know how and where to turn off the gas supply when necessary.

### **WARNING: IF YOU SMELL GAS:**

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Don't touch electric switches, or use any phone or radio
- Do not start your vehicle's engine or electric generator
- Extinguish any open flame
- Shut gas off at LP gas bottle
- Contact the nearest LP gas supplier, or a qualified LP gas appliance service person for repairs
- If you can not reach your gas supplier, call the Fire Department
- Do not turn on the gas supply until the problem has been repaired

### **FOR YOUR SAFETY**

1. Do not store or use gasoline or other flammable vapors and liquids near this or any other appliance.
2. Your gas operated range is for use with LP gas only.
3. Shut off all gas appliances when refueling or traveling. This includes pilot lights.

The refrigerator in your camper is powered either by LP gas, 12 volt or 110 volt. It is fitted with a piezo igniter which does not normally need any maintenance. If the igniter does not work properly, contact an authorized service technician. It is important that the user understand how the refrigerator operates and the instructions necessary for its maximum performance.

Leveling the refrigerator: In an absorption refrigerator system, ammonia is liquefied in the finned condenser coil at the top rear of the refrigerator. The liquid ammonia then flows into the evaporator and is exposed to a circulating flow of hydrogen gas, which causes the ammonia to evaporate, creating a cold condition. The tubing in the evaporator section is specifically sloped to provide a continuous movement of liquid ammonia, flowing downward by gravity, through this section. If the refrigerator is operated when it is not level and the vehicle is not moving, liquid ammonia will accumulate in sections of the evaporator tubing. This will slow the circulation of hydrogen and ammonia gas, or in severe cases, completely block it, resulting in a loss of cooling. Any time the vehicle is parked for several hours with the refrigerator operating, the vehicle should be leveled to prevent this loss of cooling. The vehicle needs to be leveled only so it is comfortable to live in (no noticeable sloping of floor or walls). When the vehicle is moving, the leveling is not critical, as the rolling and pitching movement of the vehicle will pass to either side of level, keeping the liquid ammonia from accumulating in the evaporator tubing.

## LP GAS/ ELECTRIC REFRIGERATOR - Continued

### OPERATION

#### Gas Operation

1. Turn knob **A** to the GAS position.
2. Turn the thermostat knob **B** to position 4.
3. Push the button **C** in until it reaches the bottom and hold, push the button **D** for the piezo igniter several times to light the burner. This can be observed on the flame indicator **E**. When the flame is on, the red indicator is in the green field. (ON)
4. After the gas is lit keep the button **C** pressed for 10 seconds. Release the button and check that the RED indicator is in the GREEN field. (ON)
5. To shut off the refrigerator turn the knob A to "OFF" position.

Note: After replacement of the LP gas container or a long shut off period the gas line is likely to be filled with air. In such a case the lighting procedure has to be repeated until the air is pushed out of the line and the gas has reached the burner.

Hint: Turn on all other LP gas appliances, and light a burner on your range before lighting the refrigerator. This tends to remove the air quickly from the system.

#### Electric Operation

1. Check that the power cord is properly connected to the power supply.
2. Turn knob **A** to the position marked "**AC**" for 120 volt AC operation or "**DC**" for 12-volt DC operation.
3. Turn the thermostat knob **B** to position 4.
4. To shut off the refrigerator turn the knob A to "OFF" position.

#### Thermostat

The refrigerator is equipped with a thermostat that can be adjusted by turning knob **B** to a different setting to maintain the desired cabinet temperature.

Note: If trouble is encountered with the flame blowing out under especially windy conditions, try to avoid the wind blowing against the wall where vent outlets are located. If the trouble persists, set the thermostat to MAX temporarily until the wind subsides.

### MAINTENANCE

To keep your refrigerator looking bright and new, wipe all surfaces as soon as possible after spills or spotting. Use a soft cloth along with a lukewarm weak soda solution for the interior liner. Use warm water only to clean the finned evaporator, ice tray and shelves. Never use strong chemicals or abrasives to clean any part, as the protective surfaces will be damaged. Always keep the refrigerator clean. When the refrigerator is not being used, the door should be left open to prevent forming of mildew. For your safety the refrigerator is equipped with a safety shut off device which will cut off the gas supply should the burner flame extinguish for any reason.

The following tips are excerpts taken from the July 1995 issue of "Trailer Life" magazine.

TIPS: Here we will give you some tips that can help improve efficiency and examine some of the reasons why refrigerator compartment temperatures can get unacceptably high. We will briefly explain the absorption theory and the three requirements for proper operation.

In order to get the best performance, start the refrigerator operation several hours before a trip and do this with it empty. Pre-cool all food that is to be transferred to the RV. Similarly, frozen food should be frozen prior to its transfer. If possible, purchase cold food for refrigerator storage. Wipe condensation, if any, from whatever food will be placed in the RV fridge. Refrain from lining the shelves with aluminum foil, which will restrict airflow. Also, try not to leave the door open any longer than is absolutely necessary.

## **LP GAS/ ELECTRIC REFRIGERATOR - Continued**

Current models aren't as sensitive to leveling as older models, however, if you can, park the RV with the refrigerator side vent in the shaded area to avoid the heat of the afternoon sun. When, very hot weather is expected, place some re-freezable blue-ice-type containers in the freezer overnight, and then place them in the upper part of the refrigerator compartment during the hot part of the day. This will slow down the temperature gain and may keep the food cold all day. Also, in hot weather use 120 volt shore power if it's available, instead of propane. All RVers should make it a regular practice to defrost the refrigerator. Excessive frost buildup on the evaporator fins will inhibit the proper heat transfer.

How does the refrigerator work? The cooling unit consists of pipes that contain the refrigerant mixture of ammonia, water, hydrogen and sodium, an anticorrosive chemical. A heat source from either the LP gas burner or an electric heating element is necessary for circulation of the refrigerant through the tubing. Similar to a coffee percolator, the ammonia and water boil rise up the pump tube where the water separates and returns to the boiler. Since ammonia does not condense as quickly as water, this gas continues to rise to the condenser where it expels its heat. Next, the ammonia gas returns to a liquid state and trickles down through the low temperature evaporator located in the freezer compartment. This is where the hydrogen and pure ammonia meet. It's here that the evaporation process is greatest and the majority of the heat is removed. (Remember cold is simply the absence of heat.) Due to a quick evaporation, the liquid ammonia becomes a gas again and circulated to a high temperature evaporator located in the refrigerator section where more heat is absorbed from the food items stored there. This gas then flows by gravity through a pipe to recombine with the water to begin the process again, which is why sufficient leveling is to be observed. Because the "absorbed" heat must also be eliminated, one of the most important elements for successful refrigerator performance is adequate ventilation. Most campers have a side vent and a roof vent that must be inspected in order to maximize heat dissipation, which is more critical in high ambient temperatures. Please contact your authorized service technician for this service. During hot weather, turn the thermostat up to MAX during the daytime. A note about safety should be reinforced here. Do not store any combustible materials or flammable liquids in the refrigerator compartment. Also, when refueling make sure the refrigerator is turned off, as well as the furnace and water heater. Since these appliances are externally vented, fuel vapors could be ignited, causing a fire that could result in personal injury or property loss. The electrical system heating element is what creates the heat source for electric operation. The correct voltage and wattage rating of the heater is vital to create sufficient heat to circulate the cooling-unit refrigerant. If this is compromised in any manner, the refrigerator performance will be less than ideal or perhaps result in no cooling at all. Adhere to all safety precautions when working with electrical components. To determine the correct ohm-resistance value for your refrigerator, contact your authorized service technician.

In models with electronic ignition and automatic energy selection, a fair amount of battery power is required for the control to function. The incoming battery voltage can be checked at the terminal block at the rear of the refrigerator; there should be between 10.5 and 13.5 volts DC. If chronic hot weather performance problems exist, there is a possibility the ventilation area created behind the refrigerator is not large enough. Ask your service technician to check this area in your unit.

In summary, proper operation can result in better efficiency in hot weather, and there are three major requirements for refrigerator operation.

1. Ventilation
2. A good heat source
3. Leveling

A few checks of these systems, especially after extended storage periods, will help the refrigerator when it needs the most attention.

## **LP GAS WATER HEATER**

If your camper is not equipped with a water heater you may skip this section.

Thoroughly read and understand the individual manual relating to your water heater along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty. Be sure you know where your gas shut off valve for the water heater and all other appliances is located, so that you will know how and where to turn off the gas supply when necessary.

### **WARNING: If YOU SMELL GAS:**

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Don't touch electric switches, or use any phone or radio
- Do not start your vehicle's engine or electric generator
- Extinguish any open flame
- Shut gas off at LP gas bottle
- Contact the nearest LP gas supplier, or a qualified LP gas appliance service person for repairs
- If you can not reach your gas supplier, call the Fire Department
- Do not turn on the gas supply until the problem has been repaired

### **FOR YOUR SAFETY**

1. Do not store or use gasoline or other flammable vapors and liquids near this or any other appliance.
2. Your gas operated range is for use with LP gas only.
3. Shut off all gas appliances when refueling or traveling. This includes pilot lights.
4. All gas line fittings should be checked for leaks at least once a year. Please contact a qualified service technician for this service.

Your hot water heater is preset to a comfortable temperature. This provides for energy efficient operation and sufficient hot water. A temperature control device may be purchased if you feel the preset temperature is not adequate. Caution: Setting at a higher position will produce a higher temperature and increase the risk of being scalded.

Hydrogen gas may result if you have not used this heater for two weeks or more. To reduce the risk of injury under these conditions, open the hot water faucet for several minutes at the kitchen sink before you use any electrical appliance connected to the hot water system. If hydrogen is present, you probably will hear an unusual sound such as air escaping through the pipe as the water begins to flow.

### **OPERATION**

1. Do not tamper with the pilot orifice. Tampering can result in high water temperature and failure of the gas control.
2. Place remote switch in the ON position
3. If the switch light stays on longer than 15 seconds, place the switch in OFF position and wait 5 minutes
4. Repeat step one

If the heater fails to operate due to high water temperature, the heater will go into a lockout condition with the indicator light on. When the water cools, reset by placing the switch in the OFF position for at least 30 seconds, then return to ON position. If a lockout condition persists contact your authorized service technician.

## MAINTENANCE

1. Keep the control compartment and rear of the unit clean and free of gasoline, combustible material and flammable liquids and vapors.  
Hint: Because of the exterior exposure, small insects can build nests and webs in and around the control compartment. Clean all debris from this area at the beginning of each camping season.
2. Drain water heater when possibility of freezing exists.
3. Manually operate the pressure temperature relief valve at least once a year. Operate only when storage water in tank is cool.

The water system is closed. The water heater may occasionally discharge at the pressure temperature relief valve due to the thermal expansion of water during the heating cycle. This condition can be relieved by following these steps.

1. Turn off the water heater and wait until the storage water is cool
2. Shut off the water supply
3. Open the pressure temperature relief valve and allow the water to run until it stops
4. Close the relief valve
5. Close the hot water faucet

Winter freeze-ups can cause you nothing but headaches! See the winterizing section of this manual for instructions on how to winterize your camper .Warranty claims CAN NOT be honored for damage caused by freezing.

Troubleshooting checklist:

<b><u>Symptom</u></b>	<b><u>Look for</u></b>
Unit sparks but doesn't ignite (light is on)	Voltage to valve OK?
Unit operates (light off)	Check wiring to the switch for a short
No spark or light	Check for excessively high voltage to the unit. (18V or more)

## **FURNACE**

Thoroughly read and understand the individual manual relating to your furnace along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as Invalidation of your warranty. Be sure you know where your gas shut off valve for the furnace and all other appliances is located, so that you will know how and where to turn off the gas supply when necessary.

### **WARNING: IF YOU SMELL GAS:**

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Don't touch electric switches, or use any phone or radio
- Do not start your vehicle's engine or electric generator
- Extinguish any open flame
- Shut gas off at LP gas bottle
- Contact the nearest LP gas supplier, or a qualified LP gas appliance service person for repairs
- If you can not reach your gas supplier, call the Fire Department
- Do not turn on the gas supply until the problem has been repaired

### **FOR YOUR SAFETY**

1. Do not store or use gasoline or other flammable vapors and liquids near any appliance.
2. Shut off all gas appliances when refueling or traveling. This includes pilot lights.
3. All gas line fittings should be checked for leaks at least once a year. Please contact a qualified service technician for this service.
4. Do not use this appliance if any part has been under water.
5. This furnace does not have a pilot. It is equipped with an ignition device which automatically lights the burner. DO NOT try to light the burner by hand. Never use tools to turn the gas control valve. If the valve will not turn by hand, call a qualified service technician. FORCED OR ATTEMPTED REPAIR MAY RESULT IN A FIRE OR EXPLOSION.

### **OPERATION**

Your camper is equipped with an electronic thermostat which has a broader temperature range than conventional home thermostats. The temperature scales are Fahrenheit and Celsius and are located on the face of the thermostat.

Set the temperature level switch to the desired temperature. Adjust as necessary according to comfort. MOVE THE THERMOSTAT TO 55° WHEN NOT IN USE

The thermostat controls the circuit to the furnace by reacting to room temperature. When room temperature is below the thermostat set point, the contact closes to allow current to flow to the relay. After the set point of the thermostat is reached the contacts open, removing power from the ignition system and shutting off the gas valve. The blower runs until the heat coil in the relay cools and opens the circuit, shutting off current to the motor.

### **MAINTENANCE**

At least annually (or more depending on the use of the furnace) maintenance and inspection should be performed by a qualified technician. Failure to properly maintain the furnace may void the warranty and can result in unsafe furnace operation.

## ELECTRICAL SYSTEM

### Wiring color code:

<u>COLOR</u>			<u>GAUGE</u>
Blue	Exterior	Back-up	#18
Red	Exterior	Right Stop & Turn Signal	#18
Yellow	Exterior	Left Stop & Turn Signal	#18
Brown	Exterior	Clearance, Tail & License	#16
Black	Exterior	Battery -Hot Wire	#14
White	Exterior	Battery -Ground Wire	#14
Green	Exterior	Lights- Ground Wire	#16

## **CONVERTER**

If your unit is not equipped with a converter you may skip this section.

Thoroughly read and understand the individual manual relating to your converter along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty.

The Electronic CS Series power converter installed in your camper is the heart of the DC electrical system. This converter is equipped with an automatic battery charger that will charge the battery while the converter is on. The auto-recovery, short circuit and variable controlled speed fan features are exclusive of Centurion 3000. In the event that a short develops in the electrical system of your camper. The converter will give an alarm (buzzer) indicating that a short has been detected. Immediately disconnect the last item and wait for the buzzer to stop. Your converter automatically will reset and start again. If the buzzing continues contact a qualified RV or electrical technician.

When connected to commercial power or AC generator, the circuits are protected by the breakers contained in the panel board. When the converter section is ON, the converter will convert the 120 VAC to 12 VDC and is instantly switched (via the automatic relay) into the 12 VDC RV circuits to operate the 12 volt lights and motors. A cooling fan (32 Amp converter only) will come on when certain temperatures are reached in the lower section. Equipment limited to operation from 12 volt battery power only (including 12V TVs, radios, stereos, unfiltered fluorescent lights) must be connected to the fused battery circuits.

The converter contains the AC breakers that protect the AC appliances. These appliances may include but are not limited to AC receptacles, the power converter and roof air conditioners. If a breaker trips because of an overload, reset it, first by shutting the breaker off and then turning the breaker back on. If the breaker trips again, there exists an electrical malfunction and you should contact a qualified service technician. Fuse holders for replaceable automotive type fuses are located on the upper right hand corner of the face plate. Maximum fuse size and circuit identification are provided to the left of the fuse holder.

Circuits may be turned off by flipping the breaker to the OFF position. All electrical connections should be checked annually.

## **POLAR-AIRE FAN**

Thoroughly read and understand the individual manual relating to your Polar-Aire vent along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty.

Your Polar-Aire ventilation system will provide the best air exchange if windows furthest away from the vent are opened. Air circulation can be regulated by adjusting the window opening or fan speed. All other vents should be closed. Open/close the front or rear windows to direct the airflow. A unique feature of your Polar-Aire is the ability to circulate air with the dome closed, during inclement weather. The fan blade is designed similar to a home style ceiling fan, which will draw air into the center and circulate it to the outer edges. With the dome closed, select exhaust, adjust fan speed as desired.

### **OPERATION**

#### **Always allow fan to stop before changing direction**

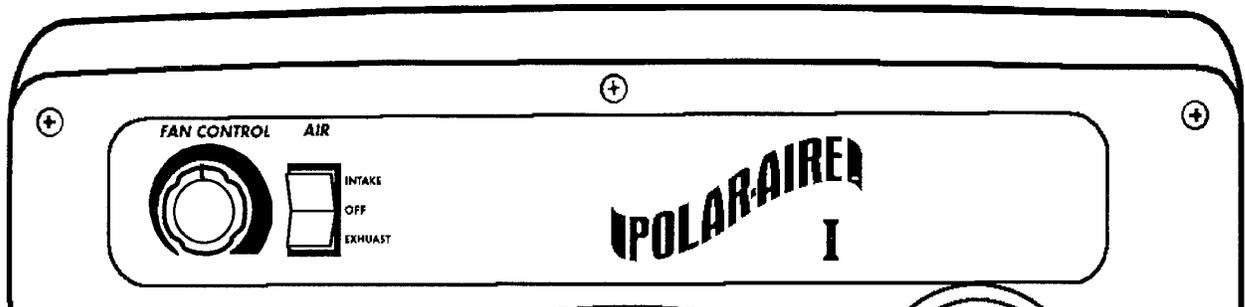
1. Intake/Off/Exhaust: ("Air" Switch)  
Select either, Intake or Exhaust to activate fan motor.
2. Fan speed control:  
Rotate "Fan Control" knob clockwise to increase fan speed  
Rotate "Fan Control" knob counterclockwise to decrease fan speed
3. Dome Control:  
Using the retractable lever, rotate the knob clockwise to open and counterclockwise to close.

\*\* NOTE: Fan will operate with dome in any position; however, airflow efficiency will be greatly reduced if dome is not opened

### **MAINTENANCE**

1. Never place anything over the ceiling fan. Greatly restricted airflow and increased sound levels will occur.
2. Cleaning:
  - a. Turn fan motor off.
  - b. Remove the 8 mounting screws to remove the screen.
3. Clean screen, chassis, come, ceiling assembly, and rain sensor with mild soap and water solution
4. Re-assemble fan.

CAUTION: Turn the "Air" switch off before cleaning. When cleaning around the controls, be careful not to spray into the rocker switches. If circuit board becomes wet, allow to dry thoroughly before turning on.



## JACKS

Thoroughly read and understand the individual manual relating to your jacks along with this section. Improper adjustment, alteration, service or maintenance can cause injury or property damage as well as invalidation of your warranty.

### FOR YOUR SAFETY

1. Never allow the camper to be occupied while it is being loaded or unloaded.
2. Never raise the rear of the camper higher than the front of the camper.
3. Always check to be sure that all tie-down and electrical devices are disconnected from the vehicle body.
4. Do not load or unload the camper on a windy day. The amount of wind that is dangerous depends on your exposure, width of camper, etc.
5. Only store your camper on level ground.

### HappiJacs

#### Loading the Camper

1. Raise camper: Insert crank handle firmly into the crank socket of one of the front jacks and begin cranking counter-clockwise to extend. Raise the front of the camper 3" to 4" working side to side.
2. Raise the rear two jacks until the rear of the camper is level with the front. NEVER RAISE THE BACK OF THE CAMPER HIGHER THAN THE FRONT. Continue alternating between the front and rear jacks (in 3 to 4" increments) until the bottom of the camper is higher than the truck bed by 3 to 6".
3. SLOWLY back the truck under the camper. Make sure truck and camper are aligned so as not to hit the jacks or the camper with truck fenders or wheel wells.
4. Connect electrical cables while accessible.
5. Lower camper onto truck bed:
  - a. Crank clockwise on rear jacks lowering 3 to 4" then move to the front and do the same.
  - b. Repeat until the truck takes the full weight of the camper, then secure camper to truck.
  - c. Completely retract all 4 jacks and stow crank handle.

#### Unloading the camper

1. When choosing a location for unloading the camper, select the most level and firm ground available. Crank the 4 base pads to the ground and be sure that the pads have solid footing of 12" square ¾" plywood pads to prevent sinking.
2. Make sure electrical connections and all tie downs are disconnected between the camper and truck.
3. Insert crank handle firmly into the crank socket of one of the front jacks and begin cranking counter-clockwise to extend. Raise the front of the camper 3 to 4" working side to side (if alone) or together if 2 people are unloading.
4. Raise the rear two jacks until the rear of the camper is level with the front. NEVER RAISE THE BACK OF THE CAMPER HIGHER THAN THE FRONT.
5. Continue with the above lifting procedures until the camper is approximately 6" above the truck bed or until it clears the highest point of the truck bed.
6. CAUTIOUSLY drive the truck forward, making sure you are aligned so as not to hit or rub the camper jacks, wheel wells or fenders.
  - a. Lower the Camper onto the ground: Crank clockwise on rear jacks lowering 3 to 4" then move to the front and do the same. Repeat until the desired height is reached.
  - b. For added safety and stability, support the camper floor with blocks and use camper jacks to stabilize.

### MAINTENANCE

1. Frequently - check all mounting screws and other hardware for tightness and proper jack alignment.
2. Every 6 months - wax mounting brackets and both inner and outer turbs of jack with automotive wax.
3. Yearly - At least once each camping season, fully extend jacks to red safety line. This redistributes lubrication evenly on the screw shaft. Remove top cap and re-grease gears (if needed) with white lithium grease. Lightly oil bearings.
4. Should a jack become difficult to operate, inspect for bent or worn parts. Use only factory supplied parts for replacement. Use only an authorized service technician.

## **LIFT SYSTEMS AND SOFTWALLS**

You should never raise or lower your roof if there is anything on top of it! The crank system was not designed to raise or hold any additional weight. If you travel with additional items on top of your roof you **MUST REMOVE THEM PRIOR TO RAISING OR LOWERING YOUR ROOF! FAILURE TO DO THIS CAN RESULT IN DAMAGE TO YOUR LIFT SYSTEM AND WILL VOID YOUR CAMPER WARRANTY.**

### **Crank Lift System Raising the roof**

1. Unlock all exterior roof locks making sure they are free and not apt to catch while you are raising the roof.
2. Open the main entry door being sure it remains open during the raising operation.
3. Lift the locking device and insert the crank into the gear. Turn the crank clockwise until the roof is completely raised.
4. Make sure the crank is pushed forward into the spur gear. (If the crank gears become free, the roof will fall.)
5. Unhook front and rear elastic straps that are connected to the ceiling.

### **Lowering the roof**

1. Open the main entry door being sure it remains open during the lowering operation.
2. Hook both front and rear elastic straps to the eye hooks on the roof. (This helps pull the softwall to the interior).
3. Lift the locking device and insert the crank into the gear. Turn the crank counterclockwise until the roof is completely lowered.
4. Make sure the crank is pushed forward into the spur gear. (If the crank gears become free, the roof will fall.)
5. Check around tile exterior of the camper to be sure that the softwall is completely tucked to the inside.
6. Lock all exterior roof locks making sure they are secure.

### **Softwall**

The fabric portion of your Pop-top is commonly known as the softwall. It is made of Weblon, a lamination of two plies of specially formulated vinyl with an inner, reinforcing core fabric woven from high strength Dacron polyester yarns. Weblon's exclusive "Rain Kleen" finish on the weather side provides ease of cleaning, prolongs the life of the fabric and adds to the pleasing appearance of the surface. By its very nature the fabric portion of your Pop-top demands some extra attention to ensure long life and durable service. Thought and time, rather than money and labor, will allow you to avoid the potential of mold and mildew which may eventually ruin your fabric.

### **MAINTENANCE**

1. Store your camper level to avoid accumulation of water under the top flange.
2. Raise the roof periodically. The top should be completely raised and allowed to dry thoroughly, approximately once every thirty days. You may need to wipe down the fabric with a dry cloth to absorb excess moisture. If your camper is stored or left mounted on a moving or stationary truck, rain, snow, sleet, dew and condensation will ultimately begin to create an accumulation of moisture on your fabric walls.
3. When you return from even a short camping trip, raise the roof and allow it to dry thoroughly, inside and out, before closing for an extended period. Even in hot, dry weather conditions, imperceptible amounts of moisture may accumulate inside the camper from the combined effect of body heat and cooking. Allowing your fabric to dry completely will preclude any possibility of unnecessary damage.
4. Use mild soap and water to clean your softwall. DO NOT use any harsh cleaners as this may damage your fabric.

### **INTERIOR WOOD FINISH / CUSHION & UPHOLSTERY FABRICS / CURTAINS**

The interior paneling of your camper is an all wood back luan panel with a simulated wood grain print face. It should be periodically cleaned and protected with a good commercial furniture polish such as "Behold" or "Pledge". Most of your cushions & upholstery fabrics are treated with "Scotch Guard" and generally can be cleaned with a solution of water mixed with a small amount of detergent. Wipe the soiled areas with a moistened cloth without soaking or harsh rubbing of the fabric. Upholstery cleaner may also be used.

The curtains in your camper should be dry cleaned only and maintained as you would the fine fabrics in your home.

## CAMPING QUICK CHECK LIST

- |   |  |
|---|--|
| <input type="checkbox"/> Plates, cups, silverware         | <input type="checkbox"/> Kitchen utensils, pots, pans        |
| <input type="checkbox"/> Coffee pot, tea pot              | <input type="checkbox"/> Dish cloths, towels                 |
| <input type="checkbox"/> Foil, plastic bags & wrap        | <input type="checkbox"/> Trash bags                          |
| <input type="checkbox"/> Soaps                            | <input type="checkbox"/> Paper towels & napkins              |
| <input type="checkbox"/> Facial tissue & toilet paper     | <input type="checkbox"/> Chemicals for toilet                |
| <input type="checkbox"/> Shaver, shave cream              | <input type="checkbox"/> Toothbrushes, toothpaste            |
| <input type="checkbox"/> Scissors, needle, thread         | <input type="checkbox"/> Rope, clothespins                   |
| <input type="checkbox"/> Matches Charcoal & broiler       | <input type="checkbox"/> First aid kit, medicines            |
| <input type="checkbox"/> Clothing, jackets, hats          | <input type="checkbox"/> Boots, rain gear                    |
| <input type="checkbox"/> Blankets, sleeping bags          | <input type="checkbox"/> Ice & ice pick                      |
| <input type="checkbox"/> Thermos                          | <input type="checkbox"/> Transistor radio                    |
| <input type="checkbox"/> Flashlight, extra batteries      | <input type="checkbox"/> Camera & film                       |
| <input type="checkbox"/> Extra light bulbs                | <input type="checkbox"/> Lantern, insect repellent           |
| <input type="checkbox"/> Gas can extra fuel               | <input type="checkbox"/> Hammer, pliers, and screwdriver     |
| <input type="checkbox"/> Leveling blocks                  | <input type="checkbox"/> Axe, spade, and nails               |
| <input type="checkbox"/> Compass, maps, permits, licenses | <input type="checkbox"/> Hose for filling water tank         |
| <input type="checkbox"/> Sports equipment                 | <input type="checkbox"/> Swimsuits, sun lotion, life jackets |
| <input type="checkbox"/> Fishing gear, poles, bait        | <input type="checkbox"/> Games for kids & adults             |
| <input type="checkbox"/> Reading material                 | <input type="checkbox"/> Pets & pet food                     |
| <input type="checkbox"/> Insurance for trip               | <input type="checkbox"/> Credit cards, traveler's checks     |

### Common camping foods:

- |   |   |
|---|---|
| <input type="checkbox"/> Baking soda                                    | <input type="checkbox"/> Coffee, tea, chocolate mix       |
| <input type="checkbox"/> Milk, cream                                    | <input type="checkbox"/> Soft drinks, and/or mixes        |
| <input type="checkbox"/> Mayonnaise, catsup, mustard                    | <input type="checkbox"/> Popcorn, marshmallows            |
| <input type="checkbox"/> Bread, butter, jam -flour, sugar, salt, pepper | <input type="checkbox"/> Cooking oil, syrup               |
| <input type="checkbox"/> Salad makings & dressings                      | <input type="checkbox"/> Sandwich makings                 |
| <input type="checkbox"/> Potatoes, fruit                                | <input type="checkbox"/> Bacon, eggs, cereals Snack foods |
| <input type="checkbox"/> Canned foods, soup                             |   |

### HAVE YOU SECURED YOUR HOME IN EVERY WAY BEFORE YOU LEAVE?

1. Do you have fresh water in your tank? Is your tank full?
2. Is your battery fully charged and hydrometer test performed?
3. Is the refrigerator door locked and did you allow it to cool for a day prior to leaving?
4. Is the water pump switch in "OFF" position?
5. Are all windows and roof vents securely closed?
6. Are your running lights connected? Are your turn signals & brake lights working?
7. Is the entrance door securely closed & locked?
8. Are all baggage compartment doors closed & locked?
9. Are your truck tires properly inflated?
10. Is your LP Gas bottle full?
11. Are all drawers & cabinet doors securely dosed?
12. Did you lock the front door at home before you left?

### Important phone numbers:

Neighbor \_\_\_\_\_

Doctor \_\_\_\_\_

Family Dentist \_\_\_\_\_

Family Vet \_\_\_\_\_

## **WINTERIZING YOUR CAMPER**

A complete service routine is an owner's hedge against cold weather storage damage. Temperatures consistently below freezing will have a devastating effect on the water lines and the hot water tank, pump, toilet, water filter, and other fresh water components.

Unnecessary problems and expense may be eliminated during freezing temperatures by taking the following precautions to prevent damage caused by freezing. Whether you are planning to store your camper during the winter months, or leave it without heat during this time, certain precautions should be taken to give your camper the maximum protection from freezing.

### **WARRANTY CLAIMS CAN NOT BE HONORED FOR DAMAGE CAUSED BY FREEZING.**

The following procedure must be used when draining your RV.

1. Level your camper.
2. Drain the water tank & automatic water pump.
  - A. Open all faucets and drains, start pump and allow it to run until all of the water has been pumped from the water tank and piping system.
  - B. Turn the pump switch to the "OFF" position.
3. OPEN ALL FAUCETS in the kitchen & bathroom.
4. Open the exterior drain adjacent to rear entrance door
5. DRAIN WATER HEATER (if applicable)
  - A. Open all cold & hot water outlets.
  - B. Turn water temperature selector knob to full left.
  - C. Unscrew drain plug located at the base of the heater and open pop-off valve to prevent air lock while draining.
6. Make sure the entire hot & cold water piping system is completely free of water. Water trapped in low spots, when frozen, can expand enough to rupture the piping lines and fittings. DO NOT put any antifreeze into this system except NON- TOXIC.
7. To Drain toilet:
  - a. Thoroughly flush system with fresh water.
  - b. Empty holding tank.
  - c. Shut off water supply to toilet and remove inlet waterline. DO NOT remove brass cap on bottom of valve.
  - d. Press flush lever until all water is drained from toilet.

To use antifreeze:

1. Drain potable water tank.
2. Add freshwater antifreeze to potable water tank.
3. Flush potable water antifreeze and water mixture through toilet and into the waste holding tank. Each installation is different so amounts may vary. User discretion is required to assure adequate protection.
4. Empty holding tank.

**NOTE:** Use non toxic antifreeze designated for potable water systems. If water is inadvertently frozen in the toilet DO NOT attempt to flush until the ice is thawed, otherwise, damage may occur.

**CAUTION:** Never use automotive-type antifreeze in freshwater systems.

## WINTERIZING YOUR CAMPER - Continued

### SUMMARY

- \* Drain holding tanks
- \* Drain water heater
- \* Blow out city water fill lines only
- \* Close cold faucets
- \* Pump antifreeze through water pump to lines and out of cold faucets
- \* Pump fluid through system and out all hot faucets
- \* Drain fluid from water heater & save to reuse
- \* Put small amount of antifreeze in each drain or p-trap
- \* Drain fresh water tanks
- \* Hold open toilet valve
- \* Close hot water heater
- \* Open low point drains
- \* Open all faucets
- \* Close low spot drains

The following tips are excerpts taken from the December 1995 issue of "Trailer Life" magazine. With your RV as level as possible, completely drain the freshwater holding tank by opening the drain valve. It might take several minutes or hours for it to drain, depending on the size and location of the drain and the capacity of the tank. Be sure that the water heater has been turned off for several hours to prevent extremely hot water from scalding you.

Release line pressure by opening a faucet with the water pump turned off and the RV disconnected from the city water inlet. Remove the drain plug or open the petcock of the water heater. Next, open the lever handle of the water heater pressure-relief valve to let air in and allow the water to drain. With the water heater and the freshwater tank drained, a permanent or temporary bypass can be installed at the inlet and outlet ports of the water heater. Essentially, this will prevent the water heater from filling before the water system can pressurize. This eliminates the need to fill the water heater with 6 gallons of antifreeze, an unnecessary expense. The fittings you will need to fabricate, a temporary bypass can be obtained from us or most hardware stores. Pre-made kits are also available and require approximately one hour to install.

There are two methods for winterizing the water lines:

1. Blowing them out with compressed air. If you prefer to blowout the lines, start by attaching an adapter to the city water inlet. This adapter has a Sharader valve (same type that's used to fill your tires) built into a threaded hose fitting designed to be screwed into the city water inlet. After draining the lines with the water pump, you can purge the lines by using compressed air from a regulated source, using no more than about 20- 30 psi. As your assistant holds the air chuck to the adapter valve, open one faucet at a time, starting with the farthest on, until all the water has been blown out.
2. Potable antifreeze method. Start by disconnecting the inlet side of the water pump and connecting a piece of hose (with an appropriate fitting and hose clamp) long enough to go into your nontoxic antifreeze container. OPEN ALL FAUCETS in kitchen & bathroom. (If your camper is equipped with a shower, be sure that the showerhead is hanging down and in the OPEN *position*). Begin with the faucet farthest from the water pump, and turn the pump on. Open the hot side of the faucet first, and watch the water as it is being purged until a consistent flow of antifreeze is observed. Repeat this process on the cold side. Don't forget the tub/shower, lavatory, toilet, kitchen, etc. To protect the p-traps, add about one cup of antifreeze to each sink and bath drain. **USE ONLY NON- TOXIC ANTIFREEZE**. After ensuring that all of the water-system components have been winterized, turn the pump switch OFF. Next, remove the temporary bypass from the water heater if you choose to use this method. Reconnect the water lines to the inlet and outlet port fittings of the water heater. Then remove the hose you connected to the inlet side of the water pump, and reattach this line (this part can be messy). It is advisable to have an ample supply of shop rags or paper towels available.

## **WINTERIZING YOUR CAMPER - Continued**

Dump both the gray water and black water tanks completely. Leave the termination valves open, but put the cap back on. The water heater drain plug can be reinstalled and the pressure relief valve handle returned to its normal (closed) position. The water heater is designed so that there is ample room for expansion of any residual water that may remain in the tank. In some plumbing configurations, a hand pump can be used to back-flush the fresh water system. With one of these kits, you can attach an adapter to each faucet, following the previous instructions.

Note: If you are not able to access the water pump, close the drain valve on the fresh water tank and add the solution to the fresh water tank filler. If this method is used, keep in mind that any residual water remaining in the tank below the tank drain outlet will dilute the antifreeze.

If your camper is stored in an area that goes below 10° F during the winter, you should test the antifreeze solution. Test kits can be obtained from your authorized RV parts suppliers.

If you find yourself winterizing every year, you should consider installing a permanent kit that allows hookup to the antifreeze container without disconnecting the line to the water pump.

Automatic systems are also available, allowing you to perform winterizing duties by simply flipping a switch and turning a lever.

# 2004 Outfitter

# Warranty

## **Limited Warranty**

*This warranty is extended to the initial retail purchaser (original owner) and begins on the date of delivery.*

Your new Outfitter truck camper including the plumbing, electrical systems, appliances and equipment installed by the manufacturer is warranted under normal use to be free from defects and workmanship for a period of one year from date of delivery. The aluminum structure of the recreational vehicle is warranted under normal use to be free from manufacturing defects in material and workmanship for the life of the vehicle. Additional warranty coverage may be available for some appliances and equipment installed on your recreational vehicle. Refer to the documentation included on the owner's packet or contact the manufacturer of the component. The original owner should fill out any warranty registration information included in the owner's packet and submit them to the appropriate manufacturers.

Appearance imperfections, or damaged paint, graphics, interior/exterior trim or upholstery that may have occurred prior to owner delivery must be identified during the walk-through and orientation so that they may be corrected by the dealer/manufacturer.

The owner is responsible for normal maintenance as described in the owner's manual. If a problem does occur that the owner believes is covered by this warranty the owner must contact Outfitter. All warranty work must be pre-authorized. Work performed by an independent service center that does not have a written pre-authorization from Outfitter may result in a reduction or loss of warranty coverage. As the owner you are responsible for presenting your camper as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time.

This warranty does not cover; defects caused by or related to abuse, misuse, negligence or accident; failure to comply with the instructions and operation contained within the owner's manual; alterations or modifications not performed by the manufacturer; normal deterioration due to wear, sun exposure, and exterior weathering; normal maintenance and service items such as light bulbs, fuses, seals, sealants, and lubrications; any commercial or unusual use of the vehicle; improper storage and use during freezing weather.

This warranty does not extend to any original owner who does not operate the vehicle in accordance with state and federal laws.

This is the only express warranty applicable to your camper and there is no authorization for any other persons to offer any other obligation or liability in connection with your camper or this warranty. Under this warranty we will repair, replace, or adjust all parts on your camper that are defective in our manufacturing materials or workmanship. Most of the appliances contained within your camper have separate manufacturer warranties that vary in coverage and covered periods for defects, etc. These warranties are separate from our warranty and it is your responsibility to familiarize yourself with those individual warranties.

This warranty gives the original owner specific legal rights, and may also have other rights which vary from state to state. The manufacturer is not responsible for any undertaking, representation or warranty made by persons beyond those expressly set forth in this warranty.

We look forward to meeting your every service need to maximize your satisfaction with your camper.

For service assistance contact Outfitter Manufacturing, Inc. at (970)535-9421.