

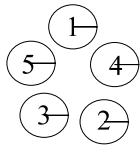
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PRE-TRAVEL CHECK LIST

Exterior

Disconnect water, electrical, and drain lines.
Check roof top carrier (if installed).
Remove blocks from wheels. Retract steps.
Lower front windows and rockguard.



85-95 FT. LBS.

NOTE: USE A TORQUE WRENCH TO TIGHTEN LUG NUTS. TIGHTENING BY HAND OR WITH AN IMPACT WRENCH IS NOT RECOMMENDED.

Check wheel nut torque.
Check LPG tank level and refill if necessary.
Check hitch and hitch ball.
Check tires and adjust pressures if necessary.
Check batteries.
Check running lights, turn signals, interior and panel lights.
Check brakes, brake fluid, brake lights.
Proper hitching procedure.
Check cooling system.
Lock deadbolt in entry door(s).

Interior

Lower TV antenna.
Turn off water heater.
Turn off water pump.
Turn off furnace.
Turn off range pilot.
Close cooktop cover.
Close roof vents.
Close all doors, drawers and windows.
Secure freestanding furniture.

RULES FOR EQUIPMENT SELECTION AND PREPARATION FOR TOWING

Your towing equipment, its adjustments and how you load the trailer will have a great effect on trailer towing stability and handling. The following rules will help you select, adjust and load your equipment in a manner that will help produce acceptable towing characteristics:

1. Use a tow vehicle that is large enough for your trailer and has the needed power and heavy duty running gear. The tow vehicle must be rated by its manufacturer both to tow the gross weight and to carry the hitch weight of the fully loaded trailer.
2. Use a weight distributing hitch rated not less than the trailer Gross Vehicle Weight Rating (GVWR). Follow the tow vehicle and hitch manufacturer's instructions. Install the hitch ball as close as practical to the rear bumper to minimize rear overhang.
3. Use a sway control system, installed and adjusted according to the sway control manufacturer's instructions.
4. Use a brake controller that automatically applies the brakes in proportion to the tow vehicle brakes.
5. Adjust the brake controller so that the brakes of the trailer operate as quickly as possible without sliding the tires of the loaded trailer during strong braking.
6. Do not use an automatic speed control while towing.
7. Inflate the rear tires of the tow vehicle to their maximum cold pressure.
8. Inflate the trailer tires to their maximum cold pressure.

9. Load the trailer placing heavy objects and goods as close to the trailer axle(s) as possible. Do not place heavy objects on the rear bumper or on the tongue.
10. Adjust the hitch ball height so that the fully loaded trailer is level front-to-rear when attached to the fully loaded tow vehicle with the hitch spring bars tightened.
11. When loading the trailer do not exceed the trailer Gross Axle Weight Rating(s) (GAWR). Weigh the fully loaded trailer from time to time to verify that trailer GAWR and GVWR are not exceeded, and that the loads on the right-hand and left-hand wheels are approximately equal.
12. Do not exceed the tow vehicle Gross Axle Weight Ratings(s) (GAWR) or Gross Vehicle Weight Rating (GVWR). Weigh the tow vehicle from time to time to verify these loadings.

ON THE ROAD

Travel Trailer Loading

A travel trailer chassis (springs, wheels, tires, axles, frame and tongue) is designed to carry a certain maximum load. This load consists of the weight of the empty trailer itself, and weight added in the form of water, food, clothing, and anything else that may be stored in or attached to the trailer. The maximum load for which the trailer is designed is called the **GROSS VEHICLE WEIGHT RATING (GVWR)** and is the total of the weight on the axles and the weight on the trailer tongue.

Another critical weight factor is the **GROSS AXLE WEIGHT RATING (GAWR)**. This is the maximum weight a specific axle is designed to carry. Again the rating represents the empty vehicle's axle weight plus the added load. On trailers with more than one axle, the weight is divided between each axle and each has its own **GAWR**. The total of all axle loads plus the tongue weight must not exceed the trailer **GVWR**.

Your trailer is designed for maximum tongue weights and hitch tongue weight ratings depending on the following chart:

Tongue Type and size	Max. Allowable loaded tongue weight	Max. Allowable hitch weight rating
4-inch tubular	500 lbs.	550 lbs.
4-inch channel	750 lbs.	1000 lbs.
5-inch tubular	900 lbs.	1000 lbs.
5-inch channel	1000 lbs.	1200 lbs.
6-inch tubular or channel	1100 lbs.	1200 lbs.

WARNING: DO NOT EXCEED THE SPECIFIED TONGUE WEIGHT AS YOU COULD CAUSE DAMAGE TO THE TRAILER FRAME. ALSO, OVERLOADING COULD RESULT IN POOR HANDLING AND BRAKING.

Determining and Distributing the Trailer's Load

The **GROSS VEHICLE WEIGHT RATING (GVWR)** for your trailer is found on the label attached at the front road side of the trailer. You must compare the **GVWR** to the actual loaded weight of your trailer. If the loaded weight of your trailer exceeds the **GVWR**, your trailer is overloaded and you will have to remove items to bring the weight down to or below the **GVWR**.

WARNING: DO NOT EXCEED THE RATED LOAD OF THE TOW VEHICLE, THE TRAILER, OR THE RATED LOAD OF ANY AXLE.

NOTE: IF OTHER EQUIPMENT OR OPTIONS SUCH AS LEVELING JACKS, AWNINGS, ROOF STORAGE PODS, ETC., ARE INSTALLED AFTER THE TRAILER LEAVES THE FACTORY, THE WEIGHT OF THESE ITEMS MUST BE SUBTRACTED FROM THE TOTAL OF THE LOAD AND CARGO CARRYING CAPACITIES.

WARNING: DO NOT INSTALL ANY TYPE OF WEIGHT CARRYING RACK, FRAME, OR HITCH TO THE REAR BUMPER, FRONT A-FRAME ASSEMBLY, CHASSIS OR BODY COMPONENT OF THE TRAILER. DAMAGE TO THE TRAILER BODY AND UNSTABLE HANDLING CHARACTERISTICS MAY RESULT. ADD-ONS TO THE REAR BUMPER, FRONT A-FRAME ASSEMBLY OR CHASSIS WILL VOID YOUR WARRANTY ON

STRUCTURAL COMPONENTS.

WARNING: DO NOT STORE OR CARRY LP GAS CONTAINERS, GASOLINE, OR OTHER FLAMMABLE LIQUIDS INSIDE YOUR TRAILER.

HITCHING UP YOUR TRAVEL TRAILER

Hitching Up

Hitching up your trailer will become routine with experience. Make it a habit to examine all hitch components before hitching up the trailer. If you have a conventional ball hitch, check for cracked or bent parts, cracked welds, deformed or stripped bolts. Inspect the weight-distributing hitch spring bars and chains. Be sure the hitch ball is tight and well lubricated. Check the trailer tongue for cracks. Be sure the ball locking device works freely. Inspect the safety chains. If you find defects in any hitch component, correct it before towing the trailer.

Hitching Procedure for Conventional Trailers

Before attempting to hitch up your trailer, read the instructions provided by your hitch manufacturer. Your trailer coupler is built for a 2-5/16" hitch ball. **Your hitch ball must be this size.**

The following instructions are usable in most cases. If the instructions provided with your hitch deviate from these instructions, follow the hitch manufacturer's instructions.

1. Turn the tongue jack crank clockwise to raise the tongue and coupler. Raise the tongue sufficiently to clear the hitch ball on the tow vehicle.
2. Back the tow vehicle until the hitch ball is under the hitch ball socket. If you are working alone, a backing aid mirror may be helpful.
3. Be sure the coupler latch locking lever on the tongue is fully open. Lower the tongue jack until the ball is firmly seated in the socket. Close the coupler latch and secure it with a locking pin or bolt.

4. Raise the tow vehicle and trailer with the tongue jack high enough to allow room to install the weight distributing hitch spring bars.
5. Attach the spring bars according to the weight distributing hitch manufacturer's instructions.
6. After adjusting the spring bars, lower the jack, remove the dolly wheel or foot, and fully retract the jack. Note that the trailer must be relatively level, front to back. Any tilt must be very slight.
7. Install the sway control system according to the manufacturer's instructions.
8. Connect the safety chains. Loop each chain through a suitable attachment eye on the tow vehicle. To adjust the chain length, insert the chain quick coupler through an appropriate chain link.

WARNING: NEVER ATTACH SAFETY CHAINS TO THE HITCH BALL OR ANY REMOVABLE PART OF THE HITCH.

9. Connect the breakaway switch lanyard to an attachment eye on the tow vehicle. Be sure the switch lanyard is adjusted so that the switch is not actuated during a full "jackknife" turn.

WARNING: DO NOT CONNECT THE BREAKAWAY SWITCH LANYARD TO THE HITCH BALL OR ANY REMOVABLE PART OF THE HITCH.

10. Plug in the 12-volt electrical cord into the mating tow vehicle socket.
11. Run an operational check of stop lights, turn indicators, running lights, and electric brakes before driving off. See "ELECTRICAL SYSTEM" for more details about the electrical system and wiring.

Hitching Procedure for Fifth-Wheel Trailers

Before hitching up your trailer, read the instructions provided by the hitch manufacturer. The following instructions apply in most cases. If the instructions provided with your hitch differ from this procedure, follow the manufacturer's instructions.

Adjust the height of the receiver and trailer pin box so

that the loaded trailer is level when hitched to the tow vehicle and ready to travel.

NOTE: CHECK PIN BOX ADJUSTING BOLT TORQUE WITH A TORQUE WRENCH. TORQUE TO 150 FT.-LBS.

The tow vehicle and trailer should be on level ground. This makes connecting the receiver and pin box much easier if both height and side-to-side levels are carefully matched.

1. Raise or lower the front of the trailer so the king pin height matches the coupler assembly of the tow vehicle.
2. Open coupler locking device so the pin will engage the hitch plate jaws.
3. Lower tow vehicle tailgate.
4. Slowly back the tow vehicle toward the pin box until the tailgate can be raised after clearing the king pin. Keep king pin and coupler aligned.
5. Close tailgate.
6. Continue backing and engage king pin and coupler completely.
7. Close coupler locking device. Engage the safety latch.
8. Raise fifth-wheel landing gear.
9. Connect the break away switch lanyard. Make sure the lanyard is adjusted so that the switch is not actuated during a full jackknife turn.
10. Plug the 12-volt electrical cord into the mating receptacle on the tow vehicle.
11. Run an operational check of brake lights, turn signals, running lights, and electric brakes before leaving on you trip.

12. Reverse this procedure for unhitching your trailer.

THE BRAKING SYSTEM

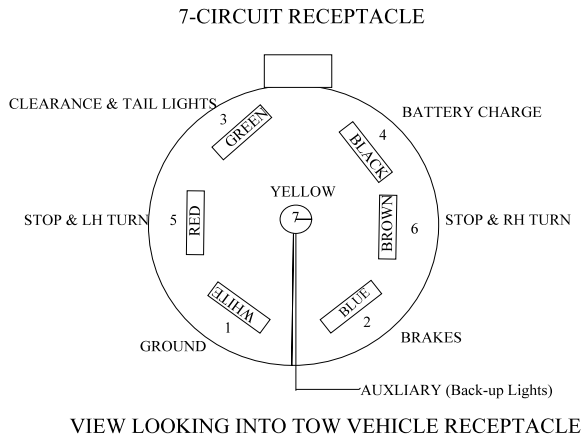
The electric brakes on your trailer are similar to the drum brakes on your car or truck. The basic difference between them is that your trailer brakes are operated by 12-volt direct current from the tow vehicle, rather than by direct hydraulic action. The brakes have been factory calibrated for smooth, positive response. During the break-in period, you may experience squeaking brakes. This is normal and will cease after a few miles of break-in wear.

Brake System Components

The braking system on your trailer consists of several major components, all of which must function properly for safe and responsive braking.

1. **Tow Vehicle Battery:** The tow vehicle is the primary electrical power source for the trailer braking system. The connection is made at the positive post of the battery or at the tow vehicle starter solenoid battery terminal.
2. **Brake Controller:** Note: The brake controller is not supplied with your trailer. The electric trailer brakes are automatically applied by the brake controller, which is usually mounted within easy reach of the tow vehicle driver.

WARNING: DO NOT INSTALL A FUSE IN THE CIRCUIT BETWEEN THE TOW VEHICLE BATTERY AND AN ELECTRIC OR ELECTRONIC BRAKE CONTROLLER. A BLOWN FUSE WILL CAUSE THE CONTROLLER TO CEASE FUNCTIONING BOTH AUTOMATICALLY AND MANUALLY CAUSING LOSS OF TRAILER BRAKING WITH NO ADVANCE WARNING.



3. **Connector Plug:** The multi-pin cord connector at the front of the trailer transfers electrical power from the tow vehicle battery to the trailer brakes, exterior lighting system, and battery.

4. **Breakaway Switch:** The breakaway switch is located on the trailer tongue. It has a steel cable (lanyard) fastened to it which will reach to the frame of the tow vehicle. This device is one of the most vital components on your trailer's braking system. It automatically applies the trailer brakes if the tow vehicle and trailer become uncoupled while in motion. The breakaway switch operates when a pull pin linked by the cable to the tow vehicle is separated from the switch. When the switch closes, power for brake application is transferred to the onboard trailer battery. The steel lanyard must be anchored to the tow vehicle when the trailer is hitched up. Secure this cable loop to the permanent frame of the tow vehicle or a part of the hitch that is not removable.

DO NOT FASTEN THE BREAKAWAY SWITCH LANYARD TO THE HITCH BALL OR ANY OTHER REMOVABLE PART OF THE HITCH.

Remove the pull pin every three months and lubricate it with light oil. Before reinserting the pin, spray the inside of the switch with an electrical contact cleaner to prevent corrosion. Test the breakaway switch operation before each trip as follows:

- a. Hitch the trailer to the tow vehicle.
- b. Pull out the breakaway switch actuating pin. Never leave the actuating pin out for more than

a few seconds as damage can result to wiring or the brakes. When the pin is out the full power of your battery(s) is channeled to the brakes, which could result in possible damage to the brakes or the wiring when the actuating pin is left out for an extended period of time.

- c. Test brakes by attempting to drive away. The breakaway switch is functioning properly if the trailer brakes are activated. Complete this test quickly.
- d. If the brakes are not activated, check that the trailer battery is connected and fully charged and the trailer brakes are properly adjusted.
- e. Obtain service repair if the trailer brakes do not operate after making these checks.
- f. Reinsert the breakaway switch actuating pin before towing the trailer.

WARNING: DO NOT TOW A TRAILER WITH A MALFUNCTIONING BREAKAWAY SWITCH.

WARNING: DO NOT LEAVE THE PULL PIN OUT OF THE BREAKAWAY SWITCH FOR MORE THAN A FEW SECONDS (30 TO 60 SECONDS) OR THE BATTERY WILL BE DRAINED. DO NOT USE THE BREAKAWAY SWITCH FOR A PARKING BRAKE.

5. **Grounding:** A poor ground circuit from the brakes to the tow vehicle battery can be as detrimental to efficient braking as a poor primary circuit from the battery to the brakes.

Braking Tips

1. Before moving your trailer, inspect all external braking system components. Inspect all wiring connections. Test the breakaway switch as outlined above.
2. Never use the trailer brakes alone for extended periods.
3. Never use the tow vehicle brakes alone.
4. Always use the automatic brake controller. This synchronized braking system enables you to drive in the manner recommended by experts.

TOWING SPEED

Reasonable vehicle speed is probably the greatest factor in safe, pleasant towing. With experience you will develop the special driving skills needed for safe trailer towing.

WARNING: TOW AT MODERATE SPEEDS ALLOWING FOR ADVERSE HIGHWAY AND WIND CONDITIONS. INCREASED SPEED REDUCES TRAILER TOWING STABILITY, HANDLING AND STOPPING ABILITY.

WARNING: DO NOT USE A CRUISE CONTROL OR AUTOMATIC SPEED REGULATING DEVICE WHEN TOWING A TRAILER.

WARNING: DO NOT ATTEMPT TO STOP TRAILER SWAYING BY QUICK STEERING CHANGES OR BY FORCEFULLY APPLYING THE TOW VEHICLE BRAKES. IT IS BEST TO USE THE MANUAL LEVER LOCATED ON YOUR BRAKE CONTROL.

SAFE DRIVING TIPS

When backing the trailer have someone stand to the rear on the driver's side to guide you.

Before departing on a trip check your routes. Remember that some tunnels prohibit travel trailers with LP gas systems.

Drive at moderate speeds, particularly in traffic and adverse weather conditions. Gustly or strong wind conditions can radically and violently change the towability of your unit. Take precautions when passing another vehicle, especially trucks. Be aware that another vehicle passing you can also radically change the towability of your unit. When in doubt, slow down or pull off of the road especially in adverse weather conditions.

Allow extra distance for passing and stopping.

Before traveling make sure all doors are closed and cabinets, drawers and loose objects are secure.

Do not travel with full holding tanks. Empty holding tanks before traveling. Be aware that full holding tanks can radically change the weight and balance of your unit and will alter the towability of your unit--particularly in rear bath models.

Instruct your family on what to do in case of a fire. Hold fire drills periodically. Practice using the emergency exits. Maintain proper charge in the fire extinguisher.

Insure that the LP gas detector provided with your unit is in proper working condition. Check and replace batteries periodically.

Keep a well-stocked first-aid kit handy.

Become familiar with the position of the travel trailer in traffic, and be cautious when maneuvering to allow for the length and width of the vehicle. Always allow extra room to corner and to change lanes. Learn to use the side mirrors to view the road behind. Check your mirrors often.

LIFE WITH YOUR NEW TRAILER

Entry Step

Folding or sliding entry steps are located under each entry door. Some models may have double or triple steps.

To extend the double or triple step: Pull complete step assembly out; let it down completely. Unfold bottom step(s) from over top step and lower completely. Reverse to retract.

Entry Assist Handle

An entry assist handle is located outside each entry door. Many models have an additional assist handle inside the entry door.

Entry Doors, Screens, and Locks

Entry door locks and deadbolts are keyed separately. Be sure to record all key numbers and keep them in a safe place. The screen door may be separated from the main entry door. A holdback mechanism will

secure the main door against the side of the trailer.

NOTE: It is always a good idea to lock the entry door deadbolt(s) before traveling. This will reduce the possibility of the door(s) opening on the road.

Windows

Windows in your trailer are either slider or torque pane type. Slider windows may be opened by pulling out the latch knob--when the slider window is closed the latch will automatically lock into place. Torque windows may be opened and adjusted by turning the knob or crank located at the bottom corner of the window.

Emergency Exit Window

The emergency exit window provides an escape route in case the trailer must be evacuated under emergency conditions. To operate the window, pull the red handle(s) and push the window out.

STORAGE

Exterior Compartments

Exterior storage compartments in the trailer maximize available space and should accommodate most of your storage needs. All of the storage compartments can be locked. **The LP gas compartment is required by safety regulations to be unlocked at all times.** All compartments have been designed to remain secure while the vehicle is in motion.

When storing equipment and supplies:

1. Always keep tools and equipment stored in areas where they will not shift while traveling.
2. Exterior storage compartments may not be watertight in all weather and road conditions. Any articles which could be damaged by water or dirt should be carried inside the trailer.

INTERIOR AND FURNISHINGS

The materials used inside your trailer have been selected for durability and comfort. With reasonable care these materials will stand up under years of recreational living.

Dinette Conversion

To convert the dinette into a bed:

1. Remove cushions.
2. Lift table, reach underneath, unlatch and fold the leg up under the table top--or remove the table leg(s) if necessary and store between the seats.
3. Raise front portion of table several inches to disengage inserts from the wall supports.
4. Lower table top to the dinette frame to complete bed base.
5. Slide seat and back cushion into place over bed base.

OPERATING THE SLIDE OUT ROOM

Extending the Slide Out Room

Before operating your slide out room the trailer must be level and stable.

1. Level each side by using blocks under the tires if necessary and adjusting the front landing gear on 5th-wheels or front jack on travel trailers.
2. Level the trailer from front to back using the front landing gear or front jack.
3. Lower the stabilizer jacks provided with all slide out room equipped units. These are designed to stabilize the unit, but not to support its full weight.
4. If the trailer is not leveled, it could damage the slide out room, seals and/or slide out mechanism.
5. **REMOVE TRAVEL LOCKS:** After the unit has been leveled and stabilized you must remove the two (2) travel locks before operating the slide out room. There is one (1) aluminum rubber tipped rod located on each side of the slide out room.
6. Check around the room for any obstructions such as open cabinet doors or furniture.
7. You are now ready to extend the slide out room.

Locate the slide out switch. Hold the switch in the "OUT" position until the room comes to a stop. Release the switch.

NOTE: YOUR BATTERIES NEED TO BE ADEQUATELY CHARGED AND YOU NEED TO BE CONNECTED TO YOUR TOW VEHICLE OR 120-VOLT POWER IF IT IS AVAILABLE TO ENSURE PROPER FUNCTION OF THE SLIDE OUT MECHANISM.

8. Never attempt to move your trailer with the slide out room extended. This will cause damage to the room and/or the trailer.

Closing the Slide Out Room

1. Look for any obstructions around the slide out room both interior and exterior.
2. Locate the slide out switch and hold in the "IN" position until the room is in and comes to a stop. Release the switch.
3. Replace the travel locks (aluminum rods) to their original position--one on each side of the slide out room.
4. Raise the stabilizer jacks.
5. Now the slide out room is ready for travel.

IMPORTANT: BE SURE TO REFER TO MANUFACTURER'S INSTRUCTIONS FOR THE SPECIFIC SLIDE MECHANISM ON YOUR UNIT. i.e. BEDROOM MECHANISM IS NOT THE SAME AS THE LIVING ROOM/DINING ROOM SLIDE MECHANISM.

NOTE: REFER TO MANUFACTURER'S INSTRUCTIONS FOR MANUAL OPERATION OF SLIDE MECHANISM IN CASE OF ELECTRICAL FAILURE.

EFFECTS OF PROLONGED OCCUPANCY

Controlling Moisture Condensation

You can reduce or eliminate interior moisture condensation during cold weather by taking the following steps:

Ventilate With Outside Air

Partially open one or more roof vents and one or more windows to provide controlled circulation of

outside air into the interior.

Install tight fitting storm windows to reduce or eliminate condensation on window glass.

WARNING: DO NOT COVER THE EMERGENCY EXIT WINDOW.

WARNING: DO NOT HEAT THE TRAILER INTERIOR WITH THE RANGE OR OVEN.

PLUMBING SYSTEM

Fresh Water System

Fresh water is available from either an external "city water" hookup or onboard storage.

The external system is pressurized by the water system at an RV park or city water supply. Connect the city water system as follows:

1. Remove the protective cap over the city water inlet.
2. Connect one end of a portable water hose to park or city water supply.
3. Run the city water supply for a few seconds to clear the line.

CAUTION: OVER FILLING THE FRESH WATER TANK FROM A PRESSURIZED SOURCE MAY CAUSE SERIOUS DAMAGE TO THE WATER TANK OR STRUCTURAL COMPONENTS. MONITOR WATER TANK FILLING CONTINUALLY.

The Water Pump

The onboard fresh water system is pressurized by a self-priming, 12-volt DC pump. The pump operates automatically when the pump power switch is "ON" and a faucet or valve is opened. Turn the pump "ON" to pressurize the system. When a faucet is opened after the initial filling of the tank, the water may sputter for a few seconds. This is normal and is not cause for concern.

The Monitor Panel

The monitor panel allows you to check the

approximate liquid levels in the fresh water and holding tanks, and to monitor battery charge conditions.

1. Press "WATER" or "BLACK TANK" or "GRAY TANK" rocker switches.
2. Erroneous indications can be caused by:
 - a. Water with low mineral content.
 - b. Material trapped on the sides of the holding tanks may give a full reading when the tank is actually empty. Use of a spray to wash out the tank following dumping should help prevent this condition.

Sanitizing the Fresh Water System

1. Prepare a solution of 1/4 cup household liquid chlorine bleach (5% sodium hypochlorite) to one gallon of water for each 15 gallons of tank capacity.
2. Close drain valves and faucets, pour chlorine solution into the fresh water tank filler spout. Fill tank completely with fresh water.
3. Turn water pump switch "ON." **Be sure you have 12-volt DC power.** Open all faucets individually until water flows steadily, then turn off. This will purge any air from the lines.
4. Top off water tank with fresh water and wait three hours.
5. Drain the entire system by opening all fresh water tank valves, faucets and plumbing line drain valves.
6. Flush the system with drinking quality water. Let the fresh water flow through the system for several minutes to flush out the chlorine solution.
7. After you stop flushing the tank close the tank valve, faucets, and drain valves. You can now fill the tank with fresh water. The system is ready to use.

Excessive Water Pressure

Some campground water systems may operate at pressures that can damage the water system in your

trailer or cause water pump failure. Your RV supply dealer can advise you on the best choice regarding water pressure regulators.

The Waste Water System

The waste water system in your trailer is made up of sinks, tub, shower, toilet, plumbing drain, vent lines, "gray water" holding tank(s) and a "black water" holding tank. The holding tanks make the system completely self-contained and allow you to dispose of waste water at your convenience. A flexible sewer hose is required to connect the holding tank outlet to the inlet of an approved waste water dump station or sewer system. The drain plumbing is very similar to that used in your home. The system is trapped and vented to prevent waste gases from backing up into the trailer. The drain plumbing is made of ABS plastic and is durable and resistant to most chemicals. All drain plumbing except the toilet connection terminates in the gray water holding tank. The toilet is mounted on the black water tank and flushes directly into it.

Dumping the Holding Tanks

The holding tanks terminate in a valve arrangement that permits dumping each tank separately or together. The valves are called "knife valves." A blade closes the opening in the sewer drain pipes. The blade is connected to a T-handle that is pulled to release the contents of the tank(s). During self-containment use, the sewer line is securely capped to prevent leakage of waste material onto the ground or pavement. **DO NOT PULL THE HOLDING TANK KNIFE VALVE OPEN WHEN THE PROTECTIVE CAP IS INSTALLED ON THE PIPE.** Always ensure that the tank is evacuated into an acceptable sewer inlet or dump station.

WARNING: HOLDING TANKS ARE ENCLOSED SEWER SYSTEMS AND AS SUCH MUST BE DRAINED INTO AN APPROVED DUMP STATION. BOTH TOILET AND GRAY WATER HOLDING TANKS MUST BE DRAINED AND THOROUGHLY RINSED REGULARLY TO PREVENT ACCUMULATION OF TOXIC MATERIALS.

Dump the holding tanks only when they are at least 3/4 full. If necessary, fill the tanks with water to 3/4 full. This provides sufficient water to ensure complete flushing of waste material into the sewer

line. The hose is compressed and stored in the rear bumper. When you want to drain the holding tanks:

1. Attach the hose to the dump valve. Extend the hose and insert the end of the hose into the sewer or dump station inlet. Push the hose firmly far enough into the opening to be secure. In some cases adapters may be necessary between the line and the inlet.
2. Arrange the sewer hose so it slopes evenly and is supported to maintain the slope.
3. Dump the black water holding tank first. Grasp the handle of the black water knife valve (the large one) firmly and slide the valve open with a quick, steady pull.
4. Allow enough time for the tank to drain completely. Rinse and flush the tank and drain hose through the toilet with a bucket of water or a hose. When the tank flow stops, push the handle in to close the valve. Run enough water into the tank to cover the bottom. This will aid the break up of solid wastes.
5. To dump the gray water tank, repeat the steps above for the small knife valve. The gray water knife valve may be left open in a semipermanent hookup.

PLEASE PRACTICE GOOD HOUSEKEEPING WHEN DRAINING WASTES AT A CAMPSITE OR DISPOSAL STATION. LEAVE THE SITE IN GOOD ORDER.

Holding Tank Care and Maintenance

1. Keep the black water tank knife valve closed. Fill tank to at least 3/4 full before dumping. Be sure to cover the tank bottom with water after dumping.
2. Use only toilet tissue formulated for use in septic tank or RV sanitation systems.
3. Keep both knife valves closed and locked and the drain cap tightly in place when using the system on the road.
4. Do not put facial tissue paper, ethylene glycol-based or other automotive antifreeze, sanitary napkin, or household toilet cleaners in the holding tanks.
5. Sometimes the holding tank valve will get

clogged. In this case, a hand operated auger may be necessary. Be ready to close the valve quickly once the clog is cleared. If the seal gets damaged, it is easily replaced.

WARNING: FULL HOLDING TANKS CAN RADICALLY CHANGE THE TOWABILITY OF YOUR UNIT. DO NOT TRAVEL WITH FULL HOLDING TANKS.

ELECTRICAL SYSTEMS

Chassis Electrical System

The vehicle electrical system includes the trailer battery, charging system, brake system, taillights, turn signals, and other vehicle lights and accessories.

The power center is the nerve center of the 12-volt DC--as well as the 120-volt AC-- system. Fuses for the 12-volt DC circuits are located at the power center panel. These fuses are automotive type and should always be replaced with the same type and amperage rating.

WARNING: DO NOT INSTALL 12-VOLT FUSES WITH AMPERAGE RATINGS GREATER THAN THAT SPECIFIED ON THE FUSE BOX LABEL.

Battery condition can be checked on the Monitor Panel. To check the battery charge:

1. Unplug the 120-volt power cord to turn the power converter off.
2. Press "BATTERY" rocker switch on the panel.
3. Turn on a light or any 12-volt appliance. The battery must be checked with a load.
4. Read battery condition on the meter. Red is poor, yellow is fair, and green is good.

WARNING: DISCONNECT THE 120-VOLT ELECTRIC CORD AND BOTH CABLES FROM THE TRAILER BATTERY BEFORE WORKING ON EITHER ELECTRICAL SYSTEM.

Battery Charging

Normally the battery will be kept charged by either the tow vehicle charging system while on the road or by the AC/DC power converter when plugged into AC service.

IMPORTANT NOTE: Always leave home with a full charge on your battery(s). A slow trickle charge is best for long battery life. It requires at least 52 hours to fully charge an RV battery on a trickle charger. Once your battery(s) is fully charged, your power converter will maintain the battery(s) to full peak while your unit is plugged into 120-volt shore power and your tow vehicle charging system will keep the battery(s) at full peak while traveling.

Do not smoke near batteries being charged or which have been recently charged. Please note that batteries are being charged while you drive and while you are connected to 120-volt AC power through the power center/charger circuit.

Check and adjust the electrolyte level before charging. Fill each cell to the indicator with distilled water.

120-Volt AC System

This system provides grounded electrical service for appliances such as the air conditioner, TV, microwave oven, etc. The 120-volt system also provides a power source for the power center. Do not use a two-conductor extension cord or any cord or cable that does not assure appropriate and adequate ground continuity.

The Power Center

The power center will supply 12-volt requirements when your trailer is operating on 120 AC volts. Thus, you will not have to worry about running down the battery. When you are plugged into 120-volt AC service, the power center automatically switches the load from the battery to the power center. The onboard battery will gradually be brought up to a full charge and maintained by the battery charger as long as 120-volt power is available.

NOTE: The 12-volt battery is not supplied with the trailer by the trailer manufacturer.

Ground Fault Interrupter

Bathroom and patio 120-volt electrical outlets are protected by a Ground Fault Interrupter (GFI). This device is provided in compliance with ANSI A119.2/NFPA 501C requirements and is intended to protect you against the hazards of line to ground electric faults and electrical leakage shocks possible when using electrical appliances in the bathroom or damp areas.

LIQUID PETROLEUM GAS SYSTEM

LP Gas Safety Precautions

Historically, LP gas is a safe and reliable fuel. As with any other volatile and flammable material, common sense dictates that LP gas be handled and used with respect and caution. Because LP gas systems are so reliable, they are often taken for granted. Neglect can be a very dangerous habit. If the system is maintained regularly, you can expect almost trouble free operation.

WARNING: LP GAS IS FLAMMABLE AND POTENTIALLY EXPLOSIVE. USE PROPER HANDLING, LIGHTING, AND VENTILATION PROCEDURES.

1. The distinctive odor of LP gas indicates a leak.
IF YOU SMELL GAS:
 - a. Extinguish all open flames, pilot lights and all smoking materials.
 - b. Do not touch electrical switches.
 - c. Shut off the gas supply at the tank valve(s) or gas supply connection.
 - d. Open all doors, windows and vents.
 - e. Leave the area until the odor clears.
 - f. Have the gas system checked and the cause of the leak corrected before using the system again.
2. Inspect the entire LP system for leaks or damaged parts before each trip.

3. Do not restrict access to LP tanks. In an emergency the tank service valve must be easily accessible.
4. **WARNING: TURN OFF LP MAIN VALVE AND INDIVIDUALLY TURN OFF GAS APPLIANCES OR ELECTRICALLY DISCONNECT AUTOMATIC IGNITION APPLIANCES BEFORE ENTERING AN LP GAS BULK PLANT OR MOTOR FUEL SERVICE STATION.**
5. **WARNING: DO NOT FILL GAS CONTAINERS TO MORE THAN 80% CAPACITY. OVERFILLING CAN RESULT IN UNCONTROLLED GAS FLOW WHICH CAN CAUSE FIRE AND EXPLOSION. A PROPERLY FILLED CONTAINER HOLDS ABOUT 80% OF ITS VOLUME AS LIQUID.**
6. Be sure the tanks are securely fastened in their rack whenever they are mounted on the trailer.

WARNING: DO NOT ATTEMPT TO ADJUST THE REGULATOR. IT HAS BEEN PRESET BY THE REGULATOR MANUFACTURER. IF ANY ADJUSTMENT IS REQUIRED, IT MUST BE MADE BY A QUALIFIED LPG SERVICE TECHNICIAN USING SPECIAL EQUIPMENT.

Using LP Gas System at Low Temperatures

Your gas system will function at low temperatures provided the system components are kept at a temperature above the vapor point of the LP gas.

NOTE: Butane vaporizes at 32°F and propane vaporizes at about 40°F. Choose a type of LP gas which has a boiling point approximately 40°F lower than any temperature you expect to encounter.

LP gas systems can and do freeze up in very cold weather. It is a common misconception that the regulator or the gas itself freezes. Actually, it is moisture or water vapor that gets trapped in the system or is absorbed by the gas that freezes and causes the problem. This ice can build up and partially or totally block gas supply. There are a number of things you can do to prevent this freeze up:

1. Be sure the gas tank is totally moisture-free before it is filled.

2. Be sure the tank is not overfilled. This is also a safety consideration.
3. Keep the valves on empty tanks tightly closed.
4. Have the gas tanks purged by the LP gas service station if freeze up occurs.

Filling LP Gas Tanks

WARNING: TURN OFF LP GAS MAIN VALVE BEFORE FILLING LP GAS TANKS OR ENTERING AN LP GAS BULK PLANT OR MOTOR FUEL SERVICE STATION. TURN OFF ALL PILOT LIGHTS AND APPLIANCES INDIVIDUALLY BEFORE REFUELING MOTOR FUEL TANKS AND /OR PERMANENTLY MOUNTED LP-GAS CONTAINERS. WHEN NOT INDIVIDUALLY TURNED OFF, AUTOMATIC IGNITION APPLIANCES MAY CONTINUE TO SPARK WHEN LP GAS IS TURNED OFF AT THE CONTAINER. DO NOT FILL LP GAS CONTAINERS TO MORE THAN 80% OF CAPACITY.

LPG Leak Detector

An optionally installed LP gas leak detector is located near the floor in the galley area. The unit contains an alarm that will sound alerting you to the presence of low levels of potentially dangerous LP gas that may have been released due to a range top or oven burner flame loss, a gas piping leak, or an incorrectly adjusted appliance burner.

NOTE: THIS DEVICE DETECTS THE PRESENCE OF LP GAS—IT DOES NOT DISCONNECT THE GAS SUPPLY.

Lighting LP Gas Appliances

Detailed operating information for the LP appliances can be found in your Owner's Information Package. Please read and follow these instructions.

APPLIANCES

Water Heater

CAUTION: DO NOT OPERATE WATER HEATER UNTIL IT IS FILLED WITH WATER.

For detailed operating instructions refer to the manufacturer's instruction manual.

Furnace

The operating manual included in your Owner's Information Package contains detailed operating and maintenance instructions.

Range

The gas oven and burners are operated with LP gas. The basic operation is the same as the range in your home. **For additional information, please refer to the operating manual in your Owner's Information Package.**

Air Conditioner

The optional roof-mounted air conditioner(s) can operate only when the trailer is connected to 120-volt AC power from either a public utility or the generator. Be sure to turn the circuit breaker(s) ON.

Refrigerator

The refrigerator may be operated from either LP gas or 120-volt electric power. **Consult the operating instructions furnished in your Owner's Information Package.**

NOTE: If your refrigerator is equipped with a "humidity" switch, set it to "OFF" if you will not be using the trailer for 10 days or longer. This will help reduce battery drainage.

Smoke Detector

A battery-powered smoke detector complying with ANSI A 119.2/NFPA 501C is mounted on the wall in the living/cooking area of your trailer. Please read the smoke detector Owner's Manual for details on testing and caring for this important safety device.

PERIODIC MAINTENANCE CHECK LIST

Check	Function Required	Daily	Weekly	Every 3,000 Miles or 6 Months	Every 6,000 Miles or 12 Months
Trailer brakes	Test that they are functioning properly	X			
Air pressure	Inflate tires to manufacturer's specifications	X			
Lug bolts or Nuts ¹	Tighten to proper torque specifications			X	
Breakaway switch	Test switch operation, inspect connections			X	
Breakaway battery	Maintain charge, inspect connections		X		
Wheel rims	Inspect for dents, damage, or out of round			X	
Brake shoes ²	Test brake drag and adjust if required			X	
Brake magnets	Inspect for uneven wear				X
Wheel bearings and cups	Inspect for wear or damage and lubricate				X
Hub / drum	Inspect for heavy scoring or wear				X
Seals	Inspect for heavy scoring or wear				X
Shackle links	Visually inspect for wear or bends				X
Equalizers	Visually inspect for wear or bends				X
Hangers	Visually inspect welds and bolt tightness				X
Springs	Visually inspect for broken, separated, or flattened (loss of camber) springs				X
Slide out room	Check slide out room function & sealing		X		
Slide out hydraulic	Check slide out hydraulic pump fluid level		X		

¹Tighten wheel bolts or nuts every 50 miles for the first 200 miles and after every change in wheel mounting.

²Adjust brakes after first 200 miles, then at above intervals.

EXTERIOR

Windows, Doors, Vents and Locks

Keep moving parts of windows and latches adjusted and maintained. Lubricate the windows with a light oil or powdered graphite at least once a year. Periodically check and tighten the screws holding the windows in place periodically. Check the weather sealant. See SEALANT RENEWAL.

Sealant Renewal

The adhesives and sealants used in the construction of your trailer were developed to remain waterproof under sustained effects of weather and vibration. However, even the finest materials eventually dry out and lose their effectiveness under constant heat of the sun and attack by other elements. This section outlines the procedures that you must follow to maintain the weatherproof integrity of your trailer.

Door and Window Re-sealing

NOTE: Do not seal the bottom flanges of windows and doors. Two sealant voids have been intentionally left in the bottom flange sealant to provide exterior drainage in the event of leakage.

Rubber Roof System

Cleaning

For normal cleaning, standard household detergents or cleansers may be used.

Care

The rubber roof should be checked periodically--at least once during the year. Should the sealant which has been applied to specific areas of the roof appear to be cracked or pulling away from a particular area, that area will need to be resealed to insure that your unit remains waterproof.

The rubber roof material can be cut by sharp objects. Use caution when loading sharp articles on the roof.

If you add accessories or new equipment on the roof, be sure the installer is qualified to work on the rubber roof material. This is required under the terms of the warranty.

Repair kits are available through your dealer. The roof requires special adhesives and material. Please see your Owner's Information Kit for additional details on the roof system.

WARNING: RUBBER ROOF MATERIAL IS SLIPPERY WHEN WET.

PREPARING THE TRAILER FOR LONG-TERM STORAGE

WINTERIZATION AND WINTER STORAGE

Winter Storage Below Freezing

Protecting the plumbing systems in your trailer is the most important aspect of long-term winter storage.

1. Perform complete chassis service and lubrication.
2. Drain the fresh water tank by opening the water tank drain valve. Leave valve open.
3. Drain the water heater by opening the drain valve at the bottom of the heater and open the safety valve. Open the hot water faucets.
4. Open all cold water faucets and depress the flush pedal or pull the flush levers on the toilet. When each faucet has been opened, drained, and closed, close the water line drain valves and fresh water tank drain valve.
5. Drain the shower head by opening the valve. Let all water drain out of the tub spout. Leave the valve open.
6. Apply graphite lubricant to the knife valve actuator rod.

CAUTION: DRAINING THE WATER SYSTEM ALONE WILL NOT PROVIDE ADEQUATE COLD WEATHER PROTECTION. IF THE TRAILER IS TO BE UNHEATED DURING FREEZING TEMPERATURES, CONSULT YOUR DEALER FOR THE BEST WINTERIZING PROCEDURE FOR YOUR CLIMATE. YOUR DEALER CAN WINTERIZE YOUR TRAILER FOR YOU OR CAN SUPPLY YOU WITH ONE OF THE SPECIAL

ANTIFREEZES WHICH ARE SAFE AND APPROVED FOR USE IN RV WATER SYSTEMS. FOLLOW THE INSTRUCTIONS FURNISHED WITH THE ANTIFREEZE.

7. Your water system is equipped with two each three position valves. The first is located in the back of your water heater, turn it to the by pass position as indicated in the following diagram.
8. Next locate valve #2 between your water tank and water pump. Turn the valve to the up position to draw antifreeze into the system as indicated in the diagram.
9. Place open end of the hose into a bottle of approved RV antifreeze.
10. Turn the water pump master switch ON.
11. Open each water faucet. Run the water pump and let about one cup of antifreeze solution flow continuously through each faucet. Close each water faucet.
12. Turn the water pump OFF. Open water faucet to relieve pressure--then close.

Winte rization of the fresh water system is complete.

MAINTENANCE CHART

Service to be Performed

Service Interval

Description	Each Trip or Weekly	1,000 Miles or 30 Days	2,500 Miles or 90 Days	5,000 Miles or 6 Months	10,000 Miles or Yearly
Pack wheel bearings					X
Inspect brakes					X
Inspect safety chains	X				
Inspect brake wiring	X				
Inspect tires	X				
Inspect hitch components	X				
Lubricate locks					X
Lubricate coupler latch & socket		X			
Lubricate hinges					X
Inspect & clean vents					X
Torque lug nuts		X			
Sanitize water tank (if trailer has been stored)			X		
Clean drapes & interior fabrics					
Clean battery cables & terminals, check fluid levels			X		
Inspect suspension					X
Check all seams & openings & reseal as needed				X	
Check water system components					X
Balance tires (after 1st 1,000 miles; as req. thereafter)		X			
Complete LPG system check & pressure check					X
Visually inspect exposed LPG system components	X (Before use)				
Check generator (if equipped) exhaust system	X (Before use)				

ONE YEAR WARRANTY
FOR TRAVEL TRAILERS AND 5TH-WHEELS MANUFACTURED BY NORTHWOOD MANUFACTURING
SOLD IN THE UNITED STATES AND CANADA

COVERAGE PROVIDED

Your new travel trailer/5th-wheel (coach), including the structure, plumbing, heating and electrical systems, and all appliances and equipment installed by the manufacturer, is warranted under normal use to be free from manufacturing defects in material and workmanship.

This warranty extends to the first retail purchaser and his transferee(s) and begins on the date of original retail delivery or the date the coach is first placed into service as a rental, commercial or demonstrator coach (whichever occurs first). This warranty extends for a period of one year from such date. Written notice of defects must be given to the selling dealer or the manufacturer not later than ten (10) days after the expiration of the applicable warranty. Warranty repairs, if required, will be made without charge after your coach is taken to the dealer or manufacturing plant location.

OWNER'S OBLIGATIONS

The owner is responsible for normal maintenance as described in the Owner's Manual; however, minor adjustments (such as adjustments to the interior or exterior doors, LP regulator pressure, cabinet latches, TV antenna control, etc.) will be performed by the dealer during the first 90 days of warranty coverage. Thereafter, such adjustments are the responsibility of the owner as normal maintenance unless required as a direct result of repair or replacement of a defective part under this warranty.

DEALER'S OBLIGATIONS

By agreement with the manufacturer, the dealer is obligated to maintain the coach prior to retail sale, to perform a detailed predelivery inspection and to repair or replace any parts necessary to correct defects in material or workmanship.

WHEN A DEALER DOES NOT RESOLVE A PROBLEM

If the dealer is unable or unwilling to resolve a problem which the owner is convinced is covered by this warranty, he should contact NORTHWOOD MANUFACTURING at the address listed below and provide the manufacturer with a description in writing of the problem and attempts made to resolve it.

MANUFACTURER'S OBLIGATIONS

Upon receipt of notice of a claim which the dealer was unable or unwilling to resolve, NORTHWOOD MANUFACTURING will repair or replace any parts necessary to correct defects in material or workmanship, or will take other appropriate action as may be required.

WHAT IS NOT COVERED BY THIS WARRANTY

THIS WARRANTY DOES NOT COVER THE FOLLOWING:

1. Tires and batteries, which are covered by the separate warranties of the respective manufacturers of these components.
2. Damage caused by or related to:
 - A. Accidents, misuse or negligence
 - B. Failure to comply with instructions contained in the Owner's Manual
 - C. Alteration or modification of the coach.
 - D. Environmental conditions (salt, hail, chemicals in the atmosphere, etc.)
3. Normal deterioration due to wear or exposure, i.e., fading of fabrics, drapes, carpet wear, etc.
4. Normal maintenance and service items such as light bulbs, fuses, lubricants, etc.
5. Extra expenses such as transportation to and from dealer or manufacturing plant location, loss of time, loss of pay, loss of use of the coach, inconvenience, commercial loss, towing charges, bus fares, vehicle rental, incidental charges such as telephone calls or lodging bills, or other incidental or consequential damages.

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

Dealers or any other persons are not authorized to make modifications to this warranty, any additional statements concerning this warranty, whether oral or written are not the responsibility of the manufacturer.

BRAND NAME _____ MODEL _____ SERIAL NO. _____

ADDRESS OF MANUFACTURING FACILITY:
59948 Downs Road
La Grande, OR 97850
Telephone: 541-962-NASH

MAILING ADDRESS:
PO Box 3359
La Grande, OR 97850
Fax: 541-962-6217

