Trails West FreeRide Owners Manual

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Thank you for purchasing a Trails West Product. You are now the owner of one of the finest trailers of this type on the market today. In order for you to get the maximum pleasure and utility from your trailer, we would like to make you aware of the following information.

Towing a Trailer

Towing a trailer can be safe and easy if done properly. It is important to realize that your tow vehicle will handle and respond differently when pulling a trailer. If you are new to pulling

trailers, it is best to find a large open area, free from traffic, obstacles or other distractions, to acquaint yourself with these differences prior to towing your trailer on the open road. As you become acquainted with towing your trailer, here are a few recommendations and items to be aware of:

- **Acceleration and Stopping Distance** – Due to the added demands of pulling a trailer, you will notice reduced acceleration and increased stopping distances.
- **Following Distance** – As a result of increased stopping distances, while towing a trailer, you should substantially increase the distance between your vehicle and those you follow.
- **Passing** – Because of reduced acceleration and an increase in overall length, you will need more distance to pass slower moving vehicles.
- **Turning** – Make wider turns than normal as to not hit curbs, signs, gates, cement pylons etc. with your trailer. Avoid turning too sharply. With bumper pull models, this can cause the bumper of your tow vehicle to hit the front of your trailer. With gooseneck models, this can cause the front of the trailer to hit the rear of your tow vehicle's cab. Extremely sharp turns can also be detrimental to axle components and tires.
- **Mirrors** – Check your rear view mirrors more often, observing your trailer and traffic.
- **Height Clearance** – Be aware that your trailer is most likely taller than your tow vehicle. Use caution when pulling your trailer under objects (i.e. trees, covered parking areas, car washes, covered gas station filling areas etc.).
- **Adverse Road Conditions** – Be aware that any adverse road condition will only be amplified by towing a trailer. Use extreme caution when pulling your trailer under such conditions.

- **Descending Grades** – Slow down and shift your tow vehicle into a lower gear before starting down a long or steep grade. Failure to do so may cause both trailer and tow vehicle brakes to over-heat and become less effective.
- **Speed** – As a general rule, you should drive slower when pulling a trailer than you may normally drive.
- **Trailer sway** – Your trailer may sway under the following conditions: excess speed, depressions or bumps in the road, passing an oncoming bus or semi or rounding a corner with excessive speed. If your trailer starts to sway, a short, light, manual application of the trailer brakes only, or accelerating the vehicle for a short distance will stop the swaying.

The above list does not include all scenarios or situations you may encounter while towing your trailer. Our intent is to make you aware of some general guidelines of trailer towing.

Tow Vehicle

It is important to note that easy and safe trailering requires a vehicle that is properly equipped. Such equipment includes a vehicle with an adequate weight rating, hitch, electrical connection, and an electric brake control.

Tow Vehicle Weight Rating

Vehicles manufactured to tow trailers are designed to meet certain specifications with regard to the amount of weight they can safely tow. These specifications pertain to items such as engine horsepower and torque, axle ratio, and suspension. Before towing your trailer for the first time, it is important to determine the amount of weight your vehicle can safely tow. In

addition, it is important to know how much weight your vehicle can support at the hitch. This is referred to as “hitch” or “tongue” weight. Specifications regarding towing and hitch weights can be found in most vehicle owner’s manuals. If it cannot be found there, contact the dealer from which you purchased your tow vehicle.

Next you must determine the total weight and tongue weight of your trailer. The weight of your trailer is determined by using the Gross Vehicle Weight Rating (GVWR) indicated on the VIN tag located on the left side of your trailer. **The GVWR is what your trailer weighs when loaded to its’ maximum capacity (i.e. this is the most your trailer can weigh without being overloaded). The GVWR is not what your trailer weighs when empty nor is it the amount of weight that can be loaded into it.** If your trailer is a bumper pull model, the tongue weight of your trailer is approximately 12% to 15% of the GVWR. If your trailer is a gooseneck model, the tongue weight of your trailer is approximately 25%. Once these weights are established, match them to the specifications of your tow vehicle to determine if it is rated to safely tow your trailer.

Hitch

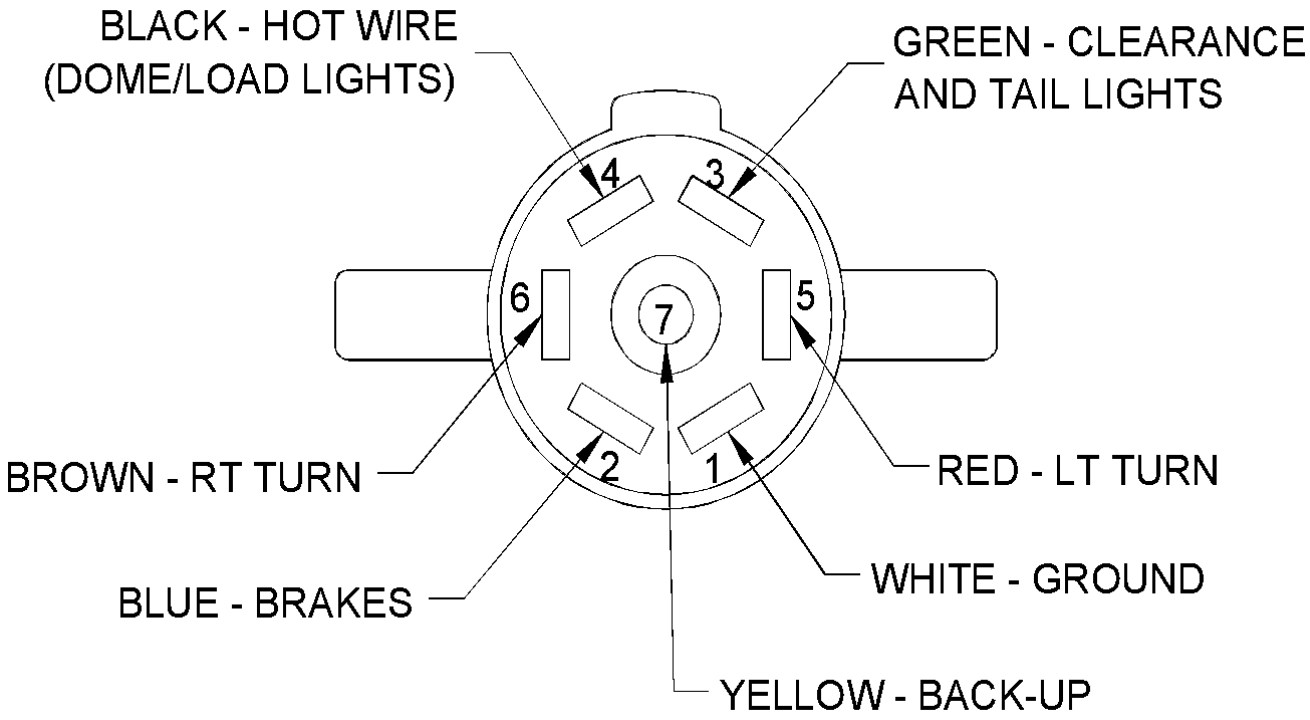
Hitches are rated by the amount of weight they can tow and tongue weight they can support. **It is important that the hitch on your tow vehicle is rated equal to or greater than the GVWR** of your trailer. If you are unsure of the rating of your hitch, these specifications are often located on the hitch itself. If you cannot locate, or do not know the specifications of your hitch, consult your vehicle dealer or hitch distributor.
Along with the correct hitch, it is equally important to have the correct size and properly rated ball on your hitch. All Trails West trailers require a 2 5/16”, class 4 ball. If you are unsure of

the size and rating of the ball, it is usually stamped on the top of the ball. **NOTE: The ball must be rated equal to or greater than the GVWR of your trailer.**

Electrical Connection

In order for the electrical system on your trailer to operate, your tow vehicle must be equipped with an electrical connection that is compatible with your trailer. All Trails West trailers utilize a 7 circuit RV type connector. Included with this user's manual, is a diagram depicting how this electrical connection is wired. If your tow vehicle's electrical connection is not compatible with your trailer's connection, or you are unsure if it is compatible, consult your dealer or the dealer from which you purchased your tow vehicle. **Do not attempt to tow your trailer without having a compatible wiring connection on your tow vehicle.**

Trailer Electrical Connector Plug Diagram



Electric Brake Control

Your trailer is equipped with electric brakes at each wheel. To activate your trailer brakes; an electric brake control must be installed in your tow vehicle. In most cases these can be purchased from, and installed by your dealer. Follow the instructions for use, set up and maintenance specified by the brake control manufacturer. **Do not attempt to tow your trailer without a properly functioning electric brake control.**

Coupling your Trailer to your Tow Vehicle

Before coupling your trailer to your tow vehicle the following steps should be followed:

- Inspect the ball and coupler (inside and out) for signs of excess wear or damage.
- Insure that the coupler and ball are the same size.
- Lubricate the ball and inside of the coupler with a thin layer of grease to reduce friction and excess wear.
- Inspect your hitch, making certain it is fastened securely to your tow vehicle and that the ball is securely mounted to the hitch.

If, during your inspection, problems are found, do not proceed with coupling to your vehicle and pulling your trailer. Have any problem(s) corrected prior to towing your trailer. If no problems are found, with the coupler in the “open” position, proceed by lowering the trailer coupler onto the hitch ball. Lower the coupler until the tow vehicle carries the full tongue weight of the trailer. If your trailer is a bumper pull model, close the coupler by pushing the release handle down until it latches then install the safety pin through the handle. If your trailer is a gooseneck model, close the coupler by sliding the locking plate on the bottom of the coupler until the hole in the plate is aligned with the pin on the spring loaded handle, then drop the pin into the hole in the locking plate. Regardless of your coupler type, insure the

connection is secure by raising the tongue of the trailer with the jack while the coupler is in the closed position. **If the coupler comes off the hitch ball, do not pull your trailer.**

Check the following:

- Is the coupler completely closed?
- Is the hitch ball size 2 5/16”?
- Is the ball or coupler damaged or worn excessively?

If you cannot determine the problem, or don’t feel comfortable inspecting your coupler and hitch, contact your dealer. If the coupler does not come off the ball, lower the tongue of the trailer allowing the tow vehicle to support the trailer’s total tongue weight. Insure that the jack is fully retracted and dolly wheel (or sand pad) is removed prior to moving your trailer. If your trailer is a gooseneck model, insure the hydraulic jack is fully retracted prior to moving the trailer.

Safety Chains

Your trailer is equipped with two safety chains. In the event of a coupler or hitch failure, these are designed to retain the connection between the trailer and tow vehicle. Before each trip, inspect the chains and hooks for wear or damage and replace if necessary. Connect the chains to your hitch (if equipped with safety chain attachment points) or a frame member of your tow vehicle. **Do not connect them to the ball, ball mount or other interchangeable component of your hitch.** When connecting the safety chains insure that you leave enough slack to turn freely but not so much slack to allow the chains to drag along the ground. If your trailer is a bumper pull model, the safety chains must cross under the coupler of your trailer

when connected to your tow vehicle. By crossing the chains a cradle is created that will hold the coupler off the ground in the event your coupler or hitch fail.

Breakaway Brake System

Your trailer is equipped with a system that activates the trailer brakes automatically if the trailer becomes completely separated from your tow vehicle. This system consists of a switch (complete with pull pin and actuating cable) mounted to the trailer near the coupler. This switch is powered by the on board 12 volt battery/batteries. It is recommended that the breakaway system be tested prior to each trip. **NOTE: prior to testing your breakaway system, make sure the main trailer electrical connection is not plugged into the tow vehicle. Damage to your electronic brake control will occur if the trailer is connected to the vehicle while testing the system.** To test the breakaway system, remove the pull pin from the switch, then pull the trailer ahead slowly (5mph or less). You should feel a resistance from the trailer indicating that the trailer brakes have been activated. Once you are satisfied that the brakes have been activated, bring the tow vehicle and trailer to a complete stop and reinstall the pull pin.
For the breakaway system to operate correctly, the cord attached to the pull pin must be secured to the tow vehicle. **Do not attach the cord to the ball, ball mount, or any part of the safety chain.** Leave enough slack in the cord so the pull pin will activate the switch only when complete separation from the tow vehicle occurs. This would include failure and disengagement of **both** the hitch and safety chains.

Do not attempt to pull the trailer with the pull pin removed from the switch, use the break away brake system as a parking brake, or leave the system activated for extended periods. Such use will cause damage to components of your trailer brake system not covered by your

warranty. During long periods of storage or non-use, the battery should be removed and stored indoors. This battery/batteries must be charged periodically.

Electrical Connection
Your trailer is equipped with a 12-volt electrical system that operates the lights and brakes. Power is supplied to these systems via a connection between the trailer and tow vehicle. Prior to each trip the following should be checked for proper operation:

- Insure the connection between your tow vehicle and trailer are secure (the cover on the tow vehicle connection should engage the trailer connection as to not allow them to disconnect during transit).
- Clearance and running lights (turn on tow vehicle headlights).
- Brake lights (depress tow vehicle brake pedal).
- Turn signals (use tow vehicle turn signal lever).
- Electric brake system (test per your brake control manufacturer's procedure).

If you find any problems with your electrical system, have it inspected and repaired by your local dealer as soon as possible.

Loading Your Trailer

Your trailer has been engineered and designed to safely and conveniently haul UTV's, dirt bikes, ATV's and other recreational vehicles. It is not recommended that your trailer be used for any other purpose. **Warning: Gasoline fumes and fumes from other chemicals related to recreation vehicles can be hazardous to your health or deadly with prolonged**

exposure. If refueling vehicles inside of trailer, leave man door, ramps, vents, windows open to allow gasoline fumes to evacuate trailer.

Before attempting to load your trailer, make sure it is securely coupled to your tow vehicle. To load your trailer safely and correctly, caution must be taken not to exceed the GVWR of the trailer (GVWR is total weight of trailer when loaded to maximum capacity and is indicated on the VIN tag on the left side of your trailer). To determine if you are within the GVWR of your trailer you must know the following: GVWR of your trailer (this is found on VIN tag on left side of trailer), the weight of your trailer when empty, and the weight of your intended load. If you have difficulty determining the GVWR or empty weight of your trailer, contact your dealer for assistance. The total allowable load for your trailer is calculated by subtracting the empty trailer weight from the GVWR. As an example: if the GVWR of your trailer is 7910 lbs., and the empty weight of your trailer is 3500 lbs., then the maximum load your trailer is rated to haul is 4410 lbs.

Another factor important to safely loading and transporting your trailer is the distribution of the intended load within the trailer. Your trailer is designed in such a way that the axles carry the majority of the load weight. In addition, your trailer is designed to transfer a portion of the load weight to the hitch of your tow vehicle in the form of tongue weight. The distribution of the load inside your trailer can adversely affect the tongue weight. Ideally, the load in your trailer should be centered over the axles. If the entire load cannot be centered over the axles, it is essential to have the load equally distributed in front of and behind the axles. Having too much weight in front of the axles increases tongue weight, thus increasing the amount of weight on the hitch and rear wheels of the tow vehicle. This causes the front wheels of the tow vehicle to become too lightly loaded. Having too much weight behind the axles decreases tongue weight and can

exert an upward pull on the rear of the tow vehicle. Either of these situations can cause the trailer and/or tow vehicle to become unstable, possibly causing a loss of control while towing.

After your trailer is loaded, insure that all cargo is secured using tie down straps. Unsecured cargo may move around while in transit causing damage to your trailer. Such damage is not covered by your warranty.

Before leaving on your first trip, make sure your trailer is level when coupled to your tow vehicle. This will insure that each axle is carrying an equal portion of the load. As a rule of thumb, the top of your bumper pull hitch ball should be approximately 19" from the ground before your trailer is lowered onto it. On gooseneck models, the trailer is leveled by raising or lowering the front of the trailer. This is done by: 1- Closing the coupler on the ball of your tow vehicle, 2- Lowering the jack foot until it rests on the ground, 3- Loosening the bolt on the front of the coupler tube, 4- Removing the pin from the coupler tube, 5- Raising or lowering the front of the trailer using the trailer jack, 6- Re-install the coupler tube pin, 7- Re-tighten the bolt and lock nut on the front of the coupler tube. If your trailer is not level when pulled, premature wear of tires and/or axle components may occur. Such wear is not covered by warranty.

Tires

Your trailer is equipped with quality tires that were designed for use on trailers. For your tires to accomplish their purpose there are a few things you need to be aware of.

Tires, like the other components of your trailer, require maintenance. An important part of tire maintenance is insuring that each tire is adequately inflated. Air pressure is what provides

tires with their load carrying capability. The tires on your trailer have been assigned a recommended cold inflation pressure. This recommendation can be found on the Loading Information placard located on the left side of the trailer near the vehicle identification tag and/or the sidewall of each tire and is referred to as "cold tire pressure". Cold tire pressure can only be measured when your trailer has been sitting for a minimum of 3 hours because tires warm up as they are used. This warming causes the air inside the tires to expand thus increasing tire pressure. If measured under these circumstances, it is impossible to get an accurate cold inflation measurement. Because most tires naturally lose air over time or when a pothole or curb is struck, we recommend the cold inflation pressure be checked at least once per month and before leaving on long trips. If you have been pulling your trailer and find a tire that is under inflated, fill the tire to the recommended cold pressure. Realize that this tire may still be slightly under inflated requiring you to obtain a cold pressure measurement after the tire has cooled and additional air pressure adjustments may be required.

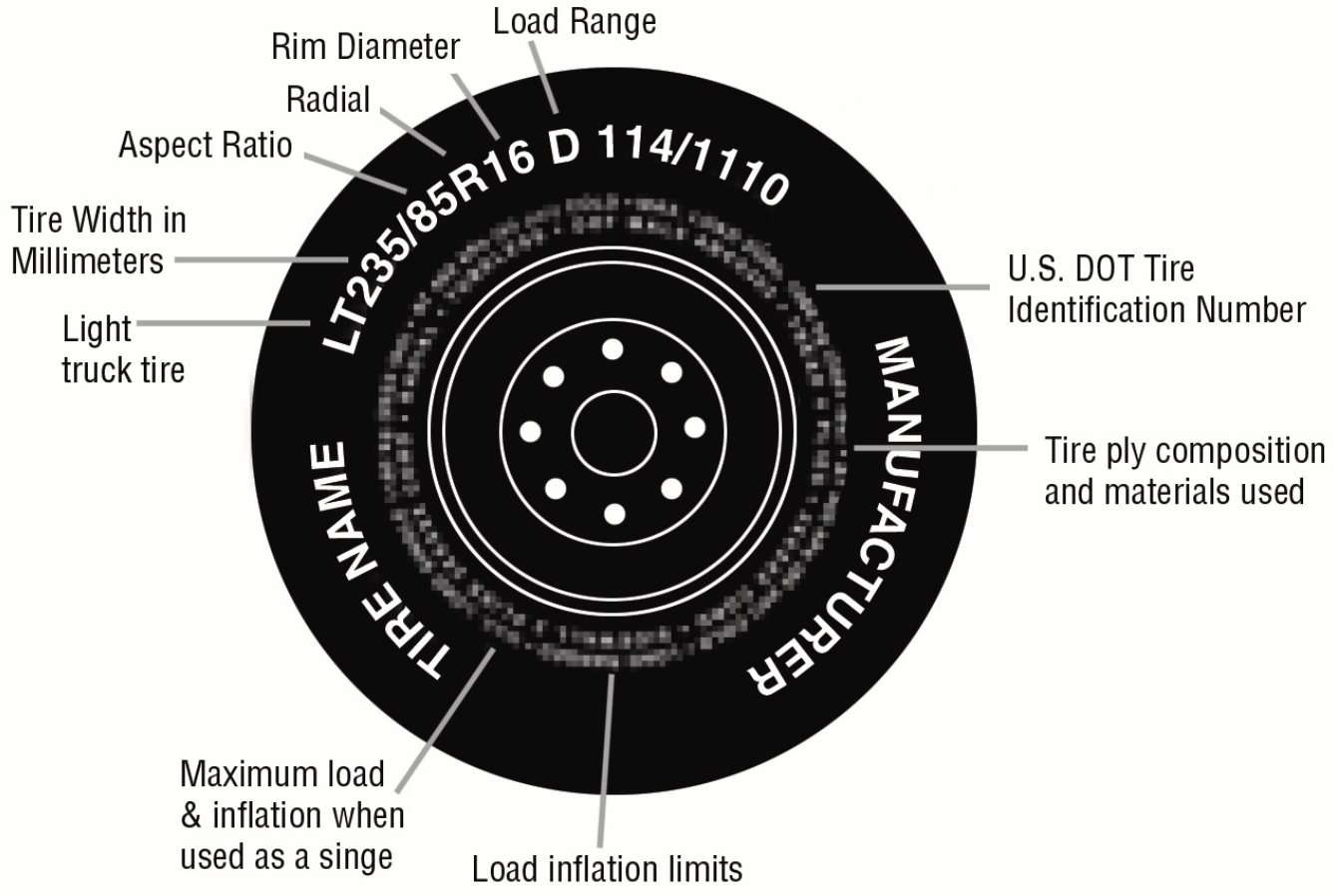
Tire pressure can be measured using a tire pressure gauge. These gauges are readily available at tire and auto parts stores. If, after checking the air pressure, you find it to be lower or higher than the recommended level, the air pressure must be adjusted. If the air pressure is lower than the recommended level, add air using a compressed air source. If the air pressure is higher than the recommended level, release air by depressing the valve stem.

It is important to realize that improper tire inflation can be detrimental to tires. Improper inflation causes uneven tire wear and can cause a tire to fail completely. Tire failure can lead to an unsafe situation possibly causing you to lose control of your trailer and tow vehicle. In addition to inflation, visually inspect your trailer's tires before each trip. Look for abnormal tread wear, bulges, cracks, cuts, or other damage.

You must realize that trailer tires, denoted as "ST" tires (i.e. **ST**225/75R15), have a maximum speed rating of between 62 and 68 miles per hour. This rating indicates the maximum speed at which a tire is designed to be used for extended periods of time. The "ST" designation can be found on the side wall of tires at the beginning of the tire size (see side wall diagram below -ST will replace LT designation). Failure to operate your trailer within the tire's speed rating creates a potential for tire failure. Tire failure at high speed may cause an unsafe driving condition and possibly damage your trailer.

FreeRide bumper pull models are equipped with an in-floor spare tire storage compartment. This compartment is located near the front of the trailer and is accessed by lifting a panel from the floor. The spare tire on FreeRide gooseneck models is located in the enclosed compartment under the gooseneck area.

If the need arises, purchase replacement tires that are compatible to the tire you are replacing. Information regarding size and capacities can be found on the Tire and Loading Information placard or on the sidewall of the tire. Information found on the sidewall of a tire includes:


Load Range
Rim Diameter
Radial
Aspect Ratio
LT235/85R16 D 114/1110
Tire Width in Millimeters
Light truck tire
U.S. DOT Tire Identification Number
Tire ply composition and materials used
TIRE NAME
MANUFACTURER
Maximum load & inflation when used as a singe
Load inflation limits

ST or LT
The "ST" indicates the tire is for trailer use only, the "LT" indicates the tire is for light trucks.

Tire Width
This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Aspect Ratio
This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width.

R
The "R" indicates the tire is a radial tire.

Rim Diameter
This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

U.S. DOT Tire Identification Number
This number begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was manufactured. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Material Used
The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the material in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating
This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure
This number is the greatest amount of air pressure that should ever be put into the tire under normal driving conditions.

Load Range
This information identifies the tire's load carrying capabilities and its inflation limits.

For a complete list of tire terminology see the Glossary of Tire Terminology at the end of this guide.

Pre-Towing Checklist

Prior to each trip and periodically during each trip check the following:

- Insure that tires are inflated per the tire manufacture's specifications located on the sidewall of each tire. Inspect wheels for damage.

- Insure that all lug nuts are properly torqued to 120 ft. lbs. (see new trailer break in section for torque specifics).
- Insure that the coupler is properly closed.
- Insure that the safety chains are properly connected to tow vehicle.
- Insure that the breakaway brake system cable is properly attached to tow vehicle and the breakaway brake system operates properly.
- Insure that the electrical connection is secure and all lights and trailer brakes are working properly.
- Insure that all doors, ramps, windows and vents are closed and properly latched.
- Insure that your cargo is properly secured.

New Trailer Break - In

Your new trailer as a whole requires very little break-in. However, there are some components on your trailer that will require attention during the first trip(s). Lug nuts on new wheels tend to loosen as paint under the lug nut shoulder wears away. After the first 10, 25, and 50 miles of road service, lug nuts on all wheel types should be re-torqued to 120 ft. lbs. Regardless of wheel type, all lug nuts should be re-torqued periodically thereafter. Initially the brake shoes on your trailer wear rapidly. Therefore, they must be adjusted following the first 200 miles of service. The brakes on your trailer are not self-adjusting and must be adjusted manually. If you are not familiar with this procedure, arrange to have your dealer adjust your brakes or explain how to adjust them so you can perform the work yourself.

Un-Coupling your Trailer from your Tow Vehicle

The first step in un-coupling your trailer from your tow vehicle is finding a location where the ground is level. **Failure to un-couple your trailer on level ground may cause the trailer to roll once removed from the tow vehicle, causing personal injury and/or property damage.** Next chock the trailer tires, both front and rear, to prevent the trailer from rolling. Disconnect the electrical connection, safety chains and break away switch cable from your tow vehicle. Then, open the coupler and, using the trailer jack, raise the trailer off the hitch ball.

Accessories

Your trailer may be equipped with one or more of the following optional accessories. If your trailer is equipped with an accessory that is not listed here, contact your dealer with any questions regarding its operation.

Forced Air Furnace

FOR YOUR SAFETY: DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

Your trailer may be equipped with an optional forced air furnace. This furnace uses LP gas as fuel and power from a 12-volt battery to operate the fan. To use the furnace, first insure that the battery is fully charged and that both propane bottles located under the gooseneck or on the tongue of the trailer are open. Turn the furnace on using the thermostat and set the thermostat to the desired temperature. The furnace will run until the desired temperature is reached and continue cycling on and off to maintain the desired temperature.

WARNING: Be sure the furnace and all ignition systems are "OFF" during any type of refueling (including refueling tow vehicle) and while trailer is in motion. If refueling vehicles inside of trailer, leave man door, ramps, vents, windows open to allow gasoline fumes to evacuate the trailer. Failure to do so may result in ignition of gasoline fumes.

110 Volt Converter and Outlets

The 110-volt converter allows the electrical system of your trailer to be powered by a 110-volt power source. It also serves as a charger for an onboard battery if your trailer is equipped with one. Additionally, this option includes (2) 110-volt electrical outlets (these outlets are functional only when the trailer is connected to a 110-volt power source). The converter is activated by connecting your trailer to a 110-volt power source using an extension cord. The connection on your trailer is a covered exterior socket located on the passenger's side of the trailer.

Maintenance

Given proper and regular maintenance, your trailer will give you many years of reliable, trouble free service. Listed below are some general guidelines that should be followed in the maintenance of your trailer.

Paint

Your trailer was painted using the finest automotive products and technology available. Maintain the finish of your trailer by washing and waxing it on a regular basis. Any chips or scratches in the paint should be touched up as soon as possible to prevent the damaged area

from becoming larger. Never leave salt residue on your trailer for extended periods of time. Thoroughly wash your trailer as soon as possible after it has been pulled on salted roads.

Rust streaking from concealed joints can occur. These joints are left unsealed allowing the joint to “breathe” rather than sealing them, trapping moisture. Using a good grade automotive wax on your trailer will minimize or eliminate this streaking.

Tires

Periodically check and maintain the air pressure, as indicated on your trailer’s tires. Visually inspect each tire for wear or damage on a regular basis.

Hinges and Latches

Door and ramp hinges and latches should be cleaned and lubricated periodically to insure smooth, proper operation. We suggest using a multipurpose lubricant such as a silicone spray.

Springs located on the rear ramp of your trailer are used to aid in the lifting and lowering of the ramp. These springs are adjustable. **Do not attempt to adjust these yourself. Contact your dealer if you feel your ramp needs adjustment**.

Component Parts

There are many component parts used on your trailer that are not produced by Trails West. Maintenance information of these components is specified by their respective manufacturers

and is included with your warranty information packet. If you have questions or concerns regarding the maintenance of your trailer and its component parts, contact your dealer.

Electrical Systems

General Information

Your FreeRide trailer is equipped with both 110-volt AC and 12 volt DC electrical systems. These systems work independently from one another and supply power to certain components of your interior. Following is an overview of components powered by each system, along with routine maintenance and trouble shooting tips.

12 Volt DC System

Power for the 12-volt system is supplied by two deep cycle batteries located on the exterior of the trailer under the gooseneck area. For bumper pull models, the batteries are located in an in floor storage area. During normal use (drawing approx. 22 amps), these batteries should provide 5-6 total

hours of use. To conserve power and reduce battery discharge, it is important to realize different components of your trailer use different amounts of power. To slow battery discharge, limit the use of components that require larger amounts of power. Listed below are some components common to your trailer and the amount of power required to operate them:

- Interior lights – .48 amps (per light)
- Furnace - 3.4 amps
- Stereo - 4.0 amps
- Water pump - 4.4 amps
- Refrigerator - 3.0 amps
- Exterior Flood Light - .46 amps (per light)

When possible, do not discharge your batteries below 50% and never discharge them below 80% (the charge level of the batteries can be checked at the monitor panel located above the man door). Lead acid batteries do not have a memory, meaning they do not require a complete discharge prior to charging. If you regularly discharge your batteries below 80%, the life of those batteries will be significantly reduced. **NOTE: Gooseneck models are equipped with a hydraulic jack that is powered by the batteries. Attempting to operate the hydraulic jack with discharged batteries while being connected to a 110V power source or being connected to your tow vehicle, will cause the 30-amp fuse near the batteries to be blown.**

Your trailer's batteries are charged when the trailer is connected to a 110-volt power source (see 110-volt section below for connecting to 110-volt power source). The amount of time required to charge the batteries depends upon the amount of discharge. For example: batteries discharged 50% may take 8-10 hours to charge and fully discharged batteries may take over 24 hours to fully charge.

Additionally, if properly equipped, your tow vehicle can provide a slight charge to the batteries. This is only intended to maintain the battery's charge while in transit and will not replace a charge received from the power converter.

The 12-volt system in your trailer supplies power to the lights, water pump, exhaust fans, furnace, and stereo (if equipped). The circuits of the 12-volt system are protected by fuses in a panel located in the front of the trailer. An inline fuse located near the batteries also protects these circuits.

110 Volt AC System

Power for the 110-volt system is supplied by connecting the trailer to a 30-amp 110-volt power source or by use of an optional generator. Connecting to a 30-amp 110-volt power source is accomplished by plugging the grounded power cord into a 110-volt outlet. This cord is stowed inside the trailer and must be connected to the side of the trailer before each use. **NOTE: always use the provided 30-amp cord when connecting to a 110-volt power source.**

The 110-volt system in your trailer supplies power to the electrical outlets, refrigerator, air conditioner (if equipped), TV (if equipped), and microwave. NOTE: If your trailer is not equipped with an air conditioning unit, it has a 14”x14” crank up roof vent and has been pre- wired for installation of an air conditioner at a later time. The 110-volt system also supplies power to a power converter, which in turn supplies power to all 12-volt circuits. (The batteries are not used by the 12-volt system while the trailer is connected to a 110-volt power source).

The 110-volt system is protected in two ways. First, by ground fault interrupters located in the electrical outlets and second, by circuit breakers located in the same panel as the 12-volt fuses (see 12-volt section for panel location).

Trouble Shooting and Maintenance

Below are some common problems and solutions that may occur with your electrical systems.

If you experience a loss of electrical power to the components serviced by the 12-volt system check the following:

1- Insure that the batteries are charged and connected properly to both the positive wire that supplies power to the trailer and the ground wire.
2- Check the fuse panel located in the front of your trailer and the inline fuse located near the batteries for blown fuses. If a fuse has been blown in the 12-volt system, it should be replaced using a fuse of the same size and amperage. Using a different fuse could result in damage to the system that may not be covered by your warranty.

NOTE: If a battery is subjected to freezing temperatures, and is not fully charged, it may freeze and crack.

If you experience a loss of power to the components serviced by the 110-volt system check the following:

1- Make certain the trailer is connected to the correct power supply using the proper cord as described above.
2- Check the circuit breakers, including the main breaker, to insure that they have not been tripped (the circuit breakers are located in the same panel as the 12 volt fuses). If a circuit breaker has tripped it can be reset by first switching it to the “off” position then to the “on” position.
3- Insure that the GFI protected outlet located in the kitchen area is reset. See GFI testing instructions below.
4- If your trailer is equipped with an air conditioner, wait two minutes following shut off to restart the unit. Failure to allow the air conditioner to re-set will result in the circuit breaker being tripped.

If the above suggestions do not remedy your problem, there are more detailed trouble shooting guides specific to each component part of your electrical system included with this guide. If a remedy cannot be found, there may be a problem with one of the electrical systems and you should have your trailer inspected and repaired by your dealer.

The electrical systems require limited, but necessary maintenance. Fuses and breakers protect the circuits in your trailer against overload and short circuit. These should be inspected regularly to insure that they have not been blown or tripped. The ground fault interrupter (GFI) located in the electrical outlet in the kitchen area and the exterior outlet (if equipped) should be tested at least once a month. To test the GFI be sure the 110-volt system is active (trailer plugged into 110-volt power supply). Before you start the test be sure the reset button is pushed in completely. Push the test button. This should cause the reset button to “pop” out indicating the protected circuit has been disconnected. Push the reset button back in until it “clicks” to reactivate the circuit. If the GFI fails to

test properly there is a loss of protection and a potentially dangerous condition may exist. The system should be inspected and repaired by your dealer.

The batteries that service your trailer are deep cycle RV batteries. Periodically check the external condition of the batteries. Look for cracks in the cover and case. Check the vent plugs and replace them if they are cracked or broken. Insure that the batteries are kept clean. Accumulations of acid film and dirt may permit flow between the terminals, which could drain the batteries. Because they are deep cycle batteries that consume water, they must be filled periodically. Use only distilled water to fill the batteries. If it becomes necessary to replace your batteries both batteries must be replaced at the same time.

For more details regarding the maintenance of your electrical systems and their component parts, see the owner's manual specific to each component that is included with this guide.

Water Systems

General Information

There are two different water systems in your FreeRide trailer. The fresh water system consisting of a fresh water holding tank, water pump, water heater and city water hook up; and the waste water system consisting of both sewage and waste water holding tanks **(20' bumper pull models are not**

equipped with waste water systems). Following is an overview of each system including instructions for use, maintenance and trouble shooting tips.

Fresh Water System

A holding tank located in your trailer, supplies water to the fresh water system. The water level in the fresh water holding tank can be checked at the monitor panel located above the man door. The holding tank is filled through an inlet located behind a locking door on the side of the trailer. To fill the fresh water tank: 1- Close all low point drains. **These drains are located near the water pump inside the trailer and under the trailer below the water heater on the passenger's side (there are a total of 3 low point drains). NOTE: In gooseneck models the valve near the pump, is a 3-way valve. To open this valve turn the knob fully clockwise. To close the valve, turn the knob to the straight up position. To drain the pump and holding tank turn the knob fully counter clockwise.** 2- Fill the tank through the exterior fill spout, using a hose manufactured and labeled for use with potable water. **Fill slowly, at a low volume** until water overflows out the vent. **Do not force water into the spout** because air in the tank must be released during filling. Do not leave unattended during filling or put the potable water hose into the mouth of the fill spout. Structural damage may occur.

A pump is used to pressurize the fresh water system when it is not connected to city water. The pump is automatic and self-priming, operating on demand when water is used. To pressurize the fresh water system, first insure that there is water in the holding tank; refill if necessary (see filling instructions above). Check all drains in the fresh water system insuring that they are closed with the exception of the 3-way valve located near the pump. This valve must be in the "open" position (knob turned fully clockwise). Turn the pump on with the switch located on the monitor panel. Open all faucets one at a time, hot and cold, to purge any trapped air from the system. **Insure that all the air**

is purged from the system before lighting the water heater. Close the faucets when a steady stream of water is delivered to the sink and the shower. The fresh water system, including the water heater, is now pressurized and the pump is ready for automatic operation. It will start when a faucet is opened and stop when the faucet is closed. The pump switch may now be left in the “on” position while the trailer is in use. The pump should be turned off while the trailer is in transit or not in use for an extended period. Do not allow the pump to run when the fresh water holding tank is empty. This may cause a fuse to blow and/or damage the pump.

City Water Connection

Some campsites provide a city water hook up. The city water hook up will automatically pressurize your fresh water system (you will not need to use the water pump when connected to city water). To connect to a city water hookup, attach one end of a hose to the city water connection on your trailer. This connection is located behind the same locking access door as the fill for the fresh water holding tank. Connect the other end of the hose to the city water hook up. Open all faucets, hot and cold, to purge any trapped air from the system. **Insure that all the air is purged from the system before lighting the water heater.**
NOTE: When connecting to a city water hook up use a hose manufactured for potable water to insure the hose will not flavor the water.

CAUTION: Some water sources develop high pressure, particularly in mountainous regions (high pressure is anything over 55 pounds per square inch). High pressure can cause leaks in your fresh water system and/or damage the water heater. Water pressure regulators are available to protect your fresh water system. Ask your dealer for more information.

Water Heater

Your trailer is equipped with a water heater that operates on LP gas and is equipped with an electronic ignition. **Before attempting to ignite the burner, insure that the water heater is full of water by opening all hot water faucets and running water until a steady stream flows from each.** To ignite the burner turn the switch marked “water heater” located on the monitor panel to the “on” position. A red light will flash until the water heater lights. If the burner does not ignite within 10 to 15 seconds, the system will automatically shut down and go into lock-out. This will be indicated by a steady red light. Lock-outs usually occur if you have run out of LP gas, failed to turn on the LP gas, or a problem exists. To reactivate the system and reset the automatic lock-out safety, turn the switch to the “off” position, wait five minutes, and then try to re-light. You may have to repeat this process a few times before the system corrects itself.

Water Heater Bypass

Your trailer is equipped with a water heater bypass. The bypass allows you to fill your water lines with anti-freeze when winterizing without filling the water heater. The two bypass valves are located near the water heater. For normal operation both valves should be turned counter clockwise. To bypass the water heater both valves should be turned clockwise.

Waste Water System

The waste water system in your trailer is divided into two sub-systems; the waste water or “gray water” system and the sewage or “black water” system. The gray water system collects waste water that drains from the sink and shower. The black water system collects waste that drains from the toilet. Each holding tank has its own control valve and each empties through its own drain outlet.

Before using the black water system you must treat the holding tank with water that is mixed with an odor controlling chemical. These chemicals are readily available at any RV supply outlet. **Do not use any products that contain petroleum or ammonia in place of an RV odor controlling chemical. Petroleum and ammonia will damage the holding tanks and seals.** Do not use strong detergents or full strength bleach to deodorize and disinfect the waste tanks or use automotive antifreeze to winterize your trailer. Some chemicals can dissolve plastic. Do not put large table scraps in either holding tank. They could get stuck in, or damage, the gate valve seals in the drain outlets.
Odor in the gray water system is controlled using P-traps therefore, it is not necessary to pre-treat the gray water holding tank with odor controlling chemicals. The sink and shower drains are equipped with P-traps to prevent holding tank odor from entering your trailer through the drains. In order for the traps to operate properly, they must have water in them. The water in these traps can slosh out of the drains during travel or evaporate during storage. If odor is detected, run water down the drains to refill the P-traps.

Toilet Operation

The toilet in your trailer operates with either the fresh water holding tank or the city water supply. The toilet flushes directly into the black water holding tank. To add water to the bowl, partially depress the pedal. To flush, fully depress the pedal and hold down for 2-3 seconds. Do not flush facial tissues into the black holding tank. These tissues are chemically treated to give them wet strength and will not dissolve like toilet paper. Special holding tank tissue is available at most RV supply outlets.

Emptying Holding Tanks

When the waste water holding tanks become half, to completely full, they must be emptied. The content levels of your holding tanks can be checked at the monitor panel. Most states and parks have strict regulations regarding the disposal of waste that is collected in the waste water tanks of your trailer. Dumping raw sewage from toilet (black water) holding tanks, except at authorized dumping stations, is universally prohibited. Most state, national and private parks have either a central dump facility or a campsite hook-up for sewage disposal. To empty the waste tanks in your trailer, remove the cap that covers the drain opening (the waste water tank drain valves are located under the trailer on the left side). Connect the provided hose (located in a cylinder under the trailer near the holding tank drain valve or under the gooseneck area) to the drain and open the drain valves by pulling the T-handle. **Be sure to open one valve at a time and open the valves completely.** The tank will start to drain as the valve is opened. Allow both tanks to drain until empty. After the tanks have emptied, they should be flushed with fresh water. This can be done by pouring 3-4 gallons of fresh water into a sink or shower drain **before** closing the drain valve on the gray tank, and flushing 3-4 gallons of water down the toilet **before** closing the valve on the black tank. Close the drain valves by pushing the T-handles. The drain valves must be completely closed and the caps secured to the ends of the drains prior to transit.

Using a Sewer Hook-Up

Some campgrounds provide sewage disposal facilities with connections at each campsite. When using these individual disposal sites, keep both the black and gray tank drain valves **closed** until the tanks become half to completely full. If the black water holding tank drain valve is left open while connected to the disposal site, solid waste may accumulate in the tank resulting in an unpleasant cleaning process. When the holding tanks become full, empty them using the sewer hookup, following the same procedure described above.

Trouble Shooting and Maintenance

Below are some common problems that may occur with the water systems in your trailer and simple solutions to remedy them.

If no fresh water flows from the faucet while the pump is running check the following: Note: A hum is audible when the pump is running.

1- Turn the water pump off to avoid damage.
2- Insure that there is water in the fresh water holding tank
3- Make certain that the supply and outlet lines are connected to the pump.
4- Check the low point drains, making sure they are closed and that the 3-way valve (gooseneck models only) located near the pump is open.
5- Inspect the fresh water system to insure that there are no large leaks.
6- Check the strainer that is attached to the pump insuring that it is free from debris. The strainer is located in a clear plastic bowl on the supply side of the pump. To access the strainer, close the valve on the fresh water supply line and disconnect it from the plastic bowl. Remove the strainer and inspect. Clean if necessary. Re-assemble in the reverse order being careful not to over tighten the supply line connection. These fittings were designed to be hand tightened only.

If the water pump is not running, check the following:

1- Insure that the battery is charged and connected properly to both the positive wire that supplies power to the trailer and the ground wire.

2- Check the fuse in the fuse panel located at the front on the trailer, making sure the fuse for the pump is not blown. If it has been blown replace it with a fuse of the same size and amperage rating. Using a different size fuse or fuse with a different amperage rating could cause damage to the water pump that may not be covered by warranty.

If no water is flowing from the faucets when connected to a city water hook up, check the following:

1- Insure that there is water flowing from the city water connection.
2- Check for leaks in the trailer's water system.

For a more extensive trouble shooting guide see the owner's manual specific to each component of the fresh water system included with this guide.

If, after following the above steps, you still do not have water flowing from the faucets, have your trailer inspected and repaired by your dealer.

To insure that problems are limited, your water systems must be maintained. The pump included in the fresh water system is equipped with a strainer to prevent foreign debris from entering the pump. This strainer should be cleaned periodically to insure proper pump operation. To insure that your fresh water system remains clean it should be disinfected. Disinfecting the fresh water system will protect you from bacteriological or viral contamination from any common water source. You should disinfect the water system if your trailer is new or hasn't been used for an extended period of time. Use the following procedure to disinfect the water system:

1- Prepare a chlorine solution using 1 gallon of water and ¼ cup of chlorine bleach. Pour 1 gallon of the chlorine/water solution into the fresh water tank for every 15 gallons of tank capacity. Your

FreeRide trailer's fresh water holding tank has a 50 gallon capacity. To disinfect your fresh water system add 3.33 gallons of the above described chlorine solution to the tank.

2- Fill the fresh water holding tank to capacity with clean drinking water. The fresh water tank is now full of a 50 parts per million residual chlorine concentration. This concentration acts as a quick-kill dosage for harmful bacteria, viruses, and slime-forming organisms. NOTE: Concentrations of higher than 50ppm may damage the water lines and/or tank.
3- Open all faucets and run water until you smell a distinct chlorine odor. Close the faucets and allow the system to stand at least 4 hours.
4- Drain the system and flush with fresh water. Flush repeatedly, if necessary, until no chlorine taste or smell remains in the system.

Because vibration and flexing encountered during travel can work pipe, tubing, or fittings loose, all plumbing connections should be checked for leaks once per year. Leaks occur most often around threaded fittings. These leaks are usually a result of either a loose fitting or deposits on the sealing surfaces of the fitting. If it is loose, be careful not to over tighten the connection. These connections usually seal with hand tightening plus half a turn with a wrench. If deposits are present on the sealing surfaces, thoroughly clean and reinstall the fitting. If the leak still persists, have the system inspected and repaired by your dealer.
For more details regarding the maintenance of your water system and its component parts, see the owner's manuals specific to each component that is included with this guide.

The water systems in your trailer are not designed for extended use or storage in freezing temperatures (32 degrees F – 0 degrees C). If exposed to freezing temperatures, water may freeze causing damage to the systems. Such damage is not covered under the warranty. This can be avoided by following the storage and winterizing instructions covered on pgs. 23 and 24.

LP Gas System

General Information

Your trailer is equipped with an LP gas system that delivers fuel to many appliances that provide you with comfort and convenience. The appliances fueled by the LP system include: furnace, water heater, cooktop (if equipped) and refrigerator.

When used properly, LP gas is a dependable, clean burning fuel. Each gallon of LP gas produces approximately 91,000 BTUs of heat. Your trailer is equipped with either (2) 5- gallon tanks producing approximately 910,000 BTUs of heat or the optional (2) 7.5 - gallon tanks producing approximately 1,365,000 BTUs of heat. These tanks are located on the front of the trailer. The total consumption of LP gas depends on the rate of use for each appliance and the operating time. The furnace has the potential to use the most gas. In cold temperatures and high winds, fuel consumption by the furnace can be very high. Check the tank levels often if using your trailer in these conditions.

The LP gas in the tanks of your trailer is stored under high pressure and is in a liquid form. As gas is used, it is vaporized and passed through a regulator. The regulator reduces the pressure of the gas so it is safe to be used by the various appliances in your trailer. If you experience problems with gas delivery to the appliances in your trailer, do not attempt to adjust the regulator. It has been preset at the factory, and can only be adjusted using special equipment. If you feel the regulator requires adjustment, contact your dealer.

Using the LP Gas System

Use of the LP gas system is fairly easy and hassle free. To use the system, insure there is LP gas in both tanks. Rotate the knob on the top, front side of the regulator toward the tank you want to use first. This will be the “service” tank and the other will be the “reserve” tank. Slowly open **both** tank valves. The indicator in the knob of the regulator will turn bright green. The indicator will remain green as long as there is gas coming from the service tank. When the service tank empties, the regulator will start drawing from the reserve tank providing an uninterrupted fuel flow. When it switches over, the indicator color will change from green to red. The red color indicates that the service tank is empty and the system is operating on the reserve tank. To remove the empty tank, rotate the knob towards the reserve tank. The indicator will now turn green indicating that the reserve tank in now the service tank. Close the valve on the empty tank, disconnect the supply line from the tank and have it filled by a trained service person. **If filling the tank for the first time, caution the service technician that the tank is being filled for the first time and to purge any air from the tank before filling.** After refilling, reconnect the tank to the regulator supply line and slowly open the tank valve. The full tank now becomes the reserve tank.

Turn off the main gas valve on each tank when the trailer is not in use. Keep open flame and spark producing material away from any area where LP gas is used. Pilot lights on appliances should be turned off when filling or venting LP tanks and when refueling your tow vehicle to avoid potential danger from pilot lights igniting fuel fumes. Do not transport or store LP tanks, gasoline, or other flammable liquids inside your trailer.

Trouble Shooting and Maintenance

If any appliance that consumes LP gas will not operate, check the following:

1- Insure that the LP tanks are filled.
2- Check the main valves on the LP tanks making sure that they are completely open.
3- Consult the trouble shooting guide specific to the appliance that is not operating.

If the above steps do not resolve your problem, there may be a problem with the appliance or the LP gas system. Have your trailer inspected and repaired by your dealer.

There is very little maintenance associated with the LP gas system in your trailer. The LP system in your trailer was thoroughly inspected for leakage by the manufacturer. However, vibrations associated with travel may cause pipe and tubing fittings to loosen. Have your LP system inspected by your dealer at least once per year and after extended trips. Your trailer is equipped with an LP gas detector that will detect the presence of LP gas inside your trailer resulting from a leak. Thoroughly read the owner's manual for the LP detector that is included with this guide.

Winterizing/Long Term Storage

If you plan to store your FreeRide for an extended period of time, there are some precautions that, if taken, can prolong the life of your trailer. Below is a checklist to be followed for storing or winterizing your trailer.

1- Drain all water from the trailer using the 3 low point drains (locations of these drains can be found on page 17 of this guide). **It is important that the trailer is level when draining the water from it. The plumbing is installed so the low point drains are the lowest points in the system. If the trailer is not level when draining, water may remain in the system.** Open all low point drains. Also open sink and shower faucets and hold the flush pedal on the toilet down for several seconds. The faucets and drains should remain open until you use your trailer again. In addition, the water heater by pass valves must also be open to completely drain the water system. Disconnect the supply and outlet lines from the water pump, run the pump until water stops flowing from it and then turn the pump off. Leave the supply and outlet lines disconnected until you use your trailer again. NOTE: When re-connecting the lines to the water pump, do not over tighten the fittings. The fittings are designed to be hand tightened only.
2- Drain the water from the water heater by removing the plastic drain plug from the tank and opening the pressure relief valve. The drain plug and pressure relief valve can be accessed through an exterior access panel on the right side of the trailer. **Important: insure that water heater has been turned off and that the water in the water heater is cool prior to draining.**
3- Drain and flush gray and black holding tanks.
4- Pour 1 cup of RV antifreeze into the kitchen sink drain. Pour 2 cups into the shower drain. This will force antifreeze into the gray water holding tank to protect the drain valve. While holding down

the flush pedal on the toilet, pour 2 cups of antifreeze into the toilet. This will allow antifreeze to enter the black water holding tank to protect the drain valve. Remove your foot from the flush pedal and pour 1 cup of antifreeze into the toilet. **NOTE: Use only non-toxic RV antifreeze that is specifically made for potable water systems. Automotive antifreeze, if ingested, can cause blindness, deafness or death.**

5- Remove the batteries, fully charge if necessary (never store batteries in a discharged state), fill with distilled water if needed. Store the batteries in a cool dry location. Charge as needed during the storage period (approx. every 6 weeks of storage).
6- Close the window blinds or cover the windows by other means to prevent the sun from fading fabrics.
7- If your trailer is equipped with an air conditioner, clean or replace the air filters and cover the shroud.

If you live in a climate that encounters freezing temperatures, or are not confident that all the water has been drained from the interior, you may fill the system with RV anti-freeze. This is done by using the fresh water pump to fill the water lines, faucets, toilet etc. **NOTE: Use only non-toxic RV antifreeze that is specifically made for potable water systems. Automotive antifreeze, if ingested, can cause blindness, deafness or death.** If you winterize your trailer using this method, make sure the anti-freeze is completely flushed from the fresh water system before using.

If you do not feel comfortable winterizing your trailer yourself, many dealers offer this as a service. Contact your dealer for more information.

For a more detailed description for long term storage and/or winterizing specific component parts of your trailer, see the owner's manual specific to each component that are included with this guide.

This is intended to be a general guide for the use and maintenance of your FreeRide trailer. There may be specific use and maintenance items for component parts of your trailer that are not covered in this guide. This information is contained in owner's manuals specific to each component. These manuals can be found in an envelope accompanying this guide. You should read and become familiar with the owner's manual for each component of your trailer.

GLOSSARY OF TIRE TERMINOLOGY

Bead
The part of the tire that is made of steel wires wrapped or reinforced by ply cords and that is shaped to fit the rim.

Bead Separation
This is the breakdown of the bond between components in the bead.

Bias ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

Carcass
The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

Chunking

The breaking away of pieces of the tread or sidewall.

Cold inflation pressure
The pressure in the tire before you pull your trailer.

Cord
The strands forming the plies in the tire.

Cord separation
The parting of cords from adjacent rubber compounds.

Cracking
Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

CT
A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

Curb weight
The weight of a motor vehicle with standard equipment.

Extra load tire

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Groove
The space between two adjacent tread ribs.

Innerliner
The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

Innerliner separation
The parting of the innerliner from cord material in the carcass.

Intended outboard sidewall
The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

Light truck (LT) tire
A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load rating
The maximum load that a tire is rated to carry for a given inflation pressure.

Maximum load rating
The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum permissible inflation pressure
The maximum cold inflation pressure to which a tire may be inflated.

Maximum loaded vehicle weight
The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Measuring rim
The rim on which a tire is fitted for physical dimension requirements.

Non-pneumatic rim
A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separately, to the wheel center member and upon which the tire is attached.

Non-pneumatic spare tire assembly
A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

Non-pneumatic tire
A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

Non-pneumatic tire assembly
A non-pneumatic tire, alone or in combination, with a wheel or wheel center member, which can be mounted on a vehicle.

Open splice
Any parting at any junction of tread, sidewall, or inner liner that extends to cord material.

Outer diameter
The overall diameter of an inflated new tire.

Overall width
The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

Ply
A layer of rubber-coated parallel cords.

Ply Separation
A parting of rubber compound between adjacent plies.

Pneumatic tire
A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

Production options weight
The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered I curb weight or accessory weight.

Radial ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the center line of the tread.

Recommended inflation pressure
This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification/VIN tag.

Reinforced tire
A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Rim
A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

Rim diameter
This means the nominal diameter of the bead seat.

Rim size designation
This means the rim diameter and width.

Rim type designation
This means the industry of manufacturer's designation for a rim by style or code.

Rim width
This means the nominal distance between rim flanges.

Section width
The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

Sidewall
That portion of a tire between the tread and bead.

Sidewall separation
The parting of the rubber compound from the cord material in the sidewall.

Test rim
The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

Tread
That portion of a tire that comes into contact with the road.

Tread rib
A tread section running circumferentially around a tire.

Tread separation
Pulling away of the tread from the tire carcass.

Treadwear indicators (TWI)
The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

Vehicle capacity weight
The rated cargo load.

Vehicle maximum load on the tire
The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

Vehicle normal load on the tire
The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

Weather side
The surface area of the rim not covered by the inflated tire.

Wheel center member
In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic rim and provides the connection

between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic tire and provides the connection between tire and the vehicle.

Wheel holding fixture
The fixture used to hold the wheel and tire assembly securely during testing.