



GUIDEBOOK TO ENJOYMENT OF YOUR
KZRV TOY HAULER RECREATIONAL
VEHICLE

VENOM &
SIDEWINDER

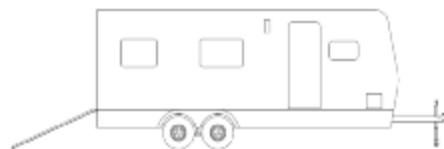
THE PURPOSE OF THE KZRV OWNER'S MANUAL IS TO PROVIDE THE MOST CURRENT INFORMATION AVAILABLE CONCERNING KZRV RECREATIONAL VEHICLES. OPERATION AND MINOR MAINTENANCE IS THE MAIN FOCUS OF THIS BOOK.

MAINTENANCE OF YOUR RECREATIONAL VEHICLE IS IMPORTANT TO KEEPING YOUR COACH IN GOOD CONDITION. FAILING TO PROVIDE MAINTENANCE, AS SUGGESTED, COULD RESULT IN LOSS OF WARRANTY COVERAGE. REVIEW THE COPY OF YOUR KZRV TOWABLE TRANSFERABLE LIMITED WARRANTY, WHICH HAS BEEN SUPPLIED TO YOU WITH YOUR WARRANTY REGISTRATION FORM.

ADDITIONAL MANUALS MAY BE SUPPLIED AND AVAILABLE BY THE MANUFACTURER OF THE COMPONENT AND/OR APPLIANCE. SEE THE INFORMATION PACKET IN YOUR COACH.



Conventional Travel Trailer



Travel Trailer Toy Hauler



Fifth Wheel



Fifth Wheel Toy Hauler

KZRV
“BUILDING QUALITY AND FUN FOR OVER 40
YEARS”

We congratulate you on your purchase of a KZRV, recreational vehicle. You have chosen a quality built RV which should provide you with many years of camping memories and fun.

The recreational vehicle you have purchased has been inspected by our trained inspectors and fully meets our high quality standards.

As the owner of a new KZRV, RV you can rest assured that we will do all we can to keep you a “happy camper”. Naturally, your selling dealership is always happy to help you with any questions you may have or service you may need. And should you need assistance when traveling, with over 250 KZRV, dealers nationwide, assistance is usually just minutes away.



KZRV,
0985 N 900 W
Shipshewana, IN 46565

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CHAPTER 1

INTRODUCTION TO RV OWNERSHIP

Welcome to the world of recreational vehicle travel. The purchase of your KZRV product allows you to enter this type of camping and leisure travel. Your coach has been designed, engineered and built for; camping, leisure travel, full time travel, hunting and fishing trips and hauling light cargo with "Toy Haulers" as per G.V.W.R.

This owner's manual was prepared to assist you in understanding the proper use and operation of various containment systems, servicing, and maintenance of component parts, and explanation of your warranty protection. If this is your first RV travel coach, you will want to acquaint yourself with all aspects and information found in this manual plus manuals supplied by component manufacturers.

These materials will reflect the most current information available for the user. Some components and items may not be in your coach as they may be options on different models.

Keep this owner's manual in your recreational vehicle for handy reference. Get to know your new vehicle and how it operates. You should carefully read and understand these instructions, as well as information supplied by the manufacturers of separately warranted products, since they contain important operating, safety, and maintenance instructions. If you have questions that are not adequately answered by this manual or other booklets, consult your dealer. If he cannot satisfactorily answer your questions, he will call our staff for additional information.

Every effort has been made to provide you with a safe, dependable product. Your vehicle complies with applicable requirements of Federal Motor Vehicle Safety Standards, State Regulations, Canadian Standards Associations (CSA) where applicable, and complies with requirements of ANSI Standard 1192, the nationally recognized "Standard for Recreational Vehicles – Installation of Plumbing, Heating and Electrical Systems." The Recreational Vehicle Industry Association (RVIA) and Canadian Standards Association (CSA) periodically inspect our production lines and assist us in maintaining strict compliance with installation and safety standards for those systems. **Your follow-up with periodic safety inspections and a program of preventive maintenance is important for the continuation of safe and trouble-free operation.**

Camping is a great way to relax and enjoy the outdoors with your friends and family. Please remember to tread lightly on our beautiful land and leave only your footprints so that others may enjoy nature as much as you did.

SAFETY CONSIDERATIONS

The terms **NOTE**, **CAUTION**, **WARNING**, and **DANGER**, have specific meanings in this manual as well as component manuals.

A **NOTE** provides additional information to make a step or procedure easier or clearer. Disregarding a **NOTE** could cause inconvenience, but would not be likely to cause damage or personal injury.

A **CAUTION** emphasizes areas where equipment damage could result. Disregarding a **CAUTION** could cause permanent mechanical damage. However, personal injury is unlikely.

A **WARNING** is giving notice to user that potential injuries may occur to a person from equipment and mechanical failure. Disregarding a **WARNING** may result in serious physical injury and possible loss of life.

A **DANGER** alerts owner of areas where safety measures **MUST BE STRICTLY ADHERED TO**. Disregarding a **DANGER** could cause serious injury and possible loss of life.

Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying KZRV.

If NHTSA in addition receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer or KZRV.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 or write to:

NHTSA
US Department of Transportation
Washington, DC 20590

You can also obtain other information about motor vehicle safety from the Hotline.

Safety When Emergency Stopping

It is wise to carry road flags and/or triangular warning devices to be used when necessary. When pulling off a highway, use your four way hazard lights as warning flashers, even if only to change drivers. Pull off the road way completely if at all possible to change flat tires or any other emergency needs.

Additional Safety Considerations

1. Sanitize the fresh water supply system periodically (see sanitizing instructions).
2. Keep water connection fittings from coming in contact with the ground or drain hose to reduce chance of contamination.
3. Enlist services of a qualified technician to fix gas or electrical appliances.
4. Always have a serviceable fire extinguisher placed in an easily accessible location.
5. Insure that tires are in good condition and properly inflated. Watch tire inflation closely. Under-inflated tires will overheat. Overheated tires are a potential hazard as they may throw rubber and cause a blow-out. Check the tire pressure before each trip while the tires are cold.
6. Check and tighten the wheel lugs regularly (every 50 miles when new until 200 miles are reached and then check the lugs every 500 miles).
7. Check the brakes in a safe area – not while traveling a on busy highway.
8. Always block the trailer wheels solidly before unhitching.
9. Before leaving a camp area with a trailer in tow, insure:
 - a. The safety pin or locking lever is seated.
 - b. The breakaway wire is attached to the tow vehicle.
 - c. All jacks are raised so that they cannot touch the ground.
 - d. The 110-volt electrical cord is properly stored.

- e. The safety chains are connected.
 - f. All interior lights are off.
10. Observe and obey the warning labels attached to your vehicle concerning propane, water, electricity and loading.
 11. Extinguish all campfires before leaving your campsite.

EXTENDED OR COLD WEATHER USE

Your KZ recreational vehicle has been built for enjoyment in a recreational manner. This recreational vehicle is not intended to be used as full-time living quarters.

1. For winter use in freezing conditions, more protection may be required. Use skirting and/or insulation below floor level to provide additional protection.
2. Remember, water freezes at 32° Fahrenheit whether fresh or drainage. Proper care must be used to protect any system at 32° F or lower. Local recreational vehicle dealers and campground personnel may be able to advise you on needed protection.
3. Energy requirements, such as propane and electrical supplies must be adequate. Protect your propane regulator from freeze-ups.
4. During cold weather you will experience more condensation than normal. Using ventilation or a dehumidifier may be needed.

CONDENSATION

Where it comes from, what causes it, and various solutions.

Causes:

- A. It occurs when warm moist air contacts a cold surface, such as rain touching a tent awning fabric with people breathing warm moist air against it from inside due to normal breathing.
- B. When cooking food or taking a shower, warm moist air circulates thru out coach attaching itself to cooler surfaces, forming beads and running down wall or window
- C. Normal breathing will emit approximately 1/2 pint of moisture into the air per person, per day. The more occupants the greater quantity of condensation you may find.

Solutions:

1. When taking a shower, open bath roof vent approximately ½ inch allowing warm moist air to escape.
2. Use the power vent over range when cooking.
3. If condensation is found in cabinet or closets, open door slightly to equalize temperature and provide ventilation.
4. Opening windows and roof vents, when possible, allowing warm moist air to escape is the best way to reduce condensation.
5. Under extreme conditions, you may need to use a dehumidifier to remove moist air conditions.

Uncontrolled condensation can cause dampness, mildew, etc., inside your recreational vehicle. Be sure to make strong efforts to control condensation.

Interior Ventilation

A new coach always has a peculiar aroma in it due to all the components used to build it, such as paneling, plywood, carpet and fabrics.

**CAUTION**

Continuous living in your recreational vehicle could cause accelerated wear to components above recreational use.

Allowing fresh air to move and circulate through out a new recreational vehicle it is very valuable for several reasons.

- 1.Components use to build RV's always have a "new" smell to them, possibly irritating a respiratory system of the human body on warm days.
- 2.Fresh air is always good for the human body unless allergies are a factor.

Numerous ways are provided to exchange air in coaches.

- 1.Open windows on none rainy days, allowing air exchange between inside and outside.
- 2.Power hood vent above cooking stove will send heat and food smells outside.
- 3.Roof vents; Numerous types:
 - A. Standard air flow using gravity flow method.
 - B. Power (12v or 110v) vents will move air faster.
 - C. Hi-Volume power vents, operation on 12 volt power can exchange air in coach in several minutes, if windows are open accordingly, if fan is in the rear, open window(s) in front.

Different brands/models have different features such as, remote control, rain sensor, speeds on control switch, etc.

Read carefully the operating instructions as provided with the manufacturer as placed in your coach.

CHAPTER 2 SERVICE PROCEDURES

BASIC SERVICE PROCEDURES

KZRV has a strong interest in maintaining top quality customer relations with owners. By producing high quality products, we want to assure our customers of our support with parts and service availability. Our dealer network is the first choice to serve and supply your needs for your recreational vehicle. Our authorized dealers will pleasantly assist in providing service maintenance needs plus parts, options, and information concerning your recreational vehicle.

Should you experience a problem with service availability, please follow the steps in the order listed below.

1. Contact your selling dealer's service department for an appointment. Describe to the best of your knowledge the nature of the problem. Please keep appointments to establish a good, workable relationship.
2. Contact the owner or general manager of the dealership should the initial attempt fail with the service department.
3. Contact:
Customer Relations Department
KZRV
0985 N 900 W
Shipshewana, IN 46565

Phone: (866) 472-5460
Hours: (8am-5pm E.S.T.)

E-mail: kz@kz-rv.com
Website: <http://www.kz-rv.com>

Give all the above information as requested along with the serial number of the coach in question. We will make every attempt to resolve your problem.

Please bear in mind that most problems arise from misunderstandings concerning warranty coverage and service. In most instances, you will be referred to the dealer level and your concerns will be resolved with the dealer's facilities and personnel.

Dealer

Your authorized KZRV dealer has performed a PDI (pre-delivery inspection) on your recreational vehicle. Since your dealer is authorized to sell KZRV products, he is also there to supply parts, optional equipment, and provide service repairs, warranty or otherwise as needed.

First choice for warranty repairs is your selling dealer. Other dealers can be used, however, prior approval is required.

Some recreational vehicle dealers may be authorized service centers for certain manufacturers of products warranted separately, such as appliances. Check with your dealer before contacting anyone else to reduce delays. If the dealer is not an authorized service center for the product in question, he can assist you in obtaining authorized service.

Factory

Service repairs can be performed at the manufacturing facility at Shipshewana, Indiana. Should your KZRV product be in need of major repairs and your dealer recommends factory repairs, please follow the steps listed below for such work.

1. Your dealer **must** make an appointment with service personnel at the factory PRIOR to your arrival.
2. Any freight costs, are the responsibility of the owner as listed in the warranty coverage schedule.

Parts

Stocking of parts varies from dealer to dealer. Any authorized dealer can order any required part to be shipped to their dealership. All parts are obtained through authorized KZRV dealers only.

Owner's Responsibility

When owning and using a recreational vehicle, it is important to perform regular and normal maintenance to prevent undesired deterioration of your coach. This should be done two times per year, spring and fall. Weather elements play an important function on sealants and other components requiring normal maintenance.

As an owner and operator, it is your responsibility and obligation to inspect and return your coach to an authorized dealer for repairs as required. Your authorized selling dealer is always your first choice and he certainly has continued interest in your satisfaction. As your manufacturer, we recommend that inspection and service be performed by your selling dealership.

If you are traveling and are unable to locate an authorized KZRV dealer, or an authorized dealer for the component needing service, please call our customer service office at (866) 472-5460. Service at a non-authorized dealer MUST have prior authorization. You may be asked to return certain mechanical parts, replaced before reimbursement consideration is made. Unauthorized or improper repairs may void the warranty of that component. Always keep your owner's manual along with a copy of your warranty registration with you when traveling.

Season Site

When placing your unit on a camp site in the spring and returning it in the fall to your home, it's classed as a "seasonal site."

Performing repair work on such a site is not recommended for numerous reasons; available parts, tools, space, weather conditions, etc.

Any service repairs which require a service technician also require the unit to be taken to a service facility, preferably your selling dealer.

Warranty coverage does not include trip or service call costs for such a trip. It is the owners responsibility to provide for such costs.

TOWABLE LIMITED WARRANTY

Two Year Limited Warranty

SUMMARY OF WARRANTY: KZRV warrants the structure of every towable recreational vehicle or truck camper purchased from an authorized KZRV dealer to the first retail consumer for a period of two (2) years, to be free from substantial defects in materials and workmanship when used for its intended purpose. The warranty period begins on the date of purchase or the date the unit is first placed in service, whichever is earlier. For purposes of this Towable Limited Warranty ["TLW"], the term "structure" includes the interior and exterior sidewalls, floor, roof, and frame.

EXCLUSIONS FROM WARRANTY: Excluded from coverage under the TLW are: (1) items added, changed, or modified after the unit left the possession of KZRV; (2) units used for any commercial purpose; (3) units used for full-time residential use or more than occasional recreational use; (4) wear and tear caused by normal usage by the consumer, including but not limited to fading or discoloration of soft goods [e.g., tents, upholstery, drapes, carpet, vinyl, screens, cushions, and mattresses], fading or discoloration of exterior or fiberglass components, tears, punctures, soiling, mildew, mold, and the effects of moisture condensation inside the unit; (5) the effects of alteration, tampering, mishandling, neglect, abuse, misuse, weather, acts of nature, acts of God, or corrosive atmospheres that promote rusting, oxidation, or pitting; (6) minor imperfections that do not interfere or affect the suitability of the unit for its intended use; (7) the effects of consumer's or transferee's failure to perform normal and routine maintenance [e.g., inspections, lubrication, adjustments, tightening of screws and bolts, tightening of lug nuts and wheels, sealing, rotating, cleaning, or other damages resulting from failing to follow the maintenance schedule and procedures in the owners manual; (8) damages resulting from misalignment or adjustments to axles or spindles caused by improper maintenance, modification, loading, unloading, road hazards, road defects, off road travel, or tire failures; (9) damages caused by the negligent or intentional use or misuse of the unit by the consumer or transferee, including but not limited to occurrences while towing the unit; (10) claims made for alignment or adjustment of patio doors [Note: any unit with a patio door is not intended to be towed like a travel trailer, and must be permanently parked on a lot. If such a unit is towed this TLW is voided in regard to the patio door and the surrounding structures]; (11) loss or damage caused by a person or business as a result of transporting the unit after sale to the consumer, delivering the unit, or parking the unit; (12) loss or damage to the plumbing system caused by freezing; (13) claims for personal injuries of any type; (14) costs of transportation of the unit for repairs; and (15) components that are warranted separately by another manufacturer [the warranty provided by a component manufacturer is the sole responsibility of that manufacturer, and KZRV does not warrant those components. Please refer to the warranties issued by the component manufacturers for the terms and conditions of such warranties].

TO OBTAIN WARRANTY SERVICE: Warranty service may be performed only at KZRV, or at KZRV authorized dealers and service centers. Contact KZRV for a list of authorized dealers and service centers. REPAIRS OR REPLACEMENTS BY

UNAUTHORIZED DEALERS OR SERVICE CENTERS WILL VOID THIS TLW. If the consumer believes that a claimed defect is covered by this TLW, contact must be made with an authorized dealer or service center WITHIN THE WARRANTY PERIOD. Sufficient information must be given to attempt to resolve the claimed problem. Should KZRV determine that repair or replacement is appropriate, the consumer must deliver the unit to the dealer or service center as directed. Delivery shall occur no later than thirty (30) days after the authorization for repair or replacement. Do not deliver your unit to KZRV, an authorized dealer, or service center without prior authorization. All costs incurred by the consumer for transportation for warranty service shall be the sole responsibility of the consumer. The dealer or service center shall repair or replace any warranted defect within a reasonable time, but no later than ninety (90) days after delivery by the consumer. Should the unit not be repaired or replaced within said period of time, then the consumer must contact KZRV by CERTIFIED MAIL with a written description of the claimed warranted defect and the efforts to remedy it. FAILURE TO SO NOTIFY KZRV IN THIS REGARD SHALL RENDER THIS TLW VOID AS TO THE CLAIMED DEFECT. After receipt of such notice, KZRV shall repair or replace such warranted defect within a reasonable time, but not later than ninety (90) days after delivery by the consumer. The scheduling of warranty work at an authorized dealer or service center is not controlled by KZRV and delays may be experienced. KZRV is not responsible for loss of use of the unit, expenses for fuel, telephone, food, lodging, travel, loss of income or revenue, or loss of or damage to personal property.

DISCLAIMER AND LIMITATIONS OF WARRANTIES: NEITHER KZRV NOR ITS DEALERS SHALL BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND OR ANY OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE OR USE OF THIS PRODUCT, WHETHER BASED IN CONTRACT, TORT, STRICT LIABILITY, EQUITY, OR ANY OTHER THEORY, EVEN IF KZRV HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. KZRV'S ENTIRE LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT, AT KZRV'S SOLE OPTION.

THE UNITED NATIONS CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS HEREBY EXCLUDED IN ITS ENTIRETY FROM APPLICATION TO THIS TLW.

THIS TLW, AND THE REMEDIES HEREUNDER, ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY KZRV. THIS TLW GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY DEPENDING ON LOCAL LAW. SOME STATES LIMIT OR PROHIBIT LIMITATIONS OF WARRANTIES, SO THE ABOVE MAY NOT APPLY TO YOU. YOU SHOULD CONSULT A COMPETENT ATTORNEY FOR LEGAL ADVICE.

MISCELLANEOUS: No repair or replacement effected shall cause any extension or renewal of the warranty period. KZRV may make parts and/or design changes from time to time without notice and repairs or replacements may be made with new or different parts. KZRV reserves the right to make changes in the design or material of its products without incurring any obligation to incorporate such changes in any product previously manufactured. At KZRV's, sole option, any dispute concerning any warranted defect may be resolved through mediation or arbitration. This TLW shall be governed by the laws of the State of Indiana, and any legal action shall be brought only in the Circuit or Superior Court of LaGrange County, Indiana.

WARRANTY REGISTRATION AND CONTACT INFORMATION: The warranty registrations for component parts should be completed and delivered in accordance with the instructions contained therein. The TLW registration must be completed and returned to KZRV within fifteen (15) days of delivery of the unit to the consumer. Failure to do so can void this TLW or cause delays in obtaining benefits. The TLW registration, and all inquiries, must be directed to: KZRV, L.P., Warranty Department, 0985 N 900W, Shipshewana, Indiana 46565, Telephone: (260) 768-4016.

I HEREBY ACKNOWLEDGE THAT I HAVE RECEIVED, READ, AND UNDERSTAND THIS TOWABLE LIMITED WARRANTY, AND THAT I HAVE INSPECTED THE UNIT AND FIND IT IN THE CONDITION REPRESENTED.

Date: _____
Purchaser _____

CHAPTER 3 USING YOUR RV

In this chapter you will find three areas of useful information to assist you with correct **equipment**, **traveling**, and finally, actually **using your recreational vehicle**.

EQUIPMENT

Tow Vehicle

Begin your camping experiences by obtaining a tow vehicle which will adequately transport your recreational vehicle to and from your chosen destinations. Your most important measuring tool is the GVWR, Gross Vehicle Weight Rating, to cross match the capability of your selected tow vehicle.

Most Truck Manufacturers provide trailer towing guides for their products. Ask your local automotive dealer for a copy or call the factory's direct lines for information. Many tow vehicles, including mini-vans, have special towing package options available for small travel trailers. Tow vehicles with long wheel bases perform better than those with short wheel bases.

A second factor is GCWR, Gross Combined Weight Rating, which refers to the total weight of the tow vehicle and any vehicle in tow as a "combined" weight. This information, supplied by the tow vehicle manufacturer, is related to the capability and capacity of the tow vehicle.

The condition of the suspension in your tow vehicle is also an important factor. Make sure your tow vehicle is in good operating condition and follow the factory recommended maintenance guidelines.

Hitches – Fifth Wheel

The best type of hitch is one that is bolted thru the floor and has brackets to attach to main frame members on truck.

Before installing your hitch be aware of the clearance needed between the truck cab and center of hitch pin. This is very important on short cab trucks.

Hitch Height Specifications – Fifth Wheel

There is no recommended hitch height for fifth wheels. The pin box is adjustable at two inch intervals for variance in trucks and their



CAUTION

Trailers with tandem or tri axles need to travel as level as possible, avoiding different weights on each axle plus handling conditions.



CAUTION

Using an oversized or undersized hitch can cause damage to the frame of your RECREATIONAL VEHICLE or tow vehicle.

suspension systems. For best performance while towing any recreational vehicle, have both as level as possible. When towing out of level, weight on axles will not be equalized. See page 17.

Hook-up Fifth Wheels

1. Place tow vehicle close to pin box.
2. Raise or lower front end of RV as needed.
3. Back tow vehicle against pin.
4. Lower pin box until it touches hitch
5. Release latch to lock pin to hitch plate. BE SURE it is locked to avoid a drop on tow vehicle.
6. Raise front landing jacks and adjust feet so they clear any objects.
7. Plug in your 12-volt, seven way electrical connector from the tow vehicle to the trailer connector.
8. Below are listed numerous items that should be inspected and tested before traveling:
 - q All lights working on outside of coach.
 - q Stabilizer jacks in retracted position.
 - q Steps in retracted position.
 - q Refrigerator door latched completely.
 - q Loose items in secure position.
 - q Test brakes for operation before entering roadway.

HYDRAULIC COMPONENTS

Hydraulic system requires: a reservoir to contain fluid (Dextron oil) to move items, 12 volt DC motor to turn pump and place pressure in cylinders, and 12 volt DC energy source, convertor and/or auxiliary battery.

Front landing jacks, slide outs, and stabilizer jacks are the main

items used.

Operation on and off is handled with the "My RV" tablet in docking station.

See slide out section for more details.

Front Landing Jacks

Before unhooking your tow vehicle, several safety items to remember:

1. Be sure to park the unit on solid ground.
2. Be sure tires are blocked and unit cannot roll.
3. Be sure people and pets are away from camper.
4. Be sure to park on level ground, if at all possible.

Hydraulic landing jacks can be operated any time the system is "ON" but NOT in the "AUTO MODE". By pushing the "FRONT" button, both landing jacks can be extended. By pushing either the "LEFT" or "RIGHT" button, the individual front jacks can be extended. If the touch pad is put in the "RETRACT" mode, indicated by the orange illuminated LED next to the "RETRACT" button, the front jacks can be retracted together by pushing the 'FRONT' button or individually by pressing either the "LEFT" or "RIGHT" button.

When camper has been raised, weight off the hitch, move tow vehicle forward as desired. Now raise or lower front end of camper as needed to level unit.

Switch for operation on these front jacks is on the leveling pad located inside of baggage compartment door near front end, may be on right or left side. For manual override, see page 41.

TRAVELING

Weights

For safety reasons and federal regulations KZRV desires to provide the most accurate weight specifications possible to our new owners. On the exterior left front corner of the coach you will find the Federal "Vehicle Identification Number" sticker. While required by the federal government, this tag supplies much information concerning your coach, such as: VIN number, date/month of manufacture, tire size rating, plus information about weights.

Gross Axle Weight Rating (GAWR): is the value specified as the load carrying capacity of a single axle system, as measured at the tire-ground interfaces. Effective September, 2017, the tires will be

rated 10% higher or more than the axle, becoming the (GAWR) RATING.

Gross Vehicle Weight Rating (GVWR): is the maximum permissible weight of this trailer when fully loaded. It includes all weight at the trailer axle (s) and tongue or pin on Fifth Wheel. This includes ALL cargo, options and liquids.

Unloaded Vehicle Weight (UVW): is the weight of this trailer as manufactured at the factory. It includes all weight at the trailer axle (s) and tongue or pin. If applicable, it also includes full generator fluids, including fuel, engine oil and coolants.

UVW: May vary + or - 5% due to the weight of components used to construct coach portion, such as added options for example.

Cargo Carrying Capacity (CCC): is equal to the GVWR minus each of the following: UVW, full fresh (potable) water weight (including water heater, and full propane weight.

Cargo Carrying Capacity (CCC): To determine how many pounds of personal cargo you may carry, use this formula:

Take GVWR_____> _____
Subtract UVW_____> _____
Subtract weight of options_____> _____
Subtract liquids (water propane)_____> _____
Now equals your personal cargo_____> _____
-

TRAILER WEIGHT INFORMATION —VIN

MANUFACTURED/FABRIQUE KZRV. DATE
GVWR/PNBV. SHIPSEWANA,IN.
GAWR/PNBE
WHEEL/JANTE
COLD INFL.PRESS/PRESS DE GCNFL A FRIOD
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.
FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT
ON THE DATE OF MANUFACTURE SHOWN ABOVE

VIN/NIV NUMBER

Weighing Vehicle (Loaded or Unloaded)

The proper method to weigh the coach is to use a truck scale. Place the coach axles (tires) and tongue jack or landing jacks with front supports, 12" to 24" from the edge. Unhook the tow vehicle and

move forward 6" to 8". Now record total weight. Re-hook the tow vehicle and remove the weight from the front support. Be sure no part of tow vehicle is on the scale. Now record the axle weight only. The difference between the two weights is the hitch weight.

The second sticker is "Trailer Weight Information" located on the inside screen entry door. It again gives you the GVWR plus two other weight information items, and their descriptions.

SAMPLE LABEL

RECREATIONAL VEHICLE TRAILER CARGO CARRYING CAPACITY
V.I.N. 4EZH02495061659
THE WEIGHT OF CARGO SHOULD NEVER EXCEED
 1785 kg or 4725 lbs
CAUTION:
A full load of water equals 452 kg or 996 lbs of cargo @ 1kg/L(8.3lb/gal)

Loading the Trailer—Distribution

Your recreational vehicle has been engineered to make maximum use of the available space for living and storage areas. The equipment and supplies you take along while traveling can be carried safely, provided the additional weight is distributed properly. Proper weight distribution within your trailer is an important factor in safety and efficiency of your trailer brakes, hitching, and how your tow vehicle will pull the trailer. DO NOT put excess weight in the cargo area only. Excessive weight in the trunk area tends to develop sway and "fishtailing" of the trailer.

Lightweight and bulky items such as paper products, bedding, clothing, etc., should be stored in overhead cabinets and closets. Heavy items such as cooking utensils should be placed in lower cabinets. Canned goods need to be in a pantry, if so equipped, or in lower cabinets. Also, heavy items should be secured to avoid shifting during travel.

For best traveling while towing a RV its very important to have the trailer and tow vehicle as level as possible. Actually towing trailer 1" out of level, transfers 100 # of weight from highest end axle to the other axle.

When loading heavy cargo/contents into the rear storage area, you MUST have the stabilizer jacks in "down" position for any vehicle movement for support.

Towing

In towing your trailer or fifth wheel you need to recognize the extra weight behind your vehicle. Below is a list of things which you need to remember while traveling.

1. With the trailer attached you will have slower acceleration and will require more distance to stop.
2. Be sure you have enough area at corners when turning, as wider turns are necessary. Be sure to use your turn signals for your own safety and the safety of others.
3. In passing or changing lanes remember you will need a longer distance to pass.
4. Use your rearview mirrors frequently to observe your trailer and traffic conditions.
5. When being passed by a large truck or bus, be prepared for displaced air as it may cause you to sway slightly, especially travel trailers.
6. When climbing steep, long grades and again while descending, use lower gears even before it seems necessary. Use your brakes smoothly and evenly.
7. Remember to drive more slowly on wet and icy highways to keep control of your vehicle.

	CAUTION
Any damage caused by improper loading or installing additional equipment is NOT covered by KZRV Limited Warranty.	
	CAUTION
DO NOT overload your unit. Please follow the GVWR when loading your KZRV toy hauler to avoid damages.	

TIRES

All KZRV towable coaches are equipped with appropriate tires for recreational vehicles. Tires are rated to carry weight as listed on G.V.W.R. specifications.

Tires are radial in design using components to offer excellent strength and mileage in all kinds of weather conditions.

Tires on your vehicle (s) are one of the most important components of the towing package. Without inflated tires you will not be moving anywhere.

Taking care of your tires during travel is very important. Top of the list is maintaining correct air pressure and secondly is NOT to overload your RV.

With proper care, the performance of fuel economy and handling on the road will be better.

Safety on the road is very important in avoiding road hazards which can damage your tires plus obeying the speed limits.

On the left front, exterior corner of your coach, you will find the (VIN) label along with a placard (shown below) supplying information such as tire size and required amount of air pressure (maximum).

TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSIONDES PNEUS A FROID
FRONT AVANT		
REAR ARRIERE		
SPARE DESECOURS		

Both placards and certification labels are permanently attached to the trailer on the left front corner of exterior and easily readable from the outside of vehicle.

Due to weather elements, these labels may fade over time. You may wish to record this information and keep it on inside of coach, perhaps with the owner's manual.

Safety First-Basic Tire Maintenance

Properly maintained tires improve the steering, stopping, traction, and load carrying capability of your vehicle. **Under inflated tires and overloaded vehicles are the major cause of tire failure**

Understanding Tire Pressure and Load Limits

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure—measured in pounds per square inch (psi) - a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

The listed amount is for maximum load capacity. When traveling with less than full weight, you may wish to reduce air pressure 5 to 10 pounds for smoother ride.

While driving, your tires will get warmer, causing air pressure to increase. To get an accurate pressure reading, you must allow tires to cool for three (3) hours.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold, does not relate to the outside temperature.

After driving with your RV and suspect underinflated tires, inflate up to specs. Recheck air pressure after 3 hour cool down.

Tire Size

To maintain tire safety, purchase new tires that are the same size and load rating as the vehicle's original tires. Look at the tire information placards or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer. NEVER install tires that are rated lower in capacity than original tires.

Tire Tread

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in tread wear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in

the bottom of the tread grooves. When they appear “even” with the outside of the tread, it is time to replace your tires.

Tire Balance and Wheel Alignment

Tires are not balanced on your unit, nor is it required. You may choose to balance the tires on your unit, however this will not be covered under warranty.

Wheel alignments may be required periodically due to road hazards, such as pot holes, etc. This also is not covered by warranty, as it is beyond control of manufacture. Wheel and axle alignments will assist with getting the maximum life from your tires. Alignments require special equipment and trained technicians.

Tire Repair

Most tires can be repaired from punctures, depending on size and location. More information on repairing tires may be found in the maintenance manual.

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 in the tire under normal driving conditions.

TIRE SPEED RATING

Each original tire installed on KZRV recreational vehicles have a speed rating of 75 MPH or greater.

Please note maximum load rating, tire pressure, and speed rating as imprinted on the side wall of tire.

Beginning in 2017 model year, your tires may have NITROGEN in them instead of air. The green caps on tire stems indicate that contents are nitrogen.

Vehicle Load Limits

Determining the load limits of a vehicle includes more than understanding the load limits of the tires alone.

The GAWR as listed on page 16 includes a total of 5 components, which includes tires. Along side of this rating is the GVWR which

includes the most weight your RV should ever carry or contain. Additional information will be found on page 16

The certification label will indicate the vehicle's gross vehicle weight rating (GVWR). This is the most weight the fully loaded vehicle can weigh and carry. It will also provide the gross axle weight rating (GAWR), the most the axle is allowed to carry. If there are multiple axles, the GAWR of each axle will be provided.

Cargo Capacities

Cargo can be added to the vehicle, up to the maximum weight specified on the placard. In any case, remember, the total weight of a fully loaded vehicle can not exceed the stated GVWR.

Water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the RV before it is loaded with cargo and is not considered part of the disposable cargo load. Water however, is a cargo weight and is treated as such. Remember, water weighs 8 pounds per gallon. Reducing the quantity of water will allow you, the owner, to make choices that fit your travel and camping needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your RV dealer to discuss the weighing methods needed to capture the various weights related to the RV. This would include weights for the following: axles, wheels, hitch or pin and total weight.

How Overloading Affects Your RV and Tires

The results of overloading can have serious consequences for passenger safety. Too much weight on your vehicle's suspension system can cause spring, shock absorber, or brake failure, handling or steering problems, irregular tire wear, tire failure or other damage.

An overloaded vehicle is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. The load a tire will carry safely is a combination of the size of tire, its load range, and corresponding inflation pressure. Excessive loads and/or under inflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate

an excessive amount of heat within the tire. Excessive heat may lead to tire failure.

It is the air pressure that enables a tire to support the load, so proper inflation is critical. Since RVs can be configured and loaded in many ways, air pressures must be determined from actual loads (determined by weighing) and taken from the load and inflation tables provided by the tire manufacturer. These air pressures may differ from those found on the certification label. However, they should never exceed the tire limitation for load or air pressure. If you discover that your tires cannot support the actual weights, the load will need to be reduced.

Tire Safety Tips — Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Note: Tires are warranted by the manufacturer of their respective brand and are to be serviced and warranted by a service center. Contact your dealer for information on service centers for tires.

How to Change a Tire

1. Place blocking under main rail of frame with hydraulic jack on top of blocking in front of front spring hanger, ALWAYS on main rail.
2. Break lug nuts loose before raising coach. DO NOT remove nuts
3. Raise coach with jack until tire is off the ground.
4. Place addition blocking under frame for security support. DO NOT depend fully on jack.
5. Be sure coach is solid and will not move with tire and wheel off.
6. Remove lug nuts when tire is off the ground.
7. Install spare tire and wheel onto hub.
8. Reinstall lugs and tighten firmly.
9. Drop tire and wheel onto ground after removing supports.
10. Now fully tighten and torque lug nuts at 90 to 120 pounds
11. Place all equipment into coach or tow vehicle, blocking and jack.
12. Re-torque wheel after traveling 100 miles.

WHEEL BEARINGS

All wheel bearings are pre-lubricated during assembly of axle beam and brakes.

Your coach may have 'ULTRA LUBE' method of having a grease fitting in the end of each axle spindle. Remove rubber cap and use standard grease gun to place grease into bearings, 6 to 8 shots, if you failed to repack bearings before leaving on trip. DO NOT forget to repack wheel bearings as per maintenance manual when you return home. Grease in your gun probably is NOT correct wheel bearing lubrication.

Wheel Lugs

When the wheels are installed on your recreational vehicle, the lug nuts must be tightened at 90-120 foot pounds of torque. Powder coat painted wheels may require more torque attempts due to thickness of paint. You must re-torque the wheel lugs at 50 and 200 miles. A decal on the wheel may require torque earlier.

After your first trip, check the wheel lugs periodically for safety. The wheel lugs should then be checked after winter storage, before starting a trip or following extensive braking. The size of lug nuts are 13/16 inch and 3/4 inch for chrome nut.

Over torque on wheels is as dangerous as under torque and can damage the wheel.

Brakes – Electrical

Electric brakes on your recreational vehicle are designed to work in conjunction with the hydraulic brakes on your tow vehicle. This means to have the best brake performance on both systems, the trailer and the tow vehicle must perform and operate together. Any attempt to use either brake system alone, tow vehicle or trailer, will cause accelerated wear and damage.

A brake control must be installed in your tow vehicle to activate electric brakes with 12-volt DC power either manually or by foot brake pedal. Electronic type is used most widely. Each brand has their own operating instructions.

Your battery in the tow vehicle is your primary power source to operate the brakes in your towable trailer. Keep your battery and charging system in working operation to ensure available energy when required.

Wiring to operate your brake must be sized correctly in both vehicles, suggesting a minimum of 14 gauge from end to brake assemblies. Wiring is done parallel, never in series. Being parallel, there will be equal voltage at each brake assembly for equal braking capability and performance.

Power from the battery is sent to the controller, the “switch” to provide the correct amount of current to brake assemblies to the coach. As you press harder on brake pedal, more current will flow adding more braking capability.

When applying brakes to stop the trailer WITH FOOT PEDAL, begin pressing slowly to avoid quick and sudden stops, or possible “jack-knife” when SLIPPERY OR WET. Use lower gear ranges to minimize the need of brakes during extended or steep downgrades. Use hand control in special situations, such as slow movement or on icy road conditions. In open position, electric current will flow to brake assemblies activating them.

Your coach has self-adjusting brake assemblies that will correct looseness during operation as they will adjust in forward or backward motion as soon as you start towing the RV.

Breakaway Switch

The breakaway switch is a safety part of your trailer’s electric brake system. The very instant a breakaway occurs, the pull pin which is linked to the tow vehicle is pulled from the switch. The two contacts automatically close sending 12 volt DC power to brake assemblies, therefore activating brake shoes to stop trailer. A 12 volt battery MUST be installed on trailer to power the breakaway switch.

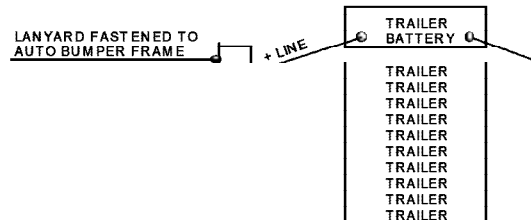
NEVER use this breakaway switch and trailer brake system as a parking brake. There would be a high amp draw on battery and converter, potentially causing damaged wiring, connectors, and breakaway switch plus unnecessary energy draw. When plunger is pulled, there is a constant draw on energy source to the brake assemblies.

CAUTION; Removing plunger with power to brakes could result in damage to brakes.

WARNING: Removing plunger while in storage could result in corrosion of unit points

WARNING; Breakaway device only—DO NOT USE as parking

brake. DO NOT leave pin out for more than 20 minutes as heat will build up.



**SAFETY BREAK-AWAY SWITCH
WILL NOT OPERATE**

Unless connected to a power source equivalent to or greater than an auto-motive type 12 volt, 12 amp hour wet-cell battery.

SETTING UP AND USING YOUR RECREATIONAL VEHICLE

We recommend that you select a level or nearly level place for camping. There are two reasons to be level. First, all components in your coach, such as your water drainage system and especially your refrigerator, are designed to operate in a level position. Second, it is more comfortable to live on the level. Should a level site not be available, use short 2 x 6 inch blocks of wood to raise the low side wheels to a level position.

Now your RV has been parked, leveled and unhooked from tow vehicle, you are ready to set up, occupy, and use the toy hauler. Complete the below listed hook-ups to various attachments as listed.

1. Water hose connections .
2. Sewer hose connections.
3. 120 VAC. Power cord attached to camper and incoming power supply.
4. Turn propane containers valve (s) open and bleed air out of system, done best at top burners of stove. Be fully aware of what propane odor is.
5. Open windows, roof vents, etc. as desired for ventilation.

VENOM CONTROL OPERATION

A current version of computer usage is part of the TOY HAULER line, the VENOM and SIDEWINDER units, which are designed to transport many different types of cargo.

Both Venom and Sidewinder have and use a computer control system to operate portions of equipment used in coaches. Two different sizes of panels are used and mounted on the interior wall, inside of entrance door.

This board is android based and has five or more items installed and other items are available thru your phone. There are other uses you can operate with your phone beyond coach use.

To turn the computer on, there is a push button switch at the center, bottom of board on the wall mounted panel. It is not identified as a switch.

In the front baggage area, under bedroom or living room, are a group of module boards. To operate your system there **MUST** be 12 volt DC power available. Without this power, there will be no operation, either battery or 12 volt convertor. Wire connections are very important as corrosion and electrolysis are constant enemies to electronics. Earlier coaches use a removable boards. Current coaches are not removable but attached to an inner wall.

After 10 to 20 seconds, it will light up with 5 or more items displayed. To have action, press the light to have a given component start to move or start. 12 volt DC. Power from convertor or battery is required to function.

Components covered and operate are: MyRV, awning, lighting, slides, and leveling. Others may be furnace, water heater, water pump and air conditioner.

When powering on or waking UP the system, the MyRV application will run automatically as it is pre-figured to do so. In order for the MyRV application to present the operator with the MyRV Control Panel, there **MUST** be power to the coach. This will power the various controllers located through out the unit. Please note that with power to the coach, the tablet should always be able to gain access to the Control Panel.

It may take 2 to 5 minutes for the tablet and Hub to fully energize and communicate. Please allow this time for the system to establish communications to ensure swift application operations.

For leveling portion, find "ONE CONTROL" decal inside of a cabinet door in same area. Follow the instructions on this decal to level your coach.

Both of these models have the option of either 4 or 6 point leveling system installed when new. Each system will have an instruction sheet installed on the inside of right front baggage door.

Sidewinder models will also have this system with 12 volt DC power supplied by convertor, auxiliary battery, or power from tow vehicle. Venom coaches will have hydraulic leveling system as main source of operation.

When below 30 degrees, the cold will affect the operation of system. Note the yellow sticker below the operation sticker.

Additional information is found in the LCI computer system.

General Detector Information

As you are confined in a RV which is much smaller than a standard house, you must realize safety detectors will be activated much sooner than in a residential house, due to there being much less air volume.

Three safety detectors have been placed inside of your RV, for your safety and protection, fire extinguisher, propane/co detector, and smoke alarm.

TEST SAFETY ALARM OPERATION AFTER VEHICLE HAS BEEN IN STORAGE, BEFORE EACH TRIP, AND AT LEAST ONCE PER WEEK DURING USE.

SAFETY DETECTORS—3 Total

FIRE EXTINGUISHER-1

A fire extinguisher is installed in each vehicle and is located near the entrance door inside. Be familiar with it's location and operating instructions as printed on extinguisher. Inspect your fire extinguisher at least two times per year or more often, as instructed on the

extinguisher. A second extinguisher will be in cargo area.

PROPANE /CARBON MONOXIDE DETECTOR—2

Any recreational vehicle which contains a propane fuel system with propane consuming appliances requires a propane leak detection device for safety protection. Currently this detector also serves as a carbon monoxide detector as a combination protection device. A converter or auxiliary battery is required to supply 12-volt DC energy to operate the leak detector. There is no master cut-off switch to disengage detector or fuse attached.

OPERATION

When the unit is first powered up, the CO sensor requires a ten (10) minute initial warm-up period to clean the sensor element and achieve stabilization. The GREEN LED indicator will flash on and off during the 10 minute warm-up period. This unit cannot go into a CO alarm during the warm-up period. To test your unit during the warm-up period, press the test button. See Test Procedure in this manual. After the warm-up period, the GREEN power ON indicator should glow continuously, if the ON indicator light does not light, see the section, **Trouble-Shooting Guide**, in manufacture supplied manual for further information. **Do not attempt to fix it yourself.**

Gas Alarm: When you power the alarm, it has a warm-up period of approximately 1 minute. This unit cannot go into a gas alarm during the warm-up period. After 1 minute the alarm can detect explosive gas.

Simultaneous Protection– Because the risk of a propane gas explosion is generally a more serious danger, your alarm unit gives the gas alarm a higher priority during simultaneous alarm condition.

If your unit generates alarms for both Gas and CO at the same time, the gas LED will flash red and the beeper will sound. The CO LED will be a solid Red until the CO is ventilated out of the RV, at which time the LED will return to the Green operational/safe color.

Brownout Protection– The unit can tolerate short power interruptions and brownouts where the circuit voltage drops as low as 1 VDC. If the brownout lasts too long the unit will reset and operate as described above.

LOW POWER OPERATION

This alarm will operate normally down to 7 VDC. Do not operate this alarm below 7 VDC.

VISUAL AND AUDIBLE ALARM SIGNALS

This SAFE-ALERT™ CO/Propane Gas Alarm is designed to be easy to operate. The alarm has two indicator lights that display a specific color for each monitored condition. There also is a matching sound pattern for alarm conditions.

CO ALARM

The Red CO LED will flash and the alarm will sound 4 “BEEPS” then silent for 5 seconds. These signals indicates that the CO level is over 35 ppm. **IMMEDIATE ACTION IS REQUIRED.** See **Procedures To Take During An Alarm.** This cycle will continue until the TEST/Mute button on the front of the alarm is pressed. Ventilate the RV. The RED light will stay ON until the CO has cleared, or the alarm will reactivate in approximately 6 minutes if the CO is still present. DO NOT RE-ENTER THE RV. This alarm will return to normal operation after the RV's properly ventilated.

PROPANE GAS ALARM

The RED LED will flash and the alarm will sound a steady tone whenever a dangerous level of propane or methane gas is detected. **IMMEDIATE ACTION IS REQUIRED.** See **Procedures To Take During A Gas Alarm.** The detector will continue to alarm until the Test/Mute switch on the front of the alarm is pressed. Ventilate the RV. The RED Gas LED will continue to flash until the gas has cleared, or the gas alarm will reactivate in approximately 5 minutes if the gas is still present. DO NOT RE-ENTER THE RV. This alarm will return to normal operation after the RV is properly ventilated.

MALFUNCTION/SERVICE SIGNAL– If any malfunction is detected, the Gas LED will remain off and the Operational/CO LED will alternate Red/Green and the alarm will sound once every 15 seconds. Press the Test/Mute button. If the Test/Mute button does not clear signals, check the battery voltage. **If the battery voltage is not low and the unit will not return to normal operation, immediately remove the alarm and return for service or warranty replacement.** See the warranty section in this manual.

<u>OPERATION SIGNAL</u>	<u>AUDIBLE SIGNAL</u>	<u>VISUAL</u>
NORMAL	NONE	STEADY GREEN
CO ALARM	4 "BEEPS" 5 SECONDS	STEADY/RED
PROPANE ALARM	CONSTANT	FLASHING RED
ALARM MALFUNCTION	'BEEP EVERY 30 SECONDS	ALTERNATING RED/GREEN
END OF LIFE	BEEP EVERY 30 SECONDS	RED/RED GREEN/GREEN FLASHING

End of Life Signal—5 Year Service Life

All 35 series models include an End of Life (EOL) signal indicating the sensor has reached the end of it's service life and you **MUST** replace the alarm. The signal is the LED flashing RED RED GREEN GREEN with a beep every 25-30 seconds. The EOL signal may be reset by pushing TEST/RESET button on the alarm. This will reset the EOL signal for a period of 72 hours (3 days) for a total of up to 30 days. After 30 days the signal cannot be reset and alarm **MUST** be replaced. **DO NOT DISCONNECT THE ALARM UNTIL YOU HAVE A REPLACEMENT ALARM AVAILABLE TO INSTALL.**

WHAT IS CARBON MONOXIDE?

Carbon Monoxide (CO) is a highly poisonous gas which is released when fuels are burnt. It is invisible, has no smell and is therefore very difficult to detect with the human senses. Under normal conditions, in a room where fuel burning appliances are well maintained and correctly ventilated, the amount of carbon monoxide released into the room by appliances is not dangerous. These fuels include: wood, coal, charcoal, oil, natural gas, gasoline, kerosene, and propane. Such gases can build up in the blood interfering with the body's ability to supply oxygen to itself.

SMOKE ALARM-3



WARNING

Test smoke alarm operation after vehicle has been in storage, before each trip, and at least once per week during use. Failure to comply may result in serious injury.

Smoke alarms are required when propane is in coach and open flame cooking happens. Alarm is placed on ceiling between bed room and kitchen.

Energy to operate is supplied by a 9 volt battery inside of alarm.

Be sure to remove the battery protector from this device without a good battery your alarm will not operate.

CAUTION: Before using the “mute” feature, identify the source of smoke and be certain that safe conditions exist.

- ◆ **Testing:** Test the alarm by pushing the test button on the smoke alarm cover for at least three seconds, until the alarm sounds. The alarm sounds if all electronic circuitry, horn and battery are working. If no alarm sounds, the unit has a defective battery (replace) or other failure and alarm should be replaced immediately.
- Test each smoke alarm weekly to be sure it is installed correctly and operates properly.
- Test smoke alarms upon returning from vacation. Also test when no one has been in the RV for several days.
- Stand at arm's length from the smoke alarm when testing. The alarm horn is loud to alert you to an emergency. The alarm horn may be harmful to your hearing.
- The test button accurately tests all functions. Never use an open flame from a match or lighter to test this smoke alarm. You may ignite and set fire to the smoke alarm and your home.
- **MOBILE HOME AND RV LOCATIONS– TEST SMOKE ALARM OPERATION AFTER VEHICLE HAS BEEN IN STORAGE, BEFORE EACH TRIP, AND AT LEAST ONCE PER WEEK DURING USE.**

Each of these detectors has it's own manual and instructions, providing more information for it's use.

Steps (Two or Three)

Before entering your recreational vehicle place your hand in the center bar of the step assembly. Pull the step outwards. The step assembly will raise slightly and then out, away from the coach. The lower step will unfold 180° to useable position. The arm on the step will meet a positive stop.

Option Step

This style step is not a fold out type, it's one unit attached to the floor with screws, inside of the entrance door in vertical position, like a stairway. To use step, release the strap and latch system, pull step out, lower until it reaches the ground. When placing step into storage or transport position, pick up bottom step, raise into door opening, and latch step with the strap and latch system which is attached to the wall. Step must be latched to prevent step from moving and causing damage while traveling.



CAUTION

Be careful to not drop step assembly on someone's foot.

On units with entrance doors in the slide out, you will find a switch in battery compartment to operate the slide out before you open the entrance door and lower the step assembly.

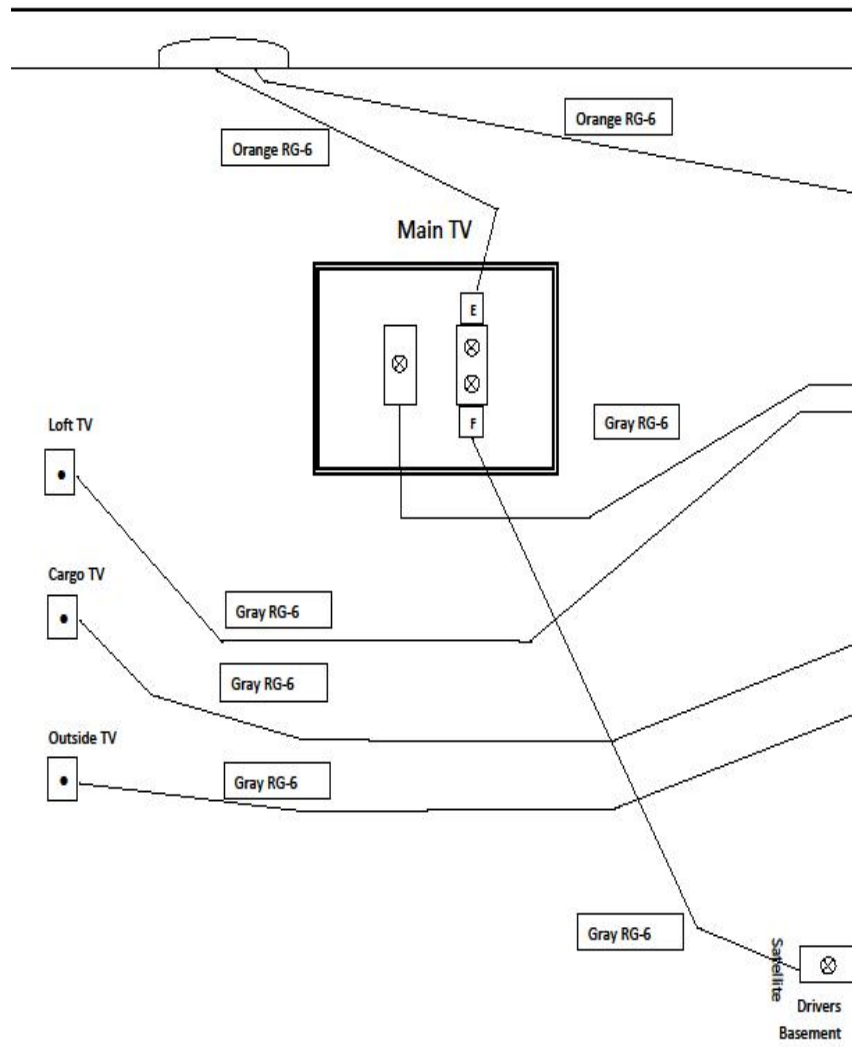
Step care, maintenance and lubrication information will be found in Chapter one in the Maintenance Manual.



CAUTION

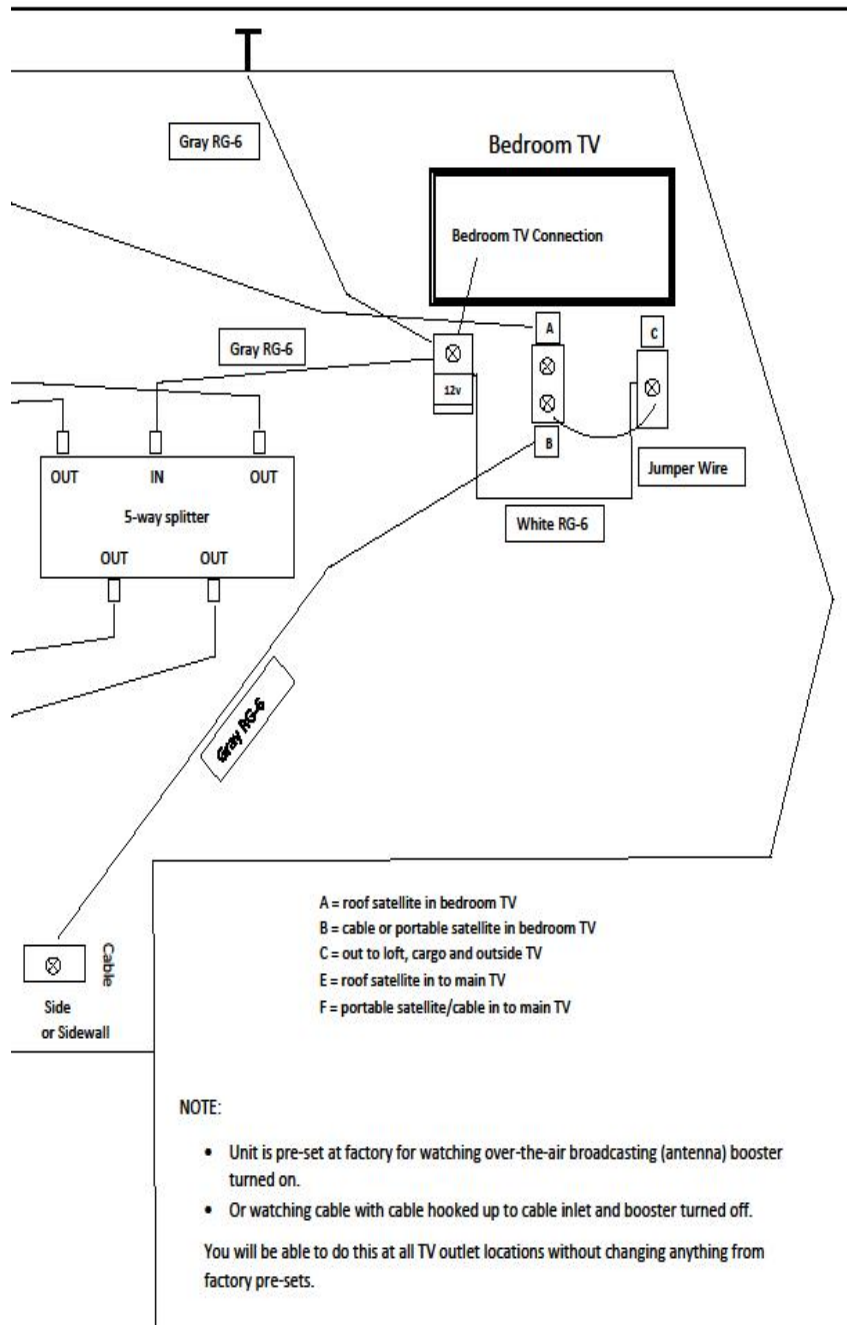
After lubrication, be sure no lubricant is remaining on step, causing a person to slip.

Windows may have crank operation or slider movement. It is very important to turn crank assembly tight for travel time. Egress windows have an unlocking handle or two small hinged clips on each side. After unlatching, the panel will swing out on a top hinge. On some egress windows screens are attached to swing out panel of window.



Optional Instructions

- For connecting portable satellite:
Your signal will be coming in through "F" for Main TV and can be routed through coax connection to "B" in bedroom, if needed.
- For rooftop satellite:
Signal will be coming in through "A" in bedroom & "E" in main TV.
- For sending optional signal from bedroom device to rest of outlets, hook up from your coax device to outlet "C" (booster must be turned off)



Doors

Locks on entrance doors have two lock mechanisms, a deadbolt in the frame section of lock and a standard lock in the handle. Both locks use the same key. Front door has a friction hinge, and rear door does not. Front door needs to be moved with some pressure. Doors now have only one key for ALL doors, baggage included.

Screen doors may have two types of latches. First, a "roller" latch and secondly, a "hook" latch which needs to be tripped to open. Locks on trunk doors need a small quantity of silicone lubricant sprayed internally two times per year to keep functioning correctly.

TV Antenna— Rotating Head

On the roof is a standard antenna for TV reception, will rotate 180 degrees in either direction to a full 360 degrees.

Inside of antenna head is a module that requires 12 volt DC power to activate the amplifier to increase signal. With out 12 volt power, it will not activate amplifier.

A power supply is located on sidewall or ceiling inside of coach, near the TV. A push button switch must be turned on and a light will shine, indicating 12 volt power is present. A coax wire is attached to antenna underneath, not visible and goes from power supply to roof antenna and returns signal to the TV set.

To rotate antenna, press white button on side of knob, hold and move antenna slowly, until you view the best picture with TV on.

When using cable signal, BE SURE to turn 12 volt Power off at the power supply.

To test system;

1. Make sure the TV is working properly.
- 2, Switch the power supply ON and OFF to see if there is a difference in the picture quality while watching TV. If NO difference, test for 12 volt power at the cable on the roof top.



CAUTION

The power supply should be turned OFF when connecting/disconnecting cables to power supply and antenna, but should be turned ON when testing for voltage.

Toy Hauler Series

The Toy Hauler series RVs, (referred to as “toy haulers”) offer numerous opportunities to transport your “toys” within permitted weight limits. The front end is a fully equipped RV with rear portion available for additional items. Some models have optional, fold down bunk, bed/sofa combinations, or power bed lifts, allowing space to transport other items on floor level in rear portion

KZRV does not restrict what cargo you choose to carry providing weight limits and capacities are not exceeded and distribution of weight is performed as listed in this manual. Overloading will affect warranty coverage plus handling issues.

A reasonable principle in loading your coach is for every two pounds of weight loaded in front of axles, one pound must be loaded behind axles. Also remember, improper side to side loading affects spring condition, plus sway. In toy haulers, loading will be slightly different. You may place 40% of cargo in the rear space. The other 60% your cargo needs to be distributed as specified in first sentence. Uncalculated weight can and will affect road performance.

Items in cargo area **MUST** be secured and/or loaded on the floor as close to the axle as possible. Store only light weight items in over head cabinets. Unsecured items in rear will bounce, shift and move around.

When loading heavy cargo/contents into storage area, you **MUST** have stabilizer jacks in down position in the rear, supporting position for any heavy item being loaded.

Any two wheel items such as bicycles or motorcycles, will require additional support for the front wheel, such as a “wheel chock”. Any such stabilizer item as a wheel chock **MUST** be installed per manufacture’s instructions.



CAUTION

The tie downs provided are for general purpose use (rating 500 lbs each). The transport of certain types of cargo (motorcycles, bikes, etc.), may require additional accessories for secure transport. Please refer to owners manuals or contact the manufactures of these specific items for more information.

INTERIOR, CARGO AREA

With internal combustion engines stored inside of cargo area, your living space has restricted use. Fumes from gasoline in engines are hazardous to your respiratory system in humans and pets. After removing vehicles containing gasoline fumes, ventilation is required, before occupying the recreational vehicle. Two vents are located in cargo area, one on each side, which **MUST** be open at least 2 hours before occupying your camper. Opening any windows will also help.

Fuel in Cargo Area

To reduce the risk of fire, explosion or asphyxiation:

1. DO NOT allow passengers to ride inside the internal combustion engine storage area while vehicles are present.
2. Doors and windows in the walls between the storage area and living quarters are to be closed while vehicles are present.
3. Run fuel out of engine carburetor after shutting off fuel at the supply tank.
4. DO NOT store or transport supplementary fuel within this vehicle.
5. Ventilate the interior of the vehicle to reduce the risk of fire, explosion or asphyxiation.
6. DO NOT operate gas appliances, pilot lights or electrical equipment when motorized vehicle or motorized equipment are inside the RV vehicle.



DANGER

Any motorized vehicle or any motorized equipment powered with flammable liquid can cause fire, explosion, or asphyxiation if stored or transported within the recreational vehicle. To reduce the risk of fire, explosion, or asphyxiation:

1. Passengers shall not ride in the vehicle storage area while vehicles are present.
2. Occupants shall not sleep in the vehicle storage area while vehicles are present.
3. Doors and windows in walls of separation (if installed) are to be closed while the vehicles are present.
4. Fuel shall run out of engine of stored vehicles after shutting off fuel at the tank.
5. Motor fuel shall not be stored or transported inside this vehicle.
6. the vehicle storage area shall be ventilated.
7. Propane appliances, pilot lights, or electrical shall not be operated when motorized vehicles or motorized equipment are inside vehicle.

FAILURE TO COMPLY COULD RESULT IN AN INCREASED RISK OF FIRE, EXPLOSION OR AS-PHYXIATION, DEATH OR SERIOUS INJURY.

DANGER

NO SMOKING. BEFORE DISPENSING FUEL, TURN OFF ALL ENGINES, FUEL-BURNING APPLIANCES, AND THEIR IGNITORS. DO NOT DISPENSE FUEL WITHIN 20 FEET OF AN IGNITION SOURCE. FAILURE TO COMPLY COULD RESULT IN FIRE, DEATH, OR SERIOUS INJURY.

**CAUTION
GASOLINE ONLY
MAKE SURE ALL PILOT
LIGHTS ARE OFF BEFORE
FILLING GAS TANK**

Fuel Cell

The fuel cell system was developed for each owner to carry gasoline in a tank or tanks (2) installed under the frame between two special cross members welded to frame. The tank is attached to the frame members with # 5 grade bolts and nuts. Fuel in the rear tank will supply gasoline for any toys having a gasoline engine. Rear tank will have a pump, hose and discharge nozzle. Hose and nozzle will be in a caged compartment, under the floor and attached to main rail of frame. Front tank (if equipped) is for generator.

Power for pump is supplied by a 12 VDC converter and/or battery when 120 VAC is not available. It is fused through the 12 volt panel in the load center. Red wire is positive and black wire is negative.

Above the tank is a 4" x 6" compartment door in front or just behind gas fill, located on sidewall. Inside is the fuel gauge, one switch to turn fuel pump on or off, (upper) and lower is a slide switch to show amount of fuel in each tank.

A timer is also installed to be sure pump is off or it will shut off within 5 minutes. Instructions are on lower part of compartment.

All required hoses, along with vents are installed. Place nozzle into tank of engine and squeeze handle to release fuel. DO NOT run pump more than 3 minutes with nozzle closed. Pump life will be reduced.

DO NOT fill tank on RV over 90% of tank volume.



WARNING

The nozzle DOES NOT have a “fill automatic shutoff” on it.

GENERATOR

With generator or generator prep, you will have the second tank along with a “Vapor control center”, plus hoses mounted on either side of tank. All lines must be hooked up for complete operation, these items are for generator only.

When your coach has dual fuel tanks, the gauge on the panel will not be “on” or showing quantity, unless generator is running. With one fuel tank, gauge will show quantity without operating the generator.

Your generator may require priming. Hold the “start/stop” button down until the light comes on. Attempt to start the generator. Repeat the priming operation until generator starts successfully.

SLIDE-OUT SYSTEMS

KZRV builds coaches on frames supplied by several manufacturers using different slide systems and components. All slide-outs are operated through 12 volt D.C. power or manual movement. Power is supplied by convertor requiring 120 volt A.C. power to pump fluid through hydraulic system. Auxiliary battery will be required to operate MyRV system, which is a dealer add-on.

KZRV does NOT require or suggest blocking, supports, jacks, etc., to be used under any slide outs during extended normal use. By placing supports under floor, you may disturb water seals on sides and roof

Three types of slides are used on KZ products:

1. Hydraulic on main floor.
2. Bedroom: (a) Schwintec and (b) Floor mounted.



WARNING

- ◆ Always make sure that the trailer is level before operating the slide-out room.
 - ◆ Always make sure there are no obstructions blocking the path of the room when it is moving.
 - ◆ Always make sure that the room path is clear of people and objects before operating.
 - ◆ Always keep away from the slide rails under the coach when the room is in motion.
 - ◆ Always install transit bars for storage and transportation.
- FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

SLIDE OUTS, MAIN FLOOR

The hydraulic system will provide energy to move slides in or out as you desire. Each slide has its own valve with a black knob to turn, 3 to 4 turns will close and open it. Should you wish to move only one slide, close the valve on the other slide.

With all valves open, the slide which is lightest in weight and offers least resistance will move first. Generally, the left valve, door side will be the first slide to move.

Basic components are cylinder, hoses, fittings, and oil inside orange and black lines plus 12 volt DC motor to pump fluid through the lines to make it all happen.

Cylinders are attached to rack and pinion track and to a bracket welded to frame, plus fluid lines.

A 12 volt DC motor is attached to the hydraulic pump, with fluid stored in reservoir until it's time to move slide.

The operation to move slide (s) in or out is contained in tablet as part of the docking system. Follow directions as given by pad.

Always make sure that the slide path is clear of people and objects before operating slide system. Always keep away from slide rails when the room is being moved.

MANUAL OPERATION

The hydraulic slide out system can be operated with an electric drill or screw gun. In the event of electrical failure, use this method of extending or retracting slide. Follow these instructions.

1. Remove protective cover from top of motor.
2. Use a standard hex bit, insert into auxiliary drive device with screw gun ratchet wrench.
3. Insert hex bit into coupler found under protective cover.
4. Run screw gun forward or clockwise and in reverse or counter clockwise for hydraulic operation.

For landing jacks add two more steps:

1. Locate landing gear valve on jack or on valve body.
2. Turn manual override (knurled knob on the thumbscrew style or using an Allen wrench on the Set Screw style) clockwise or to the right looking into the end of the valve approximately 1 1/2 turns. Be careful not to tighten override as over tightening will damage the valve needle.

More information can be found in the Lippert manual.

BEDROOM SLIDE OUT, SCHWINTEC (In wall System)

System is used for ward robe and/or bedroom in front end of VENOM.

System is composed of 4 tracks placed on the outer sidewall of the slide, 2 at the bottom and 2 at the top near roof line. On each side an extrusion is attached to the sidewall with a motor in at the top. A gear is mounted to the motor which will run on the upper track to move slide in or out. Wire harness is along side of extrusion. Both motors are accessible only on the inside.

On the bottom is a roller moving on the track, not in any grooves, to stabilize slide.

Power is supplied by 12 volt DC convertor and/or an auxiliary battery through a module board, located under slide or near the slide in a cabinet.

Switch and module are both placed inside of coach with a two wire harnesses, one going to each motor.

MANUAL OVERRIDE, SCHWINTEC

A. ELECTRIC MANUAL OVERRIDE

1. Locate the circuit board.
2. Press the mode button six times quickly, press a 7th time and hold for approximately 5 seconds. The red and green LED lights will begin to flash, confirming the override mode.
3. Release the mode button.
4. Back inside coach use the normal control switch to retract the room.

B. MANUALLY PUSH ROOM IN OR OUT

1. Unplug both motors from circuit board. This releases the motor brake.
2. Push or pull slide room in as desired. Larger rooms may require several persons to push room. Keep both sides even.
3. When room is completely in, plug both motors back into the circuit board to apply brake to travel.
4. Room must be travel locked during travel time.

BEDROOM SLIDE OUT, FLOOR MOUNTED

This assembly is placed and attached to the floor of the front bedroom slide. Two rollers are also attached to side wall at opening point to give ease in slide out movement, in or out. This includes all hardware, motor gears, shafts, track and framework. Switch to operate bedroom slide is in the bed room area.

MANUAL OVERRIDE, BEDROOM SLIDE

Access to move slide when no power is available is under the bed.

1. Remove any and all cargo from under the bed.
2. Pull up plywood panel covering mechanism.
3. Find shaft on front side of gear box. Use 3/4" socket and ratchet to turn shaft in direction you wish to move slide, in or out.

NOTE: Bedroom slide is fully 12 volt DC powered and NOT hydraulic.



WARNING

Stand clear of the room's interior path and verify that the room's exterior path is clear before extending or retracting the room.



CAUTION

When opening slide room, DO NOT over-extend. Fascia board can be distorted, loosened or bent from correct position.



CAUTION

Because operating the slide-out draws up to 15 amp current from the battery, some source of supplemental charging should be operating while extending or retracting the slide-out.

POWER BED (OPTIONAL)

There is a power bed assembly available for the rear cargo area, that is attached to four posts, which are anchored to the sidewalls. This bed is available as a double or single with foam mattresses. The bed assembly can be raised or lowered to any height desired. Power is supplied by a 12 volt DC motor and convertor. Switch is located on the sidewall and fused, 15 amp in distribution board. Weight rating on power bed is 600 pounds, static (stationary) and 450 pounds dynamic (moving).

Available options are:

1. One bed with mattress.
2. Two beds with 2 mattress.
3. Sit-N-Sleep, which is a set of dinette cushions attached to a special frame, mounted onto the power bed. Center cushions will flip over and become back seat for a dinette. In bed position all 4 cushions form into a bed.

Read all warnings concerning sleeping in this area in regards to combustion engines being stored or hauled in cargo area.

INTERIOR

Lofts: (not available in all coaches)

The space up near the roof, above cargo area provides a place for sleeping with a foam mattress. Access is gained with a ladder or steps.

REAR CARGO DOOR

Rear door on Toy Haulers are "Spring-Loaded", also known as having preset and designed springs attached along with hinge assembly. As you lift up or down these springs support most of the weight. A double latch, one on each side ensures tightness when closed. Handle will latch into lock when closed. Lock may be secured with keys.

REAR SCREEN DOOR (OPTIONAL)

A two piece sliding screen door is available to prevent insects from entering and can be installed at a later time. Doors divide in center and each door slides toward outer wall. With screen doors you may leave large outer ramp door down and yet have fresh air avoiding vermin and insects.

A second option is a patio porch attached to the main door plus 2 cables to hold rear door in level position.

Cables can be released to drop door to ground and drive your toys into rear compartment.

A screened patio enclosure is also available for rear door with cables holding cargo door in horizontal position. NOTE: See page 91, 92, & 93 for more information.

ENTERTAINMENT COMPONENTS & TV'S

All radio's, CD's, DVD players, are purchased and arrive with their own operating manuals, some on CD and others with paper manuals. Read them carefully and completely before operating your equipment.

EXTERIOR LADDER

Ladder, as well as roof rack, are provided as an option on most coaches to climb onto roof areas. Ladders are rated to handle 200 lbs. at a time when climbing onto roof.

Exterior ladder on Toy Hauler models are two (2) piece type. Top portion is attached to roof. Lower section is loose, removable, and hooks over outer ring of top part and is supported with (4) four sidewall mounted stands. Be sure to install all (4) four pins. DO NOT attempt to use ladder until it is fully attached to sidewall with (4) four pins.

DO NOT store articles on the ladder during travel. If you do so,

warranty is void on the ladder. Ladder has 200 pound capacity.



CAUTION

While traveling all mini blinds need to be in the “up” position to avoid swinging and scratching paneling, even with brackets installed on bottom of window.



WARNING

- ◆ These individual tassel cards reduce the strangulation hazard in the pull cord by removing the loop.
- ◆ Do not tie the cords together. Check periodically to make sure the cords have not twisted into a loop.
- ◆ This device will not prevent strangulation hazard if young children wrap pull cords around their necks. Always keep cords out of the reach of young children.

UNDER FRAME SPARE TIRE CARRIER

Spare tire is carried underneath frame and attached with a hoist. Use a 3/4 inch socket, extension and ratchet to raise or lower tire and wheel. A crank with 3/4 inch socket end may already be in your coach from another item.

CHAPTER 4 SYSTEMS

WATER AND DRAINAGE PLUMBING

Your KZ recreational vehicle has a complete water system, to carry fresh water, as well as holding tanks for used water. Each group has its own explanation along with its own operation.

FRESH WATER SYSTEM

Tanks

All coaches produced by KZRV have a fresh water supply tank installed. In most models, it's located under the floor, in between frame main rails. It is protected with a cover on the bottom, steel rails on each side. Tank also has an over flow line, smaller than fill line. Over filling tank may cause tank to become pressurized, breaking, leaking, and bending carrier frame, which is NOT a manufacturing defect or covered by warranty.

These tanks are NOT designed to hold pressure. See Caution.



CAUTION

DO NOT leave tank unattended while filling, as an over filled tank will build pressure, causing tank to crack, rupture, and leak or even damaging supports holding it in place.

LIQUID CONTROL CENTER—VENOM

All functions of water movement is controlled by this center, located in left front corner of your coach. There are numerous features in the operation, filling, distributing, plus switch for water pump and T.V. antenna hook-up.

Components listed are:

P—Pump switch to start and stop pump, 12 volt DC.

S—Satellite and cable hook-up.

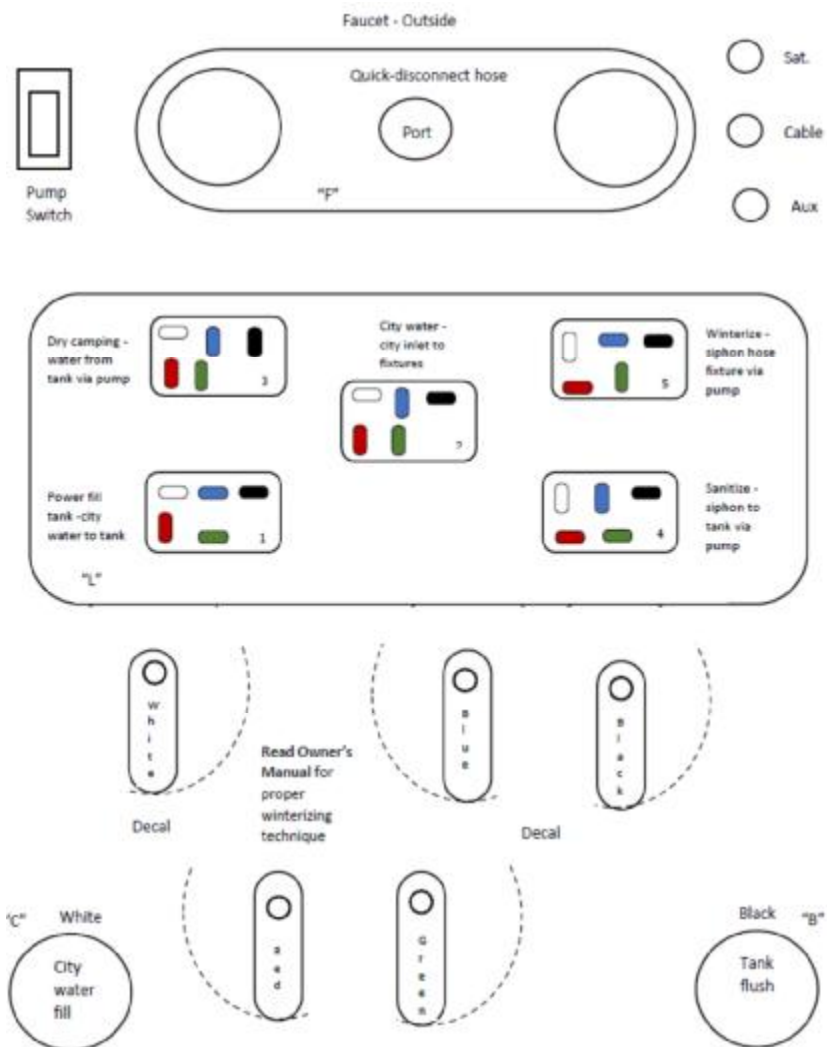
F—Faucet for exterior use as needed with quick connect hose and sprayer.

C—City water fill attaches to your supply hose plus use as a siphon hose application, described later.

B—Black tank flush to be used AFTER black holding tank has been drained to rinse out any left over items.

There is a second 'Black Flush' connection for rear sewer tank

- at the lower right corner of Liquid Control Center.
- L—Main menu to operate the full water system including filling and distributing as desired. Note the 5 VALVES which direction they need to be positioned and/or turned correctly to accomplish your intent on the following diagram and described on page 47.
1. Power fill Storage Tank: Place ALL valves in positions as shown in #1. Your R.V. does NOT have a gravity water fill, so filling the tank occurs in this method only.
- (a) Attach a garden hose to the city connection "C", lower left corner. Open supply faucet and fill tank. You cannot visually see



tank being filled, so use monitor panel as your guide. Tank has an over flow vent line, but much smaller than fill hose. When water begins coming out of overflow line, shut off in coming faucet — IMMEDIATELY.

(b) DO NOT over fill as the plastic tank cannot hold pressure. It will break and leak. **NOT WARRANTY.**



CAUTION

DO NOT leave tank unattended while filling, as an over filled tank will build pressure, causing tank to crack, rupture, and leak or even damaging supports holding it in place.



WARNING

POTABLE WATER ONLY. SANITIZE, FLUSH AND DRAIN BEFORE USING.
SEE INSTRUCTION MANUAL. FAILURE TO COMPLY COULD RESULT IN
DEATH OR SERIOUS INJURY.

2. Hook-up to city water, same as #1 and adjust valves as shown in #2 to fill all water lines, including water heater, as your main source and not using tank

3. You have filled the tank, you are now “dry” camping,(with no city water), move your valves as shown in #3 to draw water from tank. Turn switch at top left corner ON to start pump. 12 volt DC power is required to operate. Pump will run until 40 pounds of pressure is achieved and stop. When pressure drops to 20 pounds, pump will start again.

4. For your safety, you should sanitize the potable water system when your RV is new or when it has been sitting unused for a period of time, such as over winter, as it may have become contaminated. Place the valves as listed in #4. Attach a siphon hose to the city water fill. Take a short garden hose, 4 to 6 foot long, attach a 3/4 inch male connection to hose and leave the other end open. Insert this end into the following listed solution. Start pump to draw liquid into tank and system.

Prepare a chlorine solution using 1/4 cup of bleach (5% sodium hypochlorite solution) to 1 gallon of water. Prepare one gallon of this solution for each 15 gallon capacity of the tank. As designed and constructed, this method will sanitize the plumbing system.

Chlorine smell and taste may not be pleasant. To remove any excess chlorine taste or odor, prepare a solution of one quart vinegar to 5 gallons of water and allow this solution to remain in tank for 3 hours. Operate pump to circulate thru system and drain and flush entire system with fresh water.

5. It's getting cold, winter is coming and you MUST winterize your coach to avoid frozen lines along with the water heater. Place valves as shown in #5. You can now by pass the water heater, use siphon hose as in #4, to place antifreeze into lines. See complete section on winterization on page 57.

**CAUTION**

Excessive pressure from water supply systems may be encountered in some parks, especially in mountain regions. Water pressure regulators are available to protect your system against such high pressure. A regulator at 45 pound rating is recommended to prevent damage to the plumbing system or components.

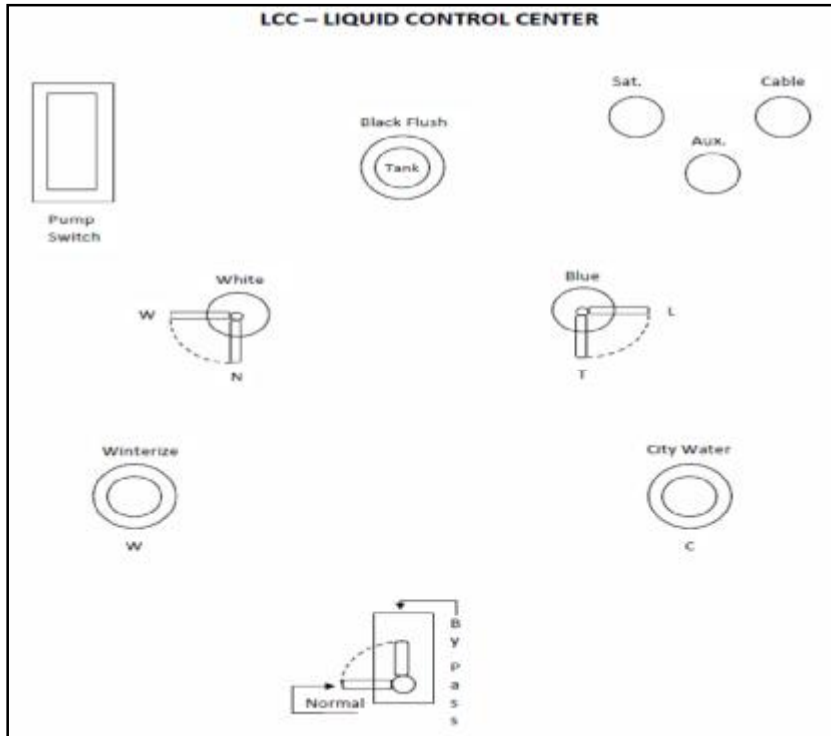
FILLING FRESH WATER SYSTEM—SIDE WINDER

C—Is where you attach a garden hose from a good known water source to fill both supply tank and water lines, referred to as “city water” fill.

W—is where you attach a short hose, 5-6 feet long with a male connector. This is the hose to use to winterize or sanitize your water system.

1. To fill tank, turn BLUE knob to vertical position (down) “T”, white knob and red knob (normal) to normal position.

2. Open supply faucet from garden hose to fill tank. You cannot visually see tank being filled, so use monitor panel as your guide. Tank also has an overflow/vent line but is much smaller than fill hose. When water begins to come out of overflow line, shut off IMMEDIATELY.



DO NOT over fill tank as it is plastic and cannot hold any pressure. It will break and leak, NOT covered as warranty.

You have filled the tank and are now ready to dry camp, 12 volt DC power is required for pump to operate. Pump switch is located at top left corner of panel. Pump will run until 40 lbs. of pressure is achieved and stop. When pressure drops to 20 lbs., pump will restart.

3. To fill lines and water heater, place BLUE knob (valve) to horizontal position "L". and WHITE to "N", normal. Hook up same as #1 and fill all lines. Water heater will fill first and then lines. This will be your main source of water. Open faucets while filling to allow air to escape.

4. For your safety, you should sanitize the potable water system when your RV is new or has been stored for a period of time such as over the winter, as it may become contaminated.

Attach a short hose as listed under "W". Insert the raw end into solution as prepared. Turn pump on to draw solution thru out water system.

5. It's getting cold and winter is coming. You MUST winterize your coach to avoid frozen lines and water heater. Place WHITE knob (valve) in horizontal position, BLUE valve to horizontal, RED valve to vertical position. This takes tank and water heater out of usage. Attach short hose to "W" winterization port and raw end into antifreeze. Start pump to draw antifreeze thru all lines.

In upper right corner of panel, there are connectors for TV connections, both cable and satellite plus an aux. port.

12-Volt Demand Pump

When water is desired and you are not hooked up to city water, your tank will be your supply. On your monitor panel is a switch to turn on the 12-volt demand pump. Energy for the pump is supplied by the auxiliary battery or converter. The pump will self-prime when started, supply water, and continue to run until approximately 40 pounds of pressure is achieved. When pressure drops to 20 pounds, pump will restart. Some cycling in pump may occur. A check valve is built within the pump to prevent water from flowing into the supply tank.

The pump has a small filter attached on the in-port side to prevent any foreign matter to enter the pump. You need to annually or even more often remove the lower cup and clean it out.

When the pump is not being used, turn the 12 volt power off at the switch.

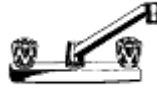
Occasionally your water pump may start/stop quickly, with-in a second, referred to as "cycling". Cause for this noise may be; a faucet open slightly, water saver washer in the end of faucet spout, plus other restrictive issues. If your pump cycles every 10 to 15 minutes there may be a slight water leak somewhere, check valve in city water fill, plumbing fittings, or pressure valve in pump.

Faucets

The basic operation of a faucet is the same as in your home. Open the knobs or raise the single lever. Close faucets when sufficient water volume is achieved. It is normal to experience occasional air pockets in the system.

Bath and Shower

Your bathtub and shower are built with ABS or fiberglass material, similar to those in your home. Shower curtains or doors are provided with the coach and must be used to prevent water from spilling onto the floor, possibly causing damage.



The shower head used in the bathroom has a non-positive shutoff valve and will drip slightly in shut-off position. A vacuum breaker is also built into the faucet to permit water in hose to drain out as a code requirement.

Before beginning your shower be sure the water heater is lit. Adjust the faucet for temperature before entering the tub or shower. When shower is completed be sure to turn water off at the faucet.

Used water will drain through the plumbing pipes into the gray water holding tank. Remember capacities of your water heater and gray water holding tank. Long showers in a recreational vehicle are NOT suggested due to the amount of water that is available. To conserve water, wet down, and turn water off while you soap up, then rinse.

Fresh Water Lines

Two (2) lines, generally red for hot and blue for cold, transport water through out the coach. Valves to direct flow are near the city water fill or pump area. Connector elbows and tees are plastic or copper, and held together with compression rings for no leakage.

LOW--Point Drains

Low-Point drains are placed on recreational vehicles to drain water from lines, tanks, and water heater to prepare coach for winterization and sanitizing systems.

Fresh water supply tanks will have their own separate drains under floor and/or frame, with a valve to be opened to drain, over flow drain line may be close by.

Plumbing lines also have Low-Point drains located in various areas. You may find them (2) for hot and cold coming out of storage areas, outer metal skirt, through under belly covers, control centers etc. Water should always drain out to the ground, not into underbelly cover.

Drainage (Fresh Water)

All permanent fresh water tanks can be drained from low point drains below tank. A turn valve, usually brass is located normally below under belly cover.

To drain the supply lines and the entire system, you need to follow the steps listed below. Locate the valve placed at the floor level or close to the floor, found under the dinette, storage cabinet, and sofa. These valves will be at the "lowest" point of the water lines.

To drain system:

1. Open all faucets including optional exterior shower.
2. Open the fresh water tank drain.
3. Open the water heater drain.
4. Open all (two to four) low-point drains.
5. Open the toilet valve, hold or block if need be.
6. To empty the pump, start and allow to run up to 20 seconds.

Sanitation System

Toilets

Several models of toilets are used on Venom & Sidewinder recreational vehicles. The Aqua Magic "Style Plus" featuring foot pedal for flushing is one of the toilets used.

Prior to using your toilet, be sure to add a proper amount of deodorant chemical into the toilet with water. Flush contents into tank plus two or three gallons of water.

Foot Flush

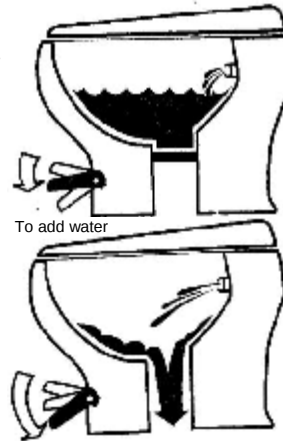
OPERATION: Note the photos on next page showing movement of pedal down toward the nine o'clock position, you will add water to bowl. Push downward further to eight o'clock position to flush contents into waste tank. Release pedal slowly to close flush operation.



Unlike the toilet in your house which uses four to seven gallons of water per flush, a recreational vehicle uses two to three quarts to save water and space. When insufficient water is used during flushing, waste materials may not evacuate properly from drain lines to tank, causing "clogging" in pipe. By keeping 4 to 6 inches of water in toilet during use will help flushing solids into holding tank.

When hooked up to a sewer drain at a camp ground, ALWAYS keep the termination valve CLOSED until the tank is at least 3/4 full. This will provide sufficient water to assist in complete draining of tank.

Manufacturer of toilet, Thetford Corp., offers a complete line of deodorants, chemicals, and other convenience products for your use. Your dealer can assist you with these needs and may already have them in stock.



CAUTION

NEVER leave the gate valve of your coach's sewage tank open when hooked up to a park's sewer system. Open only when you wish to drain system when tank is 75% full or more.



CAUTION

KEEP DRAIN VALVE CLOSED. SEWER GASES MAY BE PRESENT WHEN RV IS CONNECTED TO CAMPGROUND SEWAGE HOOKUP. IF DRAIN VALVE IS OPEN SEWER GASES MAY BE VENTED OUT OF ROOF VENT.
(SEE OWNER'S MANUAL)



CAUTION

It is important to use adequate water to flush and have several gallons of water with chemicals in the tank. This helps the flow of wastes and reduces solid waste build-up.

Vents

A very important part of your sanitation system is the vent system in your coach. These vents release air from holding tanks allowing water to enter. Vent pipes are attached to the holding tank, fed through the cabinet walls and to the roof. On some models a portion of vent pipe may be part of the drainage system referred to as a "wet vent". As air flows upward, water will be draining downward in the same pipe.

Outlet for most vents is the "mushroom" cap located on the roof of your coach.

Holding Tanks

The final parts of your sanitation system are the holding tanks for waste materials and water. These are located below the floor of your coach.

Gray Tank. Waste water from the bath tub, shower and sinks will drain into this container. No special preparation is required, however, you may wish to add baking soda or a Thetford chemical to reduce odors from food particles in the system.

All drain pipes will have a "P-trap" installed into each line. Water in these traps prevent odors from escaping into the coach. During travel, water from the P-traps may spill and permit odors into the coach. These odors come from fats and food particles decomposing in the tank. By adding water and using a RV approved deodorizing agent, contents will dissolve faster, keeping the drain lines and tanks clean and free flowing. These chemicals are available at a RV supply store.

Waste Tank. The toilet drains into the waste or "black" holding tank. For correct preparation follow the listed steps:

1. Release two quarts of water into the toilet bowl.
2. Place the recommended quantity of chemicals for waste holding tank as per instructions on the bottle into the toilet bowl.
3. Flush liquids into the tank and allow up to two gallons of water to flow into the tank.

Each time you drain the tank, you should follow the above instructions before using.

Draining the Tanks

A final part of your sanitation system is the drainage of holding tanks. Realizing dump stations will vary, place the coach as level as possible to make drainage easier. Some tanks drain from the center requiring level or slightly up in front. Others will drain from end

permitting a slight tilting to the side which drains are on.

Remove the cap and attach the adapter onto the valve below coach box. Turn the adapter 10° to lock onto the pegs. Attach a flexible sewer hose to the adapter and secure with a clamp. Place the other end into the approved sewer system.

You may now open the 3 inch sewer drain valve to drain the sewage tank first. Open the valve on the gray water tank last to utilize water to wash and rinse the hose and drain lines.

Most states and parks have strict laws and regulations to prohibit dumping of wastes of any kind into anything other than proper disposal facilities or sewer systems. Almost all privately owned parks have either a central pump facility or offer a campsite hookup for sewage. You can find lists of many dump facilities throughout the United States in *Woodall's*, *Rand McNally Camp Guide*, *Good Sam Camp Guide*, *KOA Kampgrounds Camp Guide*, or various other publications. Some fuel stations also have dump stations.

Maintenance for Holding Tanks

The following maintenance is recommended by our holding tank suppliers to keep your tanks clean and keep the probes free of debris and build-up.

Gray (Waste-Water) Tank. Fill tank with 10-12 gallons of warm water. Add a degreaser such as a citrus cleaner or Dawn dish soap. Leave solution in tank while you are traveling. Rinse and drain tank.

Black (Sewer) Tank. Fill tank with 10-12 gallons of water. Add one bottle of drain cleaner, such as Drano or Liquid Plumber. Leave the solution in tank while traveling. Drain tank and rinse.

Heated Holding Tanks

Heated holding tanks are standard on most models. Placing holes from tank compartment into heat duct, and/or heat duct tubes from furnace directly into heat duct, built into floor, allowing warm airflow throughout tank area,

Winterizing Your Recreational Vehicle

Preparing your trailer for cold weather is very important for most states and Canada. Failure to prepare your coach for cold weather will cause the water systems to freeze resulting in breakage. Damages related to freezing are not covered under the terms of your limited warranty.

There is no By-Pass Kit on water heater as a single item with this

type of Liquid Control System. Follow steps as listed below.

First step is to be sure all your holding tanks have been drained completely.

1. You must drain all water from coach system by opening all drain spigots, low-point, fresh water tank, and faucets to allow air into lines, speeding process up.
2. Drain water heater by removing the anode rod and plug.
3. Start pump and operate until all water has been removed, takes about 10 to 15 seconds.

Two methods may be used to safely protect your water system for cold weather.

Method 1

1. After water has been drained, use an air hose from compressor and an adapter attached to city water fill. In about 3 to 5 minutes all water will be blown out of system.
2. Pour one (1) pint (16 oz.) of non-toxic RV anti-freeze into each P-trap, sinks and bathtub.
3. If you can use air pressure to blow out traps, no antifreeze is needed.

Method 2

1. Drain ALL water lines thru low point drains and water heater.
2. Obtain a 4 to 6 foot hose with male hose connector on one end.
3. *Attach hose onto city water connection at L.C.C.*
4. *Place raw/open end of hose into container with antifreeze.*
5. Close ALL low point drains.
6. *Open ALL faucets*
7. Start pump operation.
8. When antifreeze flows freely thru faucet (s), close them.
9. Pump will shut off at 40 lbs. of pressure.
10. Turn power off to pump.
11. Open ALL faucets to relieve pressure.
12. Be sure there is 1 pint (16 OZ.) of antifreeze in each trap or blow water out of each trap (s).
13. Remove hose and save for use next year.

You will use about 2 to 3 gallons of antifreeze and have no liquid in the water heater.

Using the Water System During Freezing Weather. Your towable RV was not intended to be used during freezing weather unless special precautions are taken. Water freezes at 32° Fahrenheit in campgrounds or at home.

There is no product that can be added to the water to ensure freeze protection when the system is in use, other than RV anti-freeze. DO NOT drink water which contains anti-freeze.

	WARNING
DO NOT use Ethylene Glycol (automotive antifreeze) or Methanol (windshield washer antifreeze) in your fresh water system because they are harmful and may be fatal if swallowed!	

FLUSH SYSTEM:

The flush system is designed and built to rinse waste holding tank AFTER waste tank has been drained completely of water and solids.

Attach a fresh water hose to the connection marked "Sewer Tank Flusher." Be sure termination valves are open on holding tank(s). Open valve to release water into tank for rinsing and cleaning of your waste holding tank.

Rinse for several minutes to remove any foreign matter from tank. Remember the moisture content may give you a false reading on your monitor panel indicating it is full. Allow time to dry out tank or recharge for next usage.

PROPANE FUEL SYSTEM

The fuel system in your recreational vehicle has numerous components such as, piping, copper tubing, brass connectors, hoses, regulators and appliances. Each of these components will be explained in its appropriate area.

Propane is the only fuel permitted to be used in a recreational vehicle and its appliances. This product is refined from crude oil through natural gasses. An agent has been added for detection should a leak occur or a valve accidentally be left open. It is important for a recreational vehicle owner to recognize and identify the smell of propane vapor for his or her safety.

Other fuels are available but CANNOT be used in a RV because;

1. No orifices are available for appliances for either butane or natural gas fuels
2. Butane CANNOT be used below freezing temperature because boiling point is 30 degrees.

Propane fuel is stored in liquid form under high pressure in special containers. Boiling point is (minus) — 44°F, the temperature when vapor ceases to flow. Fuel will change to vapor when released from the container. Appliances are not designed to operate with liquid. Liquid will damage o-rings in valves and also leave sticky, oily residue causing poor or no operation in the regulator.

For every 10 degree increase in temperature, the pressure in container rise's 1.5%. Example—fill at 0 degrees in the north, go south to 80 degrees warmer, you now have container filled at 92%,a potential dangerous problem with 10% valve spiting out propane vapor.

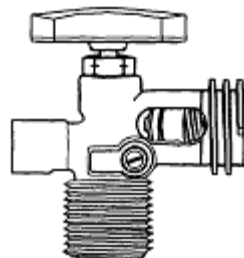
Propane Container

The propane cylinder is an D.O.T. approved container to hold liquid under high pressure, normally a 20 or 30 pound capacity.

The open/closing valve, referred to as an OPD cylinder valve, is to be closed at all times unless hooked up to a propane system or when filling the container.

Valve assembly actually has 3 valves in one body.

OPD Cylinder Valve



1. Main pass thru portion to fill or draw propane from, controlled by upper 3-sided knob
 2. 10 % valve is a small screw on the side of main body, allows any air to be released and indicates when container is filled to capacity at 80 %.
 3. Incoming positive seal valve MUST be pushed inward with nozzle to fill or by POL fitting to draw vapor out for appliance use.
- On the bottom/inside is the float (not visible) which closes when 80% of capacity has been reached. This permits expansion space in tank when temperature rises. See section on main hose.

At any point a container is disconnected, BE SURE to install the "dust cap" over the OPD valve (if so equipped).

Whenever the container is detached from the propane system, DO NOT allow the cylinder to move or roll around during transportation to and from the gas supplier.



WARNING

A warning label has been located near the propane container. This label reads as follows:

DO NOT FILL CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY.

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

Servicing and Filling Propane Containers

Filling a propane container must be done carefully and correctly. Only a qualified person, properly trained on inspection, filling, and safety procedures, should fill containers.

A new container MUST be "purged" before placing into service and MUST NEVER BE OVERFILLED. Purging is an operation performed by your dealer or propane agency to remove any atmospheric air.

When refilling propane containers, they are generally removed from propane compartment or tie downs. BE SURE to reinstall them correctly, as shown in installation instructions, and test for leaks.

When propane containers are filled to 80% level there is available space for safe expansion of the vaporized liquid. Should your container become slightly overfilled, pressure may rise due to hot sun. It could cause the overflow valve to “blow-off” and emit a small quantity of propane vapor. This can be detected by a strong odor around tanks. Keep open flames away from this area. It is best to remove the bottle, take it to a safe area, and “burn-off” the excess pressure by using a torch designed for this function.

When disconnecting propane containers, you must turn the ACME fitting in a clockwise direction because left-hand threads are utilized. When reconnecting, turn connections counterclockwise. Connections must be tight, however DO NOT over-tighten.

A warning label has been located near the propane container.

 WARNING
Never smoke during the filling of propane tanks. Keep the recreational vehicle away from immediate filling area when possible or extinguish all gas pilots.
 CAUTION
DO NOT use tools to open or close the tank valve. HAND TIGHTEN ONLY to avoid damage to the valve or handle.

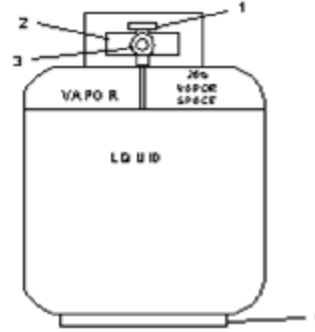
Installing Propane Containers

KZ recreational vehicles are equipped with 20 or 30 pound propane containers, depending on floor plan models.

Mounting and attaching instructions are listed below:

1. Thread the long rod into the base plate.
2. Set both bottles into place.
3. Drop the double hook bracket over the rod and hook onto the bottle.
4. Attach the wing-nut to hold the bracket and tighten to hold the bottle to the plate.
5. Attach the regulator with the vent down to the bracket.
6. Attach the main hose from the regulator to the manifold fitting in the frame.
7. Attach two short pigtail hoses to the regulator and bottles at the ACME fitting.
8. Test all propane connections for leakage.

1. Knob to open and close main valve.
2. Complete valve assembly.
3. "10% valve", (small brass knob or slot screw).
4. Container mounting stand.



WARNING

Your vehicle has exterior combustion air inlets. Appliance pilot lights should be turned off during gasoline or propane refueling. (Required by law in some states.)



CAUTION

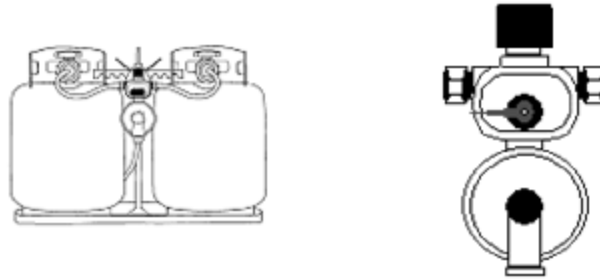
THIS GAS PIPING SYSTEM IS DESIGNED FOR USE WITH PROPANE ONLY. DO NOT CONNECT NATURAL GAS TO THIS SYSTEM.

Securely cap inlet when not connected for use. After turning on gas, except after normal cylinder replacement, test gas piping and connections to appliances for leakage with soapy water or bubble solution. Do not use products that contain ammonia or chlorine.

**ALL GAS LINES HAVE BEEN
CHECKED WITH AIR PRESSURE.
DEALERS ARE REQUIRED TO
RECHECK BEFORE DELIVERY
TO RETAIL CUSTOMERS.**

To remove the propane containers for refilling:

1. Remove the bottle covers (if used).
2. Close the main valve on the container.
3. Remove the two hoses at the OPD /ACME connection.
4. Install the rubber cap over the valve connection (if equipped).
5. Remove /loosen the wing nut holding the clamp hook.
6. Remove the clamp hook.
7. Fill the bottle and reverse the procedure to install. Test all connections for leakage.



Regulator

Propane regulators must always be installed with the regulator vent facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage that could result in regulator not being able to breathe and to operate.

The regulator has the only moving components in the propane system. It's sole function is to reduce the high and varied pressure from the propane containers to safe and consistent low operating pressure. The small inlet is the first stage, which reduces the container pressure to 10-13 pounds.

The second stage then reduces the 10-13 pound pressure to an operating pressure of 11 inches w.c. (water column) or 6.35 ounces of outlet pressure to your appliances. The second stage is adjustable and may need to be adjusted for precise operation. We suggest this to be normal maintenance and performed once per year. Do not attempt to make this adjustment without a manometer or a u-tube gauge. This instrument is required to read actual pressure.

If pressure is too high, it affects performance and safety. Should pressure be too low, appliances will not operate correctly. An authorized technician with proper equipment should perform such tests and adjustments, as may be required.

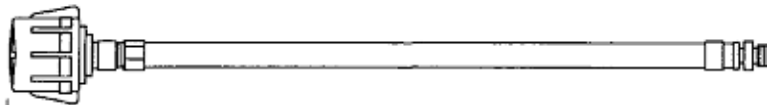
The main type of regulator used is the "automatic" two stage regulator, used on larger coaches (optional on smaller coaches). With both cylinders full of propane, turn the lever on the regulator towards the cylinder you wish to use first. This will now be the "supply" cylinder and the other "reserve". Slowly open both cylinder valves.

The indicator on top of the regulator will turn bright green. When the cylinder becomes empty the indicator will change to bright orange or red. Now turn the lever to the side of the full bottle and the green signal will return. You may now remove the empty bottle to have it refilled without interrupting the flow from the full bottle. After filling the cylinder, connect the pigtail hose and slowly open the bottle valve. Do not forget to check for leakage each time you refill cylinder or disconnect any part on the propane system.

High Pressure Hoses with Acme Connectors

Propane leaves the container through a hose with an ACME connector attached to the bottle, also having a “flow-limiting device”, designed to sense **excessive** flow. Two functions from this device: (1) Should the container valve be opened too quickly, this device can close, stopping the flow of propane. (2) Should there be a rupture in any propane line, it will reduce the flow to a maximum of 10 (SCFH) Standard Cubic Feet per Hour.

The valve will equalize normal flow in about 5 seconds, generally not noticeable.



Main Supply Hose – Low Pressure

The main supply hose will be attached from the regulator to the brass manifold fitting in the frame of the coach. The swivel brass nut on the main hose will be your final attachment.



3/8" MPT x 1/2" Female
Flare Swivel

Should you experience a gas “freeze-up”, close the main valve and wait 15 minutes before trying again.

Keep the container valve (s) closed when traveling. Some states prohibit traveling with the propane container valves open, especially in underground tunnels on expressways.

Operation

After the camper is completely set up and you are prepared for camping enjoyment, follow these steps for propane operation.

1. Be sure ALL burner valves, controls, and pilot light valves are closed.
2. Open main valve on propane container slowly to avoid a fast rush through excess flow valve causing “propane freeze”.

3. Listen carefully as gas begins to flow. If a “hissing” sound is heard for more than one or two seconds, close valve and search for a potential leak.
4. Light appliances as needed and directed in Chapter Five - Appliances.



DANGER

DO NOT USE COOKING APPLIANCES FOR COMFORT HEATING.

CAN LEAD TO CARBON MONOXIDE POISONING.

PROPANE COOKING APPLIANCES NEED FRESH AIR FOR SAFE OPERATION.

BEFORE OPERATING, OPEN VENTS AND WINDOWS SLIGHTLY AND TURN EXHAUST FAN ON PRIOR TO USING COOKING APPLIANCES.

PROPANE FLAMES CONSUME OXYGEN WHICH SHOULD BE REPLACED TO ENSURE PROPER COMBUSTION.

IMPROPER USE CAN RESULT IN DEATH OR SERIOUS INJURY.



DANGER

ALL PILOT LIGHTS, APPLIANCES, AND THEIR IGNITORS (SEE OPERATING INSTRUCTIONS) SHALL BE TURNED OFF BEFORE REFUELING OR FUEL TANKS AND/OR PROPANE CONTAINERS. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

Checking for Leaks

The entire propane distribution system and appliances have gone through complete factory and dealer tests for any leakage. When traveling with your RV, normal vibrations and road movement may cause connections to loosen and develop leaks.

For normal maintenance we advise all owners to test for leakage at least once per year or more often. You may request your dealer to perform a maintenance check each spring.

Should you encounter an odor, possibly propane, turn off any and all open flames and begin a systematic search for leaks on the complete gas system. NEVER USE A MATCH. Use a soapy water solution which contains NO AMMONIA, or CHLORINE content to check for leaks. If a leak is identified, bubbles will appear. ALWAYS use two wrenches when tightening brass connections to prevent twisting of copper.

For your own protection, the preceding warning label, see page 65, has been placed near the cooking area to remind you of the need of oxygen for combustion and breathing. Due to smaller area in your recreational vehicle, there is less oxygen than in your home. Proper ventilation is required when cooking.

It is especially important that cooking appliances **not be used for comfort heating**, as the danger of asphyxiation and unsafe levels of carbon monoxide are greater when the appliance is used for long periods of time.

CAUTION

If you have double bottles and a standard regulator on your RV, use only one bottle at a time. Otherwise the gas supply will be drawn equally from both bottles until supply has been totally exhausted. Using one bottle until it is empty, then using the second bottle will allow you to fill the empty bottle at your convenience without being totally out of propane.

DANGER

If You Smell propane:

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

**FAILURE TO COMPLY COULD RESULT IN EXPLOSION
RESULTING IN DEATH OR SERIOUS INJURY.**

Propane Consumption

All your propane appliances are operated intermittently. Your furnace is naturally the appliance using the most fuel, especially if freezing conditions are present outside. On a very cold and windy day it is conceivable that your coach could consume most of a 30 pound propane bottle.

Propane consumption depends mostly upon individual use of appliances and the length of time operated. Each gallon of propane produces about 91,500 BTUs of heat energy. Following is a list of typical appliance consumption when turned on fully for one hour of operation:

1. Water Heater 8,800-12,000 BTU
2. Furnace 20,000-35,000 BTU
3. Stove/Oven 6,500-9,000 BTU
4. Refer 1,200-2,400 BTU

Note, the above information represents many different models.



WARNING

Propane cylinders shall not be placed or stored inside the vehicle. Propane cylinders are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere.

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

ELECTRICAL SYSTEM

General Information

The electrical system in your recreational vehicle is designed for using both 120 volt AC (alternating current) and 12 volt DC (direct current) capabilities. All installations and designs are built to comply with safety requirements of ANSI standard 1192, National Electric Code and Canadian Standards Association.

All coaches manufactured by KZ have 30 amp or 50 amp service pre-wired into the breaker box.

Changes and Modifications

Any changes, alternations, additions, and/or modifications need to be performed by qualified electrical technicians, using only approved components which meet safety and code requirements. This includes owners, dealers, etc. who desire to make changes. The manufacturer is not responsible for any changes, or alterations, made to the 120 AC system.

120-Volt A/C

Power Cord — 50 AMP

Energy is placed into the coach thru a 50 amp rated power cord, that is detachable from connector as shown, labeled for correct amperage. This cord places 120 volt AC power into distribution box.

With detachable system, cord is removed and stored inside of coach during travel as shown to your right side.

Energy will enter through one of 2 main breakers feeding wall receptacles and appliances. This power cord will be approximately 26 to 30 feet in length. Each cord has the correct gauge of wire to carry the correct voltage to coach.

In some hook-ups the power cord may not be long enough and extension cords are required. ALWAYS use a cord with the gauge of wire equal to or greater than the power cord. Should you use a cord with a smaller wire, overheating, loss of amperage, and possible melting could occur.



DO NOT leave any unused portion of an extension cord in a “coil” as it may overheat, short-circuit wires and potentially destroy all your cords.

KZRV strongly recommends against using a reducing 120 volt adaptor, (50 to 30) when 50 amp service is not available. When using such an adaptor, you have just reduced “in coming” power and cannot power all your appliances. Should you attempt to draw more power than adaptor can handle, it will over heat, melt and cause a fire hazard.

**WARNING**

Never use a “cheater” plug or extension cord which breaks the continuity of the ground circuit to the grounding pin.

Circuit Breakers and Distribution Box

The following generic drawing shows the circuit breaker alignment with the center two breakers being the main breakers on all floor plans. Depending on the size, floor plan and options of your coach, number two breaker beside the main breakers are generally the 20 amp air conditioner circuit breakers. There are 5 to 6 additional breakers on each side to supply 120 volt AC power through out your coach.

Actually these two positive wires added together are 240-volt AC service, yet serve two separate banks as the external sticker indicates. Two (2) 50 Amp breakers will supply 120 volts A.C. to separate banks in circuit breaker box. There are NO 240 volt A.C.

**WARNING**

Do not replace breakers or fuses with any that are rated at a higher amperage. Over fusing may cause a fire by overheating the wire.

**WARNING**

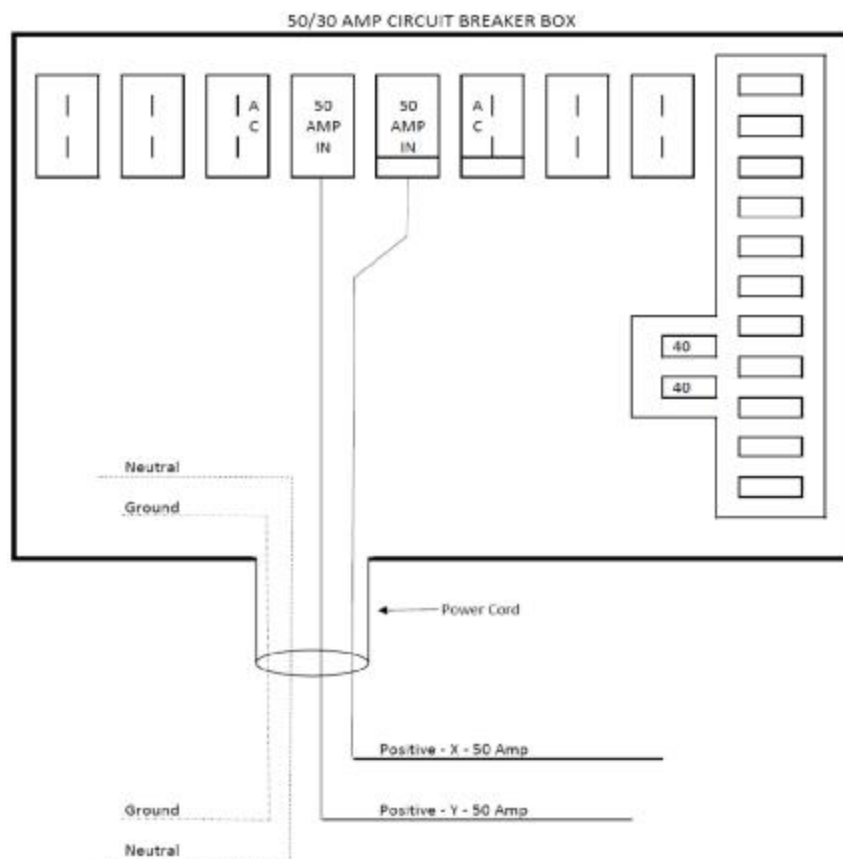
DO NOT connect 240 volt direct power to the coach through a reducing adapter. By doing so, “positive” power will be sent through neutral/white wire damaging appliances.

appliances in this coach.

Connector for your power cord will have a flat blade against outer side for ground, neutral will have near flat blade and the two hot/positive will also be near flat but have a small offset or curved tail on them. Note the neutral will be at the 11:00 o'clock position and the 2 positive will be at the 3:00 and 7:00 position.

With 50 amp service, it is still possible to desire more power than 50 amp can supply. Conserving and choosing which appliance you wish to use has it's priority needs to be part of your planning.

Don't forget loose items such as toasters, electric skillets, and coffee makers also consume power. Include these in your planning.



WARNING

NEVER, under any circumstances, remove a grounding pin in any cord or plug. It may mean the difference between LIFE OR DEATH.

**THIS CONNECTION IS FOR 120/240 VOLT
AC, 3-POLE, 4-WIRE, 60 HZ**

50

AMPERE SUPPLY.

GFCI Protection

Each coach has a GFCI, Ground Fault Circuit Interrupter, protection receptacle installed into the circuitry. This GFCI device is designed to protect people from hazards of line to ground electric continued shock. The purpose is to reduce possible serious injury caused by electrical shock, resulting from faulty insulation, improper polarity and related to moisture and/or earth ground plus faulty extension cords.

The third “round” pin on the receptacle is very important for this safety device to function correctly. NEVER cut off this pin. When using an appliance in the receptacle without this provision, use an adapter with a pigtail to be attached to the receptacle box to complete the circuit.

This GFCI receptacle will not protect against short-circuits, overloads and electrical ground shocks. The circuit breaker or fuse on the positive line in the electrical panel which supplies power to the circuit provides this protection.

Polarity is extremely important. You should be certain that the polarity of the external power is not reversed, in order to avoid harm to appliances and personal electrical shock. Polarity testers may be purchased in most electrical and hardware stores with the GFCI tester built in.

During use of the recreational vehicle it is suggested to test this receptacle once per month. To test press the “TEST” button in. The “RESET” button should pop out. Power should now be turned off at this receptacle and any receptacles down line. To restore power push, then release the “RESET” button.

12-Volt DC System

Your recreational vehicle contains two (2) separate electrical systems. After reviewing the 120 volt A.C. system, we now move to the 12 volt D.C. system. There are 2 separate sections in this group. First, the exterior light system, brake turn signals, marker lights plus a power line (if hooked up) all combined in the 7 way connector, trailer to tow vehicle, all receiving power from battery and alternator from tow vehicle.

Second, is the interior lights and appliances which will require some 12 volt D.C. power, supplied by a 12 volt converter and/or battery.

Converter/Load Center

A load center is basically a distribution panel with 120 Volt breakers and 12 Volt fuses plus breakers for slide-outs. Converter is “free-standing” by itself. Size of converter is measured by amp rating and needs of the coach.

All convertors are solid state electronic components and are not field repairable. The convertor is the “main component “ in supplying clean 12 volt D.C. (direct current) for your coaches needs.

Functions of a convertor are as follows:

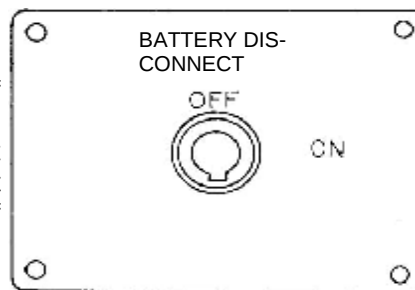
1. Transfer 120 volt A.C. power into 12 volt D.C. clean energy.
2. Charge auxiliary battery (if so equipped) as recharging is required.
3. Supply's 12 volt power thru out coach for interior lighting and appliances as needed.

Convertor operates automatically with no switches for operation whenever 120 volt A.C. power is attached.

Each convertor has a “built-in” fan for its own protection from heat. Some have a fan that runs at all times and higher speed during heavy use. Others have a fan that doesn't start until a designated temperature is reached, controls by a sensor.

Convertor also has 2— 40 amp fuses for protection should battery be hooked up backwards.

The Battery Disconnect switch as shown has one function, to cut-off or supply 12 volt DC power from battery (if so equipped) to 12 volt DC distribution system. Insert attached red plastic key in off position and turn 90° to “on” position. Key won't come out in



the “on” position. Twelve volt DC power now moves from battery, through converter to coach. When you wish to charge the battery by power converter, the switch must be in “on” position providing you have 120 volt AC power available. The “cut-off” switch system is standard equipment and located in upper front baggage compartment on sidewall.

Auxiliary Battery

All travel trailers and fifth wheels are pre-built to accept a battery. Batteries are not provided as standard equipment on units nor available as an option. It's best to purchase local.

Recommended batteries are of deep-cycle type as you need longer, slow consuming power rather than cold-cranking power. A battery is always required for a break-away switch to function during travel.

A battery requires routine maintenance for long life. First, terminals need to be kept clean to avoid corrosion. Second, a battery used daily will consume water as long as the converter is in operation. Be sure to check the battery no less than every 30 days and keep the battery filled with distilled (rain) water. Most good deep cycle batteries are NOT maintenance free or sealed.

A converter will not overcharge a battery unless a battery has a dead cell, or the converter has a malfunction. Some type of converters have full battery charge shut-off. Other types reduce the rate of charge as battery conditions reach 12.7 volts DC or 1.265 specific gravity at 80°F. By electronic standards, a battery is discharged at 10.5 volts. Dropping voltage lower than 10.5 volts will begin damaging plates in the battery.

The interior lights receive power from converter and/or auxiliary battery. Main lights have switches on the MyRV tablet. Slide outs, bathroom, and rear storage area will have their individual switches.

Circuit Breakers and Fuses—12 Volt DC

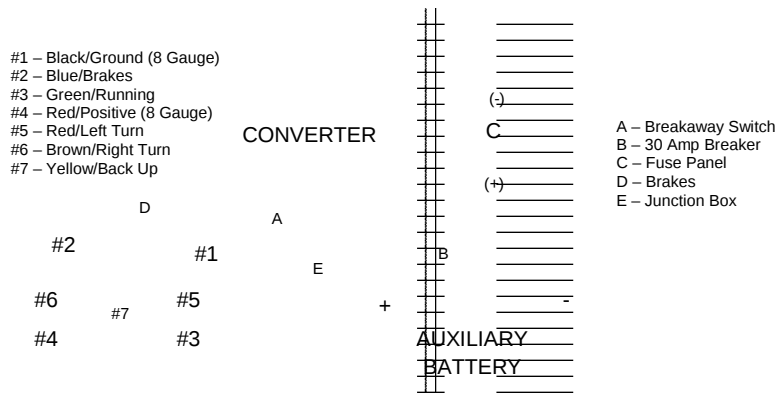
These two items have been installed in your coach to protect circuitry and components:

Fuses are placed into the fuse panel with the converter or into a separate panel near the converter with access inside of coach. Fuses are placed in your electrical system to protect wiring and components when overloads or short circuits occur. Radios, stereos, detector devices, and possibly other components may have

“in-line” fuses attached to their own wire harness.

Circuit breakers are placed at several locations. A 30 amp breaker is located within 18” from battery. Most do NOT have the reset button and are automatic reset.

Other small breakers are located in the fuse panel operating slide out. Amp rating on these are 30 amp. Color of breakers will vary.



WARNING

DO NOT replace circuit breakers or fuses with a higher current rating than those supplied with your coach. Over-fusing can cause a fire hazard by overheating the electrical wiring.

On the Venom models you will find 3 breakers, close to the battery, in the left lower front compartment as follows:

- Front- 20 amp for battery.
- Center- 30 amp for slide-out.
- Rear– 15 amp is furnace.

An in-line fuse holder is also in this compartment. A 10 amp fuse operates the leveling system. DO NOT INSTALL ANY FUSES LARGER THAN 10 AMP AS IT WILL VOID WARRANTY.

All wiring used in your coach meets correct amp rating correlated with fuses and breakers in respective panels as required by code.

The RV battery is placed in parallel circuitry with the battery on your tow vehicle. Care needs to be exercised not to drain both batteries together. There are two methods of avoiding this condition.

First, disconnect the tow vehicle when parked and/or using your coach.

Second, a battery isolator may be installed in your tow vehicle to prevent power drain from batteries in both vehicles. This device "isolator" has two useful purposes. First, it sends current from the alternator to both batteries simultaneously. Secondly, the isolator prevents draw from the battery of the tow vehicle, preserving power to start the engine.

Contact your dealer should you desire an isolator for your protection. Two types are available, mechanical type, or solid state which is the best and most expensive.

Exterior Lights and Connector, 12 Volt

Power for exterior lights, such as tail lights, turn, clearance and brake lights, is supplied by the tow vehicle.

Note the diagram on page 76 showing the color code and numbers from the seven way connector and how power is fed to the exterior lights. The positive red wire is attached to the battery to transfer power to the coach.

The connector between the recreational vehicle and the tow vehicle may build up corrosion due to moisture. You may need to clean these terminals occasionally to insure good electrical contact.

Porch Lights

Porch lights are placed on sidewalls, left and right side. Switches for these lights, depending on models, will be on the right and possibly left sidewall. Occasionally, the switch will be on the light itself.

On the front center of cap, is a decorative light on an 3 position switch. Center is off. Down is on. Up is blinking mode for light.

POWER MANAGEMENT SYSTEM (optional)

In your Venom coach, there is the possibility to have 3 air conditioners, consuming most or all of 50 amp power, when in operation. At this time the "power control" system will manage where current will flow in priority, Air conditioners or other appliances.

More information is provided on 2 page owners manual, single sheet provided in your "goody bag" giving the owner additional information.

CHAPTER 5 APPLIANCES

KZRV places brand name, quality-built equipment, as guided by current codes and standards, in all recreational vehicles. Some appliances are built and equipped to operate on propane gas ONLY. DO NOT attempt to operate on natural, butane or methane gas.

Each appliance has its own specific manual, written and published by its manufacturer. These manuals supply additional information about the appliances in your recreational vehicle.

SAFETY—READ and OBEY BEFORE OPERATING

The first 4 appliances in this chapter, all use propane for their main source of fuel, some use 12 volt DC and 120 volt AC energy also. Chapter 4 has more information on propane and it's use.

IT IS VERY IMPORTANT THAT YOU AS AN OWNER AND OPERATOR ARE FULLY AWARE WHAT THE ODOR OF PROPANE IS.

The below 'DANGER' information is placed in the manual and a sticker is located inside of your coach.



DANGER

WHAT TO DO IF YOU SMELL PROPANE

1. Extinguish any open flames.
2. DO NOT touch any electrical switches.
3. Shut off propane at container valve.
4. Open doors and windows for ventilation.
5. Leave the area until odor clears.
6. Have system repaired before using again.
7. Evacuate ALL persons from RV.

**FAILURE TO COMPLY COULD RESULT IN
SERIOUS INJURY, EXPLOSION OR DEATH.**

FURNACE

The furnace in your recreational vehicle requires 12-volt DC electrical current and propane gas energy for correct operation. The furnace receives 12-volt DC power from a fully charged battery and/or the converter in the coach. This power must be present before propane gas can enter through the control to the burner tube.

The combustion chamber is completely sealed to prevent any carbon monoxide or propane from entering into the coach. Oxygen is drawn into the chamber through the upper vent and exhaust fumes expelled through the lower vent.

	WARNING
Be sure to follow all directions to operate furnace to prevent any damages or malfunctions. Errors could cause personal injury.	

	WARNING
DO NOT operate furnace while vehicle is in motion or being towed.	

The basic operation of furnace is performed by thermostat mounted on an interior wall of your coach, for both ducted and blow thru, (without duct work) furnaces.

THERMOSTAT—(WITH AIR CONDITIONER)

OFF—Means all electrical current is turned off and nothing will operate until power becomes available to place heat or cooling inside of your RV.

HEAT—In this position, furnace will become active and place heat inside of coach through normal heat cycle.

COOL—Cool air will be produced from air conditioner.

FAN—Fan only will run and circulate air.

SLIDE SWITCH—In center will set temperature as desired.

On the right side is a switch for fan operation, with 2 speeds for air conditioner, either low or high speed. Furnace has only 1 speed.

Venom and Side Winder Toy Hauler units has furnace located in front baggage compartment. Each furnace has it's own owners manual pertaining to that model. Refer to it for complete information.

Operating Instructions

1. Before operating your furnace, it is suggested to open entrance door and windows to air out camper for any unusual odors such as propane or other.
2. Be sure propane container has fuel and valve is open.
3. Release thermostat from "OFF" position and onto "HEAT" position.
4. Set temperature 5 to 8 degrees above room temperature.
5. Blower will start in 0 to 15 seconds, run for 30 seconds during heat chamber for 'PURGE' cycle to remove propane vapor if any.
6. Second cycle, blower continues to run, module board will; (a) Send spark to burner tube, (b) Open valve in control to release propane to the burner tube. © Signals– burner is lit.
7. Ignition attempt will be made for 7 seconds.
8. Failing to ignite, board will make 2 more attempts to light the furnace and go into lock out.
9. If after 3 attempts with no ignition, drop thermostat to lowest setting, wait 1 minute and repeat steps 4 to 7.
10. After burner lights, set thermostat to desired setting.
11. To shut burner down, move thermostat to lowest setting or "OFF".
12. Blower will continue to run for about 2 minutes until hot air is removed from chamber of furnace.



WARNING

Do not install screens over the vents for any reason. Screens will become restrictions causing unsafe or inefficient operation.

To Turn Appliance Off

1. Turn Thermostat down as listed above in 11 and 12.
2. Turn off all electrical power to the appliance if service is to be performed
- 3, ALL furnaces have a 12 volt DC switch built on the furnace and must be turned ON before furnace will operate. Some models may have a panel covering switch, making it difficult to have access to it.

External Vents

Always be sure these vents are clear of any objects like screens, duct tape, etc.

Ducting

Wall or floor registers, and return air grills MUST be kept clear of any obstructions. Any such restrictions will prevent the furnace from correct operation. Closeable registers will reduce air flow. NEVER shut them off completely, possibly causing furnace to limit out and shut down. All 90 degree turns in duct tubes, reduce air flow.

NOTE: During initial firing of this furnace, a burn-off of excess paint and oils remaining from the manufacturing process may cause "smoking" for five to ten minutes. Your selling dealer may have already performed this function.

Gas pressure, as defined in Chapter Four - Systems, is extremely important. A dial gauge or U-tube manometer is required to perform tests and make adjustments. Pressure must be set at 11 inches w.c. (water column) plus or minus 1/2 inch. Incorrect gas pressure can cause any appliance to operate inconsistently and cause poor combustion. Only qualified technicians with proper equipment should make any mechanical adjustments.

Voltage must be between 10.5 volts to 13.5 volts at the furnace during operation. Below 10.5 volts the furnace will shut down. Both high and low voltage places excessive wear on the motor and brushes.

Any mechanical adjustments, such as electrode adjustments, should be performed by a qualified service technician.

Furnace will consume more propane than any other appliance.

RANGE AND OVEN TOP BURNER OPERATION

Several types of cooking appliances are used in K-Z products; an oven and 3 top surface burners using peizo light system is used in your VENOM and SIDEWINDER. These appliances operate with propane only, NEVER natural gas or methane.

Oven and Range Combination

Stove Top Ignition System

Top surface burners have the peizo light system and no standing pilot.

1. Know which knob controls which burner. Always be sure all burners are turned off when the stove is not in use.
2. Depress knob and turn fully counterclockwise to "LITE" position.
 - a. Verify sufficient propane supply before attempting to light the burner. Air in the propane line will significantly delay burner ignition. The burner may light unexpectedly as the air in the line clears and is replaced by propane. This unexpected ignition could burn you. Air in the propane lines may occur after the vehicle propane bottle and/or tank is refilled, during and after servicing other appliances on the same propane line, etc.
 - b. **Do not attempt to light more than one burner at a time.**
 - c. Burner can be lit by rotating the piezo knob clockwise rapidly. This produces a spark at the burner which ignites the propane.
3. If any burner should extinguish after initial lighting or due to accidental blow out, turn gas off by turning control knob clockwise to "OFF". Wait five minutes before attempting to relight the burner. Failure to follow these instructions could result in a fire or explosion.

If the burner should go out while cooking, or if there is an odor of propane, turn the control knob(s) clockwise to "OFF". Wait five minutes for the gas odor to disappear. If the gas odor is still present – DO NOT relight the burners. See instructions in the appliance manual.
4. To turn the burner (s) off, turn the appropriate control knob clockwise to "OFF".

Oven Burner

Note: Before the oven burner will operate, the oven pilot must be lit.

1. Lighting Oven Pilot
 - a. Be sure ALL valves are in the "OFF" position. The oven control knob should be the "Off" position.

- b. Be sure main gas supply is on.
 - c. Open the oven door, smell for propane. If you smell propane STOP! Read and follow the instructions in your appliance manual.
 - d. If you do not smell propane, depress and turn the oven control knob to "Pilot On". This will allow propane to the oven pilot.
 - e. Immediately light oven pilot with a match or hand held lighter. A small flame will be noted at the top of the pilot burner.
NOTE: If the appliance has not been operated for a long period of time, a longer waiting period for ignition of the pilot may be necessary due to air in the propane line.
2. Operation of Oven Burner
- a. Depress and turn the oven control knob counter-clockwise to the desired setting. There may be a delay of approximately 5 to 7 seconds before the oven burner comes on. This is normal and no propane escapes during this delay. It is also normal for the oven burner flame to cycle off at all temperature settings except "Broil. This maintains a constant temperature within the oven.
3. To shut down the oven burner turn the oven control knob clockwise to "PILOT ON" position. At this position, the oven pilot will remain lit.
4. To shut down the oven pilot light turn the oven control knob to "OFF", at this position, the oven pilot will go out.



DANGER

IT IS NOT SAFE TO USE COOKING APPLIANCES FOR COMFORT HEATING.

Cooking appliances need fresh air for safe operation.

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

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

Unlike homes, the amount of oxygen supply is limited due to the size of the R.V., and proper ventilation is required when using the cooking appliances.

DANGER OF ASPHYXIATION IS STRONG POSSIBILITY.



WARNING

When holding the match or lighter to ignite flame, DO NOT position your fingers close to the burner. You could get burned causing injury.



WARNING

Be sure all control knobs are turned "OFF" when you are not cooking. Someone could be burned or a fire could start if a burner is accidentally left on or unattended even if only momentarily.



DANGER

ALL PILOT LIGHTS, APPLIANCES AND THEIR IGNITORS (SEE OPERATING INSTRUCTIONS) SHALL BE TURNED OFF BEFORE REFUELING OF MOTOR FUEL TANKS AND/OR LP-GAS CONTAINERS. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.



CAUTION

Hand held igniters may be used but be sure they are the type designed for lighting open flame burners.



WARNING

If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if the appliance is not used solely for its intended purpose or if the appliance is not maintained in accordance with the instructions in this manual then the risk of a fire and/or the production of carbon monoxide exists which can cause personal injury, property damage or loss of life.



WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.



WARNING

DO NOT OPERATE THIS APPLIANCE UNLESS THE PRIVACY CURTAIN IS SECURED.
FAILURE TO COMPLY COULD RESULT IN FIRE OR SERIOUS INJURY.

WATER HEATER

DSI Models

This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner when you follow directions. DO NOT try to light the burner by hand.

BEFORE LIGHTING take note of any unusual odor in coach near floor or elsewhere, similar to propane.

This appliance has an automatic gas valve, no adjustments are necessary or possible. Do not attempt to repair the gas valve. This may result in a fire or explosion.

Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

Before operating the water heater, check the location of the vent to make sure it will not be blocked by the opening of any door on the trailer. If it can be blocked, do not operate the water heater with the door open.



CAUTION

DO NOT operate the water heater with two energy sources in operation or without water.

Operating Instructions:

1. STOP! Read the safety information provided on page 77.
2. Turn off all electric power to the appliance.
3. Turn "OFF" propane supply.
4. Wait five minutes for propane to clear, if any. If you do not smell propane, go to next step.
5. Turn "ON" the propane supply.
6. Turn on electrical power to the appliance.
7. Turn the switch to "ON" position, at the monitor panel. If the burner does not light, the system will automatically attempt two more tries for ignition before lock out. NOTE: Each ignition cycle will have a fifteen second purge before spark cycle if the system is a three try system.
8. If lock-out occurs before main burner lights, turn switch to "OFF", wait five seconds and turn switch to "ON" position. This will restart the ignition cycle. The first start-up of the heater may require several ignition cycles before all air is purged from the gas lines.

If the burner will not come on, the following items should be checked before calling a service person:

1. Switch turned off.
2. Gas supply to heater is empty or turned off.
3. RESET button on ECO is tripped, EITHER ON 120 Volt AC or 12 volt DC. (FIGURE 13).—Suburban manual.

To Turn Off Water Heater:

1. Turn switch to "OFF" position.
2. Turn off the electrical power to the appliance.
3. Turn off gas supply.
4. If the vehicle is to be stored or the heater is going to be turned off while subject to freezing temperature, drain the water heater.

120 Volt AC Option

Electric water heaters are designed to operate with a minimum amount of service problems, however, proper operation and care is essential. By far the most common trouble with electric water heaters results from energizing the water heater before it is filled with water. Even brief operation of the electric element without water in the tank will burn-out the electric heating element.

To energize the electric heating element, turn the switch to "ON". The switch is located behind the water heater door in the lower left corner of the control housing. The water temperature will be regulated by the thermostat.

When you have this 120-volt AC option, you will find controls for this item on the "MyRV" tablet. This will turn on 120 volt to energize the water heater.

Winterizing Your Water Heater

If your water heater plumbing system is equipped with a bypass kit, use it to close off the water heater. Drain the water heater completely and leave the water heater closed off (out of the system) in the bypass position particularly if you are introducing antifreeze into the plumbing system.

Antifreeze can be very corrosive to the anode rod creating premature failure and leave sediment in the tank. If the plumbing system is not equipped with a bypass kit, and you intend to winterize by adding antifreeze to the system, remove the anode rod (storing it for the winter) and replace it with a 3/4 inch drain plug.

Please NOTE: With the MyRV tablet the monitor controls are a part of this function. See chapter 3 for more instructions.

REFRIGERATOR

KZ recreational vehicles use numerous different size and model numbers of refrigerators operating on 120- volt AC. Performance of refrigerators depends on various factors, such as, energy, venting, leveling, humidity and atmospheric heat temperatures, but not limited to these. VENOM and SIDEWINDER Toy Haulers have two types of refrigerators, first the standard absorption and secondly an optional compressor house type

ABSORPTION—1

Leveling

For correct operation, the refrigerator must be within three degrees of level in any direction. Continued operation outside of these limits will result in irreparable damage to the cooling unit in the refrigerator. At 1 degree, a 30 foot RV will be 5 inches higher at one end than the other, not a comfortable situation.

Venting

For an absorption unit to operate fully it must have two vents. One vent is on the roof or sidewall at the upper end of the refrigerator, and a second vent is a lower service vent and door at the lower area of the refrigerator. A vent installed on a roof must have a screen in place to avoid birds from entering and causing problems.

Units with two-side vents as in slide-outs, require a 12V fan to be in operation and baffles at top vent and behind refrigerator. When upper cooling fins reach 150° Fahrenheit, the fan will automatically start to operate. The positive wire has a **five amp** in line fuse installed. Access to the fuse is inside of the lower service vent door.

Moisture Reduction Heater

Some models have a heater built into the chassis frame of the refrigerator, referred to as a “moisture reduction device”. Its design is to reduce moisture on the frame during hot, humid days.

Battery Drain Information

To control operating functions on several models of refrigerators, a 12-volt DC power source, battery and/or converter are required. For gas operation, .5 amp is required through the power supply to keep the solenoid open to supply propane gas to the burner as needed to continue to cool.

Models with a moisture reduction heater (humidity dryer) require an additional .24 amp. This totals less than 1 amp. The drain at .74 amp is low. However, after three to four days of continuous draw your battery will be down, closing the solenoid and shutting down cooling capability, when the battery drops to 11.5 volts DC.

During AC operation, 12-volt DC is required to operate the humidity heater, the light display, electronic thermostat, and interior light (when equipped).

Door Seal

To maintain cooling efficiency the door must seal completely on all four sides along the door gaskets. Frequent frost build up or reduced cooling are indicators of air leaks around the doors. Place a strip of paper the size of a dollar bill between the flange and door gasket. Close the door and pull the paper out. There should be a light frictional drag indicating proper seal. Should the paper feel loose, the gasket is not sealing well. Contact your dealer or service center.

Door Latch

A positive or full locking latch is not permitted through codes. Each latch has a rating by pounds of pressure, yet will prevent the door from opening during travel.



CAUTION

Do not use undue force or jerking action when opening the refrigerator door. Air temperature differences can cause a partial vacuum within the cabinet requiring a firm but steady force to open the door. A sudden jerk could cause door damage or personal injury.

Operation in Transit

During camping or parking, the refrigerator **MUST** be level for best operation. While traveling, the up and down hill movement of the coach, will not affect the performance of the refrigerator.

Defrosting and Cleaning the Refrigerator Interior

Your refrigerator is not frost free and will require periodic defrosting. To defrost, turn the refrigerator off. Empty the freezer and the fresh food compartments. Placing a pan of hot water in the freezer will reduce the defrosting time. Leave the drip tray under the cooling fins. After frost has melted, empty the drip tray and clean the refrigerator.

Add a small quantity of mild dish detergent to lukewarm water and wash the interior of the refrigerator. **Do NOT use abrasive cleaners, they can damage the interior surfaces of the refrigerator.** Rinsing both compartments in a solution of baking soda and water (one tablespoon of baking soda to one quart of water) will freshen the interior and neutralize odors. Wipe the interior with a soft dry cloth to prevent water spots. Clean the door gaskets in the same manner as the refrigerator interior. This will help to prolong the life of the gaskets.

See manuals being supplied by the manufacturer for additional information and operating procedures.

COMPRESSOR—HOUSE TYPE—2

Compressor type requires, (a) 120 VAC power when parked, (b) at least 1, preferably 2, deep cycle group 27 batteries, and (c) a 1200 watt inverter when traveling on the road. Additional item needed is a good working heavy duty alternator in your tow vehicle, must be capable of charging these batteries and cover tow vehicle requirements.

Venting and leveling are not as critical as on absorption type.

The section "Comprehensive Protection" in the inverters owners guide is very important as it gives features, limitations, and performance as needed with your camper/RV.

Reverse polarity on battery hook-up will cause a fuse inside of inverter to blow —NOT WARRANTY. You now will need to replace the inverter.

When you are parked and attached to 120 VAC power, the inverter is less important, as it is mainly used during travel.

Be sure to pay attention to the section on the batteries, quantity, type, performance, endurance, wire size and length of power available.

A battery isolator is suggested to prevent tow vehicle battery to drain, causing a dead battery.

Attempting to use this system without attaching coach to 120 VAC power during camping use will not be efficient. Dry camping use will be limited without 120 VAC power.

For all functions on refrigerator and operation, see the manual supplied by the manufacturer of this appliance.

MONITOR PANEL

For all monitor panel functions and operations see section on MyRV tablet in chapter 3.

OUTSIDE KITCHEN—OPTIONAL

An outside kitchen will eliminate traffic inside of your camper and perhaps avoid a food spill.

Numerous floor plans and sizes offer the following outside kitchen options:

1. Cook top is a two burner hot plate and has no standing pilot light. Each use requires re-lighting the burner. A removable propane hose is required and is supplied with quick-connectors for fuel from propane system.
2. A refrigerator is also part of this package, 120 volt AC, compressor type. Small unit is 1.6 cu. ft. and tall unit is 3.2 cu. ft. No propane or 12 volt DC is required or available for operation.

3. Small sink and faucet is also part of this kitchen. Drainage of water will go into the holding tank, thru a flexible hose. It also serves as an outside shower/port. A hose is included.

4. A second microwave is included with tall kitchen. You will have to choose which microwave to use. The switch is inside the camper, generally in the ceiling panel called a "Double pole/ Double/ throw" switch . There is only 30 Amp service available, which is why you must make this choice.

5. Another feature available on some outside kitchens is to place a TV set inside and watch programs while sitting outside, under awning in the fresh air and the shade.

NOTE=Not all five items can be in one outside kitchen.

WARNING

When using this outside cooking area, the vehicle **MUST** be level and established.

DO NOT violate manufacturers instructions on required clearances for cooking appliances during use.

DO NOT store cooking appliances until cool to the touch. Could lead to a fire and explosion and result in death or serious injury.

PORTABLE SOLAR PANEL RECEPTACLE

Such a receptacle may be installed on your coach into side wall on the exterior.

The actual solar panel is an after market item, to be purchased thru your dealer.

It's main function is to maintain a charge for an auxiliary battery you may have placed on your coach, when 120 volt AC power is not available.

Brand name is Zamp or Furrion.

RAMP DOOR WITH PATIO PACKAGE AND STEP (OPTIONAL)

RAMP DOOR

Style # 1 = has visible hinges at the bottom, 5 or 6. Not all hinges will have springs installed as quantity of springs is determined by the weight and size of door. Two (2) locking handles are located, 1 on each side to secure door in closed and locked position.

Cables (2) are from top of door frame to outer corners of door when in down /horizontal position to support. They may be detachable at both ends.

Style # 2 = has hinge on each sides at lower corner and has 4 cables, 2 at lower corners, spring loaded and 2 longer cables from top corner to outer end of door for supporting the door in horizontal position.

Closing and holding is done with 2 pegs at the top, sliding into a latch, operated with 12 volt DC power and key switch on right side of door, below taillight.

Additional are 2 extension legs that swing down on each side of ramp door and need to be extended to reach the ground to assist in supporting the door while in horizontal position.

INTERIOR WALL DOOR

Style # 1 = Door in rear wall opens in center and 2 panels slide away from center. Next, a latch is at the top, pull down and each panel swings outward, 2 panels, left and 2 panels right.

Style # 2 = Has a complete door assembly with 1 panel opening and sliding side ways. Other panel is stationary and does not move.

SCREENED WALLS

Patio screened walls now swing 2 panels, left and 3 panels to the right counter clockwise Each section slides apart and 3rd will meet on right side of door leaving enough space for step to be placed there. Hooks are attached to walls and now need to be attached to the brackets mounted on the door at the floor.

A separate step is included and portable. It must be placed in position and latched to a bracket on each side of opening. Step will need to be stored inside for travel. One has the step on the side and the other has step in the rear.

Awning at the top will pull down or out on scissor brackets. When out, 2 legs will swing down and can be extended to floor for support outer ends of awning.

WARNING

1. DO NOT sit or stand on railing.
2. Ensure ALL pins are in place.
3. Ramp must be supported by cables "4" and legs while being set up or using railing system.
Failure to do may cause damage to the railing or ramp.
4. Disengage all connections between railing and ramp floor before disconnecting support legs or cables.

WARNING

Steps MUST be securely attached to the ramp door.

1. Align steps with mounting channels on the under side of the door.
2. Then slide the steps forward until you hear both latches snap into place.
3. Pull the steps back slightly to confirm that step is latched in place.
Failure to securely attach the steps to the ramp door could lead to serious injury.

MAXIMUM WEIGHT— FOR STEP IS 750 pounds.

In addition to these **2 warnings** there are 2 CAUTIONS tags attached to the actual rear or side off ramp door.

Several suppliers provide these components for these door assemblies.

When closing the ramp door with key opening system you may have to "slam" door shut..

When closing the rear ramp door you will need to have the interior door open to displace air.

WARNING

1. Patio has a maximum weight of 10 persons or 1500 pounds. The total weight of contents on door MUST remain within 1500 pounds.

2. Stabilizer jacks **MUST** be used when ramp door is in patio position.
3. Support jacks on the patio **MUST** be used where applicable.
4. Exceeding load limit may lead to collapse and possible personal injury.

FIRE PLACE (OPTIONAL)

Built into your camper is a fireplace, to be used light heat duty. It produces 5000 BTU and operates on 120 volt AC. A circuit breaker is located in distribution box, supplies power and protection for over load and short circuits.

On top right hand corner of fireplace, you will find a master ON/OFF power switch.

Next, is another on/off switch plus 4 operation switches for dimmer heat, temperature and timer for operation.

Use remote as supplied along with the owners manual, for additional information to operate as desired.

POWER CONTROL

In your Venom coach there is the possibility of having 3 air conditions, consuming all 50 amps of electrical power, when in operation. At this time the power control will begin to manage where current will flow in priority.

A 2 page sheet "owner's manual" should be in your coach for additional information.

Component Manufacturer List

Component Manufacturer	Number