



**RECREATIONAL  
VEHICLES**



---

**GUIDEBOOK TO ENJOYMENT OF YOUR  
KZRV**

**RECREATIONAL VEHICLE**

---

**SPORTSMEN CLASSIC  
SPORTSMAN CLASSIC SE  
ESCAPE  
ESCAPE MINI**

THE PURPOSE OF THIS OWNER'S MANUAL IS TO PROVIDE THE MOST CURRENT INFORMATION AVAILABLE FOR YOUR RECREATIONAL VEHICLE ABOUT USAGE AND OPERATION.

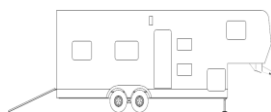
ALSO MINOR MAINTENANCE AND CRITICAL SAFETY WARNINGS ARE INCLUDED AND MUST BE READ AND OBEYED.

ADDITIONAL MAINTENANCE INFORMATION IS FOUND IN THE "MAINTENANCE MANUAL" SUPPLIED WITH YOUR RECREATIONAL VEHICLE. FAILURE TO PROVIDE CARE FOR YOUR COACH WILL RESULT IN LOSS OF WARRANTY COVERAGE.

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



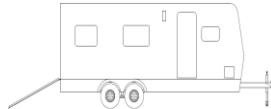
**Conventional Travel**



**Travel Trailer Toy Hauler**



**Fifth Wheel**



**Fifth Wheel Toy Hauler**



**Hybrid Travel Trailer**

# TABLE OF CONTENTS

<b>Chapter 1 – Introduction to RV Ownership .....</b>	<b>6</b>
Safety Consideration .....	7
Reporting Safety Defects .....	7
Safety When Emergency Stopping .....	8
Additional Safety Considerations .....	8
Condensation .....	8
<b>Chapter 2 – Service Procedures .....</b>	<b>10</b>
Basic Service Procedures .....	10
Dealer .....	10
Factory .....	11
Parts .....	11
Owner's Responsibility .....	11
Seasonal Site .....	12
Towable Limited Warranty .....	12
<b>Chapter 3 – Using Your RV .....</b>	<b>15</b>
Equipment .....	15
Tow Vehicle .....	15
Hitches – Travel Trailer .....	15
Hitch Height Specifications – Travel Trailer .....	16
Hook Up – Travel Trailer .....	16
The Safety Chain – Travel Trailer .....	17
Traveling .....	17
Weights .....	17
Cargo Capacities and Load Limits .....	18
Loading Procedures .....	18
Tires .....	19
Understanding Tire Pressure and Load Limits .....	20
Tire Size .....	21
Tire Tread .....	21
Tire Balance and Wheel Alignment .....	21
Tire Fundamentals .....	21
Overloading Tires and RVs .....	22
How to Change a Tire .....	22
Wheel Lugs .....	23
Wheel Bearings .....	23
Brakes, Electrical .....	23
Breakaway Switch .....	24
Towing .....	25
Setting Up and Using your RV .....	25
General Detector Information .....	27
Safety Detectors .....	27
Fire Extinguisher .....	27
Combo Propane and Carbon Monoxide .....	27
Operating Instructions .....	27
Brownout Protection .....	28

Low Power Operating Instructions .....	28
Visual and Audible Signals.....	28
CO Alarm .....	28
Propane Gas Alarm .....	28
End of Life Signal.....	29
What is Carbon Monoxide.....	29
Smoke Alarm .....	29
Steps.....	30
Windows .....	31
Doors .....	31
TV Antenna (Standard Roof Mount).....	31
Slideout.....	33
Operating Instructions .....	33
Manual Override .....	33
Toy Haulers.....	35
Fuel in Cargo Area.....	36
Rear Cargo Door.....	37
Murphy Bed.....	37
<b>Chapter 4 – Systems .....</b>	<b>39</b>
Water and Drainage Plumbing .....	39
Tanks.....	39
Filling Fresh Water Systems.....	39
Using Water System .....	40
12-Volt Demand Pump .....	40
Faucets.....	40
Bath and Shower .....	40
Sanitizing and Filling the Potable Water System.....	41
Drainage (Fresh Water) .....	41
Sanitation System.....	42
Toilets .....	42
Using Toilet and Tank System .....	42
Vents .....	42
Holding Tanks.....	43
Draining the Tanks .....	43
Maintenance for the Holding Tanks .....	44
Winterizing Your RV .....	44
Black Flush System .....	45
Propane Fuel System .....	46
Propane Container .....	46
Servicing and Filling Propane Containers.....	47
Installing Propane Containers.....	49
Regulator .....	49
High Pressure Hoses with Acme Connectors .....	50
Main Supply Hose – Low Pressure.....	50
Operating Instructions.....	51
Propane Gas Consumption .....	52
Electrical System .....	53
General Information.....	53

Changes and Modifications .....	53
Power Cord.....	53
Circuit Breakers .....	54
GFCI Protections .....	55
12-Volt DC System .....	56
Converter.....	56
Auxiliary Battery.....	56
Circuit Breakers and Fuses .....	57
Exterior Lights and Connector (12-Volt).....	58
Porch Lights.....	59
Brake Wiring .....	59
<b>Chapter 5 – Appliances.....</b>	<b>60</b>
Furnace.....	60
Operating Instructions .....	61
Cooking Systems .....	63
Operating Instructions .....	63
Water Heater.....	64
DSI Models .....	64
Operating Instructions .....	64
120-Volt AC (Optional) .....	65
Winterizing Your Water Heater .....	65
Refrigerator .....	65
Leveling .....	65
Venting .....	66
Door Seal.....	66
Door Latch.....	66
Operating Instructions .....	66
Operating Instructions while Traveling.....	67
Air Conditioner (Optional).....	67
Monitor Panel.....	67
Tents.....	67
Important Information on Your Tent.....	68
Cleaning Your Tent.....	69
Tent Shrinkage .....	69

## 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 and engineered to offer many comforts of home. KZ Recreational Vehicles are designed and constructed to be used as temporary living quarters for camping and travel uses. The coaches are not intended for hauling cargo except Toy Haulers. Then only within weight limits.

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, as well as explanation of your warranty protection. If this 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 they cannot satisfactorily answer your questions, they will call our staff for additional information.

Every effort has been made to provide you with a safe and dependable product. Your vehicle complies with applicable requirements of Federal Motor Vehicle Safety Standards, State Regulations, and Canadian Standards Association (CSA), where applicable, and complies with requirements of ANSI Standard 1192, the nationally recognized "Standard for Recreational Vehicle – Installation of Plumbing, Heating and Electrical System". 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 and vendor 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 to occupant.

A **DANGER** alerts the owner of areas where safety measures **MUST** be strictly adhered to, as such failures can be dangerous. 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. 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 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 test, repair, or replace any propane 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. Check the tire pressure before each trip while the tires are cold.
6. Check and tighten the wheel logs regularly (every 50 miles when new until 200 miles are reached, then check the lugs every 500 miles).
7. Check the brakes BEFORE entering a busy highway. Not while traveling.
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.

## **Condensation**

### **Causes:**

- A. Condensation 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 inside, due to normal breathing, is also a cause of condensation.



- B. When cooking food or taking a shower, warm moist air circulates throughout coach attaching itself to cooler surfaces. Forming beads and running down walls or windows.
- 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 1/2 inch allowing warm moist air to escape.
- 2. Use the power vent over range when cooking.
- 3. If condensation is found in cabinets 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.

In camping, models which have tents or fabric bunk areas, it is even more important to avoid condensation drops from roof areas.

Opening the tent window at the person's head will allow air to flow across roof, reducing or avoiding condensation.

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



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

## **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, 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 EST

Email: [kz@kz-rv.com](mailto: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, they are also there to supply parts, optional equipment, and provide service repairs, warranty, etc. 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. 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, they 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 personally 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. This is recommended twice a year, spring and fall, to prevent undesired deterioration of your coach. 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 they certainly have 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 any 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 in your coach along with a copy of your warranty registration with you when traveling.

### **Seasonal Site**

When placing your unit on a camp site in the spring and returning it in the fall to your home, it's classified 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 owner's responsibility to provide for such expenses.

### **TOWABLE LIMITED WARRANTY**

#### **One Year Limited Warranty**

**SUMMARY OF WARRANTY:** KZRV warrants the structure of every Sportsmen Classic Travel Trailer purchased from an authorized KZRV dealer to the first retail customer for a period of one (1) year to be free from substantial defects in materials and workmanship when used for its intended purpose. This Towable Limited Warranty ("TLW") does not apply to towable recreational vehicles purchased from any source other than an authorized KZRV dealer. 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 the 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 (eg. 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 the consumer's or transferee's failure to perform normal and routine maintenance (eg. 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 owner's 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) 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. 11) loss or damage to the plumbing system caused by freezing. 12) claims for personal injuries of any type. 13) costs of transportation of the unit for repairs, and 14) 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 THE TLW. If the consumer believes that a claimed defect is covered by 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 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 THE TLW VOID AS TO THE CLAIMED DEFECT. After receipt of such notice, KZ 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, EXPRESSED 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 AN 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.

**ALTERNATIVE DISPUTE RESOLUTION:** The parties shall attempt, in good faith, to resolve any disputes by negotiations. If unsuccessful, KZRV may, in its sole discretion, elect to submit the matter to binding arbitration and, if such election is exercised, the consumer covenants and agrees that he, she, they or it shall submit any such disputes to such binding arbitration. The arbitration body shall be either the American Arbitration Association or the National Arbitration Foundation, and the rules of the body chosen by KZRV shall govern except to the extent same are in the conflict with the Indiana Uniform Arbitration Act, with shall govern. The arbitrator is expressly empowered to enter an award of default against any party in the event of: a) the failure or refusal of such party to comply with any deadline fixed by the arbitrator, b) the failure or refusal of such party to make timely payment of any fees, expenses, or other charges billed by the arbitrator, or c) any other failure or refusal by such party to cooperate and participate in any aspect of the arbitration proceedings. The arbitrator will admit only relevant and reliable evidence at the hearing, but no particular rules of evidence are specified for use. The hearing shall be electronically recorded by an Indiana Notary Public or other officer authorized by Indiana law to administer oaths, and all witnesses who shall testify shall be sworn on oath to tell the truth. The arbitrator may award injunctive relief, interest, and attorney fees in an equitable amount based upon the degree to which the prevailing party prevails on the merits; however, the arbitrator is not empowered to award punitive or exemplary damages. All costs of the arbitration, including the recording thereof, shall be shared equally by the parties. The arbitration proceedings and award shall remain confidential, and no party may disclose to any person, except attorneys for the parties, any aspect of the proceedings.

**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, LP, Warranty Department, 0985 N 900W, Shipshewana, Indiana, 46565, Telephone: (260) 768-4016.

*Model number:* \_\_\_\_\_ *V.I.N.:* \_\_\_\_\_

*Dealer Information:*

*Customer Information:*

*Name:* \_\_\_\_\_

*Address:* \_\_\_\_\_

*Phone:* \_\_\_\_\_

*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: 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 auto or 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 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. It will affect your towing performance.

##### **Hitches - Travel Trailer**

After obtaining your tow vehicle, it is very important to choose, and have installed, a correct hitch system with weight distributing bars to accommodate your coach if so required. This selection and installation should be done by a professional hitch service center, which may or may not be your selling dealer.

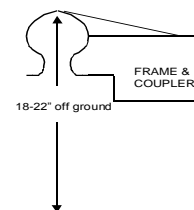
Weight distributing hitches apply leverage between the tow vehicle and trailer. This assists in equalizing the weight distribution between vehicles, resulting in both vehicles traveling level.

Optional sway controls are also helpful with travel towing, especially long and heavy tongue weight coaches.

 <b>Caution</b>	<b>Trailers with tandem axles need to travel as level as possible, avoiding different weights on each axle plus handling conditions.</b>
 <b>Caution</b>	<b>Using an oversized or undersized hitch can cause damage to the frame of your travel trailer and/or tow vehicle.</b>

### Hitch Height Specifications - Travel Trailer

Due to axles being either straight or drop bars, the ball height will vary. To find the correct height for the ball hitch, set your trailer on a flat surface in level position. Measure from the inside of the ball socket to the ground, approximately 18 to 22 inches as shown, for correct spacing. You may wish to add 1 to 2 inches to this amount to compensate for sag of suspension of the tow vehicles when hooked to the trailer.



### Hook-Up - Travel Trailer

Hooking up your travel trailer is not difficult and gets easier with practice. The following procedure will help you until you become more experienced.

1. To raise the tongue of the trailer above the hitch ball on hitch, turn the crank on the jack or use optional power jack.
2. Open the coupler latch.
3. Back the tow vehicle into proper position.
4. Turn the crank on the jack to lower the coupler onto the ball hitch.
5. Close the coupler latch after completely seated. To secure coupler latch, it is recommended that you install a latch pin or a lock.
6. Install weight distributing bars (equalizer), when required, as recommended by hitch supplier.
7. Retract the tongue jack to its maximum height.
8. Attach the cable for the breakaway switch to the tow vehicle.
9. Attach safety chains as per your state laws.
10. Plug in your 12-Volt, seven-way electrical cord and connector from the trailer to the tow vehicle connector.
11. Below are listed numerous items that should be inspected and tested before traveling:
  - All lights working on outside of coach.
  - Stabilizer jacks in retracted position.
  - Steps in retracted position.
  - Refrigerator door latched completely
  - Loose items in secure position.
  - Test brakes for operation before entering roadway.



## The Safety Chain - Travel Trailer

Safety chain requirements will vary from state to state. The chain supplied with your coach meets SAE requirements for maximum gross trailer weight.

1. Cross the left chains under the coupler and attach to the right mounting ring on the receiver hitch.
2. Take right chain under the coupler and attach it to the ring on the left on the receiver hitch. Slack for each length should be the same but not more than necessary to permit the vehicle to turn at their minimum radius.



**Remember – Always have the safety chains attached to the tow vehicle, as required in your state.**

## 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 as described below.

MANUFACTURED BY/FABRIQUE KZRV DATE: 03/2012  
GVWR/PNBV: 2727 KG (6000 SHIPSHAWANA, IN ST205/75R14 C  
GAWR (EACH AXLE)/PNBE (CHAQUE ESSIEU) 1591 KG (3500 LB) TIRE/PNEU  
RIM/JANTE 14X5.5JJ  
COLD INFL. PRESS./PRESS. DE GONFL. A FROID 345KPA (50PSI/LPC)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE. THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATORS IN EFFECT ON THE DATE OF MANUFACTURE – CE VEHICULE EST CONFORME A TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU REGLEMENT SUR LA SECURITE DES

VEHICULES AUTOMOBILES DU CANADA EN VIGUER A LA DATE DE SA FABRICATION.  
V.I.N./N.I.V. 4EZTS2420C5036114 TYPE/TYPE DE VEICULE: TRAILER TRA/REM TRA

**Gross Axle Weight Rating (GAWR):** the value specified as the load carrying capacity of a single axle system, as measured at the tire-ground interfaces. Effective September 2018, 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.

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.

## RECREATIONAL VEHICLE TRAILER CARRYING CARGO CAPACITY

VIN #: \_\_\_\_\_  
The weight of cargo should never exceed kg \_\_\_\_\_ lbs. \_\_\_\_\_

### CAUTION

A load of water equals \_\_\_\_\_ kg \_\_\_\_\_ lbs. of cargo  
@ \_\_\_\_\_ kg \_\_\_\_\_ lbs. per gallon.

On the inside of the front screen door there should be a small yellow sticker giving the owner correct information as to quantity of cargo this coach can carry. This allowable weight is calculated, including factory installed options. It does NOT include any dealer installed items.

### Cargo Capacities and Load Limits

Cargo may be loaded into coach, up to the maximum weight allowed as specified on the placard. As the combined weight of the cargo is provided as a single number. In any case, remember, the total weight of a fully loaded coach CAN NOT exceed the stated GVWR. Water and propane also must 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 is cargo weight and is treated as such. Remember, water weighs 8 pounds per gallon, the less you carry will allow you to carry more cargo. Understanding this flexibility will help you to know that GVWR is very important when you need to make these choices to fit your camping needs.



**Any damage caused by improper loading or installing additional equipment is NOT covered by KZRV Limited Warranty.**

### Loading Procedures

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. Excessive weight in the rear 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.

A reasonable principle in loading your coach is for every two pounds of weight loaded in front of the axle, one pound of weight must be loaded behind the axle. Also remember, improper side-to-side loading affects balance and spring condition.

Excess weight behind the axle lightens the hitch weight and will tend to magnify any sway that may occur when passing trucks or when gusty winds are present. Uncalculated weight can and will effect road performance.



**The rear bumper on the frame of your recreational vehicle is NOT designed to carry over 100 pounds of weight. Installation of items exceeding 100 pounds, including bike racks, generators, cargo containers, etc. could cause metal fatigue and weld stress. Any such failures could damage your property and endanger vehicles following your camper during travel, which could result in an accident. The frame is NOT designed or built to tow any trailers.**

## **Tires**

All KZRV towable coaches are equipped with appropriate tires for recreational vehicles. Tire are radial in design, using components to offer excellent strength and mileage in all kinds of weather conditions. ST refers to “service trailer” as marked on tires, they are NOT for automobiles.

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

The third sticker you will find on the exterior of coach is information on tire size and air pressure, related to your coach.

TIRE	SIZE	COLD TIRE PRESSURE
FRONT		
REAR		
SPARE		

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.

Both stickers, VIN and TIRES ARE permanently attached to the trailer, left front corner of exterior and easily readable from the outside of vehicle without removing any covers.

Due to weather elements, labels may fade over time, you may wish to record this information and keep it with your owner's manual inside of your coach.

### **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.



**It is recommended that the tire pressure be checked at the beginning of each journey and at least once per week during travel to obtain the maximum life of the tires.**

The listed amount of air pressure is for maximum load capacity. When traveling with less than full weight, you may reduce air pressure slightly for smoother ride. While traveling, your tires will get warmer, causing pressure to rise. To get an accurate reading, you must allow tires to cool down for three (3) hours or more without driving.

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

## **Tire Size**

To maintain tire safety, purchase new replacement tires that are the same size and load rating as the original tires or another recommended by the manufacturer. Look at the tire information placard or on 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 dealer. "ST" tires ARE NOT automotive tires.

## **Tire Tread**

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when 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**

1. Balance - Since it is not legal to ride inside of an RV, except fifth wheels in most states, it is rare a trailer tire requires to be balanced. Balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel and tire assembly "using" a balance machine.
2. Wheel alignment adjusts the angles of the wheels so they are positioned correctly "toe out/in and camber" relative to the frame of trailer. Both will maximize the life of your tires.

These adjustments require special equipment and should be performed by qualified and fully trained technician. These 2 items are not covered by warranty.

## **Tire Fundamentals**

Federal law requires tire manufactures to place standardized information on the sidewalls of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number standard certification and in case of a recall.

On each tire is a serial number, beginning with 'DOT', 4 letters or numbers giving location of manufacturing plant and last the date of manufacture, 0816 says it was built 8<sup>th</sup> week of 2016.

Other information is size, ply rating, load capacity, required air pressure, plus much more.

**Each original tire installed on a KZRV, has a speed rating of 75 mph or greater. Please note maximum load rating, tire pressure, and speed rating is imprinted on sidewall of tire.**

Effective 2017 model year, your tires are filled with NITROGEN instead of air. Green caps on valve stem indicate contents as nitrogen.

### **How Overloading Affects Tires and RV**

The results of overloading can have serious consequences for trailer 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.

When towing an overloaded vehicle, it's harder to drive and steer plus harder 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.

It is the air pressure that enables a tire to support the load, so proper inflation is critical. Since RV's can be configured and loaded in many ways, air pressures **MUST** be determined from actual loads (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 **MUST** be reduced.

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

### **How to Change a Tire**

1. Place blocking under the main rail of frame with hydraulic jack on top of blocking in front of 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 additional 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. Place spare tire and wheel onto hub.
8. Reinstall lug nuts 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 foot pounds.
11. Place all equipment into coach or tow vehicle (blocking and jack).
12. Re-torque wheel after traveling 100 miles.

## Wheel Lugs

When the wheels are newly installed on your recreational vehicle, the lug nuts **MUST** be tightened numerous times because the powder coat paint on the wheel is thick. You **MUST** re-torque lugs at 50 and 200 miles. A decal on wheel may require re-torquing sooner.

After your first trip, check the wheel lugs periodically for safety. The lug nuts should be tested for looseness in spring before first trip out, or after extensive braking. Size of lug nut is 13/16. **Over torque, exceeding 150 foot pounds, will damage components. Normally the nut fails first however the embossing on the wheel can also be damaged and fail to keep wheel tight.**

## Wheel Bearings

All wheel bearings are pre-lubricated during assembly of axles and brakes. Your coach (since 2014) may have "ultra-lube" method, which has a grease fitting in the end of axle beam on both sides. To lubricate bearings, remove rubber cap, and use standard grease gun to insert grease, 8 to 10 pumps into the bearings, if the bearings were not repacked before leaving on a trip. Don't forget to repack bearings as per maintenance manual when you return home, using correct wheel bearing grease.

## Brakes - Electrical

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

A brake control must be installed in your tow vehicle, normally below your dash board to activate brakes, using 12-Volt DC power. Electronic type is the most widely used and recommended. Each brand has their own operating instructions.

Power from the battery is sent to the controller, the "switch" to provide the correct amount of current to brake assemblies on the coach. As you press harder on the pedal, the more current will flow, applying more brakes, increasing braking capability. Keep the battery in tow vehicle and its charging system in good working order to ensure available energy when required.

Wiring to operate your brakes must be sized in both vehicles, suggesting 12 or 14 gauge minimum for your tow vehicle. Your coach has 14 gauge from front end to brakes. Brake assemblies are wired in parallel, never in series. Being parallel, there will be equal voltage and amperage at each brake assembly.

Use the foot pedal control for general operation on combined use of both brake systems. Manual control is to be used only in special situations,

such as slow movement or icy road conditions. In open position, electrical current will flow to brake assemblies, activating them.

When applying brakes to stop trailer, begin pressing slowly to avoid quick and sudden stops, or “jack-knife” WHEN SLIPPERY AND/OR WET. Use lower gear ranges to minimize the need of brakes during extended or steep down grades.

Your coach has self-adjusting brake assemblies that will correct any looseness in operation as they will self-adjust in forward or backward motion as soon as towing begins.

### **Breakaway Switch**

Each state has its own laws concerning this component. With a 12-Volt battery on the coach, power is supplied to switch. Should a disconnect happen (coach from tow vehicle), the pin will pull out and the brakes will come on, preventing full separation of vehicles. Required by law in many states.

**NEVER** use this brakeaway switch for a parking brake. High amp draw will cause heat on wiring and other components.



**Removing plunger with power to brakes could result in damage to brakes.**



**Removing plunger while in storage could result in corrosion to unit points.**

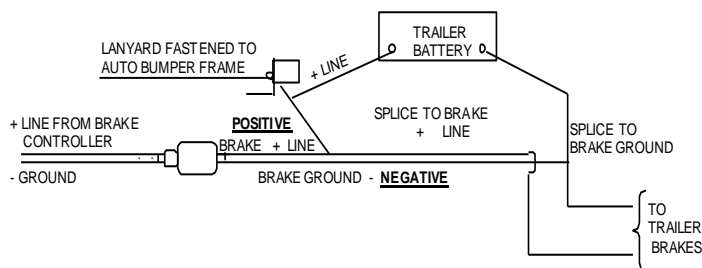


**A tag may be attached to lanyard cable. DO NOT use as a parking brake.**

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

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





## 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 turning signals for your own safety and others.
3. When 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 slower on wet pavement and icy highways to keep control of your vehicle.

## 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 camper, such as your water drainage system and refrigerator, are designed to operate in a level position. Second, it is more comfortable to live on the level. Should a level camp site not be available, use short 2 X 6 blocks of wood on the low side under tires for a level position.

Before unhooking the trailer from the tow vehicle, be sure the tongue jack foot is in place and block the trailer wheels to prevent trailer from moving.

Before lowering the tongue jack, you may wish to place a wood block or hard support under the foot of the jack, unless you are on cement slab. This helps prevent the jack from sinking into the dirt.

1. Release the weight distributing bars (if used).
2. Undo the safety pin or lock, then release the safety latch on the coupler.
3. Raise the coupler on the A-frame by turning the tongue jack until the ball is free.
4. Disconnect the 7-way wire connector, safety chains, and the breakaway cable.
5. Move the tow vehicle away as desired.
6. Lower the tongue jack until the coach is level. Adjust the height as needed.
7. Lower the stabilizer jacks, two or four as equipped.

The use of stabilizer jacks on a recreational vehicle is a popular and useful item. They provide a reasonable amount of stability while using, occupying, and moving around in your camper. It is important to remember that stabilizer jacks are for support of the coach and are not designed to bear the weight of a recreational vehicle.

To operate the stabilizer jack, place crank onto the jack shaft and turn clockwise to lower until the frame begins to raise slightly. Equalize all four jacks for best support. You may need to adjust each jack two or three times.

To raise jack to upper travel position, turn counterclockwise until jack is seated in UP travel position.

Upon completing the setup of your coach you are now ready to make attachments to various facilities.

- Waste water hose connections.
- 110-Volt power cord electrical hookup.
- Turn on propane tanks and light pilot lights, if any, on appliances. Remember there may be air in your propane lines. Be sure to bleed them before planned usage.
- Open any windows and roof vents as desired for ventilation.

You may have additional accessories and options, such as an awning on the door side which needs to be opened. Separate instructions are provided by the manufacturer of these components.



**When preparing to depart or move, don't forget to reverse the procedures above. Remember, open roof vents, windows, or are subject to wind damage in transit.**

## **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.

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

Each listed detector has its own manual and instructions sheet, providing more information for its use and maintenance.

Lifetime of the detector ranges from five to ten years and will need to be replaced as per manufacturer's instructions.

## **Safety Detectors**

### **Fire Extinguisher**

A fire extinguisher is installed in each vehicle and is located near the entrance door. Be familiar with its location and operating instructions as printed on the extinguisher. Inspect the fire extinguisher each spring and fall.

Extinguisher is rated at 5 or 10 BC, as required for recreational vehicles.

### **Combo Propane and Carbon Monoxide**

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 protection device. A converter or auxiliary battery is required to supply 12-Volt DC energy to operate the leak detector.

A 15 amp fuse is located in the fuse panel in the converter. There is NO master cut-off switch for detector.

## **Operating Instructions**

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. The 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 manual provided by manufacturer 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 propane.

## Simultaneous CO and Gas Alarms

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 previously.

## Low Power Operating Instructions

This alarm will operate normally down to 7 VDC. Below 7 VDC your alarm will not function.

## Visual and Audible Alarm Signals

This SAFE-T-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 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 is 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 butane 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 the 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</u>	<u>AUDIBLE SIGNAL</u>	<u>VISUAL SIGNAL</u>
NORMAL	NONE	STEADY GREEN
CO ALARM	4 "BEEPS" EVERY 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 years**

All 35 and 25 series models include a signal (EOL) signal indicating the sensor has reached the end of its 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/RETEST button on the alarm. This will reset 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 the alarm **MUST** be replaced. **DO NOT DISCONNECT THE ALARM UNTIL YOU HAVE A REPLACEMENT ALARM AVAILABLE TO INSTALL.**

This alarm is designed to detect CO and Propane. It is NOT designed to detect smoke.

#### **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**

Due to having open flame while cooking with propane in the coach, it is

required to have a smoke alarm placed on the ceiling between bedroom and kitchen.

Energy to operate this alarm is supplied by 9-Volt battery inside of alarm. Battery must be tested each week to make sure it operates correctly while using your camper.

### **Operating Instructions**

The smoke alarm is operational once the battery is correctly connected. The LED will flash every minute to show the battery is supplying power to the alarm. When production of combustion is sensed, the unit sounds a loud alarm which continues until the air is cleared.

**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 or other failure and should be replaced immediately.

- Test smoke alarms before going on 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.**

Lifetime of a smoke alarm is 10 years from activation.

Smoke alarm responds to smoke, not to heat or flames of fire.



**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.**

### **Step Assembly**

Two styles of step assemblies are being used currently in KZRV. They are under door steps and inside door steps.

#### **Under Door Steps**

Before entering your RV, place your hand in the center 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 a

useable position. The arm on the step will meet a positive step. Step care, maintenance, and lubrication will be found in the maintenance manual.

### **Inside Door Steps**

Open the entrance door and the step assembly will be inside, standing vertical. Grab handle (blue or yellow) and turn the latch. Hold step assembly so it does NOT fall out the door.

Lower the assembly slowly until step feet are supported by the ground. Before lowering, observe and obey the 4 decals attached to the steps concerning handling the assembly. Adjust feet as needed to keep assembly level and safe. Use swingout grab handle as needed to enter/exit RV for safety.



**After lubrication, on pivot points, be sure no lubricant is remaining on steps, causing a person to slip.**

### **Windows**

All windows are of slider opening design, solid picture window, or opening vent panels. Sliders may open horizontal or vertical as called for per floor plan. Egress (Escape) 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 (Escape) windows, screens are attached to swing out panel of the window.

### **Doors**

Lock and latch assembly on entrance door contains 2 locks. The handle, for opening the door and the deadbolt. Both use the same key. 2 keys are included. One is for the entrance door and the other is for the outside shower door.

Hinges on entrance doors are referred to as "friction hinges", meaning the door will not swing freely.

Screen doors may have two types of latches. First, a "roller" latch and secondly, a "hook" latch, which needs to be tripped to open.

Propane container compartment doors are not permitted to have keyed locks.

All locks work and function better with a small quantity of silicone lubricant sprayed into key entry several times per year.

### **Antenna TV (Standard Roof Mount)**

Current TV antenna has a rigid base to mount receiver head which cannot be rotated or raised up. The base is attached to roof with three to six screws and antenna is attached to base with two bolts and nuts.

Inside of coach, on the wall, is a power supply with a brown cover where you hook-up to TV and satellite. There is an on/off button on the power

injector to engage the booster, located inside the antenna head.  
Location of this power injector is;

1. On the wall, above the space for TV, free standing or wall mount.
2. Behind the TV.
3. Possibly on the ceiling close to the TV location.

Without 12-Volt DC power, your signal will not be amplified.



**The power injector MUST be turned off when connecting/disconnecting cables to power injector and antenna, but MUST be turned on when testing for voltage.**

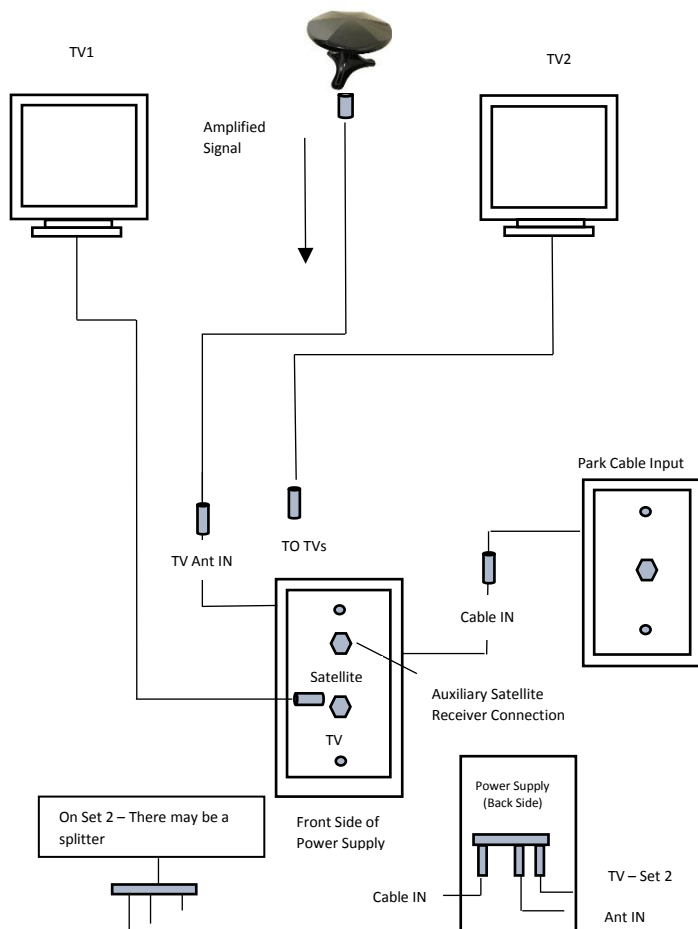


FIG 7a



## Slideouts

Slideouts come in many sizes and different systems. In this moc have what is called “above floor slideout”. Meaning, all components are located inside and above the floor, under the sofa or under the dinette. A single mechanism is attached to a slideout and is accessible inside on the floor.

## Operating Instructions

### NOTE:

1. Before operating the slideout room, level trailer front to rear and side to side.
2. Extend ALL stabilizer jacks to make contact with ground and/or solid blocks. Placing stabilizer jacks onto a hard surface allows the coach to remain square and assures a good weather tight seal between the room and trailer sidewall.

All power slides operate on 12-Volt DC power provided by converter thru a 12-Volt distribution load center, with a 30 amp breaker for protection, supplies power and safety for operation. For best performance, have 120-Volt power attached. Tow vehicle power can be used, if required.

Switch is normally located under, in, or beside an overhead cabinet, generally in kitchen area. Switch is spring loaded, so you will need to hold it while moving slideout. Movement time is about 20 seconds, in or out. In either direction of movement, there are gaskets that seal room and coach from water and insects.

To open—Hold switch until fully open ready to occupy.

To close—Hold switch until fully closed.

No blocking is required or suggested to be used under slideout during use. As it will distort water seals around slide out.



**DO NOT place pressure or force when open or closed between gaskets and wall. It can cause bending of extrusion when in or out.**

## Manual Override

Should 12-Volt power fail and there is no 120 AC power available, follow the listed directions. Access to the mechanism is under the floor of slideout, sofa or dinette, and is from the inside. A 5/8 inch socket is required plus ratchet and extension. Place socket on provided nut supplied by the manufacturer of system. Turn in the direction needed to move slideout.

There may be minor resistance but should move fairly easily.

## **Schwintec Wall Slide**

System is composed of four tracks placed on the outer sidewall of slide, two at the bottom and two near the roof line. One each side, a vertical extrusion is attached to sidewall with a motor inside at the top of the extrusion, accessible only from inside. A gear mounted to the motor will run on the upper track to move the slide in or out. The wire harness is along both sides of the extrusion.

Power is supplied by 12-Volt, converter and/or auxiliary battery through a module board. It is located under the slide, mounted to the sidewall, or near the slide in a cabinet.

Operation error codes are listed and found in the manual supplied by the manufacturer of equipment for circuit board and other components

**Do not** forget, each side has its own motor. Should slide move at an angle, one motor may be disconnected or failed to move. It is very important to keep tracks clean and free from dirt and debris.

## **Schwintec Manual Override**

### **Manual Override – Electric**

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

### **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 people to move slide. Keep both sides even.
3. When room is completely in, plug both motors back into the circuit board. This will apply the brake for road travel.
4. Room must be travel locked during travel.

Additional information can be obtained from LCI by Schwintec.



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

### **Toy Haulers**

Classic and Escape Toy Haulers offer numerous opportunities to transport your “toys” within permitted weight limits. The front end of coach is a fully equipped recreational vehicle with rear portion available for cargo items.

In a Toy Hauler you may place 40% of allowed cargo weight in the rear space. The remaining 60% is to be distributed in the following manner, for every two pounds in front of the axle, one pound should be behind the axle.

Excess weight behind the axle lightens hitch weight, which may cause sway when passing vehicles and when gusty winds are present.

Since these coaches are designed and built to carry such cargo in the rear portion of the unit, special care must be exercised in loading to prevent potential handling concerns. Any cargo in rear area **MUST BE** secured during movement. For this reason there are “D” rings provided on the floor of each coach.



**The tie downs provided are for general purpose use (rating 1500 pounds each). The transport of certain types of cargo (motorcycles, bikes, etc.), may require additional accessories for secure transport. Please refer to owner's manual or contact the manufacturers of these specific items for more information.**

Any two (2) wheel items such as bicycles and motorcycles will require additional support for front wheel such as a “wheel chock”. Any such support item **MUST** be anchored with bolts and nuts through floor and/or solid material. Floor material only will not hold the wheel chock.

When internal combustion engines are stored and transported inside of the cargo area, your living quarters has restricted usage. Fumes from gasoline in engines are hazards to the respiratory system of human beings and pets. After removing vehicles containing gasoline, full

ventilation is required for 3 hours before occupying the recreational vehicle.

When sleeping or occupying this area, care must be taken. There is one (1) vent on each side of the coach that **MUST** be opened (totaling two (2) vents) when gasoline filled equipment is present.

Sleeping opportunities in cargo area:

- Fold up sofas are available, secured to sidewall and will fold out as a bed when cargo is removed.

### Fuel in Cargo Area

To reduce the risk of fire, explosion or asphyxiation.

1. **DO NOT** allow passengers to ride or sleep 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 the vehicle.



**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. Do not ride in the vehicle storage area while vehicles are present.
2. Do not sleep in the vehicle storage area while vehicles are present.
3. Close doors and windows in walls of separation (if installed) while any vehicle is present.
4. Run fuel out of engines of stored vehicle after shutting off fuel at the tank. Do not store, transport, or dispense fuel inside this vehicle.
5. Open the windows, openings, or air ventilation systems provided for venting the transportation area when vehicles are present.
6. Do not operate propane appliances, pilot lights, or electrical equipment when motorized vehicles are present.

**!!! DANGER !!!  
FAILURE TO COMPLY COULD RESULT IN AN INCREASED RISK OF FIRE, EXPLOSION, ASPHYXIATION, DEATH, OR SERIOUS INJURY.**

5. Ventilate the interior of the vehicle to reduce the risk of fire, explosion or asphyxiation for at least 3 hours prior to occupancy.
6. **DO NOT** operate gas appliances, pilot lights or electrical equipment when motorized vehicle or motorized equipment are inside the RV vehicle.

### **Rear Cargo Door**

Rear cargo door on Classic and Escape coaches have "Spring Loaded", preset designed springs attached along with hinge assembly. As an open door down, these springs support most of the weight. A double latch on each side ensures tightness when closed. Handle will latch into door lock when closed. Lock may be secured with keys.

### **Murphy Bed**

#### **Murphy Bed Set Up and Stowing**

1. This is a job for two persons, one on each side of the Murphy bed. Before lowering the bed, make certain that the sofa couch has been folded down and that no person is under the bed area.
2. While holding the Murphy bed with your free hand, pull back the barrel latch pins on both sides of the Murphy bed locking the bed in the upright position. The bed should be unlocked and ready to be lowered.
3. Once the pins are unlatched, slide your hands underneath the footboard at the top of the Murphy bed base on either side and slowly lower the bed to the horizontal position. The footboard will unfold at that time so beware of pinch points and the board hitting your feet. The bed should then rest on the footboard in a horizontal position.
4. There is a barrel latch on the side of the night stand. Locate it and make sure that the Murphy Bed is latched in the horizontal position with that barrel latch before use. If it is not latched then there is a risk that the Murphy Bed may swing up into the upright position if a person places too much weight at the head of the bed.
5. When stowing the Murphy bed, please again make certain that two people do so and that no one or no object is on the bed or in the storage compartment.
6. Unlatch the bed and slowly raise it to the upright position in the storage set up position. Again, beware of pinch points and the footboard hitting your hands while the bed is being raised. When holding the base of the bed, latch the barrel latch pins on either side of the Murphy bed. Make sure the bed is securely stowed before travel.



**SUPERVISION** - For your safety and the safety of others, please do not allow any individual under the Murphy bed when lowering or on the bed when it's being raised or stowed. Children should be supervised at all times and adults should likewise instruct children about the hazards of being under the bed when lowering or on the bed when it is being raised.

**PINCH POINTS** - Beware of pinch points between the base of the Murphy bed and the sofa when lowering and between the base of the bed and the storage compartment when raising and/or stowing the bed. Also beware of the pinch point between the footboard and your feet when lowering the bed and the footboard and the base of the bed when raising to stow.

**CRUSH HAZARD** - Lowering the bed may cause injury to oneself or others. Keep clear of the bed base when lowering or raising the Murphy Bed and ensure that no adult, child or pet are under or near the bed when lowering or raising to stow.

**USER ENTRAPMENT** - Make certain that no person is on the Murphy bed when it is being raised or if the bed has not properly latched in place after it has been lowered for use. If the bed is not properly latched in place during use, it may inadvertently raise up if there is not enough weight on the head of the bed past the pivot point. In that circumstance, a person may be trapped between the bed and the storage compartment which may result in serious injury or death. In addition, if someone is on the bed when it is being raised to be stowed, that person may be trapped between the bed and the storage compartment which may result in serious personal injury or death.

**MAXIMUM WEIGHT**—Know your weight. Maximum capacity of the Murphy bed is two (2) average sized adults. **DO NOT** exceed 500 pounds on the Murphy bed.

## 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.

### Tanks

Water containers are installed inside of the coach, under the bed, dinette or sofa or underneath the floor, inside of main rails. All water containers have 3 exit lines: (1) draw water throughout coach with pump, (2) drain spigot for tank, (3) overflow line is attached to fill vent.

### Filling Fresh Water System

Listed below are two methods of placing water into your coach fresh water system:

1. City Water Fill (figure 1): Water may be received into the system through a direct hook-up referred to as a "city water fill." After attaching a hose to hook-up and supply line, open the faucet from the supply line. Enter the coach and open all faucets to relieve air from the lines. The water heater will fill first before the supply lines. You will experience some air pockets. Allow them to escape before closing faucets.
2. Gravity Water Fill (figure 2): To place water into the fresh water tank, remove cap from fill. Insert the hose into the 1 1/4 inch flex tube 4 to 6 inches. Open the water supply faucet. On the gravity water, fill you will find a small screen 1/2 inch in diameter, which is the vent and overflow line. When water squirts out, your tank is full. Stop filling immediately. Overflow line is much smaller than fill line.
3. During the tank fill process, check the Tank Monitor Panel (if applicable).

Figure 1



Figure 2



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



**DO NOT** leave tank unattended while filling.



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.

## **Water System**

### **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.

When pump is not in use, turn 12-Volt power off at the switch, located on wall or on monitor panel if so equipped.

The pump has a small filter attached on the “in port” side to prevent any foreign material from entering into pump. You need to annually or more often unscrew cap and clean out screen or replace it.

### **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, Fiberglass & Waterproof Vinyl material, similar to those in your home. Shower curtains are provided with the coach and must be used to prevent water from spilling onto the floor, causing potential 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.

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 at shower head while you soap up, then rinse.

### **Sanitizing and Filling the Potable Water System**

For your safety, you should sanitize your potable water system when your recreational vehicle is new or when it has been sitting unused for a period of time and it may have become contaminated.

Prepare a chlorine solution using 1/4 cup of bleach (5% sodium hypochlorite solution) to one 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.

### **For Gravity Fill Storage Tanks:**

1. Close all the drains: tank, low-point drains, and have by-pass closed to water heater.
2. Open lid on gravity fill and pour above contents into tank. A funnel may assist your efforts or be required.
3. You may wish to add additional water for circulation.
4. Open all faucets to allow air to escape.
5. Turn on water pump to deliver water solution through coach water lines.
6. Close faucets when air ceases to bubble out.
7. Allow solution to remain in tank and system for 3 hours.
8. Drain solution and flush as desired with fresh water.

### **Drainage (Fresh water)**

All permanent fresh water tanks can be drained. Two types of drains are used, (1) a push/pull or, (2) a turn valve with open/close position. Valve is normally close to tank.

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 needed.
6. To empty the pump, start and allow to run up to 20 seconds.

## **Sanitation System**

### **Toilets**

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.

### **Operating Instructions**

Note the photo to the right, showing movement of pedal downward, you will add water to bowl. Push downward further to flush contents into waste tank. Release pedal slowly to close flush operation.

For hand lever operation, pull both levers forward to flush. To add water only pull white lever forward. When releasing lever (s), do so slowly.

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.



**Aqua-Magic V**  
*Hand or pedal flush*

When hooked up to a sewer drain at a campground, 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.

### **Using Toilet and Tank System**

When camping you should always have 4 to 6 inches of water in the toilet bowl. The toilet system performs better when you run water 10 to 20 seconds after flushing to ensure wastes will proceed to the bottom of the tank. If there is not sufficient water used during flushing, waste materials may not evacuate properly from drain line to tank. Tank and pipes could eventually become clogged.

### **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 walls and cabinets 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.

## 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.

**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.

All drain pipes from sink and shower 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.



**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 need to drain the system.**

## 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 higher in the front. Others will drain from end permitting a slight tilting to the side which drains are on.

Make sure the Dump Valves are closed before removing the cap and attach the adapter onto the valve housing. 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 valve to drain the sewage tank first. Open the valve on the gray water tank last to utilize water to wash and rinse the hoses and drain lines.



**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.**

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, supplying information to the monitor panel, free of debris and build-up.

*Gray (Waste-Water) Tank.* Fill tank with 5-8 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 3-5 gallons of water. Add one bottle of drain cleaner, such as Drano or Liquid Plumber. Leave the solution in tank while traveling. Rinse and drain tank.

### **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.

Two methods of winterizing your coach after draining and flushing your drainage system are listed below:

#### **Method 1:**

1. Open all faucets, low point drains and toilet valve to drain all water. Leave these open during this procedure.
2. Start pump and operate until all water has been removed, takes about 10 to 15 seconds.
3. 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.
4. Pour one (1) pint (16 oz.) of non-toxic RV anti-freeze into each P-Trap, two pints into sinks and one pint into bathtub.

#### Method 2:

1. Turn off the pump.
2. Drain the water heater and the entire water system.
3. Change the flow direction on By-Pass Kit by turning both valves 90 degrees to prevent anti-freeze from entering water heater. Valve handles in vertical position is for by-passing water heater. Horizontal position will allow water flow into and through the water heater.
4. Remove the inlet line from the water pump.
5. Make an adapter hose kit to attach to the water pump, when accessible. Attach fitting to one end of water line/hose, which attaches to water pump.
6. The open end of the hose is to insert into a gallon jar of anti-freeze liquid.
7. Turn on the pump to supply the RV system with anti-freeze. You may use two to three gallons.

NOTE: Some models will require a screwdriver to remove a panel to gain access to by-pass kit, water pump, and plumbing components.

#### Using the Water System during Freezing Weather

Your towable coach was not designed to be used during freezing weather unless special precautions are taken. Water freezes at 32° Fahrenheit.

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



**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!**

#### Black Flush System (optional)

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

Attach a fresh water source to connection NOT marked “City Water Connection” or “Fresh Water Fill”. Be sure termination valves are open on holding tank (s).

Turn on water, allowing it to rinse through tanks.

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 before next use.

## 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 degrees, 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 of propane in a container rises 1.5%. Example, if you fill your container in the north and its 0 degrees outside, then you go south and its 80 degrees outside, you now have a container filled at 92%, a potential problem with 10% valve spewing out propane vapor.

## Propane Container

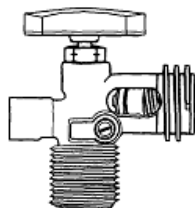
The propane cylinder is a D.O.T. approved container to hold liquid under high pressure, normally a 20 or 30 pound capacity.

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 three valves in one body.

1. Main pass thru portion to fill container and draw propane from, is controlled by upper three sided knob.
2. 10% valve, a small screw on the side of main body allows any

**OPD Cylinder**



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 which closes when 80% of capacity has been reached.



**DO NOT use tools to open or close the tank valve. HAND TIGHTEN ONLY to avoid damage to the valve or handle.**

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.

### **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. As an owner, you do not need to be concerned regarding this procedure, unless you permit the valve to be in **OPEN** position when empty.


Two overfill devices are built into the valve to prevent overfilling of the container. First, is the small brass “knob” or “screw” on side of the valve. This “10% valve” **MUST** be open when filling, allowing air to escape. When the container reaches 80% of the correct capacity, liquid appears.


Secondly, containers with OPD valves have a float on the inside that automatically shuts off liquid flow when the 80% capacity has been reached.

When refilling propane containers, they are generally removed from propane compartment or tie downs. **BE SURE** to reinstall 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 will 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 propane with a special torch to reduce quantity of propane.

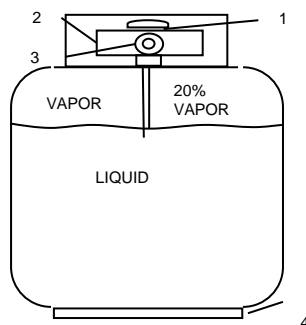
 <b>Warning</b>	<p>Never smoke during the filling of propane tanks. Keep the recreational vehicle away from immediate filling area when possible and extinguish all gas pilots.</p>
---	---


 <b>Danger</b>	<p>A warning label has been located near the propane container. This label reads as follows:  <b>DO NOT FILL CONTAINER(S) TO MORE THAN 80% OF CAPACITY.</b></p> <ol style="list-style-type: none"> <li>1. Overfilling the propane container can result in uncontrolled gas flow, which can cause fire or explosion.</li> <li>2. A properly filled container will contain approximately 80% of its volume as propane.</li> </ol>
--	---

 <b>Danger</b>	<p>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.  <b>FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.</b></p>
--	--

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.

- |   |
|---|
| <ol style="list-style-type: none"> <li>1. Knob to open and close main valve.</li> <li>2. Complete valve assembly.</li> <li>3. "10% valve", (small brass knob or slot screw).</li> <li>4. Container mounting stand.</li> </ol> |
|---|



 <b>Danger</b>	<p>Your vehicle has exterior combustion air inlets. Appliance pilot lights <b>MUST</b> be turned off during gasoline or propane fueling. (Required by law)</p>
--	--





**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 soap products that contain ammonia or chlorine.

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

### **Installing Propane Containers**

Classic and Escape recreational vehicles are equipped with one 20 pound propane container for each coach.

Mounting and attaching instructions are listed below:

1. Locate the pre-installed screws (2) in the top of A-frame near tongue jack at front end.
2. Remove both screws and re-stall with propane bottle ring.
3. Attach regulator to bracket, welded on ring (4 screws).
4. Attach hi-pressure hose to top side of regulator.
5. Attach lo-pressure hose to bottom side of regulator.
6. Attach brass swivel nut to bulkhead fitting on the coach.
7. Place filled bottle into ring and tighten wing nut to secure bottle.
8. Attach ACME fitting of hi-pressure hose onto the bottle.
9. Be sure ACME fittings are tight, hand tight only.
10. Open valve of bottle SLOWLY.
11. Test ALL (4) connections for leaks. (Use soapy water in which soap does NOT contain ammonia or chlorine.)

### **Regulator (single)**

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 prevent vent blockage. Should vent be covered, regulator CANNOT function.



The regulator has the only moving components in the propane system. Its 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** make this adjustment without a manometer. 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.

Your propane regulator that is used on Classic and Escape products is the standard two stage regulator. This standard regulator is used on smaller coaches.

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”. Should the container valve be opened too quickly, this device may close, stopping the flow of propane. Should there be a rupture or break in the propane line, it will reduce the flow to a maximum of (SCFH) Standard Cubic Feet per Hour.



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

### Main Supply Hose – Low Pressure

The main supply hose will be attached to the regulator and manifold fitting attached to front cross member of frame.

The swivel brass nut on the main hose will be your final attachment.

There are several things to remember each time the container is removed:

1. Be sure ALL fittings are tight. Always use two open end or 6 point wrenches for brass connections.
2. Be sure ALL connections are tested for leakage.

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.

### **Operating Instructions**

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 (if any) are closed.
2. Open main valve on propane container slowly to avoid a fast rush through excess flow valve causing “gas 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. Solve leak before proceeding.
4. Light appliances as needed and directed in Chapter Five, Appliances.

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 open end or 6 point wrenches when tightening brass connections to prevent twisting of copper.



**Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fire or asphyxiation.**

For your own protection, the preceding warning label 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.



If you smell gas:

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

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

### **Propane Gas 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 20 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.



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

Cooking appliances need fresh air for safe operation.

Before operating:

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

Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle. Proper ventilation when using the cooking appliance(s) avoids dangers of asphyxiation. It is especially important that cooking appliances **NOT** be used for comfort heating, as the dangers for asphyxiation are greater when the appliance(s) are used for long periods of time.

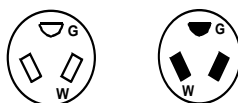
**FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS  
INJURY.**

APPLIANCES	LP GAS CONSUMPTION
Water Heater	12,000 BTU
Furnace	16,000 BTU-20000 BTU.
Stove/Oven	6,500 BTU
Refer (3,4 Cubic)	875-1,420 BTU
Note: The above chart represents many different models.	

## 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.



30-A, 125-V, 2-pole, 3-wire, grounding type

### Changes and Modifications

Any changes, alterations, 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 of the coach.

### Power Cord 30 amp

Power cord is rated at 30 amps, 120-Volts AC, is detachable and needs to be stored inside of coach during travel.

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.

Power will enter through the main breaker and is distributed through circuit breakers to the wall receptacles and appliances.

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

### Circuit Breakers in Load Center with Converter

On a 30 amp system, a maximum of six distribution circuits, are permitted. All breakers are sized according to power needs on each line.

The following generic drawing shows the circuit breaker alignment with number one being the main breaker on all floor plans. Depending on the size, floor plan and options of your coach, circuit three through six will vary and possibly not all circuits will be used. Number 1 is 30 amp for main breaker incoming. Number two is generally the 20 amp air conditioner circuit. An owner must realize and understand that a coach has a total of 30 amp service available to be used. Conserving and choosing which appliance has priority in consumption needs to be part of the planning.

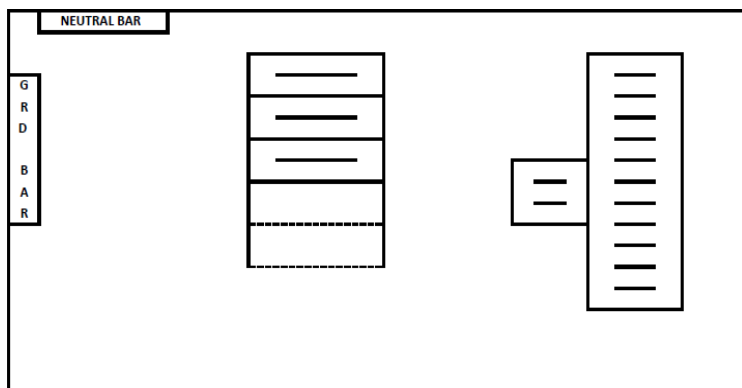
Don't forget loose items such a toasters, electric skillets, and coffee pots also consume power.

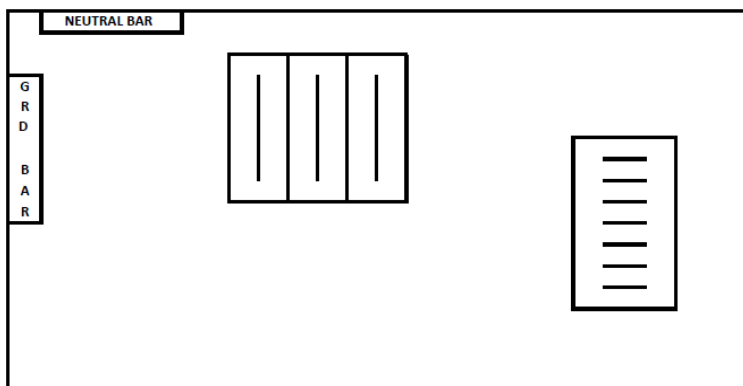


**NEVER, under any circumstances, remove a grounding pin in any cord or plug. It may mean the difference between LIFE and DEATH.**



**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.**





### **GFCI Protection**

Each coach has a GFCI (Ground Fault Circuit Interrupter) protection receptacle installed into the circuitry. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury.

Ground fault causes are from reverse polarity, faulty insulation, using a 2-wire extension cord, moisture and earth ground.

Sometimes you may find this GFCI is in the circuit breaker in the distribution box.

Instead of following its normal safe path, electricity passes through a person's body to reach the ground. For example, a defective appliance can cause a ground fault.

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 or overloads. The circuit breaker or fuse in the electrical panel which supplies power to the circuit provides this protection.

Incoming 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**

Most interior lights and appliances receive 12-Volt DC power through converter output and/or the auxiliary battery. Exterior lights and brakes also use 12-Volt DC power from the tow vehicle battery and/or auxiliary battery through the seven way connector and wire attached to the tow vehicle. Following are explanations of various items.

### **Converter**

The heart of your 12-Volt DC system is enclosed inside of the load center, including 12V fuse panel, 120V breaker panel and converter.

Fuse panel has 6 or more 12-Volt DC fuse positions, depending on output size of your converter. These fuses are mostly 15 amp in size. 30 amp 12-Volt breaker is for slide out if so installed. A 40 amp fuse is also in load center for protection should a battery be installed backwards.

All converters have solid state electronic components internally to produce "clean" 12V DC power.

This load center will have a brown plastic front.

The function of a converter is to take 120-Volt AC power and transform this energy into 12-Volt DC clean power. Converter then performs as follows through fuse panel:

1. Supplies power to the lights in coach.
2. Supplies power to all appliances as required for operation.
3. Provides charging voltage for optional battery if so installed.

No manual switches are needed or required for this operation.

Each converter has a "built-in" fan which operates through a load sensor control or temperature sensor. As more current is drawn, fan will speed up, run faster, or slow down, based on amp draw and/or temperature. Should the fan not run at all, the converter may overheat and will cut-out and/or stop.

### **Auxiliary Battery**

All coaches are pre-built to accept an Auxiliary Battery, which is not provided by manufacturer of your coach.

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 towing, as per state laws.

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. Because of constant product change your battery experts is your local supplier. By electronic standards, a battery is discharged at 10.5 volts. Dropping voltage lower will begin damaging plates in the battery. Keep your battery charged up at all times.

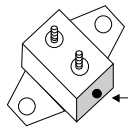
A converter will not overcharge a battery unless a battery has a dead cell, or the converter has a malfunction. Some type of converters have full battery charge shut-off. Other types reduce the rate of charge as battery conditions reach 12.7 volts DC or 1.265 specific gravity at 80°F. By electronic standards,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

The interior lights will operate from the converter and/or auxiliary battery. Some lights will have wall switches and other lights have switches in the lights themselves.

### **Circuit Breakers and Fuses – 12-Volt DC**

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

Fuses are placed in your electrical system to protect wiring and components when overloads appear or short circuits occur. Radios, stereos and possibly other components may have “in-line” fuses attached to their own wire harness.

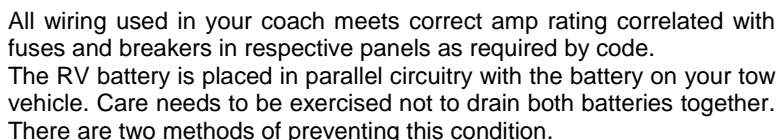
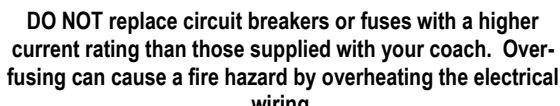


Circuit breakers are placed at several locations. First, a manual or automatic reset breaker is placed within 18 inches of the auxiliary battery. Automatic reset breakers will “reset” by themselves in 15 to 30 seconds when tripped.

### **40 Amp Fuses**

Escapes and Classics have, on the front A-frame, 2 – 12-Volt breakers with red cover over them, 1 – 10 amp (optional) for 12-Volt electric tongue jack, and 1 – 30 amp which protects and operates the battery line.

One or two 40 amp fuses are placed in the converter, protecting the converter should the battery be connected backwards. Fuses will blow rather than damage the converter.



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

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

Note the diagram above, 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, normally on door side. Switches for these lights, depending on models, will be on the right side, possibly on over-head cabinet. Occasionally, the switch will be on the light itself.

### **Brake Wiring**

Both 10 and 12 inch electric brakes operate on 12-Volt power supplied from the tow vehicle, Transferred through the blue-positive and white-negative in the seven way harness. There are no fuses or breakers installed in this brake wiring. More information on the brake system is found in Chapter Three - Using Your RV.

### **Portable Solar Panel (optional)**

There is a hook-up for a portable solar panel installed on the rear wall of the coach.

Solar panels are available through aftermarket dealers only. The main function is keep any auxiliary battery charged while camping.



**Any electrical installation that does not meet the criteria of the manufacturer's specifications will VOID THE WARRANTY on the electrical system.**  
**FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, EXPLOSION, OR DEATH.**

## CHAPTER 5 APPLIANCES

KZRV places 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 or butane gas.

**Note:** Additional notes, cautions, warnings, and dangers are located in each instruction manual provided by the manufacturer of each appliance. These are provided for your safety and protection. Please review before using the appliances.

The first 4 appliances in this chapter, all use propane for their MAIN source of fuel, plus some use 12-Volt DC and 120-Volt AC energy as well. Chapter 4 has more information on propane and its uses.

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

The below '**DANGER**' sticker is located inside of your coach as well.



### IF YOU SMELL PROPANE

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

**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 fuel energy for complete 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 can enter through the control to the burner tube.

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

Your basic operation is performed through a thermostat to operate furnace.

The thermostat as shown here is installed into coaches which DO NOT have central air conditioning. There is an "ON/OFF" switch on the left upper corner.



### Operating Instructions

1. Before operating your furnace, read and be familiar with all safety and warning information supplied by the manufacturer of the furnace.
2. Allow 5 minutes of time with windows and door to be open, allowing full ventilation should any propane odors remain inside.
3. Be sure your propane container valve is turned open and 12-Volt DC power is available. A switch is on the side of the furnace, which must be turned "ON". If blower runs, switch is in "ON" position.
4. Slide thermostat lever from "OFF" position to 60 degrees.
5. Blower will come on in 15 seconds and run about 30 seconds to purge heat chamber.
6. Module board has 3 functions: (1) Send spark to burner tube. (2) Open propane valve. (3) Send signal to board "burner is lit", stop sparking. Board will lockout after trying 3 times to light. After lockout, shut thermostat down, wait 2 minutes and repeat operation.
7. When burner ignites, board will discontinue to spark. You should feel heat within 1 minute at the ducts.
8. Set your thermostat at desired temperature.
9. To shut-down, move thermostat lever to far left and power will cease to flow to furnace. Blower will continue to run about 2 minutes until heat has left chamber.



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



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



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

**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.

Warm air will be discharged through heat ducts or front grill on smaller units. Every furnace must have an open and uncovered return air space. Be sure area in front of grill or screen is not blocked or covered by any object.

### **External Vents**

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

### **Propane Odor**

Should you smell propane vapor in your recreational vehicle, follow guidelines on page 55.

Propane 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 WC (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 not operate, as there is not enough air speed to keep sail switch open. 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.



**Do not use propane cooking appliances for comfort heating. It can lead to carbon monoxide poisoning, which can lead to death or serious injury. Propane cooking appliance need fresh air for safe operation. Before operating, open vents or windows slightly or turn on exhaust fan prior to using cooking appliance. Propane flames consume oxygen, which should be replaced to ensure proper combustion. Improper use can result in death or serious injury.**

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



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

## Cooking System

All Models have a 2 burner drop-in cook top, fueled with propane. They **DO NOT** have a standing pilot light and must be lit with matches or hand held lighter each time you wish to use it.

## Operating Instructions

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 gas supply before attempting to light the burner. Air in the gas line will significantly delay burner ignition. Air in the gas lines may occur after the vehicle gas bottle and/or tank is refilled, during and after servicing other appliances on the same gas line, etc.
  - b. **Do not** attempt to light more than one burner at a time.
  - c. Immediately light the burner by holding a long match near the burner ports.
3. If any burner should extinguish, after initial lighting, propane will continue to flow. Turn control valves (knobs) to "OFF". It is NOT safe to relight burner until propane odor disappears. Failure to follow these instructions could result in an injury.
4. **DO NOT** leave an operating burner unattended during the first few minutes of being lit, due to potential air in the lines, it could extinguish.



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



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



When the recreational vehicle is not in use or while traveling, it is recommended that the gas supply also be turned off.

### **Microwave (optional)**

Some models have an optional microwave along with another propane cooking appliance for your convenience. Microwaves come with an instruction manual on how to use, handle, and maintain the appliance. Follow all instructions carefully.

### **Water Heater**

Several energy sources are available to heat water: (1) Propane gas and 12-Volt DC combination. (2) A 120-Volt AC option is available and may be included with either source in a combination form (optional).



Before attempting to operate any water heater, you must be sure the heater is full of water. Failure to fill with water will result in the tank warping and the element burning up.

### **DSI Models**

#### **Operating Instructions**

This appliance does not have a standing pilot light. A switch is located in the monitor panel for water heater operation to turn appliance ON or OFF.

1. Be sure valve on propane bottle is open.
2. Turn switch on monitor panel to on.
3. Module board now takes over sending spark to burner tube and valve, controlling propane going to burner tube. Ignition happens for 7 seconds, it either lights or goes into lockout. Board will try 3 times before going into full lockout.
4. Wait 2 minutes and repeat procedure if it goes into lockout.
5. After heater is operating, water will reach the temperature the thermostat is preset for. Remember, thermostat is non-adjustable.
6. To shut system down, simply turn off switch at monitor panel.

**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. **Do not** operate the water heater with the door open if vent is blocked.



## 120-Volt AC Option

Should you have 120-Volt AC option there are 2 switches. One is located on the outside of water heater, inside the service door. The second switch is located on the monitor panel marked as "ELECTRIC". Both switches must be in "ON" position to operate.

**DO NOT OPERATE THIS APPLIANCE ON TWO ENERGY SOURCES AT THE SAME TIME. DAMAGES WILL OCCUR.**



Temperature setting on the control was factory set at the lowest setting to reduce risk of scald injury. Setting the temperature dial past the low position will increase the risk of scald injury. Children, disabled, elderly and diabetics are at highest risk of being scalded.

## 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.

## Refrigerator

KZRV installs many different sizes and models of refrigerators operating on 120-Volt AC, propane, and optional 12-Volt DC energy sources.

## Operation Requirements

Refrigerators placed into smaller RVs at KZRV have an absorption cooling unit, consuming propane fuel, 120-Volt AC, and optional 12-Volt DC power. These units protect food by removing the heat in the refrigerator, retaining the temperature in the 34° - 38° range. This type of cooling unit, absorption system, requires precise leveling and venting.

## Leveling

For correct operation, the refrigerator must be within three degrees of being level in any direction. Continued operation outside of these limits will result in irreparable damage to the cooling unit in the refrigerator. Stay within 1 degree for best results. At 1 degree off level your 30 foot trailer will be 5 inches higher at 1 end than the other, not a comfortable condition.

## Venting

For an absorption unit to operate fully, it **MUST** have two vents. The lower vent serves as access to service the components and allows air to enter. As the refrigerator cooling unit heats up, warm air leaves through the upper vent in the roof or the upper side vent. The roof vent gives the best “chimney” results. However, with correct baffles, side vents are efficient. All vents **MUST** have screens to prevent birds and rodents from entering.

Units with two side vents, such as in a slideout, requires a 12-Volt fan to be in operation. When upper cooling fins reach 150°, the fan will automatically start. The positive wire has a 5 amp in-line fuse installed. Access to the fuse is inside the lower vent door and upward, between the wall and coils.

These absorption systems come in numerous sizes, from 2.3cuft to 10cuft. Performance of these refrigerators depends on various factors, such as; energy, venting, leveling, humidity, and atmospheric heat temperatures, but limited to these.

## 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.



**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. A sudden jerk could cause door damage or personal damage.**

## Operating Instructions

In order for proper operation, and to achieve proper cooling, 12-Volt DC power **MUST** be present at the power supply board. Power comes from the solid state converter, auxiliary or tow vehicle battery.

For smaller 3 and 4 cubic foot units follow the directions given in Norcold owner's manual as supplied by manufacture.

For the N7 model and model numbers with an "X" at the end, there is an off/on switch in the control panel for the thermostat located inside of refrigerator.

Should it have a "V", there is no thermostat in controls. You need to move the thermistor, which is located inside the refrigerator at the top, to determine the temperature of box.

### **Operating Instructions While Traveling**

During travel over the road, camper will not be level, however the chemicals in cooling unit will also be moving preventing any problems. Keep the door shut to retain cold temperature during travel.

### **Air Conditioners - Both Optional**

Normal air conditioners are built into the sidewall, near roof line and should be installed only by factory trained production personnel. It is rated at 8000 BTU and draws 6.0 to 7.1 amps.

This air conditioner operates with 120-Volt AC power only. LO or HI voltage will affect performance and durability of this unit.

To operate, use the buttons on either the air conditioner or remote control as supplied with appliance.

Additional instructions are included with each appliance, supplied and written by the manufacturer of air conditioner.

Coaches built and shipped to dealer without side air conditioner will have roof constructed to accept 13,500 BTU roof mounted unit. These require more amps of power for full performance. See their operating instructions for more information.

### **Monitor Panel**

This panel gives you information as to the liquid level of all your holding tanks, fresh or waste, by pressing a button for each tank separately.

Also, it has a switch to turn on (a) Water pump, (b) Water heater (c) Electric option portion of water heater.

### **Tents**

All tents have a "bulb" molding sewn onto fabric and a channel is installed onto aluminum extrusions of door and its frame. Six pieces of separate extrusions, 3 on door and 3 on door frame will hold tent from coming loose. They also prevent anyone from falling out onto the ground on the outer end of tent.

Bunk doors have weight rating of 1100 pounds limitation per door.

The tent(s) on your camping trailer is manufactured with mostly vinyl and polyester fabric laminated to vinyl. Since this material can't breathe, you

may, depending on weather conditions, temperature variance, and furnace usage, experience some condensation inside of coach, more so at night than day. Such condensation can be reduced or possibly eliminated by opening the upper corner of bunk end panel, 1/2" to 1". Fold over to allow small quantity of air to move across roof panel at the end which has the head of sleeping person.

Each tent has a bed bow mounted onto the bunk door which will swing into upright position. A bow brace is also supplied to support the bow. It slips onto round peg mounted onto bow and inner end onto bracket mounted to upper wall inside of wall.

Two cables are preinstalled from door to sidewall holding door in horizontal opposition

### **Important information about your tent**

Two tendencies that you may discover in any tent assembly are; condensation and possible minor leakage during first several times use. The first one is condensation, described in previous chapter. The second is concerning potential leakage.

### **Prepare for your first camping trip**

Set up unit at home to become familiar with method of setup.

Spray outside of unit with water until thoroughly wet. Allow unit to dry completely. Repeat wet and dry process twice more. This will cause material fibers to close up and threads to swell sealing your tent and therefore preventing leakage.

Always allow tent to dry completely with bows and braces in place. Storing unit wet promotes mold and mildew and is not an item that is considered warrantable.

ALL VINYL TENTS NEED TO GET WET ONE OR MORE TIMES TO SEAL THE NEEDLE HOLES. Your tent may leak the first time it gets wet. Do not be alarmed. The tent is sewn with special thread that swells up and seals the needle holes after it has been wet. Rubbing a wax candle over sewn seams after the first rain may also assist in quicker sealing. It is suggested to fully set up your camper and spray water over tent portion at least twice before using camper, for 30 minutes each time. Allow it to dry with all bows and braces in position. This is called preconditioning. Your dealer may have performed this for you.

### **Prevent leakage during use**

**Do not** rub against walls, roof or canvas windows when wet or when raining.

**Do not** place objects against tent walls.

**Do not** over extend or over stretch your tent, with items such as pillows.

**Do not** spray insect repellent or hair spray on fabric as these items may destroy water repellency of this fabric.

**Do not** put tent away in wet conditions. This might be difficult when leaving campsite in raining conditions. If this does occur, within 24 hours

be sure to open tents, set up completely for the tents to dry out to prevent any possibility of mildew to start.

**ALWAYS VENTILATE AND DRY THE TENT WITH BOWS AND BRACES IN PLACE** as soon as possible after each exposure to moisture. Mildew is always the result of negligence.

The plastic windows have a -20° cold crack rating. **Do not** raise the tent up to maximum height in extreme cold (0 degree) weather as the windows may shatter.

### **Cleaning your Tent**

To clean your tent, brush dry with soft bristle brush, or use clean tap water with soft brush, or wash with tap water from hose using spray nozzle. If the fabric had been exposed to salt water, wash with hose using tap water.

**Do not** use solvents, soaps or detergents. **Do not** use aerosol cleaners. If insect repellent is used around the fabric, **do not** spray directly on the fabric. An agent used in most sprays, as a propellant, will damage or destroy water repellent finishes (hair sprays, insect sprays, deodorants, etc.) **DO NOT** touch your canvas while it is raining. It will wick through and appear to make it leak.

If you have stains or have a certain problem, contact your dealer so they can contact KZRV to advise use of safe cleaners that won't damage your unit.

Clean vinyl ends with automotive vinyl cleaner.

### **Tent Shrinkage**

All canvas products will shrink when wet. To prevent the shrinkage from damaging the tent, such as pulling seams, loops and material, reduce frame tension when canvas is wet. Readjust to normal tension when dry. Canvas should not be stretched completely taut or left under constant tension as damage to the tent may occur.

## This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



## **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, 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