



**Jayco**<sup>®</sup> Generations of family fun.

**SWIFT**

2022 OWNER'S MANUAL





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**WARNING: Read all instructions in this manual and component manufacturer supplied information before using your RV.**

This manual has been provided by your recreational vehicle manufacturer for the sole purpose of providing instructions concerning the operation and maintenance of this recreational vehicle. Nothing in this manual creates any warranty, either expressed or implied.

**The owner's failure to provide required service and/or maintenance could result in the loss of warranty.** Please review the limited warranty and the limited warranties that apply to specific components offered with this vehicle.

Instructions are included in the manual for operating various components which are optional on some RV's or may not be available on your particular model. **"If so equipped" does not indicate or imply that the component(s) or option(s) were at any time available, or can be retrofitted to your model.** In addition, the owner should refer to individual manufacturer's operating instructions contained in the owner's packet.

## SECTION 1: WARRANTY & SERVICE

*Congratulations!* Thank you for selecting a Jayco recreation vehicle. We are excited to welcome you to our growing RV family. We are committed to being the most respected name in RVs. We invite you to drop by our Visitors Center located in Middlebury, Indiana. Jayco recreation vehicles are manufactured for use as temporary living quarters for recreation, camping and travel uses, all as defined by the bylaws of the Recreation Vehicle Industry Association (RVIA).

This recreation vehicle is not intended for use as a full-time residence or for commercial use. Commercial use means using the recreation vehicle as a business asset such as a mobile office or using the recreation vehicle for lease or rental purposes.

Jayco reserves the right to discontinue or change specifications or design at any time without notice and without incurring any obligation whatsoever. Recreation vehicles built for sale in Canada may differ to conform to Canadian Codes.

### Factory Tours

To book a factory tour or check on available tour times (free admission, closed holidays) please log on to <https://www.jayco.com> and hold the mouse pointer on the **ABOUT JAYCO** heading (bottom of page). Select **“FACTORY TOURS”** from the drop down menu that opens.

### Options and Equipment

Jayco recreation vehicles are available in several sizes and models, so accessories and components may differ slightly between models. Some equipment described in this manual may not apply to your recreation vehicle.

Jayco reserves the right to discontinue or change specifications or design at any time without notice, and to make additions or improvements without incurring any obligations upon itself to install these changes on its products previously manufactured. Recreation vehicles built for sale in Canada may differ to conform to Canadian Codes.

### Dealer Responsibility

At the time of sale of the new recreation vehicle, your Jayco dealer is expected to:

- Deliver your recreation vehicle in the best condition possible. Your recreation vehicle must pass the dealer’s pre-delivery inspection (PDI), including all systems tests.
- Provide orientation of the recreation vehicle, its systems, components and operation.
- Request that you read all warranty information and explain any provision not clearly understood.
- Ensure you receive the Warranty Packet. Your dealer can assist you in completing the OEM warranty cards or registrations, and locate any required component model or serial numbers.
- Complete and return the “Warranty Registration and Customer Delivery Form” to Jayco within 10 days of delivery to activate the applicable warranty coverage.

The **Limited Warranty** is activated only after Jayco receives a signed and dated “Warranty Registration and Customer Delivery Form” from your dealer.

### Customer Relations

Jayco has empowered its dealers to make warranty and repair decisions.

If a special circumstance occurs that requires information from Jayco, we have asked your dealer’s service management to make the contact on your behalf. **This is why you should always talk to your dealer’s service management first.**

- Customer name and current location.
- Phone number where you can be reached.

- 17-digit chassis Vehicle Identification Number (VIN) or 9-digit Serial.
- The current vehicle mileage (motorhomes).
- Your date of purchase.
- If applicable, the component description, serial number and model number.
- A detailed description of the concern.
- The name of your selling dealer.
- If different from above, the contact information for the RV repair facility you are contacting Jayco to discuss.

### **An important note about alterations and warranties**

Installations or alterations to the original equipment vehicle as distributed by Jayco are not covered by the Jayco Limited Warranty. The special body company, assembler, equipment installer or up fitter is solely responsible for warranties on the body or equipment and any alterations (or any effect of the alterations) to any of the parts, components, systems or assemblies installed by Jayco. Jayco is not responsible for the safety or quality of design features, materials or workmanship of any alterations by such suppliers.

### **Obtaining Emergency Warranty Repair**

1. Call 1-(800)-283-8267 or use our website dealer locator to find an authorized Jayco dealer in your area. Contact them for an appointment; they will handle all warranty repair billing and returned parts for you.
2. If you cannot locate an authorized Jayco dealer near you, ask the campground staff for referrals or check the local telephone yellow pages. Or contact Jayco Customer Service or your selling dealer for assistance in locating a repair facility.
  - Contact the RV repair facility to discuss your situation and make an appointment. Ask how their billing will be handled. They may choose to bill Jayco directly; otherwise, you are expected to pay them.
  - Have the RV repair facility inspect your RV. Either they or you must call Jayco Customer Service to discuss applicable warranty coverage prior to any repair work being performed.
  - Jayco Customer Service will issue an authorization number upon warranty repair approval and advise if any original parts need to be returned.
  - Once Jayco Customer Service has issued an authorization number, the RV repair facility may begin actual repair to your RV.
  - Inspect the completed repair work thoroughly. If you are not satisfied, communicate that immediately to the RV repair facility management. Make sure you are satisfied with the repair before you pay or leave the premises.

For reimbursement, either you or the RV repair facility must send a copy of your itemized repair bill and all requested return parts by UPS (regular ground, freight pre-paid) within 60 days of the completed repair date.

*To expedite processing your warranty claim, include your name, address, phone number, RV 17-digit VIN and authorization number. If returning parts, include a copy of your return freight bill.*

### **Obtaining weekend or after business hours repair assistance**

If an authorized Jayco dealer is not located nearby, contact your selling dealer for assistance. If your dealer is closed, check with the campground staff or telephone yellow pages for an RV repair facility. Have the item repaired and contact Jayco Customer Service immediately the following business day.

*Failure to contact Jayco Customer Service, unauthorized or improper warranty repairs, or failure to return requested original parts may result in loss of reimbursements and/or loss of warranty.*

## **SECTION 1: WARRANTY & SERVICE**

### **To Contact Us**

#### **Mailing address**

Jayco, Inc.  
Customer Service  
P.O. Box 460  
903 S. Main Street  
Middlebury IN 46540  
Phone (toll-free)  
Phone (local)  
Fax (toll-free)  
Brochure request  
Parts email  
Service email  
Website

#### **Shipping address**

Jayco, Inc.  
Customer Service  
100 Bontrager Drive  
Bldg 42 Door 4220  
Middlebury IN 46540  
(800) 283-8267  
(574) 825-0608  
(866) 709-9139  
[info@Jayco.com](mailto:info@Jayco.com)  
[parts@Jayco.com](mailto:parts@Jayco.com)  
[service@Jayco.com](mailto:service@Jayco.com)  
[www.Jayco.com](http://www.Jayco.com)

### **Jayco Travel Club**

All owners of Jayco recreation vehicles are eligible for membership in the Jayco Travel Club.

The club promotes family camping and the active use of your RV with others who have similar interests in the RV lifestyle.

One "International Rally" is held each year in various locations around the United States and Canada. In addition, the club offers a variety of local and regional activities throughout the year.

By belonging to the Jayco Travel Club, you will find new ways to enjoy your RV and make friends all across the country.

For more information, please visit [www.Jaycorvclub.com](http://www.Jaycorvclub.com) or call 1-800-262-5178.

## **ABOUT THIS MANUAL**

This manual is a guide to operation of the features, equipment and controls in your recreation vehicle. If you find components vary significantly from what is described, please contact your dealer to ensure you have the correct information. Nothing in this manual creates any warranty, either expressed or implied.

This Owner's Manual and Warranty Packet are to be considered permanent components of the vehicle. Keep them in your recreation vehicle at all times for personal reference. If the recreation vehicle is sold, they should remain with the vehicle for the next owner. Nothing in this manual creates any warranty, either expressed or implied, nor does it cover every possible detail of equipment, standard or option, installed on or in your recreation vehicle.

*Information, illustrations and specifications in this manual reflect the most current available at the time of publication approval, are subject to change and not intended to indicate actual size.*

## **WARRANTY PACKET**

There are components that are excluded from the vehicle warranty, or are warranted separately by their own individual manufacturer's limited warranty. The Warranty Packet contains these component manufacturer supplied manuals or information sheets, warranty cards and/or registrations. Consult this information for questions regarding operating, maintenance, servicing instructions and warranty coverage. It is important you complete and mail warranty cards and registrations within the prescribed time limits to avoid loss of warranty coverage.

**CHASSIS GUIDE**

Throughout this manual, frequent reference is made to the vehicle's Chassis Guide. The Chassis Guide includes the owner's manual provided by the manufacturer of the chassis on which this motorhome is built, warranty cards and/or registrations. It also includes pertinent information regarding the transmission, tires, etc. Consult the Chassis Guide for operating safety, maintenance, servicing instructions and warranty coverage. The Chassis Guide should be considered a permanent component of the vehicle and kept in the motorhome at all times for reference.

**SAFETY ALERTS**

Throughout this manual, certain items are labeled **NOTE**, **CAUTION**, **WARNING**, and **DANGER**. These terms will alert you to precautions that can involve risk to your vehicle or to your personal safety.

Read and follow them carefully. National Safety Associations and organizations require many of the instructions listed. Always use the appropriate safety gear when servicing or maintaining your recreation vehicle. Please call your dealer or our customer service representatives if you are unsure how to proceed.

These signal words indicate precautions and potential situations, which if not avoided, may result in personal injury, property damage, or damage to your recreation vehicle. These precautions are listed in the appropriate areas in this Owner's Manual, and in the information contained in the Warranty Packet, and on safety labels affixed to your recreation vehicle. Read and follow them carefully.



**NOTE:** Gives helpful information.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**NOTICE**

Indicates a potential situation that, if not avoided, may result in property damage or damage to your motorhome.

**⚠ CAUTION**

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**⚠ DANGER**

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This alert information is limited to the most extreme situations.

## SECTION 1: WARRANTY & SERVICE

### **WARNING**

Indicates a potentially hazardous situation that, if not avoided, may result in death or serious injury.

### **REPORTING SAFETY DEFECTS**

**In the United States:** If you believe that your recreation vehicle has an alleged defect which could cause a crash or cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA), in addition to notifying our Customer Service Department.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign.

However, NHTSA cannot become involved in individual problems between you, your dealer or your vehicle manufacturer. For additional information, please refer to the NHTSA website at [www.safercar.gov](http://www.safercar.gov).

**To contact NHTSA by phone:**

Call the Department of Transportation (DOT) Vehicle Safety Hotline at 1-888-327-4236, and a NHTSA representative will record your complaint information (TTY: 1-800-424-9153 or 1-202-484-5238).

**To Contact NHTSA by mail:**

Office of Defects Investigations/CRD  
NVS-216  
1200 New Jersey Ave SE  
Washington, DC 20590

**In Canada:** If you believe your vehicle has an alleged safety defect, you should contact Transport Canada and our Customer Service Department immediately.

To file a safety concern, you can complete an on-line form at <https://tc.canada.ca/en/road-transportation/defects-recalls-vehicles-tires-child-car-seats/report-potential-safety-defect-vehicles-tires-child-car-seats>, or call to speak with a defect investigator.

For additional information, please refer to the Transport Canada website at [www.tc.gc.ca/recalls](http://www.tc.gc.ca/recalls)

**To contact Transport Canada by phone:**

**819-994-3328 (Ottawa-Gatineau area or internationally)**  
Toll free: 1-800-333-0510 (in Canada)

**To contact Transport Canada by mail:**

Transport Canada -ASFAD  
330 Sparks Street  
Ottawa, ON  
K1A 0N5

[www.tc.gc.ca/rappels](http://www.tc.gc.ca/rappels)

Téléphone: 819-994-3328 (dans la région de Ottawa-Gatineau et à l'extérieur du pays)  
Sans frais: 1-800-333-0510 (au Canada)

Adresse postale :

Transports Canada -ASFAD  
330, rue Sparks  
Ottawa (Ontario) K1A 0N5

### **CUSTOMER RESPONSIBILITY**

It is important you read and understand all instructions and precautions before operating the recreation vehicle. Even if you are an experienced RV'er we encourage you to thoroughly read this Owner's Manual, as well as the information contained in your Warranty Packet and Chassis Guide (motorized only).

As technology advances, new improvements enter the RV industry every day, and each RV manufacturer has its own unique manufacturing process.

Familiarize yourself with the Limited Warranty applicable to your recreation vehicle. There are components that are excluded or warranted separately by their individual manufacturer's limited warranty (refer to the Warranty Packet or Chassis Guide if applicable).

As the new owner of the recreation vehicle, you are responsible for regular and proper maintenance performed in accordance with this manual and the OEM manuals. Regular and proper maintenance will help prevent conditions arising from neglect that are not covered by the limited warranty. It is your responsibility and obligation to return your vehicle to your dealer for repairs and service.

### **CHANGE OF ADDRESS/OWNERSHIP**

Please notify our Customer Service Department as soon as possible of a change of address by writing or calling us. For notification of a change of ownership, please fill out the appropriate form located in this manual and mail it to Customer Service along with documentation showing proof of ownership. Please include your current vehicle mileage (motorized only).

### **SUGGESTIONS FOR OBTAINING SERVICE**

To help ensure your dealer provides the level of service you expect, here are some suggestions we would like to make:

**Contact your dealer at once...** Do not wait until you are ready to use your RV. Your dealer may not be able to service it immediately and/or the repair may require parts be ordered. The dealer's service department is busiest on Mondays, Fridays and before the holidays.

**Prepare for the appointment...** If you are having warranty work performed, be sure to have the right papers with you. Take your warranty folder and have your vehicle information available. All work to be performed may not be covered by the warranty. Discuss additional charges with the service personnel.

**Prepare a list...** Provide your dealer with a written list of specific repairs needed. It is important that you provide any vehicle repair history to the dealer's service personnel.

Keep a maintenance log of your vehicle's service history. This can often provide a clue to the current issue.

**Be reasonable with your requests...** If you leave a list with several items and you need your vehicle returned back by a specific time, discuss the situation with the dealer's service personnel and list your items in order of priority. This may include making a second appointment for work not completed or parts that the dealer may need to order.

**Don't expect to look over the technician's shoulder...** Please don't be offended if you are told you cannot watch the work being done. Some insurance requirements forbid admission of customers to the service area.

**Inspect the work performed...** Finally, check out the service or repair job when you pick up your vehicle. Notify the dealer's service personnel immediately of any dissatisfaction. If you cannot return the vehicle immediately for repair, make an appointment as soon as possible.

## **SECTION 1: WARRANTY & SERVICE**

Please be aware that all service shops require notification of any issues with their repairs within a specified time limit. Make sure you are familiar with their repair policies.

### **OBTAINING SERVICE FOR SEPARATELY WARRANTED ITEMS**

Your selling dealer is responsible for servicing your recreation vehicle before delivery, and has an interest in your continued satisfaction. We recommend your dealer perform all inspection, warranty and maintenance services. Some dealers may be authorized service centers for those OEMs whose products are warranted separately and excluded from the **Limited Warranty**.

### **OBTAINING SERVICE AT OUR CUSTOMER SERVICE FACILITY**

Should your recreation vehicle be in need of service, and your dealer recommends that the repairs be made at our Customer Service facility, your recreation vehicle may be returned to us with the following guidelines\*:

- You or your dealer must make a confirmed appointment **60 days** prior to dropping off the recreation vehicle at our Customer Service facility.
- The holding tanks must be emptied and rinsed. We have a dumping station available for customer use.
- The propane system (if so equipped) and all electrical systems must be shut down and turned off. We are not responsible for discharged batteries or propane tanks.
- During the appropriate season, please ensure the RV has been winterized.
- Unless prior approval has been obtained from our Customer Service facility, all personal items must be removed from the area where you are requesting service repair and the refrigerator emptied. We are not responsible for loss of food items.
- All transportation costs are the responsibility of the owner. You may need to arrange for alternative accommodations for some types of repairs. Please be prepared accordingly.

*\*Our Customer Service facility occasionally utilizes local independent repair facilities. Your vehicle may be referred to or repaired by one of these local repair facilities.*

### **PARTS AND ACCESSORIES**

Contact your authorized dealer for assistance in obtaining replacement parts or accessories. We do not sell direct to retail or non-authorized dealers. If the original part is no longer available, we will make every effort to provide an appropriate substitute.

### **AFTERMARKET ACCESSORIES**

#### **WARNING**

Do not add any type of rack or frame to any motorhome frame or chassis part. The alteration to the length and/or weight distribution may result in unstable handling, be a safety hazard, or could damage the motorhome components.

Installation of aftermarket accessory(s) may affect the Limited Warranty applicable to your recreation vehicle, damage your RV and/or cause a failure. Your RV manufacturer accepts no responsibility for results of work performed by unauthorized technicians.

If you wish to make changes, consult an authorized dealer or your RV manufacturer before contacting other resources. They may be able to refer you to a specialist for assistance.

**2022 JAYCO MOTORIZED (CLASS B) LIMITED WARRANTY**

**THIS LIMITED WARRANTY COVERS:**

- The Motor Home when it is used only for its intended purpose of recreational travel and camping;
- Only the first retail purchaser;
- Only those portions of the Motor Home not excluded under the section “What is Not Covered”;
- The Motor Home only when sold by an authorized dealership; and,
- Only defects in workmanship performed and/or materials used to assemble those portions of the Motor Home not excluded under the section “What is Not Covered”.

This Limited Warranty is not transferable.

When you request and accept the performance of warranty repairs under the terms of this Limited Warranty, you are accepting all terms of this Limited Warranty, including by way of example, warranty limitations and disclaimers, the forum selection clause and the clause reducing the time period when suit must be filed for breach.

**LIMITATION AND DISCLAIMER OF IMPLIED WARRANTIES:**

THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO:

- **THE DURATION OF THIS LIMITED WARRANTY;**
- **THE SCOPE OF COVERAGE THIS LIMITED WARRANTY PROVIDES;**
- **DEFECTS EXISTING AT THE TIME OF SALE THAT MANIFESTED THEMSELVES AND SURFACED DURING THE IMPLIED WARRANTY COVERAGE PERIOD; AND**
- **DEFECTS DISCOVERED AND REPORTED WITHIN THE DURATION OF THE IMPLIED WARRANTY. THERE ARE NO EXPRESS WARRANTIES OR ANY IMPLIED WARRANTIES ON THOSE PORTIONS OF THE MOTOR HOME EXCLUDED FROM COVERAGE.**

**NOTWITHSTANDING THE ABOVE PROVISIONS, JAYCO EXPRESSLY DISCLAIMS AND EXCLUDES ANY AND ALL IMPLIED WARRANTIES AND CONDITIONS, STATUTORY OR OTHERWISE, WHEN THE MOTOR HOME IS USED FOR COMMERCIAL, RENTAL OR BUSINESS USE OR WHEN THE MOTOR HOME IS TITLED OR REGISTERED IN A BUSINESS NAME OR WHEN THE JAYCO IS SOLD IN CANADA.**

There is no warranty of any nature made by Jayco beyond that contained in this Limited Warranty. No person has authority to enlarge, amend or modify this Limited Warranty. The dealer is NOT Jayco’s agent. Jayco is not responsible for any undertaking, representation or warranty made by any dealer or others beyond those expressly set forth within this Limited Warranty. Some states and provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

## SECTION 1: WARRANTY & SERVICE

### DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES:

**THE FIRST RETAIL BUYER AND ANY SUBSEQUENT OWNER, ALONG WITH ANY PERSON WHO IS AN INTENDED OR UNINTENDED USER OR BENEFICIARY OF THE MOTOR HOME, ARE NOT ENTITLED TO RECOVER ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES CAUSED BY A DEFECT IN THE MOTOR HOME. BY WAY OF EXAMPLE, CONSEQUENTIAL DAMAGES INCLUDE FUEL AND TRANSPORTATION EXPENSES TO DELIVER THE MOTOR HOME TO A SERVICING DEALER, HOTEL ROOMS, LOST WAGES AND MOISTURE DAMAGE SUCH AS MOLD AND MILDEW AS WELL AS RUST AND CORROSION. THE EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES IS NOT DEPENDENT UPON WARRANTY REMEDIES SUCCESSFULLY CURING ANY DEFECT; THE EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES SHALL SURVIVE ANY FAILURE OF THE LIMITED WARRANTY REMEDIES FULFILLING THEIR PURPOSE.** Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above exclusions may not apply to you.

**COVERAGE TIME:** The duration of this limited warranty is 2 years after the first retail owner takes delivery of the Motor Home from an authorized dealer OR 24,000 miles of use, whichever occurs first. If the dealer places the Motor Home in service before retail sale, the coverage period is 2 years after the dealer first placed the Motor Home in service OR 24,000 miles of use, whichever occurs first. **ANY ACTION FOR BREACH OF THIS LIMITED WARRANTY OR FOR ANY IMPLIED WARRANTY MUST BE COMMENCED NO MORE THAN 26 MONTHS AFTER THE BREACH.**

Jayco reserves the right to have new or remanufactured parts of similar quality used to complete any work, and to make parts and design changes from time to time without notice to anyone. Jayco 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. Jayco makes no warranty as to the future performance of the Motor Home, and this limited warranty is not intended to extend to the future performance of the Motor Home, or any of its materials, components or parts. In addition, the Motor Home owner's obligation to notify Jayco, or one of its independent, authorized dealers, of a claimed defect does not modify any obligation placed on the Motor Home owner to contact Jayco directly when attempting to pursue remedies under state or federal law.

If the Motor Home is not of the current or prior model year when the first retail owner takes delivery, the limited warranty ends 90 days after the first retail owner takes delivery of the Motor Home OR after the odometer reaches 5,000 miles, whichever occurs first. **ANY ACTION FOR BREACH OF THIS REDUCED LIMITED WARRANTY OR FOR ANY IMPLIED WARRANTY MUST BE COMMENCED NO MORE THAN 15 MONTHS AFTER THE BREACH.**

Unless prohibited by state or provincial law, repairs do not extend the time when you must commence an action for breach of warranty and shall not extend the warranty coverage period. This reduction in time may not apply to you because some states and provinces do not allow the reduction of the time to commence an action for breach of warranty. Any performance of repairs after the warranty coverage ends and any performance of repairs to those

portions of your Motor Home excluded from coverage are “good will” repairs, whether or not Jayco was aware of the any such coverage lapse or warranty exclusion at the time of repairs. Such “good will” repairs do not alter the express terms of this limited warranty or extend the warranty coverage periods or the limitation period in this paragraph. Jayco is not required to notify you if authorized repairs are considered “good will” by Jayco. You should expect the need for warranty repairs. Jayco may use new and/or remanufactured parts and/or components to complete a repair. It is likely that warranty repairs were performed at the factory during assembly OR at the selling dealership after delivery of the Motor Home to your selling dealer. If you discover a defect or damage to the Motor Home when you take delivery of your Motor Home, you MUST notify your dealer OR Jayco within 10 days of the date of purchase to have defect or damage repaired at no cost to you. Minor adjustments will be performed, free of charge, by the dealer within 90 days of your purchase; thereafter, such adjustments are your exclusive responsibility as normal maintenance.

**REPAIR REMEDY:** Jayco’s obligation is to repair any covered defect discovered within the warranty coverage period provided: (1) you notify Jayco or an authorized dealer within 10 days of your discovery of a defect; AND (2) you deliver the Motor Home to Jayco OR an authorized dealership at your cost and expense.

**BACK-UP REMEDY:** If the primary repair remedy fails to successfully cure any defect after a reasonable number of repair attempts, your sole and exclusive remedy shall be to have Jayco pay an independent service shop of your choice to perform repairs to the defect OR have Jayco pay diminished value damages if the defect is incurable. You must exhaust both the repair remedy and the back-up remedy **AND** these remedies must fail to fulfill their essential purpose before you can seek any other remedies for breach of express or implied warranty.

THIS LIMITED WARRANTY IS NOT A WARRANTY THAT PROMISES OR EXTENDS TO FUTURE PERFORMANCE BECAUSE IT DOES NOT MAKE A REPRESENTATION ON HOW YOUR MOTOR HOME WILL PERFORM IN THE FUTURE BUT REPRESENTS ONLY WHAT THE REMEDY WILL BE IF A DEFECT EXISTS.

**HOW TO GET SERVICE:** To obtain warranty service the owner must:

- Notify Jayco or an authorized Jayco dealer, within the applicable warranty coverage period designated above, that you are making a warranty claim;
- Provide the notification mentioned in (1), above, within ten (10) days of the discovery of a defect in material or workmanship; and,
- Promptly schedule an appointment with and take the Motor Home to Jayco or an independent, authorized dealer.

If you need assistance, you may contact Jayco at 903 South Main Street, P. O. Box 460, Middlebury, Indiana 46540, Attn: Customer Service, (800) 283-8267.

## **SECTION 1: WARRANTY & SERVICE**

### **WHAT IS NOT COVERED:**

- Equipment and appliances installed after the Motor Home is assembled by Jayco;
- Motor Homes used for any rental, business and commercial purpose - If the Motor Home owner or user files a tax form claiming a business or commercial tax benefit related to the Motor Home, or if the RV is purchased, registered or titled in the name of any business association it shall be irrefutable that the Motor Home has been used for rental, commercial or business purposes;
- Any Motor Home sold or used outside of the United States, U.S. Territories or Canada;
- Any Motor Home not used solely for recreational travel and camping;
- Any Motor Home purchased through auction or wholesale;
- Any Motor Home purchased from a dealer that is not an authorized dealer;
- Normal wear, tear or usage, such as tears, punctures, soiling, mildew, rust, fading, or discoloration of exterior plastic or fiberglass, or soft goods, such as upholstery, drapes, carpet, vinyl, screens, cushions, mattresses and fabrics;
- The effects and damage caused by condensation or moisture;
- Mold;
- Any damage caused by mold;
- Items working as designed but that you are unhappy with;
- Damage caused by misuse, mishandling, neglect, abuse, failure to maintain the Motor Home in accordance with the owner's manual, or failure to perform other routine maintenance such as inspections, lubricating, adjustments, tightening of screws and fittings, tightening of lug nuts, sealing, rotating tires;
- Damage caused by accident, whether or not foreseeable;
- Damage caused by weather or corrosion due to the environment;
- Damage caused by theft, vandalism or fire;
- Damage caused by tire wear or tire failure;
- Defacing, scratches, dents, chips on any surface or fabric of the Motor Home; damage caused by infestation by insects or animals;
- Damage caused by off road use;
- Damage caused by overloading the Motor Home or any of its components or parts;
- Wheel alignment or adjustments to axles caused by improper maintenance, loading;
- Damage caused by road hazards;
- The leveling jacks/system:
- Any component, system or part warranted by another entity. Examples are, automotive chassis, (including the power train, steering, handling, braking, wheel balance, muffler, tires, tubes, batteries and gauges); generator; awning; inverter; converter; microwave; television; DVD/CD player; radio; speakers; television; refrigerator; range; water heater; water pump; stove; carbon monoxide detector; smoke detector; propane detector; furnace; and, any air conditioner. The written warranty provided by the manufacturer of the component part is the direct and exclusive responsibility of that manufacturer).

**EVENTS DISCHARGING JAYCO FROM OBLIGATION UNDER WARRANTY:**

- Any rental, business or commercial use or purchase of the Motor Home;
- Any Motor Home titled or registered in a business name;
- Any Motor Home purchased or sold outside of, or used outside of the United States, U.S. Territories or Canada;
- Any Motor Home purchased through an auction or wholesale or by a non-authorized dealer;
- Owner neglect;
- Failure to provide routine maintenance;
- Alteration; off road use;
- Collision or accident, whether or not foreseeable;
- Acts of God, including weather;
- Damage or corrosion caused by the environment, theft, vandalism, fire, explosions, or overloading.

**LEGAL REMEDIES:** EXCLUSIVE JURISDICTION FOR DECIDING LEGAL DISPUTES RELATING TO AN ALLEGED BREACH OF WARRANTY OR ANY REPRESENTATIONS, OF ANY NATURE, MUST BE FILED IN THE COURTS WITHIN THE STATE OF MANUFACTURE, WHICH IS INDIANA. THIS LIMITED WARRANTY SHALL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF INDIANA. UNLESS PROHIBITED BY STATE LAW, ALL CLAIMS, CONTROVERSIES AND CAUSES OF ACTION ARISING OUT OF OR RELATING TO THIS LIMITED WARRANTY, SHALL BE GOVERNED BY THE LAWS OF THE STATE OF INDIANA, INCLUDING ITS STATUTE OF LIMITATIONS, WITHOUT GIVING EFFECT TO ANY CONFLICT OF LAW RULE THAT WOULD RESULT IN THE APPLICATION OF THE LAWS OF A DIFFERENT JURISDICTION.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE AND PROVINCE TO PROVINCE. ALL ACTIONS OF ANY KIND RELATING TO THE MOTOR HOME SHALL BE DECIDED BY A JUDGE RATHER THAN BY A JURY.

**WARRANTY REGISTRATIONS:** Your warranty registrations should be completed and delivered to the manufacturer of component parts. The selling dealership will assist you in completing and filling out the Jayco product warranty registration. Upon receipt of the product registration by Jayco, your Warranty will be registered. The failure to submit this warranty registration to Jayco will not affect your rights under this limited warranty as long as you can present proof of purchase, however, it can cause delays in obtaining the remedies offered by this limited warranty, and it may adversely affect any servicing facility's ability to provide proper repairs and/or part replacement. Note, tender and acceptance of a warranty registration does not alter the express terms of this limited warranty or any of its exclusions.

## **SECTION 1: WARRANTY & SERVICE**

**CARE AND MAINTENANCE:** It is the Owner's responsibility to perform proper care and maintenance of the Motor Home and to assure correct load distribution. For details regarding this, please see your owner's manuals. Please review all manuals and contact your selling dealership, Jayco or supplier of the component part if you have questions.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS; YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

**JAYCO, INC.**

**903 S. Main Street \* P. O. Box 460 \* Middlebury, IN 46540**

**Telephone: 800-283-8267**

### **SECONDARY MEANS OF ESCAPE**

Your recreation vehicle has multiple means of escape in an emergency. Exits include the rear doors, side sliding door and the front driver/passenger doors. Make sure you are familiar with all exits and create an exit plan in the event of an emergency. Exits are marked with a red exit label.



Exit Label

#### **Do not remove the EXIT labels from your RV.**

Depending on your model, you may have an additional exit window. This window will allow a quick exit from the vehicle during an emergency if access to the vehicle door(s) is not available. It is easily identified by the red latches and the exit label. To operate this window, push the latches between the red marks towards each other and slide the window to the side. Practice opening the window before an emergency occurs, and make sure all occupants know how to operate it.

When parking your recreation vehicle, make sure the all (exit) doors and the emergency exit window are not blocked by trees or other obstacles. Make sure the ground below the window is solid and can be used as an escape path.



**NOTE:** All windows must be closed and locked while the RV is in transit.

### **FIRE SAFETY**

If a fire does start, follow these basic safety rules:

1. Call 911 and evacuate the vehicle immediately.
2. After everyone is accounted for, check the fire to see if you can attempt to put it out.
3. If it is large, or the fire is fuel-fed, get clear of the vehicle and have the Fire Department handle the emergency.
4. Do not attempt to use water to put out the fire. Water can spread some types of fire, and electrocution is possible with an electrical fire.

Refer to the following sections for additional fire safety information.

- **Electrical Systems**, In case of an electrical fire.
- **Appliances**, In case of a grease fire.

### **FIRE EXTINGUISHER**

Fire extinguishers are classified and rated by fire type, A, B and C. These classifications identify the kinds of fires or burning materials they are designed to fight.

**Class A** - Solid materials such as wood, paper, cloth, rubber and some plastics.

**Class B** - Liquids such as grease, cooking oils, gasoline, kerosene or other flammable liquids.

**Class C** - Electrical such as electrical wires or other live electrical equipment.

A dry chemical fire extinguisher has been installed by the entrance door. It is suitable for extinguishing small fires of the Class B or C type only.

We suggest you become thoroughly familiar with the operating instructions displayed on the side of the fire extinguisher.

## SECTION 2: OCCUPANT SAFETY



**NOTE:** For information on how to use your fire extinguisher, refer to the fire extinguisher user's manual included in your warranty packet.

### **Inspection and maintenance**

Read and follow all instructions on the label and user's manual provided by the fire extinguisher manufacturer.

- Inspect the extinguisher at least once a week (more frequently if it is exposed to weather or possible tampering). This should also be done before beginning a vacation or during an extended trip.

### **⚠ WARNING**

Do not check the pressure, test or practice using the fire extinguisher by squeezing the trigger, even briefly. The fire extinguisher is not rechargeable or refillable. Once used, it will gradually lose pressure and will not be fully charged for use in an emergency.

### **⚠ DANGER**

Do not turn the electrical power back on or plug in any appliances after the use of a fire extinguisher. Please refer to the fire extinguisher's user manual for further instructions on maintenance and clean up.

## **SMOKE ALARM**

The smoke alarm will only work properly if it is operational and maintained. They have a limited life and will wear out over time. Immediately replace the detector if it is not working properly, if it displays any type of problem, or within five years of use. **Be sure to read, understand and follow the information provided by the smoke alarm manufacturer, including information on the limited life of smoke alarms.**

Be aware the smoke alarm **is not fool proof and cannot detect fires if smoke does not reach it**. Anything preventing smoke from reaching the alarm may delay or prevent an alarm.

Though the alarm horn in this detector meets or exceeds current UL standards, it may not be heard for reasons that include (but not limited to): a closed or partially closed door, other noise from electronics, appliances or traffic.

### **⚠ WARNING**

- ❑ **This smoke alarm will not alert hearing impaired residents.** Special alarms with flashing strobe lights are recommended for the hearing impaired
- ❑ Only use the replacement battery recommended by the smoke detector manufacturer. The smoke detector alarm may not operate properly with other batteries. Never use a rechargeable battery as it may not provide a constant charge. Never disconnect the battery to silence the alarm.
- ❑ Test the smoke alarm operation after the vehicle has been in storage, before each trip and at least once per week during use. Do not disconnect the battery or the alarm.

**The smoke alarm is operational once the battery is correctly installed.** It will not function if the battery is missing, disconnected, dead, the wrong type or not installed correctly. **It requires one standard 9V battery.** Refer to the user's guide, for correct battery and installation information,

**The LED light will indicate the battery is functioning properly.** When the production of combustion is sensed, the smoke detector sounds a loud alarm that continues until the air is cleared. The LED light will also give a visual indication of a sounding alarm.

**When the battery becomes weak, the alarm will “beep” about once a minute indicating a low battery.** This warning should last for 30 days. You **MUST** replace the battery once the alarms low battery warning (beep) starts to assure continued protection.

When the battery is removed from the alarm, the battery flag will pop up; the alarm cannot be installed to the mounting bracket without a battery.

**To test,** stand at arm's length from the smoke alarm as the alarm horn is loud and may be harmful to your hearing. The test button will accurately test all functions. Never use an open flame to test the smoke alarm.

**Do not remove the warning label located near the smoke alarm from your recreation vehicle:**

#### **Key Features:**

- Silence Feature: Silences nuisance alarms
- Hinged cover allows for easy battery replacement
- Lighted Power and Alarm Indicator. LED indicates battery is connected.
- Test/Silence button – One touch button combines both features
- Low Battery indicator – Beeping signal indicates low battery.

#### **Maintenance**

Vacuum off any dust on the cover of the smoke alarm using a soft brush attachment. Test the smoke alarm once you have vacuumed. Never use water, cleaners or solvents to clean the smoke alarm as they may damage the alarm. Do not paint the smoke alarm.

Refer to and follow detailed safety, testing, troubleshooting and maintenance information found in the manufacturer's user pamphlet located in your warranty packet.



## SECTION 2: OCCUPANT SAFETY

### **COMBINATION CARBON MONOXIDE /PROPANE ALARM**

Your recreation vehicle is equipped with a combination carbon monoxide (CO) / propane alarm (RV-COLP) that is listed for use in recreation vehicles. The combination carbon monoxide/propane alarm will only work if it is operational and maintained.

The alarm is directly wired to the 12-volt electrical system, with continuous power being supplied by the recreational vehicle batteries. There is no 9-volt battery power supply. As a result, the alarm is always drawing a small amount of current from the recreation vehicle batteries. Although the current draw is slight, it could drain the batteries during extended storage periods. This condition is not likely to occur except

during storage situations when the inverter cannot restore the battery charge. **If the battery cable is disconnected at the battery terminals, the combination alarm will not work.**

Be sure to read, understand and follow the owner's information from the manufacturer of the combination CO/propane alarm. This includes information regarding the limited life of the alarm.



**Carbon monoxide/propane alarm (alarm may vary from model shown)**

## **⚠ WARNING**

- Do not cover or obstruct the carbon monoxide/propane alarm with anything that could prevent gas from entering the alarm.
- This alarm is not designed to detect smoke, fire or gases other than carbon monoxide and propane.
- The carbon monoxide detector installed is intended for use in ordinary indoor locations of recreation vehicles. It is not designed to comply with Occupational Safety and Health Administration (OSHA) commercial or industrial standards.
- Do not disconnect the battery or the alarm.
- Individuals with medical problems may consider using warning devices that provide audible and visual signals for carbon monoxide concentrations under 30 PPM.
- This alarm will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.
- The ultimate responsibility for protection against toxic carbon monoxide fumes rests solely on you. Installing a carbon monoxide/propane alarm is just the first step in protecting your family from toxic carbon monoxide poisoning. The following symptoms are related to carbon monoxide poisoning and should be discussed with all members of the household:
  - Mild exposure: Slight headache, nausea, vomiting, fatigue (often described as "flu-like" symptoms).
  - Medium exposure: Severe throbbing headaches, drowsiness, confusion, fast heart rate
  - Extreme exposure: Unconsciousness, convulsions, cardio-respiratory failure, death

Carbon monoxide (CO) is an insidious poison. It is a colorless, odorless and tasteless gas. Many cases of reported carbon monoxide poisoning indicate while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the recreational vehicle or calling for assistance. Young children and household pets may be the first affected.

Your combination carbon monoxide/propane alarm is designed to detect the toxic carbon monoxide fumes that result from incomplete combustion, such as those emitted from appliances, furnaces, fireplaces and auto exhaust.

A carbon monoxide/propane alarm is **NOT A SUBSTITUTE** for other combustible gas, fire or smoke alarms. This carbon monoxide alarm is designed to detect carbon monoxide gas from ANY source of combustion. It is not designed to detect smoke, fire or any other gas. Please note that there are hazards against which carbon monoxide detection may not be effective, such as natural gas leaks or explosions.

This alarm is designed to sense the presence of carbon monoxide/propane gas, however there are other combustible fumes or vapors that may be detected by the sensor including (but not limited to): acetone, alcohol, butane and gasoline.

These chemicals can be found in commonly used items such as deodorants, colognes, perfumes, adhesives, lacquer, kerosene, glues, wine, liquor, most cleaning agents and the propellants of aerosol cans.

High temperatures can activate glue and adhesive vapors. If you close up a recreational vehicle on a hot day, the chemicals used in its construction may be detected for months after the vehicle was constructed (for more information, refer to Sec. 2, Formaldehyde).

### **What you should do if the alarm sounds**

## **WARNING**

- Actuation of this detector indicates the presence of carbon monoxide which can kill you.
- Never turn the 12-volt battery disconnect control to the off position and disconnect the battery cable to silence an alarm. The alarm will automatically sense when the level of carbon monoxide in the air reaches below dangerous levels. You should stay outside the vehicle in fresh air until the alarm is silenced. When the alarm sounds, do not stand too close to the alarm. The sound produced by the alarm is loud (85db) because it is designed to wake a person in an emergency. Prolonged exposure to the alarm at a close distance may be harmful to your hearing.

### **CO Alarm State:**

1. If CO gas reaches unsafe levels, alarm enters CO alarm state.
2. Horn sounds with (4) rapid chirps, then 4-second pause and red LED flashes rapidly.
3. Operate the SILENCE/TEST button to silence the alarm for 5 minutes.
4. The original alarm state resumes after 5 minutes if CO levels still exceed safe levels.
5. Call your emergency services (fire department or 911).
6. Immediately move to fresh air (outdoors or by an open door or window).
7. Do not re-enter the premises or move away from the open door or window until the emergency service responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.

## SECTION 2: OCCUPANT SAFETY

### **Propane Alarm State:**

1. If propane gas exceeds 10% of the lower explosive limit for more than 30 seconds, alarm enters propane alarm state.
2. Horn sounds with constant beeps and the red LED will be ON.
3. Turn off all propane appliances and gas valve at LP tanks.
4. Ventilate the RV – open doors and windows
5. Alarm can be silenced for 5 minutes by pressing SILENCE/TEST button.
6. Red LED will flash each second while alarm is silenced.
7. Original alarm state resumes after 5 minutes if Propane levels still exceed the safe levels.
8. Do not touch any electrical switch in or near the recreation vehicle
9. Do not start vehicle's engine or generator

If your alarm reactivates within a 24-hour period, repeat steps 1-4 and call a qualified appliance technician to investigate for sources of carbon monoxide from fuel burning equipment and appliances, and inspect for proper operation of this equipment. Make sure that motor vehicle(s) are not, and have not been, operating in an attached garage or adjacent to the recreation vehicle.

If problems are identified during this inspection, have the alarm serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturer's instructions or contact the manufacturer directly for more information about carbon monoxide safety and this alarm.

### **Alarm features and functions**

- Includes an 85db audible horn, two LEDs, and a SILENCE/TEST button.

### **Alarm States**

- Normal operation:** The Green LED is ON steady. Red LED OFF, Audible horn OFF.
- Power OFF:** Both LEDs and the audible horn will be OFF.
- Self Test:** Green LED OFF, Red LED ON/Flashing, audible horn 4 chirps followed by constant beeps.
- CO alarm condition:** Green LED OFF, Red LED Flashing, audible alarm 4 chirps.
- Propane gas alarm:** Green LED OFF, Red LED ON, audible alarm constant beeps.
- Alarm Silenced (5 min. max.) Green LED OFF, Red LED flashes each second, Audible horn OFF.
- Low Battery (Below 8VDC):** Green LED flashes each minute, Red LED flashes each minute, audible horn chirps each minute.
- End of life or other failure:** Green and Red LEDs will double flash every minute, audible horn chirps each minute. The alarm should be replaced as soon as possible.

### **Maintenance**

Vacuum the alarm cover at least once a year. Clean the cover by hand using a cloth dampened in clean water. Dry with a soft cloth. Do not spray the front panel of the alarm with cleaning agents or waxes. This action may damage the sensor causing an alarm or cause the alarm to malfunction. Do not paint the face of the alarm.

### Testing the combination carbon monoxide/propane alarm

# WARNING

Test the alarm operation after the motorhome has been in storage, before each trip and at least once per week during use.

The SILENCE/TEST button tests both sensors and battery voltage. The SILENCE/TEST button is located on the front of the alarm. Press and hold the test button for 1 second. The alarm performs 2 cycles of the CO horn pattern (4 rapid chirps followed by a 4 second pause) followed by 2 cycles of the Propane horn pattern (constantly beeping). Green LED is OFF, Red LED is ON/flashing.

 **NOTE:** Pressing the test button does not check the sensor operation. Refer to the carbon monoxide/propane alarm manufacturers user's manual provided with your recreation vehicle for additional information on testing the sensors.

Repair or replace the combination carbon monoxide/propane alarm when the alarm no longer functions. As with any electronic product, it has a limited life. Alarms that do not work cannot protect you.

 **NOTE:** The carbon monoxide/propane alarm manufacturer strongly recommends replacement of the detector five years after the date of purchase.

## **FORMALDEHYDE**

Some components in the recreation vehicle contain formaldehyde-based adhesives that may release formaldehyde fumes into the air for an unknown period of time. Individuals who are allergic to formaldehyde gas fumes may experience irritation to eyes, ears, nose and throat. Indoor air quality may also be affected by leaving your vehicle closed for a period of time.

To aid in dissipation, ventilate the recreation vehicle by opening all windows and circulate the air with a fan.

This label is located inside the vehicle near the entry door. **The label should be left permanently affixed to the recreation vehicle.**

### CAUTION

Product in this vehicle may contain formaldehyde, which may be an irritant to you. You may experience a greater concentration during high humidity and temperatures. Ventilate to remove. Consult your owner's manual for additional information.

DO NOT REMOVE THIS LABEL

## **EXTENDED OR FULL TIME USAGE**

Your new recreation vehicle has been built for enjoyment in a recreational manner. It is not intended for use as full-time quarters or a permanent residence. Continuous living in your vehicle could cause accelerated wear and damage to the various components.

## **SECTION 2: OCCUPANT SAFETY**

### **⚠ CAUTION**

Continuous or permanent living in your recreation vehicle may affect your warranty coverage and may void the “Limited Warranty” applicable to your vehicle.

### **COLD WEATHER USAGE**

When used in freezing or below freezing temperatures, the precautions should be taken:

- Fresh water and drainage systems - preparations to avoid freeze-ups.
- Propane gas (if so equipped) and sufficient power is needed for protection from possible freeze-ups on the propane gas regulator. Keep in mind that more frequent furnace operation will substantially increase battery draw and propane gas use.
- During cool weather usage, ventilation or addition of a dehumidifier may be required to reduce condensation.
- Check outside extrusions on compartment doors, locks, slide outs, windows, vents, etc., for frozen moisture before operating to avoid damage to parts.

### **CONDENSATION**

### **⚠ WARNING**

Condensation may cause dampness, mildew, mold, staining and, if allowed to continue, it may result in damage to the recreation vehicle (damage caused by condensation is not warrantable). It can also lead to mold or mildew issues, which could be a health hazard.

Condensation is a natural phenomenon. The amount of condensation will vary with climate conditions, particularly the relative humidity. Condensation occurs because there is water vapor present in the air. When the temperature reaches the “dew point” the water vapor in the air condenses and changes to a liquid form.

Proper ventilation or the use of a dehumidifier (customer supplied) will assist in controlling the condensation. Suggestions to eliminate warm moist air:

- Crack open windows and roof vents to allow warm moist air to escape.
- Open the bath roof vent (if so equipped) approximately ½” when showering.
- Use the range hood fan (if so equipped) when cooking or washing dishes.
- Avoid hanging wet towels (or clothes) inside the recreation vehicle to dry.
- If found in cabinets or closets, open the doors slightly to provide ventilation.

### **VEHICLE LABELS**

Decals and data plates used throughout the motor home aid in its safe and efficient operation; others give service instructions. Read all decals, data and instruction plates before operating your recreation vehicle. Any decal, data or instruction plate painted over, damaged or removed should be replaced.

Keep a record of the 17-digit chassis vehicle identification number (VIN), the 9-digit serial number, and your license number in the event theft or vandalism requires you to supply this information to the authorities.

### **WARNING**

- The factory-installed weight labels are specific to the recreation vehicle for which they are supplied and are not interchangeable. Do not remove these labels from your vehicle. If labels are missing contact your dealer or Customer Service for replacements.
- Do not exceed any applicable motor home weight ratings. Doing so could damage your motor home or affect handling and braking characteristics.**
- Your motor home braking system is designed and rated for operation at GVWR not GCWR.**

#### **Weight Terms**

**GAWR - Gross Axle Weight Rating:** The value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-to-ground interfaces. This is the total weight a given axle is capable of carrying.

**GCWR - Gross Combined Weight Rating:** The value specified by the motor home manufacturer as the maximum allowable loaded weight of the motor home in combination with its towed trailer or towed vehicle. The tongue weight of a towed vehicle/ trailer counts as part of the motor home cargo.

**GVWR - Gross Vehicle Weight Rating:** The value specified by the manufacturer as the maximum permissible weight of the fully loaded motor home.

**OCCC - Occupant and Cargo Carrying Capacity:** Is equal to the GVWR of the motor home, minus the weight of the motorhome, as completed at the factory, minus the weight of all occupants, including the driver, minus the weight of all personal cargo, minus the weight of a full tank of chassis engine fuel and, if applicable, minus the weight of a full tank of propane. The full weight of potable water, including the water heater and the tongue weight of a towed vehicle/ trailer counts as cargo in or on the motor home. Additions to or other changes made to the motor home after it left the factory will affect (reduce) the OCCC.

**UVW - Unloaded Vehicle Weight:** The weight of this motor home as manufactured at the factory with fuel, engine oil and coolants and if applicable, the weight of a full tank of propane.

#### **Weight and Capacity Labels**

The following labels are located on the inward-facing surface of the main entry door of the motor home and on the lower sidewall left of the driver's seat.

## SECTION 3: PRE-TRAVEL INFORMATION

### OCCC Label (Occupant and Cargo Carrying Capacity)

The upper portion of this yellow label is federally required and indicates the total combined weight value of occupants and cargo that may be placed in or on your motor home as it was manufactured and weighed before leaving the factory.

This label also indicates the number of safety seat belts that have been installed at the factory. Additions or other changes made to the motor home after it left the factory will affect (reduce) the OCCC.

The lower portion of the label is provided voluntarily and indicates the weight value of the motor home as it was manufactured and weighed before leaving the factory. This label also indicates the GCWR of the completed motor home.

MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY  
VIN XXXXXXXXXXXXXXXXXXXX  
THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:  
XXX kg OR (XXX Lbs)  
SAFETY BELT EQUIPPED SEATING CAPACITY: X  
CAUTION:  
A FULL LOAD OF WATER EQUALS XXX kg OR (XXX Lbs.) OF CARGO @ 1 kg/L (8.3 Lbs/gal)  
AND THE TONGUE WEIGHT OF A TOWED TRAILER COUNTS AS CARGO

### Upper Section Federal OCCC Weight Label

THE WEIGHT OF THIS RECREATIONAL VEHICLE MOTOR HOME AS COMPLETED AT THE FACTORY WITH FULL PROPANE TANK AND FULL ENGINE FUEL IS:  
XXXX kg OR (XXXX Lbs.)  
THE GCWR OF THIS RECREATION VEHICLE MOTOR HOME IS:  
XXXX kg OR (XXXX Lbs)  
CONSULT YOUR DEALER AND SEE OWNER'S MANUAL FOR DEFINITIONS, ADDITIONAL WEIGHT, LOADING, WEIGHING INFORMATION AND TOWING GUIDELINES INCLUDING AUXILIARY BRAKE REQUIREMENTS FOR ANY TOWED TRAILER OR VEHICLE

### Lower Section Federal OCCC Weight Labels

### Vehicle Alterer's Label

Required by the government to verify the RV complies with all motor vehicle standards for Canada and the United States. It includes the following information: Manufacturer name, VIN and the date.

VIN / NIV: 3C6RVJG9KE529951 (M1RT8051)
THIS VEHICLE WAS ALTERED BY / CE VÉHICULE A ÉTÉ MODIFIÉ PAR: JAYCO, INC. IN 09/19 AND AS ALTERED IT CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS AFFECTED BY THE ALTERATION AND IN EFFECT IN 09/19.
CE VÉHICULE EST CONFORME À TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU RÈGLEMENT SUR LA SÉCURITÉ DES VÉHICULES AUTOMOBILES DU CANADA EN VIGUEUR À LA DATE DE SA FABRICATION.
TYPE: TYPE OF VEHICLE / TYPE DE VÉHICULE: MOTOR HOME / AUTOCARAVANE MULTIPURPOSE PASSENGER VEHICLE / VÉHICULE DE TOURISME À USAGES MULTIPLES

The motor home towing and braking label is located on the rear bumper above the hitch receiver. Be sure to read and follow the guidelines and information stated on this label. Refer to the Chassis Guide for additional information.

<b>⚠ WARNING</b>
The braking capacity of your motor home is not necessarily as great as its towing capacity. Separate braking systems should be used for control of a towed vehicle, (auto, trailer, boat etc.), behind the motor home. Braking requirements will vary by chassis type, chassis manufacturer and state law. Contact your chassis dealer or independent RV dealer for assistance to determine if a separate braking system is recommended and what limit(s) may apply for your towing combination and traveling safety. The use of a reducing sleeve and smaller diameter draw bar or a longer draw bar in and on the hitch receiver will reduce the hitch weight rating and towing capacity. Use of a draw bar longer than 18-inches (457mm) is prohibited. Consult your vehicle owner's manual(s) and your independent RV dealer for specific weighing instructions and towing guidelines. Improper use of towing equipment and towing setups can cause loss of control that may lead to an accident resulting in death or serious injury.

### Towing and Braking Warning Label

**For More information:** Consult a hitch specialist or your dealer for assistance when preparing your motor home for towing a vehicle or trailer.

**Tire and Loading Label** provides information on the tire sizes, cold tire inflation pressures, the VIN and maximum cargo capacity. The maximum cargo capacity listed on the label does not include the weight of a full load of water.

TIRE AND LOADING INFORMATION RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT			
SEATING CAPACITY NOMBRE DE PLACES		TOTAL 4	FRONT 2 ARRIERE 2
The combined weight of occupants and cargo should never exceed GVWR listed on decalage or du chargement ne doit jamais dépasser			
TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	
FRONT AVANT	L722579R18 E	460 kPa, 66 psi	
REAR ARRIERE	L722579R18 E	660 kPa, 80 psi	
SPARE DE SECOURS			
			SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS

### Modified Roof Information Label (Canadian models only)

This label means a roof on a vehicle has been modified in whole or in part.

"This vehicle has a modified roof, and CMVSS 226 — EJECTION MITIGATION does not apply to this vehicle. / Ce véhicule a un toit modifié et la NSVAC 226 — RÉDUCTION DES RISQUES D'ÉJECTION ne s'applique pas à ce véhicule."

## LOADING YOUR MOTOR HOME

### ⚠ WARNING

- Never load the motor home in excess of the GVWR or the GAWR for either axle. Overloading your motor home may result in adverse handling characteristics and damage to the chassis.**
- DO NOT EXCEED YOUR GVWR!** This means you should weigh your vehicle as loaded for your normal travel to determine the actual weight. If you exceed the GVWR, you **MUST** remove items from the motor home, or drain liquids, then re-weigh the vehicle to ensure you have achieved a safe weight.
- The actual weight of the vehicle, passengers, all options, liquids, the hitch weight of your towed vehicle and your personal cargo is important for you to know so you do not exceed the Gross Vehicle Weight Rating (GVWR) of the motorhome. The volume of space available for storage may exceed the amount of available cargo capacity. Large storage compartments have been designed to accommodate normal camping items, which are bulky, but not necessarily heavy.

Store and secure all loose items inside the motor home before traveling. Overlooked items can become dangerous projectiles during a sudden stop.

Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle. Make sure any tie down straps (if so equipped) on appliances or furniture are secure. Load heavy objects on the floor, or as low as possible.

## SECTION 3: PRE-TRAVEL INFORMATION

### **WARNING**

- Your recreation vehicle's load capacity is designated by weight, not by volume, so you cannot necessarily use all available space when loading the vehicle. Do not exceed your GVWR and ensure you are loading the vehicle as evenly as you can for the best possible handling. Ensure heavy items are secured so they do not shift during travel.
- Store items in areas designated for storage. Do not store anything in the areas reserved for the converter, electrical panels, furnace or water heater, etc.
- For traveling safety, it is important to make sure the tie down straps are secured on all appliances such as the toaster, coffee maker, etc. Vibration during travel will move the appliances, creating the potential for them to fall out of their cabinets possibly causing injury.

### ***BIKE RACK (IF SO EQUIPPED)***

Refer to the bike rack manufacturer's owner's manual for detailed safety and user information.

### **WARNING**

**It is critical that you properly secure the bikes to the bike rack.** You are responsible for securing bikes to your bike rack, checking the attachments prior to use, and periodically inspecting the products for adjustment, wear, and damage. You should read and understand all of the information supplied with your product prior to installation or use. The bike rack should only be used for transporting bikes. Failure to properly attach and secure bikes to the rack, or using the racks to transport items other than bikes, may result in property damage or serious injury.

### ***ROOF RACK (IF SO EQUIPPED)***

Refer to the roof rack manufacturer's owner's manual for detailed safety and user information.

- Know your motor home's weight limitations prior to loading the roof rack. Items stowed on the roof rack, should be included in the weight calculation when determining the maximum cargo weight load of your motor home.
- When loading the roof rack, evenly distribute the items on the rack. Avoid loading all the heavy items in one spot. Weight of the items should be evenly distributed.
- Make sure all items are secured to the roof rack. Periodically re-check the load to make sure it is still securely fastened and has not shifted.

### **WARNING**

**It is critical that you properly all items to the roof rack.** You are responsible for securing items to your roof rack, checking the attachments prior to use, and periodically inspecting the products for adjustment, wear, and damage. You should read and understand all of the information supplied with your product prior to installation or use. The roof rack should only be used for accord to the manufacturer's guidelines and weight limits. Failure to properly attach and secure all items to the rack, or using the racks in any way other than specified, may result in property damage or serious injury.

### **WEIGHING YOUR MOTOR HOME**

When your motor home is loaded you should have it weighed. The actual weight of the motor home, passengers, all options, liquids, the hitch weight of your towed vehicle and your personal cargo is important for you to know so you do not exceed the GVWR. There are two important factors when loading your motorhome, total weight and balance.

It is imperative that you verify compliance within all applicable weight ratings (refer to the chassis manual for all chassis ratings). Overloading your motorhome will void the **Limited Warranty** and the warranties of many component part manufacturers.

**Periodically weigh your motorhome at a public scale to determine proper load distribution.** To obtain the side-to-side weights, there needs to be enough space on either side of the scale to accommodate the motor home being partially off the scale.

Different types or scales may require different procedures when weighting the motor home. The motor home must remain as level as possible on the scale (even if an axle is not physically on the scale). To obtain the side-to-side weights, make sure there is enough space on either side of the scale to accommodate the motor home being partially off the scale.

Anything that is being towed, it should be weighed separately. Combine this weight with the motorhome's Gross Vehicle Weight (GVW) to ensure the total combined weight does not exceed the GCWR.

Once actual weights are obtained, compare them to the **Weight Information Label** weight ratings to ensure you are below the posted minimum ratings.

If there is a difference in the weights on one side of the vehicle as compared to weights on the other side, components (tires, wheels, brakes, springs, etc.) on the heavier side may be overloaded, although the total axle load is within the GAWR.

### **CAUTION**

It is important to redistribute the load to avoid component failure as well as to improve the handling characteristics of the vehicle.

### **WARNING**

Dump the gray and black water holding tanks before traveling to avoid carrying unnecessary weight. Full tanks can affect your fuel consumption, and depending on tank location, can affect your vehicle handling characteristics. If you cannot immediately empty your holding tanks, reduce your vehicle speed until you reach a dumping station.

## **SECTION 3: PRE-TRAVEL INFORMATION**

**Notes:**

### **VEHICLE OPERATION**

Your motor home will travel safely and comfortably at highway speed limits. However, it will take longer than a passenger automobile to reach that speed. Allow more time to go around the vehicle you are passing. Avoid situations that might require sudden momentum changes as the length of the motor home affects your ability to quickly cut back into traffic. Swerves and sharp turns, especially at high speeds, could result in loss of control of the motor home.

The motor home has a longer turning radius. When turning, check the road clearance and be aware of others, especially if towing a vehicle behind your motor home.

Adverse weather conditions and extremes in terrain may affect the performance and handling of your vehicle. Do not operate the cruise control on icy or extremely wet roads, gravel roads, winding roads, in heavy traffic, or in any other traffic situation where a constant speed cannot be maintained. Use care when accelerating or decelerating on a slippery surface. Abrupt speed changes can cause skidding and loss of control.



**NOTE: CALIFORNIA TIRE CHAIN NOTICE:**  
**YOUR MOTOR HOME MAY NOT BE OPERATED WITH TIRE CHAINS**

### **Braking and Stopping**

Even though your motor home is equipped with brakes designed for its Gross Vehicle Weight Rating (GVWR) we suggest you practice stopping away from traffic until you become accustomed to your motor home's stopping distance. Your motor home is equipped with a third brake light that activates when the brakes are engaged.

When descending a long hill, shift the transmission into a lower gear and engage the auxiliary engine braking. If your motor home is equipped with an auxiliary engine brake, engagement is activated by a switch on the driver's console. See the chassis owner's manual for additional information. The transmission and engine will help in controlling downhill speed and can lengthen brake life. The distance required to stop the motor home is greater than an automobiles.

Driving through water deep enough to wet the brakes may affect stopping distance or cause the vehicle to pull to one side. Check the motor home's brake operation in a safe area to be sure they have not been affected. **Never operate any vehicle if a difference in braking efficiency is noticeable.**

### **WARNING**

Your motor home chassis braking system is rated for operation at GVWR not GCWR.

### **Parking Brake**

The parking brake should be engaged when the motor home is parked. Never drive your motor home with the parking brake engaged as this will reduce braking effectiveness and cause excessive driveline wear. Refer to your Chassis guide for more information on the parking brake.

### USING THE REAR HITCH

# ⚠ CAUTION

Do not install a frame equalizing type hitch on your motorhome.

Towing will affect vehicle handling, durability and fuel economy. Exceeding any of the listed weight ratings will result in unacceptable overall vehicle performance. Your safety and satisfaction require proper use of correct equipment.

For maximum pulling load and vertical tongue weight, refer to the label located on the rear hitch. A hitch bar of appropriate strength and steel should be selected to meet the capacities of the towing receptor.

Always use safety chains between the motorhome and the towed trailer or vehicle. Cross the chains under the tongue and allow for slack when turning corners. Connect the safety chains to the vehicle frame or hook retainers. Never attach the safety chains to the bumper.

Before descending a steep or long grade when towing a trailer or vehicle, reduce speed and shift the motorhome into a lower gear to control vehicle speed. Avoid frequent or prolonged brake application, which can cause overheating or brake failure.

By definition the GCWR is “the maximum total weight rating allowed for a vehicle and any attachment, such as a trailer or towed vehicle. To determine the total allowable weight for a towed item, subtract the GVWR from the GCWR.

#### ⚠WARNING:

YOUR MOTORHOME CHASSIS BRAKING SYSTEM IS RATED FOR OPERATION AT GVWR, NOT GCWR. CONSULT YOUR OWNER'S MANUAL(S) FOR SPECIFIC WEIGHING INSTRUCTIONS AND TOWING GUIDELINES. THE BRAKING CAPACITY OF YOUR MOTORHOME IS NOT NECESSARILY AS GREAT AS THE TOWING CAPACITY. SEPARATE BRAKING SYSTEMS MAY BE NECESSARY FOR CONTROL OF A TOWED VEHICLE, (AUTO, TRAILER, BOAT, ETC.) BEHIND THE MOTORHOME. IF THE TOWED VEHICLE MEETS OR EXCEEDS THE MINIMUM WEIGHT AS DETERMINED BY THE CHASSIS MANUFACTURER (IT'S MINIMUM WEIGHT RATING WILL VARY BY CHASSIS AND CHASSIS MANUFACTURER), CONTACT YOUR CHASSIS DEALER OR MANUFACTURER FOR ASSISTANCE IN DETERMINING WHETHER A SEPARATE BRAKING SYSTEM IS RECOMMENDED AND WHAT LIMITS THERE ARE FOR YOUR TOWING COMBINATION AND TRAVELING SAFETY.

#### Towing and Braking Label

# ⚠ WARNING

- ❑ **Total weight of your motorhome and any trailer or vehicle towed by it must not exceed the GCWR.** Do not assume that you can tow a vehicle that happens to be within the capacity of the hitch. By doing so, you may exceed the total GCWR of the motorhome.
- ❑ **The total weight of your motorhome (including cargo, passengers, fluids, etc...) in addition to the vertical (tongue) weight must not exceed the GVWR and/or any GAWR.** Once again, do not assume that you can tow a trailer or vehicle that happens to be within the vertical (tongue) weight capacity of the hitch. By doing so, you may exceed the GVWR and/or GAWR of the motorhome.
- ❑ **Your motorhome chassis breaking system is rated for operation at GVWR, NOT GCWR.** Any trailer or vehicle being towed by your motorhome must have adequate brakes as required by all state (or province) and local regulations for towing with your motorhome, including areas you may be traveling through. **Failure to follow the towing guidelines may result in property damage or injury.**

In addition, a separate supplemental braking system must be installed if the towed trailer or vehicle meets or exceeds the minimum weight determined by the chassis manufacturer (*this minimum weight rating will vary by chassis and chassis manufacturer*).

Contact your dealer for assistance in determining whether a separate braking system is recommended for your towing and traveling safety. Failure to follow these instructions will create a safety hazard and may result in an accident.

### Maintenance

Keep the hitch clean along with your general frame maintenance.

- At the beginning of the season, and monthly or thereafter, clean the inside of the receiver tube with a wire brush and spray with a silicone spray.
- Always remove the utility mount from the receiver when it is not in use. This will help prevent the utility mount from rusting to the tube.
- Periodically check the bolts for tightness. They need to be torqued to the proper setting (refer to your Chassis Guide).

Refer to the *chassis manual* for detail on hitch specifications and towing guidelines.

### ***RUNNING BOARDS/REAR BUMPER ENTRY ASSIST***

Running boards are located on both sides and serve as a step into and out of the vehicle. The rear bumper can be used for entry assist into the rear of the vehicle. When driving, snow, dirt, rocks and other debris can collect on the running boards and bumper. It is imperative to keep these areas clean when using them to enter or exit the vehicle.

#### **CAUTION**

Care should be taken when using the running boards and bumper as an entry assist if the surfaces are wet.

### ***DRIVER AND PASSENGER SEAT***

#### **WARNING**

- Do not adjust the seat while driving. After adjusting the seat, make sure that it is locked in position. To ensure that the seat is locked securely, try to move the seat forward or backward without using the adjusting lever or button. Do not put packages, pets or other objects between the driver's and front passenger co-captain's seat.
- **If equipped with reclining seats:** to minimize the risk of personal injury in the event of a collision or sudden stop, always keep both the driver's captain and passenger co-captain seat backs in a nearly upright position while the motor home is moving. The protection provided by the seat belts may be reduced significantly when the seat back is reclined. Reclining the seats while the motor home is moving may result in serious injury.
- **If equipped with power seats:** keep hands and feet clear of the power seat while in operating the power feature.

## SECTION 4: VEHICLE OPERATION



**NOTE:** The driver's and front passenger seat must be locked in the forward facing position while the motor home is in motion.

### **6-Way Power Seat (if so equipped)**

Use the controls to slide the 6-way power seat to the desired position. Release the control, and the seat will lock at that position. Features may include a 3-point adjustable seat belt, lumbar support, swivel, slide and reclining capabilities. (Not all of these features will be available in all motor home models).

### **To rotate the driver/passenger seat (if so equipped)**

To face the driver or front passenger seat toward the rear of the vehicle, pull the seat swivel release lever up and rotate the seat. To return the seat to the original position, rotate seat back to the driving position until you hear a click and the seat locks into position.

## **SEAT BELTS**

### **WARNING**

**Seat belts should always be worn by anyone who drives or rides in this vehicle.**

- Never use one seat belt for more than one occupant. Never carry more people in the motor home than there are seat belts.
- Only seats equipped with seat belts are to be occupied while the vehicle is in motion. While traveling, do not occupy beds or any seats that do not have seat belts.
- Be sure to lock all doors before driving. Locking the doors and using the provided seat belts will minimize the risk of injury or ejection in an accident.
- If you are pregnant, consult your health care professional for advice on seat belt use.

**Always use seat belts.** In an accident, injury to the driver and passengers may be reduced if seat belts are properly used. If your motor home is equipped with a booth dinette, hide-a-bed sofa, or easy bed sofa they will have two-point lap-seat belts installed. **Seat belts should be used in all seating positions.**

### **Maintenance and inspection of seat belts**

The webbing used in seat belts may be cleaned with a mild soap or detergent solution. Allow the belts to dry in the shade and do not allow them to retract until fully dry.

Regularly check the seat belt buckles and release mechanisms for positive action and check automatic locking retractors for positive engagement.

If the seat belt webbing shows obvious cuts, protruding broken fibers or severe fading which indicates weakening by exposure to sunlight, the entire seat belt assembly should be replaced. Do not try to bleach or re-dye the belts. The resulting color may rub off and the webbing strength could be affected.

### **CHILD SAFETY RESTRAINT SYSTEMS**

When transporting infants or small children, an appropriate child safety restraint system should always be used. Follow the manufacturer's instructions for the correct installation and use of these systems.

**NOTE:** All child safety restraint systems should always face the front or rear of the motor home. They should never be installed so the occupant is facing the side of the motor home.

### **VEHICLE DASH**

#### **⚠ WARNING**

Do not set anything on, or attach anything to, the instrument panel or dash. Do not attach anything to the steering wheel cover. Failure to follow these warnings may restrict the driver's visibility or cause an object to strike and injure an occupant in the case of a collision or sudden stop.

#### **Maintenance**

To clean the vinyl/ABS dash, soak a soft cloth in a solution of mild detergent and water. Wipe off the dash. To rinse, dip a cloth in fresh water and wring it out well. Wipe off the detergent thoroughly.

### **REAR VISION CAMERA**

The rear vision monitor gives a limited televised view of what is behind your motorhome. The rear vision camera will aid you in backing up the motorhome, and can be used for a greater field of vision when driving in heavy traffic.

The monitor is operational whenever the engine is running.

For detailed operating and safety information, refer to the manufacturers user guide.

#### **⚠ WARNING**

- Camera/monitor system aids in the use of, but does not replace vehicle side/rear-view mirrors.
- Objects in camera/monitor view are closer than they appear. When backing up, proceed cautiously and be prepared to stop

### **CAMPSITE HOOK-UP**

- Refer to *Electrical Systems* section before connecting the shore line power cord (when using full hook-up) OR before starting the generator (if so equipped) or operating the vehicle on 12-volt power when dry camping.
- Refer to *Fuel & LP System section before using the LP system*. Open the LP gas tank valve (if so equipped) slowly. There may be air in the lines and five to thirty seconds of time is needed to bleed air before LP vapor fills the lines.
- Refer to *Plumbing Systems* section before connecting the fresh water supply or turning ON the water pump or water heater.

## SECTION 4: VEHICLE OPERATION

- When using full hook-up, connect the sewer hose to the campsite sewer hook-up.
- If applicable, start the refrigerator and the cooling or heating system.



**NOTE:** For extended dry camping, management of all your resources is essential. Check your battery levels and conserve battery power, use it sparingly

### **EMERGENCY STOPPING**

Always carry road flares or reflective warning signs. Pull off the roadway as far as possible for emergency stopping. Turn ON your vehicle hazard warning flashers. If traveling at night, use three red warning indicators such as flares, reflectors or lanterns as required by the Uniform Vehicle Code and Model Traffic Ordinance as follows:

1. Place the first warning indicator on the traffic side of the recreation vehicle, directed at the nearest approaching traffic.
2. Place the second warning indicator 100 feet behind the recreation vehicle in the center of the lane and toward approaching traffic.
3. Place the third warning indicator 100 feet in front of the recreation vehicle in the center of the lane and away from the traffic approaching from behind.



**NOTE:** Curves and/or hills may affect the safe placement of warning indicators.

### **WARNING**

For personal safety, always stand off the road and out of the way of traffic.

### **EMERGENCY TOWING**

If your motor home ever needs to be towed, refer to the instructions in your Chassis Guide. Please contact an emergency road service provider or a qualified service facility for assistance,

Make sure the road service technician reads and is familiar with the information contained in your Chassis Guide regarding emergency towing.

### **WARNING**

- Never allow anyone to go under the motor home while it is being lifted by towing equipment.
- Be aware of the strap locations. Misplaced straps could result in damage to the exterior of your unit. Damage resulting from misplaced straps is the responsibility of the towing company, and is not covered by the unit warranty.

### ***FRONT AXLE TIRE ALIGNMENT***

The term alignment refers to both the adjustment angles on the steering axle and suspension and tracking of the rear axle. Steering components, suspension, wheel bearings and even proper loading will affect the alignment.

**NOTE:** Always have the alignment checked and adjusted by a qualified shop with the proper equipment to handle heavy vehicles.

**NOTE:** A road test by the dealer should be included as part of the pre-delivery inspection. The dealer can check for and correct any steering problems before you take delivery.

We recommend you have the front suspension and steering alignment checked and adjusted after you have fully loaded the vehicle as part of the vehicle maintenance. Thereafter, it is your responsibility to have the alignment inspected periodically to maintain vehicle steering performance and prevent uneven tire wear as part of your normal maintenance.

After this road test has been completed, front-end alignment and/or vibrations will not be covered as part of the new vehicle limited warranty.

Follow the Chassis Guide maintenance instructions for the front and rear axle for wheel and suspension maintenance, including the brakes and wheel bearings. Contact your Chassis manufacturer for assistance.

### ***WHEEL LUG NUTS/WHEEL LINERS***

#### **⚠ WARNING**

- Check and tighten the wheel lug nuts regularly to ensure they did not loosen during travel. Refer to your Chassis Guide for torque recommendations.
- Failure to tighten and maintain wheel lug nuts to the proper torque specification, could allow the wheels to come off while driving, resulting in serious injury or property damage in the event of a collision or loss of vehicle control.

Torque is the amount of rotating force applied to a lug nut, and can only be achieved by using a properly calibrated torque wrench and socket. **Do not** use a 4-way socket or any other type of wrench that does not measure the actual pressure applied to the lug nut.

## SECTION 4: VEHICLE OPERATION



**NOTE:** The proper method of tightening wheel lug nuts is with a torque wrench, not with an impact wrench or by hand. Because of the importance of having proper torque on the wheel lug nuts, you should always have the wheels mounted and properly torqued by a qualified technician using the proper tools.

After your first trip, check the wheel lug torque periodically for safety according to your Chassis Guide. If you suspect the wheel lug nuts have loosened at any time, have them checked and torqued to the proper limits immediately.

Lugs should be checked after winter storage, after a wheel removal, before starting a trip or following extensive braking. Refer to the *Wheel Lug Torque Chart*.

**Check and re-torque after the first 10, 25 and 50 miles (16, 40 and 80 kilometers). Thereafter, check and maintain the torque according to the listed torque values.**

### **Wheel Lugs**

If you suspect or notice the wheel stud bolts are cracked or broken, they must be replaced, along with adjacent bolts that have probably also been weakened due to the additional stress placed on them.

### **Aluminum Wheels (if so equipped)**

Clean the aluminum wheels with a cleaner that is designed for use on aluminum and apply an appropriate protection agent. Do not use abrasive cleaners. Wheels exposed to sea water or road chemicals should be cleaned as soon as possible. Be sure to use a sponge or chamois leather (brushes may damage the aluminum wheel surface).



**NOTE:** If your motor home is equipped with aluminum wheels, only the outer dual wheels are aluminum, the inner duals are steel wheels.

## **TIRES**

Read and understand the following before taking your first trip in your RV.

Routine maintenance on your RV is important. **To ensure your tires are operating safely, regular inspection of the tires and checking tire pressures is absolutely mandatory.**

Alignment, balance and bearing wear will affect tire wear. Make sure to look for cracking, bulging, uneven tread wear, etc.

**Tire Wear Diagnostic Chart**

Wear Pattern		Cause	Action
	Center Wear	Over Inflation	Adjust pressure to particular load per tire catalog.
	Edge Wear	Under Inflation	Adjust pressure to particular load per tire catalog.
	Side Wear	Loss of camber or overloading	Make sure load doesn't exceed axle rating. Align at alignment shop.
	Toe Wear	Incorrect toe-in	Align at alignment shop.
	Cupping	Out-of balance	Check bearing adjustment and balance tires.
	Flat Spots	Wheel lockup & tire skidding	Avoid sudden stops when possible and adjust brakes.

**⚠ CAUTION**

Tire wear should be checked frequently. Once a wear pattern becomes firmly established in a tire it is difficult to stop, even if the underlying cause is corrected.

**Tire pressure**

**⚠ DANGER**

Failure to follow proper inflation guidelines may result in tire failure, which, under certain circumstances can cause loss of vehicle control or accidents that may result in property damage, bodily injury and/or death.

**You must follow the manufacturer's inflation guidelines for maximum load capacity; under-inflation is just as dangerous as over-inflation.**

Proper inflation should be monitored closely. Failure to do so could result in the overheating of a tire causing a blowout. Inflation pressure should be as recommended by the tire manufacturer or as the federal label for the recreation vehicle indicates.

When you are using your Recreation Vehicle, check inflation pressure weekly. Pressure should be checked when the tires are cold. During travel, tires heat up and pressure increases. **Do not bleed air from hot tires or your tires may then be under-inflated.**

## SECTION 4: VEHICLE OPERATION



**NOTE:** Cold tire inflation pressure is defined as a tire that has not been used for three or more hours, or has been driven less than one mile. Tire inflation pressure of a hot tire may show an increase of as much as 6 psi over a cold tire.

### **⚠ WARNING**

- It is recommended that the tire pressure be checked at the beginning of each trip to obtain the maximum life of the tire. Follow the instructions listed on the Federal Certification label, to determine the correct tire pressure. Under-inflation may cause tire failures and swaying resulting in loss of control, injury, death or property damage.

#### **TOWABLE PRODUCTS ONLY**

- Towable recreation vehicles are equipped with special trailer (ST) tires that have a maximum speed rating of 65 MPH (104 km/h). **You should not exceed this speed rating.** Exceeding the tire speed rating may result in tire failure, which could lead to an accident causing serious injury or death.

## **CHANGING A TIRE**

### **⚠ WARNING**

- The motor home is very heavy. Raising the motor home to replace the tire should only be done with extreme caution by a qualified technician. The vehicle could slip, causing personal injury or death. **DO NOT ATTEMPT TO DO THIS YOURSELF.**
- When replacing a tire, make sure to replace it with a tire of the same size and specifications (refer to your Chassis Guide for assistance).

If you experience a flat tire on your motor home while driving, gradually decrease your vehicle speed (if possible), and move the motor home to a safe place on the side of the road. Contact your road service provider (if applicable) or a qualified service facility for assistance. **Do not attempt to change the tire or jack the motor home up yourself.**

Make sure the road service technician reads and is familiar with the Chassis Guide information regarding changing the tires. Make sure the wheel lug nuts have been tightened to the proper torque as outlined in your Chassis Guide.

## **AWNINGS (IF SO EQUIPPED)**

### **⚠ WARNING**

Awnings must be closed (and locked if applicable) while the RV is in transit.

**⚠ CAUTION**

The effects of wind and rain on an awning are unpredictable and can cause severe damage to the awning and/or the recreation vehicle. Retract the awning:

- If wind or extended periods of rain are expected
- If you leave the RV unattended for a length of time, to avoid unexpected climate conditions.

**Awning Care**

Keep your awnings clean and in good condition to prevent costly repairs.

- Periodically check that the fasteners are tight. Tighten if necessary.
- Keep the awning fabric clean. For detailed cleaning information, refer to the manufacturer's owner information.

Refer to the manufacturers user guide for details on set up and use.

## **SECTION 4: VEHICLE OPERATION**

**Notes:**

### **THE ELECTRICAL SYSTEM**

The RV electrical system is comprised of two independent electrical systems. One operates off of 12-volt DC power and the other off of 120-volt 60hz AC power. All installations have been made in compliance with industry standards applicable on the date of manufacture. Because the electrical equipment and associated circuitry are engineered into a dedicated system specific to your RV, do not make unauthorized changes or add fixed appliances to it. **Changes or additions made after delivery may result in a hazardous condition.**

Service and/or modification of the electrical system should only be performed by qualified electrical technicians using approved materials, components, and methods meeting current safety and code requirements. Consult your dealer's service department for assistance.

To read more about the various components incorporated into the RV electrical system, please refer to the information contained in your Warranty Packet.

For motorized vehicles, consult the Chassis Guide for information pertaining to the chassis drivetrain electrical system.

#### **Electrical System Maintenance**

Before working on the electrical system:

- Make sure the inverter/charger (if so equipped) is turned "off" before disconnecting batteries. Disconnect the shore power cord.
- If equipped with a generator, turn off the generator and disable the automatic generator start functionality.
- Turn off the battery disconnect switch (if so equipped)
- Turn off the 120V main circuit breaker.
- Disconnect the negative 12VDC battery terminal from the battery.

### **WARNING**

Use caution when using metal tools. If a tool contacts a battery terminal or metal connected to it, a short circuit could occur which could cause personal injury, explosion or fire.

### **IN CASE OF AN ELECTRICAL FIRE**

### **WARNING**

Do not attempt to use water to put out an electrical fire. Water can spread some types of fire, and electrocution is possible with an electrical fire.

#### **EVERYONE SHOULD EVACUATE THE RV IMMEDIATELY:**

- Switch the 120-volt main circuit breaker to the "off" position. **It is important that everyone knows where to find the main circuit breaker and how it operates.**
- Disconnect the negative battery cable(s) at the battery.
- Disconnect the power cord from the shore power receptacle.
- Turn "off" the generator (if so equipped).

Always have faulty or damaged wiring and electrical components repaired immediately.

## **SECTION 6: ELECTRICAL SYSTEM**

### **CONTROLS AND SWITCHES**

Your motor home is equipped with various switches and controls that allow you to operate and monitor the systems in your motor home.

Information on these controls and their location will be provided throughout this manual. Additional information on the various components can be found in the component manufacturer's user guide.

### **GFCI CIRCUIT BREAKERS**

Ground fault current interrupter breakers are engineered into the electrical system. They are designed to reduce the possible injury caused by electric shock. The breakers will not protect against short circuits or circuit overloads.

### **FIREFLY MULTIPLEX LIGHTS AND AWNING**

The Firefly multiplex system controls numerous components in your motor home. Some of these include the air conditioner, generator, tank heaters, water pump, awning and lighting.

The MAIN POWER switch located at the stepwell must be turned ON to enable the multiplex system.

The multiplex switch panels are backlit and when a switch is selected, it will light up indicating it is ON. Pressing the switch a second time turns it OFF. Holding the light switch will dim the lights. The master off switch will save the current state of the lights.

Refer to the Firefly manual detailed operating instructions.



### **TESTING THE CAMPSITE POWER CONNECTION**

The campsite 120-volt power receptacle(s) should **always** be tested for proper functionality prior to plugging the recreation vehicle shore power cord into it.

Campsite 120-volt power receptacles can be tested using a digital multimeter or a dedicated circuit analyzer. Dedicated circuit analyzers plug directly into the campsite power receptacle and minimally test for open neutral, open ground, and correct polarity.

#### **Connecting The Power Cord**

Always test the external power source (i.e., the campsite power receptacle or electrical box) with a ground monitor before connecting your power cord to it. If the ground monitor indicates 'reverse polarity' or an 'open ground' DO NOT connect the power cord.

To help prevent power surges from damaging the connected loads, please follow these instructions when hooking up to the external power source:

1. Turn off the load center main 120-volt circuit breaker.
2. Carefully extend the entire length of the power cord (approximately 25'-35') from the electric cable hatch to the external power source.
3. Plug the power cord into the receptacle. Be sure all the power cord prongs are properly plugged into the receptacle.
4. Return to your RV and turn on the load center main circuit breaker.

**The shore power cord should be unplugged when the recreation vehicle is left unattended**

## **WARNING**

**Do not hook up the power cord to any receptacle until you have verified proper polarity and grounding.**

**DO NOT** plug the shore power cord into a campsite receptacle(s):

- That has reverse polarity
- With non-functioning ground circuits
- That shows outward signs of heat damage.

**Doing so may result in property damage or serious injury.** Plugging the shore power cord into an incorrectly wired power source could damage the recreation vehicle electrical system and result in severe or fatal injury. Damage or injury resulting from connection to malfunctioning or improperly wired power sources is not covered by your recreation vehicle warranty.

**DO NOT**

- Do not use any cheater plug, adapter or extension cord to reconfigure incoming AC power or break the continuity of the circuit connected to the grounding pin.
- Do not connect the power cord into an outlet that is not grounded, or adapt the power cord plug to connect it to a receptacle for which it is not designed.
- Do not remove the grounding pin to connect to a non-grounded receptacle. Removal of the ground pin disables an important safety feature designed to prevent shock and electrocution hazards.
- Do not connect the power cord to an extension cord. Use of an improper extension cord will cause overheating of the cord as well as potentially causing premature failure of the AC equipment.
- The power cord must be fully extended when in use and not left coiled in the electrical compartment or on the ground. A power cord left coiled may potentially create enough heat to melt its protective casing.

It is the responsibility of the owner of the electrical receptacle to ensure that the receptacle is properly wired and grounded. **Reverse polarity and/or improper grounding of your RV can cause property damage or serious personal injury.**

When you are ready to leave, reverse the power cord connection process. Use care to prevent damaging the power cord electrical connection pins when connecting or disconnecting the shore power cord. Grasp the plug to remove the power cord from the outlet; do not unplug it by pulling on the cord.

### **Maintenance**

Inspect the power cord for cuts, cracks and worn insulation. Have the power cord replaced immediately if these symptoms are noticed.

## SECTION 6: ELECTRICAL SYSTEM

### **INVERTER (IF SO EQUIPPED)**

A factory installed inverter converts 12-volts DC to useable 120-volts AC and supplies continuous AC power to the appliance plugged into it. It is important that you familiarize yourself with the inverter function and operation. The inverter should be “off” when not in use.

**The factory installed inverter is not intended for use, nor should be used, with any medical device(s). The inverter may, however, be used with some CPAP machines, depending on the CPAP model. Consult your CPAP machine’s instruction manual before use to ensure proper operation.**

If your recreation vehicle is equipped with a residential style refrigerator, the inverter may be used to supply the 120-volts AC necessary to power the refrigerator.

#### **Maintenance**

*There are no customer serviceable parts inside the inverter case and the manufacturer’s warranty will be void if the case has been removed.* The inverter cooling fins and the cooling fan should be kept clear of any obstructions.

Your RV may have an inverter remote display (appearance may vary) on the Command Center switch panel. There are power and select buttons, Status/Display indicators and a single line digital alpha- numeric display. The display can show measured battery voltage, AC output power, inverter settings and error codes.

**POWER** button is used to turn the inverter on and off. To turn on the inverter and the LED display press and hold **POWER** for 1 second until you hear a beep.

The **STATUS** and **DISPLAY** indicators indicate the inverter status:



**NOTE:** When in *Inverter Mode* you will be able to cycle through Battery Voltage, Inverter Power, inverter settings and error codes. When in *Bypass Mode* you will be able to cycle through Battery Voltage, inverter settings and error codes. Inverter Power will not be available because the inverter is idle.

- STATUS & DISPLAY LEDS - both GREEN - Unit is plugged into shore power. The panel is in *Bypass Mode* and will display battery voltage in DC volts.
- STATUS LED AMBER, DISPLAY LED GREEN - *Inverter Mode* is active. Inverter is ON and will display battery voltage in DC volts. (Not connected to shore power)
- STATUS & DISPLAY LEDS - both AMBER - *Inverter Mode* is active. Inverter is ON, pressing the SELECT button will display inverter power output. Display shows power output in KW.
- STATUS LED FLASHES AMBER, DISPLAY LED IS OFF - If the unit is in *Inverter Mode*, and you plug in shore power, the STATUS LED will begin flashing AMBER and the unit will switch to *Bypass Mode* within 20 seconds of detecting an AC input.
- If the STATUS LED is RED and DISPLAY LED is OFF, the display will show an error code of E01 through E12. This indicates a fault in the inverter circuit that needs attention. Inverter will shut down.

**NOTE:** The power button is **NOT** a power disconnect switch and will not remove DC power from the inverter. Disconnect **ALL** power from the inverter before working on it.

Pressing the SELECT button also cycles through inverter settings. Inverter settings can be changed, but 12VDC must be removed from the Ignition Start Port on the back of the inverter. Unplug the 12VDC wire(s) on the back of the inverter to make changes to inverter settings. Plug +12VDC back in after settings are changed. (See photo)

Refer to the Inverter manufacturers' manual in your warranty packet for further operating instructions, error codes, changing inverter settings and safety information.



### **12-VOLT DC SYSTEM**

The majority of your motor home lighting is powered by 12-volt electricity. The 12-volt DC system is composed of components that will operate when the following conditions are met:

- Power is supplied by the chassis alternator when the chassis engine is running.
- 12-volt DC power is supplied when the shore power cord is plugged into a 120-volt external power source. House batteries will be charged also in most situations.
- The house batteries power many interior 12-volt components including the lighting fixtures, water pump, 12-volt motors, 12-volt appliances, etc., when the motor home is not connected to a 120-volt power source.

### **12-Volt Fuse Panel**

## **⚠ WARNING**

Replacement fuses must be of the same voltage, amperage rating and type. **Never use a higher rated replacement fuse;** doing so may cause a fire by overheating the RV wiring.

The 12-volt fuse panel is labeled to indicate fuse sizes, positions and the components powered. **Fuses are located in the load center.**

### **Replacing a Fuse**

Before replacing a fuse, always turn off the electrical components protected by it.

1. Disconnect the shore power cord.
2. Inverter should be OFF.
3. Remove the fuse panel cover to check fuses.
4. Pull the fuse straight out of the fuse block.
5. Insert a new fuse of the same specified voltage, amperage rating and type in the original location.

The fuse panel label should be kept permanently affixed to your recreation vehicle. Fuses will not offer complete protection of the electrical system in the event of a power surge or spike.

## SECTION 6: ELECTRICAL SYSTEM

### 12-Volt DC Outlet

There may be one or more 12-volt DC power outlets in your recreation vehicle. When the 12-volt DC outlet is used as a power source for an electric appliance, make sure the appliance operates on 12-volt DC power and that it consumes less than 60 watts (5 amps) of power.

### **WARNING**

Keep the protective dust cap on the 12-volt DC outlet when not in use to prevent ingestion of foreign material and potential short circuit conditions.

## **BATTERIES**

### **WARNING**

- Do not store anything inside the battery compartment(s)** or near the batteries that could touch the battery or battery cable terminals. Contact with the battery or battery cable terminals could cause an electrical short circuit, discharge the batteries, or start an electrical fire.
- Keep sparks, cigarettes and flames away from the batteries as the hydrogen gas they create may explode.** Do not connect a booster battery or other power source that outputs more than 14.2-volts DC to the motorhome batteries. Use adequate ventilation when charging or using batteries in an enclosed space.
- Remove metal jewelry and always wear eye protection when working around batteries.
- Do not allow battery electrolyte (acid) to come into contact with skin, eyes, fabric or painted surfaces.** Electrolyte is a sulfuric acid solution that could cause serious personal injury or property damage. If your hands, eyes, clothes or the painted surface of your motorhome are exposed to electrolyte, flush the exposed area thoroughly with water. If electrolyte gets in your eyes, immediately flush them thoroughly with water and get prompt medical attention.
- Make sure the inverter/charger is turned “off” before disconnecting the negative battery cable from the battery bank.** Keep the batteries out of the reach of children.

### House Batteries

Your motorhome is equipped with H7 group deep cycle batteries.

Unless a battery has been fully discharged, house auxiliary batteries are normally charged in one of two ways:

- The chassis alternator charging system supplies power to the house auxiliary batteries when the engine is running and the chassis batteries are sufficiently charged.
- When the power cord is plugged into 120-volt shore power, or when the generator (if equipped) is operational, the converter/charger functions as a battery charger and will automatically charge the house batteries when required.

**A fully charged battery** will read 12.65 volts DC with a specific gravity of 1.265 at 80°F (32°C). A battery is considered discharged at 11.89 DC volts or when it has a specific gravity of 1.120 or less. When voltage drops to 11.89 volts, irreversible battery damage can occur.

### **Dry Camping**

House auxiliary and chassis batteries should be fully charged prior to dry camping. When disconnected from 120-volt shore or generator power (i.e., while dry camping or tailgating) all electrically operated appliances and accessories must be used sparingly. Typically, a deep cycle battery has an amp-hour rating of 75-100 amps.

During this period these appliances and accessories are being powered by the house auxiliary batteries directly, and/or indirectly through the inverter/charger. If excessive amounts of power are drawn from the house auxiliary batteries, they will become deeply discharged. Permanent battery damage will occur after repeated deep discharge cycles.

### **Battery Inspection and Care**

Have a qualified Service Technician periodically inspect the batteries for the following:

- Check the level of electrolyte in each battery cell once a year.
- Add distilled water as needed to reach the split-level marker on each battery.
- Check the external condition of the batteries periodically for cracks in the cover and case.
- Make sure battery vent caps are tight and replace them if cracked or broken.

### **Battery storage instructions**

To prevent house auxiliary battery discharge when your motorhome will not be connected to shore power for extended periods of time, it is recommended you turn “off” the 12-volt battery disconnect switch, or “main power switch,” **and** disconnect each battery bank at the negative battery cable running to the chassis frame.

During storage, it is important to check battery voltage at least every two weeks and to recharge them as needed. If you remove the batteries from your motorhome protect them from accidental shorting and keep them in a cool, dry, well ventilated area.

### **Battery Replacement**

**If house auxiliary batteries need to be replaced, only deep cycle batteries of the same size and type should be installed.**



**NOTE:** Battery replacement and maintenance should only be done by a qualified Service Technician.

Do not reverse the positive and negative battery cables. Doing so will blow the reverse polarity fuses that protect the power converter.

### **For more information**

Contact the battery manufacturer for more information on the house auxiliary batteries.

Refer to your Chassis Guide for information pertaining to the chassis batteries.

### **12-Volt Battery Disconnect**

The 12-volt battery disconnect switch is typically located on the bed or cabinet base inside the side sliding door. This momentary switch controls a solenoid which connects or disconnects the house batteries. The switch lights up red when turned on.

When engaged the battery disconnect solenoid supplies battery power to all accessories connected to the house 12-volt fuse panel. The solenoid must be engaged for the 12-volt house electrical system to operate.



## **SECTION 6: ELECTRICAL SYSTEM**

The battery disconnect feature should be used to disconnect the motorhome from house battery power during periods of storage or during maintenance.



**NOTE:** The combination carbon monoxide/propane alarm requires a constant 12-volt power source. The carbon monoxide/propane alarm remains operational when the battery disconnect solenoid switch, or “main power switch,” is in the “ON” position or when the ignition key is rotated to the “ON” position.

### **Battery Isolator Solenoid (if so equipped)**

The isolator solenoid breaks the connection between the house batteries and the chassis battery when the ignition key is in the “OFF” position.

Breaking this connection prevents discharge of the chassis battery (used to start the engine) when using 12-volt devices in the house section of your motorhome.

When the engine is running the isolator solenoid engages allowing the house batteries to be charged by the vehicle alternator.

### **Battery Isolation Manager (if so equipped)**

Your motorhome may be equipped with a Battery Isolation Manager that monitors the battery voltage of both the chassis and house batteries over long periods of time. If it senses a charging voltage it connects the two batteries together. If the charge system is overburdened, it isolates both batteries. When batteries have reached a float charge state for (1) hour, the batteries are isolated to prevent overcharging.

It will reconnect if either battery drops to approximately 80% charge and the other is being charged. If batteries are not being charged they will be isolated to prevent an electrical draw in one system from depleting the other battery.

## **AUTOMATIC TRANSFER SWITCH (ATS)**

Your motor home is equipped with an Automatic Transfer Switch with built in reverse polarity protection. The ATS is microprocessor controlled and will automatically detect which power source is being used (generator or shore power) and allow power from that connection only. You will not have to plug and unplug power to the coach if you decide to run the generator.

If you plug into shore power, the ATS will pass power to the motor home. If the generator is started, it will override the shore power input (called generator dominant) and supply the RV with electrical power from the generator. When the generator is shut down, shore power is restored.

There may be a slight flicker of the lights when the ATS changes over from one to the other, but there is no real interruption of power.

The ATS will disconnect from shore power completely if the power coming in is not high enough quality (i.e. either low/high voltage, or low/high frequency).

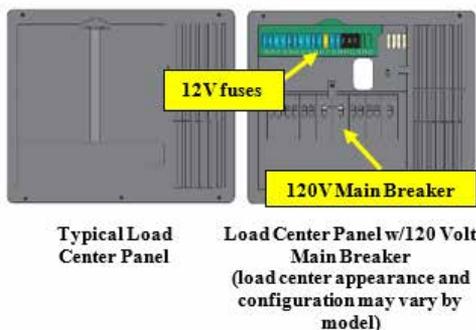
When the generator is operating, it powers the inverter/charger which in turn functions as a multi-stage battery charger to charge the house auxiliary and chassis batteries.

Refer to and follow safety information found in the manufacturer’s troubleshooting guide found in your warranty packet.

**NOTE:** The generator (diesel or gas powered) requires 12-volt power from the house auxiliary batteries to start, and draws (diesel or gas) fuel to operate from the chassis fuel tank. If the fuel level in the chassis fuel tank drops to or below  $\frac{1}{4}$  full, the generator will automatically shut "off" and cannot be re-started until the fuel tank is filled to above  $\frac{1}{4}$  full.

### **LOAD CENTER**

The Load Center contains 12VDC fuses and 120VAC circuit breakers for almost all of the electrical appliances and circuits in the RV. The 120V main breaker may be located in this panel and will turn off all 120-volt power to the RV. Locations will vary by model. Refer to the diagram inside the load center for specific fuse assignments.



### **120-VOLT CIRCUIT BREAKERS**

The 120-volt AC circuit breakers located inside the load center protect all 120-volt wiring and components from circuit overloads and short circuits. Should a circuit overload or short circuit occur the circuit breaker protecting the affected circuit will "trip" preventing the flow of electricity through that circuit.

If a circuit breaker trips, shut off the appliance on that circuit (i.e., power converter, etc.) and allow the circuit breaker to cool down for a brief period of time. After it cools down, reset the circuit breaker by moving its lever "off" and then back to the "on" position. If the circuit breaker re-trips or frequently trips, contact your dealer to have the electrical problem diagnosed and repaired.

A circuit breaker identification label is permanently attached to the inside surface of the 120-volt Load Center.

## **⚠ CAUTION**

Circuit breakers and fuses will not offer complete protection of the electrical system in the event of power surge or voltage spike.

### **Replacement**

Only replace circuit breakers with those of the same specified type, voltage, and current rating. **Never replace a circuit breaker with one listed at a higher amperage rating.** Please contact your dealer for repair assistance when replacing circuit breakers.

## SECTION 6: ELECTRICAL SYSTEM

### **WARNING**

Replacement circuit breakers must be of the same voltage, amperage rating and type. Never use a higher rated replacement circuit breaker; doing so may cause a fire by overheating the RV wiring.

#### **Maintenance**

At the beginning of the camping season, inspect the circuit breakers and replace as needed. Test by turning each circuit breaker “off” and back “on”. Circuit breakers are wearable parts and must be replaced as needed as part of your RV maintenance. If you have any questions, contact your dealer.

A label is provided to explain the function of every 120-volt circuit breaker. This label is located on or near the appropriate load center or sub-panel and must remain permanently affixed to the recreation vehicle.

#### **APPROXIMATE ELECTRICAL LOAD RATINGS**

Exterior Entertainment Center	5-7 AMPS
Fan	1.5 AMPS
Furnace	12.0 AMPS
Generator Start	95.0 AMPS*
Illuminated Switch	.125 AMP
Inverter	variable
Leveling System	95.0 AMPS*
LP Detector	.125 AMP
Light; LED	1.7 AMPS
Light; Vanity	4.2 AMPS
Lights; Aisle	1.0 AMP
Lights; Baggage Compartment / Shower	1.4 AMPS
Lights; Decorative Wall / Map / Porch	1.5 AMPS
Lights; Double -12”	2.0 AMPS
Lights; Double -18”	2.5 AMPS
Power Awning	10.0 AMPS*
Power Vent	5.0 AMPS
Refrigerator	3.0 AMPS
Step Cover	10.0 AMPS*
TV Plate/Antenna Booster	1.0 AMP
Water Heater	6.0 AMPS
Water Pump	7.0 AMPS

\*Momentary Load

12 Volts: Labeled watts divided by 12 = Power consumed in AMPS

Air Conditioner	18 AMPS
Coffee Maker	6-12 AMPS
Converter (each)	8 AMPS
DVD System	3 AMPS
Fireplace	15 AMPS
Hair Dryer or Curling Iron	10-14 AMPS
Microwave	15 AMPS
Refrigerator	6 AMPS
Satellite Receiver	2 AMPS
TV	2-4 AMPS
Vacuum Cleaner	8 AMPS
Washer/Dryer	12 AMPS
Water Heater	12 AMPS

120 Volts: Labeled watts divided by 120 = Power consumed in AMPS

### ***120-VOLT 30 AMP AC ELECTRIC SYSTEM (IF SO EQUIPPED)***

The 30 amp 120-volt 60hz AC electrical system is designed to operate on 1 leg of 120-volt power at a maximum current flow of 30 amperes.

Exposure to voltages higher or lower than a nominal 120-volts will damage or shorten the service life of the electrical system and appliances. The 30 amp 120-volt 60hz AC electrical system can be powered by the 120-volt 60hz utilities found in campgrounds or by 120-volt 60hz generator power.

The following electrical components will only operate when your recreation vehicle is connected to shore or generator power: 120 to 12-volt power converter, air conditioner, refrigerator, microwave oven, television(s), home theater system(s), electric water heater, washer, dryer, fireplace, and appliances plugged into convenience receptacles.

## **⚠ WARNING**

- Make certain the external power source you connect the power cord to is a properly wired **30 amp NEMA TT-30** RV receptacle and not 240-volt AC. **PLUG INTO 30-AMP SERVICE ONLY.**
- Circuit breakers and fuses will not offer complete protection of the electrical system in the event of power surge or voltage spike.

## SECTION 6: ELECTRICAL SYSTEM

### 30 amp Power Cord (if so equipped)

#### **WARNING**

- Do not hook up the power cord to any receptacle until you have verified proper polarity and grounding. Polarity indicators can be purchased in most electrical and hardware stores.
- Do not use any cheater plug, adapter or extension cord to reconfigure incoming AC power or break the continuity of the circuit connected to the grounding pin.
- Do not connect the power cord into an outlet that is not grounded, or adapt the power cord plug to connect it to a receptacle for which it is not designed.
- Do not remove the grounding pin to connect to a non-grounded receptacle. Removal of the ground pin disables an important safety feature designed to prevent shock and electrocution hazards.
- Do not connect the power cord to an extension cord. Use of an improper extension cord will cause overheating of the cord as well as potentially causing premature failure of the AC equipment.

It is the responsibility of the owner of the electrical receptacle to ensure that the receptacle is properly wired and grounded. Reverse polarity and/or improper grounding of your recreation vehicle can cause personal injury or death.

The 30 amp external utility power cord is commonly referred to as the “shore” power cord. It is designed to mate and properly function with 30 amp “shore” power receptacles available at most campgrounds.

The shore power cord is designed to continuously carry the 30 amp current flow required to power each leg of the electrical system. It also creates a critical ground connection between the vehicle electrical system and the campground shore power receptacle.

Always test the external power source (i.e., the campsite power receptacle or electrical box) with a ground monitor before connecting your power cord to it. If the ground monitor indicates ‘reverse polarity’ or an ‘open ground’ **DO NOT** connect the power cord.

Regularly inspect the shore power cord for cuts, cracks, worn insulation and other damage. Have the power cord replaced immediately if problems exist.

#### **Calculating 30 AMP Electrical Load (if so equipped)**

When connecting appliances to the electrical system, 120-volt power usage is limited to a total of 30 amps. Operating appliances collectively places an added load on your 120-volt electrical system.

A circuit breaker “trip” may occur if you overload the recreation vehicle and/or campground electrical system. The amperage rating of individual appliances can be calculated by dividing appliance wattage consumed (normally listed on the appliance) by nominal design voltage (120 for a 120-volt appliance). For example: 1200 watts divided by 120-volts equals 10 amps.

### **GENERATOR**

Your motorhome may be equipped with an LP or gas powered generator. The generator produces 120/240-volt power compatible with the motorhome electrical system. It can be used to power the entire motorhome when 120/240-volt shore power is not available.

#### **Transfer switch**

For more information see the *Automatic Transfer Switch (ATS)* section.



**NOTE:** The gas generator requires 12-volt power from the house auxiliary batteries to start, and draws gas to operate from the chassis fuel tank. If the fuel level in the chassis fuel tank drops to or below  $\frac{1}{4}$  full, the generator will automatically shut off and cannot be re-started until the fuel tank is filled to above  $\frac{1}{4}$  full.

#### **Before Starting the Generator**

1. Make sure the carbon monoxide detector is working.
2. Turn off air conditioners and all other 120-volt appliances.
3. Check for fuel, exhaust and coolant leaks.

**STOP the generator immediately if there is a fuel, exhaust or coolant leak. Have all leaks repaired prior to placing the generator back in service.**

### **⚠ WARNING**

**CARBON MONOXIDE IS DEADLY!** Do not run the generator when your motorhome is indoors or in a confined space. Asphyxiation or carbon monoxide poisoning hazards exist whenever generator exhaust gasses can accumulate.

**MOVING PARTS AND ELECTRICITY** can cause severe personal injury or death.

To reduce exposure to these hazards:

- Sleeping in vehicle, unless vehicle has a working CARBON MONOXIDE detector.
- Parking vehicle in garage or confined space.
- Parking vehicle for storage.
- Servicing vehicle for storage.
- Servicing generator.
- Servicing batteries.
- Servicing appliances or electrical systems.
- Fueling the vehicle.

Asphyxiation or carbon monoxide poisoning hazards exist whenever generator exhaust gasses can accumulate.

#### **Maintenance**

During periods of extended storage, cover the end of the generator exhaust pipe with screen to prevent bug and rodent intrusion.

## **SECTION 6: ELECTRICAL SYSTEM**

With the exception of simple items, such as normal maintenance (i.e., oil changes, etc.), all service work should be done by an authorized repair facility. Improper adjustments can damage the generator and electrical appliances and can result in a safety hazard. **Follow the generator owner's manual for maintenance intervals and recommendations.**

**Exercising Your Generator** – When storing the generator for extended periods of time, it is important to run the generator regularly to keep it in good working order. Lack of exercise can cause moisture build-up in the fuel system resulting in poor performance.

For more information on generator operation and maintenance, refer to the generator owner's manual.

### **Starting the Generator**

Your motorhome, depending on the model, will have a touchscreen to control the generator or manual switches located on the generator.

### **To Manually Start the Generator**

#### **Manual switches located on the generator.**

1. At either "START/STOP" switch, press and hold the upper portion of the switch to start the generator. Depending on the outside temperature the start process can take up to 15 seconds. Once the generator starts running, release the "START/STOP" switch.
2. An LED above the start switch will light when the generator is running.
3. For better performance and engine life, especially in colder weather, let the generator engine warm up for two minutes before turning "ON" 120-volt appliances.

For more information on generator operation and maintenance, refer to the manufacturer's owner's manual.

### **Automatic Generator Start (AGS) (if so equipped)**

Certain models of motorhomes may be equipped with an Automatic Generator Start system (AGS). The controls are built into the Firefly touchscreen system. When enabled, the Automatic Generator Start system will automatically start and stop the generator.

## **CAUTION**

Excessive usage can overheat and damage the generator starter motor. Do not engage the starter motor for more than 20 seconds at a time. If the generator does not start after the first attempt, wait at least two minutes before beginning another start sequence. If the generator does not start after a third attempt, refer to the generator owner's manual for additional information.

## **REPLACING LIGHT BULBS**

Replacement light bulbs must be the same type, voltage and wattage that is listed on the lamp fixture. Use of incorrectly sized bulbs can overload lamp circuits and may create a fire hazard by overheating the fixture.

Before replacing a bulb, be sure the light is off.

**FUEL SAFETY**

**⚠ DANGER**

Automotive fuels can cause serious injury or death if misused or mishandled. If you have further questions, consult your dealer or Customer Service for assistance.

- Always shut OFF the vehicle engine while refueling.
- Do not bring or store fuel or other flammable liquids inside the motor home because a fire or explosion may result.
- Before refueling, extinguish all smoking materials and any open flames.
- Before refueling, always turn OFF all spark producing appliances (i.e., water heaters, furnaces, etc.).
- Do not overfill the fuel tank(s). The pressure in an overfilled fuel tank may cause leakage and lead to fuel spray and/or fire.
- Fuel spills represent a serious fire hazard, and should be cleaned up immediately.
- Never restart an engine or re-light any pilot lights while raw fuel is present.

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

**Fuel Selection**

Some generators are fueled by the same system used to fuel the chassis engine. Check the generator manufacturer and the chassis manufacturer information to help determine the type of fuel best suited for this dual application.

**Fuel Filler Cap**

**⚠ WARNING**

Do not replace the fuel fill cap with one of a different type. Only use a cap specified for your motor home. Use of a substitute cap may create excessive fuel system pressure, resulting in fuel station damage and improper operation in a collision.

Remove the fuel fill cap by slowly turning it counter-clockwise, waiting for any “hiss” noise to stop, and then unscrew the cap all the way. To close the fuel fill cap, securely turn the cap clockwise until you hear clicking sounds.

**Filling the fuel tank**

Use care when fueling your motor home. If you spill fuel on the motor home, clean it up immediately. Fuel can dull or soften paint and damage other surfaces.

**⚠ DANGER**

All pilot lights, appliances and their igniters (see operating instructions) shall be turned off before refueling of motor fuel tanks and/or propane containers. Can cause ignition of flammable vapors, which can lead to a fire or explosion and result in death or serious injury.

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**EXHAUST GAS FUMES**

**⚠ WARNING**

- Avoid inhaling exhaust gases as they contain carbon monoxide, which is a potentially toxic gas that is colorless and odorless.
- If you are in a parked motor home with either the engine running or the generator running there is a potential for exhaust fumes to filter back into the motor home.

To avoid breathing exhaust gases, follow these precautions:

- Do not run the engine in confined areas, such as a closed garage, any longer than needed to move your motor home in or out of the area.
- Windows should be closed while driving or running the generator (if so equipped) to avoid drawing dangerous exhaust gases into the motor home.
- If you suspect that exhaust fumes are entering the passenger compartment, have the cause determined and corrected as soon as possible.

If you must drive under these circumstances, close all the windows, and adjust the heating or cooling system to force outside air into the motor home (set the blower on high speed).

The best protection against carbon monoxide entry into the motor home is a properly maintained ventilation system and an active carbon monoxide detector. To allow for proper operation of the motor home ventilation system, keep the ventilation inlet grill(s) clear of snow, leaves or other obstructions at all times.

**Maintenance**

It is recommended that the exhaust system and vehicle body be inspected by a qualified motor home service center:

- Each time the engine is ready for an oil change.
- Whenever a change in the sound of the exhaust is noticed.
- Whenever the exhaust system, underbody or rear of the vehicle is damaged.

**For more information refer to your Chassis Guide.**

**PROPANE GAS SYSTEM (IF SO EQUIPPED)**

Propane or LP (liquefied petroleum) gas is an efficient form of energy when proper handling and safety precautions are observed. The propane system in your motor home furnishes the fuel for most appliances. Propane is heavier than air and tends to flow to lower areas and will sometimes pocket in these low areas, such as the floor. Your motor home is equipped with a propane alarm (refer to *Safety Precautions*, Combination Carbon Monoxide (CO)/Propane Alarm).

**⚠ WARNING**

Propane cylinders should not be placed or stored inside the vehicle. LP-gas cylinders are equipped with safety devices that relieve pressure by discharging gas into the atmosphere.

The propane fuel system is comprised of numerous components such as the propane container, hoses, propane gas regulator, piping and copper tubing to each appliance.

Your motor home has been carefully tested at the factory and by your selling dealer for

## SECTION 7: FUEL & PROPANE SYSTEM

leakage. Travel vibrations can loosen fittings. Have the vehicle propane system checked at all connections soon after the purchase of your vehicle, and after the initial filling of the propane tanks.

Continued periodic checks of the propane system at 5,000 miles of travel (or at least once a year) by a qualified propane service representative as part of your normal maintenance is recommended. Hand tighten the LP gas system valves only, do not use a wrench or pliers as over tightening may damage the valve seals and cause them to leak.



**NOTE:** All propane lines have been checked with air pressure at the time of manufacture. Dealers are required to recheck and adjust pressure before retail delivery.

The following label should be kept permanently affixed to the motor home:

 <b>DANGER</b>
ALL PILOT LIGHTS, APPLIANCES, AND THEIR IGNITORS (SEE OPERATING INSTRUCTIONS) SHALL BE TURNED OFF BEFORE REFUELING OF MOTOR FUEL TANKS AND/ OR PROPANE CONTAINERS. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.
 <b>WARNING</b>
DO NOT FILL PROPANE CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY. FAILURE TO COMPLY COULD RESULT <u>IN DEATH OR SERIOUS INJURY.</u>
 <b>CAUTION</b>
THIS PIPING SYSTEM IS DESIGNED FOR USE WITH PROPANE ONLY. DO NOT CONNECT NATURAL GAS TO THIS SYSTEM. Securely cap this inlet when not connected for use. After turning on propane, except after normal cylinder replacement, test propane piping and connection to appliances for leakage with soapy water or bubble solution. Do not use products <u>that contain ammonia or chlorine.</u> DD-37

### **Propane Gas Container**

Propane is a true gas compressed into a liquid form. As the fuel is released from the container, it changes to vapor which is then used for the operation of the appliances. Propane will not run through the appliances in the liquid state.

A permanently mounted A.S.M.E. approved propane container is located under the floor of the motor home.



**NOTE:** Tanks are to be installed, fueled and maintained in accordance to State and Local codes, rules, regulations or laws.

Propane expands 1½ percent for every ten degrees of increase in temperature. It is imperative to leave sufficient space inside the container to allow for natural expansion of gas during warmer weather.

## SECTION 7: FUEL & PROPANE SYSTEM

### Servicing or Filling

# **⚠ WARNING**

- ❑ **Always shut OFF the engine while refueling.** Do not smoke and do not operate other ignition sources while refueling.
- ❑ **When the propane container is disconnected from the main supply hose and the P.O.L. connection, install the P.O.L. plastic cap that is attached to the container.**
- ❑ **If you suspect your propane container has been overfilled, contact your dealer or a qualified propane technician for assistance immediately.** Do not attempt to service a propane container overfill yourself.

Because the container is not removable, the motor home will need to be driven to a qualified propane facility for servicing or filling.

Only the authorized gas service technician(s) should be near the motor home while the propane tank is being filled. The new propane container must be carefully purged for proper appliance performance and operation. The propane tank must **NEVER BE OVERFILLED**.



**LP fill**

Replace all protective covers and caps on the propane system and/or container after filling.

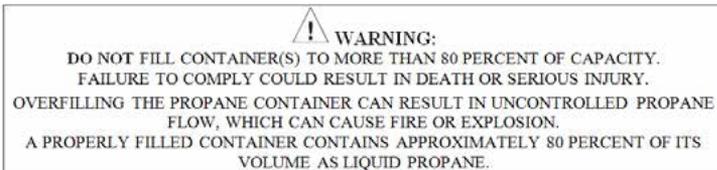
Make sure the valve is closed and the compartment door is securely latched.

### LP Gas Container Overfill

Never allow your propane tank to be filled above the maximum safe level as indicated by the fixed liquid level gauge.

Do not allow the visible gauge to be used for filling. Overfilling the propane container above the liquid capacity indicated on the container, could allow liquid propane to enter the system that is designed for vapor only creating a hazardous condition.

The following warning label has been placed by the propane container.



**Propane System Label**

### LP Regulator

The regulator has the only moving components in the propane system. Its sole function is to reduce the pressure from the propane containers to a safe and consistent low operating pressure. If the pressure is too high, it affects performance and safety; if the pressure is too low, your appliances will not operate correctly.

Contact your dealer or qualified propane service technician for optimum performance (this adjustment should always be made with a properly calibrated manometer).

Refer to your Warranty Packet for more information on the LP gas system components.

### ***PROPANE USE AND SAFETY***

Propane is a colorless and odorless gas that, in the liquefied state, resembles water. An odorant (usually a sulfur compound) is added as a warning agent. If you smell propane within the vehicle, quickly and carefully perform the procedure listed on the propane system label. This label has been placed in the vehicle near the range for models equipped with a propane system. When a propane container is low, there may be a concentration of an onion or garlic-like odor, which can be mistaken for a propane gas leak. After the propane container has been refueled, the odor will usually disappear. If not, turn off the valve(s) and have the propane system inspected by your dealer or qualified propane service representative.

#### **Propane Leak Test**

Leaks may be found easily with a soapy water solution. Do not use a solution containing ammonia or chlorine when locating leaks. These products are corrosive to copper gas lines and brass fittings, which could result in deterioration of the copper and brass components. Apply the soapy solution to the outside of the gas piping fittings. If a leak is present, the soapy solution will “bubble” at the leak point. If a leak is indicated, shut off the propane system valve(s) and contact your dealer or qualified propane service representative immediately.

### **⚠ DANGER**

#### **IF YOU SMELL PROPANE**

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

Ignition of flammable vapors could lead to a fire or explosion and result death of serious injury.

#### **Propane System Label**

### **⚠ DANGER**

**Never use an open flame to test for a propane leak.** Do not check for leaks using products that contain ammonia or chlorine; these products can cause cracks to form on the metal tubing and brass fittings.

#### **Using the Propane System**

Use the following steps for propane operation:

1. Close ALL burner valves, controls and pilot light valves.
2. Open the main valve in the propane tank slowly to avoid a rush of propane vapor through the excess flow valve, causing propane “freeze-up.” Should you experience propane “freeze-up”, close the main valve and wait 15 minutes before trying again.
3. Listen carefully as propane begins to flow. If a hissing noise is heard for more than one or two seconds, close the main valve and contact your dealer to have the propane system tested.
4. **Light the appliances as needed and directed in the appliance manufacturer’s owner manual located in the Warranty Packet.**

Keep the propane container valves closed at all times unless you are using the propane gas system or are having the propane container filled.

**Make sure that you read and fully understand ALL safety requirements for handling and operation of the propane system.**

The propane system must be handled with care. If you have any questions or concerns, consult with your dealer and/or the specific appliance manufacturer.

If you have double cylinders on your recreation vehicle, use only one at a time. Otherwise, the propane supply will be drawn equally from both cylinders until the supply has been to-

## SECTION 7: FUEL & PROPANE SYSTEM

tally exhausted. Using one cylinder until it is empty and then using the second cylinder will allow you to fill the empty cylinder at your convenience without running out of propane.

### Cooking With Propane Gas

#### **⚠ WARNING**

- ❑ Do not turn gas range burner controls to ON and allow gas to escape before lighting.
- ❑ Do not use portable fuel burning equipment (i.e., wood and charcoal grills or stoves) inside the recreation vehicle.

Unlike homes, the amount of oxygen supply is limited due to the size of the recreation vehicle. Proper ventilation when using the cooking appliance(s) will help avoid the danger of asphyxiation.

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

#### **FAILURE TO COMPLY MAY RESULT IN DEATH OR SERIOUS INJURY.**

These warning labels are located in the cooking area to remind the user to provide an adequate supply of fresh air for combustion.

**⚠ DANGER**  
Do not use gas cooking appliances for comfort heating. Can lead to carbon monoxide poisoning, which can lead to death or serious injury.

**⚠ WARNING**  
Gas cooking appliances need fresh air for safe operation. Before operating:  
Open vents or windows slightly or turn on exhaust fans prior to using cooking appliance. Gas flames consume oxygen, which should be replaced to ensure proper combustion. Improper use can result in death or serious injury.

**Cooking / Comfort Heating Label**

TO ENSURE A SUPPLY OF FRESH AIR TO OCCUPANTS, OPEN VENTILATORS WHEN FUEL BURNING RANGE, FUEL BURNING CARRY-ON APPLIANCE, AND/OR FUEL BURNING LIGHTS ARE IN OPERATION. COOKING APPLIANCES SHOULD NOT BE USED FOR SPACE HEATING PURPOSES.

DE MANIÈRE À ASSURER UNE ALIMENTATION EN AIR FRAIS AUX OCCUPANTS, OUVRIR LES VENTILATEURS LORSQUE LA CUISINIÈRE, LES APPAREILS DE CHAUFFAGE PORTABLES ET/OU LES LAMPES DE COMBUSTION D'HUILE SONT EN FONCTIONNEMENT. LES APPAREILS DE CUISSON NE DOIVENT PAS SERVIR AU CHAUFFAGE DES LOCAUX.

JA-110

**Ensure a supply of fresh air (Canada units only)**

### Calculating Propane Gas Usage

Most RV gas appliances are operated intermittently, and each has a different BTU rating. You will need to consider this when planning your propane supply and consumption. Unless there is heavy use of hot water, the water heater consumption of propane is minimal. During cool temperature or high wind conditions, furnace consumption can be extremely high.

To calculate your propane supply, take the BTU ratings for your propane appliances and divide that into the BTU availability. Each gallon of propane gas (3.785 liters) produces about 91,500 BTU's (96,528 kilojoules) of heat energy.

#### **Propane consumption chart**

The following chart provides average propane consumption information.

<b>Appliance</b>	<b>Average BTU Consumption per Hour</b>	<b>Kilojoules/Hour</b>
Water Heater	8,800	9,280
Refrigerator	1,200 – 1,500	1,270 – 1,580
Furnace	35,000 – 40,000	36,930 – 42,200
Range/oven	7,100	7,490
Range, rear burner	6,500	6,860
Range, front burner	9,000	9,490
Outside Grill	10,000	10,550

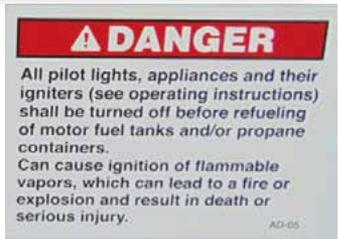
**Traveling With Propane**



**NOTE:** Some states prohibit propane appliance operation during travel, especially in underground tunnels. Know the laws for the areas where you travel.

Use care when fueling your motor fuel tanks and/or propane containers. Make certain your propane tank is properly fastened in place.

This label should be kept permanently affixed to your recreation vehicle.



**Refueling Warning Label**

## **SECTION 7: FUEL & PROPANE SYSTEM**

**Notes:**

**PLUMBING SYSTEM**

There are two different water systems in your recreation vehicle:

- The fresh water system consists of the fresh water holding tank, faucets and connections, water pump, outside shower assembly (if so equipped), water heater, tub/shower, and water purification system (if so equipped).
- The waste water system consists of the waste water and sewage holding tank(s), drains and toilet.

**Plumbing System Maintenance**

- Check all fittings, pressure and waste, for leaks before each trip or before vehicle storage as part of your normal maintenance:
- Inspect all faucets, the water purification system (if so equipped) and sink connections (including drain baskets or filters).
- Inspect connections at the water pump and water heater.
- At the end of every trip, you should drain any unused water from the fresh water system.
- All water contains contaminant and mineral particles that can cause fresh water system odors. Untreated well water is a major source of water system odors.
- The fresh water (potable water) system needs periodic sanitization and winterization to take care of all the components within the plumbing system and help discourage the growth of bacteria and other organisms that can contaminate the water supply.

Typically, there are labels affixed to the exterior of the recreation vehicle sidewall that indicate the locations of the water system drains and fills. Be aware some drain valves may be located inside the vehicle (once the exterior label is found, go inside to find the drain corresponding location).

Refer to the manufacturer’s operating manual included in your warranty packet for the detailed operating, sanitizing, and winterizing information for each water system component.

**FRESH WATER SYSTEM**

All water contains contaminants and mineral particles that can cause fresh water system odors. Untreated well water is a major source of water system odors. The fresh water (potable water) system needs periodic sanitization to all the components in the plumbing system to discourage the growth of bacteria and other organisms that can contaminate the water supply.

 <b>WARNING</b>
<ul style="list-style-type: none"><li><input type="checkbox"/> DO NOT drink water deemed microbiologically unsafe or of unknown quality.</li><li><input type="checkbox"/> Never travel with full fresh, black or grey water holding tanks.</li></ul>

**Utility Center**

Your motor home is equipped with a utility center to assist you in using the fresh water system more effectively. The utility is located in the access door on the front of the (driver side) sofa base.

Water valve settings indicated on the utility center label:

**City Fixtures** - Allows you to access water from all faucets using a pressurized water source (referred to from here on as “city water”).

## SECTION 8: PLUMBING SYSTEM

**City Fill Tank** - Allows you to fill your fresh water tank using city water.

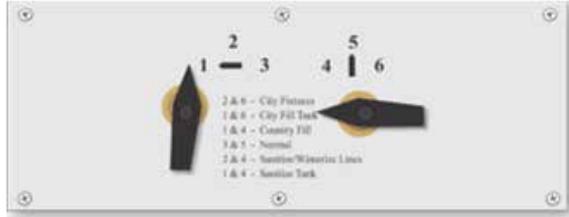
**Country Fill** - Allows you to siphon fill your fresh water tank (using the 12-volt water pump) when you do not have access to city water.

**Normal** - If the RV is not connected to city water, allows you to pump water from the fresh water tank to all faucets using the 12-volt water pump.

**Sanitize/Winterize Lines** – Allows you to sanitize or winterize the water lines.

**Sanitize Tank** – Allows you to sanitize the fresh water tank.

You should always use a non-toxic drinking water hose dedicated only to supplying the motor home with fresh water through the city water connection inlet. To reduce the chance of contamination, prevent the non-toxic drinking water hose from coming into contact with the ground. Install the city water connection inlet cap when the city water connection is not being used.

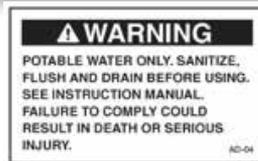


**NOTE:** A short hose is supplied with your motor home for use in sanitizing or winterizing the water lines in your RV. It can also be used to siphon fill the fresh water tank when no city water is available. One end of this hose has a fitting that will screw onto the city water connection inlet allowing the other end to be put into a container of fresh water, sanitizer or RV antifreeze (refer to *Sanitizing/Winterizing the Plumbing System*).

**NOTE:** The City Water Connection should be unplugged (i.e., the non-toxic drinking water hose disconnected) when the motor home is unattended for any amount of time. If something would happen to the water system, this may help limit water damage to a smaller area.

Do not remove this label from your motor home:

**Potable Water Only Label**  
(label appearance may not be exact)



### Water Control Valve Operation

**City Fixtures:** Use this setting if the motor home can be hooked up to an external pressurized water source (referred to as “city water”). If needed, sanitize the water system prior to travel.

1. Move the water heater bypass valves (if equipped) to the NORMAL position (supply line valves ON).
2. Remove the city water connection inlet cap and attach a non-toxic drinking water hose to the city water connection inlet and the other end to a pressurized water source.

3. Place the utility center valves in the “CITY FIXTURES” position.
4. Turn ON the water at the external water source.
5. Enter the motor home and open the cold water supply faucets to bleed air from the water lines. When the water lines are nearly full, you may experience some “air pockets”. Allow these to escape before closing the cold water supply faucets.
6. Turn the water heater power switch ON .The water will be heated on demand.

### **To disconnect**

Shut OFF the water at the external water source and disconnect the hose.

Disconnect the non-toxic drinking water hose from the city water connection inlet and reinstall the city water connection inlet cap.

**City Fill Tank:** Use this setting to fill the water tank from a pressurized water source. **If needed, sanitize the water system prior to travel.**

1. Set the bypass valves to the NORMAL position (supply line valves ON)
2. Remove the city water connection inlet cap. Attach a non-toxic water hose to the city water connection and the other end to a pressurized water source.
3. Place the utility center valves in the “CITY FILL TANK” position.
4. Turn ON the water at the external source. Water will flow into the fresh water tank.

During the filling process, periodically check the fresh water tank level using the monitor panel located in the command center. When the fresh water tank is full, it is normal to see water running from the fresh water overflow tubes onto the ground.

### **To disconnect**

Shut OFF the water at the external water source.

Disconnect the non-toxic drinking water hose and reinstall the city water connection inlet cap.

**Country Fill:** This setting is used to siphon fill the water tank from a water container when dry camping and a pressurized water source is unavailable. **If needed, sanitize the water system prior to travel.**

1. Set the bypass valves to the NORMAL position (supply line valves ON)
2. Remove the city water connection inlet cap and attach one end of the short hose supplied with the motor home to the city water connection inlet, and the other end into a container of fresh water.
3. Place the utility center valves in the “COUNTRY FILL” position.
4. Turn water pump ON. Water should begin to be drawn out of the container and into the fresh water tank. To aid siphoning place the container on a flat surface approximately 2 feet off the ground. All low point drains must be off in order to create a siphon.

During the filling process, periodically check the fresh water tank level using the monitor panel located in the command center. When the fresh water tank is full, it is normal to see water running from the fresh water overflow tubes onto the ground.

### **To disconnect**

Shut OFF the water pump. Disconnect the short water hose and reinstall the city water connection inlet cap.



**NOTE:** The fresh water tank can also be directly filled using the tank fill (located inside of the motor home). See *Fresh Water Holding Tank* in this section.

## SECTION 8: PLUMBING SYSTEM

**Normal Setting:** Allows you to use the water system when dry camping. The water pump circulates water from the fresh water tank to all the fixtures. **If needed, sanitize the water system prior to travel.**

1. Set the bypass valves to the NORMAL position (supply line valves ON).
2. Place the utility center valves in the “NORMAL” position.
3. Turn the water pump ON (make sure you have sufficient 12-volt power).
4. Water will be pumped from the fresh water tank to all faucets.
5. Enter the motor home and open the cold water supply faucets to bleed air from the water lines. When the water lines are nearly full, you may experience some “air pockets”. Allow these to escape before closing the cold water supply faucets.
6. Turn the appropriate (12-volt GAS or 120-volt ELECTRIC) storage water heater power switch ON. Turn the water heater power switch. Water will be heated on demand.

**Sanitize / Winterize Lines:** This setting is typically used for drawing RV antifreeze into the water lines of the motor home. When the fresh water tank drain and the low point drains are closed, a siphon is created in the water lines allowing antifreeze to be pulled into the water lines. This setting will not allow antifreeze into the fresh water tank. See *Sanitizing/winterizing the Plumbing System*.

**Sanitize Tank:** This setting is used to sanitize the fresh water tank. When the fresh water tank drain and the low point drains are closed, a siphon is created in the water lines allowing sanitizer to be pulled into the fresh water tank from an external container. See *Sanitizing/winterizing the Plumbing System*.

### **Fresh Water Holding Tank**

Direct access to fill the fresh water tank is typically located in the sofa base. The exact location of the fill may vary depending on the model. Remove the cap for direct filling of the water tank. If needed, sanitize the water system prior to travel.

The fresh water tank can also be filled using the city tank fill setting on the utility center.

To empty the fresh water tank, locate the drain valve under the vehicle chassis close to the tank location. This will empty the tank only. To drain the entire water system, the low point drains must be used.



**Water tank direct**



## **⚠ CAUTION**

- Do not cap, block or modify the fresh water tank overflow tubes in any way. Enough water pressure can build up during the filling process to damage the plumbing system if the overflow tubes are obstructed.
- Be careful not to overfill the fresh water holding tank. It can pressurize the tank, causing leakage and water damage and void the warranty. **DO NOT** leave the tank unattended while filling.

### **Water Heater Bypass**

Most models have a factory installed water heater bypass that enables you to avoid filling the water heater with RV antifreeze. The 2-Valve Bypass is typically located in close proximity

to the water heater, and can be accessed through the opening on top of the (driver side) sofa base. See *Sanitizing/Winterizing the Plumbing System* for bypass details.

### **Water Pressure Regulator (customer supplied)**

## **⚠ CAUTION**

A water pressure regulator is recommended to prevent damage to the plumbing system or components. To prevent damage when using the city water connection, a 45 lb. (315 KPa) rated water pressure regulator is recommended.

Excessive pressure from the water supply source may be encountered in some parks, especially in mountain regions when using the fresh water inlet or black tank flush. Water pressure regulators are available to protect your recreational vehicles plumbing system against such high pressure.

### **12-Volt Water Pump and Switch**

There must be sufficient 12-volt DC power to run the water pump when your recreation vehicle is not hooked up to city water. Once activated, the water pump (also known as the demand pump) will self-prime and provide water. The pump is designed for **intermittent use only**. Using the pump continuously or with high pressure will shorten the life of the pump and is not covered in your warranty.

Periodically check the in-line water pump strainer for accumulated debris. To clean, shut off the water pump, unscrew the clear cap, remove the re-useable metal strainer, clear any debris, then reinstall.

For additional information on the care and operation of the pump, read the safety and operating information found in the pump manufacturer's owner's manual.

Water pump strainer



### **Water Pump Switch (if so equipped)**

Most water pump switches illuminate when the water pump is activated. Typical switch locations are in the back of the unit or on the monitor panel. When the water pump switch is ON the pump runs until 45 lbs. of pressure has been achieved. The red light will stay on. The water pump automatically recycles when pressure drops. Some cycling may occur depending on the volume of water being released. Turn the water pump switch OFF when not in use.

**The water pump switch should be in the OFF position when the RV is left unattended for any amount of time. If something would happen to the water system, this may help limit water damage to a smaller area.**

## **FRESH WATER CONNECTIONS**

Your recreation vehicle is equipped with a city water fill threaded connector. There is a city water connection label next to the connection. Do not remove this label.

**NOTE:** If needed, sanitize the water system prior to travel.

## SECTION 8: PLUMBING SYSTEM

### Using City Water Fill:

Remove the connection cap and attach a non-toxic drinking water hose to the threaded inlet.

1. The other end of this hose should be connected to a pressurized fresh water source (such as a faucet or spigot). You should use a non-toxic drinking water hose dedicated only to supplying fresh water to the vehicle.
2. Turn ON the water at the water source. Open the cold water supply faucets to bleed air from the water lines. When the water lines are nearly full, you may experience some “air pockets.” Allow these to escape before closing the cold water supply faucets.



**City Water Fill  
with City Water  
Connection label**



**NOTE:** The City Water Fill inlet when connected to a pressurized fresh water source sends water through the water lines and fixtures without the use of the pump. The fresh water tank can be filled using the city water connection (see *Fresh Water System*).

3. Water heater bypass valves A and B must be open to allow water into the water heater. Refer to the Water Heater Bypass detail in the *Sanitizing/Winterizing the Plumbing System* section for an explanation on configuring the bypass valves. Bypass valves are typically located near the water heater.

The fresh water connection should be unscrewed (i.e., the non-toxic drinking water hose disconnected) when the recreation vehicle is left unattended for any amount of time. If something would happen to the water system, this may help limit water damage to a smaller area.

### To Disconnect the City Water Fill:

1. Shut OFF the water at the pressurized water source.
2. Disconnect the non-toxic drinking water hose and reinstall the connection cap. The connection cap should always be installed if the water fill is not in use.

## **WATER PURIFICATION SYSTEM (IF SO EQUIPPED)**

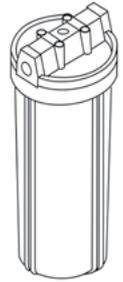


**NOTE:** Access to the water purifier is through the (rear) opening on top of the driver side bed base.

- If the water supply has not been used for some time, allow the water to flow for several minutes to flush the system.
- Filters should be replaced at the beginning of each camping season or if they have come into contact with contaminated water.**
- When not in use, the water filter cartridge should be stored out of freezing temperatures. RV antifreeze will damage the water filter cartridge.

### To Replace Canister Filter Cartridge

1. Turn off water supply using the valve located on the water line on going into the canister. Water pump should be OFF.
2. Place drip pan below filter housing to catch any spillage.
3. Press the red button on top of the filter housing to release pressure.
4. Using a spanner wrench, rotate the filter housing. Unscrew the housing completely, dump water out and remove the filter (dispose of the old filter properly).
5. Clean the inside of the filter housing with mild detergent. Thoroughly rinse and wipe clean.
6. Remove the O-ring from the groove in the housing and wipe clean. Coat with petroleum jelly.
7. Replace the O-ring in the groove, making sure it is properly seated.
8. Install the new filter cartridge.
9. Replace the canister housing (hand tighten is normally sufficient).
10. Turn on the water supply, turn the pump ON, open a faucet and check for leaks. Turn the pump OFF afterwards.



Filter Housing

**NOTE:** There is **no bypass** feature on a canister style water filter. The filter cartridge **must** be removed before sanitizing or winterizing the RV.

Each new recreational vehicle is winterized with RV antifreeze before it is shipped to the dealer. To use the water purification system, full system canister water lines need to be flushed of antifreeze and then the filter installed in the canister before use.

Refer to the manufacturer's owner's manual and the label on the water filter cartridge for further information.

### CAUTION

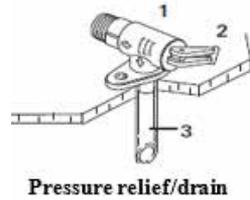
- Do not allow water in the canister housing to freeze.
- Remove the filter before using anti-freeze to winterize the system or chlorine solution to sanitize the system.
- Flush canister housing thoroughly before it is put back into service after winterizing or sanitizing.
- For best results replace filter every 6-12 months.
- Do not use carbon cartridges where water is microbiologically unsafe or of unknown quality.
- Maximum operating pressure is 125 psi (8.75 bar).
- Maximum water temperature is 125° F (52° C).

## SECTION 8: PLUMBING SYSTEM

### **DRAINING THE FRESH WATER SYSTEM**

A recreational vehicle with a demand pressure pump system will have low-point drains attached to the water lines. These low-point drains will release water in the supply lines by opening the valves and all faucets. To drain the permanent fresh water supply lines:

1. Turn the water heater power OFF.
2. Drain the Truma Combi tank. It is equipped with its own pressure relief valve.



**NOTE:** See the Truma Combi Operating Manual for important safety and operating detail.

3. The valve next to the pressure relief valve will drain the tank.

### **⚠ WARNING**

**Risk of scalding injury from hot water and/or tampering with the pressure relief/drain valve.**

Never actuate the pressure relief/drain valve as long as the Combi furnace is still hot.

Do not place a plug or reducing coupling on the outlet part of the valve. If you use a discharge line, allow the valve and the line to drain completely.

4. Open all faucets.
5. Open the “fresh tank drain” valve located on the underside of the vehicle close to the water tank.
6. Open the low point drain valves. There is a label on the outside of the RV to indicate where the drains are located.
7. Drain the sink by removing the drain cap.
8. Turn ON the water pump and allow it to run as needed.
9. If the water heater has bypass valves, set them to the BYPASS configuration (refer to the *Water Heater Bypass* section).
10. Operate the toilet flush lever until water stops flowing.

Some water may remain in the lines. If the recreation vehicle will be exposed to cold temperatures, it must be winterized to protect the plumbing system and components. Damage to the water lines and components due to freezing is not covered by warranty. Refer to the *Sanitizing/Winterizing the Plumbing System* for details.

**NOTE:** To empty the fresh water tank, locate the drain valve under the vehicle chassis close to the tank location. This will empty the tank only.



Fresh water drain valve

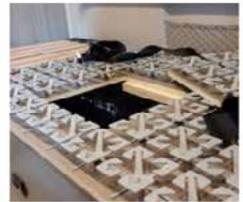
**SANITIZING/WINTERIZING THE PLUMBING SYSTEM**

**⚠ CAUTION**

The water heater must be bypassed before adding antifreeze or sanitizing solution to your water system. Failure to do so could result to damage to the water heater and/or water filter.

**Water Heater Bypass**

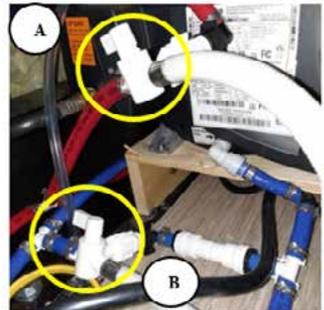
Most floor plans have a factory installed water heater bypass that enables you to avoid filling the water heater with RV antifreeze. Bypass valves next to the water heater. Locate the bypass shut off valve(s) by removing the access door located on the top of the (driver side) sofa base.



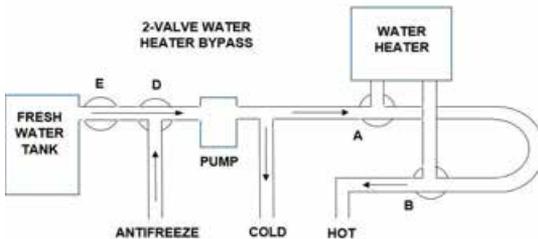
Water heater Bypass

**Normal Mode** operation allows water to flow into the water heater. Both hot and cold bypass valve handles should be pointed toward the water heater connections.

**Bypass Mode** operation diverts the flow of water around the water heater, keeping water out of the water heater. Hot water bypass valve handle should point inline with the (red) hot water outlet line. Cold water bypass valve handle should point inline with the (blue) cold water inlet line.



Water Heater Bypass Valves (shown in bypass mode)



**NORMAL** - VALVE HANDLES A & B POINT TOWARD THE WATER HEATER.  
**BYPASS** - VALVE HANDLE "A" POINTS IN LINE WITH THE COLD WATER SUPPLY LINE  
 VALVE HANDLE "B" POINTS IN LINE WITH THE HOT WATER OUTPUT LINE

## SECTION 8: PLUMBING SYSTEM

### Water Purifier

There is **no bypass** feature on a canister style water filter. The filter cartridge **must be removed before sanitizing or winterizing** the RV (See the Water Purification System section).



**NOTE:** The inside of the filter housing should be cleaned with a mild detergent, then thoroughly rinsed and wiped clean after sanitizing and winterizing.

The water purifier access door is typically located on the front of the (driver side) sofa base.

### Sanitizing the Water System

#### When to sanitize:

- When your recreation vehicle is new.
- At the beginning and end of each season.
- When the water system becomes contaminated or every three months of use.

#### How to Sanitize:

1. Use the main switch or pump switch to turn off the power to the water-pump assembly.
2. Set the water heater bypass valves to the **BYPASS** position
3. Level the RV and drain the fresh water system and fresh water tank (see *Draining the Fresh Water System*).
4. Close the low point drain valves and the fresh water tank drain valve.
5. If the RV has a cartridge type water purifier, the filter must be removed.
6. Use 1/4 cup of household bleach (sodium hypochlorite solution) for every 15 gallons of tank capacity. This will result in a residual chlorine concentration of 50 ppm in the water system.

If a 100-ppm concentration is required, use 1/2 cup of household bleach for each 15 gallons of tank capacity (reduces the disinfecting time).



**NOTE:** Fresh water tank sizes vary by model; contact your dealer or customer service for your specific tank size.

7. Place the utility center valves in the SANITIZE TANK position.
8. Attach the short hose supplied with your motor home to the fresh water connection inlet on the exterior of your motor home. Place the other end of the hose in a container holding the sanitized solution. To assist the syphoning process set the container on a flat surface approximately (2) feet above ground level.
9. Remove the hose (or funnel) and container used to pour the chlorine solution
10. Attach a hose (can be your drinking water hose) to the fresh water connection inlet and attach the other end of the hose to a potable pressurized water source.
11. Turn on the pressurized water source and finish filling the fresh water tank.
12. After the recommended amount of sanitizing solution is in the tank, the water tank is full, **and water filter has been removed from the canister**, turn the water pump ON which sends sanitizer into the water lines.

13. Open all hot water faucets one by one until water begins to flow continuously and a chlorine smell is noticeable. Include the shower faucet.
14. Close the hot water faucets and repeat opening all cold water faucets one by one until you smell chlorine. Include shower faucet and toilet.
15. Turn OFF the water pump.
16. Let the solution remain in the tank and lines for at least four hours when disinfecting with 50-PPM residual chlorine. If a shorter time is desired, a 100-PPM chlorine concentration should be permitted to sit in the system for at least one hour.



**NOTE:** To thoroughly sanitize the fresh water tank, the unit should be driven around for a period of time allowing the solution to splash the sides and top of the tank.

17. After the required period, drain the chlorine solution from the fresh water system and the fresh water tank. See *Draining the Fresh Water System*.

### **Rinse the system with fresh water:**

1. Using a hose or funnel in the tank fill, fill the fresh water tank full of clean (potable) water.
2. Power to water heater should be OFF
3. When the fresh water tank is full, turn the pump ON to send water through the lines. Water heater bypass valves should still be set to **BYPASS**.
4. Run water through all faucets (hot and cold, including the shower) until chlorine smell is gone. Turn faucets off, turn pump OFF.
5. Drain the fresh water system again (see *Draining the Fresh Water System*).
6. **Set water heater bypass to NORMAL** : Allows water into the water heater.
7. Refill the fresh water tank with fresh water again, turn the water heater power ON.



**NOTE:** If a chlorine taste lingers in the water, flush the water system with a solution consisting of one-quart vinegar to five gallons of clean water. Re-flush as necessary. The vinegar solution may damage the water heater or the water filter, so both must be bypassed again before performing this operation.

Follow the steps outlined in *Draining the Fresh Water System* with one exception: do not drain the water heater. **Water heater bypass valves set to BYPASS** (refer to *Water Heater Bypass* section). Remove the cartridge water filter.

### **After draining the system:**

1. Water heater power should be OFF. Water heater bypass valves should be **set to BYPASS**.
2. Put the vinegar solution into the fresh water tank. Pour the vinegar solution into the tank fill using a hose (or funnel).
3. Continue filling the fresh water tank with of clean (potable) water.
4. Run water through all faucets (hot and cold, including the shower) until chlorine smell is gone. Turn the pump ON to send water through the lines.

## SECTION 8: PLUMBING SYSTEM

5. Close all faucets. Turn pump OFF.
6. Drain the system again, but do not drain the water heater.
7. Close low point drains and fresh water tank drain.
8. Refill the fresh water tank with clean potable water.
9. Open faucets and check that the chlorine taste is gone.
10. Drain the system one more time (See *Draining the Fresh Water System*).
11. Remove water filter canister, insert the filter, and reattach canister to the mount. **Water heater bypass valves set to NORMAL.**
12. Refill the fresh water system with clean water. When the water heater is full of water, turn the water heater power ON.
13. To verify water heater is full of water, turn on hot water faucets, turn pump ON. When you get a steady stream of water through the hot water faucets, it should be full. Turn off the pump and faucets.

### Winterizing the Plumbing System

## CAUTION

Freezing can result in severe damage to the plumbing components and the Combi furnace. Damage due to freezing or an unsuitable winterizing fluid is not covered by the manufacturer's warranty.

Winterize the Combi furnace:

- At the start of the winter season
- Before traveling to a location where freezing conditions are likely.
- If the furnace will be stored under freezing conditions or for an extended period of time.

Preparing your recreation vehicle for colder weather or storage is very important for most states and Canada. Failure to prepare your RV may cause water supply lines and the water heater to freeze. The RV should be winterized at the end of the camping season or when it will be exposed to temperatures that will fall at or below 32°F (0°C). Repairs due to freezing are not covered by warranty.

 **NOTE:** The winterization process may vary slightly due to different plumbing configurations between models.

 **NOTE:** Appliances must be winterized. Refer to the manufacturer's manual for possible additional information or contact Customer Service for assistance.

If you chose to perform the winterization process yourself, read and understand the following information before starting. Contact customer service or your dealer for questions about this process. It may be easier to winterize the RV with another person to assist you.

**NOTE:** The water heater must be drained to prevent damage from freezing. It is recommended the water heater be drained and bypassed during the winterization process particularly if introducing RV antifreeze into the plumbing system. **Do not drain the water heater while it is hot or under pressure!** Antifreeze should be kept out of the water heater.

The preferred method to winterize your recreation vehicle is by using RV antifreeze in the plumbing system.

### Air Pressure Method

This method uses compressed air to blow out any remaining water in the system after initially draining water using drain valves. Tools required would be an air compressor and a blowout plug.

## WARNING

- Never apply air pressure to the water system with any of the valves in the closed position. Air pressure applied to a closed valve, faucet or low point drain could potentially damage the seals and cause water leaks. If you have questions, consult with your RV dealer. Using RV antifreeze is the preferred method of winterization.
- Recommended pressure is 30 PSI, exceeding this pressure may rupture water line couplings and void your warranty.**

1. Turn off the water heater gas valve typically located outside the RV. Water heater power should be OFF.
2. Level the RV and drain the fresh water plumbing system. See *Draining the Fresh Water System*.
3. Water heater bypass should be set to **NORMAL**. This allows air to flow through the water heater.
4. RV water filter cartridge should be removed for winterizing. Refer to *Water Purification System* section.
5. Open the fresh water tank drain valve to avoid pressure build up in the fresh water tank.

**NOTE:** Filters should be replaced at the beginning of the camping season or if they have come into contact with contaminated water or antifreeze.

6. Run the pump until it is dry (approximately 15 to 20 seconds). Operating the pump longer than that with no water can damage the pump.
7. Open the fresh water tank drain valve to avoid pressure build up in the fresh water tank.
8. Open all faucets in the RV Including the shower.

Attach a blowout plug to the city water inlet on the outside of the RV. Refer to Fresh Water Connections.

## SECTION 8: PLUMBING SYSTEM

Attach the air hose to the blowout plug. Set compressor to **30 PSI**.

Blow air into the water lines through the blowout plug and the City Water Inlet to evacuate all water from the lines.

Continue blowing out the water lines for approximately 5 to 10 minutes.

Pour one cup of RV antifreeze in all the drain P-traps (sinks and shower).

After RV water lines have been blown out, remove the air hose and the blowout plug from the City Water Inlet.



**Blowout Plug**

### **Winterize the Black Tank Flush (if so equipped)**

1. Connect the blowout plug to the black tank flush inlet on the outside of the RV.
2. Connect the air hose to the blowout plug. Set the compressor to **30 PSI maximum**.
3. **Make sure the black tank has been emptied.** Open the black tank drain valve.
4. Blow air into the flush inlet for 30 to 60 seconds.
5. Disconnect the compressor and blowout plug.
6. Close the black tank drain.

### **Winterizing with Antifreeze Method**

Requires non-toxic RV antifreeze in the water lines and does not require any special tools. Use **ONLY RV ANTIFREEZE** in your fresh water system for freeze protection. No other product or commodity should be used.

## **⚠ WARNING**

Automotive antifreeze (ethylene glycol) and windshield washer antifreeze (methanol) are poisonous. Never use these products in your fresh water system. These products are harmful and may be fatal if swallowed.



**NOTE:** Antifreeze should **never** enter the water heater, RV water filter, refrigerator, refrigerator water filter, or fresh water tank.

1. Turn water heater power OFF. Turn water heater gas valve (if so equipped) OFF (outside of the RV).
2. Water heater bypass valves should be set to **BYPASS**. Refer to *Water Heater Bypass* Section. Water is prevented from entering the water heater.
3. Level the RV and drain the fresh water plumbing system. See *Draining the Fresh Water System*.
4. Water heater should be empty after performing Step 2. Water heater bypass valves set to **BYPASS**.
5. Cartridge water purifier filter should be removed
6. Make sure the “fresh water tank drain” and “low point drains” are closed.
7. Close the fresh water tank shutoff valve.
8. 8. Move the valves to the “Sanitize/Winterize Lines” position. The low point drains must be closed for the antifreeze to siphon through the lines..
9. Attach the short hose supplied with the motor home to the fresh water connection inlet and insert the other end of the hose into a gallon container of RV antifreeze (1 gallon should be enough to winterize the motor home). To assist the siphoning process, put the

container on a surface approximately two feet above ground level.

10. Turn the water pump ON. If the water pump fails to self-prime, temporarily open the low point drains. Close the low point drains as soon as the water pump primes (RV antifreeze will begin draining out) and before continuing to the next step.
11. Open the hot water line on all the faucets (kitchen, lavatory, shower and outside shower) until RV antifreeze begins to flow continuously.
12. Appliances should also be winterized.
13. Close the faucet hot water lines and repeat with the cold water lines on all the faucets.
14. Flush the toilet a couple of times until you see antifreeze in the bowl.

### **When you are done adding RV antifreeze:**

1. Turn the water pump OFF. Turn siphon valve OFF. Remove the clear hose from the container of RV antifreeze. Leave the water tank shutoff valve closed to keep antifreeze out of the fresh water tank. See *Water Heater Bypass Diagram*.
2. Pour 1 cup of RV antifreeze into the sink drain P-trap.
3. To prevent staining, wipe RV antifreeze out of the sinks, shower (or tub) and toilet using a soft, dry cloth.



**NOTE:** In the spring when flushing antifreeze out of the water lines, make sure to turn the water tank shutoff valve back ON. After flushing out water lines the water filter should be re-installed.

## **TRUMA® TANKLESS WATER HEATER (IF SO EQUIPPED)**

Your recreation vehicle may be equipped a Truma® Combi furnace with supplementary indirect water heating. Refer to the *Truma Furnace/Water Heater* section, along with the manufacturer's owner manual, for important operating and safety information.

## **FAUCETS**

The bathroom, kitchen and outside shower faucets operate much the same way as the faucets in your home. Make sure there is sufficient water available and the 12-volt water pump is turned ON before operating.



**NOTE:** There may be air in the water plumbing lines which needs to be bled out before a steady stream of water comes from the faucet.

## **BATHROOM TUB / SHOWER**

Keep the water heater and holding tank capacities in mind when using the fresh water system. The used water will drain through the plumbing pipes into the grey water holding tank.

- Be sure the water heater is ON and had sufficient time to heat the water.
- If dry camping, be sure your 12-volt water pump is ON.

Unlike your home, the recreational vehicle does not contain a water pressure balance valve. If someone is using the shower, it is recommended that the fresh water system **NOT BE USED** until they are finished.

## SECTION 8: PLUMBING SYSTEM

### **⚠ WARNING**

Water temperatures over 125°F (49°C) can cause severe burns instantly therefore, be careful when using hot water. **Always test the water temperature before showering or washing.**

The shower faucet may include a vacuum breaker for the shower. There are two purposes for this breaker:

- To prevent siphoning water through the hose from another fixture.
- To prevent water from being retained in the hose.

The showerhead DOES NOT have a complete shut-off valve (the complete shut-off is at the faucet). The showerhead may drip slightly in the OFF position after use; this is normal and does not indicate a leak or defect.

#### **Maintenance**

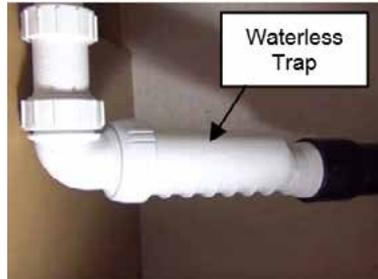
Refer the manufacturer's user guide or label instructions for detailed cleaning information. The tub/shower walls are made of ABS plastic material. Use a mild detergent soap and warm water to clean. Do not use gritty or abrasive particle soaps or scouring compound to clean ABS plastic. Avoid using "Citrus" or biodegradable cleaners which contain "D-Limonene." They will damage plastic materials.

### **BLACK/GREY WATER SYSTEM AND TANKS**

Water from the sinks and shower flows into the gray water (or wastewater) holding tank. Water from the toilet will flow into the black water (or sewage) holding tank (see Black/Grey Water Holding Tanks).

#### **Drain Pipes with P-Trap (if so equipped)**

The drain pipes may be equipped with a "P-trap" installed to help prevent odors from escaping into the RV. During travel, water from the P-traps may spill and permit odors into the RV. By adding water and using a RV approved deodorizing agent you will dissolve the contents faster and will keep the drain lines and tanks clean and free flowing. These chemicals are available at an RV supply store or your dealer.



#### **Drain Pipes with Dry Sealing Valve (if so equipped)**

Your RV may be equipped with a dry sealing valve that prevents the escape of odors from your waste system and eliminates the need for P-traps. Should the RV drain piping system become clogged, it is important that the dry valve be removed before passing a mechanical cleanout tool through the piping to open the drain. Passing a cleanout tool through the waterless valve may cause damage to the internal seal that may potentially allow sewer gases to escape into the RV interior. The waterless trap can be unscrewed from the water lines. A label has been placed near the location of the waste valve that reads as follows:

**REMOVE WATERLESS TRAP BEFORE  
USING MECHANICAL DRAIN CLEANING DEVICES**

#### **Sewer Hose Storage**

Depending on your RV model, the sewer drain hose may be stored in an exterior compart-

ment marked “Sewer Hose” or it may be located in the hollow square tube bumper. The bumper has removable plastic end caps, and the hose slides inside the hollow bumper.

### Vents

Vent pipes and vents release air from the grey and black water holding tanks. On most models the exterior vent cap is attached to the roof and must be kept clear of obstructions to perform as intended.

On some models, the vent pipe may be part of the drainage system referred to as a “wet vent” where water flows downward as air flows upward in the same pipe.

Some models are equipped with a side vent system. On these models this label will be next to the termination valve. This label should not be removed from your recreation vehicle.

### Black/Grey Water Holding Tanks

Dump the gray and black water holding tanks before traveling to avoid carrying unnecessary weight. The weight of the holding tank contents is not calculated into the RV cargo carrying capacity. Traveling with full holding tank(s) could cause you to exceed the individual tire ratings and/or the RV GAWR or RV GVWR. Potential damage to suspension components, such as springs, tires and axles, could result.

If you are dry camping and cannot immediately empty your holding tanks, reduce your vehicle speed until you reach a dumping station. When connected to the sewer drain line at a campground, keep the black tank drain valve closed until the holding tank is at least  $\frac{3}{4}$  full. This will provide sufficient water to assist in complete draining of the black water holding tank. Repeat as needed.

### CAUTION

Keep drain valve closed to minimize the presence of sewer gases. Sewer gases may be present when RV is connected to campground sewage hookup. May lead to illness or personal injury.

### WARNING

Never travel with full black or grey water holding tanks. This not only wastes your fuel but depending on the location of the tank(s), it can affect your tow vehicle handling characteristics.

### CAUTION

- Never leave the black tank drain in the open position continuously when connected to the campground sewer system. Leaving the drain open will allow the liquid to drain out increasing the potential for a blockage in the tank. Keeping the drain in the closed position will prevent debris from accumulating in the tank.
- Do not add automotive antifreeze or caustic chemicals, such as laundry detergents, into the holding tanks. Although these products may have a deodorizing effect, they may damage the plastic and rubber parts of the plumbing system or the components

Before using the recreation vehicle, or after dumping the grey and black water holding tanks, always add the proper amount of deodorant to the black water tank to prevent odors and help break down holding tank contents (unless winterizing). Follow the deodorant bottle or package instructions. Driving to a disposal site will normally loosen any accumulated waste debris or solids from the sides of the holding tanks.

## **SECTION 8: PLUMBING SYSTEM**

### **BLACK AND GREY TANK DRAINS**

There are labels on the exterior of the recreation vehicle indicating the location of the grey and black tank drains (also called dump valves). Depending on your model, you may have one or two valves. With one valve, the gray and black tank will release contents simultaneously. With the 2-valve set up, it is recommended that you release the black tank first, followed by the grey tank. This will help rinse and debris from the outlet and sewer hose.



**Black/Grey Tank Drain and Valve**

1. To make drainage easier, level the RV.
2. Remove the sewer hose housing dust cap and attach the sewer hose (customer supplied).
3. Place the end of the sewer hose into the approved dump station.
4. Open the black tank dump valve (depending on your model the valve may be located under the RV, or on the utility center). Close the dump valve when the black water holding tank is empty.
5. Open the grey tank dump valve (depending on your model the valve may be located under the RV or on the utility center). Close the dump valve when the grey holding tank is empty.
6. Remove, clean and store the sewer hose.
7. Close the sewer hose housing dust cap.

You can locate dump stations throughout the United States and Canada in Woodall's, Rand McNally Camp Guide, Good Sam Camp Guide, KOA Campgrounds Camp Guide and various other publications. Some fuel stations also have dump stations. Please contact your RV dealer for assistance in the purchase and installation of a sewer hose or sewer hose extension (if needed).

#### **Sewage (black) tank preparation**

1. Release one to two quarts (1 or 2 liters) of water into the toilet bowl.
2. Follow the directions on your RV-approved toilet chemical bottle (customer supplied) and put the recommended quantity of holding tank chemical into the toilet bowl.
3. Flush the toilet and allow at least two gallons (8 liters) of water to flow into the holding tank.

### **WARNING**

It is important to add enough water to prevent solid waste buildup. Follow the directions listed below and in the manufacturer's operator manual.

#### **Waste (grey) holding tank preparation**

No special preparation is required, however, placing a small quantity of chemicals into this tank, such as baking soda or an approved RV chemical, will reduce odors from food particles in the system.

#### **Cleaning and Maintenance**

The toilet should be cleaned regularly for maximum sanitation and operational efficiency. Use only RV approved chemicals. Do not use chlorine (undiluted) or caustic chemicals, such as laundry bleach or drain opening types, in the toilet system. These products damage the seals in toilets and dump valves.

**BLACK TANK FLUSH (IF SO EQUIPPED)**

The black tank flush (no fuss flush) inlet is typically located on the utility center panel (if so equipped) labeled as “Tank Flush”. For models not equipped with a utility center, the inlet is located on the side of the recreation vehicle. The location may vary depending on your model. Attach a garden hose (connected to a pressurized fresh water source) to the black tank flush inlet. The water goes directly into the black water holding tank sprayer connection, allowing you to remove debris and preventing accumulation. A check valve is incorporated in the plumbing lines to prevent back flow. Flush the black water tank each time the grey and black water holding tanks are dumped or as needed.



**NOTE:** Utility center (if so equipped) valve positions do not affect the tank flush function. It does not matter where they are positioned when operating the tank flush.

1. Dump the black water tank (see Gray Tank Drain and Black Tank Drain) and leave the black tank drain valve open.
2. Connect a garden hose from the water supply source to the black tank flush.
3. With the water source turned ON, flush the black water holding tank until the water running out of the black tank drain valve is clear (not discolored or cloudy).
4. Disconnect the garden hose and close the black tank drain valve. Fasten the sewer hose housing dust cap back on the tank flush inlet.

**⚠ CAUTION**

- The black tank drain valve must be OPEN any time there is a hose (water supply) connected to the black tank flush.
- Do not leave any hose (water supply) connected to the black tank flush when it is not in use.

**⚠ WARNING**

Do not use the same hose to fill your fresh (potable) water tank that is used for the black tank flush.

**TOILET (IF SO EQUIPPED)**

Prior to using the sanitation system, it is strongly recommended to flush the toilet several times to release sufficient water into the holding tank. Generally, more water is required only when flushing solids.

The toilet system will perform better when water is run for ten to fifteen seconds after flushing to ensure that the waste will proceed to the bottom of the tank.

If there is not a sufficient amount of water used during flushing, the waste materials may not evacuate properly from the drain line to the tank. Clogged tanks and pipes could eventually occur. For added convenience and better sanitation system performance, it is advisable to always have four to six inches (10 - 15 cm) of water in the toilet. It is important to add enough water to prevent solid waste buildup. The following guidelines will help to prevent solid waste buildup.

### **CAUTION**

- It is important to prevent solid waste buildup. Follow the toilet manufacturer's recommended instructions each time after emptying the black water holding tank.
- To help prevent toilet blockage, always use RV grade single-ply toilet paper. Do not flush paper towels, diapers, sanitary napkins or other foreign objects down the toilet.
- Do not use chlorine (undiluted) or caustic chemicals, such as laundry bleach or drain opening types, in the toilet system. These products damage the seals in toilets and dump valves.

#### **Sewage (black) tank preparation**

1. Release one to two quarts (1 or 2 liters) of water into the toilet bowl.
2. Follow the directions on your (approved RV) toilet chemical bottle (customer supplied), by placing the recommended quantity of holding tank chemical into the toilet bowl.
3. Flush the toilet and allow at least two gallons (8 liters) of water to flow into the holding tank.

#### **Cleaning and Maintenance**

The toilet should be cleaned regularly for maximum sanitation and operational efficiency. For detailed information refer to the manufacturer's operator manual.

### **AIR CONDITIONER**

The air conditioning system is controlled by the Firefly System. Refer to the Firefly manual for detailed information on air conditioner temperature control.

Cooled air enters the RV through the grill. Make sure you have sufficient power available before operating the air conditioner. Do not operate the air conditioner without the return air filter. Operating the system without the filter allows the lint and dirt that is normally stopped by the filter to accumulate on the cooling coil of the air conditioner. This also will lead to a loss of air volume, possible equipment damage and an expensive cleaning process.

#### **Roof Mount (if so equipped)**

A special foam gasket is placed between the roof material and the sub frame of the air conditioner to guard against water leakage. The air conditioner is subjected to wind pressures along with motor vibration during normal operation. Inspect the mounting bolts for tightness to ensure there is no leakage or looseness at least annually. Re-tighten bolts when they are loose. **DO NOT** over tighten these bolts as it may damage this gasket. The air conditioner gasket is a wearable part that eventually will need to be replaced. To gain access to the bolts, remove the filtered panel cover on central air systems or the entire air box on non-central air conditioners.

#### **Wall Mount (if so equipped)**

Keep the air inlet grill and cabinet clean by wiping with a cloth dampened with warm water and a mild detergent.

#### **Heat Pump Operation (if so equipped)**

Set the thermostat for either electric or gas heat. On the electric setting, the heat pump will become the primary heat source as long as the interior temperature of the RV has not dropped 5° below the thermostat set point. If this occurs, the thermostat will automatically activate your gas furnace.

The furnace will continue as the heat source until the thermostat set point has been satisfied. At that point, the heat pump will again become the primary heat source.

For RV models with a touch screen system, the heating cooling controls are included on the touch screen selectable screens.

**For additional information** refer to the manufacturer's owner's manual included in your warranty packet or consult your dealer.

### **POWER ROOF VENT (IF SO EQUIPPED)**

The 12-volt DC attic fan (or powered roof vent) allows fresh air to circulate through the recreational vehicle. Do not leave the attic fan open when the recreational vehicle is stored or unattended for long periods.

High winds, other unusual conditions or obstructions may prevent the dome from closing; the resulting leakage could cause non-warrantable damage.

To use your fan most effectively, close all vents and slightly open a window on a shaded side of your recreation vehicle. You are directing the air flow by opening a window.

**For additional safety and operating information** refer to the manufacturer's owner's manual.

#### **Control pad (if so equipped)**

The attic fan may be controlled by a control pad. The dome can be raised or lowered with the UP/DOWN buttons, and the speed of the fan is controlled by the ARROW buttons. It is also equipped with a rain sensor that will close the vent automatically when it rains. The rain sensor can be turned on/off by holding the DOWN button for 3 seconds.

## SECTION 9: HEATING & COOLING



**NOTE:** For RV models with touch screens, the powered roof vent(s) may be controlled on one of the selectable screens on the touch screen.



Attic Fan Control

### **TRUMA® FURNACE/WATER HEATER (IF SO EQUIPPED)**

Your recreational vehicle may be equipped with a Truma® Combi furnace with supplementary indirect water heating.

Refer to the manufacturer's manual for detailed operating and safety information.

## **⚠ WARNING**

### **Danger of combustion, personal injury and damage to the RV!**

- Keep the area around the appliance free from combustible materials, gasoline and other flammable liquids or vapors.
- Switch **OFF** the appliance and gas supply:
  - If you smell gas
  - If anything appears out of the ordinary
  - If you move the RV
  - Before entering a gas station
  - Before entering a tunnel

### **Danger of over-temperature and toxic exhaust gases!**

- Use with LP gas (propane) only. Butane or any mixtures containing more than 10% butane must not be used.
- Keep the area in front of the warm air outlets free of combustible or heat-sensitive materials. Do not put any material into the warm air outlets.
- Check that furnace vent (and air intake) terminal(s) are not obstructed in any way during all seasons.
- Danger of hot surfaces. The temperature of the exhaust gases can reach 320 °F (160 °C). Do not touch the area around the wall cowl and do not lean any objects against the wall cowl or the RV.
- Shut OFF the Combi furnace when refueling or pumping gas.

## **⚠ CAUTION**

### **Damage to the Combi furnace caused by freezing!**

- The Combi furnace does not have a frost-protection function. If the heating is not used and there is a risk of freezing, all water must be drained from the water container
- Water in pipes, faucets and appliances could freeze. Considerable damage may result.
- Before you fill water into appliances and parts that transport water, you must heat the installation area sufficiently so that water cannot freeze.

### Selectable Modes of Operation

#### **Heating mode**

The furnace automatically selects the proper operating level based on the difference between the desired temperature set at the control panel and the current room temperature. If there is any water in the water container, it will be heated automatically. The water temperature will not be regulated, but it will reach a maximum of 162 °F (72 °C).

#### **Hot water mode (only if water container contains water)**

Hot water mode is ideal if only hot water is required. The lowest burner setting suffices for heating water. In hot water mode, the burner will switch off as soon as the water reaches the temperature selected in the CP plus control panel. Both modes of operation can be combined.

#### **Switch For Gas Shut-Off Valve**

This switch shuts off the power to the safety gas shut-off valve and with this the gas supply to the Combi furnace. To make sure that the gas supply to the furnace is off, turn the switch to the OFF position. Switch positions of the switch for gas shut-off valve:

Off = gas shut-off valve is closed

On = gas shut-off valve is open

Your recreation vehicle has an exterior gas shut off valve. In the event you smell gas, all people and pets should exit the vehicle immediately. Turn off the exterior gas valve until the source of the smell has been determined, and any problems have been resolved.

#### **Pressure Relief/Drain Valve**

### **⚠ WARNING**

#### **Scalding injuries caused by hot water!**

- Water temperatures over 125 °F (49 °C) can cause severe burns or scalding and in extreme cases even death.
- Before using a hot water faucet or using the shower, mix with cold water and allow the hot water to run until the water temperature no longer increase.



**NOTE:** The pressure relief/drain valve provides both the pressure relief function and a drain function.

- The pressure relief/drain valve is a safety component and must not be removed for any reason other than replacement.
- The pressure relief/drain valve is not serviceable; if defective, it must be replaced. It must be replaced by a certified service technician.
- It must only be replaced by the Truma pressure relief/drain valve rated for 65.25 psi (4.5 bar) which is CSA certified and registered. Tampering with the pressure relief/drain valve will void the warranty.

## SECTION 9: HEATING & COOLING

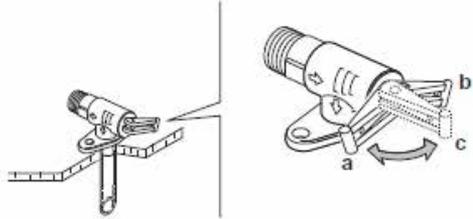
### Opening the Truma pressure relief/drain valve

**NOTE:** Damage can occur to the Combi and the RV due to an obstructed drainage socket! The drainage socket must be unobstructed and kept clear of obstructions such as slush, ice, or leaves to ensure that water can drain properly. No warranty claims for frost damage will be accepted.

Move the lever so that it is in the “draining” position. Water will drain from the hot water container via the drainage socket.

a,b = lever in “valve closed during furnace operation” position

c = lever in “draining” position



### Closing the Truma pressure relief/drain valve

Move the lever so that it is in the “closed” position.

Refer to the manufacturer’s manual for additional operating and safety information on the pressure relief/drain valve.

### Filling the Water Container

**NOTE:** Damage to the water container! The water pressure on the inlet side must be limited to 40.6 psi (2.8 bar); otherwise internal components of the appliance will be damaged. On (city) water connections with a pressure higher than 40.6 psi (2.8 bar) a pressure regulator is strongly recommended.

1. Close the pressure relief/drain valve, if open
2. Close open bypass lines, if present
3. Turn on the fresh water supply or switch on the water pump
4. Fill the plumbing system:
  - Open all water-release points, e.g. cold and hot water faucets, showers, toilets.
  - Once water flows, the plumbing system is ventilated and filled. Close all water-release.

### Switching On the Furnace

For the furnace to work properly, there must be enough LP gas (propane >11 in. wc) and 12 VDC power.

Switch on the furnace’s 12 VDC power supply.

1. If necessary, fill the water container with water (refer to “Filling the water container”).  
If no hot water is needed, the Combi furnace can be operated without being filled.
2. Make sure the supply of LP gas is turned on at the tank.
3. Make sure the gas shut-off valve is switched on.
4. Use the CP plus control panel to switch on the Combi.

### **WARNING**

#### **Scalding injuries caused by hot water!**

- Water temperatures over 125 °F (49 °C) can cause severe burns or scalding and in extreme cases even death.
- Before using a hot water faucet or using the shower, mix with cold water and allow the hot water to run until the water temperature no longer increase.

There may be a variation between the temperature delivered from the Combi furnace and the temperature at the faucet due to water conditions or the length of pipe from the Combi furnace. The presence of a flow restrictor in the hot water line may limit the water flow.

- If using hot water, use the CP plus control panel to select the desired water temperature level.
- To obtain the desired water temperature at the faucet or in the shower, mix cold and hot water.
- Make sure that the water temperature has stabilized before any person or animal enters the shower.

### **WARNING**

#### **Scalding injuries caused by hot air!**

- Ventilation area can reach 250 °F (121 °C) at the warm air outlet and can cause severe burns or scalding, and in extreme cases even death.
- Always check the air temperature before varying the air throttle position.

### **Winter Operation**

To operate the Combi furnace in potentially freezing conditions, the following are required:

1. There must be sufficient LP gas (propane; fuel inlet pressure 11 – 13 in. wc (27.4 – 32.4 mbar) in the tank.
2. For hot water operation, the water container must be filled. You must leave the furnace powered ON whenever freezing might occur.



**NOTE:** Winter operation will not protect the recreation vehicle's entire plumbing system.

### **Shutdown**

#### **Switching off the furnace**

- Switch off the Combi furnace using the CP plus control panel. Due to internal processes, it may take some time until the furnace is completely shut down.
- If the Combi furnace and any other gas-powered device is not needed anymore, turn off the LP gas supply.
- Switch off the Combi furnace's electrical power supply.

If the RV is being put into storage, or if you switch off the Combi furnace during freezing temperatures, refer to “Winterizing”.

## SECTION 9: HEATING & COOLING

### Draining the water container

# CAUTION

### Damage to the Combi furnace caused by freezing!

- The Combi furnace does not have a frost-protection function. The water container must be drained if the recreation vehicle will not be used whenever there is a risk of frost.
- No warranty claims are accepted by the manufacturer of the Combi furnace for frost/freeze damage

To make sure that all water drains properly from the water container, place a big enough vessel underneath the drainage socket of the pressure relief/drain valve (> 2.64 gallons (10 liters)).

- Use the main switch or pump switch to switch off the power to the water-pump assembly.
- Turn off or disconnect the city water connection, if present.
- Open all water release points, e.g. cold and hot water faucets, showers, toilets.
- Open the pressure relief/drain valve

The water container will drain via the drainage socket of the pressure relief/drain valve.

### Decalcifying and cleaning the water container



**NOTE:** Truma recommends decalcifying and cleaning the water container at least twice a year for hygienic reasons. Only use specialized and suitable products. Do not use chlorine-based products. Read and follow the instructions of the decalcifying agent's manufacturer.

1. For decalcifying the water container, fill the water container with citric acid and let it work for some time.
2. Fill citric acid into the fresh water supply and dilute it with fresh water according to the supplier's specification.
3. Add more than 2.64 gallons (10 liters) of water to fill up the water container of the Combi furnace.
4. Drain the mixture of citric acid and water from the water container (refer to "Draining the water container") and flush it with fresh water (refer to "Filling the water container").
5. In order to avoid growth of micro-organisms, regularly heat the water in the boiler to 158 °F (70 °C) as follows:
  - a. Select energy mode "LP gas" on CP plus control panel.
  - b. Select the hot water level "boost" on CP plus control panel.
  - c. When the water temperature is reached (the display does not flash anymore), leave the heating switched on for another 30 minutes without withdrawing water from the system. The residual heat in the device will heat the water to up to 158 °F (70 °C).

**MICROWAVE**

**⚠ CAUTION**

- To prevent damage, remove the turntable from the microwave when traveling.
- Make sure you are connected to a 120-volt power source.

**⚠ WARNING**

Never use the microwave cavity for storage. The microwave cavity should always be empty when not in use.

For details on operation, cleaning and safety information, refer to the manufacturer’s user guide.

**General Cleaning Microwave and Convection Microwave**

**IMPORTANT:** Before cleaning, make sure all controls are off and the microwave oven is cool. Always follow label instructions on cleaning products.

To avoid damage to the microwave oven caused by arcing due to soil buildup keep cavity, microwave inlet cover, cooking rack supports, and area where the door touches the frame clean.

Clean with mild soap, water and a soft cloth or sponge, or as indicated below.

- Grease filters: mild soap and water or dishwasher.
- Door and exterior: mild soap and water, or glass cleaner applied to paper towel.
- Control panel: sponge or soft cloth and water.
- Stainless steel (on some models): mild soap and water, then rinse with clean water and dry with soft cloth, or use stainless steel cleaner.
- Turntable: mild soap and water or dishwasher.
- Rack(s): mild soap, water and washcloth. Dishwasher cleaning is not recommended.

**Convection Microwave (if so equipped)**

The convection microwave bridges the gap between microwaving your food and conventional cooking. Make sure there is sufficient 120-volt power before operating the convection microwave (see *Calculating Electrical Load*). or details on operation and safety information, refer to the manufacturer’s user guide.

**COOKING SAFETY**

**In Case Of a Grease Fire**

**⚠ WARNING**

Do not attempt to use water to put out the fire. Water can spread some types of fire, and electrocution is possible with an electrical fire.

Grease is flammable. Never allow grease to collect around top burners or on the cook top surface. Wipe up spills immediately. Refer to Section 2 – Safety Precautions, for fire safety and fire extinguisher information.

## SECTION 10: APPLIANCES

### **Cooking With Propane (if so equipped)**

See the *Propane System Section* for important safety instructions. Refer to the manufacturer's owner's manual for detailed operating and safety instructions for all propane appliances.

### **COOKTOPS, RANGE AND OVEN (IF SO EQUIPPED)**

For detailed operating and safety information, refer to the manufacturer's user guide.

#### **WARNING**

- During and after use, do not touch or let clothing or other flammable material come in contact with the top burners or heating elements, burner grates or areas near the top burners or oven until they have had sufficient time to cool. These areas can get hot enough to cause burns.
- Never leave cooking food unattended. Turn pan handles inward, but not over the tops of the other range burners. Ensure that pans used are large enough to contain the food and avoid boil-overs. Heavy splattering or spills left on the cooktop can ignite and cause burns.
- If using glass, glass/ceramic, ceramic, earthenware or other glazed utensils or cookware verify it is safe for use on the top burners.
- Do not cover the oven vent openings while the oven is in operation.** Restricting the flow of combustion air will create an asphyxiation hazard.

#### **CAUTION**

Never use oven cleaners, chlorine bleach, ammonia or glass cleaners with ammonia. Always allow the cooktop to cool before cleaning.

### **Cleaning instructions**

Refer to the manufacturer's user guide included for detailed cleaning instructions.

#### **General Cleaning**

- To avoid damage and possible burns, be sure the appliance is off and all parts are cool before handling or cleaning.**
- Use care to avoid steam burns if a wet sponge or cloth is used to wipe spills on a hot surface.
- Some cleaners can produce noxious fumes if applied to a hot surface.
- To prevent staining or discoloration, clean appliance after each use.
- If a part is removed, be sure it is correctly replaced.
- If a spillover occurs while cooking, immediately clean the spill from the cooking area while it is hot to prevent a tough cleaning chore later. Using extreme care, wipe spill with a clean, dry towel.

### **Electric Drop-In Cooktops (if so equipped)**



**NOTE:** Make sure you are connected to a 120-volt power source.

**⚠ CAUTION**

Do not use aluminum foil under any circumstances on the electric range cooktop, as this material will damage the cooktop surface if it melts.

**Gas Drop-In Cooktops (if so equipped)**

Depending on your model, it may be equipped with either a 2 burner or 3 burner cooktop. The 2 burner match-light cooktop has two 6500 BTU/H burners with control panel.

The 3-burner piezo-igniter cooktop has (1) front 9000 BTU/H burner and two rear 5200 BTU/H burners. The 3 burner cooktop is also equipped with a control panel.

Refer to manufacturer's user guide for detailed operating and cleaning information.

**Kitchen Range and Oven (if so equipped)**

**NOTE:** To help reduce potential condensation or unwanted cooking odors, turn on the overhead kitchen roof vent or the range hood vent (if so equipped).

To prevent damage, always use the manufacturer's recommended size flat bottom pan(s). Generally, the pan should be large enough to cover the burner, but not be more than one inch larger than the burner grate.

Do not use a broiler pan, griddle or any other large utensil that covers more than one burner at a time. This will create excessive heat that may cause melting, sooting or discoloration.

The use of undersized pans could expose a portion of the heating element to direct contact and may result in ignition of clothing. Proper relationship of pans to burner will improve efficiency.

**Oven (if so equipped)**

The propane gas oven must have 12-volt power to operate. **Do not use the oven as a storage area.** If you have any questions, contact your dealer or our customer service department.

**REFRIGERATOR**

The refrigerator is not intended for quick freezing or cooling. We recommend stocking it with pre-frozen or pre-cooled food when possible. The shelves should not be covered with paper or plastic and the food items should be arranged so air can circulate freely. Keep the area at the back of the refrigerator clean and free of debris. Check for obstructions in the exterior refrigerator vent area (i.e., spider webs, bird nests, etc.). Use a soft cloth to dust off the debris.

For optimum efficiency and performance, it is recommended the refrigerator be checked at least twice a year as part of the routine maintenance.

For detailed operating and safety information, refer to the manufacturer's user guide.

**Cleaning Your Refrigerator**

The following are general cleaning guidelines. For detailed information on cleaning your specific refrigerator, refer to the manufacturer's user's guide.

## SECTION 10: APPLIANCES

### **Cleaning the Interior**

1. Unplug refrigerator or disconnect power.
2. Hand wash, rinse, and dry removable parts and interior surfaces thoroughly. Use a clean sponge or soft cloth and a mild detergent in warm water.
3. Inside the refrigerator, use a warm water and baking soda solution consisting of approximately 1-tablespoon (15ml) baking soda to 1 quart (1 liter) of water. This solution cleans and neutralizes odors. Rinse and wipe dry.
4. Leave an open box of baking soda in the refrigerator and freezer to help prevent odors.



**NOTE:** Do not use abrasive or harsh cleaners such as window sprays, scouring cleansers, flammable fluids, cleaning waxes, concentrated detergents, bleaches or cleansers containing petroleum products on plastic parts, interior and door liners or gaskets. Do not use paper towels, scouring pads, or other harsh cleaning tools.

### **Cleaning the Exterior**

**Painted metal exteriors:** wash with a clean sponge or soft cloth and a mild detergent in warm water.

**Stainless steel exteriors:** wash with a clean sponge or soft cloth and a mild detergent in warm water. Do not use appliance wax, polish, bleach, or other products containing chlorine on stainless steel. Stainless steel can be cleaned with a commercially available stainless steel cleaner. A spray-on stainless steel cleaner works best.

**IMPORTANT: Do not allow the Stainless Steel Cleaner and Polish to come into contact with any plastic parts such as the trim pieces, dispenser covers or door gaskets. If unintentional contact does occur, clean plastic part with a sponge and mild detergent in warm water. Dry thoroughly with a soft cloth.**

For silver-accented plastic parts, wash with soap or other mild detergents. Wipe clean with a sponge or damp cloth. Do not use scouring pads, powdered cleaners, bleach or cleaners containing bleach as these products can scratch and weaken the paint finish.

## **WATER HEATER – SEE PLUMBING SECTION**

## **WINEGARD CONNECT 2.0**

The Winegard Connect is an integrated system that works together for faster speeds and increased range from Wi-Fi sources. It has the following features:

- Expands your Wi-Fi coverage to receive signal inside your RV from farther away.
- Advanced Wi-Fi protected access (WPA and WPA2-PSK), guest network access, double firewall protection (SPI and NAT), and denial-of-service (DoS) attack prevention.
- Use Wi-Fi Calling or VoIP to make phone calls when cell coverage is weak.
- Connect all of your devices instantly when you connect to a new network. Easy step-by-step on screen instructions. Set up your secure network once and you are done.

Refer to the manufacturer's user guide for detailed information on set up and using the system.

# SECTION 11: ELECTRONICS

Notes:

**CLEANING THE INTERIOR**

To keep the value of your recreation vehicle, perform regular maintenance using the proper materials and procedures. Using the wrong cleaner may result in damage to the surfaces in your vehicle. Check with the manufacturer's information for the recommended cleaning agent. If in doubt, check to see if the cleaner will cause damage by testing a small area out of sight or contact your dealer for assistance. Do not use flammable liquids or sprays to clean the recreation vehicle.

**Décor Glass (if so equipped)**

Use a glass cleaner to remove smudges, smears and spots. If there is decorative etching on the décor glass, use care when cleaning around that area.

**Furniture Upholstery**

Vacuum the furniture upholstery regularly using a soft brush attachment to remove any loose dirt or debris.

**Fabric (if so equipped)**

It is recommended the fabric be professionally cleaned if it becomes stained or soiled. The professional cleaner should be made aware the fabrics that may have been treated to be fire resistant. For more information, refer to the specific furniture manufacturer's care instructions.

**Ultraleather™ (if so equipped):** It is recommended the Ultraleather™ be professionally cleaned if it becomes stained or soiled. For more information, refer to the specific furniture manufacturer's care instructions.

**Leather (if so equipped):** Periodic vacuuming, using a dry cloth to wipe up spills immediately, and using a damp cloth on problem areas, will help to keep your leather furniture in good condition. Leather surfaces can vary, as do the cleaning methods. Refer to the furniture manufacturer's recommendation, or consult a cleaning professional.

It is recommended you do not use any cleaners containing oils, waxes or silicones. Cleaners containing silicone can eventually destroy the finish on the leather. Cleaners containing oils or waxes should not be used as they leave residues on the surface of the leather, which can attract more dirt and eventually lead to cracking.

**Window Treatments**

**Fabric – Drapes and Valances:** Dust occasionally with a vacuum and soft brush attachment. It is recommended the fabric be professionally cleaned if it becomes stained or soiled. The professional cleaner should be made aware the fabrics that may have been treated to be fire resistant.

**Window Shades**

Shades should be vacuumed periodically to remove dust. Using your vacuum cleaner's upholstery brush on low suction will remove most dust and dirt from the shade. Refer to the shade manufacturer's owner's manual for additional and detailed information.

To remove stuck on dust or stains refer to the following guide.

**Solar Shields:** Use a sponge or soft brush and water to remove stains. A mild cleaning solution can be used to remove tougher stains. Rinse after cleaning by wetting a clean cloth in fresh water, wringing out any excess and wiping the areas where the cleaner was used.

**Day/Night Shades:** Clean with a mild cleaning solution using a sponge or paper towel. Wipe down with water after cleaning and dry thoroughly before raising the shade. Do not use spot remover, household cleaners or detergents to remove soiled spots, as these may cause damage to fabric or loss of color from fading.

**Mini Blinds:** A simple dry rag may do the trick. If they are especially dirty, you can use cold or warm water to clean them; never use hot water.

## SECTION 12: INTERIOR

Fill a spray bottle with water and a tiny amount of soap. Then spray a lint-free towel with the mixture and use the towel to wipe down each slat. While cleaning, try not to bend the slats. They can also be soaked in a bathtub to loosen up any debris so the slats can be wiped down easily.

**Roller Shades:** Clean by using soapy water or a mild cleaning solution on spots. Try a small area first because harsh household cleaners or detergents may cause damage to fabric or loss of color. It is recommended to dust the rails and fabrics of the shades on a regular basis. Shades should be kept in the closed or up position when not in use to maintain pleat retention and minimize dirt and soil build-up.



**NOTE:** If your recreation vehicle must be stored for an extended period of time, store shades in the up position and cover your windows with additional protection (I.E. Cut out cardboard).

### **Cabinetry and Tables**

To keep hardwood doors, cabinet fronts and hardwood tables looking like new regularly dust with a soft cloth dampened with a cleaning polish or mild detergent solution. Avoid using ammonia based products or silicone oils as they may cause damage if used over a long period of time.

The finish is durable and resistant to most household spills. However, spills should be wiped up promptly to avoid potential problems. Excessive prolonged exposure to direct sunlight, high temperatures and high humidity can cause damage to both the finish and the wood itself.

### **Interior Wall Panel**

To clean, use a mild solution of soap and lukewarm water with a soft sponge or cloth. Wipe dry with a soft, clean cloth.

## **CAUTION**

Do not use abrasive cleaners as they may cause the vinyl to scratch and become dull. Do not use cleaners that contain bleach

Putty sticks can be used to cover scratches on the wood surface wall panels. These can be obtained from local hardwood stores and lumberyards. Contact your dealership service department for assistance in repairing décor paneling.

### **Quik Panel Wall Panels (if so equipped)**

Quik Panels are used on certain Entegra motorhome models and may be treated and cleaned as a high quality painted surface. All Quik Panels are sealed or glazed and can be cleaned with a soft cloth and mild soap and water (such as dish soap).

Dust and wipe clean with soft, damp cloth or chamois, wiping gently. Do not use gritty or abrasive particle soaps or scouring compound to clean ABS plastic. Avoid using “citrus” or biodegradable cleaners that contain “D-Limonene” as they may damage plastic materials.



**NOTE:** Oil based soaps and cleaners are not recommended. No abrasive cleaners or alcohol cleansers should be used. If other cleaner solutions are used, first try on a spot in an inconspicuous area.

## **SOFA AND TABLE**

Your motorhome is equipped with a removable table and side sofas that convert into a sleeping area.

### **⚠ WARNING**

Always use seatbelts if sitting in the sofa or dinette while the motorhome is in transit

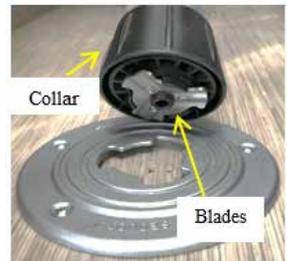
### **Removable Table**

### **⚠ CAUTION**

Do not sit on or lean on the table. It is intended for use as a table only

To remove the table, firmly grasp both sides of the tabletop and lift up until the table legs are no longer seated in the tabletop base. It may be easier to have (2) people to remove the table (someone at each end). Set the table aside for storage, or if you are setting up the sleeping area, the tabletop can be placed on the bedrails.

Firmly grasp the table leg collar at the floor, and twist counter-clockwise to loosen it. Twist the leg counter-clockwise until you feel resistance. Continue to turn the leg counter-clockwise until you feel a click and the blades match up with the hole. Pull up on the leg to remove it from the floor collar. Store the table legs in the passenger side sofa base.



### **Installing the Table**

Place the table leg on the base, lining up the blade holes with the blade. Push the leg down and twist the table leg clockwise until you feel some resistance. Continue to turn the table leg clockwise until it clicks into place. Twist the collar at the base to tighten.

Firmly grasp the tabletop on both sides and gently set it down on the table legs lining up the leg with the base. It may be easier to have (2) people set the tabletop on the legs. Push down lightly on the tabletop to ensure that it is firmly in place.

### **Converting to sofa(s) into a sleeping area**

Remove the table. Store the table legs in the passenger side sofa base.

Locate the bedrails in the driver side sofa base. Pull the rail(s) from the sofa base and place the end in the bedrail support on the passenger side sofa base. The sofa tabletop may be placed on the center bedrails for storage.

## SECTION 12: INTERIOR

### **! CAUTION**

Make sure the bedrails are securely seated in the bedrail support before and after adding the tabletop.



**Bedrails**



**Bedrail Support**

With the bedrails firmly in place, unfold the sofa cushions extending the sofa backs across the bedrails.

### **Headrest**

The sofa base(s) are equipped with an adjustable headrest. To extend the headrest, lift up on the top rail of the headrest until the bracket(s) lock firmly in place. To retract the headrest, press the bracket release on the back of each bracket and push the headrest back in place.



**Headrest**



**Headrest Support Bracket**

## **COUNTERTOPS**

### **To prevent permanent damage**

- Always use hot pads or trivets under hot pans, dishes, or heat producing appliances.
- Heat will damage the **solid surface** countertops.
- Use a cutting board to prevent unnecessary damage to the countertops. Do not cut directly on the solid surface countertop.
- Avoid harsh chemicals such as drain cleaners, oven cleaners, etc.
- Do not let cleaners with bleach set on the top. Wipe them off promptly.
- Run cold water when pouring hot/boiling water into the sink.
- Use coasters under all glasses, bottles and cans.

- Do not store toiletry products directly on your countertop surface. Hair products, perfumes, colognes, nail products, creams, lotions and potions have a tendency to spill or leak and go overlooked. Even though the counter top is sealed, a substance that remains on the surface for an extended period may stain Quartz.

For additional information on the removal of difficult stains or surface damage repair, refer to the countertop manufacturer's user guide.

### **Laminate Countertops (if so equipped)**

Glass rings, food spills, water spots and smudges usually wipe off with a damp sponge. Stubborn stains can be removed with a general-purpose spray cleaner. Some stains can be removed by squeezing fresh lemon juice over the stain and allowing the juice to soak for approximately forty-five minutes. After 45 minutes, sprinkle baking soda over the lemon juice and rub with a soft cloth.

### **Solid Surface Countertops (if so equipped)**

Soapy water, ammonia based cleaners (not window cleaners as they can leave a waxy build up that may dull the surface) or commercially available solid surface cleaners will remove most dirt and residue from all types of finishes. A damp cloth followed by a dry towel will remove watermarks.

Difficult stains can be removed from the matte finish with a green Scotch Brite® pad and a mild abrasive cleaner. Disinfect the surface periodically with diluted household bleach (one part water to one part bleach).

For cuts and scratches, sand the matte finish lightly with (220) fine grit sandpaper until the cut or scratch is gone. Restore finish with a green Scotch Brite® pad and mild abrasive cleaner.

### **Solid surface sink maintenance**

Occasionally, clean the solid surface sink by filling one-quarter full with a 50/50 water/bleach solution. Let soak for 15 minutes, and then wash sides and bottom of sink as solution drains.

### **Quartz Countertops (if so equipped)**

- **Quartz** will absorb heat from the pan. Resin in the countertop can withstand temperatures of 150°. Do not place a hot pan (from stove or oven) on a quartz countertop as it will burn or cause permanent damage. Heat will damage the **solid surface** countertops.
- **Quartz** is highly scratch resistant and stain resistant but prolonged exposure to sunlight can eventually damage a **Quartz** countertop.



**NOTE:** Only have a professional fabricator repair any countertop damage.

### **Cleaning your countertop**

To keep quartz countertops clean, wipe up spills immediately before they have a chance to dry. Use mild dishwashing soap and a soft cloth. For dried spills a non-abrasive sponge (designed for nonstick pans) works well along with a little elbow grease. Keep a *plastic* putty knife handy for scraping off gum, nail polish, paint or other messes.

Remove cooking grease using a degreasing product that will loosen then remove the grease. Follow cleanser manufacturer instructions. For stains like permanent markers moisten a cloth with Goo Gone (or similar) and rub into the stain. Rinse with warm water. A general deep cleaning is recommended at regular intervals using a nonabrasive surface cleaner on the countertop. Let it sit for 10 minutes and wipe with a non-abrasive sponge.

## **SECTION 12: INTERIOR**

- Never use abrasive cleansers and avoid scouring pads.** If you need a gentle cleanser to remove stains make sure it is specifically designed for Quartz.
- Do not use nail polish remover, turpentine, drain cleaner and dishwashing rinsing agents. You may use *diluted* bleach or a mild bleach cleanser, but oven cleaners or concentrated bleach should never be used. If they come in contact with the counter top, rinse immediately with water.

### **FLOORING**

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#### **Carpet**

Vacuum your carpet regularly. It is important to remove loose soil and debris while it is on the surface. Heavily traveled areas (i.e., walkways, areas in front of the furniture) may be protected with small throw rugs to prolong the life of the carpet.

Prompt attention to spots and spills is essential. Remove as much of the spill as possible. Absorb wet spills as quickly as possible by blotting repeatedly with white paper or cloth towels.

Refer to the manufacturer's guide for detailed cleaning information, or contact a cleaning professional.

#### **Vinyl Flooring (if so equipped)**

Periodically vacuum or sweep to remove dirt and gritty particles. Although most common spills will not permanently stain the vinyl floors, they are usually easier to remove if wiped up before they set. Blot with a paper towel and wipe clean with a damp cloth. Do not use dish detergents or vinegar and water because they will dull your floor.

To care for the vinyl floor covering, use a damp mop with water and a mild cleaner on the entire floor. **DO NOT SOAK THE FLOORING.** Use care to avoid wetting the carpet edges. To avoid problems of "yellowing" linoleum, the flooring manufacturer recommends avoiding cleaners that contain oil based solvents (i.e. lemon oil, Murphy's Oil Soap, etc.).

#### **Ceramic Tile (if so equipped)**

Vacuum the ceramic floor tiles regularly to remove dirt and other gritty particles, then damp mop or sponge with an all-purpose, non-oil based cleaner. Heavily trafficked tile may require more intensive cleaning. Refer to the manufacturers guide or contact a cleaning professional for detailed cleaning information.

Grout, the material used between the tiles is porous, and sealing it will simplify maintenance in the future. The ceramic tile manufacturer recommends applying a sealer at least twice a year for maximum stain protection. Sealers may be purchased at most local home centers or floor-covering stores.

#### **DO NOT:**

- Use cleansers containing acid or bleach for routine maintenance.
- Use wax cleaners, oil-based detergents or sealants to maintain your tile (sealants may be used on grout joints and natural stone).
- Use ammonia (it will discolor grout).
- Use harsh cleaning aids like steel wool pads or scouring pads containing metal.
- Use a cleaning agent that contains color on unglazed ceramic tile or natural stone.

#### **DO:**

- Test scouring powders on a small area first (not recommended for natural stone).
- Use a sealer on grout joints.
- Have any damaged or broken tiles replaced only by a qualified contractor.

**CLEANING THE EXTERIOR**

To protect your recreation vehicle's exterior finish, wash it often and thoroughly. You may wash and wax your new recreation vehicle 60 days after purchase. The exterior paint needs time to cure before any wax is applied to the exterior surface. Careful maintenance for the first 60 days will assure a long lasting durable finish.

Your RV is exposed to many environmental conditions that have an adverse affect on the paint finish:

- Road Salt and Sodium Chloride
- Road Tar / Bugs
- Bird Droppings / Tree Sap
- Industrial Fallout / Acid Rain/Pollution
- UV Exposure and Moisture

The most common problems resulting from these conditions are corrosion, staining, and chemical spotting. Generally, the longer the foreign material remains in contact with the exterior finish the more extensive the damage. These problems can be minimized by regularly scheduled washing and polishing. Wash your recreation vehicle as soon as possible if it becomes contaminated with foreign material.

Avoid parking under trees or near ocean sea salt. Ice or snow should be brushed off, not scraped, from the painted surface. Avoid gravel roads.

Anti-freeze, gasoline or washer solvents if spilled on the painted surface should be rinsed off with water immediately. Bugs and bird droppings should be rinsed off daily.

**Washing**

Commercial washing should be avoided. Wash with cold water using a mild liquid soap. Dry wiping with a dry cloth is not recommended.

Make sure the RV's surface temperature is cool, under 90 F, and out of direct sunlight. A shaded area is ideal for washing your vehicle as direct sunlight causes water spotting. Use a mild soap, detergent or car wash shampoo. Try to avoid combination wash-n-wax products as these waxes can cause build up and are designed for smaller surfaces. Have two dedicated sponges or wash mitts: one for the paint finish and one for the wheels and under carriage. Brushes or wash mitts made of plastic bristles are acceptable for use on tires and wheel wells, but are not intended for use on the paint finish. Avoid using such items on painted surfaces as they will damage the finish. Wash the wheels and wheel wells first as this removes heavy dirt and debris and prevents it from splattering on panels. Wet the entire area down to remove loose dirt and grime, then hand wash one area at a time using your dedicated paint finish sponge or wash mitt. Wash from the top and work your way down, rinsing frequently to minimize grit abrasion. Follow with a final rinse of water. This process will remove most contamination from the RV's surface.

For stubborn stains such as road tar or bug stains, use an ammonia based glass cleaner or a small amount of rubbing alcohol on a damp cloth followed immediately by warm soapy water, and rinse with clean water. This may not dissolve the road tar, but it will loosen tar and bug stains and remove them from the surface.

Do not use solvent based cleaners on bird droppings or tree sap as these are water based stains. They can be dissolved using ammonia based glass cleaner, warm soapy water and a little "elbow grease". After removing stubborn stains immediately rinse with clean water.

Drying the RV is just as important as washing it. Tap water and well water contain many chemicals that could water stain your RV's finish.

We suggest using a damp natural or synthetic chamois. There are other drying products such as lint-free micro-fiber towels that work just as well.

## **SECTION 13: EXTERIOR**

### **During cold weather**

Salt and other chemicals that are spread on winter roads in some geographical areas can have a detrimental effect on the recreation vehicle's underbody.

**If your recreation vehicle is exposed to these conditions, spray the underbody with a high-pressure hose every time you wash the exterior of your recreation vehicle.**

Take special care to remove mud or other debris that could trap and hold salt or moisture. After washing your recreation vehicle, wipe off all water drops from the rubber parts around the slideout and doors.



**NOTE:** When the slideout or door is frozen, opening it by force may tear off or crack the rubber gasket that is installed around the slideout or door. Therefore, pour warm water on the gasket to melt the ice (wipe off the water thoroughly after opening the slideout or door). To prevent the weather stripping from freezing, treat it with a silicone spray.

### **Waxing**

Wax your recreation vehicle once or twice a year, or when painted surfaces do not shed water well. Use a soft cloth to apply a small amount of wax to the painted surfaces. After the wax has dried, polish the recreation vehicle with a dry, soft cloth.

Do not wax your recreation vehicle in direct sunlight. Wax it after the surfaces have cooled. Do not apply wax to any area having a flat black finish as it can cause discoloration. If the finish has been stained with wax, wipe off the area with a soft cloth and warm water. When waxing the area around the various openings, do not apply any wax on the weather strip. If it is stained with wax, the weather strip cannot maintain a weatherproof seal around the opening.

## **⚠ CAUTION**

- Do not use waxes containing high-abrasive compounds. Such waxes remove rust and stains effectively from the paint work, but they are also harmful to the luster of the painted surface since they scrape off the coating. Further, they are detrimental to glossy surfaces, such as the grille, garnish, moldings, etc. Do not use gasoline or paint thinners to remove road tar or other contamination to the painted surface.
- Do not use a buffer and a buffing compound as it may damage the exterior surface. Please contact a professional paint body shop for assistance.

### **Polishing your recreation vehicle**

If painted surfaces have been severely damaged and have lost their original luster and color tone, polish the surface lightly with a fine polishing compound. Avoid limiting your polishing to the damaged surface only; polish a somewhat wider area, moving the polishing cloth in one direction. After polishing, flush the compound from the surface and apply a coat of wax to regain a beautiful luster.

### **Damaged paint**

To prevent corrosion, touch up small cracks and scratches in the paint coat as soon as possible with touch-up film or paint. Carefully check the body areas facing the road and the tires for damage to the paint coat caused by flying stones, etc.

**Cleaning plastic parts**

Use a sponge or chamois to clean plastic parts. Use warm water and a soft cloth or chamois to remove any white residue from dark colored plastic surfaces. Do not use a scrubbing brush, other hard tools, or wax containing abrasives as they may damage the plastic surface.

**⚠ CAUTION**

Do not allow plastic to come into contact with brake fluid, engine oil, grease, paint thinner, or battery acid. These will damage plastic. Use a soft cloth and a mild detergent solution to wipe away any such contact.

**Chrome parts**

To prevent chrome parts from spotting or corroding, wash with water, dry thoroughly, and apply a non-abrasive automotive wax. If the chrome is severely damaged or pitted, use a commercially available chrome polish product.

**FRAME**

Frames receive heavy abuse from road conditions such as sand, pebbles, objects in the high-way, and/or ice inhibiting chemicals, all of which will cause chipping and a blasting effect on the painted surface. Frames will show signs of rust much sooner when exposed to salty air. Periodically rinse off the frame (or as use requires) removing road grime, tar, oil, mud or salt. Refer to your Chassis Guide for the chassis manufacturer's maintenance instructions.

**EXTERIOR ROOF AND SIDEWALL VENTS**

Inspect the roof vents, including sealants for cracks and keep them clean. Inspect the refrigerator and holding tank vents for blockages from bird nests, spider webs, leaves, etc. All exterior access doors and vents need to be kept clean and free of obstructions (i.e., insect nests, mud daubers, etc.) while the appliances are in use.

**WINDOWS**

**⚠ WARNING**

To avoid exhaust gas entry into the motor home, keep windows closed when the chassis or generator engines are running.

Any ventilating window may permit water inside, especially during heavy rainstorms or while driving. This is normal and water should only be seen in the lower track portion of the window frame. Condensation will also cause water to accumulate on windows and in the tracks. Ensure that the escape window latches are properly adjusted (the window will pop open if not adjusted tight enough).

**Window glass**

The window glass can normally be cleaned with a sponge and water. Use glass cleaner to remove wax, oil, grease, dead insects, etc. After washing the glass, wipe it dry with a clean, soft cloth.

**EXTERIOR LADDER**

Your recreation vehicle may be equipped with an exterior roof ladder. Refer to the manufacturers User Manual for important use and safety details.

### **WARNING**

#### **LADDER CAPACITY MAXIMUM 330 lbs. (150 kg)**

- DO NOT** exceed the ladder maximum weight rating.
- The maximum rating includes the person's weight **PLUS** weight of items carried
- Maximum of 1 person on the ladder.
- When climbing:
  - Always face the ladder.
  - Climb slowly with weight centered between side rails.
  - Keep a 3 point contact on the ladder at all times (3 Point contact - two hands and a foot or two feet and one hand).
- Keep hands free.
  - Use of accessories such as lanyards to keep carried items tethered will keep hands free and prevent falling items.
  - Heavy or bulky items should be brought up only after reaching the roof.
- Do not use the ladder if damaged in any way.

**Failure to follow these guidelines could result in death or serious injury.**

## **SEALANTS**

### **CAUTION**

To check the exterior sidewall sealants, use a stepladder placed safely alongside the vehicle. Do not prop a ladder against the body of the RV as it may damage the exterior finish.

Sealants perform a very important function and should be inspected closely and regularly maintained. We incorporate many different types of sealants, including butyl/putty, black Butyl-encapsulated foam, silicone (clear and color), roof sealant and foam. In general, sealants do not have “set” lifetimes. Varying environmental factors affect the pliability and adhesiveness of sealants.

#### **You or your dealer must:**

- Inspect all sealants a minimum of every six months. A quick walk around the motor home before leaving may help prevent potential problems during trips.
- Have the sealant replaced if you notice any cracks, peeling, voids, gaps, breaks, looseness or any sign of physical deterioration.
- Always use the same type of sealant that was removed. Your dealer service or parts manager can help you obtain the correct sealant(s).

The sealants may become damaged due to ultraviolet exposure, air pollution, freezing temperatures and exposure to other elements. Repair deteriorated sealants immediately to prevent damage. Cap seal all trim and openings at least once after the first year and thereafter as cracks, peeling, lifting and shrinkage occur.

### **TRAVEL CHECKLIST**

Following is a preliminary list of items that need to be checked before leaving your home or campsite. This is a general list, which you may want to customize as you determine your own needs. Refer to your Chassis Guide for information on chassis pre-trip inspections and maintenance.

#### **Safety**

- Make sure you follow all safety precautions noted in this owner's manual and in any manufacturer's operators manual when preparing to travel.

#### **Before leaving home (or campsite):**

- Make sure all fluids are at proper levels (engine oil, transmission fluid, engine coolant, power steering fluid and windshield washer fluid).
- Check the fuel gauge and lights on the motor home. **Have someone observe the operation of all exterior lights while you activate the controls. Check the turn signal and high beam indicators on the instrument panel.**
- Examine the tires for excessive tread wear or uneven wear patterns. Check for stones, nails, glass or other objects lodged in the tread. Inspect for tread cuts or sidewall cracks.
- Check tire pressure and correct according to manufacturer specifications.**
- Check wheel nuts for tightness.**
- Inspect and work all interior and exterior latches and locks (lube if necessary).
- Make sure the batteries are fully charged and installed correctly.
- Turn ON the motor home 12-volt battery disconnect switch.
- Inspect the power cord and carefully clean the contacts if necessary. Plug in the power cord to an appropriate power source.
- Turn on the interior lights and check outlets for polarity. If needed, replace any blown fuses. Check the circuit breakers and test the GFCI circuits.
- Inspect and turn on the propane gas system** (if so equipped). If you have any questions, contact your independent dealer or a qualified propane gas service representative for assistance. If the propane system is functioning properly, test any pilot lights or direct spark ignition features.
- Inspect and test all safety detectors.** If needed, replace any drained or discharged batteries. If you have a defective or damaged safety detector, replace it immediately.
- Inspect the leveling jacks for operation. If needed, perform maintenance as per the manufacturer's information.
- Test all exterior and interior lights. Replace any bulbs that are burnt out.
- Prepare the chassis portion of the motor home for the camping season in accordance with the Chassis Guide.**
- Wash the exterior of the motor home. Do a sealant inspection and repair as necessary.
- De-winterize and sanitize system.
- If you are towing a vehicle, connect it to the motor home and test all connections and lights (if applicable).**
- Test brakes for proper operation.**
- Fill the fresh water tank. Disconnect, drain and store the garden hose on the bracket.*
- Check the seat belt buckles and release mechanisms for positive action and secure connections.

## SECTION 14: TRAVEL/CAMPING/STORAGE CHECKLISTS

### **Before leaving the campsite:**

- Check the area* under the motor home after overnight parking and look for fuel, water, oil or other fluid leaks. If leaks are detected, find the cause and correct it immediately.
- Turn off propane *tanks (if so equipped)*.
- Empty black and gray holding tank, rinse as needed.
- Retract any awnings and secure them for transport.
- Close all the roof vents.
- Close windows & latch blinds.
- Disconnect the cable TV and phone hookups and lower the TV antenna.
- Turn off the interior lights, water heater, furnace and water pump.
- Secure any loose, heavy or sharp objects in the motor home or exterior compartments.
- Disconnect the power cord and ensure it is stored correctly.
- Disconnect any water connections.
- Water pump and water heater (if applicable) turned off.
- Fasten all interior and exterior doors securely. Lock them (if applicable). Latch drawers, cabinets & doors.
- Move slideout(s) in and lock it in place (if applicable).
- Walk around your motor home one last time to make sure everything is stored away and the baggage compartments are closed and locked.
- Refrigerator door locked.
- Furnace turned off.
- Make sure the leveling jacks are retracted to the travel position.
- Retract step.
- Secure and lock the entrance door.



**SECTION 15: ADDITIONAL INFORMATION**

**Jayco  
Ownership Notification  
Fax Form To: (800) 825-7876**

**ATTENTION!**

Federal record keeping laws require that we maintain a file of owners of our product. Your cooperation in filling out this form will be appreciated.

Change of Owner

Transfer of Limited Warranty  
(If Applicable - see limited  
warranty for details)

**Model Information:**

Serial#: \_\_\_\_\_

Chassis #: \_\_\_\_\_ Odometer Reading \_\_\_\_\_  
(Motorized only)

**New Owner Information:**

Purchased Date: \_\_\_\_\_

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

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

City: \_\_\_\_\_ State/Province: \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone # \_\_\_\_\_ E-Mail Address \_\_\_\_\_

**Previous Owner Information:**

Purchased Date: \_\_\_\_\_

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

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

City: \_\_\_\_\_ State/Province: \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone # \_\_\_\_\_ E-Mail Address \_\_\_\_\_

**Notes:**