Owner's Manual

DEAR KEYSTONE OWNER

Congratulations and thank you for your purchase of your new Keystone Recreational Vehicle, including its divisions Dutchmen and CrossRoads ("Keystone"). As you may know, Keystone RV Company is the #1 selling Travel Trailer and Fifth Wheel brand in North America. This is not a title we take for granted and we want your experience with your new Travel Trailer or Fifth Wheel to bring you joyful memories and experiences.

To help get you started, we supply every unit with a QR code located on your entry door. This allows you to quickly download your Owner's Manual, Warranty Guide, and any manuals made available by the manufacturer of the various appliances and components installed in your unit. Because many of the appliances and equipment are unique to recreational vehicles, it is very important to understand how they function to assure safe operation and your overall enjoyment so please take the time to review these. The Owner's Manual also has important information about indoor air quality, avoiding condensation and how to properly maintain your new RV. The Warranty Guide contains the Keystone Limited Base and Limited Structural Warranties and important information about your options to get help if something does go wrong.

Keystone is committed to ensuring your satisfaction with your new recreational vehicle (RV) and we are here to help if you ever need us. If you have questions or the dealer is unable to resolve any warrantable issues or provide assistance in arranging repairs in a timely manner, please contact the Customer Service Department, Keystone RV Company, P.O. Box 2000, Goshen, Indiana 46527. We can also be reached toll free at 866.425.4369 or at www.keystonerv.com.

For product news and updates you can dowload the "My Keystone" App or go to our website(s) through the links below; where you will also discover a multitude of topics such as our "Do it Yourself" (DIY) series, "How To" and "Frequently Asked Questions" (FAQ) videos, a dealer locator and much, much more.

Keystone RV	Dutchmen Manufacturing	CrossRoads RV/Redwood
www.keystonerv.com	www.dutchmen.com	www.crossroadsrv.com

On behalf of everyone at Keystone RV Company and its divisions, we want to thank you for purchasing our product. We hope you enjoy the camping lifestyle in your new recreational vehicle.

This manual is based on the latest information available at the time of publication. Due to continuous product development and improvements, Keystone RV Company reserves the right to make changes in product specifications and components without prior notice. The most recent version of the owner's manual can be found on our website www.keystonerv.com under the Owners Support heading. Manual Publication .1.2026.

Vehicle Identification Number (VIN): **4 Y D** _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Owner's Name: _____ Date of Purchase: _____

Phone Number: _____ Dealer: _____

Address: _____ Contact: _____

_____ Phone Number: _____

MAINTENANCE LOG

Date	Description of Service	Services Performed By

TABLE OF CONTENTS

01

1 INTRODUCTION
1 Owner's Manual
1 Safety
1 Important Safety Precautions and Information
1 Danger, Warning, Caution, Notice and Note Boxes
1 Terms and Symbols Used
1 Appliances and Equipment
2 Safety Recalls/ Service Campaign
2 Reporting Safety Defects
3 Owner Assistance
3 Verify the Problem Before Scheduling an Appointment
3 Notice for the "Do-It- Yourself" Crowd
4 Service Appointment
4 Obtaining Warranty Service in Transit
5 Your Responsibilities as an Owner
6 Maintenance Referral
6 Indoor Air Quality and Avoiding Condensation Referral
6 Warranty Registration/ Change of Address
6 Component Parts Warranty Registration

02

7 LIMITED WARRANTIES (FIVE PAGES)
7 What Is Covered?
7 Limited Base Warranty
8 Limited Structural Warranty
9 Repair Remedy
9-10 What Is Not Covered?
10 Defects v. Damage
10 Component and Appliance Warranty Service/ Administration
11 Legal Remedies
12-13 Component and Appliance Warranty Coverage

03

14 INDOOR AIR QUALITY AND AVOIDING CONDENSATION
14 Improving Indoor Air Quality
15 EPA Recommendations
15 Tips to Avoid Condensation
16 Where There Is Moisture, There May Be Mold
16 Formaldehyde and RVs
16 Websites of Interest

04

17 AXLES, TIRES VIN AND WEIGHTS

17 Axles and Suspension
17 Suspension
17 Shock Absorbers
17 Spare Tire
17 Tire Safety Information
17 Tire Safety
17 Safety Checklist
18 Breaking Down Tire Codes
18 Tire Labeling and US Dot Tire ID Number
19 Checking Tire Pressure
19 Steps for Maintaining Proper Tire Pressure
19 Tire Pressure Monitoring System (TPMS)
20 Understanding Tire Pressure and Load Limits
20 Tire Safety Tips
20 Tire Tread
20 Tire Aging
20 Vehicle Load Limits
21 Locating Your VIN
22 Weight Ratings - Labels
23 Cargo Capacities
23 How Overloading Affects Your RV and Tires
23 Tire Size
23 Tire Warranty
24 Weighing Your RV
24 Weight Ratings and Definitions
24 GVWR (Gross Vehicle Weight Rating)
24 UVW (Unloaded Vehicle Weight)
24 CCC (Cargo Carrying Capacity)
24 GAWR (Gross Axle Weight Rating)
24 Hitch (Tongue/Pin) Weight
25 Wheel Lug Nut Torquing
25 Using Torque Wrenches
26 Pre-Trip Maintenance
26 Tire Changing Basics
27 Wheel Reinstallation
27 Wheel Nut Torque Sequence
27 Summary

05

28 TOWING CONSIDERATIONS

28 Tow Vehicle Selection
28 Tow Vehicle Disclaimer
28 Towing and Weight Distribution
28 Tow Vehicle Set up
28 Weight Distribution
29 Brake Control
29 Hitch Selection
29 Safety Chains - Travel Trailers
29 Breakaway Switch
30 Lights
30 Mirrors
30 Towing
30 Weight Distribution Bars - Travel Trailer
30 Controlling Sway or Fishtailing
30 Sway Controls - Travel Trailer
31 Equipment
31 Tongue Weight
31 Driving
31 Corrective Measures
31 Backing
31 Braking
31 Passing and Accelerating
31 Sharply Winding and Narrow Roads
32 Steep or Long Grades
32 Slippery Pavement
32 Driving in Windy Conditions
32 Freeways and Highways
32 Turning Corners
32 Mud and Sand
33 Towing Behind Your RV
33 Additional Towing - Multiple Trailer Combinations
34 Second Trailer Hitching Procedure
34 Wire Harness/ Connector Plug
35 Know Your RV Before Heading Out
35 Hook Up To The Tow Vehicle
35 Fifth Wheel
35 Travel Trailer
36 Pre-Travel Checklist
36 Exterior
36 Interior

06

37 CAMPER SET UP AT DESTINATION
37 Site Requirements and Selection
37 Electrical
37 Antenna/Satellite
37 Sewer
37 Water
37 Campsite
38 Camper Set Up
38 Leveling Procedures
38 Stabilizing Jacks
38 Hook-Ups

07

39 APPLIANCES AND EQUIPMENT
39 Air Conditioner (Optional)
39 Furnace
39 Propane Appliance Maintenance
39 Safety
40 RV Heating Ventilation & Air Conditioning System (HVAC)
40 Heating System Differences
40 Air Conditioning (A/C) System Differences
41 Dual Zone Thermostat
41 iN-Command Climate Control/HVAC
41 Thermostat - Wall Mounted
42 Televisions
42 Cable Hook-Up
42 Satellite
42 4G LTE
42 4G LT/Wifi Antenna Prep
42 Antenna Booster
42 KeyTV
43 Awning (Manual or electric) and slide-out awnings
43 Firefly
43 iN-Command
43 Ladders
44 Generator (Optional)
45 Oven or Cook Top (Range)
45 Range Hood
45 Outside Range/ Cook Top
45 Refrigerator
45 Refrigerator - Residential Style
45 Backup Monitor
46 Fireplace (Optional)
46 Microwave/ Convection Oven
46 Remote Control System
46 Roof Vents (Power/Manual)
47 Keystone SolarFlex
47 Expanding Solar
48 CrossRoads Solar Freedom
48 Dutchmen Solar Spirit
49 Egress Windows
49 Washer/Dryer Ready
49 Dishwasher
49 Keyless Entry
50 Carbon Monoxide (CO) Detector
50 Battery Disconnect
50 What Could Be Draining My Battery When Everything Is Off?
51 Fire Extinguisher
51 Smoke Detector
51 Equa-Flex/Road Armor, E-Z Flex
51 Pin Box
51 Leveling
51 Under Mount Spare Tire
52 Elevated Beds And Electric Bed Lift Systems
53 Murphy Beds
54 Appliance and Equipment Danger
55-57 Component and Appliance Contact Information

08

58 ELECTRICAL SYSTEM
58 12 Volt System - DC
58 12 Volt Distribution Breaker Box
58 RV Battery
59 DragonFly Lithium Battery Option (Factory Installed)
59 Low-Voltage Disconnect
59 Waking Up Your Battery
60 Amperage (AMP) Hour Rating
61 120 Volt System - AC
61 Shoreline Cord/Power Cord
62 Electrical Hookup
62 30 Amp Service
62 50 Amp Service
63 Available Power
63 Adapters/Reducers
63 Extension Cords
63 Power Center/ Converter
64 Inverter
64 Mini Power Control System
64 Power Share
64 120 Volt Circuit Breakers
64 12 Volt Fuses
65 GFCI – (Ground Fault Circuit Interrupter)
65 GFCI-Testing
65 Brakes, Electric/ Hydraulic
65 Breakaway Switch
65 7-Way Trailer Plug

09

66 PROPANE GAS SYSTEM
66 General Information
66 IF YOU SMELL PROPANE...
67 Propane Gas System
67 Regulator
67 Split-Bottle Systems – (Primarily on Fifth Wheels)
68 Propane Gas Pigtails
69 Propane Gas Lines
69 Propane Gas Leak Detector
69 If the Alarm Sounds...

10

70 PLUMBING SYSTEM
70 Fresh (Potable) Water System
70 Water Pump
71 Fresh Water Tank
71 City Water Fill
71 Water Supply and Odor
72 Sanitizing the Fresh Water System
73 Water Heater
73 Water Heater Bypass Kit
73 Water Heater Storage and Draining
74-76 Winterization
77 De-Winterization/ Removal of Anitfreeze
77 Waste Water System
77 Black Water Waste
77 Toilet
77 Drain Lines
77 Black Water Tank
78 Solid Build-Up in the Black Water Tank
78 Termination Valve
79 Tank Flushing
79 Gray Water Waste
79 No Fuss Flush (Optional)
80 Dumping Instructions
80 Odor Control
80 Monitor Panel

11

81 SLIDE-OUT SYSTEMS
81 Slide-Out Tips
82 Electrically Operated Systems
82 Hydraulically Operated Systems
82 System Operation
82 Individual Room Control (IRC)
82 Manual Override to Retract or Extend the Slide-Out Room

12

83 SPORT UTILITY RVS
83 Bed Lifts
83 Ramp RV Weight Distribution
84 Cargo Area Load Ratings
84 Cargo Placement
84 Ramp RV Loading Safety
85 Loading Equipment
85 Chocks and Blocks
85 Tie Downs
86 Loading Ramp Operation
86 Loading and Unloading Motorized Cargo
86 Ramp Positioning
87 Loading Motorized Cargo
87 Secure the Load
88 Unloading Motorized Cargo
89 Side/Rear Patio Doors
89 Bifold Patio/Sundeck
90 Fuel Transfer System
90 Fuel Transfer System Safety
91 Fuel Transfer System Operation

13

92 CARE AND MAINTENANCE
92 Exterior
92 Frame/Chassis/ Attachments
93 Steps
93 Hitch Couplers (Travel Trailers)
93 Pin Box (Fifth Wheel) and Hitch Equipment
93 Safety Chains (Travel Trailers)
93 Tongue Jacks, Manual/ Power (Travel Trailers)
93 Fifth Wheel Jacks
93 Metal Siding and Sidewall
93 RV Gel Coat Finish - Care and Maintenance
94 Compounding
94 Cleaning
94 Waxing
94 Removing the Discoloration
94 Other Alternatives
94 Metal
95 Matte Finish Paint
96 ABS Plastic/Molded Parts
96 Windows
96 Corner Moldings
96 Moldings
96 Other Wall Attachments
96 Slide-Outs
96 Caution About Sealants
97 Roof
97 Alpha TPO Roof Material
98 Roof Seams and/or Joints
98 Axle Alignment
98 Brake Adjustment
98 Batteries
99 120 Volt Electrical
99 Interior
99 Appliances: See Chapter 7
99 Bedspreads
99 Blinds and Shades
99 Cabinet Doors and Drawers
99 Carpeting
100 Ceilings and Walls
100 Countertops
100 Solid Surface Countertops
100 Draperies
100 Fabric, Upholstery and Furniture
100 Faucets and Fixtures
100 Flooring, Vinyl
100 Glass and Mirrors
100 Sinks, Tubs and Toilets
101 Maintenance Schedule
102 APPENDIX
103-104 GLOSSARY OF COMMON TERMS AND DEFINITIONS

01 INTRODUCTION

OWNER'S MANUAL

The Keystone Owner's Manual is not intended to be inclusive of every operational aspect of your RV, but to work in conjunction with the manuals of the components in your RV supplied by the different component manufacturers. Please note that some components may be optional or not available for specific models. Also, you may be entitled to additional warranties on individual components beyond Keystone's one-year (two-year for Eddie Bauer and Redwood brands) limited base warranty and three-year (five-year for Montana and Montana High-Country brands) structural warranty. Individual product warranty registrations may be required by each component manufacturer to be eligible. If supplied to Keystone, they are put in the RV at the time of manufacture. We recommend these be completed and mailed promptly if applicable. A list of the most current component suppliers can be found in Chapter 7 Appliances and Accessories.

SAFETY

IMPORTANT SAFETY PRECAUTIONS AND INFORMATION

DANGER, WARNING, CAUTION, NOTICE AND NOTE BOXES

We have provided many important safety messages in this manual. Always read and obey all safety messages.

TERMS AND SYMBOLS USED

(Optional) This denotes items that may be an option on all or particular models. Additionally, some optional items can only be included during the manufacturing phase and cannot be added. The inclusion of optional items does not imply or suggest the availability, application, suitability, or inclusion for any specific RV.

DANGER	WARNING	CAUTION	NOTICE	NOTE
DANGER indicates an imminently hazardous situation that, if not avoided, may result in death or serious injury.	WARNING indicates a potentially hazardous situation that, if not avoided, may result in death or serious injury.	CAUTION indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.	NOTICE is used to address practices not related to personal injury. This applies to hazardous situations involving property damage only.	NOTE brings attention to: Important information regarding the maintenance of your RV.

APPLIANCES AND EQUIPMENT

The appliances (stove, refrigerator, outdoor grills, etc.) and equipment (water heater, furnace, generator, etc.) typically operate on propane. Propane is flammable and contained under high pressure. Improper use may result in a fire and/or explosion. Be sure to follow all instructions and warnings in this manual (see Chapter 7) as well as the specific owner's manuals of each appliance and piece of equipment.

NOTE

This manual is NOT intended to be inclusive of every operational aspect of your RV, but to work in conjunction with the manuals of the components in your RV supplied by the different component manufacturers. Please note that some components may be optional or not available for specific models. Some appliances and features of the RV do not come with instructions or warning labels. For example, a dinette table that folds down into a bed may not have a written manual. If you need assistance with an appliance or feature please contact your selling dealer or call Owner Relations at 866.425.4369.

SAFETY RECALLS AND SERVICE CAMPAIGNS

From time to time, Keystone may initiate a Safety Recall or Service Campaign in an effort to prevent a possible product failure from manifesting itself.

A Safety Recall involves a likely failure that can lead to property damage or personal injury. Notifications are mailed to your physical home address and may be emailed to you. Please make certain that you supply Keystone with an accurate home address and email address. The recall process is all about notice to you and making certain you deliver the RV to your local dealer for when a Recall and Service Campaign have been initiated by Keystone. It is very important that the issue be remedied before the RV or related component is used again. You can register your new or used unit ownership and change your address by downloading the "My Keystone" App and/or by going to www.keystonerv.com/owners/update-ownership/, or contact Keystone Owner Relations Monday–Friday from 9 A.M. to 4 P.M. EST (Friday - Summer hours 9 A.M. – 3 P.M. EST) at 866.425.4369.

Although similar to a Recall, a Service Campaign is a potential product failure that is not likely to lead to personal injury. Notifications are mailed to the registered owner's address and may be emailed to you. For Recall and Service Campaign questions please contact your Keystone Authorized Dealer/Service Center. Keystone Authorized Dealers and Service Centers can look up your specific unit information using your Keystone RV 17 digit VIN and tell you if you have a Recall or Service Campaign with your RV. See Chapter 4 to help you locate your VIN. You may also call Keystone Owner Relations Monday–Friday from 9 A.M. to 4 P.M. EST (Friday - Summer hours 9 A.M. – 3 P.M. EST) at 866.425.4369 or contact us via Online chat at www.keystonerv.com

REPORTING SAFETY DEFECTS

If you believe your vehicle has a defect which could cause a crash, injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA), as well as, notifying Keystone. 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 Keystone RV Company.

To contact NHTSA, you may call the Vehicle Safety Hot-line toll-free at 1.888.327.4236 (TTY; 1.877.561.7439); go to www.nhtsa.gov or write to: Administrator, NHTSA, 1200 New Jersey Ave. SE, Washington, DC 20590. You can also obtain other information about motor vehicle safety from www.nhtsa.gov

Transport Canada can be reached toll-free at 1.800.333.0510 or at 819.420.4300 in the Gatineau-Ottawa area or internationally. Written correspondence can be sent to: Transport Canada-ASFAD, 330 Sparks St., Ottawa, ON K1A 0N5.

Adresse postale: Transports Canada - ASFAD 330, rue Sparks, Ottawa (Ontario) K1A 0N5. Téléphone: 819.420.4300 (dans la région de Ottawa-Gatineau et à l'extérieur du pays). Sans frais: 1.800.333.0510 (au Canada).
Internet: http://canada.ca/rappels-securite-automobile.

OWNER ASSISTANCE

It's reasonable to expect your RV may need some service during the base and structural limited warranty periods. We recommend you contact your selling dealer first. If additional assistance is needed, Keystone has a network of authorized dealers, service centers and mobile service providers that are the exclusive source of parts, service and warranty support. However, if for any reason, your issue is not resolved by your dealer, Keystone is always willing to help so please do not hesitate to contact us.

We also understand that returning your RV for service takes time and effort. Therefore, we have outlined steps and options in hopes to reduce your inconvenience as much as possible.

VERIFY THE PROBLEM BEFORE SCHEDULING AN APPOINTMENT

Are you sure there is something wrong? It can be extremely frustrating to take the time, effort, and expense to return your RV to your dealer only to find your RV is operating correctly, was not being operated properly, or its condition is normal. Here are some resources and suggestions to help you validate your situation before taking the RV in for a service appointment.

1 | Review your Owner's Manual or the specific component and appliance manual for the component in question (if applicable). Download the "My Keystone" App and/or visit the "Owners Support" link on www.keystonerv.com for a variety of resources such as Videos, FAQ's, the DIY program or to chat with one of Keystone's Owner representatives.

2 | Review the component and appliance website for more information regarding the component in question.

3 | Contact your selling dealer or Keystone Customer Service to run the issue by one or both of us.

NOTICE FOR THE "DO-IT-YOURSELF" CROWD

Can you do it yourself? More now than ever many RV owners are relating to the "Do-it-Yourself" (DIY) method of repairs. This allows you to use and develop your skills to save you time and money.

For example, if you need to replace a part (such as, a blind, radio, cabinet door, drawer guide, etc.) and you are comfortable replacing it yourself, we can help you. We may be able to send you a part without charge to install yourself or with the help of someone you know and trust. While we want you to have the opportunity to complete simple repairs, **USE CAUTION AND GOOD COMMON SENSE:** Your safety and comfort in working on RV repairs are very important. If at any time you realize you do not have the necessary knowledge, training, or experience to independently work on any repair project, please stop what you are doing and seek the advice of someone familiar with your RV or contact your authorized Keystone dealership to arrange for the dealership's service group to address and fix the issue.

If the repair involves life safety related items, such as, the liquid propane (LP) gas system, any of the electrical systems, and plumbing, or such things, as the slide-out systems, hydraulics, and appliances, STOP and schedule an appointment with your dealer.

Returning the old part may sometimes be required, however, we can e-mail you a UPS return label. You can use the packaging from the new part to box the return part and it can be dropped at the nearest UPS location.

Please be sure to download the "My Keystone" App and/or visit the "DIY Program" section at www.keystonerv.com/diy-program, where we have supplied you with the DIY Videos and links to contact us with the necessary information to get started.

NOTE

The "Do-it-Yourself" (DIY) method of repairs is not required when the unit is within the terms of the warranty. It is strictly presented to you as an option for a more convenient and timely service experience to a willing consumer.

SERVICE APPOINTMENT

If you verify the problem and the issue needs a professional's touch, no problem, we recommend you make an appointment with your selling dealer. During peak camping season, service appointment lead times can be extended. If additional assistance is needed, see "OBTAINING WARRANTY SERVICE IN TRANSIT" on this page. Now stop and consider the issue at hand. If it is more of a nuisance issue that does not affect your ability to use the RV, you may want to consider making your appointment when it is not peak season so it doesn't interrupt your camping season or your use. Follow these steps to help assure a smooth service experience:

1 | Call Ahead - Give thought to an appointment time and call ahead. All shipping or towing expenses incurred in transporting the RV for warranty service will be your responsibility. Upon requesting the warranty services you will be asked for:
- Your name.
- Date of purchase.
- Vehicle Identification Number (VIN).
- An explanation of the anticipated warranty claim.

2 | Be Prepared/Make a List – Have a detailed list ready to review with the dealer when making the appointment. Clearly identify what occurred, when it occurred, and how the RV was being used at the time it occurred (plugged in/not plugged in; on city water/on pump, etc.) The more information you provide up front, the better chance the dealer will address your concerns timely and accurately the first time.

3 | Parts Lead Times – While many of the parts needed for warranty repairs are in stock at your dealer or at Keystone, a number of them may be special order. Many of these parts need to be manufactured with extended lead times that can delay the repair process. In those situations, we recommend the dealer complete the repairs that can be completed without the special order parts. We also recommend that you take the RV to use. Once the parts needed to complete the repairs are received by the dealer, you can return the RV to complete the remaining repairs.

4 | Inspect Your Repairs – Your dealer and Keystone want you to be satisfied with any repair. After a repair is performed, inspect it thoroughly. Go over the repairs with the dealer service representative, checking off your list as you go. In the event a problem should reoccur after you have left the dealership, contact the dealer or Keystone as soon as possible.

If the dealer is unable to resolve any warrantable issues or provide assistance in arranging repairs in a timely manner, please contact: Customer Service Department, Keystone RV Company, P.O. Box 2000, Goshen, Indiana 46527. You can also reach Keystone at 866.425.4369 and/or download the "My Keystone" App or at www.keystonerv.com. Upon receipt of notice of a claim where a dealer was unable or unwilling to resolve your issue, Keystone may then direct you to another dealer or service center.

FOR CALIFORNIA CONSUMERS, PLEASE MAKE SURE YOU KNOW YOUR RIGHTS AS DESCRIBED ON PAGE 11 UNDER LEGAL REMEDIES.

Keystone may also, at its option, request that you return your RV to one of its Customer Service facilities in Goshen, Indiana or Pendleton, Oregon.

If a dealer is unable to correct any covered defect that you believe substantially impairs the value, use, or safety of your RV, you must, to the extent permitted by law, notify Keystone directly of the dealer's failure to successfully repair the covered defect so that Keystone can become directly involved with the purpose of performing a successful repair to the covered defect.

OBTAINING WARRANTY SERVICE IN TRANSIT

Should you encounter an issue affecting the use, value, or safety of your RV while traveling, contact your selling dealer for assistance. Should you need to locate an Authorized Keystone Service Center, a dealer locator can be found by downloading the "My Keystone" App and/or at www.keystonerv.com or Keystone Owner Relations Monday–Friday from 9 A.M. to 4 P.M. EST (Friday - Summer hours 9 A.M. – 3 P.M. EST) at 866.425.4369.

When you are away from your selling dealer and an authorized service center or mobile service is not available, it may become necessary to use a non-authorized Keystone service center or mobile service which we will be happy to work with, however, please note:

- Service Calls are not covered under warranty.
- We will need to approve a reasonable estimate for the cost of repair BEFORE the work begins.
- We may elect to ship parts to the location.
- The defective parts may require return before payment for the work.
- While Keystone is more than willing to pay non-authorized service centers or mobile service companies, they may charge you since we do not have "relationship" with either. Upon receipt of the paid invoice, Keystone would then make arrangements to reimburse you the pre-approved amount.

YOUR RESPONSIBILITIES AS AN OWNER

Your RV was designed and manufactured by Keystone for recreational travel and family camping with suitable materials, appliances, and components. If you choose to use your RV for any purpose other than recreational travel and family camping, it could reduce the life expectancy of soft goods, appliances, and other components. In addition, more frequent maintenance intervals may be required.

Review the information contained in the Warranty Guide, the Owner's Manual, and all supplied component manuals. Ensure the proper care and maintenance is performed according to the Maintenance Schedule outlined in the Warranty Guide and the Owner's Manual, including taking whatever preventative measures that are necessary to maintain the exterior sealants and prevent foreseeable secondary moisture or water damage to the RV. Examples of secondary damage include, but are not limited to, stained upholstery, carpeting or drapes, mold formation and growth, furniture, cabinetry or floor damage, etc.

In the event the unit leaks (exterior, plumbing, etc.), take whatever action necessary to prevent foreseeable secondary moisture, water damage, or other natural accumulation of water in the RV. Also:

- Mitigate the leak. (Turn off the water, cover the area or have someone cover the area to the extent it is safe to do so, etc.)

- Remove the accumulated water to the extent it is safe to do so. (Use towels, a shop vacuum, etc. If severe enough, a professional water restoration company may be needed.)

- Reduce indoor humidity and/or ventilate the trailer to aid in the drying process. (Utilize roof vent fans, secondary fans directly on the area, a dehumidifier, operate the furnace fan and/or air conditioner, etc.)

Failure to take reasonable action to mitigate leaks, secondary moisture, or the accumulation of water is not covered by the terms of the limited warranties.

Mold grows naturally given certain environmental conditions and is not covered by the terms of the limited warranties.

Facts about Mold from the United States Environmental Protection Agency (EPA):

- Molds can be found almost anywhere; they can grow on virtually any substance when moisture is present. There are molds that can grow on wood, paper, carpet, and foods.
- Clean and dry any damp or wet materials or furnishings within 24-48 hours to prevent mold growth.
- There is no practical way to eliminate all mold or mold spores in an indoor environment; the best way to control indoor mold growth is to control moisture.
- Fix the source of the water problem or leak to prevent mold growth.
- Reduce indoor humidity to 30-60% to decrease mold growth by:
  - Venting bathrooms, dryers, and other moisture-generating sources to the outside.
  - Using air conditioners and de-humidifiers.
  - Increasing ventilation.
  - Using exhaust fans whenever cooking, dishwashing or cleaning.

MAINTENANCE REFERRAL

FOR ADDITIONAL INFORMATION ON YOUR MAINTENANCE RESPONSIBILITIES, SEE CHAPTER 13.

INDOOR AIR QUALITY AND AVOIDING CONDENSATION REFERRAL

FOR ADDITIONAL INFORMATION ON HOW YOU CAN MANAGE INDOOR AIR QUALITY AND AVOIDING CONDENSATION, SEE CHAPTER 3.

WARRANTY REGISTRATION/CHANGE OF ADDRESS OR OWNERSHIP

To enable Keystone to contact you with important product safety updates, including safety recalls or service campaigns, please make sure your warranty registration information, including your email address, is correct and up to date.

You can register your new or used unit ownership and change your address by downloading the "My Keystone" App and/or at www.keystonerv.com/owners/update-ownership/ or contact Keystone Owner Relations Monday–Friday from 9 A.M. to 4 P.M. EST (Friday - Summer hours 9 A.M. – 3 P.M. EST) at 866.425.4369.

COMPONENT PARTS WARRANTY REGISTRATION

Your RV has components, appliances, and accessories with printed materials that their individual component manufacturers have provided. These materials are included in the packet located in your RV that contains your Owner's Manual and warranty registration cards.

Appliance and component manufacturer warranties, if any, are separate from the Keystone Limited Warranties. We know it seems like a lot, but please review all of the materials located in your RV as part of the owner's packet. Not only should you be familiar with the many components and appliances, you are responsible for submitting any warranty registration cards and following the appropriate procedures for obtaining warranty service after your first year of ownership.

During the first year of your ownership, Keystone administers all the separate appliance and component warranties except for tires, batteries, Onan supplied generators, and ASA supplied electronics (those items are not only excluded but Keystone does not administer those components' separate warranties).

Keystone does not warrant any appliance or components. In no way will Keystone's Limited Warranties be modified or amended by this provision.

All warranty service claims on components must be directed during the one-year (two-year for the Redwood brand) base limited warranty coverage period to Keystone through an authorized Keystone dealer or service center. After the Keystone one-year (two-year for the Redwood brand) base coverage period expires, all appliance and component warranty claims must be directed to the respective appliance and component manufacturers.

02 LIMITED WARRANTIES (FIVE PAGES)

WHAT IS COVERED?

Keystone RV company, including its divisions, Dutchmen and CrossRoads ("Keystone"), provides the two following limited warranties with this recreational vehicle ("RV") which set forth what Keystone will cover and what Keystone will do if a defect exists. Neither limited warranty is a guarantee about the RV for any time period. Please read them closely before your purchase of the RV.

PLEASE NOTE: WHEN YOU REQUEST AND ACCEPT THE PERFORMANCE OF WARRANTY REPAIRS UNDER THE TERMS OF EITHER LIMITED WARRANTY, YOU ARE ACCEPTING ALL TERMS OF BOTH LIMITED WARRANTIES, INCLUDING BY WAY OF EXAMPLE, THE RESPECTIVE WARRANTY LIMITATIONS AND DISCLAIMERS, THE FORUM SELECTION CLAUSE AND THE CLAUSE REDUCING THE TIME PERIOD WHEN SUIT MUST BE FILED FOR BREACH.

ONE-YEAR (TWO-YEAR FOR THE EDDIE BAUER AND REDWOOD BRANDS) LIMITED BASE WARRANTY:

The Keystone Limited Base Warranty covers this RV for a period of one-year (two-year for the Eddie Bauer and Redwood brands) from the date of purchase by the first retail owner.

This Limited Base Warranty covers defects in materials and workmanship supplied by and attributable to Keystone's manufacturing and assembly of the RV when the RV is used solely for its intended purpose of recreational camping. This Limited Base Warranty does not cover the items excluded under the section "What is Not Covered" (PG 9-10).

IN ADDITION, SINCE IT IS REASONABLE TO EXPECT THAT THE RV WILL NEED SOME SERVICE DURING THE WARRANTY PERIOD, THIS LIMITED BASE WARRANTY DOES NOT PROMISE OR EXTEND TO FUTURE PERFORMANCE, WHICH MEANS THAT IT DOES NOT GUARANTEE HOW YOUR RV WILL PERFORM FOR A PERIOD OF TIME OR THAT IT IS FREE FROM DEFECTS. IT ONLY SETS FORTH WHAT KEYSTONE WILL DO IF A DEFECT EXISTS WITHIN THE LIMITED BASE WARRANTY PERIOD.

IT IS ALSO REASONABLE TO EXPECT THAT, BECAUSE OF THE SOPHISTICATED NATURE OF RVs, AND THE SPECIALIZED PARTS, COMPONENTS AND EQUIPMENT USED TO MANUFACTURE THEM, SERVICE DELAYS MAY AND CAN OCCUR. SOME REPAIRS MAY TAKE AN EXTENDED PERIOD OF TIME TO COMPLETE FOR REASONS BEYOND THE CONTROL OF KEYSTONE, OUR SUPPLIERS, AND OUR DEALERS. WE ASK FOR YOUR PATIENCE IN THOSE CIRCUMSTANCES. THOSE DELAYS ARE NOT INTENDED TO INCONVENIENCE YOU OR YOUR FAMILY, BUT TO PROPERLY COMPLETE THE REPAIRS. NO MATTER THE CIRCUMSTANCES PLEASE STAY IN CONTACT WITH YOUR DEALER FOR UPDATES ON PARTS LEAD TIMES AND REPAIR TIMES. IF YOU DO NOT BELIEVE YOUR DEALER IS ABLE TO RESOLVE YOUR WARRANTABLE ISSUES OR COMPLETE THE REPAIRS ON A TIMELY BASIS, PLEASE CALL KEYSTONE'S CUSTOMER SERVICE DEPARTMENT FOR ASSISTANCE.

Keystone is not responsible for any undertaking, representation, service agreement, or warranty beyond what is expressly set forth in this Limited Base Warranty.

TRANSFERABILITY | This Limited Base Warranty may be transferred by the first retail purchaser to a subsequent retail purchaser; however, the Limited Base Warranty will in no way be extended beyond the one-year (two-year for the Redwood and Eddie Bauer brands) coverage period. For you, the second retail purchaser, to receive the unexpired balance of the base warranty coverage, as previously described, after purchasing the RV, you may download the "My Keystone" App or go to our website at www.keystonerv.com and provide Keystone with your VIN, name, address, phone, and email address (proof of purchase may be requested). You may also notify Keystone of the transfer by:
Phone | 866.425.4369
Email | ownerrelations@keystonerv.com

PLEASE NOTE: THE LIMITED BASE WARRANTY IS NOT PART OF THE SEPARATE LIMITED THREE-YEAR STRUCTURAL WARRANTY PROVIDED WITH THE RV. THE LIMITED BASE WARRANTY WILL EXPIRE ON THE ONE-YEAR (TWO-YEAR FOR THE EDDIE BAUER AND REDWOOD BRANDS) ANNIVERSARY DATE OF THE FIRST RETAIL PURCHASE.

LIMITATIONS AND DISCLAIMERS:

THE LIMITED BASE WARRANTY IS PROVIDED EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF KEYSTONE. IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IF ANY, GIVEN BY LAW, WILL BE LIMITED TO AND NOT EXTEND BEYOND THE SCOPE OF COVERAGE AND BEYOND THE DURATION OF THE ABOVE ONE-YEAR (TWO-YEAR FOR THE EDDIE BAUER AND REDWOOD BRANDS) LIMITED BASE WARRANTY PERIOD.

KEYSTONE WILL NOT BE RESPONSIBLE OR LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE THAT RESULT FROM ANY DEFECT IN THE RV, INCLUDING BUT NOT LIMITED TO, LOSS OF USE OF THE RV, LOAN PAYMENTS, ON-SITE SERVICE CALLS, LOSS OF TIME, INCONVENIENCE, EXPENSES FOR GASOLINE, TOWING CHARGES OR TRANSPORTATION COSTS, RENTAL OF SUBSTITUTE EQUIPMENT, TELEPHONE, TRAVEL, LODGING, DAMAGE OR LOSS TO PERSONAL PROPERTY, LOSS OF REVENUES, OR OTHER COMMERCIAL LOSS, OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES, OF ANY KIND OR NATURE RESULTING FROM ANY DEFECT IN THE RV. THE DISCLAIMER OF CONSEQUENTIAL DAMAGES IS NOT DEPENDENT UPON THE LIMITED BASE WARRANTY FULFILLING ITS ESSENTIAL PURPOSE.

SOME STATES DO NOT ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LASTS, OR ALLOW THE EXCLUSION OF LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY TO YOU.

LIMITED STRUCTURAL WARRANTY

KEYSTONE OFFERS A LIMITED STRUCTURAL WARRANTY WITH TWO TIME PERIODS DEPENDING ON YOUR BRAND.

ONE: A THREE-YEAR LIMITED STRUCTURAL WARRANTY (ALL KEYSTONE BRANDS EXCEPT MONTANA AND MONTANA HIGH COUNTRY MANUFACTURED AFTER 1/1/2026 AND ALPINE AND AVALANCHE MANUFACTURED AFTER 6/1/2026).

TWO: A FIVE-YEAR LIMITED STRUCTURAL WARRANTY FOR MONTANA AND MONTANA HIGH COUNTRY BRANDS (MANUFACTURED AFTER 1/1/2026) AND ALPINE AND AVALANCHE BRANDS (MANUFACTURED AFTER 6/1/2026)

The Keystone Limited Structural Warranty covers this RV for a period of three years **(five years for Montana & Montana High-Country brands after 1/1/2026 and five years for Alpine and Avalanche brands after 6/1/2026)** from the date of purchase by the first retail owner. This Limited Structural Warranty covers defects in materials and workmanship supplied by and attributable to Keystone's manufacturing and assembly of the "structural" (as defined below) portions of the RV when the RV is used solely for its intended purpose of recreational camping. This Limited Structural Warranty does not cover the items excluded under the section "What is Not Covered?" (PG 9-10).

"Structural" means the RV's (i) main steel frame and steel support members (outriggers and cross members) (ii) exterior sidewalls, laminated or non-laminated, including fiberglass, aluminum siding and wall studs (iii) floors, laminated or non-laminated, including decking and floor joists (iv) roofs, laminated or non-laminated, including decking, roof rafters and roof material installation (v) fiberglass cap(s) including paint application, and windshield installation (does not cover damages such as, rock chips, dents, scratches, or failure to maintain) and (vi) slide-out box, exterior sidewalls/end walls/roofs/floors, skeletal framing, decking and roof material installation.

PLEASE NOTE: THE LIMITED THREE-YEAR AND FIVE-YEAR STRUCTURAL WARRANTIES ARE NOT PART OF THE SEPARATE LIMITED BASE WARRANTY PROVIDED WITH THE RV. THE LIMITED STRUCTURAL WARRANTY WILL EXPIRE ON THE ANNIVERSARY DATE OF THE FIRST RETAIL PURCHASE.

IN ADDITION, SINCE IT IS REASONABLE TO EXPECT THAT THE RV WILL NEED SOME SERVICE DURING THE WARRANTY PERIOD, THIS LIMITED STRUCTURAL WARRANTY DOES NOT PROMISE OR EXTEND TO FUTURE PERFORMANCE, WHICH MEANS THAT IT DOES NOT GUARANTEE HOW YOUR RV WILL PERFORM FOR A PERIOD OF TIME OR THAT IT IS FREE FROM DEFECTS. IT ONLY SETS FORTH WHAT KEYSTONE WILL DO IF A DEFECT EXISTS WITHIN THE LIMITED STRUCTURAL WARRANTY PERIOD.

IT IS ALSO REASONABLE TO EXPECT THAT, BECAUSE OF THE SOPHISTICATED NATURE OF RVs, AND THE SPECIALIZED PARTS, COMPONENTS AND EQUIPMENT USED TO MANUFACTURE THEM, SERVICE DELAYS MAY AND CAN OCCUR. SOME REPAIRS MAY TAKE AN EXTENDED PERIOD OF TIME TO COMPLETE FOR REASONS BEYOND THE CONTROL OF KEYSTONE, OUR SUPPLIERS, AND OUR DEALERS. WE ASK FOR YOUR PATIENCE IN THOSE CIRCUMSTANCES. THOSE DELAYS ARE NOT INTENDED TO INCONVENIENCE YOU OR YOUR FAMILY, BUT TO PROPERLY COMPLETE THE REPAIRS. NO MATTER THE CIRCUMSTANCES PLEASE STAY IN CONTACT WITH YOUR DEALER FOR UPDATES ON PARTS LEAD TIMES AND REPAIR TIMES. IF YOU DO NOT BELIEVE YOUR DEALER IS ABLE TO RESOLVE YOUR WARRANTABLE ISSUES OR COMPLETE THE REPAIRS ON A TIMELY BASIS, PLEASE CALL KEYSTONE'S CUSTOMER SERVICE DEPARTMENT FOR ASSISTANCE.

Keystone is not responsible for any undertaking, representation, service agreement, or warranty beyond what is expressly set forth in this Limited Structural Warranty.

TRANSFERABILITY | These Limited Structural Warranties may be transferred by the first retail purchaser to a subsequent retail purchaser; however, these Limited Structural Warranties will in no way be extended beyond the three year for all Keystone Brands and five-year for Montana, Montana High Country, Alpine and Avalanche brands ONLY coverage period. For you, the second retail purchaser, to receive the unexpired balance of these Structural Warranties coverages as described above, after purchasing the RV, you may download the "My Keystone" App or go to our website at www.keystonerv.com and provide Keystone with your VIN, name, address, phone, and email address (proof of purchase may be requested). You may also notify Keystone of the transfer by:
Phone | 866.425.4369
Email | ownerrelations@keystonerv.com

LIMITATIONS AND DISCLAIMERS:

THE LIMITED STRUCTURAL WARRANTY IS PROVIDED EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF KEYSTONE. IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IF ANY, GIVEN BY LAW, WILL BE LIMITED TO AND NOT EXTEND BEYOND THE SCOPE OF COVERAGE AND BEYOND THE DURATION OF THE ABOVE THREE-YEAR LIMITED STRUCTURAL WARRANTY PERIOD.

KEYSTONE WILL NOT BE RESPONSIBLE OR LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE THAT RESULT FROM ANY DEFECT IN THE RV, INCLUDING BUT NOT LIMITED TO, LOSS OF USE OF THE RV, LOAN PAYMENTS, ON-SITE SERVICE CALLS, LOSS OF TIME, INCONVENIENCE, EXPENSES FOR GASOLINE, TOWING CHARGES OR TRANSPORTATION COSTS, RENTAL OF SUBSTITUTE EQUIPMENT, TELEPHONE, TRAVEL, LODGING, DAMAGE OR LOSS TO PERSONAL PROPERTY, LOSS OF REVENUES, OR OTHER COMMERCIAL LOSS, OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES, OF ANY KIND OR NATURE RESULTING FROM ANY DEFECT IN THE RV. THE DISCLAIMER OF CONSEQUENTIAL DAMAGES IS NOT DEPENDENT UPON THE LIMITED STRUCTURAL WARRANTY FULFILLING ITS ESSENTIAL PURPOSE.

SOME STATES DO NOT ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LASTS, OR ALLOW THE EXCLUSION OF LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY TO YOU.

REPAIR REMEDY

If, within the stated limited warranty period, a defect in materials or workmanship is found to exist that is not excluded from coverage, whether under the Limited Base Warranty or the Limited Structural Warranty, Keystone's sole and exclusive obligation will be to repair the defect.

Back-Up Remedy | As a limited back-up remedy in the event the defect cannot be repaired, after receiving a reasonable opportunity to repair and after a reasonable number of repair attempts, Keystone may, at its option, either (1) pay you the diminution in value damages, or (2) provide a similar replacement RV, less a reasonable allowance for the owner's use of the original RV. The primary and back-up remedies must both fail to fulfill their essential purpose before other uniform commercial code remedies can be obtained for breach of express or implied warranty.

PLEASE NOTE: Any performance of repairs after the stated coverage periods expire or any performance of repairs to those portions of your RV excluded from coverage will be considered "good will" repairs and will not alter the express terms of the base and structural limited warranties.

WHAT IS NOT COVERED?

THE LIMITED BASE AND STRUCTURAL WARRANTIES WILL NOT APPLY TO:

- Routine maintenance including, without limitation, caulking, re-caulking and waxing of the body of the RV, tightening screws, brake squeak/lock-up/adjustment, latches, locks, combustion systems, changing fuses, or light bulbs, and maintaining the air conditioning and heating systems.
- Any water leaks or related consequential damages that are a result of your failure to properly maintain the exterior seals as required in the Owner's Manual.
- Any water leaks or related consequential damages that arise after the limited one-year (two-year for the Eddie Bauer and Redwood brands) base warranty expires (water leaks are covered under the base warranty and not the structural warranty).
- Adjustments to all doors, drawers, locks, latches, awnings and window treatments beyond 90 days after retail sale.
- Any digital component, computer, module, smart system, or equipment that requires calibration, reprogramming, or software updates.
- Equipment, products, components, appliances, or accessories not manufactured by Keystone.
- RV's used for business, rental, residential, commercial, or disaster relief purposes, or any purposes other than recreational travel and family camping.

- RV's that are not originally purchased through an authorized dealer or those purchased through auction, repossession, salvage or an otherwise damaged or distressed condition.
- Damage or loss caused in whole or in part by the unauthorized attachments, modifications or alterations to the structure, body, pin box or frame of the RV including but not limited to trailer hitches for towing, or platforms for supporting cargo.
- Any fading or dye lot changes of fabrics or carpet or cosmetic issues with the roof material(s) or its installation.
- Design defects; redesign/re-construction of any part of the RV; or anything related to wheel or axle alignment.
- Rust or corrosion due to the environment; or any broken glass damage.
- Damage or loss caused in whole or in part by animals, exposure to natural or atmospheric elements, corrosive chemicals, ash or fumes generated or released by vehicles, collision, road hazards, rock chips, condensation, or any other source; impact, dents, scratches or failure to maintain.
- Damage or loss caused in whole or in part by extreme weather conditions such as extreme cold or heat, winds, rain, lightning, hail, ice, and/or flooding.
- Damage or loss caused in whole or in part by the willful or negligent acts of the driver of the vehicle pulling the RV, an accident involving the RV, or the condition of any road surface.
- Damage or loss caused in whole or in part by the tow vehicle selected by the owner, owner's operation or use of the tow vehicle, improper selection or installation of towing hitch on tow vehicle, weight distribution, sway control or equalizer equipment, or damage to the owner's tow vehicle.
- Any injury, loss or damage due to mold or fungi.
- Any RV licensed, registered, or primarily used outside the USA or Canada.

DEFECTS v. DAMAGE

Please note the distinction between "defect" and "damage". "Defect" means the failure of the workmanship performed and/or materials used to conform with the design, manufacturing specifications and tolerances of Keystone. Defects are covered under the limited warranties. On the other hand, Keystone has no control over "damage" caused by such things as collision, misuse, or lack of maintenance that occurs after the RV is delivered to the owner. Therefore, "damage" for any reason which occurs after the RV is delivered is not covered under this warranty. Maintenance services are also excluded from the warranty because it is the owner's responsibility to maintain the RV.

COMPONENT AND APPLIANCE WARRANTY SERVICE/ADMINISTRATION

Appliance and component manufacturer warranties, if any, are separate from the Keystone Limited Warranties. Keystone administers the separate appliance and component warranties ONLY during the Keystone one-year (two-year for the Eddie Bauer and Redwood brands) base limited warranty coverage period except for tires, batteries, Onan supplied generators, and ASA supplied electronics (those items are not only excluded, but Keystone does not administer those components' separate warranties). All warranty service claims on components must therefore be directed during the one-year (two-year for the Eddie Bauer and Redwood brands) base limited warranty coverage period to Keystone through an authorized Keystone dealer or service center. After the Keystone one-year (two-year for the Eddie Bauer and Redwood brands) base coverage period expires, all appliance and component warranty claims must be directed to the respective appliance and component manufacturers. **Keystone is not warranting any appliance or components. In no way will Keystone's Limited Warranties be modified or amended by this provision.**

LEGAL REMEDIES

ANY ACTION TO ENFORCE ANY PORTION OF THE LIMITED BASE OR STRUCTURAL WARRANTIES, OR ANY IMPLIED WARRANTY, MUST BE COMMENCED WITHIN SIX (6) MONTHS AFTER EXPIRATION OF THE STATED RESPECTIVE LIMITED WARRANTY PERIODS OR THE ACTION WILL BE BARRED BECAUSE OF THE PASSAGE OF TIME. ANY PERFORMANCE OF REPAIRS WILL NOT SUSPEND THIS LIMITATION PERIOD FROM EXPIRING.

SOME STATES ALSO DO NOT ALLOW THE REDUCTION IN THE STATUTE OF LIMITATIONS, SO THEY MAY NOT APPLY TO YOU.

EXCLUSIVE JURISDICTION FOR DECIDING LEGAL DISPUTES RELATING TO ALLEGED BREACH OF WARRANTY OR REPRESENTATIONS OF ANY NATURE MUST BE FILED IN THE COURTS WITHIN THE STATE OF MANUFACTURE. ALSO, THE LIMITED WARRANTIES WILL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF INDIANA. ANY AND ALL CLAIMS, CONTROVERSIES, AND CAUSES OF ACTION ARISING OUT OF OR RELATING TO THE LIMITED WARRANTIES, WHETHER SOUNDING IN CONTRACT, TORT OR STATUTE, WILL 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.

PLEASE NOTE: THE ABOVE LIMITED WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

CALIFORNIA CONSUMERS

CALIFORNIA CONSUMERS SHOULD KNOW THEIR RIGHTS RELATING TO THE PURCHASE OF CONSUMER GOODS, SUCH AS RECREATIONAL VEHICLES. CALIFORNIA CONSUMERS MAY HAVE SPECIAL PROTECTIONS UNDER CALIFORNIA'S SONG-BEVERLY CONSUMER WARRANTY ACT (CALIFORNIA CIVIL CODE § 1793.2).

California enacted the Song Beverly Consumer Warranty Act to provide protection to Californians who purchase consumer goods in California. As part of the Act, manufacturers are required to make repairs to consumer goods if they have a defect. Repairs are required to be made within a certain period of time and, if they are not, or if a repair to the same item is required more than twice, a manufacturer may be required to replace or repurchase the consumer good. In some instances, if a manufacturer does not meet this obligation, it can be subject to additional damages referred to in the statute as a civil penalty.

In order to seek a civil penalty an owner must comply with Song Beverly Consumer Warranty Act's pre-litigation notice requirements (described at California Code of Civil Procedure Section 871.24), by sending a written notice to Keystone RV Company, either by email sent to the following email address: CaliforniaPreSuitNotice@keystonerv.com or by certified or registered mail, return receipt requested, sent to the following address: Keystone RV Company, c/o California Pre-suit Notice, P.O Box 2000 Goshen, IN 46527. Keystone's physical address is 2642 Hackberry Dr., Goshen, Indiana 46526.

CONSUMIDORES DE CALIFORNIA

LOS CONSUMIDORES DE CALIFORNIA DEBEN CONOCER SUS DERECHOS EN RELACION CON LA COMPRA DE BIENES DE CONSUMO, COMO VEHICULOS RECREATIVOS. LOS CONSUMIDORES DE CALIFORNIA PUEDEN TENER PROTECCIONES ESPECIALES BAJO LA LEY DE GARANTÍA DEL CONSUMIDOR SONG-BEVERLY DE CALIFORNIA (CÓDIGO CIVIL DE CALIFORNIA § 1793.2).

California promulgó la Ley de Garantía del Consumidor Song Beverly para brindar protección a los californianos que compran bienes de consumo en el estado. Como parte de la ley, los fabricantes están obligados a reparar los bienes de consumo si presentan algún defecto. Las reparaciones deben realizarse dentro de un plazo determinado y, de no ser así, o si se requiere la reparación del mismo artículo más de dos veces, el fabricante podría verse obligado a reemplazar o recomprar el bien de consumo. En algunos casos, si un fabricante no cumple con esta obligación, puede estar sujeto a daños adicionales, contemplados en la ley como sanción civil.

Para solicitar una sanción civil, el propietario debe cumplir con los requisitos de notificación previa al litigio de la Ley de Garantía del Consumidor Song Beverly (descritos en el Código de Procedimiento Civil de California, Sección 871.24), enviando una notificación por escrito a Keystone RV Company, ya sea por correo electrónico a la siguiente dirección:: CaliforniaPreSuitNotice@keystonerv.com, o por correo certificado con acuse de recibo a la siguiente dirección: Keystone RV Company, c/o California Pre-suit Notice, P.O Box 2000 Goshen,IN 46527. La dirección física de Keystone es 2642 Hackberry Dr., Goshen, Indiana 46526.

EXTENDED PEACE OF MIND

During the first year of your ownership (First two-years of ownership for Eddie Bauer and Redwood brands), Keystone administers all the separate component and appliance warranty coverage except for tires, batteries, Onan supplied generators, and ASA supplied electronics (those items are not only excluded but Keystone does not administer those components' separate warranties). For added protection, the appliances and components listed below have warranty coverage directly administered from and by the components' suppliers themselves beyond Keystone's base and structural warranty.

COMPONENT AND APPLIANCE WARRANTY COVERAGE

Product vendor	Product	Warranty Years	Warranty Notations
Alpha	Superflex & Alphaply Membranes	**Lifetime**	***Limited: For Year 6+, Parts Only, No labor**
Dicor	Tufflex	**Lifetime**	***Limited**
Lionshead	Aluminum & Steel Wheels	**Lifetime**	**Clear coat is only covered within the first year**
Tredit	Aluminum & Steel Wheels	**Lifetime**	**$150 Total Roadside Assistance For 4 years**
25 Year Warranty			
DynaSpan	Floor Decking	**25**	
Future Solutions	Solar Panels	**25**	**Power Output 25 Years, Workmanship 10 years**
Go Power	Rigid Panel	**25**	**Power Output 25 Years, Workmanship 12 Years**
10 Year Warranty			
Dragonfly	Batteries	**10**	
Wesco	Flex Pex Piping	**10**	
Dexter	Torflex Axles	**10**	**Suspension Components Only**
8 Year Warranty			
Terran	Spring Axles	**8**	
7 Year Warranty			
Beaufloor	Vinyl Flooring	**7**	**Cold Cracking Only**
6 Year Warranty			
Dexter (Hi-Spec)	Oracle and Sailun Tires	**6**	**1 Year + 5 Years For The Original Owner. 3 Years Roadside Assistance**
Lippert	Spring Axles	**6**	
Lippert	Suspension Systems	**6**	
Tredit	Goodyear, Rainier and Sailun Tires	**6**	**$150 Total Roadside Assistance For 4 years**
5 Year Warranty			
Amerimax	Sidewall Metal	**5**	***Limited**
Dexter	Spring Axles	**5**	
Discover Battery	Lithium Blue Batteries	**5**	
Furrion	Shore Power Products	**5**	
Go Power	Flexible Panel	**5**	**Power Output 5 Years. Workmanship 2 Years**
Go Power	Controller	**5**	
Lionshead	(ST) Radial Tire Brands & Westlake Commercial Tires	**5**	**"No Excuse Guarantee" For The 1st Year + 2 Year Roadside Assistance From Date Code On Tires**
Lippert	Chassis/Frame	**5**	**Montana & Montana HC Manufactured after 1/1/26 ONLY. Alpine,Avalanche, Cougar Fifth Wheel (FW) Manufactured after 6/1/26 ONLY, Cougar (TT) Manufactured after 4/29/26 (Starting VIN VV500010)**
Mor/Ryde	IS System	**5**	**Parts Only**
Samsung	Refrigerator	**5**	**Sealed System & Labor On Digital Inverter Compressor. 10 Years Compressor Parts *Limited**
Terran	Axle Leaf Springs	**5**	
Tredit	Trailer King Tires	**5**	**$150 Total Roadside Assistance For 4 Years**
Victron Energy	Solar Products	**5**	**Optional 5 Year Warranty Through Vendor**

3 Year Warranty			
Cummins	Generator	**3**	**Up To 2,000 Hours. Optional 5 year Warranty/2,000 Hours Through Vendor**
Flo-Jet	Water Pump	**3**	
Lippert	Chassis/Frame	**3**	**All Brands Except Montana & Montana HC**
Lippert	Hydraulic Leveling System	**3**	**Excludes Harness & Electronics**
MORryde	Pin Box	**3**	**Parts Only**
Norco	Chassis/Frame	**3**	
Standard Tech	Fuel Tanks	**3**	
Truck System Technologies	Tire Pressure Monitoring System	**3**	
Vixen Composites	Exterior Fiberglass	**3**	
2 Year Warranty			
Coleman	A/C	**2**	**Optional 3 Year Warranty Through Vendor - Parts Only**
Dometic	Refrigerator	**2**	**Optional 1-3 Year Extended Warranty Through Vendor**
Dometic	Fantastic Vent	**2**	**5 Years Parts Only. Lifetime - Dome**
Dometic	Range	**2**	
Dometic	Furnace	**2**	
Dometic	Air Conditioner	**2**	**Optional 1-3 Year Extended Warranty Through Vendor**
Dometic	Toilet	**2**	
Dometic	Water Heater	**2**	
Flex Power	Generator (4000 &5500)	**2**	***Limited**
Furrion	12V Refrigerator	**2**	
GE Appliances	A/C	**2**	
GE Appliances	Range	**2**	
Girard Products	Water Heater	**2**	**Parts Only**
InterVac	Central Vacuum	**2**	**Accessories 30 days**
Mor/Ryde	LRE Rubber Suspension System	**2**	**Parts Only**
Mor/Ryde	CRE System	**2**	**Parts Only**
Progressive Dynamics	Converter	**2**	**Optional Lifetime Warranty Through The Vendor**
MaxxAir	Roof Vent Fan	**2**	**Parts Only**
Suburban	Furnace	**2**	**Heat Exchangers 5 Years - Parts Only**
Suburban	Water Heater	**2**	**Tank 3 Years -Parts Only**
Suburban	Range	**2**	
Ventline	Power Fan	**2**	
Ventline	Range Hoods	**2**	
Ventline	Roof Vents	**2**	
Valto	Exterior Fiberglass	**2**	
WFCO	Converter	**2**	
WFCO	Inverter	**2**	
Xantrex	Inverter (Freedom X)	**2**	

***This product comes with a limited warranty. For further information and full details, please contact the vendor directly.**

THIS IS ONLY A SUMMARY. FOR COMPLETE INFORMATION REGARDING THE ACTUAL WARRANTY STATEMENT(S), CONSULT THE WRITTEN LIMITED WARRANTY PROVIDED BY EACH SUPPLIER WHICH CAN BE FOUND IN THE COMPONENT SUPPLIER OWNER'S MANUAL INCLUDED WITH YOUR RV OR ON THE SUPPLIER(S) WEBSITE. WHILE KEYSTONE ADMINISTERS THE COMPONENT AND APPLIANCE WARRANTIES AS AN ADDED BENEFIT TO OUR CONSUMERS, WE DO NOT WARRANTY THESE COMPONENTS.
REVISED .1.2026

03 INDOOR AIR QUALITY AND AVOIDING CONDENSATION

Unlike a home which can be thousands of square feet in size, your RV is much smaller. The relatively small volume and tight compact construction of modern RV's means that the normal living activities of even a few occupants (or animals) may lead to rapid moisture saturation of the air contained in the RV. Estimates indicate that a family of four can vaporize up to three gallons of water daily through breathing, cooking, bathing and washing.

Unless the water vapor is carried outside by ventilation or condensed by a dehumidifier, it may condense on the inside of the RV. It may condense out of sight inside cabinets, closets, etc. where the air temperature may be slightly different. This may not only cause damage to your RV but also your personal belongings. **Appearance of these conditions may be misconstrued as a water leak.**

Good indoor air quality is essential for long term enjoyment of your Keystone RV. To maintain good air quality you need to be attentive to the proper ventilation of your RV, keeping the RV clean, and avoiding unnecessary air pollutants. Common indoor air pollution sources include molds, pollen, dander from pet fur, secondhand smoke, carbon monoxide from burning propane and other fuels (and charcoal), and household cleaners.

Inadequate ventilation may increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants outside. High temperatures and humidity levels may also increase concentrations of some air pollutants.

People most at risk from poor indoor air quality include people with: asthma, allergies, chronic lung diseases such as bronchitis and emphysema, a pre-existing heart disease, children, and the elderly.

⚠CAUTION

YOUR RV WAS DESIGNED PRIMARILY FOR RECREATIONAL TRAVEL AND FAMILY CAMPING. IF YOU USE YOUR RV FOR ANY OTHER PURPOSE, IT MAY LEAD TO PREMATURE COMPONENT WEAR/FAILURE AND DAMAGE TO YOUR RV. THESE TYPES OF "DAMAGE" ARE NOT COVERED UNDER THE LIMITED WARRANTIES.

IMPROVING INDOOR AIR QUALITY

1 | BREATHE FRESH AIR
- Open windows and vents.
- Spend as much time outside in fresh air as you can.

2 | CONTROL MOLD
- Clean your bathroom and kitchen often to fight mold.
- Fix any water leaks.
- Clean up any mold you see or smell with a mix of no more than 1 cup of bleach mixed with 1 gallon of water. **Never mix bleach with ammonia.**
- Close windows and run your air conditioner (A/C) or your dehumidifier to help control mold.

3 | OTHER WAYS TO IMPROVE AIR QUALITY
- Clean often to get rid of dust and pet fur which can bother your nose and throat.
- Try not to use bug spray inside your RV.
- **Do not smoke inside your RV.**

EPA RECOMMENDATIONS

There are 3 basic strategies recommended by the Environmental Protection Agency (EPA) to improve indoor air quality.

1 | Remove Sources - The most effective way to improve indoor air quality is to eliminate sources of pollution or reduce their emissions. Pollutants that this strategy can have an impact upon are:

- Biological contaminants such as bacteria, molds, mildew, viruses, animal dander, and pollen.
- Household products such as paints, varnishes, cleaning and disinfecting solutions, cosmetics, and hobby products.
- Pesticides.

2 | Ventilation - Increase the amount of outdoor air coming indoors. Typically, RV furnaces and air conditioners DO NOT mechanically bring fresh air into the RV. Simultaneously opening doors and windows to allow fresh air in while turning on exhaust fans such as the bathroom, ceiling and range hood to take inside air out is an effective way to improve indoor air quality. If too little outdoor air enters a RV, pollutants may accumulate at higher levels.

3 | Air Cleaners - Air Cleaners are designed to remove particles from the air. There are many types and sizes of air cleaners on the market; however, air cleaners are not generally designed to remove gaseous pollutants. The effectiveness of an air cleaner depends on how well it collects pollutants from indoor air and how much air it draws through the cleaning or filtering element.

For more information about indoor air quality and its effects, please refer to https://www.epa.gov/indoor-air-quality-iaq

TIPS TO AVOID CONDENSATION

- When bathing, washing dishes, hair-drying, laundering, cooking, and using appliances and non-vented gas burners, always turn on the nearest exhaust fan.
- Keep the bathroom door closed and the vent open (if equipped, exhaust fan on) when bathing/showering and for a period of time after you have finished.
- Do not hang wet clothes in the RV to dry.
- In hot weather, start the air conditioner early as it removes excess humidity from the air while lowering the temperature.
- Manage the inside temperature during cold weather. The higher inside temperature along with colder outside temperatures may cause condensation to form on areas that are not insulated as well as others (windows, vents, wall studs, etc).
- Poor air circulation inside the RV may cause condensation to form inside closets and cabinets. Allow air to circulate inside closets and cabinets (leave doors partially open) so the temperature inside the cabinet is the same as in the rest of the RV. Please keep in mind that a closed cabinet full of stored goods prevents circulation and may cause condensation.
- The natural tendency is to close the vehicle tightly during cold weather. This may actually compound the problem. Simply put, you need to get the moisture in the air, that is created from normal use, outside. The most effective way to do this is to utilize your vents and vent fans.

If the tips presented here are not effective in controlling condensation, it may be necessary for you to invest in a dehumidifier. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program.

WHERE THERE IS MOISTURE, THERE MAY BE MOLD

Molds, which are pollutants, are microscopic organisms that naturally occur in virtually every environment, indoors and out. Outdoors, mold growth is important in the decomposition of plants. Indoors, mold growth is unfavorable. Left unchecked, molds break down natural materials such as fabrics and wood products.

For mold growth to occur temperatures must be between 40 degrees and 100 degrees Fahrenheit and there must be a source of moisture such as humidity, standing water, damp materials, etc. Indoors, the most rapid growth occurs with warm and humid conditions.

By controlling relative humidity (moisture), the growth of mold and mildew can be inhibited.

- In warm climates, use of the air conditioner will reduce the relative humidity.
- Opening vents and operating exhaust fans when introducing high levels of moisture to the inside of the RV (bathing, showering, cooking, washing dishes. etc.) will help control the environment needed for mold to grow.
- Clean any spills immediately.
- Avoid leaving damp towels, clothes, etc. to dry inside the RV.
- On safe surfaces, use mold or mildew-killing cleaning products.
- Check sealants regularly and reseal when necessary to avoid water leaks. Proper preventative maintenance to the RV and its accessories, as described both in this manual and in accompanying literature, will provide the best protection for your RV.
- In extreme conditions, a dehumidifier may be necessary.

FORMALDEHYDE AND RVS

Formaldehyde is used widely in building materials such as pressed wood products, particle board, hardwood, plywood paneling, plywood and medium density fiberboard (MDF), which are commonly used throughout the RV industry. As mandated by the RV Industry Association, Keystone RVs contain composite wood products that comply with the EPA Formaldehyde Standards for Composite Wood Products under Title VI of the Toxic Substances Control Act ("TSCA"), which can be found at https://www.epa.gov/formaldehyde and the California Air Resource Board (CARB) [Phase 2] formaldehyde emission standards under California Code of Regulations § 93120.2(a)

https://ww2.arb.ca.gov/resources/fact-sheets/formaldehyde.

To the extent that formaldehyde is contained in some of the components used to construct your RV or is used in the holding tank chemicals, you should properly ventilate your RV to maintain good indoor air quality. Decreasing the flow of air by sealing the RV may increase the presence and concentration of indoor air pollutants, such as mold, household chemicals, and formaldehyde.

Finally, we recommend that you do not smoke inside your RV. In addition to causing damage to your RV, tobacco smoke releases formaldehyde and other air pollutants.

If you have any questions regarding the health effects of formaldehyde or any other air pollutants, please consult your doctor or local health department.

WEBSITES OF INTEREST

There are various websites which maintain information about indoor air pollutants, including molds and formaldehyde, along with ways to improve indoor air quality. Here are two web pages we recommend you visit if you have any questions or concerns:

https://www.epa.gov/indoor-air-quality-iaq

http://www.epa.gov/formaldehyde/facts-about-formaldehyde

04 AXLES, TIRES, VIN AND WEIGHTS

AXLES AND SUSPENSION

Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dexteraxle.com, https://morryde.com, https://balrvproducts.com, www.lci1.com or www.terranaxle.com

⚠WARNING

EXCEEDING THE ESTABLISHED WEIGHT RATINGS FOR THE AXLES, RUNNING GEAR, TIRES AND WHEELS COULD LEAD TO FAILURE THAT CAN AFFECT RV SAFETY AND LEAD TO PROPERTY DAMAGE OR DAMAGE TO THE RV.

SUSPENSION

In most cases, there are two types of suspension used on Keystone RVs, Leaf Spring or Rubberized suspension. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

SHOCK ABSORBERS

If equipped, shock absorbers may provide a "ride enhancement" to the RV. They do not affect the stability or towability of the RV.

SPARE TIRE

If equipped, a spare tire can be utilized in an emergency if a RV tire loses air pressure or goes flat. Certain brands use different wheels than the originals with the intent for the spare to be temporary.

TIRE SAFETY INFORMATION

This portion of the owner's manual contains tire safety information as required by 49 CFR 575.6(4) and is based in part on the National Highway Traffic Safety Administration's Brochure, entitled "Tire Safety - Everything Rides on It." It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

https://www.nhtsa.gov/sites/nhtsa.gov/files/one.pdf

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, driving within the designated tire speed ratings, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation blowouts, and flat tires.

These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling.
- Help protect you and others from avoidable breakdowns and accidents.
- Improve fuel economy.
- Increase the life of your tires.

TIRE SAFETY

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

SAFETY CHECKLIST

1 | Check tire pressure (including the spare) at least once a month and before any long trip. See Tire and Loading Information label for recommended tire size, inflation pressure, Cargo Carrying Capacity as well as weight and axle weight ratings.

2 | Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma and remove bits of glass and foreign objects wedged in the tread. See the Tread Indicator Chart.

3 | Do not exceed the safe age to operate the tire. See tire aging.

4 | Do not overload your vehicle and distribute weight evenly in the RV. See Federal Certification label and Cargo Carrying Capacity label.

5 | Make sure your tire valves have valve caps.

6 | Do not exceed tire speed ratings regardless of the posted maximum speed limit. See "Breaking Down Tire Codes".

Use this information to make tire safety a regular part of your vehicle maintenance routine and use good judgment to adjust towing to road conditions, weather conditions, traffic, and posted speed limits while operating the vehicle. Recognize that the time you spend going over the check-list is minimal compared to the inconvenience and safety consequences of a flat tire or other tire failure.

BREAKING DOWN TIRE CODES

TIRE LABELING AND US DOT TIRE IDENTIFICATION NUMBER (TIN)

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

The **TIN** begins with the letters "DOT" and indicates that the tire meets all federal standards.

A tire's most important job is to carry the load required of it, and the load range/ply rating branded on the tire's sidewall indicates how much load the tire is designed to carry (at a specific pressure). Each tire manufacturer determines the ply rating and psi for each tire.

ST235/80R16
ST identifies your tire as a Special Trailer tire.

ST235/80R16
The three digits following the service type tell us the cross-sectional width of the tire in millimeters.

ST235/80R16
The next two digits tell us the aspect ratio measurement.

ST235/80R16
This letter tells us about the tire's construction.
R=Radial
B=Bias

ST235/80R16
The last digits represent the tire and wheel diameter.

Load Range G means this tire is a 14 ply tire with a max load pressure of 110 psi.

C = 6 ply 50 psi
D = 8 ply 65 psi
E = 10ply 80 psi
F = 12 ply 95-100 psi
G = 14ply 110 psi
H = 16 ply 120-125psi
J = 18 ply 120-125 psi

129/125L means this tire has a single **load index** of 129 and **speed index** of L.
129 = 4080 LBS
L = 75 MPH
125 = is for dual tire application that does not apply to Keystone RV's tires.
For more information please visit the appropriate website for your tires. See the Tire Warranty Chart.

The speed index rating is a measurement of the speed at which the tire is designed to run for extended periods. Trailer tires commonly have a tire speed ratings in the 65 - 75 mph range. Unless otherwise noted, the speed rating for the trailer tires is 65 mph

Date Code
First two digits - Week made
Last two digits - Year made

CHECKING TIRE PRESSURE

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb.
- Usually, it is not possible to determine if radial tires are under-inflated by visual inspection.

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

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires warm up causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

If you have been driving your vehicle and think that a tire is under-inflated, fill it to the recommended cold inflation pressure indicated on your vehicle's Tire and Loading Information label. While your tire may still be slightly under-inflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly under-inflated tire. Since this is a temporary fix, do not forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

STEPS FOR MAINTAINING PROPER TIRE PRESSURE

1 | Locate the recommended tire pressure on the vehicle's Tire and Loading Information label located on the exterior front left side wall.

2 | Record the tire pressure of all tires.

3 | If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.

4 | If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.

5 | At a service station or using an air compressor, add the missing pounds of air pressure to each tire that is under-inflated.

6 | Check all the tires to make sure they have the same air pressure.

TIRE PRESSURE MONITORING SYSTEM (TPMS)

TPMS PREP

If equipped, a TPMS Bluetooth Docking station (LCI) or Bluetooth Repeater (ASA) will be mounted in an exterior compartment. Additionally aftermarket kits must be purchased to utilize this component. Please refer to the manufacturer's instructions supplied with the RV for care, use and operation and/or www.lci1.com, www.asaelectronics.com.

TPMS READY

If equipped, TPMS Sensors have been installed inside each wheel and a Bluetooth Signal Repeater is installed inside the RV. This system monitors your tires temperature and pressure from the driver's seat in real time through a Color Display. Please refer to the manufacturer's instructions supplied with the RV for care, use and operation and/or www.TSTtruck.com.

⚠WARNING

THE TIRE PRESSURE MONITORING SYSTEM IS NOT A SUBSTITUTE FOR MANUALLY CHECKING TIRE PRESSURE. YOU SHOULD PERIODICALLY CHECK TIRE PRESSURES USING A PRESSURE GAUGE, NO LESS THAN ONCE PER MONTH. FAILURE TO CORRECTLY MAINTAIN TIRE PRESSURES COULD INCREASE THE RISK OF TIRE FAILURE, LOSS OF CONTROL, VEHICLE ROLLOVER AND PERSONAL INJURY.

NOTICE

You should only use tire sealants in roadside emergencies as they may cause damage to the tire pressure monitoring system sensor. If the tire pressure monitoring system sensor becomes damaged, it may not function. The TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure.

UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

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

Vehicle manufacturers determine this number based on the vehicle design's load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size.

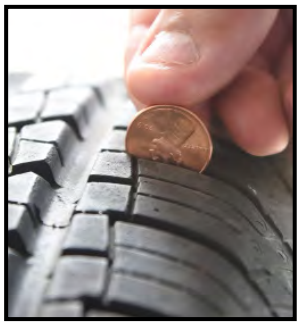
Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

TIRE SAFETY TIPS

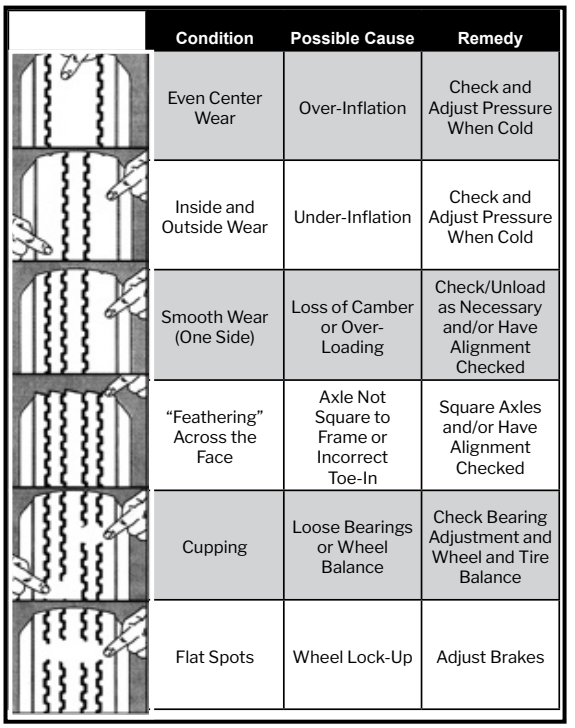
TIRE TREAD

The tire tread provides the gripping action and traction that prevents your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe when the tread is worn down to 1/16 of an inch and should be replaced. Tires have built-in tread-wear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down facing you. If you can see the top of Lincoln's head, you are ready for new tires.

HONEST ABE TEST



TREAD INDICATOR



Condition	Possible Cause	Remedy
Even Center Wear	Over-Inflation	Check and Adjust Pressure When Cold
Inside and Outside Wear	Under-Inflation	Check and Adjust Pressure When Cold
Smooth Wear (One Side)	Loss of Camber or Over-Loading	Check/Unload as Necessary and/or Have Alignment Checked
"Feathering" Across the Face	Axle Not Square to Frame or Incorrect Toe-In	Square Axles and/or Have Alignment Checked
Cupping	Loose Bearings or Wheel Balance	Check Bearing Adjustment and Wheel and Tire Balance
Flat Spots	Wheel Lock-Up	Adjust Brakes

TIRE AGING

Tires are manufactured by bonding rubber to fabric plies and steel cords. Despite the anti-aging ingredients mixed into the rubber compounds, tires remain perishable. Since most RVs spend a lot of idle time at the campground or in storage, with only occasional trips on the road, they are not operated like a typical car or truck. Therefore, it is much more likely that the tires on your RV will actually "age out" or expire before their treads wear out. Most studies indicate that tires should be replaced, regardless of tread depth, when they are between 6-10 years old. The age of the tire can easily be determined by inspecting the sidewall of the tire. See "Breaking Down Tire Codes". Refer to the tire manufacturer directly for the age life cycle of your tires.

VEHICLE LOAD LIMITS

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

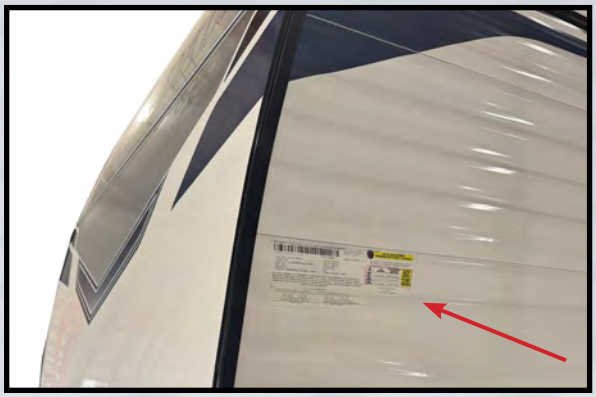
On RVs, there is a Federal Certification Label that is located on the forward half of the left (road) side of the RV. The certification label will indicate the vehicle's gross vehicle weight rating (GVWR). This is the most weight the fully loaded vehicle can weigh. It will also provide the gross axle weight rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided.

In the same location as the certification label, is the "Tire and Loading information label. This label will also show a statement regarding maximum cargo capacity.

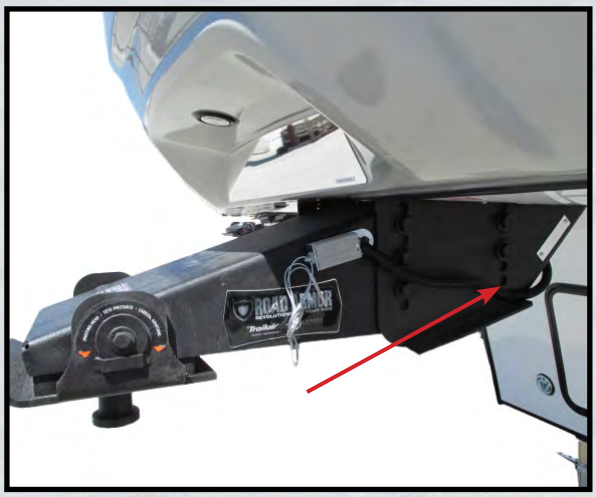
LOCATING YOUR VIN

Fifth Wheel

Travel Trailer



Federal Certification Labels & Tire Information



Metal VIN Tag

Cargo Carrying Capacity Label

WEIGHT RATINGS - LABELS

There are three labels that use weight information. They are the Federal Certification Label, Tire and Loading Information label, and the Cargo Carrying Capacity label. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

1 | Federal Certification Label - This label specifies maximum capacities for GVWR, GAWR and tires. It is located on the exterior left front of vehicle.

DATE: 7/28/2021
MANUFACTURED BY: KEYSTONE RV COMPANY
2642 HACKBERRY DRIVE
GOSHEN, IN 46526
V.I.N.: 4YDFM0P2XN4700000
TYPE: TRAILER
MODEL: MO3121RL22
UNLOADED VEHICLE WEIGHT 5570 KG / 12280 LB
GVWR 7258 KG / 16000 LB
GAWR (EACH AXLE) 3175 KG / 7000 LB
TIRE ST235/80R16G
RIMS 16x6
COLD INFL. PRESS 758 KPA / 110 PSI/LPC - SINGLE
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
ALL WEIGHTS ARE APPROXIMATE.
CARGO-CARRYING CAPACITY: 1660 KG / 3660 LB
CALCULATED WITH THE PROPANE TANKS FULL AND ALL OTHER TANKS EMPTY.
CAPACITIES:
COLD: 203 KG HOT: 45 KG
COLD: 448 LB HOT: 100 LB
MASS OF WASTE WATER TANKS FULL:
516 KG / 1137 LB

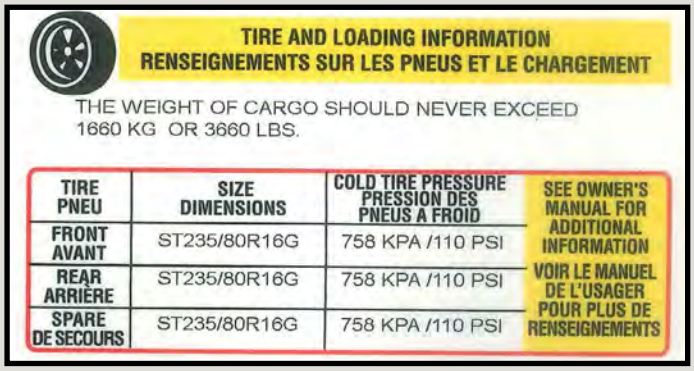
US

2642 HACKBERRY DRIVE
GOSHEN, IN 46526
V.I.N./N.I.V.: 4YDFM0P27N4700004
TYPE: TRA/REM
MODEL: MO3121RL22
UNLOADED VEHICLE WEIGHT 5661 KG / 12480 LB
GVWR / PNBV 7258 KG / 16000 LB
GAWR (EACH AXLE)/PNBE(CHAQUE ESSIEU) 3175 KG / 7000 LB
TIRE / PNEU ST235/80R16G
RIMS/JANTE 16x6
COLD INFL. PRESS/PRESS. DE GONFL. À FROID 758 KPA / 110 PSI/LPC - SINGLE
THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATIONS IN EFFECT ON THE DATE OF MANUFACTURE / CE VÉHICULE EST CONFORME À TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU RÉGLEMENT SUR LA SÉCURITÉ DES VÉHICULES AUTOMOBILES DU CANADA EN VIGUEUR À LA DATE DE SA FABRICATION.
ALL WEIGHTS ARE APPROXIMATE.
CARGO-CARRYING CAPACITY: 1321 KG / 2912 LB
CALCULATED WITH THE PROPANE,FRESH WATER, AND HOT WATER TANKS FULL, WASTE TANKS EMPTY
CAPACITIES:
COLD: 203 KG HOT: 45 KG
COLD: 448 LB HOT: 100 LB
MASS OF WASTE WATER TANKS FULL:
516 KG / 1137 LB
CAPACITÉ DE CHARGE: 1321 KG / 2912 LB
CALCULÉ AVEC LE PROPANE, L'EAU DOUCE, ET LES RÉSERVOIRS D'EAU CHAUDE PLEINS, ET LES RÉSERVOIRS DE DÉCHETS VIDES
CAPACITÉS:
FROID: 203 KG CHAUD: 45 KG
FROID: 448 LB CHAUD: 100 LB
MASSE DES RÉSERVOIRS D'EAUX USÉES PLEINS:
516 KG / 1137 LB

CA

2 | Tire and Loading Information label - This label specifies the maximum amount of cargo that can be safely added to the RV. It is located on the exterior front left of vehicle.

US


TIRE AND LOADING INFORMATION
RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT
THE WEIGHT OF CARGO SHOULD NEVER EXCEED 1660 KG OR 3660 LBS.

TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT AVANT	ST235/80R16G	758 KPA /110 PSI	
REAR ARRIÈRE	ST235/80R16G	758 KPA /110 PSI	
SPARE DE SECOURS	ST235/80R16G	758 KPA /110 PSI	

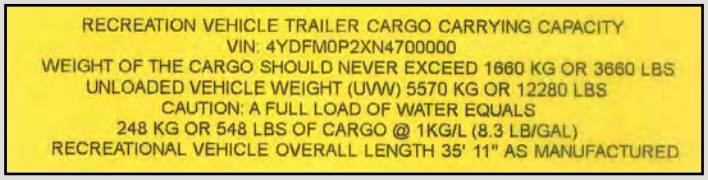
CA

TIRE AND LOADING INFORMATION
RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT
THE WEIGHT OF CARGO SHOULD NEVER EXCEED 1321 KG OR 2912 LBS. LE POIDS DE CHARGEMENT NE DEVRAIT JAMAIS EXCÉDER 1321 KG OU 2912 LBS.

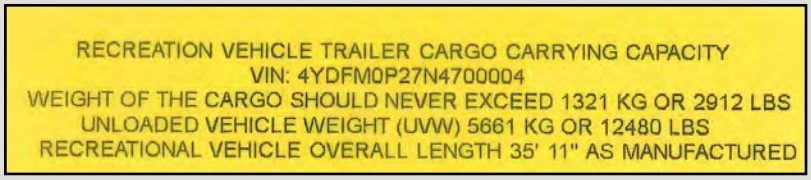
TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT AVANT	ST235/80R16G	758 KPA /110 PSI	
REAR ARRIÈRE	ST235/80R16G	758 KPA /110 PSI	
SPARE DE SECOURS	ST235/80R16G	758 KPA /110 PSI	

3 | Cargo Carrying Capacity (CCC) label - This label supplies the CCC information for the customer. It is located on the backside of the screen door or the door jamb of the main entry into the RV.

US


RECREATION VEHICLE TRAILER CARGO CARRYING CAPACITY
VIN: 4YDFM0P2XN4700000
WEIGHT OF THE CARGO SHOULD NEVER EXCEED 1660 KG OR 3660 LBS
UNLOADED VEHICLE WEIGHT (UVW) 5570 KG OR 12280 LBS
CAUTION: A FULL LOAD OF WATER EQUALS
248 KG OR 548 LBS OF CARGO @ 1KG/L (8.3 LB/GAL)
RECREATIONAL VEHICLE OVERALL LENGTH 35' 11" AS MANUFACTURED

CA


RECREATION VEHICLE TRAILER CARGO CARRYING CAPACITY
VIN: 4YDFM0P27N4700004
WEIGHT OF THE CARGO SHOULD NEVER EXCEED 1321 KG OR 2912 LBS
UNLOADED VEHICLE WEIGHT (UVW) 5661 KG OR 12480 LBS
RECREATIONAL VEHICLE OVERALL LENGTH 35' 11" AS MANUFACTURED

CARGO CAPACITIES

Cargo can be added to the vehicle, up to the maximum weight specified on the label. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded RV cannot exceed the stated GVWR. Accessory hitch and towing hitch weights are considered cargo, so the total weight of the cargo, carrier, or the trailer being towed must be included in the combined weight of the cargo. Water and propane also need to be considered. The weight of fully filled propane containers is part of the RV's weight before it is loaded with cargo and is not considered part of the disposable cargo load. However, water is a cargo weight and should be treated as such.
For example, a fresh water storage tank of 100 gallons, when filled, will weigh about 800 pounds. If more cargo is being transported, water must be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as to avoid overloading. Understanding this flexibility will allow you, the owner, to make choices that fit your travel and camping needs.

For more information on cargo weight distribution, read Chapter 12, "Sports Utility Recreational Vehicle," and see "Weight Distribution."

HOW OVERLOADING AFFECTS YOUR RV AND TIRES

The results of overloading can have serious consequences. Too much weight on your RV's suspension system can cause spring or brake failure, handling or steering problems, irregular tire wear, tire failure or other damage. An overloaded vehicle is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. The load a tire will carry safely is a combination of the size of tire, its load range, and corresponding inflation pressure. Excessive loads and/or under-inflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire, which may lead to tire failure.

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

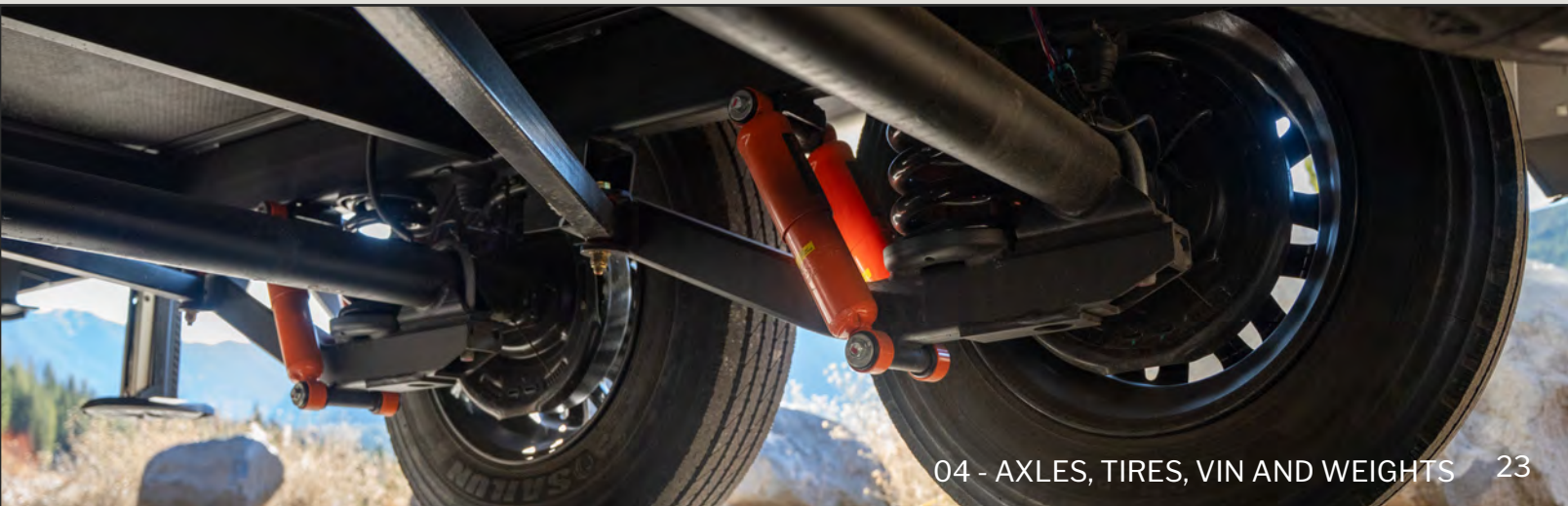
TIRE SIZE

To maintain tire safety, purchase new tires that are the same size as the RV's original tires or another size recommended by the tire manufacturer. Look at the Tire and Loading Information label, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

TIRE WARRANTY

Keystone RV does not administer the warranty for tires. Please contact the tire distributor direct at:

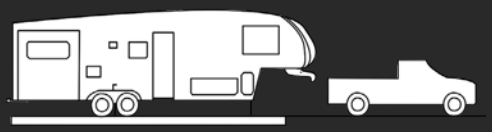
Americana	Dexter	Lionshead	Tredit
574.522.9450	574.807.8588	574.533.6169	855.8.TREDIT
www.americanatire.com	www.dextergroup.com/hispec	www.lionsheadtireandwheel.com	www.tredittire.com
Karrier	Oracle	Cooper	Goodyear Endurance
	Sailun	Goodyear Endurance	Rainier
	Sonoran	Maxxis	Sailun
		Tamarack	Trailer King RST
		Westlake	



WEIGHING YOUR RV

STEP 1: Pull on the scales until only the RV axles are on the scale. Record axle weight.
STEP 2: Unhook the RV on the scale to get a total weight of the RV.
STEP 3: To determine hitch weight, subtract the axle weight from the total weight. To calculate suspension weights/ratings, it is necessary to subtract the hitch weight. This weight is being carried on the tow vehicle, not by the suspension of the RV.

STEP 1



STEP 2

⚠ DANGER

IF THE TOTAL WEIGHT OF THE RV EXCEEDS THE GVWR, THE RV IS OVERLOADED. OPERATING YOUR RV WHILE EXCEEDING THE SPECIFIED WEIGHT RATINGS INCREASES THE RISK OF A CRASH, PERSONAL INJURY AND DEATH. IT IS NECESSARY TO REMOVE CARGO (EQUIPMENT, PERSONAL BELONGINGS, WATER, ETC.) UNTIL THE TOTAL WEIGHT OF THE RV NO LONGER EXCEEDS THE GVWR BEFORE OPERATING THE RV.

⚠ DANGER

IF THE WEIGHT ON THE RV AXLES EXCEEDS THE GAWR, THE AXLES ARE OVERLOADED. OPERATING YOUR RV WHILE EXCEEDING THE SPECIFIED WEIGHT RATINGS INCREASES THE RISK OF A CRASH, PERSONAL INJURY AND DEATH. IT IS NECESSARY TO REMOVE OR REARRANGE CARGO (EQUIPMENT, PERSONAL BELONGINGS, WATER, ETC.) UNTIL THE AXLE WEIGHT NO LONGER EXCEEDS THE GAWR BEFORE OPERATING THE RV. NOT OPERATING YOUR RV WITHIN THE DESIGNED WEIGHT RATINGS CAN CAUSE DAMAGE TO YOUR RV WHICH IS NOT COVERED UNDER WARRANTY.

WEIGHT RATINGS AND DEFINITIONS

GVWR (GROSS VEHICLE WEIGHT RATING): The maximum permissible weight of this RV when fully loaded. It includes the maximum allowable weight at the RV axle(s) plus the hitch (tongue/pin) weight.

UVW (UNLOADED VEHICLE WEIGHT): The weight of this RV as manufactured at the factory. It includes all weight at the RV's axle(s) and hitch.

CCC (CARGO CARRYING CAPACITY):
- U.S. - Equal to GVWR minus the UVW and LP gas weight. (Water is considered a component of cargo).
- CANADA - Equal to GVWR minus the UVW, full fresh (potable) water weight (including the water heater) and full LP gas weight.

GAWR (GROSS AXLE WEIGHT RATING): The maximum permissible weight on an axle(s) when fully loaded.

HITCH (TONGUE / PIN) WEIGHT: The weight of the RV that is transferred to the hitch of the tow vehicle when hooked up.

"It was an easy to setup the truck for towing. The weight of the camper fits well within towing capability."

Samuel | California

WHEEL LUG NUT TORQUING

The axle and wheel assemblies of your RV are designed differently than those on your car. A RV's overall size, weight, and center of gravity subject its wheels to pressures unique to RVing. During normal cornering, the tires and wheels experience a considerable amount of stress called “side-load”. Therefore, the lug nuts on your RV require periodic torque maintenance.

The lug nuts on your RV were torqued during the build process and were checked three more times before leaving the factory. Being sure wheel mounting nuts (lug nuts) on RV wheels are tight and properly torqued is an important responsibility that RV owners and users need to be familiar with and practice. Inadequate and/or inappropriate wheel nut torque (tightness) is a major reason that lug nuts loosen in service. Loose lug nuts can rapidly lead to a wheel separation with potentially serious safety consequences.

The information contained in these printed instructions outlines the most recently recommended processes involving Lug Nut Torque and takes precedent over any information regarding Lug Nut Torque shown in your axle manufactures owner’s manual.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video’s, FAQ’s, the DIY program and more.

⚠WARNING

ALWAYS TORQUE WHEEL NUTS TO THE WHEEL MANUFACTURER’S SPECIFICATIONS. OVER OR UNDER-TORQUED WHEEL NUTS COULD CAUSE THE WHEEL TO SEPARATE FROM THE WHEEL MOUNTING SURFACE DURING OPERATION, CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

Proper torque of lug nuts can only be achieved by using:
- Torque wrench (Dial indicator or Adjustable dial, not supplied by Keystone).
- 3/4", 13/16”, or 7/8" socket (Not supplied by Keystone).

NOTE

Some wheel assemblies require an extension. DO NOT USE a flexible extension. Also DO NOT USE a 4-way socket or any other type of wrench which does not measure the actual pressure applied to the lug nut.

USING TORQUE WRENCHES

Most torque wrenches are required to be set at “0” when not in use to maintain calibration. Please refer to the manufacturer’s instructions for further information on care and use.

SETTING TORQUE VALUE ON A DIAL INDICATOR WRENCH

1 | Make sure your indicator needle is set to “0”.

2 | As you apply clockwise pressure to the lug nut, both needles will show the current amount of torque being applied.

3 | When you reach your desired torque value, stop applying pressure and your indicator needle will stay at the highest torque value reached.

SETTING TORQUE VALUE ON AN ADJUSTABLE DIAL WRENCH

1 | Unlock the handle and set the dial to your desired torque value.

2 | Lock the handle back in place.

3 | As you apply clockwise pressure to the lug nut, you will hear an audible “click” when the desired torque wrench value is reached. Do not apply further pressure after you hear the “**click**”.

PRE-TRIP MAINTENANCE

ALWAYS REMEMBER

- Check lug nut torque before every trip. Keystone RV recommends this maintenance procedure to ensure proper torque has been applied to lug nuts before heading out on the road.
- Lug nuts should be torqued to 110-120 ft./lbs. (140-150 ft./lbs. on hubs using a 9/16" stud).
- Always follow the appropriate star pattern as indicated in these instructions or in your axle manufacturer's owner's manual to assure proper torque.
- Torque lug nuts in the correct stages and follow-up intervals after any wheel reinstallation.

PRE-TRIP PROCEDURE

1 | Set your torque wrench to 110-120 ft./lbs. (140-150 ft./lbs. for 9/16" stud).

2 | Refer to the Wheel Nut Torque Sequence patterns on the next page. Position wheel as illustrated then, starting with the bolt labeled #1, apply torque to all lug nuts following the star pattern that match's your RV's wheels.

3 | Complete the procedure on each wheel. Before moving to each new wheel, be sure to verify your preset torque wrench value.

NOTE

Some wheel assemblies require an extension. DO NOT USE a flexible extension. Also, DO NOT USE a 4-way socket or any other type of wrench which does not measure the actual pressure applied to the lug nut.

⚠WARNING

ALWAYS TORQUE WHEEL NUTS TO THE WHEEL MANUFACTURER'S SPECIFICATIONS. OVER OR UNDER-TORQUED WHEEL NUTS COULD CAUSE THE WHEEL TO SEPARATE FROM THE WHEEL MOUNTING SURFACE DURING OPERATION, CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

DO NOT TOW THE RV WITH MISSING OR DAMAGED AXLE STUDS OR AN INCREASED RISK OF WHEEL SEPARATION WILL OCCUR.

INSTALLATION OF WHEELS WHICH ARE NOT COMPATIBLE WITH THE MANUFACTURER INSTALLED AXLE ASSEMBLY COULD RESULT IN WHEEL SEPARATION, WHICH COULD LEAD TO PROPERTY DAMAGE, SERIOUS INJURIES OR LOSS OF LIFE.

TIRE CHANGING BASICS

1 | Use emergency flares, reflective markers and/or road cones when near a road or highway.
2 | Block the wheels on the opposite side from the tire you wish to change to prevent accidental movement.
3 | Position a hydraulic jack on the frame close to the spring hanger. (Never attempt to use a stabilizer jack to lift the RV.)
4 | Prior to raising the RV loosen the lug nuts ½ turn.
5 | Raise the RV until the tire clears the ground.
6 | Set a jack stand under the frame just to the rear of the tire being changed.
7 | Follow the Wheel Nut Torque and Wheel Reinstallation instructions provided in this section.

WHEEL REINSTALLATION

After removing a wheel from your RV for any reason, you must carefully follow a 2 step process:

1 | Wheel Reinstallation.

2 | Follow-up.

STEP 1 | WHEEL REINSTALLATION

During wheel reinstallation, the lug nut torque must be applied in 3 stages. This will ensure the wheel studs are centered in the wheel holes, and will help the lug nuts maintain proper torque. Start all lug nuts by hand.

For each Stage refer to the Wheel Nut Torque Sequence patterns on this page. Position wheel as illustrated then, starting with the bolt labeled #1, apply torque to all lug nuts following the star pattern that match's your RV's wheels.

Stage 1: Set your torque wrench to 20-30 ft./lbs. (50-60 ft./lbs. for 9/16" stud).

Stage 2: Increase your torque wrench setting to 55-60 ft./lbs. (90-100 ft./lbs. for 9/16" stud).

Following stage 2, the wheel can support the weight of the RV and can be lowered off of the jack stand.

Stage 3: Increase your torque wrench setting to 110-120 ft./lbs. (140-150 ft./lbs. for 9/16" stud).

STEP 2 | FOLLOW-UP: RETORQUE AFTER 10, 25, AND 50 MILES:

1 | After the first 10 miles of your trip, pull your RV off the road into a safe work area.

2 | Set your torque wrench to 110-120 ft./lbs. (140-150 ft./lbs. for 9/16" stud).

3 | Reapply torque (at 110-120 ft./lbs. or 140-150 ft./lbs. for 9/16" stud) and repeat steps 1-3 again after 25 miles and after 50 miles of your first trip.

The follow up process is complete and you should refer to the general lug nut torque maintenance process described in "Pre-Trip Maintenance".

SUMMARY

1 | Check wheel nut torque before every trip.

2 | Use proper size torque wrench.

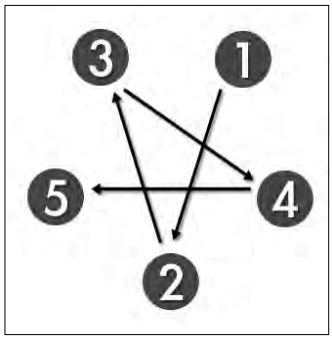
3 | Follow the appropriate star pattern sequence.

4 | Torque lug nuts in the correct stages.

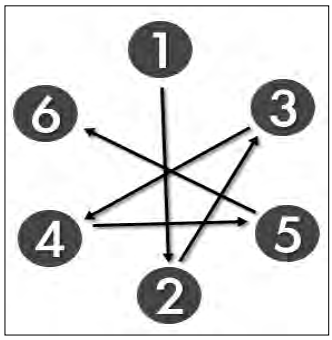
5 | Follow-up intervals after any wheel reinstallation.

WHEEL NUT TORQUE SEQUENCE

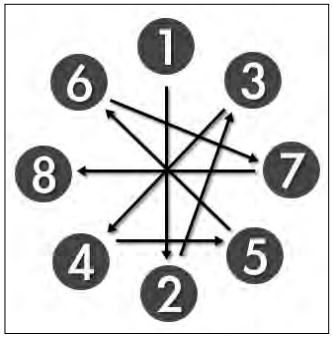
5 LUG



6 LUG



8 LUG



WHEEL REINSTALLATION SUMMARY

STEP 1 | WHEEL REINSTALLATION

1. 20-30 ft./lbs
   50-60 ft.lbs (9/16" stud)
2. 55-60 ft./lbs
   90-100 ft./lbs (9/16" stud)
3. 110-120 ft./lbs
   140-150 ft.lbs (9/16" stud)

STEP 2 | FOLLOW-UP

3. 110-120 ft./lbs
   140-150 ft./lbs (9/16" stud)

RE-TORQUE AFTER FIRST:
10 MILES -> 25 MILES -> 50 MILES

05 TOWING CONSIDERATIONS

TOW VEHICLE SELECTION

We recommend your tow vehicle have a tow weight rating to handle at least the Gross Vehicle Weight Rating (GVWR) of the RV you have selected. Please consult with your tow vehicle's dealer for more information about the specific ratings of your tow vehicle.

TOW VEHICLE DISCLAIMER

In connection with the use and operation of Keystone RVs, Keystone customers and owners of Keystone RVs are solely responsible for the selection and proper use of tow vehicles. All customers should consult with a motor vehicle manufacturer or dealer concerning the purchase and use of suitable tow vehicles for Keystone products. Keystone further disclaims any liability with respect to damages which may be incurred by a customer or owner of Keystone RVs as a result of the operation, use or misuse of a tow vehicle.

PLEASE NOTE: Keystone's limited warranties DO NOT cover damage to the RV or the tow vehicle as a result of the operation, use or misuse of the tow vehicle.

⚠DANGER

DO NOT ALLOW PASSENGERS TO RIDE IN THE RV DURING TRAVEL. THE RV DOES NOT HAVE SEAT BELTS AND IS NOT DESIGNED TO CARRY PASSENGERS. THIS MAY ALSO BE PROHIBITED BY STATE LAW.

TOWING AND WEIGHT DISTRIBUTION

Weight distribution is an important factor when loading your fifth wheel and travel trailer. Properly distributing cargo will result in efficient, trouble free towing.

TOW VEHICLE SET UP

WEIGHT DISTRIBUTION

Proper weight and load distribution is absolutely essential for safe towing. Before your first trip, load your RV with the weight distributed evenly (front to rear, side to side) with all personal belongings, equipment, food, water, etc. you feel are needed and weigh the RV as shown in "Weighing Your RV". Compare the weights of the RV to the weight ratings of the RV. Keep the loaded tongue weight between 10% and 15% of the total weight for travel trailers and between 15% and 25% of total weight for fifth wheels. More detailed information for Ramp RVs can be found under the headings "Ramp RV Weight Distribution", and "Cargo Placement" and "Cargo Area Load Ratings".

⚠WARNING

LOCATE AND SECURE CARGO AND VEHICLES TO MAINTAIN SAFE WEIGHT DISTRIBUTION IN THE CARGO AREA AND THROUGHOUT THE RV.

IMPROPER WEIGHT DISTRIBUTION OR OVERLOADING COULD LEAD TO LOSS OF VEHICLE CONTROL DURING TRAVEL RESULTING IN SERIOUS INJURY OR DEATH.

THE ROOF SHOULD BE FREE OF SNOW BEFORE TRANSPORTING THE RV.

FOLLOW ALL GUIDELINES CONTAINED IN THIS MANUAL FOR LOADING AND WEIGHING PROCEDURES. MAINTAIN THE LOADED HITCH WEIGHT WITHIN THE PERCENT LEVELS STATED. WHERE APPLICABLE, A HITCH WITH BUILT IN SWAY CONTROL IS RECOMMENDED. DO NOT EXCEED THE GVWR (GROSS VEHICLE WEIGHT RATING) OR THE GAWR (GROSS AXLE WEIGHT RATING) OF EITHER THE RV OR TOW VEHICLE.

"Easy to tow. Easy to set up. And very comfortable to be in!"

Sheila | Texas

BRAKE CONTROL

A brake control is a device that is installed in the tow vehicle that activates the electric RV brakes. Your RV brakes should work in synchronization with your tow vehicle brakes. Never use your vehicle or RV's brakes alone to stop the combined load. Your brake controller must be set up according to the brake control manufacturer's specifications to ensure proper synchronization between the tow vehicle and the RV. Additionally, you may have to occassionally make minor adjustments to accommodate changing loads and driving conditions.

HITCH SELECTION

The hitch must be rated over the GVWR and the hitch weight of the RV. Weight specifications can be found at www.keystonerv.com. Keystone RV does not supply the tow vehicle hitch, weight distribution bars or the sway control; however, your RV dealer will be able to help with proper hitch selection for your tow vehicle.

SAFETY CHAINS - TRAVEL TRAILERS

Safety chains are included with every travel trailer and, in most states, are required when towing a travel trailer. Hook them to the safety chain loops provided on the tow vehicle's hitch, crossing them under the trailer tongue. Inspect the length of the chains once attached to the tow vehicle frame. They should be long enough to allow for turns, but short enough to avoid any drag.

⚠WARNING

ALWAYS USE SAFETY CHAINS WHEN TOWING. THEY MAINTAIN THE CONNECTION BETWEEN THE TRAVEL TRAILER AND TOW VEHICLE IN THE EVENT OF THE TRAILER BECOMING DETACHED DURING TRAVEL.

BREAKAWAY SWITCH

The breakaway switch is for emergency use only as it provides a means of automatically slowing and stopping your RV should it become detached from the tow vehicle during transit. The cable from the breakaway switch should be attached to the tow vehicle and if a separation occurs, the pin is pulled out of the switch which activates the brakes of the RV to slow and eventually stop the RV. The breakaway switch is only powered by a fully charged 12 volt RV battery on the RV. Please consult your RV dealer to purchase the proper battery. Your RV may be equipped with a breakaway switch with a built in sound and warning light system. Please refer to the manufacture's instructions supplied with the RV for care and operation and/or www.escousa.net.

HOW TO TEST THE BREAKAWAY SWITCH

1 | Disconnect the 7-way cord from the RV to the tow vehicle. Failure to do so may cause an error message or damage to the brake controller.

2 | Pull the lanyard pin out.

3 | Brakes should audibly engage.

4 | Double check by moving the tow vehicle forward slightly to be sure the RV brakes have engaged and are operating correctly.

5 | Reinsert the lanyard pin as soon as possible to deactivate the breakaway switch.

⚠WARNING

NEVER USE THE BREAKAWAY SWITCH FOR PARKING, OR REMOVE THE PIN FROM THE SWITCH. THIS WILL APPLY THE RV BRAKES AND RUN DOWN THE TRAILER BATTERIES, AND POSSIBLY DAMAGE THE SWITCH CONTACTS AND BRAKE SHOE MAGNETS. WHEN DISCONNECTING THE RV FROM THE TOW VEHICLE, REMOVE THE LANYARD FROM THE TOW VEHICLE.

NOTICE

Disconnect the 7-way cord from the tow vehicle before testing the breakaway switch. Failure to do so may cause an error message or damage to the brake controller.

LIGHTS

Check all electrical connections to ensure all exterior lights on the tow vehicle and RV are functioning properly. The brake lights, hazards and turn signals should be in synchronization with the tow vehicle. See Chapter 8 “7-way Trailer Plug”.

MIRRORS

Adjust the mirrors on the tow vehicle before departure. First, line up the tow vehicle and RV. Then, sitting in the driver’s seat and adjust the left mirror until you can see the entire left side of the RV and beyond. Adjust the right mirror until the same result is achieved. If you have manual side mirrors, have someone in the passenger seat adjust the right mirror until you can see down the right side of the RV and beyond. Some vehicles may require the use of mirror extensions to properly see down the side of the RV. See your Keystone dealer for recommendations.

TOWING

Towing a RV can be enjoyable when special attention toward safety is applied every time you tow your RV. Before heading out on your first camping trip practice turning, stopping, and backing in low traffic areas or large parking lots.

Driving with a RV in tow is different. Start out slowly, checking the traffic after signaling and being sure the road is clear. Accelerate slowly and evenly, checking the mirrors frequently as you move into the proper lane. Try to drive with an anticipation for problems that may occur way ahead and prepare for them even if they may never happen.

As a motorist sharing the road, you are taller, heavier, longer, and require more time and distance to stop. Weather and road conditions will require adjustments to speed. Anticipate dips, gutters, and depressions in the road, slowing down well in advance. These are the hardest jolts of any kind on your vehicle, hitch, RV and items stored inside the RV. Take dips and bumps slowly and be certain the RV wheels have passed the obstacle before accelerating.

" Exceptional quality and easy towing."

Clifford | Ontairo

WEIGHT DISTRIBUTION BARS - TRAVEL TRAILER

Weight distribution bars transfer weight from the rear axle of the tow vehicle to the front axle and the trailer axles. Properly set up, they will control up and down oscillation at the hitch while towing. Weight distribution bars do not control sway. Keystone recommends weight distribution bars for safe towing. Your dealer will be able to assist with proper selection for your specific tow vehicle and travel trailer setup.

CONTROLLING SWAY OR FISHTAILING

Sway or fishtailing is the sideways action of a trailer caused by external forces. It is common for travel trailers to sway in response to strong winds or crosswinds or when passed by or passing a semi-tractor and trailer or driving downhill.

Sway or fishtailing of your RV can be controlled and is primarily impacted by four factors:

1 | Equipment.

2 | Tongue weight.

3 | Driving.

4 | Corrective measures.

⚠WARNING

EXCESSIVE SWAY OR FISHTAILING OF YOUR RV COULD LEAD TO THE ROLLOVER OF THE TRAILER AND TOW VEHICLE. SERIOUS INJURY OR DEATH COULD OCCUR. IT IS IMPORTANT THAT YOU READ AND UNDERSTAND THE INFORMATION IN THIS SECTION.

SWAY CONTROLS - TRAVEL TRAILER

A sway control hitch is installed by dealers as part of the hitch set up and helps prevent sway (or fishtailing) while towing. Keystone recommends a sway control device that will prevent sway (or fishtailing) for safe towing. If you experience sway while towing, contact your dealer immediately for corrective action. Some less expensive brands of sway control are not adequate to control sway in larger travel trailers. The sway control must be properly set up for it to be effective. Your dealer will be able to assist with proper selection for your specific tow vehicle and travel trailer setup.

EQUIPMENT – When hitched together, the RV and the tow vehicle must be level. The tires of both the RV and tow vehicle should be in good condition and inflated to the pressure recommended as noted on the tire labels of the RV and tow vehicle. See “Hitch Selection”, “Weight Distribution Bars”, and “Sway Controls” in this chapter for more information on equipment to control sway.

TONGUE WEIGHT - See “Weight Distribution” in this chapter for information on maintaining proper tongue weight.

DRIVING – This is the most important component. The tendency for the vehicle to sway increases with speed; therefore, obey all speed limits and reduce speed during inclement weather or windy conditions.

CORRECTIVE MEASURES- If sway occurs, the following techniques should be used:

1 | Slow down immediately; remove your foot from the accelerator. Avoid using the tow vehicle brakes unless there is a danger of collision. Reduce speed gradually whenever possible. If you can do so safely, use the brake hand controller (independent of the tow vehicle brakes) to gently and progressively apply the trailer brakes. This will help to keep the vehicles aligned. Location of the brake hand controller is important and should be made easily accessible. Practice using the brake hand controller in a deserted parking lot. Do not wait until an emergency occurs before using it.

2 | Steer as little as possible while maintaining control of the vehicle. Because of natural reaction lag time, quick steering movements to counter trailer sway will actually cause increased sway and loss of control. Keep both hands on the wheel. Hold the wheel as straight as possible until stability is regained.

3 | Do NOT jam on the brakes or attempt to press on the accelerator to speed your way out of fishtailing. Both actions make the situation worse and could cause severe injury or death.

4 | Once the swaying is under control, stop as soon as possible. Check tire pressures, cargo weight distribution and look for any signs of mechanical failure. Travel at reduced speeds that permit full control until the problem can be identified and corrected.

BACKING

Back with care. Having a person outside to assist is a good idea. If no one is available to help, the driver should inspect the area behind the vehicle to avoid any unseen obstacles and unpleasant surprises. Many campsites offer "pull through" sites that require no backing. When you do not have this option and backing will be required, set yourself up to back into the site from the left. This allows you to see the entire “Drivers Side” while you are backing into your site.

BRAKING

Start braking sooner than you would if driving without a RV in tow. Stopping distances are increased while towing RVs. See “Brake Control” in this chapter.

PASSING AND ACCELERATING

Remember if you pass another vehicle, that it takes longer to accelerate and additional time must be allowed due to the added length of the RV. Passing should be done on level terrain and downshift, if necessary for added acceleration. Whenever deciding to pass another vehicle, exercise caution and always use your turn signals.

SHARPLY WINDING AND NARROW ROADS

Keep well to the center of the lane, equally away from both the center line and pavement edge. This allows the RV to clear the edge of the pavement without the likelihood of the wheels dropping onto the shoulder, causing potential dangerous sway. Do not crowd or cross the center line.

" Super easy towing and setup."

Robert | South Carolina

STEEP OR LONG GRADES

Down shifting into a lower gear or range in advance assists braking on descents and adds power on the climb. Avoid situations that require excessive and prolonged use of the brakes. Apply and release brakes at short intervals to give them a chance to cool.

SLIPPERY PAVEMENT

On slippery and icy pavement, reduce speed and drive slowly. Hydroplaning can occur with little water on the pavement. If skidding begins, remove your foot from the throttle and gently apply the RV brakes only.

DRIVING IN WINDY CONDITIONS

Wind can create hazardous conditions when towing a RV. Wind can cause your RV to oscillate or suddenly pull to one side. Thirty mile per hour crosswinds can blow you off the road if there is a sudden gust. For example, say a hard gust of wind hits your RV from the left. Your RV pitches to the right and moves towards the right. In order to stay on the road, you steer to the left. With the RV leaning to the right, the centrifugal force generated by steering left can be the added ingredient that puts you on your side, or worse yet, down the side of a ravine. The only way to lower the risk of traveling in these conditions is to slow down. The safest way is not to drive in extremely windy conditions. Park until it is safe to continue.

FREEWAYS AND HIGHWAYS

Try to pick the lane you want and stay in it, preferably keeping to the slower lane on the right.

TURNING CORNERS

Here is where you find the first basic difference when you're towing. The RV wheels do not follow the path of your tow vehicle's wheels. The RV will make a closer turn than the tow vehicle. Compensate by pulling further into the intersection so that the RV will clear the curb or clear any parked vehicles along the road. Left turns require a wider than normal swing into the new lane of traffic to keep the RV from edging into the opposing lane. Use the turn signals early to communicate to traffic behind and slow down well in advance.

MUD AND SAND

Let the momentum of the tow vehicle and RV carry you through. Apply power gently and stay in the tracks of the previous vehicle. If stuck, tow out the RV and tow vehicle together without unhitching.

TOWING BEHIND YOUR RV

⚠WARNING

THE HITCH RECEIVER INSTALLED ON YOUR RV IS A WEIGHT CARRYING HITCH ONLY. DO NOT USE WEIGHT DISTRIBUTION BARS OR EQUIPMENT WHEN TOWING. USING WEIGHT DISTRIBUTION BARS OR EQUIPMENT WITH THE HITCH RECEIVER COULD RESULT IN DAMAGE TO THE RV OR ADD ON ITEMS THAT ARE NOT COVERED BY KEYSTONE'S LIMITED WARRANTIES AND COULD LEAD TO ADVERSE TRAILER COMBINATION TOWING AND HANDLING, LOSS OF CONTROL OR AN ACCIDENT RESULTING IN DEATH OR SERIOUS INJURY.

NOTE

If you do not have a Keystone factory installed hitch receiver, do not tow anything behind your RV. The RV frame and bumper are not designed for towing.

NOTE

A hitch equipped for trailer towing will have tabs to hang the safety chains and there will be a bracket for the trailer wiring plug. There should also be a label on the hitch stating maximum towing capacity.

NOTE

The additional weight of trailer towed or cargo & carrier must be included in the total amount of cargo added to the vehicle and remain within the limits of the GVWR so as to not overload the vehicle.

ADDITIONAL TOWING - MULTIPLE TRAILER COMBINATIONS (IF SO EQUIPPED)

If your RV (applies to limited fifth wheel models only) is equipped with a factory installed hitch receiver, you have the ability to tow an additional trailer behind your RV.

The hitch receiver may be used as a weight carrying hitch to tow a trailer. Do not use a bar longer than 10 inches (254 mm). The maximum length of the draw bar is from the center of the fastening pin to the center of the ball. The maximum trailer tow rating of the fifth wheel hitch is 3,000 Lbs. (1361 kg.) with a maximum tongue weight of 300 Lbs. (136 kg.).

The receiver may also be used for attaching a cargo basket/carrier for other items. Ensure the cargo carrier is properly attached to the hitch receiver and all cargo is properly secured in place. The cargo weight carrying capacity includes the weight of the cargo carrier. The maximum total weight when used to carry cargo is 300 Lbs. (136 kg.).

Be sure the trailer being towed by your RV is properly equipped with brakes. Contact your tow vehicle dealer or manufacturer for assistance in determining whether a separate braking system is recommended and what limits there are for towing multiple trailer combinations. Check the state or province where your tow vehicle and RV are registered as well as any state or province where travel is planned in the U.S. and/or Canada for brake requirements, overall length restrictions, or other regulations.

These labels have been placed on the hitch receiver and on the rear bumper of your RV. Be sure to read, understand, and follow the information on them.

⚠WARNING

Do not exceed the ratings (GCWR) of either the tow vehicle or trailer manufacturer. Exceeding the rating(s) of the manufacturer(s) may result in adverse trailer combination towing and handling that could lead to loss of control or an accident resulting in death or serious injury.

Do not cut, drill, weld or modify the hitch receiver and/or its associated equipment, structure or brackets. Cutting, drilling, welding or any modification to the hitch receiver and equipment and will void warranty and may cause damage that could lead to adverse trailer combination towing and handling, loss of control or an accident resulting in death or serious injury.

⚠AVERTISSEMENT

Ne pas dépasser le poids technique maximal combiné (PNBC) recommandé par le fabricant du véhicule de remorquage ou de la remorque. Le dépassement du PNBC recommandé par ces fabricants peut présenter un risque lors du remorquage ou de la manipulation et ainsi provoquer une perte de contrôle ou un accident causant des blessures sévères, voire la mort.

En aucun cas il ne faut couper, percer, souder ni modifier le récepteur d'attelage et/ou l'équipement associé, structure ou supports. Le découpage, le perçage, le soudage ou la modification du récepteur d'attelage et de son équipement aura pour effet d'annuler la garantie et peut présenter un risque lors du remorquage ou de la manupulation et ainsi provoquer une perte de contrôle ou un accident causant des blessures sévères, voire la mort.

12228

HITCH TYPE TYPE D'ATTELAGE	MAXIMUM GROSS TRAILER WEIGHT LBS/ (KG) POIDS BRUT MAX. DE LA REMORQUE LB (KG)	MAXIMUM TONGUE WEIGHT LBS/ (KG) DE POIDS MAXIMUM DE LANGUE LBS / (KG)	
WEIGHT CARRYING BOAT/WATERCRAFT ONLY SANS RÉPARTITION DE CHARGE BATEAU/EMBARCATION SEULEMENT	3,000 (1361)	300 (136)	
ACCESSORY / ACCESSORE	N/A	300 (136)	

NOTICE

Check the regulations in the state or province where your tow vehicle and RV trailer are registered as well as regulations in any state or province where travel is planned in the U.S. and/or Canada before towing multiple trailer combinations.

AVIS

Vérifiez les réglements en vigueur dans l'État ou la province où votre véhicule de remorquage et votre véhicule tracté (caravane, remorque) sont enregistrés, de même que les règlements des États ou provinces où vous prévoyez voyager aux États-Unis et/ou au Canada avant de remorquer plusieurs véhicules tractés (p.ex. caravane + remorque pour bateau, etc.).

⚠WARNING

Your tow vehicle and RV trailer are rated for braking operation at GVWR NOT GCWR. The braking capacity of your tow vehicle/RV trailer combination is NOT necessarily as great as the towing capacity. Separate braking systems must be used for control of multiple towed trailer combinations.

Check the state or province where your tow vehicle and RV trailer are registered as well as any state or province where travel is planned in the U.S. and/or Canada and follow all brake requirements and regulations before towing multiple trailer combinations.

Consult your tow vehicle dealer or manufacturer for assistance in determining whether a separate braking system is recommended and what limitations there are for towing multiple trailer combinations.

Towing multiple trailer combinations without proper brakes on each applicable trailer may result in adverse trailer combination towing and handling that could lead to loss of control or an accident resulting in death or serious injury.

⚠AVERTISSEMENT

Votre véhicule de remorquage et votre véhicule tracté (caravane, remorque) sont homologués en fonction d'un freinage basé sur le poids nominal brut du véhicule (PNBV) et non sur le poids nominal brut combiné (PNBC). La capacité de freinage de votre combinaison « véchicule de remorquage-véhicule(s) tracté(s) » n'est PAS nécessairement aussi élevée que la capacité de remorquage. Des systèmes de freinage séparés doivent être utilisés pour contrôler des combinaisons de remorquage.

Vérifiez l'État ou la province où votre véhicule de remorquage et votre véhicule tracté sont enregistrés de même que les règlements de États ou provinces où vous prévoyez voyager aux États-Unis et/ou au Canada et observez tous les règlements relatifs au freinage avant de remorquer une combinaison de véhicules tractés (p.ex. caravane + remorque, etc.).

Consultez le concessionnaire ou le fabricant du véhicule de remorquage afin de savoir si un système de freinage séparé est recommandé et si des limites doivent être respectées dans le cas d'un remorquage d'une combinaison de véhicules tractés.

Le remorquage d'une combinaison de véhicules tractés sans systène de freinage approprié peut présenter un risque lors du remorquage ou de la manipulation et ainsi provoquer une perte de contrôle ou un accident causant des blessures sévères, voire la mort.

12229

SECOND TRAILER HITCHING PROCEDURE

The following procedure will help to assist you in securely hooking up the second trailer to your RV.

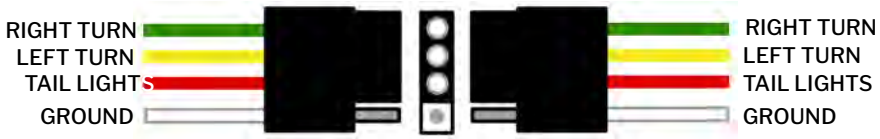
1 | Make sure the (second) trailer wheels are blocked.
2 | Turn the tongue jack crank to raise the trailer tongue above the hitch ball.
3 | Open the coupler latch on the trailer hitch.
4 | Back the tow vehicle/fifth wheel combination into the proper position.
5 | Turn the (second) trailer tongue jack crank to lower the coupler onto the hitch ball.
6 | Close the coupler latch after it is completely seated. Secure with a padlock or pin.
7 | Remove the dolly wheel or platform (if so equipped) and retract the tongue jack to its maximum height.
8 | Attach the breakaway cable to the hitch receiver on the RV fifth wheel.
9 | Attach the safety chains. See "Safety Chains" for additional information.
10 | Plug in the wire harness/connector.
11 | Walk around the RV and the second trailer making sure all exterior lights are working correctly.
12 | Remove the trailer wheel blocks.

WIRE HARNESS/CONNECTOR PLUG

If equipped, a 4-way wire harness/connector plug is wired into your RV to connect electrical power from the RV to the second trailer for travel. This supplies power to the tail lights, clearance lights, turn signals, brake lights, etc. The 4-way wire harness/connector is not wired for operating electric brakes.

The connector plug may corrode with extended use and should be cleaned periodically to insure good electrical contact. Make sure the connector plug is kept clean and protected from road elements as you travel.

BRAKE LIGHTS ARE COMBINED WITH TURN INDICATORS



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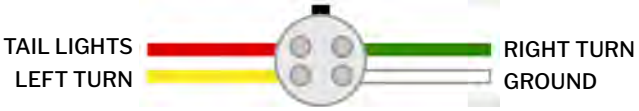


KNOW YOUR RV BEFORE HEADING OUT

Throughout the manufacturing process, your RV has been inspected by qualified inspectors and then again at the dealership. As the owner, however, you will be the first to camp and extensively use every system. Keystone RV wants the first camping experience to be a happy one and recommends a “trial camping experience” before heading out. Plan a weekend in the yard or driveway and really camp in your RV.

By camping for several days, full-time in your RV, you will have the opportunity to use and become accustomed to the systems within your RV and find out what items are needed or not needed while camping. Note any questions that arise, difficulties encountered, or problems that occur. After your trial, call your dealer and ask any questions that have arisen. Getting to know your RV before the first adventure can save frustration and leave more time for fun!

HOOK UP TO THE TOW VEHICLE

FIFTH WHEEL

1 | Place wheel chocks behind the tires and raise stabilizer/leveling jacks.
2 | Adjust the landing gear jacks until RV is at level for hooking to the tow vehicle.
3 | Lower the tailgate on truck.
4 | Release the fifth wheel lock handle on the tow vehicle.
5 | Back up slowly to line up the tow vehicle so the fifth wheel is within 12” to 15” of accepting kingpin.
6 | Close and latch tailgate.
7 | Back truck slowly until kingpin engages the fifth wheel and automatically locks.
8 | Engage the hitch lock and secure with a padlock or pin.
9 | Connect the 7-way cord from the RV to the tow vehicle.
10 | Connect the breakaway switch cable to the tow vehicle. Make sure the breakaway switch pin has not been pulled out of the housing. If the pin has been pulled out, reinstall by fully inserting the pin back into the breakaway housing.
11 | Check all lights on trailer and tow vehicle (running, turn signals, brake, back-up) for proper operation.
12 | Completely raise the landing gear and stabilizer jacks and store the wheel chocks.
13 | Pull forward and check the operation of the trailer brakes with the hand control to assure proper operation. Refer to the manufacturer's specifications on setting the brake control.

TRAVEL TRAILER

1 | Place wheel chocks behind the tires and raise stabilizer/leveling jacks.
2 | Crank the tongue of the trailer jack up until the hitch coupler is high enough to clear the tow vehicle hitch ball.
3 | Back the tow vehicle to the trailer until the hitch ball is directly under the coupler.
4 | Set the parking brakes, raise the locking latch on the coupler and lower it down on the ball with the tongue jack.
5 | Engage the locking latch to lock it on the ball. Secure with a padlock or pin.
6 | Connect the safety chains and the 7-way cord from the RV to the tow vehicle.
7 | Connect the breakaway switch cable to the tow vehicle. Make sure the breakaway switch pin has not been pulled out of the housing. If the pin has been pulled out, reinstall by fully inserting back into the breakaway housing.
8 | Install the weight distribution bars and sway control. Refer to the hitch manufacturer's directions for proper hook up and adjustment.
9 | Crank the tongue jack all the way up and store wheel chocks.
10 | Check all lights on the trailer and tow vehicle (running, turn signals, brakes, back-up) for proper operation.
11 | Pull forward and check the operation of the trailer brakes with the hand control to assure proper operation. Refer to the manufacturer's specifications on setting the brake control.

PRE-TRAVEL CHECKLIST

Now that the unit is properly hooked to your tow vehicle, please use the following Pre-Travel checklists to verify the rest of the unit is safe for travel.

INTERIOR:

- Close all vents and windows.
- Place the television antenna in the “down” position.
- Inspect the interior of the RV ensuring that all cabinet, interior, and the shower doors are closed and secured.
- Ensure that the refrigerator door is closed and latched.
- Verify that all safety devices such as smoke, carbon monoxide and LP detectors are in working condition..
- Verify that the fire extinguisher is in good working condition.
- Secure all loose items in storage compartments.
- Remove all debris and/or snow fromt he roof and slideout roof(s).
- Retract the slideouts and awnings.

EXTERIOR:

- Remove all debris and/or snow from the roof and slideout roof(s).
- Close the valves on the LP bottles.
- Empty the gray/black holding tanks.
- Inspect the awning(s) and ensure that they are properly retracted and secured for travel.
- Inspect all exterior baggage doors and hatches ensuring they are locked.
- Inspect the tires and check the Pressures. Refer to Chapter 4.
- Check the wheel nut torque. Refer to Chapter 4.
- Ensure the steps are retracted.
- Position the battery disconnect to the OFF position.
- Disconnect all park connections and securely store.
- Engage the deadbolt on the entrance door for transport.

06 CAMPER SET-UP AT DESTINATION

SITE REQUIREMENTS AND SELECTION

ELECTRICAL

Do you need 30 or 50 amp service? What will you be running in the camper will help decide this. If you will be running one roof A/C, refrigerator and converter most of the time and the microwave periodically, we would recommend at least 30 amp service. You may not be able to run the microwave and roof A/C at the same time, but it is easy to adjust the thermostat of the roof A/C so it is off while the microwave is running. Two roof A/Cs will need 50 amp service. Please refer to Chapter 8 for an amperage consumption chart which will help decide your needs. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at www.keystonerv.com where we have supplied you with a variety of resources such as Videos, FAQ's, the DIY program and more.

ANTENNA/SATELLITE

If equipped, be sure your selected site will allow you to set-up to get these signals.

SEWER

Holding tank sizes can vary significantly by brand and floor plan. How large are your holding tanks? How long and how many people will be using the facilities? How much water is typically used? Answering these questions will help you decide if you should go for the added cost of a sewer hook up at your campsite. You might just consider a site closer to the campground facilities. If you do choose a site with a sewer hook up, DO NOT leave the valves open. Please refer to Chapter 10 Plumbing Systems for more detail.

WATER

In most instances, water and electric come in combination. Should you be without a water source for city water, you can fill your water tank and utilize the on board water pump. Once again, holding tank sizes can vary significantly by brand and floor plan so know how many gallons your fresh water tank is and monitor how many people are using the facilities and how often so you do not leave yourself dry.

CAMPSITE

Many campsites offer "pull through" sites that require no backing. When you do not have this option and backing will be required, set yourself up to back into the site from the left. This allows you to see the entire “Drivers Side” while you are backing into your site. Backing in from the right can be done, you are just not able to see as well. Before beginning, safely park and survey the campsite for fire pits, stumps, posts, trees, low tree branches, etc. and decide where you want the camper to end up. Use a spotter to help guide you into position. If you are alone, ask a neighbor for some help, you might meet a new friend.

NOTE

While entering and exiting your campsite, be careful not to cut your turn short and clip something. Once again, we recommend a spotter to assist.

CAMPER SET UP

Once you have arrived and parked in your campsite, before removing the camper from your tow vehicle, your camper needs to be leveled to assure the proper operation of certain features (refrigerator, slide-outs, etc.)

LEVELING PROCEDURES

1 | Choose a site that is as level as possible (some sites are equipped with a prepared surface such as concrete or asphalt). Ensure the ground is not soft and will support the weight of jacks and/or other support devices.

2 | Before uncoupling, level the RV from side to side with suitable lengths of 2" x 6" wood blocks under the tires. Place the wood blocks on the ground forward of the wheels and tow the RV onto the blocks. Use wheel chocks to be sure the RV cannot roll.

3 | Use a small level on the refrigerator, a counter top, or the floor of the RV to make sure it is level.

4 | Lower the A-frame jack (Travel Trailers) or landing jacks (Fifth Wheel) onto wood blocks (or other).

5 | Once the RV is level, put wheel chocks or blocks in place so the RV cannot move, uncouple the RV from the tow vehicle.

6 | If equipped, lower the stabilizing jacks onto blocks until they firmly engage. Be sure all 4 jacks have about the same pressure on them as to not put the RV in a twist. Doing so can cause slide-outs, doors, etc. to bind and/or operate intermittently. DO NOT attempt to lift the RV with the stabilizer jacks. These are not designed to bear weight, only help stabilize the RV from movement.

7 | Before resuming travel, be sure the stabilizer jacks are fully retracted.

NOTICE

DO NOT overextend or retract the A-frame or landing jacks as that could cause damage which would not be warrantable.

STABILIZING JACKS

Dependent upon the type (travel trailer/fifth wheel), product and model purchased, the stabilizer jacks included will vary. Although stabilizer jacks come in different types and sizes, all perform the same function: To stabilize the front and rear of all RVs while parked for camping. DO NOT attempt to lift the RV with the stabilizer jacks. These are not designed to bear weight, only help stabilize the RV from movement. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com, www.davecarter.com, www.domarproducts.com, www.norcoind.com.

HOOK-UPS

1 | Once the RV is safely leveled and stabilized, continue with set-up.

2 | Connect the shoreline cord to an external 120 volt 30-50 amp (depending on model) rated AC service.

3 | Open the step.

4 | Inside, set the thermostat to the desired temperature (air conditioning/ furnace), open a roof vent and turn on the fan (if applicable) to create air exchange, turn on the refrigerator, then complete the remainder of the set up.

5 | Turn on the LP.

6 | Connect the water hose.

7 | Connect the sewer hose, park cable (if applicable).

8 | Open slide-outs.

9 | Set up the remaining features as needed.

07 APPLIANCES AND EQUIPMENT

NOTE

In this section of the manual, we rely on the component manufacturer's manuals supplied with the RV for detailed operating instructions. Keystone can only provide a summary operational description and recommend you review each of the component manuals before use of the component.

AIR CONDITIONER (OPTIONAL)

Those RVs equipped with roof mounted or sidewall/ window air conditioners, operate on 120 volt A/C and 12 volt D/C power. There are different sizes and variations available depending on the RV. An air conditioner takes a sizable amount of power to run. It may be necessary to reduce other loads when using air conditioning to reduce the chance of overload and possibly tripping the main breaker. (For thermostat operation on the air conditioner, see "Thermostat" in this chapter). In climates that experience high temperatures, a second air conditioner may be necessary to maintain a comfortable indoor temperature on larger RVs. A second air conditioner requires 50 amp service. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com, https://geappliancesrecreationalliving.com/, www.airxcel.com, www.furrion.com.

FURNACE

DANGER WARNING

(SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

The furnace is a propane gas appliance that requires 12 volt power to electronically light. New furnaces sometimes emit smoke and an odor during the first 5-10 minutes of initial use due to paint burning off the heating chamber. Do not mistake this for a malfunctioning furnace. Follow the suggestions in Chapter 3 regarding maintaining Indoor Air Quality if this occurs. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com or www.airxcel.com.

PROPANE APPLIANCE MAINTENANCE

Follow the instructions and warnings noted in the appliance and equipment owner's manual as well as the ones listed below:

- Annual maintenance should be conducted on the propane appliances and equipment by an authorized dealer or repair facility.
- Insects can build nests in the burners of the various appliances and equipment. The burner and burner orifice of the propane appliances and equipment should be cleaned out by an authorized dealer or repair facility anytime circumstances or conditions warrant, but no less frequently than on an annual basis.

NOTE

Some appliances and features of the RV do not come with instructions or warning labels. For example, a dinette table that folds down into a bed may not have a written manual. If you need assistance with an appliance or feature please contact your selling dealer or call Owner Relations at 866.425.4369.

SAFETY

Always follow the manufacturer's instructions on the use of all appliances and observe all safety warnings and instructions included.
Before camping, all campers should review and understand the locations of all safety equipment inside the RV and all emergency exit windows and doors.
An escape plan for emergencies, whether at home or camping, is always a good idea.

NOTE

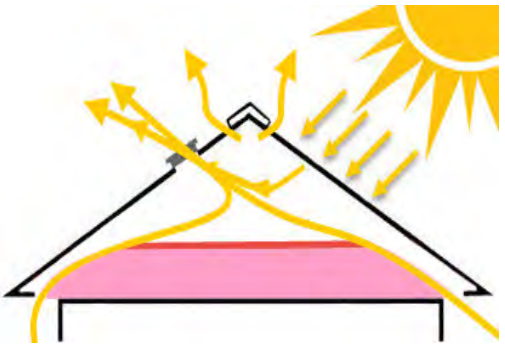
Operating Appliances at High Altitude:
All gas appliances experience lowered efficiency (or rating) at high altitude. This is a direct result of lower atmospheric pressure and oxygen levels, and is not a defect of appliance. See component manual for each appliance.

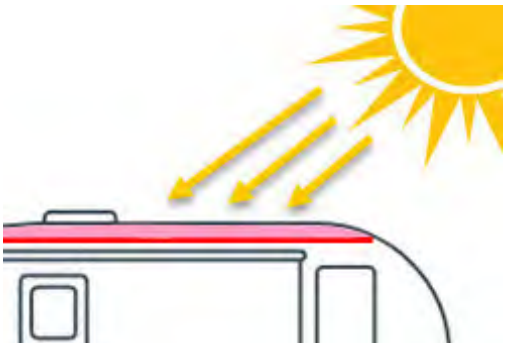
RV HEATING VENTILATION AND AIR CONDITIONING SYSTEMS (HVAC)

It is important to understand there are significant differences in the capabilities of an RV's HVAC system and HVAC of a home.

It starts with a significant construction difference between an RV and a home:

- Insulation (R-Value) is much less in an RV: Insulation in an RV's walls, floors, roof's typically range from 1" to 2.5". Insulation in home walls can be 4"-6" thick and roofs may have a couple feet of blown in insulation with a huge air gap to dissipate heat/cold. Homes may have 3 or more times the insulation R-Value than an RV.
    - Heat Loss and Gain: With less insulation and slide-out openings only covered by a rubber flap, heat loss and gain in an RV is substantially greater than that of a home.
- Condensation: Homes can be thousands of square feet when an RV may be a couple hundred square feet. Water vapor can saturate the inside of an RV quickly if all the doors, windows, vents are shut tight. When the cold outside air mixes with the warm inside air, moisture (condensation) will become visible on surfaces that may not be as well insulated or get direct furnace heat (windows, wall studs, inside cabinets). This moisture must be carried outside by ventilation to avoid causing damage. For more information, see Chapter 3-Indoor Air Quality and Avoiding Condensation.





HEATING SYSTEM DIFFERENCES

- Homes typically have a return air in each room which pulls air from each room back to the furnace to be heated.
- The return air on an RV furnace only pulls air from the area surrounding the furnace. Therefore, while running an RV furnace, it is necessary to keep passage doors to bedrooms, bathrooms, etc open in order to better equalize the temperature throughout the unit.
- There are temperature variations in homes, but an RV's floor plan can worsen the situation if the furnace has to be located in the front or rear of the unit. The opposite end of the unit will have less air flow, more heat loss (longer travel in the ducts) and will always be cooler.

AIR CONDITIONING (A/C) SYSTEM DIFFERENCES

- Homes typically have a return air in each room which pulls air from each room back to the Air Conditioner to be cooled.
- RV Air Conditioners are a closed system so no fresh (outside) air is used as part of the process to remove heat thus cooling the unit. Inside air is pulled into the A/C, the heat is removed from that air and deposited outside the Roof A/C. The cooler air is then directed into the ducting or direct dump to cool the inside of the unit. While running the A/C, it is necessary to keep passage doors to bedrooms, bathrooms, etc open in order to better equalize the temperature throughout the unit.
- The maximum capability of any RV A/C is to cool the air that enters the intake by 20 degrees Fahrenheit. So, if the air inside the RV is 110 degrees, the best case scenario is the cooled air entering the ducting system or direct dumped would be 90 degrees Fahrenheit. Over time, as the inside air of the RV goes through the intake over and over, the temperature will slowly lower and equalize throughout the RV.

- Heat Gain can be affected by-Direct sunlight on the outside of the unit or coming in through the windows, opening the entry door to enter/exit the RV, appliances that introduce heat inside the unit (blow dryer, stove, oven, etc) all substantially reduce the effectiveness of an RV A/C system and should be avoided whenever possible.
- Hints to lessen Heat Gain are, Park in the shade, block direct sunlight from entering the unit through windows by lowering shades/blinds, cover skylights, etc. will improve cooling efficiency.
- Operating the A/C on High Fan/Cooling mode will provide the maximum efficiency in high humidity or high temperatures.
- Use awnings to block direct sunlight exposure on the RV.
- Give the A/C a “head start” by turning the air conditioner on early in the morning.

⚠CAUTION

SOME RVS ARE EQUIPPED WITH ADDITIONAL FEATURES TO ENHANCE YOUR ABILITY TO CAMP IN COLDER OR WARMER WEATHER. BUT IT IS IMPORTANT TO UNDERSTAND THERE MAY STILL BE LIMITATIONS, ESPECIALLY IN EXTREME ENVIRONMENTS. DEPENDING ON YOUR SPECIFIC WANTS, NEEDS, DURATION AND HOW EXTREME YOUR INTENTIONS ARE, IT MAY BE NECESSARY TO TAKE ADDITIONAL STEPS OR ENHANCEMENTS TO SUIT YOUR PARTICULAR NEEDS. CONSULT YOUR LOCAL KEYSTONE DEALER FOR MORE INFORMATION REGARDING AFTERMARKET EQUIPMENT.

Here are a few websites that focus on how to be successful with cold weather camping:

https://koa.com/blog/winter-rv-camping-guide-tips-for-cold-weather-rving/

https://www.harvesthosts.com/blog/the-ultimate-guide-to-rving-in-the-winter

https://www.outdoorsy.com/blog/winter-rv-camping-guide

https://trekkn.co/winter-rv-living/

Some Brands have been tested to function between 0-110 degrees Fahrenheit*

***Because all testing is done in an environmental chamber and static test environment, please use caution and common sense if your intent is to use the unit in extreme conditions like those near the upper or lower tolerances of our environmental chamber testing. Actual extreme weather camping may be affected by many variables, including but not limited to the floorplan, placement of the unit, altitude, temperature, wind (speed, direction, protection from), humidity, dew point, barometric pressure, direct sunlight, air ventilation, air circulation, heat gain and heat loss.**

NOTE

Never run the A/C without the filter. This could plug the RV evaporator and substantially impact performance.

DUAL-ZONE THERMOSTAT

If equipped, the main A/C and furnace are typically programmed to regulate the temperature in Zone 1 and the 2nd roof air conditioner to Zone 2 which can be regulated at a different temperature. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com or www.airxcel.com.

iN-COMMAND AND FIREFLY CLIMATE CONTROL/HVAC

If equipped, all heating, ventilation, and air conditioning is controlled from the iN-Command Display Commander, Firefly Monitor Panel Touch Screen or Smart Device APP. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://in-command.net or www.fireflyint.com

THERMOSTAT - WALL-MOUNTED

If equipped, a wall mounted thermostat can be for furnace only or a combination air conditioner/ furnace thermostat. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

TELEVISIONS

If equipped, please refer to the manufacturer's instructions included in the RV for care and operation. The typical operation temperature range for a LCD TV is 41° F (5° C) to 104 ° F (40 ° C).

CABLE HOOK-UP

If equipped, locate the exterior hookup on the side of the RV. Attach the cable source to the cable jack on the RV. The TV Antenna booster must be off for the cable signal to reach the TV location.

SATELLITE

If equipped, please refer to the manufacturer's instructions supplied with the RV for Care and Operation. When selecting your campsite, make sure you have a clear line of site (no obstruction from trees, etc.) to the southwest so you can obtain the satellite signal.

4G LTE

If equipped, 4G LTE Antenna, provides in-motion nationwide 4G LTE connection when WiFi is not available. This feature requires a data service plan which is not attributable or warranted by Keystone RV. See antenna manufacturer's instructions for applicable service plans and options.

4G LTE/WIFI ANTENNA PREP

If equipped, 12 volt power is provided to supply power to an aftermarket modem (not provided). This feature requires additional aftermarket equipment (router/modem/antenna upgrade/ data plan) to function. Please visit www.winegard.com, www.furrion.com for more information concerning aftermarket equipment.

ANTENNA BOOSTER

DANGER (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE)

If equipped the booster will be typically located near one of the TV locations and has switch to turn it on and off. The booster is designed to amplify the TV (Air) signal. The antenna is designed to capture the best signal available by moving it to the optimal position. If your RV is equipped with “Cable”, the booster must be off for the “Cable” signal to reach your desired TV locations. Before raising the TV Antenna, be sure the area is clear of any electrical wires or other obstructions. Also, be sure to properly stow the antenna before moving the RV.

NOTE

Every time you move your RV to another location, using the Televisions menu you must run a new “Channel Scan” to receive channels.

Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.winegard.com.

KEYTV

If equipped, KeyTV identifies over-the-air cable and satellite signals. KeyTV then sends each signal to the TV outlets located throughout the RV. There’s no need for a “booster button” as KeyTV senses the signal source and automatically boosts the over-the-air signal. When you hook up to Park/Home Cable; KeyTV senses the signal source and automatically boosts the over-the-air signal. Additionally, when you hook up to Park/Home Cable; KeyTV also automatically senses the Cable signal and turns off the Antenna signal so that you may watch Cable. Unlike other systems, each TV location is Satellite TV compatible. KeyTV is compatible with DISH, DIRECTV, Shaw, and Bell satellite systems. Please refer to the Quick Start Guide supplied with the RV for care and operation.

NOTE

Every time you move your RV to another location you must run a new “Scan” using the Televisions menu to receive channels.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video’s, FAQ’s, the DIY program and more.

AWNING (MANUAL OR ELECTRIC) AND SLIDE-OUT AWNINGS

⚠WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE)

Keystone RV Company uses a variety of styles and sizes of awnings. The awning may or may not have a tilt feature. During any rain it is recommended to retract the awning. Before retracting, check to make sure the awning is free of any debris (leaves, twigs, etc), which can damage the awning and/or slide-out components. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com, www.carefreeofcolorado.com, www.lci1.com.

NOTE

It is best to close the awning when unattended. Damage to the awning due to wind, rain or any weather condition, even if the awning was tilted, is not covered under warranty by Keystone or the awning manufacturer.

FIREFLY

⚠WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE)

If equipped, the Firefly system allows control of the RV via capacative "Vegatouch Touchscreen" and "12V Control/ Switch Panel". You can sync with a mobile application (App) to a "Smart device" ("Android" or "Apple" phone or tablet) to monitor and operate many features from the smart device or Touchscreen. Please refer to the manufactures instructions supplied with the RV for care and operation and/or www.fireflyint.com.

IN-COMMAND

⚠WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE)

The iN-Command™ system is a next generation control for your RV. Using a “Display Commander” (DC-LCD screen) and “Body Control Module” (BCM-Brain), you can sync with a mobile application (App) to a “Smart device” (“Android” or “Apple” phone or tablet) to monitor and operate many features from the smart device or DC. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.asaelectronics.com.

LADDERS

Exterior Ladder (If equipped)

Your RV may be equipped with an exterior roof ladder. Units with factory installed ladders have walkable roofs. Some units have walkable roofs but no ladder and others do not have a ladder or walkable roof. The ladder capacity is 250lb maximum.

Lippert On The Go Ladder (If Equipped)

“On the Go - **Receiver Only**” If equipped the receiver is mounted to an exterior wall of the RV near the top. To utilize the Receiver the “On the Go Ladder” can be purchased aftermarket.

Receiver Only

“On the Go - **Ladder Kit**” includes Receiver and Ladder if equipped, the Receiver is installed on an exterior wall and the ladder is supplied inside the RV.

Please visit Lippert’s website for details and specifications about the ladder and/or aftermarket purchase. www.lci1.com.

For more information about your specific year, make and model, please visit roof specifications under Standards & Options/Exterior on www.keystonerv.com or contact Owner Relations at 866-425-4369 or ownerrelations@keystonerv.com

⚠CAUTION

- Exceeding the maximum capacity could lead to ladder collapse and possible personal injury.
- Always face ladder and use both hands to climb slowly.
- Failure to comply can result in a fall hazard and result in personal injury.

⚠WARNING

- If your recreation vehicle is equipped with a roof ladder, do not leave items attached to it while traveling. There should never be more than one person on the ladder at the same time.
- Self-Storing ladders: Make sure to pull all pins to unlock the ladder. All pins must be re-inserted when locking the ladder open for use.
- Do not use the ladder if damaged in any way.
- Failure to follow these guidelines could result in death or serious injury.

GENERATOR (OPTIONAL)

DANGER WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE)

IMPORTANT: MAKE SURE TO READ AND UNDERSTAND THE GENERATOR OWNER'S MANUAL BEFORE OPERATING THE GENERATOR.

If equipped, a generator can provide you flexibility when you are unable to plug your shoreline cord into a power source. When running, the generator supplies 120 volt power to the RV very similar to having your shoreline cord plugged in to the campground. In order to operate, it requires 12 volt power and a fuel source to burn (gasoline or propane depending on the application).

Observe all operating instructions and warnings as well as all recommended maintenance schedules and procedures. Onan supplied generators are not warranted by Keystone RV. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.cummins.com, https://rvmp.co/

NOTE

Most small generators are not internally grounded. Because of this, most small generators will NOT charge your RV battery's when running. In most cases, purchasing and installing a Neutral-Ground Bonding Plug for your generator will resolve this. Please consult with your generator dealer or manufacturer.

The onboard generator makes your RV fully self-contained. It allows you access to 120 volts when there is no shore power available, but keep in mind that carbon monoxide (CO) is deadly! Test the CO detector every time you use the RV. Before you start and use the generator, inspect the exhaust system. DO NOT use it if the exhaust system is damaged.

1 | DO NOT operate the generator while sleeping unless the vehicle is equipped with a working CO detector and you test the CO detector immediately before sleeping.
2 | Never store anything in generator compartment. Always keep compartment clean and dry.
3 | DO NOT operate the generator in an enclosed building or in a partly enclosed area such as a garage.
4 | Review the safety precautions for fuel and exhaust fumes in Chapter 12.
5 | DO NOT operate the generator when the RV is parked in high grass or brush. Heat from the exhaust could cause a fire in dry conditions.
6 | Never operate your tow vehicle, generator, or the engine of any vehicle, longer than necessary when the vehicle is parked.
7 | DO NOT simultaneously operate the generator and a ventilator which could result in the entry of exhaust gas. When exhaust ventilators are used, we recommend that a window on the opposite side of the RV "upwind" of exhaust gases be opened to provide cross ventilation.
8 | When parked, orient the vehicle so that the wind will carry the exhaust away from the vehicle. DO NOT open nearby windows, ventilators, or doors into the passenger compartment, particularly those which can be "down wind", even part of the time.
9 | DO NOT operate the generator when parked in close proximity to vegetation, snow, buildings, vehicles, or any other object that could deflect the exhaust under or into the vehicle.
10 | DO NOT touch the generator when running, or immediately after shutting off. Heat from the generator can cause burns. Allow the generator to cool before attempting maintenance or service.

Know what the symptoms of CO poisoning are. If you or anyone else experience any of these symptoms, get to fresh air immediately. Shut the generator down and do not operate it until it has been inspected and repaired by a professional. If the symptoms persist, seek medical attention. See "Carbon Monoxide Detector".

"Extremely pleased with everything!"

Randall | Alabama

OVEN OR COOK TOP (RANGE)

DANGER WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

If equipped, the oven and/or cook top can be used for general baking. It requires propane gas to operate. Some models require a pilot to be lit while others light electronically using 12 volt. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/ or https://www.contoureusa.com, or www.dometic.com.

RANGE HOOD

Range Hoods operate on 12 volt power and should be used to ventilate the RV while cooking. Operational switches for the fan and/or light are on the front panel of the range hood. They are designed to exhaust to the exterior or the interior of the RV. If your range hood exhausts to the exterior, unlock the exterior flap before turning the fan on and lock the flap before transporting the unit. Range hoods that circulate through a filter (requires periodic cleaning) to the interior will have a ceiling vent within 5 feet of the range hood. Open the ceiling vent and turn on the range vent while cooking. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or visit www.dexteraxle.com

OUTSIDE RANGE/COOK TOP

WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

If equipped, this feature typically is located behind a compartment door and slides out or folds down. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

REFRIGERATOR

DANGER WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

Depending on the type, refrigerators can operate on 120 volt, 12 volt or LP gas (requires 12 volt to light). Residential refrigerator uses a compressor to complete the cooling cycle. An RV refrigerator operates by absorption exchange of gas to liquid through heating so it takes an RV refrigerator longer to cool and recover when the doors are opened. The RV must be level to operate properly. The refrigerator will operate most efficiently when:

1 | The RV is level.

2 | It is allowed 4 hours to cool before putting items in it.

3 | The items are already cold or frozen before putting them in the refrigerator.

Some brands may have altitude limits for proper operation on LP gas. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://www.contoureusa.com, www.norcold.com, www.dometic.com, https://www.geappliances.com/ge/service-and-support/ or https://furrion.com/.

REFRIGERATOR - RESIDENTIAL STYLE

WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

By design, these refrigerators will not operate properly when indoor air temperatures exceed approximately 110 degrees Fahrenheit. In addition, operating the refrigerator in these conditions could cause compressor failure which may not be considered warrantable. Leave the air conditioner set at a temperature below this if the refrigerator is left running in a vehicle that is not being used or shut it off.

Residential refrigerators have two power sources, the shoreline and the battery. All residential refrigerators (except park models) come equipped with an inverter that transforms the battery 12 volt DC to 120 volt AC power in order to operate the refrigerator. The inverter is wired to a transfer switch (this switch is internal on some models) that transfers power between the shoreline and the inverter. The transfer switch defaults to shore power when available.

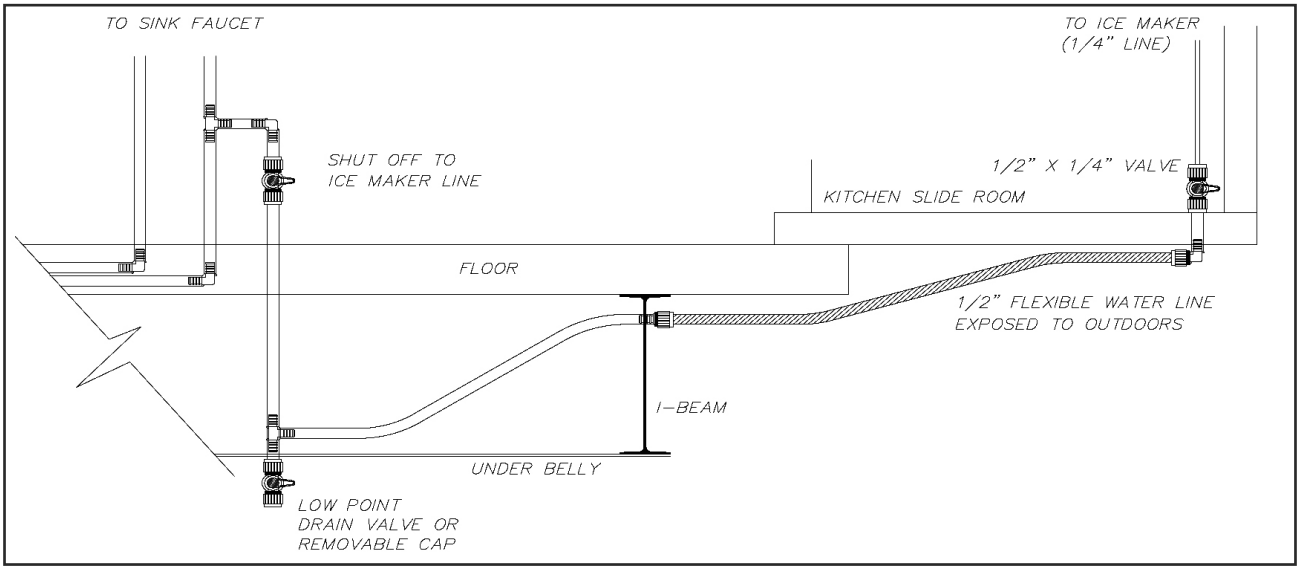
The inverter is supplied and sized specifically for operating the residential refrigerator temporarily until shore power can be connected. Some inverters are supplied with a duplex 120 volt receptacle built into them which should not be used for anything other than the residential refrigerator as it will likely overload the inverter and cause it to shut down. When not in use, the inverter should be turned off. All inverters will shut down when battery voltage drops too low. Consult the inverter owner's manual supplied with your RV for the minimal operational voltage for your inverter. When coupled to a fully charged deep cycle RV battery in good condition, it can generally supply power to a refrigerator for about 12 hours. This time estimate can vary greatly depending on the efficiency of the inverter, charge level of the battery, type and brand of battery, etc. Consult your dealer for more information on making sure your batteries are sized properly to meet your specific camping needs. The battery receives a charge whenever the RV is plugged in to shore power or the tow vehicle is connected and running. It can take a while to recharge a fully drained battery so take care to monitor the charge level.

BACKUP MONITOR

If equipped, the backup monitor will allow you to see directly behind your RV. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.furrion.com, www.asaelectronics.com, www.lci1.com.

NOTICE

Most residential refrigerators come equipped with an ice maker. If the refrigerator is installed in a slide-out that does not have an access point inside the RV for the ice maker line to be routed then the line is run outside through a wire tender and into the slide box behind the refrigerator. This introduces the possibility of the ice maker line freezing in cold weather. In order to prevent this, the ice maker should be turned off and the water line drained. A shutoff valve is installed near the kitchen sink and a low point drain valve is located beneath the RV for this purpose. To drain this line, the shutoff valve must be turned off and the low point drain valve (or cap) must be opened. This low point is part of the water line that continues on to the ice maker and opening this drain will allow all water in the line up to the ice maker to drain out. (See Diagram below.) The ice maker water line should not be winterized with anitfreeze. Simply drain the line along with the rest of the water lines when preparing for the cold weather months, but do not add anitfreeze.



FIREPLACE

If equipped, a fireplace requires 120 volt to operate. Please refer to the manufacturer's instructions supplied with the RV for care and operation. DO NOT leave the fireplace unattended while in operation.

MICROWAVE/CONVECTION OVEN

If equipped, microwaves operate on 120 volt power. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

REMOTE CONTROL SYSTEM

If equipped, the remote control fob will operate any or all of the following: slide-out, jacks, awning, ramp door, and lights. Use caution when operating these items with the remote and always watch the component being operated to be sure adequate clearance is available to open or close the component. Individual remote controls may also be provided with the stereo, TV, and DVD.

ROOF VENTS (POWER/MANUAL)

If equipped, a powered ceiling vent fan runs on 12 volt. This equipment is an excellent tool to keep ventilated and help manage indoor air quality (See Chapter 3). Please refer to the manufacturer's instructions supplied with the RV for care and operation.

KEYSTONE RV SOLARFLEX

For Keystone RV SolarFlex package details please download the "My Keystone" App and/or visit www.keystonerv.com. There you can view our SolarFlex and Owners pages for more useful information, i.e. Expansion Possibilities, Quickstart Guides, Troubleshooting, FAQ's and Videos. All SolarFlex equipped models are equipped with Zamp portable solar panel ports located on the front side of the trailer. For care and operation, please refer to the manufacture's instructions supplied with the RV and/or www.victronenergy.com, www.zampsolar.com, www.dragonflyenergy.com, www.fsi-sales.com.

EXPANDING SOLAR

Keystone, working in conjunction with Future Sales, Inc. designed the systems to be able to expand solar capability. Your Keystone dealer can review the options with you and obtain the parts needed to upgrade solar capability. However, before making a decision to upgrade be sure to consider there other factors:

1 | Will this expansion give us the capacity to run everything we want as long as we want?

2 | Is the current battery capacity, in conjunction with the solar expansion, enough to run everything we want for as long as we want?

3 | Is there adequate space on the roof to install additional solar panels?

For care, operation, and additional options for aftermarket expansion of SolarFlex packages, please refer to the manufacturer instructions supplied with the RV and/or contact www.fsi-solutions.com.

NOTE

It's important to know that aftermarket Solar Equipment is considered cargo which will reduce your Cargo Carrying Capacity (CCC) when installed.

⚠CAUTION

KEYSTONE'S PV SOLAR PANEL DISCONNECT SWITCH IS LOCATED NEAR THE SMART SOLAR CHARGE CONTROLLER. THE PV SWITCH ALLOWS YOU TO SHUT OFF THE PANEL VOLTAGE FOR SERVICING AND STORING THE RV.

NOTICE

DO NOT operate the SolarFlex system without a battery installed. Operating SolarFlex without a battery may cause a variance in voltage that may cause damage to 12 Volt components which in not warrantable.

⚠CAUTION

ONLY USE KEYSTONE AUTHORIZED SOLARFLEX PANELS, CABLES, PARTS, AND COMPONENTS. FAILURE TO DO SO MAY RESULT IN SOLAR EQUIPMENT FAILURE, DAMAGE TO THE SOLARFLEX SYSTEM, AND DAMAGE TO THE RV'S ELECTRICAL APPLIANCES, COMPONENET AND PERSONAL INJURY.

NEVER EXCEED 30 AMPS OR PV (PHOTO VOLTAIC) CURRENT. SOLARFLEX PV CONDUCTORES ARE 10AWG DESIGNATED FOR 30 AMPS MAXIMUM PV CURRENT.

SOLARFLEX IS DESIGNED FOR SOLAR PANELS TO BE WIRED IN PARALLEL. NEVER INSTALL SERIES CONNECTORS TO DOCKING PORT, ONLY INSTALL MC4 TYPE PARALLEL PV Y-ADAPTER FOR DUAL PANEL APPLICATIONS. FAILURE TO DO SO MAY RESULT IN SOLAR EQUIPMENT FAILURE, DAMAGE TO THE SOLARFLEX SYSTEM, DAMAGE TO THE RV, AND PERSONAL INJURY.

CROSSROADS SOLAR FREEDOM

For Crossroads RV Solar Freedom package details please visit www.crossroadsrv.com or contact your local dealer. For care and operation, please refer to the manufacturer's instructions supplied with the RV and/or www.gpelectric.com or www.zampsolar.com.

DUTCHMEN SOLAR SPIRIT

For Dutchmen Solar Spirit package details please visit www.Dutchmen.com or contact your local Dutchmen RV dealer. For care and operation, please refer to the manufacturer's instructions supplied with the RV and/or www.gpelectric.com or www.zampsolar.com.

NOTE

If equipped, the Power Center/Converter Chargers have a Dip Switch or Auto Detect feature to change battery charging capability from Lead Acid Batteries to Lithium Batteries. Please refer to the manufacturer's instructions for care and operation. If your Power Center/Converter Charger does not support charging Lithium Ion Batteries, the maximum charge a Lithium Ion battery can receive is approximately 80% of the total battery capacity. Aftermarket all-in-one or stand-alone converter chargers are available in place of changing your Power Center/Converter Charger.

Consult your dealer for more information on making sure your batteries are sized properly to meet your specific camping needs.

"Top of the line solar system is the way to go!"

Alexia | Michigan

EGRESS WINDOWS

Egress or "Emergency Exit" windows are labeled from the factory with the word EXIT. All egress windows can be distinguished by red operational handles or levers. Dependent upon the window type, an egress window may be a large section or an entire window. Review the locations and operational instructions posted on the windows with all people staying in the RV.

WASHER/DRYER READY

If equipped, there are 3 ways this option can be plumbed to drain.

1 | It could be routed into a Gray water holding tank.
2 | It could be routed into a Black water holding tank.
3 | It could be routed directly to a termination valve and not to any holding tank.

This is determined based on floor plan so be sure to verify which scenario applies to you should you have a dealer install a Washer/Dryer in your RV. Some Washer/Dryers will cycle as much as 30 gallons of water for one load of laundry. Be sure to know your holding tank sizes and holding tank levels before operating the Washer/Dryer if routed into a tank. If routed directly to a termination valve, be sure the sewer hose is connected (to an approved dump station) and the termination valve is open before operating.

Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://geappliancesrecreationalliving.com, https://www.contoureusa.com or www.westlandsales.com

DISHWASHER

If equipped your RV may have a built-in dishwasher or portable countertop Dishwasher. The dishwasher drains to a holding tank, this requires you to monitor your tank levels to avoid overfilling a tank which could cause damage that is not warrantable. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://geappliancesrecreationalliving.com or www.airxcel.com

NOTE

Operating a Washer/Dryer or Dishwasher without opening the termination valve or without ample storage capacity in a holding tank can lead to the RV being flooded with gray water and damage to the RV, which is not considered warrantable.

KEYLESS ENTRY

If equipped, keyless entry allows you to lock/unlock the deadbolt via a wireless keypad or in some cases key fob transmitters. Please refer to the manufacturer's instructions supplied with your RV for care and operation and/or www.southco.com, www.trimarkcorp.com, or www.lci1.com.

CARBON MONOXIDE (CO) DETECTOR

DANGER WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

For your safety, a carbon monoxide (CO) detector is installed in every RV. Depending on the model, it may be operated by battery (9 volt, AA) or wired so that it will be powered by a RV battery (if equipped) or 12 volt power from the converter. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com, www.mtiindustries.com.

Common sources of CO are malfunctioning or misuse of gas appliances, vehicle engines, generators, and many other fuel burning products.

Some indications of CO poisoning include (but not limited to) the following:

Mild Exposure	Medium Exposure	Extreme Exposure
Symptoms of the flu (minus a fever)	Severe Throbbing Headache	Unconsciousness
Slight Headache	Drowsiness	Convulsions
Dizziness	Confusion	Cardiorespiratory Failure
Fatigue	Fast Heart Rate	Death

For your safety and to keep your CO detector in good working order, follow the steps below.

1 | Verify the detector's lights and battery function by pushing the "Test" button weekly.
2 | Vacuum the CO alarm cover with a soft brush attachment once a month to remove accumulated dust.
3 | Instruct children never to play with the CO detector. Warn children of the dangers of carbon monoxide poisoning.
4 | Never use detergents or solvents to clean the CO detector.
5 | Avoid spraying paint, hair spray, air fresheners or other aerosols near the CO detector.
6 | DO NOT paint the CO detector. Paint will seal the vents and interfere with the sensor ability to detect CO.
7 | DO NOT place near a diaper pail.
8 | Test the alarm, operation after your RV has been in storage, before each trip, and at least once a week during the camping season.
9 | Replace the CO detector when recommended by the manufacturer (typically every five years).

BATTERY DISCONNECT

If equipped, the battery disconnect is designed to give you the ability to disconnect most, but not all DC (direct current) fuse panel loads at the converter from your 12 volt battery without disconnecting the battery cables. Typically, this is used to prevent your battery from being discharged during storage. (See below - What could be draining my battery when everything is off? (Also see 12V Distribution Breaker Box.)

Please refer to the manufacturer's instructions supplied with the RV and/or www.davecarter.com, www.atcomp.com, www.patrickind.com, www.smosgood.com for care and operation.

WHAT COULD BE DRAINING MY BATTERY WHEN EVERYTHING IS OFF?

- Parasitic drain/draw can be defined as any electrical device that draws electric current when the RV is not in use but the battery is still connected.
- Some electronics may be connected in front of the battery disconnect and create a parasitic drain/draw such as radio memory, LP/CO detectors, leveling panel, iN-Command, leveling jacks, and slide-outs.
- Inverters have their own battery disconnect and must also be shut off to avoid a parasitic draw.
- Tank heaters, antenna boosters (including KeyTV antenna booster) must be turned off to avoid a parasitic draw.
- If dry camping, refrigerators and water heaters (depending on the type), when on LP require 12 volt battery power to operate the boards.

A normal parasitic draw range of 300mA-700mA suggests that no issues may be present. Refer to "Batteries" in Chapter 13 for General Information on Use and Storage of Batteries.

FIRE EXTINGUISHER

Each RV includes a fire extinguisher, which is located near the main entry door. The fire extinguishers are rated for Class B (gasoline, grease, and flammable liquids) and Class C (electrical) fires. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

SMOKE DETECTOR

WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE.)

For your safety a smoke detector is installed in every RV. Most detectors are powered by a 9 volt battery. Check the manufacturer's expiration date on the label, replace the batteries if needed, and clean dust away from the slots so that smoke can enter freely. Please refer to the manufacturer's instructions supplied with the RV for care and operation and replace when recommended by the manufacturer (typically every 10 years).

EQUA-FLEX/ROAD ARMOR, E-Z FLEX

These are ride enhancement features available on certain models. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com or www.dexteraxle.com.

PIN BOX

Some models come equipped with a specialized Pin Box designed to reduce the stress and enhance the pulling experience. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com or www.morryde.com.

LEVELING

If equipped, 4, 6 or 7-point leveling is a hydraulic or electrical leveling system designed for towable RV's. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com, or www.norcoind.com,

NOTICE

The RV must have a fully charged rv battery (having the shoreline cord plugged in may not be enough). A well charged and maintained battery is critical for proper operation of the leveling system. A battery which is not well charged and maintained can cause complete failure or operation and/or damage to the RV. See Electrical System Chapter 8.

UNDER MOUNT SPARE TIRE

If equipped, the under mount spare tire is a cable hoist designed to stow the spare tire under the RV, typically behind the rear axle. An access hole in the lower skirt metal is provided to insert a crank handle to lower/raise the spare tire.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

ELEVATED BEDS AND ELECTRIC BED LIFT SYSTEMS

STANDARD ELEVATED BEDS – Various Keystone RV products are equipped with standard built-in elevated beds or bed loft areas. These beds can be upwards of 4 to 5 feet above the floor level and are often enclosed on one, two, or three sides and sometimes even partially on a fourth side. Because there are so many potential users and different types of elevated bed designs, elevated beds may not be equipped with bed rails.

ELECTRIC BED LIFT SYSTEMS – Many of the Keystone RV Sport Utility RVs/Ramp RVs come equipped with rear cargo area electric bed lift systems. (See the label in the Ramp RV for proper operation of the rear cargo area electric bed lift systems). The bottom beds in some floor plans also can be converted to dual sofas or a stand up bar. Again, like the standard built-in elevated beds, because of the design and the various uses, the rear electric beds may not be equipped with a bed rail system. If equipped, the convertible bar/bed is an assembly that offers a bar feature in the "up" position and bed in the "down" position. When it's time to pull a toy into the garage, place the assembly in the bed position, secure with provided hardware to the happi jac bed lift system and raise the assembly out of the way.

USE OF BED RAILS – We feel that you, as the customer, are best equipped to determine if a bed rail system is necessary or best for you based on your intended uses, the actual users of the elevated beds, and the comfort level of the users. For those customers who would prefer using an elevated bed with a bed rail, there are numerous bed rail styles, sizes, heights, and designs available, even in the style of bumpers, which can be purchased at various retail locations and/or on the internet.

When installing a bed rail, please make sure that you follow the manufacturer's installation instructions carefully and that you take in to account the size and height of the mattress (either originally installed by Keystone RV or later replaced by you) so that the rails are the appropriate height above the top of the mattress. This is important because residential mattresses differ in size from the RV mattresses originally installed by Keystone RV. Please also make sure that the bed rail you select allows for adequate room to get in and out of the elevated bed after installation, especially in the event of an emergency.

TIPS FOR SAFE USAGE:

- Please use sound judgment when allowing children to sleep in any style of elevated bed. Generally, it is not suitable for children under the age of 6 to sleep in an elevated bed or bed loft area.
- Discuss proper usage of any elevated bed/electric bed lift system with your children and make sure they are supervised if playing in the bedroom/sleeping area of the RV with elevated beds. Please do not allow horseplay on or under the elevated beds and no items such as hooks, belts, jump ropes, or towels should hang from any part of the elevated bed.
- Place a night light in the bedroom/sleeping area so users can see at night when getting in and out of the bed(s).
- No more than one person should be in an elevated bed at once and make sure you follow the weight restrictions posted on the warning label near the beds.
- Do not allow children to operate the rear cargo area electric bed lift systems in Ramp RVs. The lowering and raising of the electric beds should be only conducted by an adult. No person should be on the electric beds when being lowered or raised.

If you have any questions about elevated beds, Ramp RV electric bed lift systems, or bed rails please contact Keystone RV Customer Service. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com.

MURPHY BEDS

DANGER WARNING (SEE APPLIANCE & EQUIPMENT DANGER AND WARNING PAGE).

SUPERVISION – For your safety do not allow any individual under the Murphy bed when lowering the bed. Likewise, do not allow an individual on the bed when it is being raised to its stowed position.

PINCH POINTS – Pinch points exist between the base of the bed, and the sofa when lowering the bed and between the base of the bed and the storage compartment when raising/stowing the bed. On certain Murphy bed designs, the footboard can also create a pinch point. Use caution when moving the bed from one position to another.

CRUSH HAZARD – Use care when lowering the bed to ensure no adult, child, or pet is underneath the bed base area when deployed.

USER ENTRAPMENT – Under no circumstances should an adult, child, or pet be on the bed when raising it to its upright, stowed position. There are two basic Murphy bed designs in use today. The first has a forward storage area and a piano hinge attachment to the bed base at the edge of the storage compartment in order to raise or lower the bed. There is no cavity cutout in the storage compartment with this design, and a portion of the bed does not rotate into the storage compartment. The only danger of entrapment in this design would be above the storage compartment and behind the bed base. In the second design, the full length of the bed rotates around a pivot point. When lowered the bed base functions as the ceiling of the storage compartment. On this design, Keystone installs a mechanism that automatically latches the bed in place when lowered. The mechanism has a red ball on the handle and is easy to spot next to the bed. Make sure the mechanism has engaged by attempting to lift the bed base after you have lowered it. It should not allow you to return the bed to its upright position without first releasing the handle. This mechanism is in place to prevent the bed from inadvertently raising up if enough weight were forward of the pivot point, potentially trapping an individual inside. In that event, a person could become trapped and serious personal injury or death could result.

MURPHY BED SETUP AND STORAGE

1 | Using two people, take up a position on either side of the Murphy bed. Before lowering the Murphy bed, make certain the sofa is folded down and that no person is beneath the bed area.

2 | Use one hand to brace the bed and pull the barrel latch pins installed on both sides of the bed. This will unlock the bed and it will be free to move. Make sure you have it held steady at this point.

3 | Slowly lower the bed, taking care to ensure the footboard has unfolded and swung down to support the bed in its horizontal position. Beware of pinch points. The bed should be resting on the foot board in the horizontal position.

4 | Verify the automatic latch mechanism has engaged and the bed cannot be returned to its upright position. If your RV has the second version of murphy bed design, you will see a red handled knob next to the bed.

5 | Bed is now ready for use.

6 | To stow the bed, again using two people, first pull the red handle on the release mechanism (if equipped) to free the bed to move.

7 | Ensure no individual or pet is on the bed.

8 | Slowly lift the bed to its upright, stowed position. Beware of pinch points whenever the bed is in motion. While holding the bed steady in the upright position latch the barrel latch pins on either side of the Murphy bed. Verify the bed is securely restrained by the barrel latch pins.

NOTE

The head of the bed rotates into the storage compartment when stored. Make sure the storage compartment is clear of objects that could potentially interfere with this rotation.

DANGER APPLIANCE AND EQUIPMENT DANGER

Furnace and Refrigerator.
All pilot lights, appliances and their ignitors (see operating instructions) shall be turned off before refueling of fuel tanks and/or propane containers. Failure to comply can result in death or serious injury.

DO NOT store gasoline or any other flammable vapors or liquids near any appliance, as this could cause a fire or explosion.

Antenna Booster.
DO NOT raise TV antenna near overhead electrical wires as contact can cause injury or death.

Generator (Optional).
Carbon monoxide is poisonous and can cause unconsciousness and death. Follow all instructions in this section as well as the ones outlined in the generator operator's manual.

Oven or Cook Top (Range).
DO NOT use cooking appliances for comfort heating. This can lead to carbon monoxide poisoning which can lead to death or serious injury.

Carbon Monoxide (CO) Detector.
If the alarm sounds, exit the vehicle immediately. The carbon monoxide build-up may dissipate before help arrives, but may be only temporarily solved. It is crucial that the source of the carbon monoxide is determined and repaired.

Gasoline generators, LP generators, and appliances produce carbon monoxide. Carbon monoxide can be fatal! When the device detects carbon monoxide in the air, it will sound. Consult the individual detector's user manual for specific instructions and/or audible warning meanings.

Murphy Bed.
Improper use of the murphy bed could lead to injury or death.

WARNING APPLIANCE AND EQUIPMENT WARNING

Furnace, Generator, Oven or Cook Top (Range), Outside Range/Cook Top, and Refrigerator.
We recommend that the diagnosis and repair or replacement of your RV's appliances be performed by a dealer or properly certified RV technician. Improperly diagnosed, repaired or replaced appliances and/or their parts, could lead to an increased risk of death or serious injury.

Awning, Slide-Out (Optional).
DO NOT attempt any repairs to any awning. The awning roller tube is under extreme spring tension. Repairs should only be performed by an authorized dealer repair center.

iN-Command and Firefly.
DO NOT operate any moving parts (including, but not limited to, awnings, jacks and slides), unless you have a clear line of sight to the moving part. The mobile application, touchscreen or body control module, may be used only if you are giving instuction to and receiving instructions from another person, 18 or older, who can clearly see the moving part. Failure to follow these instructions could result in serious personal injury or property damage.

Generator (Optional).
Test the operation of the carbon monoxide detector as follows: after the vehicle has been in storage; before each trip; at least once per week during use; and immediately before sleeping with the generator operating. Failure to do so could result in death or serious injury.

Refrigerator-Residential Style.
Care must be taken when working on a residential refrigerator that all power has been disconnected. The inverter typically has a power switch on the RV that can be turned off, or a battery disconnect can be used if one is present, or the battery itself can be disconnected. Shoreline power must also be disconnected. Failure to disconnect shore power could expose you to electric shock.

Outside Range/Cook Top.
When using outdoor cooking appliances, the vehicle must be level and stabilized. DO NOT violate manufacturer's instructions on required clearances for cooking appliances during use. DO NOT store cooking appliances until cool to the touch. Improper use could lead to a fire and explosion and result in death or serious injury.

DO NOT leave the cook top unattended while in use. If windy conditions cause the flame to invert into the cook top, stop using immediately. Continued use could result in heat build up in the cook top causing damage to the cook top and increase risk of fire.

DO NOT use oversize cookware. The cookware should not be more than one inch larger than the burner grate. The maximum size cookware is 10 inches in diameter. Oversize cookware could result in heat build up in the cook top causing damage to the cook top and increased risk of fire.

DO NOT use cookware that covers more than one burner at a time. Oversize cookware could result in heat build up in the cook top causing damage to the cook top and increased risk of fire.

Follow all warning labels on the cook top and in the manufacturer's instructions supplied with the RV.

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

Carbon Monoxide (CO) Detector.
Test the operation of the carbon monoxide detector as follows: after the vehicle has been in storage; before each trip, and at least once per week during use. Failure to comply could result in serious injury.

Murphy Bed.
Maximum capacity of the murphy bed is two average-sized adults. Under no circumstance, should you exceed a maximum rating of 500 pounds.

COMPONENT AND APPLIANCE CONTACT INFORMATION

For your convenience, we have provided contact information for the most common component and appliance suppliers. A check mark✓ Denotes the possibility of additional consumer warranty (beyond the base and structural warranties) direct from the component supplier.

Air Conditioners			
✓	Coleman - Mach (Airxcel)	1.316.832.4357	www.coleman-mach.com
	Collins & Company-Window AC	1.574.848.1118	www.collins-n-co.com
✓	Dometic	1.800.544.4881	www.dometic.com
✓	Furrion (Lippert)	1.432.547.7378	www.furrion.com
✓	Midwest Sales & Service (GE)	1.800.722.7262	geappliancesrecreationalliving.com
Awnings			
	Carefree of Colorado	1.303.469.3324	www.carefreeofcolorado.com
✓	Dometic	1.800.544.4881	www.dometic.com
	Lippert Components	1.432.547.7378	www.lci1.com
Axles			
✓	Dexter	1.574.295.7888	www.dextergroup.com
✓	Lippert Components	1.432.547.7378	www.lci1.com
✓	Terran Axle	1.312.312.7767	terranindustries.com
Central Vacuum			
✓	HP Products	1.330.875.5556	www.h-pproducts.com
✓	Intervac	1.888.499.1925	www.intervacdesign.com
Converter/Inverter			
✓	Magnum (Future Sales)	1.574.262.3688	www.fsi-solutions.com
✓	Progressive Dynamics	1.269.781.4241	www.progressivedyn.com
✓	WFCO/CHENG- Arterra	1.574.294.8997	www.wfcotech.com
Entrance Steps			
	Lippert Components	1.432.547.7378	www.lci1.com
✓	MORryde	1.574.293.1581	www.morryde.com
	Suburban	1.574.247.9235	suburbanrv.com
Fiberglass			
	Better Way - Front Cap	1.574.538.4037	www.betterwayproducts.com
✓	Crane	1.800.435.0080	www.cranecomposites.com
Fireplace			
	Dave Carter	1.574.642.0627	www.davecarter.com
	Furrion (Lippert)	1.432.547.7378	www.furrion.com
	Greystone (Lippert)	1.574.537.8900	www.lci1.com
	LaVanture	1.800.348.7625	www.lavanture.com
Flex Pex Plumbing			
	Dave Carter	1.574.642.0627	www.davecarter.com
	ESCO	1.800.456.3726	www.escousa.net
	LaSalle Bristol	1.574.295.8400	www.lasallebristol.com
✓	Wesco	1.574.206.1517	www.wesco.com
Flooring (Decking)			
✓	Dyna Span (Decking)	1.503.228.3802	www.affiliatedresources.net/dyna-bilt

Flooring (Linoleum)			
	LaSalle Bristol	1.574.295.8400	www.lasallebristol.com
	Shaw Industries	1.844.742.7429	www.shawfloors.com
✓	Syntec Industries	1.800.526.8428	www.syntecind.com
Fuel Delivery System			
	ECI Fuel Systems	1.877.685.8602	www.vectorperformance.com
✓	Standard Technologies	1.419.332.6434	www.standardtechn.com
Furnace			
✓	Atwood (Dometic)	1.800.544.4881	www.dometic.com
✓	Suburban (Airxcel)	1.423.775.2131	suburbanrv.com
Generator			
✓	Onan (Cummins)	1.800.286.6467	www.cummins.com
	RVMP	1.855.427.7978	RVMP.co
Graphics/Decals			
✓	BGS	1.262.554.8808	www.burlingtongraphics.com
	Sharpline	1.800.888.4888	www.sharpline.com
	Vomela	1.574.522.6016	www.vomela.com
iN-Command			
	ASA Electronics	1.800.688.3135	www.in-command.net
Leveling & Stabilization & Tongue Jacks			
	Bastion Distribution	1.574.651.9997	www.gobastion.net
	Dave Carter	1.574.642.0627	www.davecarter.com
	Domar Products	1.574.206.0101	www.domarproducts.com
	Equalizer (Days Corp)	1.800.846.9659	www.equalizersystems.com
	Lippert	1.432.547.7378	www.lci1.com
	Norco (BAL)	1.574.262.3400	www.norcoind.com
	Wesco Distribution	1.574.206.1517	www.wesco.com
Lithium Batteries			
✓	Dragonfly Energy	1.775.622.3448	www.dragonflyenergy.com
Microwave			
	Collins & Company	1.574.848.1118	www.collins-n-co.com
	Contoure	1.888.656.9317	www.contoureusa.com
✓	Dometic	1.800.544.4881	www.dometic.com
	Furrion (Lippert)	1.432.547.7378	www.furrion.com
	Midwest Sales & Service (GE)	1.800.722.7262	geappliancesrecreationalliving.com
Pin Box			
	Lippert Components	1.432.547.7378	www.lci1.com
✓	MORryde	1.574.293.1581	www.morryde.com
Power Fan, Range Hoods & Roof Vents			
✓	Fantastic Fan (Dometic)	1.800.544.4881	www.dometic.com
✓	Maxx Fan (Airxcel)	1.574.247.9235	www.airxcel.com
✓	Ventline (Dexter)	1.574.295.7888	www.dextergroup.com

Propane Regulators, Tanks, and Fittings			
	Dehco	1.574.970.8282	www.patrickdistribution.com
	Fairview	1.877.459.0700	www.fairviewfittings.com
	Service Distribution(UFP)	1.800.598.9663	www.ufpi.com
Refrigerator			
	Contoure	1.888.656.9317	www.contoureusa.com
	Dave Carter	1.800.459.9260	davecarter.com
✓	Dometic	1.800.544.4881	www.dometic.com
	Midwest Sales & Service (GE)	1.800.772.7262	geappliancesrecreationalliving.com
✓	Samsung (Riverpark)	1.800.442.7717	www.riverparkinc.com
Roofing Material			
✓	Alpha	1.800.462.4698	http://alphallc.us
Rubberized Suspension			
✓	Mor/Ryde	1.574.293.1581	www.morryde.com
Satellite			
	Furrion (Lippert)	1.432.547.7378	www.furrion.com
✓	Winegard	1.800.288.8094	www.winegard.com
Solar			
✓	Future Sales	1.574.262.3688	www.fsi-sales.com
	Go Power (Dometic)	1.866.247.6527	https://gopowersolar.com/
	Zamp (Dometic)	1.541.728.0924	www.zampsolar.com
Stove/Oven/Cooktop			
✓	Atwood (Dometic)	1.800.544.4881	www.dometic.com
	Contoure	1.888.656.9317	www.contoureusa.com
✓	Furrion (Lippert)	1.432.547.7378	www.furrion.com
✓	Suburban (Airxcel)	1.423.775.2131	suburbanrv.com
Tires			
	Americana	1.574.522.9450	www.americanatire.com
	Dexter (HiSpec)	1.800.549.4012	www.dextergroup.com
	Lionshead	1.574.533.6169	www.lionsheadtireandwheel.com
	Tredit	1.855.887.3348	www.tredittire.com
Toilet			
	Dave Carter	1.800.459.9260	davecarter.com
✓	Dometic	1.800.544.4881	www.dometic.com
TV Antenna			
	Furrion (Lippert)	1.432.547.7378	www.furrion.com
✓	Winegard	1.800.288.8094	www.winegard.com
Water Heater			
✓	Atwood/Dometic	1.800.544.4881	www.dometic.com
	Contoure	1.888.656.9317	www.contoureusa.com
✓	Girard (Lippert)	1.432.547.7378	www.lci1.com/brands/about-girard
✓	Suburban (Airxcel)	1.423.775.2131	suburbanrv.com
Water Pump			
✓	Flo-Jet	1.949.608.3900	www.xylemflowcontrol.com/flojet
	Shurflo	1.800.854.3218	www.pentair.com
✓	WFCO Technologies	1.574.294.8997	www.wfcoelectronics.com

08 ELECTRICAL SYSTEM

The electrical system in your RV is a combination 12 volt DC (Direct Current) and 120 volt AC (Alternating Current) system. In simpler terms, the 12 volt system is what an automobile uses and the 120 volt system is what most households use. Every facet of the electrical system is built to the Recreational Vehicle Industry Standard (RVIA), which complies with the “American National Standard #A119.2” and the “National Electric Code.”

12 VOLT SYSTEM - DC

The 12 volt system can be powered in four different ways: a RV battery, the converter changing 120 volt AC to 12 volt DC, by a Solar System, or by the tow vehicle’s 12 volt system. Almost all equipment except the microwave and roof air conditioner operate using 12 volt.

12 VOLT DISTRIBUTION BREAKER BOX

If equipped, a 12 Volt DC Power Distribution Box (commonly known as a “Giggy Box”) houses the connections that require battery power. The 7-Way connections and cord are color-coded to match the SAE Standard.If not equipped with a “Giggy Box”, the unit will typically be supplied with one or more circuit breakers. The “Giggy Box” and/or circuit breaker(s) are typically located at the front of the unit’s chassis. In either case, the RV may also be equipped with an optional battery disconnect switch.Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video’s, FAQ’s, the DIY program and more.

BREAKER (TRAVEL TRAILERS)

GIGGY BOX (TRAVEL TRAILERS)

GIGGY BOX (FIFTH WHEELS)

RV BATTERY

Your battery is essentially a storage device for electrical energy. The heart of the 12 volt system is the RV battery, so choose yours wisely. Keystone RV recommends at minimum group 24- 12 volt deep cycle batteries. There are a variety of battery types that may be utilized to achieve your camping needs such as, AGM, Gel, Lithium, etc. and can be purchased and installed by your local dealer. Please check the convertor's manual placed in your Keystone packet to determine if the charge capabilities meet the requirements of the battery being selected. Before you select your battery, define your camping needs thoroughly.

For example, if you will typically camp with access to 120 volt to plug in the shoreline cord, a standard deep cycle battery should suffice. If you will be camping without access to 120 volt and will rely heavily on battery to run the many features in your RV, you need to consider a deep cycle battery that has considerable amperage available or possibly installing 2 batteries for your needs.

DRAGONFLY LITHIUM BATTERY OPTION (FACTORY INSTALLED)

If equipped, Lithium Batteries (not warranted by Keystone) were installed on your RV with Battery Heat and switch. With the battery heat switch ON the heater will be automatically activated when the internal temperature reaches ~35°F and will shut off when the internal temperature reaches 45°F. Please refer to the manufacturer's instructions supplied with the RV for care, operation, and storage at www.dragonflyenergy.com

BATTERY HEAT -The battery heat feature, when activated, prevents a cold temperature disconnect which will prevent the batteries from accepting a charge. If the battery has been exposed to below freezing temperatures for a long period of time without the heater enabled, it will take 2 to 4 hours for the internal components of the battery to heat up enough for the battery to take a charge. The heater will continue to operate until the battery disconnects for low voltage cutoff. With no charging, or other loads, this could take up to four days in an insulated box in subzero temperatures.

LOW-VOLTAGE DISCONNECT

Low-Voltage Disconnect (LVD) is a feature of the internal Battery Management System (BMS), which comes inside all Dragonfly Energy batteries and has lots of other safety features programmed into it to protect your investment and preserve the life of your battery. When fully depleting a Dragonfly Energy battery, the BMS detects when the battery's voltage falls below 10V, and it will disconnect the battery. This prevents any charge from leaving the battery to protect it from damage. Many people will think their Dragonfly Energy battery is dead, but it's just in LVD and not sending out a charge.

When a battery enters Low-Voltage Disconnect, it needs to be jumped with another 12V source to "wake up" the battery. It's important to jump the battery within 5 days of the battery going into LVD mode to preserve its lifespan. Leaving the battery at a 0% charge for too long can damage the battery and void your warranty.

WAKING UP YOUR BATTERY

Many chargers must detect a voltage of more than 5V coming from the battery to charge it, but many chargers are different, so be sure to check their user manuals for charging requirements. But in Low-Voltage Disconnect, a voltmeter will only read 0-5V from the battery because the BMS has disconnected it. So, sometimes you have to jump the battery before charging it, depending on the charger.

The most low-tech method to getting a battery out of Low-Voltage Disconnect is to jump it with another 12V source. Just connect your Dragonfly Energy battery to a starting battery from a boat or car, and jump like you would a car battery, leaving them connected for a few minutes and up to an hour. This should wake up the Dragonfly Energy battery, and if you have a voltmeter, you should be able to read a voltage above 10V coming from the battery. Then you can charge it normally. Please refer to the manufacture's instructions supplied with the RV for care and operation and/or www.dragonflyenergy.com

A well charged and maintained battery is critical for proper operation of the appliances and features within your RV. A battery which is not well charged and maintained can cause complete failure of operation in most of the 12 volt components in your RV. Follow the charging and maintenance instructions closely for the battery you select.

Your Keystone RV will charge your RV battery when plugged into the tow vehicle and when the shoreline cord is plugged into a 120 volt power source, or with SolarFlex or generator (if equipped).

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com, where we have supplied you with a variety of helpful resources such as Videos, FAQ's, the DIY program and more.

NOTE

If equipped, the Power Center/Converter Charger has a Dip Switch or Auto Detect feature to change battery charging capability from Lead Acid Batteries to Lithium Batteries. Please refer to the manufacturer's instructions for care and operation. If your Power Center/Converter Charger does not support charging Lithium Ion Batteries, the maximum charge a Lithium Ion battery can receive is approximately 80% of the total battery capacity. Aftermarket all-in-one or stand-alone converter chargers are available in place of changing your Power Center/Converter Charger.

Consult your dealer for more information on making sure your batteries are sized properly to meet your specific camping needs.

AMPERAGE (AMP) HOUR RATING

The amp hour rating is how many amps and hours the battery can deliver 12 volt power before the battery is discharged. It is determined by multiplying the amps being consumed (by usage of 12 volt components) by the number of hours the battery can sustain this 12 volt usage. For example, if a battery can deliver 5 amps for 20 hours (5 amps x 20 hours) before it is discharged, the amp hour rating would be 100 amp hours. Below there is a chart that outlines the amperage consumption of the most typical 12 volt components.

APPROXIMATE OPEN CIRCUIT VOLTAGE			
Lead Acid		Lithium	
Voltage	State of Charge	Voltage	State of Charge
12.6	100%	13.6-14.4V	100%
12.4	75%	13.2V	70%
12.2	50%	13.1V	40%
12.0	25%	12.9V	20%
11.7	0%	10.0V	0%

12 VOLT AMPERAGE CHART	
APPLIANCE	AMPERAGE CONSUMED
CO/LP Detector	1
Furnace	10-12
Power Roof Vent	2.5
Refrigerator (LP Gas Mode)	1.5-2
Radio/Stereo	4
Range Hood Fan and Light	2-3
Refrigerator (12 volt only)	4
Security System	1
TV (12 volt)	4-5
TV Antenna Booster (12 volt Output)	1
Water Pump	3-4

Removing (or using) amperage, depletes the overall voltage of a battery. Voltage is the means in which amperage is pushed out of the battery to power RV components. The higher the amperage, the more voltage required to supply the demand. Therefore, if there is not enough voltage to push/send the amperage, your components will not operate.

DISCLAIMER: Product information is as accurate as possible with regard to the date of Owner's Manual publication. The charts provided are not exact as various items can affect amp draw, overall voltage, and battery reserve capacity.

120 VOLT SYSTEM - AC

The 120 volt system is supplied by plugging the shoreline cord (power cord) into an outside power source (campground, house, etc.) or running the generator if equipped. Once connected or powered, the RV is furnished with power to operate the roof air conditioner(s), microwave, and 120 volt receptacles throughout the RV. If equipped, some refrigerators and water heaters can run from 120 volt power in addition to 12 volt and LP. If your RV is equipped with an inverter, you have 120V power to a specific number of outlets depending on your units design. This will afford temporary power from your units batteries through an inverter equipped in the unit.

FIGURE 1

50 Amp 2 Legs of 120V

30 Amp 1 Leg of 120V

SHORELINE CORD/POWER CORD

The shoreline cord is a heavy-duty cable with a 3 or 4 prong grounding plug on one end and connects directly to the power converter inside the RV on the other end. This cord is used to plug into an external 120 volt source. Depending on the application, we use a 30 amp (3 prong) or a 50 amp (4 prong) shoreline cord. Your RV is equipped with a heavy duty power cord to connect to an external 120 volt 30 or 50 amp (depending on model) rated AC service. The cord and plug are a molded, weatherproof assembly. The cord provides a correct ground connection to the site service. Do not alter or cut the cord in any way. Do not remove the ground pin from the plug, or defeat the ground circuit in the RV. If you have to use an adapter to plug into an electrical service, make sure the ground is maintained through the adapter.

FIGURE 2

Park Pedestal-50 Amp & 30 Amp Service

FIGURE 3

50 Amp Shore Cord Inlet End

FIGURE 4

Inlet to RV

⚠WARNING

BEFORE CONNECTING THE SHORE CORD TO THE CAMPSITE RECEPTACLE TURN OFF THE MAIN BREAKERS OF THE RV AND CAMPGROUND AS IT COULD LEAD TO AN INCREASED RISK OF SERIOUS INJURY OR PROPERTY DAMAGE.

Depending on model, the power cord is either permanently wired to the RV electrical system, or is detachable. For permanently wired, remove the plug end and cord from its storage location and plug in to the appropriate campsite receptacle. See Figures 1 and 2. For detachable cords, align the pins, insert the end straight into the RV inlet, twist the end right until seated (about ½") and screw the locking ring on the end to the RV inlet until tight and secure. See Figures 3-5. The locking ring provides extra strain relief, weather-resistant seal and prevents the connector from losing connection or becoming detached by accident.
Then plug the other end into the campsite receptacle. See Figures 1 and 2. Also see "Electrical Hookup".

FIGURE 5

Connected to Inlet

⚠WARNING

NEVER USE A TWO-CONDUCTOR EXTENSION CORD OR ANY CORD THAT DOES NOT ASSURE CORRECT AND ADEQUATE GROUND CONTINUITY. NEVER PLUG THE 120 VOLT CORD INTO AN UNGROUNDED RECEPTACLE. FAILURE TO FOLLOW THESE DIRECTIONS COULD LEAD TO FIRE AND/OR PERSONAL INJURY.

ELECTRICAL HOOKUP

Before connecting to the electrical supply, check the supply rating. Be sure it is a single leg of 120 volt AC for 30 amp service or 2 legs of 120 volt for 50 amp service.

TO CONNECT TO SHORE POWER:

1 | Be sure the site power source breakers are OFF (both legs on 50 amp service).
2 | If the site power source breakers are not accessible, turn OFF the main breakers inside the RV.
3 | Insert the plug of the cord into the site source receptacle, seating the connector squarely and completely.
4 | Turn site source breakers ON.
5 | Turn RV main breakers ON.

TO DISCONNECT:

1 | Turn RV main breakers OFF.
2 | Turn site source breakers OFF.
3 | Pull the plug end of the cord straight out of the source receptacle.
4 | Coil and stow the shoreline power cord.

30 AMP SERVICE

30 amp service is the most common in the RV industry and used widely on campgrounds. 30 amp service is 120 volt service limited to a total of 30 amps of power at a time when your shoreline cord is plugged into a 30 amp service. With this service, you will be able to run any single appliance in the RV, however, you might not be able to run a certain group or equipment/appliances at the same time. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at www.keystonerv.com where we have supplied you with a variety of resources such as Videos, FAQ's, the DIY program and more.

For instance, most air conditioners will draw up to 15 amps and a microwave about 10 amps. If you turn on the microwave while running the air conditioner, it may trip a breaker either in the RV or at the pole. This is because the air conditioner and the microwave combined draw 25 amps and the converter (which runs continuous) is drawing an additional 5 - 13 amps depending on the 12 volt load (battery charging, lights, etc.). Also, consider common loads such as the refrigerator, water heater, coffee maker, and other appliances.

- DO NOT plug your RV 30 amp shoreline cord into any receptacle that is not wired to National Electric Code for 30 amp 120 volt configuration. Doing so will supply the RV with the incorrect electrical power causing extensive damage to the electrical system and 120 volt components which would not be warrantable.

- DO NOT plug in or unplug the shoreline cord while under load. Make sure all 120 volt components are turned off before connecting or disconnecting the shoreline cord or damage to the 120 volt systems may occur. Turn off the breakers at the pedestal first before connecting or disconnecting the shoreline cord to prevent damage.

⚠WARNING

FAILURE TO PLUG YOUR SHORELINE CORD INTO A PROPERLY WIRED 30 AMP RECEPTACLE COULD LEAD TO AN INCREASED RISK OF DEATH, SERIOUS INJURY OR PROPERY DAMAGE.

50 AMP SERVICE

If equipped with 50 amp service your shore cord has 2 lines of 120 volt power, 1 neutral wire and 1 ground wire to feed your trailer with 50 amp service. For maximum use from your power supply ensure to use a campground pedestal wired for 50 amp service. This will ensure adequate safe power to your unit.

- DO NOT plug your RV 50 amp shoreline cord into any receptacle that is not wired to National Electric Code for 50 amp 120/240 volt configuration. Doing so will supply the RV with the incorrect electrical power causing extensive damage to the electrical system and 120 volt components which would not be warrantable.

- DO NOT disconnect the 50 amp plug connection by pulling up on the cord. This will cause a loss of neutral and 240 volts AC will be supplied to the electrical system and 120 volt components causing extensive damage which would not be warrantable. Always pull straight out on the head of the cord so all 4 prongs disengage the receptacle simultaneously.

- DO NOT plug in or unplug the shoreline cord while under load. Make sure all 120 volt components are turned off before connecting or disconnecting the shoreline cord or damage to the 120 volt systems may occur. Turn off the breakers at the pedestal first before connecting or disconnecting the shoreline cord to prevent damage.

⚠WARNING

FAILURE TO PLUG YOUR 50 AMP SHORELINE CORD INTO ANY RECEPTACLE THAT IS NOT WIRED TO THE NATIONAL ELECTRIC CODE FOR 50 AMP 120/240 VOLT CONFIGURATION COULD LEAD TO AN INCREASED RISK OF DEATH, SERIOUS INJURY OR PROPERTY DAMAGE.

The following is a reference chart to show typical amperage draw on common appliances. It is recommended to operate the water heater on gas only when using other high amp draw appliances to prevent tripping of breakers.

120 VOLT AMPERAGE CHART			
APPLIANCE	**AMPERAGE CONSUMED**	**APPLIANCE**	**AMPERAGE CONSUMED**
120 Volt Light	1	Refrigerator (Shore Power)	3 - 4
Ceiling Fan (Variable Speeds)	3 - 5	Residential Refrigerator	12.2 - 15
Coffee Maker	7	Roof Air Conditioner (Each)	13 - 15
Converter 55 amp Output	5 - 13	Space Heater	10 - 15
Curling Iron	3 - 4	Toaster (2 Slice)	7 - 13
DVD Players	1 - 2	TV (120 volt)	1 - 2
Electric Water Heater	10	Washer/Dryer	10
Hair Dryer	9	Window Air Conditioner	6
Microwave	10		

AVAILABLE POWER

The power system in your RV is only as good as the power supply feeding it. If the campground has only 30 amp service available, an RV with 50 amp service will only be able to use 30 amps of service. Some campgrounds have only 15 amp service available which is not adequate to properly run an air conditioner or certain other appliances. The best way to know what amperage is available is to call ahead to the campground. There are special adaptors available through your local Keystone dealer to make these connections to campgrounds with lower service ratings.

ADAPTERS/REDUCERS

These devices connect to the shoreline cord to allow it to plug into a lesser power supply. When using adapters, your available electrical power for the entire RV is reduced to the rating of the adapter. 50 amp to 30 amp, 30 amp to 20 amp and 30 amp to 15 amp are the most common. Use the reference chart supplied to manage what you can effectively use in your RV at one time should you choose to utilize this type of after market equipment.

EXTENSION CORDS

If it is necessary to use an extension cord to extend your RV shoreline cord to the available campground electrical outlet, the correct size of the extension cord must be utilized i.e. 30 amp service - 30 amp 10 gauge extension cord not to exceed 50 feet. Adapters/Reducers are not to be used when using an extension cord and do not plug multiple extension cords together.

Your local Keystone dealer can assist you in obtaining the proper extension cord for your needs.

⚠WARNING

THE USE OF THE INCORRECT SIZE OR LENGTH OF EXTENSION CORD AND/OR OVERLOADING THE EXTENSION CORD, ADAPTERS OR REDUCERS COULD INCREASE THE RISK OF FIRE, PERSONAL INJURY OR PROPERTY DAMAGE.

THE USE OF SHORELINE CORDS, RECEPTACLES, EXTENSION CORDS, ADAPTERS OR REDUCERS WITH LOOSE, MISSING, DAMAGED, DEGRADED OR CORRODED TERMINALS/CONNECTIONS COULD INCREASE THE RISK OF FIRE, PERSONAL INJURY OR PROPERTY DAMAGE.

POWER CENTER/CONVERTER

Once connected to a power source (Shoreline/Generator), the Power Center/Converter serves 3 primary purposes:

1 | Power distribution - all the incoming power is distributed to the RV through the 120 volt circuit breakers and 12 volt fuses within the Power Center.

2 | Converting 120 volt to 12 volt power - In essence, utilization of the converter will reduce the usage of the RV battery.

3 | Battery charger - It will charge the RV battery. When plugged in to a power source for long periods of time, it will be necessary to maintain your RV battery more frequently. Because the battery is being charged constantly, checking battery water levels (if applicable) is critical to properly maintain your RV battery.

NOTE

If equipped, the Power Center/Converter Charger has a Dip Switch or Auto Detecting feature to change charging capability from Lead Acid Batteries to Lithium Batteries. Please refer to the manufacturer's instructions for care and operation. If your Power Center/Converter Charger does not support charging Lithium Ion Batteries, the maximum charge a Lithium Ion battery can receive is approximately 80% of the total battery capacity. Aftermarket all-in-one or stand-alone converter chargers are available in place of changing your Power Center/Converter Charger.

Consult your dealer for more information on making sure your batteries are sized properly to meet your specific camping needs.

INVERTER

If equipped, an Inverter does just the opposite of a Converter. The Inverter converts 12 volt DC power into 120 volt AC power. Therefore, an Inverter will allow you to use some 120 volt items from battery power. Before you plan a camping trip without shore power, there are some things to consider, such as what components and outlets can be powered by the Inverter. Make sure that you do the research and know just how much power you are going to need. When using an inverter without the unit plugged in, you will have to be selective as to what is really needed and be conservative with your power.

Your camping style may require a visit to your local authorized dealership for assistance in achieving your specific needs.

MINI POWER CONTROL SYSTEM

If equipped, the Mini Power Control System (PCS) monitors the total amp draw of a RV and prevents circuit breakers from tripping by momentarily shedding (turning off) designated appliances as determined by the manufacturer. As additional appliances such as a microwave, coffee pot, or toaster are turned on, the Mini PCS will turn off the appliances it controls such as the water heater or air conditioner(s), (compressor only, fan may continue to run).

As the additional appliances are turned back off the controlled appliances will begin to turn back on as power consumption decreases. Please refer to the manufacturer's instructions for care and operation at www.precisioncircuitsinc.com.

POWER SHARE

If equipped, a Power Share Switch affords you the ability to wire two air conditioners into a single circuit breaker. The Primary A/C never loses power and the Secondary A/C is allowed to run as long as the Primary is not drawing any current. Please refer to the manufacturer's instructions for care and operation at www.precisioncircuitsinc.com.

120 VOLT CIRCUIT BREAKERS

The 120 Volt circuits are protected by circuit breakers and can handle from 15 to 30 amps depending upon the circuit. The most common cause of a circuit breaker tripping is an overloaded circuit. For example, when a space heater is plugged into the same outlet as the toaster, the circuit would be overloaded. The circuit is protected by a 15 amp breaker and the combined amp draw of the space heater and toaster is at least 17 amps. If this happens, reduce the load on the circuit and reset the breaker.

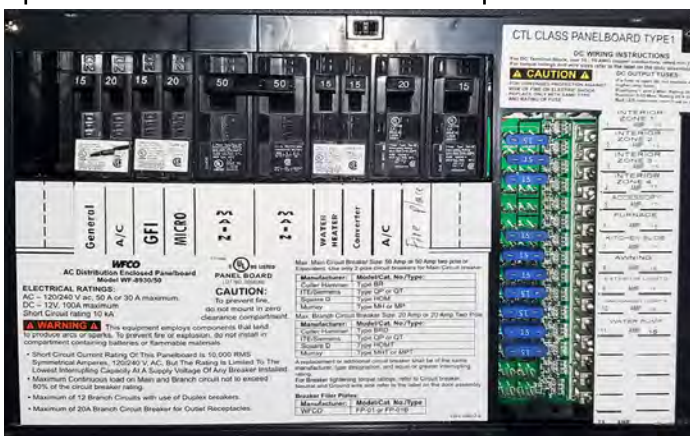
⚠WARNING

NEVER REPLACE CIRCUIT BREAKERS OR FUSES OF HIGHER CURRENT RATING THAN THOSE ORIGINALLY INSTALLED. THIS COULD OVER HEAT THE WIRING AND START A FIRE.

⚠WARNING

IF THE ELECTRICAL SYSTEM IS EQUIPPED WITH AN INVERTER/CHARGER, DISCONNECT ALL AC AND DC POWER TO THE INVERTER BEFORE PERFORMING ANY SERVICE TO THE ELECTRICAL SYSTEM. FAILURE TO DO SO CAN RESULT IN SHOCK CAUSING SERIOUS INJURY OR DEATH.

120V BREAKERS



12V FUSES

12 VOLT FUSES

The fuses that protect the 12 volt system are located in the distribution panel next to the 120 volt breakers. Typically, the fuse panel is labeled to indicate fuse size and which components are on each circuit.

GFCI – (Ground Fault Circuit Interrupter)

The bathroom, kitchen and exterior receptacles are protected by a highly sensitive device, known as a "Ground Fault Circuit Interrupter", which is designed to sense the slightest electrical "short" at those receptacles and instantly disconnect the current before a person can be injured. This works like a circuit breaker and has a reset button on the face of the receptacle. Typically, they are located in the bathroom or kitchen.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

GFCI

GFCI - TESTING

The GFCI receptacle should be tested at least once a month or before every trip. To test the GFCI, push the TEST button. The RESET button will pop out. Power is now off at all outlets protected by the GFCI receptacle. Push in the RESET button to restore power. The test is complete when the reset button remains pushed in. If the RESET button does not pop out when testing, the GFCI is malfunctioning and no outlets should be used on this circuit, as protection is lost. Call your dealer if the GFCI malfunctions.

BRAKES, ELECTRIC/HYDRAULIC

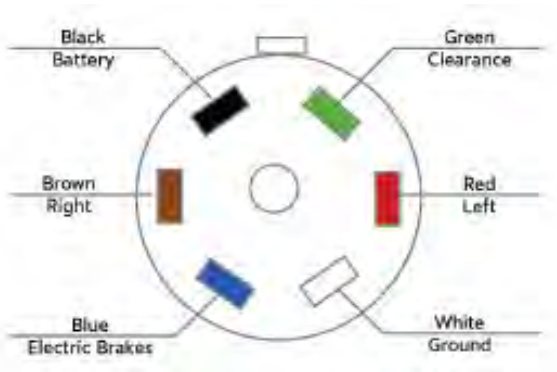
Keystone RVs are equipped with electric brakes or optional electric over hydraulic disc brakes. These brakes are designed to work in conjunction with a properly installed brake controller which would be installed in the tow vehicle. Please refer to the axle manufacturer's instructions supplied with the RV for care and operation and/or www.dexteraxle.com or www.lci1.com, www.morryde.com. www.terranaxle.com

BREAKAWAY SWITCH

See Chapter 5.

7-WAY TRAILER PLUG

A 7-pin plug supplies the electrical connection between the tow vehicle and the RV. This plug connects into a receptacle on the tow vehicle to allow operation of the RV's marker lights, tail lights, brake lights and electric brakes. When connected, the tow vehicle alternator will also charge the RV battery in the RV. Typically, the wires within the 7-Way trailer plug are color-coded as identified in the following graphics.



No.	Color	Item
1	White	Common Ground
2	Blue	Electric Brake
3	Green	Tail Lights and Clearance
4	Black	Battery Charge
5	Red	Left Stop and Turn
6	Brown	Right Stop and Turn
7	Yellow	Reverse (if equipped)

09 PROPANE GAS SYSTEM

Read all of the manufacturer's appliance literature, including the information on the propane bottles and regulator, provided within the RV manual packet and follow any instructions given.

GENERAL INFORMATION

Propane gas is a clean burning dependable fuel for operating all propane gas appliances when utilized properly. Propane gas is highly flammable and is contained under high pressure. Improper use CAN cause fires and/or explosions. Propane gas is colorless and odorless in its natural state. An odorant, similar to rotten egg smell, has been added for consumer safety purposes to help detect leaks and provide warning. If a sulfur or “rotten egg smell” is detected in or around the RV, perform the following steps immediately:

⚠ DANGER **IF YOU SMELL PROPANE...**

1 | EXTINGUISH ANY OPEN FLAMES AND ALL SMOKING MATERIALS.

2 | DO NOT TOUCH ELECTRICAL SWITCHES.

3 | SHUT OFF THE PROPANE SUPPLY AT THE CONTAINER VALVE(S) OR PROPANE SUPPLY CONNECTION.

4 | OPEN DOORS AND OTHER VENTILATING OPENINGS.

5 | LEAVE THE AREA UNTIL THE ODOR CLEARS.

6 | HAVE THE PROPANE SYSTEM CHECKED AND LEAKAGE SOURCE CORRECTED BEFORE USING AGAIN.

⚠ DANGER

IGNITION OF FLAMMABLE VAPORS CAN LEAD TO A FIRE OR EXPLOSION AND RESULT IN DEATH OR SERIOUS INJURY.

PORTABLE FUEL-BURNING EQUIPMENT, INCLUDING WOOD AND CHARCOAL GRILLS AND STOVES, MUST NOT BE USED INSIDE THE RV. THE USE OF THIS EQUIPMENT INSIDE THE RV CAN CAUSE FIRES OR ASPHYXIATION.

PROPANE GAS SYSTEM

The propane gas system is a closed system made up of bottles (also referred to as cylinders), regulators, valves, supply lines and appliances. Propane tanks contain liquid under high pressure which is vaporized into a gas. The gas is regulated into a lower pressure and distributed through the supply lines to provide the fuel for propane appliances to burn.

Consumption of propane gas depends upon the frequency and duration of use of the propane appliances. The furnace and oven have the highest consumption rates. During cold weather, it is advisable to check the bottles often and always keep one full. Safety must be observed at all times when using the propane gas system.

⚠ DANGER

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

⚠ WARNING

DO NOT FILL PROPANE CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY. A PROPERLY FILLED PROPANE TANK SHOULD CONTAIN APPROXIMATELY 80 PERCENT OF ITS VOLUME AS LIQUID PROPANE.

OVERFILLING THE PROPANE CONTAINER(S) COULD RESULT IN UNCONTROLLED PROPANE FLOW, WHICH COULD LEAD TO FIRE OR EXPLOSION AND RESULT IN DEATH OR SERIOUS INJURY.

DO NOT PLACE PROPANE CYLINDERS INSIDE THE VEHICLE. PROPANE CYLINDERS ARE EQUIPPED WITH SAFETY DEVICES THAT RELIEVE EXCESSIVE PRESSURE BY DISCHARGING PROPANE TO THE ATMOSPHERE.

PROPANE GAS IS HIGHLY FLAMMABLE. THE PRESENCE OF PROPANE COULD LEAD TO A FIRE OR EXPLOSION AND RESULT IN DEATH OR SERIOUS INJURY.

"Beautiful Stovetop!"

Kathryn | California

REGULATOR

The regulator is the heart of the propane system. Propane is under high pressure in the bottle and the regulator reduces this pressure to allow safe use with the appliances in RVs. The lower pressure is distributed to the appliances. The lever on the automatic gas regulator will point to the gas bottle in service. When the red flag appears in the inspection glass, this indicates that bottle is empty. The lever should then be turned toward the other bottle and the empty filled as soon as possible.

The regulator has a vent that allows it to breathe. Propane regulators must always be installed with the regulator vent facing downward. Regulators that are not in compartments have been equipped with a protective cover; make sure that the regulator vent faces downward and the cover is kept in place to minimize vent blockage that could result in excessive propane pressure, causing fire or explosion. Check the vent frequently to keep the vent clean and clear of any debris, corrosion or obstruction. A clogged regulator can result in higher pressures, loss of fuel and/or component failure. The vent can be cleaned by using a toothbrush and should be checked periodically for correct pressure output by a qualified propane service center.

⚠ DANGER

DO NOT ATTEMPT TO ADJUST OR REPAIR THE REGULATOR. ADJUSTMENTS AND REPAIRS REQUIRE SPECIALIZED TRAINING AND TOOLS. CONTACT A QUALIFIED PROPANE SERVICE TECHNICIAN. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN A FIRE, EXPLOSION AND/OR INJURIES, INCLUDING LOSS OF LIFE.

SPLIT-BOTTLE SYSTEMS – (PRIMARILY ON FIFTH WHEELS)

Some fifth wheels use a split-bottle system where there is one propane bottle located on each side of the RV. There are some instances where this system may inadvertently activate the “excess flow device” located in the propane "pigtail" hose fitting.

The “excess flow device” is a safety feature that is designed to detect a large leak in the propane system such as a broken gas line and reduce the flow of propane from the bottle. It also activates when the propane bottle service valve is turned on and the propane system is not completely closed such as when the range burner is left on. The device is not designed to completely stop the flow of propane, but reduce it to approximately 20,000 BTUs/hr.

When activated, one appliance at a time may operate normally, however, when a large demand is placed on the system, such as, turning on several appliances or the furnace, they will not receive sufficient propane pressure to operate properly. Follow the procedure below to avoid inadvertently activating the “excess flow device” and to operate the split bottle propane system.

Follow this procedure for the following conditions: after refilling either or both bottles, after any part of the propane system has been disconnected, appliance burners are not operating correctly, and low operating pressure exists downstream from the regulator when operating heavy demand appliances such as the furnace.

1 | Verify both propane bottles contain sufficient propane - refill if necessary.

2 | Close both propane bottle service valves.

3 | Attach the propane pigtails to the service valve.

4 | Close manually operated gas valves on the range or water heater.

5 | Turn the indicator on the regulator to the bottle closest to it.

6 | Slowly open the service valve on the bottle closest to the regulator. This is typically the bottle on the entry door side. Open the valve all the way.

7 | Slowly open the service valve on the bottle that is furthest from the regulator until you can hear gas start to flow through. Do not open the valve all the way. Wait 1 minute.

8 | Re-close the service valve and then slowly re-open it all the way. The system is now ready to operate.

PROPANE GAS PIGTAILS

Keystone propane systems are equipped with the same Type I cylinder connection as you see on current gas grills. The Type I connection system uses the Excess Flow Pigtail Hose, distinguished by the large green nylon swivel nut. The green swivel nut attaches to the outside of the cylinder valve with right hand threads. Tighten the swivel nut by hand. DO NOT use tools.

The safety features of this system prevent gas from flowing unless the connection is tight and will limit excessive gas flow. In cases of extreme heat, 240° to 300°F, at the connection, the connection to the cylinder will be shut down.

PROPANE GAS LINES

The primary manifold is a black pipe located beneath the RV. Copper tubing with flare fittings are used as secondary lines running to the gas appliances. If repairs are needed to these lines or any component of the propane system, DO NOT ATTEMPT to repair yourself and follow the steps listed under the warning "IF YOU SMELL PROPANE".

Although your propane gas system was thoroughly inspected for leaks before delivery, the propane gas system should be inspected and checked for leaks by a RV dealer at least once a year or any time the system is opened.

⚠CAUTION

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

PROPANE GAS LEAK DETECTOR

Keystone RV installs a propane gas leak detector in every camper. It is a safety device that is permanently mounted near the floor and is powered by 12 volt (the RV battery and/or converter). The detector is operational only as long as 12 volt power is available. If the power is disconnected, the monitor will not operate.

Should a propane leak occur, the detector will sound an alarm and continue until the gas has dissipated or until a mute button is pressed. The mute button will only stop the alarm from sounding for 60 seconds and alarm will reoccur if gas is still present. The alarm may sound at times when no propane is present, such as, when household products are in use: aerosol hair spray, cleaners, adhesives, alcohol, etc. Be sure to air out the RV thoroughly after delivery and when using these products. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dometic.com, www.mtiindustries.com.

The propane gas leak detector has a self check circuit which runs continuously while receiving 12 volt power. In the event that the circuitry fails, a failure alarm will sound and the operating indicator will cease to light. Replace the detector when recommended by the manufacturer (typically every five years).

IF THE ALARM SOUNDS...

⚠DANGER

1 | EXTINGUISH ANY OPEN FLAMES, PILOT LIGHTS AND ALL SMOKING MATERIALS.

2 | DO NOT TOUCH ELECTRICAL SWITCHES.

3 | SHUT OFF THE PROPANE SUPPLY AT THE CONTAINER VALVE(S) OR PROPANE SUPPLY CONNECTION.

4 | OPEN DOORS AND OTHER VENTILATING OPENINGS.

5 | LEAVE THE AREA UNTIL THE ODOR CLEARS.

6 | HAVE THE PROPANE SYSTEM CHECKED AND LEAKAGE SOURCE CORRECTED BEFORE USING AGAIN.

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

⚠DANGER

PROPANE POWERED APPLIANCES PRODUCE CARBON MONOXIDE. CARBON MONOXIDE CAN BE FATAL! WHEN THE CARBON MONOXIDE ALARM DETECTS CARBON MONOXIDE IN THE AIR, IT WILL SOUND. CONSULT THE INDIVIDUAL DETECTOR'S USER MANUAL FOR SPECIFIC INSTRUCTIONS AND/OR AUDIBLE WARNING MEANINGS.

⚠WARNING

PROPANE GAS COULD BE PRESENT IN OTHER AREAS BEFORE IT CAN REACH THE DETECTOR'S LOCATION. THE DETECTOR ONLY INDICATES THE PRESENCE OF PROPANE GAS AT THE SENSOR. NEVER CHECK FOR LEAKS WITH OPEN FLAME.

"I like the solar prep package on our travel trailer, as well as the dual 20 Pound propane tanks!"

Michael | Georgia

10 PLUMBING SYSTEM

Your RV plumbing consists of two primary systems: The fresh (potable) water system and the waste water system.

FRESH (POTABLE) WATER SYSTEM

Potable fresh water is supplied to the RV in two ways:

1 | By filling the fresh water tank and pumping the water through the system with the water pump.

2 | Connecting a potable water hose to the “City Water Fill,” which automatically pressurizes the system.

⚠WARNING

USE POTABLE WATER ONLY IN THE FRESH WATER SYSTEM. SANITIZE, FLUSH AND DRAIN BEFORE USING. SEE INSTRUCTIONS UNDER HEADING “SANITIZING THE FRESH WATER SYSTEM". FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

WATER PUMP

The 12 volt water pump installed is self-priming and operates upon demand. Meaning, when you open a faucet, the pump will turn on and pump the water from the tank to that faucet. For the pump to operate, please note the following:

1 | The fresh water tank must have sufficient water in it.

2 | The pump on/off switch must be in the on position. Typically located on the monitor panel.

3 | There must be sufficient 12 volt power (battery or converter) to operate the pump.

4 | For Hot Water - The water heater may have a bypass valve that can prevent water from entering the water heater, typically for winterization
or storing the RV. The fresh water system and water heater tank (if equipped) must be filled before operating the water heater.

5 | The water pump should prime itself and stop running after the open faucet(s) is closed.

6 | Pump should run on demand when a faucet is opened, and stop when the faucet is closed.

Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.shurflo.com.

NOTE

Never let the water pump run while the fresh water tank is empty. Damage to the pump and/or a blown circuit may occur.

FRESH WATER TANK

All Keystone RVs are equipped with a fresh water tank. Tank sizes vary significantly by RV brand and model. Keystone RV uses 2 different methods to fill the fresh water tank depending on the brand and model.

GRAVITY WATER FILL - Remove the cap on the exterior connection labeled "Fresh Water Connection". Insert the hose from your water source and turn on the water. While filling the tank, periodically check the monitor panel to determine the level of water in the tank. When full, turn the water source off. If overfilled, water will "spit" back out of the gravity fill as there is no automatic shutoff. DO NOT leave the RV unattended while filling the fresh water tank. Overfilling the tank can cause damage to the system components which may not be considered warrantable.

PRESSURE WATER FILL - Hook a potable water supply to the city water fill valve, turn the valves to the tank fill position and turn on the water supply. While filling the tank, periodically check the monitor panel to determine the level of water in the tank. When full turn the water source off immediately. DO NOT overfill and DO NOT leave the RV unattended while filling the fresh water tank. Overfilling the tank can cause damage to the system components which may not be considered warrantable. All RVs are equipped with "Low-Point" drains that are designed to drain water from the water tank and all lines. These are located underneath the RV, typically, near the water tank. These drains must be closed or the water system will drain itself of any water entering.

Water should be drained from the fresh water system when not in use. Over time, water quality can degrade which can contaminate the plastic used in the water system and/or cause ill health effects.

NOTE

Fresh Water is considered "Cargo", therefore, your Cargo Carrying Capacity (CCC) is reduced by the weight of the water you choose to carry.

CITY WATER FILL

The city water fill allows a pressurized potable water line connection (water spigot) direct to the RV. Because the connection is pressurized, there is no need to use the water pump. This method also bypasses the water tank and feeds the entire water system directly.

- Connect the city water fill by using a hose manufactured for potable water use and turn on the source. When in need of water, open the desired faucet or spigot. Air will purge itself when the faucet is opened.
- Each time this connection is made, we recommend inspection of visible water connections for leaks. DO NOT leave the RV unattended when hooked to city water fill for extended periods of time. Always use a water pressure regulator to control the water pressure entering the RV.
- City water fills may be in a combination housing with the gravity water fill or stand alone.
- Although the fresh water system was thoroughly inspected for leaks before delivery, fittings can loosen over time and with normal use. Periodically check the fittings at the faucets and all other visible connections and tighten as necessary.

WATER SUPPLY AND ODOR

Local water supplies (well or city) sometimes contain high levels of sulphur or other chemicals which can cause unpleasant odors. Sanitizing the water system, as described and allowing the sanitizing solution to remain for a few days, should eliminate the odor.

"With the tankless water heater, You never run out of hot water!"

Juan | Florida

SANITIZING THE FRESH WATER SYSTEM

Keeping the fresh water system clean and free of any potential contaminations should be a top priority. Sanitizing the system before initial use and annually thereafter, or whenever water remains unused for prolonged durations, is recommended. This will help keep the water system fresh and discourage harmful bacterial or viral growth. To sanitize your system, perform the below:

GRAVITY FILL MODELS:

1 | Drain the tank by opening the low point drains. Close the drains after water has been drained.

2 | Prepare a chlorine bleach solution of ¼ cup to one gallon of water for every 15 gallons of tank capacity. Example: Use 2 ¾ gallons of the solution for a 40-gallon tank. If using Ultra bleach concentrations, reduce bleach to 1/8 cup to one gallon of water.

3 | Add solution to tank through the gravity fill port and fill with water. Open each faucet fixture until a distinct chlorine odor is smelled. Close faucets and let stand 4 hours.

4 | Drain system and flush with fresh water until chlorine odor and smell is gone. (If a water filter has been added, change it at this time).

POWER FILL MODELS:

1 | Drain the tank by opening the low point drains. Close the drains after water has been drained.

2 | Prepare a chlorine bleach solution of ¼ cup to one gallon of water for every 15 gallons of tank capacity. Example: Use 2 ¾ gallons of the solution for a 40-gallon tank. If using Ultra bleach concentrations, reduce bleach to 1/8 cup to one gallon of water.

3 | Add solution to tank through the tank vent located on the side of the RV. This vent is an arched shape part with the words “tank vent” on the vent cover. The vent cover is removable and held in place by detents on either side of the vent. Remove the bug screen inside the vent. Using a funnel and tube, add the sanitizing solution. Reinstall the screen and cover when done.

4 | Open each faucet / fixture until a distinct chlorine odor is smelled. Close faucets and let stand 4 hours.

5 | Drain system and flush with fresh water until chlorine odor and smell is gone. (If a water filter has been added, change it at this time).

WATER HEATER

Keystone installs tankless (on demand) water heaters and traditional water heaters with tanks. The size of the tanks range from 6-12 gallons depending on the brand and model. There are 3 types used:

1 | Operates only on LP gas (utilizing 12 volt to light).

2 | Operates on LP gas or 120 volt electric. The on/off switch for the 12 volt is mounted inside the RV. The on/off switch for the 120 volt may be mounted inside or outside on the water heater itself. DO NOT start the water heater unless it has water in it. If equipped verify the bypass valve, located on the back side of the water heater or in the convenience center, is set to the off position and open a "hot" water spigot on the faucet. The water will travel from the source, into the water heater and then present itself at the spigot when the water heater is full. To verify there is water in the water heater, open the relief valve located on the outside of the water heater. If water is present at the relief valve, you can be sure there is sufficient water in the water heater to operate. Water heaters are equipped with a pressure relief valve designed to relieve water or air pressure therefore dripping may be normal.

3 | The tankless (on-demand) water heater operates on LP gas (utilizing 12 volt to light). Some of the tankless water heaters do not have bypass valve systems. Some tankless water heaters have flow regulators that may be adjusted by the consumer to optimize the water heaters temperature. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://www.contoureusa.com, www.dometic.com, www.airxcel.com, www.girardgroupcompanies.com, or www.truma.com, www.furrion.com

DANGER

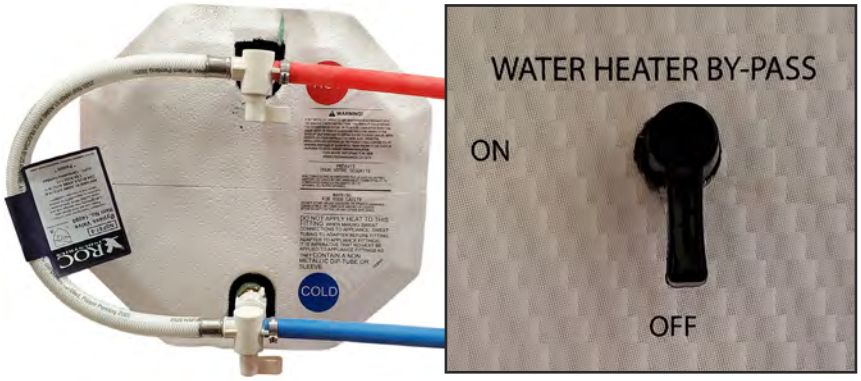
ALL PILOT LIGHTS, APPLIANCES AND THEIR IGNITORS (SEE OPERATING INSTRUCTIONS) SHALL BE TURNED OFF BEFORE REFUELING OF FUEL TANKS AND/OR PROPANE CONTAINERS. FAILURE TO COMPLY CAN RESULT IN DEATH OR SERIOUS INJURY.

WARNING

WE RECOMMEND THAT THE DIAGNOSIS AND REPAIR OR REPLACEMENT OF YOUR RV'S APPLIANCES BE PERFORMED BY A DEALER OR PROPERLY CERTIFIED RV TECHNICIAN. IMPROPERLY DIAGNOSED, REPAIRED OR REPLACED APPLIANCES AND/OR THEIR PARTS, COULD LEAD TO AN INCREASED RISK OF DEATH OR SERIOUS INJURY.

WATER HEATER BYPASS KIT

If equipped, a bypass kit allows winterization of the fresh water system without putting RV anitfreeze into the water heater. The bypass valve(s) are located on the back of the water heater (which is inside the RV) and in bypass mode, allow water to travel through a "cross-over" line connecting the input and the output lines of the water heater. BE CAREFUL, if in bypass mode, turning on a "hot" water spigot, WILL NOT put water in the water heater and lighting the water heater with an empty tank could damage the tank which may not be warrantable.



WATER HEATER STORAGE AND DRAINING

When not using the RV, drain the water from the water heater tank. Over time, water quality can degrade which can permanently contaminate the lining of the water heater tank. Also, drain the water heater during cold weather to avoid damage from freezing.

TO DRAIN THE WATER HEATER:

1 | Turn off power to the water heater at the switch or the main breaker.
2 | Shut off the gas supply and the water pump.
3 | Open all fixtures, both hot and cold throughout the RV.
4 | Remove/open the exterior access door to the water heater.
5 | Remove the drain plug (or anode rod if equipped) from the tank.
6 | Open the pressure relief valve to allow air in and water will drain out tank.

WINTERIZATION

RV components can be damaged from the effects of freezing. Protecting the plumbing system and related components is crucial. Damages due to weather are not covered under warranty at any time. Many RV owners choose to have their RVs winterized by their dealer while others choose to do it themselves. Please refer to the manufacture's instructions supplied with the RV for the recommended winterization method for your water heater and/or www.dometic.com, www.airxcel.com, www.girardgroupcompanies.com, furrion.com or truma.com/us/

Following are descriptions of two methods used to winterize:

1 | Compressed Air (Dry) Method - Uses compressed air to blow out any remaining water in the system after draining the system of all water. This method requires an air compressor and appropriate adapters.

2 | RV Anitfreeze (Wet) Method - Uses RV approved, nontoxic, potable, anitfreeze in the system.

Blowout Plug Example

Many Keystone products include an optional bypass kit that allows the plumbing system to bypass the water heater reducing the amount of antifreeze that will be needed (bypass kits are available at most RV service centers for a reasonable expense and can be installed during winterization). Without a bypass kit installed, an additional 6–10 gallons of antifreeze will be required.

On the following pages are the procedures for both methods. Your local dealer is best suited to answering any questions as well as providing information on winterization and storage that may be particular to the climate in your area. If using the compressed air method, a special adapter should be purchased to allow compressed air to be delivered through the city water fill. These adapters are available at most RV supply stores.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

METHOD 1 - COMPRESSED AIR (WITH BYPASS KIT INSTALLED)

1 | Purchase 1-2 gallons of RV non-toxic anitfreeze.

2 | Use compressed air (max 30 psi) to blow out the black tank flush system if equipped.

3 | Drain the fresh water tank and empty the waste water holding tanks.

4 | Turn off water heater (gas and electric), let water in tank cool and then drain. Refer to your water heater manual.

5 | Turn water heater bypass valve to bypass position. (The bypass valve is located either near the water heater incoming lines – an access panel may have to be removed depending upon the model. Or it will be located in the water convenience panel).

6 | If installed, remove water filter from assembly and discard. Install diverter if included. Antifreeze should never be allowed into a water filter.

7 | Open all faucets, including shower head sprayer, toilet flushing device, clothes washer hookups, water line drains and outside shower if equipped. Remember if your RV has a residential refrigerator, see Chapter 7 for winterizing the ice maker waterline. Open the fresh water tank drain.

8 | Turn on the water pump to clear out any water in the suction line. Run the pump until it is dry (approximately 30 seconds) this will vary depending on your RV. Operating the pump longer than that with no water can damage the pump.

9 | Connect an air hose with an adapter to the city water fill connection.

10 | Set the pressure no greater than 30 psi and blow out the water lines until no water can be seen coming out of the fixtures and lines. After the water lines have been blown out, remove the air hose and the blowout plug from the City Water Inlet.

11 | Close all drains.

12 | Pour about one quart of RV anitfreeze into drains, p-traps, toilet, and tanks. To prevent staining, wipe the RV antifreeze out of the sinks, shower (or tub) and toilet using a soft, dry cloth.

METHOD 2 - RV ANITFREEZE (WITH BYPASS KIT INSTALLED)

1 | Purchase 4-6 gallons of RV non-toxic, anitfreeze.

2 | Use compressed air (max 30 psi) to blow out the black tank flush system if equipped. An alternate method is to pump anitfreeze into the inlet with a hand pump available from your RV dealer.

3 | Drain the fresh water tank and empty the waste water holding tanks. Remember if your RV has a residential refrigerator see Chapter 7 for winterizing the ice maker water line.

4 | Turn off water heater (gas and electric), let water in tank cool and then drain. Refer to your water heater manual.

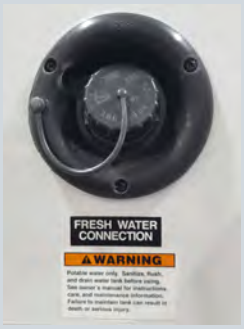
5 | Turn water heater bypass valve to bypass position.(The bypass valve is located either near the water heater incoming lines – an access panel may have to be removed depending upon the model, or it will be located in the water convenience panel).

6 | If installed, remove water filter from assembly and discard. Install diverter if included. Antifreeze should never be allowed into a water filter. (Steps continued on next page).

"Lots of room. Lots of great features. Easy to pull and easy to winterize."

Brandon | Pennsylvania

7 | The winterization process may vary slightly due to different plumbing configurations between brands and models.



- **Gravity Fill** - Pour an amount of RV non-toxic antifreeze into the fresh water tank to fill the tank above minimum water pump operating level. (Use of a long funnel may be helpful). Add more, if necessary, during the procedure.

- **Winterizing Port**: Locate the EZ winterizing system found near water pump or on some models in water management panel. Turn valve to close flow from fresh tank and allow flow from EZ winterizing hose. Place hose into supply of antifreeze.

- **Water Pump Bypass Hose** - Install a bypass hose on the suction side of the water pump and pull directly from the antifreeze container. See your RV dealer for necessary hose and fittings.

8 | Turn on pump switch and open the cold water side of all faucet fixtures. Leave open until the antifreeze comes out (generally pink in color). Repeat for hot water side. Remember the outside shower and clothes washer hook ups if equipped.

9 | Flush toilet until anitfreeze begins to flow into the bowl and then pour one quart of anitfreeze down the toilet to winterize the black tank. Leave a small amount of anitfreeze in the toilet to cover the seals.

10 | Pour about one quart of anitfreeze down each shower/tub, lavatory sink, and kitchen sink to fill p-traps. To prevent staining, wipe the RV antifreeze out of the sinks, shower (or tub) and toilet using a soft, dry cloth.

⚠ DANGER

DO NOT USE AUTOMOTIVE ANTIFREEZE. AUTOMOTIVE ANTIFREEZE IS POISONOUS AND NOT FOR USE IN POTABLE WATER SYSTEMS.

DE-WINTERIZATION/REMOVAL OF ANTIFREEZE

If purchasing an RV that is winterized with RV antifreeze or having had an existing RV winterized before winter storage, the plumbing system must be flushed and sanitized before use. Do not attempt to turn on water heater if system is winterized. Perform the following before attempting to operate the water heater or use the plumbing system.

1 | Drain all tanks, fresh water and sewage. Close the drains after water has drained.
2 | Attach garden hose to fresh water fill and fill tank.
3 | Turn on pump switch and open cold water side of all faucet/shower fixtures. Leave open until water runs clear. Repeat with hot water side.
4 | Flush toilet until clear water runs into bowl.
5 | Dump tanks again. Close the drains after water has drained.
6 | Sanitize water system.
7 | If a water filter is installed, drain the lines, remove filter assembly, clean and reinstall with new filter.
8 | When ready to use the water heater, turn bypass valve to open position to allow water to enter hot water heater tank and fill according to instructions.

WASTE WATER SYSTEM

The waste water system is self-contained within the RV. There are 2 primary waste systems in a RV: Black Water Waste and Gray Water Waste. In some floorplans, a sink(s) or shower may empty into the Black Water Tank. As in residential households, the drainage system has drain lines, p-traps and plumbing vents that route gases/odors out through the roof assembly.

BLACK WATER WASTE

This system consists of the toilet, drains lines, black water tank, and termination valves.

TOILET

The toilet operates with fresh water supplied by the fresh water tank or city water fill. When flushed, the toilet drains into the black water tank. Please refer to the manufacturer's instructions supplied with the RV for care and operation.

DRAIN LINES

The drain lines carry the waste from the toilet to the tank and from the tank to the termination valves where it will be drained from the RV.

BLACK WATER TANK

The term “black water” refers to the by-products of using the toilet. Once the black water tank reaches the desired capacity, the contents can be dumped from the termination valve into an approved dump station. We recommend using a tank deodorizer to help control odors and breakdown solids, available from dealer.

SOLID BUILD-UP IN THE BLACK WATER TANK

When camping and using a “Full Hook-up” (includes a dump station at the site), DO NOT leave termination valves open. When solids are flushed, the water will run into the dump station and the solids will stick to the bottom of the tank and build up. Leave the termination valves closed until the tank level warrants dumping.

Not using enough water when flushing solids can also cause build up. To prevent this from occurring, add plenty of water to the bowl before using/flushing the toilet when solids will be involved. Only use toilet paper approved for use in RVs. The product label will read, "Septic Safe" or "Made for RVs".

Should you ever have a build up of solids, close the valves, fill the tanks about ¾ full with fresh water, drive a distance to agitate the solids and drain the tanks. If the problem continues, it may be necessary to purchase a waste water digester from your local RV dealer which can be added to the tank to help break down solids. Follow the instructions of the digester. Depending on the severity of the situation, it may be necessary to repeat this procedure.

NOTE

DO NOT PUT THESE ITEMS IN TOILET OR DRAINS

1 | Facial tissues, paper towels, sanitary products (including those labeled flushable).
2 | Detergents or bleach.
3 | Automotive antifreeze, ammonia, alcohols, or acetones.
4 | Grease from cooking, table scraps, or other solids that may cause clogging.

TERMINATION VALVE

Typically, there is a termination valve for each waste holding tank in the RV and they are located on the roadside. The termination valves are closed to hold waste in the waste tank and open to drain it. See “Dumping Instructions”, to drain the waste water system. RVs with multiple bathrooms and/or dual gray/black tanks may have termination valves separated from the RVs primary termination valves/ dumping location. The following caution label has been placed near the side-vented termination that reads:

⚠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.

TANK FLUSHING

Periodically, for correct monitor panel function and to control odor, it is necessary to fill all waste water tanks (black or gray) with fresh water and repeat the dump procedure to help flush any remaining residue from usage. The intervals for this need vary based on amount of use, type of use, holding tank chemical usage, etc.

GRAY WATER WASTE

Typically, this system consists of all sink/shower drains, gray water tank(s) and termination valves. Gray water is the wastewater from the sinks, tub/shower drains and is stored within one (or more) gray tank(s). Gray water is drained through a termination valve on the roadside of the RV. On some floorplans, some of the gray water waste will empty into the black water tank.

NO FUSS FLUSH (OPTIONAL)

If equipped, the no fuss flush kit has been installed to assist in rinsing the black water tank after dumping. Similar to the city water fill, it is located on the exterior of the RV and a fresh water hose can be hooked to it. To operate, drain the black tank as outlined previously, connect a hose to the inlet labeled “Sewer Valve Must Be Open When Using This Inlet” OR “Black Tank Flush.” Open the water supply to full pressure to flush tank. When water runs clear from sewer hose, shut off water supply and disconnect garden hose from source. Do not disconnect hose from flush inlet until water has drained from system.

NOTICE

DO NOT leave the RV unattended during these processes and make sure the black tank termination valve is open and your sewer hose is connected to an approved dump station. Overfilling the black water tank will result in water overflowing into the interior of your RV from the toilet and the resulting damage is not covered by warranty.

DUMPING INSTRUCTIONS

1 | Use PPE (Personal Protective Equipment) - Eye Protection, Face Mask, Proper Gloves.
2 | Twist off the termination outlet cap.
3 | Connect the sewer hose (adaptor) to the termination end.
4 | Place the other end into an approved dump station inlet.
5 | Open the black (sewer) water termination valve first.
6 | Once dumping slows down, open the gray water termination valve (if unit is equipped with 2 gray water tanks, dump one at a time).
7 | If the RV is equipped with a Black Tank Flush, perform flush at this time. See "No Fuss Flush". If not equipped proceed to step 8.
8 | Once contents are dumped, close termination valves.
9 | Disconnect sewer hose and store.
10 | Install termination cap.
11 | Add approved chemical deodorant as per manufacturer's instructions.
12 | Wash hands with approved soap/hand sanitizer.

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ODOR CONTROL

The secret to good air quality in (and around) your RV lies with finding an effective holding tank chemical and applying the proper amount based on use and ambient temperature. It is important to note some brands work more effectively than others! If you are experiencing unpleasant odors from your holding tank(s), try switching brands to something proven to work before thinking something may be wrong with the plumbing. The gray tank, as well as the black tank, can produce offending odors. Follow the guidelines supplied with the chemical for usage directions.

MONITOR PANEL

The monitor panel is designed to give approximate liquid levels of the fresh, gray and black water tanks at a given moment as well as a charge value (based on voltage) of the battery. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.atcomp.com or www.precisioncircuitsinc.com.

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OPERATION

Depress the button for the desired reading (tank or battery). The level readout for the tanks will read at Empty (E), 1/3, 2/3, or Full (F). All lights will be lit when full. The battery conditions are as follows (+/- 5%):

- C Charge <12.7V
- G Good 12.1V-12.7V
- F Fair 11.6V-12.1
- L Low 6V-11.6V

ERRONEOUS READINGS

The monitor panel displays readings from sensors attached to the tanks. These sensors can send false readings when:

1 | Water has low mineral content. Minerals in water help conduct the electrical signal to the monitor display.
2 | Contamination-Residue remains on the inside of the tanks after dumping (caused by normal use or putting grease, oils, etc. in the tanks). Refer to "Tan Flushing".
3 | The battery is low.
4 | There is loose wiring connections (bad ground).

11 SLIDE-OUT SYSTEMS

Keystone uses two (2) basic types of slide-out systems depending on the product application, Electric and Hydraulic. Please refer to the manufacturer's instructions supplied with the RV for care and operation of the system in your RV.

⚠WARNING

STAND CLEAR OF THE SLIDE-OUT'S INTERIOR PATH AND VERIFY THAT THERE ARE NO EXTERIOR OBSTRUCTIONS BEFORE EXTENDING OR RETRACTING THE SLIDE-OUT. ALSO, THERE ARE HARD, SHARP METAL EDGES UNDER THE SLIDE-OUT(S) AND IN THE SLIDE-OUT MECHANISMS. CHILDREN SHOULD BE MONITORED AT ALL TIMES, AND NOT ALLOWED TO PLAY UNDER THE SLIDE-OUT(S) WHEN EXTENDED. KEEP ALL PEOPLE, PETS AND OBJECTS AWAY FROM THE SLIDE-OUT ROOM AND MECHANISM DURING OPERATION. THE MECHANISM ASSEMBLY MAY CATCH LOOSE CLOTHING OR PINCH OR CRUSH APPENDAGES. FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY OR DEATH.

NOTICE

For Destination Trailers - Before operating slide rooms the entry door must be open to allow air displacement. Failure to comply will result in damage to the room.

SLIDE-OUT TIPS

BEFORE OPERATING ANY SLIDE-OUT:

1 | The RV must have a fully charged RV battery (having the shoreline cord plugged in may NOT be enough).
2 | Turn off all unnecessary lights and 12 volt components before extending/retracting.
3 | The RV must be leveled and stabilizer jacks extended.
4 | Make sure the room has clearance, inside and outside, to extend/retract.
5 | Make sure water and debris are removed from the top of the room's exterior before retracting.
6 | Avoid injury by keeping all body parts out of the way of the slide-out.
7 | Make sure other parties are clear of the slide-out before extending/retracting.
8 | DO NOT ride in the slide-out when extending/retracting.
9 | DO NOT step on the floor of the slide-out when the room is retracted. The slide-out floor is not supported by the main floor and stepping on the floor may cause structural damage to the slide room.

NOTE

- Weather and atmospheric conditions will cause rubber to deteriorate over time. Inspect seals around slide-outs regularly and replace at the first sign of a problem.
- Periodically, during the normal course of operation, slide-out systems and rooms will require adjustment.
- Slide-out rooms should be stored retracted.
- Keep mechanical components clean of road debris, salt, etc. using a mild soap and water.
- Rooms that will be extended for long periods of time should be actuated monthly.
- Failure to follow these basic steps can lead to intermittent operation of the slide-out system, improper sealing, personal injury and damage to the RV which is not warrantable.

ELECTRICALLY OPERATED SYSTEMS

Keystone uses 4 different styles of electric slide systems:

1 | Rack and Pinion (Lippert or Norco).
2 | Cable driven (Norco).
3 | In-Wall/Schwintek (Lippert).
4 | Slim Rack (Lippert).

For all systems, the RV battery drives the motor(s) to extend and retract the slide-out room. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com, www.norcoind.com

NOTE

DO NOT apply any petroleum products (grease) to the slide system. This will attract dirt and can cause damage to the functional components of the slide system.

HYDRAULICALLY OPERATED SYSTEMS

SYSTEM OPERATION

The Hydraulic Slide-Out System uses a 12 volt DC hydraulic pump which powers the double-acting hydraulic cylinder to move the room(s). Electricity for the pump assembly is supplied by the RV battery. Normal operation is performed by pressing the wall mounted slide-out switch to extend or retract the room. Please refer to the manufacturer's instructions supplied with the RV for care and operation of the system in your RV. The pump is installed with Automatic Transmission Fluid (ATF). For purchase locally, ATF with Dexron III® or Mercon 5® or a blend of both is recommended. The pump fluid should not be changed without completely flushing the system. In cold weather environments, an additive can be used to reduce popping and “stiction” (please visit www.lci1.com for details). For the best performance, use the see-through reservoir to maintain the fluid level within ½” of the top with the room(s) retracted (closed).

The system is designed so that the slide-out with the least resistance will extend/retract.

The Hydraulic pump is wired to an auto reset breaker that is typically within 18” of the RV battery. If overloaded, this breaker will interrupt the operation of the slide-out temporarily which can be perceived as intermittent operation.

CAUSES FOR THIS TO OCCUR:

1 | Low Battery.
2 | Loose or corroded battery terminal or ground wire.
3 | Slide-out binding (RV not level, sticks/leaves or other debris wedged between the room and the wall).
4 | Slide-out/system out of adjustment.
5 | Something blocking extending/retracting the slide-out.

INDIVIDUAL ROOM CONTROL (IRC)

If equipped, this control panel allows each room to be operated independently.

MANUAL OVERRIDE TO RETRACT OR EXTEND THE SLIDE-OUT ROOM

These Systems can be manually overridden in cases of hydraulic/mechanical failure or when electrical power is either interrupted or unavailable. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or https://support.lci1.com/slide-outs/, https://balrvproducts.com/product-category/slide-systems/, https://in-command.net/.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video’s, FAQ’s, the DIY program and more.

⚠WARNING

THE SLIDE-OUT ROOM AND MECHANISM ARE A POTENTIAL CRUSH HAZARD. DISCONNECT THE BATTERIES TO DISABLE POWER TO THE SLIDE-OUT(S) BEFORE WORKING ON OR UNDER THE SLIDE-OUT(S). FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

12 SPORTS UTILITY RECREATIONAL VEHICLES

This chapter deals with RVs equipped with cargo loading ramps and fuel transfer systems. These RVs are sometimes referred to as “ramp RVs” or “toy haulers.” These RVs combine RV living quarters with a large cargo area. Special consideration must be given to the topics in this chapter.

BED LIFTS

See “Elevated Beds And Electric Bed Lift Systems” for complete information including use and safety. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com.

RAMP RV WEIGHT DISTRIBUTION

All loaded RVs must remain within GVWR and GAWR limits. However, proper load distribution is particularly important for ramp RVs. These RVs are designed to carry a variety of vehicles and cargo in the cargo storage area. These cargo items are typically heavy and consideration must be given on how they are loaded. Because most storage areas are at the rear of the vehicle, the biggest concern is maintaining the correct hitch or pin weight percentage. Vehicles loaded incorrectly could have too little weight resting on the hitch or pin and could become unstable when towing. Keep the loaded tongue weight between 10% and 15% of the total weight for travel trailers and between 15% and 25% of total weight for fifth wheels. For example, if the loaded vehicle weighs 8000 pounds, the hitch weight for a travel trailer should be between 800–1200 pounds (10–15% of the 8000 pound total). For a fifth wheel, the same 8000 pound vehicle should have a pin weight of 1200–2000 pounds (15–25%). By maintaining the correct hitch percentage and staying within the limits of the GVWR and GAWR, you can help insure a safe towing experience with your RV.

⚠WARNING

LOCATE AND SECURE CARGO AND VEHICLES TO MAINTAIN SAFE WEIGHT DISTRIBUTION IN THE CARGO AREA AND THROUGHOUT THE RV.

IMPROPER WEIGHT DISTRIBUTION OR OVERLOADING COULD LEAD TO LOSS OF VEHICLE CONTROL DURING TRAVEL RESULTING IN SERIOUS INJURY OR DEATH.

FOLLOW ALL GUIDELINES CONTAINED IN THIS MANUAL FOR LOADING AND WEIGHING PROCEDURES. MAINTAIN THE LOADED HITCH WEIGHT WITHIN THE PERCENT LEVELS STATED ABOVE. WHERE APPLICABLE, A HITCH WITH BUILT IN SWAY CONTROL IS RECOMMENDED. DO NOT EXCEED THE GVWR (GROSS VEHICLE WEIGHT RATING) OR THE GAWR (GROSS AXLE WEIGHT RATING) OF EITHER THE TOW RV OR TOW VEHICLE.

CARGO AREA LOAD RATINGS

Within your RV, you will find a maximum load rating label specifically for the cargo area. This is the maximum designed safe load rating for this area, however, the rating must be understood within the context of the GVWR of the RV. While the label specifies the maximum load the cargo area itself is designed and rated for, care must be taken not to exceed the overall available cargo capacity of the RV. In other words, even though a cargo area is rated at a certain capacity it does not necessarily mean you can load it to that capacity. The overall design of the RV and the GVWR must be considered. For example, if a travel trailer has a cargo area rating of 2000 pounds, a GVWR of 10000 pounds, and a UVW of 7500 pounds, but after loading the trailer with other cargo (and before loading the cargo area) the trailer weighs in at 8200 pounds (700 pounds of cargo added), then the available max load for the cargo area becomes 1800 pounds in order to remain within the overall capacity of the trailer. Similarly, if a fifth wheel has a cargo area rating of 3000 pounds and a GVWR of 17000 pounds, but after loading the fifth wheel with cargo (and before loading the cargo area) it weighs in at 14,500 pounds, then the cargo area cannot be loaded to more than 2500 pounds without overloading the vehicle. In cases where the GVWR is limiting the available capacity of the cargo area, consider removing other cargo (water, LP, personal items, food) in order to take full advantage of the cargo area (if needed). Certain models are designed where the GVWR limits the cargo area rating even without cargo being added. In those cases it is important to understand that while the cargo area rating defines the designed capacity of a cargo area, the overall design of a particular trailer can mean this rating cannot be achieved. The overall GVWR rating takes precedence over the cargo area rating in these cases.

RAMP RV LOADING SAFETY

The cargo door/loading ramp gives you complete access to the RV cargo area. When lowered, the loading ramp allows you to easily load rolling cargo, bicycles, small motorcycles, ATVs, and small vehicles. This section outlines the safety precautions you should take when loading and unloading cargo and vehicles, as well as loading/unloading procedures, techniques and tips.

Use caution when using the loading ramp/door area of your RV.

This area has many uses and some things to be aware of are:

- Ramps and inclines.
- Dissimilar surfaces that may be wet and slippery.
- Awkward, heavy or unbalanced loads.

CARGO PLACEMENT

Load any vehicles and heavy cargo items in the cargo area as far forward as possible. Big heavy items should be loaded where they can be securely tied down. Start with top heavy items if you have them. That's usually a good place to start because you must have plenty of room available to properly tie them down. Tying them straight down is not secure enough. They need to be tied off at several angles or they could fall over in an abrupt change of speed or direction. You need room to accomplish this. Smaller items can be used to fill the spaces around them later.

Once you have the heavy items in place, check the hitch weight. If the hitch weight is significantly more or less than the guidelines in section "Ramp RV Weight Distribution", make the changes necessary to get close. Then, the smaller items can be placed bringing the hitch weight into the recommended range. They should be arranged so that they will not move during travel. Placing them next to items that have already been tied down helps, but your main concern should be to not lose the balance of the RV. Do not forget you can also make one side of a RV heavier than the other without planning to. This can cause tire failures from overloading an individual tire or tires. This can also cause a very serious problem when cornering, even causing the RV to turn over in a sudden turn.

Top heavy loads can cause problems not only in cornering but also in hard braking. They have a tendency to make the RV "dive" in hard braking conditions. This suddenly increases tongue weight and can decrease your vehicle's front axle loading just when you need steering and brakes the most. Arrange the remainder of the load to act as a counter weight to minimize this effect. Never place heavy objects on add-on devices hung on the rear bumper or placed across the tongue frame. This places heavy objects where they will dramatically affect handling in corners or bumps. Heavy weights placed well behind the axle can also reduce stability. A bicycle may be fine to hang out in back, but not a motorcycle. Use good common sense and always allow plenty of margin for safety.

Continuous attention to safety measures will help prevent accidents, possibly serious injuries, and property damage. You can help minimize these risks, avoid hazards, and enjoy your recreational activities safely by using an effective decision-making strategy as follows:

1 | Identify hazards or specific problems in your path. Equipment, materials, debris, other vehicles, children, pets, or any number of other items may be in your way when you load or unload cargo or vehicles.

2 | Predict what may happen and think of the consequences of your actions. Be sure you are physically capable of handling the load safely and keeping it under control.

3 | Decide what to do based on your capabilities and the capabilities of your equipment.

4 | Be sure your cargo does not exceed the capacity of your loading ramp and the RV.

LOADING EQUIPMENT

The loading equipment furnished with your RV consists of the ramp door and tie down attachment points in the cargo floor area. The rated capacity of the ramp door is found on the capacity rating label attached to the interior edge of the door. Be careful to not overload the toy hauler area and to distribute the weight evenly throughout the RV. Our products offer a multitude of tie down attachment points with various ratings but the minimum for any one is 1200 pounds. Talk to your dealer about tie down straps, cables, hooks, chains, wheel chocks, blocks, etc., that are not supplied with your RV.

CHOCKS AND BLOCKS

Wheel chocks are wedge-shaped blocks placed in front of and behind the rear tires of a RV to prevent the RV from moving while it is being loaded. Always hitch the RV to the tow vehicle and use wheel chocks or other vehicle-restraining devices when loading and unloading the RV. When chocking, use wheel chocks of the appropriate size and material to securely hold the vehicle.

Do not use lumber, cinder blocks, rocks, or other make-shift items to chock.

TIE DOWNS

Use tie downs rated for the weight of the object being secured. Be sure to attach and secure each tie down so that it cannot come loose, unfastened, opened or released while the RV is in motion. Also, use edge protection whenever a tie down could be damaged or cut at the point where it touches an article of cargo.

Note: Do not over tighten tie downs as this will cause damage to the attachment hardware, floor structure, and cargo.

The working load limit of a tie down, associated connector, or attachment mechanism is the lowest working load limit of any of its components (including any tensioner device), or the anchor points to which it is attached, whichever is less. When you choose tie down hardware, choose items that are strong enough to hold the load you are securing. The load limit of each tie down used should be at least one-half the working load limit of each tie down that goes from an anchor point on the RV to an attachment point on an article of cargo. Check the tie down manufacturer's specifications to determine working load limits.

Note: Tie down hardware is typically not supplied with your RV.

When an article of cargo is not blocked or positioned to prevent movement in the forward direction, the number of tie downs needed depends on the length and weight of the articles. In all cases, use enough tie downs to secure the cargo from moving in any direction. Heavy tool chests or cabinets may require tie downs around bottom, middle and top to secure them. Be sure to lock or secure drawers in these chests or cabinets so they cannot open while traveling. Keep handle bars, mirrors, etc. away from the RV interior walls. The walls can be damaged by contact with hard, sharp objects.

LOADING RAMP OPERATION

⚠WARNING

ALWAYS HOOK THE RV TO THE TOW VEHICLE BEFORE MOVING CARGO OR USING THE LOADING RAMP. FAILURE TO DO SO COULD CAUSE THE RV TO TIP BACK AS THE LOAD SHIFTS TO THE REAR OF THE CARGO AREA CAUSING PROPERTY DAMAGE, PERSONAL INJURY, AND/OR DEATH.

1 | Hitch the RV to a tow vehicle before loading and unloading the rear cargo area. Select a parking site where the edge of the rear door/loading ramp will rest entirely on a flat, level surface, and the corners of the door will be supported. Avoid soft sand or mud surfaces. When the RV is loaded, the added cargo weight may cause the RV and/or tow vehicle to become stuck.

2 | Set the parking brake on the tow vehicle and install wheel chocks in front and behind the tires on one axle on each side of the RV. DO NOT use the emergency breakaway switch on the RV.

3 | Lower the front and rear jacks on the RV to stabilize it.

4 | Unlock the rear door loading ramp and carefully lower it to the ground. If equipped, extend the ramp extension and install the supporting hardware.

5 | If equipped with a power bunk, raise both bunks fully.

6 | Move items out of the way of your cargo, whether you are loading or unloading. Have an idea where your cargo will be positioned after your loading/unloading activities.

7 | Use caution and proper lifting techniques when loading/unloading items from the cargo area.

8 | Use extreme caution when loading/unloading ATVs, motorcycles, or other vehicles ("motorized cargo" or "vehicle(s)"). These machines are generally heavy, and may be hot from operation and/or covered with dirt, oil, or other substances that may make them slippery. See the section "Loading and Unloading Motorized Cargo" below for more details.

9 | Make certain that the door seals and hinge area are free of any debris, such as sand or snow, before closing the rear door loading ramp.

10 | Inspect the hinges, assist springs, and latch mechanism before each trip for signs of wear or damage, and make any needed repairs for safe operation and towing.

LOADING AND UNLOADING MOTORIZED CARGO

Many recreation ATV or motorcycle accidents and injuries happen while loading or unloading. Steep inclines, unstable ramps, a short stopping area and accelerating up the ramp can make loading motorized cargo difficult. There is no absolute safe way to drive your motorized cargo into the RV. Take the following steps to aid in reducing the risks associated with transporting, storing, or occupying the RV with motorized equipment and vehicles.

- Wear personal protective equipment while loading and unloading vehicles to/from the RV. This includes but is not limited to, an approved motor vehicle helmet, leather boots, appropriate gloves, and eye protection.
- Never stand in the path of equipment when loading/unloading with the ramp and keep bystanders away from the ramps.
- Keep body parts completely clear of the ramp door hinge pinch area at all times.
- Check parking brakes on the vehicle(s) you are loading/unloading, and on the tow vehicle.
- Inspect ramp and RV floor/loading area for cracks, damage, oil or other debris that may cause slippage.
- Remove carpet from section where fueled vehicles or motorized equipment will be stored.

RAMP POSITIONING

The ramp angle from the RV floor to the ground affects the risk when loading/unloading cargo. If the ramp angle is reduced, and all other conditions remain the same, risk is reduced. Always try to reduce the loading ramp angle; the shallower the ramp angle, the easier cargo loading will be. Position the RV to take advantage of any terrain features that will help reduce the ramp angle. In all cases, be sure the ends of the ramp door can be fully supported. Always position the loading ramp so the ends that are in contact with the ground are level or at the same height. An uneven ramp may cause the cargo to tip over sideways during loading/unloading.

LOADING MOTORIZED CARGO

Always follow the instructions in the owner's manual for the motorized cargo. If not available, the following are generalized suggestions for loading motorized cargo. At no time should these instructions over-ride the instructions contained in the motorized cargo owner's manual.

1 | Shift into lowest gear before ascending ramps.

2 | Align wheels with ramps both loading and unloading.

3 | Approach straight on, not on an angle. If you are off to one side and the ground is uneven where the ramp touches, an unbalanced situation can occur.

4 | The operator should apply the throttle smoothly and climb the ramp at low speed. Too much or sudden increases in acceleration will cause the vehicle to be harder to control and may cause the vehicle to impact the front of the RV cargo area or over-turn.

5 | Stop when fully in the RV. Keep handle bars, mirrors, etc. away from the RV interior walls. The walls can be damaged by contact with hard sharp objects.

6 | After loading, close the fuel valve and run the engine until it stops (motorcycles and ATVs). Turn the ignition key off and remove it. Set the parking brake. For manual clutch machines, leave the machine in gear.

7 | Secure the vehicle with tie downs. The attachment points you select on your equipment must be strong enough to support the weight of the equipment. Usually, attachment points that are low and centered on the equipment frame will be good. An attachment to a decorative piece of chrome or plastic will usually not be a good tie-down point. Consider any leverage action that may occur. An attachment point past the center of the equipment could cause the equipment to either swing around or flip over, causing damage to the equipment, or personal injury. If you have any doubt about the attachment point you have selected, stop and find a better attachment point.

SECURE THE LOAD

Install blocking devices in the front, back, and on both sides of the wheels to keep it from rolling. This block is strictly an additional safety precaution and does not reduce the need for strapping the vehicle in securely.

Use a minimum of three tie downs to secure the vehicle to the RV. Use one tie down to secure the front of the vehicle to the RV. Use two tie downs to secure the rear of the vehicle to the RV, four tie downs (one at each corner) are preferred.

Attach tie down hooks to the vehicle's frame, not to an accessory such as a mirror, handle bar, pedal, etc. Hooks on the other end must be attached to vehicle cargo anchors installed in the RV.

For transport, motorized cargo with manual transmissions should be left in first gear. Vehicles with automatic transmissions should be in the Park position. The vehicle's ignition key should be turned off and removed, the parking brake set, the run/stop switch in the stop (or off) position, and the fuel lever turned to the off position.

UNLOADING MOTORIZED CARGO

The safest method of unloading is to push the vehicle down the ramp carefully, braking to ensure control of the vehicle. If you loaded your vehicle forward (front in), you will unload it in reverse. Driving a motorized vehicle in reverse down the ramp is not recommended. A slight turn of the handle or a slip of the wheel can cause your vehicle to fall, tip or roll sideways. If you are on or in the vehicle you can be injured or killed. Unload the vehicle safely as follows:

1 | Be sure the back tires of the vehicle are aligned with the ramp and there are no people, pets, or obstructions in the unloading area at the end of the ramp. Assure that the ground surface will support the vehicle, and that the vehicle cannot roll away uncontrolled.

2 | Stand at the front of the vehicle.

3 | Push the vehicle backward in line with the ramp.

4 | As the rear tires start down the ramp let it roll slowly backwards braking enough to control the speed but not so much as to skid and loose control.

⚠ DANGER

VEHICLES AND EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES AND PLACED IN THE RV CAN CAUSE CARBON MONOXIDE POISONING OR ASPHYXIATION WHICH CAN RESULT IN DEATH OR SERIOUS INJURY.

THE FLAMMABLE LIQUIDS USED TO POWER THESE ITEMS CAN CAUSE A FIRE OR EXPLOSION WHICH CAN RESULT IN DEATH OR SERIOUS INJURY.

TO REDUCE RISK:

1 | DO NOT RIDE IN THE VEHICLE STORAGE AREA WHILE VEHICLES ARE PRESENT.

2 | DO NOT SLEEP IN THE VEHICLE STORAGE AREA WHEN VEHICLES ARE PRESENT.

3 | CLOSE DOORS AND WINDOWS IN WALLS OF SEPARATION (IF INSTALLED) WHILE MOTORIZED VEHICLES ARE PRESENT.

4 | RUN FUEL OUT OF THE ENGINES OF STORED VEHICLES AFTER SHUTTING OFF FUEL AT THE FUEL TANK.

5 | DO NOT STORE, TRANSPORT, OR DISPENSE FUEL INSIDE THE VEHICLE.

6 | OPEN THE WINDOWS, OPENINGS, OR AIR VENTILATION SYSTEMS PROVIDED FOR VENTING THE TRANSPORTATION AREA WHEN VEHICLES ARE PRESENT.

7 | DO NOT OPERATE PROPANE APPLIANCES, PILOT LIGHTS, OR ELECTRICAL EQUIPMENT WHEN MOTORIZED VEHICLES ARE PRESENT.

⚠ WARNING

CARBON MONOXIDE GAS CAN KILL YOU. FUEL BURNING DEVICES, SUCH AS ATVS OR MOTORCYCLES THAT BURN GASOLINE, DIESEL, OR OTHER FUELS, PRODUCE CO WHEN THEY ARE OPERATING. CARBON MONOXIDE GAS IS INVISIBLE, ODORLESS, AND COLORLESS. DANGEROUS LEVELS OF CARBON MONOXIDE GAS CAN ACCUMULATE IN THE RV WHICH CANNOT BE DETECTED BY SIGHT, SMELL, OR TASTE. EVEN SMALL QUANTITIES OF CARBON MONOXIDE CAN CAUSE CO POISONING AND SUFFOCATION, WHICH WILL CAUSE DEATH, SERIOUS INJURY, OR PERMANENT DISABILITY. EXPOSURE TO HIGH CONCENTRATIONS OF CARBON MONOXIDE FOR EVEN A FEW MINUTES CAN ALSO CAUSE DEATH, SERIOUS INJURY, OR PERMANENT DISABILITY. DO NOT START ATVS, MOTORCYCLES, OR OTHER FUEL BURNING DEVICES WHILE THEY ARE LOCATED IN YOUR RV.

THERE IS A HAZARD OF SERIOUS PERSONAL INJURY WHEN USING A LOADING RAMP. IF THE MOTORIZED CARGO LOSES TRACTION AND SPINS SIDEWAYS, IT COULD SLIP SIDEWAYS OFF THE RAMP, TIPPING SIDEWAYS, AND POSSIBLY FALLING ON THE RIDER CAUSING INJURY. ALWAYS FOLLOW THE RAMP LOADING INSTRUCTIONS IN CHAPTER 12.

⚠ WARNING

FAILURE TO PROPERLY SECURE CARGO COULD CAUSE PROPERTY DAMAGE, INJURY, AND/OR DEATH.

SIDE/REAR PATIO DOORS

If equipped, some ramp doors can also be used as a patio. You will need to support the door with the supplied cables, engage the safety clips, extend the patio hand railings, and properly lock everything into place. Once in patio mode, if equipped, install the step into the retainer provided and lock into place. Keep the gate closed and properly locked at all times when not entering or exiting. Please refer to the manufacturer instructions supplied with the RV for care and operation and/or www.lci1.com or www.morryde.com

⚠WARNING

DO NOT EXCEED THE RECOMMENDED MAXIMUM CAPACITY RATING OF YOUR PATIO DOOR. WEIGHT CAPACITY WILL BE LOCATED ON THE PERIMETER FRAME OF THE DOOR.

⚠DANGER

IMPROPER USE OF THE PATIO SYSTEM CAN LEAD TO INJURY OR DEATH.

NOTE

Avoid high point loads when using the ramp door as a patio. High point loads are loads that put a lot of pressure on a small area and those can damage the ramp door. Items such as chair legs or table legs with a small footprint combined with a lot of weight run the risk of denting or puncturing the ramp door, which is not covered under warranty.

Return the patio to the stored position when unattended or in periods of inclement weather. The patio or steps may become slippery when wet. Damage to the patio/ramp door due to wind, rain, or any weather condition is not covered under warranty.

BIFOLD SUNDECK/BALCONY

If equipped, the bifold sundeck folds down to a patio deck, to allow you to enjoy the outdoors without leaving your RV. Please refer to the manufacturer instructions supplied with the RV for care and operation and/or www.lci1.com

⚠WARNING

The maximum weight for the Bifold Sundeck is 1,200 lbs (544 kg). Exceeding the maximum weight rating can cause death, serious injury or damage to the trailer.

Do not operate the deck if any cable is frayed or damaged. Frayed or damaged cables lose their full capacity to function properly. Frayed or damaged cables may break when placed under tension, resulting in possible personal injury or product damage.

Never use deck while anything is obstructing its operation. Obstructions in the deck's path can cause serious personal injury, severe product or property damage.

⚠CAUTION

Always check the interior of the trailer for obstructions in and around the mechanism before operating the deck. Obstructions may include but are not limited to: people, pets, toys, appliances, etc. Failure to observe and remove obstructions may result in property damage and/or serious personal injury. Never deploy the deck before checking that there is adequate room for it to be completely and safely extended with both hard stop arms fully engaged. This includes making sure the trailer is not too close to any trees, fences, shrubs, other trailers, etc. Failure to observe and remove obstructions or relocate the trailer prior to extending the deck may result in property damage and/or serious personal injury.

FUEL TRANSFER SYSTEM

⚠WARNING

NO SMOKING.

BEFORE DISPENSING OF FUEL, TURN OFF ALL ENGINES, FUEL BURNING APPLIANCES AND THEIR IGNITORS (SEE OPERATING INSTRUCTIONS). CONNECT THE BONDING JUMPER WIRE TO THE VEHICLE RECEIVING FUEL. GROUND THE RV. DO NOT DISPENSE FUEL WITHIN 20 FEET OF AN IGNITION SOURCE OR WITHIN 10 FEET OF ANOTHER RV OR STRUCTURE. FAILURE TO COMPLY COULD RESULT IN FIRE, DEATH OR SERIOUS INJURY.

A fuel transfer system allows you to store gasoline for use in motorcycles, snowmobiles, ATVs or other vehicles and equipment while at a campsite. This system consists of a fuel tank, fuel tank filler, fuel gauge, fuel transfer pump, fuel transfer valve and hose with fill nozzle. Some vehicles will be equipped with a switch at the battery and a switch at the pump. Other vehicles will be equipped with a timer switch allowing the pump to run for five minute intervals. A bonding jumper wire reduces the possibility of static electricity discharge between the fuel station and the equipment being fueled. To fill the tank, remove the fuel filler cap and fill the tank with the grade of gasoline required by your equipment. When replacing the fuel fill cap, be sure it seats squarely and turn it firmly to lock it on the fill pipe neck.

FUEL TRANSFER SYSTEM SAFETY

Static electricity-related incidents when refueling are extremely unusual. They appear to happen most often in cool or cold and dry climate conditions. In rare circumstances, these static related incidents have resulted in a brief flash fire occurring at the fill point. You can minimize these and other potential fueling hazards by following safe refueling procedures.

A build-up of static electricity can be caused by reentering a vehicle during fueling, particularly in cool or cold and dry weather. If you return to the fuel fill pipe during refueling, the static may discharge at the fill point, causing a flash fire or small sustained fire with gasoline refueling vapors.

Here are some additional refueling safety guidelines when refueling your vehicle or filling up gasoline storage containers:

- Turn off vehicle engines. Disable or turn off any auxiliary sources of ignition: the RV furnace, water heater, cooking unit, and any pilot lights. Turn off main propane valve.
- DO NOT smoke, light matches or lighters while operating the refueling system or when using gasoline.
- Use only the refueling latch provided on the gasoline dispenser nozzle.
- Never jam or otherwise try to lock the refueling latch with the nozzle open.
- DO NOT re-enter your vehicle during refueling. If you cannot avoid reentering your vehicle, discharge any static build-up BEFORE reaching for the nozzle by touching something metal with a bare hand, such as the vehicle body or frame, away from the nozzle.
- In the unlikely event a static-caused fire occurs when refueling, leave the nozzle in the fill pipe and back away from the vehicle. Turn off the fuel pump master switch immediately.
- DO NOT over-fill or top-off your vehicle tank, which can cause gasoline spillage.
- Never allow children under licensed driving age to operate the pump.
- Avoid prolonged breathing of gasoline vapors. Use gasoline only in open areas that get plenty of fresh air. Keep your face away from the nozzle or container opening.
- Never siphon gasoline by mouth. Never put gasoline in your mouth for any reason. Gasoline can be harmful or fatal if swallowed. If someone swallows gasoline, do not induce vomiting; contact an emergency medical service provider immediately.
- Keep gasoline away from your eyes and skin; it may cause irritation. Remove gasoline-soaked clothing immediately.
- Use gasoline as a motor fuel only. Never use gasoline to wash your hands or as a cleaning solvent.

FUEL TRANSFER SYSTEM OPERATION

To operate the fuel transfer system (also see the "Fuel Pump Owner's Manual" in your Owner's Information Package):

1 | Lower the tongue jack or fifth-wheel jacks to the ground. This will electrostatically ground the RV to reduce the possibility of static discharge while refueling.

2 | Set the master disconnect switch to ON. This will either be located at the battery or at the fuel pump area.

3 | Close the vents in the side of the RV to prevent fuel vapor from entering the RV.

4 | Attach the ground clip securely to a bare metal part of the equipment to be fueled (frame, handle bar, axle bolt, etc.)

5 | Turn the fuel transfer pump switch ON. For vehicles equipped with a timer, turn the timer to on and this will allow the pump to run 5 minutes. When the pump stops, turn on again, if necessary, for another 5 minute run.

6 | Remove the fuel hose and nozzle from its compartment. An automatic bypass valve prevents pressure buildup when the pump is on with the nozzle closed.

7 | Place the nozzle into the equipment fuel filler and squeeze the handle to allow fuel to flow. Be careful not to overfill the equipment fuel tank. Wipe up any spilled fuel.

8 | When finished release the nozzle handle and return the nozzle to its compartment and shut off the pump switch.

9 | When you are finished with all fueling, turn off the pump master switch either at the pump or at the battery if equipped.

10 | Lock the fuel transfer nozzle compartment to prevent unauthorized use. The nozzle compartment must be locked at all times when not dispensing fuel.

⚠WARNING

IF A FUEL SPILL OCCURS IN THE STORAGE AREA OF THE RV, OPEN THE WINDOWS AND SIDEWALL VENTS, AND WIPE UP THE FUEL WITH CLOTH OR PAPER TOWELS. DISPOSE OF THE TOWELS IN A SUITABLE HAZARDOUS WASTE CONTAINER. DO NOT HOSE OUT THE RV WITH WATER. CLEAN THE FUEL SPILL AREAS WITH A GREASE/OIL DISSOLVING CLEANER SUCH AS 409®. THOROUGHLY DRY THE SPILL AREAS.

FUEL-SOAKED RAGS OR OTHER MATERIALS CONTAIN FLAMMABLE AND/OR EXPLOSIVE FUEL VAPORS AND OTHER HAZARDOUS SUBSTANCES. CLEAN UP MATERIALS SHOULD BE TEMPORARILY STORED IN A NONFLAMMABLE, VAPOR-TIGHT CONTAINER UNTIL PROPER DISPOSAL FACILITIES ARE AVAILABLE. DO NOT STORE FLAMMABLE CLEAN UP RAGS OR MATERIALS INSIDE THE RV, INSIDE ANY OTHER VEHICLE OR NEAR ANY SOURCE OF FLAME OR IGNITION BECAUSE A FIRE OR EXPLOSION COULD RESULT.

ALL PARTS OF THE FUEL TRANSFER SYSTEM INCLUDING BUT NOT LIMITED TO THE HOSES, PUMP, NOZZLE, FITTINGS, AND TANK HAVE BEEN SELECTED FOR THEIR QUALITY, SAFETY, AND INTENDED APPLICATION. ANY ALTERATION OR REPLACEMENT OF ANY PART OTHER THAN KEYSTONE ORIGINAL EQUIPMENT COULD JEOPARDIZE THE INTEGRITY OF THE SYSTEM AND COULD RESULT IN SERIOUS INJURY OR EVEN DEATH. IF YOUR FUELING SYSTEM IS NOT WORKING PROPERLY OR YOU NEED ADDITIONAL INFORMATION ON THE USE OF THE SYSTEM, CONTACT YOUR AUTHORIZED KEYSTONE DEALER IMMEDIATELY OR CALL KEYSTONE DIRECTLY.

13 CARE AND MAINTENANCE

The instructions and recommendations in this manual are meant to be used in conjunction with the individual component manufacturer's manuals accompanying the RV. Be sure to thoroughly review each component manual to avoid missing any specific requirement not reviewed here.

Care and maintenance of the RV is an important step in maintaining the safety, dependability, and appearance of both the interior and exterior of the RV. Keep good records of all maintenance performed as these may be necessary for warranty information or to assist in possible repairs needed.

Operational usage and climates may affect the frequency of maintenance needed on certain components. Preventative maintenance is important to the enjoyment and life of any RV as many problems can be caught before they occur. Please do not hesitate to call your dealer with a question on the care and maintenance of any item.

Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

EXTERIOR

FRAME/CHASSIS/ATTACHMENTS

It is normal for the frame and its components to corrode. When and how much they corrode depends on the environment the RV is subjected to, how often it is subjected to that environment, and the preventative maintenance performed. The more exposure to snow, rain, road salt, road chemicals, salt water, etc. the more accelerated and more severe the corrosion will be. Diligence on the part of the owner when a RV is subjected to these elements can significantly reduce the severity and how quickly this occurs.

When your RV is exposed to a known corrosive (road salt, road chemicals, salt water, etc.), take the time to rinse off the frame, frame components, under carriage, axles and running gear as soon as possible after reaching your destination. Then, wash the exterior. Taking these simple steps will greatly reduce the extent and slow corrosive action significantly.

Inspect the frame and its components periodically. If a spot of rust is developing or the frame was nicked or scratched by road debris, sand (or wire brush) then touch it up with rustproof enamel paint. Think of it as a tooth with a cavity developing. Take care of it before it gets too deep and causes bigger issues.

STEPS

Keep clean of dirt, salt, mud, etc. and lubricate pivot points with a dry lubricant spray every 30–60 days.

HITCH COUPLERS (TRAVEL TRAILERS)

Inspect before each trip. The ball socket and clamp should be cleaned and lubricated monthly with wheel bearing grease. If coupler or coupler components appear damaged or worn, contact your dealer immediately.

PIN BOX (FIFTH WHEEL) AND HITCH EQUIPMENT

Inspect monthly or before each trip. The hitch plate and locking mechanism should be generously lubricated with a high temperature rated grease at all times. Consult the hitch manufacture's manual for the brand you selected. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com or www.morryde.com.

SAFETY CHAINS (TRAVEL TRAILERS)

Safety chains should be inspected before every trip and if damaged or weakened, replaced immediately. Never tow without use of the safety chains.

TONGUE JACKS, MANUAL/ POWER (TRAVEL TRAILERS)

When preparing to travel, inspect the jack for any damage and test operation. If jack is difficult to operate, clean and oil lightly (Manual). If jack is still difficult to operate or freezes, it should be serviced or replaced by a qualified RV technician. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com, www.davecarter.com, www.domarproducts.com, www.norcoind.com or www.wesco.com.

FIFTH WHEEL JACKS

When preparing to travel, inspect the inner/outer arms (legs) and be sure they are not bent. Check the operation and if the jacks are difficult to operate, have them serviced by a qualified RV technician. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.lci1.com.

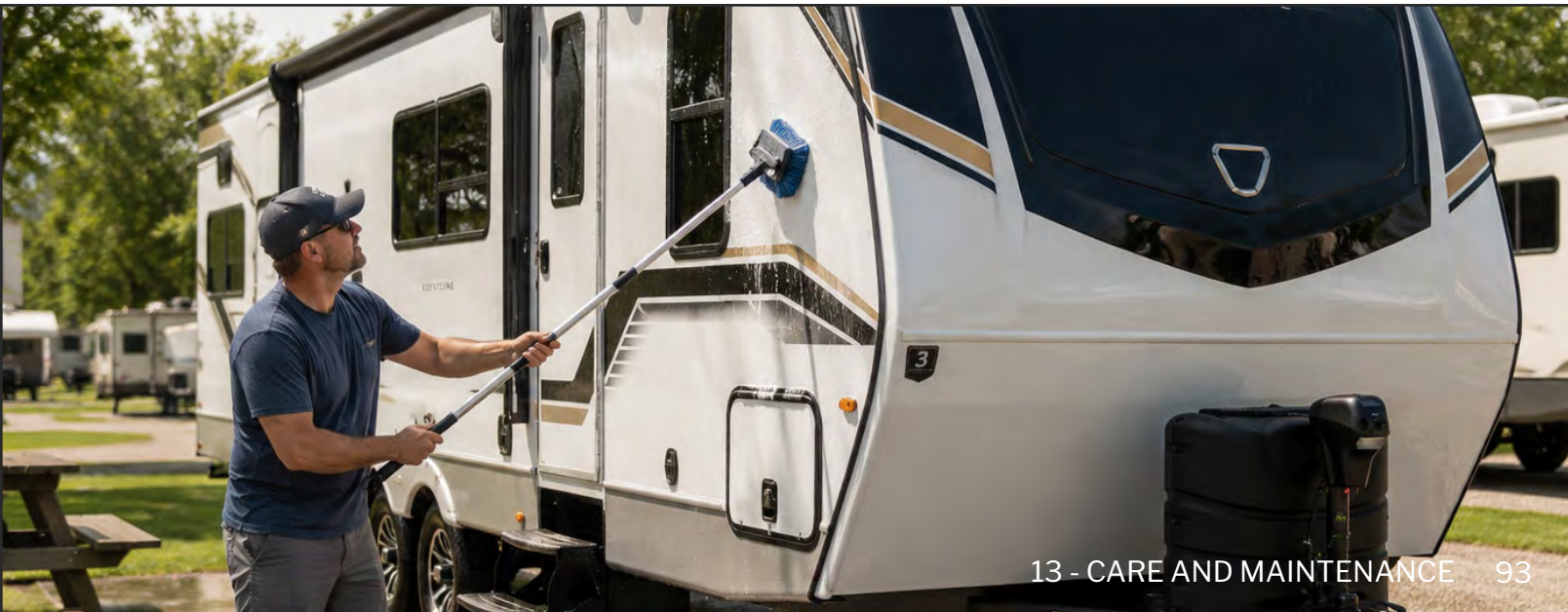
METAL SIDING AND SIDEWALLS

“Black streaks” are caused when pollution, rain, dirt and sealant deterioration mix. We are not aware of any way to prevent “black streaks”. However, keeping your exterior washed and waxed often will make them much easier to remove. There are many products in the market that are effective in removing “black streaks”. Consult you dealer for these products.

RV GEL COAT FINISH - CARE AND MAINTENANCE

Fiberglass is a common term for fiber-reinforced plastic, or FRP, which is a plastic material, strengthened using glass fiber cloth and used on many RV’s for sidewalls and caps. To give the fiberglass a smooth and shiny surface, a clear or colored gel resin material is applied to the outer surface. Gel coat is available in many colors and is very durable, but it can become dull or faded as it weathers. Sunlight, heat, and moist air combine to oxidize the gel coat surface, fading it and making the surface cloudy. So how do you keep your fiberglass looking good? Simple, you clean and apply a top quality wax twice a year or every 3 months in cases where the vehicle is in constant exposure to the elements.

Normal maintenance of your gel coated fiberglass RV is similar to the care you would give your automobile. In general, automotive cleaners and waxes work well. Do not use caustic, highly alkaline (high pH) cleaners or those containing ammonia. These cleaning agents may darken white or off-white weathered gel coat surfaces. The staining that results is a chemical reaction within the weathered gel coat, and can be removed with a rubbing compound or by light sanding with 400 grit sandpaper followed by application of rubbing compound and waxing.



COMPOUNDING

Polishing compound (fine abrasive) or rubbing compound (coarser abrasive) is recommended for use on fiberglass RVs to remove scratches, stains, or a severely weathered surface. Polishing or rubbing compound can be applied by hand or by mechanical means, such as an electrical or pneumatic buffer. After the scratched, stained or weathered surface has been removed, it should be waxed to enhance the gloss and color while providing a seal to retard staining or new soil accumulation.

CLEANING

Periodic cleaning with a mild detergent product is necessary to remove normal accumulations of soil. This soil is the result of regular use of your RV as well as environmental pollutants, soot, smog, etc. General washing as needed prevents soil build-up, staining, etc.

WAXING

As the gel coat begins to lose its gloss from constant exposure to the natural environment and pollutants, it will require some special attention to restore the original gloss and color. After washing with mild soaps and detergents, a good polishing with a self-cleaning automotive wax will restore most of the original gloss. A fall and spring wax job is generally all that is needed to maintain the original appearance. If the surface has been allowed to weather badly, and cleaning and wax polishing does not restore the finish satisfactorily, then compounding will be necessary.

REMOVING THE DISCOLORATION

Discoloration of the gel coated fiberglass surface may occur if regular washing and waxing has been neglected. Discolored areas are very shallow in depth and are, in fact, on the surface. They can be removed by gently wet-sanding the affected areas with 600 grit “wet or dry” sandpaper to remove the blemishes. Always sand in one direction, using plenty of water. After sanding, dry the areas and ensure all the discoloration has been removed. If not, repeat the process. Once all discoloration has been removed the affected surface area will need to be buffed. Buffing, using an electrical or pneumatically operated buffer at low speed (1750 rpm-2250 rpm), will restore the luster to the sanded surface. Use a soft wool pad and apply a generous amount of rubbing compound using circular motion. When the buffing has been completed, wash off the rubbing compound with clean water. Dry the surface. Wax your RV with a high-grade automotive wax.

OTHER ALTERNATIVES

Poli Glow Inc products provide several products that work well to clean, protect and restore a beautiful shine to your fiberglass cap. Poli Glow is not a wax and is easily applied. It wipes on without the need for rubbing or buffing. It will not wash off with soap and water and lasts for over 12 months! The website is https://poliglow.com which has a video showing how to use and apply the Poli Glow products. The Poli Glow Kit along with Poli Ox is recommended for caps that have begun to oxidize. Manufacturer instructions must be followed for best results.

METAL

The aluminum exterior has a baked on enamel finish. Washing frequently with an automotive or RV wash solution will help avoid staining from debris and soil build up. Always rinse the RV with clear water before washing to remove any loose dirt. Waxing two to three times a year with a good automotive paste wax will help preserve the finish.

DO'S and DON'TS

- DO Use Automotive/Marine grade non-abrasive waxes.
- DO Use soft cloths to clean and wax.
- DO be careful around graphics. Wax and wash with the graphic, not against it.
- DO NOT use products containing ammonia or caustic harsh cleaners as they may cause discoloration to the fiberglass surface.
- DO NOT use high-pressure washers, rotating brushes, such as in car washes, and power buffers. Use of these products can damage graphics and/or paint finishes.
- DO NOT dry wipe surfaces.
- DO NOT use rubbing compounds.

"The green matte Hero Edition is my favorite — especially with it supporting the Wounded Warrior Project."

Gabriel | Texas

FOR MODELS WITH MATTE FINISH PAINT

HAND WASH ONLY

- **Pre-Wash:** Always pre-wash using a pre-wash chemical or snow foam specifically designed for matte finishes. This helps remove as much dirt as possible before washing.

- **Shampoo:** Use a shampoo specifically formulated for matte finishes, ensuring it contains no gloss-enhancing agents or waxes. Avoid using dish soap, bleach, or other household products, as they can cause drying and cracking of the matte surface.

- **Washing Tools:** Use only a microfiber wash mitt to wash the trailer. Never use sponges or brushes as they can cause scratches.

- **Contamination:** Do not use a wash mitt that has been dropped or contaminated with dirt, dust, or grease. Always lubricate the panels with plenty of water or soapy solution when using the mitt.

- **Washing Technique:** Gently wipe away dirt—do not scrub.

- **Drying:** Use a microfiber towel to dry the surface.

- **Decontamination:** You may chemically decontaminate the matte paint, but do not use a clay bar as it can damage the finish.

- **Protection:** Use only sealants or ceramic coatings designed for matte paint. Avoid traditional waxes, sealants, or coatings that can alter the matte finish.

- **Avoid Harsh Chemicals:** Harsh chemicals can strip protectants and cause scratches in the matte finish.

SPOT CLEANING & PROTECTING

- **Spot Cleaning:** For occasional debris removal, use matte-specific soaps or detail sprays. These can be applied as needed.

- **Wax and Sealants:** Do not use regular wax paste, as it may ruin the matte effect. Instead, use a matte sealant that can be applied on a wet surface without requiring curing time, and will not leave residue on trim or emblems.

- **Sealant Application:** Matte finishes should be sealed every 6-9 months.

- **No Polishing:** Do not polish the matte finish, as abrasive polishes or glazes will create shiny spots, permanently altering the appearance.

IMPORTANT NOTE ON ROOF CLEANING FOR MATTE FINISH MODELS

- Many owners commonly use regular soaps like dish soap to clean their RV roofs, and sometimes bleach to clean unsightly black streaks at decking seams. For Keystone models with matte finishes, this practice is strongly discouraged. Using regular soaps and/or bleach, especially on the roof, can cause run-off onto the trailer's matte finish, leading to damage such as drying, cracking, or unwanted gloss spots.

To clean your roof without harming the matte finish:

- **Use Only Mild, Matte-Safe Cleaners:** Ensure that any cleaning products used on the roof are matte-safe, particularly when there is a risk of run-off reaching the side panels.

- **Avoid Harsh Chemicals:** Refrain from using bleach, dish soap, or any household cleaners, as these can permanently damage the matte finish on your trailer.

ABS PLASTIC/MOLDED PARTS

Some components are constructed with a strong ABS molded plastic. A mild solution of soap and water should be used when cleaning. When using any product, make sure the product is recommended for use on plastics. Avoid harsh abrasive cleaners, ammonia or citric-based products, as discoloration may result.

WINDOWS

The seals/sealants used to seal the windows to the sidewall of the RV are subject to deterioration over time. Every six months, inspect the area between the window frame and the side wall for sealant gaps/voids, cracks, shrinkage, etc. and reseal as necessary. In addition, after a rain, inspect the interior of the RV around windows for any evidence of water penetration. If any interior leaks are noticed, contact an authorized dealer immediately. Catching it early may save you much time, frustration, and money.

To ensure window operation, adjust and lubricate latches and any moving parts annually. A light oil or powdered graphite can be used for lubrication. Periodically, use a vacuum attachment to clean any debris out of the window weep holes, which are necessary to drain any condensation or moisture from hard rains that may collect.

CORNER MOLDINGS

A corner molding is the trim that covers the joint between a front/rear wall and a sidewall. The sealants used there are subject to deterioration in time. As sealants dry out and the RV twists and turns during normal operation, these areas are subject to leaks. This area is very important because a leak may not manifest itself inside the RV where it is easily identifiable. This type of leak may take time to be evident and, by then, there could be substantial damage. Every six months, inspect these areas for sealant gaps/voids, cracks, shrinkage, etc. and reseal as necessary. Please consult your local Keystone dealer for assistance if needed.

MOLDINGS

There are a variety of other moldings used on the RV exterior that include but are not limited to floor line, awning rail, roof line, and flat trim with screw cover. Every six months, inspect these areas for sealant gaps/voids, cracks, shrinkage, etc. and reseal as necessary. Please consult your local Keystone dealer for assistance if needed.

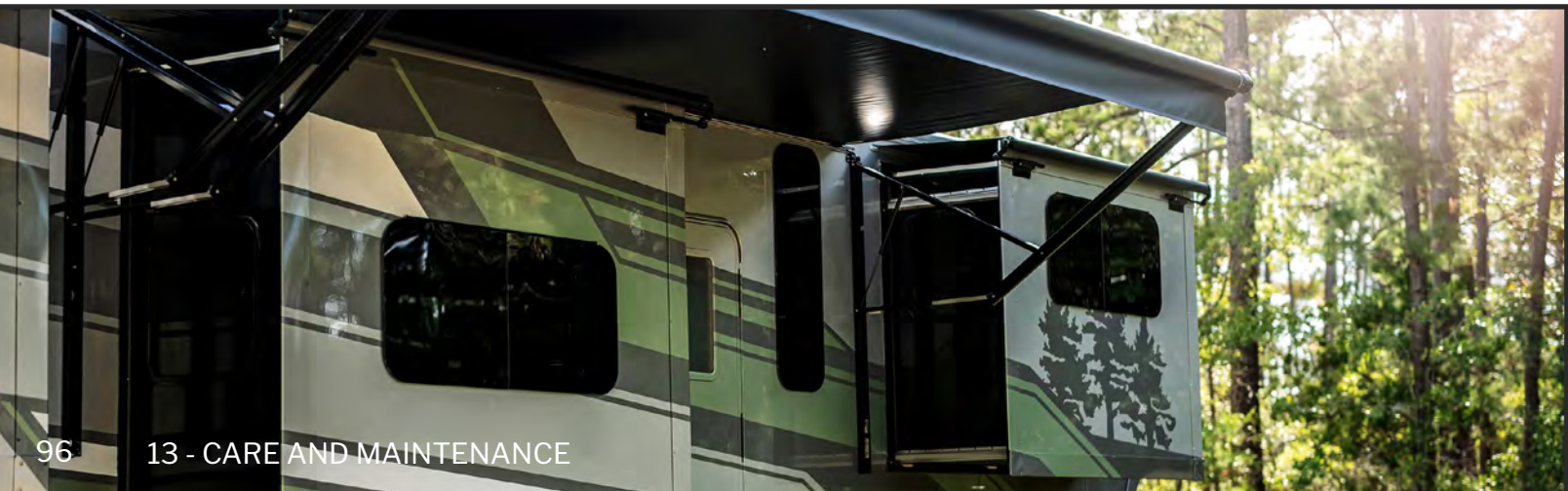
OTHER WALL ATTACHMENTS

These can include, but are not limited to, compartment doors, door holders, range vent, refrigerator vent, lights, awning feet, water fills, cable hatches, furnace vents, grab handles, speakers, receptacles, water heater, etc. Every six months, inspect these areas for sealant gaps/voids, cracks, shrinkage, etc. and reseal as necessary. Please consult your local Keystone dealer for assistance if needed.

SLIDE-OUTS

Do not forget this important feature when it comes to maintenance. A slide-out has it's own roof, end walls, rear wall, and floor with similar moldings and attachments as the rest of the RV. The sidewall opening moldings and all components of the slide-out room "box" should be inspected every six months for sealant gaps/voids, cracks, shrinkage, etc. and resealed as necessary. Please consult your local Keystone dealer for assistance if needed.

BE CAREFUL WHEN SELECTING A SEALANT, AS IT IS NOT RECOMMENDED TO USE TWO DIFFERENT SEALANTS ON TOP OF EACH OTHER. IT MAY APPEAR SEALED, BUT WATER MAY BE ABLE TO SLIP BETWEEN THE TWO SEALANTS IF THEY DO NOT BOND TO EACH OTHER. IT IS RECOMMENDED TO USE THE SAME TYPE/BRAND SEALANT AS WAS USED ORIGINALLY OR TO REMOVE ALL OLD SEAL, CLEAN THE AREA/COMPONENT AND INSTALL ALL NEW FRESH SEALANT. PLEASE CONSULT YOUR LOCAL KEYSTONE DEALER FOR ASSISTANCE IF NEEDED.



ROOF

In most cases, the roof assembly consists of the interior paneling, a truss system, insulation, roof decking (plywood, OSB) and a roof material (TPO) is glued to the roof decking. Because of the manufacturing process, air pockets and/or visible spots may be seen in the roof material. These visible spots can be caused by debris (wood, staples, screws, etc.) that is between the roof material and decking or by imperfections occurring during the roof material's manufacturing. In most cases, these are considered cosmetic in nature and seldom require any corrective action. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

ALPHA TPO ROOF MATERIAL

The TPO roof will not rust or corrode and is very strong and durable. Other than periodic washing, the roof material itself does not require maintenance or coatings. However, be advised that any attachments, seams or joints in the rubber roof requires maintenance every 90 days. Alpha sealants must be used on a RV with the Alpha system. These items can be obtained from your dealership.

Know the height of your RV and avoid contact with trees, overpasses, etc. This roof material can be punctured, snagged or cut by contact from objects. Whether it is a warranty or non-warranty repair, this material can be easily repaired utilizing a local company specializing in restoration (vinyl, rubber, leather, fabric, plastic repair of furniture, car seats, fabrics, dashboards, etc.) or with patch kits available from your local dealer. Seldom would a replacement of the entire material be necessary. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or http://alphallc.us. Please be sure to download the "My Keystone" App and/or visit the "Owners Support" section at https://www.keystonerv.com where we have supplied you with a variety of resources such as Video's, FAQ's, the DIY program and more.

⚠WARNING

THE ROOFING MATERIAL COULD BE SLIPPERY WHEN WET. ALWAYS USE CAUTION WHEN WORKING ON TOP OF THE RV.

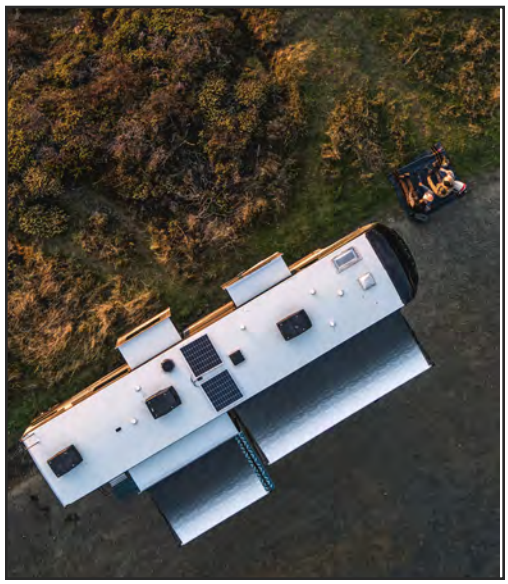
NOTE

Snow loads that exceed 2 feet or 30 pounds per square foot can lead to damage of the roof structure as well as to the axles and suspension. The roof should be free of snow before transporting the RV.

These roofs are not designed to accommodate chairs, coolers, multiple people, etc. They are designed only for the ease of an individual to perform routine maintenance.

Units with factory installed ladders have walkable roofs. Some units have walkable roofs but no ladder and others do not have a ladder or walkable roof.

For more information about your specific year, make and model, contact Owner Relations at 866.425.4369, email ownerrelations@keystonerv.com or contact us via Online chat at www.keystonerv.com. Please have the last 8 digits of your VIN available. See Chapter 4 to help you locate your VIN.



"It's easy to keep clean and I love all the high quality appliances and attention to detail."

Lisa | Calafornia

ROOF SEAMS AND/OR JOINTS

Roof sealants will deteriorate which can lead to leaks. Deterioration can be accelerated by heavy sun exposure, changes in climate (expansion/contraction with aggressive temperature change), and cold climates. Once the RV leaves our manufacturing facilities, we can no longer maintain the sealants and this becomes your responsibility. Take this seriously because it can help prevent a very frustrating and expensive situation to remedy (damage from water leaks).

Inspect the roof at least every 90 days, paying close attention to all seams and/or joints and attachments where sealant is used. Look for cracks, shrinkage and/or gaps/voids in the sealants. These must be carefully cleaned and resealed. It is necessary to use the same sealant as originally installed if touching up cracks, shrinkage and gaps/voids. There is no way to know if two different brands of sealant will bond to each other. DO NOT use any type of silicone product on the roof material.

If there is any doubt in your mind before performing this maintenance, please contract with your local dealer to have it done. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or http://alphallc.us

AXLE ALIGNMENT

Even with normal usage, axles may require periodic alignment which is not considered warrantable. Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dexteraxle.com, www.lci1.com, www.terranaxle.com.

BRAKE ADJUSTMENT

Please refer to the manufacturer's instructions supplied with the RV for care and operation and/or www.dexteraxle.com, www.lci1.com, www.morryde.com, www.terranaxle.com.

- DRUM BRAKES - The electric brakes are of the drum and two-shoe type and adjust the same as most automotive brakes. Adjust brakes after the first 200 miles. Every 3 months or 3000 miles, test the brake drag and adjust if required. Full procedures are outlined in the component manufacturer's guide, included in the RV's manual packet. Never adjust just one brake. When adjusting brakes on any vehicle, either replace or adjust all brakes at the same time, or at least both brakes on the same axle.
- OPTIONAL DISC BRAKES - Follow the recommendations for use and replacement of brake fluid per the manufacturer's instructions.

BATTERIES

- VENTED BATTERIES (LEAD ACID)- Lead acid batteries are not installed or warranted by Keystone RV. Please refer to the battery manufacturer's instructions of the product you selected for the detailed safety and maintenance requirements.

⚠WARNING

BEFORE PERFORMING ANY MAINTENANCE ON THE BATTERY, ALWAYS DISCONNECT THE BATTERY, REMOVING THE NEGATIVE (-) CABLE FIRST AND THEN DISCONNECTING THE POSITIVE (+).
THE ACID IN LEAD ACID BATTERIES IS HIGHLY CORROSIVE AND HYDROGEN GAS IS PRODUCED WHICH IS EXTREMELY FLAMMABLE. AVOID PLACING NEAR A POSSIBLE IGNITION SOURCE SUCH AS OPEN FLAME OR POTENTIAL SPARK PRODUCING WIRING.
GENERAL INFORMATION - LEAD ACID:

Never place batteries in any compartment or near anything that could spark, even a 12 volt switch. Never smoke or use open flames anywhere near the battery. Secure batteries in a battery box or in a compartment specially designed for battery storage. Wear safety glasses and appropriate clothing when performing any maintenance on a battery. In case of a spill or splash, immediately flush the affected area with cold water for 15 minutes and call the poison control center for further instructions.

If the shoreline cord will be plugged in for long periods of time, battery water will evaporate quicker and maintenance will be required more often (does not apply to maintenance free battery).

Keep battery terminals clean of corrosion and tightened.

When storing the RV for an extended period, fully charge the battery before storage. Batteries will self-discharge over time and are subject to freezing, especially if in a discharged condition. We recommend removing the fully charged battery and storing in a cool dry place. Periodically check the charge of the battery while in storage and recharge as needed.

- NON-VENTED BATTERIES (LITHIUM IRON PHOSPHATE) - For factory installed Lithium Batteries, the battery area/compartment is designed for the use of non-vented batteries only. Do not replace a non-vented battery with a vented battery into this area/compartment. The Lithium batteries installed in select SolarFlex packages are warranted by the Lithium battery manufacturer.

  ⚠WARNING

  THIS BATTERY AREA/COMPARTMENT IS DESIGNED FOR THE USE OF NON-VENTED BATTERIES ONLY. DO NOT PLACE A BATTERY THAT REQUIRES VENTING INTO THIS AREA/COMPARTMENT. VENTED BATTERIES COULD RELEASE POISONOUS AND FLAMMABLE GASES AND COULD LEAD TO A FIRE OR EXPLOSION AND RESULT IN DEATH OR SERIOUS INJURY.

- DRAGONFLY ENERGY LITHIUM BATTERY MAINTENANCE
  Dragonfly Batteries require very little maintenance. If your batteries are in series and not being charged by a multi-bank charger it is recommended that you fully charge the batteries individually once a year. This will balance out the entire battery bank to ensure the batteries will reach its expected life span. If your batteries are in parallel this is not necessary, just make sure the batteries are charged to 14.2V – 14.6V for balance. The Battery Management System has a built-in passive balancing system that will take care of this for you. Please refer to the manufacturer's instructions for care and operations at www.dragonflyenergy.com

- DRAGONFLY ENERGY LITHIUM STORAGE
  Dragonfly recommends bringing the Dragonfly Batteries to 100% state of charge. Then, disconnect the battery from any load by removing the negative (-) cable from one battery. Doing this can result in your batteries only losing 3-5% of stored energy a month. Please refer to the manufacturer's instructions for care and operations at www.dragonflyenergy.com

NOTE

Always disconnect the heater when storing batteries.

120 VOLT ELECTRICAL

Before each use, inspect the shoreline cord, receptacles, extension cords, adapters or reducers for loose, missing, damaged, degraded or corroded terminals/connections. Any component found in these conditions must be replaced before use.

⚠WARNING

THE USE OF SHORELINE CORDS, RECEPTACLES, EXTENSION CORDS, ADAPTERS OR REDUCERS WITH LOOSE, MISSING, DAMAGED, DEGRADED OR CORRODED TERMINALS/CONNECTIONS COULD INCREASE THE RISK OF FIRE, PERSONAL INJURY OR PROPERTY DAMAGE.

INTERIOR

APPLIANCES: SEE CHAPTER 7

BEDSPREADS

Refer to the label attached to the bed spread by the manufacturer. Dry-clean only unless the care instructions on the label indicate otherwise. Washing a dry-clean only bedspread could cause premature deterioration, fading, shrinkage, and/or possible damage.

BLINDS AND SHADES

Venetian blinds and day/night shades should be vacuumed regularly with a soft brush attachment. Use of a soft cloth and mild cleaner on blinds will help keep them new looking. For fabric shades, upholstery cleaners are not recommended. Instead, spot clean when necessary using a mild soap and water solution on area.

CABINET DOORS AND DRAWERS

The cabinet doors and drawer fronts should be cared for similar to the fine furniture in your home. Using a quality furniture polish will help maintain the beauty and luster of the wood as well as keep the wood from drying out. The accidental scratches can be covered to satisfaction with a good quality commercial furniture scratch remover.

CARPETING

The carpeting installed is made of nylon and is easy to maintain. Vacuum regularly to remove abrasive grit. Water based spills and spots should be removed immediately with a damp cloth. Grease or oil based stains and spots should be spot cleaned with a good commercial spot cleaner made for this purpose. If complete shampooing is desired, it is best to have it done by a competent professional carpet cleaner. Never soak or water-log your carpeting. Whether a warranty or non-warranty repair, this material can be easily repaired utilizing a local company specializing in restoration (vinyl, rubber, leather, fabric, plastic repair of furniture, car seats, fabrics, dashboards, etc.)

CEILINGS AND WALLS

Clean only with a mild detergent in warm water, using a damp cloth to clean the ceiling. Never use strong chemicals or excessive water/ moisture, as either can damage the ceiling or walls.

COUNTERTOPS

Most countertops are made of high-pressure plastic laminates and are highly resistant to normal spills and scuffs. Soap and lukewarm water or a mild, non-abrasive cleaner are recommended. Avoid use of abrasive pads and scouring powders, which can dull the surface and make it more stain-prone. Always use a chopping block or cutting board when using knives. Pots and pans straight from the burner or oven should be placed on lined hot pads and not directly on the counter surface.

SOLID SURFACE COUNTERTOPS

The solid surface composite countertops can be cleaned with soap and mild detergents, which will remove most stains. DO NOT use products containing bleach. Stubborn stains may require the use of a white Scotch Brite pad and a non-abrasive cleaner like Soft Scrub. Most scratches and defects in solid surface countertops can be repaired without replacement. Pots and pans straight from the burner or oven should be placed on lined hot pads and not directly on the counter surface.

DRAPERIES

Draperies and upholstery fabrics are treated with fire-retardants and are dry-clean only unless the manufacturer label indicates otherwise. When dry-cleaning, be sure to inform attendant of fire retardant items. Spots and stains should be removed with a non-water based commercial spot remover manufactured for this purpose.

FABRIC, UPHOLSTERY AND FURNITURE

Do not laundry upholstery fabrics. Blot up stains promptly and use an upholstery cleaner or mild solvent, depending on the stain. Never soak the fabric and use as little water as possible. Blot rather than rub. Towel dry or have professionally cleaned. Upholstery can be vacuumed regularly using a soft brush attachment. Do not remove law tags from furniture, they are used to identify the products for part replacements. Whether a warranty or non-warranty repair, this material can be easily repaired utilizing a local company specializing in restoration (vinyl, rubber, leather, fabric, plastic repair of furniture, car seats, fabrics, dashboards, etc.)

FAUCETS AND FIXTURES

To protect the finishes on your kitchen and bath faucets and fixtures, use only a damp soft cloth or sponge. Do not use abrasive cleaners or materials as they can damage the finish.

FLOORING, VINYL

For routine cleaning, sweep or vacuum regularly. Follow by using a damp mop with warm water and clean a small area at a time. Rinse the mop frequently as to not redistribute the dirt picked up. If washing is needed, use a quality product designed for no-wax flooring.
To polish the floor, do not use solvent-based waxes or polishes as damage to the flooring may result. Use only polishes recommended for no-wax flooring. Whether it is a warranty or non-warranty repair, this material can be easily repaired utilizing a local company specializing in restoration (vinyl, rubber, leather, fabric, plastic repair of furniture, car seats, fabrics, dashboards, etc.)

NOTE

Door mats and throw rugs are commonly used in RV's, using the correct mat is important to prevent staining or discoloration in the vinyl flooring. Rubber backed mats should NOT be used. We recommend using a mat with a PVC, polyurethane or any textile backing, using anything other than these types of backed mats may create damage/staining that is not covered under warranty.

GLASS AND MIRRORS

Clean glass and mirrors as you would at home using a cleaner designed for glass. To reduce "spotting" on outside windows, use a squeegee promptly after rinsing with water. For stubborn spots, cleaning with a mixture of vinegar and water is recommended and is safe for most finishes.

SINKS, TUBS AND TOILETS

Many of these products are made of acrylics, plastics, or composite materials. Use of non-abrasive cleaners is recommended to protect the finish. Using harsh cleaning products can cause premature deterioration and/or yellowing of the surface finish.

MAINTENANCE SCHEDULE

Note: The intervals outlined below are based on typical recreational travel and family camping in moderate climates and weather conditions. Review Chapter 13 of your Owner's Manual in detail for more information regarding the specific maintenance requirements of each topic listed below. Use of your RV other than for recreational travel and family camping, as well as extreme conditions, may accelerate deterioration of components, seals, etc. and require more aggressive maintenance intervals.

SAFETY	PRE-TRIP	AFTER EACH USE	MONTHLY	EVERY 3 MONTHS	EVERY 6 MONTHS	YEARLY
*Brakes (After first 200 Miles)	See Drum Brakes Chapter 13			Adjust		
*CO Detector Test	Test					
Electrical (120V)						"Hot Skin" Test
*Electrical Cords/Receptacles	Inspect					
Generator Exhaust	Inspect					
*LP Detector Test	Test					
Lug Nut Torque	Inspect					
*Pin Box & Hitch Equipment	Inspect		Lube			
Propane System						Leak Test
Safety Chains	Inspect					
*Smoke Alarm	Test					
SERVICE	**PRE-TRIP**	**AFTER EACH USE**	**MONTHLY**	**EVERY 3 MONTHS**	**EVERY 6 MONTHS**	**YEARLY**
*Axles	*			*	*	*
*Battery Cables/Connections	Inspect					
Black Water System		Flush				
All Exterior Moldings					Inspect/Reseal	
Entry Steps			Lube			
Fiberglass/Gel Coat				Clean	Wax	
Frame					Touch-Up	
Fresh Water System		Drain				Sanitize
*Furnace						Clean
*Generator	Check Oil					
Gray Water System		Flush				
*iNCommand System					Update	
*Jacks (A-Frame, Landing)				Clean/Lube		
Latches, Locks			Lube			
Metal Siding					Inspect/Reseal	
*Refrigerator						Clean
*Roof Air Conditioner			Lube			
Roof Seams & Joints				Inspect/Reseal		
*Roof Vents					Inspect	
Slide-Out Box		Clean Roof			Inspect/Reseal	
*Slide-Out System			Actuate			
*Tires	Inspect					
Tire Pressure			Check			
*Water Heater		Drain				Flush
Window Sealants					Inspect/Reseal	

*Please refer to the manufacturer's instructions supplied with the RV for care and operation or the applicable website.

APPENDIX

For assistance with this manual, warranty information or information on Keystone RV Products, please download the "My Keystone" App and/or visit us online or contact Keystone Customer Service.

ADDRESS:
Keystone Customer Service
2642 Hackberry Drive | P.O. Box 2000 | Goshen, IN 46527
Fax: 574.534.9057 | Toll Free Phone: 866.425.4369 | Website: www.keystonerv.com
Owner Relations Hours: 9:00AM - 5:00PM (EST) Monday - Thursday | 9:00AM - 4:00PM (EST) Friday

GLOSSARY OF COMMON TERMS AND DEFINITIONS

AC ELECTRICITY: Alternating Current: Standard Household 120 volt is AC current.

ANODE ROD: Part of the water heater that attracts impurities in the water that cause corrosion.

BLACK TANK: The holding tank into which the toilet directly drains.

BLACK WATER: The term associated with sewage contained within the black tank.

BRAKE CONTROLLER: Device located in the tow vehicle that activates the RV brakes.

BTU: The measurement of the amount of heat required to raise the temperature of one (1) pound of water, one (1) degree Fahrenheit.

BUSINESS: Any particular occupation or employment engaged in for livelihood or gain.

COLD INFLATION PRESSURE: The pressure in the tire before it is driven.

COMMERCIAL: Connected with/engaged in or sponsored by or used in commerce or commercial enterprises.

CITY WATER: Refers to exterior water source, not water from the fresh water tank that you hook up to at campgrounds. "City Water" refers to pulling water from a central source (like in a city).

CONDENSATION: The result of warm humid air coming in contact with cold glass also known as 'Sweat'.

CONVERTER: Device that converts 120 volt AC to 12 volt DC.

CURB WEIGHT: The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

CURBSIDE: Term used to refer to the side of your RV, which faces the curb or shoulder when parked. Also called DOOR SIDE (the main entrance door) or OFFROAD SIDE.

DC ELECTRICITY: Direct Current: Also termed Battery Power. Used to run all 12 volt powered systems or lighting.

DRY CAMPING: Refers to camping using only the resources within your RV and without amenities often provided at commercial campsites; such as, city water hook-ups, electrical hook-ups, etc.

DSI IGNITION: Direct Spark Ignition – The method of lighting a main burner on a LP fired appliance.

DUCTED A/C: Air conditioning distributed through a ducting system.

DUCTED HEAT: Warm air distributed through a ducting system.

DUAL ELECTRICAL SYSTEM: RVs equipped with appliances and lights, which operate on 12 volt power when self-contained, and with a converter, on 120 volt AC when in campgrounds or run off of a generator.

DUMP STATION: Term used for locations to drain the waste holding tanks (gray and black tanks). In most states, it is illegal to dump your tanks anywhere except at dump stations.

DUMP VALVE: Another name for the T-Handle used to drain the black and gray tanks.

EGRESS WINDOW: Term for the emergency exit windows within RVs; usually identified by a red handles or levers.

FULL HOOK-UP SITE: A campsite that offers full amenities: city water, sewer, and electrical hook-ups; many have cable and phone available.

GALLEY TANK: A gray water holding tank used specifically for the kitchen waste water.

GENERATOR: Powered by gasoline, generates 120 volt power.

GRAY TANK: The waste holding tank into which water from the kitchen and bath sinks, shower and tub drains.

GRAY WATER: Water drained into the gray holding tank.

GROSS AXLE WEIGHT RATING (GAWR): Maximum amount of weight (in lbs.) that can be placed on the axle.

GROSS COMBINED WEIGHT RATING (GCWR): Maximum load weight (in lbs.) allowed for the RV and tow vehicle.

GROSS VEHICLE WEIGHT RATING (GVWR): Maximum load weight (in lbs.) allowed for the vehicle.

HITCH WEIGHT: Amount of a RV's weight that rests on the tow vehicle's hitch. See also pin weight.

HOLDING TANKS: Refers to the tanks typically known as fresh water, gray and black, where the water is held.

HOOKUPS: Where you connect to a campground's facilities.

iN-COMMAND: Commander to monitor and operate a host of features of your RV.

LOAD RATING: The maximum load that a tire is rated to carry for a given inflation pressure.

LOW POINT/LOW POINT DRAIN: Low point to drain hot/cold plumbing system.

LP GAS: Liquefied Petroleum Gas used to fuel appliances. Propane is a LP gas.

MAXIMUM LOAD RATING: The load rating for a tire at the maximum permissible inflation pressure for that tire.

MAXIMUM PERMISSIBLE INFLATION PRESSURE: The maximum cold inflation pressure to which a tire may be inflated.

MODIFICATION: The act of making something different.

PILOT: Small flame that is used to ignite the main burner of a LP-fired appliance.

PIN WEIGHT: The vertical RV load supported by the king pin of a fifth wheel hitch. Also called hitch weight.

PRIMITIVE CAMPSITE: Campsite that offers limited connections. May have city water or electrical available but not both.

PULL-THROUGH SITES: Camp sites that you can pull your RV through, eliminating the need to back in.

PV: Photovoltaic, which is also known as a Solar Panel.

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

RECOMMENDED TIRE INFLATION PRESSURE: This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification/VIN tag.

RENTAL: Property that is leased or rented out or let.

RESIDENTIAL: The act or fact of residing, abiding, or dwelling in a place for some continuance of time.

ROADSIDE: Refers to the side of the RV that faces the road when parked. Also commonly referred to as "Off DOOR SIDE".

RV: Short for Recreational Vehicle.

RVIA: Recreational Vehicle Industry Association.

SHORELINE: The electrical cord that connects 120 volt from an exterior outlet (such as campgrounds) to the RV; also called 'Power Cord'.

SHORE POWER: The 120 volt outlet that connects to the Shoreline.

SOLAR: The term "Solar power" or "Solar energy" is referring to the process of using photovoltaic cells to convert energy from the sun into electric power.

SPEED RATING: The speed rating denotes the maximum speed at which a tire is designed to be operated.

TORQUE: The amount of rotating force applied to a fastener, such as a lug nut.

TPMS: Tire Pressure Monitoring System is designed to alert you when tire pressure is too low and could create unsafe driving conditions.

UNLOADED VEHICLE WEIGHT (UVW): Weight of the RV without adding fuel, water, propane, supplies and passengers; also referred to as 'Dry Weight'.

MY KEYSTONE

OWNER'S APP

A MOBILE APP WITH EVERYTHING OWNERS NEED

- DIY Program
- Owner Registration
- Keystone Gear
- Video's and Advice
- First Time Camper Series
- Access all of your RV's Bluetooth Mobile Apps
- Find a Dealer/Service Center
- Manuals & Guides
- Travel Checklist

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PROVEN

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