

OPERATION MANUAL



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Welcome to the Four Wheel Camper Family!

Dear New Owner,

All of us here at Four Wheel Campers want to thank you for your decision to purchase our camper, and welcome you to the Four Wheel Camper family. This Owner's Manual is provided to assist you in details regarding operation procedures, troubleshooting, and maintenance of your new camper. Manuals provided by appliance manufacturers are included with your camper to provide in depth operating instructions – please read them thoroughly.

Our goal here at Four Wheel Campers is to build the highest quality campers while providing the highest quality service. If at any time you need further assistance, information, or service, please do not hesitate to call and speak with any of our factory representatives.

So, Congratulations and welcome to the family! We hope you'll have the time to send us a note telling us about your travels and experiences with your camper, and give us any suggestions you may have about our product.

Happy Camping

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1. GENERAL

1.1. General Information

The Owner's Manual does not cover every aspect of all models manufactured by Four Wheel Campers, LLC. Each owner should read this manual thoroughly and heed the warnings given herein, as well as those warnings given in the component instruction manuals contained in the Owner's Information Package.

NOTE: Some equipment and features described or shown in this package may be optional or unavailable on some models. Due to the continuous product improvement program at Four Wheel Campers, LLC. it is possible that recent product changes may not be included in this manual.

Specifications may change without notice. The instructions included in this manual are intended to be a guide, and in no respect extend the responsibility of the manufacturer beyond the limited warranty as presented in this manual. Photographs or illustrations in this manual are representative of function and may not be specific in their depiction of actual equipment, fabrics, interior or exterior décor or design options as installed on or in your camper.

While Four Wheel Campers has provided basic instructions on how to use your camper, it is ultimately your responsibility to make sure you fully understand how to use the camper prior to operation. To fulfill this responsibility, in addition to the instructions received from the dealer, you must read all instructional material furnished with the camper. If you do not understand how to operate any appliance or equipment, please call our factory for further instructions.

DISCLAIMER:

This manual and the information contained herein are confidential and are the sole property of Four Wheel Campers, LLC.

Product changes

Not all models include all features. Product information and photography included is as accurate as possible at the time of publication. For the most current product information and changes please visit our website at www.fourwheelcampers.com or contact our factory. Subsequent modifications may be evident in the actual product. Specifications are subject to change without notice. All weights, fuel, liquid capacities and dimensions are approximate.

1.2. Service Appointments

To make a service appointment at the factory please call our service department at 530.666.1442. Service appointments must be made at least 2 weeks in advance. Smaller repairs might be accommodated sooner, as the service calendar allows. All FWC dealers are authorized repair shops as well, please contact a dealer near you for more details.

2. LIMITED WARRANTY

Valid for and only applies to Four Wheel Campers' truck campers and toppers purchased and used inside the United States and its territories or possessions.

2.1. Who May Use this Warranty?

This limited warranty extends to the original consumer purchaser only. It does not extend to any subsequent owner or other transferee of the truck camper or topper.

2.2. What Does this Warranty Cover?

Subject to the exclusions below, Four Wheel Campers warrants that the truck camper or topper sold to the original purchaser will be free from defects as follows:

1. Defects in materials, workmanship and the general structural integrity of the truck camper and topper, for one (1) year from the date of original purchase.
2. Defects in materials and workmanship affecting the structural integrity of the aluminum sidewalls, aluminum framework, floor, and roof of the truck camper and topper, for five (5) years from the date of original purchase.
3. Defects in materials and workmanship in the vinyl pop-up enclosure (soft sides) of the truck camper and topper, for a period of five (5) years from the date of original purchase. 1 year general warranty on material and workmanship of the AGM Power Box.

The warranty periods set forth above are collectively referred to herein as the "Warranty Period."

The date of original purchase must be evidenced by a copy of the receipt and the Manufacturer's Statement of Origin (MSO) from Four Wheel Campers.

2.3. What is Excluded from this Warranty?

This limited warranty does not cover any damage due to: (1) normal wear and tear; (2) accident, abuse, misuse, neglect, or negligence; (3) the unauthorized modification or repair of the truck camper and topper; (4) use, maintenance or storage other than in accordance with Four Wheel Campers' use, maintenance and storage instructions, including the instructions contained in the Owner's Manual; (5) environmental conditions, including, but not limited to road salt, hail, windstorm, freezing, flooding, fire, or to any occurrence that might be termed an Act of God or Force Majeure; or (6) normal deterioration, fading or discoloration of fabric (including vinyl) and decorative items due to wear or exposure. Consumables such as batteries and similar items are likewise excluded from this limited warranty. Flaws considered to be cosmetic and not structural or affecting the integrity of the truck camper and topper may or may not be repaired or replaced at the discretion of Four Wheel Campers.

This limited warranty does not cover defects in materials and workmanship or any other damage to or caused by truck camper and topper components manufactured by companies other than Four Wheel Campers (example: refrigerators, furnaces, hot water heaters, awnings, roof racks, camper jacks, propane tanks, etc.) or any other product or device installed by you or any third party after the original date of purchase. Such component parts, products or devices may be warranted by their respective manufacturers. If you need service or repair work on component parts, products or devices not manufactured by Four Wheel Campers, you must contact the manufacturer to have any service or repair work done. Included in the Four Wheel Campers Owner's Manual is a list of

manufacturers of component parts originally included with your truck camper or topper, with contact information, and additional details for your convenience.

Four Wheel Campers is not responsible to any purchaser of the truck camper and/or topper for any undertaking, representation or warranty made by dealers during the course of selling the truck camper and/or topper beyond those herein expressed.

Each turnbuckle must be checked periodically to ensure the proper tension is applied. It is VERY IMPORTANT to regularly check & tighten them to ensure no damage is done to your truck or camper/topper. If turnbuckles are not properly adjusted Four Wheel Campers assumes no liability in potential damage to your truck or camper/topper.

2.4. What are the Remedies Under this Warranty?

FOUR WHEEL CAMPERS' SOLE OBLIGATION AND ENTIRE LIABILITY UNDER THIS LIMITED WARRANTY SHALL BE, AT FOUR WHEEL CAMPERS' OPTION, EITHER THE REPAIR OR REPLACEMENT OF THE TRUCK CAMPER/TOPPER OR THE PARTS THEREOF THAT ARE DEEMED DEFECTIVE BY FOUR WHEEL CAMPERS, AND FOR WHICH FOUR WHEEL CAMPERS IS NOTIFIED DURING THE WARRANTY PERIOD. HOWEVER, YOU ARE RESPONSIBLE FOR: (I) THE COST OF TRANSPORTATION OF THE TRUCK CAMPER/TOPPER TO AND FROM THE DESIGNATED SERVICE LOCATION; AND (II) ANY COST, LIABILITY, LOSS OR DAMAGE TO OR IN CONNECTION WITH THE TRUCK CAMPER/TOPPER RESULTING FROM SUCH TRANSPORTATION. FOR PURPOSES OF CLARITY, NO PAYMENT OR OTHER COMPENSATION WILL BE MADE FOR INCIDENTAL EXPENSES, INCLUDING, BUT NOT LIMITED TO, TOWING, TELEPHONE, TRANSPORTATION, LODGING, TRAVEL, GASOLINE, LOSS OF PAY OR INDIRECT OR CONSEQUENTIAL DAMAGE INCLUDING, BUT NOT LIMITED TO, LOSS OF USE OF THE TRUCK CAMPER, INCONVENIENCE, DAMAGE OR INJURY TO PERSON OR PROPERTY, OR LOSS OF REVENUE, WHICH MIGHT BE PAID, INCURRED OR SUSTAINED BY REASON OF ANY DEFECT COVERED BY THIS LIMITED WARRANTY.

2.5. How Can You Obtain Warranty Services?

Upon discovery of a defect, you must promptly notify Four Wheel Campers or the authorized dealer from whom you purchased the truck camper in order to request a service appointment. If it is not possible to return the truck camper/topper to the Four Wheel Campers factory or your selling dealer, please call the Four Wheel Campers factory service department. Four Wheel Campers will use reasonable efforts to work with you on finding another possible location to have the truck camper/topper repaired (depending on what the problem might be). However, Four Wheel Campers retains ultimate discretion in selecting the designated service center.

As part of obtaining warranty services at the designated service location, you will be required to provide your name, address and telephone number, proof of purchase, a description of the defect, and any claims number issued to you by Four Wheel Campers.

Warranty repairs may only be performed at a service location designated by Four Wheel Campers, which may include the Four Wheel Campers factory, a Four Wheel Campers authorized dealer, or another service center approved in writing by Four Wheel Campers. Warranty repairs by a non-Four Wheel Campers dealer or service center must be approved by the Four Wheel Campers factory service department PRIOR to any work being started.

In order to obtain warranty services, please contact: Four Wheel Campers, using the following contact information:
FWC Service Department: (530) 666-1442.

OR

The Four Wheel Campers authorized dealer from whom you purchased the truck camper/topper, using the contact information for your authorized dealer included as part of your Owner's Manual.

2.6. Disclaimer and Limitation of Liability.

Any descriptions, drawings, specifications, samples, models, bulletins, or similar material, used in connection with the sale of the truck camper shall not be construed as an express warranty that the truck camper will conform or comply with your requirements.

EXCEPT FOR THE LIMITED WARRANTY DESCRIBED ABOVE, THERE ARE NO OTHER WARRANTIES MADE BY FOUR WHEEL CAMPERS ON ANY COVERED TRUCK CAMPER. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY FOUR WHEEL CAMPERS, ITS DEALERS, AGENTS, OR EMPLOYEES SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS WARRANTY, AND YOU MAY NOT RELY ON ANY SUCH INFORMATION OR ADVICE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE AND COUNTRY TO COUNTRY. FOUR WHEEL CAMPERS LIMITS THE DURATION OF ANY LEGALLY IMPLIED WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TO THE DURATION OF FOUR WHEEL CAMPERS' EXPRESS WARRANTY. SOME STATES AND COUNTRIES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. NEITHER FOUR WHEEL CAMPERS NOR ANYONE ELSE WHO HAS BEEN INVOLVED IN THE CREATION, PRODUCTION, OR DELIVERY OF THE TRUCK CAMPER SHALL BE LIABLE FOR ANY DIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION AND THE LIKE) ARISING OUT OF THE USE OF OR INABILITY TO USE THE TRUCK CAMPER, EVEN IF FOUR WHEEL CAMPERS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES AND COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

IN THE EVENT THAT ANY OF THE ABOVE LIMITATIONS ARE HELD UNENFORCEABLE, FOUR WHEEL CAMPERS' TOTAL AGGREGATE LIABILITY FOR ANY DAMAGES TO YOU OR ANY THIRD PARTY SHALL NOT EXCEED THE PURCHASE PRICE YOU PAID, REGARDLESS OF THE FORM OF ANY CLAIM. THIS LIMITED WARRANTY IS GOVERNED BY THE LAWS OF THE UNITED STATES OF AMERICA AND THE STATE OF CALIFORNIA. THIS LIMITED WARRANTY IS VALID FOR AND ONLY APPLIES TO PRODUCTS PURCHASED AND USED INSIDE THE UNITED STATES (AND ITS TERRITORIES OR POSSESSIONS).

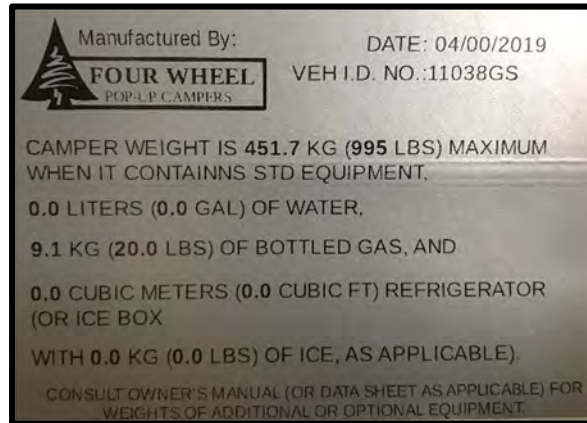
Should you have any questions about this limited warranty, or if you desire to contact Four Wheel Campers for any reason, please contact us in writing at: svc@fourwh.com

If you have questions, need clarification or additional information, please contact us.

2.7. Camper ID with Serial Number:

Every new Four Wheel Camper will come with a Camper ID tag attached on the rear wall of the camper. This ID tag sticker is normally located on the lower passenger side corner of the camper, on the exterior of the rear wall. On the Flat Bed Models the ID tag sticker is located on the front passenger side exterior wall. On the newer Four Wheel Campers we are also putting a duplicate Camper ID tag inside of the kitchen cabinets, and in the battery cabinet on Flat Bed Models for your convenience.

The ID sticker has the serial number of your camper, manufacture date, dry weight (without options), and depending on the camper it will have gallons of water, pounds of ice, and/or pounds of propane.



2.8. MSO (Manufacturer's Statement of Origin):

Every new Four Wheel Camper will come with an MSO, Manufacturer's Statement of Origin. This will be printed and enclosed in the final paperwork you receive from the factory or your local dealer. The MSO is typically used for proof of ownership, for resale, for your insurance company when you add the camper to your automotive policy, and for state registration purposes (DMV) if your state requires you to register the camper.

If at any point you decide to sell your camper, use the back side of the MSO to transfer the title of ownership to the new buyer. Although many states don't require the camper be registered with the DMV, there are still some states that do. This helps the new owner register without any hassle and is also proof that it was a legitimate sale.

FOUR WHEEL POP-UP CAMPERS

Manufacturer's Statement of Origin

The undersigned manufacturer hereby certifies that the new unit described below, the property of said manufacturer has been transferred to:

David Smith
1234 Anywhere Street
City, State, Zip Code

Trade Name of Unit: **Four Wheel Campers**
Series or Model Name: **Hawk Camper**
Manufactured Year: **2019**
Serial No.: **00000HC**
Width: **80"** Length: **129"**
Shipping Weight: **1,343 LBS**

Four Wheel Campers, LLC hereby certifies that this written instrument constitutes the first conveyance of said unit after its manufacture and that the serial number set forth above has not been and will not be used on any other unit manufactured by said manufacturer, and that there are no other certificates issued by the manufacturer for the unit described above.

Four Wheel Campers, LLC
109 Pioneer Ave, Woodland, CA 95776
530.666.1442

By: _____ Brenda Gonzalez, Administrative Assistant, April 2019

3. ROOF

3.1. Raising the Roof

Step 1:

Release all 6 roof latches located around the perimeter of the camper. The cam latches (roof latches) are released by pulling the latch handle downward, which releases the tension between the roof bracket and the latch connector. Pull down on the roof slightly and pull the latch connector off and away from the roof bracket. The latch connector will now be resting against the latch handle in a down position.

DISCLAIMER:

Ensure that the latch connector does not stay hooked to the roof bracket. If the latch is still connected there is a great chance that the roof frame will be bent, creased, or otherwise damaged as the roof is pushed upward.



Ensure all 6 latches are completely released before raising the roof.

Step 2:

Open the camper door. This will allow the camper to fill with air as you raise the camper roof. If the door is left closed, it will create an air tight vacuum and will make lifting the camper roof VERY difficult if not impossible to pop up.

Step 3:

Enter the camper and position yourself at the rear, facing the open door. You typically will want to raise the first side of the roof from the rear due to the proximity of the rear door. This is the largest opening and will allow the most amount of air to be displaced while lifting the roof.

Step 4:

By pushing upward on the rear folding panel, retract the barrel bolt that supports the end panel when the roof is down. Place one hand on the ceiling support (wooden push board) which is located above your head and push the roof upward. Then push up and outward on the lift panel with the other hand until the lift panel is extended vertically, and just past center. It is always best to mostly push upwards on the wooden board that is located on the ceiling of camper, instead of trying to push the black folding lift panel.

Before the panel is all the way up, locate and pull the strap free of the panel, then snap the panel into place vertically.



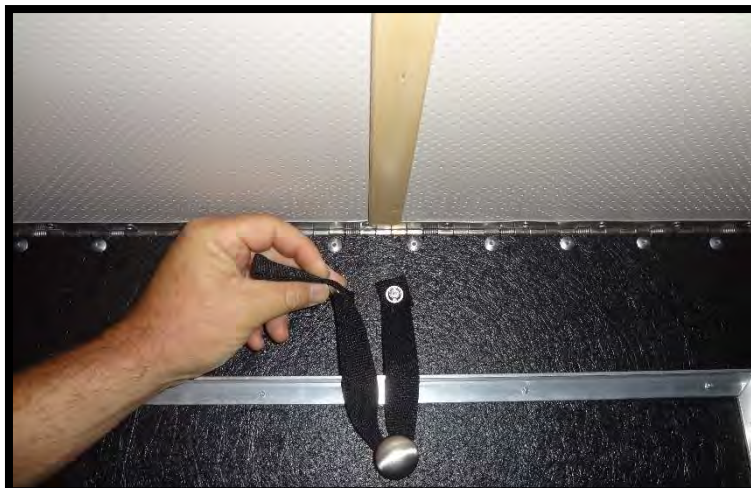
Push upward on the folding panel



Retract the barrel bolt

Step 5:

Attach the black panel strap around the knob on the upper lift panel by wrapping it around the knob and then snapping it into place. This ensures the lift panel will remain securely in the raised position.



Step 6:

Position yourself facing forward, at the front of the camper. Place one hand on the ceiling support (wooden push board) which is located above your head and push the roof upward. As the roof starts to move upwards, grasp the lift handle (also referred to as a push bar or push handle) and push forward until the lift panels are fully extended and can be locked into place with the button strap around the end of the handle. Again, be sure to use more pressure pushing upwards on the roof, than outwards on the push bar. Remove and store the bungee cords.



Face forward



Push upwards & outward

Note*: The bed-slide should normally be pushed all the way forward before trying to lift the front portion of the camper roof. This will give you better access & leverage, making it easier to lift the front portion of the camper roof.

3.2. Lowering the Roof

WARNING:

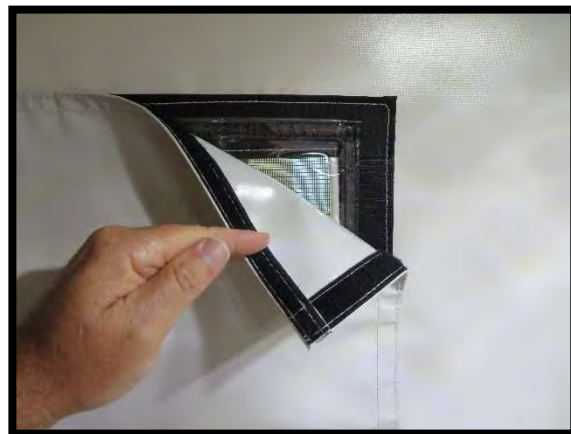
Make sure there is nothing on the cabinets, or bed that might interfere with the lowering of the roof. IF IT HAS BEEN SNOWING, REMOVE ANY SNOW FROM THE ROOF BEFORE LOWERING IT. This is very important, because high water content snow is so heavy that the roof could come down very quickly and possibly damage the roof frame. Be sure the stove cover is cool and placed in the down position, as it can burn a hole through the vinyl. If you have a forward vent on your camper, ensure the vent is closed. Turn off all lights, as the fixtures can become hot and burn the flexible liner.

Step 1:

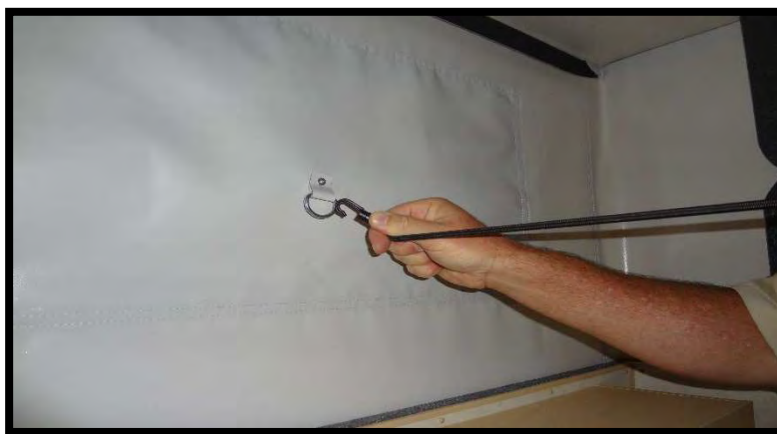
Open the camper door so the air inside the camper can be released as the camper roof comes down.

Step 2:

Securely close the all of the clear window flaps and also the interior storm flaps on the inside of the camper pop-up. Run your fingers, pushing gently, along the side edges of each window along the welt that have the Velcro strips attached to them. This will ensure a tighter seal and keep any possible moisture from entering the camper while traveling. Do the same along the top edge.



Next, attach both shock (bungee) cords between the inner privacy panels to assist the liner in folding inwards as you lower the roof.



Step 3:

Unsnap the strap from the pull handle (front cab over bed area).



Step 4:

Using the pull handle, slowly lower the front part of the roof by pulling the handle towards you, and using your other hand to slow the roof from coming down too quickly.



Step 5:

Go to the rear of the camper and unstrap the strap that is around the knob on the rear folding panel.



Step 6:

Place one hand on the wooden push board (located on the ceiling), then pull the knob on the folding panel down until the roof comes down on the rear. Keep one hand on the wooden push board to slow the roof from coming down too quickly, and keep your other hand on the knob that is attached to the black folding panel.

BE SURE TO KEEP YOUR HANDS AND FINGERS CLEAR TO AVOID GETTING PINCHED AS THE PANEL NEARS THE FULLY CLOSED POSITION.



Step 7:

Secure the rear barrel bolt latch to keep the rear panel secure during your travels. You may have to slightly push up to align the hole.



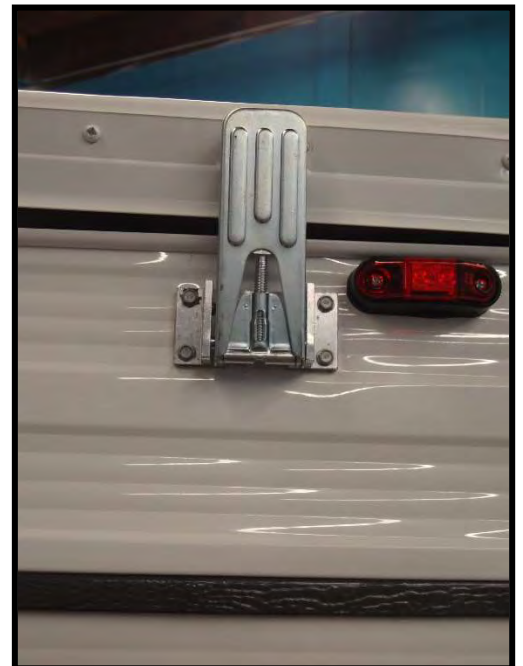
Step 8:

Exit the camper, and do a walk around to ensure the pop-up material (vinyl liner) is tucked in. If you see any excess material sticking out, tuck in the excess material and close the roof latches.



Step 9:

Lastly, do another walk around to make sure **ALL 6** roof latches are closed properly.



3.3. Basic Roof Vent(s)

The basic roof vent is opened & closed by twisting the "X" shaped knob located on the vent inside the camper. The vent in the fully opened position will be at an approx. 45 degree opening. Before you close the camper roof to travel, be sure to close the roof vent(s) and gently snug down the knob to ensure the vent does not rattle open while you are driving.



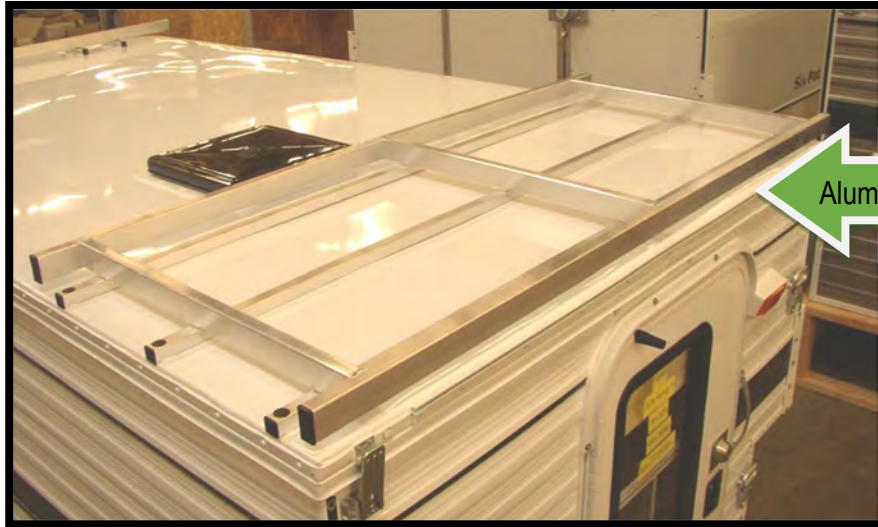
3.4. Powered Roof Vent Fan Operation

Use the ON/OFF button to start the fan or to turn off the fan. Use the IN/OUT button to reverse the direction of the fan. The fan will slow down and pause for 2 seconds before resuming operation in the opposite direction. The AUTO mode allows the thermostat to turn the fan ON and OFF depending on the thermostat setting. Press this key once for less than 3 seconds to enter AUTO mode, 3 quick beeps will confirm the fan has entered Auto Mode. To Exit Auto mode press the ON/OFF key. The Green LED light will light to indicate the fan is in Auto Mode. Please refer to the manual for adjustment instructions. Knob: Pull to unlock prior to turning. Rotate the knob clockwise to close the vent lid, and counter-clockwise to open the vent lid. Push inward to lock when vent lid is open or closed.



3.5. Aluminum Roof Rack

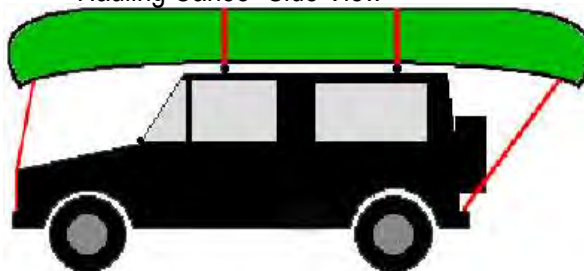
The aluminum roof rack is fixed, non-adjustable, and is permanently attached to the camper roof. This rack is **intended for carrying small, lightweight items** that might not fit inside the camper while you are traveling. If you have the need to carry a small canoe or kayak on this roof rack, it is best to keep the weight to a minimum. Safely & securely strap the canoe or kayak to the aluminum roof rack, and ALSO attach the front & rear of the canoe or kayak to the rear bumper & front bumper of the truck to better secure the load, and also ensure that there is not too much wind stress being applied to the rack.



Aluminum Roof Rack



Hauling Canoe- Side View



CAUTION: You must secure canoe on roof rack to not only the rack but, both your rear and front bumper as well.

3.6. Yakima "Tracks Only"

If you ordered your new camper with the Yakima Tracks Only installed on the camper roof, this will give you the ability to add roof racks at a later date. With the Yakima landing pads and towers, installing racks should be fairly simple. Part numbers could vary, but at the time of this printing the correct parts numbers would be ... 4 of the Yakima Control Towers (part # 8000148), 4 of the Yakima Landing Pad 1's (part # 00221), and 4 of the Lock Cores (part # 07204). For your convenience we typically install the mounting clips inside of the tracks when we mount them here at the factory. This will allow you to attach your racks without breaking the factory seal around the edge of the tracks when mounting the landing pads.



3.7. Yakima Complete Roof Rack System

If you ordered your new camper with the Yakima Complete Roof Rack System, the camper will come with the complete rack system installed on the roof. This will include Yakima tracks, control towers, landing pads, cross bars, lock cores, and a set of keys. The cross bars are set at a factory standard distance apart, but you can adjust the cross bar spacing as desired. Please follow the Yakima instructions included with the camper.

This rack is intended for carrying small, lightweight items that might not fit inside the camper while you are traveling. If you have the need to carry a small canoe or kayak on this roof rack, it is best to keep the weight to a minimum, safely & securely strap the canoe or kayak to the Yakima cross bars, and ALSO attached the front & rear of the canoe or kayak to the rear bumper & front bumper of the truck to better secure the load, and also ensure that there is not too much wind stress being applied to the rack. (See diagram above)

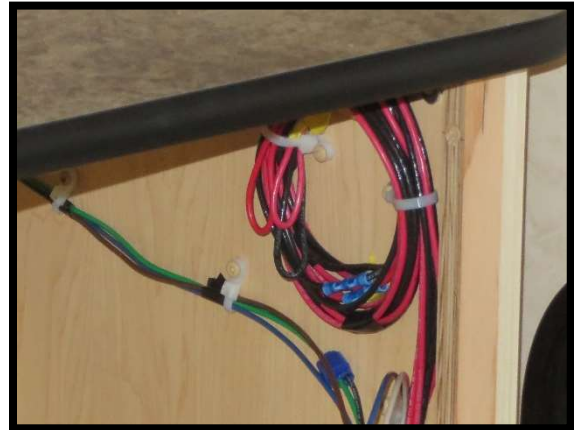


3.8. Solar Plug Connection on Roof

The solar plug installed on the camper roof (which comes standard as of January 2015) gives you the ability to add a solar panel at a later date without having to poke a hole in the roof and add the plug later. This solar plug is sealed and permanently mounted to the camper roof. The wires terminate inside the kitchen cabinets near the location of where we would normally install a charge controller, or near the battery compartment. The solar wires are typically black & red and will be coiled up together.



Solar Plug



Coiled

3.9. Solar Plug Connection on Rear Wall

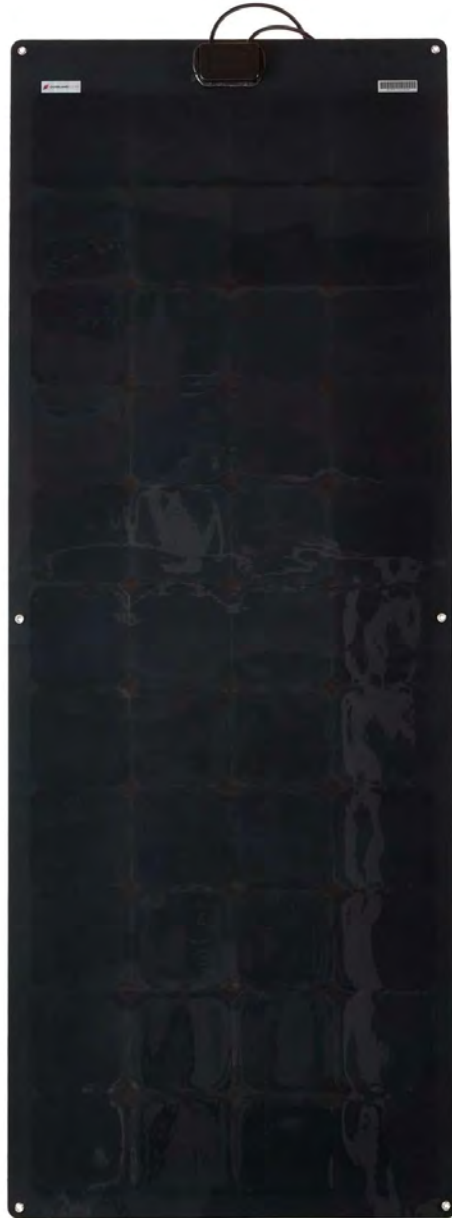
The solar plug installed on the rear wall (which comes standard as of January 2015) of the camper gives you the ability to use a portable solar panel. This solar plug is sealed and permanently mounted to the rear wall of the camper. The wires terminate inside the kitchen cabinets near the location of where we would normally install a charge controller, on top of the furnace area inside the cabinets, or near the battery compartment (varies by model & floor plan). The solar wires are black & red and will be coiled up together (see sample pictures & locations in the pictures noted above in the roof mounted solar plug notes).

Note*
If no Solar Panel
or Controller is
ordered the solar
wires will not be
connected.



3.10. Solar Panel Installed on Roof

160 Watt Solar Panel is enough to handle moderate power loads such as a small refrigerator and will help maintain the battery during storage times. The 160 watt kit should provide enough power for that long weekend of camping in optimal sun conditions.



3.11. Portable Solar Panel

We have a 130Watt Portable Solar Panel available from Overland Solar. If you need more solar capacity or if you prefer to park in the shade, a portable solar panel a great option!



130-Watt Portable Solar Panel Pictured

3.12. Solar Charge Controller

The 15 & 30 amp indoor solar charge controller has 5 stages of charging for best battery health and longevity.



For more information about operating the Solar Charge Controller, follow the link below.

4. INTERIOR FEATURES

4.1. Roll Over Couch Seating

To convert the roll over couch into a small bed first remove the front settee cushion that is resting over the water tank area near the front of the camper. Next, gently grab the back rest on the couch and pull forward until it starts to move and roll forward. Flip the back rest completely over until it is flat / flush with the couch seat. Reverse the process to convert the bed back into the couch/seating position.

CAUTION!

The bracket can pinch your hands or fingers as the seat back rolls over. Please keep your hands & fingers away from the steel hinges as they move.

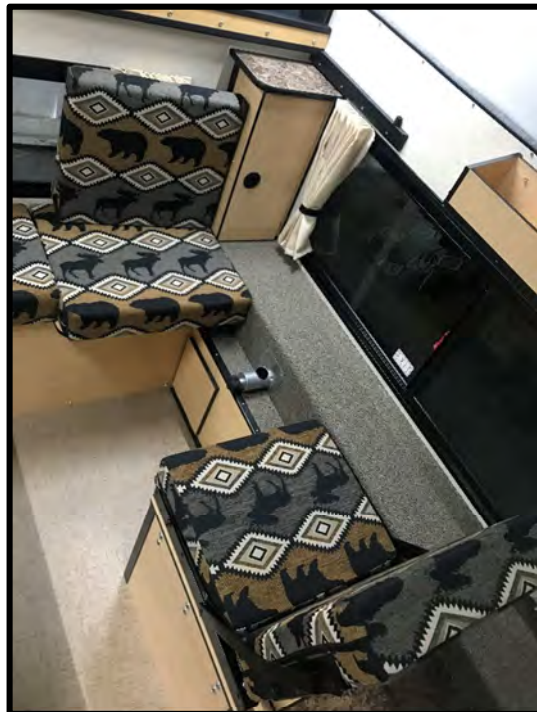


4.2. Side Dinette Seating

To convert the side dinette seating into a small bed first remove the swivel table and table leg & set it aside. Next, gently grab the back rest on the rear seat and roll it forward until it starts to move towards the front wall of the camper. Flip this back rest completely over until it is flat / flush with the front couch seat. The back rest seat cushion that is against the front wall of the camper can now be placed in the void on the portion of the couch by the back door to complete the lower bed. Reverse the process to convert the bed back into the dinette seating position.

CAUTION!

The bracket can pinch your hands or fingers as the seat back rolls over. Please keep your hands & fingers away from the steel hinges as they move.



4.3. Front Dinette Seating

To convert the front dinette seating into a bed first remove the swivel table and separate the table top from the table leg. Set the table leg aside. Gently place the table top in-between the two seats (there are wooden cleats to support the table top securely in position). Slide the two seat cushions together. Lower each back rest cushion to a flattened position and slide the cushions underneath the back rest support brackets, and snugly up against each wall. Reverse the process to convert the bed back into the dinette seating position.



4.4. Empty Shell Models

The basic shell model will not come with a couch installed inside the camper as standard equipment. If you ordered any of the additional seating arrangements, the lower bed set up will be the same as described in the above sections (Front Dinette not available). There are however small storage areas located under the carpeted side step inside a shell model for your convenience.



4.5. Flat Bed Model – Rear Dinette

To convert the rear dinette seating into a bed first remove the swivel table and separate the table top from the table leg. Set the table leg aside. Gently place the table top in-between the two seats (there are wooden cleats to support the table top securely in position). Slide the two seat cushions together. Lower each back rest cushion to a flattened position and slide the cushions underneath the back rest support brackets, and snugly up against each wall. Reverse the process to convert the bed back into the dinette seating position.



4.6. Porta Potti

a. Preparing for Use

1. Separate tanks (Figure 1A & 1B).
2. Remove Pour-Out Spout Cap while it is pointing upward (Figure 2A & 2B) add deodorant and 4-oz. of water (Figure 2C). Replace and tighten securely.
3. Recombine tanks (Figure 3).
4. Fill upper tanks with fresh water (Figure 4). Replace cap and tighten securely.

NOTE: Never add deodorant to the fresh water tank.

NOTE: Read the manufactures directions as well.

b. Before Use

Vent any built-up heat or altitude pressure and prevent splashing: close cover (Figure 5A) then open and close holding tank valve (Figure 5B).

c. To Flush

1. Open valve (Figure 5B).
2. Pump Bellows (Figure 6) to provide the fresh water to flush the waste into the lower holding tank. .
3. Close valve completely for order-tight seal (Figure 5B).

d. Emptying Waste Tank

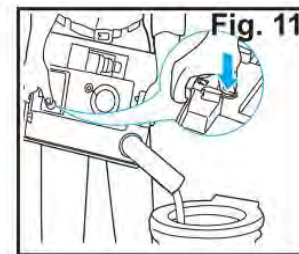
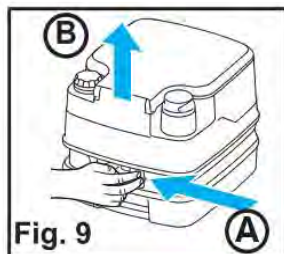
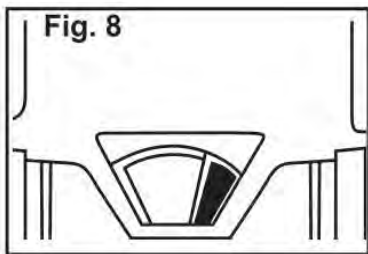
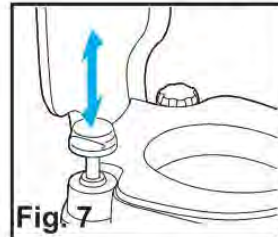
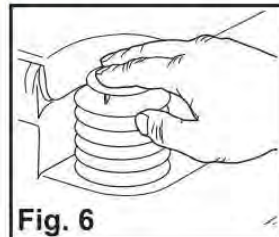
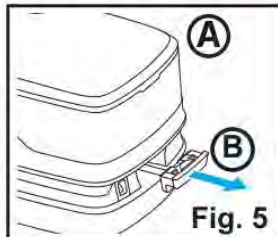
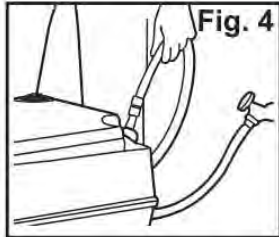
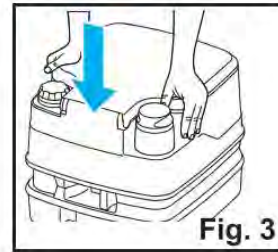
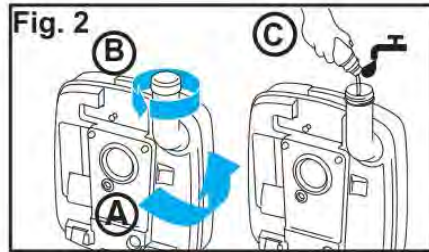
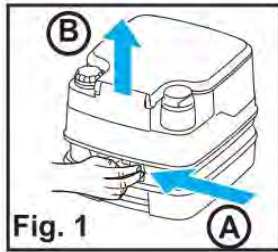
1. DO NOT OVER FILL TANK. Empty when waste level indicator turns from green to red (Figure 8). Toilets without the indicator light: open valve to check waste level visually.
2. Be sure valve handle is closed. Separate tanks (Figure 9).
3. Carry waste tank to a permanent toilet.
4. Remove the Pour-Out Spout Cap while it is pointing upward (Figure 10A & 10B).
5. Press air relieve valve to prevent splashing (Figure 11).
6. Rinse, recharge and reassemble unit.

e. Storage

Avoid freeze damage. Remove all water from tanks, pump assembly & bowl before storing. Pour 1 oz. of deodorant into waste holding tank. Mix with 1 gallon of cold water. Shake tank. Pour out. Rinse tank with cold water. Never clean tanks with hot water. Empty both tanks completely.

WINTER USE:

To prevent the flush water from freezing, add non-toxic (propylene glycol) type anti-freeze to the fresh water tank. Refer to the chart on the anti-freeze container. Add deodorant to the waste tank.



4.7. Cassette Toilet

Please refer to the Manufactures Owner's Manual that you received with your camper purchase.

http://www.fourwh.com/Dometic_Cassette_Toilet_C220_C224.pdf

4.8. Clean Waste Portable Toilet



Step 1: Fold open the legs until you hear a clicking noise.

Step 2: Remove the top cover and place it on the ground

Step 3: Put the back two legs on top of the cover for stability on soft ground

Step 4: Lift the toilet seat up

Step 5: Place waste collection bag inside of the toilet (mesh)

Step 6: Open the bag wide to expose poo powder

Step 7: Put Toilet Seat Down & Use

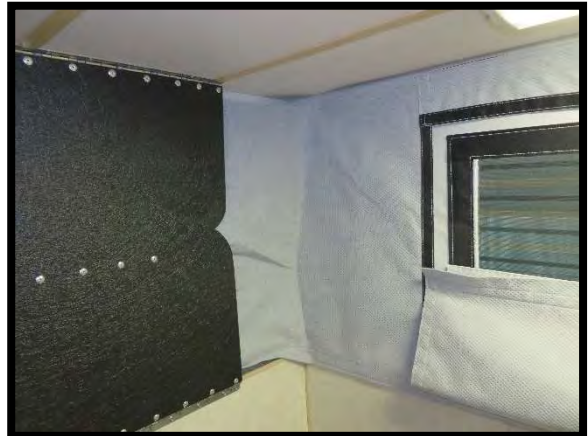
4.9. Thermal Pack

The thermal pack is made from a polypropylene nonwoven fabric (olefin fiber). It has good abrasion resistance, dries quickly, carries moisture away, stain resistant, excellent strength, lightweight & durable. It has good thermal retention and help to keep the inside of the camper warmer in cold weather by trapping air in the space between the Thermal Pack material and the vinyl pop-up portion of the camper. The Thermal Pack can also be used to keep the camper cooler in hot weather.

Installation:

Once you're inside the camper pick a corner to start with and tuck a little fabric behind the front or rear folding panel. Attach the upper Velcro strip on the thermal pack to the upper Velcro strip on the interior edge of the camper roof. Ensure the windows on the Thermal Pack align with the windows on the pop-up vinyl portion of the camper. Stretch & secure the thermal pack material down the entire side securing the Velcro along the upper edge. Once you have the top strip secured from front to back, tug down and secure the bottom edge of the thermal pack as well. Repeat on the other side of the camper.

General Care: Most stains on fabric can be readily removed by spotting with lukewarm water and detergent. Do NOT iron.



5. EXTERIOR FEATURES



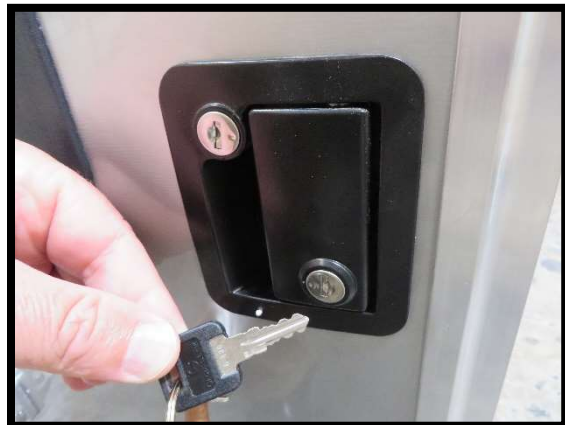
- A. Fresh Water Fill (City Water Hookup)
- B. Hot Water Heater
- C. Outside Shower
- D. Sink Drain
- E. Outside Storage (Some Floor Plans)
- F. Shore Power
- G. Furnace
- H. Upper Refer Vent
- I. Lower Refer Vent
- J. Flood Light
- K. Aluminum Jack Bracket
- L. Exterior LED Package
(this is one of 6 included in this package)

5.1. Door Latch & Deadbolt Operation

The camper entry door has 2 separate keys & locks. The upper lock is a deadbolt & uses the key that looks like your typical house key. Insert the key, turn the key clockwise to engage (lock) the deadbolt, turn the key counter clockwise to dis-engage (unlock) the deadbolt. You may have to push the door in slightly to engage the lock.

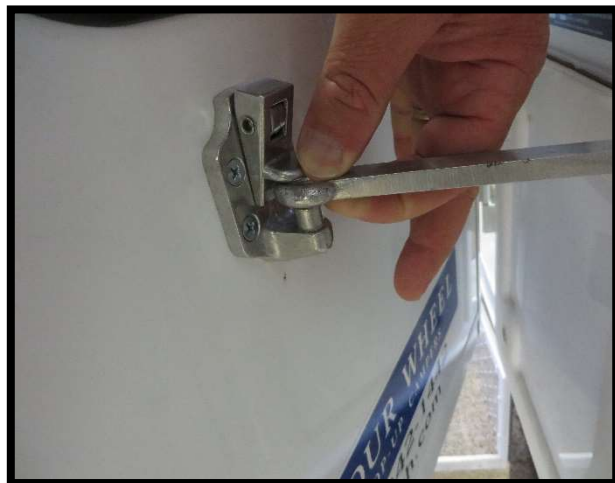


The paddle door latch is lockable with a separate key and it has its own small deadbolt built into the door handle latch. To lock the paddle latch, insert the square camper key, twist, and remove key. Repeat in the opposite direction to unlock. For locking the small deadbolt on the door handle, insert the same small black key, turn the key counter clockwise to engage (lock) it, and turn it clockwise to disengage (unlock) the small deadbolt. Note: This deadbolt locking procedure is the opposite direction as the big house dead bolt on the upper part of the camper door.



5.2. Door Catch

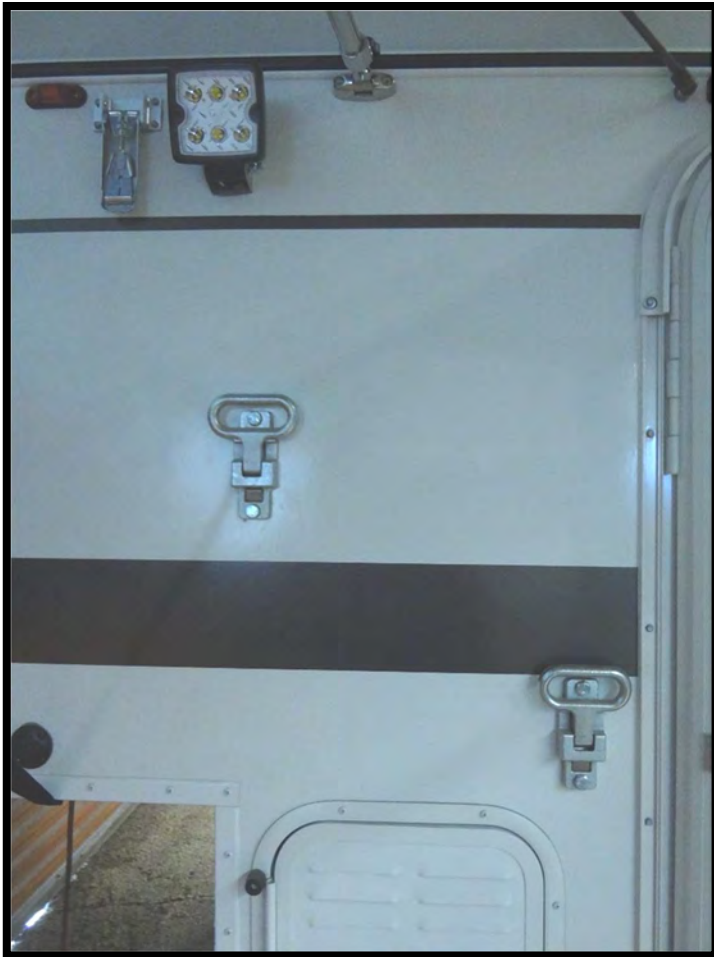
On the exterior of the entry door there is a small positive door latch for securing the camper door in the “Open” position. To engage, gently open the camper door to the fully open position, and secure the door latch to the small spring loaded door catch. To disengage to close the door for traveling, gently push in on the small spring loaded door catch and separate the 2 pieces.



5.3. Rear & Side Wall Steps

The folding steps, when folded down, provide access to cargo on the roof, but NOT to access walking on the roof. The roof is NOT designed to be walked on. Be sure to have an adequate handhold when using the fold down steps, as they are not large enough to balance on. After use, fold the steps to the stowed position to avoid damaging other parts of the camper or injuring yourself.

WARNING: Do not climb on the roof.



Rear Wall Steps on Smooth Fiberglass Option



Rear Wall Steps on Flat Bed Model

5.4. Side Awning Operation

Step 1:

To open the side awning find the crank handle inside the camper, usually white in color. The handle articulates for easy cranking.



Step 2:

Attach the hook on the end of the crank handle to the eyelet on the end of the awning.



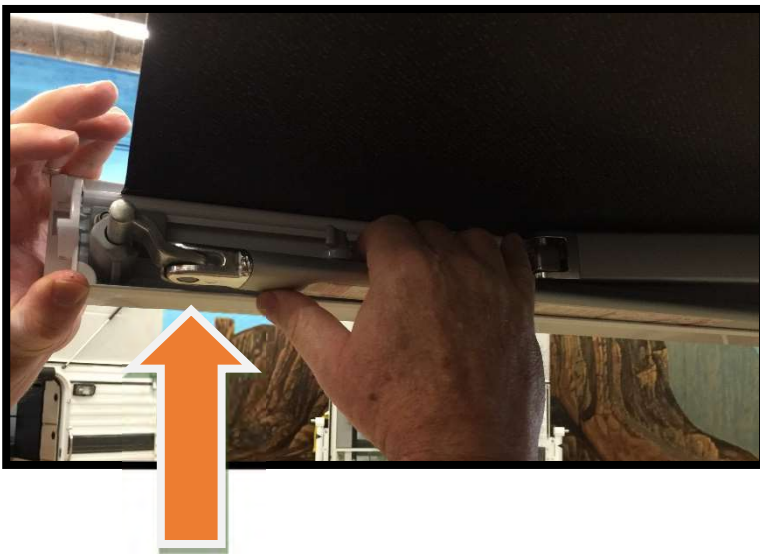
Step 3:

Gently crank the handle counter-clockwise and let the awning come out about one foot.

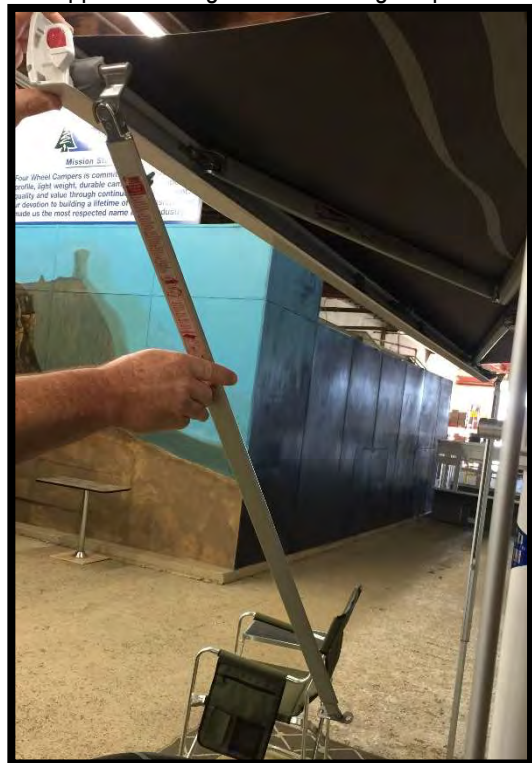


Step 4:

Look inside the leading edge of the awning case and gently pull outward on both ends of the left awning leg. Once the leg is free from the back of the awning case it should rotate freely downward. Lower the awning leg/foot down to the ground and tighten the adjustment knob so that the awning leg will support the weight of the awning. Repeat these steps for the awning leg on the right side.



Awning Leg



Step 5:

Proceed to extend the awning out, but do NOT extend so far the extension arms are straight- they should still have a slight angle. Overextending puts a stress on the linkage and makes it more difficult to retract the awning. The slight angle is also stronger, and will keep the awning in better mechanical condition for much longer.



Retracting the awning is essentially the reverse of extending it. Keep the pivot points on the legs adequately lubricated with a spray Teflon type lubricant to ensure smooth operation. When folding the retracted legs into the awning casing, ensure the thumb screws are tightened slightly after stowing to avoid loosening and loss.

5.5. Bat 270 Wrap- Around Awning

Step 1: Unzip the black exterior cover.



Step 2: Unsnap the plastic retaining clips/straps that hold the awning material in a tight roll.



Step 3: Grab the 4 awning ends and gently lift & support the 4 arms from the holding bracket.



Step 4: Carefully walk around the side of the camper, towards the rear camper door, supporting the arms, releasing each arm on the awning as the awning starts to deploy.

Step 5: Hook the last rafter of the awning to the holding bracket mounted on the top/ driver side corner on the rear wall of the camper.



Step 6: Attach the tensioning strap to the stainless clip mounted on the driver side of the camper.



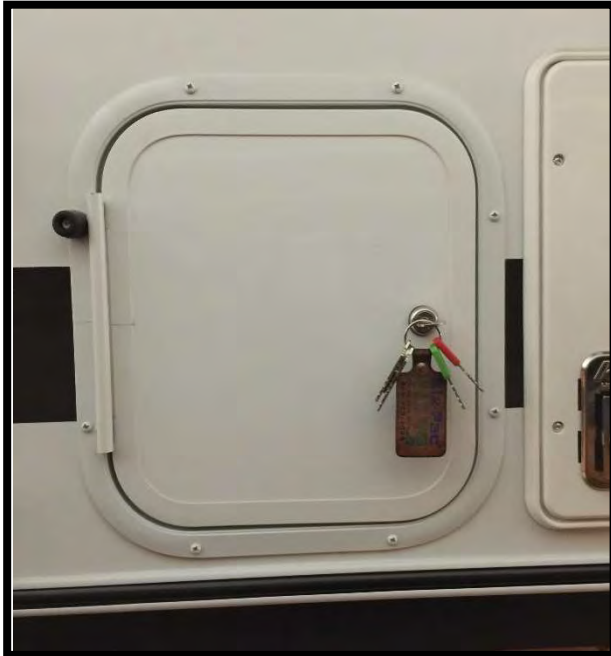
Step 6: Lower the awning support legs to the ground and stake each leg into the ground using 2 stakes, crisscrossing the stakes.

(WARNING: It is very important the awning is properly supported by the legs, and that the awning legs are staked firmly into the ground at all times. Even though it might be calm weather when you are setting up your awning, unexpected wind can come up at any time. Without proper securement, even a slight wind can lift the awning and bend the hinge causing major damage to your awning. Damage to awnings from windy conditions is NOT covered under warranty).

Step 7: To store away, repeat the process in reverse.

5.2. Outside Storage Box (Hawk & Grandby)

The outside storage box comes standard with the Hawk and Grandby model if you get the Side Dinette option or the Rollover Couch floor plan. It is not available in any other camper model or any other floor plan. The storage box is simply extra storage on the exterior (driver's side) that is lockable.



5.6. Exterior Gas Strut Roof Lift Assists

The exterior gas strut roof lift assists are installed on the outside of the camper, one set in the front and one set in the rear. They are used to help assist a customer raise and lower the camper roof. The average strut pressure will vary from 20 lbs. – 40 lbs. depending on the size of the camper and how many options are mounted on the camper roof.

WARNING:

The Exterior Gas Strut Roof Lifts Assists are just that, “assists” to help an owner raise & lower the empty & unloaded camper roof easily. These gas strut assists are not intended to increase the roof weight load capacity in any way. The less gear, and the lighter the roof load, the better. If a customer has big heavy items on the roof such as canoes, kayaks, storage pods full of gear, we highly recommend that the customer remove the gear from the roof before trying to raise & lower their camper roof. The FWC roof design is very strong, but it does have limitations on what it can carry safely. We usually suggest that customers put NO more than 150lbs. of gear on the camper roof (general rule of thumb) at any one time. The less gear and the lighter the load on the camper roof, the happier the camper & the customer will be.

Please keep in mind that these are a lift “ASSIST” and NOT a lift ALL.

WARNING: Never exceed 40 lbs. gas struts.



5.7. Mechanical Camper Jacks

The Mechanical Jacks are intended to raise and lower the camper for mounting and dismounting the camper on the truck. Made of very durable steel construction, the jacks are designed for a much heavier load than the camper, and are virtually maintenance free under normal operating conditions. The operating method is described in the section on installing and removing the camper from the truck.

Each camper with the Mechanical Jacks option is delivered with a manual hand crank and a drill adapter to raise and lower the jacks. Most people use a cordless drill with an 18 volt battery. It is very important to proceed slowly at the very end of the extension or retraction travel to avoid a “hard” stop. Abruptly stopping can damage the jack, but more importantly, it can damage YOU. The momentum of the drill can cause a twisted wrist or arm, or even strike you if you’re standing too close.



Drill Bit Adapter



Hand Crank

5.8. Exterior Lighting

a. Rear LED Flood Lights (Option)

To turn the rear flood lights on or off, locate the switch just inside the rear camper door, on the driver's side. Flipping the switch "up" will turn the rear flood lights on, and flipping the switch "down" will turn the lights off.



b. Exterior LED Lighting Package- Downward & Side Lights (Option):

To turn on the downward LED lights included with the Exterior LED Lighting Package, locate the switch just inside the rear camper door, on the driver's side. Flipping the switch "up" will turn these LED lights on, and flipping the switch "down" will turn the lights off.



c. Rear Porch Light

To turn the rear porch light on or off, locate the small rocker switch on the bottom of the light itself. Flipping the switch one direction will turn the light “on”. Flipping the switch the other direction will turn the light “off”.



6. WATER SYSTEM

6.1. Sanitizing Water Tank

Sanitize the 20 gallon fresh water system by flushing the system with a mild bleach solution. Use a dilution ratio recommended by your local health department, or use a commercial sanitizing product following the appropriate directions. Usually no more than a tablespoon or two of bleach will be needed. You will NOT need cups or gallons of bleach. After filling the water tank and adding a small amount of sanitizer, run the sink faucets for 20 – 30 seconds, and shower(s) (if equipped), then allow to stand for at least four hours, or more. Drain the 20 gallon fresh water tank and flush your water system with clean, fresh water after you are finished. If excessive odor or taste from the sanitizing solution is still present in the water system, drain the fresh water tank one more time, flush out the tank and water lines by running the water pump and faucets inside the camper as needed, and fill once again with fresh water. Any excess sanitizer can be removed following instructions from your health authority, or following commercial preparation instructions. It is recommended that the system be sanitized prior to initial use, or after long periods of standing unused. If the camper will be stored in freezing conditions, be sure to drain the water system and winterize the camper to prevent damage from frozen water lines.

6.2. Filling Water System

Filling: To fill the 20 gallon fresh water tank in the camper, find the outside filler door and use your key to open it. Once you have opened the outside filler door you will see a round plastic cap. Turn the cap counter-clockwise and gently move it to the side. Insert the potable water hose into the water fill. Turn on the outside water supply to allow water from the hose to fill the 20 gallon water tank. It can take several minutes to fill the 20 gallon water tank depending on how much water is traveling through your hose. Once the water tank starts approaching being completely full, you can sometimes hear water gurgling up the hose, or the water will over-flow out of the vent or filler when it is completely full. Turn off your outside water supply and remove your hose. Replace the plastic cap and tighten it down by turning it gently clockwise.



During normal use of your camper, you will want the hot water heater inlet valve to be “open”. This will allow the hot water heater to fill with water. Twist the knob so that it is in-line with the water line. Leave this valve in the “open” position for normal water system operation.



This lower valve is typically only used during Winterization of your camper. When the valve is “open” it will allow water to drain out (by gravity) from the hot water tank. This is how you would drain the hot water heater. During normal use & operation of your camper, keep the lower valve **closed** - turn the valve the opposite direction of the water lines. With the valve closed it will keep water from cycling back into 20 gallon fresh water tank.

6.3. Electric Water Pump

The electric water pump is better known as an “on-demand water pump” in the traditional RV industry. Once you have water in the 20 gallon fresh water tank, open your hot water knob or cold water knob, (or both) at the sink and then turn the water pump switch to the “ON” position (the switch is located on the small “water/battery monitor” panel) on the front of the kitchen cabinets. This will start to pump water through the lines and remove any air trapped in the water lines. Run the water pump until you have a smooth, steady flow of water coming out of both your cold & hot water faucets. Note: If the hot water heater tank has not been filled, it can easily take 4-6 minutes for the 6 gallon hot water tank to completely fill up. This is normal. Once the water heater tank is full and the water lines have been

purged of air, water is flowing smoothly from both the cold and hot water faucets, your system is ready to use. At this point you can top off the 20 gallon fresh water tank if you'd like. You will have depleted some of your fresh water during the filling of the hot water heater and flushing of the lines. The water pump should automatically turn off when your sink faucets and/or shower faucets are in the closed position (water pump shuts off automatically once it reaches a certain pressure). But that said, it is always best to turn the water pump switch "OFF" when you are not using the sink or shower fixtures. After the water pump switch is turned off, it is recommended to gently open both the hot and cold faucets to allow any trapped pressure to be released.



6.4. City Water Hose Connection

Most campers also come with a city water connection next to the fresh water tank filling cap. The city water connection will allow you to connect the camper to a "full time" water source (connect a hose to your house or to the water faucet at your campsite).

If you are going to hook a hose up to the camper using the city water connection, you MUST use a water pressure regulator to avoid possible damage to the water system due to excessive incoming water pressure.



Water Pressure Regulator



We recommend that you fill the fresh water tank or hook the camper up to a city water connection using a non-toxic “Drinking Water Hose aka White Potable Water Hose”. A proper fresh water hose provides drinking water that is safe to drink. They are made from FDA approved materials. Another positive feature of this type of water hose is that it is neutral; meaning that water flowing through this hose has neither a hose-like taste nor a rubber-like taste. These hoses are available from us here at Four Wheel Campers, or at other locations like Camping World, Amazon, Wal-Mart, or your local RV supply store. The city water supply will NOT fill the water tank; it will only supply water to the sink, water heater, and shower fixture.



6.5. Water Tank and Monitor

The campers have a 20 gallon fresh water holding tank. This tank is filled from the outside of the camper. On the inside of your camper, located on the front of your kitchen cabinets will be a small monitor panel. This monitor panel will give you a general idea on how much water you have in the fresh water holding tank. The 20 gallon fresh water tank has four monitoring sensors located inside of it, so it can only give you a general idea on the actual water level (Empty, 1/3, 2/3, and Full). If you are concerned about running low on your water supply, it would be best to top off the tank each time you have a clean source of drinking water available.



6.6. Sink & Faucet Operation

To use the kitchen sink, make sure you either have water in your fresh water tank or your camper is hooked up to an external water connection (city water supply). If you are preparing to use the water from your on-board fresh water tank, then turn on the electric water pump by flipping the small red switch on the monitor panel. If your camper is instead hooked up to an outside pressurized water source (hose attached to the camper with a city water connection) then you will not need to run the electric water pump, as you will already have a pressurized water supply.

For the standard stainless steel sink with both a hot & cold water faucets, open and close each knob as needed. The red faucet valve controls the hot water flow (if equipped with a hot water heater), and the blue faucet valve controls the cold water supply.

If your camper has the flush mount sink, the sink faucet handle will swivel outward to control the water pressure / water supply. Extend the lever away from the faucet to start and moderate the water flow. Once the water is flowing you can then swivel the handle upwards or downwards to control the mixture of hot and cold water.



Standard Stainless Steel Sink



Upgraded Flush Mount Sink

6.7. Hot Water Heater

If your camper is equipped with a hot water heater, it is a 6 gallon water tank with DSI (direct spark ignition). Before turning on the hot water heater, it is VERY important that you make sure your hot water heater is completely full of water and both your hot & cold water lines have been filled with water, and purged of any excess air. Once filled ensure you have either 12 volt battery power or electricity supplied to the camper, your propane tank is full and turned on (open), then proceed to flip the “red” hot water heater switch located on the front of your kitchen cabinets to the “on” position. The red light will come on momentarily as the hot water heater is lighting, and the red light will then go off once the hot water heater has been lit. At this point you should be able to hear a small roar of propane burning inside the water heater (propane flame heating the hot water tank). Even though the hot water heater is running, the light on the “on/off switch” on the front of the kitchen cabinets will not be lit.



6.8. Outside Shower Operation

If your camper is equipped with an outside shower fixture, the unit is hooked up to the fresh water tank supply. If your camper also has the hot water heater option, the outside shower will be connected to the hot water lines as well. Before using the outside shower fixture, make sure your hot water heater is full of water, you have water in your 20 gallon water tank, ensure you have either 12 volt battery power or electricity supplied to the camper, and then turn on your electric water pump switch on the front of your kitchen cabinet to pressurize the water lines. Insert the outside shower connector. As you turn the shower connector on the camper left or right, it will adjust the water temperature at the end of the shower wand. It is best to test and adjust the water temperature by hand before taking your shower. Once the correct water temperature is reached, there is a shut off control on the shower wand head. This allows you to shut off the flow without changing the temperature setting.



6.9. Inside Shower Operation

If your camper is equipped with an inside shower fixture, it will always be hooked up to the fresh water tank supply. If your camper also has the hot water heater option, the inside shower will be connected to the hot water lines as well. Before using the inside shower fixture, make sure your hot water heater is full of water, you have water in your 20 gallon water tank, ensure you have either 12 volt battery power or electricity supplied to the camper, and then turn on your electric water pump switch on the front of your kitchen cabinet to pressurize the water lines. Insert the inside shower connector. As you turn the shower connector left or right, it will adjust the water temperature at the end of the shower wand. It is best to test and adjust the water temperature by hand before taking your shower.



6.10. Winterizing Water System

Winterizing the Hot Water / Exterior Shower / Interior Shower / Cassette Toilet:

To reduce the possibility of fractures and splits in the system's water tanks, lines, and water pumps in climates where the temperature is below freezing (32 degrees F; 0 degrees C), it is crucial that as much water as possible be drained from the system. You could also add a mixture of water and non-toxic antifreeze to the camper's water system.

CAUTION: Be sure to release the water pressure in the hot water tank before draining the system.

Step 1: Drain the 20 Gallon Freshwater Tank and Drain Line

The 20 Gallon Fresh Water Tank is usually located under the camper's front seat area (near the front wall of the camper), and the exterior drain valve (drain cock) is located on the rear / exterior wall of the camper (outside), usually near the camper entry door. To drain the 20 gallon fresh water tank, make sure your truck is parked level, or better yet parked on a slight incline. Parking the truck on a slight incline will help to ensure gravity to completely drain the water out the fresh water tank. Next, open the hot and cold water valves on the sink faucet and leave them open. Next, open (twist) the exterior drain valve on the rear wall of the camper and leave it open until the 20 gallon fresh water tank is drained and water stops coming out. If your 20 gallon water tank is full, the draining process might take quite a while. After the main water tank is empty, leave the small tank drain cock on the outside of the camper "OPEN".



Step 2: Open the Low Water Valve.

Open both the hot water heater filling valve and also the low point water value inside your kitchen cabinets (if equipped). To open them, turn each valve $\frac{1}{4}$ turn to the left. Leave them open.



Note: The hot & cold faucets should already be open if you have followed Step 1 from above). With the sinks faucets open, the drain valves open, and the fresh water tank empty, the water in the hot water tank should slowly drain down & out, back down into your 20 gallon fresh water tank. As the hot water heater tank is draining, you will probably also notice water start to drain out of the 20 gallon main water tank drain cock located on the rear / outside of the camper. Leave all valves, faucets, and the exterior drain cock "open" and allow some time for the water to drain out (this can take awhile, so we recommend finding something else to do and come back after a while to see when the tanks are finished emptying) or move on to Step 3 below).

Step 3: Drain the Hot Water Tank

Turn off your electric water pump. Make sure your water drain valves inside the camper are “open”. Then open the access cover to the exterior & interior hot water shower connections (if equipped). Insert & connect the shower wand & hose. Extend the shower hose until it is straight. With the hose straightened, position the shower head so that it is lower than where the hose is attached to the shower compartment. This will allow gravity to drain the water out for you. Make sure the shower wand control knob on the head of the shower wand is twisted to the “open” position to allow any trapped water to exit. Disconnect the shower wand & hose, shake the shower wand & hose to release any possible trapped water from it, and put it away for storage.



Step 4: Drain the Shower Head and Hose

Run the electric Water Pump for approximately 15 to 20 seconds, or as long as water is flowing out from the sink faucet, with both the hot & cold water at the kitchen sink valves opened. This should help to remove as much remaining water from the system as possible. Turn the electric water pump “OFF”, and leave both the hot & cold faucets on the sink “OPEN” position so that any excess water that could potentially freeze will have room for expansion (instead of cracking a water line or fittings). After all the water has been drained from the system use the supplied Blowout Plug to blow out any excess moisture out of the system.



Step 5: Add Non-Toxic Antifreeze (optional)

If you are going to add Non-toxic RV Antifreeze to your camper water system for possible freezing water temperatures, you will need to add the correct amount of properly prepared “**non-toxic**” RV Antifreeze and water solution to back into your 20 gallon fresh water tank by pouring it into the fresh water filler port located on the outside of the camper. See antifreeze manufacturer's Water / Antifreeze mixture recommendations. Once you have a few gallons of properly mixed water/anti-freeze in the fresh water holding tank, turn on your electric water pump. Open the cold water valve at your sink faucet and run until you can see some of the antifreeze/water mixture flow from the sink faucets. Close the sink faucets. Next, operating just one shower fixture at a time, hook up both the inside shower wand & outside shower wand (if equipped) and turn on the electric water pump. Open the cold water valve, and run for a few moments until you can see some of the anti-freeze mixture come out. Close both shower water valves and disconnect the shower wand. Once disconnected, drain the shower wand & shower hose before storing it away. Drain the kitchen sink (if needed) and replace the cap on the sink's gray water spout (exterior of camper). Instead of storing the hot water heater full of the RV Antifreeze for Winterizing, most customers usually drain the water out of the hot water heater and leave it empty of water.

Once you have drained the hot water heater, drained the 20 gallon fresh water tank, introduced the non-toxic RV antifreeze, then go back through the camper and make sure your sink faucets are open, and open the hot water tank valve insides the cabinets. Next, make sure plastic drain cock on the rear wall of the camper is also open. This will allow any possible trapped water to move freely (instead of expanding outward and possibly cracking a water line) if it were to freeze.

DISCLAIMER: PLEASE DO NOT USE PRESSURIZED AIR UNLESS ALL VALVES AND FAUCETS ARE OPEN



6.11. De-Winterizing Water System

Step 1:

Before refilling and using the 20 Gallon fresh water tank inside the camper for your next trip, you should drain & flush out any possible remaining non-toxic anti-freeze mixture out of the camper water system (if you took this step). It is also a good idea to fill & flush both the 20-gallon fresh water holding tanks and the 6 gallon hot water heater (if equipped).

Step 2:

Before running the water pump or filling the water tank, make sure the sink and shower faucets are “Closed”, the upper hot water heater tank filling valve inside the kitchen cabinets is in the “Open” position, the lower water heater drain valve is “Closed”, and the drain cock on the rear wall of the camper (exterior) is “Closed”.

Step 3:

Next, open the water filler door on the outside of the camper and fill the 20-gallon fresh water tank (using clean potable water).

Step 4:

Once you have water in the 20-gallon fresh water tank, open your hot water knob or cold water knob, (or both) at the sink and then turn the water pump switch to the “ON” position (located on the small “water/battery monitor”) on the front of the kitchen cabinets. This will start to pump water through the lines and remove any air trapped in the water lines.

Step 5:

Run the water pump until you have a smooth, steady flow of water coming out both your cold & hot water valves. Note: If the hot water heater tank has not been filled it can take a few minutes for the 6-gallon hot water tank to completely fill up. This is normal.

Step 6:

Once the water tanks are full and the water lines have been purged of air, water is flowing smoothly from both the hot & cold water faucets at the sink, your system should be ready to use. Go ahead and top off the 20-gallon fresh water tank if you like (as you will have used some water filling & flushing your system).

Step 7:

The pressurized water system with the on-demand water pump can be left on at all times when you are using the sinks or showers (provided there is water in the fresh water tank). The “on-demand” water pump should automatically turn off when your sink faucets and/or shower faucets are closed (the water pump should automatically shut off once it reaches a certain pressure). But that said, it is always best to turn the water pump switch “OFF” when you are not using the sink or shower fixtures.

Step 8:

When traveling or when finished using the camper, please turn off water pump switch. After the water pump switch is turned off, you can also gently open the hot and cold faucets at the sink to remove any excess water pressure from the system, then close the faucets after the pressure has been released. If you feel the need, you can repeat the draining & filling process one more time if you think there might still be contaminants in your fresh water system.

7. ELECTRICAL SYSTEM

7.1. 12 Volt Battery Power

Depending on the options installed, the electrical system is very direct and easy to troubleshoot. You have 12 volt (battery power) and 120 volt (electricity) circuits. The 12v battery power inside your camper is usually supplied from an auxiliary battery (or batteries) installed in your camper, unless you did not order those. If you do not have a separate camper battery (or batteries), then the camper will most likely get 12v power from the truck battery in your engine compartment.

Auxiliary Battery Box Compartment



Pull out to turn on 12 volt battery system.

Push in to turn off 12 volt battery system.

Kill Switch

* The "IN" (pushed in) position means 12v power is NOT being allowed to power appliances.

* The "OUT" (pulled out) position means 12v power IS being allowed to power appliances.

Recharging of the campers Auxiliary Battery (Solar Panel):

When using the truck's charging system or the solar panel (if equipped), the silver 12v master switch can be in the "IN" or "OUT" position to allow recharging of the auxiliary battery.

The 120 volt electricity circuit breakers are located near your fuse panel inside your kitchen cabinets.



7.2. 110/120 Volt Electricity (Shore Power)

When “shore” power is available, that is, 120v power from an electricity source outside the camper, the 30amp IOTA power converter will automatically supply 12v power to the entire camper (lights, furnace, 12v receptacles, outside lights, ceiling fan, etc.) If the camper is not connected to a 120v supply, the appliances will operate on 12v power from the auxiliary camper battery(s), or the truck battery if your camper does not have its’ own 12v battery installed. The function of the battery separator (comes installed with the FWC aux. battery system) is to disengage the truck power supply (i.e. the truck starting battery) when your truck is turned off, therefore keeping the truck battery fully charged. In each camper we usually install a Master 12v Disconnect Switch (a small silver push/pull knob near the 12v fuse panel & circuit breakers) so that you can quickly & easily disengage the camper, from the camper battery, if you are not planning on using your camper. This will keep small items inside the camper (ex: propane/carbon monoxide sensor) from possibly draining the aux. camper battery over time when the camper is not in use.

Connect your pigtail to the 30amp connector on the driver side and the other end must be plugged into the campsite power or a generator.

Pigtail

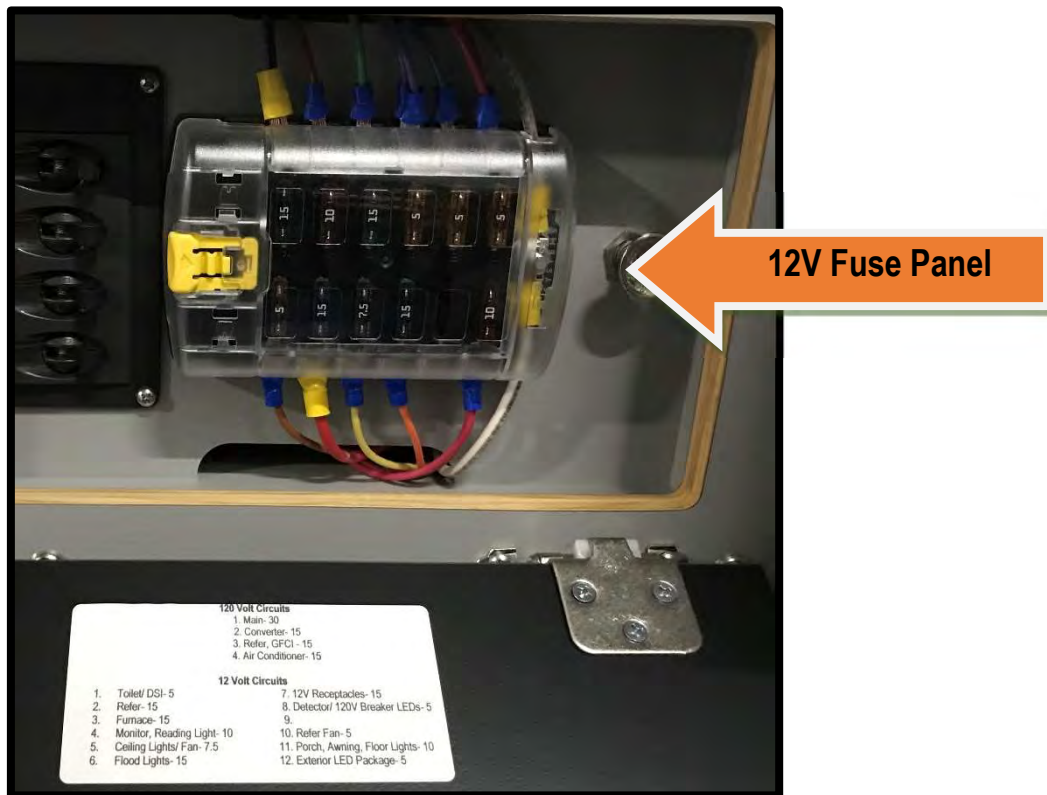


Recharging the camper Auxiliary Battery (Shore Power Electricity):

When the camper is plugged into 120v shore power or a generator (electricity), the silver 12v master switch can be in either the “IN” or “OUT” position to operate the appliances in your camper. However, if you would like to have your camper battery(s) recharge from the 120V shore power electricity, the 12V master kill switch must be pulled “OUT” to allow for recharging of the auxiliary battery through the 30amp IOTA power converter (excludes empty shell models).



The 12 volt fuses are located next to your circuit breakers inside your kitchen cabinets.



You have been supplied operating manuals for the electrical appliances. Review the contents and operate these appliances according to the procedures provided in each manual. Service issues with these appliances are best handled by an authorized service center rather than our factory, as their centers have specialized training in troubleshooting and repairs.

7.3. IOTA Power Converter w/ IQ4 Smart Charger

The IOTA 30 amp Power Converter (DLS-30/IQ4) features an internal IQ4 Smart Charge Controller which automatically provides four-stage battery charging for safer charging and longer life for your camper battery/batteries.

The DLS-30 Power Converter/ Battery Charger from IOTA converts nominal 108-132 AC voltage to 13.4 DC voltage for both DC load operation and 12V battery charging.

As a power supply, the unit's tightly controlled regulation allows the user to operate a nominal 12VDC load up to 30 amps.

As a battery charger, the unit will maintain the battery/batteries, delivering its full-rated current when the battery capacity falls sufficiently low. The voltage is set to deliver its maximum current for the necessary period of time to minimize undue stress to the battery caused by heating of its cells. This helps to ensure the longest possible life of the battery. Over time, as the battery nears its full capacity, the DLS-30 will automatically drop the current, providing a float-charge to the battery to prevent self-discharge of the cells. The IQ4 Smart Controller provides intelligent automatic charging control for your DLS Battery Charger, keeping batteries fully charged and operating for long life. The IQ4 Charge Controller allows the DLS Series battery charger to operate as an automatic 4-Stage "Smart Charger," delivering the charge your battery needs at the time it needs it. The IQ4 uses four different charging modes to keep your battery in peak condition.

Note: This unit is a "Power Converter". Its' purpose & main function is to convert "shore power (120V electricity)" over to usable "12 volt battery power". Not all, but most electrical items and appliances inside your camper are designed to run off of 12 volt battery power. The only exception to this would be the 120V house outlet on the front of the kitchen cabinets, and the Refrigerator. These 2 items can be used with electricity. Again, this IOTA DLS-30 is a "Power Converter" and does not allow your camper to have full use of 120V electricity when you are camping off the grid with no place to plug your camper into a shore power source (ex: plugging in to campsite power or a generator).

If you require full electricity inside your camper when boon-docking or remote camping, and you cannot find a source of 120V electricity to plug the camper in to for the night, you may want to consider adding a small "Power Inverter" to your camper by yourself (aftermarket). A "Power Inverter" will convert 12 battery power and turn it into usable 110/120V electricity. This is not something that Four Wheel Campers offers as an option at the moment. More information on installing a "Power Inverter" can be found with most any simple internet search.



8. BATTERY SYSTEM

8.1. Basic Camper Battery Maintenance

Routine maintenance & recharging a discharged battery as soon as possible will extend the life of the battery(s). The leading cause of dead camper batteries is sulfation. When a battery is in a low state-of-charge small crystals start forming on the plates (sulfation) and if it remains in this condition for an extended period of time, without recharging, the battery will be ruined. Sulfation starts when a battery's state of charge drops below 80%, or approx. 12.6 volts.

Recharging a battery in a timely manner helps prevent sulfation.

Never let a 12-volt deep cycle camper battery discharge below 12.2 volts. That probably sounds funny, but a fully charged AGM battery is 12.8 volts. When a battery reads below 12.2 volts it is at or below a 50% state of charge. You can measure the voltage using a digital voltmeter. Measuring the voltage gives you a quick picture of the batteries depth-of-discharge, so you know when the battery needs to be recharged. Set the voltmeter on DC voltage and place the red lead on the positive terminal and the black lead on the negative terminal to read battery voltage.

Reducing the batteries depth-of-discharge increases the life of the battery. A battery discharged to 50% each camping trip will usually last twice as long as a battery cycled down to 20% every camping trip.

Truck Campers and RV's sometimes have parasitic loads that can discharge a battery over time. Some, but not all of these loads are LP gas leak detectors and appliance circuit boards. It is always best to make sure your battery disconnect switch is "pushed in" (OFF) when you are not using the camper, or when the camper is in storage.

Properly charging your camper batteries needs to be done in stages. A bulk charge should be used to return the battery to 90% of a full charge during the first couple hours. An absorption charge is used for the remaining 10 percent to prevent any battery gassing and loss of water, then a float charge to maintain a full charge. If your camper is equipped with the IOTA 30amp Power Converter, this unit will take care of your three-stage charging, if your electrical systems are in good working conditions, your circuit breakers are turned on, your master 12v switch is pulled out (ON), and you have the camper plugged into a 120V AC shore power outlet.

If you need further instructions or additional help, please check out the electric system video in the troubleshooting video section on our website.

8.2. AGM Deep Cycle Battery Maintenance

Routine maintenance & recharging a discharged battery (or batteries) as soon as possible will extend the life of the battery(s). The leading cause of dead camper batteries is sulfation. When a battery is in a low state-of-charge small crystals start forming on the plates (sulfation) and if it remains in this condition for an extended period of time, without recharging, the battery will be ruined. Sulfation starts when a battery's state of charge drops below 80%, or approx. 12.6 volts. **Recharging a battery in a timely manner helps prevent sulfation.**

Never let a 12-volt deep cycle camper battery, or your Dual 6 Volt Batteries, discharge below 12.2 volts. That probably sounds funny, but a fully charged battery is 12.8 volts. When a battery reads below 12.2 volts it is at or

below a 50% state of charge. You can measure the voltage using a digital voltmeter. Measuring the voltage gives you a quick picture of the batteries depth-of-discharge, so you know when the battery needs to be recharged. Set the voltmeter on DC voltage and place the red lead on the positive terminal and the black lead on the negative terminal to read battery voltage.

Reducing the batteries depth-of-discharge increases the life of the battery. A battery discharged to 50% each camping trip will usually last twice as long as a battery cycled down to 20% every camping trip.

Truck Campers and RV's sometimes have parasitic loads that can discharge a battery over time. Some, but not all of these loads are LP gas leak detectors and appliance circuit boards. It is always best to make sure your battery disconnect switch is "pushed in" (OFF) when you are not using the camper, or when the camper is in storage.

Properly charging your camper batteries needs to be done in stages. A bulk charge should be used to return the battery to 90% of a full charge during the first couple hours. An absorption charge is used for the remaining 10 percent to prevent any battery gassing and loss of water, then a float charge to maintain a full charge. If your camper is equipped with the IOTA 30amp Power Converter, this unit will take care of your three-stage charging, if your electrical systems are in good working conditions, your circuit breakers are turned on, your master 12v switch is pulled out (ON), and you have the camper plugged into a 120V AC shore power outlet.

If you need further instructions or additional help, please check out the electric system video in the troubleshooting video section on our website.

8.3. Lithium Battery Maintenance

Charging a LiFePO4 battery basically means applying an external voltage to drive current from the anode to the cathode of the battery. The charger acts like a pump – pumping current upstream, opposite the normal direction of current flow when the battery discharges. When the charger's applied voltage is higher than the open circuit battery voltage, then the charging current flows. During this process, the battery open circuit voltage increases, approaching the applied voltage of the charger.

The charger can behave in several different ways during the charging process. First the charger can steadily increase its voltage in order to keep the current flow constant. This is the first stage of the charging process – typically called the "bulk" charging stage. During this stage, the charger adjusts its applied voltage to deliver the maximum current to the battery. For example, a 10-amp charger will deliver its maximum of 10 amps during this bulk charging stage, and the applied voltage will increase up to a maximum voltage, or "bulk voltage."

Once the bulk voltage is reached, the charger enters a second stage, called the "absorption" charging stage. During absorption, the charger applies a constant voltage, called the "absorption voltage." As the battery open circuit voltage approaches the absorption voltage, the current flow steadily decreases down to zero.

At this point the battery is fully charged. However, a lead acid battery will rapidly lose charge when the charger is disconnected. So, instead of turning off, the charger enters a third stage called the "float" stage, in which the charger drops to a lower voltage and holds at that voltage. The point of this stage is to keep the battery topped off, and account for the fact that lead acid batteries tend to drain, even when there is no load connected.

These stages combined sequentially form what is commonly called the "charging algorithm." A battery charger may generally be classified by a charging current (i.e. the max charging current) and a target battery voltage (12 V, 24 V,

36 V, 48 V, etc.). But chargers may also include multiple charging algorithms (typically classified as “AGM,” “SLA,” “Gel,” “Wet,” etc.). A closer look reveals that each algorithm has its own unique parameters, including:

- Bulk voltage
- Absorption voltage
- Absorption time
- Float Voltage

There is a wide variation among values for charging algorithms for lead acid batteries. The bulk and absorption voltages typically vary between 14.0 and 14.8 V, and the float can vary between 13.2 and 13.8 V. The 12 V Battle Born batteries sit comfortably right in the middle of these ranges. We recommend a bulk and absorption voltage of 14.4 V. A float is unnecessary, since li-ion batteries do not leak charge, but a floating voltage under 13.6 V is fine.

9. PROPANE SYSTEM

9.1. Purging New Propane Tanks:

Each new Four Wheel Camper (except older empty shell models) come equipped with a propane gas system including a regulator designed to provide regulated gas pressure for proper operation of the stove, furnace, refrigerator, and hot water heater (if equipped). The propane tanks are mounted in a sealed, vented cabinet on the exterior of the camper and are easily removable for filling.

The propane tanks are empty when you first receive your camper and MUST be “purged” of air and moisture from a propane dealer prior to filling them for the first time!

When new customers are having their propane tanks filled for the first time, process of “purging” is a mystery for many. New propane containers (tanks or cylinders) are sometimes shipped with shipping air that provides a balance of pressure while shipping over various altitudes, and locations. Shipping air that is in the tank may be as much as 100 PSI. To be able to fill the tank fully that pressure must be relieved first down to one atmosphere which must be replaced by purging the tank with propane vapor, not liquid, which is what the filling stations use to fill your propane containers with after the first purge with vapor. That is the purging technique that is most used most often.

The second method is to remove the shipping air and take the internal pressure down to at least negative 26 inches of mercury vacuum with a vacuum pump. Then LP gas vapor, not liquid, can be put into the tank to displace any air left over, and liquid filling is then done. All new propane tanks MUST BE PURGED BEFORE BEING FILLED FOR THE FIRST TIME! New propane tanks may contain water, air, or other contaminants, and it is essential that these be removed before filling the container and placing it into service. Water vapor present in the gas vapor may cause regulator freeze ups at the inlet.

Aside from having difficulty in filling a propane tank that is not purged properly, the safety of your camper and family are at stake! If not purged properly, in addition to the moisture from the air causing regulator freeze up, a propane container with moisture in it can rust from the inside out, and have problems filling. Air in the tank can cause your propane to have much less heat per gallon, or BTUs. But even worse, it can eliminate the odor that tells you if you have a leak! That’s right, if the container is full of air, the odorant that gives the smell of garlic, (Ethyl or Methyl Mercaptan) that is added to the propane, will oxidize, and little or no smell may be detectable! Propane itself is odorless. This is called odorant fade. If the new container, tank or cylinder is not purged properly, you might not be able to smell a propane leak. Or if it has 100 PSI of shipping air in it, and you try to fill it without purging, it may not fill with much liquid propane, due to the air pressure. If it does fill with liquid propane over shipping air, without purging, that mixes and further compresses the air. That could cause the mixed air and propane to exceed the pressure relief valve trip pressure, and have a sudden release of propane, that at least will get your attention, and at worst, with an ignition source, could ignite. Air does not compress as easily as propane. In addition to that, your appliances will not

operate as efficiently, if at all, with a 50/50 air to propane mixture (might explain some of the propane appliance malfunctions as well.)

Helpful Tip: It is good practice to have your tanks refilled before they become empty.

9.2. Hooking Up & Using Propane

Opening Propane Tank: Before opening the valve on the propane tank, first make sure **ALL** propane appliances inside the camper are turned **OFF**. Once you are sure all propane appliances are turned off, then you can safely open the valve on the propane tank. Proceed to open the propane tank valve **slowly**. By opening the propane valve slowly, it will allow the check valve to open properly and allow the correct amount of propane gas to enter the system. Wait a few minutes before turning on any propane appliances inside or outside the camper. This will allow the pressure to build up inside the propane hose and also ensure that the safety check valve will open up. Your camper should now receive the full propane flow it needs to run the appliances. If you haven't used the camper in a while, and you open the propane tank valve too quickly, you might have restricted flow. It is best to open the propane tank valve very slowly, wait a few minutes, and then start using the propane appliances.

Prior to operating the refrigerator, forced air furnace or hot water furnace, you should purge air from the propane supply lines. The easiest & quickest way to purge air from the propane lines is to first raise the camper roof. Next, light the stove and operate each burner for approx. 30 seconds. Lighting the stove usually removes most any trapped air in the propane lines and will then allow faster and easier lighting of other appliances like the refrigerator, furnace, and the hot water heater (if installed).

Propane has a distinct smell added to warn the user of a possible leak. If you smell propane inside the camper, make sure the stove knobs are in the "OFF" position, exit the unit immediately, close the propane tank valve that is located on top of the propane tank, and allow ventilation through the door and windows to exhaust the vapors. Wait until the scent of the propane is no longer present. Check for valves that might have been left open. A spray bottle with water with a small amount of dish soap added can be used to spray the fittings and propane lines to inspect for potential leaks. The soap will bubble if a leak is present. Immediately have your camper checked out by an authorized RV service center to find the possible propane leak before using your camper again.

The gas system is designed for use with liquefied petroleum gas only.

Do not connect natural gas to this system!



Additional Data Regarding the Propane Connector

Type-1 (CGA 791) Connection: How It Works & What It Does:

This fitting contains an excess-flow check-valve. There are two functions performed by the excess flow check-valve that will be explained below. This check-valve is designed to close and allow only a small bypass flow (no more than ten cubic feet per hour) of gas any time there is a larger than expected flow through the system. An excess-flow condition can be due to a broken high-pressure gas supply line, and certain types of regulator failure. Also when the service valve is opened normally the excess-flow check-valve will close temporarily until the system is fully pressurized.

Function #1: Checks your system for large leaks.

This function is performed each time you turn your gas system on. When you open the cylinder valve, there will be a larger flow of gas from the cylinder valve into the TYPE-1 connector than the system is expected to see. The excess-flow check-valve sees this large flow as a major leak in the system, and shuts down. As stated above it does not shut down completely, there is a small bypass flow. Assuming there are no leaks in the system and there is nothing on, this small bypass flow will slowly charge up the downstream system pressure. Once all of the pressures all the way back to the excess-flow check valve have been satisfied, a small coil spring downstream of the excess-flow check-valve ball will push the excess-flow check-valve ball wide open. Once this happens your system is ready for use. If there is a leak in the system that is smaller than the bypass flow, then the time it takes to charge up the pressure in the downstream system will be extended. If the leak is larger than the bypass flow then the pressure in the

downstream system will never charge up, and the excess-flow check-valve will stay in the shutdown position, and there will be restricted fuel supply downstream.

Function #2: Reduces gas flow in a failed system.

The excess-flow check-valve is sensitive to the amount of gas that is flowing through it. If the flow through the check valve is greater than it is designed for then the check-valve will close. This excess-flow can be due to a broken high-pressure gas supply line or certain types of regulator failure.



9.3. Standard Stove Operation



The standard propane cooktop stove we install is very easy to use.

Step 1:

Make sure your propane tank is full and the propane tank valve is open.

Step 2:

Lift the stove cover and deploy the heats shields, one towards the left, and the other towards the right (if possible).

Step 3:

Turn the desired stove knob over to the “Light” position and immediately ignite the burner with a match or a long BBQ lighter, being careful to keep your hand, fingers, & face away from the flame.

Step 4:

Lower the flame to the proper height and place your pot or pan on it for preparing your meal.

Step 5:

Always ensure the pans you use for cooking do not extend outward above the control valves. Either use smaller pans or place the pans on the back of the grates so that the flame does not overheat and damage the knobs.

Step 6:

When finished cooking, turn the stove knob to the “Off” position.

Step 7:

Let the burner cool down completely before trying to clean up or lower the stove lids for traveling.

Step 8:

Before traveling, make sure both burner knobs are in the “Off” position, let the stove cool down, gently clean up the burner area of any grease or food residue, and close the stove cover.

9.4. Flush Mount Glass Top Stove Operation



The flush mount (glass top) propane cooktop stove is an upgrade option.

Step 1:

Make sure your propane tank is full and the propane tank valve is open.

Step 2:

Gently lift the stove cover up until it stops by itself (usually resting at about a 90 degree angle).

Step 3:

“Push In” the desired stove knob and gently twist it over to the “Light” position while, continuing to keep the knob Pushed In.

(Note: It is important to keep the stove knob “Pushed In” while lighting the burner, and also keep the knob pushed in for 5-10 seconds after the burner has lit. This will ensure the gas flow to continue and the thermocouple to heat up).

Step 4:

Immediately ignite the burner with a match or a long BBQ lighter, being careful to keep your hand, fingers, & face away from the flame.

Step 5:

Once the burner has been lit and you have a healthy flame, you can release the stove knob and the flame should continue to burn on its own.

Step 6:

If the flame goes out when you release the stove knob, repeat steps 3 – 4 again to ensure the burner is lit and continuing to burn on its own.

Step 7:

Lower the flame to the proper height and place your pot or pan on it for preparing your meal.

Step 8:

Always ensure the pans you use for cooking do not extend outward above the control valves. Either use smaller pans or place the pans on the back of the grates so that the flame does not overheat and damage the knobs.

Step 9:

When finished cooking, turn the stove knob to the “Off” position.

Step 10:

Let the burner cool down completely before trying to clean up or lower the stove lids for traveling.

Step 11:

Before traveling, make sure both burner knobs are in the “Off” position, let the stove cool down, gently clean up the burner area of any grease or food residue, and close the stove cover.

10. HEATING & AIR

10.1. Forced Air Furnace w/ Thermostat Operation

The purpose of a thermostat is to keep the temperature in your camper at a level you feel most comfortable. For best results ensure that all windows are closed properly.

Step 1:

Make sure your camper is plugged into either 120V shore power (campground electricity), or you have your 12 volt camper battery(s) charged up and the master 12V switch inside the camper is turned “ON”.

Step 2:

Make sure you have propane in the propane tank, and the propane tank is open.

Step 3:

If your camper is equipped with a 2 burner propane stove, it is always a good idea to light both of the stove burners and let them run for about 20 – 30 seconds each (this will help to bleed out any possible air in the propane lines and allow the camper furnace to light faster).

Step 4:

Turn off both stove burners and make sure both stove knobs are turned to the “OFF” position.

Step 5:

Set the thermostat to your desired temperature.

Step 7:

Once the inside temperature of the camper falls a few degrees below your set temperature on the thermostat, the thermostat should automatically click on.

Step 8:

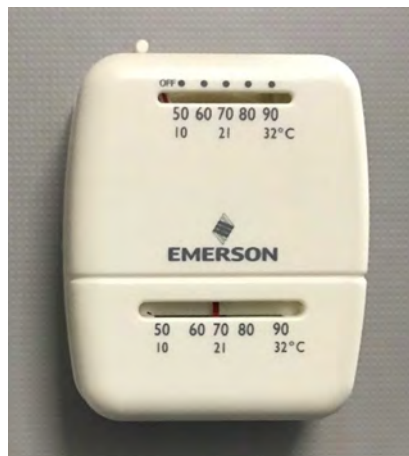
Once the thermostat clicks on, the fan inside of the furnace should start running, and approximately 15 – 20 seconds later you might hear some quiet clicking noises coming from inside of the furnace itself. This “clicking” noise is the furnace automatic sparker trying to light the propane inside of the sealed furnace burner chamber.

Step 9:

If everything is working properly, the furnace will automatically light and you should feel heat coming out of the front of the furnace with-in a minute or two.

Step 10:

When storing the camper, or if you don’t plan on using the furnace for a period of time, just turn the switch on the front of the thermostat to the “OFF” position.



10.2. Shell Model Furnace System

Step 1:

Ensure the 12 volt camper battery(s) are charged up and the master 12V switch inside the camper is turned ON.

Step 2:

Ensure there is propane in the propane tank, and the propane tank is open.

Step 3:

If your camper is equipped with a 2 burner propane stove, it is always a good idea to light both of the stove burners and let them run for about 20 – 30 seconds each (this will help to bleed out any possible air in the propane lines and allow the camper furnace to light faster). If your camper does not have a built in stove, just skip step # 3 and step # 4.

Step 4:

Turn off both stove burners and make sure both stove knobs are turned to the OFF position.

Step 5:

Set your desired temperature.

Step 7:

Once the inside temperature of the camper falls a few degrees below your set temperature on the thermostat, the thermostat should automatically click on.

Step 8:

Once the thermostat clicks on, the fan inside of the furnace should start running, and approximately 15 – 20 seconds later, you might hear some quiet clicking noises coming from inside of the furnace itself. This “clicking” noise is the furnace automatic sparker trying to light the propane inside of the sealed furnace burner chamber.

Step 9:

If everything is working properly, the furnace will automatically light and you should feel heat coming out of the front of the furnace with-in a minute or two.

Step 10:

When storing the camper, or if you don't plan on using the furnace for a period of time, just turn the switch on the front of the thermostat to the “OFF” position.

10.3. Trouble Shooting

Step 1:

Make sure your camper is plugged into either 120V shore power (campground electricity), or you have your 12 volt camper battery(s) charged up.

Step 2:

If the furnace does not have an adequate power supply, or your camper battery(s) are running low, the furnace fan might not be running fast enough to set the sail switch. If the furnace fan is running too slow, the furnace fan will come on, but you won't hear the quiet clicking noise inside the furnace of the sparking mechanism trying to light the propane. You have a few choices at this point to see if this is the reason why your furnace is not lighting. One, charge up your camper batteries to full and repeat the normal furnace operation procedures. Two, plug the camper into 120V electricity (shore power/campsite electricity) and repeat the normal furnace operation procedures. Three, hop outside the camper and go start your trucks engine, then hop back inside the camper and repeat the normal furnace operation procedures while your truck is running. With the engine in your truck running, the alternator should be

providing “FULL” 12 volt power to the camper & camper battery from the trucks’ alternator (provided you have a good truck-to-camper connection). If the furnace lights up and starts heating the camper, there is a good chance your camper battery(s) need to be, or needed to be fully recharged, or replaced if they are at the end of their life-cycle. Most deep cycle camper batteries have a life span of approximately 3 – 5 years depending on how well maintained they have been.

Step 3:

If your furnace fan comes on, and you also hear a quiet clicking noise inside the furnace, the sparking mechanism is trying to automatically light the propane but the furnace is not igniting. Most likely your furnace is not getting any propane.

Step 4:

Make sure you have propane in the propane tank, and the propane tank is open.

Step 5:

If your camper is equipped with a 2 burner propane stove, it is always a good idea to light both of the stove burners and let them run for about 20 – 30 seconds each (this will help to bleed out any possible air in the propane lines and allow the camper furnace to light faster).

Step 6:

Turn off both stove burners and make sure both stove knobs are turned to the “OFF” position.

Step 7:

Set the thermostat to your desired temperature.



Step 9:

Once the inside temperature of the camper falls a few degrees below your set temperature on the thermostat, the thermostat should automatically click on.

Step 10:

Once the thermostat clicks on, the fan inside of the furnace should start running, and approx. 15 – 20 seconds later, you might hear some quiet clicking noises coming from inside of the furnace itself. This “clicking” noise is the furnace automatic sparker trying to light the propane inside of the sealed furnace burner chamber.

Step 11:

If everything is working properly, the furnace will automatically light and you should feel heat coming out of the front of the furnace with-in a minute or two.

Step 12:

When storing the camper turn the switch on the front of the thermostat to the “OFF” position.

10.4. Air Conditioner

This option is only available in Shell Models and the Hawk, Grandby, Raven with Side Dinette or Rollover Seating. To use the AC in the camper you must be able to plug into Shore Power or a Generator. Always carry an extension cord with you if you are planning to use the AC.



11. REFRIGERATOR

11.1. 1.7 cu.ft. 3 Way Refer

a. General Operation

CAUTION: If you smell gas:

1. Open Windows.
2. Don't touch electrical switches.
3. Extinguish any open flames.
4. Shut off gas supply at the propane tank.

The gas and electric operation controls are located outside of the camper, behind the lower exterior refrigerator vent door.

With most 3-Way Refrigerators, customers seem to prefer to run refrigerator on the "Propane Mode" almost 100% of the time, unless they have access to 120V shore power (electricity at a campground). If you have shore power electricity available, it is usually best to use that. Otherwise, the Propane Mode is the second best method of operation. We do **not** recommend running the 3-Way refrigerator on the 12 Volt Battery Mode. This type of refrigerator usually draws too many amps (draws too much power) when running on the 12V Battery Mode and can very quickly drain down your camper battery or batteries.

Operating a refrigerator on propane while driving is strictly a personal choice. If you try and run the refrigerator on the 12V Battery Mode, even when driving, it will usually run down the camper battery(s), as the trucks' alternator and wiring might not be able to recharge the camper battery as fast as it is being drained. Many of our customers have had really good luck running the refrigerator on propane, even when driving. We do however recommend turning the propane off prior to fueling the vehicle. Again, that is a personal choice you will need to be comfortable with. Please do your homework and make an educated decision from your own research. Please read the refrigerator manual for more specific recommendations & cautions.

b. L.P. Gas Operation

Step 1:

Make sure the truck and camper are level. If the Refrigerator is not "level", the cooling system will not work, the pilot light might not stay lit, and the refrigerator will not get cold.

The user's manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level.

Step 2:

Ensure you have an adequate amount of propane in your propane tank(s).

Step 3:

Make sure the stove is turned off and the control knobs are closed.

Next, open the valve on your camper propane tank (outside).

Get back inside the camper and light both burners on your stove and let them burn for 15 – 20 seconds each.

Turn off both stove burners, let them cool briefly, and close the stove cover.

Operating the stove for a few seconds will help to bleed the propane lines of any trapped air and will make lighting the burner on the refrigerator a bit easier & quicker.

Step 4:

Open the lower refrigerator vent on the outside of the camper (on the back / exterior of the refrigerator).

Make sure the green 120V switch is turned to the “Off” position.
Also make sure the red 12V switch is turned to the “Off” position.

Step 5:

Depress and turn the round gas control knob (B) to the “HIGH” position.

Step 6:

Depress (push down) the round gas control knob (B) and hold it down, while at the same time depressing (push down) the red plunger switch next to it several times in quick succession (the red piezo igniter button). Each time you push down on the red piezo igniter button, you should hear a “Clicking” noise. Each time you hear a click, it will be producing a spark to ignite the propane pilot light.
By continuing to hold down the round gas control knob, you are allowing the propane to continue to flow until you can get the flame to light.
Don't let up downward pressure on the round control knob during this process. Continue to hold the knob down for a short time, even though the pilot light is burning.

Step 7:

After the pilot light is lit, continue holding down the round gas control knob for another 10-15 seconds. Holding down the round gas control knob for a short time after the pilot light is burning will allow the propane to keep flowing and the pilot light to continue burning, until the thermocouple gets hot enough to open up the propane flow automatically.

Step 8:

Release the knob and check again that the flame stays lit by looking through the opening in the metal burner cover.

Step 9:

If the burner has not lit, or if the flame went out after you released the round gas control knob, repeat the lighting procedure in the steps above.

Step 10:

Once you have the pilot light going on its own, rotate the round gas control knob to the desired temperature setting. The Low, Med, and High setting on the gas control knob adjusts the actual height & size of the propane pilot light flame.

The larger and bigger the flame is burning, the colder the refrigerator will get.

The LOW Setting is usually good for when the outside temperature is cold (Winter).

The MED Setting is usually good for when the outside temperature is mild (Spring & Fall).

The HIGH setting is usually good for the hot summer weather.

It might take you a few trips to get the temperature settings dialed in to where you are comfortable with it.



Note: The small dial in the refrigerator compartment labeled “0-7” ONLY adjusts the refrigerator temperature when you are running 12 Volt Battery Power or the 120 Volt Electricity.

This knob will NOT adjust the refrigerator temperature when you are running it on the Propane Mode. To adjust the refrigerator temperature while running on the Propane Mode, use the small round knob that says LOW, MED, & HIGH. To turn off the propane, rotate the knob to the "OFF" position.

Please refer to your Refrigerator Owner's Manual for any further details, support, or warranty coverage.

c. 120V AC (Shore Power / Electricity) Operation

Step 1:

Make sure the truck and camper are level.

If the Refrigerator is not "level", the cooling system will not work and the refrigerator will not get cold.

Their user's manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level. Also make sure the camper plugged in to 120V AC campsite power or your house.

Step 2:

Open the lower refrigerator vent on the outside of the camper (on the back / exterior of the refrigerator).

Terminate gas operation by turning the round gas control knob to the "OFF" position (if you had it on Propane Mode).

Make sure the small red 12V switch is also turned to the "Off" position.

Step 3:

Flip the Green 120V switch to the "On" position.

Step 4:

The small dial in the refrigerator compartment labeled "0-7" will adjust refrigerator temperature when running it on the 120V Shore Power/Electricity Mode.

Setting the adjustment dial at lower numbers like 0 – 1 will keep the refrigerator less cold.

Setting the adjustment dial at higher numbers like 6 – 7 will keep the refrigerator as cold as possible.

The 1 – 2 dial setting might be good when the outside temperatures are cold (Winter).

The 4 – 5 dial setting might be good when the outside temperatures are mild (Spring & Fall).

The 6 – 7 dial setting might be good when the outside temperatures are hot (Summer).

It might take you a few trips to get the temperature settings dialed in to where you are comfortable with it, and as temperatures change during the day, adjust the refrigerator as necessary.

Note: The round gas control knob labeled LOW, MED, & HIGH will ONLY adjust the refrigerator temperature when you are running it on the Propane Mode.

This knob will NOT adjust the refrigerator temperature when you are running it on the 120V Shore Power/Electricity Mode.

To adjust the refrigerator temperature while running on the 120V Shore Power/Electricity Mode, use the small round knob that has numbers on it labeled 0 – 7. To turn off the refrigerator, depress the rocker switch to "O".



Please refer to your Refrigerator Owner's Manual for any further details, support, or warranty coverage.

d. 12V DC (Battery) Operation

We do not recommend running your 3-way refrigerator on the battery mode, except for short periods, because it draws too much power when running on the 12V Battery Mode. It can very quickly drain down your camper battery or batteries. The 12V DC Mode is mainly designed to let the cooling unit of the refrigerator work while being on the road. Whenever possible, the refrigerator should be pre-cooled, along with the food contents inside, by starting up and running the refrigerator on Propane Gas or 120V Electricity for several hours, or overnight, before switching to 12V DC Battery Mode. The 12V heating element is rated at 115 watts and has a current consumption of about 10 Amps. The refrigerator should not be left operating on 12V DC when the truck's engine is not running and charging the camper battery.

Step 1:

Make sure the truck and camper are level.

If the Refrigerator is not level, the cooling system will not work and the refrigerator will not get cold.

Their user's manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level.

Step 2:

Open the lower refrigerator vent on the outside of the camper (on the back / exterior of the refrigerator).

Terminate gas operation by turning the round gas control knob to the "OFF" position (if you had it on Propane Mode).

Make sure the green 120V switch is also turned to the "Off" position.

Step 3:

Flip the small 12V Red switch to the "On" position.

Step 4:

The small dial in the refrigerator compartment labeled "0-7" will adjust refrigerator temperature when running it on the 12 Volt Battery Mode.

Setting the adjustment dial at lower numbers like 0 – 1 will keep the refrigerator a bit warmer.

Setting the adjustment dial at higher numbers like 6 – 7 will keep the refrigerator as cold as possible.

The 1 – 2 dial setting might be good when the outside temperatures are cold (Winter).

The 4 – 5 dial setting might be good when the outside temperatures are mild (Spring & Fall).

The 6 – 7 dial setting might be good when the outside temperatures are hot (Summer).

It might take you a few trips to get the temperature settings dialed in to where you are comfortable with it.

Note: The round gas control knob labeled LOW, MED, & HIGH will ONLY adjust the refrigerator temperature when you are running it on the Propane Mode.

This knob will NOT adjust the refrigerator temperature when you are running it on the 12 Volt Battery Mode.

To adjust the refrigerator temperature while running on the 12 Volt Battery Mode, use the small round knob that has numbers on it labeled 0 – 7.

Please refer to your Refrigerator Owner's Manual for any further details, support, or warranty coverage.



e. Maintenance

Keep upper and lower vents clean and unobstructed. Clean or have the burner tube cleaned and also keep unobstructed.

f. Storage

Step 1:

Turn off all the power sources to the refrigerator.

Step 2:

If your refrigerator has a freezer compartment, it needs to be defrosted after use and wiped down or dried out.

Step 3:

Clean the interior with warm water (if needed). Wipe down with clean water & dry.

Step 4:

Leave the refrigerator door cracked for air circulation.

11.2. 3 Way Refrigerator/Freezer 2.7 cu.ft

a. General Operation

CAUTION: If you smell gas:

1. Open Windows.
2. Don't touch electrical switches.
3. Extinguish any open flames.
4. Shut off gas supply at the propane tank.

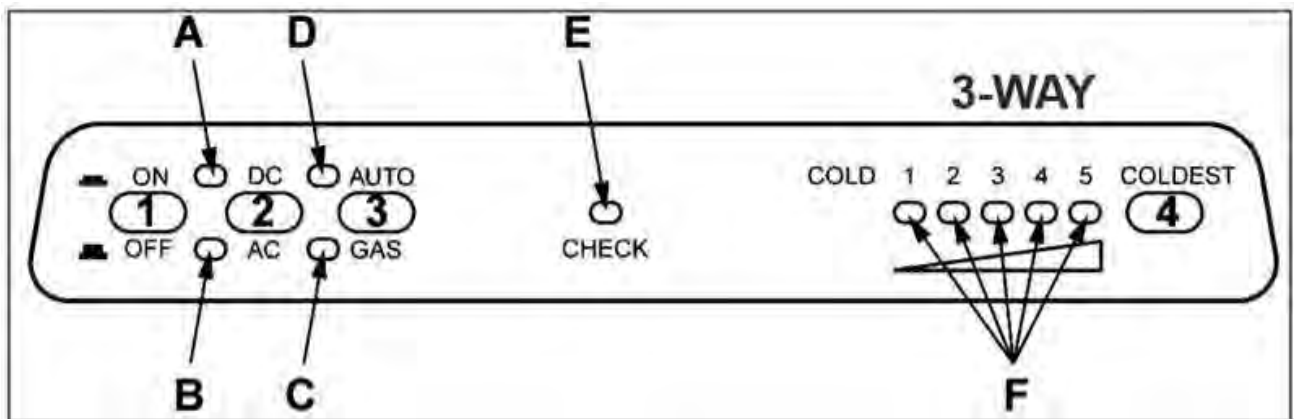
The gas and electric operation controls are located on the front of the refrigerator (top/front of the refrigerator door).

With most 3-Way Refrigerators, customers seem to prefer running their refrigerator on "Propane Mode" almost 100% of the time, unless they have access to 120V shore power (electricity at a campground). If you have shore power electricity available, it is usually best to use that. Otherwise, the Propane Mode is the second best method of operation. We do **not** recommend running the 3-Way refrigerator on the 12 Volt Battery Mode. This type of refrigerator usually draws too much power when running on the 12V Battery Mode and can very quickly drain down your camper battery or batteries.

Operating a refrigerator on propane while driving is strictly a personal choice. If you run the refrigerator on the 12V Battery Mode, even when driving, it will usually run down the camper battery(s), as the trucks' alternator and wiring might not be able to recharge the camper battery as fast as it is being drained. Many of our customers have had good luck running the refrigerator on propane, even when driving. We do however recommend turning the propane off prior to fueling the vehicle. Again, that is a personal choice you will need to be comfortable with. Please do your homework and make an educated decision from your own research.

3-Way Controls

1. Main Power Button ON/OFF
2. DC Mode Selector Button
3. AUTO/GAS Mode Selector Button
4. Temperature Selector Button
- A. DC Mode Indicator Light
- B. AC Mode Indicator Light
- C. GAS Mode Indicator Light
- D. AUTO Mode Indicator Light
- E. CHECK Indicator Light (Gas Operation Only)
- F. Temperature Indicator Lights



Step 1:

Make sure the truck and camper are level.

If the Refrigerator is not "level", the cooling system will not work, the pilot light might not stay lit, and the refrigerator will not get cold.

The user's manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level.

Step 2:

Ensure you have an adequate amount of propane in your propane tank(s).

Step 3:

Ensure the stove inside the camper is turned off and the control knobs on the stove are closed.

Next, open the valve on your camper propane tank (outside).

Get back inside the camper and light both burners on your stove and let them burn for 15 – 20 seconds each.

Turn off both stove burners, let them cool briefly, and close the stove cover.

Operating the stove for a few seconds will help to bleed the propane lines of any trapped air and will make lighting the burner on the refrigerator a bit easier & quicker.

Step 4:

Move the ON/OFF button (1) to the DOWN position (The "DOWN" position of this button means that the button is pushed in).

Next, move the AUTO/GAS button (3) to the UP position (The "UP" position of this button means that the button is not pushed in).

The AUTO mode indicator light (A) will go off.

The GAS mode indicator light should turn on.

Within 45 seconds the burner should be ignited and operating normal

Step 5:

If the CHECK indicator light (E) illuminates, the control has failed to ignite the burner on GAS.

Systems with the new lower control board are a three (3) try system on gas.

On the initial refrigerator start-up on gas, it may take longer than 45 seconds to allow air to be purged from the gas line.

If the refrigerator has not been used for a long time or the LP tanks have just been refilled, air may be trapped in the supply lines.

To purge air from the lines may require resetting the main power ON/OFF button (1) three or four times.

If repeated attempts fail to start the LP gas operation, check to make sure that the LP gas supply tanks are not empty and all manual shutoff valves in the lines are open.

To reset when the CHECK indicator lamp, press the main power ON/OFF button (1) to the OFF then ON position.

Step 6:

Press the TEMPERATURE SELECTOR button (4) until the lamp (F) at the desired position is illuminated.

The lower temperature settings (1 or 2), are usually good for when the outside temperature is cold (Winter).

The medium temperature settings (2 or 3), are usually good for when the outside temperature is mild (Spring & Fall).

The higher temperature setting (4 or 5), are usually good for the hot Summer weather.

Please refer to your Refrigerator Owner's Manual for any further details, support, or warranty coverage.

d. 120V AC (Shore Power / Electricity) Operation:

Step 1:

Make sure your truck and camper are level.

If the Refrigerator is not “level”, the cooling system will not work and the refrigerator will not get cold.

Their user’s manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level.

Step 2:

Move the ON/OFF button (1) to the DOWN position (The “DOWN” position of this button means that the button is pushed in).

Next, move the DC/AC button (2) to the UP position (The “UP” position of this button means that the button is not pushed in).

The AC mode indicator light (A) should turn on.

If 120 volts AC is available, the refrigerator should be operating.

Step 3:

Press the TEMPERATURE SELECTOR button (4) until the lamp (F) at the desired position is illuminated.

The lower temperature settings (1 or 2), are usually good for when the outside temperature is cold (Winter).

The medium temperature settings (2 or 3), are usually good for when the outside temperature is mild (Spring & Fall).

The higher temperature setting (4 or 5), are usually good for the hot Summer weather.

It might take you a few trips to get the temperature settings dialed in to where you are comfortable with it.

Please refer to your Refrigerator Owner’s Manual for any further details, support, or warranty coverage.

e. 12V DC (Battery) Operation:

We usually do not recommend running your 3-way refrigerator on the battery mode, as it usually draws too many amps (draws too much power) when running on the 12V Battery Mode.

It can very quickly drain down your camper battery or batteries. The 12V DC Mode is mainly designed to let the cooling unit of the refrigerator work while being on the road. Whenever possible, the refrigerator should be pre-cooled, along with the food contents inside, by starting up and running the refrigerator on Propane Gas or 120V Electricity for several hours, or overnight, before switching to 12V DC Battery Mode. The 12V heating element is rated at 115 watts and has a current consumption of about 10 Amps. The refrigerator should not be left operating on 12V DC when the trucks engine is not running and charging the camper battery.

Step 1:

Make sure your truck and camper are level.

If the Refrigerator is not “level”, the cooling system will not work and the refrigerator will not get cold.

Their user’s manual usually recommends that the refrigerator is completely level, and at the very worst case not more than 3 degrees off level.

Step 2:

Move the ON/OFF button (1) to the DOWN position (The “DOWN” position of this button means that the button is pushed in).

Next, move the DC/AC button (2) to the DOWN position (The “DOWN” position of this button means that the button is pushed in).

The DC mode indicator light (A) should turn on.

If DC power is available, the refrigerator should be operating.

Step 3:

Press the TEMPERATURE SELECTOR button (4) until the lamp (F) at the desired position is illuminated.

The lower temperature settings (1 or 2), are usually good for when the outside temperature is cold (Winter).

The medium temperature settings (2 or 3), are usually good for when the outside temperature is mild (Spring & Fall). The higher temperature setting (4 or 5), are usually good for the hot Summer weather. The refrigerator will continue to operate in the DC mode until switch (2) is moved to the UP position or control voltage falls below 9.6 VDC.

The DC mode over-rides all the other operating modes.

Discharging of the battery will occur if the vehicle engine is not running.

Note: DC Mode is a holding mode, not a full cooling mode.

DC should only be used once the refrigerator has already been pre-cooled and has a constant supply of DC power available (driving down the road).

It might take you a few trips to get the temperature settings dialed in to where you are comfortable with it.

Please refer to your Refrigerator Owner's Manual for any further details, support, or warranty coverage.

f. Shutting the Refrigerator Off

The refrigerator may be shut off while in any mode of operation by pressing the main power ON/OFF button to the UP (OFF) position.

The "UP" position of this button means that the button is not pushed in.

This will shut off all DC power to the control system

g. Maintenance

Keep upper and lower vents clean and unobstructed. Clean or have the burner tube cleaned and also keep unobstructed.

h. Food Storage

Proper refrigeration requires free air circulation within the food storage compartment. Restricted air circulation within this compartment will cause higher cabinet temperatures. To remedy this situation, simply rearrange your foodstuffs. It is also essential that the shelves are not covered with paper or large storage containers. Always remember to allow for proper air circulation. Odorous or highly flavored foods should always be stored in covered dishes, plastic bags or wrapped in foil or waxed paper to prevent food odors. Vegetables, lettuce, etc., should be covered to retain their crispness. Never put hot food into the refrigerator. To reduce frost formation in and on the freezing compartment, cover stored liquids and moist foods and do not leave the door open longer than necessary. When the refrigerator is heavily loaded, it takes a longer time for refrigerator temperatures to lower, also increasing the ice making time. A very heavy load may also cause defrosting. Defrosting every 7 to 21 days would be normal, depending on the humidity level.

i. Long Term Storage (when not in use)

Step 1:

Turn off all the power sources to the refrigerator.

Step 2:

If your refrigerator has a freezer compartment, it needs to be defrosted after use and wiped down or dried out.

Step 3:

Clean the interior with warm water (if needed). Wipe down with clean water & dry.

Step 4:

Leave the refrigerator door slightly open for air circulation (Note: The door might have a latch for a "Vent" mode).

The gas and electric controls are located at the rear of the refrigerator and are accessible through the lower ventilator in the wall of the camper.

Operating a refrigerator on propane while driving is strictly a personal choice. We do however recommend turning the propane off prior to fueling the vehicle.

11.3. 65, 85, & 130 Liter 2-Way Compressor Refrigerators

a. General Operation

- Needless opening the refrigerator door will result in greater power consumption.
- Ensuring adequate ventilation for the compressor and condensation unit will significantly reduce power consumption.
- The electrical system must be kept in good condition. Inspect your batteries and check the charge levels regularly.
- Keep the inside of the refrigerator clean & dry.
- Remove the condensation water from the drip tray beneath the refrigerator's freezer compartment as necessary.
- Each refrigerator comes complete with an upper refrigerator compartment w/ a door. This compartment can be used to store frozen foods for up to 4 – 5 days, but is not cold enough to freeze them. It is possible to make ice cubes using the special tray.
- If the refrigerator is not expected to be used for a reasonable amount of time, turn the refrigerator off and leave the door ajar in order to ensure adequate ventilation.

b. Usage Instructions

The refrigerators are designed for use in environments with external temperatures ranging from 0 to 45 °C (32 – 113 degrees Fahrenheit).

c. Thermostat Controlled Temperature Regulation

The refrigerator's temperature is continuously regulated by the thermostat, which also includes a power off function if turned counter clockwise to the end position. In order to turn off the appliance, it is necessary to overcome the slight resistance of the knob. The location of the thermostat knob depends on the type of refrigerator. To adjust the temperature, proceed as follows: turn the thermostat clockwise to lower the temperature, and vice versa.

d. Usage Recommendations

The freezer compartment can be used to store frozen foods for a few days, but is not cold enough to freeze them.

If possible, the refrigerator should be turned on for about 6 hours prior to inserting the food items.

In order to make ice, the ice cube tray should be placed against the evaporator without placing any other products on top of it. For faster ice production, set the thermostat to its maximum cooling capacity.

Position the products inside the refrigerator in such a way so that they do not obstruct the circulation of air inside.

Do not cover the shelves with plastic, paper, etc.

In order to reduce the formation of frost inside the refrigerator, liquids should not be store in open containers.

Allow hot products to cool before placing them in the refrigerator.

Odorous or highly flavored foods should always be stored in covered dishes, plastic bags or wrapped in foil or waxed paper to prevent food odors.

Vegetables, lettuce, etc., should be covered to retain their crispness.

To reduce frost formation in and on the freezing compartment, cover stored liquids and moist foods and do not leave the door open longer than necessary.

When the refrigerator is heavily loaded, it takes a longer time for refrigerator temperatures to lower, also increasing the ice making time.

A very heavy load may also cause defrosting. Defrosting every 7 to 21 days would be normal, depending on the humidity level.

e. Defrosting

Since the evaporator operates at temperature well below freezing, ice and frost will inevitably form upon it.

The humidity in the air, the temperature and the number of times the door is opened will have a significant impact on frost formation.

The refrigerator should always be defrosted when the layer of frost on the evaporator reaches a thickness of 3 - 4 mm or more.

Turn off the refrigerator by turning the thermostat to it 0 position.

Defrosting should be performed when the products can remain as cool as possible outside of the refrigerator itself.

Do not use sharp objects to remove ice and frost from the evaporator, as this could damage it and result in leaks.

Only turn the refrigerator back on once it has been defrosted, cleaned and thoroughly dried. Remove, empty and dry the drip tray beneath the evaporator.

A towel can be placed at the base of the refrigerator during the defrosting procedure in order to facilitate water collection.

f. Maintenance

In order to prevent damage to the electrical/mechanical components and/or the formation of mold, when shutting off the refrigerator for extended periods of time it is necessary to wait for the unit to defrost completely and to eliminate any condensation that may have formed, both inside the appliance and in the external water collection tray. The natural defrosting time can vary from a few minutes to several hours. In the wintertime and when the refrigerator is shut off, the door should be left slightly ajar for ventilation.

Keep upper and lower exterior vents clean and unobstructed.

g. Low Voltage Protection

In order to prevent excessive battery depletion, a protection device shuts off the compressor in case of insufficient voltage and turns it back on when the voltage in the system increases after the batteries have been charged.

h. Shutting the Refrigerator Off

In order to turn off the appliance, it is necessary to overcome the slight resistance of the knob.

The location of the thermostat knob depends on the type of refrigerator.

i. Long Term Storage (when not in use)

Step 1:

Turn off all the power sources to the refrigerator.

Step 2:

If your refrigerator has a freezer compartment, it needs to be defrosted after use and wiped down or dried out.

Step 3:

Clean the interior with warm water (if needed). Wipe down with clean water & dry.

Step 4:

Leave the refrigerator door cracked for air circulation.

12. SECURING THE CAMPER

12.1. Loading a Camper

Step 1:

Lower the 4 base pads to the ground and be sure the pads have solid footing to prevent tipping or sinking.



Step 2:

Raise the front two jacks 3-4" only. Then raise the rear two jacks until the camper is level with the front. Always be sure that the front jacks are never lower than the rear jacks; they must always be level with, or higher than the rear. We recommend that the camper is 3-4" higher than the bed of the truck so when you're backing the truck up it doesn't hit on the bottom of the camper.



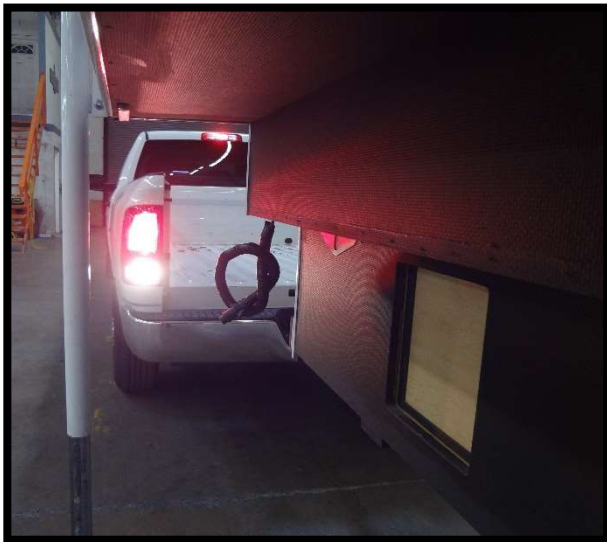
Step 3:

Continue with the above lifting procedure until the camper is approximately 6" above the truck bed or until it clears the highest point of the truck bed. Adjust all units by additional raising of each unit to compensate for uneven ground surface. Ensure the camper is level before pulling the truck under it.



Step 4:

Cautionously back the truck under the camper about ¾ of the way ensuring you are aligned so as not to hit or rub the camper jacks, wheel wells, or fenders.





Camper is level and higher than truck bed. Driver is slowly backing under the camper.



Check frequently to ensure camper is centered and not going to run into the truck bed.

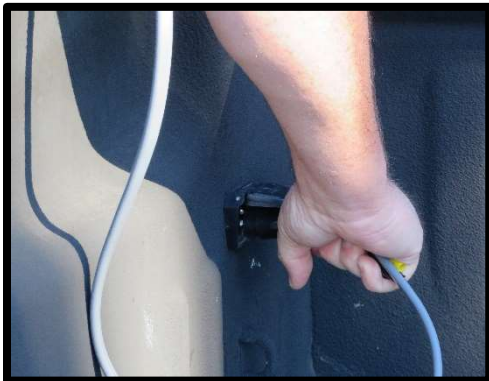




As you get closer to the camper being fully loaded it will become a really tight fit between the tailgate opening and the rear portion of the camper. Use Caution!

Step 5:

About 12" before the camper is fully loaded, park your truck & apply emergency brake. Get out and plug the camper wiring harness into the bed of your truck (this plug is normally located in the front driver side corner of the truck bed).



Step 6:

Completely back the truck up under the camper. The camper is now ready to be lowered onto the truck bed. We recommend lowering the front camper jacks first. This will allow the camper to be snug up against the front of truck bed. Raise the rear jacks next. Continue with this procedure until the camper is sitting completely on the truck bed. Be careful when raising jacks.



Use caution when backing up!! Check clearances frequently!!





Warning: Be careful when raising jacks into their final raised position as the jacks can stop abruptly once it reaches the built in stops.

12.2. Bolt Down Camper Installation

Occasionally the internal camper tie downs system will not be available for specific trucks and campers, so we would then be required to bolt your camper down to your truck bed.

For over 20 years many of the old Four Wheel Campers were bolted down to the customers' truck bed and it worked great. If your camper is "bolted down" to your truck bed there are no turn buckles to check.

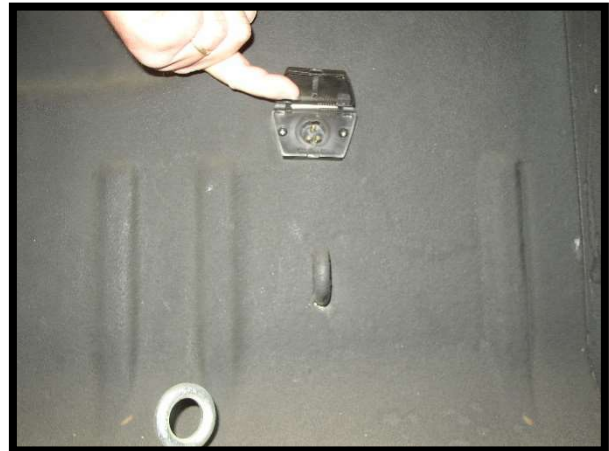
Just inspect the securing bolts from time to time to make sure they are tight and in good working condition.

12.3. Truck to Camper Wiring

The 12v power enters the camper at the front corner (exterior) through a three pronged marine trolling motor plug and is routed through the camper frame up to the 12v fuse panel located inside the camper (kitchen cabinets). The 120v electricity source power hook-up is located on the outside of the camper (30 amp marine connection), and this electricity supply is also routed directly to the 120v circuit breakers inside the camper (kitchen cabinets).



Male Attwood Marine Plug



Female Attwood Marine Plug

12.4. Camper Tie Downs Using Aluminum Turnbuckles

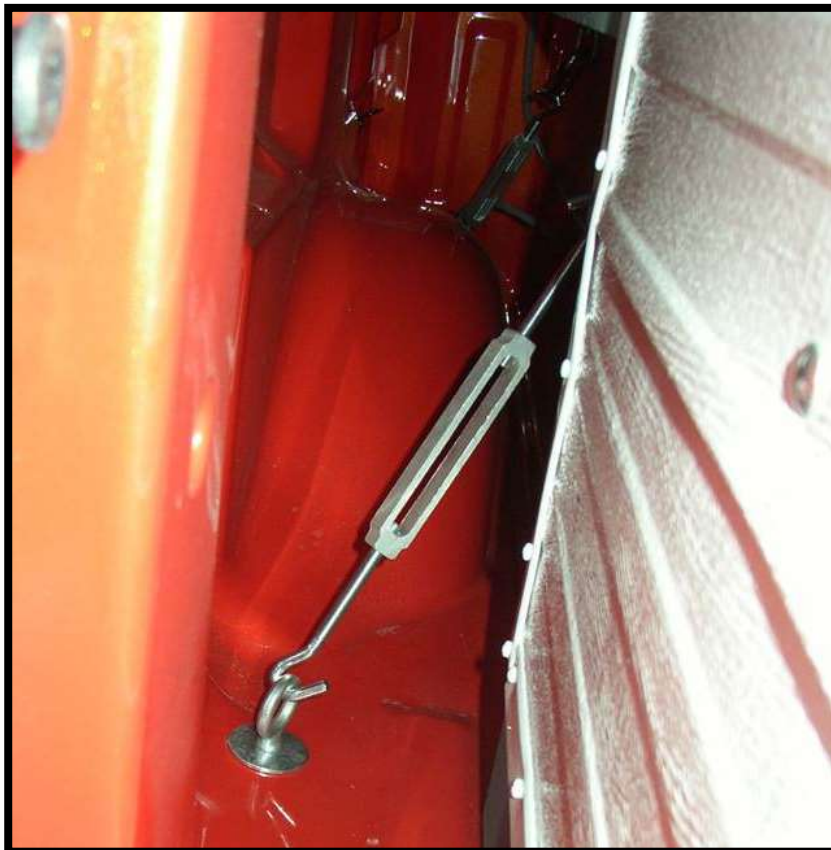
Our normal and most common attachment method would be internal camper tie downs.

With this method we install 4 forged, zinc coated eye bolts in your truck bed. 2 eye bolts in the front of the wheel well humps, and 2 eye bolts behind the wheel well humps.

One the 2005-2019 Toyota Tacoma Standard Cab or Access Cab trucks, we will usually install custom fabricated steel bed bars in the truck bed and also use removable turnbuckles.

Access panels (port holes) located in 4 locations inside the camper, allow access for attaching or removing each turnbuckle inside the truck bed / wheel well area.

Forged, zinc coated, eye bolts with aluminum turn buckles.



2005 – 2019 Toyota Tacoma custom fabricated steel bed bar tie downs w/ aluminum turn buckles.



Each turnbuckle must be checked periodically to ensure the proper tension is applied. It is **VERY IMPORTANT** to regularly check & tighten them to ensure no damage is done to your truck or camper. There are two front turnbuckles, and two rear. The driver's side access panels (port holes) are visible beneath the kitchen galley, or under the front dinette seating area (depending on the camper floor plan). The passenger side access port holes are located beneath the couch seat cushions or the lower passenger side floor areas. Twist/Turn the aluminum turnbuckles to either tighten or loosen the connection between the tie down brackets on the camper, and the eyebolts in the bed of your truck.

Each turnbuckle needs to be tightened hand tight first, and then a half turn to a full turn tighter using a lever, such as a screwdriver. The first few times you travel with your camper, and especially on the first trip, the turnbuckles will loosen. After about the first 25 - 50 miles, check the tension on all four turnbuckles, then check again frequently as needed. If you find they are loose, tighten them up as needed.

If you find a turnbuckle loose, check to ensure the camper is still square on the bed of your truck. Once the camper is square, tighten the front turnbuckles first, and then tighten the rear set.

Over time everything will season, and you will notice that while performing the checks, the turnbuckles are still usually tight. **BUT**, occasionally check the tension, especially when driving on curvy mountain roads, or rough / bumpy roads. It is always better to be safe than sorry by checking them more often than not at all.

The turn buckles can come loose on both new and old campers and should be checked & tightened when needed.

12.5. External Camper Tie Downs

On rare occasions we will need to use the traditional "External" camper tie downs on your truck bed to secure the camper to the truck for safe travels. These camper tie downs systems have been used for many years in the truck camper industry and work well. Depending on the truck, we would be using products made by Tork-Lift or Happijac, or sometimes both companies.



12.6. Unloading A Camper

Step 1:

Get inside the camper, and remove all 4 aluminum turnbuckles that are holding the camper on the truck. The turnbuckles are located in the small access portholes in front and behind the wheel well hump (for access portholes located on floor area of camper).



Step 2:

When choosing a location for unloading the camper, select flat & firm ground. Lower the 4 base pads to the ground using the crank or drill bit adapter and be sure that the pads have solid footing to prevent tripping or sinking.



Step 3:

Continue lowering the front two camper jacks so the front of the camper raises up 3-4" off of the truck bed.



Step 4:

Now lower the rear camper jacks 3-4" so the entire camper is no longer touching the truck bed.



Step 5:

Continue with the above lifting procedure until the camper is approximately 4" - 6" above the truck bed or until it clears the highest point of the truck bed.

Step 6:

Visually ensure the camper is high enough and there are no obstructions that wouldn't allow you to pull out safely.

Step 7:

Pull forward slowly about 1-2 feet. Park your truck and apply emergency brake. Get out and unplug the truck to camper wiring (this plug is normally located in the front driver side corner of the truck bed).



Step 8:

Drive the truck straight forward until completely free of the camper, taking care not to hit or rub the camper jacks, wheel wells, or tailgate opening.



To store the camper, raise the jacks until the camper is as close to the floor as possible. Do not store the camper on jacks when the jacks are raised, and the camper is standing high up in the air.

13. MAINTENANCE PROCEDURES

13.1. Exterior

Your new camper will have the aluminum siding and a one-piece aluminum roof as standard equipment, with a very durable baked enamel paint finish. We suggest maintaining the finish of either exterior siding by washing with a solution of mild detergent (liquid dish soap works well) and water. The two best products we have found for keeping the outside of the camper clean and shiny is called Aerospace 303 Multi Surface Cleaner or Protect All. An application of this product also aids in washing of insects and road soils from the front surfaces of the camper. We typically only use this for cleaning the hard sides (the body) of the camper. We DO NOT recommend this cleaner for treating the soft sides (pop-up) portion of the camper.

It is always best to gently hand wash the exterior of your Four Wheel Camper when needed.

DO NOT wash your camper in any sort of drive-through car wash or high pressure car wash.



When storing your camper for an extended period of time ensure:

- The camper is clean, dry and any condensation or moisture has been allowed to evaporate before roof is lowered.
- Turn off any electrical items and turn off the 12 volt master kill switch (battery disconnect).
- Close your camper windows & vents.
- Open the refrigerator door, wipe down the interior with paper towels, and prop the refrigerator door open for long term storage (so it can breathe).
- Leave camper in the open position for a bit (when possible) and allow ventilation of the camper interior. The lower access panels (porthole access for the turn buckles) can be slightly cracked open to provide additional air flow to help ventilate the interior.

The key to the maintenance of your vinyl liner is to keep it dry and clean. Be sure the liner is dried thoroughly before storing for any extended period of time.

We suggest that at the beginning of the camping season you clean the liner thoroughly inside and out. A mixture of warm water and mild liquid soap can be used to clean the liner and all the vinyl window panels. When cleaning the

clear plastic windows on the “pop-up” portion of the camper, it is best to use only warm water and a soft cloth. DO NOT use any chemical cleaners on the clear plastic windows. Water and a soft cloth will work the best.

A protective conditioner, such as the Aerospace 303 Protectant, may be applied to the vinyl surface (soft sides pop-up material), both on the inside, and outside of the soft pop-up liner. Do not use any water exclusion products, such as Armor-all. These oil-based products can damage the soft pop-up vinyl material. Aerospace 303 Protectant also works well with all the rubber seals for the doors, vents, and windows.

13.2. Interior

Always remove the upper bed cushions of the camper after each trip to allow any possible condensation to dry. Either put the bed cushions upright on the camper floor, or remove them to a well-ventilated area. If you leave the bed cushions stored up in the cabover bed area of the camper, and the roof is down, any trapped moisture could cause mold and mildew.

All of the bed cushions and curtains are hand washable. We DO NOT suggest washing them in a washing machine. This will damage the zippers, and possibly the sewn seam of the cushions. Most customers will hand wash the cushion covers in cold or luke-warm water using a mild liquid detergent (something like Palmolive green), rinse them thoroughly until the soap is gone, and hang them in a warm place to dry. DO NOT put the cushion covers in a clothes dryer.

Interior Clear Plastic Windows:

It is best to use warm water and a soft cloth to clean the clear plastic windows on the “pop-up” portion of the camper.

It is NOT recommended to use any window cleaning solutions like Windex, or ammonia based products.

Warm water and a soft cloth will work fine.

13.3. Cushion Covering Cleaning

Mattress covers are manufactured from very fine and quality materials and should be hand washed only. We recommend using water and mild soap to clean and hang drying. Do not put covers in the dryer. Minor spills should be cleaned up quickly to avoid stains. The affected area should be blotted, not rubbed to prevent permanent stains. Regularly cleaning fabric will help prevent accumulation of dirt and grime.

14. SAFETY

Always have a plan of how to escape a dangerous situation, and ensure that everyone is aware of your plan. In addition, ensure everyone knows where the escape hatch is located and how to properly use it. Never ignore the alarm of any safety device. If your alarm sounds, and you don't know why, exit the camper immediately. Ensure the batteries in all safety devices are charged before starting your travels.

14.1. Liquid Propane/ Carbon Monoxide Detector (LP/CO Detector)

Liquefied Petroleum (LP or Propane) and Carbon Monoxide (CO) gases can cause hazardous conditions when found in high concentrations. Both gases are known to be found in recreational vehicles and the proper detection of these gases provides a safe environment for the occupants of the camper.

The following are the symptoms of Carbon Monoxide poisoning:

Mild Exposure: Slight headache, nausea, vomiting, fatigue (“Flu-like” symptoms).

Medium Exposure: Severe throbbing headache, drowsiness, con-fusion, fast heart rate.

Extreme Exposure: Unconsciousness, convulsions, heart and lung failure, brain damage, and death.

LP gas is commonly called Propane and is sold commercially as a suitable fuel in portable and permanent heating and cooking appliances. It is important to detect LP gas due to its explosiveness at concentrated volumes. An important property of LP gas is that it is denser than air. This property causes LP gas to accumulate close to the floor in non-turbulent atmospheres. Most sensors should be replaced after 5 – 10 years. Check for the expiration date on the front of your sensor.

If the sensor alarm should go off, immediately move to fresh air outdoors or by an open door/window. Do not reenter the premises nor move away from the open door/window until the premises have been aired out and your alarm returns to its normal condition.

We recommend testing the alarm operation after the camper has been in storage, before each trip, and at least once per week during use. **Note: Unit must be powered for three minutes before test can be performed.** The Test/Reset button is used to verify proper detector operation. Executing the test function sounds the alarm and lights up all LEDs. The test will sound the alarm twice, with 4 “beeps” in 1 second followed by 5 seconds of silence. By pressing the button, you can verify that the alarm sounds and that all visual indicators function properly. The detector is internally monitored while powered to ensure proper operation and to detect faults. Verify proper detector function by pressing the Test/Reset Button after storage, before every use and once per week during extended use.

Maintenance:

Vacuum the detector with a soft brush attachment to remove collected dirt and dust every month. Keep the detector away from chemical sprays and solvents which may compromise the detectors functions. Do not paint the detector. Paint may hinder the proper flow of air to the sensors.

WARNING: NEVER IGNORE THE SOUND OF THE ALARM!



14.2. Fire Extinguisher

Every camper comes equipped with an ABC Fire Extinguisher, located inside the camper.

To ensure that your fire extinguisher will be ready if needed we recommend reading and following the instructions on the label and in owner's manual. Inspect the extinguisher at least once a month -- more frequently if exposed to weather or possible tampering. Be sure the red lock pin is firmly in place and the pressure gauge is always in the green (not undercharged or overcharged). Keep the extinguisher clean. Check for dents, scratches, corrosion or

any other damage. Check the discharge nozzle. Ensure that access to the extinguisher is clean and free of obstructions.

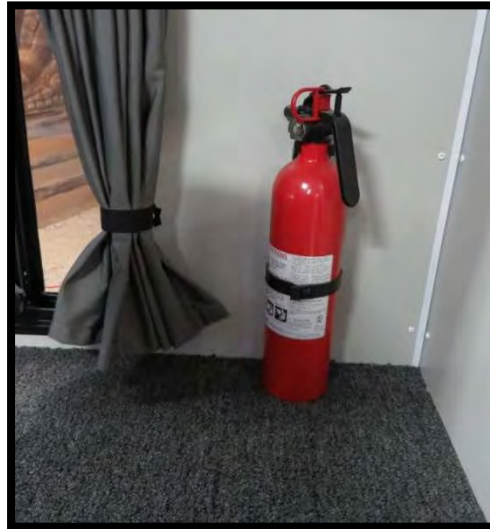
How to properly use a fire extinguisher:

Hold upright and pull the pin.

Stand 6 feet away from the fire and aim at the base of the fire

Squeeze the lever and sweep side to side.

Your fire extinguisher should be replaced immediately after use or discharge.



13.3. Smoke Detector

Every camper also comes standard with a smoke detector. The sole responsibility for the smoke detector is to sound when it senses smoke.

The smoke detector takes one 9 volt battery. Ensure the battery in the smoke detector is checked before starting your travels.

If you have a sensor or detector warning you of a potential emergency, turn off all power to the camper, close the propane tank, and exit the camper immediately. Have all systems checked by a qualified RV repair shop or call us here at the factory before using the camper.

DO NOT IGNORE THE ALARM OF ANY SAFETY DEVICE.



13.4. Escape Hatch Window

The escape hatch (egress) window is installed in every camper, to provide an escape route in case your camper must be evacuated under emergency conditions and the path to the main entry door is blocked. Although the location is not always consistent due to customization and different camper floor plans. Naturally, the egress is usually located on the passenger side of the camper, in the side window of the camper (the window has an emergency exit feature). If you have the front dinette seating inside your camper, the emergency escape window is usually located in the front / driver side corner window.


To operate the emergency exit window, pull the red handle(s) and swing the window outward. The window is hinged at the top.

DO NOT BLOCK THE EMERGENCY EXIT.

Note: Never cover exit window with any type of winterizing curtain when camper is in use.

Note: When camping, ensure the exit window is not blocked by obstacles, and you will have a clear exit.



 **WARNING: Cancer and Reproductive Harm-**
www.P65Warnings.ca.gov

California's Proposition 65 entitles California consumers to special warnings for products that contain chemicals known to the state of California to cause cancer and birth defects or other reproductive harm if those products expose consumers to such chemicals above certain threshold levels. We care about our customers' safety and hope that the information below helps with your buying decisions.