Navion

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SECTION 1 – INTRODUCTION

Congratulations! We welcome you to the exciting world of motorhome travel and camping. You will find it convenient and enjoyable to have all the comforts of home and still enjoy the great outdoors wherever you choose to go.

Before sliding into the driver's seat, please become familiar with operations and features. In addition, spend some time with the dealer when you take delivery to learn all you can about your new motorhome.

ABOUT THIS MANUAL

This operator's manual was prepared to aid you in the proper care and operation of the vehicle and equipment.

Please read this manual completely to understand how everything in your motorhome works before taking it on its "maiden voyage". In addition, please become familiar with the New Vehicle Limited Warranty.

NOTE: This manual describes many features of your motorhome and includes instructions for its safe use. This manual, including photographs and illustrations, is of a general nature only. ***Some equipment and features described or shown in this manual may be optional or unavailable on your model.*** *Because of Winnebago Industries®, continuous program of product improvement, it is possible that recent product changes and information may not be included. The instructions included in this manual are intended as a guide, and in no way extend the responsibilities of Winnebago Industries beyond the standard written warranty as presented in this manual. The descriptions, illustrations, and specifications in this manual were correct at the time of printing. We reserve the right to change specifications or design without notice, and without incurring obligation to install the same on products previously manufactured.*

The materials in your InfoCase contain warranty information and operating and maintenance instructions for the various appliances and components in your motorhome.

NOTE: Many of the instruction sheets and manuals for the various appliances and components have been incorporated into the Operator's Manual Supplement for your convenience. Please read the FAQ in Section 1 of the Operator's Manual Supplement for more details.

Throughout this manual, frequent references are made to the vehicle chassis manual that is provided by the manufacturer of the chassis on which this motorhome is built.

Consult the chassis manual for operating, safety, and maintenance instructions pertaining to the chassis section of the motorhome.

SAFETY MESSAGES USED IN THIS MANUAL

Throughout this manual, certain items are labeled Danger, Warning, Caution, Notice, or Note. These terms alert you to precautions that may involve damage to your vehicle or a risk to your personal safety. Read and follow them carefully.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

SECTION 1 – INTRODUCTION

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE: A "Note" is not necessarily safety related, but indicates a recommendation or special point of information that could assist in understanding the use or care of a feature item.

PRE-DELIVERY INSPECTION

This motorhome has been thoroughly inspected before shipment. Your dealer is responsible for performing a complete pre delivery inspection of the chassis and all motorhome components.

As a part of the pre-delivery inspection procedure, the dealer is responsible for road testing the motorhome, noting, and correcting any problems before delivery.

BEFORE DRIVING

Familiarize yourself with State/Province and local regulations before traveling. There are many local rules that may impact your travels.

FRONT AXLE TIRE ALIGNMENT

We recommend that you have the front suspension and steering alignment checked and adjusted after you have fully loaded the vehicle according to your needs. Thereafter, have alignment inspected periodically to maintain vehicle steering performance and prevent uneven tire wear.

SERVICE AND ASSISTANCE

Your dealer will be glad to provide any additional information you need, as well as answer any questions you might have about operating the equipment in your motorhome. When it comes to service, remember that your dealer knows your vehicle best and is interested in your satisfaction. Your dealer will provide quality maintenance and any other assistance that you may require during your ownership of this vehicle.

If you need warranty repairs while traveling, you may take your vehicle to any authorized Winnebago Industries® dealership and request their assistance.

See the Service Dealer Directory in your InfoCase.

REPORTING SAFETY DEFECTS

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

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

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at:
1-888-327-4236; (TTY: 1-800-424-9153)

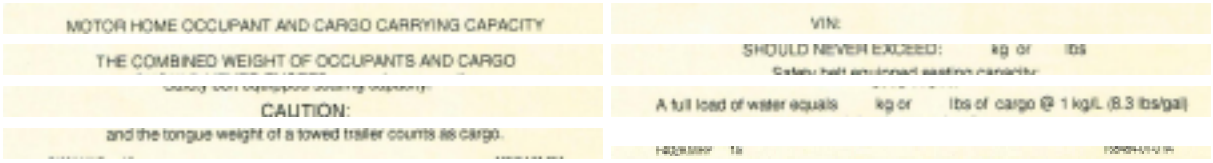
or go to *http://www.safercar.gov*
or write to:

Administrator, NHTSA
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

You can also obtain other information about motor vehicle safety at *http*://www.safercar.gov.

OCCUPANT AND CARGO CARRYING CAPACITY LABEL

This label is affixed in the driver's area next to or near the Vehicle Certification Label. It contains vehicle occupant and cargo carrying capacity along with the number of seat belt positions in the vehicle. The label also provides the weight of a full load of water and advises that this weight, along with the tongue weight counts as cargo.

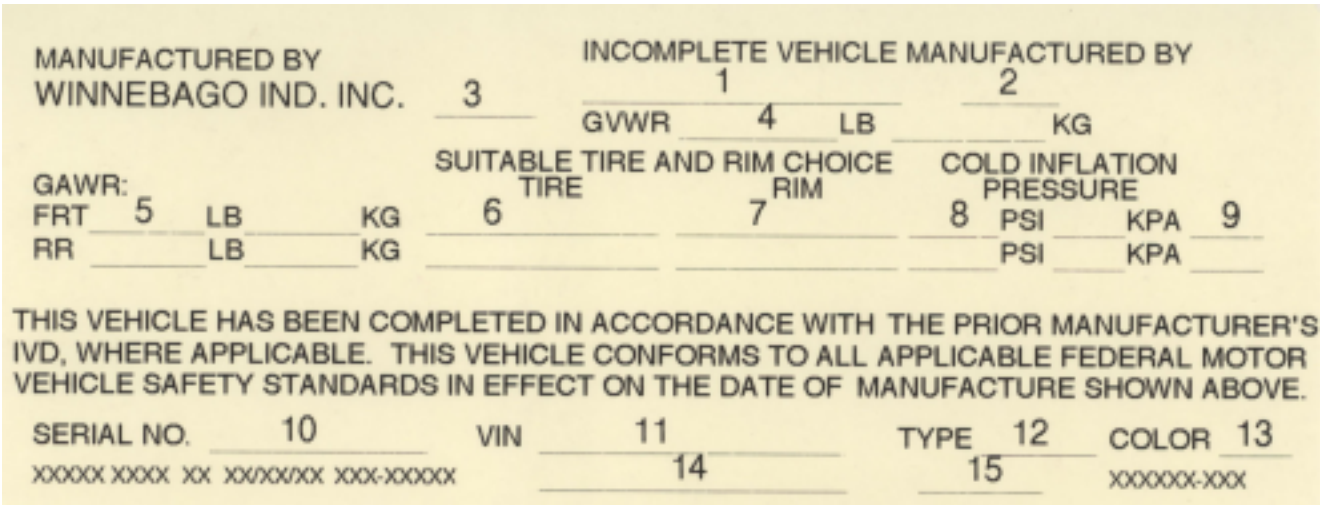


If any weight exceeding 45.4 kg (100 lbs.) is added to your motorhome between final vehicle certification and first retail sale, the occupant and cargo carrying capacity must be corrected and a label similar to the one shown in the following photo will be affixed inside your motorhome.



VEHICLE CERTIFICATION LABEL

This label is affixed to the lower driver side armrest panel, driver door, or the driver side door jamb, depending on model. It contains vehicle identification numbers and other important reference information.



EXPLANATION OF DATA

1. Chassis manufacturer.
2. Chassis manufacture date.
3. Month and year of manufacture at Winnebago Industries®.
4. Gross Vehicle Weight Rating: Total permissible weight of the vehicle, including driver, passengers, total cargo carried (including all liquids), and equipped with all options.
5. Gross Axle Weight Rating: Total permissible weight allowed for the front and rear axles (listed in pounds and kilograms).
6. Suitable Tire Choice: Tires recommended to meet handling and safety requirements. When replacing any of the tires on your vehicle, always replace with a tire that meets these specifications.
7. Suitable Rim Choice: Wheel rims recommended to meet handling and safety requirements. When replacing any of the rims on your vehicle, always replace with a rim that meets these specifications.
8. Cold Inflation Pressure: Inflation pressures at Gross Axle Weight Ratings recommended (while cold) for the tires originally equipped on your vehicle. These pressure levels must be maintained to assure proper handling, safety, and fuel economy.
9. Rear Axle Wheel Configuration: Single or Dual as it relates to the inflation.
10. Serial Number: This is the serial number assigned to the completed vehicle by Winnebago Industries.
11. Vehicle Identification Number (VIN): This number identifies the chassis on which the motorhome is built. The 10th digit of the VIN designates the chassis model year (J=2018, K=2019, L=2020 etc.). This information is useful when ordering chassis repair parts.
12. Type: States the NHTSA designated usage classification for your motorhome. MPV signifies a Multi-purpose Passenger Vehicle.
13. Color: Signifies the color code number of the decor used throughout the vehicle. This number is necessary for ordering replacement cushions, curtains, carpet, etc.
14. Winnebago® model year and series/family name.
15. Model: Lists the Winnebago product model number of your vehicle.

SPECIFICATIONS AND CAPACITIES

	24D	24J	24V

	Mercedes Benz® Sprinter Cab Chassis	Mercedes Benz® Sprinter Cab Chassis	Mercedes Benz® Sprinter Cab Chassis
Feature Number	1MP	1MP	1MP
Length	25' 6"	25' 6"	25' 6"
Exterior Height [1]	11'	11'	11'
Exterior Width	7' 6.25"	7' 6.25"	7' 6.25"
Exterior Storage [2]	30.0 cu. ft.	43.0 cu. ft.	33.6 cu. ft.
Awning Length	16'	16'	16'
Interior Height	6' 8"	6' 8"	6' 8"
Interior Width	7' 3"	7' 3"	7' 3"
Freshwater Tank Capacity [3]	30 gal.	37 gal.	31 gal.
Water Heater Capacity	Continuous	Continuous	Continuous
Holding Tank Capacity - Black [3]	41 gal.	41 gal.	41 gal.
Holding Tank Capacity - Gray [3]	41 gal.	41 gal.	41 gal.
Propane Capacity [4]	50.76 lbs.	50.76 lbs.	50.76 lbs.
Wheelbase	170"	170"	170"
GVWR	11,030 lbs.	11,030 lbs.	11,030 lbs.
GAWR - Front	4,410 lbs.	4,410 lbs.	4,410 lbs.
GAWR - Rear	7,720 lbs.	7,720 lbs.	7,720 lbs.
GCWR [5]	15,250 lbs.	15,250 lbs.	15,250 lbs.
Fuel Capacity	100 liter (26.4 gal.)	100 liter (26.4 gal.)	100 liter (26.4 gal.)

Notes:

All information is based upon the most recent data available. Visit the Winnebago Industries, Inc. web page – www.winnebagoind.com – for the most current product information.

[1] The height of each model is measured to the top of the tallest standard feature and is based on the curb weight of a typically equipped unit. The actual height of your vehicle may vary by several inches depending on chassis or equipment variations. Contact your dealer for further information.

[2] The load capacity of your motor home is designated by weight, not by volume, so you cannot necessarily use all available space when loading your motor home.

[3] Capacities are based on measurements prior to tank installation. Slight capacity variations can result upon installation.

[4] Capacities shown are the tank manufacturer's listed water capacity (W.C.). Actual filled propane capacity is 80% of listing due to overfilling prevention device on tank.

[5] Actual towing capacity is dependent on your particular loading and towing circumstances which includes the GVWR, GAWR, and GCWR as well as adequate trailer brakes. Refer to the chassis operator's manual of your motor home for further towing information.

SECTION 1 – INTRODUCTIO N

OWNER AND VEHICLE INFORMATION

OWNER INFO

Owner's Name(s) _____

Address

_____

_____

VEHICLE INFORMATION

Motorhome Model Number _____

Motorhome Serial Number

_____ Chassis Vehicle

Identification No. (VIN) _____ Vehicle

Mileage at Delivery _____ Selling

Dealer Name_____

Address

_____

_____

YOUR WINNEBAGO INDUSTRIES® DEALER /SERVICE CENTER

Name_____

Address _____

_____ Contact

_____Phone _____

CHASSIS SERVICE CENTER

Name_____

Address _____

_____ Contact

_____Phone _____

RV INSURANCE POLICY

Company_____

Policy Number _____

Agent_____Phone _____

SECTION 2 – SAFETY AND PRECAUTIONS 

GENERAL WARNINGS

• Only seats equipped with seat belts are to be occupied while the vehicle is moving. • Make sure all passengers have seat belts fastened. Lap belts should fit low on the hips and upper thighs. The shoulder belt should be positioned snug over the shoulder.

• For pregnant women: Never place the shoulder belt behind your back or under your arm. Adjust the lap belt across your hips/ pelvis, and below your belly. Place the shoulder belt across your chest (between your breasts) and away from your neck.

• Child restraints should be installed properly according to manufacturer's instructions. See "Child Restraints".

• All moveable or swiveling seats should be placed and locked in travel position while the vehicle is moving.

• Never let passengers stand or kneel on seats while the vehicle is moving.

• Sleeping facilities are not to be utilized while vehicle is moving.

• Examine the escape window and be familiar with its operation.

• Inspect the fire extinguisher monthly for proper charge and operating condition. This should also be done before beginning a vacation or any extended trip.

WARNING

Operating, servicing and maintaining this vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger vehicle.

SECTION 2 –
SAFETY AND PRECAUTIONS

DRIVING SAFETY

WARNING

This motorhome has been designed, manufactured and tested with concern for the protection of it's occupants. We recommend you perform the following inspections for your safety and the safety of your passengers before starting your vehicle.

1. LP GAS SYSTEM - Turn off at tank for traveling. Test for leaks upon arrival at destination before lighting pilots.
2. WHEELS - Inspect for damage and check lug nuts for tightness.
3. TIRES - Inspect for wear and damage and check for recommended air pressure.
4. LIGHTING - Test for proper operation of all interior and exterior lights including dash lights, headlights, tail lights, brake lights, clearance lights, and turn signals.
5. EXITS - Inspect release mechanism on emergency exit window, test both locks on main entrance door for ease of operation and instruct passengers how to use both means of exit.
6. SEAT BELTS - Direct passengers to designated seats, be certain swivel seats are locked into position, and require use of a seat belt. See operator's manual for occupancy and weight restrictions.
7. APPLIANCES - Turn off and latch or lock doors where provided.
8. LOOSE PARCELS - Store securely.
9. UTILITY SUPPLY LINES - Disconnect all electrical, sewer and water lines and secure properly.
10. ENTRANCE DOOR STEP - Assure step is in retracted position for traveling.

Read your motorhome and chassis

owner's manual for further precautions.

- Do not attempt to adjust the driver's seat while the vehicle is moving.
- Do not adjust tilt steering in a moving vehicle.
- Do not operate the cruise control on icy or extremely wet roads, winding roads, in heavy traffic, or in any other traffic situation where a constant speed cannot be maintained.
- Use care when accelerating or decelerating on a slippery surface. Abrupt speed changes can cause skidding and loss of control.
- Never drive the vehicle with a slideout room extended.
- Driving through water deep enough to wet the brakes may affect stopping distance or cause the vehicle to pull to one side. Check brake operation in a safe area to be sure they have not been affected. Never operate any vehicle if a difference in braking efficiency is noticeable.
- Adverse weather conditions and extremes in terrain may affect handling and/or performance of your vehicle. Refer to your chassis manual for complete and related information on driving your vehicle.
- Doors - Verify all interior and exterior doors are shut and/or stowed and latches are in place where provided.

FUEL AND PROPANE GAS

DANGER

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

WARNING

Do not fill propane container(s) to more than 80 percent of capacity. A properly filled container contains approximately 80 percent of its volume as liquid propane. Overfilling propane container(s) can result in uncontrolled propane flow, which could lead to a fire or explosion and result in death or serious injury.

WARNING

Do not place propane cylinders inside the vehicle. Propane cylinders are equipped with safety devices that relieve excessive pressure by discharging propane to the atmosphere. Propane gas is highly flammable. Can lead to a fire or explosion and result in death or serious injury.

- Do not place or store gasoline or other flammable liquid containers inside the vehicle.
- All pilot lights must be extinguished and appliances turned off while refilling the fuel tank or propane gas tank.
- Never smoke while refilling vehicle fuel tank or propane gas tank.
- Never use an open flame to test for propane gas leaks. Replace all protective covers and caps on propane system after filling. Make sure valve is closed and the door is latched securely.
- Never connect natural gas to the propane gas system.
- **Do not** turn burner controls to "On" and allow gas to escape before using ignitor or lighting a match.

- Portable fuel-burning equipment, including

wood and charcoal grills and stoves shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

- Propane gas regulators must always be installed with the diaphragm vent facing downward. Regulators are equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage, which could result in excessive gas pressure causing fire or explosion.
- The following warning label is located in the cooking area to remind you to provide an adequate supply of fresh air for combustion.

DANGER

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

WARNING

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

Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliance(s) avoids dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating, as the danger of

asphyxiation is greater when the appliance is used for long periods of time. Failure to comply could result in death or serious injury.

PROPANE GAS LEAKS

Check propane gas system for leaks yearly, or as necessary.

The following label is located in the vehicle near the range area. If you smell gas within the vehicle, quickly and carefully perform the procedures listed.

DANGER

IF YOU SMELL PROPANE

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

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

PROPANE GAS LEAK DETECTOR

Your motorhome is equipped with a Propane

Gas Leak Detector, similar to the one shown in the following photo. The leak detector sounds an alarm if an unsafe amount of propane gas is present inside the motorhome.



Propane Gas Leak Detector

WARNING

EXPLOSION HAZARD: DO NOT use an open flame to test for gas leaks. When testing for gas line leaks with a soapy water solution, DO NOT use a detergent containing ammonia or chlorine. These substances may generate a chemical reaction causing corrosion to gas lines, resulting in dangerous leak conditions. Death or serious injury can result.

Power Connection

The Propane Gas Leak Detector is powered by the house batteries. If the House/Coach Battery Disconnect switch is shut off or the battery cable is disconnected from the batteries, the alarm will not work. The Propane Gas Leak Detector fuse or circuit breaker is located in the 12-volt house electrical load center.

Because the Propane Gas Leak Detector is connected to the house battery, it is always drawing a small amount of current. Even though this current draw is slight, it could drain the house battery during storage periods when the house battery will not be charged regularly by the engine or shoreline.

Replacement

When replacing this alarm, we recommend replacing only with the same model, or with one that is also listed for RV application. We recommend obtaining a replacement from your Winnebago Industries® dealer.

Further Information

See the manufacturer's user guide provided in your InfoCase for further instructions.

CARBON MONOXIDE WARNING

WARNING

Avoid inhaling exhaust gases, as they contain carbon monoxide, which is a colorless, odorless, and poisonous gas. Death or serious injury can result.

The best protection against carbon monoxide entry into the vehicle body is a properly maintained engine exhaust and ventilation system. It is recommended that the exhaust system and body be inspected by a qualified motorhome service center:

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

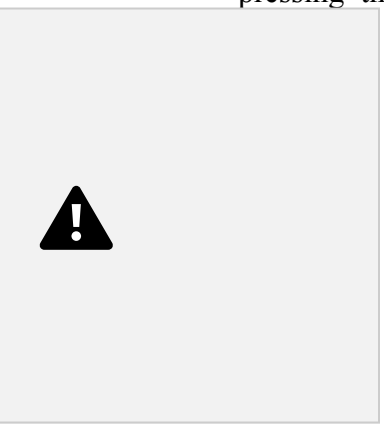
To allow proper operation of the vehicle's ventilation system, keep front ventilation inlet grill clear of snow, leaves, or other obstructions at all times. DO NOT OCCUPY A PARKED VEHICLE WITH ENGINE RUNNING FOR AN EXTENDED PERIOD.

Do not run engine in confined areas, such as a garage, except to move vehicle into or out of the area.

CARBON MONOXIDE ALARM Your motorhome is equipped with a Carbon Monoxide (CO) Alarm, which has a sensor that is designed to detect toxic carbon monoxide gas

fumes resulting from incomplete combustion of fuel. It will detect CO gas from any combustion source such as the furnace, gas range/oven, water heater, refrigerator, chassis engine, and electric generator engine.

To reduce the risk of carbon monoxide poisoning, test this alarms operation after the motorhome has been in storage, before each trip, and at least once per week during use by pressing the Test/Reset button on the alarm.



Push button to test

Carbon Monoxide Alarm

WARNING

Failure to replace this product by the "REPLACE BY DATE" printed on the alarm cover may result in death by Carbon Monoxide poisoning.

Replacement

When replacing this alarm, we recommend replacing only with the same model, or with one that is also listed for RV application. We recommend obtaining a replacement from your Winnebago Industries® dealer.

Further Information

Please read the information provided by the manufacturer, which is included in your InfoCase for further information.

SMOKE ALARM

Your motorhome is equipped with a Smoke Alarm (located on the ceiling in the lounge area.) The Smoke Alarm is powered by a 9-volt battery and has a sensor that is designed to detect smoke.



Push button to test

Smoke Alarm

The following label is affixed to the Smoke Alarm.

WARNING

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

Replacement

When replacing this alarm, we recommend replacing only with the same model, or with one that is also listed for RV application. We recommend obtaining a replacement from your Winnebago Industries® dealer.

Expiration and Further Information

See the manufacturer's information in your InfoCase for smoke alarm expiration and further instructions.

FIRE EXTINGUISHER

A dry chemical Fire Extinguisher is located near the main entrance door.

We recommend that you become thoroughly familiar with the operating instructions displayed on the side of the Fire Extinguisher and in the information supplied in your InfoCase.

We also recommend that you inspect the Fire Extinguisher for proper charge at least once a month in accordance with National Fire Protection Association (NFPA) recommendations as stated on the label. If the extinguisher is past its expiration date or charge is insufficient, the Fire Extinguisher must be replaced.

NOTICE

Do not test the fire extinguisher by discharging it. Partial discharge can cause leakage of pressure or contents, which would render the unit inoperative when needed. When using the fire extinguisher, aim the spray at the base of the fire.

Replacement

If for any reason you must replace the Fire Extinguisher, the replacement must be the same type and size as the one originally supplied in your motorhome. We recommend obtaining a replacement only from your Winnebago Industries® dealer or a reliable RV parts supplier.

ELECTRICAL

- Careless handling of electrical components can be fatal. Never touch or use electrical components or appliances while feet are bare, while hands are wet, or while standing in water or on wet ground.

- Improper grounding of the vehicle can cause personal injury. Do not plug the utility power cord into an outlet which is not grounded and do not adapt the plug to connect to a receptacle for which it is not designed.
- Do not attach an extension cord to the utility power cord.
- Do not use any electrical device that has had the ground pin removed.
- Avoid overloading electrical circuits. Replace fuses or circuit breakers with those of the same size and amperage rating only. Never use a higher rated fuse or breaker.
- Use caution when handling or working near electrical storage batteries. Always remove jewelry and wear protective clothing and eye covering. Avoid creating sparks.

LOADING

- Store or secure all loose items inside the motorhome before traveling. Possible overlooked items such as canned goods or small appliances on the countertop, cooking

pans on the range, or free-standing furniture items can become dangerous projectiles during a sudden stop.

- Be aware of GVWR, GAWR, and individual load limit on each tire or set of duals (See "Loading the Vehicle" in *Section 12 - Miscellaneous*).
- Never load the motorhome in excess of the gross vehicle weight rating or the gross axle weight rating for either axle.

MAINTENANCE

- Do not remove the radiator cap while engine and radiator are still hot. Always check coolant level visually at the see-through coolant reservoir.
- Never get beneath a vehicle that is held up by a leveling system (if equipped), or a jack only. • Always release the air prior to getting under the vehicle (if equipped).

SECTION 2 – SAFETY AND PRECAUTIONS

- Do not mix different construction types of tires on the vehicle, such as radial, bias, or belted tires, as vehicle handling may be affected. Replace tires with exact size, type, and load range.
- Refer to the chassis manual for complete maintenance precautions and recommendations.

EMERGENCY EXITS

If your motorhome is equipped with the bike rack option, you will notice you have two escape windows in the bedroom. When using this rack with a normal size bike or smaller the rear escape window will open normally. Should you have a larger bike on the rack it may obstruct your ability to open the rear window. If a bike should obstruct the rear window, a side escape window is provided. Please note in addition to these windows you also have the main entrance door as well as the driver and passenger doors as a means of escape.

Escape Window

The escape window is secured by two red safety latches at the bottom or side of the window.

To open, lift both latches up and toward the center of the window, then push outward near the bottom of the window.



Escape Window
(Lift both red safety latch handles UP and push window OUT)
-Typical View



Escape Window
(Lift both red safety latch handles UP and push window OUT)
-Typical View



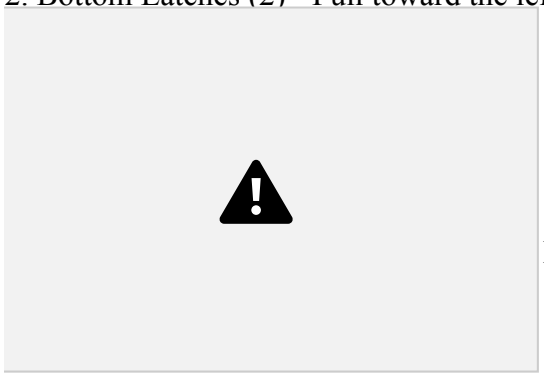
Escape Window
(Lift both red safety latch handles UP and push window OUT)
-Typical View

Escape Window (Optional) –If Equipped

The bedroom escape window is secured by four safety latches at the sides and bottoms of each window.

To open, release all four latches and push window out.

1. Side Latches (2) - Pull down toward bottom of window frame.
2. Bottom Latches (2) - Pull toward the left-hand



Side Latch

Bottom Latch

Escape Window
(View of interior left-hand side of window) -Typical View

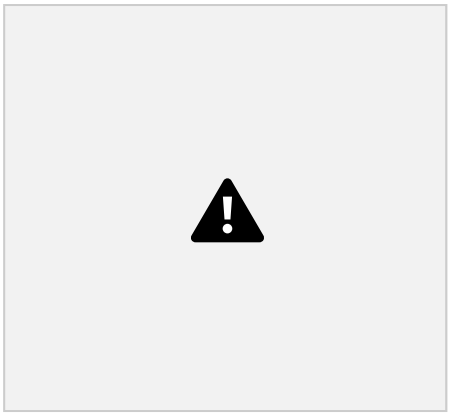
Side Latch

Bottom Latch

Escape Window
(View of interior right-hand side of window) -Typical View

Using Slider Windows As Emergency Exits

Some motorhomes are required to have a slider window as an alternate exit. This window will be marked EXIT and have a red-handled latch.



Slider Window Latch
(Lift latch UP and slide window open) -Typical View

Most slider windows along the side of any motorhome can also be used as alternate emergency exits, should the need arise. To use slider windows as an exit:

- Lift window latch UP.
- Slide the window open.
- Either slide the screen open or push the screen material out, depending on window construction.

SLIDEOUT ROOMS

WARNING

Your motorhome may have more than one slideout room. Understand which switch operates which slideout room prior to operation. Make sure all slideout rooms are clear of people who could be harmed or obstacles that could cause damage prior to operating any slideout rooms. Failure to observe can result in death or serious injury.

Check inside and outside the vehicle to make sure that there are no people who could be harmed or obstacles that could cause damage due to room activation.

SECTION 2 – SAFETY AND PRECAUTIONS

WARNING

Keep all persons clear of the slideout room and moving parts while extending or retracting. Do not occupy the slideout room while it is being extended or retracted. Failure to observe can result in death or serious injury.

FORMALDEHYDE INFORMATION

Some of the materials used in this recreational vehicle emit formaldehyde. Eye, nose, and throat irritation, headache, nausea, and a variety of asthma-like symptoms,

including shortness of breath have been reported as a result of formaldehyde exposure. Reaction to formaldehyde exposure may vary among individuals. Elderly persons and young children, as well as anyone with a history of asthma, allergies, or lung problems may be at greater risk. Research is continuing on the possible long-term effects of exposure to formaldehyde. Inadequate ventilation may allow formaldehyde and other contaminants to accumulate in indoor air. Ventilation to dilute the indoor air may be obtained from a passive or mechanical ventilation system. Always be sure to thoroughly ventilate your recreational vehicle before and during each use. High indoor temperatures and humidity may raise formaldehyde levels. When a recreational vehicle is in areas subject to high temperatures, an air conditioning system can be used to control indoor temperature levels. If you have any questions regarding the health effects of formaldehyde, consult your doctor or local health department.



SECTION 2 – SAFETY AND PRECAUTIONS

MOLD, MOISTURE, AND YOUR MOTORHOME

What is Mold?

Molds are part of the natural environment. They are as old as the Earth itself and mold spores are almost everywhere at some level waiting to grow. Mold plays a part of nature by breaking down dead organic matter, such as fallen leaves and dead trees. Indoors however, mold growth should be avoided. Molds reproduce by means of tiny spores. Those spores are invisible to the naked eye and float throughout the outdoor and indoor air. Because of the nature of the use of a motorhome, it is natural for a motorhome to be introduced into an environment with mold spores.

Mold is a plant and requires its own special environment to grow. That environment includes organic materials, nutrients, moisture, and proper temperature.

How Can I Avoid Mold?

To reduce the ability for mold to grow, you must reduce what constitutes its growth environment. Mold can grow with the smallest of a nutrient base. Just small amounts of dirt or dust on the carpet can be enough to allow the mold process to begin. Keep the environment as clean as possible. Vacuum the carpet. Clean food spills thoroughly and quickly. Avoid grease buildup near the stove or sink. Clean the exhaust fan above the stove often.

Minimize moisture in your motorhome and keep humidity low. Clean spills quickly. Do not allow condensation to build up. You can open windows and vents to minimize condensation. Use of the air conditioner can assist in removing moisture from the air. Avoid leaks, but if leaks do occur, make repairs promptly.

Avoid bringing mold into your motorhome. Plants, cloths, books, and other household items may already have mold present. It is easy to transfer mold into your motorhome environment.

Monitor your motorhome. Periodically check those hidden areas in corners, closets, and cabinets to assure mold is not present.

What if I Find Mold?

If mold develops, clean the area with a concentrate of soap and bleach. Items that contain mold that cannot be cleaned should be removed from the vehicle.

Can Mold Harm Me?

The effects of mold and airborne mold spores may cause irritation to some people. Experts disagree on the level of exposure that may cause

health concerns.

If Mold Is Present, What Will Winnebago Industries® Do? If Winnebago Industries determines that mold is present in the motorhome as a result of a manufacturing defect reported to Winnebago Industries within the limited warranty period, Winnebago will clean the affected area(s) and/or replace affected items as it deems necessary. This is the extent of coverage provided by Winnebago Industries. Winnebago Industries, however, will not assume responsibility for mold deemed to be a result of a motorhome users lack of timely and appropriate action to mitigate circumstances should a problem occur.

If Winnebago Industries determines that mold is present due to conditions it determines is not a result of a manufacturing defect found within the warranty period, Winnebago Industries will not provide any financial assistance to the repair of the condition.

ROOF AND LADDERS

–If Equipped

WARNING

STAY OFF ROOF. Surface may be slippery. Falling could result in death or serious injury.

The ladder on your motorhome is provided for limited access to the roof.

Walking or working on the roof should be left to qualified service personnel using proper safety equipment in a safe environment. You should only walk or work on the roof if you are qualified and have created a safe environment.

For your safety, it is not recommended that you store or carry items on the roof.

Before Using the Ladder

• **Inspect the ladder** to make sure it is not damaged. Never use a damaged ladder. • **Keep the rungs of the ladder clean and dry** while in use. Never use the ladder when it is raining, snowing, or icy. The rungs can become slippery. Do not step onto the rungs if the rungs are wet, or if your shoes are wet or carry mud or debris that could result in a loss of footing.

• **Never ignore warning labels** or weight limits defined on your ladder. The following warning label is located on or near the ladder:

WARNING

Do not exceed 225-lb. maximum weight capacity. Misuse of ladder could result in death or serious injury. See Operator's Manual before using ladder.

• **Maximum Capacity: 225 lbs. • Do not overload.** Ladder is intended for one person.

• **Make sure you are physically capable** to safely use the ladder. Strength, flexibility, and stability are required.

• **Be aware that the vehicle may sway** as you climb the ladder. Do not use the ladder in high winds.

• **As you climb the ladder,** grasp the side rails firmly and always use both hands. Keep your body centered between the side rails. Do not over-reach.

• **Never allow children** on the ladder.

SECTION 2 – SAFETY AND PRECAUTIONS

• **Do not transport items** anchored to the ladder. You could damage the ladder.

ROADSIDE EMERGENCY

Because of the size and weight of this vehicle and its tires, and the possible complications involved in tire changing, we strongly advise obtaining professional road service to change a flat tire whenever possible. However, if an emergency requires you to change the tire yourself, please exercise extreme caution and read all tire changing information in the chassis

manual.

Never get beneath a vehicle that is held up by a jack only.

If You Get A Flat Tire

- DO NOT panic.
- Grip the steering wheel firmly and steer the vehicle as straight as possible. Avoid quick maneuvers. You may need to counter-steer to compensate for "pull" created by the failed tire.
- DO NOT stomp on the brake. This abruptly shifts the vehicle's weight forward, making it nose-dive and pull toward the blown-out side.
- DO NOT jerk your foot off the accelerator. Just ease back on the accelerator slowly and gently to continue momentum. The deflated tire will slow the vehicle.
- If you must change lanes to get to a safe stopping place, use your signals to warn other motorists and change lanes smoothly and carefully after you are certain the lane is clear.
- Let the vehicle coast to a stop, gently steering to a safe stopping place off the traffic lanes of the road. Do not worry about damaging the tire or wheel rim by driving on it. A tire or wheel replacement is cheaper than damaging the vehicle or injuring yourself.
- When you have come to a stop, activate your hazard flashers to warn other motorists, then exit the vehicle carefully.
- Set out flares or other warning devices.



SECTION 2 – SAFETY AND PRECAUTIONS

Check your tires for proper inflation before each trip and at least once a month with an accurate tire gauge. See "Valve Stem Access" in *Section 3 - Driving Your Motorhome*.

Swing-Down Carrier

CAUTION

Do not lie beneath tire carrier while removing tire. The tire can fall and injury can occur.

- Support tire carrier with blocks or a jack.
- Loosen knob on each side of tire carrier and swing hanger away from carrier.
- Lower tire carrier to ground and remove tire.

Recovery Towing

When calling a professional towing service, we recommend that you advise them of your motorhome length and approximate front axle weight listed on your Vehicle Certification Label. This will allow the towing operator to determine the proper towing equipment to use.

Winnebago Industries® does not assume responsibility for damage incurred while towing this vehicle.

NOTE: Consult your chassis manual for towing instructions or precautions provided by the chassis manufacturer.

NOTICE

Do not lift on bumper. Damage will result to front end body parts.

WARNING

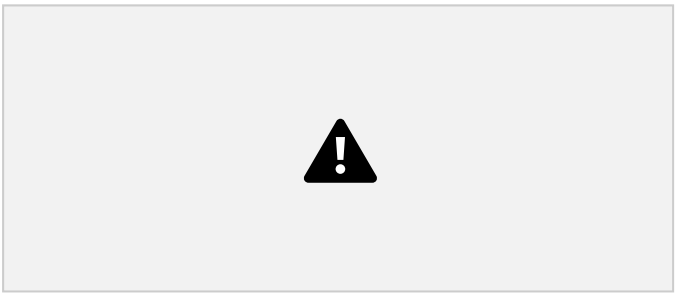
Stay out from beneath the motorhome while it is suspended by the towing assembly. Do not allow passengers to occupy a towed vehicle. Death or serious injury can result.

WHEEL MOUNTING NUTS (LUG NUTS)

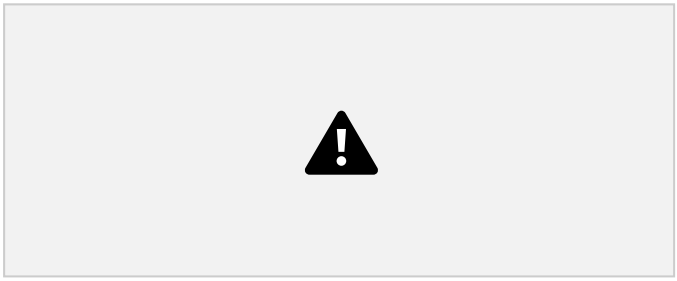
The mounting bolts and nuts for the standard steel wheels are designed specifically for the type of wheel.

Steel Wheels

• The lug nut for steel wheels is a non-plated, hat-shaped, flange nut. The accompanying dome-shaped, split cone washer should be positioned “dome first” onto the wheel stud before the nut as shown.



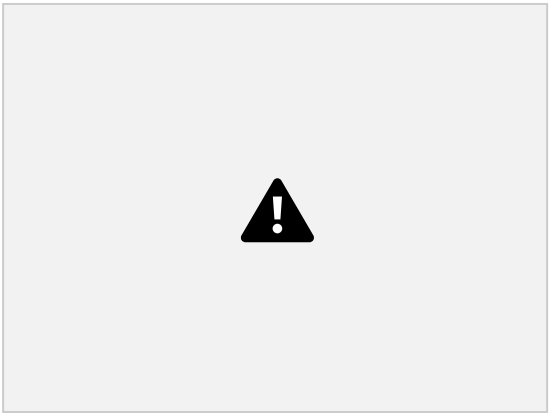
Steel Wheel Lug Nut and Washer
(Hex Flange Nut with Split Cone Washer)



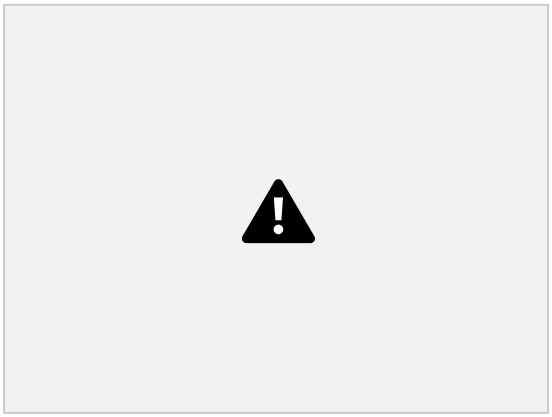
Steel Wheel Front Steel Wheel Rear

WHEEL TRIM – STANDARD

(Mercedes-Benz® Sprinter Chassis) *Note: Reference the chassis manufacturer’s user guide provided in your InfoCase for complete instructions and cautions on changing a wheel.*



Valve Stem Clearance Notch



The wheel on your motorhome has a push on liner which is removed similar to a hubcap. Remove the covers by carefully prying the perimeter flange away from the wheel flange.

Check for valve stem location and the valve stem clearance notch (located on the back side of the front cover).

Chassis Supplied Wheel and Center Cover

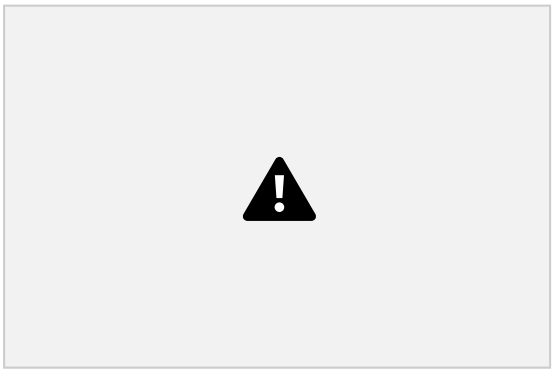
When re-installing the front liner, make sure to align the stem clearance notch on the back of the liner with the valve stem.

WARNING

If the notch is not aligned with the valve stem, the valve stem may be damaged which could deflate the tire causing steering or handling problems.

Valve Stem Clearance Notch aligned to Valve Stem

Under the front cover is the chassis supplied black center cover. The recessed area has three alternating silver washers. Removal of the three nuts on top of the three washers will allow the removal of the center cover while the wheel is still retained to the hub with the remaining three nuts.



When installing the liner, be sure it is engaged all around the perimeter (outside edge) equally.

Note: If the edge on one side is pushed in before the other, it may be difficult to complete the push on procedure.

Further Information

See the chassis manufacturer's user guide provided in your InfoCase for complete instructions and re-torque information.

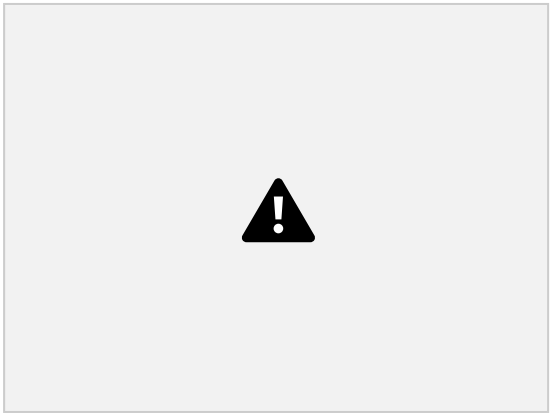
WARNING

DO NOT operate the vehicle with less than all 6 nuts installed and properly torqued.

WHEELS – STYLIZED ALUMINUM

(Mercedes-Benz® Sprinter Chassis) –If Equipped

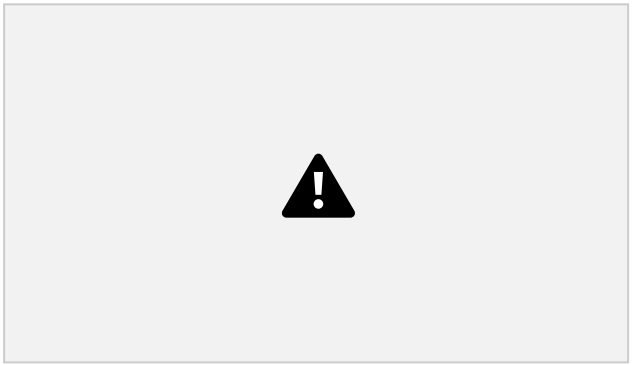
The Alloy Wheels, hub covers, and push on nut covers are mounted with the chassis supplied lug nuts which are concealed by push on nut covers.



Stylized Aluminum Wheel

Note: Reference the chassis manufacturer's user guide provided in your InfoCase for complete instructions and cautions on changing a wheel.

- Before removing lug nuts, remove the push on nut covers. To make the removal process less challenging, it is recommended that you wrap each individual jaw of pliers with electrical tape or use a commercial lug nut cover removal tool (not provided).



Remove the push on nut covers.

Further Information

See the chassis manufacturer's user guide provided in your InfoCase for complete instructions and re-torque information.

WARNING

DO NOT operate the vehicle with less than all 6 nuts installed and properly torqued.

JUMP STARTING

To jump start the engine using another vehicle or booster system, see the chassis manual for connecting jumper cables to the automotive electrical system.

NOTICE

Do not attempt to push start this vehicle. Damage to the transmission or other parts of the vehicle will occur.

ENGINE OVERHEAT

If you see or hear steam escaping from the engine compartment or have any other reason to suspect an extreme engine overheating condition, pull the vehicle over to the roadside as soon as it is safe to do so, stop the engine, and get all passengers out of the vehicle.

NOTICE

Operating a vehicle under a severe overheating condition can result in damage to the vehicle.

For information on what to do in case of overheating, consult the chassis manual.

SECTION 3 – DRIVING YOUR MOTORHOME

The information in this section refers only to features installed or adapted to the dash and driver compartment area by Winnebago Industries®. It also includes passenger seating in the living area of the motorhome.

Further Information

See the chassis manual in your InfoCase for all original chassis related controls, instrumentation, switches, and other features. This includes items such as cruise control, climate controls, gauges, wipers, lights, front seats, and three-point safety belts, etc.

SEATS – DRIVER/CO-PILOT

The driver and co-pilot seats may be independently adjusted to suit individual

preference.

WARNING

Damage to interior door panels will result if seats are swiveled toward the doors. Do not turn driver seat counter clockwise and do not turn passenger seat clockwise.

To lengthen belt, swivel the tab end at a right angle to belt and pull strap to desired length. To shorten, pull loose end of belt.

Further Information

See the chassis manual in your InfoCase for instructions on seat adjustments.

SEAT BELTS

Seats intended for occupancy while the vehicle is in motion are equipped with seat belts for the protection of the driver and passengers.

Lap Belts

The lap belts must be worn as low as possible and fit snugly across the hip area. Always sit erect and well back into the seat. To gain full protection of the safety belt, never let more than

one person use the same safety belt at any one time, and do not let the safety belts become damaged by pinching them in the doors or in the seat mechanism. After any serious accident, any seat belts which were in use at the time must be inspected and replaced if necessary.

1- Insert tab into buckle slot until it “clicks” and is locked

2- Pull strap to tighten

3- Press to release

Adjustment:

To Fasten:

Be sure belt is not twisted. Grasp each part of the belt assembly and push tongue into buckle. Adjust to a snug fit by pulling the loose end away from the tongue.

To Release:

Press button in center of buckle and slide tongue out of buckle.

SECTION 3 – DRIVING YOUR MOTORHOME

WARNING

Snug and low belt positions are essential. This will ensure that the force exerted by the lap belt in a collision is spread over the strong hip area and not across the abdomen, which could result in serious injury.
Only seats equipped with seat belts are to be occupied while vehicle is in motion. Swivel seats must be in the locked, forward facing position while vehicle is in motion.

Lap/Shoulder Belts

Refer to the chassis manual provided in your InfoCase for instructions on proper fastening, adjustment, and releasing of lap/shoulder belts.

Seat Belt Care and Cleaning

• Be careful not to damage the belt webbing and hardware. Take care not to pinch them in the seat or doors.

• Inspect the belts and hardware periodically. Check for cuts, frays, and loose parts. Damaged parts should be replaced. Do not remove or modify the belt system.

• Keep belts clean and dry. If the belts need cleaning, use only a mild soap and water solution. Do not use hot water. Do not use abrasive cleaners, bleach, or dyes. These products may weaken the belts.

• Replace any belt assembly that was used during a severe impact. Replace the complete assembly even if damage is not apparent.

CHILD RESTRAINTS

–If Equipped

A properly installed and secured child restraint system can help reduce the chance or severity of personal injury to a child in an accident or during a sudden maneuver. Children may have a greater chance of being injured in an accident if they are seated in a child restraint system which is not properly secured. Children are always safer in the rear seats (behind the cab area).

A child restraint system is designed to be secured in a vehicle seat by a lap belt or the lap belt portion of a lap-shoulder belt.

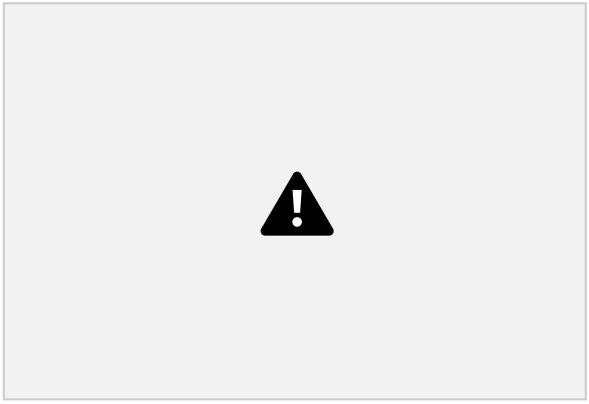
When purchasing a child restraint system, follow these guidelines:

1. Look for the label certifying that it meets all applicable safety standards.
2. Make sure that it will attach to your vehicle and restrain your child securely and conveniently so that you are able to install it correctly each time it is used.
3. Be certain that it is appropriate for the child's height, weight, and development. The instructions and/or the regulation label attached to the restraint typically provides this information.
4. Review the instructions for installation and use of the restraint. Be sure that you understand them fully and can install the restraint properly and safely in your vehicle.

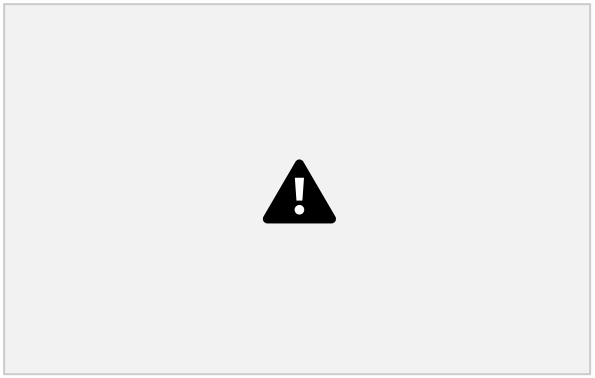
Tether Anchor Loop

–If Equipped

If your motorhome has a dinette, it may be equipped with a child seat tether anchor loop located on the floor directly behind the forward facing dinette seat or behind the forward facing dinette seat back cushion.



Tether Anchor Loop
(Located on floor directly behind the forward facing dinette seat)



Tether Anchor Loop
(Located behind the forward facing dinette seat back cushion)

TE: The dinette table must be in the lowered position when a child seat is in use.

1

3 2

1. Lower the dinette table.
2. Hook the Tether to the Anchor Loop. Pull tether strap to tighten.
3. Fasten the lap belt and pull snug.

-Typical View,
(Your motorhome may differ in appearance)

Further Information

See the child seat manufacturer's specific instructions for proper attachment and adjustment of the tether and seat belts.

KEYS

Your motorhome is supplied with several keys. In addition to the chassis manufacturer's ignition key, you receive keys for the entrance door and exterior compartment doors. Keys have an identification number, either a small metal tag or stamped into the key head. These numbers are recorded on the vehicle's component model/serial sheet, which is included in your InfoCase. In case keys are lost or stolen, your dealer or a locksmith can provide you with duplicate keys or modify the locks.

REMOTE KEYLESS ENTRY

The Remote Keyless Entry system on the cab doors is chassis-supplied. However, we have also connected the motorhome entry door lock to this system. This means your keyless remote transmitter will lock and unlock the entry door as well as the cab doors.

Make a habit of having the keys with you when you exit the vehicle and if opening the cab door first before opening the entry door whenever unlocking with the keyless remote.

Further Information

Refer to the chassis manual provided in your InfoCase for complete operating instructions on using the Remote Keyless Entry system and for battery replacement information.

HAZARD WARNING FLASHERS

The hazard warning flashers provide additional safety when the vehicle must be stopped on the side of the roadway and presents a possible hazard to other motorists. When the flashers are on, it serves as a warning to other drivers.

Further Information

Refer to the chassis manual provided in your InfoCase for instructions on activating, operating, and canceling hazard warning flashers.

AIR CONDITIONER/HEATER – AUTOMOTIVE (DASH)

See the chassis manual for operating information on driver and passenger comfort controls – air conditioner, heater, defroster, and ventilation.

NOTE: The dash air conditioner is not designed to cool the entire interior of the motorhome, but is intended only to provide cooling for the cab area.

COLLISION AVOIDANCE SYSTEM

The collision avoidance system in your vehicle is chassis-supplied. Refer to the chassis manual for complete features, programming, and operating instructions.

INFOTAINMENT CENTER **–If Equipped**

The Infotainment Center in your motorhome is chassis-supplied. Refer to the chassis manual for complete features, programming, and operating instructions.

ENGINE COOLING SYSTEM

Do not remove the radiator cap while engine and radiator are still hot. Always check coolant level visually at the see-through coolant reservoir.

NOTE: Your chassis engine cooling system is filled with special extended-life coolant. See the chassis manual for the correct type of coolant. The coolant system MUST be refilled or topped up with the same type of coolant as equipped to maintain the special long-life properties.

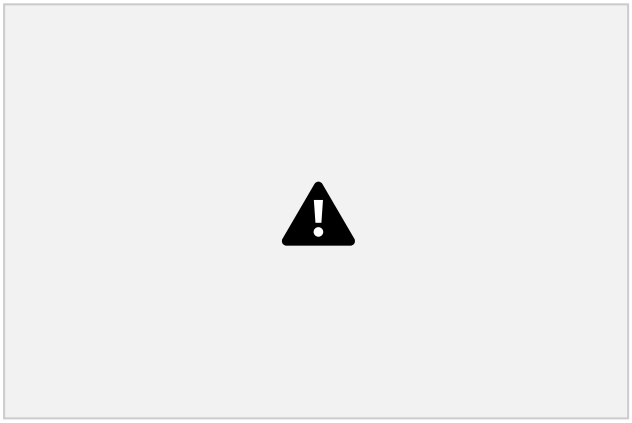
Further Information

Refer to the chassis manual in your InfoCase for information and precautions on filling, servicing, and checking the fluid level.

DIESEL EXHAUST FLUID FILL

The Diesel Exhaust Fluid Fill is located under the front hood.

NOTE: Use only certified diesel exhaust fluid (DEF) in the Diesel Exhaust Fluid Fill tank.



Diesel Exhaust Fluid Fill
(Located under front hood)
-Typical installation shown

Further Information

Refer to the chassis manual provided in your InfoCase for complete information and precautions.

LIGHTS

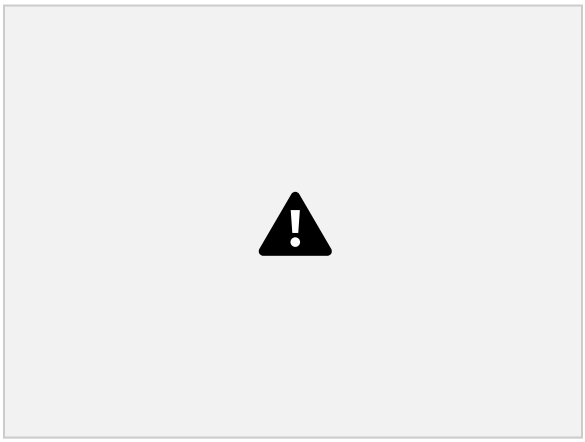
All exterior lights should be checked for proper operation each time the vehicle is prepared for a trip. Any bulbs which fail to light should be checked and replaced, when necessary, with a new bulb of the same size. A failure of more than one light, such as both taillights not operating, may indicate a burned out fuse. Check fuse and replace with one of the same rating when necessary. If a fuse is not the cause of the problem, the wiring system should be checked immediately by an authorized service center.

Further Information

Refer to the chassis manual in your InfoCase for further information.

VALVE STEM ACCESS

(Mercedes-Benz® Sprinter Chassis)



Front Wheel Valve Stem Access on 18-Hole Steel Wheel with Push-On Full Wheel Trim

–If Equipped

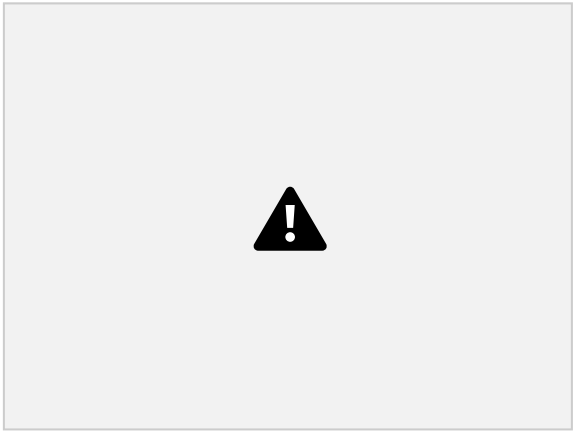
1. Obtain a double angle push/pull truck tire gauge



2. Locate the 6” valve cap tool (provided in your InfoCase).



3. Push the end of the valve cap tool onto the front wheel valve stem cap.



4. Using the valve cap tool as a remote handle, unscrew the valve stem cap (retaining cap in the end of the valve cap tool).
5. Adequate clearance is available to insert the tire gauge onto valve stem.
6. When tire pressure testing is complete, reinstall the valve stem cap (with the cap still retained in the valve cap tool end).
7. Remove valve cap tool from valve stem cap.

Rear Inner Dual Valve Stem Access on 18-Hole Steel Wheel with Push On Full Wheel Trim or Stylized Wheels

–If Equipped

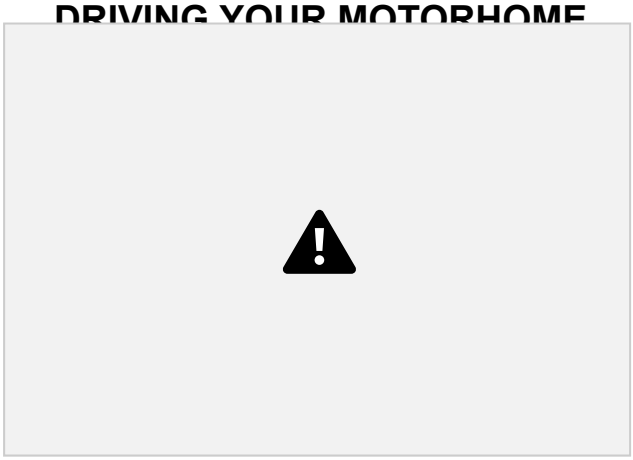
1. Obtain a double angle push/pull truck tire gauge.



2. Locate the 6” valve cap tool (provided in your InfoCase).

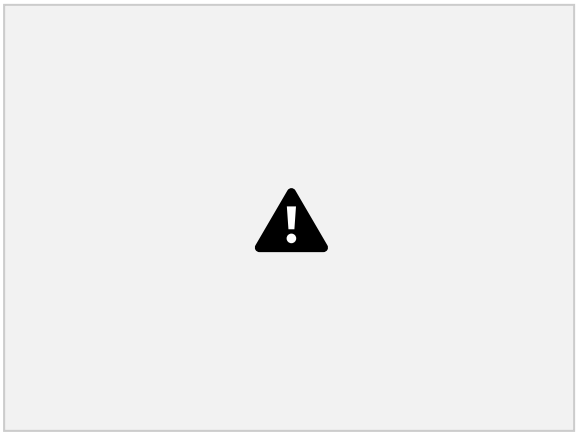


3. Push the end of the valve cap tool onto the rear inner dual valve stem cap.



Inner rear dual Valve cap tool

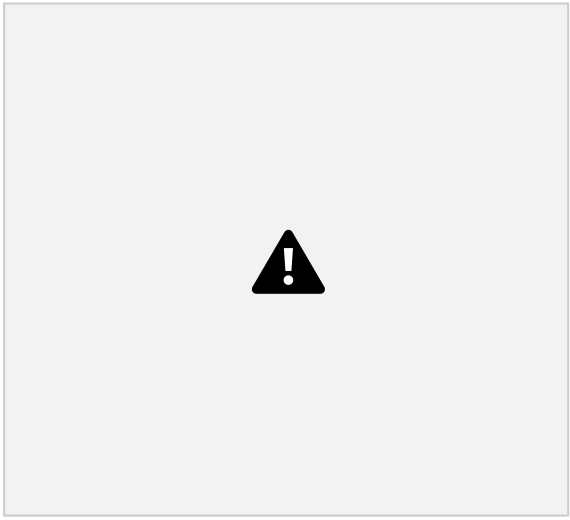
4. Using the valve cap tool as a remote handle, unscrew the valve stem cap (retaining cap in the end of the valve cap tool).



18-Hole Steel Wheel with Push-On Full Wheel Trim
-Typical View

NOTE: If the valve stem cap and valve stem extension unscrew as an assembly, pull the assembly out of the valve cap tool end, remove valve stem cap, insert valve stem extension into valve cap tool, and reinstall valve stem extension onto valve stem until snug.
Pull off valve cap tool and re-insert valve stem cap into end of hose.

5. To check inner dual tire pressure, use the long handle of the tire gauge to control alignment and avoid misaligned valve stem deflection.



6. When tire pressure testing is complete, reinstall the valve stem cap (with the cap still retained in the valve cap tool end).
7. Remove valve cap tool from valve stem cap.

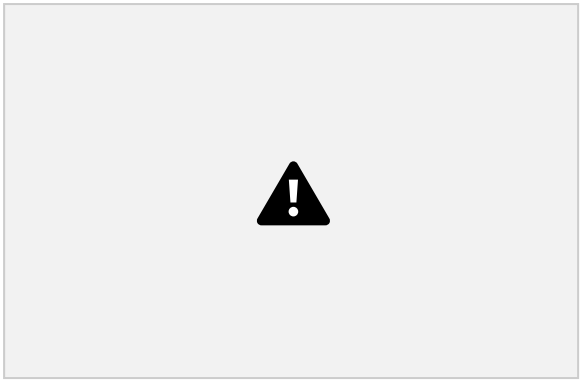
Rear Outer Dual Valve Stem Access

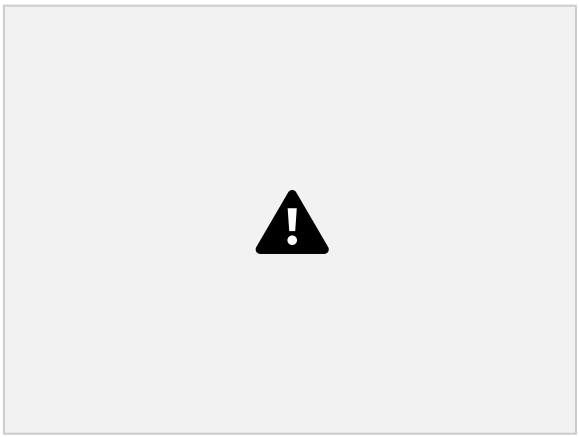
NOTE: Rear Outer Dual is equipped with a fill through extension (no valve stem cap).

1. Obtain a double angle push/pull truck tire gauge.



2. To check rear outer dual tire pressure, use the long handle of the tire gauge to control alignment on the fill-through extension.





(Shown without wheel liner for unobstructed view)

TIRES

Improper tire pressure can result in tire overloading and abnormal wear and also affects handling, ride characteristics, and fuel economy.

WARNING

Make sure all replacement tires are of the same size and rating as those shown on your Vehicle Certification Label.

SUSPENSION ALIGNMENT AND TIRE BALANCE

The front suspension and steering system of this vehicle was factory aligned using highly accurate equipment prior to delivery to the dealership. However, alignment should be checked and adjusted after you have fully loaded the motorhome according to your personal needs. Thereafter, the alignment should be periodically inspected to help prevent uneven tire wear.

Any excessive or abnormal tire wear may indicate worn or misaligned suspension or steering, unbalanced tire, or other tire/suspension problem.

Alignment can be affected by worn steering/ suspension parts or by incidents which happen during driving, such as hitting a curb, pothole, or railroad track, etc. Improper alignment can cause

tires to roll at an angle and wear unevenly. It may also cause the vehicle to “pull” to the right or left. Have your dealer inspect your vehicle’s suspension and steering components periodically for misalignment or wear.

Out-of-balance tires will not roll smoothly and can lead to vibrations and uneven tread wear, such as cupping and flat spots. Tires may need to be balanced if uneven wear is detected or if ride comfort decreases noticeably.

Further Information

Refer to the chassis manual provided in your InfoCase for further information.

SECTION 4 – APPLIANCES AND SYSTEMS

The appliances installed in your motorhome are manufactured by reputable RV appliance makers and have been tested by independent laboratories to meet all applicable standards and codes set for RV appliances.

See *Section 2 - Safety and Precautions* of this manual for any safety and precautions you need to take regarding the operation of your appliances.

REFRIGERATOR

The refrigerator in your motorhome can operate from either of two energy sources available to the motorhome:

• 120-Volt AC Electric-through 12V converter power

• 12-Volt DC Electric

WARNING

Do not let children play inside the motorhome unattended. Unlike your home refrigerator/freezer that one could push open the door from the inside, your motorhome refrigerator has a travel latch and when engaged would trap a child inside resulting in suffocation leading to death or serious injury.

NOTE: The refrigerator will retain temperature more efficiently if food is cold before placing inside.

Further Information

Refer to the manufacturer's user guide provided in your InfoCase for complete operating instructions, safety precautions, and maintenance information.

RANGE TOP (GAS/ELECTRIC) –If Equipped

NOTE: See the appliance manufacturer's user guide provided in your InfoCase for complete operating instructions and safety precautions.

The range in your motorhome operates on propane gas and electricity and will provide most of the functions of the range in your home.

Refer to the appliance manufacturer's user guide provided in your InfoCase for complete range features and operating instructions.

Switch on the Refrigerator

The refrigerator control ranges from "1", cold setting, to "7", coldest setting. When you start up the refrigerator, turn the thermostat to a colder setting. Allow 24 hours for your refrigerator to cool completely before storing food. Then adjust the thermostat by one increment at a time to the desired temperature.

To Light Gas Burner

- Depress the burner knob and turn 1-2 seconds counter-clockwise to the HI position (maximum rate), push in and hold the knob until the flame has been lit. If the burner does not light in HI position, try again with the knob in LOW position.

NOTE: If the burner does not light within about ten seconds or if the flame should go out during cooking, turn the burner off. If gas has accumulated and a strong gas odor is detected, open a window and wait 5 minutes for the gas odor to disappear before relighting the burner.

If the appliance has not been operated for a period of time, the surface burner may be difficult to light due to air in the gas line.

- To extinguish the burner flame, turn the burner knob clockwise to the OFF position.

Avoiding Asphyxiation

The following warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion.

DANGER

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

WARNING

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

Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliances avoids dangers of asphyxiation.

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

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

WARNING

Portable fuel-burning equipment including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle can cause fires or asphyxiation. Failure to comply could result in death or serious injury.

MICROWAVE/CONVECTION OVEN

–If Equipped

Refer to the manufacturer's user guide located inside the appliance for complete operating instructions.

NOTICE

Do not store items in oven.
If oven would turn on stored items can ignite resulting in fire and or property damage.

ONEPLACE® SYSTEMS MONITOR PANEL

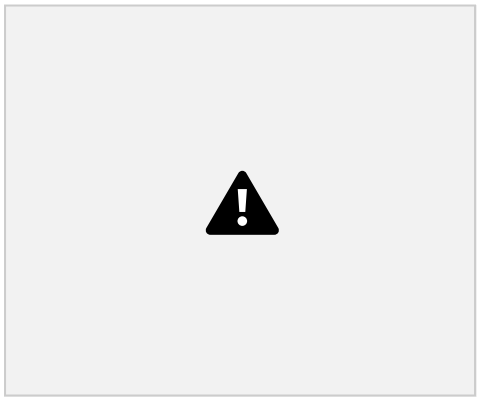
The OnePlace Systems Monitor Panel provides a convenient, central location for checking the condition of all utility systems in your motorhome.

At the touch of a button, the monitor panel will display the fresh water and holding tank levels, propane gas tank level, plus the chassis battery and house battery condition. You can start the generator and check the generator hourmeter or turn on the water pump and water heater.

Generator Start/Stop Switches and Hourmeter

(Not available on motorhomes equipped with a diesel generator)

See *Section 6 - Electrical* for generator start up/shut-down and generator hourmeter instructions.



Sensors

Water Tank
-Typical View

Gen
Hourmeter

Typical - Your motorhome may or may not be equipped with all of the features shown.

Water And Holding Tank Levels Press the Tank Levels switch to show approximate levels on the LCD screen.



Tank Levels Switch

The approximate fluid levels are measured by electronic sensors on the sides of the tanks. Tank levels are displayed as 1/3, 2/3, and Full (F). There is generally more fluid in a tank than indicated on the monitor panel.

Tank Capacities

See "Tank Capacities" in *Section 1 - Introduction*.

Propane Gas Level

Press the Tank Levels switch to show approximate propane tank level.

The propane level is registered by a sending unit on the tank. The gauge mounted on the side of the tank will give a more accurate indication of actual tank level if needed.

Battery Charge Meter

Press the Battery Levels switch to check the level of charge (voltage) in the chassis and house batteries.



Battery Levels Switch

To get an accurate reading:

- Both the chassis engine and the generator engine must be shut off and 120-volt AC shoreline unplugged.

- An interior light should be turned on to provide a small load which draws off the battery surface charge.

Water Pump Switch

When use of the self-contained water system is desired, press the Pump switch (press once to get to the desired screen, and a second time to activate or deactivate.) Water will be available as soon as a faucet is opened.



Water Pump Switch

Refer to *Section 7 - Plumbing* for additional information on the water pump and initial start up.

NOTE: Some models may be equipped with a Water Pump switch in the water service center on the outside of the motorhome or within the bathroom area for your convenience.

SOLAR CHARGE PANEL **–If Equipped**

The roof-mounted Solar Charge Panel uses the sun to help keep your house batteries charged. A Solar Charge Controller is located near the monitor panel to show you when the Solar Charge Panel is actively charging the house batteries.

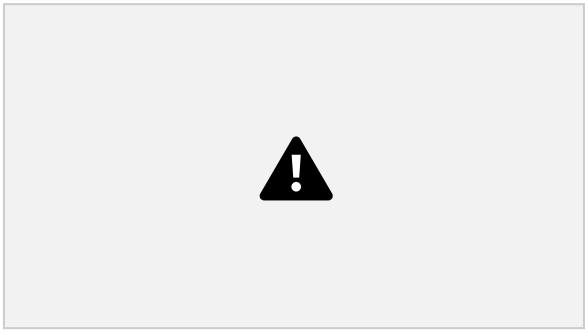
The solar charging system installed in your motorhome has a maximum input rating of 510 Watts. Every solar panel connected to the system needs to be accounted for, this includes all roof mounted panels and the ground level single solar port.



Solar Charge Controller
(Located near monitor panel)
-Typical View

3-Port Solar Cap

The Port Solar Cap (located on the roof) is intended to make it easy to add additional solar panels to the roof. The 3 -Port Solar Cap when fully loaded has a maximum input rating of 450 Watts.

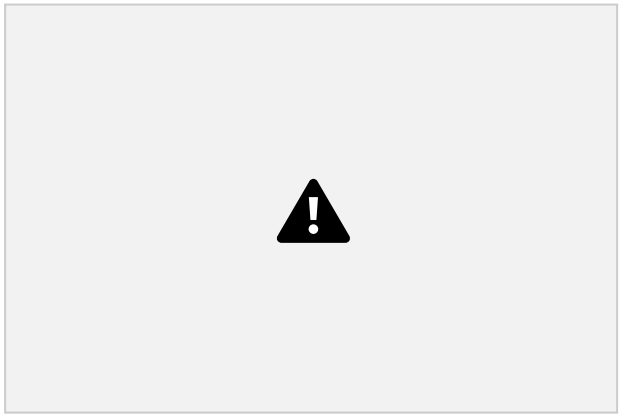


3-Port Solar Cap
(Located on the roof)

Single Solar Port

–If Equipped

The Single Solar Port (located at ground level) is for using a portable solar panel, it has a maximum input rating of 150 Watts. The Single Solar Port is connected to the coach batteries through the solar charge controller (located inside rear driver side exterior compartment). When connecting a portable solar panel, a separate solar charge controller is not needed and will reduce the effectiveness of the portable solar panel.



Single Solar Port
(Located inside rear driver side exterior compartment)

NOTE: The Solar Charge Panel is not intended to make the coach battery system "maintenance free." The solar panel will not completely compensate for continuous low amperage draw from components such as the propane gas leak detector (if equipped), the dash radio clock, and the radio station memory circuitry, for example. Although the Solar Charge Panel can help to extend battery life, the motorhome shoreline should be plugged in routinely to "top off" the batteries. We also recommend following regular battery inspection and maintenance, especially in cold weather. See "Battery Care" in Section 6 - Electrical.

Further Information

Refer to the manufacturer's user manual provided in your InfoCase for complete operating instructions.

SECTION 4 – APPLIANCES AND SYSTEMS

WATER HEATER – GAS TANKLESS WITH DECALCIFICATION

–If Equipped

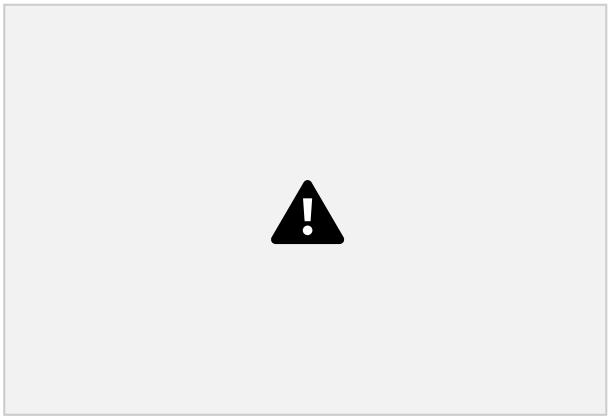
The Gas Water Heater operates from propane gas. In Comfort mode, the recirculation pump inside the water heater recirculates the hot water in the lines to ensure instant hot water at any faucet. To conserve propane gas and power, choose the Economy mode.

See the Water Heater manufacturer's operation manual provided in your InfoCase for complete operating instructions, safety warnings, decalcification instructions, and maintenance information before operating the Water Heater.

1. **Be sure the Water Heater is filled with water before starting the Water Heater.** To fill the Water Heater, turn the Water Pump switch ON and open water faucets anywhere in the motorhome. When water begins to flow steadily from the faucet, the Water Heater is full. Close all water faucets.
2. **Turn on the Water Heater:** Turn "ON" the Water Heater Power Switch (located behind the water heater access panel on exterior of motorhome) by pressing up or down. When the water heater is on, a green light will illuminate above the switch.

NOTE: Both on positions on the power switch have the same function.

SECTION 4 – APPLIANCES AND SYSTEMS



Water Heater Power Switch
(Located behind water heater access panel on exterior of the motorhome)

3. **To select an operating mode**, rotate the switch (located in the lavatory) to the operating mode of your choice.

• Rotary Switch



• ECO

• Comfort

• OFF

• Freeze Prevention (Antifreeze) *see manufacturer's operation manual - kit is required*

• Decalcification

Propane Gas Water Heater Control Panel (Located in the lavatory)

To conserve gas and power, use the "ECO" switch position. This will maintain a temperature above 41°F (5°C) in the Truma AquaGo™ instant water heater.

For maximum comfort (rapid availability of hot water at the faucet), use the "Comfort" switch position. This will maintain a temperature above 102°F (39°C) in the appliance and the hot water lines in the motorhome.

4. **To turn off the Water Heater.** First turn the control panel (located in the lavatory) to the OFF position. Then turn the Water Heater Power Switch (located behind water heater access panel on exterior of the motorhome) to the OFF position.

Decalcification

Lime scale occurs especially as a result of precipitation from "hard" water. The appliance must be decalcified regularly depending on water hardness and hot water consumption.

See the Water Heater manufacturer's operation manual provided in your InfoCase for complete decalcification instructions and frequency.

Further Information

See the Water Heater manufacturer's operation manual provided in your InfoCase for complete operating instructions, safety warnings, decalcification instructions, and maintenance information.

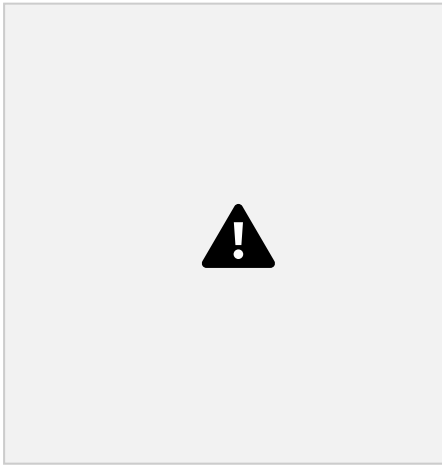
See the Water Heater manufacturer's operation manual provided in your InfoCase for complete operating instructions.

The AquaGo™ comfort plus is equipped with a circulation pump. The circulation pump as well as the burner are switched on automatically by the control unit in order to keep the water temperature above a certain level (102°F (39°C) in "Comfort" mode and 41°F (5°C) in "ECO" mode).

FURNACE – PROPANE GAS –If Equipped

To Start Up

5. Press the MODE button to select Heat and press the Temp Selector button (up/down arrows) until the desired temperature is shown on the display.



Temp Selector buttons • Press the UP arrow to increase temperature. • Press the DOWN arrow to decrease temperature.

MODE
• Press MODE button to select Heat.

NOTE: Press any button once to wake the thermostat display.

6. The furnace fan should start to blow immediately after setting the thermostat. 7. After approximately 30 seconds, the furnace burner should light.

8. The furnace should now cycle off and on automatically as the thermostat demands just like a household furnace.

If heat does not come out of the heat ducts after a minute or so, the burner is not lit. Turn

We recommend that you provide adequate ventilation when using the furnace for the first time to avoid a nuisance smoke alarm. We do not recommend removing the smoke alarm battery.

To Shut Down

• Press the MODE button to select OFF. • Turn OFF Propane Gas Tank switch if motorhome will be stored for a period of time.

Further Information

Refer to the manufacturer's user guide provided in your InfoCase for further information, including operating precautions, and periodic maintenance. See "Motorhome Maintenance Chart" in S*ection 11 - Maintenance and Storage* for recommended intervals.

the thermostat OFF for 3-5 minutes, ensure Propane Gas Tank switch is on and tank is not empty, then repeat Steps 2-4.

If the furnace will not light after three attempts, go to "Shut Down" steps and contact your dealer or a local RV service center for repair.

NOTE: If the furnace burner has any residuals of metal protectant or lubricants used during manufacture of the furnace, it may smoke slightly when the furnace is used for the first time and may set off your smoke alarm.



Manual Valve located directly on LP Tank

HEAT PUMP

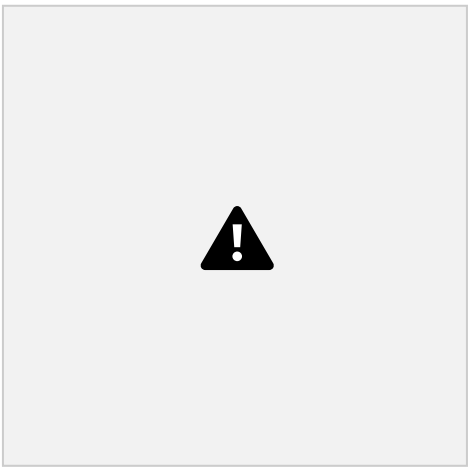
–If Equipped

Your motorhome may be equipped with an air source Heat Pump built into the air conditioning system. Because the Heat Pump operates on electricity, it provides economical heat inside your motorhome and helps reduce the use of propane gas for heating in cooler weather.

A Heat Pump can be thought of as an air conditioner running in reverse. An air conditioner absorbs heat from the air on the inside of the motorhome and moves it to the outside. The Heat Pump does exactly the opposite. Even cold air contains some heat, so a Heat Pump will extract heat from the outside air

on a cold day and carry it to the inside of the motorhome to maintain a comfortable temperature.

The efficiency of a Heat Pump decreases as the outdoor air temperature drops, so supplementary heat is often needed when the outside temperature nears freezing. This system is set to automatically start the propane furnace to assist the Heat Pump if room temperature cools to five degrees or more below the thermostat set temperature. You may wish to manually switch to furnace heat to maintain a higher temperature when outside temperatures begin to reduce the efficiency of the Heat Pump. The Heat Pump will not operate when the outside temperature falls below 36 degrees F.



• Gas Heat = Propane Furnace
• **Electric Heat = Heat Pump**
• Cool = Roof Air Conditioner

-Typical View

To Operate the Heat Pump

Refer to the manufacturer's user guide provided in your InfoCase for complete operating instructions.

Check Your Air Filter

Closed or blocked vents and a dirty air filter can hinder the efficiency of a Heat Pump. • Ensure ceiling vents are open to distribute Heat Pump output air.

• The A/C return air filter should be checked

monthly for dirt build-up and cleaned or replaced as needed. See “Air Conditioner Filter” elsewhere in this section.

DUCTED ROOF AIR CONDITIONING SYSTEM The furnace thermostat also controls ducted roof air conditioner operation when the Thermostat switch is placed in “Cool” position. All cooling functions controlling to setpoint have a short cycle protection time delay of three minutes. There will be no delay if the cycle OFF time exceeds three minutes.

NOTE: The ducted roof air conditioning system has ceiling registers that can be closed if necessary to force more cool air toward a specific area of the motorhome or to route cool air away from a specific area. If too many vents are closed, however, it can cause the air conditioner unit to shut down, particularly in high humidity conditions.

Further Information

Refer to the manufacturer’s user guide provided in your InfoCase for complete operating instructions.

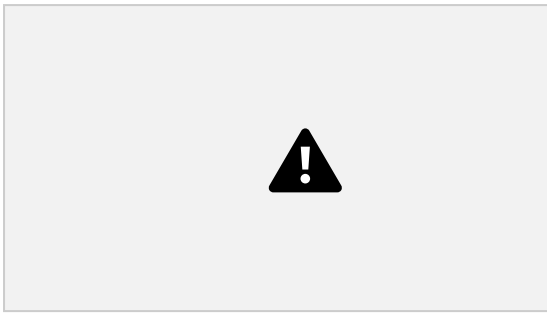
AIR CONDITIONER FILTER The washable foam air conditioner filter is located in the ceiling-mounted return A/C grille in the lounge area of the motorhome.

It is recommended to check the filter monthly for dirt build-up and cleaned or replaced, as necessary.

SECTION 5 – PROPANE GAS

PROPANE GAS SUPPLY The propane gas system supplies fuel for the gas range, water heater, furnace, accessory port, and generator (if LP generator option). When used and handled properly, this system is safe and economical and provides modern living conveniences wherever you travel.

See *Section 2 - Safety and Precautions* in this manual for other safety and precautions you need to be aware of related to propane.



How Propane Gas Works

Propane is a type of LP (Liquefied Petroleum) gas compressed into liquid form for easy transportation and storage. Propane gas may also be called tank gas, bottle gas, or simply LP. Propane is used by appliances in vapor form only, but is stored in the tank as a liquid under very high pressure. As the liquid gas is released, it reverts back to a vapor and expands to many times its compressed volume.

Propane Tank System

The storage reservoir for the propane gas system is a horizontally mounted tank which is permanently attached to the vehicle. The tank is accessible only from the outside of the vehicle.

(located on the underside of the propane tank)



Propane Tank Features
-Typical View

WARNING

Do not alter or remove propane tank valves or gauge. Propane can escape, which can cause an explosion resulting in death or serious injury. Have the propane system serviced by a qualified service center.

Refilling Propane Tank

Since the propane tank is permanently mounted to the vehicle, the motorhome must be taken to a propane dealership for filling. Do not attempt to remove the propane tank from the vehicle. The tank is equipped with a fill adapter with both internal and external threads, which allows easy filling with any propane filling equipment. The tank is full when liquid propane gas appears at the overflow valve.

NOTE: The propane tank is equipped with an automatic 80% stop-fill device.

SECTION 5 – PROPANE GAS

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

WARNING

Do not fill propane container(s) to more than 80 percent of capacity. A properly filled container contains approximately 80 percent of its volume as liquid propane. Overfilling propane container(s) can result in uncontrolled propane flow, which could lead to a fire or explosion and result in death or serious injury.

WARNING

This propane piping system is designed for use with propane only. Do not connect natural gas to this system. Securely cap inlet when not connected for use. After turning on propane, except after normal cylinder replacement, test propane piping and connections to appliances for leakage with soapy water or bubble solution. Do not use products that contain ammonia or chlorine to test for leaks. Can lead to a fire or explosion, which could result in death or serious injury.

DANGER

Selecting Propane Fuel Types We recommend using straight propane in your propane tank. Propane gas is commonly available at all propane gas outlets in the U.S.

(According to the National Propane Gas Association, propane gas outlets in the United States do not offer any other type of liquefied petroleum gas than propane to the general public.) Check local phone directory yellow pages for locations of local propane gas refilling stations or bulk dealerships.

NOTE: If you travel outside the U.S. with your motorhome, you may find butane or propane/butane mixtures available in addition to propane. Because gas burning RV appliances are designed to run on propane only, we recommend that you request straight propane only. Butane burns about 30 percent hotter than propane and can overheat some appliances, particularly refrigerators, and cause permanent damage. Other appliances designed to operate on propane can become sooted and lose efficiency by using butane fuel.

Air in the Propane Gas Tank If your gas appliances do not stay lit or require frequent adjustment, even though you know the propane tank contains sufficient fuel, the problem may be air in the propane gas tank. Air in the tank mixes with the propane gas vapors causing them to burn poorly. This condition could linger for weeks if the air is not purged from the tank. Most propane gas dealers have equipment for purging air from propane gas tanks and will purge before refilling the tank.

SAFE USE OF THE PROPANE GAS SYSTEM

The propane system is designed and built with strict adherence to national, state, and recreational vehicle industry requirements for mobile propane gas equipment.

For your safety, there are many safety devices and backup systems installed, such as fill overflow valves, an interior propane gas detector/ alarm, and an interior carbon monoxide (CO) detector/alarm.

Propane gas also contains an odor additive that you can smell if propane is present in the air. Here are a few precautions to observe that will help you to use the propane gas system safely: • Exercise caution at all times. Be familiar with the distinctive odor of propane gas. If a leak is suspected, turn off the supply valve immediately. Have the propane gas system checked by your dealer or other qualified propane gas service center.

• Do not tamper with the propane gas piping system, pressure regulator, or gas appliances. Service and maintenance of propane gas system components should be performed only by your dealer or a qualified propane gas service center.

• Never attempt to connect natural gas to the propane gas system.

• Have the entire propane gas system inspected for possible leaks and missing or damaged parts at each filling. Also inspect before and after each trip, and any time trouble is suspected.

• Turn the propane supply valve off when not using the propane gas system.

• Never use a wrench to tighten the supply valve. It is designed to close leak-tight by hand. If a wrench is required to completely close the valve, it is defective and must be replaced.

• Be sure appliance and outside vents are open and free from obstruction when using the propane gas system.

• Never attach a lock or any device requiring a key to the propane compartment door. According to standards set for recreation vehicles, the propane supply valve must be readily accessible in an emergency.

• Exercise caution when drilling holes or

attaching objects to the walls. Gas lines and electrical wiring could be seriously damaged and present an extreme safety hazard.

PROPANE GAS WARNINGS AND PRECAUTIONS

It is illegal for vehicles equipped with propane container to travel on certain roadways or through certain tunnels in the U.S. To avoid inconvenience, check state regulations concerning flammable gas transportation.

Propane Gas Leaks

The following label is located in the vehicle near the range area. If you smell gas within the vehicle, quickly and carefully perform the procedures listed.

SECTION 5 – PROPANE GAS

DANGER

IF YOU SMELL PROPANE

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

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

water heater. They contain carbon monoxide, which is an odorless, colorless, and poisonous gas.

WARNING

Do not place propane cylinders inside the vehicle.
Propane cylinders are equipped with safety devices that relieve excessive pressure by discharging propane to the atmosphere.
Propane gas is highly flammable. Can lead to a fire or explosion and result in death or serious injury.

- All pilot lights must be extinguished and appliances and their ignitors turned off while refilling the fuel tank or propane container.
- Never smoke while refilling vehicle fuel tank or propane gas container.
- Avoid inhaling exhaust gases produced by burned gasoline, diesel fuel, or propane gas in items such as the range, chassis engine, generator engine, refrigerator, furnace, and

- Never use an open flame to test for propane gas leaks. Replace all protective covers and caps on propane system after filling. Make sure valve is closed and door latched securely.
- Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.
- Regulators are equipped with a protective cover. Make sure that the regulator vent

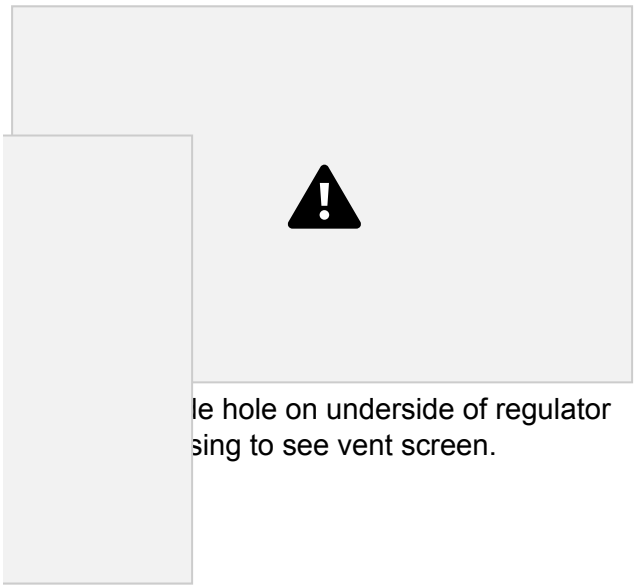
faces downward and that the cover is kept in place to minimize vent blockage, which could result in excessive gas pressure causing fire or explosion.

PROPANE GAS PRESSURE REGULATOR

The pressure regulator is protected from the elements by a plastic cover, which should be left in place at all times.

Propane regulators must always be installed with the regulator vents facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage that could result in excessive propane pressure causing fire or explosion.

Only your dealer or a qualified propane gas service should remove the regulator cover for adjustments.



le hole on underside of regulator
sing to see vent screen.

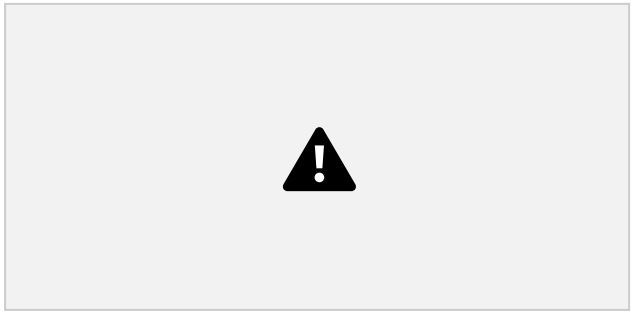
WARNING

Visually inspect the pressure regulator vent periodically for blockage by accumulated debris or insect nests, etc. Vent obstruction could result in excessive pressure causing fire or explosion, which could result in death or serious injury. If an obstruction exists, have the regulator serviced by a qualified service center.

Be sure vent hole is not blocked.

Regulator Freeze-up

Regulator freeze-ups are caused by the presence of moisture in fuel. This moisture will pass through the cylinder valve and into the regulator where it can freeze. Fuel producers, tank and bottle manufacturers, and propane gas dealers take every precaution to reduce moisture,



Gas Pressure Regulator
-Typical View

but sometimes only a fraction of an ounce entering the tank can cause problems. To help avoid the possibility of freeze-up, always keep tank control valve closed when not in use, even when tank is empty, to prevent moisture from collecting on the inside.

If regulator freeze-up should occur, you may attempt to thaw the regulator using a light bulb. **DO NOT USE AN OPEN FLAME OR HEAT LAMP.**

If moisture begins to cause problems, have your propane gas dealer inject a small amount of dry methyl alcohol in your tank (approximately

one ounce to 20 pounds or one pint to 100 gallons) to help guard against regulator freeze ups.

PROPANE VAPORIZATION IN COLD WEATHER

Propane gas vaporization increases and decreases in direct relation to ambient temperature. In other words, the lower the temperature, the slower the liquid propane will vaporize into a usable gas for appliances.

This means that in extremely cold weather when a large volume of gas is being used by the furnace for heating, it is possible to experience a loss of gas pressure.

At first, this problem may appear to be caused by an empty tank or a regulator freeze-up, but is actually caused by failure of the liquid gas to vaporize as fast as it is needed by the furnace.

The demand for propane to produce heat increases to the point where the gas cannot vaporize fast enough to keep the furnace going. The only solution to this problem is to reduce gas usage where possible.

Adjusting the temperature on the gas/electric refrigerator may be a first step. Using less hot water will also help, as well as refraining from using the gas cooktop. A final step is to lower the thermostat setting to reduce gas usage by the furnace.

SECTION 6 – ELECTRICAL

Your motorhome is equipped with an electrical system consisting of two separate voltages:

• 12-volt DC system (battery current); and • 120-volt AC system (household current) The 12-volt system consists of two internal power sources, while the 120-volt system is operated from an outside power source or the optional 120-volt generator.

ELECTRICAL CAUTIONS

• Careless handling of electrical components can be fatal. Never touch or use electrical components or appliances while feet are bare, while hands are wet, or while standing in water or on wet ground.

• Improper grounding of the vehicle can cause personal injury. Do not plug the utility power cord into an outlet which is not grounded and do not adapt the plug to connect to a receptacle for which it is not designed.

• Do not attach an extension cord to the utility power cord.

• Be sure that all electrical appliances to be used contain 3-prong plugs for proper grounding. • Avoid overloading electrical circuits. Replace fuses or circuit breakers with those of the same size and amperage rating only. Never use a higher rated fuse or breaker.

• Use caution when handling or working near electrical storage batteries. Always remove jewelry and wear protective clothing and eye covering. Avoid creating sparks.

ELECTRICAL SYSTEM – HOUSE 120-VOLT AC

The 120-volt system operates from the shoreline cord connected to an outside 120-volt utility service, such as those at campgrounds or from the 120-volt generator. When the shoreline cord is connected to an outside power source, or when the auxiliary electric generator is running, the power converter automatically changes a portion of the 120-volt current to 12-volt DC current. All equipment in the motorhome that is normally powered by the house batteries is then powered through the converter.

In addition, the following equipment is entirely dependent on 120-volt current: air conditioner, microwave oven, and any 120-volt electrical equipment used at convenience outlets.

POWER CORD – EXTERNAL

(Shoreline)

WARNING

Do not use an extension cord. Improper sized cords, damaged cords, and poor connections can lead to fire, which can result in death or serious injury.

WARNING

Do not connect the external power cord to any receptacle until you have verified proper polarity and grounding. Be sure all prongs of the supply cord are properly plugged into the receptacle. Failure to observe can result in death or serious injury.

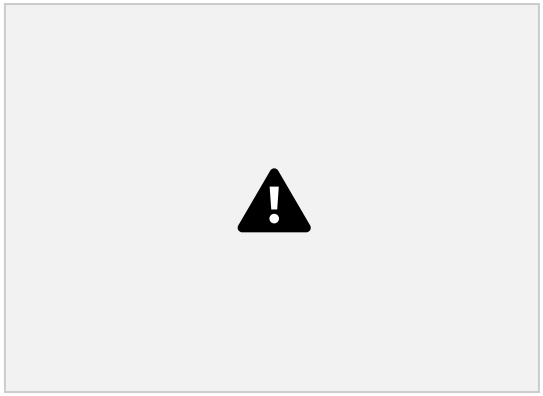
The external power cord (commonly referred to as a “shoreline”) is located in a compartment on the left (driver’s) side of the motorhome.

To connect to an external power source, remove the power cord from the utility compartment and plug it into a suitable power outlet box.

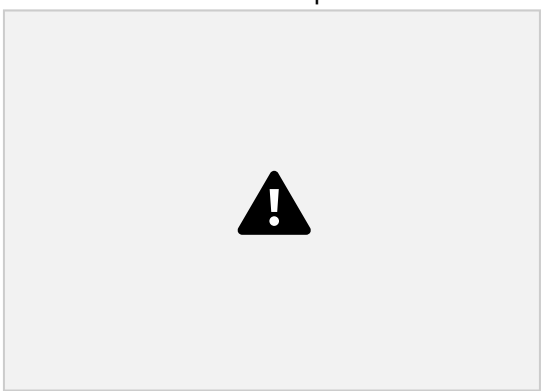
SECTION 6 – ELECTRICAL

Power Cord QuickPort®

The flip-down QuickPort hatch lets you route the power cord out the bottom of the compartment so you can close the compartment door while the power cord is connected.



• Swivel the latch aside and drop the hatch



30 Amp Receptacle

WARNING

This connection is for 110/125 Volt AC, 60 Hz 30 Ampere supply. Do not exceed circuit rating. Exceeding the circuit rating may cause a fire and result in death or serious injury.

The power cord is designed to ground the electrical system through the receptacle. It is also designed to carry the amperage output of most campground outlets. If the electrical receptacle to be used is designed to mate with the prongs of the power cord plug, the electrical connection can be expected to carry rated load.

• Swivel cover section to access cord notch



• Route cord through notch and flip hatch back up into place and close the compartment door

WARNING

Service inlet access must be closed when utility connections are not in use.

Park Fuses or Breakers

Most campgrounds are equipped with a fuse or circuit breaker at the receptacle (which we recommend shutting off before engaging or disengaging the power cord.) This protects the park's wiring, as well as the power cord on your vehicle from electrical damage. If electrical power fails, contact the park attendants and have them check the fuse or breaker for your supply receptacle.

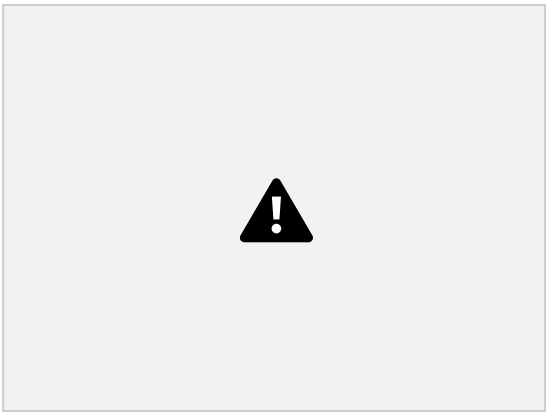
INVERTER/CHARGER UNIT – 2000W (PURE SINE WAVE) **–If Equipped**

The 2000-watt inverter/charger has an AC input circuit breaker to protect the inverter/ charger from overloads. The inverter/charger also has "built in" features that protect the system from abnormal conditions. See the inverter/ charger information included in your InfoCase for a complete explanation of the system and operating instructions.

NOTE: The inverter is not intended for steady use while "dry camping". Batteries will deplete quickly with use of the inverter. The inverter is intended for limited, short term power usage when not connected to shoreline or generator power.

The inverter can also be used while driving the motorhome because the engine alternator will charge the batteries while driving.

The inverter/charger unit is accessible through a mid-passenger side compartment door.



Inverter Charger Unit
(Accessible through mid-passenger side compartment door)

NOTICE

Do not store items too closely around the inverter unit in the storage compartment. The inverter generates heat while operating and needs unrestricted airflow for proper cooling. Damage to the inverter can result.

The inverter converts 12-volt DC current from the house batteries into 120-volt AC current for use by 120-volt AC equipment in the motorhome.

Charging Section

While connected to 120-volt external power, the inverter/charger will recharge the house batteries using a 3-stage battery charger. It will also supply 12-volt DC current for use by 12-volt equipment in the motorhome.

If the house batteries have been significantly discharged, they will accept charge at a relatively high amperage rate. If they are only slightly discharged, they will charge at a lower amperage rate. The rate of charge will decrease as the batteries reach full charge, then will continue "trickle" charging at a very low amperage rate.

If the batteries do not charge as described above, it is possible the batteries are defective. If the batteries are extremely discharged, the charger may not be able to recharge the batteries.

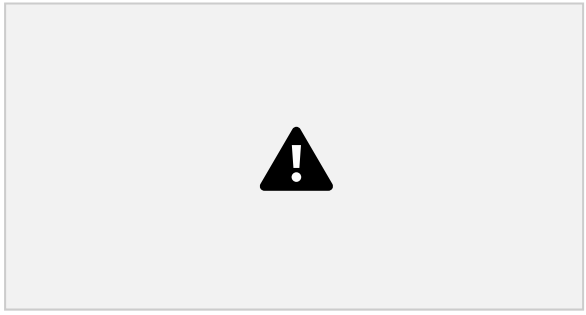
NOTE: Do not leave the shoreline plugged in during storage. Follow regular battery inspection and maintenance.

Inverter/Charger Control Panel

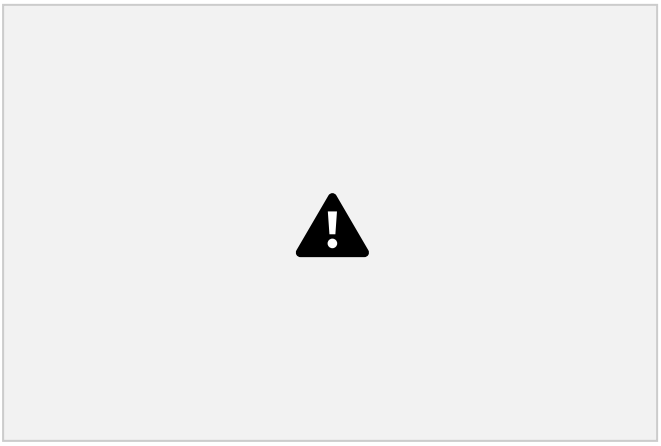
The inverter/charger has a wall-mounted control panel that can be programmed for several charging options. It will also display warnings for overload conditions or other operating failure conditions.

The inverter/charger control panel is located near the monitor panel or near the slideout control switches, depending on model.

SECTION 6 – ELECTRICAL



When the inverter/charger is not being used, it should be shut off at the charger panel. The inverter/charger could drain the house batteries if the shoreline is not connected to external power and the inverter/charger disconnect switch is on.



Inverter/charger disconnect switch. (Located inside entrance door next to awning controls -typical view)

NOTE: Your coach may be equipped with a residential-style refrigerator, which will only operate on 120-volt AC. The residential refrigerator requires either the shoreline to be plugged in, the generator running, or inverter power. When the residential refrigerator is operating from inverter power, special care should be taken to ensure adequate

power is available from the house batteries and condition of the batteries should be monitored periodically. The inverter is not intended to power devices for long periods of time.

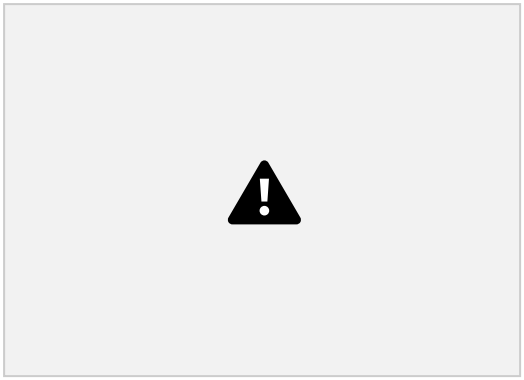
Further Information

See the inverter/charger manufacturer's user guide provided in your InfoCase for complete instructions and charging setup directions.

CIRCUIT BREAKERS – HOUSE 120-VOLT AC

The breaker panel protects all 120-volt components in the motorhome from either an overload on the circuit or a short in the wiring or component itself. When an overload or short develops, the breaker will open preventing damage to the system.

Shut off the equipment (example: roof air conditioner) and allow a brief cooling period. Then reset the breaker by moving the switch to "Off" and back to "On". If the breaker is continually tripped and no overload is evident, have the system checked for a short in the wiring or the appliances.



120-Volt Circuit Breakers
-Typical View

NOTE: Typical view of breaker panel. Breaker arrangement may vary according to appliance and equipment options. Fuses and breakers are labeled on panel.

ELECTRICAL OUTLETS – HOUSE 120-VOLT AC

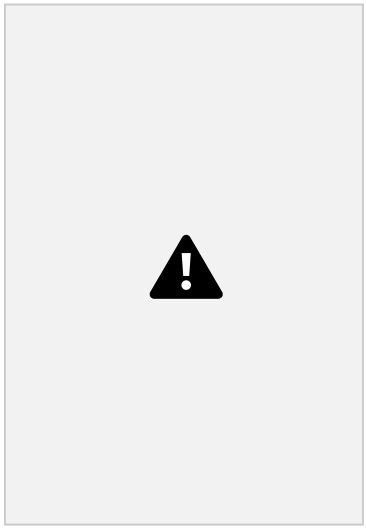
A number of standard household electrical outlets are provided throughout the motorhome for connecting small appliances such as televisions, radios, toasters, etc.

An exterior outlet is also located in the rear storage compartment on the passenger side of the motorhome.

GROUND FAULT CIRCUIT INTERRUPTER

Bath, galley, and exterior outlets are connected to a GFCI (Ground Fault Circuit Interrupter), which is an extremely sensitive circuit breaker that will help to protect against severe electrical shock if a ground fault develops. If such a condition occurs, the GFCI will break the circuit by turning off the power to the protected outlets. Should this occur, unplug all the appliances on that circuit and press the reset button on the GFCI equipped outlet.

If the GFCI keeps tripping, have the electrical system checked and repaired, if necessary, before using again.



• Push to Reset circuit after monthly testing or ground fault tripping.

• Push to Test at least monthly. Should break circuit. Press Reset button to reconnect.

GFCI Outlet
(Ground Fault Protector)

WARNING

The GFCI will not completely eliminate the risk of electrical shock. Infants and small children may still

be affected.

SECTION 6 – ELECTRICAL

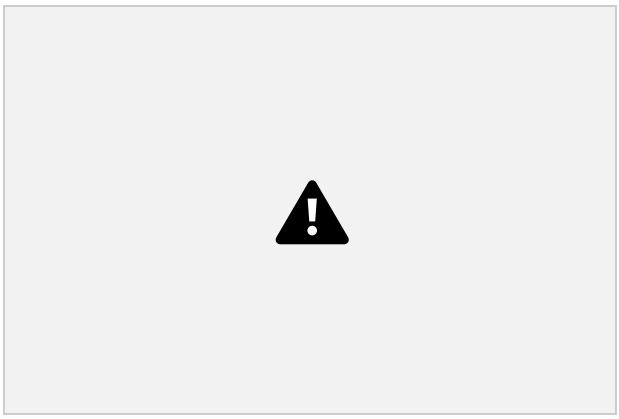
ELECTRICAL GENERATOR – 120-VOLT

–If Equipped

WARNING

Careless handling of the generator and electrical components can be fatal. Never touch electrical leads or appliances when your hands are wet, or when standing in water or on wet ground. Do not attempt to repair the generator yourself. Service should be performed by a qualified service center.

To use the 120-volt Generator, plug the power cord into the Generator receptacle within the utility compartment before starting the Generator.



Generator Power Cord Receptacle

Automatic Power Transfer Switch

Whenever the generator is needed, an automatic power transfer system automatically switches the household electrical system to the generator 30 seconds after the generator is started. The 30-second delay allows the generator to start easily without the burden of electrical loads.

SECTION 6 – ELECTRICAL

Generator Basic Operation (LP Generator)

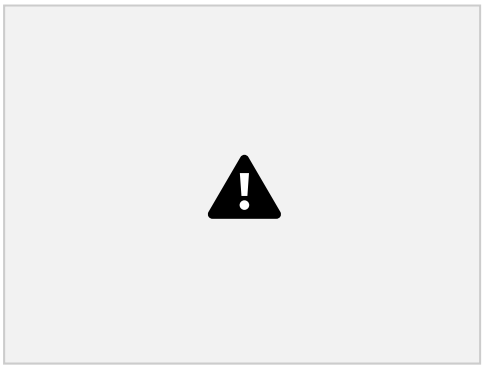
NOTE: If the GenSet Start or Stop switch is momentarily pressed, the monitor panel will automatically try to start or stop the generator.
Refer to the manufacturer's user guide provided in your InfoCase for additional information.

To Start the Generator

Press and Hold the GenSet Start button until you hear the Generator running smoothly, then release.

To Stop the Generator

Press and Hold the GenSet Stop button until you hear the Generator come to a full stop, then release.



LP Generator Start/Stop Buttons
(Located on monitor panel)

Generator Basic Operation (Diesel Generator)

NOTICE

If operating the generator, always maintain 1/4 tank of diesel fuel to ensure proper system operation.The generator will shut down if the diesel fuel tank is below 1/4 tank. The system is designed to prevent you from depleting the entire fuel tank.

To Start the Generator

- Press the Display ON/Gen OFF button once to wake the Generator.
- Once "GEN OFF" appears on the display screen, press and Hold the Generator Start button until you hear the Generator running smoothly, then release.

To Stop the Generator

- Press the Display ON/Gen OFF button.



Press to Stop/Prime Press to Start

-Typical View Diesel Generator Start/Stop Buttons (Located near monitor panel)

-Typical View

Generator Hourmeter

The Generator hourmeter registers the total number of hours that the Generator has been operated. Press the GenSet Meter button once to get reading.

Refer to the hourmeter to determine when periodic maintenance is due and to record services which have been performed.

The Diesel Generator display screen displays the Generator status, battery voltage, warning messages, and the total number of hours that the Generator has been operated.

Refer to the hourmeter to determine when periodic maintenance is due and to record services which have been performed.

SECTION 6 – ELECTRICAL

Operation Warnings and Cautions

Chassis Battery

WARNING

The exhaust of all internal combustion engines contains carbon monoxide (CO). This poisonous gas is colorless, odorless, tasteless, and lighter than air. The exhaust systems of both your motorhome engine and your generator engine have been installed with your safety in mind. However, certain precautions must be taken when using them to protect yourself from conditions beyond the control of the manufacturer.

- Do not simultaneously operate the Generator and a power vent, which could draw exhaust gases into the vehicle.
- Do not open windows or vents on the end or side of the vehicle where exhaust pipe of the Generator is located.

- Park the vehicle so that the wind will carry the exhaust away from the vehicle. Also, note the position of other vehicles to be sure their exhaust will not enter your vehicle.
- Do not operate the Generator engine while parked if vegetation, snow, buildings, vehicles, or any other object can deflect the exhaust under or into the vehicle.

Check Generator oil level frequently during periods of use. Refer to the Generator manufacturer's user guide provided in your InfoCase for specific recommendations.

Further Information

Refer to the Generator manufacturer's user guide provided in your InfoCase for specific recommendations, operating instructions and cautions, troubleshooting, and maintenance.

ELECTRICAL SYSTEM – HOUSE 12-VOLT DC

The DC voltage system consists of the chassis battery, the 12-volt house batteries, and the 12- volt power converter.

The chassis battery is used to operate the engine starter and automotive accessories and controls found on the instrument panel. The electric step is also connected to the chassis battery.

Refer to your chassis manual provided in your InfoCase for further information on chassis batteries and chassis electrical system.

House Batteries

House batteries are "deep-cycle" type batteries specially designed for recreational vehicle use. They will provide longer lasting power than standard automotive starting batteries and will withstand the frequent drain-and recharge cycles that occur under the demanding conditions of a camping outing.

The house batteries supply power to 12-volt equipment located in the living area of the motorhome. This includes the following 12-volt powered components (if equipped): interior 12-volt lighting, range exhaust fan, propane furnace fan, fresh water pump, systems monitor panel, refrigerator, roof vent fans, and 120-volt electrical generator starter.

House batteries are automatically charged by the chassis alternator while the engine is running.

HOUSE/COACH BATTERY DISCONNECT SWITCH **(COACH BATT)**

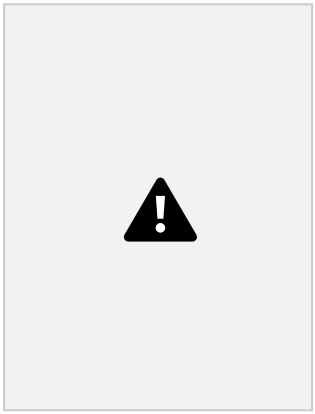
The House/Coach Battery Disconnect switch lets you disconnect the house batteries from the 12-volt system of your motorhome during storage periods to avoid battery drain by electrical items that are hooked directly to the house batteries, such as clock displays and radio memories, etc.

Always leave this switch ON when the vehicle is in motion or in use.

NOTE: Some electronic displays and memory functions may need to be reset after power has been reconnected.

Batteries will only be charged by the converter when on shore power if the disconnect switch is ON.

NOTE: The House/Coach Battery Disconnect Switch will illuminate green whether the disconnect switch is in the on or off position when connected to shore power. See also "Battery Care" elsewhere in this section.



House/Coach Battery Disconnect Switch (Located near entrance door or end of galley, depending on model)
-Typical View

SS

are located beneath the

tainer, then lift the step
service batteries.

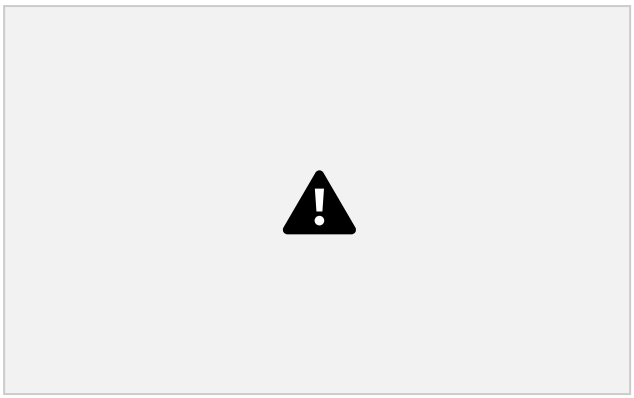
-Typical View

CAUTION

Step cover must be closed and latched. Failure can cause injury.

Chassis Battery

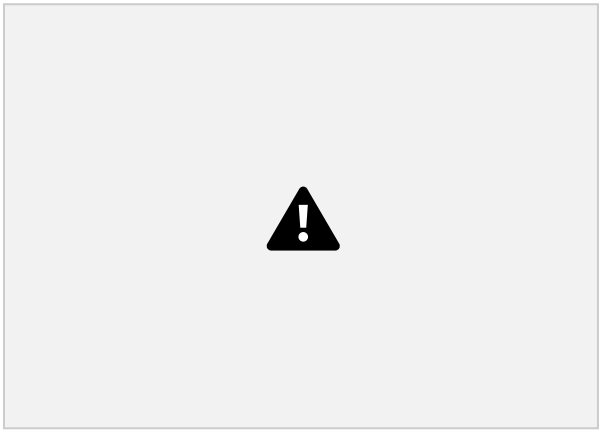
The chassis (starting) battery is located in a compartment "well" in the floor beneath carpet ahead of the driver seat.



Chassis Battery**Chassis Battery Connector**

The chassis battery connector is located to the right of the accelerator pedal in the driver side foot well, behind access panel.

NOTE: Ensure that the ignition key is in the Off position and the key is removed, and wait 10 minutes before disconnecting.



Chassis Battery Connector
(Located to the right of the accelerator pedal behind access panel)

Further Information

See the chassis manual provided in your InfoCase for details on access and servicing.

NOTICE

Always refasten battery retainers when returning a battery to the compartment.

BATTERY CARE

–If Equipped

Lead-acid type batteries are electro-chemical devices for storing and releasing electrical charge. As such, they are simply an electrical reservoir, not an electrical source. As soon as energy is removed from the battery, it should be replaced by the engine alternator or the motorhome converter system.

If a battery sits unused for 30 days or more, especially during warm weather, it can develop a deposit of sulfate crystals on the metal plates inside the battery. This condition is called "sulfating" and prevents the battery from either releasing or accepting a charge. If this condition occurs, the battery must be replaced.

If a battery does not contain at least 80% charge during freezing temperatures, the electrolyte can freeze and crack the battery case.

The two best defenses against sulfating and insufficient charge are to:

1. Turn off the House/Coach Battery Disconnect switch to avoid parasitic discharge (the trickle discharge caused by directly connected components like propane gas detectors or digital clock displays, etc.)
2. Check the battery and recharge as necessary at least once a month during long storage periods. Turn the House/Coach Battery Disconnect switch off to avoid electrical arcing when attaching or detaching charger clamps.

NOTICE

Disconnect batteries before connecting external charging equipment to avoid damage to sensitive electronic components.

WARNING

This vehicle, like other vehicles, may contain small amounts of one or more substances which are listed by the state of California for causing cancer or reproductive toxicity.

WARNING

California Proposition 65
Warning: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

WARNING

Before removing any battery cables or battery, make sure all 12-volt equipment in the motorhome is off and the power cord has been disconnected. Be sure to replace the battery terminal boot, if supplied, back onto the positive terminal after servicing. Care must be taken to avoid pinching the cable between any metal parts. Should the cable be damaged, a short circuit could result in personal injury or damage to equipment. Replace any damaged cables at once. Always remove jewelry and wear protective clothing and eye covering when checking or handling batteries.

NOTE: Do not leave the shoreline plugged in during storage. Follow regular battery inspection and maintenance.

Further precautions are:

• Check the state of charge periodically to avoid discharge or sulfating.

To ensure that the battery will always accept and hold a charge, follow these simple maintenance practices:

• Make sure the batteries always remain securely clamped in the battery tray.

• Make sure battery cable clamps are tight on the terminal posts and are free of corrosion. • Neutralize corrosion buildup or acid film on top of battery by washing with a baking soda/ water solution. Rinse with clear water.

NOTE: Make sure vent caps are on securely to prevent baking soda solution from entering the battery and contaminating the electrolyte fluid.

• Clean and tighten battery terminals and have the specific gravity checked at least once a year.

• Check the battery fluid level every month, or more often in hot weather. Fill to approximately 3/8 inch above the plates. DO NOT OVERFILL. If fluid is added during freezing weather, the motorhome should be driven several miles to mix water and electrolyte to prevent freezing.

• Fluid level check may be omitted if equipped

with maintenance-free batteries.

WARNING

To prevent wiring damage, it is essential when replacing the cables on the battery, or when using a "booster" battery, that the positive post and the positive cable be attached and the negative post and negative cable be attached. The posts are marked (+) plus and (-) minus.
If a "boost charger" is used while battery is in the motorhome, disconnect both battery cables before connecting the charger to avoid damage to engine electronic components.
Never attempt to charge or boost a frozen battery. An explosion can occur resulting in personal injury.

Chassis Battery

If your motorhome is going to be unoccupied for two weeks or more, Winnebago Industries® recommends disconnecting the chassis battery in your motorhome to avoid battery discharge.

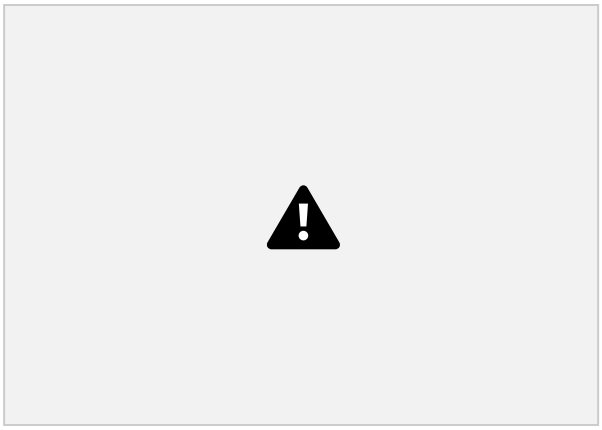
NOTICE

Always refasten battery retainers when returning a battery to the compartment.

Chassis Battery Connector

The chassis battery connector is located to the right of the accelerator pedal in the driver side foot well, inside the access panel.

NOTE: Ensure that the ignition key is in the Off position and the key is removed, and wait 10 minutes before disconnecting.



Chassis Battery Connector (Located to the right of the accelerator pedal inside access panel)

Long term storage

If long term storage is needed, unplug the Chassis Battery Connector and disconnect fuse 32 (10 amp), as it is connected to a small

emergency battery and will drain quickly which will damage the battery.

Further Information

See the chassis manual provided in your InfoCase for details on access and servicing.

SECTION 6 – ELECTRICAL

LITHIUM BATTERY –If Equipped

Battery Specifications

Charge

Charging temperature range	32~113°F (0~45°C)

Discharge

Discharging temperature range	-4~131°F (-20~55°C)-4

Storage

Storage Temperature & Humidity Range	<1 Month	-4~95°F (-20~35°C) 45~75% RH
	< 3 Months	14~86°F (-10~30°C)
	Recommended storage	59~95°F (15~35°C), 45%RH
Long Term Storage	If the battery needs to be stored for >3 months the voltage should be 13.2V (50%SoC) and stored to the recommended storage specification shown above. Additionally, the battery needs at least one charge & discharge cycle every 6 months. Turn the battery off when placed into storage.	

Self discharge rate	Residual capacity	<3% per month; <15% per year
	Reversible capacity	<1.5% per month; <8% per year

LED Indicator

The NeverDie® Compact Battery has a LED integrated into the power button on the unit itself. Some models may have provisions for a remote LED and power button, but their function remains the same. Refer to the table below for an explanation of the LED blink patterns.

Battery State	LED Pattern
Discharging	Solid ON
Charging	Slow Blink
Powered Off	Solid Off
Low Battery	Short Blink
Idle	Short Dual Blink
Fault Alarm	Rapid Blink

Battery Functions

Power ON/OFF

Briefly press the Power Button to turn on the BMS and enable battery power. The battery can be turned off by holding the Power button for 5 seconds. For long term storage, ensure that the battery is turned off.



Battery power button located on the lithium battery (Press for 1 second to turn on, and press for 5 seconds to turn off)
-Typical View

This battery is Bluetooth compatible. Monitor battery voltage, state-of-charge, temperature, current and status code remotely from your mobile device. Download in IOS at the Apple App Store or for Android download in Google Play.

Reserve Voltage Cutoff (RVC)

NeverDie® function. During discharge the BMS will disable discharge current when the battery voltage reaches the RVC level, which allows the battery to store a small energy reserve.

Once the battery is in the RVC state you can access the reserve capacity by a short-press of the Power button.

Short Circuit Protection

Low Voltage Cutoff (LVC)

During discharge the BMS will disable discharge current when the battery voltage reaches the LVC level. Charging current is allowed, so that the battery can be charged by activating a charging source. Some charging sources require to “see” the battery voltage before allowing charging, in which case LVC lockout can be temporarily overridden by holding down the Power button. This override will allow the charger to sense the battery voltage, so charging can begin.

High Voltage Cutoff (HVC)

During charging, the BMS will disable

charge current if the battery voltage reaches the HVC voltage level. This should not happen during normal operation if charging sources are setup with correct voltage levels. Once the charge current is removed, battery voltage will slowly lower to resting level, typically 13.6V. If your charging source has a "float" mode, it should be set to 13.6V.

Temperature Based Cutoff

When the internal battery temperature goes below or above the preset safe limits the BMS will disable charge or discharge current to prevent further use of the battery until the temperature returns to safe operating limits. Different temperature limits are enforced for charging and discharging due to the nature of Lithium chemistry. Discharge safe range is -4°F to 131°F, charge safe range to 32°F to 113°F.

Over Current Protection

The BMS will disable discharge or charge current if the current/amperage value exceeds the preset thresholds. To restore normal operation, remove/address the source of the overload, then short-press the Power button.

The BMS will immediately disable discharge current if the current value exceeds 1000A. To restore normal operation, remove/address the source of the short circuit, then short-press the Power button.

NOTE: The lithium battery is capable of significant power output and may maintain the voltage level during a short circuit event, producing a very large current, capable of melting or welding connection points and damaging cables and connectors. Even when the BMS detects the short circuit and tries to open it, the BMS switch itself might weld under such large current. Make sure the battery connection is always properly fused and does not rely on the BMS alone for short circuit protection.

CIRCUIT BREAKERS AND FUSES – HOUSE 12-VOLT DC

All 12-volt circuits and equipment in the coach area of the motorhome are protected by either a fuse panel or breaker panel. When a circuit is overloaded or a short develops in any part of the system, a fuse or breaker will shut down that circuit. If this happens, turn off all affected lights or appliances and reset the breaker or replace the fuse with a new one of equal amperage rating.

House 12-Volt Fuses

A label on the panel states the amperage rating and circuit protected for each fuse.

The fuse panel is located on the right-hand side of the Power Converter.



House 12-Volt Fuses
(Located near Power Converter)
-Typical View

The fuse panel accepts only blade type plug-in fuses. Always replace fuses with those of the same amperage rating.



Functional Non-Functional

Battery Charge Meter

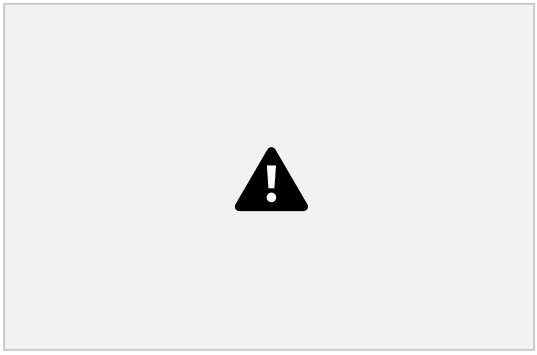
See related item under “Systems Monitor Panel” in *Section 4 - Appliances*.

Automotive Chassis 12-Volt Circuit Breakers

A label on the Automotive Chassis 12-Volt Circuit Breaker panel states the amperage rating and circuit protected for each breaker. *NOTE: Breakers are labeled on panel.*

Arrangement may vary according to appliance and equipment options.

House 12-Volt Fuses



Automotive Chassis 12-Volt Circuit Breakers
(Located on outboard side of passenger seat) * Shown with cover removed
-Typical View

SECTION 7 – PLUMBING

FRESH WATER SYSTEM The Fresh Water System provides water to the galley sink, shower, bathroom lavatory, toilet, and water heater. Water may be supplied by either of two sources:

- A fresh water tank and water pump located within the motorhome, or
- Any external fresh water source to which the motorhome may be connected, known as "city water".

There are two ways to fill the fresh water tank on your motorhome - City Fill or Gravity Fill.

Water Pressure Regulators Because city water pressure varies from location to location, we recommend obtaining an in-line water pressure regulator to prevent damage to any components, connections, and seals in your fresh water system.

These devices simply connect in-line between the supply hose and the city water input on the motorhome. We recommend regulators that control water pressure to **50 psi. max**.

Water pressure regulators are commonly available at most RV dealerships and many large retail discount or home supply centers.

Method 1 - Filling the Fresh Water Tank Through City Fill Connection

WARNING

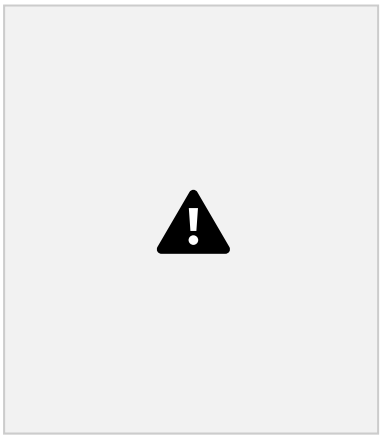
Potable water only.
Sanitize, flush, and drain water tank before using.
See owner's manual for instructions, care, and maintenance information. Failure to maintain tank can result in death or serious injury.

Always fill the fresh water tank at an approved potable water filling facility or a known purified drinking water source.

The tank is filled through the City Water Connection (Fresh Water Inlet) located inside the water service center.

The Fresh Water valve (located in the water service center) routes the water from the city water hose to the fresh water tank for filling.

1. Attach hose to the Fresh Water Inlet.



Fresh (City) Water Connection
"Fresh Water Inlet"
(Located in the water service center)
-Typical View

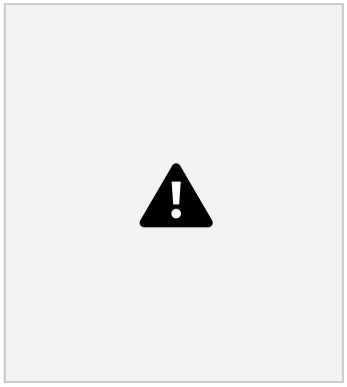
2. Open the Gravity Fill door (located behind a small, lockable door on the driver or passenger sidewall or backwall - depending on model) to aid in tank venting and as an overflow when the tank is full.

SECTION 7 – PLUMBING



Water Tank Gravity Fill
-Typical View

3. Turn the Fresh Water valve to the Tank Fill position.

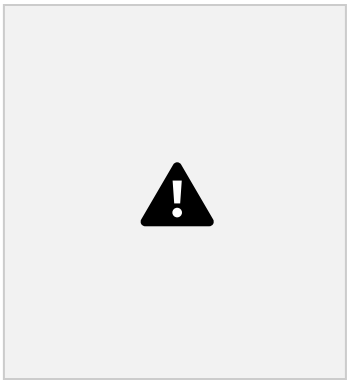


Fresh Water Valve
(Located in water service center)
-Typical View

4. Turn city water supply ON.
5. Use the level display on the monitor panel to oversee filling of the tank, or when the tank is full, water will flow from tank vent tube beneath the motorhome and out of the Gravity Fill door.

NOTICE
Do not leave fresh water connection unattended when filling tank. Failure to comply may result in tank expansion and property damage.

6. Turn OFF city water supply and disconnect hose from the Fresh Water Inlet.
7. Turn the Fresh Water valve to Normal position to use the water pump. *The Tank Fill position is only for pressure filling the water tank from the city water hose connection.*



Fresh Water Valve
(Located in water service center)
-Typical View

Using City Water

When connected to an outside source of water, the water bypasses the water pump and storage tank and supplies pressure directly to individual faucets and toilet. A check valve built into the pump prevents water from entering the pump and filling the storage tank.

- Connect hose to Fresh Water Inlet as described in previous steps.
- With the Fresh Water valve in the Normal position, turn the Water Pump switch(es) OFF.

NOTE: Always keep the Fresh Water valve in Normal position unless you are filling the tank. If this valve is left in the Tank Fill position while using the city water, water will keep flowing into the tank and out the tank vent tube onto the ground and the water pump will run without delivering water to the faucets.

Disconnecting from City Water

- Turn the city water supply OFF.

• Open a faucet on the motorhome (such as the exterior wash station, if equipped) to relieve line pressure.

• Disconnect hose from the motorhome and replace cap on the Fresh Water Inlet.

NOTE: Ensure the Fresh Water valve is in NORMAL position to use the water pump. If the valve is in Tank Fill position, the pump will run continuously without delivering water.

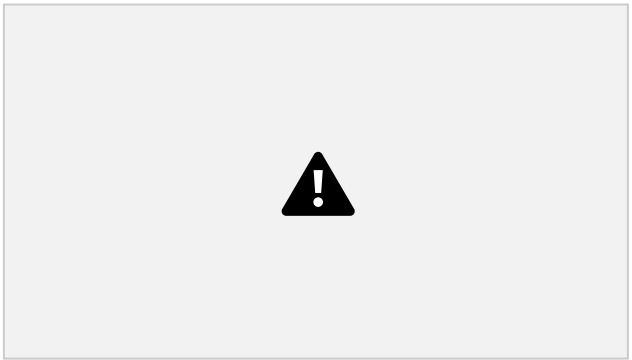
Method 2 - Filling the Fresh Water Tank Through Gravity Fill –If Equipped

WARNING

Potable water only.
Sanitize, flush, and drain water tank before using.
See owner's manual for instructions, care, and maintenance information. Failure to maintain tank can result in death or serious injury.

Always fill the fresh water tank at an approved potable water filling facility or a known purified drinking water source.

The gravity tank fill tube is located behind a small, lockable door on the driver or passenger sidewall or backwall toward the back of the motorhome, depending on model.



Water Tank Gravity Fill

• Insert hose into fill opening and turn water supply on. Tank is full when water flows from the tank vent tube beneath the motorhome and out of the Gravity Fill door.

Using Tank Water (Gravity Fill)

• Turn Water Pump switch ON. While the switch is on, the water pump will automatically supply tank water as needed.

WATER PUMP

When your motorhome is not connected to a city water supply, water is supplied from the fresh water tank by a water system demand pump. A demand pump is designed to run only when you are using water. When you open a faucet, the waterline pressure drops and the pump begins to run, and it will continue to run as long as the faucet is open. When you close the faucet, the line pressure backs up to the pump, and it shuts itself off.

The pump is self-priming and will run briefly to build up line pressure when the Water Pump switch is first turned on. See "Initial Waterline Priming" for instructions on using the water system for the first time.

Water Pump Strainer

The pump is equipped with a cleanable strainer to capture any possible tank-borne particles that could damage pump components.

NOTE: We recommend that you check and clean the strainer after each tankful of water during the first few uses of the Water Pump system. Thereafter, remember to check it at least yearly, and be sure to empty water from it if using the blowout winterization procedure.



Unscrew bowl and remove to clean strainer

Water Pump Strainer -Typical View

To Clean Pump Strainer

• Ensure all Water Pump switches are OFF. • Twist the inlet cap (bowl) “counter clockwise” to unscrew from the strainer assembly.

• Remove the bowl and pull the strainer screen out of the bowl to tap out any particles and rinse clean.

• Insert the strainer screen back into the bowl, then screw the bowl back onto the strainer assembly.

Water Pump Switch

The Water Pump switch is located on the monitor panel (some models may have an additional switch in the water service center, near the exterior shower, or within the bathroom area for your convenience).

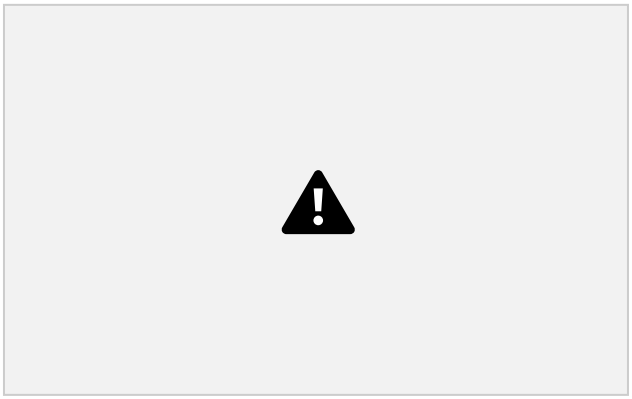
While the switch is “ON”, the pump will automatically supply water as it is needed. **Do not leave the pump on while away from your motorhome or while driving.** In time, a slow leak in a faucet could drain the water tank, fill the holding tank, and discharge the house batteries.

Initial Waterline Priming

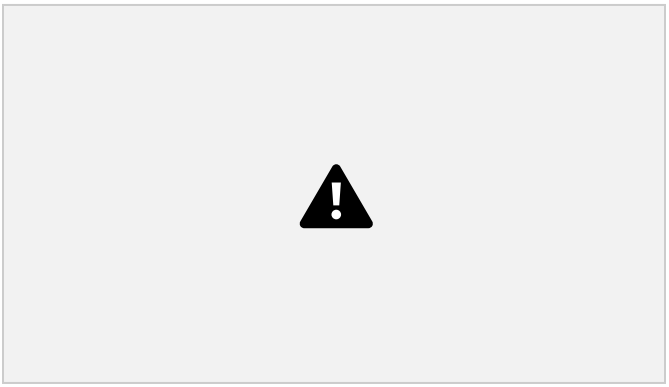
1. Ensure that all water drain valves are closed, including water heater valve.
2. Turn Water Pump switch to “OFF” position.
3. Fill water tank.
4. Open all faucets, hot and cold.
5. Turn ON the Water Pump switch. 6. Close each faucet as it begins to deliver a steady stream of water (close cold water first). Leave hot water faucets on until they also deliver a steady stream of water. This will ensure that the water heater is filled with water.
7. Check to ensure the Water Pump stops soon after all faucets have been closed.
8. The Water Pump is now ready for automatic operation. The pump will start when a faucet is opened and stop when the faucet is closed.

Further Information

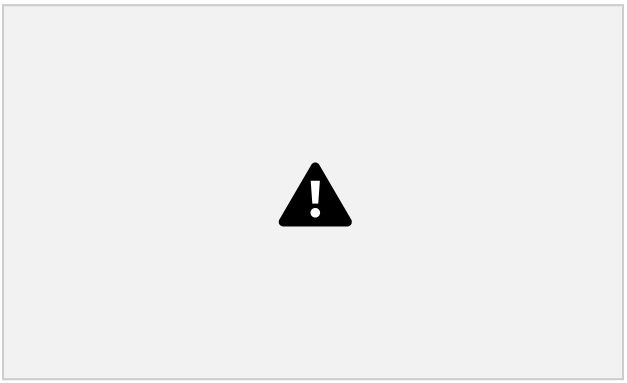
Refer to the Water Pump manufacturer’s operation, care, and maintenance information provided in your InfoCase.



Water Pump
(Located beneath sofa seat)
-Model 24D shown



Water Pump
(Located behind removable
access panel below bed)
-Model 24J shown



Water Pump
(Located at hinged access panel in bed
board))
-Model 24V shown

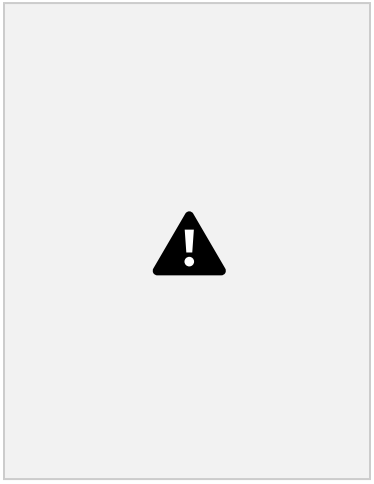
COLD WATER FILTER

–If Equipped

To obtain filtered cold water for drinking or cooking, simply open the galley sink cold water faucet.

NOTE: Only the galley cold water faucet is filtered.

The cold waterline flows through an activated carbon filter that removes chlorine and odors for taste-free drinking water.



Cold Water Filter Assembly (Located inside lower galley cabinet) ***NOTE: Hot waterline is <u>not</u> filtered.***

Replacing the Cold Water Filter

Cartridge

You should replace the filter cartridge every season and when water flow from the faucet is too slow for convenience. The cartridge must be replaced at least every 12 months.

Further Information

See the water filter manufacturer's operation information in your InfoCase for filter cartridge replacement.

DISINFECTING YOUR FRESH WATER SYSTEM

(As required by NFPA®1192 Standard on Recreational Vehicles)

To ensure complete disinfection of the potable water system, it is recommended that the following procedure be followed on a new system, one that has not been used for a period of time, or one that could have become contaminated.

This procedure is also recommended before long periods of storage, such as over winter.

SECTION 7 – PLUMBING

Disinfecting with Gravity Fill –If Equipped

1. Prepare a chlorine solution using 1 gallon of water and 1/4 cup of household chlorine bleach (sodium hypochlorite solution). With tank empty, pour chlorine solution into the tank through the gravity fill port.
   Use 1 gallon solution for each 15 gallons of tank capacity. This procedure will result in a residual chlorine concentration of 50 ppm in the water system.

NOTE: If a 100 ppm concentration is desired, use 1/2 cup of household bleach with 1 gallon of water to prepare the chlorine solution. One gallon of this solution should be used for each 15 gallons of tank capacity.

WARNING
Chlorine is poisonous. Do not misuse. Recap bottle and clean all utensils after use.

2. Complete filling of tank with fresh water. 3. Open each faucet in the motorhome and run the water until a distinct odor of chlorine can be detected in the water discharged. Do not forget the hot water faucets.

4. Let the system stand at least 4 hours when disinfecting with 50 ppm residual chlorine. *(If a shorter time period is desired, then a 100 ppm chlorine concentration should be allowed to stand in the system for at least 1 hour).*
5. Drain the water tank and refill with fresh water.
6. Open each faucet again and run fresh water to flush chlorinated water from the lines. Run the water until there is no odor of chlorine detected in the water discharged. Do not forget the hot water faucets.
(*You may need to leave a hot water faucet open for some time to flush the water heater with clean water. You may also want to turn the water heater off until this is done to avoid wasting energy trying to heat "unused" water*).
7. Water system is now disinfected.

Disinfecting with City Water Fill

When disinfecting through the city water fill, an external cartridge-type water filter assembly must be connected in-line between the city water hose and the city water fill to add disinfecting solution to the tank. These filters are commonly available at most RV supply stores.

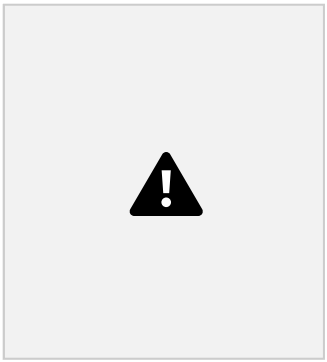
NOTE: If you do not have an in-line cartridge filter, see City Water Hose/Tank Disinfection following this procedure for an alternate method of adding bleach solution to your tank.

1. Remove the filter cartridge and pour 1/4 cup of household chlorine bleach (sodium hypochlorite solution) for each 15 gallons of tank capacity into the empty filter canister, then screw the canister back onto the filter base.

WARNING

Chlorine is poisonous. Do not misuse. Recap bottle and clean all utensils after use.

This solution will result in a residual chlorine concentration of approximately 50 ppm in the water system. *(If a 100 ppm concentration is desired, use 1/2 cup of household bleach for each 15 gallons of tank capacity).*
The bleach will be drawn into the tank when the city water is turned on and the Fresh Water valve is turned to Tank Fill position.



Fresh Water Valve
(Located in water service center)

2. Fill the tank completely, then open each faucet in the motorhome and run the water until a distinct odor of chlorine can be detected in the water discharged. Do not forget the hot water faucets.
3. Let the system stand at least 4 hours when disinfecting with 50 ppm residual chlorine. *(If a shorter time period is desired, then 100 ppm chlorine concentration should be allowed to stand in the system for at least 1 hour).* 4. Drain the fresh water tank.
5. Install the filter cartridge into the filter canister, then refill the tank with fresh water. 6. Open each faucet again and run fresh water to

flush chlorinated water from the lines. Run the water until there is no odor of chlorine detected in the water discharged. Do not forget the hot water faucets.

(You may need to leave a hot water faucet open for some time to flush the water heater with clean water. You may also want to turn the water heater off until this is done to avoid wasting energy trying to heat "unused" water).

7. Water system is now disinfected.

City Water Hose/Tank Disinfection

As an alternative way to disinfect your tank, connect a city water hose to your motorhome and pour the bleach into the other end of the hose using a funnel. Hold the hose upright to avoid draining the bleach.

Connect the hose to a city water hydrant to force

the bleach into the tank and fill the tank with water.

This method has the additional benefit of disinfecting the city water hose at the same time.

Continuous Tank Disinfection (Superchlorination)

Some RVers like to ensure continuous sanitation of their fresh water tank by "superchlorination"– maintaining an effective low level of chlorine in the tank at all times. • Add 1 teaspoon of household chlorine bleach (sodium hypochlorite) to your tank for each 10 gallons of tank capacity. When you fill the tank, this will result in a 6.7 ppm level of chlorine, which should kill harmful bacteria and slime-forming organisms.

- Chlorine may be removed from drinking water by the cold water filter at the galley faucet (if equipped) or by installing an activated carbon water purifier at the galley sink cold water line or a separate drinking water faucet with filter.
- Superchlorination does not affect city water usage, only the fresh water tank.

SHOWER HOSE VACUUM BREAKER

After using the shower, you may notice water dripping from the shower faucet assembly. The dripping results when vacuum in the shower hose (after closing the shower faucet) slowly releases and allows water remaining in the hose to drain down. This is a normal function of the shower valve assembly and is not a leak or defect.

If items are placed into the shower tub before shower valve vacuum release is complete, they may become wet.

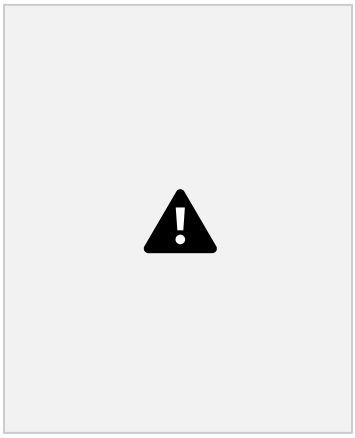
EXTERIOR SHOWER/WASH STATION

–If Equipped

The Exterior Shower/Wash Station feature allows you to do things such as rinse off sand or salt after a swim, rinse off muddy boots, or bathe

SECTION 7 – PLUMBING

your pet outside the motorhome. Some models may have a Water Pump switch located near the shower faucet for convenience.



Exterior Shower/Wash Station
-Typical View

TOILET

The toilet in your motorhome is very similar to the household type, except that it is designed to use only a small amount of water per flush. It uses a high velocity jet of water, producing a swirl effect, to efficiently cleanse the bowl.



Important "Don'ts"

• Don't use facial tissue or regular toilet tissue in the RV toilet. These will not disintegrate sufficiently and will often cling to the sides of the holding tank. Toilet tissue made specifically for use in RV toilets and holding tanks is available at most RV supply centers. • Don't dispose of sanitary napkins or other non-dissolving items in the toilet.

• Don't put automotive antifreeze or caustic chemicals, such as laundry bleach or heavy detergents into the toilet or holding tank. These products may damage plastic or rubber parts in the system.

See winterizing instructions at the end of this section to prepare the toilet for storage in freezing conditions.

Further Information

See the toilet manufacturer's operation information in your InfoCase for complete operating, care, and maintenance information.

DRAINAGE SYSTEM (P-TRAPS)

Ensure there is an adequate amount of water in the drainage system p-traps to avoid sewer odor from entering your motorhome.

If you should experience a sewer odor, pour approximately 1 cup of water down each sink and shower drain in the motorhome.

WASTE WATER SYSTEM

(Holding Tanks)

Models 24D and 24J

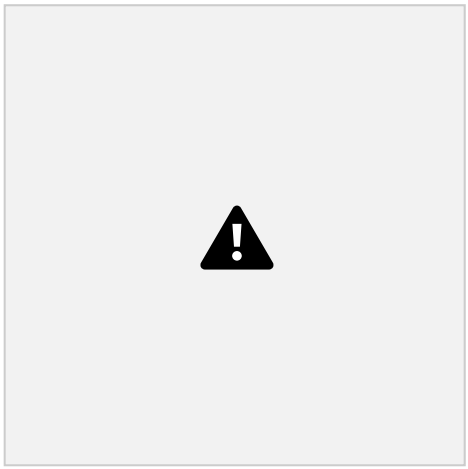
The drainage system is self-contained and uses two separate holding tanks to contain the waste water until it can be dumped at an appropriate waste water disposal site. This means you can use the toilet, sinks and shower even in areas where utility hookups are not available.

The black water holding tank contains the sewage from the toilet and may include bathroom lavatory on some models. The gray water holding tank contains the waste water from the galley sink and shower, and may include bathroom lavatory.

See "Specifications" in *Section 1– Introduction* for tank capacities for your model.

Dumping Holding Tanks

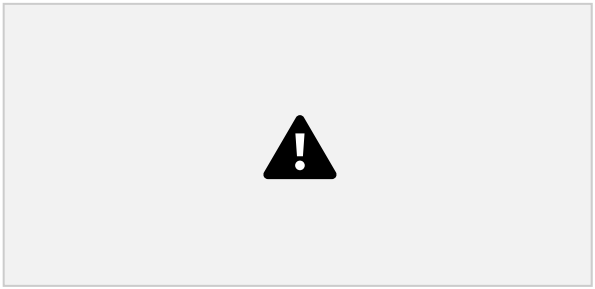
1. Remove dust cap from drain and connect sewer hose. Be sure it is firmly attached.



Sewage Drain Outlet
(Located on the underside of water service center)
-Typical View

2. Place the outlet end of sewer hose into disposal opening.
3. Open the Black Waste Tank Drain valve with a quick pull and make sure there are no sags in the hose. Move the hose gently about to dislodge any waste and ensure complete drainage. Close the Black Waste Tank Drain valve as soon as tank is empty.

• **1st** - Pull Black Waste Tank Drain valve to drain Black Water (sewage) tank – then close.



• **2nd** - Pull Gray Waste Tank Drain valve to drain Gray Water (sink/ shower) tank – then close.

Holding Tank Dump Valves
(Located in water service center)
-Typical View

NOTE: DO NOT OPEN BOTH VALVES AT ONCE. Do not open the Gray Waste Tank Drain valve until the black tank is drained and dump valve closed to avoid sewage back-up into gray tank. Gray water also rinses any black water solids from the drain hose.

Black and Gray tank valve positions may be reversed depending on floorplan and tank location.

4. Open the Gray Waste Tank Drain valve with a quick pull and make sure there are no sags in the hose to ensure complete drainage. Close Gray Waste Tank Drain valve as soon as tank is empty.
5. Add an odor control chemical to the sewage holding tank through the toilet. These chemicals are available at most RV stores.
6. Rinse sewage drain hose thoroughly with water and stow.

NOTE: We recommend that you dump all holding tanks before traveling to avoid carrying unnecessary weight.

Flushing Your Black Waste Holding Tank

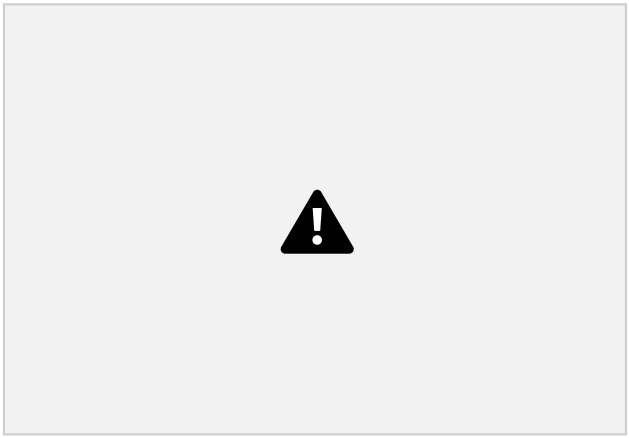
The black waste holding tank is equipped with an internal spray head that allows you to rinse the inside of the tank with a shower of clean water after dumping.

CAUTION

Do not use the tank flush valve unless the fullway termination valve is in the open position. May result in an unsanitary condition leading to illness or personal injury.

1. Dump your black waste holding tank in the usual manner at an approved sewage disposal station.
2. Leave Black Waste Tank Drain valve open while flushing tank.

3. Attach a garden hose from a city water hydrant to the Black Waste Tank Flush Inlet fitting on the left sidewall. (This inlet is clearly marked separate from the City Water inlet).



Black Waste Tank Flush Inlet
(Located on left sidewall)
-Typical View

4. Turn the water on to begin flushing. Allow water to run for about three minutes.
5. Disconnect garden hose from flushing system and close Black Waste Tank Drain valve.

Using On-Site Sewer Hook-Ups The sewage drain hose may remain attached to the sewage drain outlet while the motorhome is parked and connected to an on-site sewage hook up.

WARNING

Service inlet access must be closed when utility connections are not in use.

When using a sewer hook-up, keep the dump valves closed until a tank becomes full or when preparing to leave the site. This keeps the solids in suspension, allowing them to be carried out with the liquids when the dump valve is opened. If the valve is left open, the liquids will drain off, leaving solids in the tank. Should this accidentally happen, disconnect the hose, fill the tank about half full with water, and drive a few miles to dislodge the solids. A few starts and stops will aid in the process. Then reconnect the hose and drain in the normal manner.

NOTE: Always keep sewage drain outlet capped while sewage connection is not in use.

Holding Tank Level Indicators See "Systems Monitor Panel" in *Section 4– Appliances* for further information on the monitor panel and checking tank levels. See "Specifications" in *Section 1– Introduction* for tank capacities for your model.

WASTE WATER SYSTEM (WASTE PUMP)

(Holding Tanks)

Models 24V

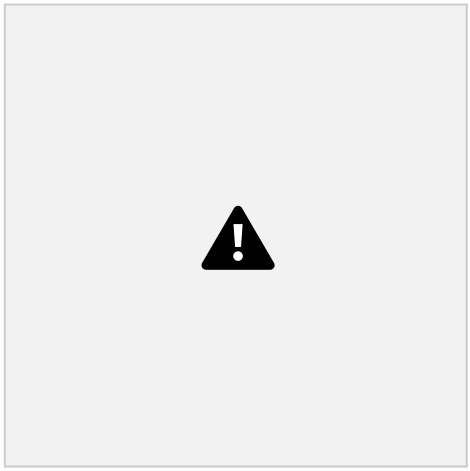
The drainage system is self-contained and uses two separate holding tanks to contain the waste water until it can be dumped at an appropriate waste water disposal site. This means you can use the toilet, sinks, and shower even in areas where utility hookups are not available.

The black water holding tank contains the sewage from the toilet and may include bathroom lavatory on some models. The gray water holding tank contains the waste water from the galley sink, and shower, and may include bathroom lavatory.

See "Specifications" in *Section 1 – Introduction* for tank capacities for your model.

Waste Pump

The 12-volt Waste Pump disposes gray holding tank waste through a small diameter sewer hose, which is then drained through the main sewage drain outlet.



Waste Pump
(Located behind water service center - accessible through utility compartment) -Typical View

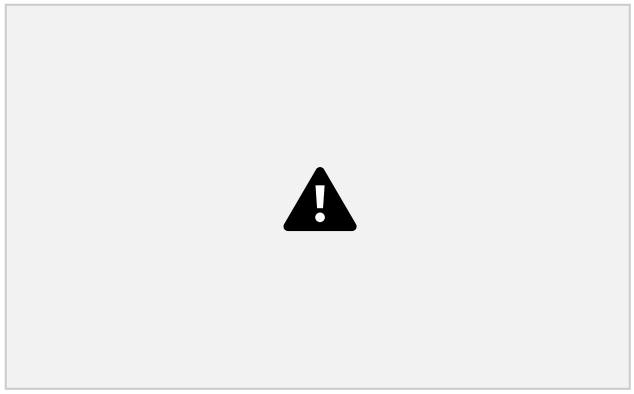
NOTE: If Waste Pump stalls, check breaker in the load center. If problem persists, remove end cap and manually turn pump shaft (located on the end of the Waste Pump) with a screwdriver.

Further Information

For further information and operating cautions, see the Waste Pump operating instructions included in your InfoCase.

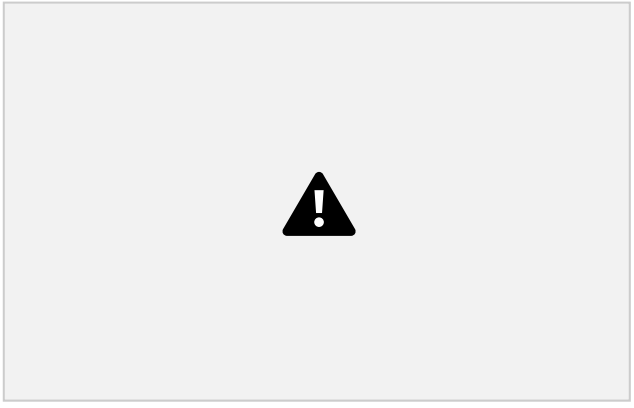
Dumping Holding Tanks

6. Remove dust cap from sewage drain outlet and connect sewage drain hose. Be sure it is firmly attached.



Sewage Drain Outlet/Dust Cap
(Located in driver side compartment) -Typical View

7. Place the outlet end of sewage drain hose into disposal opening.
8. Open the Black Waste Tank Drain valve with a quick pull and make sure there are no sags in the hose. Move the hose gently about to dislodge any waste and ensure complete drainage. Close the Black Waste Tank Drain valve as soon as tank is empty.



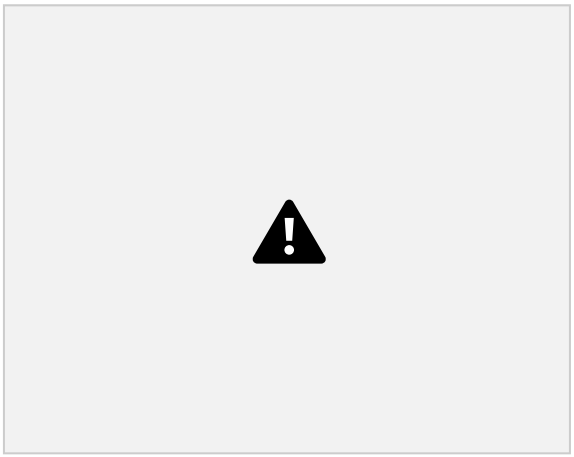
Black Waste Tank Drain Valve
(Located in driver side compartment) -Typical View

NOTE: DO NOT OPEN BOTH VALVES AT ONCE. Do not open the Gray Waste Tank Drain valve until the black tank is

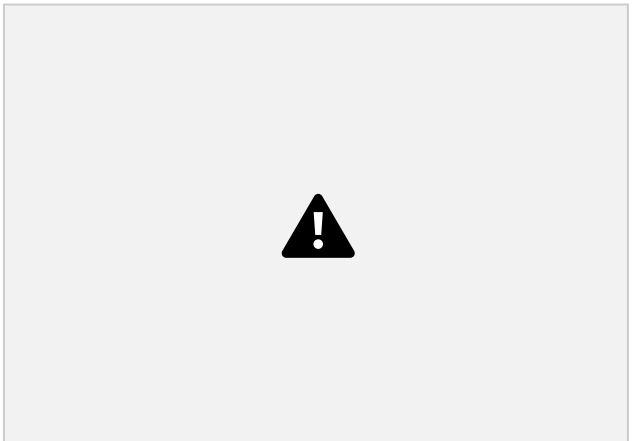
drained and Black Waste Tank Drain valve is closed to avoid sewage back-up into gray tank. Gray water also rinses any black water solids from the sewage drain hose.

9. Open the Gray Waste Tank Drain valve and hold the Waste Pump switch (located in the water service center). Release the Waste Pump switch and close the Gray Waste Tank Drain valve as soon as the tank is empty.

NOTE: Sound of Waste Pump will change significantly when tank is empty.



Gray Waste Tank Drain Valve
(Located beneath rear driver side of the motorhome)
-Typical View



Waste Pump Switch
(Located in water service center)
-Typical View

10. Add an odor control chemical to the sewage holding tank through the toilet. These chemicals are available at most RV stores.
11. Rinse sewage drain hose thoroughly with water and stow.

NOTE: We recommend that you dump all holding tanks before traveling to avoid carrying unnecessary weight.

Flushing Your Black Waste Holding Tank

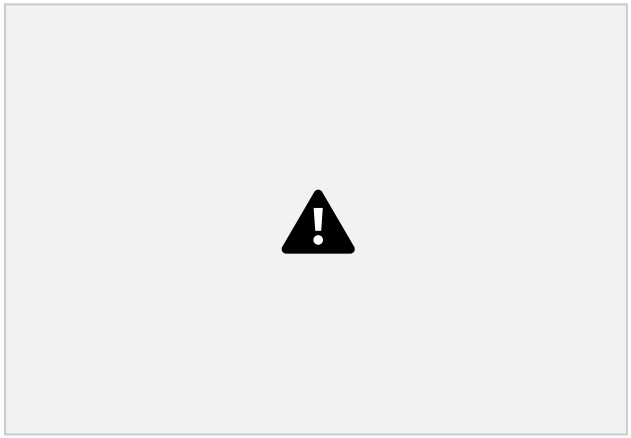
The black waste holding tank is equipped with an internal spray head that allows you to rinse the inside of the tank with a shower of clean water after dumping.

CAUTION

Do not use the tank flush valve unless the fullway termination valve is in the open position. May result in an unsanitary condition leading to illness or personal injury.

1. Dump your black waste holding tank in the usual manner at an approved sewage disposal station.

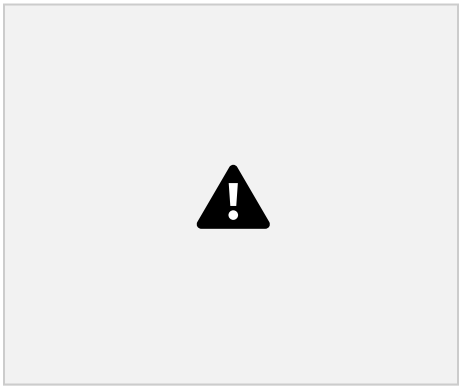
2. Leave Black Waste Tank Drain valve open while flushing tank.
3. Attach a garden hose from a city water hydrant to the Black Waste Tank Flush Inlet fitting on the left sidewall. (This inlet is clearly marked separate from the City Water inlet).



Black Waste Tank Flush Inlet
(Located on left sidewall)
-Typical View

4. Turn the water on to begin flushing. Allow water to run for about three minutes.

5. Disconnect garden hose from flushing system and close Black Waste Tank Drain valve.



Using On-Site Sewer Hook-Ups

The sewage drain hose may remain attached to the sewage drain outlet while the motorhome is parked and connected to an on-site sewage hook up.

WARNING

Service inlet access must be closed when utility connections are not in use.

When using a sewer hook-up, keep the dump valves closed until a tank becomes full or when preparing to leave the site. This keeps the solids in suspension, allowing them to be carried out with the liquids when the dump valve is opened. If the valve is left open, the liquids will drain off, leaving solids in the tank. Should this accidentally happen, disconnect the hose, fill the tank about half full with water, and drive a few miles to dislodge the solids. A few starts and stops will aid in the process. Then reconnect the hose and drain in the normal manner.

NOTE: Always keep sewage drain outlet capped while sewage connection is not in use.

Holding Tank Level Indicators See "Systems Monitor Panel" in *Section 4 – Appliances* for further information on the

monitor panel and checking tank levels. See "Specifications" in *Section 1 – Introduction* for tank capacities for your model.

HOLDING TANK HEATER Your motorhome may be equipped with black water and gray water holding tank heaters to allow use of waste utilities in freezing temperatures. The holding tank heater power switch is located near the monitor panel. The illuminated switch will glow when the power is on.

Holding Tank Heater Switch
(Located near monitor panel)
-Typical View

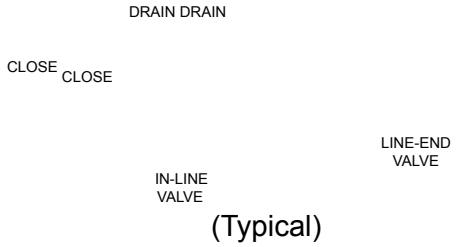
DO NOT operate the holding tank heater unless you are providing a supplemental 12-volt power source to recharge the house batteries. This means either the shoreline cord must be plugged into a 120-volt source, the auxiliary generator must be operating, or the chassis engine must be running (such as when driving down the road). This will prevent excessive discharge of the house battery.

NOTE: The holding tank heater pads are electrical resistant-type heating elements. This type of heating element typically uses a large amount of current while operating. If the tank heaters are used without a recharging source, they will drain the house batteries in a relatively short period. Typically, the batteries would not support overnight heating without a supplemental charging source.

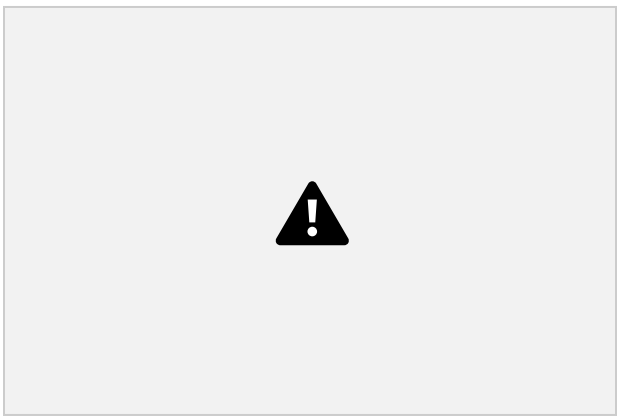
WATERLINE & WATER TANK DRAIN VALVES

The Waterline and Water Tank Drain valves are used to drain water from the water tank and the water supply lines when preparing the motorhome for storage or when sanitizing the water system.

See the "Water System Drain Valve Locations" chart at the end of this section for locations on your model.



Water Tank Drain Valve



Waterline Valves

Waterline and Water Tank Drain Valves
-Typical View - your motorhome may differ

WATER HEATER BYPASS AND ANTIFREEZE SIPHON VALVES Your

motorhome may be equipped with a Water Heater Bypass valve and an Antifreeze Siphon (Winterization) valve for winterizing waterlines using RV antifreeze.

Turn the handle as shown to either bypass or flow mode.

Refer to the "Water System Drain Valve Locations" chart at the end of this section for locations on your model.



CAUTION

Leave bypass valve handle in NORMAL FLOW position if draining water and blowing out waterlines. Place in BYPASS position ONLY when using antifreeze solution in waterlines.

WINTERIZING PROCEDURES Certain areas of your water system require additional attention and disconnecting or blowing out these lines may be required. Be sure all water is drained from the system.

You can winterize the water and plumbing system of your motorhome using one of the following two methods – 1) Blow out waterlines using compressed air or – 2) Fill waterlines with RV water system antifreeze.

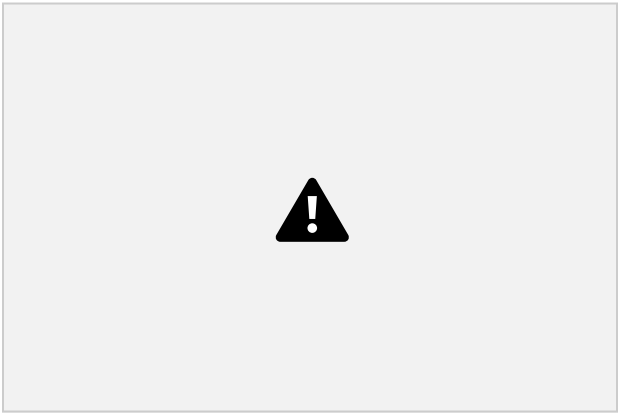
Further Information

Refer to the Water Heater manufacturer's user guide provided in your InfoCase for complete winterizing procedures.

Method 1 – Blow Out Procedure (Drain and purge waterlines using compressed air)

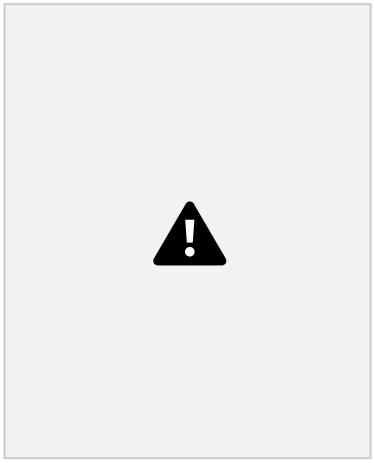
1. **Level the Motorhome.** If the motorhome is not level, there may be "low points" in waterlines that can trap water in the lines and prevent it from draining properly.

2. **Drain Fresh Water Tank and Waterlines.**
   Open all waterline drain valves and drain fresh water tank. (See "Water System Drain Valve Locations" chart at the end of this section for locations of drain valves on your model).



3. **Drain Exterior Shower/Wash Station.**
   Open exterior shower knobs and lay shower head on ground as shown to drain any water left in the shower line.
   Also, place the tip of your finger into the city

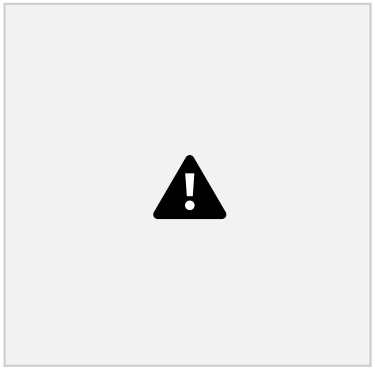
water inlet and gently press the backflow valve “button” in the center of the inlet to drain any water trapped in the inlet line. 4. **Cold Water Filter:** Remove the filter canister from the Cold Water Filtration System under the galley sink and discard the filter cartridge. After emptying the canister, remount it onto the filter assembly and continue the Blow-Out Procedure.



5. **Drain Water Heater (Tankless):** Turn the Water Heater Power Switch (located behind water heater access panel on exterior of motorhome) to the OFF position and allow hot water to cool down.

Water Heater Power Switch
(Located behind water heater access panel on exterior of the motorhome)

6. **Turn Winterization Valve 1** (Water Heater Bypass) to bypass position.



7. Open the latch with your thumb while pulling the Easy Drain Lever down as far as it will go.
8. Remove the water inlet filter and clean with clean water. Leave the water filter inlet removed until the Winterization process is complete or the system is placed back in use.

Latch Easy Drain
Lever



Easy Drain Lever
(Located behind water heater access panel on exterior of the motorhome)

9. **Open Faucets.** Turn on the water pump and open all sink faucets and shower head knobs. Leave open after water stops flowing.
10. **Drain Toilet.** Press the toilet flush pedal and hold until water stops flowing in the toilet. Then turn water pump switch off.
11. **Connect Air Pressure.** After water has stopped draining at all faucets and drain valves, leave faucets open and connect a "blow-out" plug to the city water connection on the motorhome. Then use a compressed air hose regulated to 30 psi or less to force air through the system. A "blow-out" plug can be purchased at any Winnebago Industries® dealer.

City Water Connection

NOTICE

Fresh Water Inlet
Blow-out

Plug Air Hose

Limit air pressure to 30 psi to avoid damage to equipment.

NOTE: DO NOT burst air into the system. This can damage the water pump. It is better to let air in slowly.

12. **Let air flow for five minutes** until water is completely drained out of faucets and drain valves. Then close faucets one at a time.
13. **Drain Toilet.** Operate and hold toilet flush lever until water is completely drained from the toilet.
14. **Turn Winterization Valve 3** from "Normal" position to "Line Drain" position to blow out the hot water recirculation line.



15. **Turn Winterization Valve 3** to "Water Heater & Line Drain" position to allow all remaining water to leave the system. Leave the valve in this position until the Winterization process is complete or the system is placed back in use.

NOTE: See the tankless water heater operator's manual located in your InfoCase for additional draining procedures.

16. **Turn air pressure off**.

Disconnect water purge adapters. Recap the city water inlet to avoid contamination by dirt or insects.