



STRADA & STRADA-ion

**Lounge Floor Plan
AWD & RWD**

Mercedes-Benz Sprinter

OWNER'S MANUAL

WWW.GRECHRV.COM

INTRODUCTION

Dear Grech RV Owner,

Thank you for purchasing a Grech RV product. Your decision to own a true luxury vehicle is what drives our efforts every day and we appreciate your vote of confidence. A substantial investment has been made and we want to insure that your experience is priceless.

Welcome to the exciting world of RV travel and camping, with all the comforts of home with you, while you travel and enjoy the outdoors. We want the experience with your new RV to be enjoyable.

It is important to carefully read and understand this manual to assure yourself and your loved ones one of the best possible experiences. To accomplish this, we recommend to take the time to become fully acquainted with the vehicle before ever taking it on the open road.

Your RV has been designed and manufactured to enhance your travel and camping experience and to provide you with safe, efficient and trouble-free operation.

OWNER'S MANUAL

It is important to carefully read and understand this manual to assure yourself and your loved ones one of the best possible experiences.

To accomplish this, we recommend to take the time to become fully acquainted with the vehicle before ever taking it on the open road.

In this Owner's Manual you will find several suggestions and information that will make your ownership a long and enjoyable one! This manual's main objective is to serve as a reference document for the operations and maintenance procedures that will be required throughout the life of your vehicle.

It contains vital information used to identify your specific vehicle and the safety features that must be understood and followed in order to operate this vehicle safely. This manual is not intended to serve as a maintenance manual. It provides the basic procedures, along with a comprehensive overview of your vehicle's operating systems.

There are many safety notices that appear throughout the manual that alert you to items that require your attention and/or understanding to assure the safety of you and your passengers as well as other drivers on the road. We urge you to take the time to completely understand your vehicle, so you can drive with confidence.

The information contained in this document is intended to reflect standard and optional equipment included in a typically equipped model at the time of delivery to the initial retail owner. In case that you are not the initial retail owner of the unit, this document will not reflect modifications that may have been performed by previous owners.

It is the policy of GRECH MOTORS, to incorporate product improvements whenever possible or practical to do so. We reserve the right to make changes and or improvements at any time without incurring any obligation to make such changes on previously sold products. The information and specifications contained in this manual are subject to change at any time, without notice.

If there are any questions or doubts regarding what is written and disclosed in this handbook for your vehicle, feel free to call Grech Motors at (855)-994-GRECH (7324).

In the event that you require any type of service concerning any difficulty with the vehicle, be sure to have your Vehicle Identification Number (VIN) and mileage available before you call.



NOTICES & DISCLAIMERS

The information and specifications contained in this manual are current at time of printing. Subsequently, all information contained in this manual is subject to change at any time, without notice. Please note that this manual applies to the RV STRADA and RV STRADA ION both RWD and AWD. It explains standard equipment as well as many options and may include equipment not presently installed on your vehicle.

NOTICE

For your safety and the safety of others, we ask that you completely familiarize yourself with this manual, and all other operators manuals before you operate this vehicle for the first time.

PLEASE NOTE: Updates to all manuals are online at www.grechrv.com

WARNING

- Breathing diesel engine exhaust exposes you to chemicals (engine exhaust, carbon monoxide, phthalates, and lead) known to the State of California to cause cancer and birth defects or other reproductive harm.
- Wear gloves or wash your hands frequently when servicing your vehicle.
- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information visit:

www.P65warnings.ca.gov/diesel

FAILURE TO COMPLY COULD RESULT IN DEATH OR INJURY.

NOTICE

Product information and specifications are shown herein as of the time of printing. The RV manufacturer reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligation.

PLEASE NOTE: Updates to all manuals are online at www.grechrv.com

DANGER

DO NOT FILL PROPANE CONTAINER TO MORE THAN 80% OF CAPACITY.

FAILURE TO COMPLY COULD RESULT IN DEATH OR INJURY.

Overfilling the propane containers can result in uncontrolled propane flow, which can cause fire or explosion. A properly filled container holds 80% of its volume as liquid propane.

DANGER

IN CASE YOU SMELL PROPANE:

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

FAILURE TO COMPLY COULD RESULT IN DEATH OR INJURY.

WARNING

Propane cylinders shall not be placed or stored inside the vehicle. Propane cylinders are equipped with safety devices that relieve excessive pressure by discharging propane to the atmosphere.

FAILURE TO COMPLY COULD RESULT IN DEATH OR INJURY.

WARNING

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

Cooking appliances need fresh air for safe operation

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

Due to the limited size an RV offers unlike a home the amount of oxygen supply is restricted. Proper ventilation is important and necessary when using cooking appliances. Ventilating the RV reduces the chances of asphyxiation.

NOTICE

Optional equipment may be shown. Vehicle standard features and options will vary and depending on the availability. All standard features and options on Grech RV motorhomes are subject to change without notice.

FLOOR PLANS

ABOUT THE STRADA

Strada, our flagship Sprinter Camper Van, is the perfect complement to the Mercedes-Benz marque. The Strada exemplifies what a luxury Class B RV should be, with remarkable quality, craftsmanship and attention to detail never before seen in the Class B RV world. The luxurious amenities and functional features elevate your RV experience. Strada has the highest level of standard equipment in its class. Built on the Mercedes-Benz Sprinter 3500XD 170" Extended High Roof with a 4 Cylinder Diesel High Output engine and 9-speed transmission.

The Grech Strada RV 170" Extended Class B comes in 2 floorplans, the Lounge Floor Plan and the Tour Floor Plan.

The Grech RV Strada RV 170" Class B has 2 types of RV's: Strada and Strada-ion. Strada-ion RV's have a Lithium-ion battery system which replaces the propane generator on LPG powered RV's and provides clean and quiet lithium-ion based energy which will power your entire RV.

In this manual, you'll find comprehensive information about the Strada Lounge Floor Plan. It includes detailed descriptions, specifications, and characteristics of the layout, along with pictures to give you a clear understanding of the space. Additionally, the manual covers the various components and features of the floor plan, providing a thorough overview to help you fully appreciate the design and functionality of the Strada Lounge.

LOUNGE FLOOR PLAN

Length
24'

Seats up to
9

Sleeps up to
2



SPECIFICATIONS

MERCEDES-BENZ SPRINTER 3500 170" EXT RV CLASS B STRADA RV		
SPECIFICATION	STRADA RWD AWD	STRADA-ION RWD AWD
CHASSIS	Mercedes-Benz Sprinter 3500 170" EXT	Mercedes-Benz Sprinter 3500 170" EXT
ENGINE MODEL	4 Cylinder Diesel High Output Engine	4 Cylinder Diesel High Output Engine
STEERING WHEEL LOCATION	Left	Left
TIRES	Dual LT215/85R16	Dual LT215/85R16
HORSEPOWER	208 HP	208 HP
SUSPENSION	Air Suspension	Air Suspension
TORQUE	332 lb-ft Torque	332 lb-ft Torque
TRANSMISSION	9G-TRONIC – 9-Speed transmission	9G-TRONIC – 9-Speed transmission
WHEEL BASE	170" 14' 2"	170" 14' 2"
EXTERIOR OVERALL LENGTH	290" 24' 2"	290" 24' 2"
EXTERIOR OVERALL HEIGHT	RWD: 119" 9'11" AWD: 122" 10'2"	RWD: 119" 9'11" AWD: 122" 10'2"
EXTERIOR OVERALL WIDTH WITH MIRRORS	95.5" 7' 11.5"	95.5" 7' 11.5"
INTERIOR HEIGHT	74" 6' 2"	74" 6' 2"
HITCH WEIGHT	5000 lbs	5000 lbs
GROSS VEHICLE WEIGHT RATING	11,030 lbs 5,003 Kg	11,030 lbs 5,003 Kg
GAWR FRONT	4,410 lbs 2,000 Kg	4,410 lbs 2,000 Kg
RIMS FRONT	RWD: 16 x 5.5 Rims @ 61 PSI 420 Kpa/COLD AWD: 16 x 5.5 Rims @ 55 PSI 380 Kpa/COLD	RWD: 16 x 5.5 Rims @ 61 PSI 420 Kpa/COLD AWD: 16 x 5.5 Rims @ 55 PSI 380 Kpa/COLD
GAWR REAR	7,720 lbs 3,502 Kg	7,720 lbs 3,502 Kg
RIMS REAR	RWD: 16 x 5.5 Rims @ 58 PSI 400 Kpa/COLD AWD: 16 x 5.5 Rims @ 58 PSI 400 Kpa/COLD	RWD: 16 x 5.5 Rims @ 58 PSI 400 Kpa/COLD AWD: 16 x 5.5 Rims @ 58 PSI 400 Kpa/COLD
FUEL TANK & TYPE	Diesel 24.5 gals	Diesel 24.5 gals
FRESH WATER CAPACITY	26 gal (12V Heated)	26 gal (12V Heated)
GRAY WATER TANK	27 gal (12V Heated)	27 gal (12V Heated)
BLACK WATER TANK	13 gal (12V Heated)	13 gal (12V Heated)
LIQUIFIED PETROLEUM GAS (LPG)	9.8 gal	N/A
WATER HEATER AND FURNACE TYPE	Diesel Powered Timberline System: Tankless Hot Water Heater, Furnace and Heating	Diesel Powered Timberline System: Tankless Hot Water Heater, Furnace and Heating
REFRIGERATOR/FREEZER	Isotherm Cr85el Refrigerator Vitrifigo C90ibd4-F-1 Refrigerator Novakool R4200dc Refrigerator	Isotherm Cr85el Refrigerator Vitrifigo C90ibd4-F-1 Refrigerator Novakool R4200dc Refrigerator
MICROWAVE	Contoure AZ-2505-CON Combo Microwave/Convection/Air Fryer	Contoure AZ-2505-CON Combo Microwave/Convection/Air Fryer
COOKTOP	Empava IDC12B2 2 Burner Propane Cooktop Dometic™ D21-SEC / 50216 Electric Cooktop	Empava IDC12B2 2 Burner Propane Cooktop Dometic™ D21-SEC / 50216 Electric Cooktop
TELEVISION	Lounge Floorplan: (2) 24" LED Smart TV's	Lounge Floorplan: (2) 24" LED Smart TV's
SPEAKERS	Soundbar w/ Premium Sound System	Soundbar w/ Premium Sound System
ANTENNA	HD Directional Antenna	HD Directional Antenna
CHARGING PORTS	USB and 110V Charging Ports	USB and 110V Charging Ports
MEDIA PLAYERS	Blu-Ray/DVD Player (Older Models) Apple TV (New Models)	Blu-Ray/DVD Player (Older Models) Apple TV (New Models)
GENERATOR (LPG) W/ AUTOGEN START	Ultra Quiet Cummins Onan 2.5 kW (LPG) w/ Auto Start	N/A
POWER OUTLETS	110V/120V Power Outlet	110V/120V Power Outlet

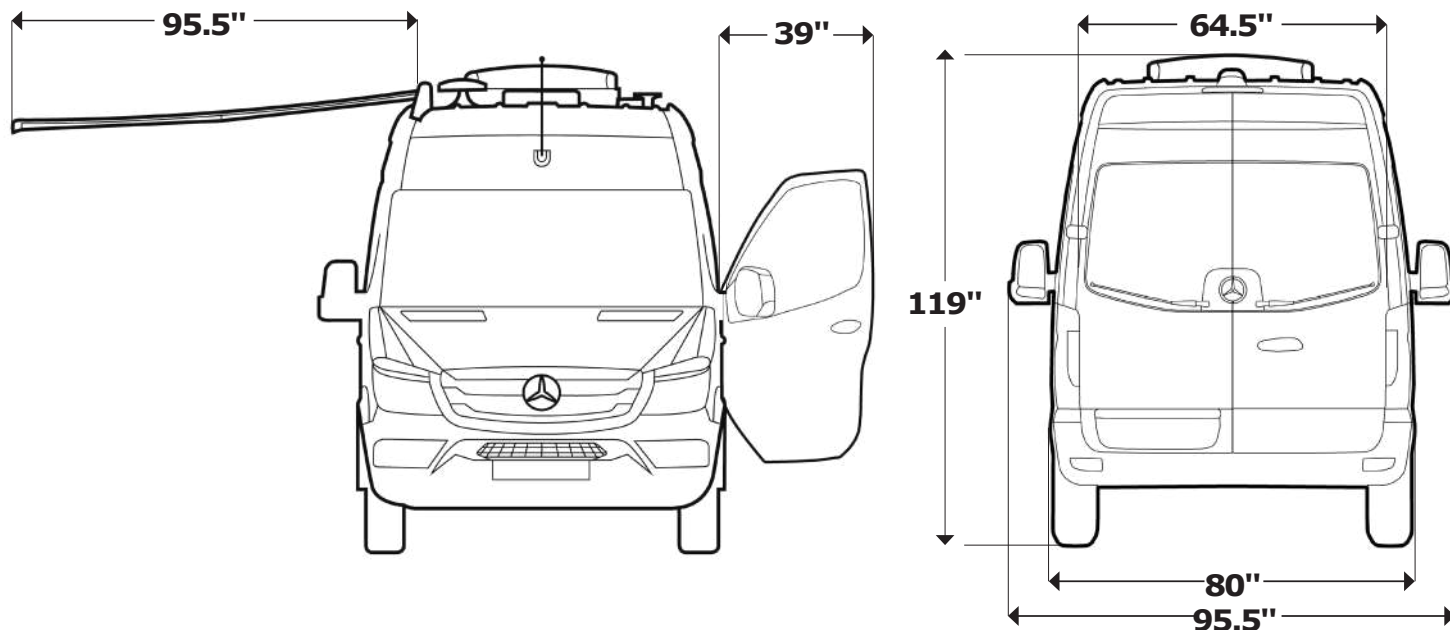
SPECIFICATIONS

MERCEDES-BENZ SPRINTER 3500 170" EXT RV CLASS B STRADA RV		
SPECIFICATION	STRADA RWD AWD	STRADA-ION RWD AWD
LIGHTING	Dimmable LED Accent Lighting Throughout	Dimmable LED Accent Lighting Throughout
ALARMS	Gas Detector/Smoke/Co2 Alarm	Smoke/Co2 Alarm
BATTERIES	(2) 100 Amp Hour Lithium Batteries	Lithionics Lithium Batteries (12V) 1,260 Amp Hour / 16,128 Watt Hour
ENERGY	N/A	Lithium Based Energy
INVERTER	2,000 Watt Xantrex Inverter	3,000 Watt Xantrex Inverter
SHORE POWER	30 Amp Shore Power	30 Amp Shore Power
SOLAR POWER	300 Watt Solar Power	300 Watt Solar Power
AIR CONDITIONER	15,000 BTU Gree- Eco-Cool A/C with Heat pump	15,000 BTU Gree- Eco-Cool A/C with Heat pump
REAR PARKING SENSORS	Standard	Standard
BED SIZE (REAR LOUNGE)	Seats up to 3, sleeps up to 2 Bed: 66"W X 76"L (excluding head rests)	Seats up to 3, sleeps up to 2 Bed: 66"W X 76"L (excluding head rests)
AWNING	-Fiamma® 98673-165 OEM F65 (Older Models) -Girard Systems Model GRT750 (New Models) 14' X 8FT 12VDC	-Fiamma® 98673-165 OEM F65 (Older Models) -Girard Systems Model GRT750 (New Models) 14' X 8FT 12VDC
GRECH RV WARRANTY	- 3 Years up to 36,000 Miles Limited Warranty. - Grech RV warranties the specific motorhome to be free from manufacturing defects in materials and craftsmanship on portions manufactured by Grech RV under normal wear and tear. Individual components may carry their own respective warranty. - Firefly Integrations – 3 Years Unlimited Miles.	- 3 Years up to 36,000 Miles Limited Warranty. - Grech RV warranties the specific motorhome to be free from manufacturing defects in materials and craftsmanship on portions manufactured by Grech RV under normal wear and tear. Individual components may carry their own respective warranty. - Firefly Integrations – 3 Years Unlimited Miles.
MERCEDEZ-BENZ WARRANTY	Basic Limited Warranty: - 3 years or 36,000 mi Engine Limited Warranty: - 5 years or 100,000 mi 24/7 - 365 Mercedes-Benz Roadside Assistance: - 3 years or 36,000 mi	Basic Limited Warranty: - 3 years or 36,000 mi Engine Limited Warranty: - 5 years or 100,000 mi 24/7 - 365 Mercedes-Benz Roadside Assistance: - 3 years or 36,000 mi
WINDOW SHADES	Automotion Power Windows Shades	Automotion Power Windows Shades
CONTROL SYSTEM	Firefly Integrations Control System w/ Touch Screen Panel	Firefly Integrations Control System w/ Touch Screen Panel
UTILITY CENTER	LP, Cable, 30 Amp Shore Power, City Water Connection	Cable, 30 Amp Shore Power, City Water Connection
SOFA/BED	Memory Foam	Memory Foam
WINDOWS	Automotion Power Window Shades	Automotion Power Window Shades
CABINET DOORS	Hardwood Cabinets w/ Radius Doors	Hardwood Cabinets w/ Radius Doors
COUNTERTOP	Solid Surface Countertop w/Farmhouse Style Sink	Solid Surface Countertop w/Farmhouse Style Sink
FLOORING AND SUBFLOOR	Vinyl Woven Flooring w/ 3/4" Composite Honeycomb Subfloor	Vinyl Woven Flooring w/ 3/4" Composite Honeycomb Subfloor
INSULATION	Full Fiberglass Insulation	Full Fiberglass Insulation
SAFETY KIT	First Aid and Fire Extinguisher	First Aid and Fire Extinguisher
COOKTOP	2 Burner Propane Cooktop	2 Burner Induction Cooktop

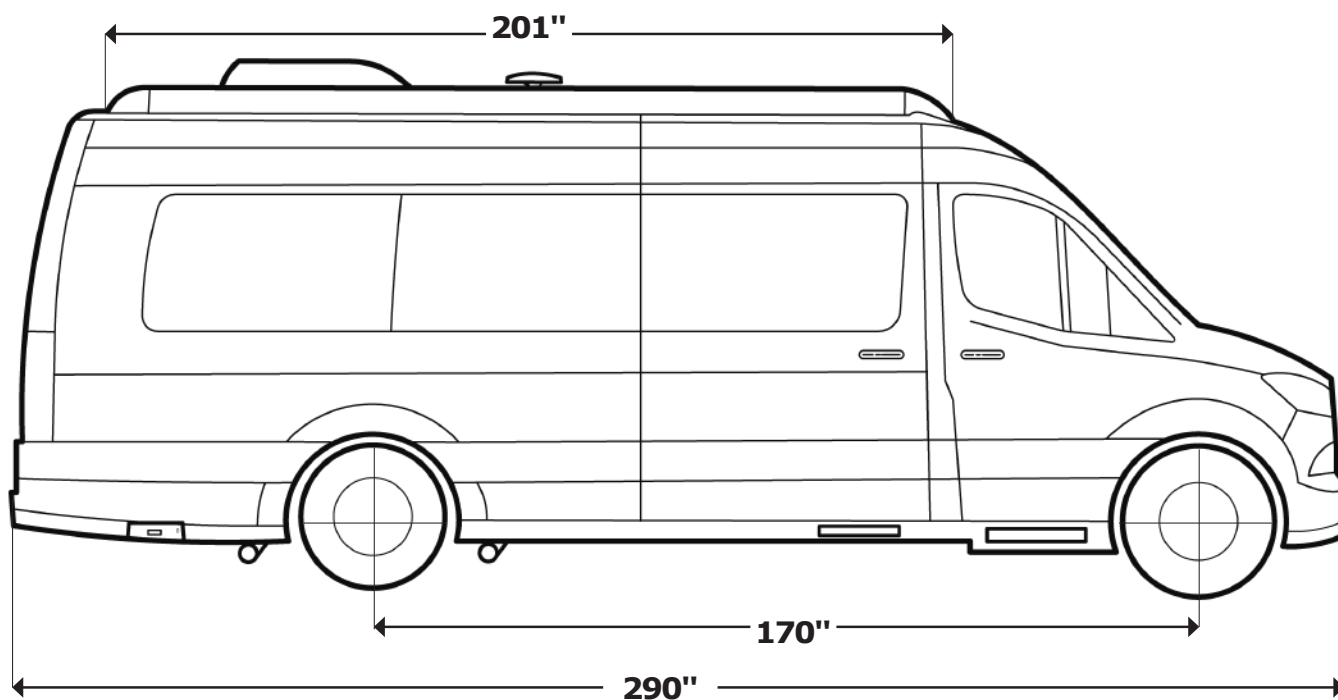
1. The height of the vehicle is measured from the ground to the top of the highest component.
2. The load capacity of your vehicle is designated by weight, not by volume, so you cannot necessarily use all available space when loading.
3. Tank capacities are based on measurements taken before installation. Slight variations may occur due to tank shrinkage or expansion.
4. The actual filled propane tank capacity is limited to 80% due to overfilling prevention device on the tank.

RV DIMENSIONS

STRADA EXT FRONT AND REAR VIEW | RWD

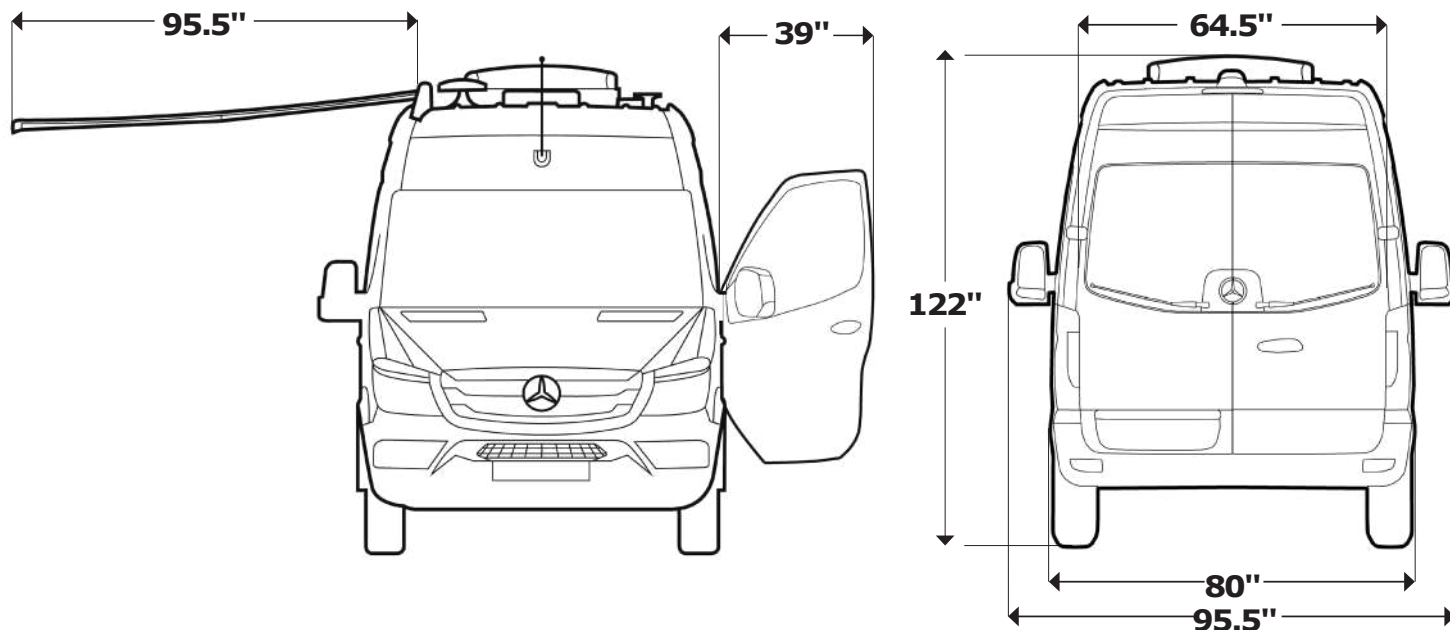


STRADA EXT SIDE VIEW (PASSENGER SIDE)

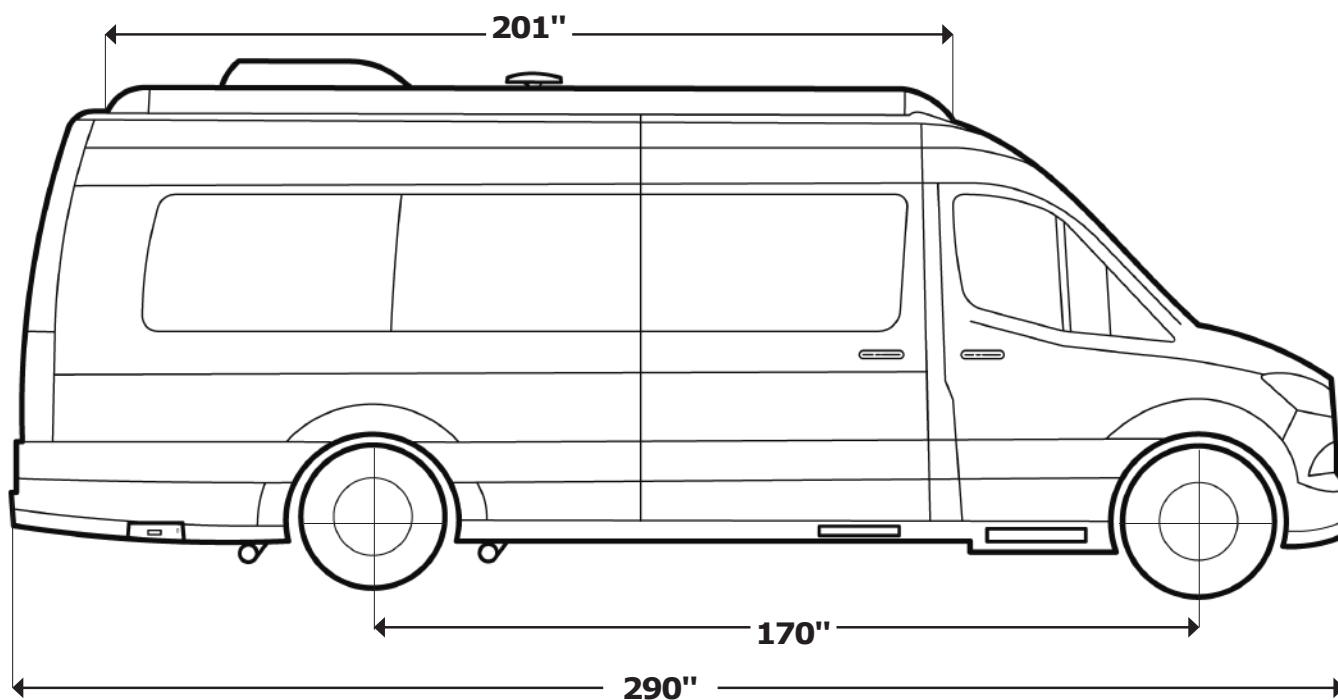


RV DIMENSIONS

STRADA EXT FRONT AND REAR VIEW | AWD



STRADA EXT SIDE VIEW (PASSENGER SIDE)



UNDERSTANDING THE WARRANTY'S POLICY



GRECH RV'S WARRANTY

Grech RV is the final stage manufacturer of a previously incomplete vehicle which is manufactured and separately warranted by a vehicle manufacturer, Grech RV's Sprinter manufacturer is Mercedes-Benz.

Should your RV require services related to the converted areas of the vehicle, read this section first before taking any action.

By doing so, you will clearly understand the Grech RV Service Process and avoid possible delays. Never initiate or attempt to diagnose a warranty repair without prior approval of the Grech RV Service Department.

A R.A.N (Repair Authorization Number) must be obtained before each warranty repair is honored. Not following this procedure could void your warranty reimbursement for that particular repair.

CUSTOMER RESPONSIBILITY

It is important you read and understand the information provided to you in the package containing all manuals pertaining to your RV.

Familiarize yourself with the applicable warranties. You are responsible and obligated to return your RV to an authorized Grech RV dealership for warranty service repairs.

As the owner of an RV, you are responsible for regular and proper maintenance performed in accordance with the Grech RV and OEM Manuals provided. Maintenance will help prevent conditions arising from neglect that are not covered under warranty.

WHAT IS MY WARRANTY PERIOD?

Grech RV, warrants the specified new vehicle to be free from defects in material and craftsmanship on portions manufactured by Grech RV, Inc. under normal use and service.

When sold by an authorized dealer:

- It shall be limited to 36 months/ 36, 000 miles (whichever comes first) after the date of purchase by the first retail purchaser from an authorized Grech RV Dealer.
- Warranty shall be fulfilled by an authorized Grech RV dealer or authorized Grech RV service facility.

Grech RV, guarantees the vehicle to be free from manufacturing defects in materials and craftsmanship on portions manufactured by Grech RV under normal wear and tear. Individual components may carry their own respective warranty.

Mercedes-Benz has warranty conditions and options such as:

- **Basic Limited Warranty:**
 - » Coverage 3 years or 36,000 miles.
- **Diesel Engine Limited Warranty:**
 - » Coverage for 5 years or 100,000 miles.
- **Mercedes-Benz Roadside Assistance:**
 - » Coverage for 3 years or 36,000 miles.

WHAT THE WARRANTY COVERS

Warrantor's Limited Warranty (L.W) covers defects in the manufacture of your vehicle and defects in materials. Provided the prior authorization that was obtained from the Warranty Department of Grech RV, all labor costs associated with the repair or replacement of defective parts will be paid by Grech RV.

The L.W doesn't extend to any part or portion of the incomplete vehicle except as specifically required by any applicable federal law or regulation.

Original Equipment Manufacturer (OEM) chassis may have been modified by Grech RV from the original configuration.

NOTICE

Grech RV reserves the right to make a physical inspection of the vehicle by authorized factory personnel following any complaint prior to any repair.

LIMITATIONS OF IMPLIED WARRANTY

There is no warranty of any nature made by the Warrantor beyond that contained in this Limited Warranty. No person has the authority to enlarge, amend or modify the terms and conditions of the above stated Limited Warranty.

The dealer is not the Warrantors agent, it is an independent entity. The Warrantor is not responsible for any undertaking, representation or warranty made by any dealer or other persons beyond those set forth in this Limited Warranty.

WHAT THE WARRANTY DOES NOT COVER

- A vehicle that has been altered outside our factory in any way so as, in our sole opinion and discretion, may affect its stability, operation or reliability.
- Damage caused by the failure to seek repairs on time.
- Damage caused by the failure to use reasonable efforts to mitigate damage caused by defects.
- Damage caused by the failure to comply with the instructions set in the Owner's Manual.
- Vehicle damaged while stored in exterior storage compartments. Exterior storage compartments may not be moisture free due to weather and humidity conditions.

UNDERSTANDING THE WARRANTY'S POLICY



- Condensation and the results of condensation including, but not limited to, water damage and the growth of mildew or mold. Mold and mildew are natural growths given certain environmental conditions and are not covered by the terms of this warranty.
- Items which are added or changed after the vehicle leaves warrantor's possession.
- Items that are working as designed, but which you are unhappy with because of the design.
- An vehicle that, in our sole opinion and discretion, has been subject to misuse, negligence, or accidents.
- Deterioration due to normal wear and usage or exposure, such as fading or discoloration, including but not limited to rust, corrosion, oxidation and cosmetic blemishes.
- Flaking, peeling and chips or damage in or on the exterior caused by rocks or other road hazards, the environment including airborne pollutants, salt, tree sap and hail.
- Defacing, scratching, dents and chips on any surface or fabric of the vehicle, not caused by warrantor.
- A vehicle that has been declared a total loss by an insurance company, or by Grech RV indicates it is designated as "salvage", "junk", "rebuilt" or a word of similar impact.
- Routine maintenance, including wheel alignments.
- Unauthorized changes made on the vehicle such as repairs, alterations, variations or modifications.
- The automotive chassis and power train is covered by its own manufacturer's warranty, including but not limited to: power train, engine, steering and handling, tires, batteries, gauges and muffler.
- The appliances and components that are covered by their own manufacturer's warranty: microwave, refrigerator, stove, water heater, televisions, stereo, DVD player, lithium batteries, heating surface, Firefly Control System, generator and roof, air conditioners and all other electronic devices.
- Damages caused by, but not limited to: hail, tornadoes, lighting, floods, earthquakes, hurricanes, fire, rain, and other environmental conditions, which include but are not limited to, tree sap, tar, chemicals, oils, salts, road hazards, stone chips, infestations, rodents.
- Failure of the coach and/or chassis resulting in incidental damages, such as but not limited to: goods stored both inside and outside the coach; loss of use and equipment of the vehicle; inconvenience; cost of rental vehicle; cost of accommodations; travel expenses; towing; meals; and other miscellaneous incidental expenses.
- Some states do not allow exclusions or limitations of incidental or consequential damages, for this reason, the above limitations or exclusion may or may not apply to you.
- The conditions of this limited warranty shall not apply to degeneration due to wear, tear and exposure after these limitations.
- **For ninety (90) days** from the original retail purchase date:
 - » Adjustments to compartment door latches, light bulbs/LEDs, fuses, remote and smoke detector batteries.
- **For one (1) year or 12,000 miles** (whichever comes first) from the original retail purchase date:
 - » All seat, curtain, door panel, wall and ceiling fabrics used in the vehicle
 - » Window seals and caulking
 - » Exterior TV outlets
 - » Floor coverings
 - » Exterior striping
 - » Painted plastic exterior body molding and bumpers
 - Painting exterior moldings magnifies the original equipment manufacturer condition of the plastic molding
 - Some conditions of the plastic, such as but not limited to, body attachment points and texture may be more visible when painted (considered normal).
- **For three (3) years or 36,000 miles** (whichever comes first) from the original retail purchase date:
 - » Exterior painted surfaces

OWNER'S WARRANTY

Grech RV neither assumes nor authorizes any other person to assume for us any liability in connection with the sale of our vehicles other than expressed above.

All correspondence should be directed to the authorized Grech RV dealer from whom the vehicle was purchased and must give the serial number and date of purchase of the vehicle.

The original retail customer of the vehicle prior to performing any work in case of wanting to make any change or alteration on the vehicle, must obtain a Repair Authorization Number (RAN) of the vehicle and should contact the Warranty Department of Grech RV.

Grech RV reserves the right to make changes in vehicles already built and/or sold at any time without incurring any obligations to make the same or similar changes on vehicles previously built and/or sold by Grech RV.

UNDERSTANDING THE WARRANTY'S POLICY



EMERGENCY REPAIRS

For emergency repairs while traveling, you may choose to deal with non-authorized RV service facilities; however, all warranty repairs must be pre-authorized by Grech RV. Grech RV will, at its option, replace or repair free of charge any defective part, including labor. The purchaser shall notify their authorized Grech RV dealer within the warranty period.

If you obtain warranty repairs from a non-authorized RV service facility without Grech RV pre-authorization, it is at Grech RV sole discretion whether or not to reimburse the claim.

The above Limited Warranty applies to all owners, including subsequent owners, of the RV. However, a subsequent owner must submit a warranty transfer form by filing the form through an authorized Grech RV dealer. A subsequent owner's warranty period shall be the remaining balance of the warranty coverage period that the prior owner was entitled to under this Limited Warranty. Warranty transfer forms can be obtained by contacting the Grech RV's service department. There is no charge for the transfer.

WHAT WE'LL DO TO CORRECT PROBLEMS

Warrantor will repair and/or replace, at its option, any covered defect if:

1. You notify the Warrantor or one of its authorized servicing dealers of the defect during the warranty coverage period time and within five (5) days of discovering the defect.
2. You deliver your vehicle to Warrantor or Warrantor's authorized servicing dealer at your cost and expense.

For the repair of your vehicle, warrantor may use new and/or remanufactured parts and/or components of substantially equal quality to complete any repair.

Defects and/or damage to interior and exterior surfaces, trim, upholstery and other appearance items may occur at the factory during manufacture, during delivery of the vehicle to the selling dealer or on the selling dealer's lot. Normally any defect or damage is detected and corrected at Grech RV or by the selling dealer during the inspection process performed by the warrantor and/or the selling dealer.

If, however, you discover any defect or damage when you take delivery of the vehicle, you must notify your dealer or Warrantor within five (5) days of the date of purchase to have repairs performed at no cost to you as provided by this Limited Warranty.

In case that two or more unsuccessful repair attempts have been made to correct any covered defect that you believe substantially impairs the value and/or use of safety of your RV, you must, to the extent permitted by law, notify warrantor directly in writing of the failure to successfully repair the defect so that Warrantor can become involved in performing a successful repair to the identified defect.

WARRANTY SERVICE FORMS

The Warranty Registration form must be returned to Warrantor promptly upon purchase to assure proper part replacement or repair of your RV. Failure to return the warranty registration form will not affect your rights under the Limited Warranty so long as you can provide proof of purchase.

For warranty service, simply contact one of warrantor's authorized service centers for an appointment, and then deliver your RV (at your expense) to the service center.

If you need help or assistance in locating an authorized warranty service facility, contact Grech RV Warranty Department's number (1-855 994-7324) or at:

Grech RV
Attn: Service Department Manager
6915 Arlington Avenue
Riverside, California 92504

In the event the RV roadside assistance is needed refer to Mercedes Benz Road Side Assistance. The warrantor will not have control and is not responsible of the authorized servicing dealers scheduling of service work

Some delay in scheduling and/or in the completion of the repairs may or may not happen when trying to repair your RV at the nearest authorized repair facility.

ⓘ CAUTION

In the event that it becomes necessary and/or required to tow your RV, refer to Mercedes-Benz guidelines.

OBTAINING WARRANTY REPAIRS

To obtain warranty repairs, you must contact your **authorized Grech RV dealer** and schedule an **appointment**. It is best if you have a written **list of defects** or items in need of repair. As the owner, you are solely **responsible** for the maintenance of the RV as required or recommended by this owner's manual and **associated costs** by failure to maintain the RV as required or recommended are **not** covered by warranty.

UNDERSTANDING THE WARRANTY'S POLICY



WARRANTY REPAIRS PERFORMED

There are three (3) methods:

1. Repair is done at the Grech RV Service Department, in Riverside, California.
2. Repair is done at a Grech RV authorized service facility near you.
3. Repair is done at a shop of your choice, with prior approval of the Grech RV Service Department.

NOTICE

Grech RV does not control the scheduling of service work at authorized or independent dealerships. You may encounter some delay in scheduling or completion of work.

If either method 2 or 3 are to be used, you must obtain pre-authorization and a Repair Authorization Number (R.A.N), Grech RV Service Department in advance of performing any repairs.

Both requirements may be accomplished from a single phone call to the Grech RV Service Department, at [\(1-855-994-7324\)](tel:1-855-994-7324).

WARRANTY SERVICE PROCEDURES

Warranty repairs must be within three years or 36,000 miles (whichever comes first) limited warranty. Grech RV warranty registration cards must be on file before any claims will be processed. Claims made without warranty registration cards will be rejected until proof of ownership can be established.

Grech RV will not reimburse any claims for work done on any components or appliances that are covered under their respective manufacturer's warranties. These warranties must be claimed through the manufacturer of the appliance or component. Examples include but are not limited to: refrigerator, microwave, roof air-conditioning, water pump, furnace, TV etc.

All warranty work required to be done on the chassis must be taken to an authorized Mercedes-Benz dealer and processed through their warranty procedures.

Grech RV will not reimburse any claims regarding the chassis. Grech RV will pay for the removal and reinstallation of RV components only if it is absolutely necessary to perform chassis warranty repairs. Grech RV will not reimburse any costs in the removal and re-installation of these components if it is: out of the warranty period; non-warranty repairs; and/or routine maintenance or service.

WARRANTY VERSUS NON-WARRANTY

Whether a particular problem is covered under the Grech RV Warranty depends, in some cases, on several factors. The Grech RV Service Department, determines coverages ahead of time on a case-by-case basis, either over the phone or at our Riverside, California facility.

NON-WARRANTY REPAIRS PERFORMED

If the service manager has determined that the repair is not covered, or you are sure that it is not covered, we would be pleased to recommend a service shop in your area, or schedule an appointment with the Grech RV Service Department, whichever is more convenient.

Other non-warranty parts and/or components needs may be handled by contacting the Grech RV Parts Department, directly at [\(1-855-994-7324\)](tel:1-855-994-7324). In order to expedite your parts order, have your Grech RV serial number, which starts with G-#####, it is located on the driver's door jamb of the RV.

EVENTS DISCHARGING WARRANTOR FROM OBLIGATION UNDER WARRANTY

Grech RV shall have no liability for any defect or damage caused by the original owner's use of parts or services which are not authorized by Grech RV or for any parts or paint which have been subject to misuse, neglect or accidents, or have been subject to external mechanical or chemical influences, especially stone chips, airborne rust or industrial fall-out.

Additionally, Grech RV will not have accountability for: misuse or neglect, accidents, unauthorized alterations, failure to provide reasonable and necessary maintenance, damage caused by off-road use, collision, fire, theft, vandalism, explosions, overloading, and odometer tampering shall discharge warrantor from any expressed or implied warranty obligation to repair any resulting defect.

NOTICE

It is the policy of Grech RV, to incorporate product improvements to our products whenever possible or practical to do so. We reserve the right to make changes and/or improvements at any time without incurring any obligation to make changes on previously sold products.

The information and specifications stated in this manual are current at time of publishing. Subsequently, all information contained in this manual is subject to change at any time, without notice.

If there is any doubt as to whether or not a repair is related to the Grech RV Warranty, call the Grech RV Service Department at [\(1-855-994-7324\)](tel:1-855-994-7324), this may save you time wasted at a chassis dealer or another service shop for a problem appropriately solved by contacting Grech RV Service Department.

UNDERSTANDING THE WARRANTY'S POLICY



CUSTOMER ASSISTANCE

Warranty repairs to your vehicle must be performed by an authorized dealer. While any authorized dealer handling your vehicle line will provide warranty service, we recommend to return to your selling authorized dealer who will want to ensure your continued satisfaction.

Some warranty repairs require special training and equipment, so not all authorized dealers are authorized to perform all warranty repairs. This means that, depending on the warranty repair needed, you may have to take your vehicle to another authorized dealer.

Time must be allowed to perform a repair after taking your vehicle to the authorized dealer. Repairs shall be made using new or remanufactured Grech RV components or other elements or components that are previously authorized by Grech RV.

AWAY FROM HOME

If you are away from home when your vehicle needs service, contact the Grech RV Customer Relations or use the online resources listed below:

Grech RV
Customer Relationship
6915 Arlington Avenue
Riverside, California 92504
Telephone: (1-855-994-7324)

ADDITIONAL ASSISTANCE

If any questions or concerns arise or you are unsatisfied with the service you are receiving follow these steps:

- 1.** Contact your Sales Representative or Service Advisor at your selling/servicing authorized dealer.
- 2.** If the defect or concern remains unresolved, contact the sales manager, service manager or customer relations manager.
- 3.** If you require assistance or clarification on Grech RV policies, please contact the Grech RV Customer Relationship Center.

For an easier and faster process please have the following information available when contacting Customer Relationship Center:

- VIN (Vehicle Identification Number)
- Your telephone number (home and business)
- The name of the authorized dealer and city where it is located.
- The vehicle's current odometer reading.

In some states, you must directly notify Grech RV in writing before pursuing remedies under your state's warranty laws. Grech RV is also allowed a final repair attempt in some states.

In the United States, a warranty dispute must be submitted to the BBB AUTO LINE before taking action under the Magnuson-Moss Warranty Act, or to the extent allowed by state law, before pursuing replacement or repurchase remedies provided by certain state laws.

To learn more about the specific automotive chassis not covered under the Grech RV Warranty or any other component in your vehicle, please contact your authorized selling dealer, Grech RV or review your Mercedes-Benz warranty package information.

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 Grech RV.

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

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

Or visit, <http://www.safercar.gov> to obtain other information regarding vehicle safety or write to:
Administrator
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

NOTES



INSPECTION

Any item not passing inspection, must be reported immediately, before operating vehicle. Failure of highlighted item(s) to pass inspection will cause vehicle to be grounded.

	INSPECTION PROCEDURE	Pass	Fail
1	Check preventative maintenance schedule for services due at present mileage		
2	Calculate Load Carrying/Payload Capacity		
3	Check operation of drivers seat and seat belt		
4	Check operation of steering wheel and shift levers		
5	Check operation of turn indicators		
6	Check operation of foot pedals and parking brake		
7	Check operation of all gauges, for normal reading with engine running		
8	Check operation of dash indicator lights with key on, engine not started, then again with engine started		
9	Check operation of ventilation system: heating, defrosters, fans and air conditioning		
10	Check horn, wipers, washers, and mirrors for cleanliness, adjustment, operation and damage		
11	Check conditions of fire extinguisher and first aid kit		
12	Check all doors, glass and windows for operation, cleanliness, and damage.		
13	Check all emergency exits for operation, warning devices, markings, to be free and clear.		
14	Check interior lighting: for operation and damage.		
15	Check exterior lighting for operation and damage.		
16	Check exterior for cleanliness, markings and damage.		
17	Check fuel cap in place and secure.		
18	Check all tires and wheels for tread depth, cracks & bulges, missing lug nuts, and air pressure.		
19	Check engine coolant level.		
20	Check power steering fluid level.		
21	Check brake fluid level.		
22	Check DEF (Diesel Exhaust Fluid).		
23	Check belts for tension and wear.		
24	Check operation of cameras, if applicable		
25	Check operation of audio and video system, if applicable		

⚠ WARNING

Discontinue operation of the vehicle, if a door opens while the vehicle is in motion.

⚠ WARNING

Discontinue operation of the vehicle, if any critical item on the pre-trip inspection list fails to pass, or until all problems have been resolved.

📢 NOTICE

Never operate this vehicle until the problem has been resolved.

⚠ CAUTION

If a door ajar warning light is lit, check all doors for proper closure.

SAFETY AND DRIVING

VEHICLE PREPARATION AND SAFETY GUIDELINES

Before beginning any trip, ensure you are thoroughly familiar with the operation and conditions of your vehicle. Make sure you know all about the components, features, appliances and limitations.

It is the responsibility of the owner and operator to read, understand and follow all considerations and instructions in this manual, the chassis manual, all appliances/equipment system manuals located in the information kit provided to you .

Adequate preparation is essential for an enjoyable, successful and safe trip. The time you spend getting to know all about your vehicle will enhance the enjoyment of you and the passengers, will maximize the experience and contribute to a more prosperous, rewarding and fortunate trip.

Safety, comfort and easy of operation of your vehicle are key considerations during the design and manufacture of all vehicles.

In this manual you will find boxes with safety labels with key words such as: Danger, Warning, Caution and Notice which will emphasize areas of special concern in your sprinter. The meaning of these key words are:

⚠ DANGER

Indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, COULD result in death or serious personal injury and/or damage to the vehicle.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, COULD result in minor or moderate personal injury and/or damage to the vehicle.

ⓘ NOTICE

Identifies hazards not related to personal injury.

CHECKLISTS

SAFETY CHECKLIST

The following checklists highlights items that need to be checked on the vehicle before traveling. Prior to departing several items will need to be prepared.

Regular use of this checklist will provide a safe operation and long life span of your vehicle. It will also help to find a malfunction in an equipment or component before there is a bigger problem. By doing so, there is a better chance of not facing problems in the future.

EXTERIOR CHECK LIST

Before entering your RV, follow these essential steps:

1. Tire Inspection

- Verify the condition of the tires.
- Maintain cold inflation pressure as recommended per tire specifications.

2. Turn Off Remote LPG Valve Switch

- Make sure the remote LPG valve switch is turned off.

3. Exterior Component Check

- Ensure all exterior components are unhooked and securely stored.

4. Compartment Security

- Confirm that compartments and water filling openings are closed and locked.

5. Securing Items

- Check that any items hooked or tied on the vehicle are properly secured.

6. Fluid Levels

- Adhere to all guidelines for checking and filling fluid levels.

7. Lights and General Condition

- Inspect exterior lights and assess the overall condition of the vehicle.

8. Safety Clearances

- Ensure there are no obstacles in the vehicle's path that could cause accidents or damage to the vehicle.

9. Belongings Verification

- Confirm that all personal belongings are safely stored inside the vehicle.
- Verify that no items are left behind on the exterior.

10. Hitch Cover Safety

- If the hitch is not in use, ensure the hitch cover is securely in place and closed.

SAFETY AND DRIVING

INTERIOR CHECK LIST

Before driving your RV, adhere to these guidelines:

1. Refrigerator Safety

- Ensure the refrigerator door is securely closed and latched to prevent spills or injuries.

2. Secure Loose Objects

- Check for small and potentially dangerous objects on countertops or shelves.
- Secure items to prevent injuries or loss in the event of crash or sudden braking.

3. Cabinet Weight Distribution

- Avoid storing heavy items in high cabinets; place them in low cabinets for stability.

4. Hazard Awareness

- Be mindful of food and liquids, securing them to prevent hazards during sudden movements.

5. Door Security

- Confirm all doors are closed and securely locked while traveling.

6. Internal Stowage Security

- Verify that internal stowage is securely held in place.

7. Switches and Lights

- Set switches and lights in safe positions for travel.

8. Driver's Seat Comfort and Control

- Adjust the driver's seat to a comfortable position within reach of all controls.
- Modify the driver's seat only when the vehicle is parked and turned off to prevent accidents.

9. Passenger Seat Belts

- Ensure all passengers are secured with seat belts.

10. Mirror Adjustment

- Check and modify mirror adjustments if necessary for maximum visibility.

11. Child Passenger Safety

- Small children should be in a federally-approved child restraint chair or device to enhance safety during a crash or sudden braking.

By adhering to this exterior and interior checklist, you contribute to the safety and optimal performance of the RV.

PRE ROAD TRIP TIPS

1. Traveling:

- Refer to the chassis manual in the RV Information Kit for the engine starting, operation and stopping instructions.

2. Inspection:

- Be aware of differences between passenger automobiles and an RV when travelling. The key to safely operating an RV is inspection. Any defect found could result in problems on the road, causing a loss of time and money. Check for any required inspections before registration, as laws may vary. A systematic inspection conducted prior to moving your vehicle will ensure nothing is overlooked and will assist in familiarizing the owner with the vehicle.

3. Get Acquainted

- The location and height of the driver's seat in the RV is higher and further to the left than in most vehicles. This creates a different perspective of the roadway. Rely on the outside mirrors to align with the center of the road and check conditions behind the vehicle. The dashboard may contain more gauges and controls than what is normally found in a passenger car. Become familiar with these gauges and their indications before starting your journey.

4. Controls

- RV driver controls are similar to those of an automobile. Steering and braking controls are power-assisted to make driving as comfortable as possible. Since the RV is higher, wider, and heavier than any automobile, the operator must anticipate and account for these differences.

SAFETY AND DRIVING

SEAT BELT SAFETY GUIDELINES

For the safety of all occupants, adherence to seat belt usage is imperative while the vehicle is in motion. Both the driver's seat and all designated passenger seats equipped for travel are fitted with safety seat belts. Avoid occupying beds or seats lacking safety belts during vehicle movement.

To optimize safety:

- The driver and passenger seats must be consistently locked in the forward-facing position while the vehicle is in motion.
- Proper seat belt fastening involves pulling the belt from the retractor and inserting it into the buckle until a distinct click is heard.

These measures contribute to a secure and protected travel environment for all.

CARE FOR SEAT BELTS

Maintaining clean and dry seat belts is essential for their effectiveness and longevity. Follow these guidelines for proper care:

Cleaning:

- Use mild soap and lukewarm water to clean the seat belts.
- Avoid using bleach, lye, or abrasive cleaners, as they can weaken the belt.

Periodic Inspection:

- Regularly inspect the seat belts for any signs of damage.
- Check for cuts, frays, or loose parts that may compromise safety.

Severe Impact:

- In the event of a severe impact, consider replacing the entire belt assembly, even if there is no visible damage.

By adhering to these practices, you ensure that seat belts remain in optimal condition, contributing to the safety of all occupants.

ⓘ CAUTION

For optimal safety:

Seat Belt Attachment:

- Use seat belts exclusively on permanently mounted seats.

Individual Use:

- Do not use a single seat belt for more than one person.

Following these guidelines ensures the effectiveness of seat belts and enhances the safety of each occupant during travel.

DRIVING TIPS

MOUNTAIN DRIVING

When navigating hills or mountainous terrain, apply safe driving techniques tailored to the specific conditions. Prioritize checking and becoming familiar with the area to preemptively address potential challenges.

CLIMBING A HILL

Effectively traverse steep inclines by employing the following strategies:

Utilize Lower Gears:

- Opt for lower gears when ascending steep inclines. Lower gears provide increased torque, aiding in efficiently pulling the weight uphill.

Transmission Strategy:

- The vehicle's transmission is designed to automatically down-shift during prolonged uphill climbs. If you notice frequent shifting, manually select the lower gear for the duration of the climb to mitigate unnecessary wear and tear on the transmission.

Implementing these practices enhances safety, efficiency, and minimizes stress during mountainous journeys.

DESCENDING A HILL

- **Selecting Lower Gear:** When descending a hill, opt for a lower transmission gear to avoid prolonged brake applications. Continuous use of brakes under extreme conditions can lead to excessive wear, overheating, and potential failure, compromising control of the vehicle.
- **Utilizing Engine Braking:** For long descents, leverage the engine's braking force to maintain a safe, gradual speed. Avoid relying solely on the service brakes, as this can lead to overheating and reduced effectiveness.
- **Caution Against "Pumping" Brakes:** Avoid the practice of "pumping" or riding the service brakes during a descent, as it can lead to brake overheating and diminished effectiveness. Instead, use moderately heavy pressure on the brake pedal to achieve the desired speed and then release it.
- **Transmission Downshifting:** Before descending a grade, downshift the transmission to a lower gear, allowing the engine to assist in slowing the vehicle. Continuously monitor the speed during the descent.
- **Auxiliary Braking Device:** In the event of acceleration or the need to slow down while descending, activate the auxiliary braking device for additional control.

SAFETY AND DRIVING

NOTICE

A safe driving practice is to use the same lower gear position when descending a hill that you used while climbing the hill.

CAUTION

Extended brake applications can cause excessive wear, overheating and under extreme conditions, brake failure that could cause you to lose control of the vehicle.

BACKING UP GUIDANCE

Backing up poses a perpetual challenge, whether you're an experienced owner or a novice. To navigate this task successfully, rely on a combination of mirrors, a back-up camera, and the assistance of a co-pilot. It is advisable to practice in a parking lot before hitting the road, emphasizing the collaborative nature of backing up.

Initiate the Process:

- Begin the backing-up process while the vehicle is in forward motion.

Alignment Maneuver:

- Maneuver the vehicle to align with a chosen reference point or sign. This initial alignment sets the stage for a straight approach to the desired site.

Visibility Check:

- Ensure the vehicle is properly aligned with the site, making the parking area visible in both mirrors.

Utilize Reference Points:

- Use straight lines, such as road markings, as reference points to guide the backing-up process.

Remember, backing up is a team effort. Utilize the resources available, practice in controlled environments, and leverage reference points for a smoother and more precise backing-up experience.

NOTICE

If the destination does not have a "pull through" site, try to pick a solid, level site. If possible pick a site located on the left/drivers side of the vehicle.

BACKING UP PROCEDURE

In situations where there is no available spot on the left side, the driver will rely on right-side mirrors, which offer reduced road vision and increased blind spots

Pre-Backing Checks:

- Before initiating the backing-up process, it is crucial to bring the vehicle to a complete stop. Exit the vehicle and survey the area for potential obstacles such as rocks, low-hanging limbs, and signposts.

Co-Pilot's Role:

- The co-pilot plays an equally vital role. When backing up, position the co-pilot at the roadside corner for continuous visibility in the roadside mirror. This ensures the co-pilot can monitor for obstacles and provide hand signals during the process.

Safety Measures:

- If the driver loses sight of the co-pilot, the backing-up process halts until visibility is restored.
- If uncertainties arise, or if the driver is unsure of the surroundings, it's essential to pause the process and inspect all angles and potential concerns.

Communication:

- Utilizing walkie-talkies can greatly enhance communication efficiency between the co-pilot and driver, ensuring a smooth and well-coordinated backing-up process.

ON THE ROAD GUIDELINES

While the vehicle is designed for safe and comfortable travel at regular highway speeds, consider the following factors:

Passing Other Vehicles:

- Due to the extended time required to reach normal highway speeds, plan ahead when attempting to pass another vehicle. This is particularly crucial when passing uphill.

Descending a Hill:

- When descending a hill, be mindful of the added weight of the vehicle, necessitating heightened attention to speed, road conditions, and distance from other vehicles.

Traffic Awareness:

- Before entering traffic, practice stopping to familiarize yourself with the vehicle's stopping distance. Understand the distance required to come to a complete stop.

By being mindful of these considerations, you enhance safety and ensure a more controlled and informed travel experience on the road.

SAFETY AND DRIVING

DRIVING SAFETY TIPS

Backing Assistance:

- When backing the vehicle, have someone stand on the rear, driver's side to guide you.

Route Planning:

- Before embarking on a trip, check routes for height restrictions, especially considering tunnels that may prohibit vehicles with LP gas systems.

Seatbelt Usage:

- While traveling, ensure all occupants correctly use their seatbelts for safety.

Secure Interior Items:

- Check that all doors are closed, and secure cabinets, drawers, and loose objects while in motion.

Fire Safety:

- Instruct passengers on fire safety protocols and maintain a properly charged fire extinguisher on board.

Tire Maintenance:

- Regularly check tires while traveling, monitoring tire pressures before each trip and refueling.

Emergency Preparedness:

- Carry a cell phone for emergencies. Do not drink and drive, text and drive, or use a cell phone while driving. Use hands-free systems.

Defensive Driving:

- Recognize the vehicle's limitations, including longer stopping distances and slower acceleration. Maintain ample space between vehicles and stay alert.

Mirror Usage:

- These vehicles have large blind spots, so use mirrors constantly. Signal early when changing lanes and be cautious of traffic in blind spots.

Braking Techniques:

- Stopping requires time and space. Maintain a safe distance from other vehicles to allow for proper braking.

Steep Hills and Downhill Slopes:

- Vehicles may struggle on steep hills. Slow down, shift to a lower gear, and monitor temperature gauges. Exercise caution on downhill slopes to prevent brake overheating.

Road Placement:

- Keep the vehicle in the center of the lane, as it is wider than a regular vehicle.

Turning Maneuvers:

- Make extended, wide turns, especially for right turns. Plan ahead, staying close to the center lane to avoid accidents.

Parking Precautions:

- If uncomfortable, have someone assist in directing the vehicle into parking spots. Be mindful of the reverse movement of trailers while towing.

By adhering to these safety tips, you enhance your driving experience and contribute to a safer journey on the road.

SAFETY AND DRIVING

TRAVEL TIPS

As you embark on your journeys, drawing from personal experiences and sharing insights with fellow travelers can enrich your adventures. Explore camping and travel tips in outdoor magazines for additional guidance.

Here are some fundamental suggestions to enhance your travel and camping experience:

- Ensure all refrigerator and cabinet doors are securely closed. Exercise caution when opening after travel, as contents may have shifted.
- Familiarize yourself with the height and width of your vehicle, considering bridges and tunnels during your travels.
- Utilize mirrors while driving to gauge your position on the road. Remember, your vehicle requires a unique driving style compared to standard vehicles.
- When towing, ensure the combined weight of the towed vehicle stays within the GCWR specified on the vehicle certification label.
- Review travel routes in advance.
- Fill your water tank with clean, potable water.
- Avoid using a new hose to prevent any residual taste of rubber or vinyl.
- Practice water conservation, especially during showers, as holding tanks have limited capacity.
- Dispose of sewage only at approved dumping sites.
- Store liquids in plastic containers with secure seals to prevent leaks.
- Monitor holding tank levels regularly.
- Dumping regularly helps prevent buildup and potential odors. After dumping, add water to the black water tank to prevent solids from settling. Dump the black tank first, followed by the gray tank, to ensure effective waste removal.
- Avoid leaving odor-causing food or materials in your vehicle for extended periods. Ensure wet clothing and towels are thoroughly dried before storage.
- Confirm the readiness of your fire extinguisher and ensure all passengers are familiar with its operation. Prioritize safety by understanding the proper use of the extinguisher in case of emergencies.

SAFETY AND DRIVING

DRIVING CAUTIONS

Edge of the Road:

- Avoid getting too close to the road's edge; soft shoulders may not support the weight of the vehicle.

Lane Positioning:

- Maintain optimal side spacing by centering the vehicle in the driving lane.

Work Zone Awareness:

- Exercise caution in work zones with uneven, congested, and narrower driving lanes.

Debris Awareness:

- Be vigilant for road debris that may damage the undercarriage or become lodged in dual tires, risking damage to tires or wheel rims.

Adapting to Speed Limits:

- Acknowledge that posted speed signs are rated for passenger automobiles. Adjust speed appropriately for sprinters driving conditions, especially on corners and mountain roads.

Downgrade Speed:

- Set downgrade speed at least 5mph less than upgrade speed, or a speed attainable within three seconds of brake application.

Following Distance:

- Maintain a four-second rule when following vehicles at speeds under 40mph.
- Extend to a five-second rule when following at speeds over 40mph.

NIGHT DRIVING

Rest and Alertness:

- Ensure you are well-rested and alert before night driving. If needed, find a safe spot to rest until ready to continue.

Interior Lights:

- Avoid using interior lights while driving to prevent glare on the windshield and enhance visibility.

Dash Light Dimming:

- Dim dash lights to a comfortable level to reduce glare.

LEFT TURNS

Intersection Approach:

- Begin the left turn when the center of the intersection is reached with your hips. Opt for the right-hand lane if two lanes are available, as it offers better visibility to other drivers.

CAUTION

SIDE MIRROR ADJUSTMENT

Ensure the proper adjustment of the convex wing mirrors on the vehicle for enhanced visibility down the sides of your unit. Both you and your co-pilot should be able to utilize these mirrors effectively. The convex mirrors expand the field of vision, especially in blind spot areas, providing better visibility of passing vehicles and moving tires. However, keep in mind that objects may appear closer than they are, so refrain from using convex mirrors to judge distance accurately.

RIGHT TURNS

Negotiating a right-hand turn in a vehicle can be challenging. Many drivers may worry about encroaching into the adjacent lane or jumping the curb. Here are tips to make a right-hand turn easier:

- As the turn approaches, check the left lane in the mirror to ensure it's clear, then move wide to the left.
- When about to make the turn, ensure the left rear wheel touches the center line of the road, and your hips are parallel to the curb of the corner. This helps avoid a premature turn.
- Execute the turn slowly.
- Check mirrors frequently, maintaining awareness of necessary clearance and space management while negotiating the turn.

SAFETY AND DRIVING

WEATHER CONDITIONS

As a traveler and driver, exploring new and remote areas may expose you to unusual and severe weather conditions. Stay vigilant and follow safety precautions:

- Be alert to sudden weather changes. Check weather reports frequently to stay informed.
- **Weather Watch:** Severe weather may develop. Be prepared.
- **Weather Warning:** Severe weather is occurring or imminent. Find a safe location immediately.
- Camp away from water bodies, leaving ample space and elevation between your vehicle and the water.
- In case of a flood, do not attempt to move your vehicle. Abandon it and return only after water levels subside. Never drive through flooded areas.
- Follow all warnings and instructions from local authorities.
- Stock up on survival supplies for several days, including food, water, first aid items, and necessary medications.
- Inform someone of your destination and schedule when leaving home. Notify them of any changes to your plans.

WET CONDITIONS

The risk of hydroplaning is higher with worn or improperly inflated tires. Be mindful that heavy rain or deep standing water can impact brake application, causing uneven application or grabbing.

EXTREME HOT WEATHER

Regularly check all gauges for any variations from normal conditions. Monitor tire pressure frequently, especially in hot conditions, as tire air pressure increases with heat. Avoid letting air out of hot tires; they will return to the correct pressure when cooled. Pay extra attention to hoses and belts, as they are more susceptible to fatigue in extreme heat.

COLD CLIMATE CONDITIONS

Prepare the van for cold weather use. Maintain slow and steady speeds, make gradual moves, and increase visual distance for improved reaction time. In treacherous road or weather conditions, find a safe stopping place and wait for conditions to improve. Ensure wipers are in good condition, the washer reservoir has sufficient antifreeze-containing fluid, use mirror heat to keep them clear, and remove any ice build-up from entry steps to prevent slipping.

GENERAL HANDLING

The power-to-weight ratio is lower than that of the average automobile. It is essential to compensate for slower acceleration when moving into traffic or when passing another vehicle. Allow extra room to corner and to change lanes. When going underneath a bridge or similar overhang, you must be aware of your maximum height.

HIGH WIND HANDLING

High winds or strong wind gusts may lead to unpredictable handling and control. When encountering high winds or strong wind gusts, proceed as follows: Slow down significantly so you can maintain control of your vehicle. Find a safe place to pull off the road and take shelter. Park your vehicle facing directly into the wind to minimize high wind buffeting.

NOTICE

All occupants must be familiar with the safety precautions and tips written in this manual and should be alert to changing weather.

NOTICE

Always know the weather forecast for your area, along with your destination and your route on travel days.

CAUTION

Choose campsites with an eye toward potential hazards if a sudden storm were to sneak up on you. Trees with low-hanging branches, nearby bodies of water, and other natural or man made objects can quickly become dangerous in an extreme weather situation.

CAUTION

Be aware of your location and surroundings. In the event of an emergency, you'll want to be able to report the address of your location to authorities.

EMERGENCIES

EMERGENCIES WHILE DRIVING

SAFETY PRECAUTIONS

Your vehicle is designed with features that allow the driver and occupants to resolve some emergencies or failures while traveling. Review this section to become familiar with the recommended procedures to resolve these conditions or situations.

When traveling with your vehicle, there might be certain situations, emergencies, or failures that the driver and passengers should know how to handle and resolve. Review this section to familiarize yourself with the recommended procedures to resolve any particular emergencies or problems you may encounter.

HAZARD WARNING LIGHTS

Your vehicle is equipped with a hazard warning light system. Front and rear turn signals flash in unison when the system is turned on. It is located in the cockpit.



To switch on/off: Press the Hazard Warning Lamp Switch. If you have indicated a turn while the hazard warning lamps are switched on, only the turn signal lamps on the side of the vehicle selected will light up.

The hazard warning lamps will switch on automatically if:

- An airbag is deployed.
- You brake sharply and bring the vehicle to a halt from a speed of more than 45 mph (70 km/h).

If the hazard warning lamps have been switched on automatically, press the hazard warning lamp switch to switch them off.

NOTICE

Hazard warning lamps work even when the ignition is switched off.

Activate the hazard warning lights whenever the vehicle is stopped on the side of the road or near moving traffic. The hazard warning lights alert other drivers to a potential hazard, prompting them to take extra precautions. The hazard warning lights will continue flashing when the switch is on, even when the key is in the off position or removed from the ignition.

FLAT TIRE

If you experience a flat tire while operating your vehicle, gradually slow down to prevent loss of control and pull over to the side of the road. Whether the tire blows while driving or you discover a flat in the morning, stop on a level paved surface and engage the parking brake.

This vehicle doesn't come with a spare tire, let alone a jack capable of lifting its weight. Even if you had the proper equipment, it would take up space you may not have for your vehicle. The safest and most reliable option is to contact a mechanic or a qualified roadside repair service specialist.

Follow these steps if you need to change a tire or have the opportunity and equipment to do so:

1. Turn on the hazard warning lights.
2. Place wheel chocks in front and rear of the tires on the opposite side of the flat tire.
3. Immediately contact a qualified roadside repair service specialist since your vehicle is not equipped with a spare tire.
4. If roadside service is unavailable, inspect the flat tire to determine if you can service or repair it.
5. If you can service or repair the flat tire, you must raise the vehicle using the jack.
6. Consult the chassis manual in the vehicle information kit provided with the vehicle to locate the appropriate jack placement locations on the chassis.
7. If the ground is soft or unstable, carefully move the vehicle to a safe location before attempting to lift it with the jack.
8. Use a jacking board for stability on loose or soft ground.
9. Raise the vehicle with the jack following the instructions in the chassis manual.
10. Never allow a person to be under the vehicle at any time while raising or supporting it with the jack.
11. Before resuming travel with a new or repaired tire, ensure the lug nuts are tightened in the proper sequence and to the torque specified in the chassis manual. Use a torque wrench to ensure the specified torque is achieved. Recheck and retorque the wheel lug nuts after 25 and 100 miles (40 miles and 160 km) of operation.

NOTICE

It is important to take a regular account of each tire's pressure. You should check your tire pressure every morning before you drive. Ensuring that they're at the right pressure will not only save you from possible blowout, but it'll also keep you driving with better fuel efficiency.

EMERGENCIES

VEHICLE PREPARATION

SAFETY PRECAUTIONS

If you are careless with dangerous materials such as cigarettes, matches, flammable material, or any hazardous material, the potential for accidents is substantially elevated.

WEIGHT DISTRIBUTION

It is highly critical that you organize great distribution for your additional cargo plus the weight of fresh water and waste water tanks and storage areas within the vehicle.

Remember, with great and equipped storage comes major responsibility. If in a situation where you want to travel and occupy all the storage compartments, the volume of fluids may have to decrease. It is preferable to hook up to a city water supply (if the place has one) and with that, the water load on the route is reduced and storage increases.

TIRES

Properly maintained tires with suitable inflation pressure are significant for proper tire load-carrying capacity, steering, stopping, traction, load-carrying, and wear.

Unsuitable pressure will lead to unusual wear and sudden tire failure. Weigh the vehicle fully loaded for travel to establish the appropriate tire inflation pressure. If one tire position on the axle is heavier than the other one, inflate both sides according to the heaviest side.

MOLD

Mold and mold spores exist throughout indoor and outdoor environments. There is no practical way to eliminate all mold and mold spores in the indoor environment; however, the way to control indoor mold growth is to control moisture.

CHEMICAL SENSITIVITY

When your vehicle is in your possession, right away as you walk in for the first time you may notice a strong odor and/or experience a chemical sensitivity. This is not a defect or flaw in your new vehicle; the reason is that it may have been closed for a prolonged period. A new vehicle has many products, such as carpet, linoleum, plywood, insulation, upholstery. Unlike a new home or a new car, a van is smaller in space, and the interior equipment and hardware are very different.

HYDRAULIC JACK

A hydraulic jack is a device designed to lift heavy loads by applying force through a hydraulic cylinder. This type of jack elevates loads using pressure within the cylinder chamber. In case of an emergency, you can locate the hydraulic jack under the passenger's seat.



NOTICE

Starting Caution:

Do not attempt to push or tow the vehicle to start it. The powertrain is not designed to transmit torque for turning the engine over during starting.

NOTICE

Attempting to pull or tow the vehicle to start it may result in major drivetrain component failure or damage.

BATTERY ISSUES

If the vehicle won't start and there's no response when attempting to turn on the engine, a dead battery is a likely culprit. If the engine doesn't crank and no dashboard lights illuminate, consider the following steps:

Check Battery Connections:

- Inspect battery terminals for corrosion.
- Use a battery terminal cleaner to remove corrosion and ensure a clean connection.

Jump Start:

- If the battery is the issue, a jump start from another vehicle may be a temporary solution.
- Seek assistance from another vehicle owner or call a roadside repair service for a jump start.

Professional Assistance:

- If the problem persists, especially if the battery is dead, consider seeking professional help.
- Contact a roadside repair service for assistance.

Debris Awareness:

- Be vigilant for road debris that may damage the undercarriage or become lodged in dual tires, risking damage to tires or wheel rims.

EMERGENCIES

EMERGENCY TIPS FOR OVERHEATING

In case you can't pull over at the moment while traveling or you are stuck in traffic please follow these tips:

Turn off the A/C:

- Reduce the load on the engine by turning off the air conditioning system, which consumes a significant amount of energy.

Switch on the Cabin Heater:

- Increase the cabin temperature by turning on the cabin heater and setting it to the highest level. While it may be uncomfortable, this action helps transfer some of the engine's heat into the passenger compartment, minimizing potential engine damage as long as the ignition is on.

If trapped in traffic, rev up the engine:

- In heavy traffic where pulling over is challenging, shift into neutral and rev the engine. This action increases the engine's fan speed and activates the water pump, providing an additional flow of air and fluid through the radiator to cool down the engine.

Pull over when safe:

- As soon as you can, locate a safe parking place and shut down the engine. Contact an emergency roadside service for assistance.

These steps can help manage the situation temporarily until you can safely address the overheating issue.

⚠ DANGER

Overheating is a serious mechanical issue and ignoring the issue and problem to your rig's overheating signals can result in serious injury or death.

JUMP-STARTING

Avoid using rapid charging devices to start your vehicle. In the event of a discharged battery, you can jump-start the engine using jumper cables connected to another vehicle or a donor battery. Locate the designated jump-starting connection point in the engine compartment for this purpose.

If your vehicle needs a jump-start or if you're assisting another vehicle, always utilize the designated jump-starting connection point in the engine compartment for a safe and effective procedure.



**Jump-Starting
Connection Point**

When engaging in the jump-starting process, consider the following guidelines:

- In some vehicles, the battery may not be easily accessible. If this is the case, use a donor battery or a jump-starting device as an alternative.
- Avoid starting the engine if the battery is frozen; allow it to thaw before attempting a jump-start.
- Ensure that jump-starting is only performed using batteries with a nominal voltage of 12V.
- Use jumper cables with adequate cross-section and insulated terminal clamps for a safe and effective connection.
- If the battery is fully discharged, connect it to another vehicle's battery for a few minutes before attempting to start. This helps charge the depleted battery slightly.
- Maintain a safe distance between the two vehicles to prevent any contact during the jump-starting process.

ⓘ NOTICE

Bare parts of the terminal clamps do not come into contact with other metal parts while the jumper cables are connected to the battery.

ⓘ NOTICE

Make sure the jumper cables are not damaged.

ⓘ NOTICE

The jumper cables cannot come into contact with parts such as the V-belt pulley or the fan. These parts move when the engine is started while it is running.

ⓘ NOTICE

Jumper cables and further information regarding jump starting can be obtained at any qualified specialist workshop.

EMERGENCIES

FIRE EXTINGUISHER

When it comes to fire safety, proper testing and maintenance of fire extinguishers are not only essential but legally required. After undergoing these critical activities, your extinguisher is labeled to certify its readiness for action.

KEY DETAILS ON LABELS

- **Instructions for Use and Classification:** The label provides instructions on how to use the fire extinguisher and its classification for different types of fires.
- **Serial and Model Identification:** The label includes vital details like the serial number, model number, or other unique identifiers specific to your extinguisher.
- **Fitness Confirmation:** It confirms the extinguisher's fitness for purpose after testing and maintenance, ensuring reliability during emergencies.
- **Important Characteristics:** Information about the model, discharge time, and other key characteristics is provided. Intended temperatures for usage are specified.
- **Inspection and Maintenance:** Check the pressure indicator monthly or more frequently if exposed to weather or vandalism. Ensure the nozzle is free of obstructions and that the ring pull pin and tamper seal are intact. Heft or weigh the extinguisher to ensure it falls within tolerance limits.

Adhering to these guidelines ensures the fire extinguisher remains in optimal condition and ready for effective use in case of a fire emergency.

NOTICE

Training and Education:

- Provide training to household members or employees on how to use the fire extinguisher correctly in case of an emergency.
- Display clear instructions near the extinguisher on how to operate it effectively.
- Never allow misuse or children to play with fire extinguishers.
- Avoid testing the extinguisher as any discharge will cause pressure loss.

NOTICE

The extinguishing agent is non-toxic.

NOTICE

Mandatory Record-Keeping: Compliance with legal requirements involves meticulous record-keeping. The label serves as documented history, affirming that your fire extinguisher meets regulatory standards.

Readiness for Emergency Response: Adhering to the information on the label contributes to the readiness of your extinguisher, ensuring it performs effectively when urgently needed.

WARNING

Discharge and Replacement:

After any use, the unit must be completely discharged and replaced. Discard and replace the extinguisher if it is dropped, damaged, dented, corroded, or if any discrepancies are noted.

NOTICE

Regularly inspect the tag to understand its vital information, and if any adjustments are needed, seek professional help for authorized alterations. This proactive approach strengthens fire safety measures, ensuring a secure environment for yourself and those nearby.

WARNING

Avoid Unauthorized Alterations:

It's important to refrain from unauthorized actions on the label to preserve the extinguisher's efficacy. Unauthorized alterations, removals, or markings can compromise the documented history and effectiveness of the extinguisher.



CAUTION

Storage and Environmental Condition:

- Do not expose the fire extinguisher to extreme temperatures or direct sunlight for prolonged periods.
- Avoid storing the extinguisher near corrosive materials or in areas with high humidity.

NOTICE

Maintenance Recommendations:

- Schedule regular professional inspections and maintenance to ensure the extinguisher remains in optimal condition.
- Keep a log of inspection dates, maintenance activities, and any replacements made for record-keeping and compliance purposes.

CAUTION

Maintenance Recommendations:

- Do not break or remove the tamper seal until a fire emergency.
- Keep the extinguisher accessible and visible, avoiding obstruction by objects or furniture.
- Dispose of expired or damaged extinguishers following local regulations and guidelines for hazardous waste disposal.
- Contact a professional disposal service if unsure about proper disposal methods.

EMERGENCIES

FIRE EXTINGUISHER LOCATION

Portable fire extinguishers are vital lifesaving tools, especially in vehicles like sprinters where fire incidents can occur. Proper preparation and prevention are essential.

The fire extinguisher is located behind the passenger's seat.

NOTICE

In reference to the U.S Fire Administration reports, the top causes for fires in sprinters are unintentional actions and failure of equipment or heat source. It is very rare that the fire is caused by an act of nature. Leading areas of origin inside Sprinter's are typically in the engine area, running gear, wheel area of the vehicle. Because there can be diverse sources of ignition on a Sprinter, the NFPA requires that all Sprinters must have a B:C rated fire extinguisher.

TYPES OF FIRE EXTINGUISHERS

Fire extinguishers come in different classes, each designed to handle specific types of fires. The NFPA mandates that vehicles like Sprinters should have a Class 1-A:10-B:C extinguisher due to potential risks such as engine fires, propane or gas spills, which are common in and around a vehicle.

- **Class A:** Suitable for ordinary combustibles such as wood, paper, and plastics.
- **Class B:** Designed for flammable liquids and gases.
- **Class C:** Intended for fires involving live electrical equipment.
- **Class D and K:** Used for fires related to metals or cooking oils.

WARNING

Safety Tips During a Fire:

- Maintain a safe distance from the fire and stay near an exit for a quick escape.
- Stay close to the floor to minimize exposure to heat and fumes, as smoke rises.
- The fire extinguisher can discharge its chemical agent up to 10 feet (3 meters) away, so aim carefully and use it from a safe distance.

WARNING

Operating the vehicle is not advised without a functional fire extinguisher onboard.

CAUTION

The first rule of vehicle firefighting is to save lives first and property second. Get yourself and the passengers to safety before attempting to extinguish any fire. Only if you can, without endangering yourself or others, should you use firefighting aids on hand. Re-emphasize to everyone aboard that objects can be replaced, people can't. NEVER re-enter a burning vehicle to retrieve anything. Get out and stay out.

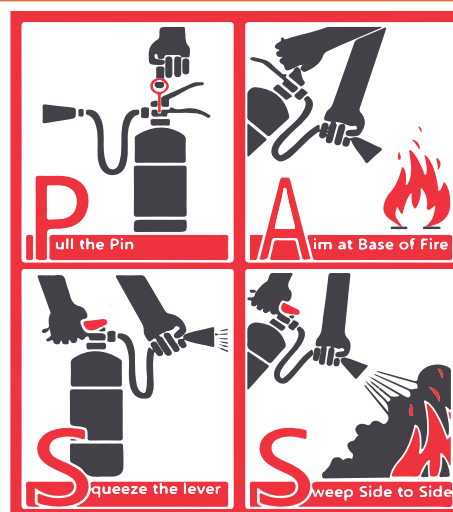
FIRE EXTINGUISHER OPERATION

A helpful mnemonic to remember the correct fire extinguisher usage is P.A.S.S., which stands for:

- **P - Pull:** Pull the pin located at the top of the extinguisher and hold it upright.
- **A - Aim:** Aim the nozzle at the base (bottom) of the fire while standing six feet away.
- **S - Squeeze:** Squeeze the handle/lever to discharge the agent.
- **S - Sweep:** Sweep the nozzle from side to side until the fire is extinguished.

WARNING

Ensure you maintain a safe distance of 8 to 10 feet from the fire to protect yourself from heat and potential hazards. If the fire cannot be controlled quickly, evacuate the vehicle immediately and contact emergency services. Do not attempt to extinguish large or uncontrollable fires on your own.



After successfully extinguishing the fire, fully discharge the fire extinguisher and arrange for immediate recharging or replacement.

WARNING

After the fire is out, beware of flashback. Flashback occurs when flammable vapors from combustible liquids spread back to the ignition source and reignite the fire.

WARNING

It's crucial not to attempt firefighting unless you've contacted the fire department first. Remember, a fire extinguisher is not a replacement for professional firefighting services.

NOTICE

It's essential to ensure that all family members are trained in using the extinguishers effectively.

EMERGENCIES

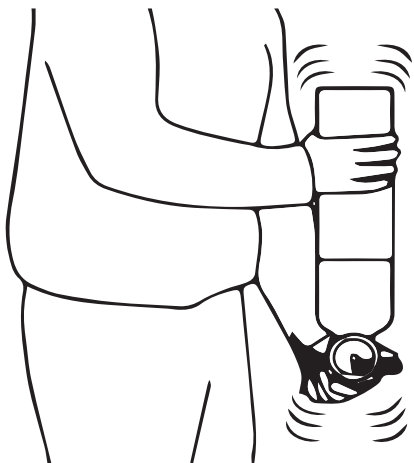
FIRE EXTINGUISHER'S MAINTENANCE

Regular maintenance of the fire extinguisher in your vehicle is crucial for ensuring its functionality during emergencies. While professional inspections are not required for portable fire extinguishers in the vehicle, conducting visual inspections regularly is highly recommended.

Here are some key maintenance practices to follow:

- **Visual Inspections:** Check the fire extinguisher regularly for signs of damage, corrosion, or leaks. Ensure that the pressure gauge indicates green, indicating that the extinguisher is ready for use. If the extinguisher has been used previously, it should be replaced.
- **Monthly Inspections:** It is advisable to inspect the fire extinguisher at least once a month. This frequency may need to be increased if the extinguisher is exposed to high temperatures or potential tampering.
- **Avoid Partial Discharges:** Do not test the extinguisher by partially discharging it, as this can cause the internal pressure to escape, rendering the extinguisher ineffective. If a discharge is necessary, it should be a full discharge during an actual emergency.
- **Address Powder Compression:** Some extinguishers may experience powder compression over time, causing the powder to settle and harden at the bottom. To address this, invert or shake the extinguisher gently to loosen the powder. If needed, lightly tap the extinguisher to help dislodge the settled powder. You will feel and hear the powder falling, indicating that it has been effectively loosened.

By adhering to these maintenance practices, you can ensure that your fire extinguisher remains in optimal condition, ready to tackle any fire emergency effectively.



NOTICE

Extinguishers require an annual inspection to ensure they remain fully functional for use in emergencies. During the check-up, ensure that the pin and tamper seal are intact and that the pressure gauge indicates the green zone, indicating readiness.

NOTICE

Following advice from the "Make it Right" Home Renovation site, it's recommended to periodically invert the extinguisher. This action helps prevent the extinguishing agent from settling at the bottom, where it can compact over time, similar to flour. By turning the fire extinguisher upside down several times, you can break up any compacted agent and maintain its effectiveness.

Regularly monitor the pressure gauge of your fire extinguisher to ensure optimal performance. A loss of pressure can lead to ineffective discharge of the dry chemical agent. Always ensure your vehicle has a fully charged fire extinguisher before operating or occupying it to maintain safety standards.



NOTICE

If the pointer on the pressure gauge is not in the operating range (pointer in the green portion of the gauge), immediately replace the extinguisher. Record the inspection date on the tag provided.

TIPS TO AVOID FIRE ACCIDENTS

Before hitting the road, it is crucial that all passengers know about safety tips when travelling:

- Educate passengers on safety protocols before traveling, including the location of the fire extinguisher and how to use it effectively in emergencies.
- Be prepared during fire emergencies, as time is limited and nearby components can exacerbate the situation.
- Ensure regular inspection and maintenance of the fire extinguisher to guarantee its reliability when needed.
- Promptly clean up any fuel spills to prevent rapid ignition, gasoline and propane, which pose immediate fire risks.
- Secure small batteries in a plastic container to prevent movement and potential fire hazards.
- Maintain mechanical systems such as radiator hoses, fuel lines, brakes, and transmissions to prevent leaks or malfunctions that could lead to fire hazards.

EMERGENCIES

TOWING

At times, you might find the need to tow a trailer with your vehicle, allowing you to carry additional items for your travels. However, towing a trailer can impact various aspects of your vehicle, including handling, durability, performance, and fuel economy. The factory-installed towing hitch comes with a 5,000 lb towing package, providing ample capacity for your travel needs.

The towing **capacity** of a vehicle is **how much** weight it can tow. The towing capacity is determined mainly by which **axles** the truck has and their **ratings**. Because no two vehicles are the same, it is important to know your **specific vehicle ratings**. This can be found on the **doorframe** on the driver's side. These numbers may be easy to **overlook**, but they determine what **type** of trailer you can tow **safely**.

It's crucial to adhere to the following specifications:

- **Towing Hitch Rating:** The factory-installed towing hitch is rated with a 5,000 lb towing package, ensuring you have the necessary capacity for towing.
- **Gross Combined Weight Rating (GCWR):** The combined weight of your vehicle and any towed vehicle must not exceed the GCWR.
- **Gross Vehicle Weight Rating (GVWR):** Ensure that the combined weight of your vehicle and any towed vehicle hitch weight does not surpass the sprinter's GVWR or its rear Gross Axle Weight Rating (GAWR) as indicated on the vehicle certification label.

Adhering to these guidelines is essential to ensure safe and efficient towing without compromising the performance and safety of your vehicle.

IMPORTANT SAFETY NOTES ABOUT TOWING

NOTICE

Information on the Gross Vehicle Weight can be found on the Vehicle Identification Plate.

Towing a vehicle involves certain safety considerations to ensure a smooth and secure operation. Here are some important safety notes to keep in mind:

Legal Requirements:

- When towing, adhere to the legal requirements of the country in which you are driving. It is advisable to consider alternative transportation methods, such as having the vehicle transported on a trailer, to comply with regulations and enhance safety.

Battery Connection:

- Ensure that the vehicle's battery is connected and charged. A charged battery is essential for turning the key in the ignition lock, preventing any complications during towing.

Automatic Locking Feature:

- Before towing the vehicle, switch off the automatic locking feature. Failure to do so may result in inadvertently locking yourself out of the vehicle during the towing process.

These safety measures are crucial for a trouble-free towing experience and to prevent any unwanted complications or issues. Always prioritize safety and compliance with local regulations when towing a vehicle.

TOWING AWAY IN THE EVENT OF MALFUNCTIONS

NOTICE

For more information, please refer to the Mercedes-Benz Interactive Operator's Manual provided in the Sprinter's Information Kit.

Front or Rear Axle Damage:

- If your vehicle sustains front or rear axle damage, it is recommended to have it transferred on a transporter or trailer. This approach ensures the safe transport of the vehicle without causing further damage.

Transmission Damage:

- Always use new bolts when installing the propeller shafts.
- Propeller shafts should only be fitted or removed by qualified skilled personnel.
- If the vehicle has transmission damage, remove the propeller shaft before towing.

EMERGENCIES

Towing with Front or Rear Axle Raised:

- When towing with the front or rear axle raised:
- Switch off the ignition.
- Utilize new bolts during propeller shaft installation.
- Only allow qualified skilled personnel to fit or remove the propeller shafts.

Towing with Both Axles on the Ground:

- For towing the vehicle with both axles on the ground, additional precautions are essential to ensure a safe towing process.

NOTICE

If the front axle is damaged, raise the vehicle at the front axle and if the rear axle is damaged, raise the vehicle at the rear axle.

WARNING

You can no longer steer the vehicle if the steering wheel lock has been engaged. There is a risk of an accident. Always switch off the ignition when towing the vehicle with a tow cable or a tow bar.

NOTICE

Do not exceed the towing speed of 30 mph (50 km/h). You could otherwise damage the transmission.

Recovering a Stuck Vehicle:

When your vehicle gets stuck, follow these guidelines for a safe recovery:

- Exercise extreme caution during the recovery process.
- Never attempt to recover a vehicle with a trailer attached.

Backward Recovery Technique:

If the tires are trapped on loose or muddy ground, consider the following:

- Opt for pulling out the vehicle backward, if possible.
- Utilize the tracks created by the stuck vehicle to facilitate a smoother recovery process.

Implementing these recovery tips helps minimize the risk of damage and ensures a safer extraction of the stuck vehicle.

HITCH COVER

Understanding the Hitch

A hitch serves as the vital link between a tow vehicle and a trailer, providing a secure connection. In the case of this vehicle, it features a Rear Receiver Trailer Hitch, a commonly used type of hitch known for its versatility.

Protective Measures with Hitch Covers

To safeguard the hitch from external elements like rain, dew, frost and sunlight, a hitch cover is recommended. These covers play a crucial role in preventing rust and water damage, especially when the vehicle is not in daily use.

Steps to remove Hitch Covers

1. Kneel down behind the rear bumper.
2. Identify two screws on each corner of the cover at the bottom.
3. Carefully remove the screws to detach the hitch cover.
4. Once removed, store the hitch cover safely inside the vehicle.

By using a hitch cover, it does not only extend the life of the hitch, but also ensures that the hitch compartment remains in optimal condition, especially during periods of non-use.



EMERGENCIES

FIVE DIRECTIONAL SIGNALS

When the co-pilot guides the driver, use five clear signals, one at a time, with confidence. These signals are designed for easy comprehension through the driver's mirror. Refrain from issuing additional signals until the driver initiates the desired motion.

During travel:

Bridge Weight Verification:

- Ensure the vehicle's weight aligns with posted tonnage limits on bridges.
- Signs at bridge entrances provide crucial weight-related information.

Overhead Clearance Caution:

- Confirm the posted height of overpasses or areas with limited overhead clearance.
- Account for variations due to repaved road surfaces or snow accumulation.

WARNING

Safety Reminder:

Adjusting vehicle settings, including mirrors, while the vehicle is in motion poses a considerable risk of injury. To prioritize safety:

- Perform adjustments when the vehicle is stationary and safely parked.
- Engaging in these activities while driving diverts attention from the road, increasing the likelihood of accidents, collisions, or loss of control. Make adjustments only when the vehicle is not in motion, ensuring the well-being of both the driver and others on the road.

NOTICE

These five directional signals not only signify the intended direction for the rear movement of the vehicle but are also integral to maintaining a safe and controlled journey.

MEANING OF THE FIVE DIRECTIONAL SIGNALS

Both the driver and co-pilot should practice and understand these signals:

Go Right:

- The co-pilot will extend the left hand horizontally, forefinger pointing right, signaling the driver to move the rear of the vehicle to the right.

Go Left:

- The co-pilot will extend the right hand horizontally, forefinger pointing left, indicating the driver to move the rear of the vehicle to the left.

Straight Back:

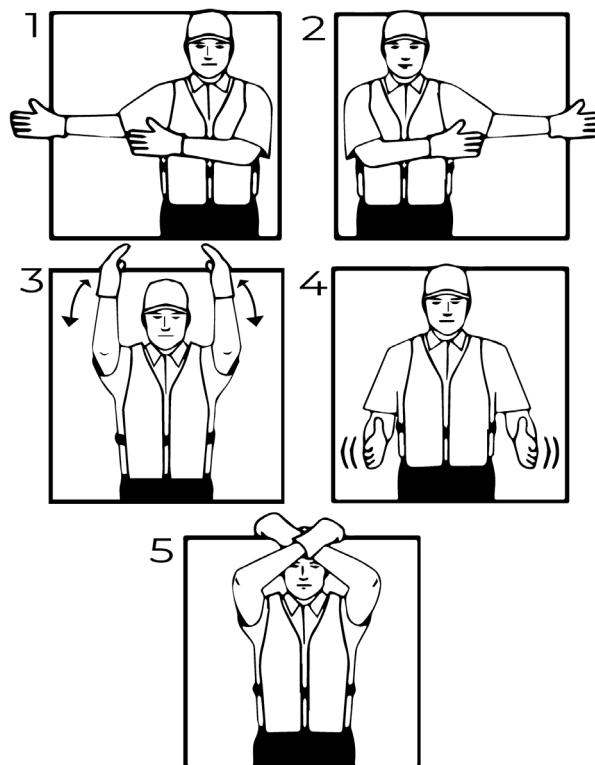
- The co-pilot will use both arms and hands parallel, with thumbs pointing up and to the rear in a waving vertical motion, signaling the driver to maintain a straight backward direction.

Distance from Stopping Point:

- The co-pilot will hold arms horizontally, palms facing each other with hands open. Starting with a wide separation and gradually closing the distance between hands at a rate corresponding to the vehicle's speed, indicating the distance to the stopping point.

Stop:

- Closed fists and crossed arms signal the driver to immediately stop the vehicle.



EMERGENCIES

MIRRORS

Rely on your driving mirrors to assess traffic conditions and the proximity of the vehicle to its surroundings. While mirrors are helpful, always physically observe your surroundings, using mirrors as an additional aid for safe driving.

NOTICE

Prior to starting the engine, ensure to adjust the driver's seat, head restraint, steering wheel, or mirrors as needed. Don't forget to fasten your seat belt for safety.

CAUTION

There's a risk of accidents due to misjudgment of distances when using the passenger mirror. Always exercise extra caution and be attentive to accurately assess distances while utilizing the passenger mirror.

OPERATING THE OUTSIDE MIRRORS

Adjustment Before Driving:

- Set the mirrors to your preferred positions before starting the vehicle.
- Ensure clear visibility of the surrounding areas.

Regular Checks:

- Periodically check and adjust the mirrors while driving to maintain optimal visibility.
- Be cautious not to distract yourself from the road.

Blind Spot Awareness:

- Use mirrors to monitor blind spots, but always perform visual checks before changing lanes.
- Exercise extra caution when relying on mirrors alone.

Parking Maneuvers:

- Adjust mirrors to aid parking maneuvers.
- Be mindful of pedestrians and obstacles in the vicinity.

Avoid Distractions:

- Refrain from adjusting mirrors while the vehicle is in motion to prevent accidents.
- Prioritize focused attention on the road.

Remember, proper mirror usage enhances safety, but it should complement—not replace—visual checks and awareness of your surroundings.

CAUTION

Always look over your shoulder in order to ensure that you are aware of the actual distance between you and the road users driving behind you.

NOTICE

Please refer to Mirrors section in this Owner's Manual to know more about the operation of the mirrors in your Sprinter.



Understanding and practicing proper mirror usage contribute significantly to a safe and secure driving experience.

EMERGENCIES

SMART LOADING & TOWING TIPS

Discover essential tips for loading and towing to enhance safety and performance during your travels. From weight distribution strategies to understanding towing impacts, these insights will guide you in making informed decisions for a smoother journey. Explore the following topics for practical advice on achieving optimal loading and towing practices.

Weight Distribution

- Distribute weight equally side-to-side and emphasize the front.
- Placing weight towards the front enhances hitch weight for a steadier tow.
- Watch for signs of less control or swaying, indicating potential weight imbalance.

Travelling With Full Tanks

- Full tanks can lead to weight distribution issues.
- A gallon of water weighs around 8 pounds, adding up quickly with multiple tanks.
- Be mindful of the additional weight when traveling with full water tanks.

Considering Vehicle Weight

- Consider the vehicle's weight in relation to your tow vehicle.
- Excessive weight can increase stopping distances and risk damage to both vehicles.

Impact of Towing

- Towing affects handling, durability, performance, and fuel economy.
- The towing package is designed for a total of 5,000 lbs.

Weight Ratings and Certification

- Ensure the combined weight of the vehicle and towed vehicle complies with specifications.
- The **combined weight** of the Sprinter and any towed vehicle must not exceed the **Gross Combined Weight Rating (GCWR)**.
- The combined weight of the vehicle and any towed vehicle hitch weight must not exceed the Gross Vehicle Weight Rating (GVWR) or its **Rear Gross Axle Weight Rating (GAWR)** as listed on the **Vehicle Certification Label**.
- Check Gross Combined Weight Rating (GCWR), Gross Vehicle Weight Rating (GVWR), and rear Gross Axle Weight Rating (GAWR) as listed on the certification label.

Ensuring Correct Weight Balance

- Weigh your loaded vehicle at a weigh scale for accurate weight distribution.
- Use the information gained to improve future loading practices.

Adjusting to Vehicle Handling When Towing a Trailer

- Acknowledge that your vehicle will handle differently when towing a trailer.
- Longer stopping distances are expected; ensure the trailer has a braking system and is properly connected.

LOADING AND WEIGHTS

This section provides essential guidance for the optimal loading of your vehicle, ensuring that the loaded weight stays within the designated rating capability, whether with or without a trailer. Proper loading enhances vehicle design performance, with a focus on not exceeding critical ratings:

Gross Vehicle Weight Rating (GVWR):

- The maximum permissible weight of the fully loaded and travel-ready vehicle.

Unloaded Vehicle Weight (UVW):

- The weight of the vehicle as manufactured at the factory, including full fuel, engine oil, and coolants.

Cargo Carrying Capacity (CCC) (Canada):

- Equals GVWR minus UVW, full fresh water weight and Sleeping Capacity Weight Rating (SCWR).

Gross Vehicle Weight Rating (GVWR):

- The maximum permissible weight of the fully loaded and travel-ready vehicle.

Occupant and Cargo Carrying Capacity (OCCC):

- Is equal to the GVWR, minus UVW. In other words, OCCC is the amount of weight in occupants, cargo, water, and trailer tongue weight that can be added to the vehicle, without exceeding the GVWR.

Gross Axle Weight Rating (GAWR):

- The load carrying capacity of a single axle system (front or rear), as measured at the tire-ground interface. Indicated on the Safety Compliance Certification Label.

Base Curb Weight:

- The weight of the vehicle, including a full tank of fuel and standard equipment, excluding passengers, cargo, or optional equipment.

Vehicle Curb Weight:

- The weight of your new vehicle when acquired from the dealer, plus any added aftermarket equipment.

EMERGENCIES

NOTICE

Understanding and adhering to these weight-related specifications ensures safe and efficient operation of your vehicle, preventing overloading and potential performance issues. Always refer to the provided labels and follow recommended guidelines for a worry-free travel experience.

DETERMINING WEIGHTS

To ensure your vehicle is correctly loaded, follow these steps and use a scale to obtain specific weights:

Front Gross Axle Weight:

- Drive only the front wheels onto the scale.

Gross Vehicle Weight (GVW):

- Place the entire vehicle (both axles) onto the scale.

Rear Gross Axle Weight:

- Drive forward until only the rear wheels are on the scale.

Corner Weight:

- Drive each tire individually onto the scale and record the weight.

Comparison with GVWR:

- Compare the GVW with the Gross Vehicle Weight Rating (GVWR) on the label.

GUIDELINES

- If GVW exceeds GVWR, reduce the total vehicle load.
- If GVW is less than GVWR, check front and rear gross axle weights against the Front and Rear Gross Axle Weight Rating (GAWR) on the label.
- If either axle weight exceeds GAWR, redistribute the load to ensure both front and rear axles stay within required limits.

Following these steps allows for proper weight distribution, preventing overloading and ensuring safe and efficient vehicle operation. Always refer to the provided labels and adhere to recommended guidelines for a secure travel experience.

NOTICE

The weight of cargo of your vehicle should never exceed numbers shown on the tag.

CAUTION

Total vehicle load must NOT exceed the max. GVWR/GAWR/GCWR of the chassis. The total load on each axle must never exceed its Gross Axle Weight Rating.

NOTICE

Load heavier items as centrally and as low as possible. Store lighter items in cabinets and drawers. Secure luggage or similar cargo inside your vehicle to prevent it from shifting and causing damage or injury.

NOTICE

If you install any aftermarket or authorized-dealer installed equipment on the vehicle, you must subtract the weight of the equipment from the payload listed on the Payload Information Label in order to determine the new payload.

WARNING

The appropriate loading capacity of your vehicle can be limited either by volume capacity (how much space is available) or by payload of your vehicle, do not add more cargo, even if there is space available. Overloading or improperly loading your vehicle can contribute to loss of vehicle control & vehicle rollover.

LABELS

VEHICLE'S MANUFACTURERS ID LABEL

This label affixed to your vehicle plays a critical role in ensuring safe operation and maintenance. It is specifically designed to provide essential information about your vehicle's specifications, including important details related to tire loading limits. By understanding the information on this label, you can ensure that your vehicle is operated within safe parameters and that tires are appropriately sized and inflated.

It is located on the driver's side door; this label serves as a quick reference point for important details that directly impact your vehicle's performance and safety. Some of the key details typically found on this label include:

- **GM #:** Your permanent Grech Vehicle Identification Number, which uniquely identifies your vehicle.
- **Vin #:** The OEM Vehicle Identification Number assigned by the original manufacturer.
- **GVWR:** This stands for Gross Vehicle Weight Rating, indicating the maximum allowable weight of the fully loaded vehicle, including passengers and cargo.
- **GAWR Rear:** Similar to GAWR front, this is the Gross Axle Weight Rating for the rear axle.
- **Incomplete Vehicle Manufactured:** The date when the chassis was produced by the OEM manufacturer before being completed by Grech.
- **Date of Manufacture by Grech:** The date when Grech completed the vehicle assembly.
- **Paint Code:** A master number that corresponds to the paint specification and color used on your vehicle, helpful for maintenance and repairs.
- **Tires, Rims:** Information about the required tire rim sizes and air capacities specific to your vehicle, crucial for determining the maximum payload capacity and ensuring proper tire inflation.

By referring to this label and understanding its contents, you can make informed decisions regarding tire selection, maintenance, and loading to optimize vehicle performance, safety, and longevity. It serves as a valuable resource for both vehicle owners and maintenance professionals, ensuring compliance with safety standards and promoting responsible vehicle operation.

For units:

- 170 Tour 4x2
- 170 Tour Ion 4x2
- 170 Lounge 4x2
- 170 Lounge Ion 4x2
- 170 Lounge Non Ext
- 170 Lounge Ion Non Ext
- 170 Tour Non Ext
- 170 Tour Ion Non Ext

MANUFACTURED BY GRECH MOTORS INC. dba GRECH RV		INCOMPLETE VEHICLE MANUFACTURE BY MERCEDEZ-BENZ AG	
DATE OF MANUFACTURE		DATE INC. VEH. MANUFACTURED	
VIN		THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE	
GWR	11030 lbs	5003 Kg	
GAWR FRONT	4410 lbs	2000 Kg	WITH
LT215 / 85 R16		TIRES	
16 x 5.5	RIMS @ 61	PSI 420	Kpa / COLD
GAWR REAR	7720 lbs	3502 Kg	WITH
LT215 / 85 R16		TIRES	
16 x 5.5	RIMS @ 58	PSI 400	Kpa / COLD
PAINT CODE		VEHICLE TYPE: MPV MH	

For units:

- 170 No Ext 4x4
- 170 Tour Electrical No Ext 4x4
- 170 Lounge No Ext 4x4
- 170 Lounge Ion No Ext 4x4

MANUFACTURED BY GRECH MOTORS INC. dba GRECH RV		INCOMPLETE VEHICLE MANUFACTURE BY MERCEDEZ-BENZ AG	
DATE OF MANUFACTURE		DATE INC. VEH. MANUFACTURED	
VIN		THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE	
GWR	11030 lbs	5003 Kg	
GAWR FRONT	4410 lbs	2000 Kg	WITH
LT215 / 85 R16		TIRES	
16 x 5.5	RIMS @ 55	PSI 380	Kpa / COLD
GAWR REAR	7720 lbs	3502 Kg	WITH
LT215 / 85 R16		TIRES	
16 x 5.5	RIMS @ 58	PSI 400	Kpa / COLD
PAINT CODE		VEHICLE TYPE: MPV MH	

NOTICE

The Gross Vehicle Weight Rating (GVWR) is a crucial specification that defines the maximum permissible weight of a vehicle coach when it is fully loaded. This weight includes not only the vehicle's own weight but also the weight of all passengers, cargo, fuel, fluids, and any other items carried onboard.

NOTICE

The GVWR takes into account the total weight resting on all of the vehicle's axles, ensuring that the vehicle can safely support and operate under this load without exceeding its design limits.

NOTICE

It's important for vehicle owners and operators to be aware of and adhere to the GVWR to prevent overloading, which can lead to safety hazards such as reduced braking efficiency, increased tire wear, suspension strain, and potential structural damage. By staying within the GVWR limits, vehicles can maintain optimal performance, handling, and safety on the road.

LABELS

TIRE PRESSURE LABEL

The Tire Pressure Label provides essential information regarding tire pressure recommendations for optimal vehicle performance, safety, and fuel efficiency.

The label specifies the recommended tire pressure for both front and rear tires. This information is crucial for maintaining proper tire inflation, which affects handling, braking, and tire wear.

CHARACTERISTICS

- **Cold Tire Pressure:** The recommended tire pressure is provided for cold tires, emphasizing the importance of checking tire pressure when the tires are cold for accurate readings.
- **Tire Size and Type:** The label specifies the tire size and type that the recommended pressures apply to, ensuring compatibility and accuracy.

By referencing and following the Tire Pressure Label guidelines, drivers can optimize tire performance, fuel economy, and overall vehicle safety, enhancing their driving experience in your sprinter.



NOTICE

Always verify and maintain tire pressures according to the specifications on this label to ensure optimal performance and fuel efficiency.

WARNING

Incorrect tire inflation can affect vehicle handling and braking, potentially leading to loss of control or accidents.

NOTICE

Check tire pressures regularly, especially before long trips or when carrying varying loads, to ensure safety and tire longevity.

WARNING

Avoid overloading your RV beyond specified limits as it can lead to tire failure and compromise vehicle handling.

CAUTION

Extreme temperatures and long periods of storage can affect tire pressure. Monitor and adjust accordingly before traveling.

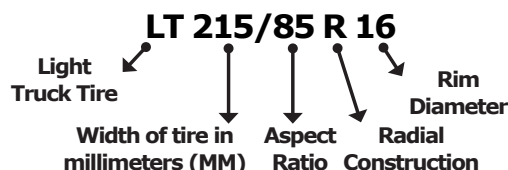
LT- METRIC

This OEM label from Mercedes-Benz is located on the driver's side door jamb and provides detailed specifications similar to those on the manufacturer ID label.

It contains essential tire information, including LT metric specifications that outline load capacity and size parameters. Additionally, it specifies the recommended air pressures in kPa, bar, and PSI for each tire.

The Tire and Load Information label complies with industry standards established by organizations such as The Tire and Rim Association, Inc. (TRA). This labeling system follows standard practices for clear and consistent information. LT-Metric specifically refers to Light Truck-Metric, indicating that the tire is designed for use on light trucks.

Adhering to these specifications is crucial for maintaining optimal performance, safety, and durability of your vehicle's tires. Proper tire inflation according to these guidelines ensures that your vehicle operates efficiently and safely under various load conditions, improving driving comfort and extending tire lifespan. By referring to this label, you can effectively manage tire maintenance and ensure your vehicle is well-prepared for safe and enjoyable journeys.



WARNING

Exceeding the recommended load capacity of the tires can lead to overheating, increasing the risk of a blowout. Additionally, overloading the tires can cause handling and steering issues, as well as potential brake failure.

WARNING

Exceeding the maximum speed rating of tires can cause sudden tire failure, leading to loss of vehicle control and potentially causing accidents, serious injuries, and even fatalities for you and others.

NOTICE

Do not replace tires with lower carrying capacities than the originals, as this may reduce the vehicle's GVWR and GAWR limits. Using tires with higher capacities than the originals does not increase these limits.

WARNING

For your safety and that of all passengers, it's crucial to check the wheel tightening after changing a tire and every approximately 30 miles. This prevents wheels from becoming loose and potentially causing an accident.

LABELS

TIRE & LOADING INFORMATION LABEL

In addition to the detailed tire and loading information provided on the OEM label from Mercedes-Benz, there is another tire and loading information label.

The tire and loading information, prominently displayed on the driver side door jam of your vehicle, provides essential details for safe and optimal operation.

The OEM label from Mercedes-Benz provides comprehensive details about your RV, including seating capacity (total seats, front, middle, rear), maximum combined weight for occupants and cargo in kilograms and pounds, and specifications for the front, rear, and spare tires such as sizes and recommended cold tire pressures.

PAYLOAD INFORMATION

This section also includes important payload information. It specifies the combined weight of occupants and cargo limits in kilograms and pounds, indicating the maximum weight your RV can safely carry as built by Grech RV. This payload encompasses both the weight of passengers and any additional cargo.

KEY CHARACTERISTICS

These numbers reflect the maximum cargo weight that your RV can handle during travel. The payload information is crucial for ensuring safe operation and maintaining vehicle performance within specified limits. Additionally, when towing, the payload includes trailer tongue weight or king pin weight, further influencing the vehicle's overall payload capacity.

Refer to the Tire and Loading label for precise details regarding your RV's payload capacity and ensure compliance with these specifications for safe and efficient travel.

STRADA LOUNGE RWD



TIRE AND LOADING INFORMATION

SEATING CAPACITY	TOTAL 8	FRONT 2	MIDDLE 2	REAR 4
------------------	---------	---------	----------	--------

The combined weight of occupants and cargo should never exceed **591 Kgs** or **1304 Lbs.**

TIRE	SIZE	COLD TIRE PRESSURE
FRONT	LT215/85R16	420kPa 61PSI
REAR	LT215/85R16	400kPa 58PSI
SPARE	LT215/85R16	420kPa 61PSI

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

hs-arb

STRADA LOUNGE AWD



TIRE AND LOADING INFORMATION

SEATING CAPACITY	TOTAL 8	FRONT 2	MIDDLE 2	REAR 4
------------------	---------	---------	----------	--------

The combined weight of occupants and cargo should never exceed **469 Kgs** or **1035 Lbs.**

TIRE	SIZE	COLD TIRE PRESSURE
FRONT	LT215/85R16	380kPa 55PSI
REAR	LT215/85R16	400kPa 58PSI
SPARE	LT215/85R16	380Pa 55PSI

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

hs-arb

NOTICE

Do not use replacement tires with lower carrying capacities than the original tires because they may lower the vehicle's GVWR and GAWR limitations. Replacement tires with a higher limit than the original tires do not increase the GVWR and GAWR limitations.

WARNING

For you and all your passenger's safety the wheel tightening must be checked after changing a tire and after approximately 30 miles, to avoid wheels becoming loose therefore causing a possible accident. It is important to adjust the wheel's torque at 133 ft lbs on 170" models.

WARNING

Exceeding this information about the vehicle weight rating limits could result in substandard vehicle handling or performance, engine, transmission and/or structural damage, serious damage to the vehicle, loss of control and/or personal injury.

NOTICE

If you install any additional equipment on your vehicle, you must determine the new payload. Subtract the weight of the equipment from the payload listed on the Tire and Loading label.

NOTICE

When towing, trailer tongue weight or king pin weight is also part of payload.

LABELS

MAX. CLEARANCE LABEL

As you embark on your journey, having a clear understanding of your vehicle's dimensions is essential for navigating various terrains and obstacles. The Max. Clearance Labels provide a comprehensive overview of your vehicle's overall dimensions, including roof components and tires, as depicted on the label itself.

This label serves as your visual guide, offering a clear depiction of the vehicle's height and length. By familiarizing yourself with these dimensions, you empower yourself with the information needed for confident and hassle-free travels.

KEY BENEFITS OF MAX. CLEARANCE LABELS

- **Parking Convenience:** Understanding your vehicle's dimensions helps evaluate parking spaces more effectively. You can confidently assess whether your vehicle comfortably fits within designated areas without encountering obstacles or restrictions.
- **Tunnel Navigation:** When planning routes that involve tunnels, knowing your vehicle's height is crucial. The label's information about roof components and tire heights prevents unexpected surprises and ensures a smooth journey through tunnels without clearance issues.
- **Enhanced Safety:** Being aware of your vehicle's dimensions contributes to overall safety on the road. You can make informed decisions while driving, avoiding situations where your vehicle may not have sufficient clearance or may risk damage due to low-hanging obstacles.

⚠ CAUTION

Low Clearance Alert:

Ensure to heed warnings about low clearances, especially when approaching bridges, tunnels, or areas with height restrictions. Failure to do so may result in damage to your vehicle and potential safety hazards.

⚠ CAUTION

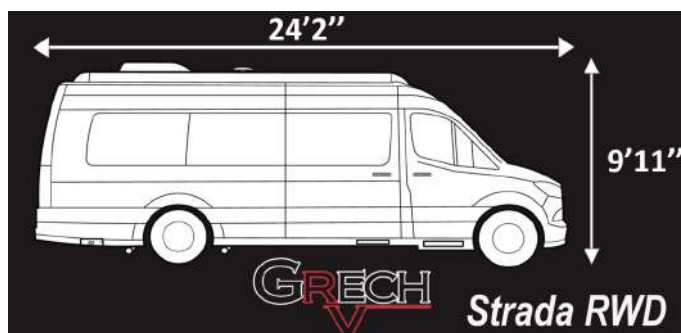
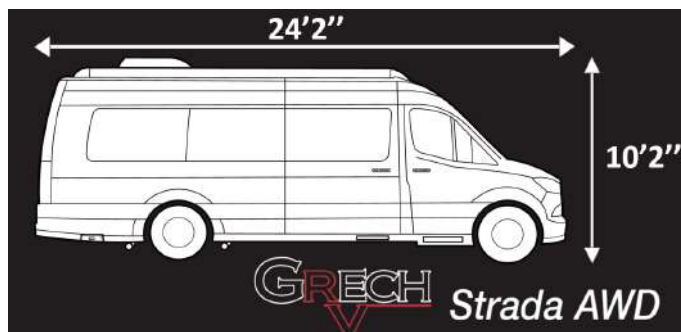
Dynamic Load Consideration:

Note that the Max Clearance Labels provide static measurements. Be cautious of dynamic changes in vehicle height, such as air suspension adjustments or cargo load, which can affect clearance.

ⓘ NOTICE

Regular Inspection: Periodically inspect the Max Clearance Labels to ensure they are legible and accurate. Any damage or illegibility should prompt immediate replacement or repair to maintain safety standards.

By utilizing the Max. Clearance Labels and understanding your vehicle's dimensions, you not only enhance your travel experience but also prioritize safety and convenience throughout your adventures.



ⓘ NOTICE

Please note that there are two different Max Clearance Labels for the AWD and RWD units, each with different heights. Always refer to the specific label corresponding to your unit for accurate clearance information.

LABELS

RV VEHICLE INFORMATION

Located underneath, on the side of the driver's seat in the RV, you will find two crucial labels that provide important information about the vehicle.

The first label is dedicated to Vehicle Noise Emission Control and includes details related to compliance with noise emission regulations.

The second label is more comprehensive and features a range of essential data. It lists the Vehicle Identification Number (VIN), which uniquely identifies the RV, along with the Gross Vehicle Weight Rating (GVWR), which indicates the maximum weight the vehicle can safely carry.

Additionally, it provides the Gross Combined Weight Rating (GCWR), which is the maximum weight of the RV plus any towed trailer or cargo.

The label also includes the Front Axle Weight Rating (GAWR Front) and the Rear Axle Weight Rating (GAWR Rear), specifying the maximum weight each axle can handle.

Furthermore, you will find the Date of Manufacture (Date of MFD), which indicates when the RV was built, and the paint code, which is used for matching or touch-up paint purposes. This information is vital for ensuring the safe and proper operation of your vehicle.



FIRE EXTINGUISHER'S LABELS

The **testing** and **maintenance** of fire extinguishers is essential and required by law to ensure they **work** if and when they're ever needed. Following these activities the extinguisher must be **labelled** appropriately to confirm their fitness for purpose.

The **tag** is where you will find everything you need to know about your extinguisher, including the **serial number**, **model number** or other **identifying** information.

All recorded information is **essential** for maintaining the **efficacy** of your fire extinguisher, never **remove** or **mark** on the tag unless authorized to do so.



ALARMS

CARBON MONOXIDE / LP GAS ALARM

Carbon Monoxide (CO) and propane (LP) can be hazardous. Propane, commonly used in RVs, requires early leak detection to prevent dangerous situations. CO can accumulate from poor ventilation or faulty appliances. An alarm for these hazards is located on the passenger side of the vehicle, near the galley and passenger seat.

Carbon Monoxide (CO) is a colorless, odorless, and tasteless gas. The CO detector is designed to sense toxic CO produced by incomplete combustion of fuels such as gasoline, propane, natural gas, oil, charcoal, or wood. Sources of CO include engines, generators, furnaces, stoves, and water heaters.

When CO levels are dangerously high, the alarm will sound a loud, constant pattern of four beeps or chirps. This industry-standard alarm setting ensures that even individuals who are asleep will be alerted to the emergency. For high levels of propane, the alarm will emit a continuous beeping sound. Additionally, if the detector's battery is low, it will emit a single beep every minute for at least 30 days. The battery should be replaced immediately to ensure the detector functions properly.



⚠ CAUTION

Alarms indicate the slow accumulation of LP gas, CO or smoke and may warn low battery levels. In case the alarm goes off please have an authorized service center to check the system and identify the source of the alarm. Correct the problem before using the RV.

⚠ WARNING

This alarm has not been designed to detect smoke, fire, or gases other than carbon monoxide and propane.

ⓘ NOTICE

Test alarm operation after vehicle has been in storage, before each trip and once per week during use.

ⓘ NOTICE

CO is a gas that binds with hemoglobin reducing the body's ability to absorb and carry oxygen to vital organs. When removed from exposure, the symptoms dissipate as CO is expelled through the lungs.

POTENTIAL PROBLEM SOURCES OF CO GAS

The sources of carbon monoxide gas can be challenging to pinpoint due to its odorless and colorless nature, particularly if the RV has been aired out before the investigator arrives. Pay close attention to the following:

1. **RV's nearby**
2. **Camp fires**
3. **Engine or generator exhaust entering RV.**
4. **Excessive spillage or reverse venting of fuel-burning appliances:**
 - Outdoor ambient conditions such as wind direction and/or velocity, including high gusts of wind; heavy air in the vent pipes.
 - Negative pressure differential resulting from the use of exhaust fans.
 - Simultaneous operation of several fuel burning appliances competing for limited internal air.
 - Vent pipe connection vibrating loose from clothes, dryer, furnace, or water heater.
 - Obstructions or unconventional vent pipe designs which amplify the above situations.
5. **Extended operation of unvented fuel-burning devices** (range, oven, fireplace, etc.)
6. **Temperature inversions which can trap exhaust gases near the ground.**
7. **Poorly designed or maintained vents.**

⚠ DANGER

Do not breathe heating or cooking fumes or engine exhaust to prevent asphyxiation.

ALARMS

THE DANGERS OF CO GAS POISONING

The following symptoms of carbon monoxide poisoning should be discussed with all RV occupants:

- **Mild Exposure:**
 - Slight headache, nausea, vomiting, fatigue ("flu-like" symptoms")
- **Medium Exposure:**
 - Severe throbbing headache, drowsiness, confusion, fast heart rate.
- **Extreme Exposure:**
 - Unconsciousness, convulsions, cardiorespiratory failure, brain damage, and death.

Many cases of carbon monoxide poisoning show that while victims may recognize they are unwell, they often become so disoriented that they are unable to exit the RV or seek help effectively.

⚠ CAUTION

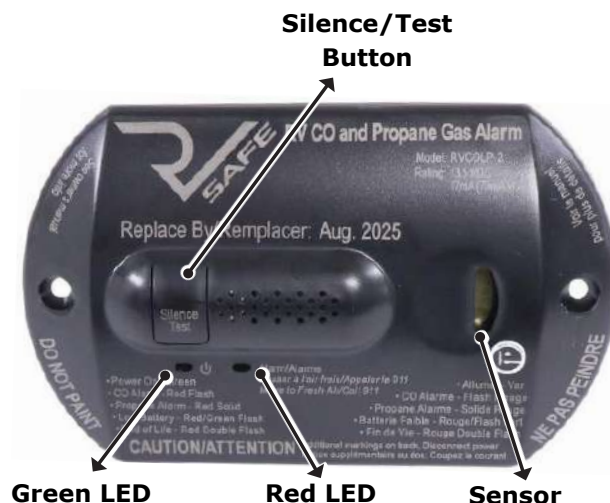
Children and pets may be the first affected. Other highly sensitive people may include the elderly and those with lung or anemia.

ALARM STATES MEANING

- **Normal Operation State:** The green power Led is ON when the alarm is functioning and no CO or propane gas is present. Press the Silence/Test button to perform a self test.
- **Power Off State:** If no LEDs are ON then the alarm is powered OFF. Apply power to the alarm to resume normal operation.
- **Self Test State:** If the Silence/Test button is pressed while in normal operation, the alarm will perform a self test of the CO sensor; propane sensor and battery voltage. It is recommended to perform a self test weekly, after power up from storage (4 rapid beeps followed by a 4-5 sec. pause), followed by 2 cycles of the propane horn pattern (constant beeping).
- **CO Alarm State:** If CO gas reaches unsafe levels, the alarm will enter CO alarm state. The horn will sound with 4 rapid beeps followed by a 4 second pause and the red led will flash rapidly. Open windows and doors and turn off appliances. Move to fresh air and call 911.
- **Propane Alarm State:** If propane gas exceeds 10% of the lower-explosive-limit for more than 30 seconds, the alarm will enter propane alarm state. The horn will sound with constant beeps and the red LED will be on. Immediately turn off all propane appliances and gas valve at the propane tanks. Open doors and windows to properly ventilate the RV. Check for any gas leaks and contact a qualified RV technician.

- **Alarm Silenced State:** A CO alarm or propane alarm can be silenced for up to 5 mins. by pressing the Silence/Test button. The red LED will flash each second while the alarm is silenced. The original alarm state will resume after 5 mins if the CO or propane levels still exceed safe levels.
- **Low Battery State:** If the supply voltage drops below 8VDC, the alarm will enter Low Battery State. The horn will beep every minute and both LEDs will flash every min. Alarm performance cannot be guaranteed as the supply voltage drops below the low battery threshold. Charge or replace the RV battery immediately. Do not disconnect the alarm.
- **End-of Life or other Failure State:** If the OC or propane alarm fails a self test, or if the End-of-Life is reached (after 5 years of operation), the alarm will enter the Failure State. The horn will beep every minute and both LEDs will do a double flash every min. Replace alarm immediately.

ALARM STATES			
State	Green LED	Red LED	Audible Horn
Normal Operation	On	Off	Off
Power Off	Off	Off	Off
CO Alarm (RVCOLP models only)	Off	Flashing	4 constant beeps
Self Test	Off	On/Flashing	4 constant beeps
Propane Alarm	Off	On	Constant beeps
Alarm Silenced (5 mins. Max.)	Off	Flash each sec.	Off
Low Battery	Flash each min.	Flash each min.	Chirp each min.
End-of-Life or other Failure	Off	Double flash each min.	Chirp each min.



⚠ NOTICE

For more information please refer to the CO and Smoke Safe Alarm Owner's Manual provided in the RV information kit.

ALARMS

DETECTOR TEST

If the Silence/Test button is pressed during normal operation, the alarm will conduct a self-test of the CO sensor, LP sensor, and battery voltage. It is recommended to perform this self-test weekly, after powering up from storage, and before each trip.

During a successful self-test, the alarm will emit two cycles of the CO horn pattern (four rapid beeps followed by a four-second pause), followed by two cycles of the Propane horn pattern (constant beeping).

Please note that this CO and Propane detector is not designed to detect smoke. It should not be considered a substitute for the proper servicing of fuel-burning appliances, nor should it be used intermittently or as a portable alarm for detecting spillage from these appliances.

⚠ DANGER

Activation of your CO alarm indicates the presence of Carbon Monoxide (CO) which can kill you.

ⓘ NOTICE

Carbon Monoxide and LP detector must be replaced every five years.

⚠ CAUTION

It is not recommended that the detector be disconnected from the battery during periods of storage. There is a small heater on the sensor of the device that burns away impurities in the air during periods of normal use. During periods when power is interrupted, impurities can build up on the sensor. When power is returned to the detector, the alarm may activate until the impurities are burned off. This could take a number of hours, and the alarm will be constantly on during this time.

DANGERS OF LP GAS

Liquefied petroleum (LP) gas, commonly known as propane, is frequently used as fuel for heating and cooking appliances in RVs. Propane gas is denser than air and tends to accumulate near the floor. Therefore, it is crucial to place the alarm near the floor to ensure quick detection of propane gas leaks.

If the alarm detects carbon monoxide (CO), it will emit a 4-chirp pattern. If it detects LP gas, it will sound with constant beeps.

⚠ WARNING

Activation of this device indicates the presence of Propane Gas, which can cause an explosion and/or fire. This normally indicates a leak in the propane gas pipes or a propane gas appliance.

⚠ DANGER

Propane gas is denser than air, and will usually accumulate close to the floor. Therefore, Grech RV made sure to place it near the floor in order to quickly detect gas leaks.

⚠ WARNING

If you smell gas or CO, immediately follow these steps:

1. Extinguish open flames, pilot lights and all smoking materials.
2. Do not touch any electrical switches in or near the RV.
3. Do not start vehicle's engine or generator.
4. Shut off the propane gas supply at propane tanks or supply.
5. Open doors, windows and roof vents after making sure the roof vent fans are "OFF".
6. Leave the motorhome and its immediate vicinity until odor is gone.
7. Have a qualified service technician check the system for leaks and make any necessary corrections and repairs.
8. If you cannot reach a gas supplier or qualified service technician, contact the local fire department.
9. Do not turn on gas supply until the leak has been repaired.

IMPORTANT SAFETY PRECAUTIONS

- The location of the LP and CO detector is in a perfect spot to detect any leaks, near the heater, kitchen and grills.
- Ensure that the alarm horn can be heard by all passengers with hearing capabilities.
- Seek medical help if you or other passengers in the RV are suffering from Carbon Monoxide poisoning.
- Remember, Carbon Monoxide is an odorless, colorless and tasteless gas, the alarm sounds will make sure to alert you from any leaks.
- Never ignore the problem as it may cause sickness, injury or death in some or all passengers in the RV.
- When using kitchen appliances, ventilation in the RV is required due to the fact that this may trigger the CO alarm and cause a false alarm.

⚠ WARNING

Do not use cooking appliances for comfort heating. Cooking appliances need fresh air for safe operation.

⚠ CAUTION

Have a qualified technician check your LP gas system annually or if you have any signs of leaks or malfunctions.

⚠ CAUTION

Check alarm vent each time LP tank is filled to make sure it is clear of obstructions.

ⓘ NOTICE

CO and propane alarms will not work without a source of power. The alarm will not operate nor sound if the power source is low or disconnected.

ⓘ NOTICE

When contacting the dealer for more information or replacements, service or product information, the model and serial numbers must be handy for an easier and faster assistance.

ALARMS

TESTING THE SMOKE ALARM

To test the smoke alarm, press and hold the test button on the cover until the alarm sounds, then release the button. The alarm should activate, indicating that all electronic circuitry, the horn, and the battery are functioning correctly. Note that the alarm may continue to sound for up to 10 seconds after releasing the button.

If you do not hear any sound, the unit may have a defective battery or another malfunction. It is recommended to test the smoke alarm weekly to ensure it is operating properly.

⚠ DANGER

Never use an open flame of any kind to test this unit. You might accidentally damage or set fire to the unit or to your home.

⚠ WARNING

Test smoke alarm operation after vehicle has been in storage, before each trip, and at least once per week during use. An identical marking provided and permanently located, visibly at 24 inches (610 mm) of the smoke alarm.



Test/
Silence
Button

BATTERY REPLACEMENT

The smoke alarm is powered by a 9-volt battery, which is designed to last at least one year under normal operating conditions. The alarm features a low battery indicator that emits an audible "beep" at 30 to 40-second intervals for a minimum of 7 days. When this signal occurs, replace the battery with an alkaline type, such as Eveready Energizer #522 or Duracell #MN1604.

WHAT TO DO IN CASE OF SMOKE ALARM

If the smoke alarm activates in your RV, promptly open doors, windows, and roof vents to ventilate the space and silence the alarm. Identify and eliminate the source of the smoke. When smoke is detected, the alarm will sound a repeating pattern of three beeps followed by a pause, then three more beeps, with the detector's LED flashing red. This industry-standard alarm setting is designed to alert even those who are asleep.

Keep in mind that when vacationing in remote areas, emergency services may be far away, so it is essential to stay vigilant and prepared.

It is essential to minimize the risk of fire and establish a fire escape plan that everyone is familiar with and has practiced.

⚠ WARNING

It is crucial you know your location when an accident with fire happens so the emergency responders can find you. Be aware of your locations and surroundings.

⚠ WARNING

In case of a smoke alarm emergency immediately follow these steps:

1. Don't panic; stay calm.
2. Get out of the RV as quick as possible. Don't stop to get dressed or collect anything.
3. Cover your nose and mouth with a cloth (preferly damp). Take short, shallow breaths.
4. Meet outside in a safe distance from the RV and do a head count to make sure everybody got out safely.
5. Call the fire department as soon as possible from outside. Give location and name.
6. Don't go back inside the RV when it's still burning. Wait until firefighters tell you it's safe to go in.

⚠ WARNING

Make sure all travellers in the RV know what the sound of each type of alarm indicates and what to do when they hear it.

⚠ DANGER

Remember, DON'T FIGHT A FIRE. A fire extinguisher is no substitute for the fire department.

SMOKE ALARM MAINTENANCE

- **Once a month:** Test the smoke alarm by pressing and holding the test button for at least 5 seconds until you hear the beeps.
- **Every 6 months:** Vacuum the dust off the smoke alarm. Keeping it free of particles helps reduce false alarms and ensures smoke can easily reach the internal sensor.
- **Every Year:** Replace the alkaline batteries every 12 months.

⚠ CAUTION

Gas cylinders, pipes, fittings and connections should be checked regularly, particularly after driving on bumpy roads, which may loosen connections.

Maintain the RV's mechanical systems, such as radiator hoses, fuel lines, brake systems, transmission, etc., in good working order to eliminate the risk of any leaks or malfunctions that may result in a fire.

⚠ CAUTION

Maintain the RV's mechanical systems, such as radiator hoses, fuel lines, brake systems, transmission, etc., in good working order to eliminate the risk of any leaks or malfunctions that may result in a fire. Check all electrical appliances for frayed cords and any other visible damages in components.

ⓘ NOTICE

For more information please refer to the Smoke & Fire Alarm manual provided in the RV information kit.

EMERGENCIES

FIRE EXTINGUISHER

Portable fire extinguishers are essential for safety, particularly since RV fires, while not uncommon, can pose significant risks. Effective preparation and prevention are vital for ensuring your safety on the road.

In every RV model, the fire extinguisher is conveniently located in the galley area, near the entrance of the vehicle. This strategic placement allows for quick and easy access in case of an emergency, enabling you to respond swiftly and effectively.



NOTICE

In reference to the U.S Fire Administration reports, the top causes for fires in RV's are unintentional actions and failure of equipment or heat source. It is very rare that the fire is caused by an act of nature. Leading areas of origin inside RV's are typically in the engine area, running gear, wheel area, cooking area and heater area of the vehicle. Because there can be diverse sources of ignition on an RV, the NFPA requires that all RV's must have a B:C rated fire extinguisher.

TYPES OF FIRE EXTINGUISHERS

Portable fire extinguishers are classified based on the types of fires they can extinguish. The NFPA requires RVs to be equipped with a Class 1-A:10-B extinguisher due to the risk of engine fires, propane leaks, or gas spills. These situations involve flammable liquids commonly found in and around vehicles.

- **Class A:** For ordinary combustibles such as wood, paper, and plastics.
- **Class B:** For flammable liquids and gases.
- **Class C:** For fires involving live electrical equipment.
- **Class D and K:** For metals or cooking fires involving oils.

WARNING

Stay a safe distance from a fire and near an exit. Stay close to the floor to avoid heat and fumes. The chemical from the fire extinguisher will shoot at least 10 feet (3m).

WARNING

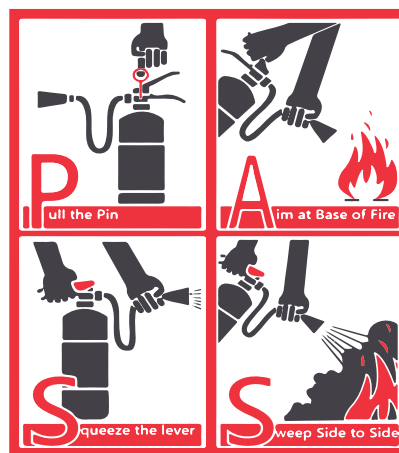
Use of vehicle is not recommended without a working fire extinguisher installed.

OPERATION

A simple way to remember the correct procedure for using a fire extinguisher is the acronym P.A.S.S., which stands for:

- **P - Pull:** Pull the pin located at the top of the extinguisher and hold it upright.
- **A - Aim:** Aim the nozzle at the base of the fire while standing about six feet away.
- **S - Squeeze:** Squeeze the handle or lever to discharge the extinguishing agent.
- **S - Sweep:** Sweep the nozzle from side to side until the fire is completely extinguished.

Ensure you maintain a distance of about 8 to 10 feet from the fire. This distance provides enough space to keep you safe while attempting to extinguish the flames. If the fire cannot be controlled quickly, evacuate the RV immediately and call 911. Do not attempt to extinguish fires that are large or out of control.



WARNING

After the fire is out, beware of flashback. Flashback occurs when flammable vapors from combustible liquids spread back to the ignition source and reignite the fire.

CAUTION

The first rule of vehicle firefighting is to save lives first and property second. Get yourself and the passengers to safety before attempting to extinguish any fire. Only if you can, without endangering yourself or others, should you use firefighting aids on hand. Re-emphasize to everyone aboard that objects can be replaced, people can't. NEVER re-enter a burning RV to retrieve anything. **Get out and stay out.**

WARNING

Remember to not fight a fire, unless you call the fire department first. A fire extinguisher is no substitute for the fire department.

NOTICE

Ensure family members know how to use the extinguishers.

EMERGENCIES

FIRE EXTINGUISHER'S MAINTENENCE

While professional inspections are not required for portable fire extinguishers in RVs, regular visual inspections are essential. Check for signs of damage and ensure that the gauge is in the green zone. If the fire extinguisher has been used on a previous occasion, it must be replaced.

It is recommended to inspect the fire extinguisher at least once a month. More frequent inspections are necessary if the extinguisher is exposed to high temperatures or potential tampering. Do not test the extinguisher by partially discharging it, as this will cause internal pressure to escape, necessitating replacement.

Over time, the powder in some extinguishers can compress, settling and hardening at the bottom like concrete, making the extinguisher unusable. A good way to address this is by inverting and shaking the fire extinguisher. If you do not hear the powder falling, you can gently tap the extinguisher to help loosen the powder. You will know the powder has fallen when you feel and hear it moving.



NOTICE

Extinguishers need an annual check-up to make sure fire extinguishers still work properly when there is a need to be used. You want to check that the pin and tamper seal are intact and that the pressure is still in the green. In reference to Home Renovation site "Make it Right", they suggest: "Tip is upside down. The agent inside the extinguisher can settle at the bottom—it has the consistency of flour and can easily get packed over time. Turn the fire extinguisher upside down a few times to break up the agent inside."



NOTICE

If the pointer on the pressure gauge is not in the operating range (pointer in the green portion of the gauge), immediately replace the extinguisher. Record the inspection date on the tag provided.

WARNING

TIPS TO AVOID FIRE ACCIDENTS

Before hitting the road, it is crucial that all passengers know about **safety tips** when travelling.

- Show everyone where the fire extinguisher is **located** and **how** and **when** to use it.
- When there is a fire emergency you have to **act fast** and be **prepared** because time is **limited** depending on what started the fire and what components are near.
- Ensure that your fire extinguisher is **working properly**.
- Immediately clean up any **fuel spills**. Gasoline and propane can **combust quickly**. While diesel, although less flammable, it will evaporate more **slow** and pose a **risk** for longer.
- Make sure all small batteries are **kept secure** in a plastic container so that they cannot roll or bounce around the RV. Loose batteries that can move or fall can **split** or **combine** in a way that induces **fire**.
- Your stove will continue to **emit propane** even with the flame extinguished. To **avoid** the risk of an explosion, double check that it is turned off properly when you're finished and **never** heat your rv with the stove.
- Have your fuel-burning appliances **checked** at the beginning of each camping season to ensure they are properly **vented, working well** and **free** of any obstructions such as cobwebs, bitds, nests, etc.
- Maintain the RV's **mechanical systems**, such as radiators hoses, fuel lines, brake systems, transmissions, etc., in **good working order** to eliminate the risk of any **leaks** or **malfunctions** that may result in fire.
- Never leave cooking **unattended**.
- Store all **linens** and other **combustibles** well away from the **kitchen area**. In RVs compact kitchens components such as paper towels and curtains are likely to be closer to the stove, exercise even greater **caution** than you do at home when cooking in your RV.
- Keep all lighters and matches safely out of reach of children.

RV OPERATION

REFUELING THE VEHICLE

ⓘ CAUTION

In modern fuel systems, particularly in hot weather, it's crucial to be aware of potential pressure buildup in the fuel tank.

MINIMIZING HAZARDS DURING FUELING

Follow these safety precautions to minimize hazards when refueling:

Gradual Fuel Cap Removal:

- When removing the fuel cap, do so gradually and avoid rapid or sudden actions.
- A slow and controlled removal helps release pressure without causing fuel spray.

Exercise Caution in Hot Weather:

- Be especially cautious during hot weather, as higher temperatures may contribute to increased pressure in the fuel tank.

Maintain a Safe Distance:

- Keep your face and body at a safe distance from the fuel filler tube when opening the fuel cap.
- Stand to the side to minimize exposure in case of any unexpected fuel release.

Control Spillage:

- In the event of any fuel spray or spillage, take immediate action to control and contain it.
- Avoid unnecessary contact with spilled fuel to prevent skin irritation or clothing saturation.

Anticipate Pressure Release:

- Expect a slight hissing sound when opening the fuel cap, indicating the release of pressure.
- Wait for any pressure to dissipate before fully removing the cap.

Stay Attentive During Refueling:

- Pay attention to any signs of fuel spray or unusual pressure during the refueling process.
- If there are concerns or irregularities, consult a professional for inspection.

Regular Maintenance Checks:

- Schedule regular maintenance checks to ensure the proper functioning of the fuel system components.
- Address any issues promptly to maintain safe fueling practices.

PREVENTING FIRES AND EXPLOSIONS

Handling fuel requires utmost caution to prevent fires and explosions. Follow these safety guidelines to minimize risks:

No Open Flames:

- Never handle fuel in the presence of open flames.
- Ensure a flame-free environment when dealing with fuel-related activities.

Smoking Prohibition:

- Strictly prohibit smoking in areas where fuel is handled or stored.
- Smoking poses a significant ignition risk and should be avoided entirely.

Spark Prevention:

- Eliminate any activities that may create sparks in the vicinity of fuel.
- Keep tools and equipment that could generate sparks away from fueling areas.

Static Electricity Awareness:

- Be aware of static electricity, especially in dry or low-humidity conditions.
- Use anti-static devices if necessary to minimize the risk of sparks.

Proper Ventilation:

- Ensure adequate ventilation in enclosed spaces where fuel is present.
- Ventilate areas to disperse any fumes that may accumulate.

Avoid Overfilling:

- Do not overfill fuel tanks, as it increases the risk of spillage.
- Follow recommended fueling levels to prevent spills and associated hazards.

Emergency Response Preparation:

- Have fire extinguishing equipment readily available in fueling areas.
- Train personnel on emergency response procedures in case of fuel-related incidents.

Grounding Equipment:

- Ground fueling equipment to prevent static electricity buildup.
- Use grounded containers and equipment to dissipate any potential electrical charges.

Spill Cleanup Measures:

- Be prepared to address and clean up fuel spills immediately.
- Use appropriate absorbent materials and follow established spill response procedures.

RV OPERATION

⚠ DANGER

Fuel is highly flammable. Improper handling of fuel creates a risk and explosion. Avoid fires, open flames, smoking and creating sparks under all circumstances.

⚠ WARNING

Fuel is poisonous and hazardous to health. There is a risk of injury. You must make sure that fuel does not come into contact with your skin, eyes or clothing and that it is not swallowed. Do not inhale fuel vapors. Keep fuel away from children.

ⓘ NOTICE

If you or others come into contact with fuel, observe the following:

- Wash away fuel from skin immediately using soap and water.
- If fuel comes into contact with your eyes, immediately rinse them thoroughly with clean water. Seek medical assistance without delay.
- If fuel is swallowed, seek medical assistance without delay. Do not induce vomiting.
- Immediately change out of clothing which has come into contact with fuel.

⚠ WARNING

If you mix fuel with gasoline, the flash point is lower than that of pure diesel fuel. When the engine is running, exhaust system components could overheat without being noticed. There is a risk of fire. Never refuel with gasoline. Never mix gasoline with diesel fuel.

ⓘ NOTICE

Environmental note: If fuels are handled improperly, they pose a danger to persons and environment. Do not allow fuels to run into the sewage system, the surface waters, the ground water or into the ground.

⚠ WARNING

Use Ultra Low Sulfur Highway Diesel Fuel only. Max. B5 (Max. 5 percent biodiesel allowed). Otherwise the emission control system will be damaged.

FUEL CAP

Fuel Tank Filler Cap:

- Located by the driver's door.
- Slowly remove the cap to release pressure.
- If hissing occurs, wait until it stops before fully removing the cap.

Fuel Filler Flap:

- Beside the driver's door.
- Opens only when the front door is open.

Ensure safe fueling practices by following these guidelines for both the filler cap and flap locations.



Refueling Procedure

Preparation:

- Remove the key from the ignition lock.
- Switch off the auxiliary heating system.

Access to Fuel Filler Cap:

- Open the driver's side door first.
- Open the fuel filler cap.

Vehicle Doors:

- Close all vehicle doors to prevent fuel vapors inside.

Fuel Filler Cap Handling:

- Turn the fuel filler cap counter-clockwise.
- Remove and let it hang from the strap.

Refueling:

- Insert the fuel pump nozzle into the tank.
- Refuel until the pump nozzle switches off.

Cap Replacement:

- Replace the tank filler cap, turning clockwise.
- Listen for the click, indicating a fully closed cap.

Final Steps:

- Open the front left-hand door first.
- Close the filler flap.

Follow these steps for a safe and efficient refueling process.

ⓘ NOTICE

Overfilling the fuel tank may cause damage to the fuel evaporative emission system.

RV OPERATION

DIESEL EXHAUST FLUID (DEF)

Diesel Exhaust Fluid (DEF) is a crucial component for emissions control in modern diesel engines. Key points include:

Function:

- DEF is injected into the exhaust stream, not into diesel fuel.

Composition:

- It's a non-hazardous solution comprising 32.5% urea and 67.5% de-ionized water.
- DEF is clear, colorless, and resembles water, with a faint smell of ammonia similar to certain household cleaning agents.

Storage:

- DEF is stored in a separate reservoir from the fuel tank.

Emissions Control:

- Metered into the engine's exhaust stream, DEF helps control specific emissions.

Process:

- In the exhaust pipe, DEF vaporizes and decomposes into ammonia and carbon dioxide.

RUNNING LOW OF DIESEL EXHAUST FLUID

DEF is crucial for reducing Nitrogen Oxide emissions (NOx). Multiple warnings will alert you to refill the DEF tank before it runs out. Ignoring these warnings will lead to the engine significantly limiting its power and fueling to ensure compliance with emission standards.

⚠ WARNING

The 32.5% urea concentration is the ideal solution as it provides the lowest freeze point, for this reason it is critical.

ⓘ NOTICE

A 32.5% solution of DEF will start to crystallize and freeze at 12°F (-11°C). At this concentration, both urea and water freeze at the same rate, preventing dilution or over-concentration during thawing. The freezing and thawing of DEF do not lead to degradation of the product.

ⓘ NOTICE

Cleaning up DEF residue is a simple process; just wash the affected area with warm water.

ⓘ NOTICE

DEF fluid is corrosive to various metals commonly used in automotive applications, including carbon steels, iron, zinc, nickel, copper, aluminum, and magnesium. If DEF comes into contact with any of these metals, it's essential to clean the area thoroughly with plenty of warm water to prevent accelerated corrosion.

ⓘ NOTICE

The fluid typically has a shelf life of 18 months. While it doesn't technically expire, it can experience changes in its water content, and the ratio of urea to water could be altered over time.



DEF Filler Cap

OPERATION OF DEF FILLER CAP

The DEF filler cap is situated on the left side of the engine compartment.

To open:

- Switch off the ignition.
- Open the hood.
- Turn the filler cap counter-clockwise and remove it.

To close:

- Replace the cap on the filler neck and turn it clockwise.
- You will hear a click when the cap is fully closed.
- Close the hood.

⚠ WARNING

Consuming it must be avoided at all costs. If that happens, contact a doctor immediately.

⚠ CAUTION

If it comes into contact with your eyes, flush with large amounts of water immediately for at least 15 minutes. Consult a doctor if you have any doubts or experience concerning symptoms.

ⓘ NOTICE

The DEF you purchase should bear the certification of reputable standards, such as the American Petroleum Institute (API), German Institute of Standardization DIN 70700, and the International Organization for Standardization ISO 22241-1. It should also meet AUS-32 specifications, ensuring the correct purity and concentration (32.5%) of urea. For more details on these specifications, refer to www.iso.org.

RV OPERATION

CAMERA

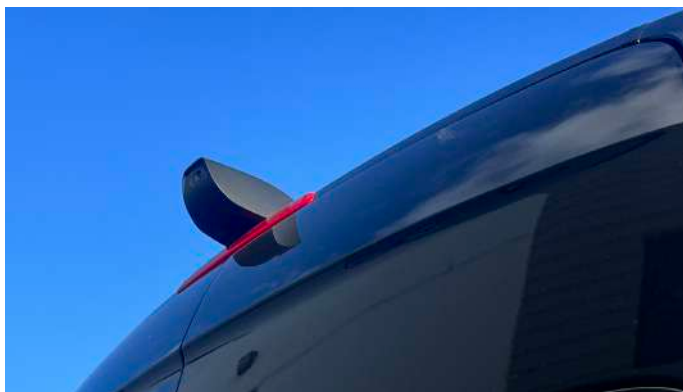
The back-up camera system comprises two main components:

Indash LCD Monitor:

- Positioned within the vehicle's cockpit, this display serves as a crucial tool for the driver, providing real-time visuals of the rear surroundings.

Sensors:

- Strategically placed at the front and rear of the vehicle.
- These sensors actively detect nearby objects, enhancing the driver's awareness during both driving and reversing maneuvers.



⚠ CAUTION

PRACTICE SAFE DISTRACTION MANAGEMENT

Avoid prolonged distraction from the road or risk accidents leading to injury or fatality. Prioritize road focus over extended use of the in-dash entertainment system while driving.

CURBSIDE SLIDING STEP

The curbside sliding door incorporates a sliding step with auto-retract functionality, operated by a switch located above the passenger seat inside the vehicle.

Switch Location:

- The control switch is situated at the vehicle's entrance, facilitating easy access for passengers.

User Awareness:

- It's crucial for all occupants to be familiar with the vehicle's features, especially the exterior sliding step.

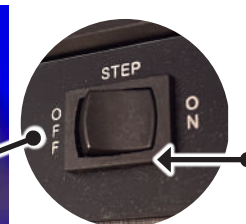
Operation Guidelines:

- The exterior sliding step should only be extended or retracted when the vehicle is stationary.
- Use the designated button to control the step's movement.

Undercarriage Light:

- The step is equipped with an undercarriage light for visibility in low-light conditions.
- The light can be controlled (on/off) through the multiplex panel.

By adhering to these guidelines, users can ensure the safe and effective utilization of the vehicle's exterior sliding step.



**Exterior
Sliding
Step
Button**

⚠ WARNING

The entry door step automatically retracts and the step light switches off when you close the RV door and turn the vehicle ignition switch to the "ON" position.

⚠ CAUTION

Ensure the entry door step has fully extended before stepping out of the vehicle.

RV OPERATION

DOORS

SLIDING DOOR: MANUAL OPERATION

OPENING FROM THE INSIDE

1. Pulling the Door Handle:

- To unlock, pull the locking knob upwards. Only the sliding door will unlock, the others will remain locked.
- Grip the interior door handle firmly.
- Pull the handle to initiate the opening of the sliding door.

2. Pushing Back:

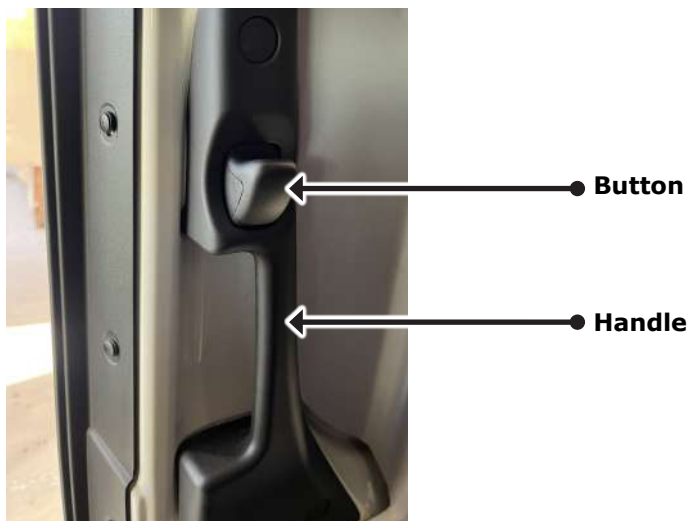
- To open the door, press button and guide the sliding door backward using the door handle until it engages.
- Confirm engagement by checking the sliding door detent.

CLOSING FROM THE INSIDE

1. Firm Forward Slide:

- Push the sliding door firmly forward using the handle until it completely closes.
- To lock, press the locking knob down. All doors that were previously unlocked will remain unlocked.

Mastering these manual operations ensures convenient control over your vehicle's sliding door from the interior.



NOTICE

The sliding door has two locking knobs which besides the handle which will help lock and unlock the sliding door.

1. To unlock:

- Pull locking knob upwards. Only this sliding door unlocks, the other doors remain locked.

2. To open:

- Press button
- Slide the sliding door by handle back to the stop.
- Check the sliding door detent. The sliding door must be engaged.

3. To close:

- Slide the sliding door firmly forwards by door handle until it engages.

4. To lock:

- Press locking knob down.
- Only the sliding door is locked. All the other doors that were previously unlocked remain unlocked.

ELECTRICAL CLOSING ASSIST

Your vehicle is equipped with two electrical closing assists, which make it easier to close the sliding door with less force. The red button is located above the passenger seat, next to the sliding door, while the black button is positioned in the middle of the cockpit.



RV OPERATION

POWERED REAR SCREEN

The Powered Rear Screens come down automatically by pressing the button down on the Firefly Multiplex System once. In case you need to stop it at a certain length press the rear screen button again. The powered rear screens will stop eventually when it reaches it's set limit. In the event that you want the power rear screen back up, press the button on the Multiplex Control Panel again.

There are two different powered screens as you can see from the pictures. The white one is a powered shade screen that stops sunlight from entering the RV. The black one is a powered mesh screen that stops insects from entering the RV and also allows the driver and passengers to look outside.



Both rear screens can be powered by Firefly Multiplex System touch screens inside your RV, you may find them in the "Shades" category. The Powered Shade Screen can be controlled by pressing the arrow icons in the "Rear Doors" category and the Powered Mesh Screen is named "Power Screen".

REAR DOORS

Rear Door Left-Handle



Rear Door Locks

Door Retainer



1. To operate rear door left-handle:

- Make sure that the right-hand rear door is open and engaged.
- Pull release handle.
- Swing the rear door to the side until it engages.

2. Opening or closing rear doors from the inside:

- Release lever on the inside of the right rear door.
- Slide the rear door locks to lock or unlock the rear doors.

3. Opening rear doors to an angle of 180° or 270°:

- Open the rear door to about 45°.
- Pull and hold door retainer in the direction of the arrow.
- Open the rear door more than 90°, so that the door retainer cannot engage.
- Release the door retainer and open the door to an angle of 180° or 270°.

⚠ WARNING

You can only open the locked rear doors from the inside if the child-proof locks have not been activated.

⚠ WARNING

Only open rear doors when traffic conditions permit. Always make sure that the rear doors are properly locked while on road.

RV OPERATION

DOOR LOCKS

This dual control system—allowing operation from both within the vehicle and via remote—ensures versatile and secure access to your vehicle. With these systems in place, you can confidently enter and exit your vehicle, knowing that your belongings and loved ones are protected.

1. Exterior Latches

- The key works works for all exterior latches.

2. Door Locks

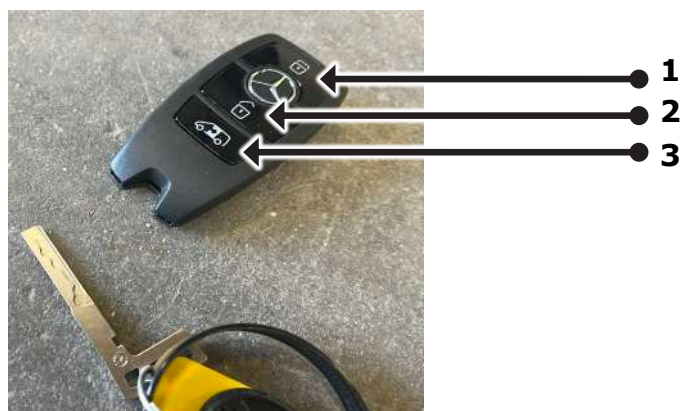
- For convenient locking and unlocking of all doors.
- Your key remote control also includes dedicated buttons for seamless door locking and unlocking.



KEY FOB

The latches on the exterior and the driver door lock of your vehicle are operated by distinct keys, both of which are compatible with the Mercedes Sprinter key fob supplied to you.

- The key fob features a remote controller, enabling you to effortlessly lock and unlock all doors.
- It incorporates two keys: the main key for exterior compartments/latches and an internal key for the driver's side door.



KEY FOB REMOTE CONTROL

1. Locking All Doors:

- Press the lock button.

2. Unlocking Driver's Side Door:

- A single press on the unlock button.

2. Unlocking All Doors:

- Press the unlock button twice within a 2-second interval.

3. Entrance Door Operation:

- A single press to gracefully open or close the entrance door.

⚠ WARNING

Isolation from Electronic Devices

Keep the key separate from electronic devices like mobile phones or other remote-controlled keys. Ensure the key is not in proximity to metallic objects such as coins, metal foil, or enclosed in metallic cases.

ⓘ NOTICE

Limited Range Wisdom:

- Employ the remote control key within a close range of the vehicle, up to 32 ft (10 m).
- This practice acts as a theft deterrent, ensuring key usage only in the immediate vicinity.

⚠ WARNING

Toxic Territory:

- Remote control batteries harbor toxic and corrosive substances.
- Keep batteries safely away from children's reach.

Swallowing Alert:

- Swallowing batteries poses severe health risks, even fatal.
- If swallowed, seek immediate medical attention.

LOCKING OR UNLOCKING DRIVERS DOOR

1. Unlocking Caution:

- Beware of the Anti-Theft Alarm (ATA) system in your Sprinter. Unlocking and opening the driver's or rear door using the key triggers this security feature.

2. Disarming the alarm

- To halt the alarm activation, employ this method: Press the lock or unlock button on your key fob's remote controller.

Ignition Procedure:

- The ignition process in your vehicle is keyless.
- Start the engine by pressing the ignition button located at the center of the cockpit.



RV OPERATION

USB PORTS

Your vehicle is equipped with multiple 110V dual USB ports strategically located throughout the interior. These ports provide convenient charging solutions for a variety of devices, including smartphones, tablets, and other USB-powered electronics.

Each dual USB port is designed to deliver consistent power, ensuring that your devices charge efficiently even when multiple ports are in use simultaneously. The 110V power supply ensures that your devices receive adequate power without the need for additional adapters, making it easy to stay connected and powered up while on the road.

Whether you're working remotely, keeping your devices charged for entertainment, or simply maintaining communication, these USB ports are an essential feature of your vehicle, offering both convenience and functionality for all your charging needs.



BLU-RAY AND APPLE TV

Your RV is equipped with modern entertainment options, including a Blu-ray player or Apple TV, to enhance your travel experience.

Blu-ray Player:

- The Blu-ray player allows you to enjoy high-definition movies with superior sound and picture quality, making your time in the RV more enjoyable. Blu-ray discs offer better resolution and storage capacity than traditional DVDs, ensuring you get the best possible viewing experience. The player is easy to use, with intuitive controls and compatibility with various disc formats, including DVDs and CDs.

Apple TV:

- Apple TV provides a seamless way to stream your favorite shows, movies, and music from popular platforms like Netflix, Hulu, and Apple Music. With access to the Apple TV app, you can also purchase or rent movies and TV shows directly. Additionally, Apple TV supports AirPlay, allowing you to mirror your iPhone, iPad, or Mac on the TV screen in your RV, making it easy to share photos, videos, or even play games.



RV OPERATION

AWNING

GIRARD MODEL

The Strada is equipped with a versatile lateral-arm awning from Girard Systems, model GRT750 measuring 14 ft wide and extending up to 8 ft.

This awning comes with a 12V motor for effortless extension and retraction, providing convenience at the touch of a button. Its robust design ensures reliable protection from the sun, rain, and other elements, enhancing outdoor comfort and versatility.

The awning's fully enclosed structure eliminates the need for upright legs, contributing to a sleek appearance and ease of use. Additionally, it features a built-in 12V LED light strip, illuminating outdoor spaces for extended enjoyment during any time of day or night.

Designed to provide reliable protection from the sun, rain, and other elements, it is customized to meet specific requirements using high-quality components for enhanced durability. Unlike traditional awnings, it is lightweight and features a fully enclosed design without upright legs, maximizing convenience and aesthetics.

Additionally, it includes a built-in 12V LED light strip, adding functionality and ambiance to outdoor settings. Whether relaxing or entertaining, this awning enhances the comfort and enjoyment of outdoor experiences with its practical design and premium features.

ⓘ NOTICE

During the automatic closing of the awning, don't stop the movement. Once it stops with the lead bar closed you can reopen it.

ⓘ NOTICE

The power awning will not operate with the RV ignition on. It is equipped with a safety feature preventing the awning from extending while the RV ignition is on (driving).

ⓘ NOTICE

The Auto Retract feature will only operate when the awning has 12vdc.



ⓘ CAUTION

Awnings are designed to provide shade and protection from the sun. Retract awning if experiencing rain or wind conditions and when leaving unit unattended. Always secure awning in travel position when not in use.

ⓘ CAUTION

Auto-retract systems provide protection against adverse elements; but no auto-retract system is a guarantee against severe or destructive weather; the effects of wind and rain on an awning are unpredictable and may cause severe damage to the awning and/or vehicle. If wind or extended periods of rain are expected, retract the awning.

ⓘ CAUTION

Keep all sources of heat and flame away from the awning canopy. Fabric is not fire-proof and can burn if left in contact with any flame or heat source.

RV OPERATION

MAINTENANCE

The awning's fabric does not rot or mildew however due to the construction of the fabric, most dirt will be only on the surface, and can be easily removed with luke warm water and a cloth and/or brush.

Heavy marks or stains can be removed using a mild dish washing detergent. Do not use aggressive cleaners, detergents and do not use high-pressure washers on your fabric.

A cleaning option for stubborn and intense stains is:

1. Soak the fabric for approximately 20 minutes in a solution of no more than 1/2 cups (4 oz.) of bleach and 1/4 cup (2 oz.) natural soap per gallon of water at approximately 100 degrees fahrenheit.
2. Rinse thoroughly in cold water to remove all soap.
3. Allow to soak it for a prolonged time and when it's finally dry roll it back in.

NOTICE

Make sure your awning is completely dry and clean before closing it, as the remaining humidity could stain the fabric. However, if you must close the awning when it is still wet, make sure to open it again within 12 hours or less for drying.

CAUTION

Excessive use of bleach can deteriorate sewing threads of your awning. It can remove part of the water repellency and the fabric will need a water repellent treatment later on.

WEATHER

If the awning has been open in hot, sunny weather for an extended period, the fabric may stretch slightly or shrink, causing wrinkles to appear when closing it. To resolve this, simply open the awning again and leave it in the sun for a few hours. The warmth will help the fabric relax, allowing the wrinkles to disappear and enabling you to close the awning smoothly. Avoid using a steam press or drying the awning in electric or gas dryers; instead, allow it to air dry naturally.

Using the awning in freezing temperatures is not recommended, as the fabric can lose its flexibility and elasticity in cold conditions. This can increase the risk of cracks forming, which could potentially lead to tears in the fabric. To maintain the integrity and longevity of your awning, it's best to avoid deploying it in such conditions.

NOTICE

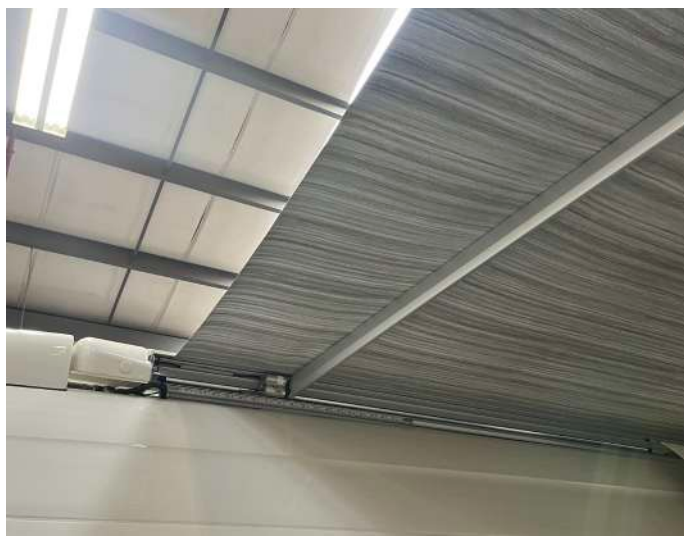
Please note, that with each day and use of the awning, the color of the fabric may change. This is a natural process to the exposure of your awning to different temperatures and weathers.

RV OPERATION

AWNING

FIAMMA MODEL

The awning presented in the RV, is 100% automatic and can be used with the Multiplex Firefly Control System screens, located in the RV it controls the extend/retract feature of the awning with a simple touch that activates the 12V battery and motor.



WIND DETECTIVE SAFETY SYSTEM

The awning comes with an intelligent Wind Sensor System that automatically activates the 12V motor and closes if the wind picks up beyond a certain threshold. This auto-close mechanism protects your awning and offers it complete safety from any sort of damage that it could otherwise experience from bad weather.

Additionally, it is equipped with a sensor that detects the oscillatory movements of the front bar and when the movement exceeds the set threshold just when there is wind, it will also automatically close. The awning can also be manually closed in case of an emergency or if you need to get going quickly.

SELF SUPPORTING ARMS

The awning in your RV has self-supporting arms that are reinforced thanks to the innovative and solid duralumin double block, which is why it doesn't require vertical supports.



CHARACTERISTICS

Arms are fixed at a **10°** angle, it can be modified from 5° to 17°, to allow the correct flow of water.

170" RV AWNING CHARACTERISTICS	MODEL #1
Power Supply	12 V
Absorption	12 A
Awning Length	420 cm
Min. Canva Length	250 cm
Shadow Surface	9.5 m2

NOTICE

The power awning will not operate with the RV ignition on. It is equipped with a safety feature preventing the awning from extending while the RV ignition is on (driving).

CAUTION

Awnings are designed to provide shade and protection from the sun. Retract awning if experiencing rain or wind conditions and when leaving unit unattended. Always secure awning in travel position when not in use.

CAUTION

Auto-retract systems provide protection against adverse elements; but no auto-retract system is a guarantee against severe or destructive weather; the effects of wind and rain on an awning are unpredictable and may cause severe damage to the awning and/or vehicle. If wind or extended periods of rain are expected, retract the awning.

CAUTION

Keep all sources of heat and flame away from the awning canopy. Fabric is not fire-proof and can burn if left in contact with any flame or heat source.

RV OPERATION

MAINTENANCE

The awning's fabric does not rot or mildew however due to the construction of the fabric, most dirt will be only on the surface, and can be easily removed with luke warm water and a cloth and/or brush.

Heavy marks or stains can be removed using a mild dish washing detergent. Do not use aggressive cleaners, detergents and do not use high-pressure washers on your fabric.

A cleaning option for stubborn and intense stains is:

1. Soak the fabric for approximately 20 minutes in a solution of no more than 1/2 cups (4 oz.) of bleach and 1/4 cup (2 oz.) natural soap per gallon of water at approximately 100 degrees fahrenheit.
2. Rinse thoroughly in cold water to remove all soap.
3. Allow to soak it for a prolonged time and when it's finally dry roll it back in.

NOTICE

Make sure your awning is completely dry and clean before closing it, as the remaining humidity could stain the fabric. However, if you must close the awning when it is still wet, make sure to open it again within 12 hours or less for drying.

CAUTION

Excessive use of bleach can deteriorate sewing threads of your awning. It can remove part of the water repellency and the fabric will need a water repellent treatment later on.

WEATHER

If the awning has been open in hot sunny weather for a long time, the fabric may stretch slightly or shrink and wrinkles could appear when closing the awning. Simply open the awning again, leave in the sun for a few hours, and the wrinkles will disappear, letting you close the awning smoothly. Do not steam press or dry in electric or gas dryers, instead allow the awning to air dry.

It is not recommended that the awning is used in freezing temperatures, since the fabric may become less flexible or elastic which may result in the risk of cracks appearing and potentially a tear in the fabric.

NOTICE

Please note, that with each day and use of the awning, the color of the fabric may change. This is a natural process to the exposure of your awning to different temperatures and weathers.

INCLINATION ADJUSTMENT

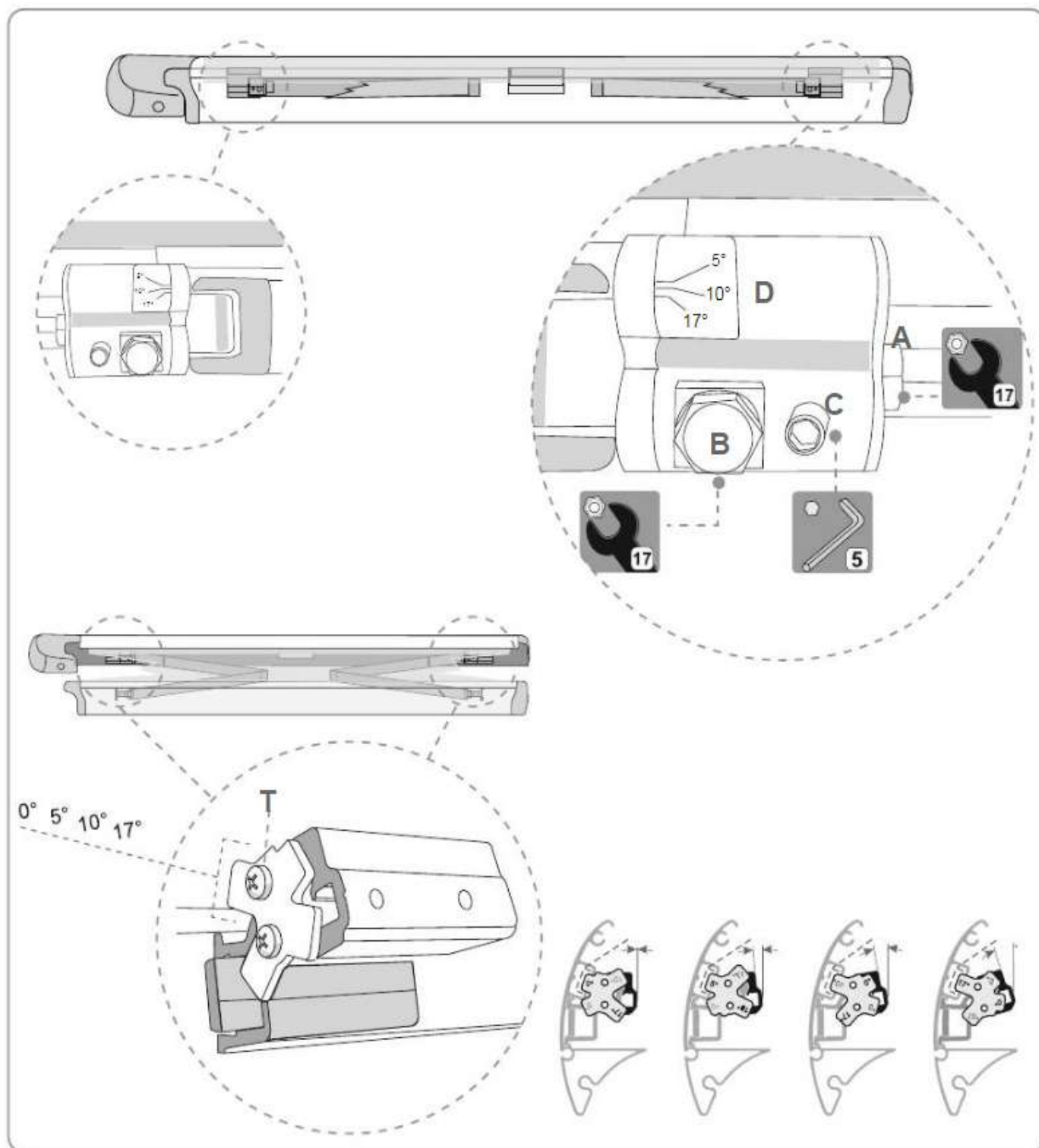
The inclination of the awning may be modified, it is previously fixed at a 10° angle. Adjust it according to your needs and demands, following the instructions on this page and the diagram on the next page:

1. Open your awning completely.
2. Lightly loosen screw A.
3. Completely unscrew the stop screw C.
4. **Operate on screw B:** rotating clockwise, the arm rises and the inclination decreases; always checking that the lead bar moves in a horizontal position. Rotating anticlock wise the effect is the opposite.
5. Check the degrees indicator D to verify the correspondance of the inclination of the two arms. You may repeat the same operation on the other side.
6. Operate inside the lead bar, unscrew the two screws T and rotate the stop plate in the position of the desired angle.

NOTICE

For more information onn the awning please refer to the Owner's Operator Manual of the awning provided in the RV Information Kit.

DIAGRAM OF INCLINATION ADJUSTMENT OF AWNING



For more information please check the awning's manual or call for assistance.

INTERIOR

SEATS

The seating in this luxurious vehicle is thoughtfully designed to provide both comfort and versatility for all passengers. At the front, you will find four seats, which include the pilot and co-pilot positions, along with two additional seats located directly behind them. These seats are designed to rotate, allowing them to face each other, effectively transforming the area into a cozy lounge. This arrangement is perfect for socializing, enjoying meals together, playing games, or simply relaxing while you travel.

Safety is a top priority in this vehicle, and each seat is equipped with seatbelts to ensure that all passengers are secure, whether you are on the move or parked. The thoughtful design doesn't stop there; in the center of this lounge area is a practical table that can be easily removed and stored when it's not in use. When it's time to gather for a meal, engage in lively conversation, or partake in activities, the table can be quickly and effortlessly reinstalled, enhancing the functionality of the space.

This flexible seating arrangement allows the front area of the vehicle to adapt to various situations seamlessly. Whether you're driving on a long journey or taking a break at a scenic stop, the seating area offers both comfort and convenience. With sufficient room to move and socialize, this space is designed to make every part of your journey enjoyable, ensuring that your travel experience is as relaxing and pleasant as possible. Whether you're sharing stories with friends or enjoying a quiet moment, this vehicle's seating arrangement caters to all your needs.



INTERIOR

SEAT & BELT SAFETY

To ensure both safety and comfort while driving, it's crucial that your seat is adjusted to allow the correct use of the seat belt. Follow these guidelines for optimal seating and belt positioning:

1. Backrest Positioning:

- Position the backrest in an almost vertical position so that you are virtually upright. Do not drive with the backrest reclined too far back.

2. Arm Position:

- Your arms should be slightly bent when holding the steering wheel. This allows for better control and reduces fatigue during long drives.

3. Seat Belt Routing:

- Ensure that the seat belt is routed correctly to maximize its protective function: which one o
 - The shoulder portion of the belt should pass over the middle of your shoulder, pulled snugly against your upper body. This positioning helps prevent upper body movement in case of a sudden stop or impact.
 - The lap belt should be positioned as low as possible across your lap, directly over your hip joints. This helps to keep you securely seated and reduces the risk of injury to your abdomen in the event of an accident.

4. Head Restraint Adjustment:

- Adjust the head restraint so that it supports the back of your head at eye level. Proper head restraint positioning is essential for reducing the risk of whiplash injuries in the event of a rear-end collision.

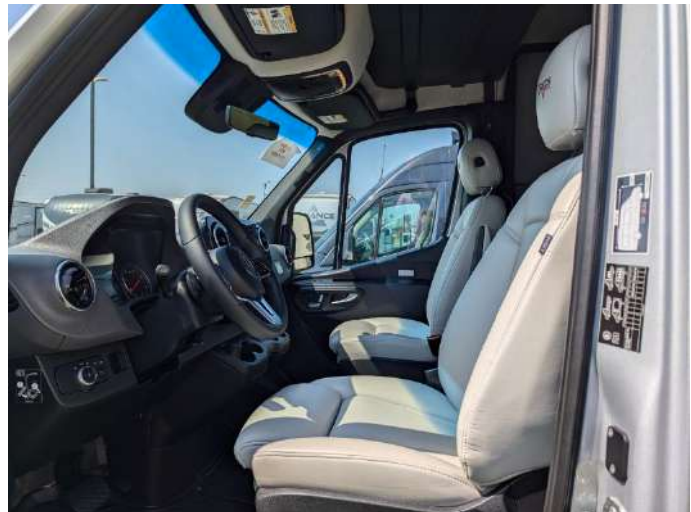
5. Head Restraint Adjustment:

- Position your seat so that you can fully depress the pedals with ease. Your legs should be slightly bent when pressing the pedals, allowing for quick and precise control without strain.

6. Pedal Distance:

- Position your seat so that you can fully depress the pedals with ease. Your legs should be slightly bent when pressing the pedals, allowing for quick and precise control without strain.

By following these guidelines, you can ensure a safer and more comfortable driving experience, with your seat belt functioning optimally to protect you in all driving conditions.



ⓘ WARNING

You could lose control of your vehicle if you do the following while driving:

- Adjust the driver's seat, head restraint, steering wheel or mirrors.
- Fasten the seat belt.

There is a risk of an accident. Adjust the driver's seat, head restraint, steering wheel and mirror and fasten your seat belt before starting the engine.

ⓘ WARNING

When you adjust a seat, you or other vehicle occupants could become trapped. For example, on the seat guide rail. There is a risk of injury. Make sure when adjusting a seat that no one has any body parts in the sweep of the seat.

ⓘ WARNING

The seat belt does not offer the intended level of protection if you have not moved the backrest to an almost vertical position. When braking or in the event of an accident, you could slide underneath the seat belt and sustain abdomen or neck injuries. This poses an increased risk of injury or even fatal injury.

ⓘ NOTICE

Adjust the seat properly before beginning your journey. Always ensure that the backrest is in an almost vertical position and that the shoulder section of your seat belt is routed across the center of your shoulder.

ⓘ WARNING

If head restraints are not installed and adjusted correctly, they cannot provide protection as intended. There is an increased risk of injury in the head and neck area in the event of an accident or when braking.

ⓘ NOTICE

Always drive with the head restraints installed. Before driving off, make sure for every vehicle occupant that the center of the head restraint supports the back of the head at about eye level.

INTERIOR

HEAD RESTS

To ensure optimal safety, use the head rest button to adjust the head rest so that it sits as close as possible to the back of your head. This adjustment is crucial for maximizing protection during a collision.

The primary purpose of head rests in vehicles is to enhance safety. They are specifically designed to help minimize the risk of whiplash—a common injury that occurs when the head and neck move violently backward during a rear impact. By preventing excessive movement of the head and neck, properly adjusted head rests can significantly reduce the likelihood of whiplash injuries in the event of an accident.

It's important to keep the head rests in their designated positions for the front and rear seats. Swapping them can prevent proper adjustment of height and angle, compromising their effectiveness. Always ensure that the head rest is positioned as close to your head as possible for maximum safety.

NOTICE

Always Adjust Before Driving: Ensure your head rest is properly adjusted before you start driving to maximize safety during your journey.

Educate Passengers: Ensure all passengers understand the importance of correctly positioning their head rests before traveling.

NOTICE

Check for Damage: Regularly inspect head rests for any signs of damage or wear. A damaged head rest may not provide adequate protection.

NOTICE

Proper Positioning: Keep the head rest in the designated position for each seat. Improper positioning can compromise safety in the event of a collision. A properly placed head rest has been shown to lower the chances of neck injury by up to 43% during a rear-end collision.

NOTICE

Stay Aware: Remind yourself and passengers that head rests are a critical safety feature, not just a comfort accessory.

WARNING

Avoid Modifications: Do not modify or remove the head rests. Alterations can interfere with their effectiveness in protecting against injuries.

WARNING

Adjust for Height: Make sure the head rest aligns with the back of your head, regardless of your height, to prevent potential injury during a crash. Always drive with the head rests installed.

CAUTION

Check Installation: If the head rests are not installed or not adjusted correctly, they cannot provide protection as intended. In the event of braking, there is an increased risk of injury in the head and neck area.



INTERIOR

HEAD RESTS OPERATION

Properly adjusting your head rest is essential for maximizing safety and comfort while driving. This section outlines the various controls and procedures for adjusting and removing the head rest in your vehicle.

1. Head Restraint Angle Button

- This button allows you to adjust the angle of the head rest for optimal comfort and support.

2. Head Restraint Angle Position

- You can position the head rest at the angle that best suits your driving posture.

3. Release Button

- This button is used for lowering and removing the head rest.

ADJUSTMENT INSTRUCTIONS

- **To Raise:** Pull the head rest up to the desired position.
- **To Lower:** Press the release button and slide the head rest down to the desired position.
- **To Adjust the Angle:** Hold the front part of the luxury head rest by the lower edge and tilt it to the desired angle.
- **To Remove:** Pull the head rest up to its maximum height, press the release button, and then pull out the head rest.
- **To Insert:** Align the head rest so that the rod with the detents is on the left side when facing the direction of travel. Press and hold the release button while pushing the head rest down until it securely engages.

By following these instructions, you can ensure that your head rest is correctly positioned to provide the necessary support and safety while on the road.



SEATBELTS

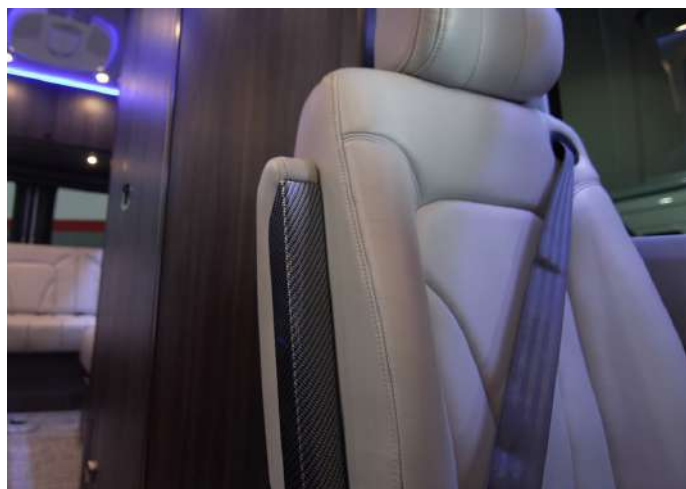
Seatbelts are one of the most crucial safety features in your vehicle. In the event of a collision, they play a vital role in keeping you securely in your seat, significantly reducing the risk of injury.

The seatbelt system includes pre-tensioners that automatically tighten the belt upon sensing a collision, effectively distributing the force of impact across the strongest areas of your body—your shoulders, chest, and hips. Research shows that when worn correctly, seatbelts can reduce the chances of death in a collision by 47% and the likelihood of serious injury by 52%.

To ensure your seatbelt is effective, it must be worn correctly:

- **Snug Fit:** The belt should fit snugly over your shoulder and across your hips, providing maximum protection.
- **Flat and Untwisted:** Ensure the belt is flat and not twisted. A twisted seatbelt can compromise its effectiveness and comfort.
- **Proper Positioning:** Always keep the seatbelt over your shoulder and never under your arm. Wearing it under the arm can lead to serious injuries in the event of a collision, as it does not provide adequate restraint.

By following these guidelines, you enhance your safety on the road and make the most of the protective features your vehicle has to offer.



DRIVER AND PASSENGER'S SEATS

Ensuring your seat is properly adjusted is crucial for comfort and safety while driving. The following instructions outline how to adjust various features of your seat to create the ideal driving position tailored to your preferences.

SEAT ADJUSTMENT INSTRUCTIONS

1. Adjusting the Seat Backrest

- **To Move Forward:** Turn the handwheel toward the front of the vehicle to position the seat backrest upright.
- **To Tilt Back:** Turn the handwheel toward the rear to recline the seat backrest to your preferred angle.

2. Adjusting Seat Height:

- Press or pull lever repeatedly until you have reached the desired seat height.

3. Lumbar Support Adjustment:

- Use the lumbar support controls to modify the support level for your lower back, ensuring maximum comfort during your drive.

4. Adjusting Seat Cushion Angle:

- Press or pull lever repeatedly until you have reached the desired seat height.

5. Handbreak Operation:

- Press the button and pull or push the lever to engage or disengage the handbrake. Ensure the handbrake is in the down position while driving for safety.

6. Seat Extension Adjustment:

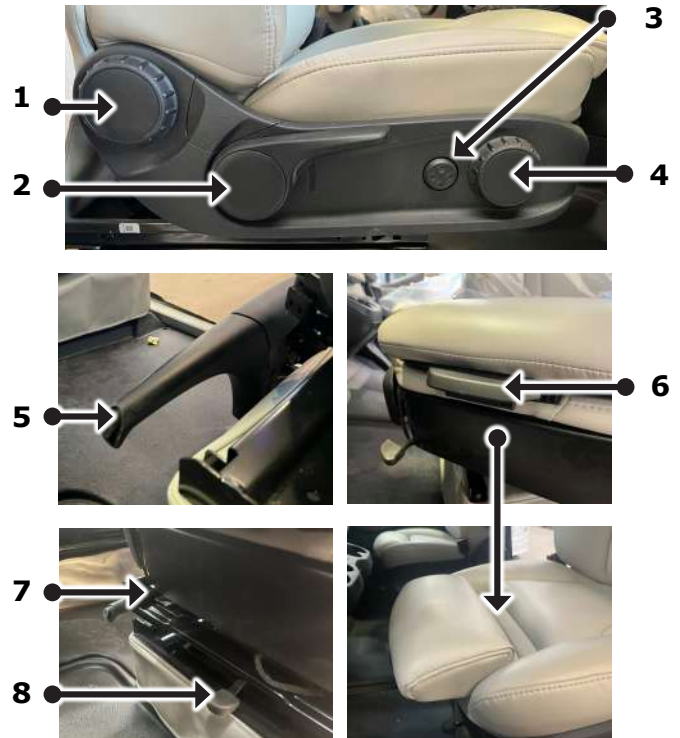
- Pull the component to extend the seat forward, providing additional comfort as needed.

7. Adjusting Seat Position:

- Pull the lever to slide the seat forward or backward to achieve the ideal position for driving.

8. Swiveling/Rotating the Seat:

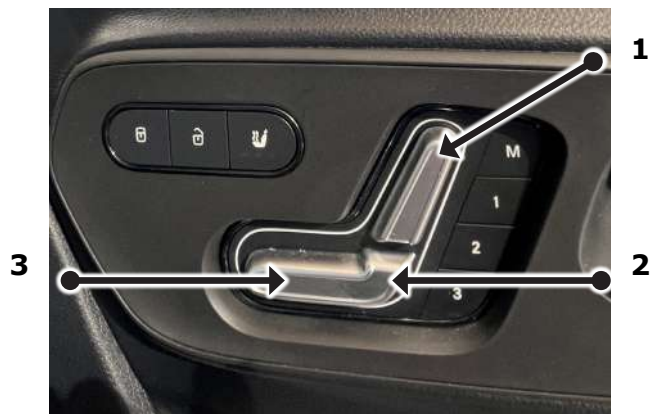
- To rotate the seat, pull the swivel lock lever located near the base of the seat to the left. Gently swivel the seat toward the centerline of the vehicle to avoid damaging the seat, door panel, or post.
- By following these adjustments, you can create a personalized and comfortable driving environment that enhances your overall experience in the vehicle.



RV OPERATION

ELECTRIC SEAT ADJUSTMENTS

The vehicle includes electric seat adjustments, allowing you to customize your seating position for maximum comfort. You will find the backrest adjustment buttons and controls located on the doors of both the driver's and passenger's seats. Follow these instructions to make the necessary adjustments:



1. Adjusting the Seat Angle:

- Slide the back rest adjustment button forward or backwards.

2. Adjusting the Seat Height:

- **To Raise the Seat Height:** Push the button upwards until you reach your desired height.
- **To Lower the Seat Height:** Push the button downwards until you reach your desired height.

3. Adjusting Seat Cushion Height:

- Use the seat cushion height adjustment button to raise or lower the seat cushion independently. This allows for precise adjustment of the cushion height without affecting the overall seat height.

By utilizing these electric adjustments, you can create a comfortable and supportive driving environment tailored to your preferences.

NOTICE

Ensure Proper Adjustment: Always ensure your seat is adjusted correctly before driving. A well-positioned seat enhances your ability to reach the pedals and controls comfortably.

CAUTION

Avoid Distractions: Make all seat adjustments while the vehicle is parked to prevent distractions while driving. Adjusting the seat while in motion can lead to loss of control.

CAUTION

Check for Obstructions: Before making adjustments, ensure there are no obstructions beneath the seat that could interfere with its movement.

WARNING

Limit Use of Electric Adjustments: Excessive use of electric seat adjustments may drain the vehicle's battery. Use them only as needed.

NOTICE

Regular Inspection: Periodically inspect the seat adjustment mechanisms for any signs of wear or malfunction. If you notice any issues, have them checked by a qualified technician.

NOTICE

Children's Safety: If you have children in the vehicle, ensure that they are properly secured in their seats and cannot reach the seat adjustment controls.

RV OPERATION

ROTATING SEATS

The vehicle's design includes rotating seats for added flexibility and comfort during your travels. To safely rotate the seats, follow these guidelines:

1. Ensure Sufficient Space:

- Before rotating the seats, make sure there is enough space around the seat to avoid any contact with other interior components.

2. Adjust Seat Position:

- Move the seat forward or backward as needed. This adjustment helps create additional room for rotation and prevents interference with other parts of the vehicle.

3. Engage the Handbrake:

- Always push the handbrake lever down to its stop before attempting to rotate the seats. This ensures that the vehicle remains stationary during the adjustment.

4. Rotation Limits:

- The driver's and front passenger seats can rotate up to 50° and 180°. The seats engage securely in the forward-facing position, the rear-facing position, and at a 50° angle towards the door.

5. Steering Wheel Adjustment:

- Adjust the steering wheel if necessary to provide adequate space for rotating the driver's seat.

6. Position the Front Passenger Seat:

- Before rotating the driver's seat, ensure the front passenger seat is pushed forward to maximize space.

7. Position the Front Passenger Seat:

- Locate the lever at the rear of the seat and push it towards the center of the vehicle.
- Gently rotate the seat inward until the rotation mechanism is released.
- Once the lever is released, turn the seat to your desired position, either 50° toward the inside or outside.

By following these steps, you can safely and effectively rotate the seats to create a comfortable and inviting space for conversation, dining, or relaxation while on the road.



**Swivel/
Rotate
Seat lever**

⚠ WARNING

If the driver's and front-passenger seats are not engaged facing the direction of travel while driving, the restraint systems may not be able to provide the intended protection. There is an increased risk of injury, possibly even fatal.

ⓘ NOTICE

Engage the driver's and front-passenger seats so they are facing the direction of travel before starting the engine.

RV OPERATION

REAR SEATS / SOFA BED

The rear seating area in your vehicle is designed for both comfort and versatility, featuring a three-passenger sofa bed that can easily be converted to accommodate your needs. To fold the seat cushion forward and create additional space or set up the sofa bed, follow these steps using the Firefly Multiplex Control Panel:

1. Access the Control Panel:

- Navigate to your Firefly Multiplex Control Panel and tap on the home page to display the available options.

2. Select Your Action:

- The control panel allows you to choose from several functions:
 - **EXT (Extended):** To extend the seating area.
 - **RET (Retract):** To retract the seating back to its original position.
 - **DOWN:** To lower the seat cushion for easy access.
 - **UP:** To raise the seat cushion back into position.

3. Choose the Specific Area:

- You can conveniently select the specific area you wish to adjust:
 - **D/S Ottoman:** Adjusts the Driver's Side Ottoman.
 - **P/S Ottoman:** Adjusts the Passenger's Side Ottoman.
 - **Rear Sofa:** Operates the three-passenger sofa bed.

With the Firefly Multiplex Control Panel, there is no need to manually move the seats and ottomans, making it easier to transform your seating arrangement with just a few taps. This system ensures a seamless transition between seating and sleeping configurations, enhancing the comfort and functionality of your vehicle for any journey.



⚠ WARNING

Please make sure there is no objects or passengers on the seats to avoid injuries. Do not leave food or beverages on the seats to avoid spillages.



RV OPERATION

ARMRESTS

The armrests in your vehicle are designed to enhance comfort and support during your travels. Properly adjusting the armrests can help you maintain a relaxed posture and reduce fatigue on long journeys. Follow these instructions to set and adjust the armrest angle:

1. Setting the Armrest Angle:

- To release the armrest, fold it upwards by more than 45°. This action will unlock the armrest, allowing you to adjust its position.
- Next, fold the armrest forward until it reaches the stop position.

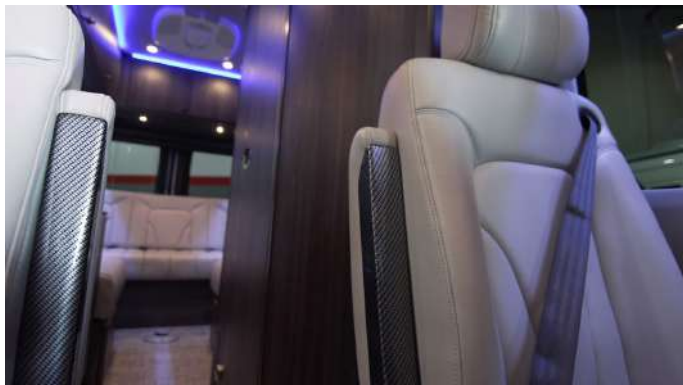
2. Adjusting the Armrest Position:

- Gradually lift the armrest upwards to achieve your desired angle. You can set it at various positions for optimal comfort based on your preference.

3. Folding the Armrest Up:

- If you need to create additional space or access the seating area, you can fold the armrest upwards. To do this, simply lift the armrest upwards by more than 90°. This will provide more room for passengers getting in and out of the vehicle.

By utilizing the armrests effectively, you can enhance your overall driving experience, ensuring comfort and support throughout your journey.



ULTRALEATHER FABRIC CARE

Ultraleather fabric features a durable 100% polyurethane surface backed by rayon, making it a PVC-free faux leather that combines luxury with practicality.

Cleaning Instructions

- **Basic Cleaning:** For routine maintenance, simply wipe the fabric with soap and water.
- **Spot Treatment:** For most soils and stains, use a solution of water and mild detergent. Apply it directly to the affected area.
- **Stubborn Stains:** For tougher stains, a water-based multipurpose cleaner or degreaser can be effective. Avoid using solvent cleaners like nail polish remover or any aromatic solvents, as they may damage the fabric.

⚠ WARNING

Do not use hot temperature if you dry the ultraleather seating surfaces.



STAINS CHART FOR ULTRA LEATHER

The chart lists common stains with recommended treatments, including detergent/water mixtures and suitable cleaner/degreaser options.

Type of Stain	Detergent/Water	Cleaner/Degreaser
Coffee / Tea	●	
Red Wine	●	
Cola / Soft Drinks	●	
Milk	●	
Ketchup	●	
Steak / Soy Sauce	●	
Mayo / Butter	●	●
Salad Oil	●	●
Chocolate	●	●
Cosmetic Makeup	●	●
Lipstick	●	●
Face Cream	●	●
Suntan Oil / Lotion	●	●
Shoe Polish	●	●
Urine	●	●
Machine Oil	●	●

RV OPERATION

FOLDING TABLES

Your Strada Lounge RV is equipped with a versatile removable table leg system, which can be conveniently stored in the upper rear storage compartment of the unit when not in use.

The table itself features a permanent bracket mounted on the ottoman located on the passenger side, ensuring stability and easy access for various activities such as dining, working, or relaxation. This setup underscores the RV's commitment to practicality and comfort, providing a functional space that adapts to different needs and enhances the overall living experience on the road.

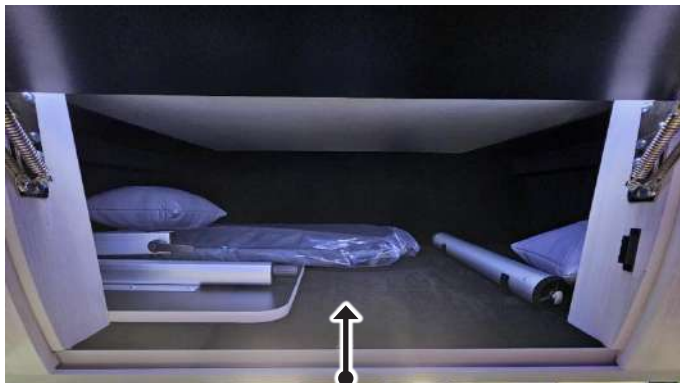


Table Leg
Storage Location



RV OPERATION

REMOVABLE TABLE

The Strada Lounge also includes another table configuration positioned on the front side of the unit, strategically located between the four captain chairs.

This setup requires the installation of a support column within the base, onto which the table can be securely mounted. The base itself is permanently fixed, ensuring stability and durability during use.

When installed, this table serves as a versatile surface for various activities such as dining, playing games, or working comfortably from within the vehicle. Its strategic placement between the captain chairs promotes convenience and accessibility for occupants.

After use, the table can be easily stowed behind the driver's side captain chair, positioned outside the bathroom walls. It is securely stored using brackets that maintain its integrity and protect it from movement during travel.

This thoughtful design not only maximizes interior space but also enhances the functionality and comfort of the Strada Lounge RV, ensuring a practical and enjoyable experience on the road.



**Removable Table
Behind D/S
Passenger Seat**

RV OPERATION

TELEVISION

In the Lounge floor plan of the Strada RV, you'll find a thoughtfully designed entertainment system with two televisions, ensuring a premium viewing experience no matter where you are in the vehicle.

The first television is strategically placed in the front of the RV, making it perfect for enjoying your favorite shows or movies while seated in the front lounge area. This setup is ideal for gatherings or relaxing during downtime.

The second television is located in the rear, providing additional viewing options in the bedroom or rear lounge. This dual-TV configuration allows for versatile entertainment throughout the RV, catering to different preferences and activities, whether you're winding down after a long day or hosting friends and family.



STARLINK ANTENNA

The Starlink antenna is a satellite internet system that provides high-speed, low-latency broadband internet, making it an ideal solution for staying connected while on the road. When installed in your RV, the Starlink system ensures reliable internet access even in remote areas where traditional mobile data networks may not be available.

Global Coverage:

- Starlink provides internet access in many remote and rural areas, allowing you to stay connected wherever your travels take you.

High-Speed Internet:

- Enjoy fast internet speeds that can support streaming, video calls, online gaming, and other bandwidth-intensive activities.

Low Latency:

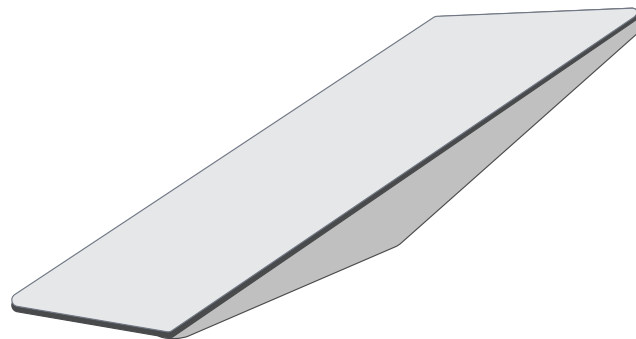
- Starlink is designed to offer low latency, making it suitable for real-time applications like video conferencing and online gaming.

Easy Setup:

- The Starlink antenna is designed for easy setup, with a self-aligning feature that ensures optimal connectivity without the need for manual adjustments.

Weather Resistance:

- The antenna is built to withstand various weather conditions, ensuring consistent performance regardless of the environment.



RV OPERATION

REFRIGERATOR

ISOTHERM MODEL

The Strada Lounge RV features a tall and slim refrigerator equipped with a single compressor unit and a convenient freezer drawer.

ISOTHERM CR85EL REFRIGERATOR	
Volume	85 L
Dimensions H x W x D (mm)	620 x 477 x 505
Power Consumption (W/24h)	368
Weight	21 kg
Freeze Compartment	6 L
Freezer Compartment Temperature	-8C
Volts	12/24V
System	Innovative vent-lock system
Compressor Technology	Secop BD Micro compressor technology (type BD35F)
Insulation	Extra thick door's insulation for low power consumption



INNOVATIVE VENT-LOCK SYSTEM

A special feature of this fridge is the innovative Vent-lock system preventing the formation of mold while the fridge is out of operation. The simple, invisible mechanism is located in the door.



NOTICE

The RV must be completely leveled for the refrigerator to operate properly and safely.

NOTICE

If the refrigerator will be unused for an extended period of time, make sure it is emptied, switched off, defrosted, cleaned and left with the door ajar. Leaving the door slightly ajar allows air to circulate and prevents the build-up of odor and mold.

CAUTION

Do not cover or obstruct exterior refrigerator vents.
Do not store explosive substances in the refrigerator such as lighter fluid, petrol, ether etc.

CAUTION

Operating the refrigerator with the RV parked on an unlevel ground could result in permanent damage to the appliance.

RV OPERATION

REFRIGERATOR

VITRIFRIGO MODEL

Your vehicle may be equipped with a vitrifrigo fridge:

- Small Vitrigo Fridge model **C90IBD4-F-1** with freezer compartment with a **12/24 Vdc** and **100-240 Vac 50/60 Hz**. (AC and DC).



NOTICE

The RV must be completely leveled for the refrigerator to operate properly and safely.

NOTICE

If the refrigerator will be unused for an extended period of time, make sure it is emptied, switched off, defrosted, cleaned and left with the door ajar. Leaving the door slightly ajar allows air to circulate and prevents the build-up of odor and mold.

CAUTION

Do not cover or obstruct exterior refrigerator vents.
Do not store explosive substances in the refrigerator such as lighter fluid, petrol, ether etc.

CAUTION

Operating the refrigerator with the RV parked on an unlevel ground could result in permanent damage to the appliance.

OPERATING TIPS

- Ensure the refrigerator is cold before placing items in it.
- Allow items to cool before loading the refrigerator.
- Do not add warm or hot items.
- Do not pack the refrigerator too full. To operate efficiently, the refrigerator needs air to circulate.
- Use smaller containers to store items and containers that seal tightly.
- Place crumpled paper between items in the refrigerator to prevent them from rattling while driving.

The lounge plan refrigerator in your RV is an ergonomic, silent and safe unit. It is supplied with:

- An integral compressor and cooling unit fitted behind the ice box at the top of the cabinet.
- Magnet closure with a locking hatch.
- Internal light and a mechanical thermostat to control the temperature.
- A 9.8 L ice box, single shelf with bottle holder.
- 12/24v.



AIRLOCK SYSTEM

The airlock closure system has been designed to allow an easier access for the end user and integrate different features in order to offer an innovative product, extremely user-friendly.

“Vent position” system:

- To keep the fridge door ajar, preventing the formation of unpleasant odors and mold when not in use.



RV OPERATION

REFRIGERATOR

NOVAKOOL MODEL

Your vehicle may be equipped with a R4200DC Novakool fridge:

- A 4.3 cu. ft. (122 liter) refrigerator with a built in freezer compartment. The freezer compartment is 0.6 cu. ft (17 liters).



NOTICE

The RV must be completely leveled for the refrigerator to operate properly and safely.

NOTICE

If the refrigerator will be unused for an extended period of time, make sure it is emptied, switched off, defrosted, cleaned and left with the door ajar. Leaving the door slightly ajar allows air to circulate and prevents the build-up of odor and mold.

CAUTION

Do not cover or obstruct exterior refrigerator vents.
Do not store explosive substances in the refrigerator such as lighter fluid, petrol, ether etc.

CAUTION

Operating the refrigerator with the RV parked on an unlevel ground could result in permanent damage to the appliance.

FEATURES

- Positive latch system for enhanced security.
- Storage space for tall bottles.
- Powder-coated zinc wire shelves for added durability.
- Reversible door swing.
- Replaceable door panels for a custom finish to match your interior.
- CFC-free urethane foam in cabinet and doors.
- Magnetic door gaskets for a tight seal.
- Stainless steel fasteners and hinges throughout.
- Maintenance-friendly, efficient static condenser.
- Strongest mounting flanges in the industry.
- Voltage options:
 - DC only: 12 & 24vdc.



RV OPERATION

ELECTRIC COOKTOP

The electric cooktop in your vehicle features a dual-burner induction system with a smooth, tempered glass surface. This design not only ensures easy cleanup but also provides durability, resisting intense heat without cracking or chipping.

NOTICE

Most stainless steel and cast-iron cookware are induction compatible.

HEAT LEVEL SETTINGS

The cooktop offers precise control with 9 temperature levels ranging from 120°F to 460°F. The left burner provides 8 power levels from 300W to 1800W, while the right burner offers 6 power levels from 300W to 1300W, utilizing a power-sharing mechanism.

This allows you to cook with precision, whether you're simmering at low heat or rapidly boiling water. The easy-to-use touch controls make it simple to switch between cooking modes, such as boiling, stewing, frying, or stir-frying, ensuring a versatile and enjoyable cooking experience.



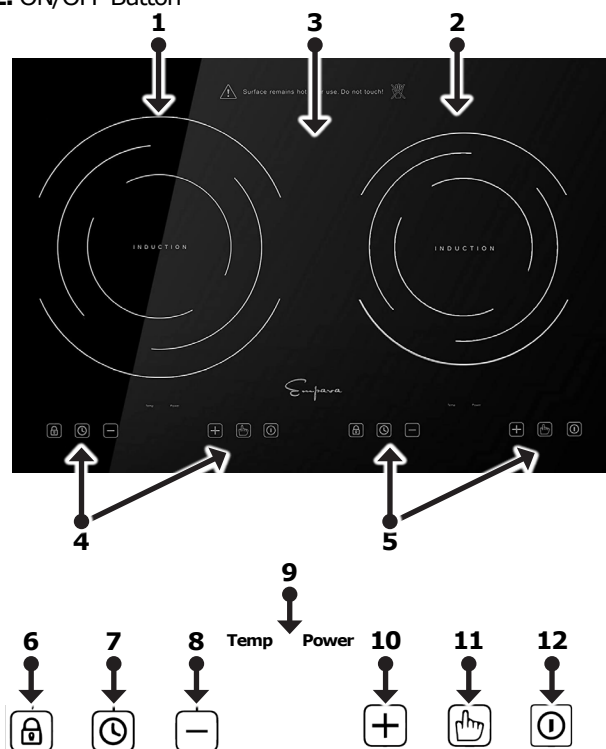
HOT SURFACE INDICATOR

The electric cooktop features a "Hot Surface" indicator, where an "H" will appear in the cooking area display to alert you when the elements are hot to the touch. This safety feature allows you to quickly see when the surface is too warm to handle.

Additionally, the cooktop includes a pan size sensor that adjusts the heat to match the size of your cookware and automatically shuts off when no pan is detected, ensuring both safety and efficient cooking.

The induction technology generates heat directly within the cookware, keeping the cooktop cooler to the touch. For added safety, the child control lock feature prevents unintended activation.

1. Left Cooking Zone
2. Right Cooking Zone
3. Ceramic Glass Surface
4. Left Touch Control Panel
5. Right Touch Control Panel
6. Child Safety Lock
7. Timer Control Key
8. Lower Power or Temp Key
9. Power or Temp Option Display
10. Raise Power or Temp Key
11. Function Selection
12. ON/OFF Button



RV OPERATION

CONTROLS

Standby mode:

- When you plug the induction cooktop into an electric socket, it will emit a single "beep" sound, signaling that it's powered on.
- All the digital lights on the cooktop will briefly blink once, indicating that the cooktop is in standby mode and ready for use.

Controls lock:

- **When the Cooktop is Off:** The controls lock is automatically activated, preventing any sensor key from being used, except for the lock key. To turn on the cooktop, you must first deactivate the controls lock by touching the lock key pad, and then touch the main power key pad.
- **During Cooktop Use:** The controls lock can be activated to prevent accidental changes to the settings. When engaged, it restricts the use of all sensor keys except for the on/off, power, and lock key pads.

To lock:

- Touch and hold the lock key pad for 3 seconds. You'll hear a "beep," and the indicator light above the lock key pad will illuminate, confirming that the controls are locked.

To unlock:

- Touch and hold the lock key pad again for 3 seconds. A "beep" will sound, and the indicator light will turn off, indicating that the controls are now unlocked.



NOTICE

Touch and hold for 3 seconds.

NOTICE

Power Source: Ensure the induction cooktop is plugged into a properly grounded electrical socket to avoid malfunctions or damage to the unit.

NOTICE

Power Source: Ensure the induction cooktop is plugged into a properly grounded electrical socket to avoid malfunctions or damage to the unit.

NOTICE

Please do not pull the power plug until the cooling fan has stopped.

NOTICE

For more information please refer to the Empara Appliances Induction Cooktop "Use and Care Guide".

Readiness mode:

- While in standby mode, press the "on/off" key. The cooktop will emit a "beep" and the "on/off" indicator light will blink, signaling that the induction cooktop is ready for use. If no function is activated within 60 seconds, the unit will automatically return to standby mode.

Turning off unit:

- When you stop using the cooktop, press the "on/off" key and "on/off" light will turn off, indicating the unit is now on the standby mode.

WARNING

Child Safety: Engage the controls lock when the cooktop is not in use to prevent children from accidentally turning it on.

WARNING

Residual Heat: Be cautious of residual heat on the cooking surface even after the cooktop is turned off.

WARNING

Sensor Interference: Keep the control panel clear of any objects to avoid accidental activation of sensor keys.



RV OPERATION

MAINTENANCE

To ensure optimal performance and longevity of your induction cooktop, follow the maintenance directions below, along with the safety tips and cleaning steps outlined in this manual.

DAILY CLEANING

1. Initial Cleaning:

- Before using your cooktop for the first time, clean the surface to protect it and make future cleanups easier.

2. Regular Maintenance:

- After each use, allow the cooktop to cool completely. Apply a ceramic glass cleaner to keep the surface looking new and to maintain its protective coating.

3. Application:

- Shake the cleaner well. Apply a few drops directly onto the cooktop surface.

4. Cleaning Process:

- Use a paper towel or a soft cleaning pad specifically designed for ceramic surfaces to clean the entire cooktop.

5. Final Wipe:

- Remove all cleaning residue with a dry cloth or paper towel. There's no need to rinse, and never run the cooktop under water.

CLEANING BURNED RESIDUE

1. Cool Down:

- Ensure the cooktop has completely cooled before attempting to clean burned residue.

2. Apply Cleaner:

- Spread a few drops of ceramic glass cleaner directly on the burned residue.

3. Scrub:

- Use a ceramic glass cleaning pad to rub the residue area, applying firm pressure as needed.

4. Repeat if Necessary

- If any residue remains, repeat the above steps until the surface is clean.

5. Polish for Protection:

- Once the residue is removed, polish the entire surface with ceramic glass cleaner and a paper towel for added protection.

By adhering to these steps, you'll maintain the appearance and functionality of your cooktop, ensuring it continues to perform at its best.

CARE AND PREVENTION FOR YOUR COOKTOP

Avoid Sliding Cookware:

- Do not slide pots or pans across the cooktop surface, as this can leave behind metal marks. If these marks occur, they can be removed using ceramic glass cleaner and the cleaning pad designed for induction cooktops.

Preventing Discoloration:

- If pots with a thin layer of aluminum or copper boil dry, they may leave a black discoloration on the cooktop. Remove this discoloration immediately before using the cooktop again, as it can become permanent if not promptly addressed.

NOTICE

If cracks or indentations in the glass surface occurs, the cooktop glass will have to be replaced.

ELECTRIC COOKTOP SPECIFICATIONS

Overall Dimensions	EMPV-IDC12B2
Product dimension (wx dxh)	20 1/2" x 14 1/8" x 2 1/8"
Voltage (Volts)	120
Frequency (Hz)	60
Total power (Watts)	1800
Min. Circuit Breaker Amperage	20
Elements	2
Front	N/A
Rear	N/A
Left	1800W
Right	1300W

RV OPERATION

IMPORTANT NOTES, WARNINGS, AND CAUTIONS FOR INDUCTION COOKTOP USE

NOTICE

Clean cooktop with caution. Do not clean while unit is still hot, some cleaners product steam or fumes if applied to a heated surface.

NOTICE

Do not repair or replace any part of the appliance unless specifically recommended in the manual of the component. All other services should be referred to a qualified technician.

NOTICE

Do not store temperature sensitive objects, material or substances underneath the cooktop, such as: detergents, sprays, etc.

NOTICE

To prevent accidents and achieve optimal fan ventilation, allow for sufficient space around the cooking area.

NOTICE

Items with a magnetic field such as, radios, television, credit cards, cassette tape etc., can affect the unit.

NOTICE

Do not place metallic objects such as knives, forks, spoons, lids, cans or aluminum foil on the cooktop.

CAUTION

When the unit is on, do not touch outside the control panel as the surface may contain residual heat.

CAUTION

When using any electric appliance around children, close supervision is required.

CAUTION

Use only dry potholders- Moist or damp potholders on hot surfaces may result in burns from steam. Do not use a towel or other bulking cloth.

CAUTION

In case of appliance failure, immediately disconnect the appliance from the main power source and contact the manufacturer.

WARNING

To protect against electric shock, do not immerse cord plugs or cooktop in water (or other liquid substances).

WARNING

Do not operate any appliance with a damaged cord or plug, after a malfunction of it has been damaged in any manner. Please replace the component.

WARNING

Use proper cookware size. Choose cookware with a flat bottom large enough to cover the unit heating surface. The use of undersized cookware will expose a portion of the heating surface where direct contact may be made and cause serious injury. Compatible cookware is necessary to operate properly.

WARNING

Do not cook on a broken or damaged cooktop as spillovers may penetrate surface and create a risk of electric shock.

WARNING

Avoid preparing food in aluminum foil or plastic containers over the hot cooking zones.

WARNING

Protective liners. Do not use aluminum foil to line cooking zone, drip bowls or even bottoms; except as suggested in the component's manual. Improper use of these liners may result in a risk of electric shock or fire.

WARNING

Wear proper apparel, loose fitting or hanging garments should never be worn while using the appliance.

DANGER

Do not store items of interest to children in cabinets above the range or on the backguard of a range- children climbing on the range to reach items should get seriously injured.

DANGER

While cooking fat or oil on the cooktop may ignite. There is a risk of burning and fire; therefore, never leave the cooktop unattended at anytime.

DANGER

To reduce risk of burns, ignition of flammable materials, and spillage due to unintentional contact with cookware, the cookware handles should be turned inward and not extend over adjacent heating surface.

DANGER

Do not use steam cleaners or high pressure cleaners to clean the cooktop, as this may result in electric shock.

DANGER

Do not touch cooking zones or areas near units. Cooking zones may be hot even though they are dark in color. Areas near cooking zones may become hot enough to cause burns. During and after use, do not touch, or let clothing or other materials have contact with the cooking zones or areas near the unit until they have had sufficient time to cool.

RV OPERATION

PROPANE COOKTOP

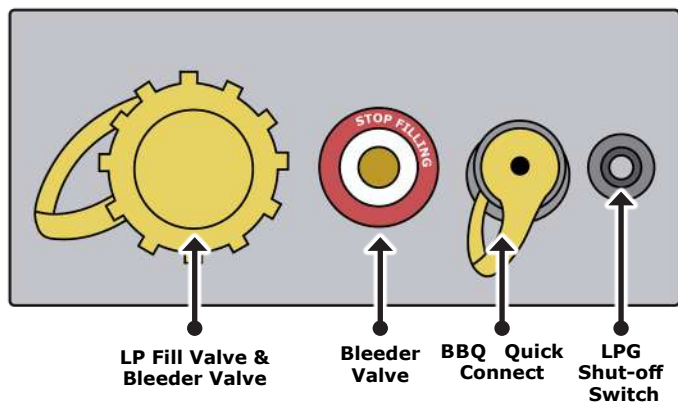
The LP vehicle is equipped with a 2-burner propane cooktop, designed for efficiency and convenience. The cooktop features a tempered glass lid that covers the burners when not in use, providing a sleek and clean appearance while also protecting the surface.

KEY FEATURES

- **Even Heat Distribution:** The cooktop includes a robust cast iron gate that evenly distributes and retains heat, ensuring optimal cooking performance.
- **Sealed Burners:** With sealed burners rated at 5,200 BTU and 7,200 BTU, this cooktop minimizes flare-ups and allows for precise temperature control, enhancing your cooking experience.
- **LP Gas Power Source:** This cooktop operates on LP gas (propane), providing reliable fuel for your cooking needs.
- **Manual Ignition:** The cooktop is ignited manually using the integrated igniter, ensuring ease of use.

NOTICE

Before using the cooktop, ensure that the LP shut-off switch located in the roadside utility center is turned to the "on" position. This step is crucial for safe and effective operation. Always follow safety precautions when using propane appliances to ensure a safe cooking environment.

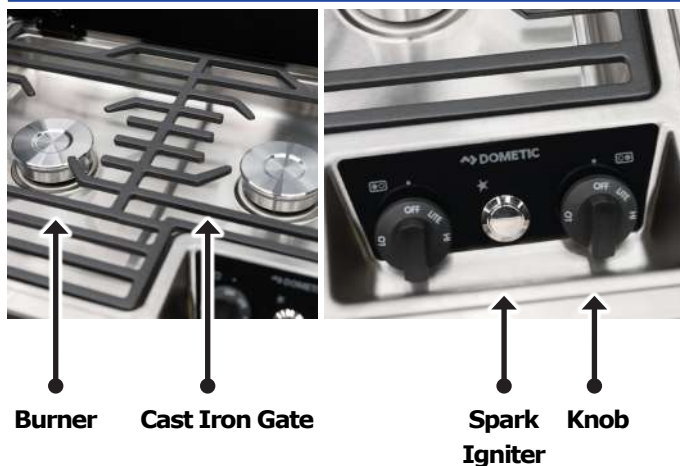


WARNING

If the information in this manual (section Safety: Alarms) and on the component's manual provided to you with the RV information kit is not followed exactly, a fire or explosion may result, causing property damage, personal injury, or death.

NOTICE

Please refer to section "Safety: Alarms" on this manual for more information on what to do if you smell gas or in case of fire.



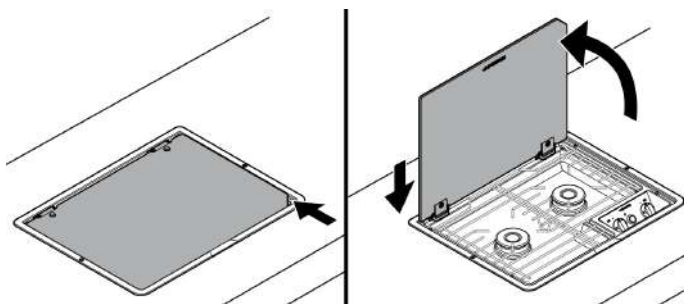
RV OPERATION

OPERATION OF PROPANE COOKTOP COVER

This section outlines the proper procedure for opening and closing the glass and metal covers on the cooktop.

Opening the Glass Cover:

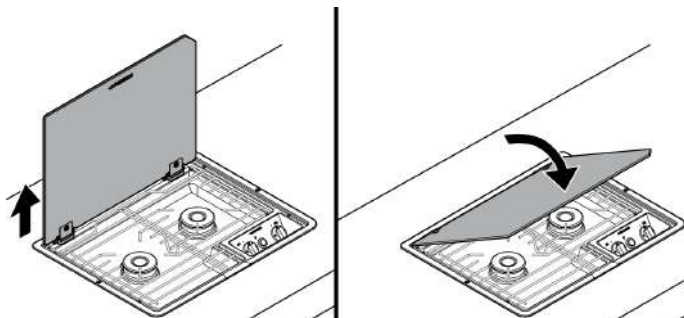
- **Lift from the Corner Slot:** Gently grasp the cover by the corner slot.
- **Raise Completely:** Lift the cover all the way up.
- **Lower to Rest:** Carefully lower the cover down to rest on the cooktop, ensuring it is secure and stable.



Closing the Glass Cover:

- **Lift Upward:** Raise the cover from its resting position.
- **Securely Close:** Gently lower the cover back into the original position, ensuring it clicks into place for safe storage.

Always ensure that the cooktop is cool before handling the cover to prevent burns or damage.



NOTICE

Glass can be easily scratched. Use care when setting items on the top of the cover. Avoid sliding items across the cover. Do not drop objects onto the cover, as this may cause breakage.

WHAT TO DO IF YOU SMELL GAS

If you detect the smell of gas in your RV, take immediate action by following these steps:

1. Do Not Light Appliances:

Refrain from trying to light any appliances or touching electrical switches.

2. Evacuate the RV:

Clear the vehicle of all occupants promptly.

3. Shut Off Gas Supply:

Turn off the gas supply tank valve(s) or the main gas supply to prevent further leakage.

4. Contact Your Gas Supplier:

Immediately call your gas supplier for further instructions.

5. Call Emergency Services:

If you cannot reach your gas supplier, call the fire department for assistance.

6. Have the System Checked:

Ensure that a qualified installer, service agency, or your gas supplier, manufacturer, or dealer checks the gas system for leaks and makes any necessary repairs.

WARNING

To prevent accidents and achieve optimal ventilation, allow for sufficient space around the cooking area.

DANGER

Be aware that the unit's surface will remain hot for a period of time after use.

WARNING

To reduce risk of burns, ignition of flammable materials, and spillage due to unintentional contact with cookware. Cookware handles should be turned inward and not extend over adjacent heating surface.

RV OPERATION

LIGHTING THE BURNER

To safely light the burners on your cooktop, follow these instructions carefully:

Control Operation:

- All burner controls operate counterclockwise and must be pressed inward when turning. Important: Only light one burner at a time.

Lighting with a Match:

- Turn the knob counterclockwise.
- Immediately hold a lit match near the burner.

Lighting with a Spark Igniter:

- Turn the knob counterclockwise.
- Press the spark igniter button until it clicks and the burner ignites.

Lighting with Electronic Ignition:

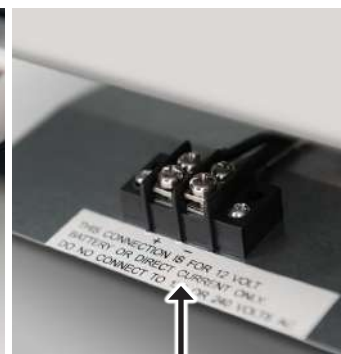
- Turn the knob counterclockwise.
- Press and hold the electronic ignition button until the burner lights.

Extinguishing the Burner:

- Turn the knob to the "off" position (to the right) to stop the flow of gas to the burner.



Gas hose connector



12V Battery Connector

NOTICE

Always ensure the area is well-ventilated when using the cooktop, and never leave the burners unattended while in use.

NOTICE

Do not operate the cooktop or the igniter while traveling refueling your RV. The burners may ignite fumes present during fueling.

NOTICE

Do not allow stove top burners to remain lit for an extended period of time without placing cookware above the flame. **Overheating the burner grates may cause damage.**

NOTICE

Turn on the roof vent and open a window to ensure proper ventilation when operating the cooktop.

NOTICE

Do not operate burners with glass top lid closed.

WARNING

BURN HAZARD, FIRE, EXPLOSION, AND/OR CARBON MONOXIDE HAZARD.

Keep cooktop area clear of combustible cleaning materials, gasoline, and other flammable vapors and liquids. Failure to obey this warning could result in damage, a burn hazard, possible explosion, carbon monoxide buildup, serious injury, or death.

RV OPERATION

PROPANE COOKTOP MAINTENANCE

Cooling Down:

- Ensure all cooktop surfaces, burner grates, and burners are completely cool before cleaning or disassembling the cooktop.

Immediate Cleaning:

- Clean all surfaces promptly after spills to prevent stains and damage.

Recommended Cleaning Solution:

- Use warm, soapy water to clean burner grates, burner boxes, painted surfaces, porcelain, stainless steel surfaces, and plastic items on your cooktop.

Avoid Harmful Cleaners:

- Do not use gritty or acidic cleaners.
- Avoid steel wool or abrasive cleaners, as these can scratch and damage the cooktop.
- Use only non-abrasive plastic scrubbing pads for cleaning.

Acidic Foods:

- Do not let foods containing acids (such as lemon juice, tomato juice, or vinegar) sit on porcelain or painted surfaces, as they can remove the glossy finish.

Stainless Steel Care:

- Prevent pitting and discoloration by not allowing spills to remain on stainless steel surfaces for any length of time.

Burner Caps:

- Clean burner caps promptly after spills to prevent permanent staining.

Grill Removal:

- Remove the grill from the cooktop for thorough cleaning.

Drying and Protection

- After cleaning, dry all surfaces and the burner box completely. To help prevent rust during storage, spray the surfaces with vegetable oil or a similar product.

By following these maintenance tips, you can ensure the longevity and performance of your LP cooktop.

LP COOKTOP SPECIFICATIONS

Overall Dimensions	19"W x 12-5/8"D
Cabinet Depth	4-5/8"
Cut-Out Dimensions	17-7/8" x 13-3/4"
Power Source	LP Gas (Propane)
Ignition	12V DC Electric
Gas Pressure Requirement	11"W.C. (Low Pressure)
BTU's	5,200 & 7,200
Safety Shut-Off (Thermocouple)	No
Finish	Stainless Steel
Grate Style	Cast Iron

RV OPERATION

IMPORTANT NOTES, WARNINGS, & CAUTIONS FOR PROPANE COOKTOP USE

NOTICE

Never use water on grease fires, and never pick up a flaming pan. Smother a flaming pan with a right-fitting lid or cookie sheet. Flaming grease outside of the pan can be extinguished with baking soda or a multipurpose dry chemical or foam-type fire extinguisher.

NOTICE

If any burner should extinguish (after initially lighting or due to accidental blowout), turn all burner knobs clockwise to OFF and wait 5 minutes before attempting to re-light the burner.

NOTICE

Use large enough pans to cover the burner area and contain the cooked food. This will reduce or eliminate heavy splattering or spills that can ignite and burn you.

NOTICE

Make sure the glass cooking utensils you use are safe for use on the cooktop. Only certain kinds of glass utensils are suitable for surface or burner use without breaking due to sudden changes in temperature.

CAUTION

Do not heat unopened containers. They could explode. The hot contents may cause burns and container particles may cause injury.

CAUTION

Verify sufficient gas supply before attempting to light any burner. Air in the gas supply line will significantly delay burner ignition, and a burner may light unexpectedly as the air in the line clears out and is replaced by LP gas; this unexpected ignition may burn you. Air may be introduced into the supply line when the vehicle gas bottle is replaced, during servicing of other gas appliances, etc.

CAUTION

Do not touch burners, burner grates, or areas near burners during and after use. Do not let clothing or other flammable materials contact burners or areas near burners until these areas have had sufficient time to cool.

CAUTION

Use care when lighting a burner by hand. If the burner lights unexpectedly, or your hand is close to the burner, you may be burned.

CAUTION

Burner flame should not extend beyond the edge of the cooking utensil. The flame could burn you and cause poor cooking result.

WARNING

Never leave burners unattended when in use, as pan contents may boil over, resulting in smoke or a grease spill that may ignite.

WARNING

Turn pan handles inward, but not over other top burners. This reduces the chances of burns due to bumping.

WARNING

Because grease is flammable, never allow grease to collect around top burners or on the cooktop surface. Wipe up any grease spills immediately.

WARNING

Do not use the cooktop for space heating. Doing so may cause overheating of the cooktop and/or could cause carbon monoxide poisoning, resulting in serious injury or death.

WARNING

While operating the cooktop, frequently check the temperature of contents within cabinet areas above the cooktop (cabinets). Do not store flammable or combustible materials inside, or above and/or besides the cooktop. Failure to follow these instructions could result in a fire, serious injury or death.

WARNING

Do not operate cooktop if its damaged or not working properly.

WARNING

Make sure you have adequate ventilation when operating the burners. Light the burner immediately after turning on the burner control knob to prevent a gas build-up. Excess gas can cause a flare-up when lit.

DANGER

Control knobs must be turned OFF when not cooking. Someone could be burned or a fire may start if a burner is accidentally left ON.

DANGER

Avoid negative draft or positive draft situations or the operation of this cooktop during excessively windy conditions. Negative draft caused by air moving across the cooktop may blow out the burner flame or move the flame into the cooktop, resulting in damage a burn hazard, possible explosion, carbon monoxide buildup, injury, or death.

RV OPERATION

MICROWAVE

Your microwave oven operates on 110-volt AC power and serves as a microwave, convection oven, and air fryer. To use your microwave, ensure it is plugged into a suitable power source. You can achieve this by:

- Connecting to shore power
- Operating the generator
- Using the 3,000-watt inverter available on electric units



UNDERSTANDING YOUR OVEN

Turntable Usage:

- Always use the turntable and support while operating the oven. Do not attempt to turn the turntable upside down to fit larger dishes, as this can lead to uneven cooking or damage.

Turntable Motion:

- The turntable rotates both clockwise and counterclockwise to ensure even heating of your food.

Food Placement:

- Always place food inside the oven when it is on to absorb microwave energy, preventing damage to the appliance.

Power Levels:

- When using the oven at power levels below 100%, you may hear the magnetron cycling on and off. This is normal and indicates that the oven is adjusting power to maintain the desired temperature.

Smart Air-Fry Convection:

- This model features a smart air-fry convection function, allowing you to bake, brown, or crisp foods to perfection. Enjoy the versatility it offers for various cooking methods!

⚠ WARNING

To reduce the risk of fire in the oven interior: Do not overcook food. Carefully attend appliance when paper, plastic or other combustible materials are placed inside the oven to facilitate cooking.

⚠ WARNING

If materials inside the oven ignite, keep oven door closed, turn oven off, and disconnect the power cord, or shut off power at the fuse or circuit breaker panel.

⚠ WARNING

It is important to not use the interior for storage purpose.

⚠ WARNING

Do not attempt to operate the oven with the door open. This may result in harmful exposure to microwave energy.

⚠ WARNING

Do not operate the oven if its damaged. Do not operate the oven if there is damage to the door, hinges, latches, seals or sealing surfaces. Do not operate the oven if the door does not close properly or is bent.

⚠ WARNING

Do not adjust or repair the oven door. Have the unit serviced by qualified service personnel if necessary. Do not operate the oven when empty.

RV OPERATION

KITCHEN FAUCET

The kitchen faucet in your RV is a sleek, modern fixture featuring a pull-down handle in a brushed satin nickel finish. This design not only enhances the aesthetic appeal of your kitchen but also provides exceptional functionality. The pull-down handle allows you to direct the faucet's head precisely where you need it, making tasks like rinsing dishes, filling pots, and cleaning the sink easier and more efficient.

FEATURES AND DESIGN

Brushed Satin Nickel Finish:

- The faucet's brushed satin nickel finish is both elegant and durable, designed to retain its lustrous sheen for years. This finish resists fingerprints and water spots, keeping your faucet looking clean and polished with minimal effort.

Pull-Down Handle:

- The faucet's brushed satin nickel finish is both elegant and durable, designed to retain its lustrous sheen for years. This finish resists fingerprints and water spots, keeping your faucet looking clean and polished with minimal effort.

Toggle Function:

- The integrated toggle switch allows you to easily switch between different spray settings, giving you the power to customize water flow according to your needs—whether you're gently rinsing delicate produce or tackling stubborn food residue on dishes.

CARE AND MAINTENANCE

To maintain the faucet's appearance and ensure its longevity, follow these simple care instructions:

Regular Cleaning:

- Clean the faucet regularly with a soft cloth, mild soap, and water. This gentle approach will help preserve the faucet's finish, keeping it free of smudges and maintaining its original shine.

Avoid Harsh Cleaners:

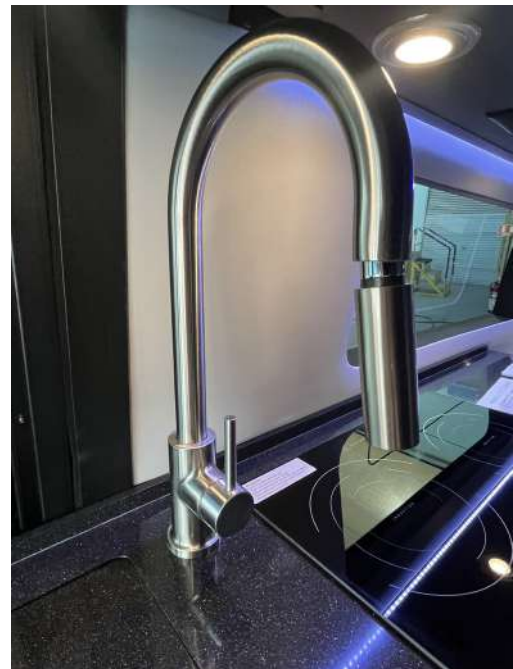
- Refrain from using abrasive cleaners, harsh chemicals, or scrubbing pads, as these can scratch the surface and damage the finish. Even small scratches can diminish the faucet's appearance and may lead to further wear over time.

Spot Cleaning:

- For stubborn spots or mineral buildup, use a mixture of equal parts water and white vinegar. Apply the solution with a soft cloth, then rinse with clean water and dry with a soft towel.

Regular Inspections:

- Periodically check the faucet for any signs of wear or damage, such as leaks or reduced water flow. Addressing minor issues early can prevent larger problems down the line and help extend the life of your faucet.



RV OPERATION

CABINETS

The furniture in your Strada RV is expertly crafted from high-pressure laminated Birch hardwood, providing both durability and a luxurious finish that complements the overall interior design. This material is chosen not only for its strength but also for its ability to maintain its elegant appearance, even under the demands of RV travel.

The hardwood upper cabinets are designed with a user-friendly push-lock mechanism, ensuring that they stay securely closed while you're on the move. The push-lock mechanism is not only convenient but also enhances safety during travel by preventing accidental openings. This feature is particularly beneficial when navigating uneven terrain.

To open the cabinets, simply press the lock, and the radius doors will automatically open, giving you easy access to your stored items.

The cabinets are designed with a variety of storage options, accommodating everything from kitchen essentials to personal belongings. This versatility makes them perfect for organizing your RV efficiently. This thoughtful design blends functionality with style, reflecting the quality and attention to detail that sets your Strada RV apart.

⚠ CAUTION

Weight Capacity: Be mindful of the weight limit for each cabinet. Overloading the cabinets may cause damage to the hinges or the structure over time.

⚠ CAUTION

Secure Cabinets Before Travel: Always ensure that all cabinet doors are securely locked before driving to prevent them from opening and causing items to fall out, which could lead to damage or injury.

⚠ CAUTION

Avoid Excessive Force: Do not apply excessive force when opening or closing the cabinets. The push-lock mechanism is designed for gentle operation, and forcing it could damage the lock or doors.

⚠ CAUTION

Ventilation Considerations: Ensure that any items stored in the cabinets are properly ventilated to prevent moisture buildup, which can lead to mold or damage to the wood over time.

⚠ CAUTION

Organizational Accessories: Consider using organizational accessories such as shelf liners, bins, or dividers to keep your items secure and tidy while traveling.



RV OPERATION

ROOF AIR VENT

The roof vent in your RV is essential for maintaining a comfortable interior temperature by allowing hot air to escape. It effectively controls humidity levels during cooking by venting steam and odors, helping to prevent excess moisture buildup that can lead to mold growth or rust formation.

In addition to promoting air circulation, the vent can reduce reliance on air conditioning, enhancing energy efficiency. Many models feature insect screens to keep bugs out while allowing airflow, and user-friendly mechanisms for easy operation, including manual or powered openings.

Built from durable, weather-resistant materials, the roof vent is designed to withstand harsh conditions for reliable performance. Regular maintenance, such as cleaning the screen and checking for debris, is important for optimal function. Some models can even accommodate additional accessories like fans or thermostats for improved climate control.

KNOB VENT LID OPEN/CLOSE

Manual Opening:

- Before adjusting the vent lid, pull the knob to unlock it. To close the vent lid, rotate the knob clockwise. To open the vent lid, rotate the knob counter-clockwise. Once the vent lid is in the desired position, push the knob "IN" to lock it securely, whether the vent is open or closed.

INSECT SCREEN RETAINER KNOB:

- To remove the insect screen for cleaning or maintenance, turn all four knobs a half-turn to release the screen. This ensures that your RV remains protected from insects while allowing fresh air to circulate freely.

NOTICE

When cleaning the fan, use only a mild detergent solution to avoid damaging the components. Always replace the screen securely before turning the fan back on to maintain proper operation and protect the interior of your RV.

CAUTION

Ensure the fan is always turned off before removing the screen. Never operate the roof vent with the screen removed, as this can allow debris to enter the fan mechanism, potentially causing damage or reducing efficiency.

NOTICE

The roof air vent is designed to be fully opened or fully closed when the vehicle is in motion.



**Knob Vent Lid
Open/Close**

**Rain
Sensor**



**Insect Screen
Retainer Knobs**

**Thermostat
Temperature Sensor**

RV OPERATION

ROOF AIR CONDITIONER

The roof air conditioner, situated on the interior rear side of your RV, offers efficient climate control and is operated via the Firefly Multiplex System screens. This innovative system allows you to manage your air conditioning settings with ease, providing a seamless user experience.

You can easily control and direct airflow within the RV by adjusting the vents. This feature enhances comfort during your travels, allowing you to create a pleasant atmosphere throughout the interior.

For temperature adjustments, simply utilize the arrow buttons located in the Climate section of the Firefly Multiplex System Screen. This functionality enables you to set and modify the desired temperature to maintain a comfortable living environment, regardless of the weather conditions outside. With the combination of precise airflow control and temperature management, your RV will provide a cozy retreat wherever your journey takes you.

TEMPERATURE ON THE AC

The effectiveness of your air conditioner in maintaining the desired temperature inside the RV is influenced by the heat gain from the surrounding environment.

To optimize your A.C. performance, occupants can take several preventative measures to minimize heat gain, especially during periods of extremely high outdoor temperatures. Here are some effective strategies:

Park in Shaded Areas:

- Whenever possible, choose a shaded location to park your RV. This simple step can significantly reduce the amount of direct sunlight hitting the vehicle, thereby lowering internal temperatures.

Utilize Window Shades:

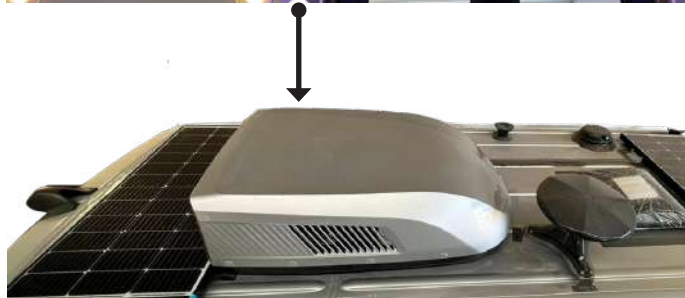
- Close blinds or curtains to block sunlight and reduce heat buildup inside the RV. Reflective shades can be particularly effective at keeping the interior cool.

Minimize Openings:

- Keep windows and doors shut as much as possible to prevent warm air from entering. Limiting their usage can help maintain a stable, comfortable temperature inside.

Avoid Heat-Producing Appliances:

- Limit the use of appliances that generate heat, such as ovens or toasters. Opt for cold meals or use a microwave instead, as this can help maintain a cooler environment for your air conditioner to work effectively.



RV OPERATION

TOILET

The toilet in your RV features a convenient pedal flush mechanism, allowing you to flush without direct contact with the unit, promoting hygiene and ease of use. This innovative design not only enhances sanitation but also provides a hands-free experience, making it more comfortable for all users.

For optimal performance, ensure the toilet is regularly maintained and that the holding tank is emptied as needed. It is advisable to use RV-specific toilet chemicals to facilitate waste breakdown and odor control, as standard household products can harm the system.

To maintain proper functionality, avoid flushing items that could clog the system, such as wipes, feminine hygiene products, or paper towels. Regularly check the water supply line and the flush mechanism for any leaks or blockages to ensure smooth operation.

Additionally, familiarize yourself with the toilet's water fill mechanism, which replenishes the bowl after each flush. This feature helps maintain a clean environment and reduces odors. For best results, always ensure that the toilet's holding tank is appropriately serviced to prevent overflows and maintain optimal functionality.

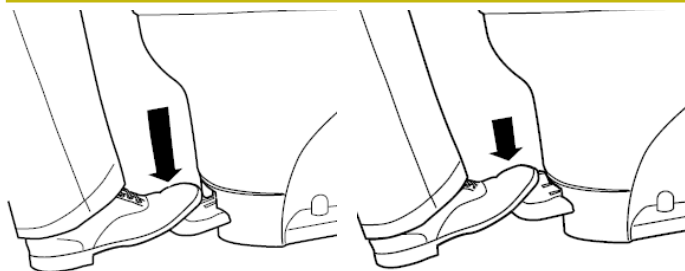


⚠ CAUTION

Always check the toilet for proper operation before use, ensuring that there are no leaks around the base or the water supply line, as this can lead to water damage.

⚠ CAUTION

Flush only RV toilet paper and body waste!



To flush water:
Press all the way.

To add water:
Press halfway.

TROUBLESHOOTING

This section provides helpful solutions for common issues you may encounter with your RV toilet. By following these guidelines, you can quickly identify and resolve problems, ensuring your toilet operates smoothly and efficiently. Regular maintenance and prompt attention to any issues will help enhance your overall RV experience.

1. LEAKS:

• **Back of Toilet:**

- Inspect the water supply line connection at the water valve
- If you notice any leaks, try to resecure or retighten the connection.
- If the leak persists from the water valve itself, it may need to be replaced.

• **Vacuum Breaker Leaks During Flushing:**

- If you experience leaks from the vacuum breaker while flushing, you will need to replace the vacuum breaker or the water module.

• **Between Closet Fange and Toilet:**

- Check the flange nuts for tightness.
- If you continue to see leaks, remove the toilet and examine the flange height.
- Use spacers to adjust the height to 7/16 inches above the floor if necessary, and replace the flange seal.

2. TOILET WON'T HOLD WATER:

- Begin by checking for and removing any debris from the blade seal track.
- Additionally, verify the compression of the blade seal with the mechanism.

ⓘ NOTICE

To avoid damage do not use spray lubricants other than silicone.

- If the blade seal appears worn or damaged, it should be replaced to restore proper function.

3. PEDAL IS HARDER THAN NORMAL:

- If the pedal is harder to press than usual, apply a light film of toilet seal lubricant and conditioner to the blade and ball mechanism. This should help improve the ease of operation.

4. POOR FLUSH:

- Ensure that the pedal is held fully open during the flush cycle. A proper flush should occur within 2 to 3 seconds.
- If you are still experiencing issues, remove the water supply line and check the flow rate.
- The flow rate should be at least 10 quarts (9.5 liters) per minute to ensure effective flushing.

RV OPERATION

TIPS FOR USING YOUR RV TOILET

RV toilets operate differently than conventional household toilets, as they lack a traditional tank. Understanding how to use them effectively can enhance your experience and help maintain your RV's plumbing system.

Two-Step Flush Process:

- When using the toilet, it's essential to follow a two-step flushing process.
- First, press the handle or pedal halfway to fill the bowl with water. This step is crucial, as it ensures there is enough water in the bowl to aid in the breakdown of solid waste.
- After the bowl is filled, push the handle or pedal down fully to flush the contents into the holding tank.
- Skipping the first step can lead to insufficient water in the holding tank, hindering waste breakdown and causing buildup.

Avoid Non-Biodegradable Waste:

- Do not dispose of trash or items like feminine hygiene products, paper towels, or wipes in your RV toilet.
- These materials do not break down effectively in the holding tank and can lead to clogs in the sewer drain.
- Stick to human waste and RV-approved toilet paper.

Use RV-Safe Toilet Paper:

- Always use toilet paper specifically designed for RV use.
- This type of paper breaks down more quickly and minimizes the risk of clogs.
- The less solid waste that needs to dissolve in the tanks, the more efficiently your system will operate.

Maintain Water Levels:

- Regularly check the water level in your toilet bowl.
- If you notice it is consistently low, there may be an issue with the flushing mechanism or water supply.
- Proper water levels are crucial for efficient waste breakdown.

Regular Cleaning and Maintenance:

- Keep the toilet and surrounding area clean to prevent odors and build-up.
- Use RV-approved cleaners to avoid damaging the components.
- Regular maintenance of the flush mechanism can also help prevent issues over time.

Monitor Holding Tank Levels:

- Pay attention to the levels of your holding tanks and empty them regularly.
- Allowing waste to accumulate for too long can lead to unpleasant odors and complications during the dumping process.

By following these tips, you can ensure your RV toilet functions optimally, enhancing your comfort and cleanliness while traveling.

RV OPERATION

SPRAY NOZZLE

Your bathroom sink features a versatile faucet that doubles as a handheld shower head, providing convenience and flexibility for your daily hygiene routine. This innovative design allows you to easily switch between using the faucet for washing hands and filling the sink, and utilizing the handheld shower for rinsing off or washing hair.

Dual Functionality:

- The faucet operates as a standard sink faucet, providing a steady stream of water for handwashing and general use.
- With the pull of the faucet you can transition to the handheld shower function, making it ideal for quick rinses or more thorough cleaning.
- The faucet also allows for temperature control, letting you adjust between hot and cold water to achieve your preferred comfort level.

Handheld Convenience:

- The handheld shower head is designed for easy maneuverability, allowing you to direct the water flow exactly where you need it. This is especially useful for rinsing off soap or shampoo after washing.
- The shower head can be securely attached to the wall mount when not in use, keeping your sink area organized and free from clutter.

Aesthetic Appeal:

- Crafted with modern materials and finishes, the faucet complements the overall design of your RV bathroom. Its sleek look adds a touch of elegance while maintaining functionality.

NOTICE

Prevent Dripping: After switching from the handheld shower back to the faucet, ensure that the nozzle is properly closed to avoid dripping water, which could lead to water damage over time.

CAUTION

Secure Attachment: Ensure the handheld shower head is securely placed in the wall mount after use to prevent it from falling and causing damage.

CAUTION

Avoid Excessive Force: Do not pull the faucet or shower head with excessive force, as this could damage the hose or the faucet mechanism.

WARNING

Slip Hazard: The floor inside the bathroom may become slippery when wet. Exercise caution when using the shower to avoid slips and falls.



RV OPERATION

EXTERIOR SHOWER

Your RV is equipped with a convenient exterior shower unit, located in the Roadside Utility Compartment. This versatile feature includes a water inlet where you can attach either a water hose or a shower head, allowing for flexible use.

You have full control over the water temperature, with both hot and cold settings available, making it ideal for rinsing off after outdoor activities or cleaning gear.

The exterior shower can be operated using the onboard Water Pump, providing water directly from your RV's fresh water tank, or it can be connected to the City Water Inlet for a continuous water supply when parked at a campsite. This dual functionality ensures that you have a reliable water source whether you're on the move or stationary.

The exterior shower is perfect for quick cleanups, washing pets, or rinsing off sand and dirt before entering your RV, helping to keep the interior clean and comfortable.

NOTICE

Always ensure the water hose or shower head is securely attached to the water inlet before turning on the water supply.

NOTICE

After using the exterior shower, make sure to drain any remaining water from the hose or shower head to prevent freezing during cold weather.

NOTICE

Use the exterior shower to wash off dirt and debris before entering the RV to maintain cleanliness inside.

CAUTION

Freezing Risk: In cold weather, ensure that the exterior shower unit is properly winterized to prevent the water lines from freezing and causing damage.

CAUTION

Water Conservation: When using the onboard Water Pump, be mindful of your fresh water supply. Monitor water usage to avoid depleting the tank, especially if you're in a remote area.

CAUTION

Storage: When not in use, properly store the shower hose and shower head to prevent damage from prolonged exposure to the elements.

WARNING

Slip Hazard: The ground around the exterior shower may become slippery when wet. Exercise caution when using the shower to avoid slips and falls.

WARNING

Water Pressure: High water pressure from the City Water Inlet could damage the hose or shower head. Use a pressure regulator if necessary.



RV OPERATION

DOMESTIC FAN AND LIGHT

OPERATION

To open the dome fan lid:

- Push the button on the handle to disengage the clip and slide the handle away from you until the clip locks the lid in the open position.

To close lid:

- To close the lid, press the button again to disengage the clip and pull the handle toward you until the clip secures the lid in the closed position.

Activating the dome:

- Just press the on/off button on the fan to start or stop the exhaust function.

Optional LED lighting on the garnish ring:

- Use the push button located on the garnish ring itself. This allows you to control the light independently from the fan, providing flexibility depending on your needs.

NOTICE

Always remember to close the lid when the fan is not in use to prevent unwanted air infiltration, ensuring your RV remains comfortable and insulated.

NOTICE

Do not operate the fan with the screen removed.

NOTICE

Ventilation: While using the dome fan, it's recommended to keep other windows or vents slightly open to improve airflow and enhance ventilation inside the RV.

NOTICE

Power Source: Ensure the dome fan is properly connected to a power source before operating. Disconnect power when performing maintenance or cleaning.

CAUTION

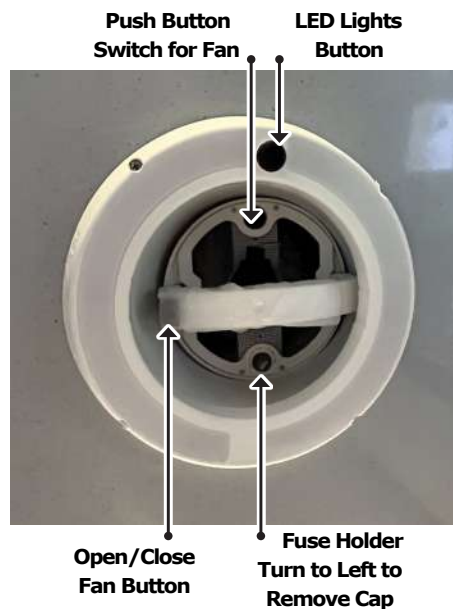
For general ventilation use only. Do not use to exhaust hazardous or explosive materials and vapors.

CAUTION

Avoid Obstructions: Ensure that nothing obstructs the fan's operation, as this can cause damage to the motor or lid mechanism.

CAUTION

Temperature Sensitivity: Avoid operating the fan in extreme weather conditions (very high or low temperatures) for prolonged periods, as it may affect the functionality and longevity of the fan.



WARNING

Safety First: Ensure that your hands are dry when operating the fan and light to avoid electrical hazards.

WARNING

LED Light Precautions: The LED lights can get warm during prolonged use. Avoid touching them directly for a while after use to prevent burns.

WARNING

Electrical Load: Do not use other high-power electrical devices simultaneously if you are on a limited power supply, as this may cause circuit overloads.

RV OPERATION

DOME FAN AND LIGHT MAINTENANCE

Proper maintenance of your dome fan and light is crucial for ensuring their longevity and optimal performance. Here are some detailed steps and considerations:

Regular Cleaning:

- Clean the dome fan and light regularly using a mild soap and water solution. Avoid harsh chemicals or abrasive cleaners, as these can damage the fan's components and the LED lighting.
- The surrounding edge or border of the ring and fan blades should be wiped down to remove dust and debris that can accumulate over time.

Screen Removal and Cleaning:

- To clean the screen, first ensure that the fan is turned off and completely powered down.
- Remove the four screws securing the screen in place, and carefully detach the screen from the fan assembly.
- Rinse the screen with mild soap and water, ensuring all debris is removed. Allow it to dry completely before reattaching.

Fan Blades:

- Inspect the fan blades periodically for dust buildup. Gently wipe them down with a damp cloth. Be careful not to bend or damage the blades during cleaning.

LED Light Maintenance:

- Ensure that the LED light is free from dust and grime.
- Use a soft, damp cloth to clean the surrounding edge or border and the LED light itself.
- Avoid excessive moisture around the electronic components.

Lubrication:

- Check the moving parts, such as the handle mechanism and the clip, for smooth operation. If needed, a small amount of lubricant can be applied to these areas to ensure they operate smoothly.
- Avoid excessive moisture around the electronic components.

Inspection:

- Regularly inspect the fan's components for wear and tear, especially the sealing around the lid.
- If you notice any cracks or damage, replace the affected parts promptly to prevent water leakage or air infiltration.

NOTICE

Regular Maintenance: Periodically check the dome fan for dust or debris accumulation, as this can affect its performance and efficiency. Clean the fan and surrounding areas regularly to maintain optimal operation.

NOTICE

Check for Loose Components: Regularly inspect the fan blades, screws, and other components for any signs of looseness or wear. Tighten any loose screws and replace any worn parts to ensure the fan operates smoothly and safely.

NOTICE

Inspect Seals and Gaskets: Periodically inspect the seals and gaskets around the dome fan to ensure they are in good condition and providing a proper seal. Replace any damaged seals to prevent leaks or drafts.

CAUTION

Avoid Harsh Cleaners: Do not use abrasive cleaners, solvents, or harsh chemicals on the fan or light, as these can damage the surfaces or the fan mechanism. Stick to mild soap and water for cleaning.

CAUTION

Fan Blade Clearance: Make sure that there is no obstruction or debris around the fan blades that could impede their movement. Obstructed blades can cause the fan to overheat or fail.

CAUTION

Always turn off the fan and disconnect the RV from any power source before performing maintenance or cleaning. This prevents accidental activation of the fan or LED light during maintenance.

CAUTION

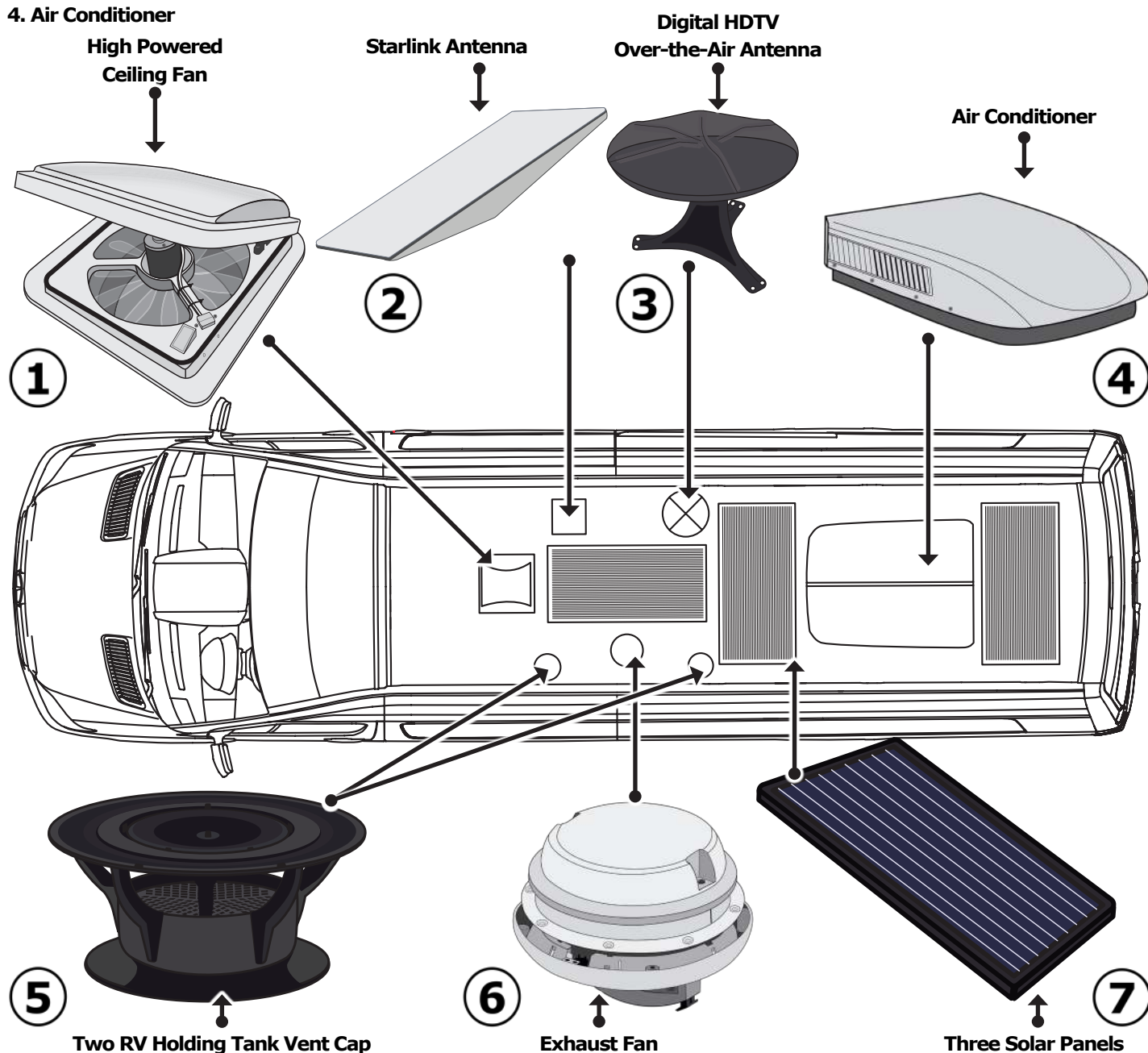
For general ventilation use only. Do not use to exhaust hazardous or explosive materials and vapors.

RV OPERATION

STRADA RV: UPPER VIEW DIAGRAM

This section includes a general explanation of the location and usages of the exterior features found on the upper side of your RV.

- 1. High Powered Ceiling Fan** with 10 speed intake and exhaust fan. It is waterproof and includes a rain sensor that closes automatically.
- 2. Starlink Antenna**
- 3. Power boosted omnidirectional Digital HDTV Over-the-Air Antenna.** It is wired to outlets on the inside and the exterior of the RV.
- 4. Air Conditioner**
- 5. Two RV Holding Tank Vent Cap** removes odors from the inside of the RV. Odors are exhausted through the roof vent before they have a chance to invade the RV.
- 6. Exhaust Fan** for rooftop ventilation and moisture control in small areas (bathroom and shower). It has a locking lid with a single hand push button operation.
- 7. Three Solar Panels** with 300 Watt Solar System.



RV OPERATION

STRADA RV: DRIVER'S SIDE DIAGRAM

This section includes a general explanation of the location and usages of the exterior features found on the passenger side of your RV.

1. ROADSIDE UTILITY COMPARTMENT

This compartment provides:

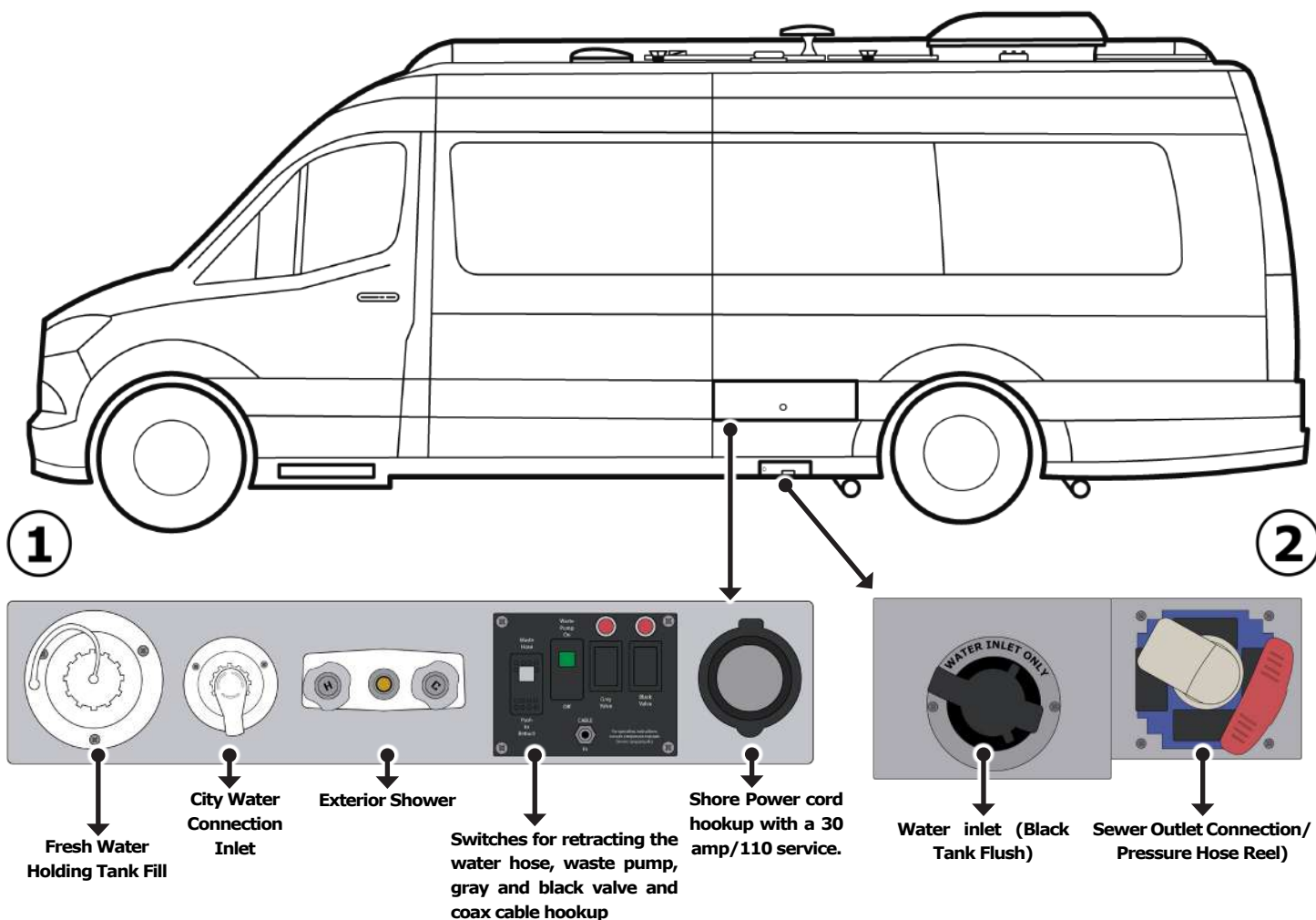
(In order from left to right)

- Fresh Water Holding Tank Fill
- City Water Inlet Water inlet
- Exterior Shower
- Switches for Retractable Water Hose, Waste Pump, Gray and Black Valve and a Coax Cable Hookup
- Shore Power Cord Hookup Station with a 30amp/110 service.

2. WASTE CONTROL SYSTEM

This compartment provides:

- **Water Inlet:** Works as a Black Tank Flush, it power washes the inside of the Black Tank.
- **Sewer Outlet Connection/ Pressure Hose Reel:** Retractable Water Hose to dump tank residues.



RV OPERATION

STRADA RV: PASSENGER'S SIDE DIAGRAM

This section includes a general explanation of the location and usages of the exterior features found on the passenger side of your RV.

1. AWNING

- Automatic awning controlled with Multiplex Firefly Control System screens.

2. LP & POWER GENERATOR STATION

(In order from left to right)

• On LP units:

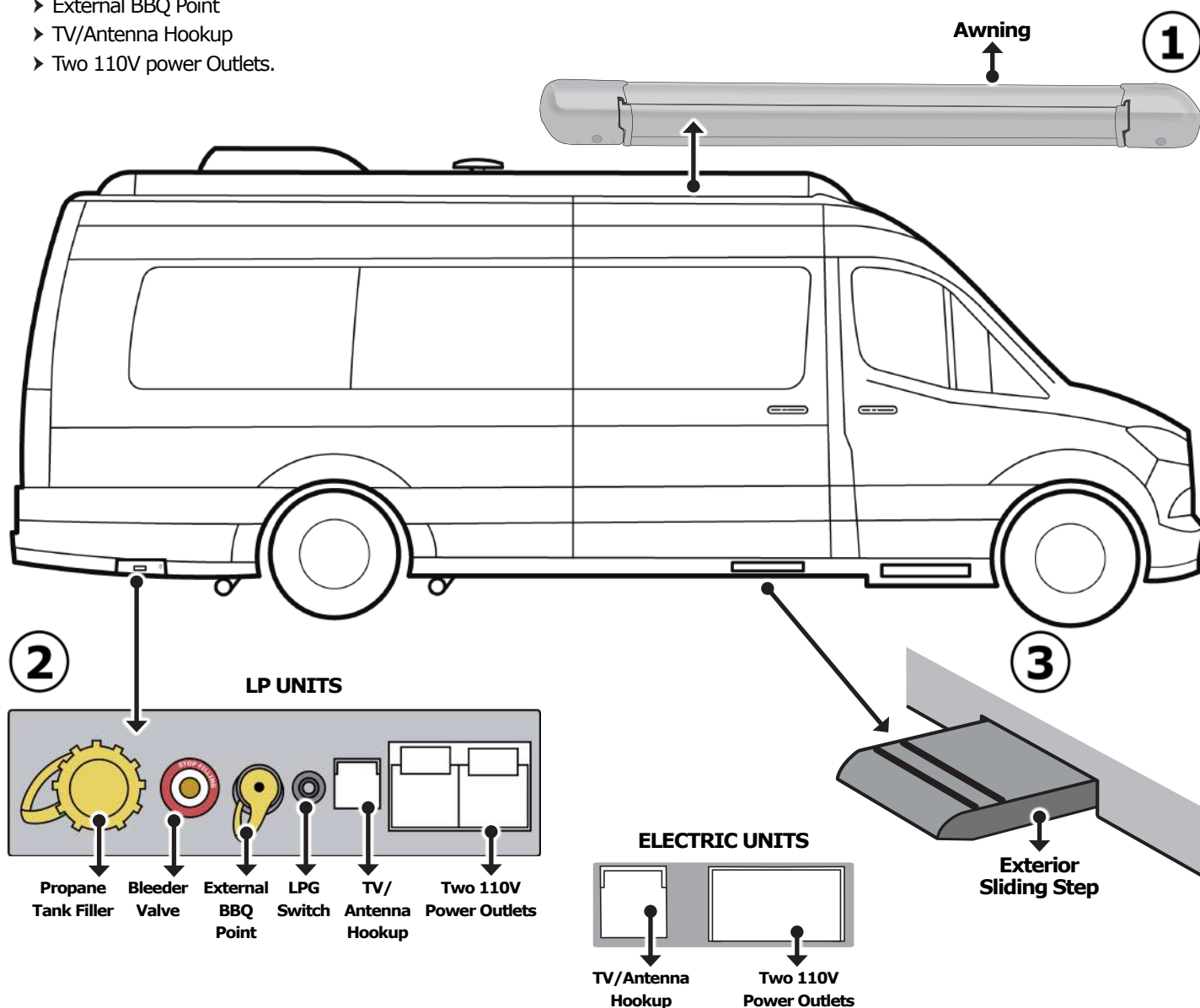
- Propane Tank filler
- Bleeder Valve
- LPG Switch
- External BBQ Point
- TV/Antenna Hookup
- Two 110V power Outlets.

• On Electrical units:

- Two 110V power outlets and a TV/Antenna Hookup.

3. EXTERIOR SLIDING STEP

- Sliding step with auto retract, it has a step out warning buzzer and a lock extended switch for easy entry into the RV.
- It is controlled with switch on the inside of the RV, on the main entrance on the passenger side of the RV, under the Firefly Multiplex System screen.



WATER SYSTEM

WINTERIZATION

Winterizing your RV is essential preparation for the freezing temperatures that typically accompany winter in many regions. It involves readying your RV for storage during cold months when travel is impractical.

The primary goal of winterization is to prevent damage from freezing to crucial components such as Fresh Water Lines, Waste Drain Lines, Waste Holding Tanks, Water Heater, and batteries.

WHEN TO WINTERIZE

There are two main scenarios where RV winterization is crucial: when storing the RV for the winter and when camping in very cold weather. Proper winterization not only safeguards your RV's plumbing and electrical systems but also ensures that it remains in optimal condition for future use.

When preparing to store your RV for the winter, take similar precautions as you would for your home. This includes addressing perishable items, ensuring adequate ventilation, and protecting against rain and weather elements. It's recommended to flush out all drain lines and waste holding tanks if the RV will be left unattended for an extended period.

IMPORTANCE WINTERIZATION

Understanding the importance of winterization is crucial, as failure to do so can result in serious damage. If water freezes inside your RV's plumbing system, it can expand and potentially rupture hoses and pipes, leading to costly repairs. Winterizing also protects components like the water pump from malfunction and prevents damage to the water and holding tank systems.

By following proper winterization procedures, you can prolong the life of your RV and avoid costly repairs associated with winter-related damage. Taking these precautions ensures that your RV remains in good condition and ready for use when warmer weather returns.

Heating System Coolant

- The Heating System Coolant does not require winterization
- The Heating System Coolant can be tested for its freeze protection value.

Domestic Water System:

- The domestic water circuit needs to be drained or protected using RV winterizing fluid.
- Draining is accomplished by opening the low point drains and blowing air through the water system.
- **Propylene-glycol** can be pumped through the system using the domestic water pump and opening both hot and cold valves at a plumbing fixture. Using this procedure does not require draining the Demand Hot Water exchanger.

NOTICE

Grech RV recommends that approximately twice a year or after a long period of time of storing your RV to give a check-up and cleaning of the gas-operated appliances.

MACERATOR PUMP WINTERIZING

Effectively winterizing your RV's macerator pump involves careful planning and thorough execution to protect the system during freezing temperatures and storage periods. Here's a comprehensive guide:

- 1. Dump and Drain the Tanks:** Begin by emptying and thoroughly draining all holding tanks to remove any remaining waste and water.
- 2. Add Non-Toxic Antifreeze:** Pour a quart or two of non-toxic antifreeze formulated for RVs into one of the holding tanks. This antifreeze is essential for preventing freezing damage within the system.
- 3. Activate the Macerator Pump:** Start the macerator pump by pressing the designated switch or waste pump switch. Allow the pump to operate until the non-toxic antifreeze begins to emerge from the pump hose.
- 4. Close Drain Valves:** Once the antifreeze is flowing through the system, close all drain valves to seal off the tanks and prevent any further exposure to freezing temperatures.
- 5. Protect the Toilet Valve:** As an additional precaution, open the toilet valve to ensure that the antifreeze reaches and protects the entire plumbing system connected to the toilet.
- 6. Antifreeze for Black Water Tank:** Add a quart of non-toxic antifreeze directly into the black water tank via the toilet to thoroughly protect the tank and associated plumbing.
- 7. Sink Drain Protection:** Lastly, pour a quart of non-toxic antifreeze down each sink drain to safeguard the holding tanks and valves from freezing.

WATER SYSTEM

STEPS FOR WINTERIZING

1. Drain all holding tanks (Fresh, Grey, and Black)
2. Add Non Toxic RV Antifreeze via bypass valve only.



3. Turn on water pump and run the water pump until the Non Toxic RV Antifreeze solution fills the water lines.
4. Run each sink faucet in the cold and hot position until steady stream of antifreeze is flowing out for 5 seconds
5. Run anti-freeze down the shower drain for 10 seconds as well.
6. Flush toilet and hold pedal down until steady stream of Non Toxic RV Antifreeze is coming out.
7. Open exterior shower faucet until the Non Toxic RV Antifreeze emerges from the hose, shut off the valve and remove the hose assembly.

While the water is draining from all of the faucets and system:

- You may remove, drain and store the exterior components that you've previously attached to your RV (such as hoses and/or shower heads).
8. Shut off the pump when the Non Toxic RV Antifreeze has been distributed throughout the system.
 9. Reopen all faucets to relieve pump pressure.
 10. If your RV is equipped with a macerator make sure to hold the toilet flush pedal down for an additional 15-30 seconds.
 11. Open Holding Tank Electric Valves and run macerator until Non Toxic RV Antifreeze starts to come out the end off the tank drainage hose.
 12. Turn off macerator and close electric valves. This will protect the macerator from freeze up damage.

NOTICE

Grech RV water systems are designed that the average owner can winterize their RV without having to deal with the time inconvenience or cost of dealer assistance.

Low Point Drain Valves



NOTICE

Low Point Drain Valves are located on the driver side of the unit in front of the rear tires.

NOTICE

It is important to winterize your RV in a plain level surface, so the winterize fluid can spread on all surfaces correctly.

DANGER

Do not use automotive antifreeze to winterize potable water systems. Such solutions are highly toxic. Ingestion may cause serious injury or death.

NOTICE

While the water is draining from all of the faucets and system: You may remove, drain and store the exterior components that you've previously attached to your RV (such as hoses and/or shower heads).

HOUSE BATTERIES STORAGE

If you plan to store your RV for 30 days or more, always turn off the Battery Disconnect Switch, located in the rear of the RV unit beside the batteries, below the sofa bed, to prevent unnecessary power drain. Monitor your batteries, especially in severe weather conditions, and check them at least weekly.

It's crucial to periodically check that your batteries are fully charged, as maintaining a full charge helps extend their lifespan. This is particularly important in freezing or below-freezing temperatures, as cold weather can significantly impact battery performance and longevity.



Inverter Battery Disconnect Switch



WATER SYSTEM

STORING YOUR RV

When preparing to store your vehicle, follow these steps:

Refrigerator Maintenance:

- Clean and defrost the refrigerator thoroughly. Leave the door open and place an open box of baking soda inside to absorb odors.

Holding Tank Preparation:

- Empty the holding tanks completely. Leave a small amount of water and deodorizer in the tanks to keep the seals moist and prevent odors. If storing in temperatures below 40°F, add 2 gallons of RV antifreeze to each tank to prevent freezing, as sudden freezes can cause extensive damage.

Propane Tank:

- Close the propane tank valve securely to ensure safety during storage.

Shades and Ventilation:

- Close all shades to minimize sunlight and keep the interior cooler. This helps maintain a more comfortable temperature and protects furnishings from sun damage.

NOTICE

When the storage period is over, the water system must be filled again with water and all air must be removed from lines before using the RV again.

By following these guidelines, you can properly prepare your RV for storage, ensuring that it remains in good condition and ready for use when you're ready to hit the road again.

RESTORING SERVICE AFTER STORAGE

When it's time to use the RV again after a period of storage, follow these steps to ensure everything operates smoothly:

STEPS

1. Check House Batteries:

- Verify the charge level of the house batteries to ensure they are sufficiently charged for operation.

2. Close Drain Valves and Faucets:

- Close low point drain valves, holding tank waste valves, water faucets, and the fresh water tank drain to prepare for filling.

3. Fill Fresh Water Tank:

- Add fresh water to the RV's fresh water tank until it is adequately filled.

4. Turn on Water Pump:

- Activate the RV's water pump to pressurize the water system.

5. Flush Antifreeze from Lines:

- Open each faucet one at a time, including showers and outdoor connections, until the water runs clear. This indicates that the RV's non-toxic antifreeze used for winterization has been flushed from all plumbing lines. Double-check each faucet to ensure water clarity.

6. Turn off Water Pump:

- Once all faucets have been checked and cleared of antifreeze, turn off the water pump.

7. Connect to City Water:

- If hooking up to city water, open faucet valves and verify water clarity again to ensure no residual antifreeze remains in the system.

NOTICE

Please disconnect the current to all chassis electric consumers using the battery isolator switch if the vehicle sits for long periods or for more than 2 months. The battery isolator is located on the right of the accelerator pedal in the driver's foot well. Slide the red release down and pull it off the post. This will save jump starts, battery charge ups, and possible battery damage and replacement. The Mercedes-Benz Sprinter Operator's Manual describes its location, operation and cautions in detail.



WATER SYSTEM

WATER SUPPLY

Your RV features a comprehensive water system consisting of a Fresh Water Tank, Gray Tank, Black Water Tank, and associated plumbing equipment.

These components work together seamlessly to manage all water and waste needs within your vehicle. This section will detail how each element operates harmoniously to ensure efficient water usage and waste management throughout your travels.

DRAIN AND WASTE SYSTEM

The drain and waste system of this RV is equipped with corrosion-free, molded plastic waste holding tanks and trouble-free dump valves for reliable operation.

Additionally, the RV features three water tanks: fresh water, gray water, and black water tanks, each serving distinct purposes in the overall water management system.

The differences between each tank are:

- **Fresh Water Tank:** This tank stores potable water for use in faucets, showers, and toilets.
- **Gray Water Tank:** Designed for collecting used water from faucets and showers.
- **Black Water Tank:** Specifically for holding human waste and sewage from the toilet.

All three tanks are monitored by the Firefly Integrations Control System, which accurately displays their fill levels—provided the tanks are free of debris. This system ensures efficient management of water and waste, enhancing convenience and hygiene during RV travels.

TANKS CAPACITIES

- **Fresh Water Tank:** Holds 26 gallons of potable water.
 - **Location:** Underneath the floor of the RV and the black water tank. (Driver's side).
- **Gray Water Tank:** Capacity of 27 gallons for collecting used water from faucets and showers.
 - **Location:** Underneath the RV, under the cooktop and the kitchen sink (Passenger's side).
- **Black Water Tank:** Stores up to 13 gallons of human waste and sewage.
 - **Location:** On the interior of the RV, under the toilet. (Driver's side).

These tanks are strategically placed to optimize space and functionality within the RV, ensuring efficient water and waste management during travel and camping activities.

NOTICE

Regular Monitoring: Frequently check the Firefly Integrations Control System to monitor tank levels. This will help prevent overflows and maintain the efficiency of your water and waste systems.

NOTICE

Proper Ventilation: Ensure that the ventilation systems connected to the tanks are functioning properly to avoid the buildup of unpleasant odors inside the RV.

CAUTION

Proper Maintenance: Regularly clean and inspect all tanks and plumbing components to avoid blockages or damage, which can lead to costly repairs.

CAUTION

Avoid Contamination: Be mindful when filling the fresh water tank to avoid contamination from hoses or external sources. Always use potable water hoses designed for RV use.

CAUTION

Tank Capacity Awareness: Be aware of the capacities of each tank to prevent overfilling, which can cause leaks or damage to the plumbing system.

WARNING

Freeze Protection: In cold weather, make sure the water system is winterized to prevent freezing and cracking of pipes and tanks. Failing to do so could result in severe damage to the system.

WARNING

Safe Dumping Practices: Always ensure that the dump valves are securely closed after emptying the tanks to prevent leaks and exposure to hazardous waste.

DANGER

Risk of Contamination: Never allow the black water tank to backflow into the fresh water system. This can cause severe contamination, leading to health risks.

DANGER

Hazardous Fumes: Be cautious when emptying the black and gray water tanks, as the gases emitted can be harmful if inhaled. Ensure proper ventilation and avoid prolonged exposure.

WATER SYSTEM

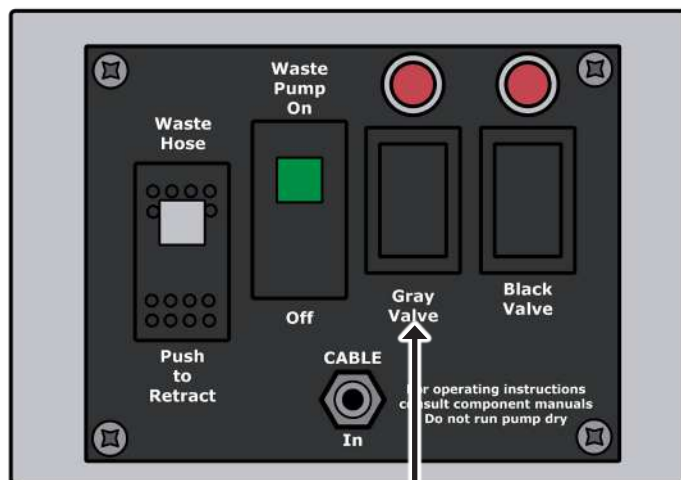
GRAY TANK

The gray water tank in your RV is designed to collect all wastewater generated from activities that require water, excluding the waste from the toilet. This includes water from cooking, washing dishes, showering, and handwashing. The gray tank plays a vital role in managing your RV's wastewater and is essential for maintaining hygiene and comfort during your travels.

Your gray water tank is equipped with its own dump valve, referred to as the "Gray Valve Switch." This valve connects to the same termination outlet used for the Black Water Tank, allowing for efficient and straightforward waste disposal at designated dump stations. Proper management of the gray water tank ensures optimal performance and prevents any potential overflow or plumbing issues. Regularly monitoring the tank level and emptying it when necessary will help you maintain a clean and pleasant environment in your RV.



Gray Water Tank



Gray Water Tank Valve

NOTICE

Wastewater Types: Remember that the gray tank collects wastewater from sinks, showers, and appliances, not from the toilet. Understanding this distinction helps with proper maintenance and disposal.

NOTICE

Monitoring Levels: Utilize Firefly Screens to monitor the gray tank's fill level and plan for timely disposal.

CAUTION

Regular Maintenance: Check the gray tank and its components for leaks or damage during routine RV maintenance to ensure proper function.

CAUTION

Drainage Practices: Always use the designated dump stations for gray water to prevent environmental contamination and adhere to local regulations.

WARNING

Overflow Risks: Failing to empty the gray tank regularly can lead to overflow, causing wastewater to back up into the RV, which can create unpleasant odors and unsanitary conditions.

WARNING

Odor Control: Stale gray water can develop unpleasant odors over time, which can affect the comfort of your RV living environment.

DANGER

Health Risks: Gray water can contain food particles, soap residue, and other contaminants. Avoid direct contact with gray water to prevent exposure to harmful bacteria.

DANGER

Piping Issues: Be cautious when opening the dump valve; pressure buildup could cause wastewater to spray, leading to potential contamination and injury.



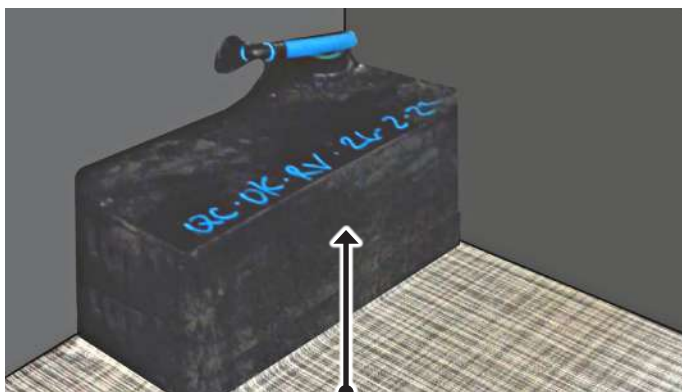
WATER SYSTEM

BLACK TANK

The black tank in your RV is a crucial component designed to hold wastewater from the toilet. Proper maintenance of your black water tank is essential for ensuring a comfortable and enjoyable RV experience. Nothing can ruin your travels quite like unpleasant sewer odors, which is why regular monitoring and emptying of the black tank is vital.

To prevent odors and maintain hygiene, it's important to empty the black tank consistently, particularly before putting the RV into storage for both short and long-term periods. By doing so, you can avoid buildup and ensure that the tank remains in good condition. Additionally, using appropriate treatments can help break down waste and control odors, making your RV a more pleasant environment for all occupants. Remember, a well-maintained black tank not only enhances your travel experience but also extends the life of your RV's plumbing system.

Your black water tank is equipped with its own dump valve, referred to as the "Black Valve Switch." This valve connects to the same termination outlet used for the Gray Water Tank, allowing for efficient and straightforward waste disposal at designated dump stations.



Black Water Tank

NOTICE

The picture above of the black water tank it is not a complete picture of the tank. There is more tank space under the toilet and it is not visible.



NOTICE

Routine Checks: Periodically check the black tank's level indicator, if available, to ensure it is emptied before reaching full capacity.

CAUTION

Personal Safety: Always wear gloves when handling the waste disposal system and during the emptying process to protect yourself from exposure to harmful bacteria.

CAUTION

Secure Connections: Ensure that all connections to the dump valve are secure before and during the emptying process to prevent leaks.

WARNING

Odor Control: Failure to empty the black tank regularly can result in strong sewage odors permeating the RV, which can be unpleasant and difficult to eliminate.

WARNING

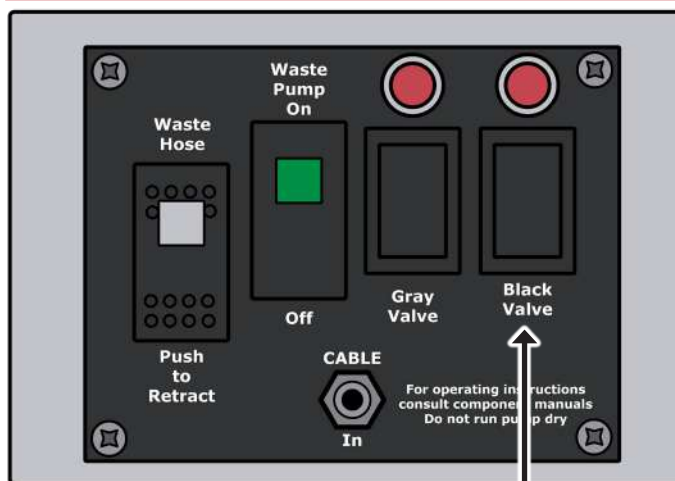
Leak Risks: If the black tank becomes overfilled, it can lead to leaks or overflow, which may cause contamination and damage to the RV's interior.

DANGER

Health Risks: Exposure to black tank contents can pose serious health risks due to harmful bacteria and pathogens. Always handle the tank and waste materials with care.

DANGER

Drainage Hazard: Be cautious when opening the dump valve; any pressure buildup could cause waste to splash, posing a risk of contamination and injury.



Black Water Tank Valve

WATER SYSTEM

FRESH WATER SYSTEM

Your RV's fresh water system offers a level of convenience and functionality that closely resembles what you experience at home. Powered by a 12-volt self-priming pump, this system delivers pressurized water from the fresh water tank to all cold water faucets and the water heater, ensuring you have a reliable supply for cooking, cleaning, and personal hygiene.

To fill the fresh water tank, simply locate the fresh water fill connection. You'll know the tank is full when water begins to overflow from the vent, indicating that the tank has reached its capacity. For additional convenience, the Firefly Multiplex Control System allows you to easily monitor the water level in the tank, helping you manage your water usage effectively during your travels.

Whether you're preparing meals, showering, or washing dishes, the fresh water system is designed to provide consistent and efficient service, enhancing your overall RV experience. Regularly checking the water levels and maintaining the system will ensure you enjoy uninterrupted access to fresh water throughout your adventures.



NOTICE

Regular Inspection: Periodically check the fresh water system for leaks or wear to prevent water damage.

NOTICE

Flushing the Tank: Flush the fresh water tank periodically to remove sediment and maintain water quality.

CAUTION

Potable Water Only: Use only potable (safe for drinking) water in the fresh water system to avoid health issues.

CAUTION

Monitor Water Levels: Regularly check the water level in the tank, especially during long trips, to avoid running out of water.

WARNING

Avoid Overfilling: Do not exceed the maximum capacity of the fresh water tank to prevent leaks and damage.

WARNING

Turn Off the Pump: Always turn off the water pump when not in use to avoid flooding or water damage.

DANGER

Contamination Risk: Always ensure that the fresh water fill hose is clean and used solely for filling the fresh water tank. Using a non-potable water source can lead to contamination, resulting in health risks.

DANGER

Frost Protection: In freezing temperatures, ensure that the fresh water system is properly winterized to prevent pipes and the tank from freezing and potentially bursting, which can lead to significant water damage.

DANGER

Electrical Safety: When working on the fresh water system, make sure the water pump is turned off and disconnected from the power source to prevent electrical shock or damage to the pump.



Fresh
Water
Holding
Tank Fill

City Water
Connection
Inlet

WATER SYSTEM

HOW TO HAVE ACCESS TO WATER

Your RV is equipped with two primary methods to supply water to the plumbing system:

1. City Water Connection

• Direct Hose Connection:

- Attach a water hose to the City Water Connection port on the exterior of your RV.
- When connected to a city water source, there's no need to fill your fresh water tank or use the onboard water pump.

• Continuous Supply:

- The water from the hose flows directly into the RV's plumbing system, supplying water to the toilet, faucets, and shower head.

• Pressure-Driven:

- The water pressure from the city connection will consistently push water through your RV's water system, allowing you to keep the water spigot on at all times for a continuous supply.

ⓘ NOTICE

User Awareness: Familiarize yourself with both the City Water Connection and the Fresh Water Tank methods to optimize water supply based on your travel needs.

ⓘ NOTICE

Filling Locations: Designated fill stations may vary; always check campground maps or ask staff for specific locations.

⚠ CAUTION

Hose Quality: Ensure that the water hose used is specifically rated for potable water to avoid contamination of your drinking water.

⚠ CAUTION

Check Connections: Periodically check the connections and fittings for signs of wear or damage to prevent leaks or water loss.

1. Onboard Water Supply via Fresh Water Tank:

• Using the Water Pump:

- When not connected to city water, your RV relies on its self-priming water pump to draw water from the fresh water tank, distributing it throughout the RV's plumbing system.

• Filling the Fresh Water Tank:

- You can fill the fresh water tank before hitting the road, or at designated fill stations at campgrounds. Simply locate the Fresh Water Tank Fill port/inlet on the exterior of your RV.

• Weight Considerations:

- Be mindful of the weight of a full tank, as water adds approximately 8.3 lbs per gallon. Driving with a full fresh water tank can affect your Gross Vehicle Weight Rating (GVWR) and may reduce your gas mileage. If your destination is nearby or you plan to use the water soon, filling the tank fully might be practical. However, for longer trips, it might be wise to fill the tank closer to your destination to avoid unnecessary weight.

ⓘ WARNING

If you are using a water inlet/spigot from a campground, a good alternative is to have a water pressure regulator to attach to your RV water hose. Pressure may burst the water pipes inside your rig or even cause leaks at plumbing fittings.

ⓘ WARNING

Potential Contamination: Avoid using hoses or connections that are not designed for potable water, as they can introduce harmful contaminants into your water supply.

ⓘ WARNING

Watch for Freezing Conditions: If temperatures drop, ensure that your water supply systems are winterized to prevent freezing and potential damage to pipes and tanks.

⚠ DANGER

Electrical Hazards: Improper connections or faulty equipment can lead to electrical shorts, especially when using electrical pumps or pressure systems.

⚠ DANGER

Spill Risks: Improperly managing water tank levels can lead to spills, creating slippery surfaces around your RV and posing a fall hazard.

WATER SYSTEM

FRESH WATER SYSTEM COMPONENTS

The fresh water system in your RV is composed of several key components: the fresh water tank, water pump, water filler, and a city/fresh water connection. These elements work together to provide a reliable and clean water supply throughout your RV.

When connecting to any water source, it's essential to use a water hose specifically marked for potable water. This ensures that the water remains safe for drinking and cooking, preventing contamination that could occur with non-potable hoses.

• Fresh Water Tank:

- › Stores the water used by your RV when not connected to a city water supply. This tank is filled via the water filler port on the exterior of the RV.

• Water Pump:

- › A self-priming pump that draws water from the fresh water tank and pressurizes the system, ensuring that water is delivered to all faucets, showers, and the toilet.

• City/Fresh Water Connection:

- › When connected to a city water source, this bypasses the fresh water tank and pump, providing a direct supply of pressurized water to your RV's plumbing system.

NOTICE

Water System Maintenance: Always ensure that your water system components are clean and in good working order to maintain a safe and efficient water supply during your travels.

WARNING

Water Quality: Ensure that the water source you connect to is clean and safe for drinking. Contaminated water can lead to health issues.

WARNING

Pressure Regulation: If using a city water connection, consider using a water pressure regulator to avoid damage to your RV's plumbing system from excessive pressure.

CAUTION

Freezing Conditions: In cold weather, be cautious of water freezing in the pipes and tanks. Proper winterization of the fresh water system is essential to avoid damage.

CAUTION

Tank Capacity: Do not exceed the fresh water tank's capacity to prevent overflow and potential water damage within the RV.

DANGER

Contamination Risk: Using non-potable hoses can lead to chemical leaching into the water supply, posing serious health risks.

DANGER

Water Leaks: Undetected leaks can cause significant water damage to your RV's interior, leading to mold growth and structural issues.

USING FRESH WATER HOLDING TANK

Every RV equipped with a sink, faucet, or shower comes with a Fresh Water Holding Tank, an essential component for ensuring you have a steady supply of water while on the road. You have a couple of options for filling this tank:

• Before your Trip

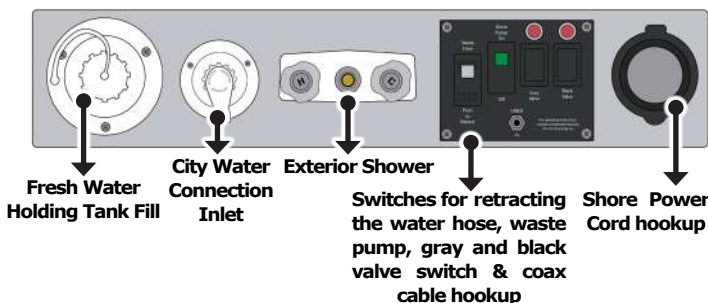
- › You can fill the fresh water tank at home before you start your journey. This allows you to have water readily available as soon as you set off.

• While Traveling or at Campsite:

- › Alternatively, you can fill the tank just before you arrive at your campsite.
- › Many gas stations, convenience stores, and campgrounds offer designated areas where you can fill your fresh water tank.
- › This option is particularly useful if you're concerned about weight or fuel efficiency, as carrying a full tank of water can affect your RV's performance.

The city water connection and the water fill inlet are conveniently located in the Roadside Utility Center, making it easy to access and connect to a water source. Always ensure that the water hose you use is rated for potable water to keep your water supply safe and clean.

Proper management of your Fresh Water Holding Tank will ensure that you have a reliable water supply throughout your travels, whether you're on the road or at your campsite.



NOTICE

Power and Water Hook-Up Location: This compartment, situated on the driver's side of the RV, serves as the power and water hookup station, providing essential connections for your RV's electrical and water systems.

WATER SYSTEM

WATER PUMP

The water pump in your RV is strategically located below the sink, adjacent to the water heater and the black waste tank. It is controlled through the Firefly Multiplex System control panels, offering you easy and precise management of your water supply.

This pump is designed to deliver a smooth and consistent flow of water across all ranges of operation while maintaining low power consumption. The water pump is equipped with sealed switches that feature an electro-coating finish to inhibit corrosion. These switches are securely enclosed to prevent accidental moisture ingress, ensuring reliable performance even in challenging conditions when properly installed.



When a faucet is opened, the water pressure will drop, causing the bypass to close and allowing full flow to resume. This system is designed to provide consistent water flow, even with more restrictive fixtures like showerheads and pullout sprayer faucets.

The bypass mechanism consists of a spring-loaded diaphragm that opens, redirecting water from the discharge side back to the inlet side.

It is calibrated to start opening at around 40 psi and fully engages at approximately 62 psi. The pressure switch is set to shut off the pump at 55 psi, ensuring optimal water pressure throughout your RV's plumbing system.

HOW TO OPERATE WATER PUMP

The water pump in your RV is strategically located below the sink, adjacent to the water heater and the black waste tank. It is controlled through the Firefly Multiplex System control panels, offering you easy and precise management of your water supply.

This pump is designed to deliver a smooth and consistent flow of water across all ranges of operation while maintaining low power consumption. The water pump is equipped with seal

1. Ensure All Drain Valves Are Closed:

- Before operating the water pump, verify that all drain valves are securely closed to prevent leaks.

2. Turn Off the Water Pump:

- Make sure the water pump is turned off before filling the tank.

3. Fill the Water Tank:

- Use the designated water fill inlet to fill the fresh water tank to the desired level.

4. Open Hot and Cold Faucets:

- Open both hot and cold faucets to allow air to escape from the lines.

5. Turn On the Water Pump:

- Activate the water pump using the control panel or switch.

6. Close Faucets When Water Flows Steadily:

- Once water flows normally and steadily through the faucets, close them.

7. Verify Pump Stops After Closing Faucets:

- Ensure that the water pump automatically stops running once all faucets are closed.

8. Ready for Automatic Operation:

- The water pump is now set for automatic operation, providing water on demand as you use the faucets.

NOTICE

You should not run the RV's Fresh water pump when hooked up to city water. The city water system should provide sufficient water pressure for your RV's fresh water system.

NOTICE

Don't forget to always turn off the water pump switch when leaving the RV unattended for an extended period of time and when driving. This will prevent excessive damage and battery discharge in the event of a leak.

WARNING

It is better to shut off the water pump when leaving the RV unattended.

WARNING

An unattended constant running water pump can cause it to overheat. Make sure you periodically check for leaks or any other signs that your water pump is not working as it should.

WATER SYSTEM

CITY WATER CONNECTION

The City Water Connection is conveniently located in the Roadside Utility Compartment, offering an efficient way to access water inside your RV without relying on the Fresh Water Tank. This system utilizes line pressure to deliver water directly to all plumbing fixtures, and you can activate the water flow by pressing the Water Pump button on the Firefly Multiplex System Screen.

STEPS TO USE CITY WATER CONNECTION

1. Open the Roadside Utility Compartment:

- Locate and open the compartment on the driver's side of your RV to access the city water connection.

2. Remove the insert from the City Water Connection:

- This insert is typically designed to protect the connection when not in use. Set it aside in a clean area to avoid contamination.

3. Attach a potable water hose:

- Attach a potable water hose of the same size, ensuring you use a rubber washer.
- This washer helps create a tight seal to prevent leaks. Make sure the hose is marked for potable water to ensure it is safe for drinking.

4. Turn on the City Water Supply or water source at medium pressure:

- Adjusting the pressure to medium will help prevent any potential damage to the RV's plumbing system while ensuring a steady water flow.

NOTICE

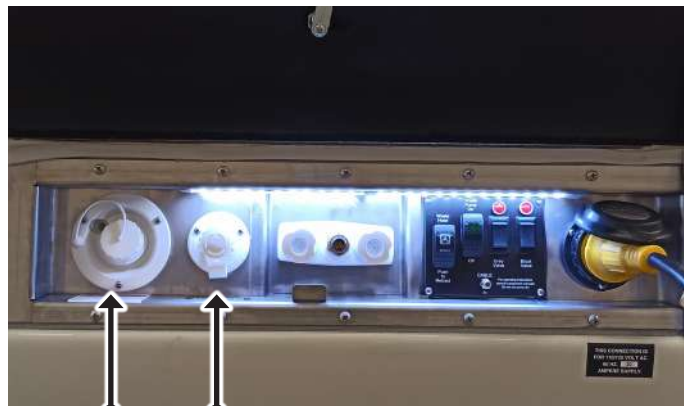
When using the City Water Supply, it is not necessary to activate the water pump. The city water connection provides pressurized water directly to your RV's plumbing, eliminating the need for the pump.

5. Open the cold water tap:

- Slowly open the cold water tap until water flows smoothly, then repeat with the hot water tap.
- This allows the system to purge any air and ensures you have a consistent flow of water from both taps.

6. Check for leaks:

- Check for leaks at the city water connection and re-tighten the hose if necessary.
- Regularly inspecting for leaks will help maintain the integrity of your plumbing system and prevent water damage to your RV.
- If you notice any leaks, address them immediately to ensure a reliable water supply.



Fresh Water Holding Tank Fill

City Water Connection Inlet

NOTICE

Always use a hose labeled for potable water to prevent contamination of your drinking water supply.

NOTICE

It is advisable to use a water pressure regulator because excessive pressure may result in line damage.

NOTICE

After connecting to an external water supply open the faucets in your RV slowly and cautiously. Air trapped in the line can cause the water to splash into the sink. Drape a washcloth over the faucet to prevent excessive splashing.

CAUTION

When turning on the City Water Supply, do so gradually to avoid sudden pressure surges that could damage your RV's plumbing system.

CAUTION

Periodically inspect the city water connection and hose for signs of wear or damage to ensure safe operation

WARNING

If you experience excessively high water pressure, disconnect the hose immediately. Use a water pressure regulator to prevent damage to the RV's plumbing.

WARNING

If leaks are detected, do not ignore them. Leaks can lead to water damage, mold growth, and costly repairs. Address any issues promptly to maintain a safe and functional water system.

DANGER

Never connect the city water supply to a non-potable water source, as this can lead to serious health risks and contamination. Always verify that the source is safe before connecting.

WATER SYSTEM

USING CITY WATER

When using the city water connection, you can bypass the need to fill your RV's fresh water tank and utilize the onboard water pump. Instead, water flows directly from the connected hose into the RV's plumbing system, ensuring a continuous supply to your toilet, faucets, and shower head.

This method not only simplifies your setup but also allows for an uninterrupted water flow, enhancing your comfort during your travels.

NOTICE

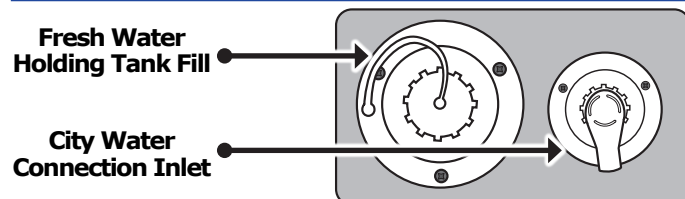
Ensure the water hose is marked for potable water to maintain safe drinking water standards.

NOTICE

Connect the hose securely to the city water connection to prevent leaks.

NOTICE

Always check that the water supply is turned off before connecting or disconnecting the hose to avoid sudden bursts of water.



FLUSHING THE SYSTEM

After disconnecting the city water connection, it's essential to flush the system to ensure that no residual water remains in the pipes. To do this, open all faucets and let the water run until it flows clear. This simple step helps maintain the cleanliness and functionality of your RV's plumbing system, preventing the buildup of contaminants and ensuring a fresh water supply when needed.

Flushing the system not only enhances water quality but also prepares the plumbing for a smooth transition back to onboard tank usage. By following these practices, you can ensure efficient water management in your RV, contributing to a hassle-free and enjoyable travel experience.

NOTICE

Flushing the system is particularly important after using city water, as it helps remove any impurities that may have entered the pipes during the connection.

CAUTION

Ensure that all faucets are open when flushing to allow for proper drainage and prevent pressure buildup in the plumbing system.

WARNING

If you notice any unusual odors or discoloration in the water during the flushing process, stop the flow immediately and investigate potential issues with your water source or plumbing.

DISCONNECTING CITY WATER CONNECTION

When it's time to disconnect the city water supply from your RV, following the proper steps is essential to ensure safety and prevent any damage to your plumbing system. Here's how to safely disconnect the city water connection:

1. Turn Off the Water Source:

- Begin by turning off the water source or city water supply connected to your RV.
- This step prevents any water from flowing through the hose while you disconnect it.

2. Release Pressure in the Plumbing Lines:

- To safely release any remaining pressure in the plumbing lines, open a faucet inside the RV.
- This step will help prevent water from spraying or leaking when you disconnect the hose.

3. Carefully Unhook the Hose:

- With the pressure released, carefully unhook or disconnect the hose from the City Water Connection Inlet on your RV.
- Make sure to handle the connection gently to avoid damaging any components.

NOTICE

When using city water, it is important to get a water pressure regulator to attach to your RV water hose. Some RV parks have pressure that is too high for RV plumbing systems. It can burst water pipes inside your RV or cause leaks at plumbing fittings.

NOTICE

Ensure that you have a clean area to place the hose after disconnecting to prevent contamination.

CAUTION

Always wear gloves if you suspect the water supply may have contaminants. Keeping your hands clean ensures a safe and hygienic environment.

CAUTION

Periodically inspect the city water connection and hose for signs of wear or damage. Address any issues to ensure safe operation in the future.

WARNING

If you notice any leaks or damage while disconnecting, address these issues before reconnecting the city water supply in the future. Leaks can lead to water damage inside the RV.

DANGER

Never disconnect the hose while the water source is still on, as this can cause water to spray out uncontrollably, posing a risk of injury or water damage. Always ensure the supply is turned off before proceeding.

WATER SYSTEM

DRAINING THE FRESH WATER SYSTEM

Draining the fresh water system is an essential maintenance step that helps prevent freezing and damage to the plumbing components during periods of non-use. To properly drain the fresh water tank, follow these steps to ensure the system is clear of water:

1. Turn Off the Hot Water Heater:

- Before starting the draining process, ensure that the hot water heater is turned off to prevent damage to the heating elements.

2. Allow Water to Cool:

- Wait for the water in both the fresh water system and the heater holding tank to cool down to room temperature. This ensures safety and protects the integrity of the system.

3. Open All Faucets:

- Open all faucets in the RV, including the outside shower, to allow air into the system and facilitate drainage.

4. Open the Low Point Drain Valves:

- Locate and open the Low Point Drain Valves for both the hot and cold water lines. This will allow water to drain directly from the system.

5. Flush the Toilet:

- Flush the toilet until water stops flowing, ensuring that any remaining water in the toilet system is expelled.

6. Turn On the Water Pump:

- If necessary, turn on the water pump to help remove any remaining water from the fresh water lines. This ensures that the system is completely drained.



⚠ CAUTION

After draining, inspect the Low Point Drain Valves and connections for any signs of wear or leaks to ensure they are functioning properly for future use.

⚠ CAUTION

Ensure that you have a suitable container to catch the draining water, especially if you are in an area where water discharge is restricted.

⚠ WARNING

Take precautions when working with the plumbing system, as residual water may contain contaminants. Always wear gloves if necessary.

ⓘ NOTICE

If you plan on winterizing or storing your RV for an extended period of time, you should drain your fresh water tank. If not, the water in your freshwater tank will become contaminated and unhealthy to use.

ⓘ NOTICE

Even when traveling, it is wise to drain both the fresh water tank and the waste tanks beforehand (or keep the tanks nearly empty). Traveling with full tanks will add weight to your RV, causing wear and tear increasing fuel consumption.

ⓘ NOTICE

You should only keep fresh water in your fresh water tank for about two weeks. However, many factors can affect how long your potable water will remain fresh.



Drain Valves

WATER SYSTEM

WASTE DISPOSAL SYSTEM

Located beneath the Roadside Utility Compartment on the driver's side of your RV is the Sewer Outlet Connector. This vital section includes a Water Inlet for flushing the black tank and a Sewer Outlet Connection, equipped with a pressure hose reel operated by a switch found in the Waste Control Panel.

Sewer Outlet Connection

The Sewer Outlet Connection is crucial for managing the RV's waste system. It connects all pipes, fittings, and equipment from the RV's drain outlet to the sewer riser pipe at a dumping station. Waste from the RV is stored in separate gray and black tanks until it is time for disposal.

Using the T-Valve and Macerator Bypass

For efficient dumping, your RV is equipped with a T-valve and a macerator bypass.

The T-valve controls the flow of waste from the gray and black tanks to the sewer outlet. When you're ready to dump the tanks, open the T-valve to release the contents into the connected sewer hose.

The macerator bypass allows you to bypass the macerator pump, providing a direct flow of waste if the pump is not needed or if you encounter issues with the macerator.

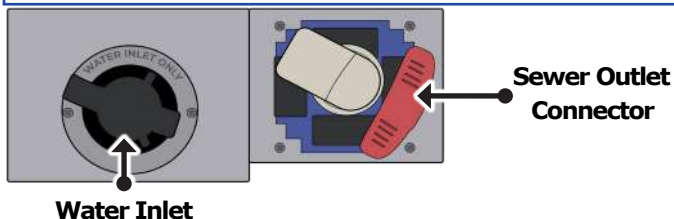
Proper Waste Disposal

To dispose of waste, take your RV to an approved dumping station, which can typically be found at most campgrounds, state parks, and national parks. Always ensure the hose connections are secure, and follow the station's guidelines for safe and sanitary disposal.



NOTICE

Always handle waste management with care, wearing appropriate protective gear and thoroughly cleaning all equipment after use. Regular maintenance and checks of the sewer outlet connection, T-valve, and macerator system will help prevent leaks and ensure a hassle-free dumping process.

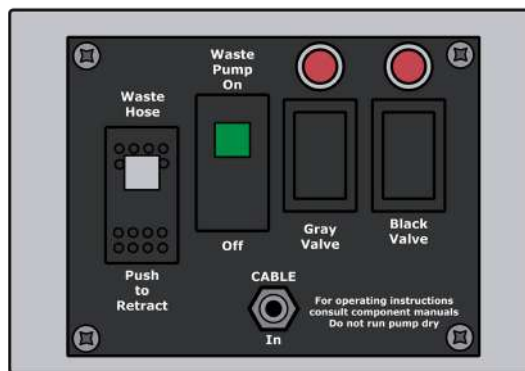


WATER SYSTEM

WASTE CONTROL PANEL

This section houses the essential controls for managing your RV's waste disposal system, including switches for the waste hose, waste pump, gray valve, black valve, and cable/satellite inlet.

- **Waste hose Switch:** This switch controls the automatic retraction of the waste hose once you've finished dumping. If needed, you can also retract the hose manually for greater precision.
- **Waste Pump:** This switch activates the macerator pump, which grinds and pumps waste through the system, ensuring efficient disposal.
- **Gray Valve and Black Valve:** These switches allow you to open and close the valves for the gray and black tanks, facilitating the safe and controlled dumping of waste from each tank.
- **Cable/Satellite Inlet:** This inlet is pre-wired for cable or satellite use, allowing you to easily connect to external media sources for entertainment during your travels.



NOTICE

Never attempt to dump sewage down drain pipes or in the wilderness.

NOTICE

When draining the waste tanks make sure to drain the black tank first and gray tank second. This will help clean the fittings and tanks if there is any waste or debris stuck from the black tank.

NOTICE

Routine Maintenance: Regularly inspect the Waste Control Panel and its components for signs of wear or damage. Keeping the system in good condition ensures smooth operation during waste disposal.

NOTICE

Proper Use: Ensure all switches are in the "off" position before starting or ending any waste disposal process to prevent accidental activation.

CAUTION

Manual Hose Retraction: When manually retracting the waste hose, do so slowly to avoid kinks or damage. Sudden movements may cause the hose to twist or break, leading to leaks.

CAUTION

Valve Operation: Open the gray and black valves slowly to avoid splashing or sudden surges of waste, which can cause spills or accidents.

WARNING

Pressure Build-Up: Do not leave the waste pump running for extended periods after the tanks are emptied, as this can cause unnecessary pressure build-up, potentially damaging the system.

WARNING

Electrical Hazard: Always ensure the Waste Control Panel is dry and free from moisture. Water or other liquids near electrical components can lead to malfunctions or electrical hazards.

DANGER

Never disconnect the hose while the water source is still on, as this can cause water to spray out uncontrollably, posing a risk of injury or water damage. Always ensure the supply is turned off before proceeding.

DANGER

Macerator Pump Operation: Never attempt to repair or tamper with the macerator pump while it is operating. The moving parts can cause serious injury. Always disconnect the power supply before performing any maintenance.

WATER SYSTEM

WASTE PUMP SELF-PRIMING MACERATOR

Your RV is equipped with a self-priming macerator pump, designed to efficiently manage the waste from the black water holding tank.

This powerful device grinds solid waste into fine particles, no larger than 1/8", making it easy to pump waste through the connected hose.

With this system, you can empty your tanks in less than two minutes, streamlining the waste disposal process and reducing the time spent at dumping stations.

The macerator is capable of handling waste, toilet tissue, facial tissue, and even some small solid items such as filter tip cigarettes, napkins, cigars, and chunks of soft fruits or vegetables less than 1" in size. However, it is important to note that the macerator is not designed to pump large or hard objects, such as peach pits, rags, or sanitary napkins, which can cause clogs or damage to the system.

For optimal performance and longevity of your macerator pump, it is crucial to flush the holding tank and pump with several gallons of clean water after each pump-out.

This practice helps remove any remaining waste particles, preventing buildup and ensuring the system operates smoothly.

NOTICE

Use soft, single-ply, non-dyed, biodegradable RV toilet tissue, this type will desintegrate a lot easier and will not cause damage to your waste water system.

NOTICE

Make sure the battery is fully charged, the DC motor is suitable only for intermittent duty.

NOTICE

Routine Flushing: After every tank emptying, flush the macerator pump and holding tank with clean water to prevent buildup of waste particles and maintain the efficiency of the system.

NOTICE

Regular Inspection: Periodically inspect the macerator pump and hoses for any signs of wear or damage. Regular maintenance can prevent unexpected failures or leaks during operation.

CAUTION

Hose Connection: Ensure the hose is securely connected to the pump before operation to avoid leaks or spills during the waste disposal process.

CAUTION

If water is allowed to freeze in the system, serious damage to the plumbing and the pump may occur. Failures of this type will void the warranty. The best guarantee against damage is to completely drain the water system.

CAUTION

Do not run Macerator Pump more than 15 minutes continuously. or run it dry for more than 30 seconds. The Macerator will not handle hard solid objects, sanitary napkins or rags.

WARNING

Overloading: Do not overload the macerator with excessive waste at one time. Even though it is designed to process waste quickly, overloading can cause the pump to work harder, potentially leading to overheating or damage.

WARNING

Sharp Objects: Avoid introducing sharp objects into the holding tank as they could damage the macerator blades or clog the system.

DANGER

Electrical Hazard: Always disconnect the power supply to the macerator pump before performing any maintenance or cleaning. The moving parts inside the pump can cause serious injury if the system is accidentally activated.

DANGER

Toxic Waste Exposure: Handling waste involves exposure to potentially harmful substances. Always wear appropriate protective gear, including gloves and eye protection, when operating or maintaining the macerator pump, and wash your hands thoroughly afterward to prevent contamination and health risks.

WATER SYSTEM

DRAINING TANKS OPERATION

Properly draining your RV's waste tanks is essential for maintaining a clean and efficient waste management system. Follow these steps to ensure a smooth and sanitary process:

1. Access the Waste Control Panel:

- Open the Roadside Utility Center and locate the Waste Control Panel section.

2. Extend the Waste Hose:

- Open the Roadside Utility Center and locate the Waste Control Panel section.

3. Connect to Sewer Outlet:

- Securely connect the opening of the Waste Hose to the designated Sewer Outlet where the waste will be emptied.

4. Activate the Black Water Valve:

- Turn on the Black Water Valve. A flashing light indicates that the valve is open and ready for draining.

5. Start the Macerator Pump:

- Turn on the Macerator Pump Switch/Waste Pump switch to begin the waste pumping process.

6. Open the Grey Water Valve:

- As the Black Water Tank is being emptied, turn on the Grey Water Valve to allow for simultaneous draining.

7. Shut Off and Close Valves:

- Once both tanks are fully emptied, turn off the Macerator Pump Switch/Waste Pump switch and close both the Black and Grey Water Valves.

8. Flush the Tanks:

- Refill both tanks with fresh water and drain them again to flush out any remaining waste and debris.

9. Disconnect and Clean:

- Disconnect the hose from the sewer outlet and thoroughly rinse the surrounding area to prevent any potential contamination.

10. Seal the Sewer Outlet:

- Cover the sewer outlet on the ground to complete the dumping process.

11. Retract the Waste Hose:

- Press the Waste Hose Retract switch to retract the sewer hose back into its compartment.

12. Add Water Tank Treatment:

- Consider adding RV Water Tank Treatment to your tanks to help break down waste and control odors.

⚠ WARNING

Handle waste disposal with care, wearing gloves and washing hands thoroughly afterward to maintain hygiene.

ⓘ NOTICE

Only open the valves when the tanks are full, when there is enough waste to drain, or when you are ready to leave the campground. This practice allows solid waste to break down or remain suspended, ensuring that waste drains effectively with the accompanying liquids.

⚠ CAUTION

Always ensure that the hose connections are secure before opening the valves to prevent spills or leaks.

⚠ WARNING

Never attempt to pump waste if the macerator is malfunctioning, as this could cause damage to the system and create hazardous conditions.

⚠ WARNING

Before the black or grey tank water starts flowing through the retractable sewer hose, make sure it is tight and firmly secured into the sewer drain.

⚠ WARNING

If the valves stay open, the liquid waste will drain, leaving solid waste accumulate at the bottom of the tank. In case you are in this situation, fill the tank with water and drive a few miles. The movements of the vehicle accompanied by the water, will help the solid waste to move and break down.

⚠ DANGER

Do not attempt to open the waste valves while the vehicle is in motion, as this could result in severe contamination or hazardous waste spills.

SANITIZING

WATER PUMP AND STRAINER

To ensure a consistent flow of fresh water, potable water systems need regular maintenance. Sanitizing is recommended before storing the system and before using it again after a long period of inactivity. The frequency of sanitizing may vary based on usage and environmental conditions.

SANITIZING METHODS

1. Calculate Bleach Amount:

- For gallons: Multiply the tank capacity by 0.13 to get the ounces of bleach needed.
- For liters: Multiply the tank capacity by 1.0 to find the milliliters of bleach required.

2. Mix Solution: Combine the calculated amount of bleach with water in a container.

3. Fill Tank: Pour the bleach solution into the tank and fill it with potable water.

4. Run Faucets: Open all hot and cold faucets until you smell a distinct chlorine odor.

WATER SYSTEM

BEST PRACTICES FOR DUMPING

To maintain a clean and efficient waste management system in your RV, follow these best practices when dumping your tanks:

1. Wait Until Tanks Are Full:

- Always wait until your black and gray tanks are full or nearly full before dumping.
- Dump the black tank first, followed by the gray tank. This sequence helps flush out both black and gray residues through the sewer hose, ensuring a more thorough clean.

2. Thorough Flushing:

- After dumping both tanks, it's essential to thoroughly flush them out with clean water.
- This helps remove any lingering waste and keeps your tanks clean for future use.

3. Keep Tank Valves Closed:

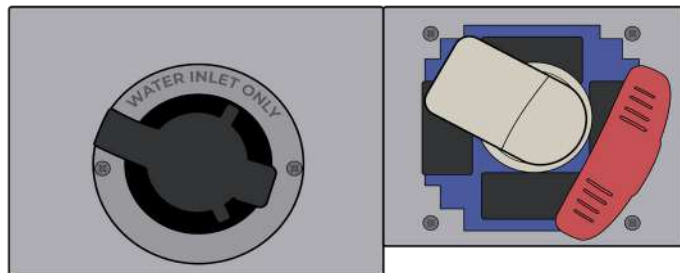
- When connected to a sewer at a campground, always keep the tank valves closed until you're ready to drain.
- Keeping the valves open can prevent the necessary buildup of waste and water needed for an effective dump, leaving solid waste behind.

4. Avoid Frequent Dumping:

- It's a common misconception that frequent dumping of the black tank is necessary to avoid odors.
- The black tank on your RV is designed to be odorless, with no smells from the residues entering the RV.
- Dumping the tank too often, especially when it's still low, can cause solid waste to remain sturdy and firm, making it harder to break down and flush out.

5. Importance of Full Tanks:

- The fuller your tank, the more effectively the solid waste will break down.
- A higher liquid content makes it easier to empty and flush out the waste.
- Constant dumping when the tank is low may leave solid waste behind, potentially interfering with the tank sensors and reducing the efficiency of your waste management system.



NOTICE

A general rule is to wait until your tanks are about two-thirds full before emptying them. It creates a much better "flow" when dumping, making the process much more efficient. If possible, don't dump more than once every few days to a week. Longer intervals means more time to break down solids.

NOTICE

Keep both dump valves closed and the drain valves closed and in place while traveling and to enable the tanks to fill before emptying.

CAUTION

Always monitor your tank levels to avoid overfilling, which could lead to leaks or spills during the dumping process.

WARNING

Ensure that all hose connections are secure before beginning the dumping process to prevent any leaks or accidental spills.

WARNING

Do not dump black tank's water when camping off the road or boondocking. Black water waste is filled with dangerous bacteria that can spread diseases and be a serious hazard for passengers and hurtful for the earth.

DANGER

Never attempt to dump tanks while the vehicle is in motion, as this could lead to dangerous waste spills and contamination.

SEWER STATIONS

When staying at a campground where there is **sewer station** available, your RV sewer hose may be **attached** and left in place for as long as you are staying. When you arrive to a sewer station, the **length** of your retractable sewer hose will determine how close you need to park.

NOTICE

When using the sewer hookup at an RV park, you should keep the valve closed until the holding tank is at least partially full, then begin to drain.

NOTICE

Before dumping, make sure the area is a designated City Sewer Connection Spot destined for dumping waste.

NOTICE

Always wear gloves when using an RV sewer station and disinfect with wipes or spray and paper towels everything you touch after you use the RV dump station.

NOTICE

Gray water may be less toxic than black water but it's always a good practice to dump your tanks into the actual sewer where the water can be treated and reused.

HEATING SYSTEM

The Timberline Heating System operates the water heater and furnace of your RV. To initiate the system you first need to select your heater type.

There are 2 heat source types on this Timberline Heater System, the first heat source is the heater element located on the bottom right corner of the screen and the second is the fuel fire burner and it is positioned on the bottom left corner of the screen.

ICONS MEANINGS

1. Heater Element:

- It will initiate the control of the heater through the heater element. The heater element is only going to be getting power source via generator or shore power, it is operated by 110v source only.

2. Fuel Fire Diesel Burner:

- It enables the diesel fueled fire burner by initiating that icon it will turn on the fuel fire burner in the system. If the electrical element can't keep up with the demand of the heating system, the fuel fire heater will initiate.

3. Water Heater:

- Tapping this icon will be useful if you are going to be controlling the water heater. It allows the heater system to monitor the heat exchanger for the water heater part of the system for 30 minutes.

4. Settings:

- When tapping the wrench and screwdriver icon, it will open multiple screens with information and preferences regarding the Timberline Heating System which you can select and modify at any time.



TURNING THE FURNACE ON

- To turn on the furnace to a lower or higher temperature on cabin, press and hold your finger on the control panel.
- Scroll through the temperatures up to the desired temperature.
- Turn clockwise to increase temperature and counterclockwise to reduce it. This will initiate the furnace part of the heating system and the fans on the heat exchangers will warm the cabin to the desired temperature.
- When the options are activated the icons will turn from white to red, to deactivate them tap again.
- The temperature at the bottom is the cabin's temperature and the temperature at the top is the desired temperature for cabin.

NOTICE

A suggestion is to have this system initiated from 5 to 10 minutes prior to wanting any hot water or any furnace on in the system.

Heat and hot water present in this Heating System is generated by the Autoterm Binar Compact, a strong and potent but silent diesel or gasoline heating component. A heated glycol solution is circulated in the interior of the unit and it goes through air handlers that provides gentle heat.

You can operate the heating system without actually having contact with the heater itself. This system allows you to control and handle with the help of a touch screen with a digital panel located inside the RV.

It gives you full control of your interior temperature, the controls are easy to understand and to use. It allows to adjust how hard or soft you want the heat to distribute in the RV and whether you want to utilize your fuel or electric source.

One of the advantages of this system is that when the RV reaches a cold temperature, the fans automatically run on high until the interior temperature starts to reach the target. Once it get closer the fans will slow down and remain on low.



HEATING SYSTEM

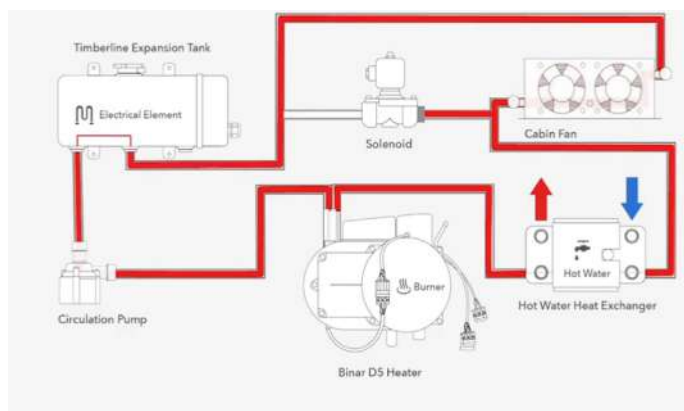
HEATING LOOPS: WINTER & SUMMER LOOP

This section will explain how the Timberline Heating System works on your RV. For this purpose we decided to include diagrams that show both: Winter Loop and Summer Loop (shown on previous page) any RV owner might be involved while traveling.

WINTER LOOP

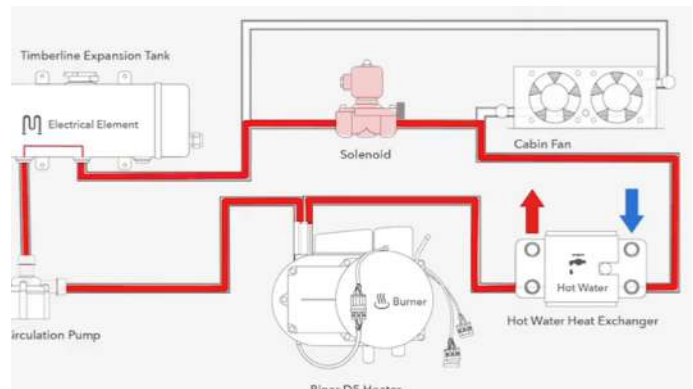
Winter Loop means how the heater will work in winter season where you will need both water heater and the cabin fans for warm sensation in the RV.

1. The glycol starts in the expansion tank, this is where the electric element sits.
2. The glycol then goes to the circulation pump, where is pumped into the diesel heater. The diesel heater is the primary heat source at 17,000 BTU's.
3. Next the glycol travels to the heat exchanger; place where the cold domestic water comes in and hot domestic water comes out. This hot and cold domestic water is where water from the shower and sink is created.
4. Now the hot glycol proceeds to the solenoid. Visualize the solenoid as a closed gate, reason being that you want heat in your RV to whichever temperature you set in the thermostat.



SUMMER LOOP

For the Summer Loop, it is basically the same thing as in the Winter Loop, except when the glycol gets to the solenoid. This time the solenoid will "open up the gate" and let the glycol flow through it, avoiding the cabin fans and letting the RV to a cool temperature.



CREATING CONTINUOUS HOT WATER

If you are looking to create continuous hot water using the Timberline Heating System you need to select the Fuel Fire Diesel Burner and the electrical element. The diesel burner is capable of putting out 17,000 BTU's of heat while the electrical element is capable of 1,500 BTU's of heat, not enough to create continuous hot water.

When both icons are selected the system automatically prioritizes using heat from the electrical element so it will minimize the usage of diesel by the burner.

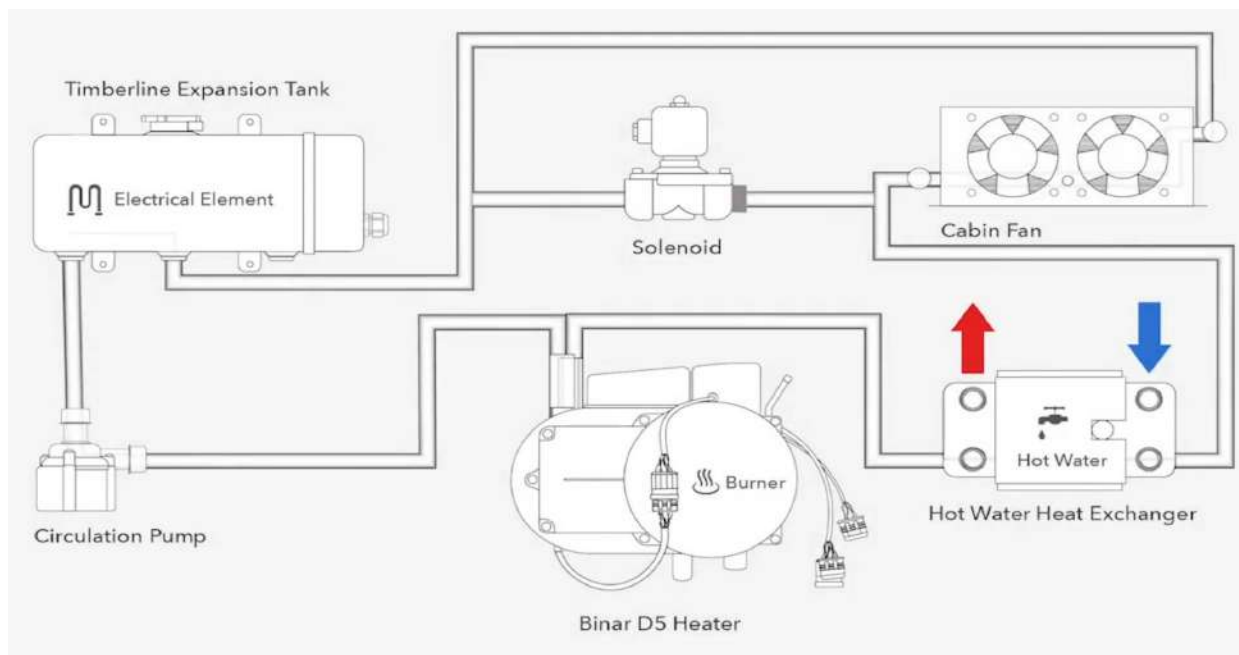
If there is a greater heating demand on the system, the diesel burner will automatically engage picking up where the element left off.

NOTICE

If you are trying to create hot water without heating the RV make sure only the Water Element Icon and Diesel Icon are selected.

HEATING SYSTEM

HEATING LOOP OVERVIEW DIAGRAM



Once it's near the desired temperature the fans will slow down and they will remain on low levels with the objective to maintain the comfort levels inside the RV.

The Timberline Heating System operates the water heater and furnace of your RV. To initiate the system you first need to select your heater type.

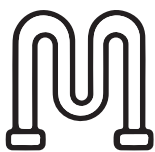
There are 2 heat source types on the Timberline Heater system the first one is the electrical element located on the bottom right corner of the screen and the second is the fuel fire burner and it is positioned on the bottom left corner of the screen.

NOTICE

When using the diesel system, run it with a 3/8 full fuel tank. If there is not enough diesel fuel in the tank you will get an error code 29 on the Elwell panel.

NOTICE

If you want to heat the coach with hot air, you could use the electric portion of the system but need to be plugged to shore power. However, heating the coach with electric only, has limitations. It can only be used in moderate temperatures, if it's cold outside your electric heater won't be enough to keep the coach warm.



Electrical Element



Fuel Burner



Hot Water Element



Settings

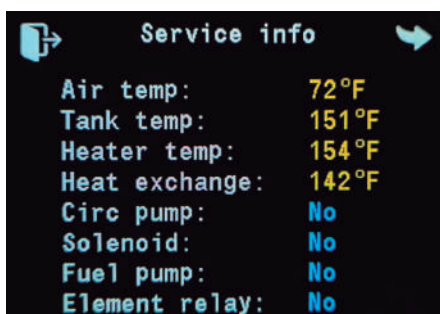
HEATING SYSTEM

HEATER SCREENS

SERVICE INFORMATION SCREEN

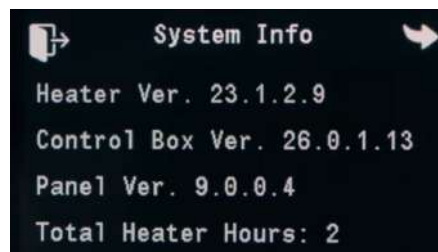
This screen will show information in regards to the heating system.

- **Air Temperature:**
 - › Reads the cabin temperature at the moment in the living space.
- **Tank Temperature:**
 - › It's the temperature that the tank is holding for the heating system to work. This temperature will come up as long as there is some type of heat source in there.
- **Heater Temperature:**
 - › It shows the temperature of the diesel fueled fire heater which if it's initializing at the moment, the temperature will be moving.
- **Heat Exchange:**
 - › It demonstrates the heat exchange for the water heater side of the heating system. This temperature will be coming up when it's running.
- **Circulation Pump:**
 - › Displays the circulating water in the system that is being heated by the heat temperature and the heater element that it's in the tank assembly.
- **Solenoid:**
 - › Is the one that controls the furnace part of the system. If the option is on, it indicates the heating loop solenoid is activated.
- **Fuel Pump:**
 - › It shows that the fuel fire burner is heating the whole entire system. It indicates if the fuel pump for the Timberline heater is activated.
- **Element Relay:**
 - › Indicates if the 110V element is activated in the Timberline Tank.



SYSTEM INFORMATION SCREEN

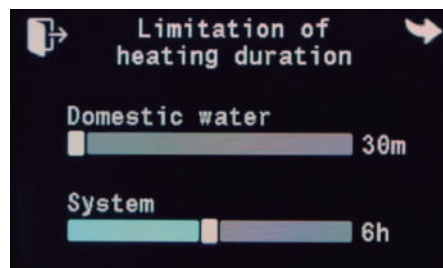
In the event of an issue with the system and you need to contact the serving facility this information about the system may be of use.



LIMITATION OF HEATING DURATION SCREEN

Domestic water bar option shows you how to limit the time the domestic hot water will be activated. It can be with a maximum of 30 minutes.

System option allows you to choose the length of time the system will be activated from 1 hour to maximum. The amount of time you decide will be the time that the heater will be on if you leave the RV and when the time is up it will automatically shut down.



DISPLAY SCREEN

Like all screens on mobile devices, brightness is always an option. This feature will come in handy at night when the RV is dark, you might want to lower the brightness so it doesn't hurt your eyes. The timeout option is how long you want screen to stay on before it automatically turns off.

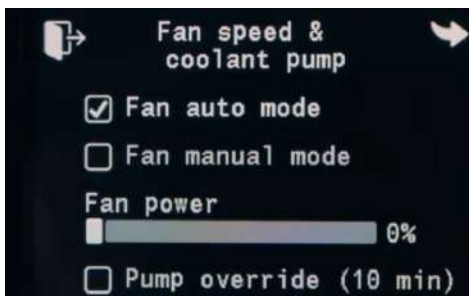


HEATING SYSTEM

FAN AUTO MODE

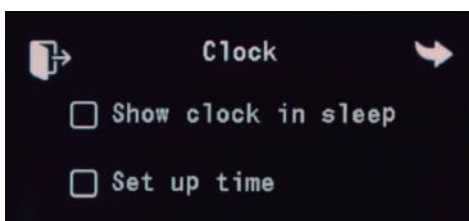
When auto mode is selected, it will automatically have the fans regulate air flow based on the needs of the RV's temperature at that moment. The fans will operate on high mode depending on how much heat is needed and slower if you select a specific temperature. When the temperature of the cabin comes down closer to the cabin's set temperature the fans will automatically slow down.

- **Fan manual mode:** Manually move the speed of the fans.
- **Pump override(10 min):** This is mainly for technician use. The coolant pump will run for 10 minutes and will purge air from the coolant system.



CLOCK

If you check the "Show Clock in Sleep" the clock will show up when the heater is in time out mode. The set up time option means that you can change the hours, minutes and even the day of the week. To change the day of the week keep rotating clockwise until the day that you are looking for appears.



MAINTENANCE

- **Hydronic System:**
 - Glycol system does not require annual maintenance.
 - It is recommended to test the alkalinity in the system coolant annually.
- **Domestic Water:**
 - Domestic water loop does not require annual maintenance.
 - Calcium build-up over time will act as an insulator.
 - The exchanger unit can be back-flushed with a lime removal cleanser.
- **Fan Unit (s):**
 - The fan unit does not require annual maintenance.
- **Furnace:**
 - The Timberline system is equipped with the efficient Autoterm Binar Compact Diesel or Gasoline burner.
 - This burner is designed for optimal use in all climates including high altitude up to 10,000 ft.
 - Limited required maintenance for the Autoterm burner.
 - It is recommended to exercise the burner every month letting the burner run for 15-20 minutes.
 - If the burner is utilized monthly there is no annual or hour based maintenance required.
- **Exhaust System:**
 - The exhaust system should be inspected annually for damage.

ELECTRICAL

POWER DISTRIBUTION PANEL

Located under the driver's side rear seat, the power distribution panel serves as a central hub for managing electrical power in the vehicle.

Alongside circuit breakers and fuses, this panel incorporates power inverter on/off switch, 2 on/off batteries switch, solar panel controllers, and fuse holders, forming a comprehensive system to regulate and protect the vehicle's electrical network.

The motorized switch enable efficient control over specific electrical circuits, allowing for seamless activation or deactivation as needed. The solar panel controllers are instrumental in efficiently managing and optimizing the power from solar sources, contributing to the vehicle's sustainable energy use.

Complemented by fuse holders, this system ensures additional protection, safeguarding the electrical components against potential overloads or faults.

This strategic integration within the power distribution panel ensures a well-organized, protected, and functional electrical system, essential for a reliable and efficient vehicle operation.



NOTICE

Check the panel decals on the Breaker Panels for more information on identifying the function of each breaker.

120V AC CIRCUIT BREAKERS

A Circuit Breaker is an essential component containing electrical switches designed to safeguard electrical circuits from damage caused by overcurrent, overload, or short circuit. Its primary function is to interrupt current flow when protective relays detect a fault in the electrical system, serving as a crucial safety device. By cutting off the current when the flow exceeds design limits, it prevents damage to motors and wiring, ensuring the safety of equipment and occupants.

The Circuit Breaker protects all 120 Volts AC equipment and components in the vehicle. If the breaker malfunctions, allow a brief cooling period of 30-90 seconds, then reset it by toggling it from "OFF" to "ON".

Persistent failure of the Circuit Breaker may indicate an overloaded circuit or underlying issues in the wiring or equipment, necessitating further inspection and potential repairs. Regular maintenance and prompt attention to electrical issues help ensure the reliable and safe operation of your vehicle's electrical systems.

IMPORTANCE OF CIRCUIT BREAKERS

The importance of having a Circuit Breaker in your vehicle's electrical system cannot be overstated. Here are some key reasons why it is essential:

- **Safety:** The Circuit Breaker serves as a crucial safety device, protecting electrical circuits from damage due to overcurrent, overload, or short circuit. This helps prevent electrical fires and ensures the safety of occupants and the vehicle.
- **Equipment Protection:** By interrupting current flow when faults are detected, the Circuit Breaker prevents damage to motors, wiring, and other electrical components. This extends the lifespan of your equipment and reduces the need for costly repairs or replacements.
- **Reliable Operation:** A properly functioning Circuit Breaker ensures the reliable operation of 120 Volts AC equipment and components in your vehicle. It provides peace of mind knowing that your electrical systems are protected and can operate efficiently without interruptions.
- **Troubleshooting:** The Circuit Breaker can also serve as an indicator of potential issues within the electrical system. If the breaker repeatedly trips or malfunctions, it may signal an overloaded circuit or underlying wiring problems that require attention and maintenance.

WARNING

In the event of an overload, the circuit breaker cuts off the flow of electricity in the particular affected circuit of the system and helps prevents damage or fire.

ELECTRICAL

NOTICE

An overcurrent is any current in excess of the rated current of equipment or the ampacity of a conductor. An overcurrent is the result of an overload, short circuit, arc or ground fault. Effects of overcurrent include fires, conductor insulation damage and equipment damage.

NOTICE

A short circuit is an overcurrent which greatly exceeds the normal full load current of the circuit. Also, as the name infers, a short circuit leaves the normal current carrying path of the circuit and takes a "shortcut" around the load and back to the power source. A short circuit is an overcurrent but not an overload.

NOTICE

Ampacity is defined as the maximum current, in amperes, that a conductor can carry continuously under the conditions of use without exceeding its temperature rating. Also described as current-carrying capacity.

Overall, having a Circuit Breaker is critical for maintaining electrical safety, protecting equipment, ensuring reliable operation, and facilitating effective troubleshooting of electrical issues in your vehicle.

12V DC FUSES

In your vehicle's electrical system, each 12V DC circuit is safeguarded by a dedicated fuse. These fuses play a critical role in protecting the circuit's wiring from excessive current, which can lead to damage and, in severe cases, electrical fires.

Excessive current typically stems from:

- **Incorrect Wiring:** Human errors in wiring connections can lead to excessive current flow.
- **Circuit Damage:** Loose wires or worn insulation can cause a wire to short-circuit to ground.
- **Circuit Overloading:** Connecting equipment that draws more current than the circuit can handle, or using cables that are too small for the intended equipment's current draw, can overload the circuit.

If a fuse fails, it's essential to take immediate action. Turn off all appliances or lights connected to the affected circuit and replace the fuse with a new one of the same amperage rating. This ensures continued protection and safe operation of your vehicle's electrical system.

IMPORTANCE OF 12V DC FUSES

Having dedicated fuses for each 12V DC circuit in your vehicle is crucial for several reasons:

- **Protecting Electrical Components:** Fuses prevent excessive current from damaging wiring, appliances, and other electrical components. They act as a barrier, ensuring that the electrical system operates within safe limits.
- **Preventing Electrical Fires:** Excessive current can lead to overheating, which is a significant fire hazard in vehicles. Fuses play a key role in preventing such situations by interrupting the circuit when current exceeds safe levels.
- **Fault Detection:** When a fuse blows, it indicates a potential issue in the electrical system, such as incorrect wiring, circuit damage, or overloading. This prompts users to investigate and rectify the problem before further damage occurs.
- **Safety:** By limiting current flow, fuses contribute to overall electrical safety in the vehicle, reducing the risk of electrical shocks, equipment damage, and fire hazards.

Having dedicated fuses is essential for maintaining a safe and reliable electrical system in your vehicle, ensuring the protection of components, preventing fires, and promoting overall electrical safety.

NOTICE

Please have in mind that the best option to repair any problem on your vehicle if you have no experience in the electric field is to contact us and take your vehicle to a qualified service personnel or check the equipment's manual for more assistance on this problem.

ELECTRICAL

MAIN CAUSES OF ELECTRICAL CABLE FAILURE

There are multiple reasons why a cable may fail in service, with the failure at its most serious resulting in fire or other serious fault.

Some of the main causes of cable failure include:

- The service life of a cable can be significantly **reduced** if it has been **expected** to operate outside of the optimal operating conditions it was designed for.
- The ageing process usually results in **embrittlement**, **cracking** and eventual **failure** of the insulating and sheathing materials, exposing the **conductor** and risking a potential **short circuit**, a likely cause of electrical fire.
- **Application:**
 - If the cable is not appropriate for the application it is more likely to fail in service.
 - A cable which is not robust enough for the environment, either mechanically or chemically resistant to the ambient conditions, it is more likely to fail than one whose construction is suitable for the installation environment.
- **Mechanical Failure:**
 - If the cable is damaged either during installation or in subsequent use, the integrity of the cable will be affected and reduce its service life and suitability.
- **Degradation of the cable sheath:**
 - There are several reasons why the sheathing material may degrade, including excessive heat or cold, chemical, weather conditions, and abrasion of the sheath.
 - All of these factors can ultimately cause electrical failure as the insulated cores are no longer protected by the sheathing as originally designed.
- **Moisture in the Insulation:**
 - Moisture ingress can cause significant problems including short circuits and corrosion of the copper conductors.
- **Heating of Cable:**
 - Excessive heating of the cable will cause degradation of the insulation and sheathing material and premature failure. The heat may come from an external source or may be generated by the resistance to current flow in the conductor- a particular problem if the cable is overloaded and/or underrated for the application.
- **Electrical Overloading:**
 - It normally occurs when the cable is underrated for the application or when too much load is being placed on the cable. In domestic applications this is often a result of plugging too many appliances into the one socket and overloading the wiring to that individual socket, extension adaptor or gang socket.

GFI RECEPTACLE OUTLET

Your RV is equipped with GFI receptacles, all passenger's side receptacles are GFI outlets. GFI stands for Ground Fault Interrupter, it is a fast-acting breaker designed to shut off electrical power in the event of a ground fault.

It provides reliable overload and short-circuit protection, plus protection from ground faults that might result from contact with a hot wire and ground. A Ground Fault occurs when there is a grounding path from an appliance, tool or electrical system.

These devices electronically monitor the amount of current going out in the circuit and should match with the amount of current coming back to the circuit. Both values should always be the same, if there is a difference it means that the current is taking another pathway to ground (ground fault).

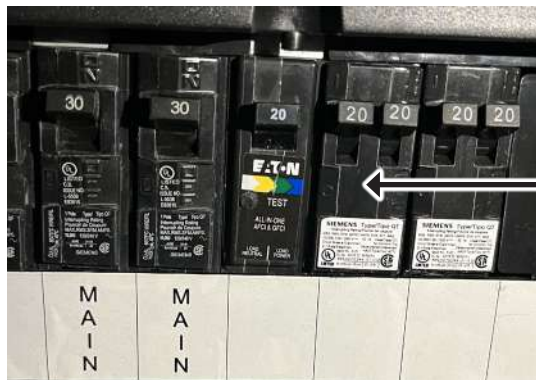
⚠ DANGER

If the current takes another pathway or there is a fault, the most dangerous situation is that your body could be the source of the current "leakage", otherwise known as electrocution. If your body comes in contact with electricity, the current will flow become an electrical conductor. GFCI receptor will prevent electrocution because it will react and open the circuit within milliseconds, therefore preventing electrocution.

GFI receptacles are required anytime electricity is used around water sources, therefore the GFI receptacles on your RV are located on the passenger side of the RV.

A single GFI receptacle may protect numerous outlets down circuit. Power from the Circuit Breakers panel goes to the GFI device and from there all outlets down circuit from the device, are protected. If the device trips, numerous outlets can be affected.

GFI devices should be tested once a month. It's a simple procedure, just press the "test" button on the Power Distribution Panel and it will also reset the system if there is any failure.



Test Button

⚠ CAUTION

The GFI will not completely eliminate the risk of electrical shock. Small children or persons with heart conditions should be extra cautious because electrical shock could cause burns or cause the heart to stop even when a GFI is present.

ELECTRICAL

G12 CONTROL PANEL

ION UNITS

The vehicle includes a dedicated compartment for essential controls and monitoring systems. This space features the G12 Control Panel for easy access to various function.

For ION units, this compartment has Battery Switches for managing power, and the See Level II Monitor Panel for monitoring tank levels and other critical information.

For LP units, this compartment has a generator switch with on and off options. This organized setup ensures that all vital controls are conveniently located for your ease of use.

BATTERY SWITCHES

ION UNITS

Within this compartment, you will find two battery switches that play a crucial role in managing the vehicle's power system. When the switches are in the "ON" position, they illuminate a blue indicator light, signaling that the batteries are actively engaged and supplying power to the vehicle's systems. Conversely, when the switches are turned "OFF," the blue light disappears, indicating that the batteries are disconnected and not providing power.

These battery switches are essential for ensuring the efficient operation of your vehicle. By easily toggling these switches, you can manage power usage and conserve battery life when the vehicle is not in use. This simple yet effective design helps you maintain control over your vehicle's electrical systems, making it easy to ensure you have power when you need it.

GENERATOR

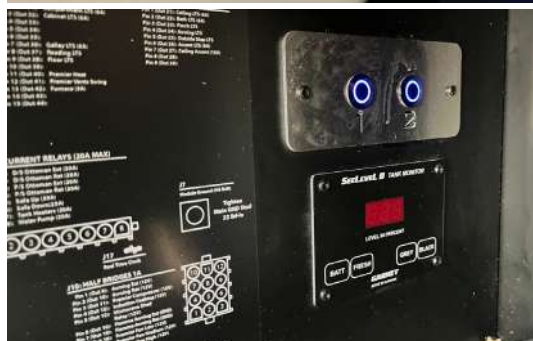
LP UNITS

Within the G12 Control Panel, you will also find a generator control switch that allows you to start and stop the generator with ease. This switch features clear "START" and "STOP" options, providing a straightforward method for managing your generator's operation.

For LP units, the generator control option replaces the battery switches, offering an efficient way to power your systems. The buttons for the generator are clearly labeled in ion units, ensuring ease of use and clarity.

When you need additional power, simply press the "START" button to activate the generator. This feature is particularly useful during extended trips or when you require extra electricity for appliances and systems in the vehicle. To conserve energy or when the generator is no longer needed, press the "STOP" button to safely turn off the generator.

This simple and efficient control system ensures that you can quickly and easily manage your power needs, enhancing your overall experience while traveling in your vehicle.



ELECTRICAL

SEE LEVEL II MONITOR PANEL

The See Level II Monitor Panel is strategically positioned beneath the passenger's side ottoman at the rear of the vehicle, providing easy access for users. This thoughtful placement ensures that you can quickly check your tank levels without any hassle.

Interacting with the display is straightforward and user-friendly, thanks to the four buttons located along the bottom edge. Each button corresponds to a specific tank, allowing you to effortlessly monitor water and sewer levels with just a simple press. The clear LED display shows tank levels in percentage, making it easy to understand your current status at a glance.

This panel not only enhances convenience but also contributes to a more efficient and enjoyable experience while traveling in your vehicle. Whether you are setting up for a trip or managing your resources during your journey, the See Level II Monitor Panel is an essential tool that keeps you informed and in control.



NOTICE

It is important to know that it is not completely necessary to use this display panel to check this information, the same information can be consulted on the Multiplex Firefly System screens.

DISPLAY

• **To read a Water or Sewer Tank Level:**

1. Select the Tank:

- Press the button corresponding to the tank you wish to check and release it. The display will show the tank level as a percentage on the LED screen. If no other button is pressed, the display will automatically shut off after approximately 5 seconds.

2. Switching Displays:

- If another button (including the BATT button) is pressed before the 5-second timeout expires for the first button, the display will immediately switch to show the new level or voltage. The 5-second timeout resets with each button press.

3. Hold Mode for Continuous Display:

- To continuously display a reading, press and release the desired button, then press the same button a second time.
- Upon release, the display enters hold mode, indicated by the decimal point on the right side lighting up.
- While in hold mode, the system will recheck the level once per second, allowing you to observe changes while the tank is being filled or drained.
- The display will automatically shut off after 5 minutes in hold mode. To exit hold mode before the 5 minutes are up, simply press any tank button, and the display will turn off.

To read the battery voltage:

1. Select the Battery Voltage:

- Press the BATT button and release it. The display will immediately show the current battery voltage on the LED screen.

2. Display Behavior:

- If any other button is pressed, the display will shut down after approximately 5 seconds.
- However, if the BATT button is held down, the display will continuously recheck the voltage and update the value in real-time.
- You may notice the reading flickering between two values, such as 12.6 and 12.7 volts; this fluctuation is normal for digital voltage displays.

3. Switching Displays

- If another button is pressed before the 5-second timeout for the BATT button expires, the display will immediately switch to show the value corresponding to the newly pressed button. The 5-second timeout resets with each button press.

3. Hold Mode:

- Please note that there is no hold mode for battery voltage; the display will provide real-time updates only while the BATT button is held down.

ELECTRICAL

**LITHIUM-ION BASED ENERGY
FOR ION UNITS**

Our vehicles now feature a state-of-the-art lithium-ion battery system, replacing the traditional Cummins Onan propane generator. This upgrade delivers clean, quiet energy, capable of powering your entire vehicle with unmatched efficiency and reliability in the camper van industry.

Our lithium-ion batteries boast an impressive 1,206AH (Amp Hours) / 16,128WH (Watt Hours) capacity, allowing you to run the vehicle's air conditioning for up to 12 hours solely on battery power. This is particularly beneficial for extended stays off the grid or in areas where noise restrictions apply.

The system is integrated with advanced battery management software and the Firefly Integrations control system, ensuring seamless operation and monitoring. Additionally, the setup includes a 280AMP high-output auxiliary alternator paired with a Wakespeed Regulator. This combination ensures that your lithium-ion batteries are efficiently recharged even when the vehicle is idling, as long as your Mercedes-Benz Sprinter is running.

To further enhance your off-grid experience, the system is complemented by a powerful 3,000 Watt Xantrex Inverter and a 300 Watt Solar System, providing additional charging capabilities and ensuring your batteries remain charged and ready for your journey ahead. This means you can confidently venture further, knowing that your power needs are fully covered.

**ELECTRICAL POWER IN RVs**

RVs rely on a versatile electrical system to power various devices, drawing energy from shore power, onboard batteries, or a combination of both. Your RV is equipped with a 12-volt system, primarily powered by batteries, and a 120-volt shore power source through a 30-amp power cord.

Most of the vehicle's electrical devices operate on 12 volts, with exceptions like the roof-mounted A/C and microwave, which require 120 volts. Power is distributed from the battery disconnect switch through the 12-volt distribution panel, ensuring that all necessary circuits are supplied efficiently.

The inverter/charger plays a crucial role by converting the 12-volt battery power into AC power, supplying outlets, entertainment centers, and the microwave. When connected to shore power or running the generator, the inverter/charger not only charges the house battery but also manages a substantial portion of the electrical load. The battery bank is charged while the engine is running or when the vehicle is plugged into a 110-120V power source.

Additionally, solar panels on your vehicle contribute to charging the batteries, promoting energy sustainability and reducing the reliance on external power sources. This system ensures continuous power availability, keeping your RV powered and ready for all your adventures.

⚠ DANGER

It is important to know that when working around electricity, it may carry dangerous amperage that could cause sparks or combustion which can lead to accidents.

ELECTRICAL

LITHIONICS BATTERIES SPECIFICATIONS

ITEM	DESCRIPTION
Model	GTX12V630A-E2112-CS200-UL
Nominal Voltage	12.8V
Nominal Capacity	320 Ah
Nominal Watt Hours	4096 Wh
Internal Resistance	<3mΩ

CHARGE SPECS

Charging Temperature Range	32F/0C to 131F/55C
Charge Voltage	14.4V recommended, 14.6V maximum
Recommended Float Charge Voltage (For Standby Use)	13.4-13.6V
Recommended Max Charge Current	150A
Allowed Max Charge Current	200A

MECHANICAL SPECS

Dimensions	Length: 20.3" Width: 6.4" Height: 10.0"
Mounting Orientation	Upright Position Only (Terminals Up)
Weight	Approx. 68lbs. (30.8kg)

LITHIONICS BATTERIES CHARACTERISTICS

Lithionics Batteries are designed to provide reliable, high-performance power for your RV, ensuring you have the energy you need for all your adventures.

These batteries offer a range of advanced features, from robust protection mechanisms to convenient controls and monitoring tools, making them an essential component of modern RV electrical systems.

NeverDie® Power Reserve:

- Provides spare fuel for hotel loads and engine cranking, ensuring power availability when needed.

Protection Features:

- Includes comprehensive protection against over-charge, over-discharge, and short circuits (LVC, HVC, SCC), safeguarding the battery's health.

Temperature Protection:

- Designed with low/high temperature charge/discharge protection. An internal heating kit allows safe charging down to -20°C/-4°F, ensuring performance in extreme conditions.

Convenient Controls:

- Features a user-friendly push-button On/Off switch, enhancing safety and simplifying storage.

Monitoring Tools:

- Equipped with a battery gauge and status codes to monitor battery health, allowing for proactive maintenance.

Wireless Connectivity:

- Compatible with Bluetooth wireless telemetry, accessible via the Lithionics Battery iOS and Android app for convenient monitoring and control.

CANbus Telemetry:

- Utilizes the RVIA RV-C format (M12) for seamless CANbus telemetry integration in RV applications.

Field Control Circuit (FCC):

- Includes the AMPSEAL8 alternator Field Control Circuit for effective power management.

Remote Power Switch:

- Features an AMPSEAL8 remote LED illuminated On/Off Power Switch for convenient operation.

ELECTRICAL

Full Charging:

- It's essential to fully charge the batteries to 14.4V before initial use. This conditions the battery, optimizes performance, and ensures the state-of-charge percentage is accurately calibrated. Full charging also balances the cells, which is crucial for maintaining long-term battery health.

Insulation and Fusing:

- Before powering on, ensure all battery terminals are adequately insulated to prevent accidental short circuits. Verify that all connected devices are properly fused, protecting both the batteries and equipment from electrical hazards.

Maintenance and Monitoring:

- Regularly check the battery's condition and charge status using the provided monitoring tools. This practice helps identify potential issues early and ensures reliable operation over time.

By adhering to these guidelines, you can maximize the efficiency, reliability, and lifespan of your batteries, ensuring they perform optimally throughout their service life.

NOTICE

The batteries should be fully charged to 14.4V at least once every 2 weeks.



STORAGE GUIDELINES

Proper storage of Lithionics batteries is crucial for maintaining their health and readiness. The following guidelines outline procedures for both short-term (up to 3 months) and long-term storage (more than 3 months, up to a maximum of 6 months), including optimal environmental conditions.

SHORT AND LONG TERM STORAGE PROCEDURE

- **Short-term storage** involves fully charging the battery, turning it off via the switch or disconnecting an external BMS, and maintaining it under specified environmental conditions.
- **Long-term storage** requires reducing the battery's state of charge to around 50%, turning it off or disconnecting the external BMS, and ensuring the battery is stored above freezing temperatures. It also requires a charging-discharging cycle every six months.

STEPS FOR STORAGE PROCEDURE

- **Short-term storage: Up to 3 months:**
 1. Fully charge the battery. Record and maintain the storage VOLTAGE reading (not SoC%) for your warranty.
 2. Turn the battery OFF by the On/Off/Storage switch. If you have an external BMS, it is preferred to fully disconnect the BMS from the MODULE by pulling apart the Anderson EURO DIN connector.
 3. Keep the battery in an environment according to the specifications shown in the table.

ELECTRICAL

STEPS FOR STORAGE PROCEDURE

• Long-term storage: More than 3 months and 6 Months Maximum

1. For long-term storage lasting up to 3 months, it is recommended to reduce the battery State of Charge (SOC) to 3.3V per cell, which corresponds to approximately 50% SOC with a tolerance of $\pm 10\%$. To ensure warranty coverage, please RECORD the voltage reading at the time of reducing the SOC and keep this value documented for warranty validation purposes.

NOTICE

See chart for cell voltage calculation.

NOTICE

For some it may be inconvenient to access the battery system at the 3-month mark to perform a charge-discharge cycle. You may choose to keep the battery at full charge voltage for the entire 6-month time period. Studies show that a small loss of capacity may occur with all lithium ion batteries.

2. Turn off the battery using the **On/Off/Storage** switch. If your setup includes an EXTERNAL BMS (Battery Management System), we recommend disconnecting the BMS from the module(s) by separating the large Anderson EURO DIN connector. This step helps ensure proper storage and maintenance of the battery.

3. **Storage Temperature:** Ensure that the battery is stored at temperatures ABOVE freezing ($>32^{\circ}\text{F}/0^{\circ}\text{C}$).

4. **Every 6 months, it is essential to follow these steps:** Charge the battery to 100% State of Charge (SOC), discharge it to Reserve Voltage Capacity (RVC), and then charge it back to 50% SOC with a tolerance of $\pm 10\%$. This cycle from full charge to reserve and back to storage voltage is crucial for maintaining the battery's long-term lifespan.

Battery Voltage	Number of Cells	~50% SOC Voltage
12V	4	13.2
16V	5	16.5
24V	8	26.4
36V	12	39.6
48V	15	49.5
51V	16	52.8
64V	20	66
76V	24	79.2
96V	30	99
102V	32	105.6
201V	63	207.9

LITHIUM BATTERY LIFE DURATION

• Charging Cycle Endurance:

In general, lithium batteries are designed to endure between 2000 to 3000 charging cycles. This means they can be charged and discharged up to this number of times before showing signs of reduced capacity.

• Service Life Expectancy:

For the average consumer, this durability often translates to a service life of approximately 7 to 10 years, depending on usage patterns and environmental conditions. Factors such as operating temperatures, which can affect battery performance and longevity, play a significant role in determining the actual lifespan.

• Factors Affecting Lifespan:

Additionally, the passage of time itself contributes to battery aging, even when not in active use. Proper storage conditions, as outlined in the storage procedures, can help mitigate some of these effects by minimizing stress on the battery cells during periods of non-use.

• Enhancing Lifespan Through Maintenance:

Regular maintenance, such as ensuring the battery is properly charged and stored according to recommended guidelines, can also extend its lifespan. Monitoring the battery's health and performance over time allows users to identify any degradation early and take necessary steps to optimize longevity.

Understanding these factors and practicing good battery management habits can maximize the lifespan and efficiency of lithium batteries in various applications, including those used in RVs and other vehicles.

Total Consumed	652Ah
Last Fault Code	000034
Highest Recorded Temp	96F
Lowest Recorded Temp	72F
Firmware Version	8.0.19
Aging Factor Temp	87
Aging Factor SOC	5
Serial Number	ND090820001
CAN Charger Voltage	0.0V
CAN Charger Current	0.0A
CAN Charger Status	0000
CAN Errors	0000

ELECTRICAL

SHORE POWER

For extended use, your RV can be powered by connecting it to a 110-120V external power source using the supplied 25-foot power cable. This cable connects from the Shore Power Station in your Roadside Utility Compartment to a 110-120V/30 amp outlet power source. Once connected, the power is distributed throughout the RV, providing a steady 110-120V supply.

Shore power is the most efficient and reliable source of electrical power for your RV, making it the recommended primary power source. This alternating current (AC) power comes directly from the electrical grid and is accessed through a campground pedestal, converting the energy into usable electricity for your RV.

The 30-amp Shore Power Supply hookup station, located in the Roadside Utility Center, supplies the RV with the necessary power to operate all installed electrical devices, ensuring a comfortable and fully functional experience during your stay.



**Roadside Utility
Compartment**



**Shore Power
Cord Hookup**

120-VOLT POWER CONNECTION

When your RV is connected to an electrical pedestal at a campground, it receives a 120-volt AC power hookup. This 120-volt power source supplies electricity to key components of your RV, including the TV, microwave, roof air conditioner, refrigerator in electric mode, and all 120-volt electrical outlets. These are the primary systems and appliances that rely on 120-volt AC power to function.

Most other systems in your RV operate on 12-volt DC power. When connected to the campground's 120-volt AC power, a portion of this current is converted into 12-volt DC power to run specific items. These include the overhead lights, vent fan, water pump, LP gas leak detector, stereo, and the refrigerator when it's set to LP gas model.

This dual power system ensures that all the essential functions of your RV, whether powered by AC or DC, operate seamlessly, providing a comfortable and fully equipped experience during your stay.

ACTIVATE ALL POWER CIRCUITS

To activate the power circuits in your RV, start by connecting the power cord to the appropriate outlet in the Roadside Utility Center and securely lock it in place. Then, connect the other end of the cord to a 110-120 volt power source, ensuring it is plugged into a 30 amp outlet.

The shore power connection is conveniently located as the last component on the right side of the Roadside Utility Compartment.

Understanding the types of electricity used in your RV is crucial for safe and efficient operation:

Alternating Current (AC) Power:

- This is the standard electricity supplied by power outlets. AC power flows in a periodic, alternating direction and is used to power most of the larger appliances in your RV, such as the air conditioner, microwave, and TV.

Direct Current (DC) Power:

- Unlike AC, DC power flows in a single, linear direction. It is typically generated by batteries, solar cells, fuel cells, and some alternators. DC power is essential for running items like lights, fans, and other smaller devices within your RV.

Both AC and DC power are vital for the full operation of your RV, ensuring all systems function properly whether you're connected to shore power or relying on your vehicle's battery system.

NOTICE

A watt is the measurement of electrical power usage. It is the amount of energy an item needs to function; the rate at which energy is consumed. The best way to determine power usage is to get it from the device nameplate of each component. If the manufacturer of each component doesn't specify it, it may be calculated with the formula.

NOTICE

It is important to remember to always attach the power cord to your RV first and then to the power source of choice.

WARNING

The electrical system is engineered and tested for complete safety. Circuit breakers and fuses protect the electrical circuits from overloading. If you plan on modifications or additions to the electrical system, we strongly recommend consulting your dealer for assistance to ensure integrity and safety of the electrical system.

NOTICE

Please note that any modifications to your electrical systems may void the warranty.

ELECTRICAL

INVERTER CHARGER

Your LPG is equipped with the Xantrex 3,000 Watt True Sine w/ 150 Amp Inverter Charger. In an RV, the inverter charger plays a crucial role in converting the incoming DC power from the batteries into usable AC power for various appliances and devices plugged into outlets. This capability is essential for off-grid RV users, providing access to power without relying on a generator or shore power.

Your RV is equipped with the Xantrex 2,000 Watt True Sine Wave Inverter Charger with a 100 Amp capacity. This advanced system offers the following features:

DC to AC Conversion

- It efficiently transforms 12-volt DC power from the batteries into 110-120 volt AC power, powering essential appliances such as the microwave, entertainment center, and all AC outlets both inside and outside the RV.

Battery Charging

- The inverter charger is designed to charge the batteries while converting 110-volt AC power back to 12-volt DC power. This allows you to operate 12-volt appliances when connected to a 110/120-volt power source or while running the generator.

Power Management

- The performance of the inverter is influenced by the state of charge of the RV batteries and the amperage drawn by connected appliances and components. Monitoring these factors ensures optimal functionality.

Connection and Safety

- The inverter is powered by two large wires, a red one for positive and a black one for negative, both marked as "inverter" with yellow tape in the battery section located at the rear of the RV. Additionally, it is protected by a Class T Fuse Cover rated at 350 Amps to prevent overloads.

Location

- The inverter charger is conveniently located under the sofa/bed area on both battery and gas-powered RVs, providing easy access for maintenance and monitoring.

NOTICE

The inverter will draw .6 amps of DC power if it is turned on and no load is being drawn from the inverter. Remember, if no load is on the inverter, it will shut down itself after 25 hours of continual operation.

WARNING

Vents in the inverter should be clear from blockage or obstruction as this may affect the performance of this component.

KEEP YOUR INVERTER ON IF:

- If you want to use the AC appliances while traveling.
- If you are expecting to lose power and you want to keep using the appliances.
- If you are using a refrigerator that you don't want to lose power.
- If you have items that you don't want to lose the settings for.
- If you are planning on charging your devices.

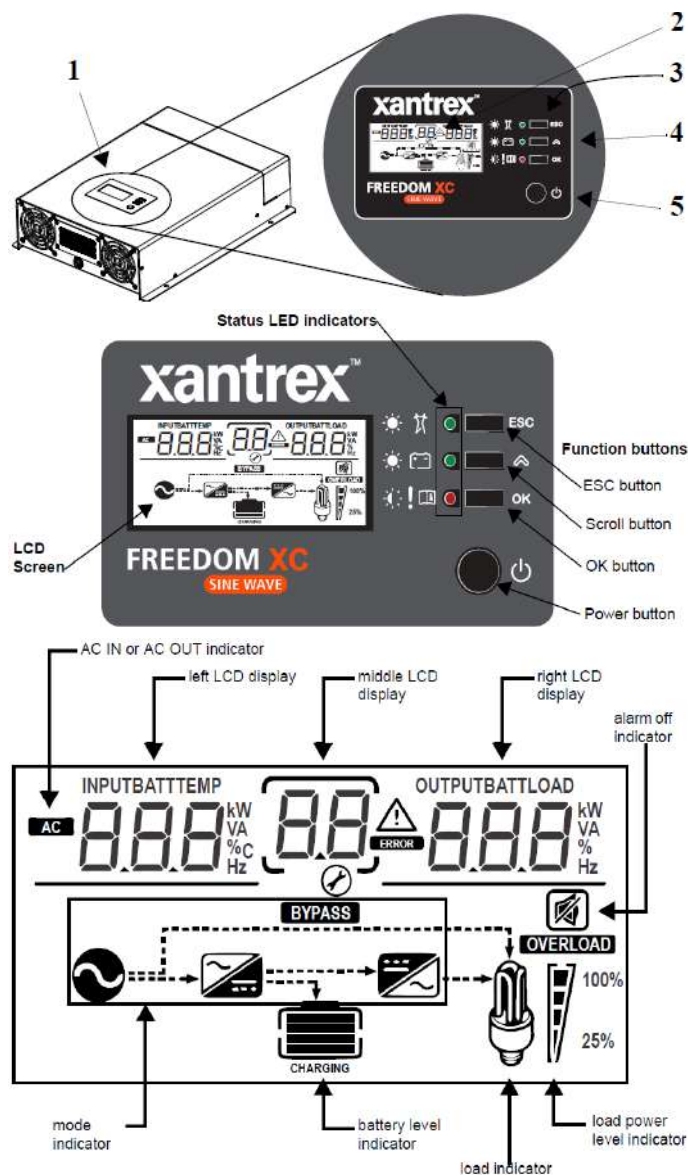


NOTICE

The Inverter/Charger charges the batteries and converts 12-VDC to 120-VAC current for distribution to the entertainment devices. To operate your entertainment circuit the inverter must be ON, unless connected to generator or shoreline power.

ELECTRICAL

DISPLAY PANEL



NOTICE

You may find the Xantrex screen display right on the Inverter Charger Box but you may easily check it on the Firefly Multiplex Control System Screens found on inside your RV. In the screens you may check the status and any current I/C faults as well as adjusting individual settings or reset to default.

FEATURE DESCRIPTION

FEATURE	DESCRIPTION
1	Display panel displays status information on the screen. It is comprised of a display screen, LEDs, select and power buttons.
2	Multi-function LCD screen shows status information and error codes.
3	Status LEDs indicate the mode of operation.
4	Three function buttons change status information displayed on the screen. Also, changes inverter/charger settings.
5	Power button is pressed for turning on the unit. The inverter turns on for the loads and when applicable, the charger turns on automatically.

ICON DESCRIPTION

ICON	DESCRIPTION
ESC	Return to default screen or exit setting mode.
SCROLL	Next screen or next selection/option.
OK	Enter the setting mode or to confirm the setting/option.
POWER	Turns on inverter/charger operation or to standby mode.

NOTICE

The Control Panel will turn the inverter ON or OFF. The 12 volt battery disconnect switch or charge line disconnect switch does not turn the inverter ON or OFF. Always make sure the inverter is in the OFF position when not in use. The inverter can draw .6 amps from your RV batteries if left in the ON position while not in use.

ELECTRICAL

BATTERY SWITCH

Located in the rear compartment beneath the driver's side ottoman, the RV features a motorized battery switch. This innovative component plays a pivotal role in enhancing your travel experience by efficiently managing power consumption, safeguarding battery longevity, and ensuring uninterrupted enjoyment on the road.

IMPORTANCE OF BATTERY SWITCH

The motorized battery switch plays a critical role in your RV experience:

1. Protection During Maintenance:

- It ensures safety by allowing you to disconnect the main RV circuit from the battery, protecting against electrical shock during maintenance tasks.

2. Preventing Unnecessary Drain:

- By cutting off the circuit, the switch prevents appliances from drawing power even when turned off. This feature significantly reduces the risk of rapid battery discharge, which can occur over just a week of inactivity.

3. Ensuring Readiness:

- Keeping the battery disconnected when not in use helps avoid surprises of a dead battery when you need to use the RV. This proactive measure ensures that your vehicle is always ready for your next adventure.

4. Optimizing Charging Efficiency:

- When connected to shore power at a campground, the battery switch allows for efficient recharging. Monitoring the battery's state of charge on the Multiplex Control Panel ensures you always have accurate information to manage power effectively.

The motorized battery switch is an essential component for RV owners, offering convenience, safety, and peace of mind by effectively managing battery usage and ensuring reliable power availability.



SPECIFICATIONS

ITEM	DESCRIPTION
Continuous Rating	275 Amps DC
Intermittent Rating	455 Amps DC
Cranking Rating	1250 Amps DC
Voltage Rating	9.5-32 Volts
Operation	ON/OFF
Mounting	Recessed or Surface
Stud Size	2 x 10 mm - (3/8")
Studs and Nuts	Tin plated copper
Power Draw	Switch Off 12mA Switch On 15mA Switch Operating 120mA for 3'sec at 12v nominal

ELECTRICAL

GENERAL OPERATION

The Motorised Battery Switch operates in two modes: Auto and Manual. Both the battery switch and key switch are equipped with LEDs that indicate the status of the Battery Switch.

Auto Operation:

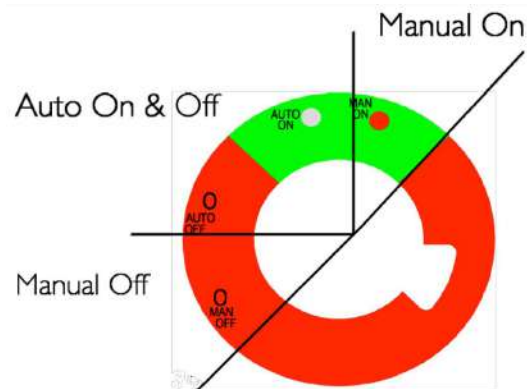
- The Motorised Battery Switch transitions from "Auto Off" to "Auto On" when the remotely mounted switch is activated
- While in "Auto On" mode, the corresponding LED illuminates.
- Auto operation is disabled in manual mode; attempting to engage auto mode results in the LED flashing for 3 seconds before returning to normal operation.
- The knob must be returned to "Auto Off" to resume regular auto operation.

AUTO MODE LED INDICATIONS	
LED Off	Battery switch is off
LED On	Battery switch is on
LED Flashing	LED flashes whilst moving between auto on and auto off.
LED Rapid Flash	On 0.1 sec & Off 0.1 Sec. Voltage is outside specification i.e. Less than 8 volts or greater than 30 volts.

Manual Operation:

- The Motorised Battery Switch allows for manual override at any time by pressing the control knob and turning clockwise towards the "Man On" position or counter-clockwise towards the "Man Off" position.
- While in "Man On" mode, the corresponding LED is illuminated.

MANUAL MODE LED INDICATIONS	
LED Off	Battery switch is off
LED On	Battery switch is on



Users can control essential vehicle functions using the switch conveniently located beneath the Firefly screen at the unit's entrance.

- This switch acts as a versatile alternative, allowing management of battery operation and other vital electrical systems.
- Providing options for both 'On' and 'Off' settings, this flexibility allows for adjusting system settings to meet specific requirements at any time.
- Positioned strategically under the Firefly screen, the switch ensures effortless access and usability, facilitating practical and effective control over critical vehicle functions such as power management and battery conservation.
- This setup significantly enhances user experience by offering enhanced control and intuitive operation.



ELECTRICAL

GENERATOR SAFETY INFORMATION

Ensuring the safe operation of your generator is crucial to protect yourself and others while enjoying your vehicle. The following guidelines provide essential safety precautions and best practices for using your generator effectively.

1. CO Detector Functionality:

- Always ensure that your carbon monoxide (CO) detector is functioning properly before sleeping in the vehicle with the generator running. Regularly inspect for potential exhaust system leaks to safeguard against CO poisoning.

2. Operating Location:

- Never operate the generator indoors or in enclosed spaces, such as garages. Always use it in well-ventilated outdoor areas to prevent the accumulation of harmful exhaust fumes.

3. Review Safety Precautions:

- Thoroughly review the safety precautions regarding fuel and exhaust fumes outlined in the generator manual. Familiarizing yourself with these guidelines will help mitigate risks.

4. Keep the Generator Clean:

- Maintain cleanliness around the generator and its compartment. Excess oil and oily rags can ignite, while dirt and equipment stowed in the compartment can obstruct cooling airflow, leading to overheating.

5. Avoid Vegetation and Grass:

- Do not operate the generator when parked in grass or near vegetation. The heat from the exhaust can ignite dry conditions, leading to potential fires.

6. Ventilation and Exhaust Safety:

- Avoid running the generator and exhaust ventilator simultaneously, as this may allow exhaust gases to enter the vehicle. If using exhaust ventilators, open a window on the opposite side to promote cross-ventilation.

7. Orienting the RV:

- When parked, position the RV so that the wind directs exhaust fumes away from the vehicle. Ensure that nearby windows and doors are closed to prevent exhaust entry.

8. Distance from Structures:

- Keep the generator away from vegetation, snow, buildings, and other vehicles. These can deflect exhaust back toward or under the vehicle, creating hazardous conditions.

9. Avoid Burns:

- Do not touch the generator while it is running or immediately after turning it off, as it can become extremely hot and cause burns.

10. Cooling Off Period:

- Allow the generator to cool down adequately before performing any maintenance or inspection to prevent burns or injuries.

11. Hazardous Waste Disposal:

- Be aware that used engine oil may contain carcinogenic substances or toxins. Avoid contact, inhalation, or ingestion of used oils and their vapors.

12. Mental and Physical Readiness:

- Do not attempt to work on the generator when fatigued, or after consuming alcohol or drugs. This can impair your ability to operate equipment safely.

NOTICE

Regular maintenance of your generator can prevent issues and ensure safe operation.

CAUTION

Always have a fire extinguisher readily available in case of emergencies related to generator use.

WARNING

If you experience symptoms such as dizziness, headache, or nausea while using the generator, immediately move to fresh air and seek medical attention if necessary.

DANGER

Carbon monoxide is a colorless, odorless gas that can be fatal. Always ensure proper ventilation when operating your generator, and never ignore the function of your CO detector.

DANGER

- Learn the **symptoms of CO poisoning** in this manual and never sleep in the vehicle while the generator is **running**.
- Engine cooling air must not be used for **heating the working, living space or compartment**.
- Inspect for **exhaust leaks** at every startup and after every **8 hours** of running.
- Make sure there is **fresh air** when operating the generator in a **confined** area.
- Alarms should be tested **once a week** to ensure that they are **working**.

ELECTRICAL

TIMBERLINE HEATING SYSTEM

The Timberline heat and hot water system utilizes the Autoterm Binar Compact, a robust and efficient diesel or gasoline heating unit designed to perform reliably in the most challenging conditions. This innovative system circulates a heated glycol solution through the living space, providing consistent, soft radiant heat through quiet air handlers that ensure a comfortable atmosphere.

KEY FEATURES

Versatile Heating Solution

- The Autoterm Binar Compact is engineered for durability and quiet operation, making it ideal for both recreational and harsh environments. Whether you're dry camping or plugged into shore power, this system adapts to your needs.

Instant Hot Water

- The glycol solution is also circulated through an instantaneous water heat exchanger, delivering hot water on demand for showers, dishwashing, and other kitchen needs. This efficient design ensures that you have hot water whenever required, without the need for large storage tanks.

Dual Fuel and Electric Support

- The system operates using either diesel or gasoline, supplemented by a 110V electric element. This dual-fuel capability provides flexibility and efficiency, allowing you to maintain comfort in various camping situations.

User-Friendly Control Panel:

- The Timberline touchscreen digital panel located inside the RV offers intuitive control over the interior temperature. With easy-to-navigate settings, you can quickly adjust the desired temperature and select between using your fuel source or electric power only.



FURNACE AND WATER HEATER

Your RV features an advanced auto-ignite 13,500 BTU Suburban furnace, designed to provide efficient and reliable heating. This furnace operates using both propane and electricity, making it an essential component for maintaining comfort during your travels.

HOW THE FURNACE WORKS HEATING PROCESS:

Heating Process:

- **Propane as Fuel:** The furnace utilizes propane to generate heat/hot air. When the thermostat is set to a temperature higher than the current ambient temperature inside the RV, the furnace activates.
- **Electricity for Fan Operation:** Electricity powers the fan that circulates the heated air throughout the RV, ignition system and to run the fan. This combination ensures rapid warming and consistent heat distribution.

Activation:

- Once the thermostat senses a temperature drop, the blower motor starts, and propane ignites within the furnace, producing hot air.
- The heated air is then distributed through ducts to warm the living space efficiently.

NOTICE

Regularly check the fuel levels and system components to ensure optimal performance and safety. Schedule routine maintenance to prolong the lifespan of the heating unit.

CAUTION

Avoid placing any objects that may obstruct the air handlers or heating elements. Proper airflow is essential for effective heating and to prevent overheating.

WARNING

Always ensure proper ventilation when operating the heating system, particularly in enclosed spaces, to prevent the buildup of harmful gases. Monitor your RV for any signs of exhaust leaks.

DANGER

If you detect any unusual smells, such as fuel or exhaust fumes, immediately shut down the system and investigate the source. Failure to do so may result in hazardous conditions, including fire or carbon monoxide poisoning.



ELECTRICAL

AUTOMATIC TRANSFER SWITCH (ATS)

The Automatic Transfer Switch (ATS) is a vital component of your RV's electrical system, designed to seamlessly manage power sources. Its primary function is to allow your RV to draw power from either the generator or the shore power cord, bypassing the inverter when necessary.

LOCATION AND ACCESS

- **Location:** The ATS is located at the rear side of the RV, underneath the sofa bed.
- **Accessing the ATS:** To reach the transfer switch, simply open the small access door located on the rear side of the vehicle beneath the sofa bed.

PROTECTION MECHANISMS

The Automatic Transfer Switch is equipped with several protective features to ensure the safety and integrity of your RV's electrical system:

1. Power Source Selection:

- The ATS automatically selects the appropriate power source, whether it be the generator or shore power, ensuring your RV has the necessary electrical supply.

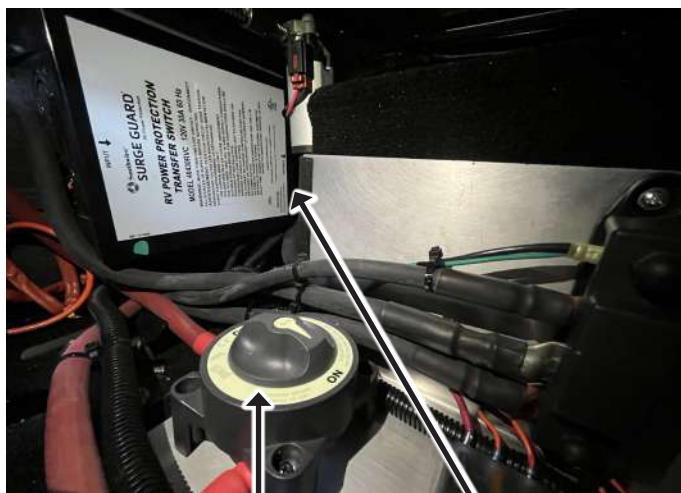
2. Protection Against Power Quality Issues:

The ATS provides safeguards against:

- **High Voltage:** Protects your RV from excessive voltage that could damage electrical components
- **Low Voltage:** Prevents operation under inadequate voltage conditions, which can affect performance
- **Incorrectly Connected Chassis Ground:** Ensures proper grounding to avoid electrical faults.

3. Fault Condition Response:

- In the event of a fault condition (high voltage, low voltage, or grounding issue), the ATS will automatically open both contactors, disconnecting the power supply to protect your RV's systems.
- Once the fault condition is resolved, the ATS will wait approximately 2.5 minutes before attempting to close the appropriate contactor again, allowing time for systems to stabilize.



Inverter Battery Disconnect Switch

Transfer Switch Surge Guard RV Power Protection



ATS: TROUBLESHOOTING

If the ATS fails to close the contactor or fails to transfer when expected:

- Check the level of the **input voltage** to ensure it is within the proper operating limits.
- Check if **Open Ground LED** status is **ON**, indicating open ground.
- Check that the ATS is correctly connected to **chassis ground** and that the **neutral conductor** is correctly connected to ground at the power pedestal.
- Wait **2.5 minutes** to check if the fault condition was **temporary** and has cleared.

Occasionally check the display to see if an **error message** is displayed when trouble with your ATS is present. The screen will flash error messages such as **"Loss of Ground"**, **"High Volt"** or **"Reverse Polarity"**.

NOTICE

For more information, refer to the Automatic Transfer Switch Model 40430 RVC Surge Guard from Southwire Troubleshooting Guide. You will find a sections that will present solutions for problems and troubleshooting as steps to fix the errors presented.

ELECTRICAL

SOLAR POWER

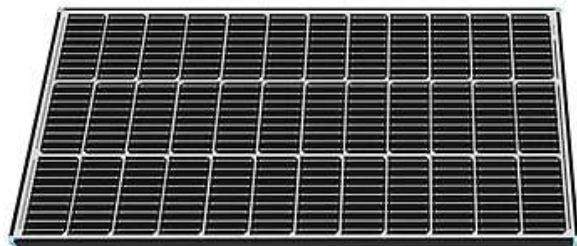
The Grech RV Strada and Strada-ion is equipped with three solar panels on the roof, providing essential power for appliances inside the RV. Solar panels function by converting sunlight into electricity. While they do not fully power the RV, their primary role is to recharge the battery bank when the vehicle is not connected to shore power or a generator.

Solar charging systems operate silently and emit no emissions, making them environmentally friendly. They can efficiently charge batteries for extended periods as long as sunlight is available. This capability reduces reliance on traditional fuel sources.

In the absence of solar power, RV owners typically resort to using a generator or the vehicle's alternator for battery charging:

- **Generator:** On-board or portable generators are commonly used to recharge batteries. They require a steady supply of gasoline to operate effectively.
- **Alternator:** The vehicle's alternator charges both the chassis and house batteries while driving. This provides a practical charging solution during travel.

Choosing solar power not only promotes sustainability but also enhances independence by reducing dependency on fuel-powered generators. It provides a reliable, eco-friendly option for maintaining battery power while on the road or parked in remote locations.



SOLAR POWER MANAGEMENT

Solar panels are permanently connected to the battery to maintain a fully charged state through "floating". This process stops charging once the battery reaches full capacity and resumes as needed, minimizing water loss and preventing overcharging for long-term durability.

KEY FEATURES

Sleek black frame design and durable construction, the Renogy 100 Watt 12 Volt Monocrystalline Panel provides you with the highest efficiency per surface area.

- High module conversion efficiency
- Top ranked PTC rating
- 100% EL testing on all Renogy modules
- No hot spots guaranteed

The Renogy 100W solar panel can be used in various off-grid applications that include 12 and 24 volts arrays, water pumping systems, signaling systems and other off-grid applications.

ELECTRICAL DATA

ITEM	DESCRIPTION
Max. Power at STC	100 W
Optimum Operating Voltage (Vmp)	20.4 V
Optimum Operating Current (Imp)	4.91 A
Open Circuit Voltage (Voc)	24.3 V
Short Circuit Voltage (Isc)	5.21 A
Module Efficiency	17.8 %
Maximum System Voltage	600 VDC UL
Maximum Series Fuse Rating	15 A

MECHANICAL DATA

ITEM	DESCRIPTION
Solar Cell Type	Monocrystalline (6.5 x 3.3 in)
Number of Cells	36 (3 x 12)
Dimensions	1062 x 530 x 35 mm (41.8 x 20.9 x 1.4 in)
Weight	6.4 kg (14.1 lbs)
Front Glass	Tempered Glass 0.13 in (3.2 mm)
Frame	Black Anodized Aluminum Alloy
Connectors	Solar Connectors
Fire Performance	Type 1

ELECTRICAL

BATTERY CHARGER SOLAR CONTROLLER

The Battery Charger Solar Controller is essential during periods of low or no sunlight, like night time, preventing reverse current flow and ensuring optimal battery health and longevity.

It features colored LEDs for intuitive operational status and battery condition indication, along with a digital LCD screen displaying battery voltage, charging current, Amp-hour capacity, battery compatibility, and fault codes. These metrics help users monitor and maintain battery performance effectively.

Solar charge controllers act as voltage and current regulators in off-grid and hybrid applications, managing power input from photovoltaic systems (PV). PV systems convert light into electricity using semiconductor materials like solar cells, harnessing photons to generate voltage.

Controllers maintain batteries at peak charge levels to prevent overcharging, which can cause gassing and battery damage. Additionally, they include regulators to prevent undercharging, crucial for maintaining battery longevity and reliability in solar energy applications.

In your RV, the solar charge controller includes built-in safeguards against overcharging by regulating charge voltage, crucial for preventing premature battery failure. It also prevents undercharging, ensuring your battery remains adequately charged for optimal performance and longevity.



**Battery Charger
Solar Controller**

GENERATOR USAGE

This RV is equipped with a generator that serves as a reliable backup when AC shore power or solar energy is unavailable. The generator ensures all the comforts of home are maintained during off-grid camping or while on the move. It also plays a crucial role in charging the RV's batteries, ensuring continuous operation of the 12-volt system even when the generator is turned off.

For optimal battery maintenance and to power larger appliances, it's recommended to run the generator for a few hours daily. This practice helps recharge batteries efficiently and supports the operation of appliances that require more power. Shutting down the generator during night time or when appliances are not in use helps conserve fuel and reduce noise.

There are scenarios where running the generator becomes necessary, especially when alternative charging methods are unavailable. Solar power panels can complement generator use by providing energy to larger appliances like air conditioners and heaters when the battery bank is low.

Meanwhile, batteries continue to power essential components such as lights, water pumps, and basic appliances, ensuring functionality even without the generator running.



LIQUID PROPANE GAS SYSTEM

LIQUID PROPANE GAS SYSTEM

LP UNITS

LP gas is a key energy source in your RV, powering essential appliances like the cooktop, furnace, hot water heater, and LP generator. It is produced by processing natural gas and refining crude oil, and is stored as a liquid in pressurized cylinders.

When the service valve on the cylinder is opened, the liquid propane boils and turns into a vapor, similar to how boiling water produces steam. This vapor then fuels the appliances in your RV.

Remember, LP gas is naturally odorless and colorless, so a chemical is added for safety to help detect leaks. Your RV's LP Gas System is designed to efficiently provide fuel to gas-powered appliances, ensuring comfort and functionality during your travels.

LPG AND POWER GENERATOR STATION

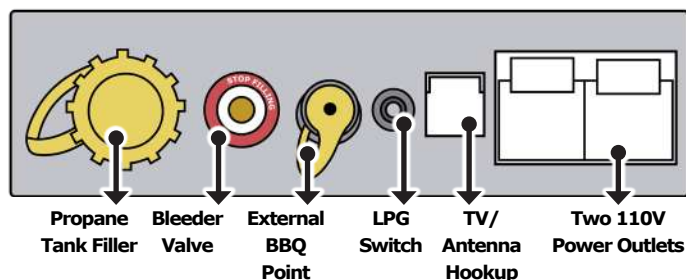
The LPG and Power Generator Station is located on the lower passenger side of your RV. This station is exclusively found on LP-equipped RVs and features several essential components:

- **Propane tank filler:** For refilling the propane tank.
- **Bleeder valve:** Used during refilling to ensure proper levels.
- **LPG shut-off switch:** Allows you to easily turn off the propane supply.
- **BBQ quick connect:** A convenient connection point for outdoor grilling.
- **TV/Antenna hookup:** Provides access to TV and antenna connections.
- **Two 110V power outlets:** For additional electrical needs.

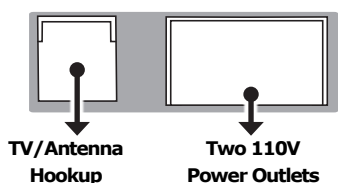
NOTICE

Electrical RV's will have only the two power outlets and TV/Antenna Hookup since there is no gas integrated in this model.

LP Units



Electric Units



NOTICE

The LPG system is designed and built to adhere to federal government and industry regulatory requirements. Many safety devices and backup systems have been installed in your RV to improve safety and reliability. These devices and systems include the following: LPG gas detectors, and Carbon Monoxide (CO) detectors. In addition, although LPG is naturally odorless, it contains an odor additive so it can be more easily detected.

LIQUID PROPANE GAS SYSTEM

PRECAUTIONS FOR THE SAFE USE OF LP GAS

- **Gas Leakage:** LP gas can leak as a gas or a liquid. If it leaks as a liquid, it will rapidly evaporate, creating a large cloud of gas. Since LPG is heavier than air, this gas cloud will settle close to the ground.
- **Vapor Movement:** LPG vapors can travel long distances along the ground. Be aware that these vapors can accumulate in low-lying areas, such as drains or basements, posing a significant fire or explosion hazard.

⚠ DANGER

When the gas meets a source of ignition it can burn or explode. Gas cylinder can explode if involved in a fire. LPG can cause burns to the skin and it can act as an asphyxiant at high concentrations.

1. Familiarize yourself with the odor of LPG.

- Although propane is naturally odorless, a chemical additive gives it a distinct rotten egg smell to help detect leaks.
- If you smell gas, evacuate the RV immediately. Turn off the LPG supply and contact a qualified service center to inspect and resolve the issue. Do not return to the RV until it is confirmed safe.

2. Regular Leak Inspections:

Check the entire LPG system for leaks each time the tank is refilled. Regular inspections are crucial for ensuring safety.

3. Ensure Adequate Ventilation:

Always maintain proper ventilation when using LP gas. Never use LPG indoors or in confined spaces to prevent the accumulation of dangerous vapors.

4. Avoid Windy Conditions:

Refrain from using LPG systems and appliances in windy conditions, as wind can disperse gas vapors and create unsafe situations.

5. Use Approved Equipment:

Only use certified hoses and connections specifically designed for gas. This ensures the integrity of the system and prevents leaks.

6. Turn Off the LPG Supply:

When not in use, turn off the LP Gas Supply Switch to prevent any accidental leaks or gas flow.

7. Do Not Overfill the Tank:

The LPG tank should never be filled beyond 80% of its maximum capacity. This leaves room for gas expansion within the tank.

8. Check Appliance Vents:

Ensure that all appliance vents are open and unobstructed when using the LPG system. Blocked vents can lead to dangerous gas buildup.

9. Inspect Hoses and Regulators:

Regularly check hoses for cracks or damage and inspect the gas regulator for any signs of wear. Replace any faulty components immediately.

ⓘ NOTICE

General Maintenance: Regular maintenance of the LPG system is essential for safe operation. Always use certified professionals for inspections and repairs.

ⓘ CAUTION

Hose and Regulator Inspection: Regularly inspect hoses and regulators for wear and damage. Replace any components that show signs of aging or damage to prevent leaks.

ⓘ WARNING

Ventilation: Always ensure proper ventilation when using LPG appliances. Inadequate ventilation can lead to the accumulation of dangerous gas fumes, which can cause health risks or explosions.

ⓘ WARNING

Windy Conditions: Avoid using LPG systems in windy conditions. Wind can disperse gas and cause hazardous situations, including difficulty in igniting appliances and the risk of fire.

ⓘ WARNING

Only certified LPG suppliers should fill the LPG tank. Turn remote gas supply switch off before filling or refilling LPG tank

⚠ DANGER

Gas Leak Response: If you detect the smell of gas, immediately evacuate the RV and turn off the LPG supply. Do not use any electrical devices or open flames, as this could ignite the gas. Contact a qualified service center to inspect the system. Re-enter the RV only after the all-clear has been given.

⚠ DANGER

Confined Spaces: Never use LPG systems in confined spaces or indoors without adequate ventilation. Accumulation of gas in enclosed areas can lead to suffocation, explosion, or fire, causing severe injury or death.

These notes and precautions are vital for the safe use and handling of LP gas in your RV. Always prioritize safety to prevent accidents and ensure a secure environment.

LIQUID PROPANE GAS SYSTEM

PROPANE TANK FILLER

- 1. Shut Off LPG Supply:** Before refueling the LPG tank or embarking on travel, ensure the LPG shut-off switch located in the LPG and Power Generator Station is turned off.

NOTICE

Be careful of not overfilling your LPG tank. Stop filling when liquid appears to overflow the Propane Tank Filler.

- 2. Connect the LPG Supply:** Attach the LPG supply connector securely to the Propane Tank Filler.

- 3. Check LPG Level:** After refilling, verify the LPG level using the Firefly Multiplex System. Ensure that the tank is filled to 80% capacity, leaving 20% space for safe expansion.

WARNING

Only certified LPG suppliers should fill the LPG tank. Turn remote gas supply switch off before filling or refilling LPG tank

WARNING

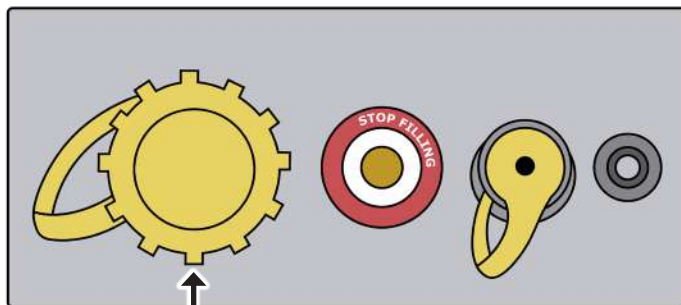
Shut off the LPG gas when refueling the RV.

WARNING

All LP gas appliances must be turned off during refueling your RV's fuel tank and the LPG tank.

NOTICE

To prevent overfilling, have the tank filled only by an authorized filling station.



Propane
Tank Filler

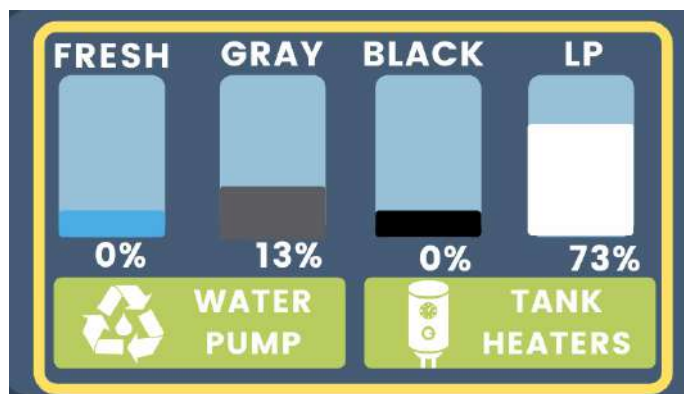
DANGER

IT IS IMPORTANT TO NOT FILL LP CONTAINER TO MORE THAN THE 80% CAPACITY RECOMMENDED. Over filling the LP gas container may cause uncontrolled gas flow, which can cause a fire or explosion.

MONITORING THE PROPANE TANK

When refilling your propane tank, it is essential to ensure that it is filled to 80% capacity. This leaves a 20% space for safe expansion of the gas, which is crucial for maintaining the integrity of the tank and preventing overpressure.

The Firefly Multiplex System provides a convenient way to monitor the current state of your LP gas. This system allows you to easily check the gas levels, ensuring you have adequate fuel for your appliances and systems. Regularly using this feature will help you manage your LP gas supply efficiently and safely.



NOTICE

In ION units, the Firefly Multiplex System does not provide a monitor for the LP tank level. This is because there is no LPG tank present in these units, as they are designed to operate solely on electrical power, eliminating the need for liquid propane gas.

LIQUID PROPANE GAS SYSTEM

LPG BLEEDER VALVE

The bleeder valve is an important safety feature that allows excess pressure to escape from the LPG tank when it reaches 80% capacity. This helps maintain the integrity of the tank and prevents overpressure situations.

Before filling the tank, ensure that the fill area is clean and free of dirt or debris. It's advisable to remind your LPG supplier to use a clean fill hose during the refilling process to prevent contamination.

Additionally, remember to turn off the LPG Shut-off Switch when the LPG system is not in use, as it draws 12V current from the batteries, helping to conserve battery power. Taking these precautions will ensure safe and efficient operation of your LPG system.

BBQ QUICK CONNECT

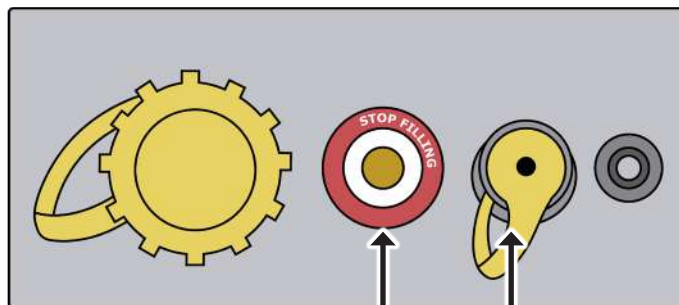
The BBQ Quick Connect is a convenient feature directly integrated into the RV's LP gas system, designed for easy access to propane for outdoor cooking. It comes equipped with its own shut-off valve (identified by a black handle), allowing you to safely control the flow of gas.

This quick connect utilizes a regulated low-pressure LP line supplied directly from the onboard LP tank, ensuring a steady and safe supply of gas. It is compatible with standard, full-flow male quick connect fittings, making it simple to attach your BBQ grill.

To use this feature, ensure that your BBQ is specifically designed for low-pressure LP gas sources. This setup provides a hassle-free way to enjoy outdoor cooking while ensuring safety and efficiency.

NOTICE

For you and your passenger's security, propane will only flow from the BBQ quick connect when the hose is connected. The black handle will function as a security handle that may only be able to release the hose from the quick connect when its in the OFF position.



LPG Bleeder Valve

LPG Bleeder Valve

HOW TO USE THE BBQ QUICK CONNECT

- 1. Ensure the Valve is Closed:** Confirm that the black shut-off valve is in the OFF position before making any connections.
- 2. Remove the Cap:** Take off the yellow cap covering the nozzle to expose the connection point.
- 3. Check for Cleanliness:** Inspect the opening for any debris or dirt to ensure a secure and safe connection.
- 4. Connect the Fitting:** Insert the male quick connect fitting into the nozzle, ensuring a snug fit for a secure connection.
- 5. Lock the Fitting:** Push the fitting in until the sleeve snaps forward, indicating that it is locked into place.
- 6. Attach Your BBQ:** Connect your BBQ to the other end of the quick connect fitting.
- 7. Open the Valve:** Turn the black handle valve to the ON position to allow propane to flow into the connected BBQ.
- 8. Activate the Main LPG Switch:** Ensure that the main LPG switch is turned ON to enable gas flow throughout the system.

By following these steps, you can enjoy outdoor cooking with ease and confidence.



Off Position

On Position

LIQUID PROPANE GAS SYSTEM

WHAT TO DO IF YOU FIND AN LPG LEAK

Discovering a liquid propane gas (LPG) leak can be alarming, but knowing the right steps to take can help ensure your safety and the safety of those around you.

LPG is a highly flammable gas, and immediate action is crucial in preventing potential hazards such as explosions or fires.

The following guidelines outline the essential steps to follow if you suspect an LPG leak in your RV. Always prioritize safety and act swiftly to address the situation.

1. Turn the black handle off until the valve is in the OFF position. If for any particular reason the handle is stuck or you can't move it, step away from the area immediately.
2. Once you're a safe distance away from the RV, call 911 or a specialist in LPG tanks.
3. Make sure there are no flames, sparks or any potential fire hazards near. Immediately put out all smoking material and other open flames.
4. Do not operate lights, appliances, telephones or cell phones near the section. Flames or sparks from these sources can trigger an explosion or a fire.
5. Open doors and windows.
6. If you have campground neighbors, make sure to warn them too so they can take precautions.
7. Get both your grill and propane tank and valves checked. Do not try to use any of those components until the problem and solution has been determined.
8. Make sure a qualified service technician takes a look at the situation and get your LPG tank inspected.

SIGNS THAT SOMETHING ISN'T RIGHT

- **Sniff test:**
 - A smell like rotten eggs or skunk spray indicates you have a propane leak.
- **Yellow or irregular flames:**
 - Propane should always burn with a blue flame in your appliances. Yellow or irregular flames indicate that the propane isn't burning properly, which could be a sign that carbon monoxide is being released.
- **Soot buildup:**
 - Propane burns clean, so there should be no soot, dust or ashes in or around your appliances. If there is, it's an incentive of a potential fire or damage in your LP lines and tanks. Inspect appliances and clear any dirt before attempting to use them. Use compressed air or a long duster for any hard to reach places. Make sure all dirt has been cleared before turning appliances back on.

⚠ WARNING

Be careful when working around electricity, as it can carry dangerous amperage and cause sparks or combustion.

⚠ WARNING

The electric gas shut-off solenoid closes automatically when 12-volt power is disconnected. It will reopen when power is restored.

⚠ DANGER

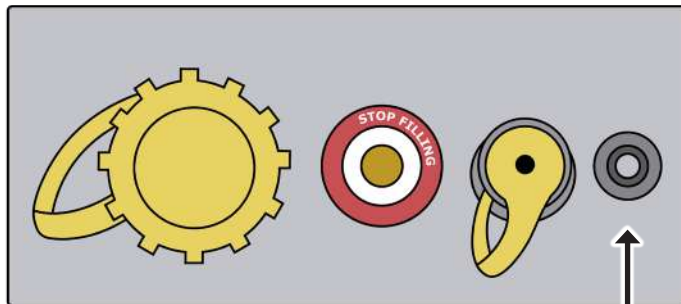
Always prioritize safety by keeping flammable materials away from propane appliances and maintaining proper ventilation in enclosed spaces.

LIQUID PROPANE GAS SYSTEM

LPG SHUT-OFF SWITCH

The LPG Shut-Off Switch is conveniently located on the passenger's side of the RV, within the LP and Power Generation Station. Its primary function is to control the flow of liquid propane gas by opening and closing the LPG valve, effectively shutting off all gas appliances when necessary.

This switch operates an electric solenoid, which opens and closes the gas line at the tank, ensuring safe operation of your RV's gas system. It is crucial to turn off the LPG Shut-Off Switch during the refueling process to prevent any potential leaks or hazards. Regularly check the functionality of this switch to ensure your safety while using gas appliances.



Shut-Off Switch

⚠ WARNING

If any type of failure or error appears to occur in under no circumstance use open flame to search for the possible error or solution. If you smell gas or any appliance pilots fail to stay on, use the LP shut-off switch to turn off the tank valve immediately and call a qualified LPG service or contact us.

HOW TO DETECT A PROPANE GAS LEAK

To ensure the safety of you and your passengers, regularly inspect your propane tank and outdoor appliances for potential leaks. Propane leaks are highly flammable and can pose serious dangers.

Conduct a leak test before the first use of each season or if the system hasn't been used in a while. Look for the distinct odor of rotten eggs, use a soap solution on connections to check for bubbles, and listen for any hissing sounds. Staying vigilant can help prevent accidents and ensure a safe environment.

Signs that your LPG tank may have a leak:

- **You smell gas:**
 - One of the quickest indicators of a leak is the unmistakable odor resembling rotten eggs or skunk spray.
 - If you detect this smell, it's essential to investigate immediately.
- **Usage Spikes:**
 - If you notice your LPG tank is depleting much faster than usual, it could indicate a leak.
 - Sudden spikes in gas usage warrant further inspection.
- **Poor performance:**
 - A noticeable decrease in the performance of your propane appliances—such as a weaker flame from your grill, space heater, or fire pit—can suggest a potential propane leak. If your equipment isn't functioning as expected, check for leaks promptly.

⚠ WARNING

Remind the service attendant to use the 80% overflow valve when refueling. Space on LPG tank must be left for vaporization and expansion to occur.

⚠ WARNING

Check for leaks. Your tank should be securely connected to the grill's gas line. To make sure the connection is secure and there are no leaks, conduct a simple "bubble" leak test. You should perform leak tests regularly, but especially before you use your grill for the first time in a while.

LIQUID PROPANE GAS SYSTEM

HOW TO CONDUCT A LEAK CHECK

The "bubble test" or "soapy water test" allows to indicate if there is a gas leak. You just need to coat all gas transmission gears (pipes, hoses and valves) with soapy water or leak detector solution and then pressurise the system.

NOTICE

It is important to regularly test for any gas leaks in your BBQ quick connect, regulator and hose to know when it needs maintenance or a replacement. Not giving a proper maintenance may cause fires or accidents.

1. Turn the propane tank off:

- Make sure the black handle is all the way to your left in the OFF position.

2. Apply propane leak detector solution or soapy water:

- Use either special leak detector solution or a pinch of thick soapy water. Spray the entire valve, regulator and hose assembly.
- The soapy water or leak detector solution may be applied with a sponge, paint brush or basting brush.

3. Turn on the LPG and watch for bubbles:

- If bubbles do appear at the connection points, close the black handle, tighten the connection, and repeat the process.
- Test again for other possible leaks on the entire assembly, from the gas bottle valve to where the gas hose attaches to the BBQ.
- If bubbles continue to appear, close the gas valve immediately and contact a LPG tank specialist or contact us.
- Rinse with clean water to remove the soap solution.

NOTICE

Gas lines should be checked periodically for leaks with ammonia-free soapy water.

NOTICE

Please refer to the Smoke section on this Owner's Manual for more information on the CO, LPG and Smoke Alarm and to each components User Guide provided to you on the RV Information Kit.

WARNING

Do not turn back on or attempt to use the BBQ quick connect until the problem is rectified or components are replaced.

DANGER

Never use an open flame to test for leaks. Never fill the LPG tank. Never fill the LPG tank when either the engine or the generator is running. Keep all protective covers and caps in place.

DANGER

Never carry flammable liquid containers inside the RV or driving areas of your RV. Gases may inadvertently be discharged into the confined space which could result in fire, asphyxiation or explosion.

LPG ALARM ACTIVATION

The RV's LPG alarm plays a critical role in safety by detecting the presence of propane gas in the air and promptly alerting occupants when gas concentrations reach hazardous levels.

Positioned strategically low on the galley wall and placed adjacent to the fire extinguisher for accessibility, the alarm is designed to address the tendency of propane, which is heavier than air, to accumulate near the floor during a leak.

This positioning ensures that occupants are quickly informed of potential dangers, allowing for swift action to mitigate risks and ensure the safety of everyone onboard.

If the propane alarm activates:

- Immediately extinguish all open flames inside the RV.
- Avoid using lights, appliances, or cellphones that could generate sparks.
- Exit the RV promptly and safely.
- If possible, turn off the LPG shut-off switch.
- Leave the area and dial 911 for assistance.
- Prior to using any propane equipment again, arrange for inspection by a qualified propane technician.

At campground ensure safety by following these guidelines:

- When cooking, open a window, activate the roof vent, and turn on the exhaust fan.
- Avoid using the stove for space heating.
- Never operate outdoor fuel-burning equipment inside the RV.

During storage:

- Turn off all propane supply valves and appliances.
- Keep vents open to ensure proper ventilation.
- If storing your vehicle in an enclosed area, ensure it is well ventilated.
- Prior to use after a prolonged storage period, have your RV's propane system inspected for safety and reliability.



NOTICE

The instructions previously provided are a general guideline only. To ensure proper service and safety, it is important to always take your RV to a qualified service center.

LIQUID PROPANE GAS SYSTEM

LPG TANK SYSTEM

The LPG storage tank is securely mounted on the undercarriage of your RV, designed for optimal safety and stability during travel.

This tank can be conveniently operated from the LPG and Power Generation Station, allowing you easy access to manage your propane supply.

NOTICE

Before turning on the LPG shut off switch located on the LPG and Power Generation Stations and make sure all LPG powered appliances are in the off position to prevent the LPG system to leak.



The system is designed to ensure efficient functionality for your appliances and systems, providing reliable energy for cooking, heating, and refrigeration.

Regular checks and maintenance of the LPG tank and connections are essential to ensure safe and effective operation while on the road.

MANUALLY OPERATED LPG TANK COMPONENTS

The LPG storage tank is equipped with essential manually operated components conveniently located on its exterior.

These include a gauge for monitoring the gas level, a pressure relief valve to ensure safety by preventing over-pressurization, and a regulator valve that controls the flow of gas to your appliances.

These components allow for easy access and management of your propane system, ensuring monitoring and optimal performance for your heating and cooking needs. Regular inspection and proper operation of these components are crucial for the safe and efficient use of your LPG system.

Gauge



LPG Relief



Regulator Valve



NOTICE

The LPG tank is securely mounted to ensure stability and safety during travel, minimizing the risk of damage or leaks.

NOTICE

Accessing the LPG and Power Generation Station allows for easy management of your propane supply, enhancing convenience while on the road.

NOTICE

Regular maintenance of the LPG system is essential for safe and effective operation, especially before long trips.

CAUTION

Always ensure that the LPG tank and its components are regularly inspected for wear, corrosion, or any signs of damage.

CAUTION

Be aware of the LPG gauge readings to avoid running low on fuel, which could disrupt your appliances and systems.

WARNING

Never attempt to operate the LPG tank or its components if you suspect a leak. Address any suspected leaks immediately and ensure the area is well-ventilated.

WARNING

When performing maintenance, make sure to turn off the LPG supply and allow the system to depressurize to prevent accidents.

DANGER

LPG is highly flammable. In the event of a leak, gas can accumulate and pose a risk of explosion or fire. Always check for gas odors and act quickly if detected.

DANGER

The pressure relief valve is a critical safety feature. Ensure it is functioning correctly to prevent over-pressurization, which could lead to tank failure or explosion.

LIQUID PROPANE GAS SYSTEM

LPG REGULATOR VALVE

The LPG regulator valve on your tank plays a crucial role in controlling the flow of propane gas from the tank to your appliances. Its primary function is to reduce the high pressure from the propane cylinder to a much lower, manageable pressure required by your propane appliances.

Often referred to as the heart of the LPG system, the regulator not only ensures efficient gas flow but also serves as an essential safety device. Inside the LPG tank, propane is stored as a liquid under high pressure, but it is utilized as a gas by your appliances. When the liquid propane transforms into gas, it expands, which can lead to increased pressure within the system. Without the regulator's precise control, this pressure can result in issues such as ruptured hoses, leaks, or even dangerous explosions.

Regular inspection and maintenance of the regulator are vital for safe operation, ensuring that your LPG system functions efficiently and securely.



NOTICE

Regularly check the LPG regulator valve for signs of wear or damage to ensure reliable performance. Ensure all connections are tight and secure to prevent leaks.

CAUTION

Always handle the regulator valve with care, as it is sensitive to pressure changes. Avoid applying excessive force when adjusting settings.

WARNING

Never attempt to repair or modify the regulator valve yourself; always consult a qualified technician for any issues.

WARNING

Be aware that a malfunctioning regulator can lead to gas leaks, which pose a serious fire hazard.

DANGER

If you detect a gas smell near the regulator, immediately shut off the LPG supply and evacuate the area until the leak is addressed by a professional.

DANGER

High pressure can cause the regulator to fail, resulting in explosive situations; regular maintenance is essential to mitigate this risk.

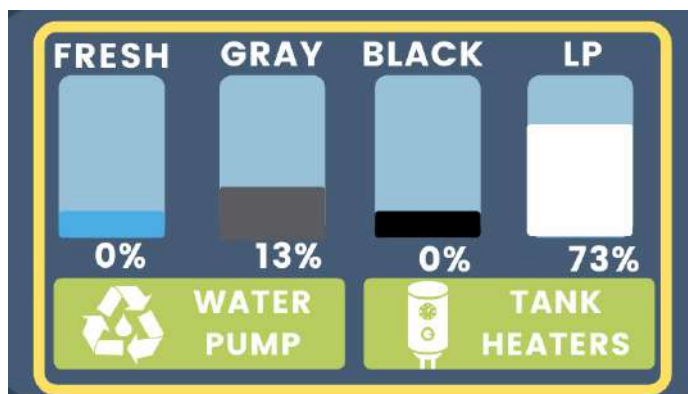
LIQUID PROPANE GAS SYSTEM

LP TANK GAUGE

The LPG tank gauge is an essential component that allows you to monitor the amount of propane in your RV's tank. Located on the left side of the tank, the gauge provides a visual indication of how full or empty the tank is at any given time. This gauge is a simple, mechanical device that shows the propane level as a percentage, helping you plan your refills and avoid running out of gas unexpectedly.

For added convenience, you can also check the LPG tank status through the Firefly Multiplex Control System inside the RV. This system offers a digital readout of the propane level, allowing you to monitor the tank without needing to physically inspect the gauge on the tank itself.

Regularly checking the LPG tank gauge and the Firefly Multiplex Control System is crucial for maintaining a continuous supply of propane for your appliances and ensuring safe operation.



NOTICE

The LPG tank gauge provides an approximate reading. Always verify the propane level using the Firefly Multiplex Control System for more accurate information.

CAUTION

Do not rely solely on the gauge for critical operations. If in doubt, manually inspect the tank or consult a qualified technician.

WARNING

Never attempt to fill the tank beyond 80% capacity as this can prevent safe expansion of the gas, leading to over-pressurization and potential hazards.

DANGER

If you notice any irregularities in the gauge reading or suspect a malfunction, stop using the propane system immediately and have the tank and gauge inspected by a qualified service technician.



NOTICE

Gas lines should be checked periodically for leaks with ammonia-free soapy water.

CAUTION

Moisture in the LPG tank will cause a malfunction of the regulator in controlling proper pressure. This may result in the flame lifting off the burner or going out frequently.

CAUTION

Do not use open flame to search for problems. If gas can be smelled, appliance pilots fail to stay on, or any other abnormal situation occurs, use the remote supply switch to shut off the tank valve immediately and call a qualified LPG service center or Grech RV.

LIQUID PROPANE GAS SYSTEM

GENERATOR

Your RV is equipped with a 2,500-watt generator that powers the onboard equipment and appliances through the circuit breaker panel. This generator also supplies power to your inverter/charger, which recharges your RV's house batteries.

The generator's internal combustion engine converts fuel into mechanical energy, which the alternator then transforms into electrical energy. This energy is distributed to your RV's circuit breaker panel, ensuring a reliable power supply for all connected devices.

In addition to the generator, your RV can draw electrical power from the house batteries or shore power when available. The generator is conveniently located on the undercarriage of your RV, positioned just in front of the LPG tank.



ENERGY AND POWER TERMS

Understanding these key elements will help you make the most of your RV generator:

- **Amperage (Amps):**
 - This measures the amount of electrical current flowing through a wire or conductor. The RV's amp capacity is determined by the size of its wires and internal breakers. For example, the Strada model supports 30-amp shore power.
- **Voltage (Volts):**
 - This indicates the electrical potential available. Your RV operates at 120 VAC or 120/240 VAC when connected to shore power, running the generator, or using the onboard inverter.
 - When running off the batteries, the voltage is 12 VDC. Many interior lights, absorption refrigerators, liquid propane furnaces, and other appliances use 12 VDC.
 - Inverters convert 12 VDC to 120 or 240 VAC for appliances when shore power or a generator is unavailable.
- **Wattage (Watts):**
 - Wattage is the product of voltage and amperage (Volts x Amps = Watts). This value helps determine the power needed to run your RV appliances.

SAFETY PRECAUTIONS

When operating and maintaining your RV's generator, prioritizing safety is essential. Adhering to the following safety precautions will help protect you, your passengers, and your vehicle from potential hazards.

From keeping fire extinguishers within reach to handling hazardous materials with care, these guidelines are designed to ensure safe and effective generator use.

Keep Fire Extinguishers Accessible:

- Ensure fire extinguishers are within reach and in working condition.

Secure Fasteners:

- Regularly check that all fasteners are properly secured and torqued to prevent loosening during operation.

Maintain Cleanliness:

- Keep the generator and its compartment clean. Excess oil, oily rags, or debris can ignite and cause a fire.

Exercise Caution with Hot or Moving Parts:

- When the generator is running, avoid contact with hot, moving, or electrical components, as they can cause severe injury or death.

Handle Hazardous Materials Safely:

- Used engine oil, benzene, and leaded gasoline are identified by some state and federal agencies as carcinogens or reproductive toxins. Avoid ingestion, inhalation, or skin contact with these substances or their vapors.

Work Responsibly:

- Never work on the generator if you are mentally or physically fatigued or under the influence of alcohol or drugs.

Use Personal Protective Equipment:

- Always wear appropriate personal protective gear, such as safety glasses and gloves, during maintenance operations.

⚠ WARNING

Watch constantly for people near the exhaust of the generator set while its running.

⚠ DANGER

Generator output connections must be made by a qualified electrician in accordance with applicable codes.

GENERATOR VOLTAGE IS DEADLY!

⚠ DANGER

Use caution when working on live electrical equipment. Remove jewelry, make sure clothing and shoes are dry and stand on a dry wooden platform.

⚠ DANGER

Do not smoke or turn electrical switches ON or OFF where fuel fumes are present or in areas sharing ventilation with fuel tanks or equipment. Keep flame, sparks, pilot lights and switches and all other sources of ignition well away.

LIQUID PROPANE GAS SYSTEM

SIGNS TO LOOK FOR

The LP regulator is a critical component of your RV's gas system, and any malfunction can lead to issues with your propane appliances.

Here are key signs that your LP regulator might not be functioning correctly:

• **Yellow flames:**

- Your LP appliances should produce a strong blue flame. If you notice yellow flames after lighting a burner on your RV stove, it indicates a lack of pressure in your LPG system.
- Conversely, if the flame is blue but makes a roaring sound and is unusually tall, it suggests there is too much pressure.

• **Dark Soot Deposits:**

- Propane burns cleanly and shouldn't produce dark smoke. If you notice black soot forming around your water heater or cooktop, it could indicate a problem.
- This may be caused by an obstruction in the burner or a weak flame that isn't burning efficiently.

NOTICE

Dark soot can best be described as a product of the incomplete combustion of fueled carbon. When carbon burns all the way through, very little residue is left. When it doesn't, it leaves behind a black, flaky substance called soot.

• **Popping noises:**

- Hearing popping noises when you turn off the flames on your cooktop could signal issues with your LP regulator.
- It may also be due to a damaged burner. If the noise occurs with just one burner, inspect it for dirt or misalignment.

• **Propane Smell:**

- If you detect a propane odor near your propane regulator, it could be damaged or not sealing properly.
- Check the regulator's vent to ensure it's open and unobstructed, allowing it to function correctly.

NOTICE

If there is propane coming out from the vent, check to make sure your propane tank is not overfilled. If the tank is not the problem, then the regulator has gone bad and needs to be replaced.

TIPS TO PREVENT ASPHYXIATION

1. Regularly inspect your RV's chassis and generator exhaust system, especially before trips or after any incidents that could cause damage.
2. Check for openings in the floor or sidewalls of your RV. Repair any holes before operating your generator.
3. Ensure all windows, door seals, and weather strips are properly sealed to prevent gas leaks.
4. Yellow flames in propane appliances like cooktops, ovens, and water heaters indicate a lack of oxygen. Identify and correct this issue immediately.
5. Do not run your generator if the exhaust system is damaged or if you notice unusual noises.
6. Park your RV where exhaust can easily dissipate. Avoid parking near high grass, snowbanks, buildings, or other obstructions that could trap exhaust gases.
7. Be aware that shifting winds may cause exhaust fumes to blow back under the RV.
8. Never sleep with the generator running.
9. Always keep a roof vent open when the generator is operating, even in winter, to ensure proper ventilation and prevent asphyxiation. Prolonged use of LP appliances increases the risk of asphyxiation.
10. If you or a passenger feels unwell, consider the possibility of asphyxiation. Turn off the generator, exit the RV, and get fresh air immediately.

NOTICE

Do not run the RV or generator engine in a confined or constricted area. If your RV was on storage in a confined area you can run the engine to move the RV from one place to another.

WARNING

Make sure all alarms are in proper working condition and with battery life, to prevent accidents and possible setbacks.

DANGER

Do not carry possible flammable materials such as wood or charcoal grills, heaters or stoves inside the RV that are not previously installed by Grech RV. The addition and use of this equipment may cause a deadly carbon monoxide gas or cause fires.

DANGER

Avoid breathing exhaust fumes from gas or diesel engines and LPG appliances. Poisonous exhaust fumes are generated from operating the RV or generator engine, stove, oven, refrigerator, furnace and hot water heater.

MAINTENANCE

EXTERIOR CARE

Regular maintenance of your vehicle is essential for preserving its quality over time. It is important to use care products and cleaning agents that are recommended and approved for Sprinter vehicles.

You can safely wash your vehicle in an automatic car wash from the beginning. However, ensure that you rinse off any excess dirt before taking your vehicle through an automatic car wash. After the car wash, it is recommended to wipe off any wax residue from the following areas:

- Rear view camera lens
- Windshield
- Windshield wiper blades

NOTICE

When cleaning the vehicle avoid using the following:

- Dry, rough, or hard cloths that can scratch the surface.
- Abrasive cleaning agents that may damage the paint or finish.
- Solvents or cleaning agents containing solvents, as they can harm the vehicle's surfaces

Using these products can lead to undesirable effects such as scratches, damage to the paint or finish, and deterioration of surfaces.

This practice helps prevent smudges and reduces the noise from wiping caused by residue on the windshield.

WASHING BY HAND

When washing your vehicle by hand, follow these guidelines for optimal results:

- **Water Temperature and Sunlight:** Avoid using hot water and refrain from washing the vehicle in direct sunlight.
- **Sponge Selection:** Use a soft car sponge to prevent scratches on the surface.
- **Cleaning Agent:** Use a mild cleaning agent, such as a car shampoo approved for use with Sprinter vehicles.
- **Rinsing:** Thoroughly hose down the vehicle with a gentle jet of water before applying the cleaning agent.
- **Sponge Care:** Rinse out the sponge frequently during use to avoid transferring dirt back onto the vehicle's surface.
- **Final Rinse and Drying:** After washing, rinse the vehicle with clean water and dry it thoroughly with a chamois to prevent water spots.
- **Avoiding Residue:** Do not let the cleaning agents dry on the paintwork, as this can leave streaks or residue.
- **Winter Care:** In winter, promptly remove all traces of road salt deposits to prevent corrosion and damage to the vehicle's exterior.

NOTICE

Post-Cleaning Caution:

After cleaning your vehicle, especially the wheel rim with wheel cleaner, avoid parking it for an extended period immediately. Wheel cleaner residue can accelerate corrosion on the brake discs and pads.

To mitigate this risk:

- Drive the vehicle for a few minutes after cleaning.
- This action heats up the brakes, allowing the brake discs and pads to dry.
- After driving, the vehicle can then be safely parked for a long period without the risk of increased corrosion.

This practice helps maintain the condition of your brake components and extends their longevity.

Before beginning the hand washing process for your vehicle, it is crucial to verify that all tools used, including brushes, mitts, cleaning solutions, etc., are safe for your vehicle's surfaces. Even intense and prolonged scrubbing can impact the finish of the vehicle. Additionally, using an inappropriate brush for cleaning the tires can potentially cause damage and scratches. Therefore, it is important to exercise caution and use suitable tools to maintain the integrity of your vehicle's appearance.

Before Cleaning the Windshield:

- To start the RV, turn on the ignition by pressing the ignition button.
- Fold the windshield wiper arms away from the windshield until you feel them engage.
- Before switching the ignition on again, fold the windshield wipers back into position.

Cleaning the Windows:

- Clean both the inside and outside of the windows using a damp cloth and a cleaning agent recommended and approved for Sprinter vehicles.

Following these steps ensures proper preparation and cleaning of the windshield and windows, maintaining visibility and the vehicle's appearance.

CAUTION

There is a risk of injury when cleaning the windshield or wiper blades if they start moving. Always switch off the windshield wipers and the ignition before cleaning the windshield or wiper blades.

CAUTION

The water jet from a circular jet nozzle (dirt blasters) can cause invisible exterior damage to the tires or chassis components. Do not use power washers with circular jet nozzles to clean the vehicle. Have damaged tires or chassis components replaced immediately.

CAUTION

Under no circumstances use power washers in the vehicle interior. The pressurized water and associated spray produced by the power washer could cause extensive damage to the vehicle.

MAINTENANCE

USE OF POWER WASHERS

It is strongly advised not to use pressure washers or power washers on your vehicle. The high-pressure water can cause significant damage to your vehicle's exterior surfaces and components. Additionally, pressure washing can force water into crevices, potentially leading to water seepage into the vehicle's interior.

If not used correctly, a pressure washer can pose a safety risk and cause injuries. Therefore, it is best to avoid using pressure washers and opt for safer cleaning methods like hand washing to preserve the integrity of your vehicle and ensure your safety.

CLEANING THE PAINTWORK

NOTICE

Areas that have been sealed with products such as silicon and other malleable materials can be loosened when using a power washer. This can lead to serious damage to sealed areas unless a good brush attached to a light-duty pressure washer is used.

Scratches, corrosive deposits, areas affected by **corrosion** and **damage** caused by inadequate care cannot always be completely **repaired**. In such cases, visit a specialist workshop.

- Remove **impurities** immediately and avoid **rubbing** too hard.
- **Soak** insect remains with insect **remover** and **rinse off** the treated **areas** afterwards.
- **Soak** bird droppings with **water** and **rinse off** the treated **areas** afterwards.
- **Remove** coolant, brake fluid, tree resin, oils, fuels and greases by rubbing **gently** with a cloth soaked in **petroleum ether** or **lighter fluid**.
- Use **tar remover** to remove tar **stains**.
- Use **silicone remover** to remove **wax**.

NOTICE

Do not affix stickers, films, magnetic planes or similar items to painted surfaces you could otherwise damage the paintwork.

CLEANING CONTRACTORS

Many campgrounds recommend cleaning contractors for those who don't have cleaning products like extendable brushes. These contractors bring their own supplies and equipment to the campgrounds.

Before the cleaning service begins, it's important to ask the following questions to ensure a satisfactory experience:

- Are soft-bristle brushes used for cleaning?
- What detergents or cleaning agents will be utilized?
- Will any pressure washing be used during the cleaning process?

WARNING

Exercise caution and avoid applying any cleaners intentionally or accidentally to the windows or the sprinter's body finish. Doing so can cause damage that may necessitate a replacement.

CLEANING PRODUCTS

You can easily find commercial cleaning products for washing your RV on websites like Amazon or at local RV dealers. However, a more accessible and DIY alternative is to mix baby shampoo with a small amount of distilled white vinegar in a bucket of water. This effective solution is non-toxic and safe for use. For cleaning, use a hand mitt designed for vehicle washing or a soft-bristled brush for lower areas of the RV.

It's advisable to change the wash water frequently to avoid swirling dirt particles around the RV's surface, which can cause abrasions, streaks, or additional dirt buildup. When using a pressure washer, clean the RV by applying a horizontal swiping motion from top to bottom for optimal results.

NOTICE

Dish soap should never be used because it leaves a film that baby shampoo doesn't leave. Overtime it deteriorates and affects your RV even if the it is regularly waxed.

NOTICE

When using DIY cleaning solutions, ensure they are well mixed before application to achieve the best results.

NOTICE

Always test any cleaning solution on a small, inconspicuous area of the RV before applying it to the entire surface to check for adverse reactions.

CAUTION

Avoid using harsh chemicals or abrasive cleaning agents, as they can damage the RV's paint and exterior finishes.

WARNING

Always wear appropriate personal protective equipment, such as gloves and safety goggles, when handling cleaning products to protect your skin and eyes.

WARNING

Ensure the RV is parked in a well-ventilated area when washing it to avoid inhaling any fumes from the cleaning products.

DANGER

Some commercial cleaning products may contain harmful chemicals that can pose health risks if ingested, inhaled, or come into contact with skin. Always read labels and follow safety instructions.

MAINTENANCE

PRESSURE WASHING

Pressure Washing and Power Washing are two different things. A jet wash in a power washing machine uses heated water, where as the water in a pressure water is not heated.

When using a pressure washer, you may want to ensure that the right Pounds per Square Inch (PSI) range is used in addition of the right nozzle tips. High-pressure water can sneak behind overlapping layers and gaskets and cause damage.

Light- duty pressure washers are perfect, anything up to 1,500 PSI will do the job, it is recommended to use less than 1,500 PSI just to be safe.

⚠ CAUTION

Observe the minimum distance to be maintained between the nozzle of the high-pressure cleaner and the object to be cleaned and beware that water must not enter ventilation openings.

When using a round-jet nozzle keep distance of 2.2 ft (70 cm) and 1 ft (30 cm) when using a 25° flat-spray jets and concentrated-power jets.

Keep the water jet moving while cleaning. To avoid causing damage, do not point the water jet directly at: Door joints, brake hoses, electrical components, electrical connections, seals, drive train, especially not at the intermediate bearing of the propeller shaft, and rear view camera. Keeping a minimum distance of 1.6 ft (50 cm).

⚠ WARNING

When cleaning with high pressure water or steam cleaners, the spray must not be aimed directly at electrical components or the terminals of electrical lines.

⚠ WARNING

Do not park your vehicle for a long period of time directly after cleaning, particularly after cleaning the wheel rim with wheel cleaner. Wheel cleaners can lead to the increased corrosion of the brake discs and pads/linings. Therefore, drive for a few minutes after cleaning. By heating up the brakes, the brake discs and pads dry. Then the vehicle can then be parked for a long period of time.

PSI

Water pressure is a really important factor when using a pressure washer to knock off **dirt** from RV's surface. When it has **too much** pressure it could **damage** the vehicle.

RV'S BODY MATERIALS

RV's are usually made from one of three main exteriors: Metal, painted metal or fiberglass. Each material requires a special cleaning solution or brush. Any finish will deteriorate over time and because of exposure to extreme sunlight, pollutants and excessive moisture can cause dulling, fading and yellowing.

• Plastic / Moulded Parts:

- This RV has plastic somewhere on the **exterior** such as light covers, roof vents headlight and AC covers are all made of **plastic**.
- It is pretty **easy** to clean, all you need is a bucket of **soapy** water and a **soft** bristel brush. It is essential that this brush is not a **hard heavy** duty brush because it will harm and **damage** the component that has been cleaned.

• Fiberglass:

- Nowadays, RV's with fiberglass body is what is commonly found, for the reason that fiberglass is light which means more fuel efficiency.
- When cleaning an RV made with fiberglass, stick to a low pressure washer. It is preferable to use a cleaner that not only washes but also applies a layer of wax at the same time.

It is certainly suggested the use of an extension wand for the pressure washing, it may come helpful when cleaning your RV.

RV's have layers or gaskets that overlap as well as areas that are sealed or other pliable material that will not withstand the pressured water that is forced out by a power wash.

⚠ NOTICE

Areas that have been sealed with products such as silicon and other malleable materials can be loosened when using a high-pressure washer. This can lead to serious damage to sealed areas unless a good brush attached to a light-duty pressure washer is used.

⚠ WARNING

Giving your vehicle a look-over before spraying will help you avoid any potential mishaps of getting water into places you don't want it. Pressure washing without studying your vehicle could easily lead to more damage than the dirt you want to get rid of. This step is crucial to avoid any mistakes that could cost you time and money to repair.

CLEANING THE PAINTWORK

Scratches, corrosive deposits, areas affected by corrosion and damage caused by inadequate care cannot always be completely repaired. In such cases, visit a specialist workshop.

- Remove impurities immediately and avoid rubbing too hard.
- Soak insect remains with insect remover and rinse off the treated areas afterwards.
- Soak bird droppings with water and rinse off the treated areas afterwards.
- Remove coolant, brake fluid, tree resin, oils, fuels and greases by rubbing gently with a cloth soaked in petroleum ether or lighter fluid.
- Use tar remover to remove tar stains.
- Use silicone remover to remove wax.

⚠ NOTICE

Do not affix stickers, films, magnetic planes or similar items to painted surfaces you could otherwise damage the paintwork.

MAINTENANCE

PRESSURE WASHER NOZZLE GUIDE

Pressure washers spray water in a **V shape** from the end of the wand. Each nozzle **added** to the end of the wand will spray water in a **wider** or **narrower** form, depending on what **degree angle** the nozzle is set in. Example: **15°** is **narrow** and **stronger** compared to a 40° which is significantly wider.

The **less degree** the nozzle has the **narrower** the spray is, as well as **more pressure** in the spray however just in a restricted small area. In contrast, the **wider** spray, which are the **higher-degree** nozzles, provides less pressure but it covers **more** area. For RV's, it is recommended to use a **white nozzle** when cleaning your RV. Refer to this handy pressure washer nozzle **chart** for **guidance** when choosing a **nozzle** for when cleaning your RV or another pressure washer **project**.

SAFETY GUIDELINES FOR PERSONAL USE

- Always read the **manufacturer's instructions** before using a pressure washer or any other component. Pay close **attention** to **safety** instructions.
- Wear **safety gear** including safety goggles, boots, gloves, long-sleeved shirts and long pants.
- Note any **tripping hazards** in your path when using the pressure washer, to **avoid** falling down while using it. **Remove** tripping hazards whenever possible.
- Never use the **tool** for anything that it was not designed to do. For example, **never clean** something that it was not **designed** to clean, as it could cause **damage**.
- Do not turn the **spray nozzle** on yourself (like to clean your shoes), and never **aim** at anyone else.
- Never spray **bare skin** and keep it **away** from yourself.

Nozzle Color	Spray Pattern	Uses	Surfaces
Red	0° 	powerful pinpoint for spot cleaning of hard, unpainted surfaces or for high reach areas	unpainted metal or concrete; DO NOT use on wood
Yellow	15° 	intense cleaning of unpainted hard surfaces	grills, driveways, concrete or brick walkways, unpainted brick or stucco
Green	25° 	standard cleaning nozzle for most applications	yard tools, sidewalks, lawn furniture, unpainted siding, stucco, gutters and eaves, concrete, brick surfaces
White	40° 	cleaning of painted or delicate surfaces	auto/RV, marine, wood, painted brick and stucco, vinyl, painted siding
Black	low pressure 	applies cleaning solutions	Low pressure spray is safe on all surfaces. Always verify compatibility of cleaning solution prior to use.

NOTICE

Preferably aim the pressure wash nozzle to the desired zone of the RV that needs to be cleaned to avoid unwanted damage in the RV.

CAUTION

Be cautious when using a pressure washer, as high-pressure water can penetrate seals and cause water damage to the interior of the RV.

DANGER

If using a pressure washer, do not point the nozzle at yourself or others, as the high-pressure water can cause serious injury or damage to surfaces.

MAINTENANCE

UNDERCARRIAGE CLEANING

Cleaning the undercarriage of your vehicle is a crucial maintenance task that often goes overlooked but plays a significant role in preserving the structural integrity and longevity of your vehicle. The undercarriage is exposed to various elements such as road salt, mud, debris, and contaminants, which can lead to corrosion, rust, and damage if not addressed promptly.

EFFECTS OF ROAD SALT AND CONTAMINANTS

Road salt, especially in areas prone to winter weather conditions, can accelerate corrosion and rust formation on the undercarriage components. Mud, debris, and contaminants accumulated from driving on different terrains can also contribute to the deterioration of metal surfaces and protective coatings.

CLEANING METHODS

Several effective methods can be employed to clean the undercarriage of your vehicle:

- **Pressure Washing:** Using a pressure washer with an appropriate nozzle attachment can help remove stubborn dirt, mud, and salt deposits from the undercarriage. Ensure to adjust the pressure settings to avoid damaging sensitive components.
- **Specialized Cleaning Products:** Consider using specialized undercarriage cleaning products formulated to dissolve road grime and contaminants effectively. These products often come with applicators or spray nozzles designed to reach difficult-to-access areas under the vehicle.
- **Manual Scrubbing:** For areas with heavy buildup or stubborn residue, manual scrubbing with a brush or sponge can help loosen dirt and facilitate thorough cleaning.
- **Rinse and Dry:** After cleaning, thoroughly rinse the undercarriage with clean water to remove any remaining cleaning agents or debris. Allow the undercarriage to dry completely before proceeding with further maintenance or applying protective coatings.

CLEANING METHODS

After cleaning, consider applying undercarriage protection coatings to safeguard metal surfaces and components from corrosion and rust. These coatings create a barrier against moisture, salt, and environmental contaminants, extending the lifespan of your vehicle's undercarriage and reducing the risk of structural damage.

BENEFITS OF UNDERCARRIAGE CLEANING

Regular undercarriage cleaning offers several benefits, including:

- **Corrosion Prevention:** Removing corrosive elements like road salt and mud helps prevent rust formation and corrosion on undercarriage components, ensuring structural integrity and safety.
- **Extended Lifespan:** Proper maintenance and cleaning of the undercarriage contribute to the longevity of essential components such as exhaust systems, suspension parts, and frame structures.
- **Improved Performance:** A clean undercarriage promotes optimal performance by reducing excess weight from accumulated debris, maintaining aerodynamics, and preserving drivetrain components.
- **Visual Appeal:** A well-maintained undercarriage enhances the overall appearance of your vehicle and reflects a commitment to proper maintenance and care.

MAINTENANCE RECOMMENDATIONS

To maintain a clean and corrosion-free undercarriage, consider the following recommendations:

- **Regular Inspections:** Conduct visual inspections of the undercarriage periodically, especially after driving in harsh conditions or off-road terrain.
- **Routine Cleaning Schedule:** Establish a routine cleaning schedule for the undercarriage, focusing on thorough cleaning after exposure to salt, mud, or contaminants.
- **Protective Coatings:** Apply undercarriage protection coatings as needed, following manufacturer guidelines for application and reapplication intervals.
- **Professional Services:** Professional undercarriage cleaning services or inspections must be made by qualified technicians to ensure thorough cleaning and maintenance.

By prioritizing undercarriage cleaning and protection, you can safeguard your vehicle against corrosion, extend its lifespan, and maintain optimal performance for years to come.

MAINTENANCE

TIRE CARE

Before driving your vehicle, especially after prolonged storage, it's crucial to conduct a thorough tire inspection to check for damage or wear. Follow these steps for a comprehensive wheel inspection:

- **Exterior and Interior Examination:** Inspect the sidewalls, thread area, valve stems, valve caps, and wheels both inside and out for any signs of damage or irregularities.
- **Thread Inspection:** Carefully examine the tire threads for unusual wear patterns, cracking, penetrations, cuts, or scratches that could compromise tire integrity.

Since vehicle usage varies, with some used seasonally and others year-round, tires naturally wear out and should be checked regularly, ideally daily or at least once a month. Promptly replace any tires showing signs of damage to ensure safe vehicle operation.

Additionally, when the vehicle is not in use, store it in a cool, dry area away from extreme heat or cold. If parking the vehicle outside, consider covering the rims to protect them from direct sunlight, which can degrade tire materials over time and affect their performance and lifespan.

Maintaining the wheels is crucial to ensure optimal traction while moving and grip when steering or stopping the vehicle.

⚠ CAUTION

Inspect tires for unusual wear patterns that may indicate alignment issues or imbalanced loads.

⚠ CAUTION

When checking tire pressure, do so when the tires are cold to get an accurate reading.

⚠ WARNING

Do not ignore signs of damage, such as cracks or punctures; failing to replace damaged tires can lead to blowouts and serious accidents.

⚠ WARNING

Overloading the RV beyond its weight capacity can lead to excessive tire wear and failure.

⚠ DANGER

Driving on under-inflated or over-inflated tires significantly increases the risk of tire blowouts, which can cause loss of vehicle control.

⚠ DANGER

Extreme temperature conditions can cause tire blowouts or degradation; always store tires in a climate-controlled environment when possible.

⚠ DANGER

Never attempt to repair a damaged tire yourself unless you are trained to do so; improper repairs can lead to catastrophic failures.

TIRE CARE TIPS

Maintaining your tires and wheels is essential for ensuring proper traction while driving, as well as grip when steering or stopping. Here are some key tips to reduce the risk of tire failure:

1. Check Tire Pressure:

- Inspect tire pressure at least once a month.
- Ensure tires are cool before checking; the vehicle should be stopped for at least 3 hours and driven less than 1 mile prior to checking.

2. Use a Tire Gauge:

- Use a reliable tire gauge to verify and maintain pressure at the manufacturer-recommended levels.

3. Avoid Overloading:

- Be aware of the maximum load-carrying capacity of your tires to prevent excessive wear and potential failure.

4. Inspect Tires Regularly:

- Look for scrapes, cuts, or damage. If you notice any issues, consult a tire dealer for professional assistance.

5. Avoid High Speeds:

- Familiarize yourself with the speed ratings of your tires to ensure optimal performance and safety.

6. Beware of Road Hazards:

- Stay vigilant for objects that could cause damage to your tires, such as potholes, glass, or metal debris.

7. Replace Worn Tires:

- Remove tires that have 2/32 inches or less of tread depth to maintain safety.

8. Park in Warm Weather:

- Consider parking your RV during extreme heat.
- Use tire covers to shield against UV rays and prevent rim damage.

MAXIMIZING WHEEL PERFORMANCE

Cleaning and Maintenance:

- Rims can be easily cleaned with soap and water. Avoid using caustic cleaning agents to protect the environment and minimize maintenance efforts.
- This will help keep your wheels looking great while saving you time and money.

Advantages of Aluminum Alloy Wheels:

- Aluminum alloy rims are lighter and more efficient than steel options, enhancing your vehicle's performance. They resist tarnishing and maintain their shine even after extensive use.

Rust Prevention:

- Inspect aluminum wheel covers once or twice a year for signs of rust. Addressing rust early will prevent it from spreading and causing further damage.

MAINTENANCE

RIM MAINTENANCE

- Clean rims with soap and water; avoid caustic cleaning products for environmental protection.
- Aluminum alloy rims offer advantages over steel rims, including weight reduction and efficiency improvement.
- Aluminum rims can maintain their shine without frequent polishing even after extensive use.
- Check aluminum wheel covers for rust once or twice a year and address any rust promptly to prevent spreading.

WHEEL ALIGNMENT AND BALANCING

Proper wheel alignment and balancing play a critical role in ensuring safe driving conditions, promoting even tire wear, and enhancing fuel efficiency. These maintenance tasks are essential for preserving the structural integrity of your vehicle's suspension system and optimizing its performance on the road.

MISALIGNMENT OF UNBALANCED WHEELS

Detecting signs of misalignment or unbalanced wheels early is crucial for addressing potential issues before they escalate. Common indicators include:

- **Uneven Tire Wear:** Misalignment or unbalanced wheels can cause uneven wear patterns on your tires, such as excessive wear on one side or in the center.
- **Steering Wheel Vibrations:** Vibrations or shaking felt through the steering wheel, especially at higher speeds, can signal imbalances in your wheels.
- **Pulling to One Side:** If your vehicle tends to pull to one side while driving on a straight road, it may indicate alignment problems.

IMPORTANCE OF REGULAR INSPECTIONS

Regular inspections by a qualified technician are recommended to assess the alignment and balance of your vehicle's wheels. During these inspections, technicians use specialized equipment to measure alignment angles and detect imbalances, ensuring precise adjustments for optimal performance.

ALIGNMENT ADJUSTMENTS

Proper wheel alignment involves adjusting the angles of the wheels to the manufacturer's specifications. This process ensures that the wheels are perpendicular to the ground and parallel to each other, promoting stable handling and reducing tire wear.

BALANCING PROCEDURES

Wheel balancing involves redistributing weight evenly across the wheel and tire assembly. Imbalances can occur due to variations in tire weight or uneven tread wear. Balancing procedures typically involve adding or removing small weights to achieve optimal balance, reducing vibrations and improving overall ride quality.

PROS OF PROPER ALIGNMENT AND BALANCING

Maintaining proper alignment and balance offers several benefits, including:

MISALIGNMENT OF UNBALANCED WHEELS

- **Enhanced Safety:** Properly aligned and balanced wheels contribute to stable handling, improved traction, and reduced risk of accidents.
- **Even Tire Wear:** Correct alignment and balance help prevent uneven tire wear, extending the lifespan of your tires and reducing replacement costs.
- **Fuel Efficiency:** Well-aligned and balanced wheels reduce rolling resistance, improving fuel efficiency and reducing fuel consumption.
- **Comfortable Driving Experience:** Eliminating steering vibrations and pulling enhances overall driving comfort, especially on long journeys.

REGULAR MAINTENANCE TIPS

- **Scheduled Inspections:** Schedule regular wheel alignment and balancing inspections as per your vehicle manufacturer's recommendations or whenever you notice signs of alignment issues.
- **Professional Services:** Seek services from qualified technicians or reputable auto service centers equipped with advanced alignment and balancing equipment.
- **Alignment Checks:** Consider alignment checks after significant suspension or steering system repairs, tire replacements, or changes in driving habits.
- **Balancing with Tire Rotations:** Combine wheel balancing with tire rotations to promote even tire wear and maintain balance across all wheel positions.
- **Driving Awareness:** Be mindful of road conditions and driving habits that may impact wheel alignment, such as potholes, rough terrain, and aggressive driving maneuvers.

MAINTENANCE

BRAKE CARE

Maintaining your vehicle's braking system is paramount to ensure safe driving conditions and optimal vehicle performance. The braking system plays a critical role in vehicle safety, and regular brake care helps prevent potential issues, ensures reliable braking performance, and enhances overall driving safety.

ⓘ CAUTION

Brake Fluid Check:

Regularly check the brake fluid levels to ensure they are within the recommended range. Low brake fluid levels can indicate a potential leak or worn brake components, which should be addressed promptly to maintain brake effectiveness.

BRAKE PAD AND ROTOR INSPECTION

Inspect the brake pads and rotors for signs of wear, damage, or unevenness. Worn brake pads can reduce braking efficiency and lead to increased stopping distances. Likewise, worn or warped rotors can cause brake pulsation, vibrations, or noise during braking. Replace worn brake pads and damaged rotors following manufacturer recommendations to maintain optimal braking performance.

ⓘ NOTICE

Addressing Brake Noises and Performance Issues:

Pay attention to any unusual brake noises, such as squealing, grinding, or rattling, as they may indicate brake pad wear, rotor damage, or other brake system issues. Address these issues promptly by inspecting and servicing the braking system to prevent potential safety hazards and ensure smooth braking operation.

REGULAR BRAKE INSPECTIONS

Schedule regular brake inspections according to the manufacturer's guidelines or service intervals. Professional brake inspections involve comprehensive checks of brake components, including calipers, brake lines, and hydraulic systems, to identify any potential issues and ensure proper functionality.

ⓘ NOTICE

Maintaining a Clean Brake System:

Keep the brake system clean and free from contaminants to maintain optimal performance and longevity. Contaminants such as dirt, debris, and brake dust can accumulate on brake components, leading to reduced braking efficiency and potential brake system damage. Regularly clean brake components during routine maintenance to remove contaminants and ensure reliable brake operation.

BRAKE CARE RECOMMENDATIONS

Follow these recommendations for effective brake care and maintenance:

- **Regular Inspections:** Schedule routine brake inspections to check brake pad wear, rotor condition, brake fluid levels, and overall brake system health.
- **Address Issues Promptly:** Address any brake noises, performance issues, or warning signs promptly by consulting a qualified technician and addressing identified issues.
- **Use Quality Brake Components:** When replacing brake pads, rotors, or other brake components, use high-quality, manufacturer-approved parts to ensure compatibility and reliable performance.
- **Brake Fluid Flush:** Follow manufacturer recommendations for brake fluid flush intervals to maintain proper brake system function and prevent brake fluid contamination.
- **Professional Maintenance:** Consider professional brake maintenance and servicing by certified technicians to ensure thorough inspections, accurate diagnostics, and reliable brake system performance.

By prioritizing brake care and maintenance, you can enhance vehicle safety, prolong brake system lifespan, and enjoy consistent braking performance for your vehicle's optimal operation.

MAINTENANCE

EXTERIOR LIGHTING

Maintaining your vehicle's exterior lighting is crucial for visibility, safety, and compliance with road regulations. Properly functioning headlights, taillights, turn signals, and other exterior lights enhance visibility, promote safe driving, and ensure your vehicle is visible to other road users, especially in low-light conditions or adverse weather.

REGULAR INSPECTION AND CLEANING

Regularly inspect all exterior lights, including headlights, taillights, brake lights, turn signals, and fog lights, for signs of damage, dirt, or fogging. Clean lights with a soft, damp cloth and a mild automotive cleaner to remove dirt, grime, and debris that can accumulate over time and affect light output.

HEADLIGHT MAINTENANCE

Pay particular attention to headlight maintenance, as clear and properly aligned headlights are essential for nighttime visibility and safety. Clean and polish headlights regularly to remove oxidation, haze, or yellowing that can diminish brightness and clarity. Use headlight restoration kits or professional polishing services for heavily oxidized or cloudy headlights.

TAILLIGHT AND TURN SIGNAL CARE

Ensure taillights and turn signals are functioning correctly to signal your intentions to other drivers and enhance road safety. Check bulbs, wiring, and connections regularly and replace any damaged or burnt-out bulbs promptly to maintain full lighting functionality.

ⓘ CAUTION

Replacement of Damaged Lights:

Promptly replace any damaged, cracked, or malfunctioning exterior lights to ensure compliance with road safety regulations and maintain optimal visibility on the road. Use high-quality replacement bulbs and components that meet manufacturer specifications for compatibility and performance.

ⓘ NOTICE

Protective Measures:

Consider applying protective coatings or films to exterior lights to protect them from UV damage, oxidation, and scratches. These protective measures can prolong the lifespan of your lights and maintain their brightness and clarity over time.

ⓘ NOTICE

Professional Inspection and Maintenance:

For thorough exterior lighting care, consider professional inspection and maintenance by certified technicians. Professional services can include headlight alignment, bulb replacement, electrical system checks, and overall lighting system diagnostics to ensure optimal performance and safety.

REGULAR CARE ROUTINE

Incorporate exterior lighting care into your regular vehicle maintenance routine. Schedule periodic inspections, cleaning, and bulb replacements as needed to keep your vehicle's exterior lights in top condition and ensure safe driving experiences.

By prioritizing regular inspection, cleaning, and maintenance of your vehicle's exterior lights, you can enhance visibility, promote road safety, and comply with regulatory standards for vehicle lighting, ensuring a safer and more enjoyable driving experience for you and other road users.

MAINTENANCE

ROOF CARE

Proper roof maintenance is essential for the overall integrity and longevity of your vehicle. The roof is exposed to environmental elements, debris, and potential damage, making regular care and inspections crucial to prevent leaks, deterioration, and structural issues.

CLEANING TECHNIQUES

When cleaning the roof, start from the top and work your way down to prevent dirt, grime, or cleaning residue from draining onto the vehicle's body. Use a gentle yet effective cleaning agent suitable for your vehicle's roof material, such as a mild automotive shampoo or specialized roof cleaner.

⚠ CAUTION

Avoid abrasive or harsh cleaners that can damage the roof surface.

TOOLS AND EQUIPMENT

Select soft brushes, sponges, or microfiber cloths specifically designed for cleaning vehicle roofs. These tools help remove dirt, bird droppings, tree sap, and other contaminants without scratching or damaging the roof's finish. Use a hose or pressure washer with a gentle spray setting to rinse off the cleaning agent thoroughly.

ROOF COMPONENTS AND CARE

In addition to the main roof surface, many vehicles have various components installed on the roof, such as roof racks, solar panels, air conditioning units, antennas, and skylights. These components require special attention and care during roof maintenance to ensure their functionality and longevity.

- **Roof Components:** Inspect components for wear, loose fasteners, or corrosion. Clean them using a mild detergent and soft brush to avoid damage to both the racks and the roof surface.
- **Solar Panels:** Keep solar panels clean and free of debris using a gentle cleaning solution and soft cloth to maximize efficiency and prevent damage.
- **Air Conditioning Unit and Vents:** Clean vents and fan blades gently to remove dust and debris. Check seals and gaskets for leaks and replace them if necessary.
- **Antenna:** Clean antennas with a soft cloth and mild detergent to maintain signal reception and clarity.

ⓘ NOTICE

Inspecting for Damage:

Regularly inspect the roof, components, and seals for signs of wear, leaks, or damage. Address any issues promptly to prevent water infiltration and structural problems.

ⓘ NOTICE

Dealing with Debris and Blockages:

Clear debris from roof to prevent water pooling and leaks. Use gentle methods to remove debris without causing damage.

Sealing and Waterproofing:

Consider applying a protective sealant or waterproofing treatment to enhance durability and resistance to water penetration.

Consider applying a protective sealant or waterproofing treatment to enhance durability and resistance to water penetration.

Incorporate roof care into your regular maintenance schedule to prevent potential damage and ensure a safe travel experience.

By prioritizing regular roof inspections, cleaning, and maintenance, you can prolong the lifespan of your vehicle, prevent water damage and leaks, and ensure a safe and comfortable travel experience.

MAINTENANCE

TRIM AND SEALANT MAINTENANCE

Inspecting and maintaining the exterior trim pieces, seals, and gaskets of your vehicle is crucial for preventing water leaks, air ingress, and preserving the overall integrity of your vehicle's structure. Here are detailed guidelines for effective trim and sealant maintenance:

- **Visual Inspection:** Regularly inspect all exterior trim pieces, including door seals, window seals, roof seals, and any other areas where seals or gaskets are present. Look for signs of wear, cracking, tearing, or deterioration.

NOTICE

Pay close attention to areas exposed to sunlight, extreme temperatures, and environmental elements.

- **Cleaning and Conditioning:** Clean the exterior trim and seals regularly to remove dirt, debris, and contaminants that can accelerate wear and deterioration. Use a gentle automotive cleaner and a soft brush or cloth to clean the surfaces.

CAUTION

Avoid harsh chemicals or abrasive cleaners that can damage the seals or trim.

- **UV Protection:** Protect seals and trim pieces from UV damage by applying UV-resistant sealants or coatings. UV rays can cause seals and trim to fade, crack, or become brittle over time. UV protection products help prolong the lifespan of seals and maintain their functionality.
- **Seasonal Maintenance:** Perform seasonal checks and maintenance on seals and trim, especially before extreme weather conditions such as winter cold or summer heat.

NOTICE

Cold temperatures can cause seals to contract and become less effective, while heat can accelerate seal deterioration.

- **Professional Inspection:** Professional technicians can identify potential issues early, recommend necessary repairs or replacements, and ensure optimal seal performance.

By following these comprehensive trim and sealant maintenance practices, you can protect your vehicle from water leaks, air intrusion, and structural damage. Regular inspections, and cleaning contribute to the longevity and reliability of your vehicle's exterior components.

WINDOW AND WINDSHIELD CARE

Keeping your vehicle's windows and windshield clean and well-maintained is essential for visibility, safety, and overall driving comfort. Follow these detailed guidelines for effective window and windshield care:

- **Regular Cleaning:** Clean windows and windshields regularly using approved automotive glass cleaners or mild soapy water.

CAUTION

Avoid using harsh chemicals, ammonia-based cleaners, or abrasives that can damage the glass surface or seals. Use a soft microfiber cloth or sponge to gently clean the glass and remove dirt, dust, and grime.

- **Interior Cleaning:** Pay attention to the interior side of windows and windshield as well. Use a separate clean cloth or sponge for interior cleaning to prevent transferring dirt from the exterior. Wipe the interior glass surfaces thoroughly to remove fingerprints, smudges, and any residue that may obstruct visibility.
- **Seal Inspection:** While cleaning the windows, inspect the seals around windows and the windshield for signs of wear, cracks, or gaps.

NOTICE

Damaged seals can lead to water leaks, air ingress, and increased wind noise. Replace worn or damaged seals promptly to maintain a tight seal and prevent potential water damage inside the vehicle.

- **Windshield Wipers:** Keep wiper blades clean and free of debris that can affect their performance. Use a damp cloth or mild detergent to clean wiper blades periodically. Avoid using harsh chemicals or silicone-based products on wiper blades, as these can degrade the rubber and reduce wiping efficiency.
- **Wiper Blade Maintenance:** Professional technicians can identify potential issues early, recommend necessary repairs or replacements, and ensure optimal seal performance.

NOTICE

Professional Inspection:

If you notice persistent streaks, scratches, or damage on the windshield or windows, consider seeking professional inspection and repair. Professional technicians can diagnose glass issues, repair minor damages, or recommend windshield replacement if necessary for safety and visibility.

- **UV Protection:** Consider applying a UV-resistant coating or film to the windshield to reduce UV exposure inside the vehicle and protect the dashboard and interior from sun damage. UV protection films also help reduce glare and improve driving comfort, especially during sunny conditions.

MAINTENANCE

GRILLE AND VENT CLEANING

Proper maintenance of your vehicle's grille openings and vents is essential to ensure optimal airflow to the engine and HVAC (Heating, Ventilation, and Air Conditioning) system. Follow these detailed steps for effective grille and vent cleaning:

- **Regular Inspection:** Begin by inspecting the grille openings and vents for any visible dirt, debris, or blockages. Check both the exterior and interior vents, including those located on the dashboard, hood, fenders, and rear areas of the vehicle.
- **Exterior Cleaning:** Use a soft brush, such as a detailing brush or paintbrush, to gently remove dirt, leaves, insects, and other debris from the exterior grille openings.

NOTICE

Take care not to scratch the paint or grille surface while cleaning. Alternatively, use compressed air to blow out debris from hard-to-reach areas.

- **Interior Cleaning:** Clean interior vents using a soft brush or compressed air to remove dust, dirt, and debris. Ensure that all vent openings are clear and unobstructed to maintain proper airflow for heating and cooling functions.
- **HVAC System Maintenance:** Regularly clean and inspect the HVAC system components, including air filters, blower fans, and ductwork. Replace dirty or clogged air filters to improve air quality and system efficiency. Clean debris from the blower fan and ducts to prevent airflow restrictions and HVAC system malfunctions.

NOTICE

Ventilation System Odors:

If you notice unpleasant odors or musty smells coming from the ventilation system, consider using an HVAC system cleaner or deodorizer. Follow manufacturer recommendations for using cleaning products to eliminate odors and maintain a fresh interior environment.

- **Grille Protection:** Install grille guards or mesh screens to protect the grille openings from larger debris, such as rocks, branches, or road debris. Grille protection accessories help minimize damage to the grille and prevent blockages that can affect engine cooling and airflow.
- **Seasonal Maintenance:** Perform grille and vent cleaning as part of your seasonal vehicle maintenance routine. Inspect vents and grille openings more frequently during fall and winter months when leaves, snow, and debris accumulation are common. Keep vents clear to ensure efficient heating during cold weather.

COMPARTMENT SEALS

Windows and doors in your vehicle are equipped with flexible rubber seals designed to protect against wind, rain, and insects. It's crucial to maintain these seals to ensure they remain soft and flexible.

To preserve rubber seals:

- **Use silicon-based cleaners:** These cleaners help prevent the seals from drying out.
- **Apply cleaner carefully:** Spray the cleaner onto a cloth and gently wipe it onto the rubber seals to avoid excessive application.

Regular maintenance of compartment seals helps extend their lifespan and ensures effective protection for your vehicle.

SENSORS

Sensors, often located in the front and rear bumpers, require gentle cleaning for optimal performance.

- **Use water, shampoo, and a soft cloth:** Clean the sensors with a mixture of water and shampoo applied using a soft cloth.
- **Handle with care:** Be careful and gentle while cleaning the sensors to avoid damage.

CLEANING THE SENSORS

The sensors, located in the front and rear bumpers, require careful cleaning to ensure optimal performance. Use a gentle solution of water and mild shampoo, along with a soft cloth, to clean these sensors. Take special care to avoid scratching or damaging the surface during the cleaning process.



CAUTION

Always test the wax on a small, inconspicuous area before applying it to the entire surface to avoid any potential damage or discoloration.

MAINTENANCE

WAXING YOUR SPRINTER

Waxing your vehicle is a crucial step in maintaining its appearance and protecting it from environmental elements, especially the sun's harmful UV rays. While the process is similar to waxing a car, there are some key considerations specific to vehicles.

- **UV Protection:** The primary purpose of waxing is to create a protective layer that shields your vehicle's exterior from UV radiation. This layer helps prevent fading, oxidation, and damage caused by prolonged sun exposure.
- **Professional Services:** Many vehicle owners opt to hire professional services for waxing due to the size and complexity of vehicle exteriors. Professional detailers have the expertise and equipment to ensure a thorough and effective waxing job.
- **Choosing the Right Wax:** When selecting a wax for your vehicle, it's essential to choose one specifically designed for sprinters. These waxes are formulated to withstand outdoor conditions and provide long-lasting protection.
- **Test in an Unnoticed Area:** Before applying wax to the entire vehicle, test it in a small, discreet area to check for any adverse reactions or compatibility issues with your vehicle's finish.
- **Types of Wax:** For fiberglass body and glossy gel coat finishes, a conventional paste or liquid wax is recommended. These waxes offer durable protection and a glossy finish. While spray-on waxes are convenient, they may not provide the same level of longevity as conventional waxes.
- **Application:** Follow the manufacturer's instructions for wax application carefully. Use a clean, soft applicator pad or cloth to evenly apply the wax in small sections. Buff the waxed areas with a clean microfiber cloth to achieve a smooth and glossy finish.

By regularly waxing your vehicle with the appropriate products and techniques, you can help preserve its appearance and extend its lifespan, making your outdoor adventures more enjoyable for years to come.

WAXING FREQUENCY

When determining how often to wax your vehicle, consider the following factors:

- **Frequency of Use:** How often do you use the vehicle?
 - If it's used frequently, you may need to wax it more often to maintain protection and shine.
- **Storage Location:** Is the vehicle stored inside or outside?
 - Vehicles stored outside are exposed to more environmental elements and may require more frequent waxing.
- **Sun Exposure:** Is the vehicle constantly exposed to the sun?
 - Sun exposure can lead to paint fading and deterioration, so regular waxing can help protect against UV damage.
- **Covered Storage:** If the vehicle is stored outside, is it covered?
 - Covering the vehicle when not in use can help protect the paint and reduce the frequency of waxing.

Based on these considerations, you can determine the optimal waxing schedule for your vehicle to keep it looking its best and protected from the elements.

NOTICE

It is important not to attempt to wax an older vehicle with oxidized fiberglass siding. Exposure to the sun can cause oxidation, leaving a chalky film on the fiberglass. It's crucial to remove all oxidation before waxing the surface or applying a layer of wax to ensure proper protection and a smooth finish.

If the vehicle is outside exposed to other elements, its exterior should be waxed frequently. If it is stored outside, waxing it every season is a great choice. In the event that the vehicle is stored inside, waxing only once a year may be sufficient.

MAINTENANCE

INTERIOR CARE

Owning a vehicle comes with the responsibility of keeping it clean and well-maintained. Our sprinters are designed with the highest quality components and products to ensure comfort, convenience, longevity, endurance, luxury and a premium appearance.

Regular cleaning and maintenance of the interior are crucial to preserve these qualities and ensure a pleasant experience for occupants. Follow these tips for effective interior care:

- **Regular Cleaning:** Clean the interior surfaces regularly to remove dust, dirt, and debris. Use appropriate cleaning products and techniques for different materials such as upholstery, countertops, and flooring.
- **Protective Measures:** Consider using protective covers or mats to prevent stains, wear, and tear on high-traffic areas. Use coasters for drinks and trays for food to avoid spills and damage to surfaces.
- **Air Quality:** Keep the interior well-ventilated to maintain fresh air quality. Use air purifiers or deodorizers if needed to eliminate odors and improve overall air circulation.
- **Storage Organization:** Optimize storage spaces by organizing belongings efficiently. Use storage containers, racks, and shelves to keep items secure and minimize clutter.
- **Maintenance Checks:** Regularly inspect and maintain mechanical components such as HVAC systems, plumbing fixtures, and electrical systems to ensure they function properly and avoid potential issues.



⚠ WARNING

Do not place hot pots, pans, etc. directly on the countertop surface use a protective pad.

⚠ DANGER

Avoid getting the bleach solution in your eyes or on bare skin.

ⓘ NOTICE

To prevent a soap film or residue, make sure to dry the surface thoroughly after cleaning. Residue streaks can leave behind what looks like light scratches. Scratches can be removed by using a damp cloth with mild abrasive cleaner and rubbing it in small circles onto the surfaces and wipe dry.

COUNTERTOP AREA

The countertops in this vehicle are very durable and attractive compared to laminate-based products. The solid surface countertop requires basic maintenance with common household cleaners:

- **For most dirt and stains:** Soapy water or ammonia-based cleaners will remove most dirt and stains from all types of finishes.
- **For tough stains:** A pH neutral cleaner designed for stone cleaning works well. Cleaner with an ammonia base (avoid window cleaner) is effective on tough stains.
- **For occasional disinfection:** Wipe the surface with a dilute household bleach solution - 1:100 (5 Tbsp. of bleach to 1 gallon of water). After washing the surface with soap and water, ensure all excess moisture is wiped away.

⚠ DANGER

Safety Precaution with Bleach Solution:

When using a bleach solution for cleaning, it's important to avoid getting it in your eyes or on bare skin. Take appropriate safety measures by wearing protective gloves and eyewear to prevent any accidental contact with the bleach solution.

ⓘ NOTICE

Preventing Soap Film and Removing Scratches:

To prevent soap film or residue, ensure that the surface is thoroughly dried after cleaning. Residue streaks can create an appearance similar to light scratches. If scratches do occur, they can be removed by following these steps:

- Use a damp cloth with a mild abrasive cleaner.
- Rub the cleaner in small circles onto the surfaces with scratches.
- Wipe the surface dry after cleaning to remove any remaining residue or cleaner.

This method can help maintain the appearance of the surface and keep it looking its best.

MAINTENANCE

HOUSEHOLD SUBSTANCES CLEANING GUIDE

The countertops in your RV are designed to withstand exposure to common household substances. Here's a guide for cleaning various substances:

- **General Cleaning:** Use water and a general kitchen cleaner for substances like milk, whiskey, distilled water, vegetable oil, citric acid (10%), lye, household ammonia, iodine fluid (10%), vinegar, pine oil, ketchup, naphtha, hydrogen peroxide (3%), household bleach, trisodium phosphate (5%), and isopropyl alcohol (90%). Wipe the surface with a damp microfiber cloth and standard household kitchen spray for most stains.
- **Tough Stains:** For substances like crayon, lipstick, #2 pencil, coffee, mustard, and ethyl alcohol (90%), use a gentle cleanser suitable for solid surfaces. Avoid using powdered abrasive cleansers, ammonia, or strong detergents as they may damage the finish.
- **Special Considerations:** While liquids generally cannot penetrate the quartz solid surface, it's best to wipe up spills promptly to prevent staining. For stubborn stains or spills, a damp microfiber cloth and gentle cleaner should suffice.

By following these cleaning guidelines, you can maintain the durability and appearance of your countertops in the Grech Strada effectively.

ⓘ CAUTION

Avoid Using Acidic Cleaners:

It's important to avoid using acidic drain cleaner, toilet cleaner, and oven cleaner on solid surfaces like countertops. These cleaners can cause whitening that is difficult to remove, compromising the appearance of your countertops over time. Instead, stick to gentle and non-acidic cleaners for effective and safe maintenance.

ⓘ NOTICE

Countertop Color Maintenance:

It's important to note that some colors of solid surface countertops may require more frequent cleaning to maintain a uniform finish. Darker colors, in particular, may need more attention compared to lighter colors. Therefore, regular cleaning and maintenance are recommended to keep the surface looking its best and to prevent any noticeable differences in appearance between different colored areas.

SINK AREA

It is recommended that once or twice a week, the sink receives maintenance. Remove all the fat and oil residues of normal food preparation from the sink, using a detergent or a hard-surface cleaner.

You may use a spray with 3/4 of liquid household bleach and 1/4 water to spray the sink and leave it for a few hours or overnight (less than 16 hours). When time has passed, it should be rinsed or cleaned with a damp cloth in a circular motion.



CABINETS & OVERHEAD LOCKERS

Furniture found in Grech RV's are fabricated and constructed from a high pressure laminate. These surfaces can be cleaned with soapy water or with a common solvent on tough spots.

Here's what you need to do:

- **Soap and water:** Use a clean, soft cloth and mild detergent. Soak and wring out the cloth, then wipe down all surfaces, paying particular attention to corners, handles and hinges.

ⓘ NOTICE

Maintenance general inspection and service operations of shorter intervals are always preferable to longer intervals.

- **Rinse:** Clean doors and sideboards promptly with a soft cloth and warm water, then wipe the remaining moisture with another dry, soft cloth.
- **Tough stains or marks:** Use a solution of white vinegar and hot water for an inexpensive and natural solution that produces very good results. Mix up a solution of one cup of vinegar to two cups of hot water.



MAINTENANCE

MAINTENANCE REQUIREMENTS

The following tips specify at how many miles and hours with a list of the minimum requirements that are necessary to maintain your Sprinter's systems and components for a longer life span.

CHECK EVERYDAY:

- Side Driver and Passenger Door Release Operation and Rear back door correct operation.
- Side Passenger entry door operation.
- Side Step Operation (Sound and retract and extend operation)
- Function of all interior and exterior lights
- Tire Pressure
- Fluid Leaks: Transmission, engine, power steering, engine coolant, gear oil, fuel.
- Check all seatbelts for proper function and/or possible damage.
- Fresh, Black, and Gray water tank for possible leaks.

CHECK EVERY MONTH:

- Passenger, Driver and Rear back door door leakage.

AT 5,000 MILES/600 HOURS:

- Inspect tires for wear and inspect tread depth.
- Lube door seals with silicon spray, check for proper sealing
- Rotate tires.

AT 15,000 MILES/1800 HOURS:

- Lube door seals with silicon spray, check for proper sealing
- Rotate tires.
- Inspect engine air filter

AT 20,000 MILES/2,400 HOURS:

- Inspect tires for wear and inspect tread depth.
- Rotate tires.
- Inspect engine air filter.
- Clean battery terminals/ check for proper torque.

AT 25,000 MILES/3,000 HOURS:

- Inspect tires for wear and inspect tread depth.
- Rotate tires.
- Inspect engine air filter.
- Clean condenser coils.

AT 30,000 MILES/3,600 HOURS:

- Lube door seals with silicon spray, check for proper sealing.
- Inspect tires for wear and thread depth.
- Rotate tires.

AT 45,000 MILES/5,400 HOURS:

- Lube door seals with silicon spray, check for proper sealing.
- Inspect tires for wear and tread depth.
- Rotate tires.

AT 60,000 MILES/7,200 HOURS:

- Lube door seals with silicon spray, check for proper sealing.
- Inspect tires for wear and tread depth.
- Clean condenser coils.

AT 75,000 MILES/9,000 HOURS:

- Lube door seals with silicon spray, check for proper sealing.
- Inspect tires for wear and tread depth.

AT 90,000 MILES/10,800 HOURS:

- Lube door seals with silicon spray, check for proper sealing.
- Inspect tires for wear and tread depth.
- Clean condenser coils.

NOTICE

Check each component's manual for specific maintenance tips and intervals.

EXTENDED OCCUPANCY

Your vehicle is designed for recreational and short-term occupancy. However, if you plan to stay for an extended period, there are important considerations regarding humid conditions and condensation that may arise. Due to the compact construction of your vehicle, normal living activities, especially in cold weather, can lead to rapid moisture saturation inside.

Similar to how moisture collects on a cold glass during humid weather, condensation can form on the interior surfaces of your vehicle. The thin insulation of vehicle walls increases this effect compared to traditional home walls.

Here are steps to manage moisture and reduce condensation inside your vehicle:

- **Ventilation:** Open windows and vents regularly to allow fresh air circulation, which helps reduce moisture levels inside.
- **Minimize Moisture Release:** Use bathroom and roof vent fans to remove excess moisture.

By following these guidelines, you can maintain a comfortable and moisture-free environment inside your vehicle during extended stays.