

Pleasure-Way

2021 TOFINO

Ram ProMaster 1500



OWNER'S MANUAL

 **WARNING**

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

Cooking appliances need fresh air for safe operation.

Before Operation:

Open overhead vent or turn on exhaust fan.
Open Window.

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

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

 **WARNING**

DO NOT FILL CONTAINER (S) TO MORE THAN 80 PERCENT OF CAPACITY. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

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

 **DANGER**


IF 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 explosion resulting in death or serious 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 SERIOUS INJURY.

 **WARNING:** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- 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 go to www.P65warnings.ca.gov/diesel.

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

Pleasure-Way

Pleasure-Way Industries Ltd. takes great pride in the quality and excellence that the Pleasure-Way name represents. We appreciate having you as a customer and welcome you into the Pleasure-Way family. This manual is provided to introduce you to the many features of your new Tofino including operation, maintenance and warranties. We strongly advise you to take time to read this manual, the Ram ProMaster chassis owners manual as well as those of the motorhome components before you use your new motorhome. It will help you to better understand the many operational features of this recreational vehicle.

After reading this manual, be sure to keep it in the motorhome as a reference. Your Pleasure-Way dealer will be glad to answer any further questions about the operation of your motorhome and the appliances.

All reasonable precautions have been taken in the preparation of this manual. We have been as accurate as possible at the time of this publication. However, due to our policy of continuous improvement and refinement to our product, Pleasure-Way reserves the right to make product changes at any time without prior notice and without incurring obligations. As a result, Pleasure-Way assumes no responsibility for errors or omissions in the accuracy in the content of this manual.

We know that you will enjoy your new Pleasure-Way and we wish you many miles of pleasant and carefree driving. Happy Travels!



Tofino



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WARRANTY / POLICIES

CUSTOMER RESPONSIBILITY

It is important you read and understand the information provided to you in the package containing all the manuals and information pertaining to your Pleasure-Way Motorhome.

Familiarize yourself with the applicable warranties. You are responsible for ensuring the procedures for obtaining warranty repairs are followed properly. It is your responsibility and obligation to return your motorhome to your authorized Pleasure-Way dealership for warranty service repairs.

As the owner of the Motorhome, you are responsible for regular and proper maintenance performed in accordance with the Pleasure-Way and OEM manuals provided. Regular and proper maintenance will help prevent conditions arising from neglect that are not covered under warranty.

WHAT THIS LIMITED WARRANTY COVERS

Pleasure-Way Industries Ltd., warrants the specified new Motorhome free from defects in material and craftsmanship on portions manufactured by Pleasure-Way Industries Ltd. under normal use and service. Pleasure-Way Industries' obligation, under this limited warranty, shall be limited to 60 months / 60,000 miles / 100,000 kilometers (whichever comes first) after the date of purchase by the first retail purchaser from an Authorized Pleasure-Way Dealer. Warranty shall be fulfilled by an Authorized Pleasure-Way Dealer or Authorized Pleasure-Way service facility.

This Pleasure-Way Warranty is non-transferable to subsequent owners.

WHAT THIS LIMITED WARRANTY DOES NOT COVER

This limited warranty shall not apply to the following:

- A Motorhome that has been altered outside our factory in any way so as, in our sole opinion and discretion, to affect its stability, operation or reliability.
- Deterioration due to wear and or exposure, including but not limited to rust: corrosion, oxidation and cosmetic blemishes.
- A Motorhome that, in our sole opinion and discretion, has been subject to misuse, negligence, or accident.
- A Motorhome that has been declared a total loss by an insurance company, or a motorhome title indicates it is designated as “salvage”, “junk”, “rebuilt” or a word of similar impact.
- The automotive chassis is covered by its own manufacturer’s warranty, including by way of example, but not limited to: power train, engine, drive-train, tires and muffler. To learn more about the specific automotive chassis not covered under the Pleasure-Way Warranty please contact your authorized selling dealer, Pleasure-Way Industries Ltd. or review your Mercedes-Benz or Ram ProMaster warranty package information provided with the coach.
- Appliances and components covered by their own manufacturer’s warranties, including but not limited to: the microwave, refrigerator, stove, heater, television, generator and roof air conditioners. To learn more about specific component parts or appliances not covered under the Pleasure-Way warranty please contact your selling dealer, Pleasure-Way Industries or review your warranty package information provided with the coach.
- Unauthorized repairs, alterations or modifications.
- Routine maintenance.
- Items that are working as designed but which you are unhappy with because of the design or function.
- Damages caused by, but not limited to: hail, tornadoes, lightning, floods, earthquakes, hurricanes, fire, rain, and all other environmental conditions, which include but are not limited to, tree sap, tar, chemicals, oils, salts, road hazards, stone chips, infestations, rodents and /or acts of God.
- Defects or repairs required, as an example but not limited due to; improper loading, load distribution, accident, collision, vandalism, abuse, neglect, improper maintenance, rust or corrosion.
- Damage caused by the failure to seek and obtain repairs in a timely manner.
- 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 forth in the owner’s manual.
- Goods damaged while stored in exterior storage compartments. Exterior storage compartments may not be moisture free due to weather and humidity conditions. It is advised that you store items accordingly.
- Condensation and the results of condensation including, but not limited to, water damage and the growth or mildew or mold. Mold and mildew are natural growths given certain environmental conditions and are not covered by the terms of this warranty.
- 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 Motorhome; inconvenience; cost of rental vehicle; cost of accommodations; travel expenses; towing; meals; and other miscellaneous incidental expenses. Some states do not allow exclusions or limitation of incidental or consequential damages, so 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 AND 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 *from the original retail date purchase date or 12,000 miles / 20,000 kilometers (whichever comes first), by the original retail purchaser from an Authorized Pleasure-Way Dealer:*

- All seat, curtain, door panel, wall and ceiling fabrics used in the coach
- Window seals and caulking
- Exterior power cable hatch
- City water fill
- Porch light
- Exterior cable TV outlet
- Carpet
- Linoleum
- Black and gray water termination valves
- 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. These are considered normal.

FOR TWO (2) YEARS *or 24,000 miles or 40,000 Kilometers (whichever comes first) by the original retail purchaser from an Authorized Pleasure-Way Dealer:*

- Foam used in cushions

FOR THREE (3) YEARS *or 36,000 miles or 60,000 Kilometers (whichever comes first) by the original retail purchaser from an Authorized Pleasure-Way Dealer:*

- Exterior painted surfaces

This warranty is expressly in lieu of all other warranties, expressed or implied, and all other obligations or liabilities for alleged representation or negligence. Pleasure-Way Industries Ltd. neither assumes nor authorizes any other person to assume for us any liability in connection with the sale of our Motorhomes other than expressed above.

All correspondence should be directed to the authorized Pleasure-Way dealer from whom the Motorhome was purchased and must specify the serial number and date of purchase of Motorhome in question.

Pleasure-Way Industries Ltd. reserves the right to make changes in Motorhomes built and/or sold by it at any time without incurring any obligations to make the same or similar changes on Motorhomes previously built and/or sold by Pleasure-Way Industries Ltd.

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 Pleasure-Way. Pleasure-Way will, at its option, replace or repair free of charge any defective part, including labor. The purchaser shall notify their authorized Pleasure-Way Dealer within the warranty period.

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

In the event that this Motorhome is used for commercial or rental fleet purposes, the warranty coverage shall be limited to one (1) year 12,000 miles / 20,000 Km (whichever comes first) from the date of original purchase.

OBTAINING WARRANTY REPAIRS

To obtain warranty repairs, you must contact your authorized Pleasure-Way 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 motorhome as required or recommended by the owner's manual and associated costs of that maintenance. Repairs necessitated by failure to maintain the Motorhome as required or recommended are not covered by warranty.

NOTE: *Pleasure-Way does not control the scheduling of service work at authorized or independent dealerships. You may encounter some delay in scheduling or completion of work.*

WARRANTY POLICIES

Warranty repairs must be within the five year or 60,000 miles / 100,000 kilometers (whichever comes first) limited warranty.

Pleasure-Way 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.

Pleasure-Way Industries Ltd. 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 Ford, Mercedes-Benz, Chrysler or Chevrolet dealership (depending on your chassis make) and processed through their warranty procedures. Pleasure-Way Industries Ltd., will not reimburse any claims regarding the chassis. Pleasure-Way Industries Ltd., will pay for the removal and re-installation of motorhome components only if absolutely necessary to perform Chassis warranty repairs. Pleasure-Way Industries Ltd., 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.

RAM PROMASTER WARRANTY USA	<p>BASIC LIMITED WARRANTY – coverage for 3 years or 36,000 miles</p> <p>POWERTRAIN LIMITED WARRANTY – coverage for 5 years or 60,000 miles</p> <p>ROADSIDE ASSISTANCE - coverage for 5 years or 60,000 miles</p>
RAM PROMASTER WARRANTY CANADA	<p>BASIC LIMITED WARRANTY – coverage 3 years or 60,000 kms</p> <p>POWERTRAIN LIMITED WARRANTY – coverage for 5 years or 100,000 kms</p> <p>ROADSIDE ASSISTANCE - coverage for 5 years or 100,000 kms</p>

SAFETY

For your safety while traveling with your Pleasure-Way motorhome, we have provided safety components throughout the vehicle. In order for your vehicle to maintain the safest possible conditions, these components must be tested and maintained on a regular basis, according to the detailed manufacturer's operating instructions.

OCCUPANT AND CARGO CARRYING CAPACITY

The Tire and Loading Information label, found on the driver side door pillar, states the OCCC of your motorhome. This figure states the maximum allowable weight of all occupants (including the driver), plus the weight of all food, tools, full fresh water tanks, and personal belongings. The tongue weight of a towed trailer also counts as cargo. If you are traveling with water in your holding tank, weight can be calculated by using this ratio: 1 kg/L or 8.3 lb/gal.

The OCCC of your motorhome was calculated by adding the weight of: the full LP fuel tank, the full vehicle fuel tank and the dry weight of the motorhome (as shipped from the factory) and subtracting that number from the Gross Vehicle Weight Rating (GVWR).

NOTE: All US units include a second OCCC label on the inside of the passenger door.

SMOKE DETECTOR


A smoke detector is located in the overhead bunk. Smoke detectors may give you a warning of fire and smoke, but only if used and maintained in accordance to the manufacturer's instructions.

- This device should be tested after each time your vehicle has been in storage, before each trip, and at least once each week during your travels.
- Do not block air circulation in the area where the smoke detector is located.
- Ensure you connect the battery inside the detector upon receiving your new unit. (9 volt battery located inside the unit.)
- Install a fully charged fresh battery at least once a year.

WARNING: Before operating the cooktop, the roof must be in the raised position.

All Pleasure-Way Motorhomes in Canada are CSA (through QAI) and CMVSS certified, and may exceed the approved installation criteria.

All Pleasure-Way Motorhomes in the United States are FMVSS certified and bear the R.V.I.A. seal of approval, and may exceed the individual state requirements.



TIRE AND LOADING INFORMATION
RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT

Seating Capacity: Total: Front: Rear:
→ The combined weight of occupants and cargo should never exceed kg or lbs

TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT AVANT	<input type="text"/>	<input type="text"/>	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS FD-352
REAR ARRIERE	<input type="text"/>	<input type="text"/>	
SPARE DE SECOURS	<input type="text"/>	<input type="text"/>	



FIRE EXTINGUISHER

A 3-pound capacity fire extinguisher is provided and located at the side door main entrance for ease of accessibility from the interior or exterior.

WARNING: This fire extinguisher is a type “ABC”, which will extinguish flammable liquids and electrical fires, but not wood, paper and cloth fires. You should inspect the extinguisher at least once a month according to the manufacturer’s instructions.



LP/CARBON MONOXIDE DETECTOR

A liquid propane (LP) / carbon monoxide (CO) gas detector is located near the floor level below the driver side of sofa bed. This detector will detect liquid propane gas, carbon monoxide and other gases that are heavier than air. The detector is powered by the coach batteries and will only operate when the 12 volt battery disconnect switch is ON.

The detector should be tested after each time your vehicle has been in storage, before each trip, and weekly while the vehicle is in use. The test procedure should be performed in accordance to manufacturer’s instructions. Do not block air circulation in the area where the detector is located.

NOTE: The LP/CO detector will sound to indicate a low coach battery voltage.



GFCI OUTLET

A ground fault circuit interrupter (GFCI) 110-volt receptacle located kitchen face frame below the sink provides protection against line-to-ground electrical shock hazards that could be harmful or even fatal. The outlets that are on this circuit are the exterior, kitchen and rear bench receptacles. The GFCI receptacle must be tested at least once a month in accordance with the manufacturer’s instructions.

The GFCI for the Induction Stove is found in the cabinet below the induction cook top.



REFUELING

When refueling your fuel tank or your propane system, ensure that your vehicle and your main LP valve is shut off. Ensure that the pilot lights have been extinguished as well. Some appliances in your vehicle have auto ignition. Ensure the appliances are shut off so ignition will not activate.

WARNING: *Even with the main LP valve shut off, there is enough LP gas in the lines to cause the pilot lights to continue to burn.*



FILLING THE LP GAS FUEL CYLINDER

The propane tank valve must be closed and all pilot lights and appliances, along with their igniters, must be turned off during refueling of the motor fuel and/or the propane fuel tank. Only qualified personnel should refuel your propane tank. Do not refuel the propane tank to more than 80% of its capacity. Liquid will appear at the breather valve at 80%. To reduce the danger of fire and/or explosion, do not store gasoline or other flammable liquids inside your vehicle.

NOTE: *When the tank reaches 80% capacity the LPG gauge on the touchscreen control panel will read 100%.*

WARNING: *Ensure the propane system valve is fully shut when the vehicle is in motion. It is not safe to travel while propane appliances are in use. The propane switch is located in the driver side utility center.*



APPLIANCES

It is not safe to use cooking appliances to heat the interior of the coach due to the danger of asphyxiation. It is recommended that you read all of the appliance owner / operating manuals prior to using the appliances.

(for more information see page 18)



ROAD SAFETY STRAP

The roof must be lowered and the latches and safety strap locked in place before moving the vehicle. The safety latch must remain locked while the vehicle is in motion.



SEAT BELTS

Only forward-facing seats equipped with factory installed seatbelts are to be occupied while the vehicle is in motion. All passengers must be seated in these seats only. Seat belts must be fastened while the vehicle is in motion.

Your vehicle is equipped with three point seat belts on the front Driver and Passenger seats, as well as two lap belts on the rear sofa seat. In order for passengers to ride in the rear of this vehicle, the rear sofa must be in the full upright position and seat belts must be secured.



VEHICLE GROUND CLEARANCE

Your motorhome is equipped with underside holding tanks, drainage lines, propane lines and other RV related items. Please be careful when driving your motorhome on uneven or poorly maintained roadways.



EMERGENCY ESCAPE

To make an emergency escape from your motorhome, use the interior door handle available on all doors.

MOTORHOME EXTERIOR

MOTORHOME SPECIFICATIONS

Your motorhome is larger than your standard van or automobile, so please be careful when entering underpasses, garages, parkades, etc.

3.6 litre Pentastar V6 featuring 280 HP / 260 LB-FT Torque
 6 Speed Automatic Transmission
 220 Amp Alternator
 Class IV Hitch and Wiring
 136" Wheel Base with 40.7 Turning Diameter

PROMASTER PAINT CODE:

Deep Cherry Red: PRP, Granite Crystal: PAU, Bright Silver:PS2



DIMENSIONS

Length Bumper to Bumper	17' 9"	541 cm
Height without Roof Rack	8' 2"	249 cm
Height with Roof Rack	8' 6.5"	260 cm
Width with Mirrors Extended	8' 2.5"	269 cm
Width with Mirrors Retracted	7' 6"	228.6 cm
Queen Bed	54"(wide) x 72"(long)	
Overhead Bunk	49"(wide) x 72"(long)	

CAPACITIES

WEIGHT

Fuel	24 US gallons / 90 L	149.3 lbs
Fresh Water / Potable Water	16 US gallons / 60.6 L	133.4 lbs
Grey Water (sink)	8 US gallons / 30.3 L	66.7 lbs
Liquid Propane LPG (at 80%)	5.9 US gallons / 22.3 L	24.8 lbs
Roof Rack Weight Capacity	200 lbs	90.7 kg
Overhead Bunk Weight Capacity	200 lbs	90.7 kg
Ladder Weight Capacity	330 lbs	150 kg
Towing Capacity	2950 lbs	1338.1 kg
Seat Belts	4	

CHASSIS SPECS - RAM PROMASTER 1500

GVWR	8,550 lbs	3,879 kgs
GCWR	11,500 lbs	5,216 kgs
GAWR Front	4,629 lbs	2,100 kgs
GAWR Rear	5,291 lbs	2,400 kgs
Tires (All)	LT 225/75R 16 E	10 Ply with an E weight rating
Tire Pressure Front	65 PSI	450 KPA
Tire Pressure Rear	80 PSI	550 KPA

APPLIANCES

MANUFACTURER

MODEL

APPLIANCES	MANUFACTURER	MODEL
AC/DC 2.3 cu ft. Fridge	Dometic AC/DC	CRX 1065
Induction Cook Top	True Induction	TI-1B
Water Pump	Shurflo	4008-101-A65
Furnace	Atwood	AFSD16121
Solar Panel	Go Power	Flex 100
Solar Control	Go Power	GP- PWM - 30
Inverter / Charger	Xantrex Freedom XC 2000	817-2080
DC to DC Charger	Mastervolt	Mac Plus 12/12-50
In Dash Stereo	Ram Promaster	U Connect 3 Nav - 5" display
LP Solenoid	Manchester	MED-Teneca
Ceiling Lights	Kaper II	L09-0113
Porch Light	Optronics Inc.	ILL70CBBAWN
LP/CO Detector	Atwood	31011
Dual Coach Batteries	Life PO4	ECO-ION Lithium 100AH

NOTE: All measurements and capacities are approximations. Every effort has been made to be as accurate as possible.

PLEASE NOTE:

- Appliances and options may change without notice and some appliances and equipment may be optional.
- Due to Pleasure-Way's policy of continuous improvement, Pleasure-Way Industries Ltd. reserves the right to make product changes at any time without incurring obligation.
- The chassis manufacturer may make mechanical and option changes without Pleasure-Way Industries Ltd. incurring any obligation.
- Pleasure-Way Industries Ltd. cannot be held responsible for changes made to an appliance supplied by another distributor or manufacturer.
- Pleasure-Way Industries Ltd. cannot be held responsible for dealer installed options.

TIRE AND LOADING INFORMATION

The tire load information is located on the driver side door pillar. Please check the label on your vehicle for exact tire pressures and Occupant and Cargo Carrying Capacity (OCCC).

TIRE AND LOADING INFORMATION RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT			
Seating Capacity: Total: <input type="checkbox"/> Front: <input type="checkbox"/> Rear: <input type="checkbox"/>			
The combined weight of occupants and cargo should never exceed <input type="checkbox"/> kg or <input type="checkbox"/> lbs			
TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT AVANT	<input type="text"/>	<input type="text"/>	FD-303
REAR ARRIERE	<input type="text"/>	<input type="text"/>	
SPARE DE SECOURS	<input type="text"/>	<input type="text"/>	

PROPANE FILL, BREATHER VALVE AND BBQ QUICK CONNECT

The fill and breather valve is located below the passenger side running board under the sliding door. The BBQ quick connect is located on the right hand side of the LP breather. (for more information see page 17)



SEWER DUMP COMPARTMENT

Located in the driver side, open the driver side rear door and hose container to access the sewer hose. Open the cap on the sewer discharge. Attach the sewer hose to the sewer discharge and to a sewer dump sight. Pull the grey gate valve handle to drain the tank. Disconnect and flush the blue sewer hose, return the sewer hose to the storage container, close the grey water handle and close the sewer cap.



UTILITY CENTER

Located on the driver side exterior, this compartment contains three main components used in your RV:

1. Shore Power Hook-Up
2. LP Electric Valve Switch
3. Pressurized City Water Hook-Up



FRESH WATER HOLDING TANK FILL

Located on the driver side exterior, this compartment allows you to fill the fresh water holding tank. It also contains the vent tube for your fresh water holding tank.



FURNACE VENT

Located on the driver side exterior, this vent gives off the exhaust of the furnace.

NOTE: Ensure this vent is free and clear of any obstructions at all times.



EXTERIOR 110-VOLT PLUG

Located on the passenger side panel behind the rear wheel, this plug will only function if power is supplied through the inverter or shore power. This plug is controlled by the GFCI on the kitchen face frame.



PORCH LIGHT

Located on the touchscreen control panel on the kitchen face frame or the hand held remote. Select the porch light button to turn on or off the porch light. This button will be on the home screen.



SOLAR PANEL PACKAGE

Your vehicle can be equipped with 95 to 190 watt Go Power solar panels. The solar panels are located on the rear of the pop top. The charge control panel is located above the kitchen countertop.

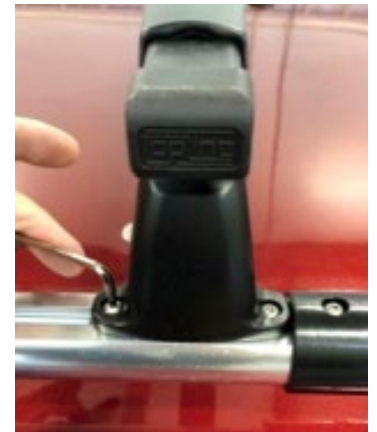
(for more information see page 35 & 37)



ROOF RACK (MAXIMUM WEIGHT 200 LBS)

To adjust the cross rails use a 5/32" Allen wrench to loosen the two Allen machine bolts on the cross rail foot. Slide the rail to the location that is needed and tighten the bolts.

WARNING: When raising or lowering the roof ensure no items are on the roof rack. The roof rack is only to be used when the roof of the vehicle is in the lowered position with the spring latches engaged and the safety strap connected.



MAINTAINING YOUR MOTORHOME

It is recommended that you regularly maintain your Pleasure-Way Motorhome in order to get the maximum benefits from your unit. The life and performance of each component depends upon proper use, operation and maintenance. With a regular maintenance schedule you should be able to identify any components that may need attention, allowing you to have many years and miles of trouble-free traveling.

NOTE: Please refer to your Ram ProMaster owner's manual for chassis mechanical maintenance.

HELPFUL HINTS

To maintain your exterior painted fiberglass and metal surfaces we suggest you thoroughly clean and wax these pieces regularly. All fiberglass surfaces are painted with automotive paint.

When storing your Pleasure-Way motorhome it is recommended that you park the vehicle on a level surface. Avoid parking in a front end down position as rain or snow may collect in the air conditioner area, allowing moisture to enter the vehicle through the air conditioner. Damage to the motorhome as a result of incorrect parking will not be covered under warranty.

When storing your Pleasure-Way motorhome, ensure all holding tanks are emptied and flushed, the water system is completely drained, including the water heater, the LP gas valve is turned off, the 12 volt battery disconnect is switched to the OFF position, and all electrical appliances are turned off.

When storing your Pleasure-Way motorhome it is recommended that you run your vehicle engine once a month to allow the engine starting battery to recharge and the vehicle fluids to flow through the engine. Please refer to your vehicle operation manual for more details.



TRAVEL PREPARATION

BEFORE YOU LEAVE

Prior to heading off on your adventures, you should always check to ensure that:

- The LP gas is turned OFF at the main valve
- The gray waste water tank is empty with the dump handles closed
- All electrical cords and exterior hoses are stored back into their respective compartments
- Chassis fluid levels are at recommended levels
- Chassis tire pressure levels are at recommended levels
- Chassis exterior lighting is functional
- All exterior components are secure and closed
- All interior compartments and drawers are closed and latched
- All interior components are secure and in place
- The furnace control switch is off
- The site is left in better condition than when you arrived

WHILE IN MOTION

While in motion, refrigerator can operate in DC mode. Use of any other appliance is not recommended while the motorhome is in motion.

Always wear your seat belt when the vehicle is in motion. Only forward facing seats are equipped with seat belts.

WARNING: *Do not use LP appliances while the vehicle is in motion.*



UPON ARRIVAL AT YOUR SITE

Once you arrive at a site, please ensure that:

- Your motorhome is parked in a level position so that your components will perform optimally (place a bubble level on the freezer shelf of the refrigerator and level your unit accordingly).
- All exterior vents are clear from obstructions
- The gray water waste tank valve is closed
- The AC power cord is attached to the vehicle and to the site receptacle (120 volt 30 amp)
- You hook the fresh water line to the city connection or fill the fresh water tank and turn on your water pump
- The LP gas switch is turned ON

MOTORHOME SYSTEMS

LIQUID PROPANE GAS SYSTEM

LP appliances are: Furnace and BBQ Quick Connect

Your motorhome is equipped with a Liquid Propane (LP) gas system that provides a fuel source to the appliances which are designed to use this gas for operation. The storage tank is located under the chassis on passenger side. Access to the LP tank and regulator is found under the vehicle. The regulator is on the passenger side propane tank bracket.

An LP gas regulator must always be installed with the diaphragm vent facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage that could result in excessive gas pressure, causing fire or explosion. The main propane shut-off switch is located in the driver side utility center.

The propane fill, breather valve and BBQ quick connect are located below the running board on the passenger side. The breather valve must be open to fill the propane tank. Liquid will appear through the breather valve when the tank is 80% full.

The propane gage is located inside your coach on the touchscreen panel. The panel will indicate full or 100% when the LP tank is 80% full.

NOTE: *Your LP gas appliances may not light on the first try. There may be air in the LP gas lines that will dissipate as the gas pressurizes the lines.*

IF YOU SMELL GAS:

1. *Extinguish open flames, pilot lights and smoking materials*
2. *Do not touch any electrical switches*
3. *Shut off the gas supply at the tank valve or at the gas supply connection*
4. *Open all the doors and other ventilating openings*
5. *Leave the area until the odor clears and you are sure there is no further risk to you or others*
6. *Have the gas system checked and leakage source corrected before using again*



WARNING: *Do not bring or store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result. LP gas containers are equipped with safety devices that relieve excessive pressure by discharging gas into the atmosphere.*

WARNING: *It is not safe to use cooking appliances for comfort heating. Cooking appliances need fresh air for safe operation. Unlike homes, the amount of oxygen supply in the unit is limited due to the size of the vehicle. Proper ventilation when using the cooking appliance(s) will avoid the dangers of asphyxiation, explosion and CO poisoning.*

WARNING: *Do not use portable fuel burning equipment, including wood and charcoal grills and stoves inside the motorhome. The use of this equipment inside the recreational vehicle may cause fire or asphyxiation.*

LP TANK GAUGE

This gauge indicates how full the LP tank is. The LP gauge is located on the tank with a sending unit that sends levels to the touchscreen control panels.

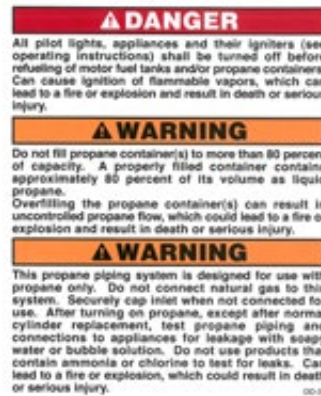


LP FILL VALVE & LP BLEEDER VALVE

The bleeder valve allows pressure to vacate the LP tank when 80% full. The fill valve, is covered by the yellow end cap.

Only fill the LP tank to 80% capacity, liquid will appear from the breather valve at 80%.

WARNING: DO NOT FILL LP CONTAINER TO MORE THAN 80% CAPACITY. Overfilling the LP gas container can result in uncontrolled gas flow, which can cause a fire or explosion. A properly filled container will contain approximately 80% of its volume of LP gas.



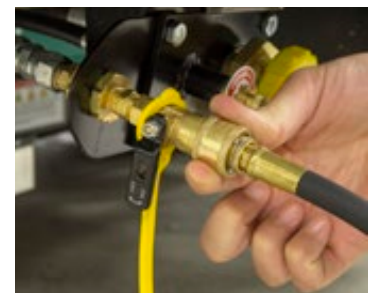
BBQ QUICK CONNECT

The BBQ quick connect is directly connected to the RV LP system. It is equipped with its own shut-off valve (black handle). The quick connect is a regulated (low pressure) LP line that is supplied from the onboard LP tank. The BBQ quick connect works with the standard, full-flow male quick connect fitting. You will need a BBQ that is set-up for a low pressure LP source.

BASIC OPERATION:

1. Ensure the black valve is in the OFF position.
2. Remove the yellow cap and ensure the opening is clean.
3. Pull the sleeve of quick connect back and insert the male quick connect fitting.
4. Push the male fitting until the sleeve snaps forward, locking the fitting into the socket.
5. Connect your BBQ.
6. Turn the black valve ON to allow propane to flow to the connected BBQ.
7. Ensure the main LP switch in the Utility Center is ON.

NOTE: Propane will only flow from the BBQ quick connect when there is a hose connected. This is a safety feature of this component. The black valve must be in the OFF position to release the hose from the quick connect.



*LP hose and BBQ not included.

HOW TO USE THE LP APPLIANCES

Turn ON the 12 volt battery disconnect switch.
(located on the lower sofa bench.)

Turn ON the LP electric valve.
(located in the driver side utility center)

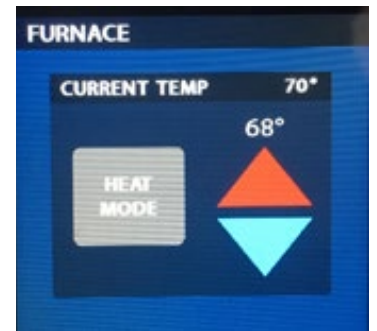


FURNACE

Please refer to the manufacturer's operating instructions for further information.

Your vehicle is equipped with a 16,000 BTU Atwood LP gas Auto Ignition Furnace. The furnace is located near the floor next to the fridge.

1. Ensure that there is propane supplied to the coach.
2. Ensure there is 12V power to the coach.
3. Select the thermometer icon on the touchscreen control panel.
4. Use the up and down arrows to select the desired temperature.
5. The furnace fan will come on, the furnace will auto ignite and cycle through the fan and heating process. The furnace will maintain the desired temperature.
6. The furnace reset button is located under the kitchen shelf. Slide the shelf above the furnace to the right by pressing down on the right edge next to the divider.



COOKTOP

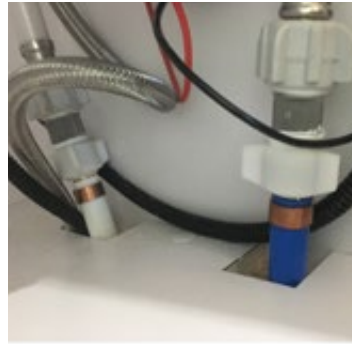
Please refer to the manufacturer's operating instructions for further information.

The vehicle is equipped with a single burner flush mount induction cooktop located in the kitchen countertop. Power, heating and timer controls are located under the burner. A GFCI for the cooktop is located on the kitchen face frame below the cooktop.



FRESH WATER SYSTEM

The water system built into your motorhome provides full service similar to the system in your home. A 12-Volt self-priming pump draws pressurized water from the fresh water tank to all cold faucets and rear quick connect sprayer. An automatic pressure switch located in the water pump maintains a positive line pressure between 20 to 30 psi. The fresh and gray water tanks are located underneath the kitchen cabinet next to the sofa.



FRESH WATER FILL AND DRAIN

To fill the fresh water tank, use the gravity water fill located on the driver side of the van. First, unlock the water fill compartment and remove the large cap; then place the water hose into the fill. Turn on the water to medium flow. There are two ways of knowing when your water tank is full:

1. Check the monitor panel located inside your coach
2. When water flows back through the gravity fill.



NOTE: If you notice water running out from underneath the van, check the drain tap under the passenger side running board. This tap is there to help you drain your fresh water tank.

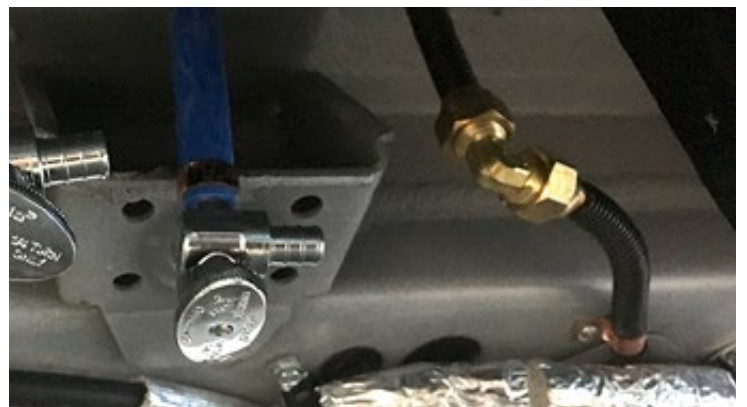
FRESH WATER SYSTEM DRAIN

The fresh water tank drain (white line) is located under the driver side running board. This drain is connected directly to your fresh water tank and will allow you to drain the fresh water tank when the vehicle is not in use. To use this drain ensure all water taps are in an open position.



LOW POINT DRAIN VALVE

The vehicle is also equipped with a low point drain valve (blue line). This valve will allow you to drain all the fresh water lines in the vehicle. The low point drain is located below the driver side running board next to the fresh water tank drain. To use this drain ensure all water taps are in an open position.



WATER PUMP AND TROUBLE SHOOTING

Located in the cabinet below the kitchen sink. The water pump has a removable filter that should be checked regularly.

The inline flow filter is located on the inlet side of the water pump. If the pump will not prime, ensure:

- Water is in the holding tank
- The battery is not run down
- Water lines are tightly connected to the pump and to the filter
- There are no leaks at the inlet fitting and filter (if air is leaking into inlet fittings, tighten fittings or apply clamps as necessary)
- The inline flow filter is clean

If the water pressure drops, ensure that:

- Faucet aerators are clean
- There is water in the holding tank
- Battery is not run down
- Faucets and connections are free of leaks

If the pump runs when there is no apparent demand for water, ensure that:

- Water in the holding tank
- All faucets and fixtures are shut off and not leaking
- Water lines are free of leaks

CITY WATER CONNECTION

The city water connection is located in the driver side utility center. The city water connection is a convenience for you when you have access to an outside, pressurized water source. To hook up the city water connection you should make sure that the water pump switch is turned off inside the coach and that all faucets are shut. Attach your water hose and turn on the water supply. The city water system bypasses the fresh water holding tank and feeds the water lines directly so that you will not have to use the water pump. To disconnect the city water system, first turn off the water source, then open a faucet to relieve some of the pressure in the lines and then unhook the water line.

NOTE: *It is advisable to use a water pressure regulator. Excessive pressure may result in water line damage.*



KITCHEN FAUCET

Huntington Brass - K1102701

With the faucet handle turned off, the faucet may continue to drip for a short period of time or when the vehicle is in motion. Water is retained in the faucet spout.



SPRAY PORT & HOSE

Access to this spray port is through the passenger rear door, located in the rear storage area. This port is to be used on city water or when the water pump is in the on position.



WASTE SYSTEM

A grey water tank is located on the driver side of the vehicle below the kitchen cabinet. This tank holds wastewater from the sink. This tank is approximately 8 gal / 33.3 L.



SEWER HOSE & GATE VALVE DRAIN CONNECTION

Located in the driver side rear bench, open the driver side rear door and hose container to access the sewer hose. Open the cap on the sewer discharge. Attach the sewer hose to the sewer discharge and to a sewer dump sight. Pull the grey gate valve handle to drain the tank. Disconnect and flush the blue sewer hose, return the sewer hose to the storage container, close the grey water handle and close the sewer cap.



NOTE: If the grey water tank is allowed to overflow, the overflow may back up through the sink drain

NOTE: If you are using a sewer hookup in a RV park, keep the valve closed until the holding tank is at least partially full, then drain. The large quantity of waste flow will provide more effective drainage and reduce tank stoppages.



WINTERIZING

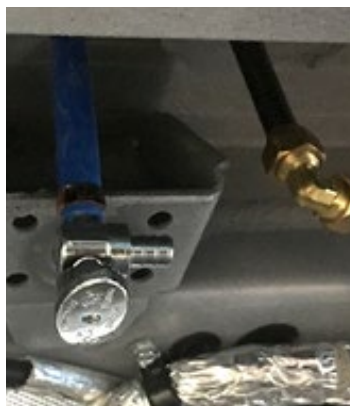
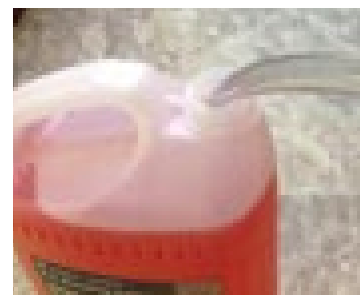
WINTERIZING THE WATER SYSTEM

1. To drain the fresh water tank, open the white drain tap.
2. Drain and flush the grey water holding tank.
3. Remove the water line from the inlet side of the water pump (this is the plastic line going into the water pump filter). Connect a siphon hose to the inlet side of the water pump and place the other end in a container of non-toxic, RV antifreeze. Turn on the water pump. This will pump non-toxic, RV antifreeze through all of your fresh water lines.
4. Open the kitchen faucet and connect the spray port hose allowing the antifreeze to flow through the faucet and hose.
5. Pour ½ cup of non-toxic, RV antifreeze down the kitchen sink drain.
6. Open your grey water tank valve one last time to ensure all water from the holding tank is completely drained. Once drained, close your grey water tank valve for winter.

NOTE: Siphon hose consists of 40" of ½" clear tubing with a fitting to attach to the water pump. The fitting can be purchased through an RV dealer.

OPTIONAL WINTERIZING FOR MILD CLIMATES

1. Open the low point drain valve (blue line).
2. Connect a blowout valve to the city water inlet. Connect a compressed air source.
3. Open the kitchen faucet. Allow the air to blow the remaining water out of the taps and valves. Fully drain the system. Leave the kitchen faucet and low point drain in an open position.
4. Pour ½ cup of non-toxic, RV antifreeze down the sink.



WINTER STORAGE ELECTRICAL

1. Fully charge the engine starting and coach batteries.
 2. Turn OFF the charge line disconnect switch (red key).
 3. Turn off the battery disconnect switch on the sofa.
- It is recommended that you start and run your vehicle for a short period of time each month.
 - It is recommended that the fridge door be left slightly open to allow air to circulate through the fridge cabinet during a storage period.
 - It is recommended that the vehicle be driven or moved forward or backward, if possible, to avoid flat spotting of the vehicle tires.
 - The lithium ion batteries should not be charged if the interior of the coach is below freezing (32 F or 0 c)



WINTER USE

We recommend that the water system not be used when the outside temperature drops below the freezing point. You should ensure that your unit is completely winterized by that time. If it is necessary to use the water system, we suggest that you bring containers of fresh water with you and add non-toxic, RV antifreeze to the gray water holding tanks.

NOTE: *Keep in mind that as you add more water to the holding tanks the antifreeze will dilute beyond the recommended amount and may start to freeze earlier at cold temperatures.*

LIVING AREA ELECTRICAL SYSTEM

The motorhome living area, electrical system is designed for convenience. It is capable of supplying the vehicle with at least two sources of power: 12 volt DC power and 110-120 volt AC power. The 12 volt coach battery supplies power to the interior components for dry camping use. The 12 volt or DC, power supplies an AC 110-120 volt current to the interior plug outlets through the 2000 watt Pure-sine wave inverter.

The coach batteries are charged when the chassis engine is running and the charge line disconnect switch (red key) is in the ON position or when you are connected to a 110-120 volt power source (shore power) and with the 12 volt battery disconnect switch in the ON position. Your vehicle may also be equipped with solar panels. These solar panels will charge the coach batteries if the charge line disconnect switch (red key) is in the ON position.

For long term use, your vehicle may be powered by plugging into a 110-120 volt external power source with the supplied 25 foot power cable. The 25 foot power cable supplied with your coach must be connected and locked to your coach and then to a 110-120 volt power source (a 30 amp outlet is recommended). This will supply 110-120 volt power throughout the interior and supply power through the inverter/charger to all 12 volt components.

Your motorhome is equipped with a Pure-sine wave 2000 watt Xantrex Freedom XC Inverter/Charger. The charging portion of the Freedom XC is set to LFP to charge the coach batteries. The freedom XC also converts 110 volt into 12 volt to operate 12 volt appliances when plugged into 110-120 volt power.

Your motorhome is also equipped with a 2000 watt Pure-sine wave inverter. The inverter takes the 12 volt or DC power from your batteries and inverts it up to 110-120 volt AC power. The inverter will enable you to use your 110-120 volt plug outlets and induction cook top when a shore power source is unavailable. This power source will be limited by the state of charge of your batteries and by the amount of current drawn by each appliance. The inverter has a built in transfer switch that allows the 110-120 volt power to bypass the inverter and power the 110-120 volt plug outlets and induction cook top when the motorhome is plugged into a shore power source.

12 VOLT OR DC EQUIPMENT

Inverter/Charger
Refrigerator when on DC
Interior & Exterior Coach Lights
Water Pump
LP Gas & CO Alarms
Furnace
Touchscreen Control Panel
USB Port

110-120 VOLT OR AC EQUIPMENT

Induction Cook Top
Refrigerator on AC
110 Volt Plugs When on a Shore Power Source

NOTE: *All dash components including the in-dash radio and front map lights are powered through the starting (chassis) battery. Prolonged use of these items when the vehicle is not running will deplete the engine starting battery.*

AC 110-120 VOLT POWER

A 25 foot, 30 amp power cord is provided on the rear door. To activate all power circuits, connect and lock the power cord to your coach in the driver side utility center and to an adequate 110-120 volt power source. The power cord connections are rated for 30-amp 110-120 volts.

NOTE: *The male end of the power cord is a 30-amp style plug, therefore you may require an adapter to convert the plug into the 110-15 amp style. Most RV parks are equipped with 30-amp outlets. Remember to always attach the power cord to your coach first, and then to the power source.*

WARNING: *Ensure the power source for your vehicle is a 110-120 volt power source. A higher voltage or lower voltage outlet could do damage to your coach.*



INVERTER/CHARGER

Please refer to the manufacturer's operating instructions for further information.

Your vehicle is equipped with the Xantrex Freedom XC 2000 watt Pure-sine wave inverter located below sofa bed. This inverter provides 12 volt DC power inverted to 110-120 volt AC power for the induction cooktop and all AC outlets in and outside the coach.

The charging portion of the inverter is set to LFP to charge the coach batteries. The inverter also converts 110 volt into 12 volt to operate 12 volt appliances when plugged into 110/120 volt power.

The inverter will be limited by the state of charge of the coach batteries and amperage draw from individual appliances. It has an automatic transfer switch built into it, so that if you are on shore power it bypasses the inverter.

The inverter will draw .6 amps of DC power if it is turned on and no load is being drawn from the inverter. If no load is on the inverter it will turn itself off after 25 hours of continual operation. The inverter is powered by the large red wires in the battery compartment. There is also a 250 amp mega-fuse in the system to protect the inverter and the coach.

CAUTION: *Ensure all venting for the inverter is kept clear of blockage.*



INVERTER DISPLAY / CONTROL PANEL

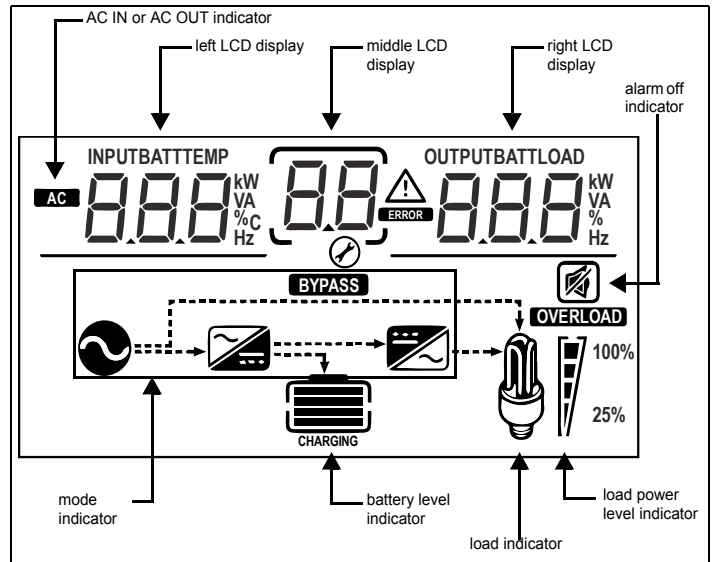
This control panel is located on the kitchen upper end panel next to the switch panel.

- This control panel will turn the inverter ON or OFF
- Neither the 12 volt battery disconnect nor the charge line disconnect will turn the inverter off
- Always make sure the inverter is in the OFF position when not in use
- The inverter can draw .6 amps from your battery if left in the ON position while not in use

NOTE: To turn the inverter ON or OFF you must press and hold the power button on the inverter control panel for at least 1 second.



The LCD Screen changes depending on the operating mode of the inverter.



Function Buttons

Button	Definition
ESC	return to default screen or exit setting mode
▲	next screen or next selection
OK	to enter the setting mode or to confirm the setting
⏻	turns on inverter/charger operation or to Standby mode

Freedom XC Display Panel

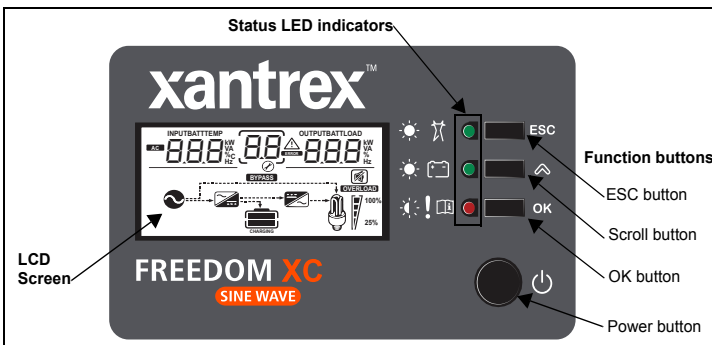


Figure 10 Display Panel

Status LED Indicators

Indicator	Definition
 	Indicates grid mode in which shore power is available and passing through to the loads and charging the battery.
 	Indicates Battery mode (Inverter mode) in which the inverter is running and supplying power to the loads from the battery.
 	Indicates error or fault mode and is accompanied by an error code displayed on the LCD screen. For a list of error codes, see “Warning Messages” on page 64.
 	Indicates a Warning condition and is accompanied by an error code and a sounding alarm. For a list of error codes, see “Warning Messages” on page 64.

AC ELECTRICAL DISTRIBUTION PANEL

The Pleasure-Way Tofino is equipped with an AC distribution panel that houses the breakers for the 110-120 volt system. The distribution panel is located on the driver storage compartment wall. The breakers act like a household breaker; you must insure the breaker is shut all the way off before you can reset the breaker.

1. 30 Amp Inverter Input
2. 15 Amp Refrigerator
3. 30 Amp Shore Power
4. 30 Amp Inverter Output
5. 20 Amp Induction Cooktop (GFCI protected)
6. 15 Amp Receptacles (GFCI protected)



GFCI OUTLETS

A ground fault circuit interrupter (GFCI) 110-volt receptacle located kitchen face frame below the sink provides protection against line-to-ground electrical shock hazards that could be harmful or even fatal. The outlets that are on this circuit are the exterior, kitchen and rear bench receptacles. The GFCI receptacle must be tested at least once a month in accordance with the manufacturer's instructions.

The GFCI for the induction stove is found on the cabinet face below the cooktop.



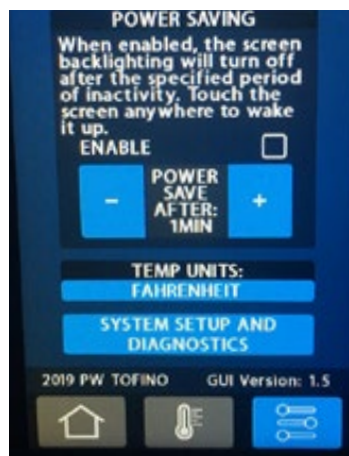
NOTE: The circuits must be powered to test or reset the GFCI. Check the GFCI for the individual appliance or plug outlets if the appliance is not operational.

DC LOAD CENTER AND DC BREAKERS

This load center is located in the cabinet in the driver side storage area. This DC load center controls all the multiplex wiring systems and switch panels.

This load center also has resettable breakers that can be reset from the kitchen touchscreen control panel.

1. Select > SETTINGS
2. Select > SYSTEM SET UP AND DIAGNOSTICS
3. Select the appliance you want to turn off or reset



NET LED Status

LED Activity	Status
■ ■ Solid Green	Device is connected to network and communicating properly
■ ■ Off	Device has no power or has completely failed
■ ■ Solid Red	Device has gone offline and is not connected to network
■ ■ Fast Flashing Green (4 times/sec)	Device is attempting to make initial connection to network
■ ■ Slow Flashing Green (1 time/sec)	Device was online but has not seen a valid network message for 5 seconds
■ ■ Alternating Red & Orange	Device has gone offline and is attempting to re-connect (within 30 seconds)
■ ■ Alternating Green & Orange	Device is currently online but has gone offline 2 or more times

Preliminary Operational Specs

Max Current (constant)	40 A	
Max Current (per IC)	20 A	
Standby Current	80 mA @ 12V	
DC Input Voltage Rating	11-14.5 V	
Temperature Rating	-20 - +40 °C (Must have adequate ventilation)	
Torque Spec		
Min	Max	Bolt
60 in-lbf	70 in-lbf	J6

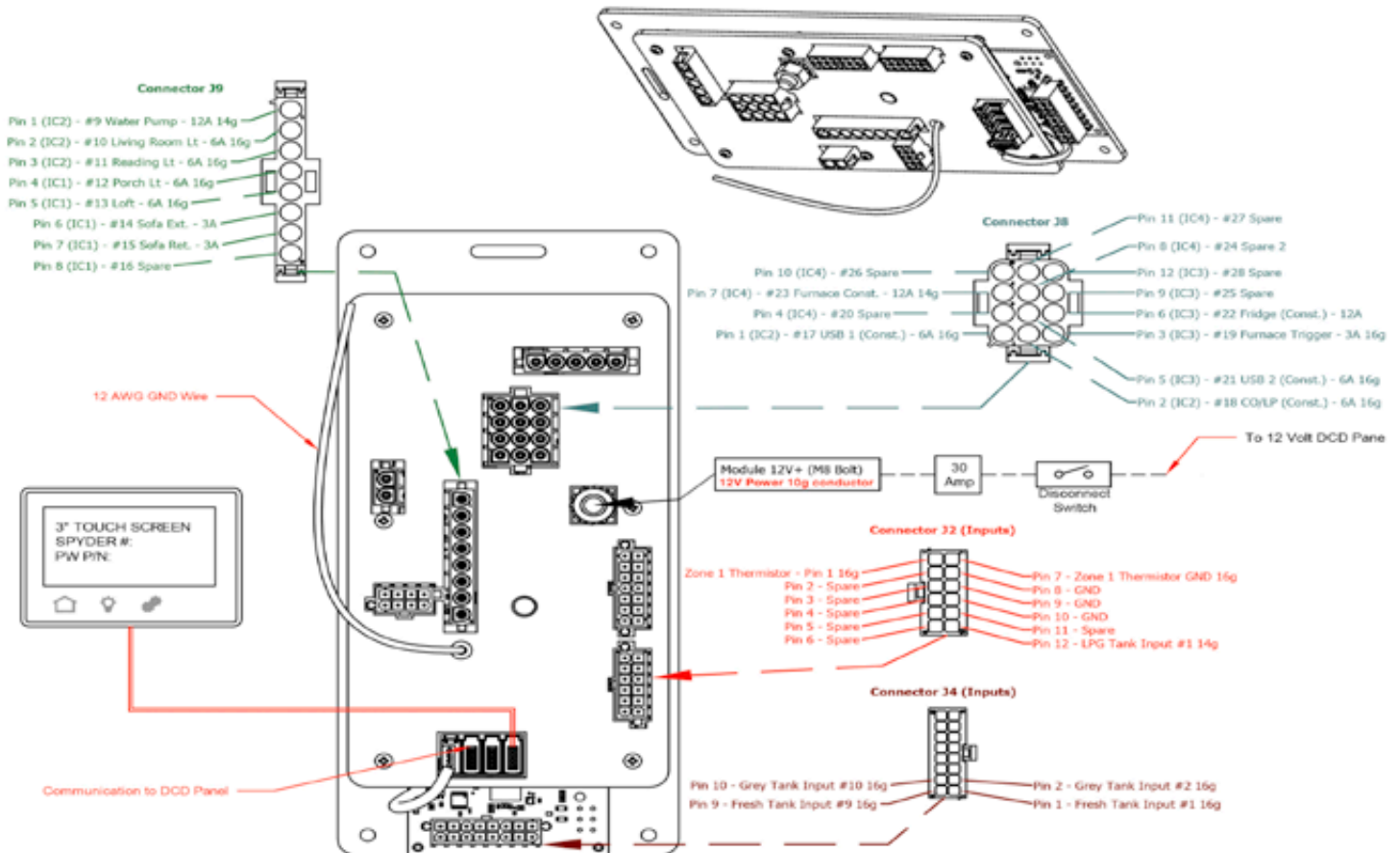
Mating Connectors

Manufacturer	Part Number	Description	Mate
TE	770582-1	14P MINI UMNL PLUG	J1
TE	770581-1	12P MINI UMNL PLUG	J2
TE	770583-1	16P MINI UMNL PLUG	J4
TE	770579-1	08P MINI UMNL PLUG	J7
TE	1-480708-0	12P MINI UMNL PLUG	J8
TE	640582-1	08P UMNL PLUG	J9
TE	1-480698-0	02P UMNL PLUG	J10

Pins

Manufacturer	Part Number	Description	Mate
TE	1-770988-1	MINI UMNL SOK 22-18 AWG	J1, J2, J7
TE	350551-6	UMNL SOK 20-14	J8, J9, J10, J11

DC LOAD CENTER BOARD (SPYDER CONTROLS)

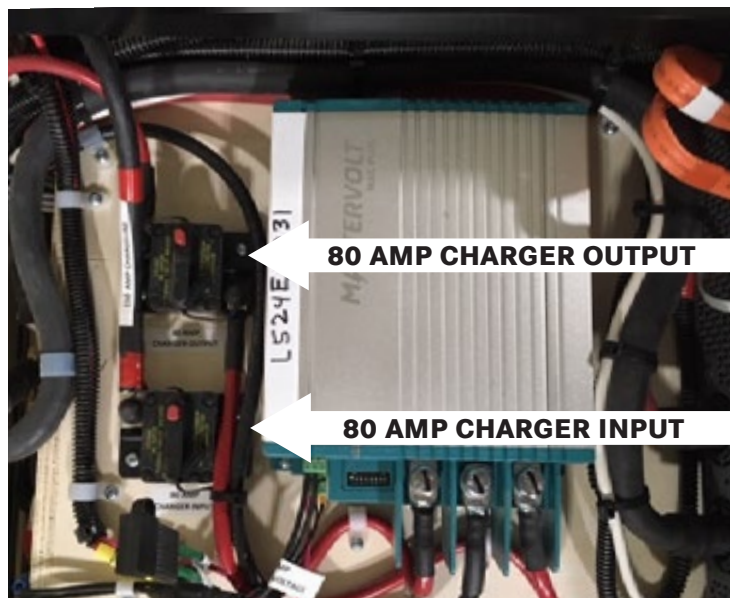


DC BREAKERS

These are resettable breakers. When a breaker is tripped a black lever will swing out below the center bar. To reset the breaker push the lever back up under the center bar. To manually trip a breaker, press the red button.

80 AMP INPUT AND OUTPUT BREAKERS FOR THE MASTERVOLT DC-DC CHARGER

These are located on top of the coach battery box under the cover panel next to the charge line disconnect switch (red key). The 80 Amp Input breaker will disconnect the charge line (from the alternator) to the Mastervolt DC-DC Charger. The 80 Amp Output breaker will disconnect the Mastervolt DC-DC Charger to the charge line disconnect switch as well as the coach batteries.



12 VOLT BATTERY DISCONNECT

There is 12 volt battery disconnect switch located on the face frame of the sofa. This switch will stop all 12 volt power supplied to your coach from the auxiliary batteries.

The disconnect switch will have to be in the ON position in order to charge your battery from the coach batteries.

NOTE: *If your vehicle is going to be parked and not in use for longer than a 48 hour period, turn this switch to the OFF position as the LP/CO detector is hard wired into the coach batteries and will eventually drain the batteries.*



CHARGE LINE DISCONNECT

The charge line disconnect switch (red key) is located on the lower front of the sofa. The charge line disconnect switch controls the charge from the engine alternator and solar panels to the coach batteries. When the switch is ON, the coach batteries will charge from the engine alternator and solar panels. When the switch is OFF, the coach batteries will NOT charge from the engine alternator and solar panels. This disconnect switch is used for shipping, storage and freezing conditions. Turn the switch OFF during battery servicing.

ON Position: red key is locked into the switch

OFF Position: red key can be removed from the switch



MASTERVOLT DC-DC CHARGER

The DC-DC charger is located under the sofa, mounted next to the inverter/charger.

The DC-DC charger takes 12 volt charge from the alternator and converts it to optimal charging for the coach batteries. The DC-DC charger has a 2 amp trigger fuse located on the right hand side of the Mastervolt. The charge line breakers (80 amp charger input & 80 amp charger output) are located next to the DC-DC charger.

(for more information see page 35)



TOUCHSCREEN CONTROL PANEL & REMOTE

The Tofino is equipped with two *Spyder Controls* panels. A touchscreen control panel is located on the kitchen face frame. A hand held remote is also available to control the living area functions of the motorhome.

Three menu buttons are located at the bottom of the screen: [HOME](#), [FURNACE](#) and [SETTINGS](#).

On the [HOME](#) page of the touchscreen panel you can:

- **Control all light functions**

Touch the screen to turn ON/OFF. Buttons will display blue when active. Touch to activate, or touch and hold to adjust brightness. (Only buttons with up/down arrows are capable of dimming).

- **Turn ON/OFF water pump**

Make sure there is water in the fresh water holding tank before engaging the water pump.

(for more information about the water pump see page 20)



- **Read your battery voltage**

Monitor the battery voltage and use this meter to determine the state of your battery. Once the voltage gets close to 12 volts the battery should be recharged. Your vehicle may also be equipped with the battery loss gain meter. This allows you to monitor charge rate or depletion of your batteries.

This battery voltage is for the coach batteries, the battery voltage will vary depending on the load being draw and the state of charge. For example when the induction cook top is being used with the inverter the voltage will drop and then return to a normal reading once the induction cook top is shut off.

(for more information about the battery see page 33)

- **Monitor your fresh, grey and LP holding tanks**

Tank levels measure in 25% increments. The propane tank LPG levels will read in a single percentage. LPG gage indicates full when the LP is filled to 80%.

On the [FURNACE](#) page of the touchscreen panel you can:

- **Adjust temperature selector to the desired temperature**

Make sure the propane switch in utility center is ON. Both the current and desired temperature are displayed. Select HEAT MODE to engage furnace.

(for more information about furnace see page 18)

On the [SETTINGS](#) page of the touchscreen panel you can:

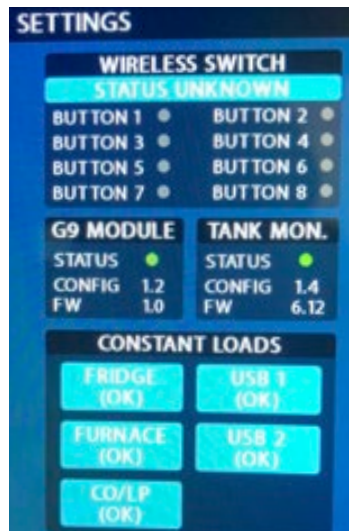
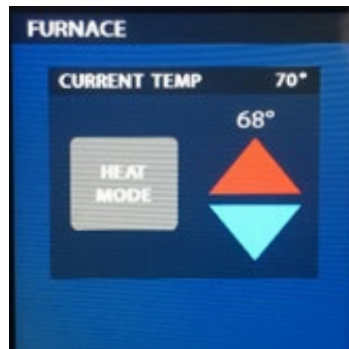
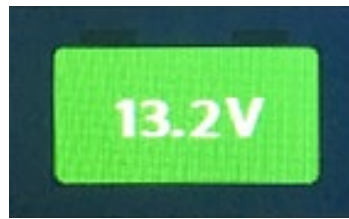
- **Set parameters on brightness and power saving mode**

Set a duration of time before enabling power save mode

- **Adjust system setup and diagnostics**

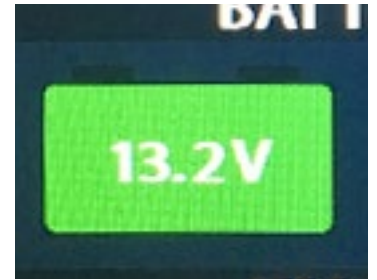
Reset breakers and diagnose which function may have a problem. If during operation the status displays red, this would indicate a fault and the button for that item will have to be reset.

(for more information about DC load center see page 27)



TROUBLE SHOOTING THE DC/12 VOLT SYSTEM

1. Confirm that the 12 volt battery disconnect switch is in the ON position.
2. Confirm that there is 12 volt power from the coach battery (check battery voltage or start the engine).
3. Confirm that the inverter breaker is not tripped in the AC breaker panel.
4. To reset the DC load center for the coach (this includes all switches and controls), unplug the vehicle from shore power. Turn off the 12 volt battery disconnect switch and allow the system to do a complete shutdown (this will only take a couple of minutes). Turn on the 12 volt battery disconnect switch and the system will be reset.



TROUBLE SHOOTING THE AC POWER

1. Ensure you have a reliable power source to plug your power cord into. Ensure your power cord is properly attached to your motorhome. Test the outlet with another appliance.
2. Ensure that the GFCI has not been tripped. Press the TEST button and then reset the GFCI.
3. Ensure the breakers in your distribution panel have not been tripped.

NOTE: If an individual appliance is not working ensure that the appliance is plugged in, check the breaker and GFCI for the individual appliance.



CHASSIS BATTERY

Please refer to the manufacturer's operating instructions for further information.

The chassis (engine starting) battery is located below the driver's foot board in the cab area of the vehicle. The chassis battery and coach batteries are separated by an under hood battery separator.



COACH BATTERIES

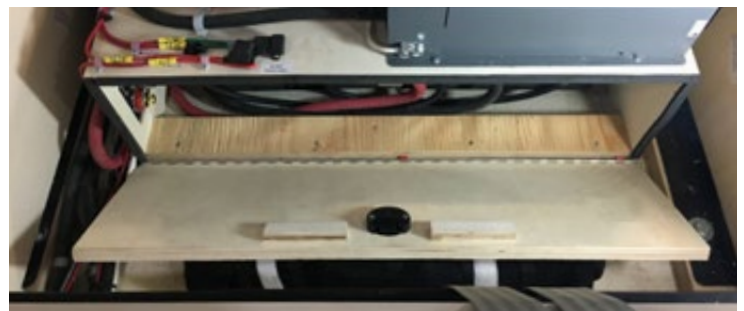
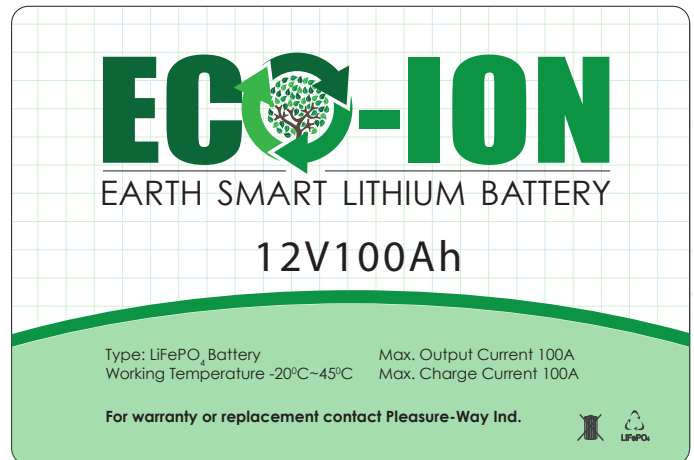
ECO-ION EARTH SMART LITHIUM IRON PHOSPHATE (LiFePO₄) 12 volt 100 Ah

Your motorhome is equipped with two coach batteries located under the rear sofa. These Eco-Ion Earth Smart batteries consist of cells using lithium iron phosphate (LiFePO₄) technology. Lithium iron phosphate battery chemistry is one of the safest on the market today. Lithium batteries are different than lead-acid batteries. A lithium batteries voltage remains relatively constant while discharging, while voltage for a lead-acid battery decreases. A lithium batteries voltage remains relatively constant while discharging, while voltage for a lead-acid battery decreases. A lithium battery can use 100% of its storage capability (measured as Amp-Hour, Ah); while a lead-acid battery typically only uses 50%. Lithium batteries power level will not drop-off, and it will last longer. But when the lithium battery runs out of power it does so abruptly.

The batteries are located under the sofa. Access through the rear doors of the vehicle.

1. Remove the bed support bars
2. Pull the seat belts through the sofa seat break
3. Recline the sofa part way
4. Lift the rear storage cover and slide it out tucking the seat belts through the brushed opening
5. Remove the jack from the floor area
6. Lift the black locking latch and open the battery compartment

WARNING: Do not work on the batteries with the vehicle running or the vehicle plugged into shore power.



BATTERY MANAGEMENT SYSTEM

The Eco-Ion Earth Smart batteries feature a built in battery management system (BMS). The BMS automatically provides:

- Short circuit protection
- Low voltage protection
- Cell balancing
- Overcharge protection
- Temperature protection

CHARGING

The Freedom XC inverter/charger and the Mastervolt DC-DC charger have been programmed to charge the coach batteries. The Go Power Solar panel charging system has been set to LFP.

Both Eco-Ion lithium batteries are fused with 150 amp fuses for the protection of your coach and the battery system. These fuses are located on top of the battery area and at the charging source.

WARNING: Do not charge your batteries below 32 degrees F or 0 degrees C. Charging the batteries when below these conditions may cause damage to the lithium cells and shorten the lifespan of the batteries. If you are using your coach in freezing temperatures turn the charge line disconnect switch (red key) OFF. This will disconnect the engine alternator and solar panels from charging the coach batteries. The coach batteries will continue to discharge and power your coach as normal in conditions up to -20 C or -4 F.



Caution

See user guide before using this battery. Burn hazard. Never charge the battery without charge protection circuitry.

Do Not

- Disassemble, crush, puncture, or incinerate
- Short circuit external contacts
- Expose to temperatures above 140 F (60°C)
- In series or parallel connections without permit
- Over-discharge the battery



Removal of cover plate by unauthorized personnel will void the warranty!

For more information please ask your suppliers or distributors.

12V100Ah LiFePO4 Battery

1. Rating=12.8V,100Ah(5hr)
2. Max. input voltage 14.6V
3. Max. charging current:100A
4. Cut-off voltage:10V
5. Max. discharging current: 100A
6. Peak discharging current: 350A(8s)



WARNING

AS MULTIPLE 12V SOURCES EXIST IN YOUR VEHICLE, ALL 12V SOURCES MUST BE TURNED OFF BEFORE SERVICING COACH BATTERIES. DISCONNECTING COACH BATTERIES MAY NOT DE-ENERGIZE COACH BATTERY. REFER SERVICING TO QUALIFIED TECHNICIANS.

WARNING

THIS 12 VOLT ELECTRICAL SYSTEM HAS BEEN DESIGNED TO USE ECO ION LITHIUM ION BATTERIES ONLY.

DO NOT USE OR REPLACE WITH LEAD ACID, AGM OR GEL BATTERIES. DOING SO WILL CAUSE SEVERE DAMAGE AND VOID THE WARRANTY.

Mastervolt DC-DC Charger



Alternator



80 Amp Charger
Input Breaker



Mastervolt
DC to DC
Charger



80 Amp Charger
Output Breaker



Charge Line
Disconnect
(red key)



Battery Stint
Fuse



Coach Batteries

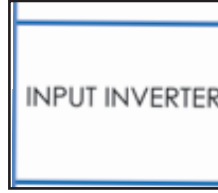
Inverter DC Charging System



Shore
Power



Distribution Panel
Shore Power Breaker



Distribution Panel
Input Inverter Breaker



Inverter DC
Output

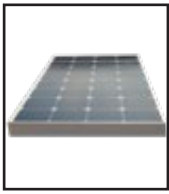


Battery Stint
Fuse



Coach Batteries

Solar Panel Charging System



Solar Panel



10 - 30 Amp
Fuse



Go Power
Solar Control



30 Amp Fuse



Charge Line
Disconnect
(red key)



Battery Stint
Fuse



Coach Batteries

STORAGE

When placing your vehicle into storage always ensure your coach batteries are fully charged and the 12 volt battery disconnect switch is in the OFF position. To extend the life of your lithium batteries it is recommend that the batteries be fully charged and kept above freezing temperatures when in storage. This may involve removing the lithium batteries from the coach and storing them in temperatures above freezing for winter storage.

WARNING: *The OEM batteries can only be replaced with identical lithium batteries. The charging system is set up for lithium cells. Replacing the lithium batteries with a Lead Acid, Gel, AGM, etc., battery may result in damage to the vehicle, coach, batteries and electrical system. These damages may result in a thermal incident such as fire, electrical short, melting, off gassing, etc.*

MOTORHOME INTERIOR

INTERIOR COCKPIT MAP LIGHT

Please refer to the vehicle manual for further information.

This is the Ram ProMaster map light system.
The cockpit map lights operate off the chassis battery.



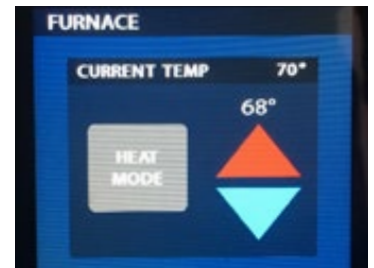
COOKTOP

The vehicle is equipped with a single burner flush mount induction cooktop located in the kitchen countertop.
(for more information see page 18)



FURNACE

Your vehicle is equipped with a 16,000 BTU Atwood LP gas Auto Ignition Furnace. The furnace is located near the floor next to the fridge.
(for more information see page 18)



REFRIGERATOR

Please refer to the manufacturer's operating instructions for further information.

Your vehicle is equipped with a Dometic fridge/freezer (AC & DC). To turn on, use the panel inside the fridge. Press the POWER button to select power source. Press the Temperature button to select your desired level of coolness (this may vary slightly with each fridge and weather condition). The fridge is equipped with a travel and storage lock, the following settings are possible:

- Lock (turn clockwise): the door is locked and secured.
- Vent (turn counter-clockwise): The door is slightly open, but fixed in position. Use this position if you are not going to use the unit for a long time.



INVERTER

(for more information see page 26)



USB CHARGING PORTS

The left side of the kitchen cabinet, the face of the kitchen cabinet and overhead bunk each feature a USB charging port.

Each charging port features 2 USB slots that will fit a USB type A connector. The 12 volt battery disconnect switch (red key) must be ON to power the USB ports, and are protected by a resettable breaker found on the DC Load Center.



SOLAR PANEL PACKAGE

Please refer to the manufacturer's operating instructions for further information.

Your vehicle can be equipped with either a 100-Watt or 200-Watt Go Power solar panel package. The solar panels are located on the rear of the pop top. The charge control panel is located above the kitchen counter top. This control shows battery voltage, battery charge condition and solar charge amps.

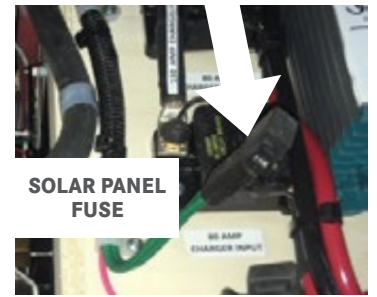
The solar panels will charge the coach batteries even when the battery disconnect is in the OFF position. To prevent the solar panels from charging coach batteries you must turn off the charge line disconnect switch (red key), located on the lower sofa face frame.

The fuses for the solar panel are located above the battery box under the control cover, as well as in the overhead bunk on the driver side rear corner under the round plastic cover.

NOTE: Ensure the solar panels are clean for optimal charging output.

CAUTION: To ensure your solar panels are not active when servicing the batteries it is advised to cover the solar panels.

CAUTION: Turn OFF the charge line disconnect switch, (red key) if the vehicle is going to be in storage for a period of time or in sustained freezing conditions without internal heat.



TABLE

1. Remove table leg from the rear storage area.
2. Remove the tripod base and table top from behind the driver seat.
3. Place the table leg into the tripod base and set the table top on the leg.



BED LAYOUT

Main Bed Area: 54" wide X 72" long

1. Remove the two bed bars from behind the sofa and place them in the back two sets of holes.
2. Lay the sofa into the extend position by lifting the front of the sofa and pulling it forward till it lays flat.
3. Access the rear support cushion located above the sofa by releasing the spring pin.
4. Lay the rear support cushion on the bed bars tight to the top of the rear sofa.
5. Tuck the seat belts through the cushion crack..



OVERHEAD BUNK

*49" wide X 72" long
(maximum weight capacity 200 pounds)*

The overhead bunk is only accessible when the roof is in the raised position. The hand held remote panel provides control for the lights etc, while in the overhead bunk.

Ensure all articles, pets and people are out of the loft area before lowering the roof.

CAUTION: Access to the loft area should only be obtained by the use of the ladder stored in the rear storage area.



RAISING AND LOWERING THE ROOF

Raising:

1. Unlatch the safety strap located at the front of the roof.
2. Pull down and release the spring latches on each side of the roof.
3. Push up on the roof until the pneumatic lifts take over.
4. Allow the canvass to fully extend.



WARNING: Items must be removed from the roof rack prior to lifting and lowering the roof.

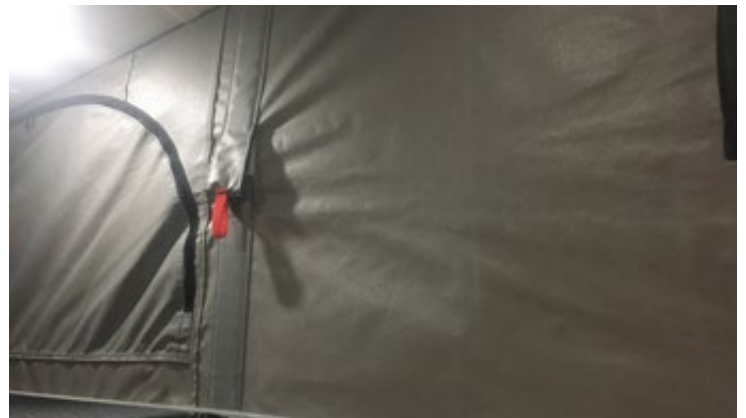
Lowering:

1. Remove all articles, pets and people in the loft area before lowering the roof.
2. Pull down on the black handle straps to lower the roof.
3. As you lower the roof pull the canvass in toward interior of the vehicle. Ensure canvass is not pinched between hinges. Damage to canvass caught in the hinges is not warrantable.
4. As the roof is lowered once the pneumatic struts have released to the stow position the roof will become heavy.
5. Tuck the canvass into the top edge of the lower pan.
6. Inspect the exterior of the roof line to ensure no canvass is stuck between the roof and rubber seal.
7. Engage the spring latches located on the interior of the driver and passenger side of the roof.
8. Pull the safety strap located at the front of the roof.



NOTE: It is recommended that you have assistance when lowering the roof.

NOTE: The interior canopy side walls contain 2 collapsing spring latches. Pull straps in when lowering the roof to avoid damage to the canopy canvas.



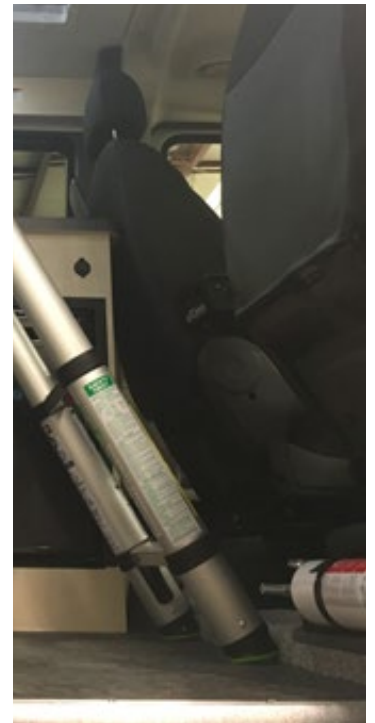
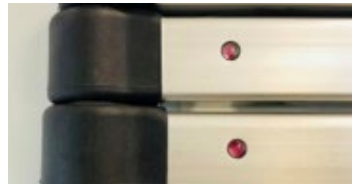
LADDER

Please refer to the vehicle manual for further information.

(150kg / 330lb weight capacity)

The ladder is located in the rear storage area of the vehicle.

1. Set the ladder on the vinyl floor and against the raised carpet area between the front seats of the vehicle.
2. Lift the ladder from the third lowest rung ensuring that each rung is locked in place as the ladder is raised. A locking indicator window will show red when not locked and green when locked.
4. Brace the ladder against the front edge of the overhead bunk. Some rungs may not be extended.
5. To lower the ladder, hold the third lowest rung, squeeze the red pinch release below the second lowest rung, and guide the ladder into the stow position.



FRONT CAB PRIVACY SHADES

Your vehicle comes equipped with front cab privacy shades for the windshield and cab windows.

Driver and passenger shades use magnets.
Windshield shade held in place with visors.



JACK AND JACK TOOLS

The jack and jack tools are located under the sofa. Access is through the rear doors. The tool bag contains the jack and all necessary tools for tie removal. It also contains the tow hook. [\(for access info see page 34\)](#)

NOTE: See the *Ram ProMaster* owner's manual for jacking points and user instructions.

NOTE: There is no spare tire included with this vehicle. For your convenience a flat repair kit that includes tire repair liquid and an air compressor has been provided in the front door panel pocket.



TIRE SAFETY



The following information has been acquired from the NHTSA website.

EVERYTHING RIDES ON IT

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

Improve vehicle handling

Help protect you and others from avoidable breakdowns and accidents

Improve fuel economy

Increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

Basic tire maintenance

Uniform Tire Quality Grading System

Fundamental characteristics of tires

Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

SAFETY FIRST—BASIC TIRE MAINTENANCE

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

Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

FINDING YOUR VEHICLE'S RECOMMENDED TIRE PRESSURE AND LOAD LIMITS

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

Recommended tire size

Recommended tire inflation pressure

Vehicle capacity weight (VCW—the maximum occupant and cargo weight a vehicle is designed to carry)

Front and rear gross axle weight ratings (GAWR— the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the vehicle door edge, door post, glove-box door, or inside of the trunk lid. You can also find the recommended tire pressure and load limit for your vehicle in the vehicle owner's manual.

UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

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

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

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

CHECKING TIRE PRESSURE

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

Most tires may naturally lose air over time.

Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.

With radial tires, it is usually not possible to determine under-inflation by visual inspection.

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

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

STEPS FOR MAINTAINING PROPER TIRE PRESSURE

1. Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.
2. Record the tire pressure of all tires.
3. If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.
4. If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.
5. At a service station, add the missing pounds of air pressure to each tire that is under inflated.
6. Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

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

TIRE SIZE

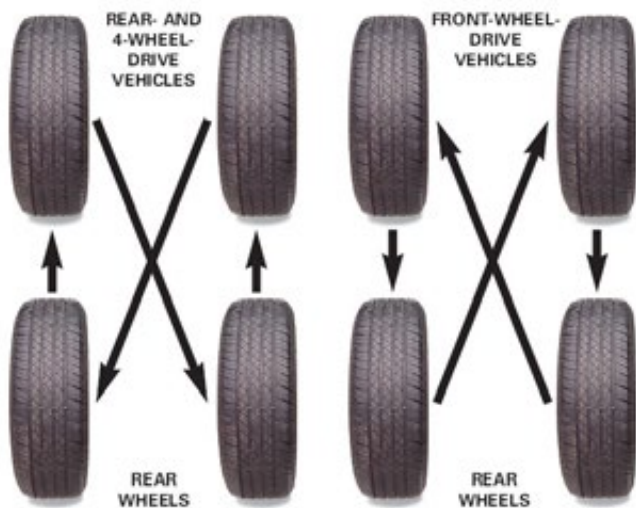
To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about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

TIRE TREAD

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

TIRE BALANCE AND WHEEL ALIGNMENT

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires and prevents your car from veering to the right or left when driving on a straight, level road. These adjustments require special equipment and should be performed by a qualified technician.



A Tire Rotation Example

For maximum mileage, rotate your tires every 5,000 miles. Follow correct rotation patterns.

TIRE ROTATION

Rotating tires from front to back and from side to side can reduce irregular wear (for vehicles that have tires that are all the same size). Look in your owner's manual for information on how frequently the tires on your vehicle should be rotated and the best pattern for rotation.

TIRE REPAIR

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

TIRE FUNDAMENTALS

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

UNIFORM TIRE QUALITY GRADING SYSTEM (UTQGS)

To help consumers compare a passenger car tire's treadwear rate, traction performance, and temperature resistance, the federal government requires tire manufacturers to grade tires in these three areas. This grading system, known as the Uniform Tire Quality Grading System, provides guidelines for making relative comparisons when purchasing new tires. You also can use this information to inquire about the quality of tires placed on new vehicles.

Although this rating system is very helpful when buying new tires, it is not a safety rating or guarantee of how well a tire will perform or how long it will last. Other factors such as personal driving style, type of car, quality of the roads, and tire maintenance habits have a significant influence on your tire's performance and longevity.

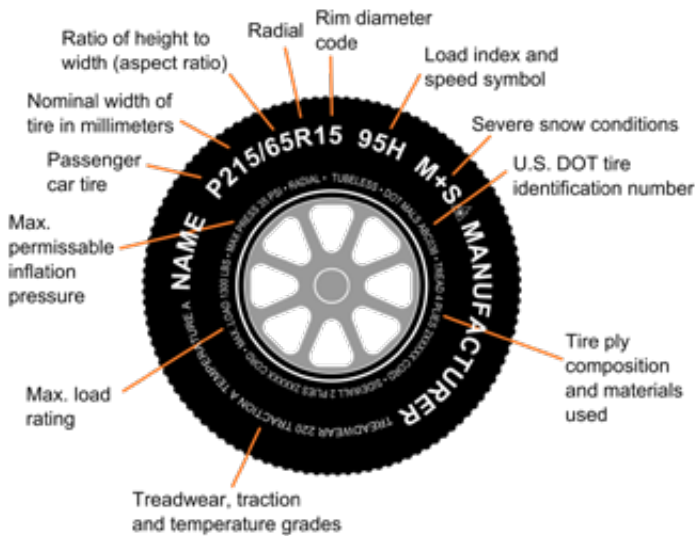
Treadwear grades are an indication of a tire's relative wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire grade of 400 should wear twice as long as a tire grade of 200.

Traction grades are an indication of a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature grades are an indication of a tire's resistance to heat. Sustained high temperature (for example, driving long distances in hot weather), can cause a tire to deteriorate, leading to blowouts and tread separation. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

INFORMATION ON PASSENGER VEHICLE TIRES

Please refer to the diagram below.



P
The “P” indicates the tire is for passenger vehicles.

Next Number
This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next Number
This two-digit number, known as the aspect ratio, gives the tire’s ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R
The “R” stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next Number
This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next Number
This two- or three-digit number is the tire’s load index. It is a measurement of how much weight each tire can support. You may find this information in your owner’s manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S
The “M+S” or “M/S” indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating
The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.

Letter Rating	Speed Rating
Q	99 MPH
R	106 MPH
S	112 MPH
T	118 MPH
U	124 MPH
H	130 MPH
V	149 MPH
W	168 MPH
Y	186 MPH

For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number
This begins with the letters “DOT” and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer’s discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

UTQGS Information

Treadwear Number

This number indicates the tire's wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

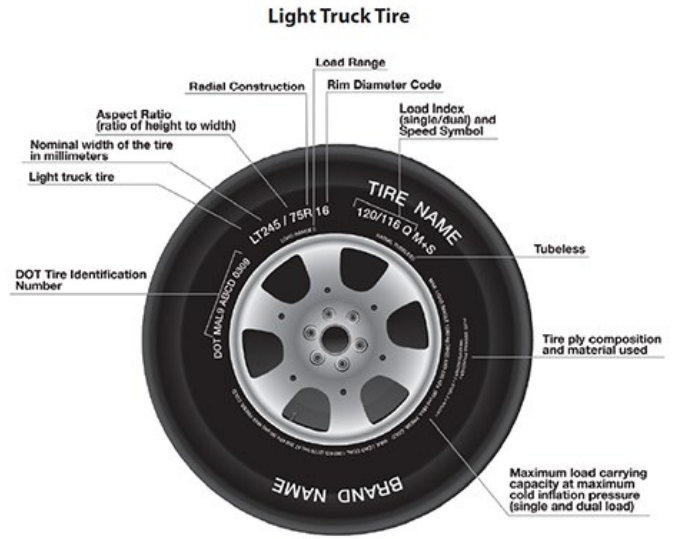
Traction Letter

This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature Letter

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

ADDITIONAL INFORMATION ON LIGHT TRUCK TIRES



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT

The "LT" indicates the tire is for light trucks.

Max. Load Dual kg(lbs) at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg(lbs) at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range

This information identifies the tire's load-carrying capabilities and its inflation limits.

Snow Tires

In some heavy snow areas, local governments may require true snow tires, those with very deeply cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

MAINTENANCE LOG

MODEL: _____

VIN#: _____

YEAR: _____

DATE PURCHASED: _____

DATE	WORK PERFORMED	BY	MILEAGE	NOTES

DATE	WORK PERFORMED	BY	MILEAGE	NOTES

DATE	WORK PERFORMED	BY	MILEAGE	NOTES

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