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# ***MANDALAY***

09/2006

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# ***MANDALAY LIMITED WARRANTY***

## **WHAT IS COVERED**

The Mandalay, manufactured by the Mandalay Luxury Division of Four Winds International Corporation, Limited Warranty covers this recreation vehicle (hereafter "RV"), when used only for recreational travel and camping, for one (1) year, or the first fifteen thousand (15,000) miles of use, which ever occurs first. This Limited Warranty shall become effective beginning with the 2007 Mandalay model year. The warranty period begins on the date that the RV is delivered to the first retail purchaser by an independent, authorized Mandalay dealer. In the event that a substantial defect in material or workmanship, attributable to Mandalay, is found to exist during the warranty period, Mandalay will repair or replace the defective material or workmanship, at its option, at no charge to the RV owner, in accordance with the terms, conditions and limitations of this Limited Warranty.

This Limited Warranty applies to the first retail owner and can be transferred to the second owner only. It is not transferable beyond the second owner of the RV. The second owner's warranty coverage period shall be limited to the remaining balance of the warranty coverage period that the first owner was entitled to under the terms of this Limited Warranty. Subsequent owners must complete the Warranty Registration Form contained in the Owner's Manual and send it to Mandalay.

Mandalay's obligation to repair or replace defective materials or workmanship is the sole obligation of Mandalay under this Limited Warranty. Mandalay reserves the right to use new or remanufactured parts of similar quality to complete any work. The RV owner's obligation to notify Mandalay, or one of its authorized, independent dealers, of a claimed defect does not modify any obligation placed on the RV owner to contact Mandalay directly when attempting to pursue remedies under state or federal law.

## **LIMITATIONS AND DISCLAIMER OF IMPLIED WARRANTIES**

The following limitations and disclaimers apply to the original purchaser of the RV, any person to whom the RV is transferred and any person who is an intended or unintended user or beneficiary of the RV, and apply to all warranties set forth in this Limited Warranty.

**ANY IMPLIED WARRANTY ARISING BY WAY OF STATE OR FEDERAL LAW, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS, ARE LIMITED IN DURATION TO THE LENGTH OF THIS LIMITED WARRANTY AND ARE LIMITED IN SCOPE OF COVERAGE TO THOSE PORTIONS OF THE RV COVERED BY THIS LIMITED WARRANTY. PERFORMANCE OF REPAIRS OR NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY OR ANY IMPLIED WARRANTY.** Mandalay makes no warranty of any nature beyond that contained in this Limited Warranty. No one has the authority to enlarge, amend or modify this Limited Warranty. The dealer is not Mandalay's agent, but is an independent entity.

**In addition, MANDALAY AND FOUR WINDS INTERNATIONAL CORPORATION SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES THAT MAY RESULT FROM BREACH OF THIS LIMITED WARRANTY OR ANY IMPLIED WARRANTY. THIS EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES SHALL BE INDEPENDENT OF ANY FAILURE OF THE ESSENTIAL PURPOSE OF ANY LIMITED WARRANTY, AND THIS EXCLUSION SHALL SURVIVE ANY DETERMINATION THAT THIS LIMITED WARRANTY OR ANY IMPLIED WARRANTY HAS FAILED OF ITS ESSENTIAL PURPOSE.**

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitations of incidental or consequential damages. Therefore, the above limitations may not apply to you.

## LIMITED STRUCTURAL WARRANTY (5 YEARS/60,000 MILES)

Mandalay by Four Winds International Corporation warrants to the first retail purchaser from an authorized dealer that the structural components of your Mandalay RV will be free from substantial defects in material and workmanship for a period of five (5) years from the date of first retail purchase or for the first sixty-thousand (60,000) miles of usage, whichever comes first.

For the purpose of this Limited Warranty, "structural components" shall be limited to the framework structure of the coach sidewalls, front and back walls, roof and floor.

Damage caused by misuse, abuse, collision, alterations, failure to properly maintain the exterior sealants, cosmetic defects, paint adhesion, separation due to water infiltration caused by lack of proper maintenance, improper repairs, and normal deterioration is not covered by this 5 year/60,000 mile Limited Structural Warranty. Normal maintenance such as periodic resealing of the windows, molding, door, vents, awning, and other exterior mounted components are excluded from this coverage.

Mandalay's obligation to repair or replace defective materials or workmanship is the sole obligation of Mandalay under this Limited Structural Warranty. Mandalay reserves the right to use new or remanufactured parts of similar quality to complete any work. Mandalay reserves the right to perform appropriate structural repairs at the Indiana factory service center under the terms of this Limited Structural Warranty.

## HOW TO GET SERVICE

To obtain warranty service the owner must do all of the following:

1. Complete and return the Owner Registration Card within ten (10) days of purchase;
2. Notify Mandalay Luxury Division, or one of its authorized, independent dealers, in writing, of any claimed defect within the warranty coverage period;
3. Provide the notification mentioned in (2), above, within ten (10) days of discovery of the defect; and
4. Promptly return the RV to an authorized dealer for repairs.

For warranty service; contact one of Mandalay's independent, authorized service centers for an appointment and then deliver your RV to the service center on the specified appointment date. If you need assistance contact Mandalay at:

Mandalay Luxury Division  
PO Box 1486, Elkhart, Indiana 46515  
Phone: (866) 919-4444 • Fax: (574) 522-4276 • Website: [www.mandalaycoach.com](http://www.mandalaycoach.com)

If two (2) or more service attempts have been made by an authorized service center, to correct any covered defect that you believe impairs the value, use or safety of the RV, you must, to the extent permitted by law, notify Mandalay directly, in writing, of the unsuccessful repair of the alleged defect so that Mandalay can become directly involved in making sure that you are provided service pursuant to the terms of this Limited Warranty.

Because Mandalay does not control the scheduling of service work, at any authorized service center you may encounter delays in scheduling and/or the completion of work. All costs associated with transporting the RV for any warranty service shall be the sole responsibility of the RV owner.

## WHAT IS NOT COVERED

This Limited Warranty does not cover any material, component or part of the RV that is warranted by another entity, including by way of example, but not limited to automotive chassis and power train, including the engine, drive train, steering, handling, braking, wheel balance, muffler, tires, tubes, batteries and gauges, generator, hydraulic jacks, inverter, range, carbon monoxide detector, furnace, roof air conditioner, refrigerator, audio/video equipment and microwave. Please refer to the respective chassis or component owner's manual for warranty coverage and contact information.

Minor adjustments such as adjustments to the interior or exterior doors, drawers, latches, etc. will be performed by the dealer during the first 90 days of warranty coverage. Thereafter, such adjustments are the owners' responsibility as normal maintenance.

In addition, by way of example only, this Limited Warranty does not cover any of the following: items that are added or changed after the RV leaves the Mandalay manufacturing facility; any RV used for rental or other commercial purposes (Note: It shall be assumed the RV has been used for rental or business purposes if the RV is purchased or registered in a company name, or if the RV owner claims a tax benefit on a tax form); normal wear, tear or usage, such as fading or discoloration of fabrics or the effects of condensation inside the RV; items that are working as designed but that you are unhappy with because of the design; problems related to misuse, including failure to maintain the RV in accordance with the owner's manual, or other routine maintenance; damage due to accident, whether or not foreseeable, including any acts of weather or damage or anything due to the environment, rust, theft, vandalism, fire, or other intervening acts not attributable to Mandalay; cost related to transportation, lodging, loss or damage to personal property, loss of owner's product, inconvenience, loss of income, rental vehicles; glass breakage; damage from misuse of equipment used for purposes other than intended design; damage resulting from tire wear or tire failure; defacing, scratches, dents, chips on any surface or fabric of the RV; damage caused by off road use, overloading the RV or alteration of the RV, or any of its components or parts. Maintenance parts and labor including but not limited to: wiper blades, bulbs, fluids, and filters are excluded from warranty coverage.

It is the owner's responsibility to take any necessary preventative maintenance measures, as described in the Care and Maintenance section of the Mandalay Owner's Manual including periodic maintenance of exterior caulking and sealers. It is the responsibility of the owner to take necessary measures to prevent secondary damage from rain water, plumbing leaks, condensation, and the natural accumulation of moisture in the RV. Failure to do so may result in stains, damage, separation, and formation of mold to the floor, walls, upholstery, carpeting, furniture, drapes and other components. Mold is a natural growth given certain environmental conditions and is not covered by the terms and conditions of the Mandalay Limited Warranty.

Chemical off-gassing is not a "defect" in the motorhome and is not covered by the terms and conditions of the Mandalay Limited Warranty. Please follow the recommendations in the *"Identification & Safety"* section to address this concern.

## LEGAL REMEDIES/ARBITRATION

Four Winds International Corporation participates in the Consumer Arbitration Program for Recreation Vehicles (CAP-RV). This third-party dispute resolution program is available, at no charge to you, to settle unresolved warranty disputes for recreation vehicles. This dispute resolution program reviews eligible product and service related complaints involving warranty covered components.

To find out more about the program, or to request an application/brochure, please call the Arbitration Administration office toll-free 800-279-5343.

For recreation vehicles purchased in the State of California: The CAP-RV program operates as a certified mechanism under the review of the California Arbitration Certification Program. You must utilize the arbitration program before claiming rights conferred by 15 USC section 2310 (Magnuson-Moss Warranty Act) or Civil Code section 1793.22(b) (Song-Beverly Warranty Act). You are not required to use the program if you choose to seek redress by pursuing rights and remedies not created by those laws.

Any action to enforce any portion of this express, Limited Warranty, or any implied warranty, shall be commenced within one (1) year after expiration of the warranty coverage period designated above or as required by state law. Any performance of repairs shall not suspend this one-year limitation period from expiring. Any performance of repairs after the warranty coverage period has expired, or performance of repairs regarding any thing excluded from coverage under this Limited Warranty, shall be considered goodwill repairs, and they will not alter the express terms of this Limited Warranty, or extend the warranty coverage period or this limitation period. In addition, this warranty is not intended to extend to future performance, and nothing in this warranty, or any action of Mandalay Luxury Division, shall be interpreted as an extension of the warranty or this limitation period.

**THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.**

Four Winds International Corporation  
P.O. Box 1486 Elkhart, Indiana 46515  
Phone: (866) 919-4444 • Fax: (574) 522-4276 • Website: [www.mandalaycoach.com](http://www.mandalaycoach.com)

05/2006 TC

**COMPLETE THIS REGISTRATION CARD WITH THE SELLING DEALER AND RETURN WITHIN  
10 (TEN) DAYS OF THE PURCHASE DATE**

MANDALAY OWNER REGISTRATION CARD					
Date of Purchase		Mandalay Serial Number		Model	
Chassis Serial Number		Chassis Manufacturer		Mileage	
<b>OWNER</b> Mr. <input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/>			<b>DEALER</b>		
Owner's Name (Last, First Middle)			Selling Dealer		
Address (Street or P.O. Box)			Address (Street or P.O. Box)		
City                      State                      Zip			City                      State                      Zip		
Telephone		Cell Phone		Telephone	
E-mail			Please type or print and mail this form within 10 (ten) days of purchase to:  <b>Mandalay Luxury Division</b> <b>P.O. Box 1486</b> <b>Elkhart, Indiana 46515</b>		
Owner's Signature (MUST BE SIGNED)					





**COMPLETE THIS REGISTRATION CARD WITH THE SELLING DEALER AND KEEP IT FOR  
REFERENCE WHEN WARRANTY SERVICE IS REQUIRED**

**MANDALAY OWNER REGISTRATION CARD**

Date of Purchase	Mandalay Serial Number	Model	Year
Chassis Serial Number	Chassis Manufacturer	Mileage	

**OWNER** Mr. ☐ Mrs. ☐ Ms. ☐**DEALER**

Owner's Name (Last, First Middle)

Selling Dealer

Address (Street or P.O. Box)

Address (Street or P.O. Box)

City State Zip

City State Zip

Telephone Cell Phone

Telephone

E-mail



**MANDALAY LIMITED WARRANTY TRANSFER APPLICATION**

Date of Purchase	Mandalay Serial Number	Model	Year
Chassis Serial Number	Chassis Manufacturer	Mileage at Time of Transfer	

**PRIOR OWNER** Mr. ☐ Mrs. ☐ Ms. ☐**NEW OWNER** Mr. ☐ Mrs. ☐ Ms. ☐

Name (Last, First Middle)

Name (Last, First Middle)

Address (Street or P.O. Box)

Address (Street or P.O. Box)

City

State

Zip

City

State

Zip

Country

Telephone

Country

Telephone

New Owner's Signature (MUST BE SIGNED)

Selling Owner's Signature (MUST BE SIGNED)

**DEALER INFORMATION**

Name (Last, First Middle)

Address (Street or P.O. Box)

City

State

Zip

Country

Telephone

Selling Dealer Signature (MUST BE SIGNED)

Mail Mandalay Limited Warranty  
Transfer Application to:**Mandalay Luxury Division  
P.O. Box 1486  
Elkhart, Indiana 46515****TERMS & REPRESENTATIONS**

By your signature(s) on this form, and in order to induce Four Winds International/Mandalay Luxury Division to transfer the Limited Warranty, you represent the following:

*That you have received and read a copy of the Mandalay Limited Warranty.*

*All information provided by you on this application is true and correct.*

*You understand that you are purchasing a pre-owned recreation vehicle and Four Winds International/Mandalay Luxury Division does not make any representation as to its present condition.*

*You understand that the Limited Warranty does not cover the chassis, component parts and appliances if they are covered by a separate warranty issued by the chassis, component part or appliance manufacturer.*



# GENERAL INFORMATION

## INTRODUCTION

It's exciting taking ownership of a new purchase as substantial and full of nearly unlimited possibilities for the future as a motorhome. Thank you for choosing a Mandalay Luxury Division product.

We take your choice seriously. That's why we have engineered this vehicle to meet and, in many cases, exceed federal and state regulations and requirements for vehicles of this type. Our primary concern has been to provide our customers with a beautiful motorhome that is not only dependable and cost effective, but also safe.

To keep this vehicle at peak performance and to obtain the maximum pleasure from its use over an extended period, the owner must take a personal interest in its care and operation. Therefore, before operating it, we suggest that you review the entire contents of this manual.

The Owners Manual outlines the operation of the motorhomes various systems and offers many helpful hints that will enable you to obtain the most pleasure from this motorhome. Review both this manual and the chassis manufacturer's owner's manual with the dealer. Be sure to ask them any questions you have at that time. Also make sure to read all warranty and registration information carefully. Read all component manufacturers' owner's manuals, and validate any individual warranties by completing and mailing individual warranty cards as required. Refer to the chassis owner's manual supplied by the chassis manufacture for complete information on the care and maintenance of the chassis.

**NOTE:** *Complete the Warranty Registration Card in this manual and return the card to Mandalay Luxury Division within 10 days from the date of purchase.*

Always keep this owners manual with the motorhome for easy reference, making sure to observe all notes and warnings associated with the use of this motorhome.

The motorhome is thoroughly inspected prior to shipment to the dealer. However, to insure your complete satisfaction, the dealer must also perform an inspection of various components and operations based on a pre-delivery inspection list. Take this opportunity to cover the operation of all components of the motorhome with the dealer. This will help familiarize you with the motorhome and its operation, as well as assure you that the motorhome is in excellent working condition.

A road test by the dealer should be included as part of the pre-delivery inspection. The dealer can then check for and correct any steering problems before you take delivery of the motorhome. After this road test has been completed, front end alignment and/or vibrations will not be covered as part of the new vehicle warranty.

This motorhome has been designed for short term recreational use. It is not intended to be used as a permanent dwelling or as a rental vehicle. If you intend to use the motorhome as a permanent dwelling or rental vehicle, it could cause the carpet, drapes, upholstery, and interior surfaces to deteriorate prematurely. This premature wear caused by long term or permanent residency may, under the terms of the new vehicle warranty, be considered abnormal and abusive and could reduce your warranty coverage.

Should a problem develop for which you need assistance, contact your dealer. If the problem is automotive, the motorhome should be taken either to a chassis manufacturer service center or dealer. If the problem is with an appliance, check the appliance manufacture's information supplied with the motorhome for information regarding warranty work and/or location of appliance service centers.

If, when traveling, you experience a breakdown or problem while the motorhome is under warranty, and an authorized service center or dealer is not available, if possible, contact the dealer you purchased the motorhome from, or a Mandalay Luxury Division Technical Service Advisor at (866) 919-4444 before having any service work performed. By notifying Mandalay Luxury Division, you will be aware of what is covered under the terms of the warranty, as well as informing Mandalay Luxury Division of your problem.

**NOTE:** *Any parts that require replacement, that are covered under the terms of the warranty should be retained and returned to your dealer along with your invoice. This way, they are able to check what has occurred, and also make sure you are properly reimbursed.*

Repairs made without prior authorization may be subject to denial or partial reimbursement. Modifications made to the vehicle without proper authorization can result in reduction or loss of warranty coverage. Please make sure to contact your dealer before making such changes.

## ROADSIDE ASSISTANCE PROGRAM

A special peace-of-mind roadside assistance plan is provided free of charge by Mandalay Luxury Division for the first year of ownership. (Rental and lease back vehicles are excluded from this program.) Some companies will tell you customer satisfaction is a nine to five job, we know better!

When you take delivery of your new Mandalay motorhome it's just the beginning of our exclusive around the clock Customer Care Roadside Assistance Program. Our extensive support program provides complete and fully paid roadside assistance, emergency road service (just show your card and go) and special support benefits that follow you wherever your travels take you.

Mandalay Luxury Division has teamed up with Coach Net, the largest RV emergency roadside service provider in the country, to give you immediate access to fast, dependable service when and where you need it. *To request service contact Coach Net at: 888-890-1738.*

### ***24-Hour Customer Care Benefits***

- Simply show your Thor Industries Customer Care Card for payment of covered benefits with no out-of-pocket expense throughout the U.S. and Canada. (Includes one additional family car!)
- Toll -free nationwide service appointment assistance, the “no-hassle” way of getting a warranty service appointment when and where you travel. We make an appointment for you, give you directions and the time that fits your schedule the best. Want an appointment in a town you'll be visiting next week? Not a problem. We're a toll-free call away!
- \$2000 trip interruption coverage to pay for food, lodging, car rental or even airline tickets.
- Emergency Message Center
- Warranty service assistance at qualified service agencies throughout North America. A simple phone call gives you expert direction on where the closest, qualified service agency is located.
- 24-hour toll-free technician hotline for operation assistance and full time service support.
- Free custom trip routing and full color map service delivered to your door! Make your next trip more enjoyable with these easy to follow maps, travel tips, places to see and much more.
- Unlimited towing to the closest qualified service facility.
- Jump starts.
- Tire changes.
- Fuel delivery.
- Lock-out service.
- Dispatch of on-site mechanical service in the event of a breakdown.

For further details and instructions on how to access your Customer Care Benefits, please refer to your Comprehensive Member Benefit Guide which you will receive in the mail within 30 days from the date your registration card is received by Mandalay Luxury Division, or call 888-890-1738. You may continue your Thor Industries Customer Care Benefits in following years at a special discount rate, as a continued benefit of the Thor Customer Satisfaction Program.

**NOTE:** *The Customer Care Roadside Assistance Program is not available on rental vehicles or lease back vehicles.*

## **NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**

### **NHTSA Headquarters**

400 Seventh Street, SW

Washington, DC 20590

Hotline Number - Toll-Free: 1-888-327-4236 (TTY: 1-800-424-9153)

Website: <http://safercar.gov>

Please use the toll-free number above to report suspected safety defects in your vehicle, vehicle equipment, and child safety seats. You can also obtain information about air bags, highway safety, and the proper use of child safety seats.

Remember to always buckle up, never drive when impaired, and ensure that child safety seats are installed and used properly.



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## SYMBOLS

### **DANGER**

**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

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

### **CAUTION**

**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

### **CAUTION**

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

## DISCLAIMER

The following information reflects product design, fabrication, and component parts at the time of printing. Four Winds International/Mandalay Luxury Division reserves the right, at anytime, to make changes in product design, material or component specifications at its sole option without notice. This includes the substitution of components of different brand or manufacturer name, which results in comparable performance.

Your actual motorhome may vary from this document as a result of optional equipment offered on this model and year of motorhome. In the case that you are not the initial retail owner of this unit, this document will not reflect modifications that may have been performed by previous owners. Photographs, line art, and diagrams contained herein may reflect both standard and optional equipment at the time of printing.

All information printed in this document is subject to change after the date of printing. As a result of product improvements, changes during model year production and/or transcription errors that may occur, information represented within the owner's manual and/or this document may not be the most current information available at the time of purchase. Please consult with your independent Mandalay Luxury Division dealer to confirm this information.

# IDENTIFICATION & SAFETY

## REPORTING SAFETY DEFECTS

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

To contact NHTSA, you may either call the Auto Safety Hot-line toll free at 1-888-327-4236 or go to their website at [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov). You can also obtain other information about motor vehicle safety from these sources.

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

## MOTORHOME SERIAL NUMBER DECAL & DATA PLATES

The motorhome serial number label is mounted on the inside wall next to the driver seat. Refer to the chassis owner's manual for the location of the chassis vehicle identification number on all motorized recreation vehicles.

**IMPORTANT:** Always give model, year, and the V.I.N. number information when ordering parts. Also, we recommend that you keep a copy of this information separate from the motorhome in the event that theft or vandalism requires you to supply a copy to authorities.

Decal and data plates are used throughout the motorhome to aid in its safe and efficient operation; others give service instructions. Read all decal, data, and instruction plates before operating the motorhome. When any decal, data, or instruction plate is damaged, painted over, removed, etc. it should be replaced.

MANUFACTURED BY: FOUR WINDS INTERNATIONAL INC. VEH. MFG. BY:		MODEL: SERIAL:		Offline: Received:	
<u>KG (LB)</u>	<u>TIRES</u>	<u>RIMS</u>	<u>COLD INFLATION PRESSURE</u>	<u>SINGLE</u>	<u>DUAL</u>
GVWR:					
GAWR FRONT:				<input checked="" type="checkbox"/>	
GAWR INTERM:				<input type="checkbox"/>	<input type="checkbox"/>
GAWR REAR:				<input type="checkbox"/>	<input checked="" type="checkbox"/>

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN:  
V.I.N.: TYPE: MULTI PASSENGER VEHICLE

## MANUFACTURER'S WARRANTIES

The following list of components has been compiled to help you know which products within the motorhome may have their own warranties. If you have any of these components within the motorhome, be sure to check the literature supplied by the manufacturer to see if they require that you register your purchase with them to validate their warranty. We recommend that you send the various warranty registration cards immediately before any time constraints on registration expire. Manufacturers' literature is contained in a separate packet furnished with the owner's manual on newly delivered units. Only those products and options which are within the motorhome will be included in this packet. Review the literature with your dealer during the pre-delivery inspection. Any shortages of literature should be reported to the dealer at this time.

### APPLIANCES

Awnings	Home Theater System	Satellite System
Back-up Monitor	Ice Maker	Spot Light
CB Radio	Microwave Oven	Television Antenna
Central Vacuum	Radios	Television Switchbox
Dishwasher	Range & Cooktop	Televisions
DVD Player	Refrigerator	Washer/Dryer
Exterior Deep Freezer	Roof Air Conditioners	Water Heater
Furnace	Roof Vents	
Navigation System	Satellite Radio	

### ELECTRICAL

Battery	Generator	
Ceramic Space Heater	GFCI Recepts	
Cord Reel	Inverter	
Electric Entry Step	Smoke/Carbon Monoxide Detector	

### WATER & DRAINAGE

Soap Dispenser	Water Faucets	Water Pump
Toilet	Water Filter	

### LP GAS

Gas Tank	Regulator	
LP Gas Detector		

### CHASSIS

Air Horns	Dash Air Conditioner	Tires
Batteries	Hydraulic Pumps	Transmission
Chassis	Leveling Jacks	

## SAFETY REGULATIONS FOR LP GAS SYSTEMS & APPLIANCES

The following warnings are posted throughout the motorhome to provide information on LP Gas safety. They have been installed not only because of the requirement to do so, but also as a constant reminder to occupants of the motorhome to exercise proper caution when using or being around LP Gas appliances and equipment. We are listing them here so you may study them and make sure that you and your family understand and follow them.

### WARNING

***It is not safe to use cooking appliances for comfort heating. Cooking appliances need fresh air for safe operation. Before operation:***

- 1. Open overhead vent or turn the exhaust fan ON and:**
- 2. Open windows**

These warning labels have been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the motorhome, and proper ventilation when using the cooking appliances will avoid dangers of asphyxiation.

Over-filling the LP Gas container can result in uncontrolled gas flow which can cause fire or explosion. A properly filled container will contain approximately 80% of its volume as liquid LP Gas. An 80% automatic shut-off valve is installed on the LP Gas tank which will automatically prevent further filling when the gas volume has reached 80% of tank capacity.

### CAUTION

***This tank is equipped with an automatic valve designed to close at 80% liquid full. Always open 20% fixed liquid level bleeder gauge while filling. Stop filling if liquid appears before valve shuts off.***

### WARNING

***All LP Gas is contained under pressure. Due to the dangerous potential of any compressed gas, it is mandatory that the following requirements for the use of this tank be followed: Tanks are to be installed, fueled and maintained in accordance with the state and local codes, rules, regulations or laws and in accordance with the NFPA Pamphlet 58, division IV.***

***Only personnel trained in the handling of LP Gas may fill, test or repair the LP Gas system.***

## WARNING

***If you smell gas, extinguish any open flames, pilot lights, and all smoking materials. DO NOT touch electrical switches. Shut off the gas supply at the tank valve(s) or gas supply connection. Open doors and other ventilation openings. ( do not use the range hood ) Leave the area until the odor clears.***

Have the system checked and leakage source corrected before using again. LP Gas regulators 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 the cover is kept in place to minimize vent blockage which could result in excessive gas pressure causing fire or explosion.

## WARNING

***Portable fuel burning equipment including wood or charcoal burning grills and stoves should not be used inside the motorhome because they may cause fire or asphyxiation.***

## FIRE SAFETY

Fire safety is an important part of owning a motorhome. Make sure that everyone traveling in the motorhome is familiar with the location of exits, including emergency exit windows should an emergency arise. The following basic rules of fire prevention can help eliminate the possibility of a fire.

- Never store flammable liquids within the motorhome
- Keep cooking surfaces clean
- Never clean with a flammable liquid
- Never leave cooking food unattended
- Never smoke in bed, and always use an ashtray
- Never allow children to play with LP Gas or electrical equipment
- Never use an open flame as a flashlight
- Always repair faulty or damaged wiring and electrical components
- Never overload electrical circuits
- Locate and repair LP Gas leaks immediately
- Don't allow rubbish to accumulate
- Spray fabrics annually with a flame retardant

If a fire does start, make sure to follow these basic rules of safety:

1. Have everyone evacuate the motorhome as quickly as possible
2. After everyone is clear, check the fire to see if you can attempt to put it out. If it is too large, or the fire is fuel fed, get clear of the motorhome and have the fire department handle the emergency.
3. DO NOT attempt to use water to put out the fire. Water can spread some types of fire, and electrocution is possible with an electrical fire.

## **FIRE EXTINGUISHER**

Underwriter Laboratories classify fires into three types:

### **Class A**

Fires in wood, paper, fabric, rubber, and certain plastics

### **Class B**

Flammable liquids such as grease, cooking oils, gasoline, or kerosene

### **Class C**

Electrical fires started from live electrical wires, from short circuits motors or switches

The fire extinguisher, which is located by the entry door of the motorhome, is a chemical type suitable for extinguishing small fires of the class B or C type. Extinguishers are designed to put out fires in the initial stage, not when it is blazing out of control. If a fire cannot be approached within 10', the extinguisher will not be effective.

To fight a fire with an extinguisher, first remove the tamper tape which covers the discharge push button. Hold it upright and stand six to ten feet from the fire with a clear path to an exit. Press the button down all the way, aimed at the base of the fire and spray with quick motions from side to side.

Avoid inhaling the dry chemicals. Although nontoxic, they could cause temporary irritation and vomiting. When the fire is out, clean up the area as soon as possible. The dry chemicals are non-corrosive, but some residue may cause surface damage if left too long.

In the case of an electrical fire, disconnect the battery and throw off the main circuit in the unit. It is important that everyone knows where to find the main circuit and how it operates. If the shoreline power cord is connected, disconnect it.

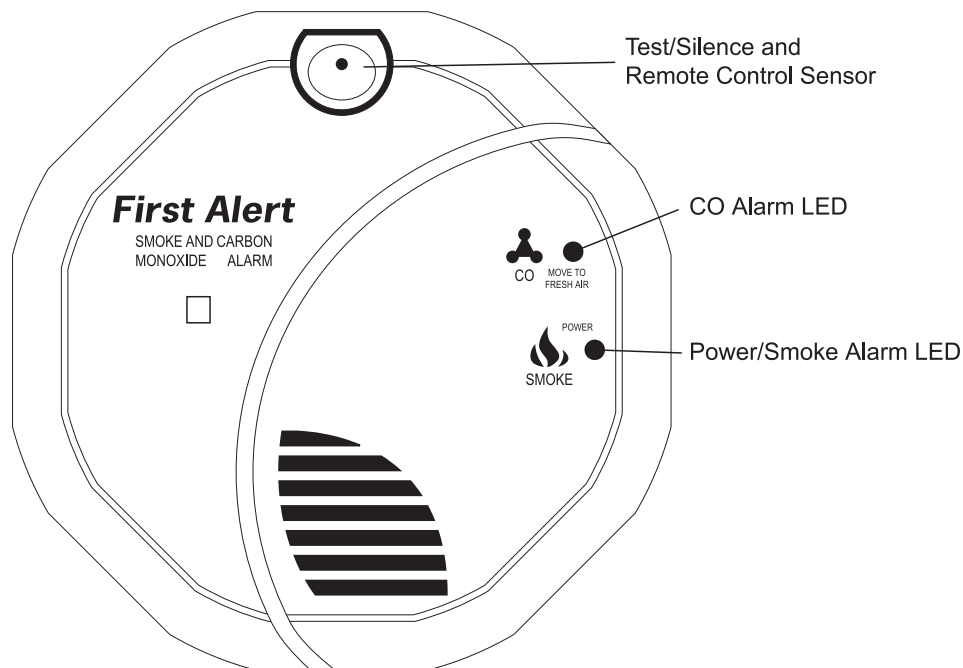
To keep the fire extinguisher in proper operating conditions:

1. **Check Pressure** monthly or more often. Check the nozzle for obstruction. Press the green pin below the nozzle. If it returns and sticks out from the extinguisher, it is operable. If the pin does not come back, discard extinguisher. Refillable models have a pressure gauge to check.
2. Check the **Tamper Tape** to make sure it is intact. DO NOT test the extinguisher. Even a partial discharge may cause leakage.
3. When checking the extinguisher for pressure, enter the date checked on the **Inspection Tag** furnished with the RV. Regular inspections will help insure the condition.
4. **Agitate Dry Chemical** every six (6) months, by inverting the bottle and lightly shaking for several seconds. This will help prevent the dry chemical from settling due to in-motion vibrations.

## CARBON MONOXIDE & SMOKE DETECTOR

### ⚠ WARNING

***This Smoke/Carbon Monoxide Alarm cannot operate without two, AA batteries. Removing the batteries for any reason, or failing to replace the batteries at the end of their service life, removes your protection. Refer to the manufacturers owner's manual for proper replacement batteries.***





This combination Smoke/Carbon Monoxide Alarm has two separate alarms. The CO alarm is not designed to detect fire or any other gas. It will only indicate the presence of CO gas at the sensor. CO may be present in other areas. The smoke Alarm will only indicate the presence of smoke that reaches the sensor. The Smoke Alarm is not designed to sense gas, heat or flames.

**NOTE:** *During normal operations the Power/Smoke LED flashes Green once per minute, and the CO LED is off.*

### ***Programming the Alarm***

Refer to the Combination Carbon Monoxide & Smoke Alarm User's Manual within your Owner's Packet for detailed setup information.

### ***Testing Procedure***

## **⚠ WARNING**

***DO NOT stand close to the alarm when the horn is sounding. Exposure at close range may be harmful to your hearing. When testing, step away when the horn starts sounding.***

***Never use an open flame of any kind to test this unit. The built-in test switch accurately tests the unit's operation as required by Underwriters Laboratories, Inc. (UL).***

**TEST:** *It is important to test this unit before each trip and once every week to ensure it is working properly. Using the test button is the recommended way to test this Smoke/CO Alarm.*

You can test this Smoke/CO Alarm two ways:

1. Manually: Press and hold the Test/Silence button on the alarm cover until alarm voice says "Testing" (typically 3-5 seconds).
2. Using Your Remote Control: Standing no further than 20 feet (6 meters) away from the Smoke/CO Alarm, aim the IR remote at the alarm and press the CHANNEL or VOLUME button until alarm voice says "Testing".

If the alarm does not respond to your remote control, there may be an obstruction between you and the alarm, you may be standing too far away, or your remote control may not be compatible.

During testing, you will see and hear the following sequence.

- The alarm voice will say “Testing”. The horn will sound 3 beeps, pause, 3 beeps. The alarm voice will say “Warning, evacuate smoke in location. Evacuate.” The Power/Smoke LED flashes Red and the CO LED will be off.
- Next the Horn will sound 4 beeps, pause, 4 beeps. The alarm voice will say “Warning, evacuate carbon monoxide in location. Evacuate”. The Power/Smoke LED will be off and the CO LED flashes red.

**NOTE:** *If the unit does not alarm, make sure the batteries are correctly installed, and test again. If the unit still does not alarm, replace it immediately.*

### **Carbon Monoxide Safety Precautions**

## **WARNING**

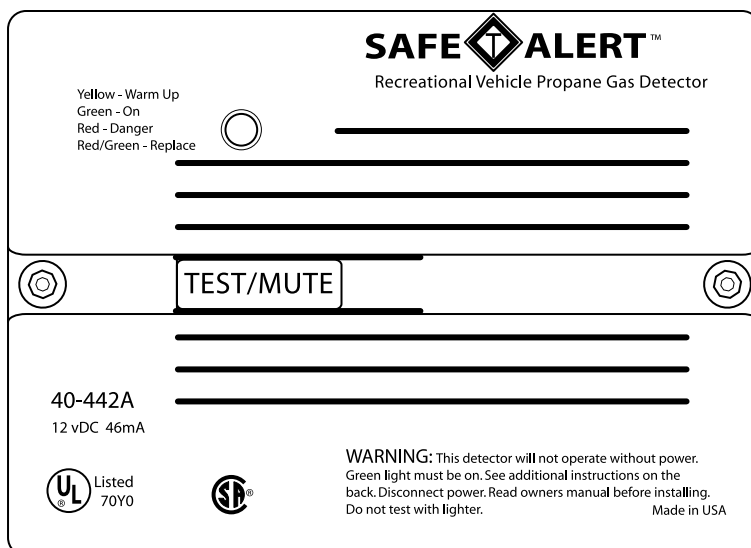
***DO NOT alter or modify any component of the exhaust system at any time. Inspect the exhaust system at regular intervals for damage. If you suspect or locate damage to the system, have it repaired immediately by a qualified service facility.***

***Never sleep while the engine is running. Be aware of carbon monoxide poisoning and its symptoms: Dizziness, Severe Headache, Vomiting, Weakness, Sleepiness, Muscular Twitching, and Throbbing in Temples. If anyone in the motorhome experiences any of these symptoms, shut off the engine, and immediately go outside into fresh air. Get medical attention as soon as possible.***

Carbon Monoxide cannot be seen or smelled and can kill you. If alarm sounds: Turn off appliances, as well as other sources of combustion at once (furnace, water heater, stove, motorhome, automobile, etc.) and call the fire department. Get fresh air into the premises or vehicle. Have the problem corrected before starting any appliances or the vehicle.

Never run the engine and/or the generator unless you are sure that exhaust gases will be safely dispersed into the atmosphere. Always be sure that tail pipes remain unblocked and windows near the exhaust are closed.

## LP GAS DETECTOR



The LP Gas Leak Detector is powered at all times when the coach battery disconnect switch is in the ON position. When power is supplied to the detector the green indicator light will illuminate. After 60 seconds, the detector will begin monitoring the air in the motorhome for combustible vapors. The LP Gas you use to cook, refrigerate, and heat is combustible. Should a leak occur, the detector will produce a pulsating alert sound when the gas reaches the detector. This alert will continue to sound until the gas has dissipated or until the reset button is pressed. When the alert sounds, open all doors and major windows to air out the motorhome and turn the gas off at the tank. Do not reenter the motorhome until the alert stops sounding. If the alert sounds a second time after the gas is turned back on, leave the gas off and have a qualified LP Gas Dealer or RV Service Center make the necessary repairs. The reset button only stops the alert from sounding for 60 seconds. This device is intended for detection of LP Gas ONLY.

### Maintenance

## CAUTION

***Never use water, cleaners or solvents to clean the detector.***

The following maintenance steps should be taken to ensure proper function of the detector.

- Test the detector at least once per week.
- Clean the detector at least once a month; gently vacuum the outside of the detector using the vacuums soft brush attachment.
- If detector becomes contaminated by excessive dirt, dust and/or grime, and cannot be cleaned to avoid unwanted alarms, replace the unit immediately.

**REFERENCE:** For proper battery maintenance and replacement procedures, refer to the manufacturer's owner's manual.

## How to Test

### **WARNING**

**Never use an open flame of any kind to test this unit. The built-in test switch accurately tests the unit's operation as required by Underwriters Laboratories, Inc. (UL).**

Simply press the TEST switch any time during the warm-up cycle or while in normal operation. The LED should flash red and the alarm should sound. Release the switch. This is the only way you should test your detector. The test feature checks the full operation of the detector. If this detector does not test properly return it immediately for repair or replacement.

**TEST:** *This test procedure should be repeated every week or every time the motorhome is taken on a trip, whichever occurs first.*

**REFERENCE:** *Refer to the manufacturer's Owner's Manual or all the detector manufacturer, if you have any questions about the LP Gas Detector.*

## Checking the LP Gas System for Leaks

### **WARNING**

**Never check for leaks with an open flame. The scent of LP Gas (a garlic-like odor) is actually ethyl mercaptan, an additive that allows you to detect the presence of a leak, since LP Gas is naturally odorless. Do not rely upon being able to detect the smell of the gas, as the odor may fade.**

Road vibration can loosen LP Gas fittings. It is important to check the LP system for leaks at least every 5,000 miles, and whenever the tank is filled. It is also a good idea to have the entire LP Gas system checked annually by a qualified LP Gas service representative.

Use the following steps when checking the system for leaks:

1. Open all the windows and vents.
2. Open the gas tank service valve.
3. Use non-ammoniate, non-chlorinated soap solution, or an approved leak detection solution on all line connections (ammoniate soap solutions can cause cracking on copper or brass lines and fittings).
4. If a leak is detected, tighten the connection with two open end wrenches until bubbling stops. DO NOT over tighten, or use excessive force. If the leak continues, contact the recreation vehicle dealer, or a qualified LP Gas service representative to have an 11" Water Column Test performed.

### ***About the LP Gas Detector***

Liquefied Petroleum Gas (LP Gas) is heavier than air and will settle to the lowest point which is generally the floor of the coach. The detector is also sensitive to other fumes such as hair spray of which most contain butane as the propellant. Butane, like propane, is heavier than air and will settle to the floor level where it will be detected. When this occurs, press the reset button to stop the alert sound for 60 seconds.

Other combustibles which will be detected include alcohol, liquor, deodorants, colognes, perfumes, wine, adhesives, lacquer, kerosene, gasoline, glues, most of all cleaning agents and the propellant's of aerosol cans. Most are lighter than air in their vapor state and will only be detected when the coach is closed up. Glues and adhesives may exhaust hydrocarbon vapors for months after they are applied. They are easily activated by high temperatures.

The LP Gas Detector is powered by the motorhome coach batteries and/or the inverter. The detector will operate properly until the battery is drained down to 10 volts (a low battery condition is 10.4 volts). If the power source (battery and/or inverter) is disconnected, or if the power is otherwise interrupted, the detector will not operate.

The LP Gas Detector has a self check circuit which runs at all times when the detector is powered. In the event that the circuitry fails, a failure alarm will sound. It is a continuous series of short beep tones between long intervals and is distinctively different from the alert sound.

### ***Most Common Causes of Apparent Malfunction***

- **New Coach Odor:** The glues and other materials used in manufacturing the coach produce vapors which may be detected when the coach is closed up on a warm day. Air out the coach thoroughly.
- **Keeps Beeping:** The gas detector beeps about once every minute, even when it is turned off. The problem is a weak battery in the smoke detector which causes the smoke detector to produce short beeps which sound similar to the alert sound of the LP Gas Detector. This is a high pitch tone and bounces off the walls, making its location very hard to pinpoint. If the sound is not coming from the LP Gas Detector identify the source and refer to the sources section in this manual for means of repair.
- **Hair Spray Triggers the Detector:** Most aerosol hair sprays use butane gas as the propellant. Butane, like LP Gas, is heavier than air and will settle to the floor level where it will be detected. The detector is doing its job as butane is combustible.
- **Other Gases:** Other gases which can cause the detector to respond with an alert include the vapors from any fuel, liquor, alcohol, deodorants, colognes, perfumes, wine, adhesives, lacquer, and most cleaning agents.
- **Slow Beep Rate:** This could be the failure alarm and will occur in the event that the circuitry fails. It is a continuous series of short beep tones between long intervals and is distinctively different from the alert sound.
- **After reviewing the above, if the problem still exists, contact MTI Industries for assistance.**

**NOTE:** *The LP Gas Detector enters a cleaning and initializing mode every time it is powered. If turned OFF for less than 15 minutes, the LP Gas Leak Detector may produce several short “chirps” within the first 80 seconds of operation. This is a normal function of the LP Gas Detector.*

## **Service**

See your Mandalay Luxury Division Dealer or a qualified LP Gas Service Center should service be required. If they are not familiar with this product, have them call the detector manufacturer for assistance. If service is not available in your area, call MTI Industries.

## **LP Gas Safety Precautions**

### **WARNING**

***DO NOT store LP Gas containers inside the motorhome. LP Gas containers are equipped with safety devices which relieve excessive pressure by discharging gas to the atmosphere.***

If you smell gas:

1. Extinguish any open flames, pilot lights and all smoking materials.
2. DO NOT touch any electrical switches.
3. Shut off the gas supply at the tank valve(s) or gas supply connection.
4. Open all doors and other ventilating openings. (DO NOT USE THE RANGE HOOD).
5. Leave the area until the odor clears.
6. Have the system checked by a trained professional before using again.

Be careful when doing any work or maintenance in the motorhome, that you do not puncture a gas line with a nail, screw, or drill bit.

Warning labels and decal's are used throughout the motorhome in locations where the potential for a dangerous situation is present. They have been installed not only because of the requirement to do so, but also as a constant reminder to occupants of the motorhome to exercise proper caution when using or being around LP Gas appliances and equipment. Make sure that you and your family understand and follow all of them. Never remove these warning labels and decal's. If one should be lost, it should be replaced as soon as possible.

## CHEMICAL SENSITIVITY

After you first purchase your new motorhome and sometimes after it has been closed up for an extended period of time you may notice a strong odor and chemical sensitivity. This is not a defect in your motorhome. Like your home, there are many different products used in the construction of motorhomes such as carpet, linoleum, plywood, insulation, upholstery, etc. Formaldehyde is also the by-product of combustion and numerous household products, such as, some paints, coatings and cosmetics. However, motorhomes are much smaller than your home and therefore the exchange of air inside a motorhome is significantly less than a home. These products, when new or when exposed to elevated temperatures and/or humidity, may "off-gas" different chemicals, including formaldehyde. This off-gassing, in combination with the minimal air exchange, may cause you to experience irritation of the eyes, nose, and throat and sometimes headache, nausea, and a variety of asthma-like symptoms. Elderly persons and young children, as well as anyone with a history of asthma, allergies, or lung problems, may be more susceptible to the effects of off-gassing.

### ***Formaldehyde***

Most of the attention regarding chemical off-gassing surrounds formaldehyde. Formaldehyde is a naturally occurring substance. It is also a key industrial chemical used in the manufacture of the numerous consumer products which we referred to above and used in the construction of motorhomes. Trace levels of formaldehyde are also released from smoking, cooking, use of soaps and detergents such as carpet shampoos, cosmetics, and many other household products. Some people are very sensitive to formaldehyde while others may not have any reaction to the same levels of formaldehyde. Amounts released decrease over time.

### ***Ventilation***

To reduce or lessen exposure to chemicals from off-gassing it is of utmost importance that you ventilate your motorhome. Ventilation should occur frequently after purchase and at times when the temperatures and humidity are elevated. Remember off-gassing is accelerated by heat and humidity. Open windows, exhaust vents, and doors. Operate ceiling and/or other fans, roof air conditioners, and furnaces and use a fan to force stale air out and bring fresh air in. Decreasing the flow of air by sealing the motorhome increases the formaldehyde level in the indoor air. Please also follow the recommendations contained in "Care & Maintenance" section regarding tips to avoid condensation problems.

**NOTE:** *We recommend that you do not smoke inside your motorhome. In addition to causing damage to your motorhome, tobacco smoke releases formaldehyde and other toxic chemicals.*

**NOTE:** *If you have any questions regarding the health effects of formaldehyde, please consult your doctor or local health department.*

**NOTE:** *Chemical off-gassing is not a defect in your motorhome and is not covered by the Mandalay Limited Warranty. Please follow the recommendation in this section to address this concern.*

## SEAT BELTS

### WARNING

***Do not occupy beds or any other seats that are not equipped with safety seat belts while the motorhome is in motion. Do not use a seat belt on more than one person.***

***Pilot & co-pilot seats must be locked in a forward facing position with seat belts fastened while the motorhome is in motion. Avoid seat rotation while in transit.***

***The sleeping accommodations in this vehicle are designed for occupancy only while the vehicle is parked. All occupants in this vehicle must be seated at a designated seating position and must wear seat belts at all times while this vehicle is in motion.***

***Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.***

### ***Seat Belt Operation***

All occupants must be furnished with and use seat belts while the motorhome is moving. However, it is not intended for all seats to be simultaneously occupied while the vehicle is in motion without regard to the total loaded weight of the vehicle.

- Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Adjust the belt to the proper position; snug and as low as possible around the hips, not around the waist.
- To unfasten, push the release button and remove the tongue from the buckle.

### ***Maintenance***

### WARNING

***Failure to inspect and if necessary replace the safety belt under the above conditions could result in severe personal injuries in the event of a collision.***

Inspect the safety belts periodically to make sure they work properly and are not damaged. Inspect the safety belts to make sure there are no nicks, tear or cuts. Replace if necessary. A qualified service technician should inspect all safety belt assemblies after a collision. Four Winds International/Mandalay Luxury Division recommends that all safety belt assemblies used in vehicles involved in a collision be replaced.



## Child Restraints

### WARNING

***Rear-facing child seats or infant carriers should never be placed in the front seats.***

***Never let a passenger hold a child on his or her lap while the vehicle is moving.***

You are required by law to use safety restraints for children in the U.S. and Canada. If small children (generally children who are four years old or younger and who weigh 18 kg [40 lbs] or less) ride in your vehicle, you must put them in safety seats made especially for children.

**NOTE:** Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle.

**NOTE:** Always follow the instructions and warnings that come with any infant or child restraint you might use.

If the child is the proper size, restrain the child in a safety seat. Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt.

## Booster Seats

### WARNING

***Never use pillows, books, or other objects to boost a child.***

Children outgrow a typical convertible or toddler seat when they weigh 40 pounds and are around 4 years of age. Although the lap/shoulder belt will provide some protection, these children are still too small for lap/shoulder belts to fit properly, which could increase the risk of serious injury.

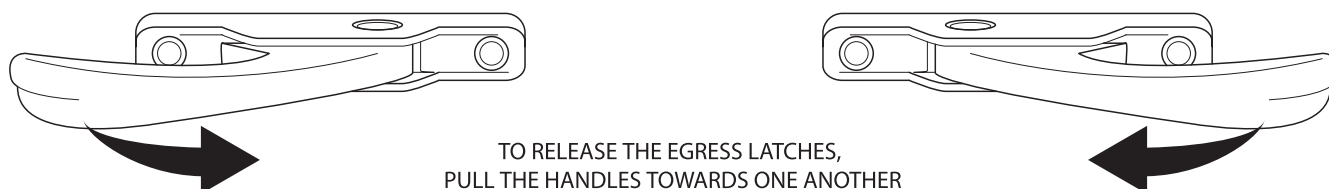
To improve the fit of both the lap and shoulder belt on children who have outgrown child safety seats, Four Winds International/Mandalay Luxury Division recommends use of a belt-positioning booster.

Booster seats position a child so that safety belts fit better. They lift the child up so that the lap belt rests low across the hips and the knees bend comfortably. Booster seats also make the shoulder belt fit better and more comfortably for growing children. Follow all instructions provided by the manufacturer of the booster seat.

## EGRESS WINDOW

An egress window is designated for use as an exit in the case of an emergency. Inside the motorhome the egress window is easily identified by the red locking handles. It is also marked as an "EXIT". The glass slider in the egress window operates the same as all other windows;

- To open the egress window, pull the latch handles towards you and then push outward on the window.



- To close the egress window, pull the window closed and push the handles to lock the window in place.

**TEST:** *The egress window should be opened twice a year to ensure proper operation. Over time, the rubber seal will tend to stick to the egress window. Occasional operation will help prevent the rubber seal from sticking.*

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# ***CHASSIS OPERATIONS & PROCEDURES***

**All issues regarding the Chassis Warranty, Parts & Service should be directed to :**

**Freightliner Custom Chassis Corporation**  
552 Hyatt Street  
Gaffney, SC 29341  
Customer Assistance Center: (800) 385-4357

The chassis is an integral part of the motorhome and with proper care and maintenance can provide many miles of reliable travel. The following section is for reference only, for detailed information regarding, product information and proper maintenance of the chassis, refer to the chassis manufactures owner's manual.

You as the owner are the key to keeping your motorhome in good operating condition, as well as being responsible for taking the proper precautions when attempting any repair or maintenance activities. If you are not sure what action to take, or uncomfortable with performing a maintenance or repair function, contact your dealer, or a designated chassis manufacturer servicing dealer. Check information supplied by chassis manufacturer for a service dealer near you.

Special procedures or schedules for "breaking-in" your new motorhome are minimal. Make sure to follow the recommendations as outlined in the chassis owner's manual to ensure proper future performance and economy.

**REFERENCE:** *Make sure to read all chassis information supplied by the chassis manufacturer, paying particular attention to precautionary notes and warnings, as well as all maintenance procedures and schedules.*

**REFERENCE:** *The motorhome may have an Event Data Recorder, refer to the chassis owner's manual for further details.*

## **BRAKES**

Operation and maintenance of the brake system is covered in the chassis owner's manual. Always be sure to keep your brakes in proper working condition, following the service schedule in the chassis literature, and the recommendations of your chassis service representative.

## WHEELS & TIRES

The motorhome tires play an important role in the load carrying capacity of the vehicle. To ensure good tire life, check tires often. Inspect the general condition of the tires, as well as the air pressure.

Always check the air pressure when the tires are cold. Tires that are hot from traveling will show higher pressures. The maximum tire pressure and the load carrying capacity of the tire are imprinted on each tire sidewall as well as on the vehicle serial number I.D. tag. Always inflate the tires to their correct pressure. Do not over or under inflate. Under inflated tires will run hot, shorten the tire's life and decrease the motorhomes safe load limit. Over inflated tires will cause a rough and bouncing ride that could damage motorhome components or cargo. It is a good idea to always carry an accurate tire pressure gauge in the motorhome to make these checks. If pressure checks indicate that a tire is losing air, check for signs of valve leakage, penetration, or wheel and rim damage.

The way you drive can have a significant effect on the wear and life of tires also. High speeds, unusual use of the brakes, taking corners too quickly, quick starts, and surfaces in poor condition all can attribute to the early wear and failure of your tires.

## DAMAGED OR FLAT TIRES

### CAUTION

***When replacing a tire, make sure that service personnel replace it with a tire of the same size and specifications.***

If you notice damage to a tire such as a bulge, uneven wear, or damage by a foreign object or the road, have it inspected and repaired or replaced as needed. Remember that tires should be taken to an authorized tire repair facility.

**NOTE:** *If you experience a flat tire, it is recommended that you have qualified personnel with the proper equipment handle the problem. Due to the size and weight of a motorhome wheel and tire assembly, as well as the amount of torque needed to tighten wheel nuts securely, it is best to call in a professional. It is for this reason that a jack has not been included in this motorhome.*

## WHEEL NUT TORQUES

### WARNING

***Failure to torque wheel nuts as specified could allow wheels to come off while the motorhome is in motion, causing loss of control and possible collision.***

Follow the schedule for regular wheel nut checks as outlined in the chassis manufacturer's owner's manual. If you suspect that the wheel nuts have loosened at any time, have the wheel nuts checked, and if necessary torque the nuts to the proper limits immediately.

If you suspect or notice wheel stud bolts are cracked or broken, they must be replaced, along with adjacent bolts that have probably also been weakened due to additional stress placed on them. You, as the owner of the motorhome, need to make frequent inspections of the wheels and tires, looking for signs of wear or damage. Avoid abusive driving such as impacting curbs and pot holes at high speeds.

**NOTE:** *The proper way of tightening wheel nuts is with a torque wrench, not with an impact wrench or by hand. Because of the importance of having the proper torque on wheel nuts, you should have wheels mounted by authorized personnel with the proper tools.*

## WHEEL & TIRE BALANCING

Handling and tire wear can be enhanced by maintaining the proper balance of wheel and tire assemblies. It is important to have wheel and tire balancing checked on a regular basis. If you experience handling problems or abnormal tire wear, it may be easily corrected by proper balance. Specialized equipment is required to achieve proper balancing, and the motorhome should be taken to a shop that is qualified to perform this service.

## FRONT SUSPENSION & ALIGNMENT

The term alignment refers to the adjustment angles on the steering axle, as well as, the suspension and the tracking of the rear axle. Many factors are considered when establishing proper alignment. Steering components, suspension, wheel bearings, and even proper loading all effect alignment.

Maintaining proper wheel alignment will result in increased steering ease and stability of the motorhome. As a result of proper alignment, tires and suspension will last longer and fuel economy can be increased. Any time you notice unusual tire wear or experience poor handling of the motorhome, it would be wise to suspect improper alignment along with the various other possibilities that might be causing the problem (check the chassis owner's manual). Always have the alignment of the motorhome checked and adjusted by a qualified service technician with the proper equipment to handle heavy vehicles.

**NOTE:** *The front end alignment of the motorhome has been set by the motorhome chassis and body builder to the specification for the front and rear GVW of the motorhome. However, since alignment is affected by not only how much weight you add to the motorhome in the way of cargo and how you disperse the cargo, we advise you to have the motorhome alignment checked in the loaded condition (the way you would travel down the road). Not having the alignment set in the loaded condition could result in abnormal tire wear, which is not covered under the limited warranty.*

## POWER PLANT & DRIVE TRAIN

Full operating and service information may be obtained by consulting the engine and drive train operating and service manuals provided by the chassis manufacturer. For maximum engine efficiency and long service life, always follow recommendations, as outlined by the chassis manufacturer. Regular visual inspections can help detect minor adjustments and needed maintenance. All other components of chassis should be inspected regularly per schedules set by chassis manufacturer.

## ENGINE COOLING SYSTEM

### WARNING

***Ethylene glycol is a petroleum derivative which can ignite if exposed to high temperature, such as occurs on an exhaust manifold. The possibility of ethylene glycol igniting is increased if it is not diluted with water. It is important to properly dilute antifreeze with the proper mixture of water. Make sure to discuss the coolant needs of the motorhome with the chassis engine service representative.***

The engine cooling system requires regular, periodic service to operate at maximum efficiency. The condition of the engine coolant, hoses, and clamps should be checked annually. Make sure to follow the cooling system recommendations as outlined in the chassis engine owner's manual. If you notice, or suspect cooling system problems, make sure it receives immediate attention. Proper and safe operation of the chassis engine cooling system and other chassis functions depends on maintaining the vehicle per the instructions and schedules published by the chassis and engine manufacturers.

## ENGINE ACCESS

The engine fluid level checks which are located at the exterior rear of the motorhome, can be accessed by lifting the top half of the engine grate. For service personnel, additional access areas are located in the bedroom. The first location is in the wardrobe closet on the floor, remove the four screws to remove the access panel. The second access panel is located on the floor between the bed and the wardrobe closet. Remove the four mounting screws to remove the access panel.

## PROPER LOADING & WEIGHT DISTRIBUTION

The motorhome has been designed to carry loads within specified limits. Exceeding these limits will greatly affect the handling of the motorhome, create an unsafe condition and may void warranties. These limitations are defined in three ways:

- **Gross Vehicle Weight Rating (GVWR):** Maximum permissible weight of this motorhome. The GVWR is equal to or greater than the sum of the Unloaded Vehicle Weight plus the Net Carrying Capacity.
- **Gross Axle Weight Rating (GAWR):** Maximum load carried by an axle: sum of rating may be more than GVWR to allow for load variations.
- **Gross Combined Weight Rating (GCWR):** Means the maximum allowable loaded weight of this motorhome with its towed trailer or towed vehicle.

**NOTE:** *Check the weight ratings of the motorhome on the serial number identification tag.*

Additional terms used when discussing weight and distribution include:

- **Gross Vehicle Weight (GVW):** The total loaded weight of the motorhome.
- **Gross Axle Weight (GAW):** The total axle weight under any given load condition
- **Unloaded Vehicle Weight (UVW):** Weight of this motorhome as built at the factory with full fuel, engine oil, and coolants. The UVW does not include cargo, fresh water, LP Gas, occupants, or dealer installed accessories.
- **Net Carrying Capacities (NCC):** Maximum weight of all occupants including the driver, personal belongings, food, fresh water, LP Gas, tools, tongue weight of towed vehicle, dealer installed accessories, etc., that can be carried by this motorhome (NCC is equal to GVWR minus UVW).

**NOTE:** *When establishing the NCC, weigh the motorhome with both a full fresh water and LP Gas tank. Do not allow anyone to be in the motorhome when establishing this rating. To determine the allowable tow rate subtract the GVWR from the NCC.*



**NOTE:** *Do not assume that you can fill all tanks and storage areas and be within the GVWR. Weights of stored items and passengers will vary greatly and will affect total weight of the motorhome. For calculation purposes fresh water weighs 8.33 pounds per gallon. LP Gas weighs 4.5 pounds per gallon.*

## WEIGHT INFORMATION LABEL

# CAUTION

**CAUTION: Do not overload the motorhome.**

A weight information label, similar to the following diagram, has been placed inside a wardrobe closet in within the motorhome. These weights are based on calculations involving similar vehicles as yours and will not be the exact weight of the motorhome. Weigh the motorhome to determine the exact weights and carrying capacities.

 <b>Mandalay</b> LUXURY DIVISION		701 CR 15 PO Box 1486 Elkhart, IN 46516-9731	
<b>MOTORHOME WEIGHT SPECIFICATIONS</b> <b>SPÉCIFICATIONS DE POIDS CONCERNANT LES MOTOR-HOMES</b>			
<b>PRODUCT:</b> Produit:		<b>SERIAL #:</b> N° de série:	
<b>MODEL:</b> Modèle:	<b>YEAR:</b> Année:	<b>CHASSIS VIN #:</b> N° d'identification du véhicule sur le châssis:	
<b>Gross Axle Weight Rating - GAWR</b> Maximum permissible load carried by an axle - (sum of rating may exceed GVWR). Estimation du poids brut de l'essieu Poids maximum permis pouvant être supporté par un essieu (le total de l'estimation peut excéder l'estimation du poids brut du véhicule).		<b>LBS - livres    KG / kilos</b>  Front: Avant: Rear: Arrière:	
<b>Gross Vehicle Weight Rating - GVWR</b> Maximum permissible weight of this fully loaded motorhome. Estimation du poids brut du véhicule Poids maximum permis de cet motor-home chargé à fond.			
<b>Gross Combined Weight Rating - GCWR</b> Maximum allowable load weight of this motorhome and any towed trailer or towed vehicle. Estimation du poids brut combiné Poids maximum de charge alloué pour cette motorhome et toute remorque ou voiture remorquée.			
<b>Unloaded Vehicle Weight - UVW</b> Weight of this motorhome as manufactured at the factory with full fuel, engine oil and coolants. Poids du véhicule sans charge Poids de cet motor-home tel que fabriqué à l'usine avec un plein d'essence, d'huile de moteur et des fluides de refroidissements.			
<b>Sleeping Capacity Weight Rating - SCWR</b> Motorhome manufacturer's designated number of sleeping positions multiplied by 154 pounds (70 kilograms). Estimation du poids de capacité de couchage Le nombre de position de couchage tel qu'indiqué par le fabricant du motor-home multiplié par 154 livres (70 kilogrammes).			
<b>Cargo Carrying Capacity - CCC</b> Equal to GVWR minus each of the following: UVW, Full fresh (potable) water (including water heater), full LP gas weight and SCWR. (Note: dealer installed equipment and towed vehicle tongue weight will reduce CCC) <b>Capacité de transport de cargo</b> Égal à l'estimation du poids brut du véhicule moins chacun des suivants: le poids du véhicule sans charge, le poids du plein d'eau potable (incluant chauffe-eau), le poids du plein d'essence et l'estimation du poids de capacité de couchage. (Note: les équipements installés par le concessionnaire et le poids du véhicule remorqué sur la boule de remorque vont réduire la capacité de transport de cargo.)			
Fresh water w/ water heater @ 8.33 lbs./gal. Eau potable avec chauffe-eau @ 1 kg/litre		Gals. litres.	
LPG capacity @ 4.2 lbs./gal Capacité d'essence @ 0.54 kg/litre		Gals. litres.	
<b>WARNING:</b> This information is intended as a guide only. Weights of individual vehicles may vary. Consult Owners Manual(s) for specific weighing instructions and towing guidelines including auxiliary brake requirements for any towed trailer or towed vehicle. <b>Caution:</b> Consulter le manuel du propriétaire pour les instructions spécifiques de pesage et les directions de remorquage incluant les exigences de freins auxiliaires pour toute remorque ou voiture remorquée.			
		 AMERICA'S BEST RV VALUE	



## COMPUTING THE LOAD & LOAD DISTRIBUTION

When loading the motorhome, give careful consideration to the weight of all items. Evenly distribute the weight of stored items from one side to the other. Do not store heavy items near the front or rear of the motorhome. Following these suggestions will benefit both the handling and ride of the motorhome, as well as increasing fuel economy.

It is recommended to empty the waste holding tanks before leaving on a trip, and as often as possible when traveling, to help reduce unnecessary weight while traveling. Try to carry only as much fresh water as you will use when traveling.

It is also important to keep in mind when traveling, that all items stored inside and outside the motorhome are secure, and all drawers and doors are secure. DO NOT add any type of rack or frame to any motorhome frame or chassis part. Alterations to the length and/or weight distribution may result in unstable handling, be a safety hazard, or could damage motorhome components. In any case, the motorhome warranty may be affected.

In order to properly compute the load and load distribution, you must know both actual scale weights, and the GAWR and GVWR found on the Federal Certification Label on the motorhome. Weigh with all passengers, equipment, luggage, and fluids on board as you plan to travel with. To weigh the motorhome properly, use the following procedure:

1. All passengers must be in their seats and the motorhome level. Place the front axle only on the scale. Check the weight against the front gross axle weight rating.
2. Pull forward so that both axles are on the scale. Check the weight against the gross vehicle rating.
3. Pull forward again so that only the rear axle is on the scale. Check the weight against the rear axle weight rating.

**NOTE:** *The motorhome must be setting on level ground when weighing the front or rear axle separately. The weight distribution will be greatly affected if this is not done and the weights will be inaccurate.*

Compare scale weights with capacities as shown in the following example:  
(This example is hypothetical only)

GVWR	14,500 lbs.
GVW	<u>12,570 lbs.</u> (Weight from Scale)
Carrying Capacity	1,930 lbs.
Front GAWR	5,000 lbs.
Front GAW	<u>4,000 lbs.</u> (Weight from Scale)
Front Axle Carrying Capacity	1,000 lbs.
Rear GAWR	10,000 lbs.
Rear Gaw	<u>8,890 lbs.</u> (Weight from Scale)
Rear Axle Carrying Capacity	1,110 lbs.

## DRIVING

The motorhome is equipped with more than adequate brakes; however, the stopping distance may be much greater than that of an automobile. Keep this in mind at all times and be alert to changing road conditions.

It would be helpful to take the motorhome to a stadium parking lot and spend some time getting the feel of the wider and longer vehicle.

**NOTE:** *Small fluorescent sports cones, available at sporting goods and toy stores, can be used to create turns and parking spaces. Dowels with small flags can be attached to make the cones more visible in the passenger's side rear view mirror. Afterwards, the cones can become an addition to your safety equipment.*

Practice parallel parking, backing and turns. Have a person work with you, having them help guide you from both the passenger seat and a position outside using hand signals.

Another motorhome characteristic that needs to be taken into consideration immediately is the height. Read all "clearance" signs when approaching parking garages, drive-through windows and even underpasses on older highways. Also be careful of overhanging trees. Always use caution and when in doubt get out and look. Don't forget any added equipment that may protrude higher than the standard factory height.

Passing and pulling out into traffic in the motorhome is going to be different than driving your everyday vehicle. Generally speaking, it will take more time, thus, more distance to pass when it necessitates driving in an on-coming lane of traffic. It will take more time to clear an intersection from a dead stop. Allow more distance between vehicles.

Because the motorhome is longer and wider than other vehicles, more attention must be paid to cornering. Practicing in a stadium lot is helpful, as indicated earlier.

To assist with turning follow these steps:

### **Right Hand Turns:**

- As the turn approaches, move as far to the left of your lane without crossing the center line.
- When you are prepared to make the turn, the left rear wheel should touch the center line of the lane and your hips should be parallel to the roadside curb of the corner in which you are turning into. This will aid in preventing a premature turn.
- Make the turn slowly checking the rear view mirrors frequently for proper clearance.

### **Left Hand Turns:**

- Do not start turning until the center of the intersection is reached with your hips. If there are two lanes available, use the right hand lane. A vehicle on the left hand side is easier to see while turning.

## HILLS, DALES & MAKING THE GRADE

Driving in hilly or mountainous terrain isn't any more difficult than driving on the flat plains of Kansas if the driver uses the vehicle properly. The main culprit of hilly or mountainous driving problems is overheating. Preventing problems is as simple as following your chassis manufacturer's driving instructions for this type of terrain. The main thing to remember is to reduce speed and drive in the appropriate gear, usually something other than drive.

## TRAILER TOWING

### WARNING

***A separate functioning brake system is required for any towed vehicles or trailers weighing more than 1000 lbs when fully loaded. NEVER exceed the GVWR, or the GAWR specified on the motorhome certification label. Also NEVER exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult the chassis owners manual.***

### CAUTION

***The motorhome fully loaded and the trailer, or towed vehicle, must not exceed the motorhome chassis' Gross Combination Weight Rating (GCWR). Consult with your selling dealer to determine the GCWR of the motorhome. Do not exceed the motorhomes Gross Combined Weight Rating (GCWR) or the hitch rating. The tongue weight, the weight pushing down on the hitch, must not exceed 10% of the hitch capacity.***

***Always use safety chains between the motorhome and the towed trailer or vehicle. Cross chains under the trailer tongue and allow slack for turning corners. Connect safety chains to the trailer or vehicle frame or hook retainers. Never attach chains to the bumper of a vehicle.***

***Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt short back up distances with a tow bar or tow dolly. Damage to the motorhome, vehicle or towing device will result.***

***NOTE: Four Winds International/Mandalay Luxury Division accepts no responsibility for damage to the chassis and other components resulting from towing loads greater than its designated class specifications. Also consider the gross combined weight rating of the motorhome before towing a trailer or vehicle. Towing an object such as a boat and trailer or a vehicle behind the motorhome results in added driving considerations that you must contend with.***

## TOWING PROCEDURES

### **⚠ WARNING**

***Due to multiple variables that exist in towing the motorhome, operating/positioning the lifting and towing device is the sole responsibility of the tow vehicle operator. The operator must be familiar with standard towing industry safety measures. Improper procedures could result in personal injury or death.***

### **⚠ CAUTION**

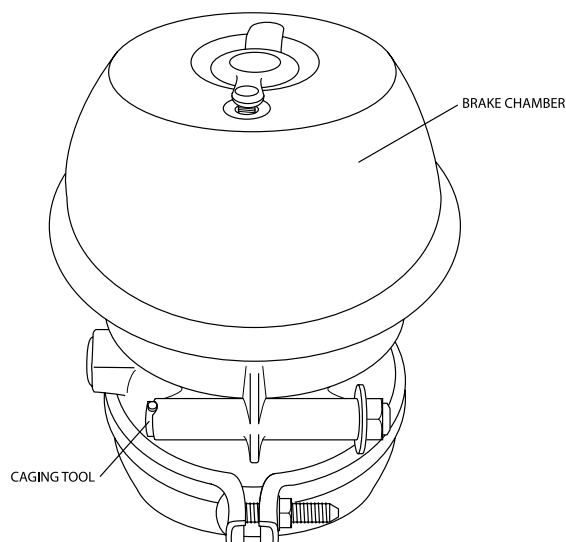
***Never tow the motorhome at a speed greater than 50 mph. Never allow anyone to ride in the motorhome while it is being towed. Make sure to review the chassis owner's manual for any additional requirements or cautions concerning the towing of the motorhome.***

### **CAUTION**

***In case the motorhome requires towing, ensure all precautions are followed. The drive shaft must be disconnected and the mud flap may need removed. The manufacturer WILL NOT cover damage to the motorhome caused by a towing company.***

When the motorhome needs towed for service it is recommended to use a lowboy/landall type of trailer. If a tow truck is used it needs to have a support arm that goes under the motorhome and secures to the front axle. Inform the tow company of the axle weights and total weight of the motorhome. Other important information is the length of the motorhome, number of passengers and mile-post location.

If the motorhome loses air pressure, it will be necessary to disable the parking brakes for towing. Do not try to disable the brakes. The towing service will be qualified to cage the brakes properly for transit. The following drawing is for reference only.



If the motorhome needs to be towed:

- Secure any loose or protruding parts if the motorhome is damaged.
- Inspect the points of attachment on the disabled motorhome. If attachment points are damaged, select other attachment points at a substantial frame structural member.
- Never allow anyone to go under a motorhome while it is being lifted by towing equipment unless the disabled motorhome is adequately supported by safety stands.
- Do not tow the motorhome from the rear. Towing from the rear will severely overload the front tires and suspension possibly resulting in tire and/or front suspension failure. Rear frame extensions are not designed to support weight loads imposed by lifting the motorhome from the rear.
- If the rear wheels are disabled, place the motorhome on a flat bed trailer or use a heavy duty dolly under the rear wheels and tow the motorhome from the front.
- The drive shaft must be removed to prevent damage to the transmission. Secure the end caps to prevent losing or contaminating the needle bearings.
- The mud flap may need to be removed to prevent damage due to limited ground clearance.
- Review the chassis owner's manual for proper towing guidelines.
- Use an approved tow truck normally used for towing large vehicles.
- Tow with the parking brake released and the transmission in neutral.
- Make sure the front wheels are lifted at least four inches off the ground, and that the rear of the motorhome has adequate clearance.

## EMERGENCY STOPPING

If an emergency ever requires you to be stopped, be sure to follow these guidelines:

1. Pull off the road as far as possible.
2. Select the Neutral position on the shift selector and apply the Parking Brake.
3. Turn on the hazard warning flashers.
4. Use three red warning indicators such as flares, reflectors, or lanterns as required by the Uniform Vehicle Code and Model Traffic Ordinance as follows:
  - a. Place the first indicator on the traffic side of the vehicle, directed at the nearest approaching traffic.
  - b. Place the second 100 feet behind the RV in the center of the lane and toward approaching traffic.
  - c. Place the third 100 feet in front of the RV in the center of the lane and away from the traffic approaching from behind.
5. Always stand off the road.

**NOTE:** *Curves and/or hills may effect the safe placement of warning indicators.*

## FUELING THE MOTORHOME

### DANGER

***Be extremely careful when fueling the motorhome. Always shut off the engine, do not smoke, or use cellular phones and shut off all pilot lights before adding fuel. Fuel spills represent a serious fire hazard, and should be cleaned up immediately. Never restart the engine, or relight pilot lights while raw fuel is present. When weather gets cold or the motorhome has not been used for a while, a fuel anti-gel additive will be needed.***

For your convenience there are two fuel fills on the motorhome. They are located on both sides of the motorhome, towards the front of the unit. This allows access into filling stations from either side of the motorhome.

**NOTE:** *Always remove the fuel cap slowly and pay close attention to the fuel recommendations outlined in your chassis literature.*

## TRAVEL PREPARATION

Like any vacation trip, pre-planning will pay big dividends. In addition to routine trip preparations such as having newspaper delivery stopped and mail held at the post office, there are now more vehicle-related preparations than there are with an automobile.

### ***Chassis Checks***

- Fluid levels (oil, power steering, radiator, transmission, windshield washer, etc.)
- Belts (tension and condition)
- Battery (electrolyte level if applicable, connections, charge)
- Hoses (clamps tight, condition, leakage)
- Seals, gaskets (leaks)

**REFERENCE:** *Refer to the Chassis Manufacturer's Owner's Manual for more information.*

### ***Exterior Checks***

- Tire pressure/condition and lug nut torque
- Headlights, running and safety marker lights including brake and turn signal and also any trailer light connections
- Security of any auxiliary equipment such as TV and awning, etc.
- Windshield wiper blades
- Generator compartment
- Fresh and waste water connections/drains and supplies such as high pressure hose
- Liquid Petroleum Gas compartment/tank

## ***Undercarriage Checks***

- Drive train condition, specifically leaks (U-joints, differential, transmission)
- Brakes, including lines, pads/shoes, seals
- Engine area for pan gasket or other leaks
- Anything unusual hanging or tangled with road debris such as tree limbs
- Tank condition (gas, fresh water, waste water)

## ***Operational Checks***

- Check operation of all systems, including: Wipers, windshield, horn, brakes, steering, transmission, heater, defroster, air conditioner, and seat adjustment.
- Also idle engine long enough to check cooling system and alternator operation. Be sure to turn on headlights and climate controls to see if alternator handles the additional drain on the electrical system (should not show discharge).

**REFERENCE:** *Refer to the Chassis Manufacturer's Owner's Manual for more information.*

## ***Pre-Trip Checklist***

### **WARNING**

***Pay careful attention to where and what type of flammable materials you store. Certain storage areas are clearly labeled DO NOT STORE COMBUSTIBLE MATERIALS. Examples of spark producing areas, depending on the motorhome model, are: base kitchen cabinets, front dinette base, exterior refrigerator service compartment, as well as refrigerator cabinet. Please use discretion as to what potentially dangerous products your motorhome contains while traveling. Be sure all canisters and bottle tops are secure and leak free.***

As an owner you now have the added responsibility to prepare the living quarters for a trip. The following checklist will assist with your preparation:

- Filling fresh water tank. In winter make sure that system is freeze protected.
- Check list of food, utensils and clothing needs.
- Check storage of all items, making sure that everything is secured and that heavy items are stored low so they don't fall.
- Check operation of stove and refrigerator.
- Check paperwork such as owners registration card, vehicle registration, proof of insurance, driver's license and names/phone numbers of individuals you are to contact during the trip, such as ranger stations.

## ***First Short Trips***

Our suggestion is to take a weekend trip to a camp location that is close to home. Be sure to have a note pad and pen available to write down items you feel will be needed in the future as well as equipment that you may need to learn more about.

The experience gained from these short trips will assist you in determining the proper supplies and equipment you may need for your first long duration trip. It is understandably upsetting having to purchase a needed item on the road knowing that one is sitting at home unused.

Not all owner's need the same equipment or supplies. For one thing, North America presents a wide variety of climates and terrain. For another, personal needs and taste come into play.

Also, if most of your trips will be made in the summer and your shake down trip is made during some other season, there will be some adjustments to take into consideration. Talk to other owner's and learn from their experiences.

If you are an experienced owner it is still necessary to thoroughly read this manual. New and improved equipment is coming onto the market every day and, at the same time, not every motorhome manufacturer builds vehicles the same way.

This manual is packed with detail, however, after you have worked with the various systems during a couple of shake down trips, you will be capable of conducting a pre-trip check in less time than it takes to read this manual.

When preparing for your trip always consider vehicle weight when loading the motorhome.

Because of different options available, your motorhome may not include all of the systems in this manual.

## **LAWS OF THE ROAD**

It is advisable to contact the Department of Motor Vehicles in each respective state, for up-to-date information regarding operation and licensing requirements for your particular motorhome.

The state of California currently requires operators of motorhomes over 40 feet in length to obtain a non-commercial class B license. California has also enacted legislation limiting use of motorhomes in excess of 40 feet, to approved roadways. You may contact Caltrans at [www.dot.ca.gov](http://www.dot.ca.gov) or 916-654-5741 for current information regarding these California statutes.



# DASH CONTROLS & INSTRUMENT PANELS

Thoroughly familiarize yourself with the various controls, instruments, and indicators located on the dash. Performance and safety can be enhanced by a driver who fully understands each one, and how to use them.

**IMPORTANT:** The following information is a quick reference guide for chassis functions, and is not a replacement for the chassis owner's manual. The chassis owner's manual furnished with the motorhome has complete information for operating and maintaining chassis functions.

**NOTE:** The appearance or placement of the gauges, instruments and controls may not exactly match the illustrations within the chassis owner's manual however, the instructions for their use will still apply.

## TRANSMISSION CONTROL PANEL

### ⚠ CAUTION

***If Park is selected, and "P" does not display on the Monitor side, the Parking Brake must be set to prevent the vehicle from moving unexpectedly. The system should be checked and serviced.***

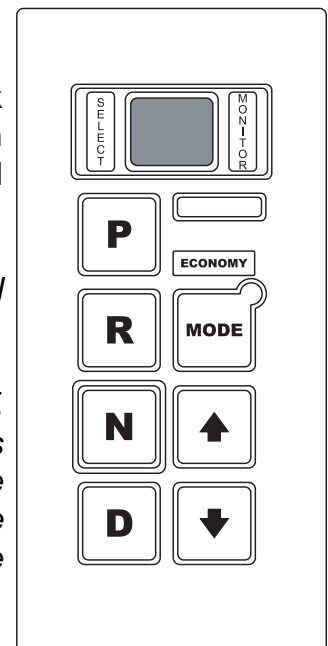
***On Park equipped transmissions, if the ignition is turned OFF without shifting to Park; a buzzer will sound and the display panel will illuminate and show the gear currently engaged. Shifting to "P" will engage the Park and turn OFF the display and buzzer.***

#### **P (Park):**

This button shifts the transmission into Neutral and engages the Park Pawl [in 1000 and 2400 transmissions only]. The "P" will only appear on the Monitor side, the Select side will be blank. Park or Neutral are used to start the motorhome.

**REFERENCE:** Refer to the Chassis Manufacturer's Operator's Manual regarding information for the Park Pawl.

**NOTE:** On PARK equipped transmissions, if the vehicle engine is OFF, the ignition ON, and the Park Pawl is not engaged (see Chassis Manufacturer's Operator's Manual for Park Pawl information), the Monitor will display "N" and a buzzer will sound regardless of the operator's selection. Shifting to "P" will engage Park and turn OFF the system.



**R (Reverse):**

Selection will display an “R”. This selection provides one range for backing the motorhome.

**N (Neutral):**

Selection will display an “N”. This selection shifts the transmission to Neutral. Neutral can be used to start the vehicle.

## CAUTION

***If the transmission is in “N” and the operator leaves the driver’s seat, the motorhome Parking Brake must be set to prevent the motorhome from rolling.***

**D (Drive):**

This button shifts the transmission into Drive and allows the transmission to automatically shift through the full range of 1<sup>st</sup> through 5<sup>th</sup> gears. When Drive is initially selected, the Select and Monitor displays read “D1” indicating that drive has been selected and the transmission is in 1st gear. As the transmission automatically upshifts or downshifts, the Select/Monitor Display will show which gear the transmission is actually in - D1, D2, D3, D4, or D5.

**Manual Gear Selector (DOWN Arrow):**

When the transmission is in DRIVE, the Down Arrow allows the operator to manually downshift one gear at a time - 5<sup>th</sup> thru 1<sup>st</sup>. The Select Display will show which gear range has been selected; the Monitor Display will show the actual gear range the transmission is in 1 through 5, depending on and limited by the gear selected.

**Manual Gear Selector (UP Arrow):**

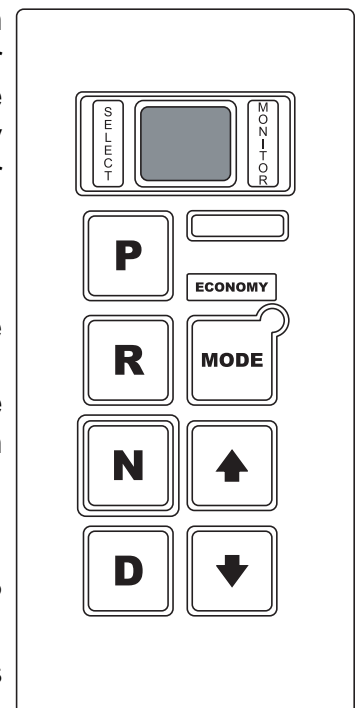
When the transmission is in 1, 2, 3 or 4, depressing the UP Arrow manually upshifts the transmission one gear at a time (i.e. increases the gear the transmission will be limited to) until D is selected. The Selector Display shows which gear has been selected, the Monitor Display will show which gear the transmission is actually in.

**NOTE:** *The transmission will not upshift beyond the gear range selected. When DRIVE is selected the full range automatic shift capability is restored.*

**NOTE:** *Selecting DRIVE at any time during the downshift sequence cancels the manual-shifting function and allows the transmission to shift automatically.*

**Mode:**

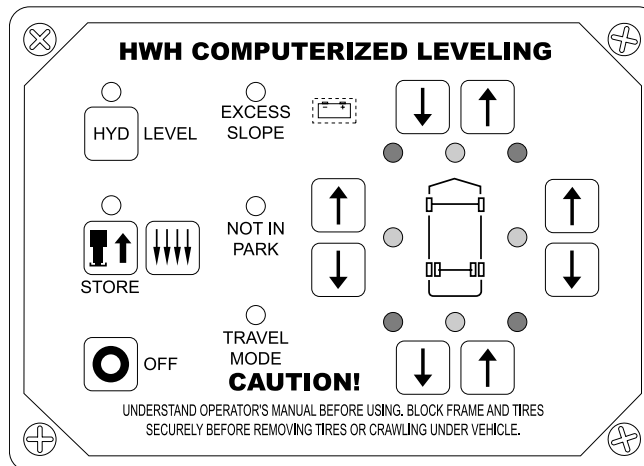
Selects between normal operation and economy (when economy is selected an indicator light will illuminate and the motorhome will shift differently to conserve fuel).



**Service:**

If the SERVICE display illuminates there is a fault in the SBW system. A qualified service technician should inspect the system as soon as possible.

## AUTOMATIC HYDRAULIC POWER LEVELERS



**NOTE:** The arrows indicate the motorhomes movement during the leveling process, not the leveling jack movement.

## ⚠ CAUTION

**Do not interrupt power to the system until the system automatically shuts off.**

**Never place hands or other parts of the body near hydraulic leaks. Oil may penetrate skin causing severe injury. Wear safety glasses when inspecting or servicing the system to protect eyes from dirt, metal chips, or leaks, etc. Follow all other applicable shop safety practices.**

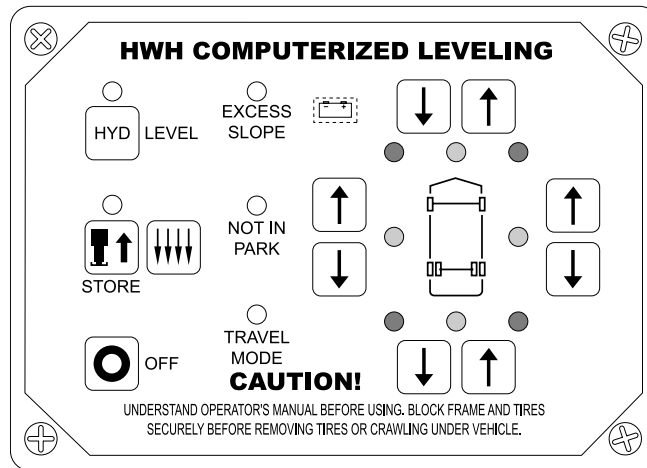
**Keep all people clear of the vehicle while operating the leveling system.**

**Block the frame and tires securely before attempting any maintenance under the vehicle. Do not use the leveling jacks or air suspension to support the weight of the vehicle while under the vehicle or changing tires.**

**Do not over-extend the rear jacks. If the weight of the vehicle is removed from one or both rear wheels, the vehicle may roll forward or backward off of the leveling jacks.**

**NOTE:** While in transit ensure the STORE LED is illuminated.

**REFERENCE:** Refer to manufacturer's operations manual before operating.



**NOTE:** The arrows indicate the motorhomes movement during the leveling process, not the leveling jack movement.

### ***Automatic Leveling Procedure***

1. The following must be done prior to leveling the motorhome:
  - Turn the ignition switch to the "Accessory" or "On" position.
  - Make sure the engine is OFF.
  - The parking brake must be set.
  - The transmission selector must be in the "N" or "Neutral" position.
2. Press the "HYD" button once. The hydraulic operation indicator light will come on steady.
3. Press the "HYD" button a second time. After pressing the button, the operation indicator light will flash, and the coach will then be leveled automatically. Once leveled, the system will shut off on it's own.

### ***Store Operation Procedure***

1. Start the engine.
2. Press the "Store" button. The store indicator light will flash and the jacks will retract.
3. When the "Travel Mode" light is on and the jacks are fully retracted, the ride height will need to be checked to ensure that the coach suspension has been brought to the proper ride height. Once this has been achieved the coach may be moved.

## SWITCHES & DASH CONTROLS

### Shifter Panel

#### Mirror Heat:

Activates heating element to defrost the outside rearview mirrors.

#### Mirror Control Button:

Used to adjust outside mirrors for visibility. Push the side selector left to adjust the roadside exterior mirror, or right to adjust the curbside exterior mirror.

#### Pedals:

Adjust the brake and accelerator pedals forward and rearward for driver comfort.

#### Engine Brake:

Enables or disables the engine braking aid. Refer to the Chassis Owner's Manual for detailed information regarding the usage of the Engine Brake.

#### Air Horn:

Activates air horn system (press horn pad on steering wheel to sound air horn).

#### Driver Visor:

Raises or lowers the driver side visor.

#### Center Visor:

Raises or lowers the center visor.

#### Passenger Visor:

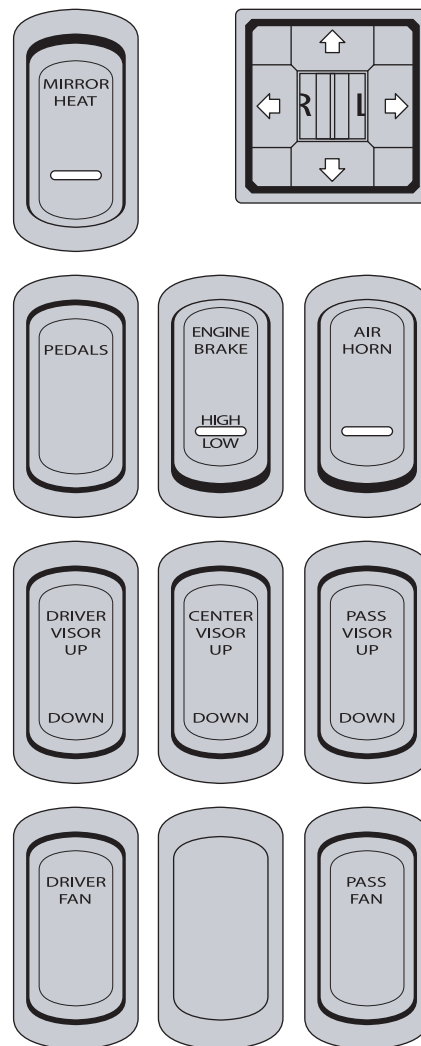
Raises or lowers the passenger side visor.

#### Driver Fan:

Provides power to the driver's side overhead fan.

#### Passenger Fan:

Provides power to the passenger side overhead fan.



## Dash Panel

### Block Heat:

Activates the motorhome engine block heater (for use in cold weather).

### Docking Lights:

Switches side docking lights on or off which are located on the rear wheel wells.

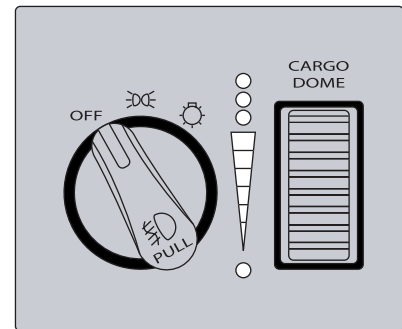
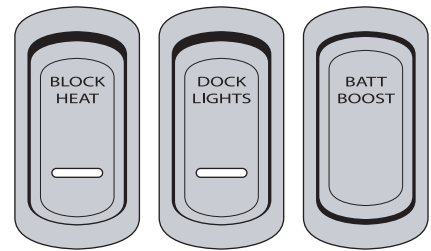
### Battery Boost:

Temporarily connects the coach and chassis batteries if either bank of batteries goes dead for some reason. This feature is designed to be used momentarily to start the engine. DO NOT hold the switch down for extended periods of time. overheating will occur causing serious electrical failure and damage to electrical components.

### Light Control Knob:

The control knob for the headlights, side marker lights, taillights, parking lights, license plate lights, fog lights and panel lights is located on the instrument panel. Control knob positions are as follows:

1. Off: All exterior lights are off.
2. Parklights: All exterior lights, excluding the headlights are illuminated.
3. Headlights: All exterior lights are illuminated.
4. Fog Lights: Headlights must be illuminated, then pull the control knob out to illuminate the fog lights.



### Panel Light Dimmer Control Wheel:

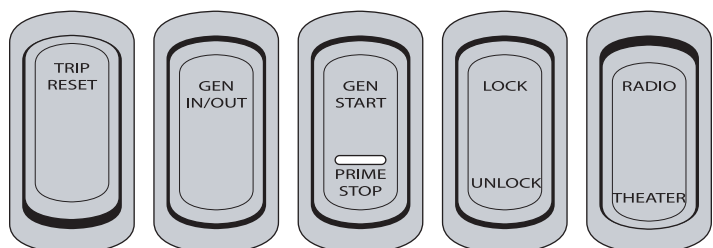
To increase or decrease the level of light intensity for the dash panel, rotate the control wheel up to increase, or down to decrease. Rotating the wheel up completely will illuminate the cargo dome lights.

### Trip Reset:

Depress the switch to reset the trip odometer.

### Gen IN/OUT:

Depress and hold to extend or retract the hydraulic generator slide.



## ⚠ WARNING

**Ensure proper clearance prior to operating the generator hydraulic slide. The exhaust pipe for the generator will move with the unit as the slide moves in or out.**

### Gen Start/Prime/Stop:

Depress and hold the top of the switch to start the generator. Depress the bottom of the switch to stop the generator. Depress and hold the bottom of the switch to prime the generator prior to starting.

### Lock/Unlock:

Use to lock and unlock all exterior doors.

### Theater/Radio:

Selects the audio output source for the surround sound system.

## Passenger Armrest

### Porch Light:

Controls the exterior light on the door side of the motorhome.

### Step Light:

Controls the entry step courtesy lighting.

### Step Cover:

Extends and retracts the entry stepwell cover.

### Visor UP/DOWN:

Raises and lowers the passenger side power sun visor.

### Main Awning:

Extends or retracts the main patio awning.

### Door Awning:

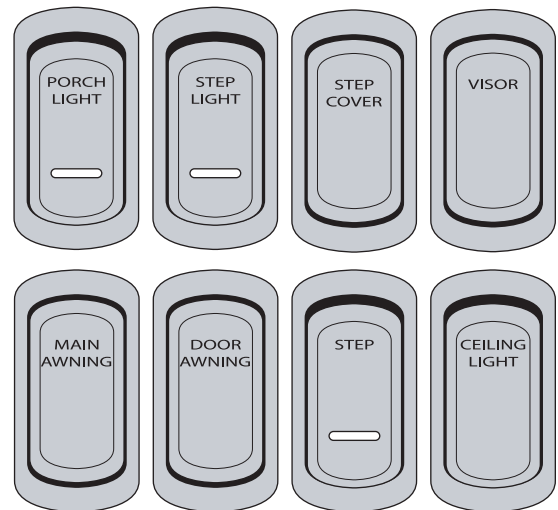
Extends or retracts the entry door awning.

### Step:

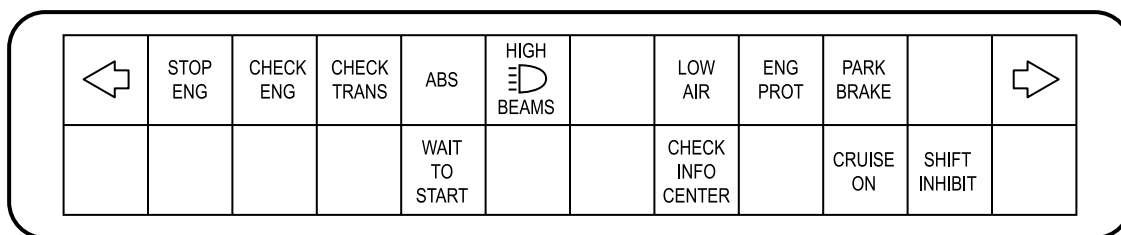
Activates power for the entry steps.

### Ceiling Light:

Controls the front ceiling lights.



## INSTRUMENT PANEL INDICATOR LIGHTS



### Top Row Indicator Lights

#### Left Arrow:

Illuminates and flashes when the left turn signal is activated.

#### Stop Engine:

Illuminates when the engine ECU9 (Electronic Control Unit) detects a fault within the engine. Shut the engine down immediately. Be sure to pull off the road out of the flow of traffic.

#### Check Engine:

Indicates that a fault code has been recognized by the engine ECU. If this light stays on have the unit serviced as soon as possible.

#### Check Transmission:

Indicates that a fault code has been recognized by the transmission ECU. If this light stays on have the motorhome serviced as soon as possible.

#### ABS:

Will illuminate and go off every time you start the motorhome as a self-test. If the light does not come on and go off after starting the coach or stays illuminated while driving, have the motorhome serviced as soon as possible.

#### Headlamp Symbol:

Illuminates when the high beams are in use. The fog lamps will not work when the high beams are on per federal regulation.

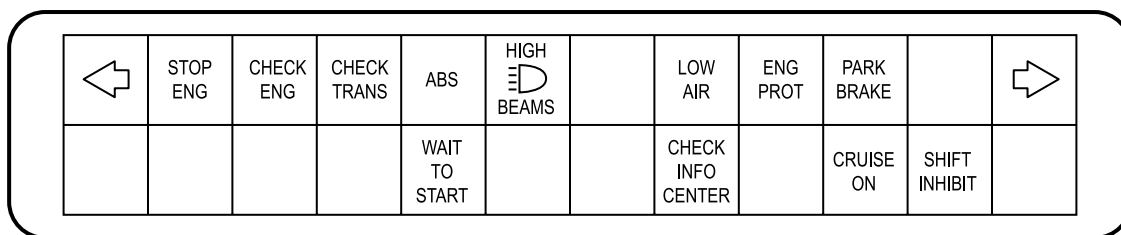
#### Low Air:

Illuminates when the air pressure is below 65 psi. The light will go off when the pressure reaches 65-76 psi.

#### Eng Prot:

Illuminates when the engine ECU senses that there is a potential problem which may cause damage to the engine. The engine will “derate” limiting horsepower and RUM to minimize damage that might occur.



**Park Brake:**

Illuminates when the ignition switch is in the ON position and the parking brake is set.

**Right Arrow:**

Illuminates and flashes when the right turn signal is activated.

***Bottom Row Indicator Lights*****Wait to Start:**

Illuminates when the air intake pre-heater is on.

**Check Info Center:**

Illuminates when the Information Center is displaying an alarm condition or warning message.

**Cruise ON:**

Illuminates when the cruise control feature is engaged.

**Shift Inhibit:**

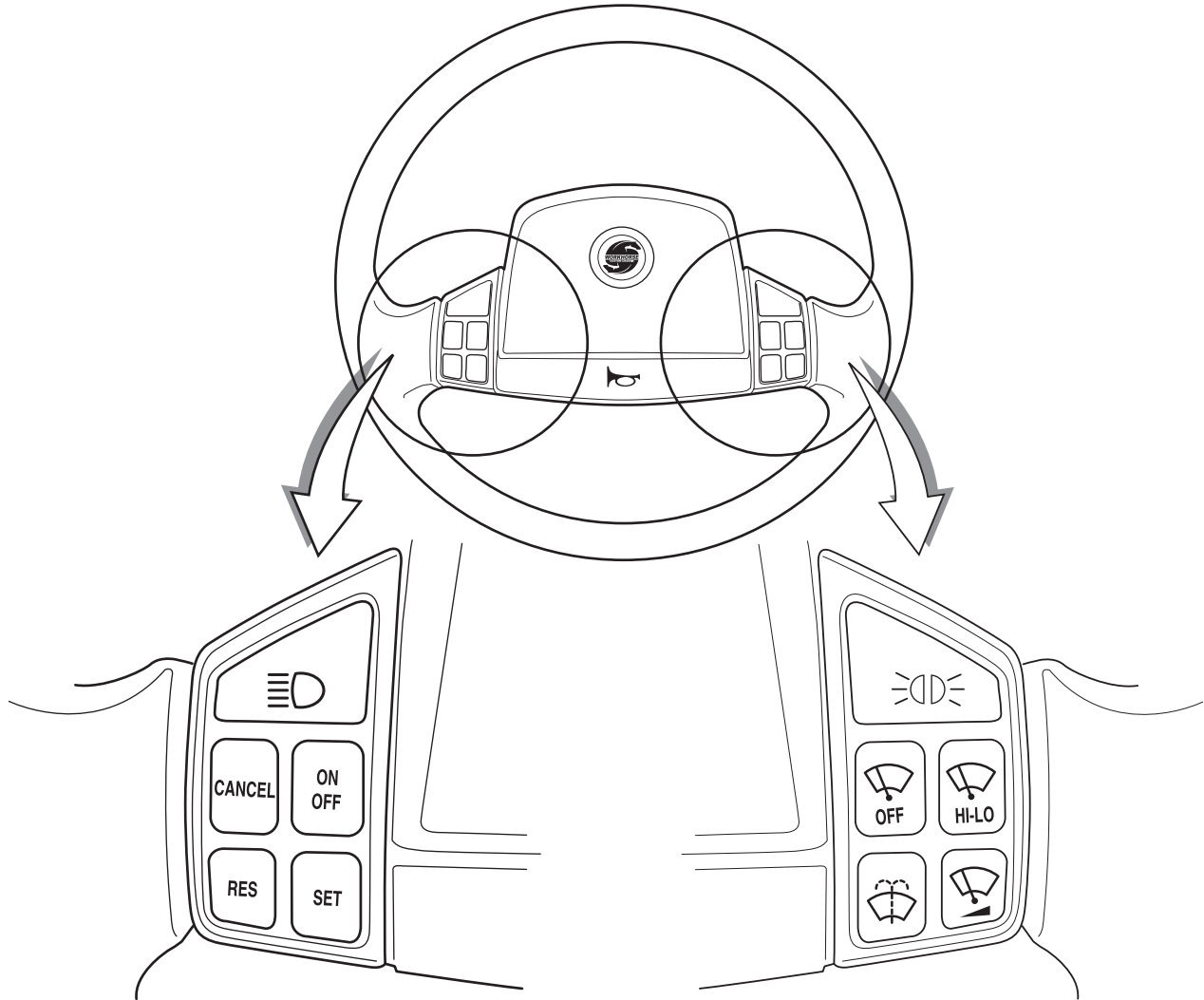
Illuminates when attempting to put the transmission into gear when the engine RPM is above 800 RPM. This could happen when the engine is in high idle mode to warm-up in cold weather. This feature will not let the transmission go into gear until the RPM drops below 800.

**REFERENCE:** For detailed information regarding these indicator lights and their meanings, refer to the chassis manufacturer's owner's manual.

## STEERING WHEEL

### *Smart Wheel Operation*

The smart wheel puts commonly used features at your fingertips. Those features include the Windshield Wiper Controls, Cruise Control & Headlamp Flash.



**REFERENCE:** For detailed information regarding these buttons and their meanings, refer to the chassis manufacturer's owner's manual.

### ***Turn Signal/Lane Change/High-Low Beam/Hazards Lever***

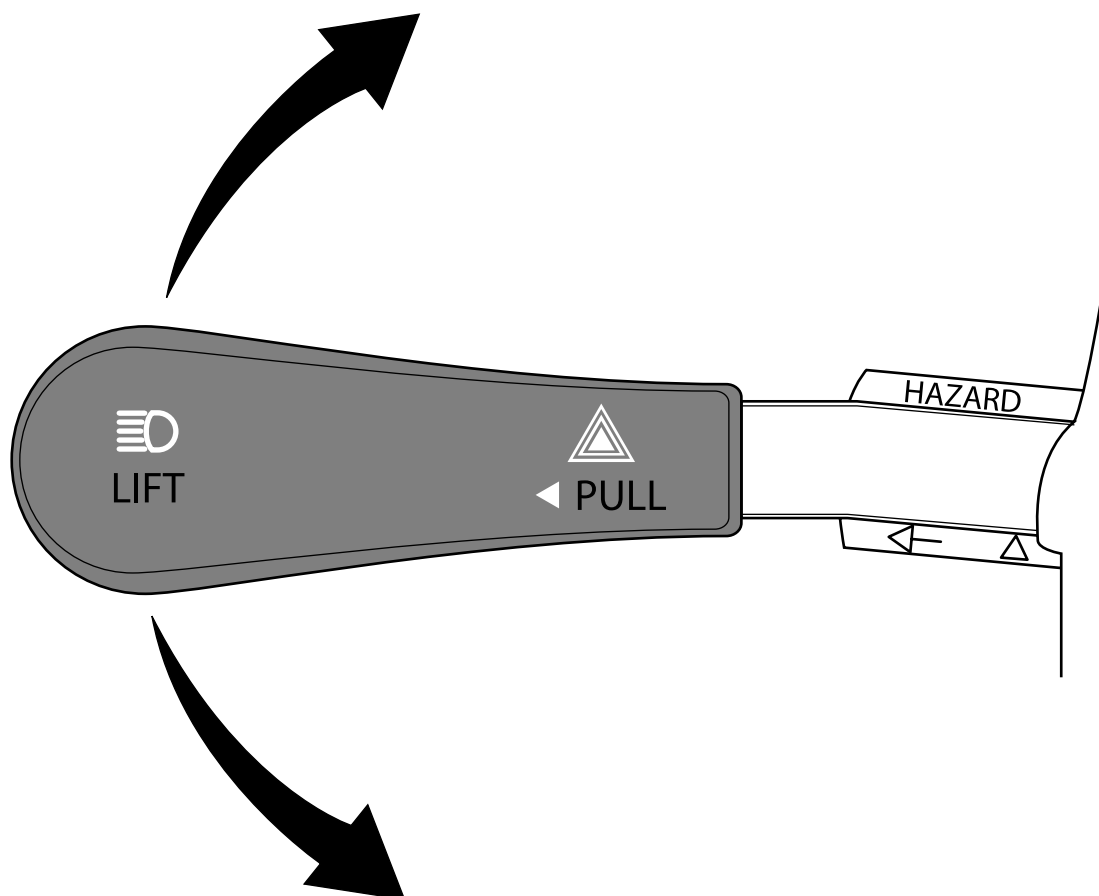
The lever on the left side of the steering column controls the turn signal with lane change feature, as well as the Headlamp high/low beam toggle and the Hazard Lights.

The turn signal lever has two off-center positions, one positions upward (for right) and one downward (for left). To signal a turn, move the lever all the way up or down. These are latching positions. The lever will stay in one of these positions until the steering wheel returns back to center (off) as the turn is completed.

To signal a lane change, raise or lower the lever to the latching position. After completing the lane change, manually pull or push the lever back to center.

To change the headlamps from low to high beams, pull the same lever used for turn signal operation up toward the driver and release the lever. This is a self-returning action. Repeating this toggle action will return to the low beams.

To engage the hazard lights, pull the red hazard switch out away from the steering column. This will activate the hazard light flash sequence. To disengage the sequence raise or lower the turn signal lever to a latching position, then manually return the lever back to center (as if signaling a lane change).



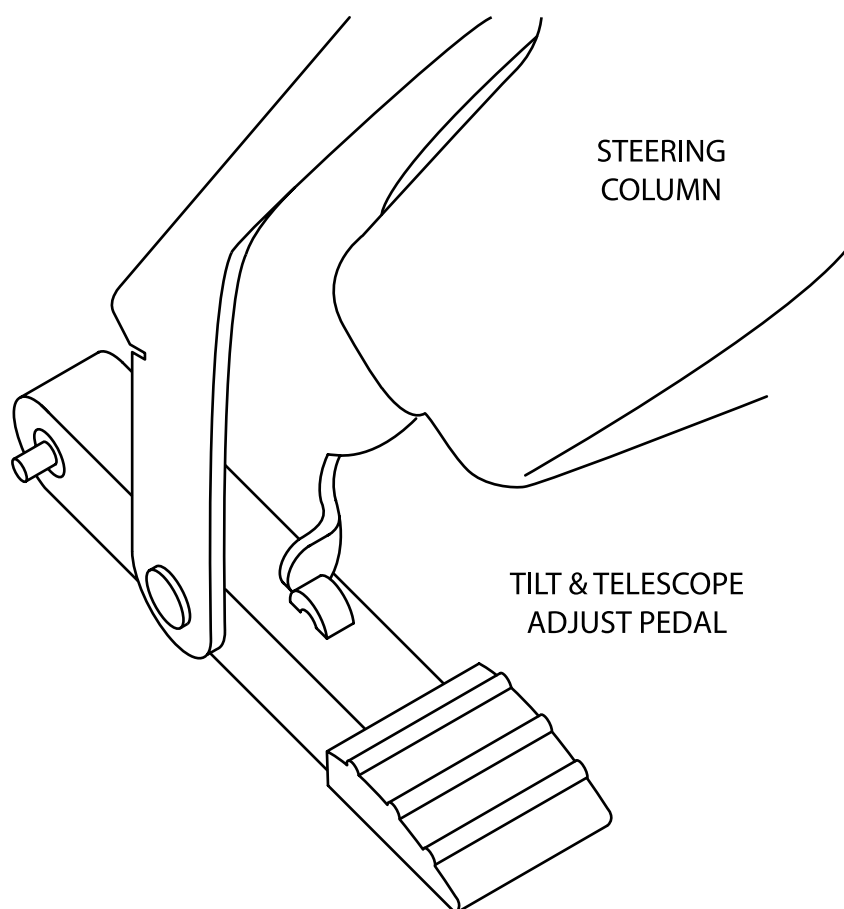
## **Steering Wheel Adjustment**

### **Tilt:**

- To tilt the steering wheel, depress the adjustment pedal (located at the base of the steering column) and move the steering wheel to where you want it. Release the pedal and the steering wheel will lock in the new position.

### **Telescope:**

- To telescope the steering wheel, depress the adjustment pedal (located at the base of the steering column) and move the steering wheel up or down. When the desired position is obtained, release the pedal and the steering wheel will lock in the new position.



## REAR VISION SYSTEM

### Voyager System

This system gives a televised view of what is behind the motorhome. It is used as an aid in backing the motorhome, and can also be used for greater field of vision when driving in heavy traffic.

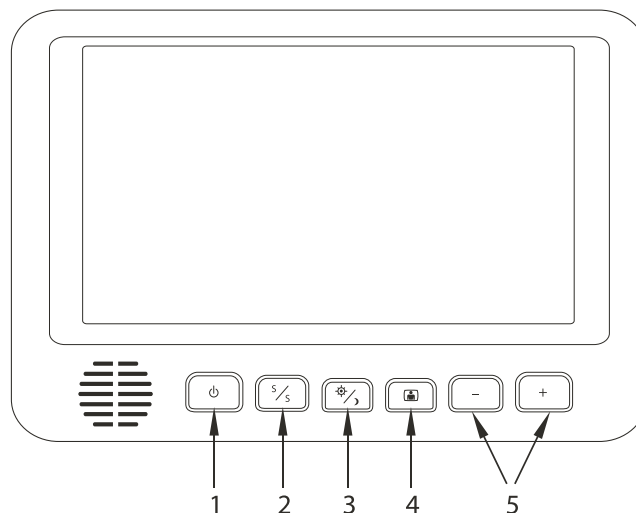
Make sure to check the mirrors when driving and backing, for a more complete field of vision. The camera is equipped with a wide angle lens that can initially present an image that may be deceiving. Make sure to practice backing in a safe place, using the monitor to become accustom to it's operation.

#### 1. Power/Stand-By Mode

Manual Mode - Turned on manually by the user by pressing the Power Button.

Stand-By Mode - Turned on by selecting (R) Reverse.

**NOTE:** *The unit will not turn ON when the hazard lights are activated.*



#### 2. Source Input Select Button

This control toggles the active display image back and forth between AV1 (Rear View), AV2 or AV3 inputs.

#### 3. Day/Night Mode Button

This control toggles the unit between “Day” and “Night” LCD illumination modes.

#### 4. Picture Adjustment Menu Button

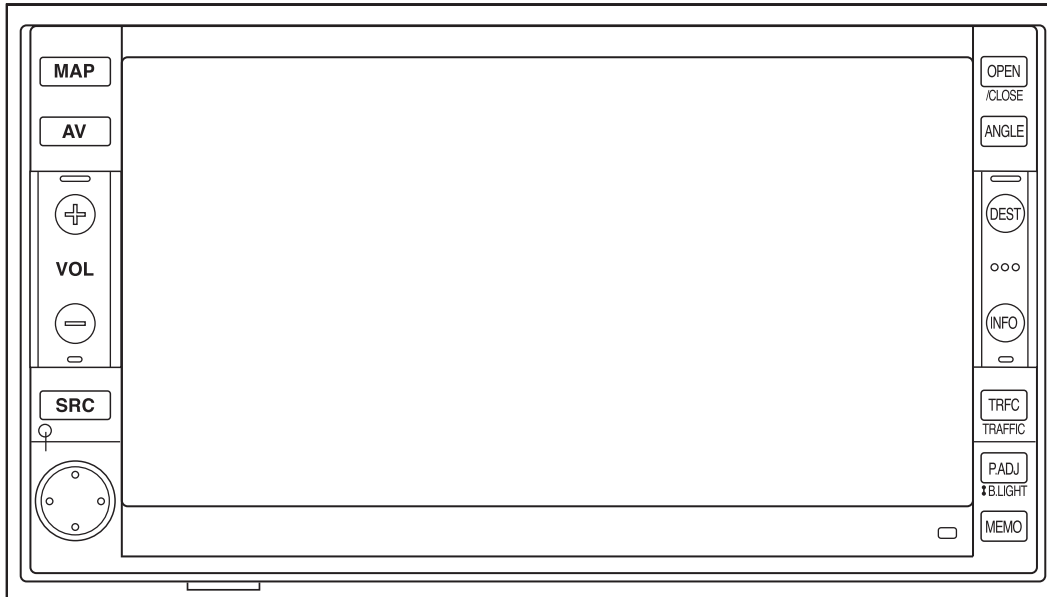
This control access an On-Screen-Display (OSD) menu for four LCD picture adjustments (Brightness, Contrast, Color & Tint). The first depress of the button accesses the “Brightness” adjustment. The Volume +/- controls adjust the level, which is indicated by the bar graph at the bottom of the screen. Each consecutive depress of the Picture button accesses the adjustment screen for each picture adjustment. If no buttons are pressed within 6 seconds or controls other than the Picture and Volume buttons are pressed, the unit will exit the Picture Adjustment mode.

#### 5. Volume +/- Buttons

This 2-button set of controls adjusts the output volume of the built-in audio speaker when the audio function is enabled. These buttons also serve as adjustment controls while in the Picture Adjustment Menu mode.

### ***Pioneer System (Optional)***

The optional navigation system features a function that automatically switches to the rear camera image when the transmission is in (R) Reverse position. You can also use the camera as a rear view camera during transit.



Make sure to check the mirrors when driving and backing, for a more complete field of vision. The camera is equipped with a wide angle lens that can initially present an image that may be deceiving. Make sure to practice backing in a safe place, using the monitor to become accustom to it's operation.

**REFERENCE:** For detailed information regarding the usage of the GPS Navigation System refer to the manufacturer's operation manual.

### ***Side View Camera System (Optional)***

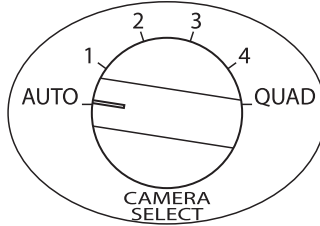
The optional color side view cameras help to alleviate blind spots during transit. The camera's are mounted on the exterior of the motorhome just beneath the exterior rear view mirrors. The corresponding side view camera image is displayed when a lane change or turn is signaled.

### ***Voyager System Operation***

To view the side view camera images with the Voyager system when not signaling a lane change or turn, depress the Source Input Select Button. This control toggles the active display image back and forth between AV1 (Rear View), AV2 (Driver's Side) and AV3 (Passenger Side) inputs.

### ***Pioneer System Operation (Optional)***

To view the side view camera images with the Pioneer system when not signaling a lane change or turn, first depress the MAP button and select the REAR VIEW option. The screen will now show a split screen view of the rear view and navigation map. Using the toggle switch located just below the GPS Navigation Unit, turn the toggle switch to one of the six designated views.



**AUTO** - Will chose the appropriate camera image for the intended function.

- 1 - Drivers Side View
- 2 - Passenger Side View
- 3 - Rear View
- 4 - Not Used

**QUAD** - Displays all three camera angles on one screen.

**REFERENCE:** *For detailed information regarding the usage and function features of the back-up monitor and side view cameras, refer to the operations manual for the respective back-up monitors.*

## **DASH RADIO**

The dash radio will control the multi-functions for the dash audio system. The tuner holds up to twelve preset FM channels, up to six AM channels, and up to six Satellite Channels (Satellite Service Required). Other features include a six disc CD changer, Digital Signal Processing and Radio Data System.

The in-dash radio provides sound through the recessed ceiling speakers when the RADIO/THEATER switch is depressed to RADIO.

**NOTE:** *Satellite-Ready means that the in-dash radio will work with a satellite radio tuner, however the satellite tuner and antenna are not installed and must be purchased separately.*

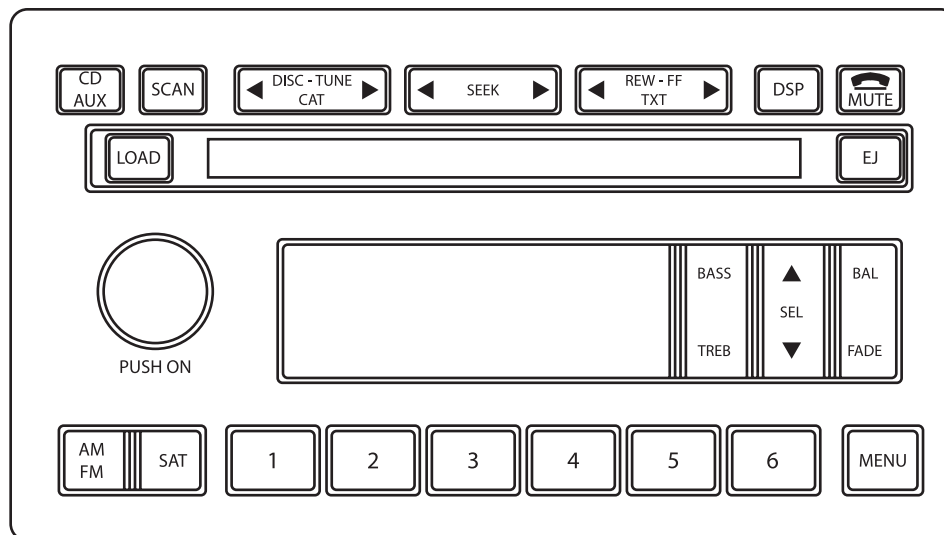
### ***Satellite Radio (Optional)***

When upgraded the dash radio will come with both the satellite tuner and antenna already installed. To activate satellite radio service, contact Sirius Satellite (subscription required).

## Setting the Clock

Press the MENU control until SELECT HOURS or SELECT MINS is displayed. Use the SEL control to manually set the time. Press the UP arrow to increase hour/minutes, or Press the DOWN arrow to decrease hours/minutes.

**REFERENCE:** For detailed information regarding the usage of the dash radio and subscribing to Sirius satellite radio, refer to the manufacturer's users manual.



## GPS NAVIGATION SYSTEM (OPTIONAL)

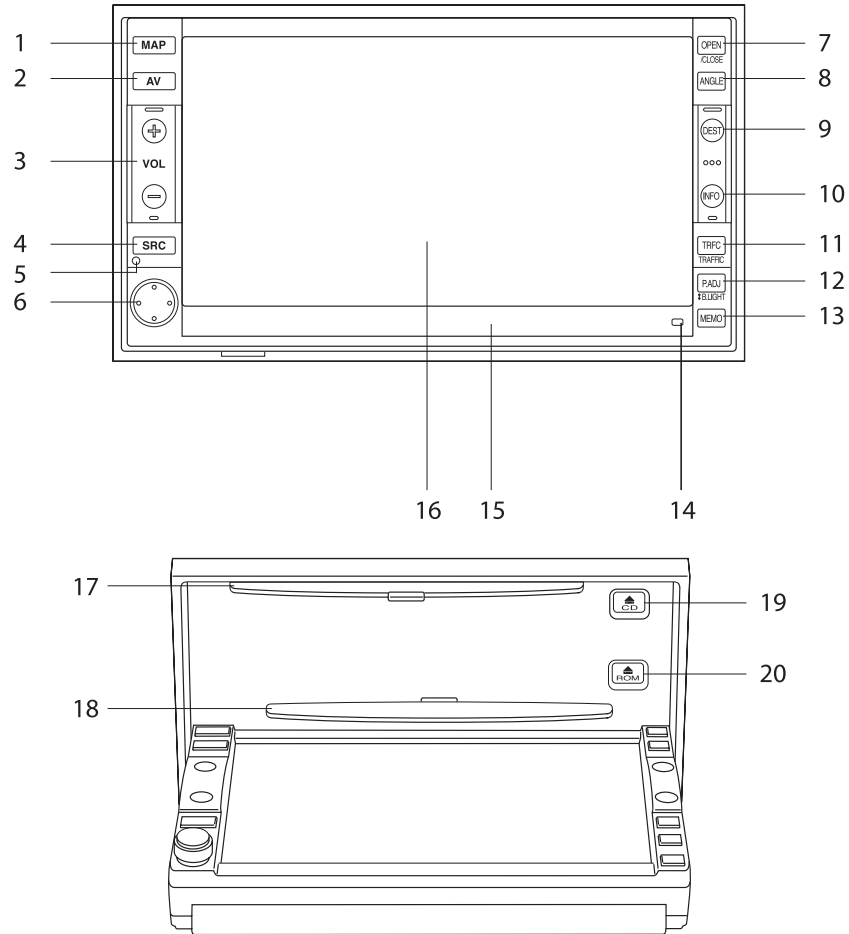
### ⚠ CAUTION

**To avoid the risk of accident and the potential violation of applicable laws, this product should never be used while the motorhome is being driven except for navigation purposes.**

The optional GPS (Global Positioning System) navigation system that has been installed in the motorhome is intended to aid you in your travels, and also includes a CD & DVD player. The navigation system works with information provided by several mapping DVD-ROM's. Updates to these DVD-ROM's are available through Pioneer.

**NOTE:** The optional GPS Navigation System will replace the standard in-dash radio, and is satellite ready. Certain functions of this GPS Navigation System require the use of and a subscription to XM Satellite Radio.



**Controls & Indicators:****1. MAP Button**

Press to view the map or return to guidance. Also, when the map is scrolling, pressing this button returns you to the display of the map of your surroundings. Use to switch the view mode of the navigation when the map of you surroundings is displayed. If you press this button while in the audio operation screen, the screen changes to the navigation map screen.

**2. AV Button**

Use to switch between the navigation map screen and the audio operation screen.

**3. VOL (+/-) Button**

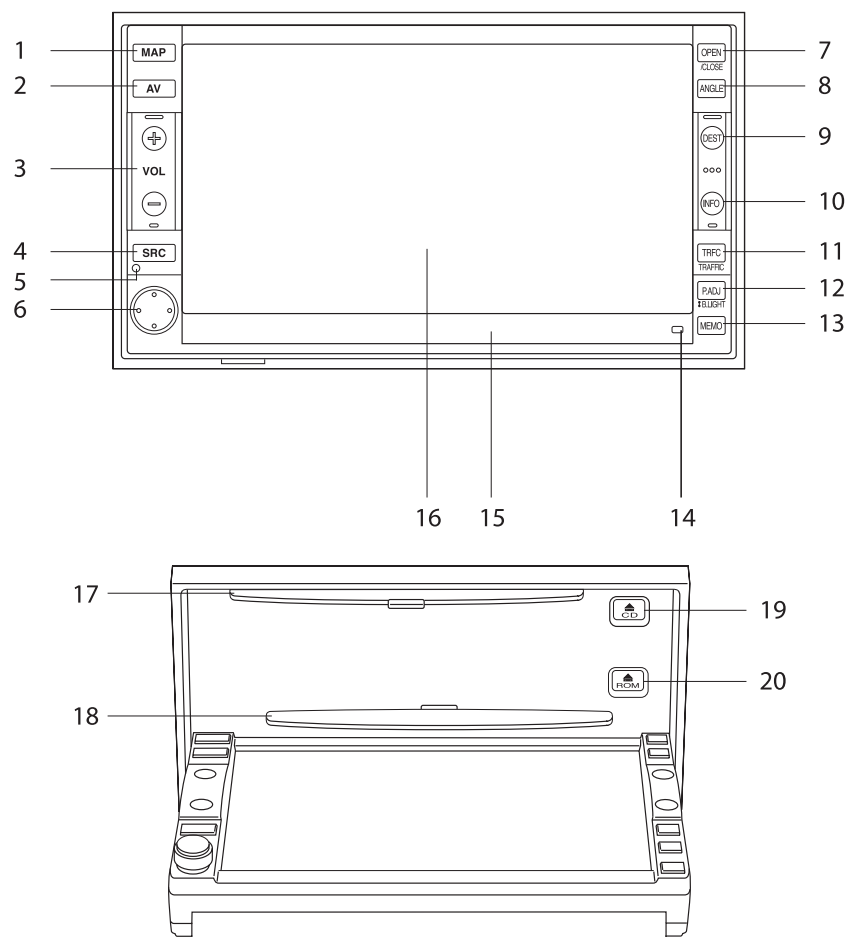
Pressing on the + side of the button to increase the volume while pressing on the - side of it to decrease the volume.

**4. SCR (SOURCE) Button**

This unit is turned on by selecting a source. Press to cycle through all of the available sources. Press and hold to turn the source OFF.

**5. RESET Button**

Press to return to the factory settings (initial settings). Some information items are not erased.



## 6. JOYSTICK

Move to do manual seek tuning, fast forward, reverse and track search controls, etc.  
Push to display the menu for the Audio operation.

## 7. OPEN/CLOSE Button

Press to open or close the LCD panel and access the CD and DVD-ROM loading slot.  
Operation varies depending on the position of the LCD panel and the length of time of pressing this button.

## 8. ANGLE Button

Press to change the LCD panel angle.

## 9. DEST Button

Press to display the Destination Menu.

## 10. INFO Button

Press to display the Info/Traffic Menu.

## 11. TRFC Button

Available with XM satellite subscription.

Preset button for XM Instant Traffic & Weather audio service. Select XM audio source, and find appropriate Instant Traffic & Weather Channel.

**12. P.ADJ/B.LIGHT Button**

Press to enter the PICTURE ADJUSTMENT mode. Press and hold to turn off the back light of the LCD panel. To turn on the back light, press this button again.

**13. MEMO Button****14. Ambient Light Sensor**

Senses ambient light. This system automatically adjusts the brightness of the display to compensate for ambient light.

**15. LCD Panel****16. LCD Screen****17. CD Loading Slot****18. DVD-ROM Loading Slot****19. CD EJECT Button****20. DVD-ROM EJECT Button.*****Basic Navigation Procedures*****1. Start the engine.**

After some time, the navigation opening screen comes on for a few seconds. Then a message screen is displayed. If the disc is not set, the message asking to insert the disc appears. After you set the disc correctly, the navigation system starts up.

**2. Press and hold the OPEN/CLOSE button.**

The LCD panel fully opens and the DVD-ROM loading slot appears.

**3. Insert the Pioneer DVD Map Disc to the DVD-ROM loading slot.**

The LCD panel closes automatically. Make sure the DVD-ROM loading slot is empty before inserting a DVD Map Disc.

**4. Press the MAP Button to switch to the navigation map screen.**

Pressing the AV button switches between the navigation map screen and the audio screen.

**5. Check the details of the cautionary message and touch "OK".**

You can operate the navigation system by touching keys displayed on the screen. If the route is already set, it changes to route guidance mode. The map of the surroundings is displayed. Touch keys which are not available at this time are grayed out.

**6. Press the DEST button.**

Displays the main menu.

**7. Allows you to assign a destination and begin route guidance.****8. Turn off the engine.**

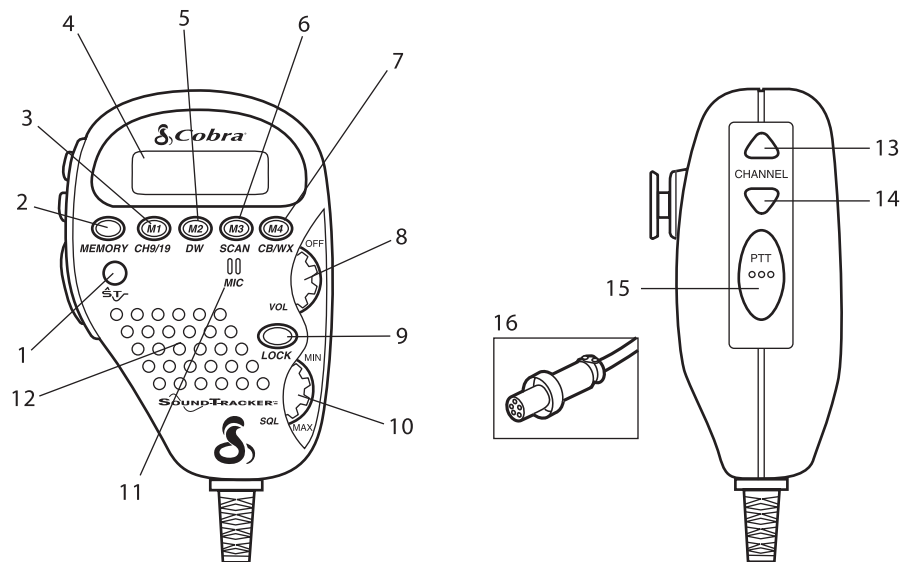
This navigation system is also turned off.

## CB RADIO (OPTIONAL)

The Citizens Band Radio (CB) is used for two-way, short distance business and personal communications. Some limitations may apply to the use of the CB radio.

**REFERENCE:** For detailed information regarding proper usage and laws refer to the vendors operators manual.

### Controls & Indicators:



1. Sound Tracker Key
2. Memory Key
3. Channel 9/19/Memory Location 1 Key
4. LCD Display Panel
5. Dual Watch/Memory Location 2 Key
6. Scan/Memory Location 3 Key
7. CB/Weather Channel/Memory 4 Key
8. ON/OFF/Volume Control
9. Lock Key
10. Squelch Control
11. Microphone
12. Speaker
13. Channel Up
14. Channel Down
15. PTT (Push-to-Talk) Key
16. Quick Disconnect Connector

## **SPOTLIGHT (OPTIONAL)**

The spotlight mounted on top of the motorhome can be controlled by using the included remote. Using the remote control, turn on the light using the ON/OFF switch. With the four way switch on the remote control, adjust your light to the desired location. Depending upon conditions, the remote may be used up to 150 feet from the spotlight. The speed of the light rotation can be controlled by depressing the +/- button one time and by depressing it again to restore the original speed.

The spotlight runs on 12 Volt DC power, which is supplied by the house batteries. Be aware of the house battery charge, do not drain the batteries by accidentally leaving the spotlight ON.

### ***Programming the Transmitter***

1. Disconnect power to the spotlight by disconnecting the coach batteries.
2. Remove the battery cover from the back of the remote.
3. Set the 7 dip switches to a selection of your choice. There are 3 positions on each; positive, negative, and neutral. Use a small screwdriver and select a position for each dip switch.
4. Insert both MN21 batteries with the +/- in the same direction. Be sure batteries have adequate charge.
5. Replace the battery cover.
  - a. Depress the ON/OFF button and hold it down. The red LED will illuminate.
  - b. While holding the ON/OFF button down, reinstall the power (reconnect the coach battery)
  - c. Keep your finger on the ON/OFF button. In a few seconds the light bulb will flash. This will tell you the process is finished.

### ***Bulb Replacement***

The spotlight utilizes a Cr5 Pentabeam bulb, which may be purchased through Golight, Inc. 308-278-3131 or 800-557-0098.



# INTERIOR CONTROLS & OPERATIONS

## MONITOR PANEL

Located above the entry door, the monitor panel provides quick and easy access to several different motorhome systems.

### Power Inverter & Smart EMS

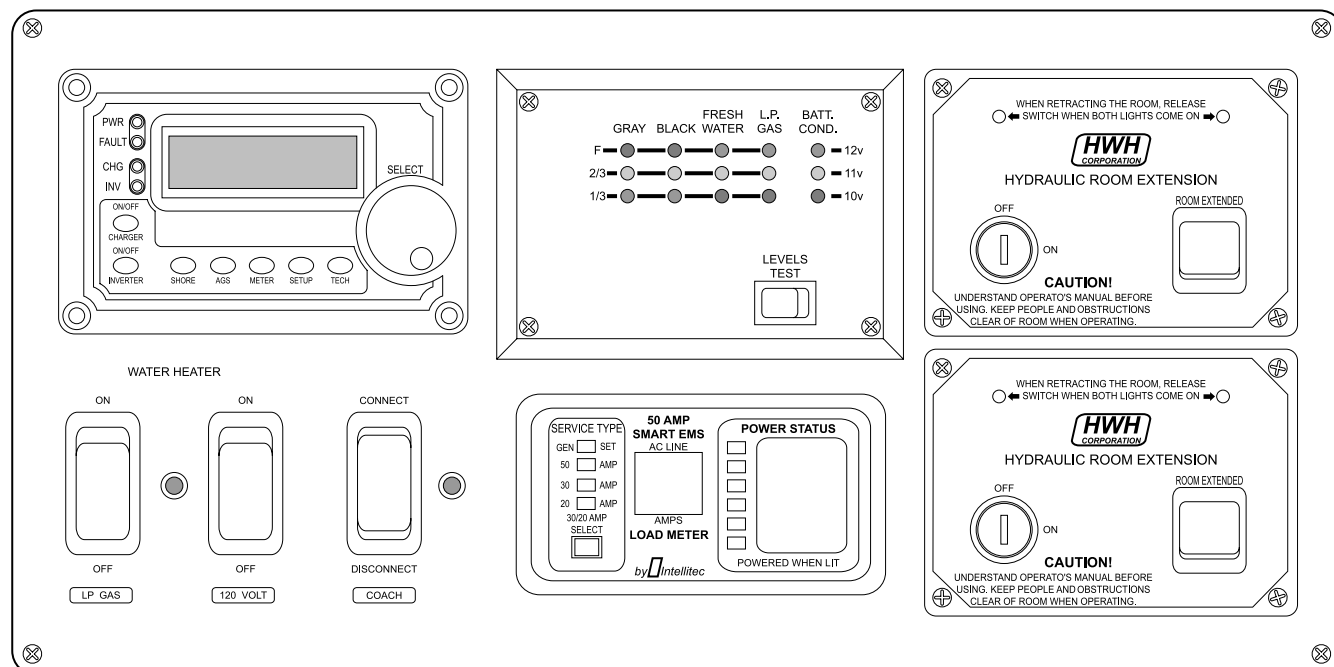
Refer to the “Electrical Systems” section for a detailed description of the Power Inverter Remote panel, as well as the Smart EMS panel.

### Tank Capacities

The monitor panel allows you to quickly check the levels in the fresh water and waste water tanks. Electrical sensors at various points on the tanks send signals to the monitor panel. To check fluid levels, press and hold the test switch designated for the tanks, and read the level indicators on the panel. The indicator is proportioned in thirds with each indicator light illuminating to the level that the tank contains. Indicator lights and there meanings:

- Red - Full
- Yellow - 2/3 Full
- Green - 1/3 Full
- None - Empty

Sometimes, residue on the sides of a tank, or water with a low mineral content will give a false reading. Check the levels occasionally when you are sure of a tank’s contents to double check the accuracy of the monitor panel.



### **Inaccurate Holding Tank Level Readings:**

The accuracy of two wire holding tank monitoring systems can be adversely affected by dirty tanks, unusual mineral content in the water, or improper holding tank probe location. These conditions can cause the monitoring system to have oversensitive (read higher than actual level) or under sensitive (read lower than actual level) readings.

### **Oversensitive Readings:**

Oversensitive readings can occur as a result of scum buildup on the tank walls, abnormally high mineral content in the water, or incorrectly located holding tank probes. In these situations, the monitoring system indicates higher levels than are actually present in the holding tank. Certain cleaning products and food by-products can build up on the inside walls of the holding tanks, producing a layer of scum that can cause the monitoring system to read higher than the actual level. To correct this problem, the holding tanks should be cleaned periodically (consult dealer for cleaning instructions). If the problem persists after cleaning the holding tank, the ground probe can be moved farther away from the other tank probes. The increased distance between the ground probe and the other probes will decrease the sensitivity of the monitoring systems.

### **Under Sensitive Readings:**

Under sensitive readings can occur if the mineral content of the water is abnormally low or if the holding tank probes are located incorrectly. In this case, the monitoring system indicates lower levels than are actually present in the holding tank. This problem can be corrected by moving the ground probe closer to the other probes. Moving the ground probe closer increases the sensitivity of the monitoring system.

### **The Ventline Adjustaboard™:**

In response to requests from the field for a means to adjust monitor sensitivity without relocating holding tank probes, Ventline has developed the Ventline Adjustaboard™ (patent pending). This adjustable circuit board allows for field adjustments to monitor sensitivity. As tank conditions or water mineral content changes, the monitor circuitry may be made more or less sensitive as required.

### ***Monitor Panel Switches***

- **Water Heater LP:** Switches water heater to LP Gas mode.
- **Water Heater 120 Volt:** Switches water heater to 120 Volt mode.
- **Coach Disconnect:** Connects or disconnects house batteries during usage or storage.
- **Level Test Switch:** Press and hold to check tank levels as well as the LP Gas level.



## SLIDEOUTS

In order for the flush floor slideout to level properly when extended, the slideout will tilt while in motion. During travel the slideout travels up and then down the flush floor slideout ramp.

**NOTE:** Refer to the manufacturer's Operation's Manual for complete details and trouble shooting guide.

### *Room Extension Procedure*

#### **CAUTION**

***Operating the room with any room-locking device locked can cause personal injury and vehicle damage. It is the operator's responsibility to ensure that all room-locking devices are disengaged before operating the room.***

***Keep people and obstructions clear of room when operating. The Pilot and Co-Pilot seats must be in their most forward position, with seat backs in the vertical setting. The motorhome must be level before extending the slideouts.***

#### **CAUTION**

***Perform the slideout room operation with the air suspension system full.***

***Make sure there is adequate clearance to fully extend the room.***

***Do not hold the room control switch in the "extend" position for more than ten seconds after the room is fully extended or stops moving. If either side or the room stops moving, release the room control switch immediately.***

***Extensive damage could occur to the slideout room and awning when extending the slideout room in snow, sleet, ice or freezing rain. In such conditions, if the slideout room is extended, clear the awning and ensure free movement prior to operating the slideout room.***

***Do not leave the slideout in the extended position during severe weather. Conditions such as high winds or heavy rain may cause damage to an extended slideout.***

***Debris trapped under the slideout room could result in damage to the floor. Continuous operation of the slideout could cause a drain on the coach batteries and damage to the slideout motor.***

**NOTE:** The bottom of the room will begin to move prior to the top of the room.

**NOTE:** Releasing the ROOM CONTROL SWITCH will halt the operation of the room.

1. Apply the parking brake and activate the coach battery disconnect switch.
2. Insert the SLIDEOUT CONTROL PANEL KEY and turn the KEY SWITCH to the "ON" POSITION.
3. To extend the room, press and hold the ROOM CONTROL SWITCH in the "EXTEND" POSITION. The room-locking device will disengage and retract into the slideout housing. When the room is fully extended, continue to hold the switch for an additional 4-5 seconds then release the ROOM CONTROL SWITCH.
4. Turn the KEY SWITCH to the "OFF" POSITION.

### ***Room Retraction Procedure***

## **⚠ CAUTION**

***Keep people and obstructions clear of room when operating The Pilot and Co-Pilot seats must be in their most forward position, with seat backs in the vertical setting.***

## **CAUTION**

***Dirt and grit trapped under the slideout room could result in damage to the floor. Continuous operation of the slideout could cause a drain on the coach batteries and damage to the slideout motor.***

1. Ensure the parking brake is engaged.
2. Insert the SLIDEOUT CONTROL KEY and turn the KEY SWITCH to the "ON" POSITION.
3. To retract the room press and hold the ROOM CONTROL SWITCH in the "RETRACT" POSITION. The room-locking devices will extend from the slideout housing and then engage. When the slideout control panel illuminates both LED light indicators, release the ROOM CONTROL SWITCH.
4. Turn the KEY SWITCH to the "OFF" POSITION.
5. Remove the KEY to prevent undesired operation of the room.

**NOTE:** *Once the LED's are on, the system will take 2-3 minutes to reset before the rooms will extend again.*

**NOTE:** *The top of the room will come into contact with the body of the motorhome first. The leading edge of the room floor will rise up as the bottom of the room is drawn in.*

**NOTE:** *Releasing the ROOM CONTROL SWITCH will halt the operation of the room.*

## **Maintenance Oil Level**

It is important that all rooms are fully retracted, except the bedroom slideout which should be fully extended, before checking the hydraulic oil level. To check the oil supply, remove the breather cap from the top of the hydraulic oil reservoir and read the oil level on the dipstick. Use DEXRON III® or a high quality multi-purpose automatic transmission fluid.

## **WINDOWS**

### **⚠ WARNING**

***To avoid exhaust gas entry into the motorhome, keep windows closed when the chassis or generator engines are running***

Windows that open in the motorhome are operated by sliding them back and forth or up and down, depending on the style and location of the window. To operate, pivot the latch to release it from the locked position, and slide the window to open. When closing, slide the window fully closed, and pivot the latch back to the fully locked position. The screens will also slide open if required for an emergency exit.

**NOTE:** *Check window sealant during normal coach washing and as per the "Care & Maintenance" section of this manual.*

## **DOORS, DRAWERS & STORAGE COMPARTMENTS**

### **CAUTION**

***Make sure before operating the motorhome that all cabinet doors and drawers are closed, and cabinet contents are secure. Retract and secure sliding doors in the bath area, as well as the bath door, to prevent noise and/or damage while traveling.***

Cabinet and closet doors within the motorhome have door fasteners, or pneumatic stops, which prevent them from accidentally opening during travel. Drawers throughout the motorhome have travel stops which keep them from sliding out when in motion, under normal driving conditions.

## FURNITURE

### WARNING

***Do not occupy beds or any other seats that are not equipped with safety seat belts while the motorhome is in motion. Do not use a seat belt on more than one person.***

***Pilot & co-pilot seats must be locked in a forward facing position with seat belts fastened while the motorhome is in motion. Avoid seat rotation while in transit.***

***The sleeping accommodations in this vehicle are designed for occupancy only while the vehicle is parked. All occupants in this vehicle must be seated at a designated seating position and must wear seat belts at all times while this vehicle is in motion.***

***Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.***

Depending on the floor plan and the options selected for the motorhome, seating will include some combination of the following:

### ***Easy Bed Sofa with Drawer & Love Seat (40E Only)***

#### **Sofa to Sleeper:**

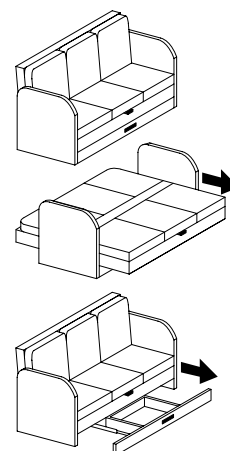
- Release the sofa locking mechanism by pushing the black handle, located under the center seat cushion, to the right.
- Pull out on the seat base until the seat base and backrest are flat.
- Fold the seat belts out of the way.

#### **Sleeper to Sofa:**

- Push the seat base towards the back rest until the locking mechanism engages.
- Position the seat belts for use.

#### **Storage Access (Optional):**

- Release the handle latching mechanism located under the center seat cushion along the kick panel.
- Pull the storage drawer out to access stored items.
- To close, push the storage drawer into the sofa until the latching mechanism engages.



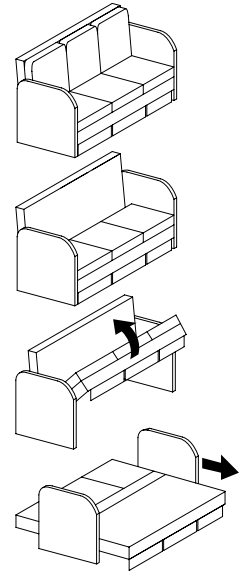
### ***Magic Bed Sofa (Optional)***

#### **Sofa to Sleeper:**

- Remove the back rest cushions.
- Raise the sofa seat base until the seat base and backrest form a “V” shape by lifting up from the center of the sofa just below the seat cushions.
- Pull out and push down on the seat base until the seat base is flat.
- Fold the seat belts out of the way.
- Flip the seat cushions back to expose the mattress.

#### **Sleeper to Sofa:**

- Pull the seat cushions back to cover the mattress.
- Lift the seat base up until the seat and back rest form a “V” shape.
- Push back and down on the seat base.
- Position the seat belts for use.
- Replace the back rest cushions.



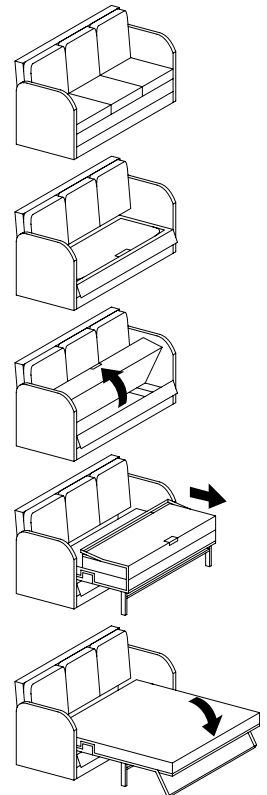
### ***Hide-A-Bed Sofa (Optional)***

#### **Sofa to Sleeper:**

- Remove the seat cushions.
- Release the lock on the right side of the metal bar, grasp the front metal bar and lift up, pulling out on the bar slightly until the leg of the bed is resting on the floor.
- Fold the seat belts out of the way.
- When the legs of the bed are on the floor another lifting bar will be exposed, grasping and pulling the lift bar will open the bed fully.

#### **Sleeper to Sofa:**

- Remove all bedding from the hide-a-bed.
- Grasping the foot of the hide-a-bed in the center using the metal lifting bar, lift the front portion of the lifting bar to raise and then lower the hide-a-bed back into the sofa base.
- Position the seat belts for use.
- Replace the seat cushions.



### ***J-Lounge Sofa (Optional)***

The J-Lounge will seat 3 adults, and by using the built-in seat belts, can be used while in transit.

### ***Recliner (Optional)***

The recliner operates just like a standard household recliner. By pulling the footrest lever, the footrest will extend. Since a seat belt is not provided on the recliner it is not to be used while in transit.

### ***Euro Recliner with Ottoman (Optional)***

To recline, sit down, grasp the armrests and lean back to recline. Since a seat belt is not provided, do not use the Euro Recliner while in transit.

### ***Dual Euro Recliner with Coffee Table (Optional 40G Only)***

To recline, sit down, grasp the armrests and lean back to recline. Since a seat belt is not provided, do not use the Euro Recliners while in transit.

### ***Free Standing Dinette***

Unhook the latch and slide table out to increase table space. Since the free standing dinette chairs are not permanently attached to the floor, and not equipped with seat belts, they should not be occupied while the motorhome is in motion. These chairs should be stored securely while the vehicle is in motion.

### ***Round-Free Standing Dinette***

Since the round-free standing dinette chairs are not permanently attached to the floor, and not equipped with seat belts, they should not be occupied while the motorhome is in motion. These chairs should be stored securely while the vehicle is in motion.

### ***Booth Dinette (Optional)***

The dinette can also be converted into an additional bed if required, to convert, lift the table top off of the two support posts. Remove the support posts from the floor and lay them down between the seats. Insert the table top between the seats on the ledges provided. Loosen the seat cushion from the velcro fasteners and slide together to form the bed. Reverse this process when reconverting to the dinette configuration.

## Bed Storage

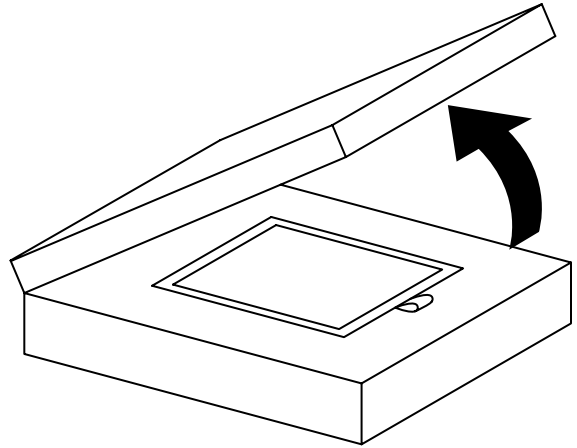
### ⚠ CAUTION

**Keep hands and fingers clear of the storage door edges while closing, as to avoid pinch points.**

There is a large storage area located under the bed. It is accessed by first lifting the mattress up, then locate the pull strap and lift the storage door up. Make sure before lifting, that there is nothing on the bed that will restrict its movement, or add extra weight.

Pneumatic struts on both sides of the storage compartment aid both in lifting, and holding the mattress in the upright position. When storing items under the bed, be sure to leave space in the storage compartment for the struts when the bed is closed.

When closing the storage compartment door, there will be some resistance felt at first, because of the struts. Press down on the storage compartment door, and lower the mattress.



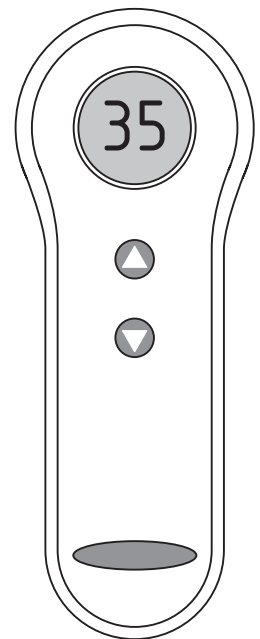
### Select Comfort Mattress (Optional)

The Sleep Number Bed by Select Comfort™ uses unique air chambers designed to provide a gentle cushion of support. Both sides of the bed can be individually adjusted to the precise comfort level each partner prefers by using the Firmness Control System™.

**Fluctuations of the Sleep Number® are normal, and may occur with any of the following:**

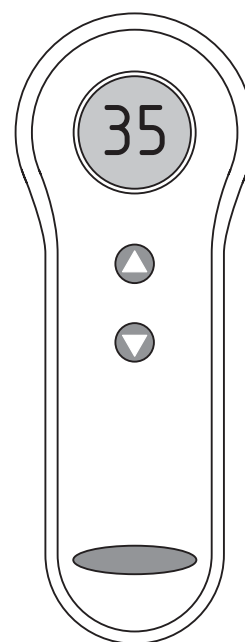
- Changes in body position on the bed (lying down vs. sitting up).
- Changes in the amount of weight on the bed (one person or two people).
- Changes in barometric pressure or temperature.

**NOTE:** It is important to be lying on the bed, in your normal sleep position, when checking or making changes to your Sleep Number®.



**Using the Firmness Control System™:**

- The Firmness Control System™ is designed to make changes to one side at a time. When the Sleep Number® disappears from the wired remote display, changes may be made to the other side.
- To adjust the mattress to a firmer setting, push the UP arrow on the wired remote.
- To adjust the mattress to a softer setting, push the DOWN arrow on the wired remote.
- Some Firmness Control System™ pump models may cycle ON and OFF several times as they find the Sleep Number®. Depending on which digital remote you have, a flashing or blank display means adjustments are still in process.
- The Firmness Control System™ may be heard while making changes to the Sleep Number®.



**NOTE:** For detailed information regarding the operation and maintenance of the Select Comfort Mattress, refer to the manufacturer's operations guide.

## ENTERTAINMENT SYSTEM

The entertainment system is comprised of several different pieces of audio/video equipment. These products are of the highest quality to provide the most enjoyment from the system. The following paragraphs will discuss the operations and usage of these components.

### **Televisions**

The front television, located above the driver and passenger seats, is also referred to as the "Main TV". When using the Video Selector Box to select the viewing source for the front television, use the selections under the Main TV heading.

The Main TV has also been equipped with lock-out circuitry. Simply stated, the ignition switch controls the power supply to this TV. Only when the ignition switch is in the OFF position will the Main TV operate.

The bedroom television is also referred to as "TV 2". When using the Video Selector Box to select the viewing source for the bedroom television, use the sections under the TV 2 heading.

**NOTE:** For information regarding the Optional Exterior Entertainment Center refer to the "Exterior Operations Section" of this manual.



The TV's operate on 120V AC power. This power can be provided by shore power, the generator or the inverter.

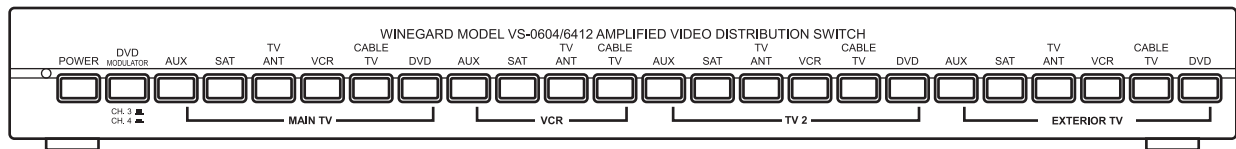
**NOTE:** *Viewing time will be limited to the state of the house battery charge when using the inverter.*

To view programming on the televisions, turn the TV to channel 3 and then follow the instructions for the Video Selector Box located later in this section.

To watch programs on the optional LCD front television with surround sound you will need to select video 4 on the remote as the television speakers act as the center speaker for surround sound.

**REFERENCE:** *For other items such as television setup, external connections, brightness, etc. please refer to the individual components owner/operation manual.*

## Video Selector Box



### Viewing Signals from the Amplified TV Antenna on Main TV:

First press the TV antenna power button. This provides 12 Volt power to the TV antenna amplifier located inside the antenna housing. To view the TV antenna signal on the main TV, simply press the TV ANT button located above the area marked "MAIN TV". Follow the same procedure for TV 2 and Exterior TV.

**Note:** *The picture quality from your outdoor TV antenna varies depending on the location of the off-air TV station in relationship to your location. If picture quality is degraded, try turning the TV antenna Power button on the video distribution box OFF and ON.*

**Note:** *It is not necessary to press the TV antenna Power button for 12 Volt power to the 10dB amplifier inside the video distribution switch. After the unit is connected to a 12 Volt power source, the video distribution switch automatically provides power to the internal 10dB amplifier.*

### Viewing Signals from Satellite on Main TV:

Press the SAT button above the area marked "Main TV". Follow the same procedure for TV 2, and Exterior TV.

### **Viewing Signals from Cable on Main TV:**

Press the Cable TV button above the area marked "Main TV". Follow the same procedure for TV 2, and Exterior TV.

**Note:** *To view cable TV signals, you must be connected to a Cable TV input on the outside of the motorhome. Cable TV inputs are available at many of today's campgrounds.*

### **Viewing Signals from Auxiliary Sources such as Games, Camcorders, etc. on Main TV:**

Press the AUX button above the area marked "Main TV". Follow the same procedure for TV2, and Exterior TV.

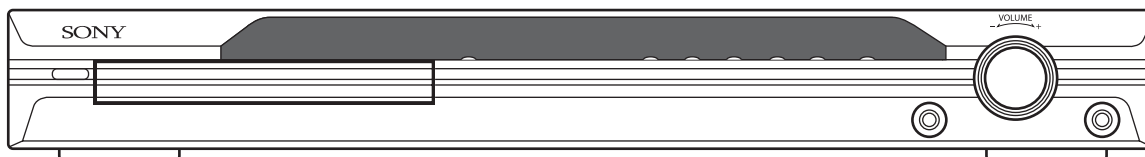
### **Viewing signals from DVD on Main TV:**

Press the DVD button above the area marked "Main TV". Follow the same procedure for TV2, and Exterior TV.

**Note:** *When viewing DVD signals at the three TV set locations, it is necessary to turn the TV set to channel 3 or 4 and depress the DVD modulator button on the front of the video distribution switch to the appropriate channel 3 or 4 setting. If you are in an area with local broadcasting on channel 3, select channel 4 to view DVD signals. You will have better picture quality and less co-channel interference.*

## ***DVD Receiver***

The DVD Receiver provides a compact design with high quality sound and video. Operating on 120 Volt AC from the house electrical system, use of the generator, inverter or shore power are required to power the DVD Receiver.



**REFERENCE:** *Refer to the manufacturer operations manual for detailed information and set-up procedures.*

## Television Antenna

### ⚠ WARNING

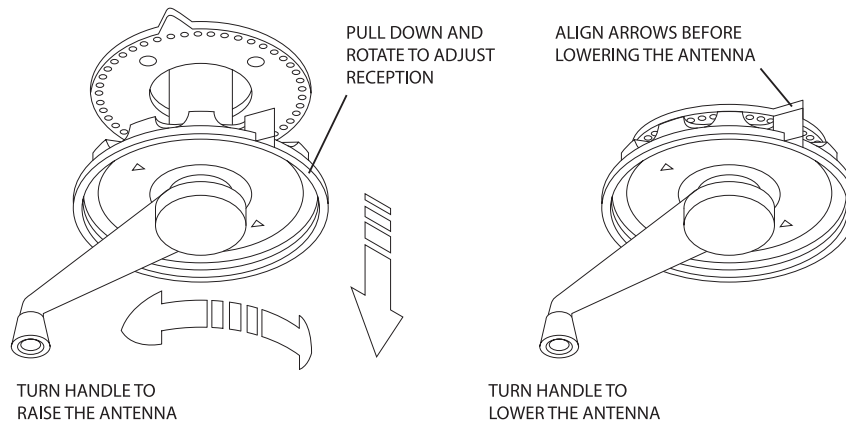
***Prior to raising the antenna, visually inspect for any obstructions or overhead electrical wires. Damage to the antenna, severe shock, personal injury or death can occur from inadequate clearance.***

### CAUTION

***Do not move the motorhome with the antenna in a raised or partially raised position. Damage to the antenna, the worm gear, or the motorhome roof may result.***

#### To Raise the Antenna:

- Rotate the crank handle clockwise to raise the antenna.
- Pull down on the outside directional wheel and rotate the antenna until the best picture is obtained.



#### To Lower the Antenna:

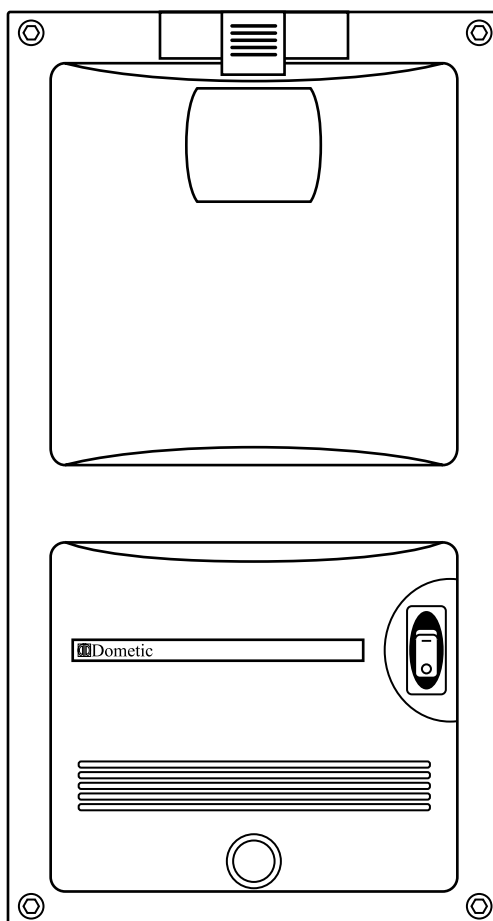
- Pull down on the directional wheel and align the arrows together.
- Rotate the crank handle counterclockwise to lower the antenna fully into the cradle. Ensure the antenna is properly stowed before traveling.

**REFERENCE:** Refer to the Care & Maintenance Section for exterior care guidelines for the antenna.

## CENTRAL VACUUM (OPTIONAL)

The central vacuum consists of the vacuum unit that is mounted in the kitchen base cabinet and a hose that will reach from the front to the rear of the coach. The hose simply plugs into the front of the unit after flipping up a small door. The vacuum will have its own circuit breaker located at the foot of the bed inside the breaker panel. There is a replaceable collection bag that can be easily changed from the front of the unit.

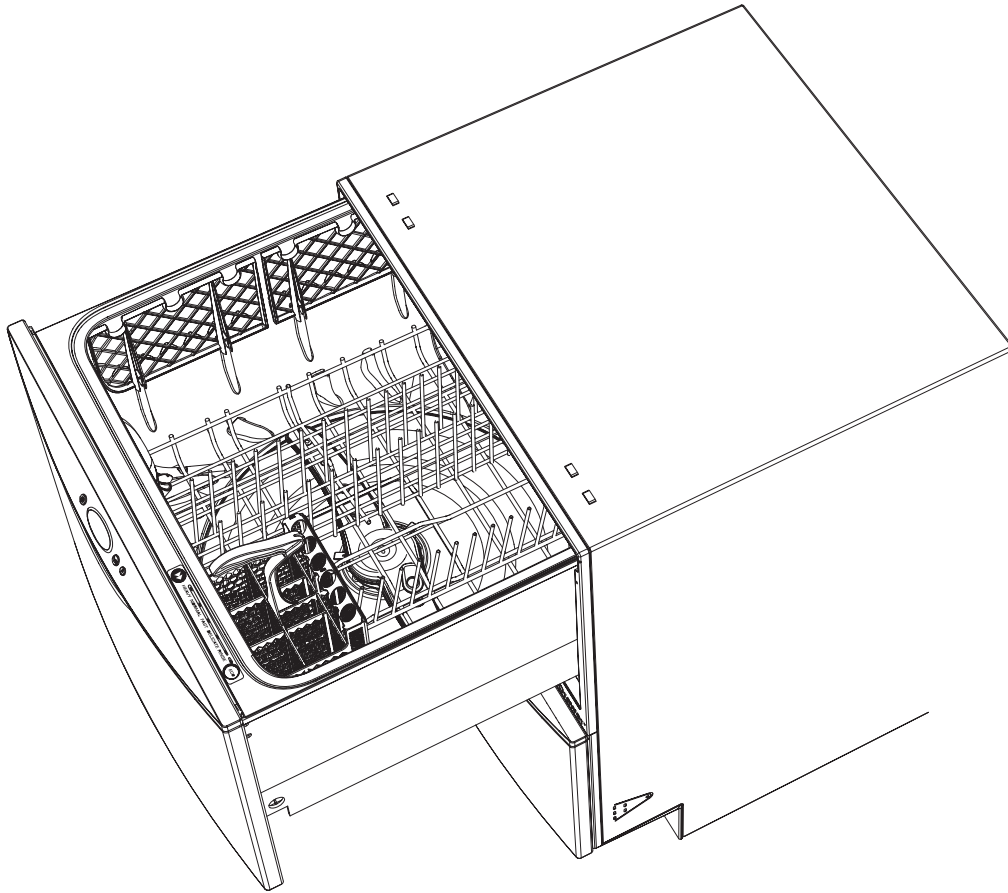
**REFERENCE:** *For detailed information regarding the proper usage of the Central Vacuum System refer to the manufacturer's operation manual.*



## DISHWASHER (OPTIONAL)

Located in a kitchen base cabinet below the range top, the optional dishwasher is one of the many amenities offered for the Mandalay. The dishwasher is easy and quick to use, and with the proper maintenance and care will provide many years of reliable service.

**REFERENCE:** *For detailed information regarding usage and care refer to the manufacturer operations manual.*



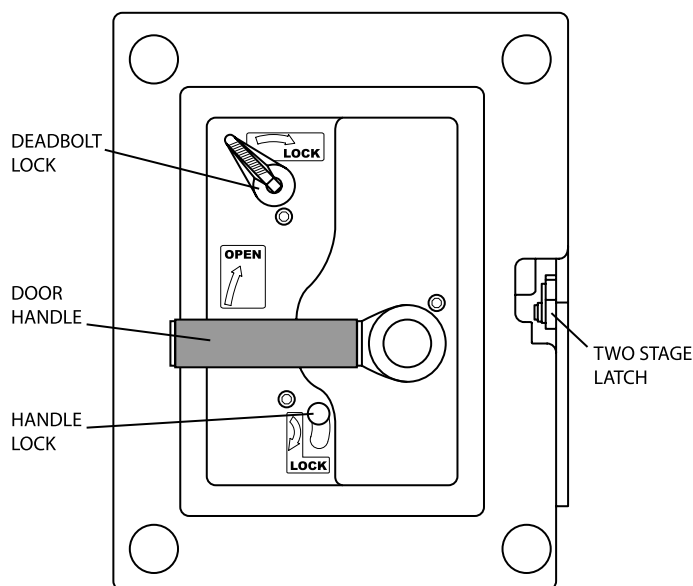


# EXTERIOR OPERATIONS

## ENTRY DOOR

The entry door is designed to provide security and comfort while traveling in the motorhome. The entry door utilizes three separate locks for these reasons. The first locking system is the door handle, the second is the independent deadbolt lock, the third lock is the automatic air lock. When the motorhome shift selector is placed in **D** (DRIVE) or **R** (REVERSE), the entry door will automatically engage the air lock mechanism. This lock's primary feature prevents accidental opening of the entry door while in transit. Secondly, the lock also improves the seal around the door, reducing wind and exterior noise from entering the motorhome while traveling. The lock will automatically disengage when the shift selector is placed in the **N** (NEUTRAL) position. An audible noise will be heard when the air lock mechanism engages and disengages.

The entry door is equipped with a movable latch system. This latch system is designed to keep the latch from binding if parked on an uneven surface causing the door to become wedged within the door frame. The door latch also incorporates a primary and secondary latching system. This ensures secure and safe latching.



**NOTE:** Separate keys for both the latch and deadbolt locks are provided. Keep a record of the key numbers in a safe place, should it become necessary to have duplicates made.

## Screen Door

The screen door can be used with the entry door, or independently while parked. A sliding panel on the screen door permits access to the latch handle on the outer door to prevent unnecessary handling of both doors.

### ***Keyless Entry System (Optional)***

The entry door and cargo bay doors have been equipped with the e-ASK keyless-entry System. The system consists of two remote transmitter FOB's, an e-PAD keypad interface, and a dash toggle switch.

The FOB transmitter and receiver are shipped pre-programmed. Only the unlocking function of the e-FOB remains while the engine is running - all other functions are disabled. Both the Entry Lock and Cargo Lock must be pressed to arm the alarm system. Press the Entry or Cargo Unlock button to disarm the system and deactivate the alarm mode.

### ***Dash Switch Operation***

- **LOCK:** Depress the switch to lock all exterior compartment doors, as well as the entry door.
- **UNLOCK:** Depress the switch to unlock all exterior compartment doors, as well as the entry door.

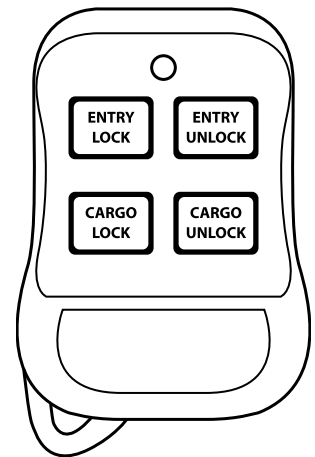
### ***Key FOB Operation & Features***

- **Entry Lock:** Locks the entry door.
- **Entry Unlock:** Unlocks the entry door.
- **Cargo Lock:** Locks all compartment bay doors.
- **Cargo Unlock:** Unlocks all compartment bay doors.

**NOTE:** After locking all doors from FOB transmitter, the marker lights will flash once.

**NOTE:** The compartment bay doors will unlock and lock in a series. There are four series, and an audible sound will be heard for each series locking and unlocking.

**NOTE:** The locking and unlocking confirmation is deactivated while the engine is running.



### ***Keypad Operation & Features***

The keypad is shipped with default Authority and Access codes. The Authority code is a master code, which is only used to set access codes. Access codes are the codes which you will use to perform various functions with the keypad, such as, unlock, lock and arming the alarm. Unless the dealer has changed the default codes, the Authority and Access codes are:



Default Access Code:

DIGIT 1	DIGIT 2	DIGIT 3	DIGIT 4	DIGIT 5
1/2	3/4	5/6	7/8	9/0

Default Authority Code:

DIGIT 1	DIGIT 2	DIGIT 3	DIGIT 4	DIGIT 5
7/8	7/8	7/8	7/8	7/8



### Assigning a New Authority Code

The Authority code should be changed upon purchase of your motorhome, for added security. Use the following steps to change the Authority code, also write the new code in the area provided for reference later.

**NOTE:** Prior to setting the Authority & Access Codes, ensure you have a spare key with you at all times to prevent accidental lockout from the motorhome.

Reset the keypad to the default state by performing the following procedure.

- Cycle (short then open) the S1 pins of the I/O module learn connector. There will be a three-second beep.
- Enter a new five-digit code; this will be your access and authority code.
- Enter the new code again.
- The existing code will only erase if you properly enter the new one.
- The code is stored in position one.

Authority Code

DIGIT 1	DIGIT 2	DIGIT 3	DIGIT 4	DIGIT 5

**NOTE:** Authority and access codes should not be the same. If someone figures out an access code and discovers it to also be an authority code as well, they can then create their own access code and gain entrance to the motorhome.

After resetting the keypad, the next step should be to create a new access code and store it in position one to ensure the access code is no longer the same as the authority code.

## Assigning a New Access Codes

With a valid authority code (see previous), an access code can be programmed with the following instructions.

- Depress the 5/6 button, then release after the keypad provides a confirmation beep (approximately 5 seconds). The backlighting LED of the keypad will flash indicating the learn mode.
- Enter the 5-digit authority code (see previous page). The keypad will provide a confirmation beep.
- Press and release the button that corresponds to the access number (see below). For example, depress 1/2 button to access the #1 and depress 3/4 button to access #2. A confirmation beep will be heard after pressing the button.
- Now enter you new 5-digit access code. A confirmation beep will be head after entering the code.
- Re-enter the new access code. The keypad will provide a confirmation beeps.

After performing the above sequence, the keypad will revert to default operation mode. Repeat the process to assign additional access codes. Up to five (5) different codes can be assigned. Use the following diagram to document your new access codes.

FUNCTION	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1
FUNCTION	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1
FUNCTION	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1
FUNCTION	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1
FUNCTION	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1	DIGIT 1

### Locking Doors with the Keypad:

- Press and hold down the first button (1/2) for 1-2 seconds (an access code is not required to lock the doors).

**NOTE:** After locking all doors from the keypad, the marker lights will flash once.

### Unlocking Doors with the Keypad:

- Enter a valid 5-digit access code, confirmation beeps indicate the system is enabled.
- Depress the 3/4 button within 5 seconds and the entry door will unlock.

**NOTE:** If an unassigned button or no button is pressed while the system is enabled, the keypad reverts to the disabled state.

## Power Entry Step

### WARNING

***Make sure before exiting the motorhome, that the step is activated and/or extended. Due to the height of the motorhome, you may accidentally slip or fall if attempting to exit without use of the step. If the step will not operate, use extra care when exiting. Never activate the step when someone is using it, and be sure to keep hands, feet, children, and pets away from the mechanism when activated.***

### CAUTION

***If the motorhome is driven with the step in the extended position, there is the possibility of causing major damage to both the step and the motorhome.***

The entry step features amber lighting under the step, and automatic retraction with the ignition key in the ON position. The power switch for the entry step is located on the passenger armrest.

#### STEP OPERATION:

1. With the entrance door open, turn the override switch to the OFF position. Close the door. The step should retract and lock in the 'up' position.
2. Open the door. The step should extend and lock in the 'down' position with the understep light illuminated.

**NOTE:** *The understep light operation is as follows:*

- *The light is ON when the step is extended.*
  - *The light is OFF when the step is retracted.*
  - *If the override switch is OFF and the step is extended by opening the door and the door is left open, the light will turn OFF after five minutes.*
  - *The understep light is not available on all step models.*
3. Turn the override switch to the ON position. The step should remain in the extended position with the understep light OFF when the door is closed.
  4. With the override switch turned ON, the step extended, and the entrance door closed, turn the vehicle ignition ON. The ignition override system will go into effect and the step will automatically retract.

**NOTE:** *If the yellow wire from the four-way connector is not connected to an ignition power source, the ignition safety system will be inoperative and the step will remain in the extended position. In this case, the override switch must be turned OFF for the step to retract.*

5. Turn the vehicle ignition OFF and open the door. The step will extend and lock in the 'down' position. This is the 'Auto Extend' feature. When the vehicle ignition is turned ON, the step will always activate with the door movement, regardless of the override switch position.

## STORAGE COMPARTMENTS

### ⚠ CAUTION

*When closing the storage doors make sure that hands and fingers are clear of pinch points.*

### CAUTION

*Make sure all compartment doors are completely closed, latched and contents are secure prior to moving the motorhome.*

To operate the compartment bay doors, unlock the latching mechanism using the compartment bay door key, the key FOB (optional), or the keyless entry keypad (optional). Pull the latch handle towards you to release the door latch. A gas strut is attached to the door to assist with opening and holding the door in the open position. If a gas strut requires replacement, contact your dealer to ensure proper strut size.

**NOTE:** *Ensure proper clearance is available for the door to open.*

When storing items within the compartment bays, do not overload them with heavy densely packed items, remember that any weight added to the motorhome affects the overall motorhome weight. Ensure that side-to-side weight is comparable to distribute the load evenly.

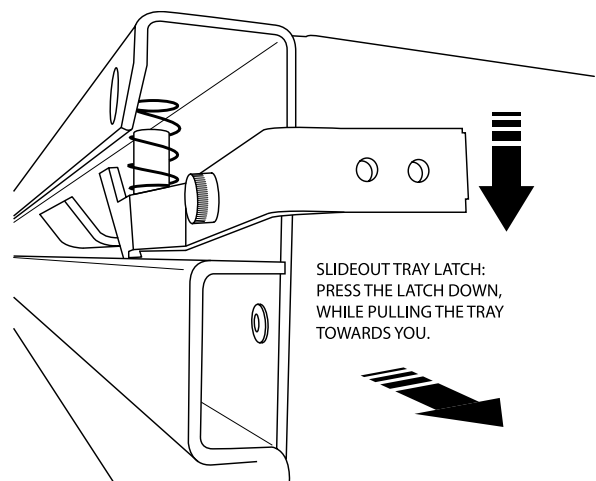
### Storage Compartment Slideout Tray

### ⚠ WARNING

*The motorhome must be level when releasing the slideout tray mechanism. If the motorhome is not level the tray can abruptly slideout possibly causing serious bodily injury.*

The slideout tray allows the stored payload to slide outward for easier access to those items. The motorhome must be level before operating the slideout tray. To release the slideout tray from it's locked position, press the latch handle down to disengage the locking mechanism, while pulling the tray towards you.

**NOTE:** *The slideout tray load capacity is 800 lbs.*



## Remote Air Fill

A convenient remote air fill has been placed within the LP Gas compartment. Look toward the upper left corner of the compartment to locate the manifold with air lines attached to it. Plug the male end of the supplied air line into the quick connect coupler of the manifold, and turn on the valve to use. The valve is in the ON position when the handle is in-line with the hose. The air line can be used to inflate such items as bike tires, rafts, beach balls, car tires etc. When done, turn the valve to the OFF position and store the hose in a safe place.

**NOTE:** *DO NOT leave the hose connected to the manifold during transit.*

## EXTERIOR ENTERTAINMENT CENTER (OPTIONAL)

Located in the second compartment bay directly behind the passenger side front tire, the optional exterior entertainment center allows you to enjoy audio and visual entertainment while outside the motorhome. A 120 Volt power source is required to operate the entertainment center, which can be provided by shore power, the generator or the inverter.

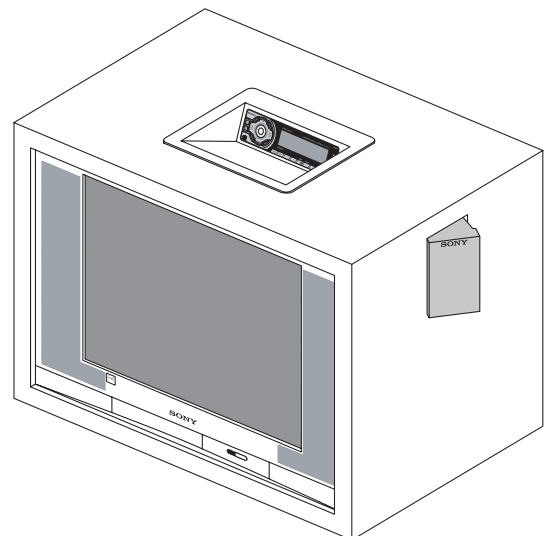
**NOTE:** *Viewing time will be limited to the state of the house battery charge when using the inverter.*

The entertainment center is mounted on a convenient slideout tray. To operate the slide, locate the latching mechanism on the left hand side of the unit. Lift the yellow thumb lever up to release the latch. The slideout tray will now move freely. To swivel the TV, turn the containment box to the desired viewing angle. The containment box is mounted to a swivel, which has a self locking mechanism.

To store for travel, ensure the TV is facing forward and the swivel latching mechanism is securely locked, push the unit back approximately halfway, then raise the thumb lever up to move past the safety stop. Once past the safety stop, release the thumb latch and push the unit back until the latching mechanism engages.

When using the Video Selector Box to select the viewing source for the television, use the selections under the Exterior TV heading. To view programming on the televisions, turn the TV to channel 3 and then follow the instructions for the Video Selector Box located in the "Interior Controls & Operations" section of this manual.

**NOTE:** *For other items such as television setup, external connections, brightness, etc. please refer to the individual components owner/operation manual.*



## EXTERIOR DEEP FREEZER WITH SLIDEOUT TRAY (OPTIONAL)

The deep freezer option consists of a freezer located in one of the curbside exterior storage compartments. The freezer is mounted on a slide that will allow you to pull it out for easy access. It is a dual power unit and will operate on either 120 Volt AC or 12 Volt DC power. If both are available, the unit will choose to run on 120 Volt AC. There are five temperature control settings, 1 being the warmest and 5 (freeze) being the coolest. For cleaning, defrosting, and general usage information, please consult the manufacturer's owner's manual.

## AWNINGS

### CAUTION

***If threatening weather approaches, you need to retract all awnings. If the awnings are rolled up wet, open them back up as soon as possible to allow them to dry. Also, do not drive during periods of high winds.***

#### ***Automatic Entry Door Awning***

##### **To Extend:**

- Press and hold the remote switch (located on the front of the passenger arm rest) in the extend position until the awning is fully open.
- Release switch to prevent awning from rolling up backwards.

##### **To Retract:**

- Press and hold the remote switch in the retract position until the awning is fully closed.

**NOTE:** *In the event of power loss or awning motor failure the Automatic Entry Door Awning can be retracted by following one of these procedures. If you do not feel comfortable performing these procedures, contact the nearest authorized service center for assistance. Do not drive the motorhome with the awning in the extended position.*

##### **Loss of 12 Volt Power:**

Remove the left-end cover and disconnect the motorhome wiring. Use 12 Volt DC auxillary power to close the awning (reversing the wires may be required).

##### **Awning Motor Failure:**

Remove the left-end cover and disconnect the wiring. Remove the fasteners (3/8 socket will be required) that secure the awing to the sidewall, then slide the awning towards the front of the motorhome and out of the rail. Once out, the awning can be collapsed and held together with tape.

**NOTE:** Removal of the awning from the motorhome requires more than one person.

**REFERENCE:** For detailed information regarding the Entry Door Awning refer to the A&E Systems, Oasis Automatic and Manual RV Door Awning System Installation & Operating Instructions Manual.

### ***Slideout Awning (Optional for Driver's Side Living Room Slideout)***

The Slideout Topper will automatically open and close as the slideout room opens and closes. Because the awning is level, water may puddle on top of the canopy. As the slideout room is closed and the awning rolls up, these puddles may spill over the sides of the awning.

**REFERENCE:** For detailed information regarding the Slideout Topper Awning refer to the A&E Systems, Slide Topper Installation & Operating Instructions Manual.

#### **To Extend:**

- Release both travel straps (one on each arm, about midway up) by squeezing the travel strap buckle to pull both pieces apart.
- Using the provided awning rod, rotate the Safe-T-Lock lever up to the UNLOCK/OPEN position.
- Hook the awning rod into the pull strap loop securely and pull the awning out. Once extended, slide the pull strap to the right and wrap the strap around the awning arm.

**NOTE:** Prior to closing, remove tie downs and screen if used. Ensure that the travel strap and buckle are clear of the back channel.

#### **To Retract:**

- Unwrap the pull strap from the awning arm and slide it slightly to the left.
- With one hand, firmly grip the awning pull strap and gently pull down, while at the same time, using the awning rod to rotate the Safe-T-Lock to the UNLOCK/CLOSE position.
- While holding the pull strap firmly, hook the awning rod into the pull strap loop and slowly allow the awning to retract, controlling the speed with the awning rod in hand.
- Once the awning has fully retracted, reconnect the travel straps and tighten by pulling on the loose end of the strap.

## Automatic Patio Awning

### CAUTION

***In the event of power loss or awning motor failure the Automatic Patio Awning can be retracted as explained below. If you do not feel comfortable performing this procedure, contact the nearest authorized service center for assistance. Do not drive the motorhome with the awning in the extended position.***

***The awning must be serviced by a Dometic Service Center or a qualified service technician before attempting to open the awning after this procedure has been performed.***

#### **To Extend:**

- Press and hold the remote switch (located on the front of the passenger arm rest) in the extend position until the awning is fully open or utilize the remote control.

**NOTE:** *Do not press more than one “EXTEND” button at the same time. The awning will not work and/or may cause control box fuse to blow.*

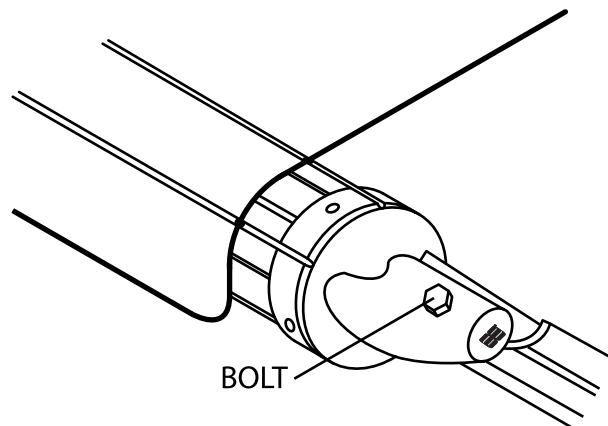
#### **To Retract:**

- Press and hold the remote switch in the retract position. When awning is fully closed release the switch.

**NOTE:** *Do not press more than one “RETRACT” button at the same time. The awning will not work and/or may cause control box fuse to blow.*

#### **Manually Closing the Automatic Awning:**

- Two people will be needed to perform this procedure.
- Slide the provided pull strap into the utility slot of the Fabric Roller Tube Assembly.
- Make sure that one person is securely holding onto the pull strap, while the other person removes the bolt in the top of the right top casting. Once the bolt is removed the FRTA will want to roll in on its own. This is why it is very important to hold the strap securely.



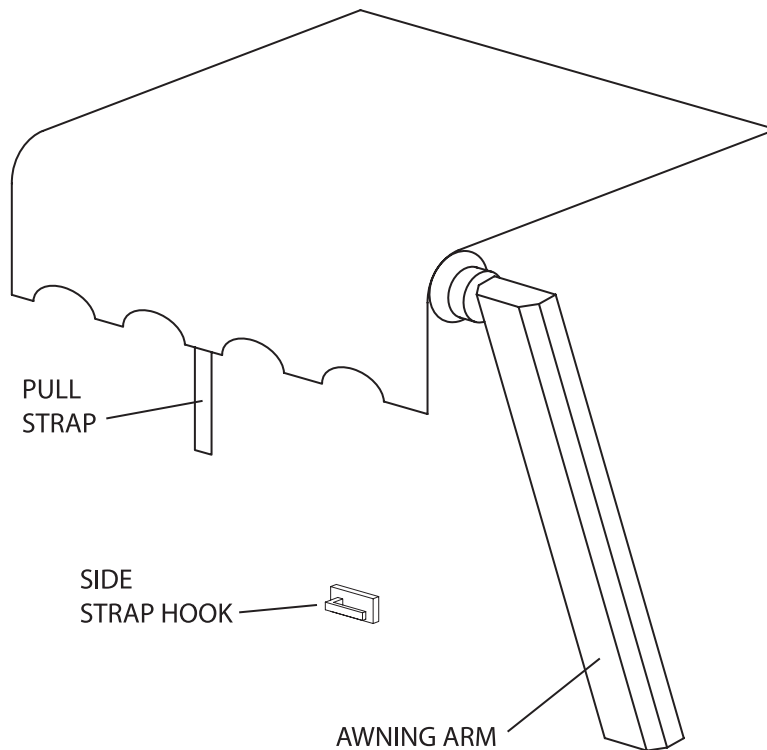


- While holding the strap, let the FRTA slowly retract until it is in the closed position.
- Once the awning is in the closed position, align the hole where the bolt was removed and reinstall to secure the awning. The bolt must be reinstalled to prevent the awning from opening during travel.

### ***Bedroom Window Awning (Optional)***

#### **To Extend:**

- Hook loop of pull strap with awning rod and pull awning, reel assembly and side arms to extend fully away from the motorhome.
- Hook pull strap on side strap hook, remove the awning rod from pull strap and store.



#### **To Retract:**

- Hook awning rod on pull strap, remove pull strap from side strap hook and slowly allow awning to retract.
- Remove awning rod from pull strap and store.

## REAR LADDER/ROOF ACCESS

### WARNING

***Do not climb on or walk on the roof while wet. The roof could be very slippery causing you to fall, which can result in serious injury or death.***

### CAUTION

***Do not use the roof as an observation platform or storage area, as it is not designed for these purposes.***

**NOTE:** *Four Winds International/Mandalay Luxury Division recommends that roof access be limited to service personnel only.*

The exterior rear ladder provides access to the roof for maintenance of the roof and roof mounted items only. When ascending and descending the ladder, ensure the ladder is clear of debris, such as water, ice and other slippery substances. Always wear shoes that provide good traction, and do not wear sandals or other types of slip-on footwear when ascending or descending the ladder.

**NOTE:** *The rear ladder maximum weight capacity is 250 lbs.*

# HEATING & AIR CONDITIONING

## DASH PANEL HEATER/AIR CONDITIONER

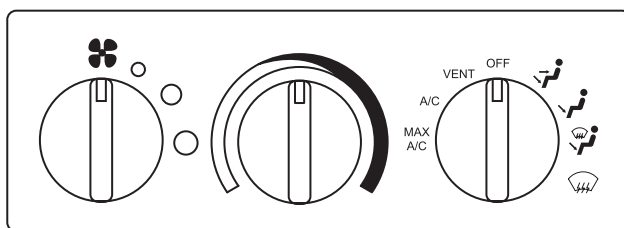
### ⚠ WARNING

***The air conditioning system contains refrigerant 134a under high pressure and should be serviced by qualified personnel only. Improper service methods could cause serious personal injury.***

The motorhome is equipped with the industry's highest performance integrated heating/air conditioning system. While this system is much more powerful than those used in passenger cars, it is not capable of heating and cooling the entire motorhome. This system is designed to provide windshield defrost as well as heating and cooling for the front seat occupants only. By following the operating instructions and tips, this heater/air conditioner will provide many years of comfort and dependable service.

The heater/air conditioner unit is located beneath the dash on the passenger side of the vehicle with heating and cooling coils located on the outside of the firewall. In most modes of operation the unit takes fresh air from outside, and heats or cools it before discharging into the motorhome. Only when operated in the MAX A/C mode does the system take air from inside the motorhome.

### ***Control Panel***



A/C CONTROL PANEL

The control panel enables the driver to control the temperature, volume and direction of the air discharged from the heating/air conditioning system.

One of the best ways of controlling temperature is by changing the speed of the blower. The blower knob (left of center) provides 4 speeds in any mode except OFF. The center knob controls the temperature of the discharge air. Turn the knob to the right (red area) for warmer air, and to the left (blue area) for cooler air.

## Operating Features

The air conditioning system is designed to operate in all modes except VENT, FLOOR and OFF. This provides significant moisture, dust and pollen removal for enhanced passenger comfort. Use MAX A/C and HI blower for quick cool down. A lower blower speed produces cooler air. To assist with cooling, close all windows and vents to hot, humid outside air.

**NOTE:** The A/C will not function if the outside air temperature is below approximately 40° Fahrenheit.

**NOTE:** In the event control vacuum is lost, the system is designed to discharge through the defrost vents.

## Air Distribution - Mode Control

To achieve the maximum comfort in the motorhome, the air must be directed where it is needed. The mode switch (right of center) gives the driver the ability to select where the air will flow.

MAX  
A/C

Air is drawn from the passenger compartment (Recirculated Air) and discharged through the dash louvers. These louvers can be adjusted for maximum comfort. This setting should be used to reduce interior humidity.

A/C

Outside air (Fresh Air) is drawn into the system and discharged through the dash louvers.

VENT

Outside air is drawn into the system and discharged through the dash louvers. For enhanced passenger comfort, upper-level ventilation air is also discharged through the defrost opening.

OFF

The blower motor does not operate in this mode. The fresh air inlet door closes, minimizing outside air infiltration into the vehicle.



Outside air is drawn into the system and discharged through the dash louvers, floor and defrost outlets. The A/C system operates in BI-LEVEL mode.



Outside air is drawn into the system and discharged through the floor outlets. In some models a small amount of air is directed to the windshield for defrost. The A/C system does not operate in FLOOR mode.



Outside air is drawn into the system and discharged through the floor and defrost outlet. The A/C system operates in MIX mode to provide windshield defogging.



Outside air is drawn into the system and discharged through the defrost outlets. The A/C system operates in DEFROST mode to provide windshield defogging.

**NOTE:** The discharge air will heat up faster if the blower is operated on lower speeds, until the engine is hot. For windshield de-icing use DEFROST mode.

## Warranty/Service

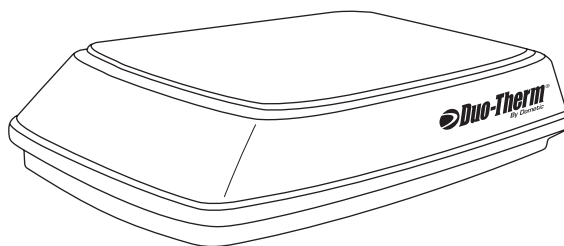
Keep the condenser and radiator free of bugs and debris. During periods of little use, operate the A/C system monthly to keep the compressor lubricated. Periodically inspect belts and hoses for wear and proper tension.

If repairs are necessary during the terms of the motorhome warranty, please contact the nearest authorized Mandalay dealer for service. In the event repairs are necessary during transit, contact Mandalay Customer Service. Certain individual parts of the Heating and Air Conditioning System such as the compressor, dryer and condenser are covered under the chassis manufacturer warranty.

**NOTE:** Components covered under the Mandalay Limited Warranty must be Original Equipment Manufacturer (OEM) parts. The installation of after market components, or unauthorized repairs may void the warranty.

## ROOF MOUNTED AIR CONDITIONERS

The motorhome is equipped with two roof mounted air conditioner's. These air conditioner's operate from 120 Volt AC only, either from shore power or the on-board generator. Air conditioner functions are controlled by the comfort control panel.



## Return Air Filters

### CAUTION

**Do not use harsh chemicals or solvents to clean the filter.**

Clean the return air filters as needed for the environment in which they operate. The return air filters are inside the air intake vent covers located on the motorhome ceiling. Never operate the air conditioners without the return air filters in place. Doing so may result in the build-up of dirt on the evaporator core affecting the performance of the air conditioner.

To Clean:

- Remove the vent cover and filter.
- Wash the filter and cover in warm soapy water.
- Rinse the filter and cover thoroughly with fresh water. Allow to dry.
- Reinstall the filter and cover

## FURNACE

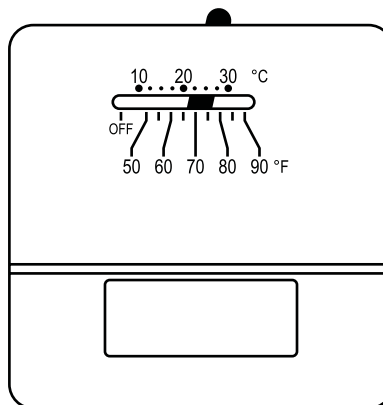
### ⚠ CAUTION

***This appliance is equipped with an electric ignition device which automatically lights the burner. Do not try to light the burner by hand.***

The furnace and all related components are 12 Volt DC operated, using LP Gas as the fuel source. The furnace functions are controlled by the comfort control panel.

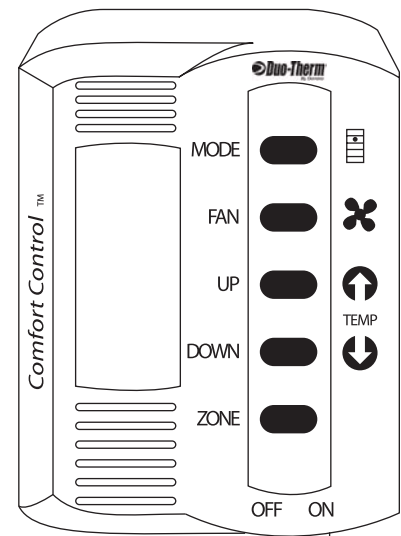
The following items must be done for the furnace to operate.

1. The LP Gas tank must be filled and the house batteries should be fully charged.
2. The LP Gas valve located on the LP Gas tank must be in the open position. The valve should only be opened or closed by hand. If the valve cannot be turned by hand, have the valve checked by a qualified service technician.
3. All power to the appliance should be on. Breakers and 12 Volt fuses are located at the foot of the bed.
4. Set the thermostat to the desired function and temperature setting.



## CLIMATE CONTROL

The comfort control panel operates the individual components which together create the motorhomes HVAC (Heating, Ventilation, and Air Conditioner) system. For a detailed description of how to operate and understand the climate control panel refer to the Duo-Therm owner's information.

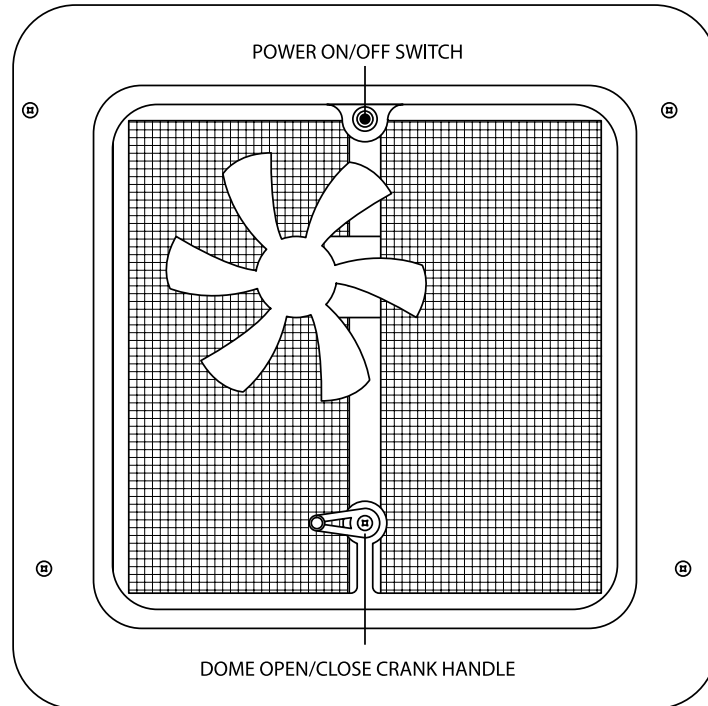


## CEILING VENTS

Vents are provided in the motorhome to circulate fresh air and exhaust odors.

### ***Exhaust Vent***

The power vent has dual controls to operate both opening and closing, as well as the fan. A hand crank controls opening and closing and adjustment of the vent cover, while a push button turns the exhaust fan ON and OFF. Make sure to turn the fan OFF before closing the vent. Also be sure to remove any debris that falls into the vent that may restrict operation.



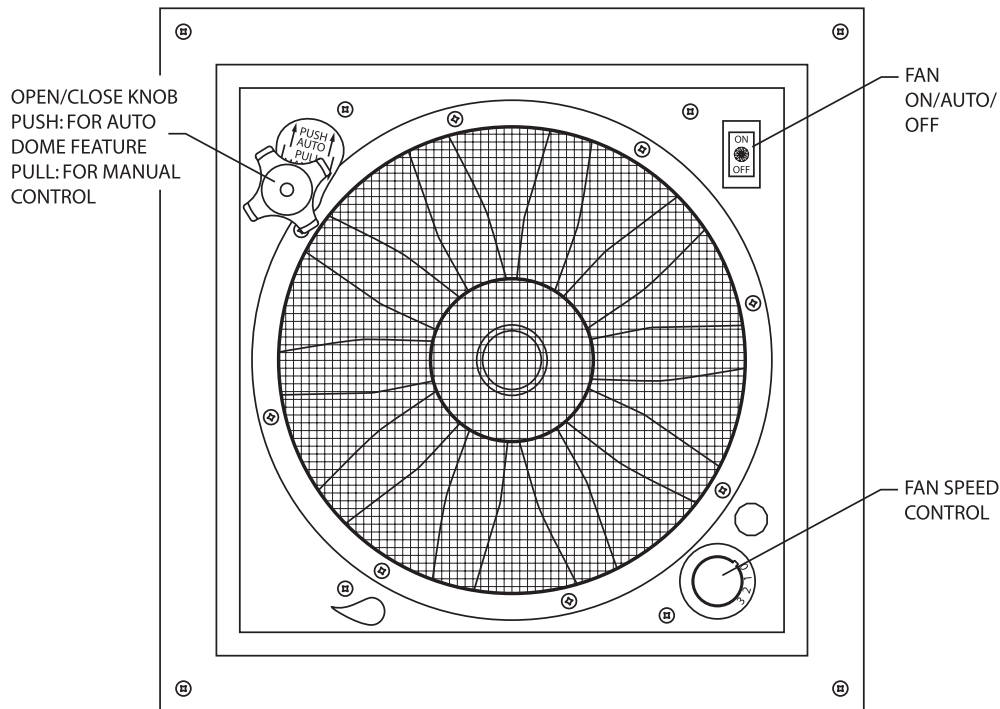
**NOTE:** For best results, close all other roof vents and open one window, or door the greatest distance from the exhaust vent.

**NOTE:** The dome must be open prior to operating the fan motor.

**NOTE:** Do not leave the vent cover open while the motorhome is stored or unattended for extended periods of time.

## Vent Ceiling Fan with Rain Sensor (Optional)

The optional vent ceiling fan with rain sensor, is a three-speed fan which can extract air from the motorhome. The rain sensor provides added protection to the interior of the motorhome by closing the vent dome when it starts to rain. To operate the fan use the following guidelines:



- Open the dome approximately 3" or more, by pulling down and then turning the manual open/close knurled knob. The fan has a built in safety switch that will not allow the motor to operate unless the dome is partially open. Push the knurled knob up for the automatic open/close option.
- Turn the wall switch to the ON position, 12 Volt DC power is required for the fan to operate.
- Select fan operation by pressing the black toggle switch to the desired performance (ON - Fan will run continuously, AUTO - Fan operate automatically, OFF - Fan motor disengaged).
- Turn the fan speed control dial to the desired performance level (0 - Off, 1 - Low, 2 - Medium, 3 - High). By selecting the "0" setting, the fan acts as a vent only.
- Select desired temperature or comfort level on the wall thermostat. The fan motor will now start and stop automatically as the interior temperature of the motorhome exceeds or drops below the selected level.
- Open a window or door for airflow.

**NOTE:** For best results, close all other roof vents and open one window, or door the greatest distance from the vent ceiling fan.

**NOTE:** Do not leave the vent cover open while the motorhome is stored or unattended for extended periods of time.



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# ***ELECTRICAL SYSTEMS***

The electrical power supply provided for the motorhome is a dual operating system with 120 Volt AC and/or 12 Volt DC. The 120 Volt power may be provided by either connecting the motorhome to an outside power source when parked, or by use of a motorhome generator. When the 120 Volt system is operational, power also passes through a system inverter, allowing the full use of all 12 Volt functions in the motorhome.

120 Volt appliances in the motorhome include the refrigerator, ice maker (optional), air conditioning, TV's, VCR, DVD player, microwave oven, inverter, washer/dryer (optional), and water heater. The refrigerator and water heater also have the option to run on LP Gas when 120 Volt is not available. All other lights and functions are supplied with 12 Volt power.

When it is not possible to access 120 Volt power, the 12 Volt system functions can be supplied by the coach batteries. The chassis battery is protected by a battery isolator controller to prevent discharge from excessive electrical consumption when motorhome is not running. The coach batteries are recharged by the power inverter when the motorhome is attached to an outside 120 Volt power source, or by the generator when it is running, and by the chassis alternator when the chassis engine is running.

## **SHORE CORD**

### **DANGER**

***Connecting the shore cord to a non-grounded or improperly grounded power source can result in dangerous and possibly fatal electric shock. Due to the potential danger in failing to heed this warning, the motorhome manufacturer cannot be responsible should damage, injury, or death result from failure to connect the power cord to a properly grounded power source.***

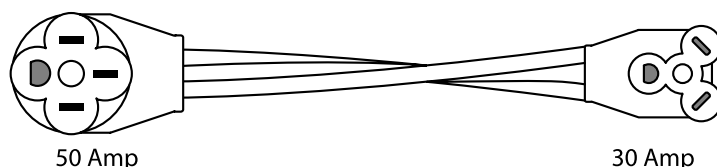
### **WARNING**

***If shore power service is limited to 15 or 10 amps, use of light duty extension cords and electrical adapters will create a Voltage loss through the cord and at each electrical connection. Line Voltage loss and the resistance at each electrical connection can be a hazardous combination. Damage to sensitive electronic equipment may result.***

***The motorhome is designed to be connected to a 50 amp service which provides 240 Volts. The 240 Volts comes from two separate 120 Volt lines that are in the shore power cord. The motorhome should never be connected to any power source that will provide anything more than 120 Volts on either line coming in. Failure to follow this will result in serious damage to internal items that are plugged in.***

A 50 amp shoreline power cord is provided to connect the motorhome to a grounded external power source. The shore cord is located in a compartment on the roadside of the motorhome behind the rear wheels. There is a porthole in the bottom of the compartment to allow the power cord to be in use while leaving the storage compartment door closed.

If 50 amp service is not available, connect the proper electrical adapters to the shore cord. Only UL approved adapters are to be used. The most common adapter is a 50-30 amp adapter.

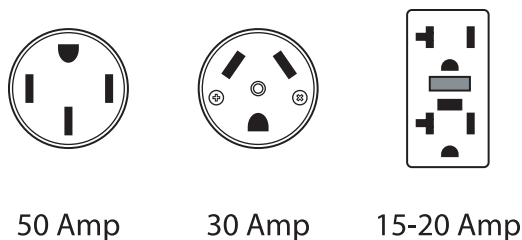


**NOTE:** *Always consult a qualified electrician prior to use or operation of adapter cords.*

Always connect the adapter to the shore cord prior to making the connection to the outlet. Never use a two-wire extension cord, a cheater adapter with the ground pin removed, or install a lower amperage plug on the power cord in place of the molded plug.

When connecting or disconnecting from a grounded external power source, always turn off the shore power breaker to the power supply outlet. This will prevent accidental shock and flashing of electrical contacts. After connecting the motorhome to the grounded external power source, wait a few minutes for the inverter/charger to stabilize charging of the batteries before starting large AC loads such as the air conditioners.

**NOTE:** *Shown below are the three types of shore power outlets which are most commonly used throughout the United States.*



## Shore Cord Power Reel

### CAUTION

**CAUTION:** *While retracting the power cord, keep hands clear of pinch points.*

The 50-amp power cord reel is located in a rear roadside compartment bay. The power cord reel is a 12 Volt DC motorized assembly, which will mechanically coil and stow the shore cord. The control switch actuates the reel to retract the power cord.

To extend the power cord, pull the cord towards you. Extend only as much of the power cord as necessary for reaching the outlet. The cord should not be taut, but slightly slacked.

To retract the power cord, disconnect from the outlet. The Battery Disconnect must be in the ON position. Press the control switch, the reel will now begin to retract the shore cord. Assist the power cord reel by guiding the cord by hand, this will help prevent kinks or entanglements during the retraction process. Try not to drag the shore cord male connector along the ground.

## CIRCUIT BREAKERS

The 120 Volt system is protected by circuit breakers which automatically shut the circuit off if the circuit load is too heavy, or a short circuit occurs. If a circuit breaker has been tripped, do not reset the breaker until the cause of the problem is identified and corrected.

The generator also has one or two circuit breakers, and a DC fuse on the generator control panel. If an interruption in generator operations occurs, check to see if any of these have been tripped. Consult the manuals provided with the generator before attempting maintenance on the generator.

**REFERENCE:** *Some electrical appliances may have their own circuit breakers. If there is an interruption in electrical service of an appliance, consult the manual for that appliance to determine what action to take.*

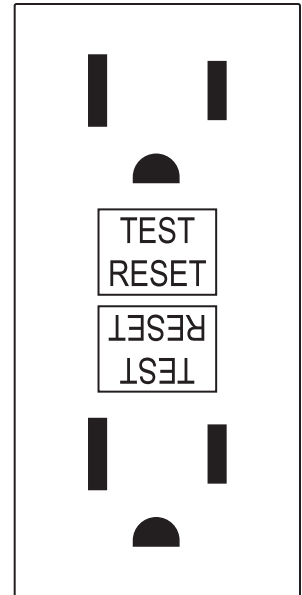
## Ground Fault Circuit Interrupter (GFCI)

### WARNING

***Even with the GFCI protection, persons with heart or other health problems may still be seriously affected by an electrical shock. The GFCI outlet is not a substitute for good electrical safety. It does not protect against contact of the hot and neutral wire at the same time.***

The 120 Volt outlet in the bath is equipped with a protective circuit interrupter. The ground fault circuit interrupter (GFCI) is designed to break the flow of current to the protected outlet when an imbalance of current is detected. Imbalances include electrical leakage in an appliance such as a shaver or hair dryer that have developed a weak spot in electrical insulation. The possibility of electrocution exists when using a faulty appliance, while at the same time being in contact with an electrical ground such as water, plumbing, or the earth. If an imbalance is detected, the GFCI will trip and shut off power to the outlet. Even with GFCI protection, the electrical shock will still be felt, but to a lesser degree. It also does not protect against short circuits or system overloads. Circuit breakers in the main panel which supply power to the circuit, will trip if either of these conditions exist.

**TEST:** *The GFCI receptacle should be tested initially when the motorhome is purchased and at least monthly thereafter.*



### **To Test the Circuit, use the Following Procedure:**

1. Make sure power is on to the circuit. A test light or a 120 lamp will work.
2. Push the test button.
3. The red reset button should pop out.
4. All power should be interrupted to outlets that are protected by the GFCI.
5. Verify by plugging in a light at these outlets, and pushing in the reset button. If the red reset button does not pop out after pushing the test button, or GFCI circuit continues to trip, or if the power is not interrupted to the test light, immediately turn off power at the circuit breaker panel and have a qualified electrician check it out.

## POWER INVERTER

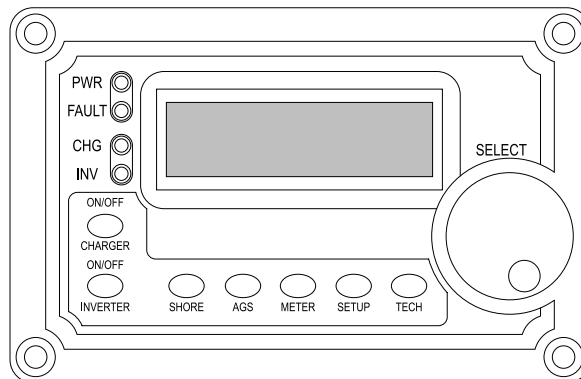
The inverter takes 12 Volt DC from the house batteries and turns it into 120 Volt AC. It also takes 120 Volt AC when the motorhome is connected to shore power and transforms it into 12 Volt DC to recharge the house batteries.

There are two modes of operation associated with an inverter/charger:

1. Inverter Mode: 12 Volt DC from the coach batteries is transformed into 120 Volt AC for use with household electrical appliances.
2. Charger Mode: 120 Volt AC is taken directly from shore power (or other AC sources) and passed directly to household appliances. At the same time, the incoming 120 Volt AC is also converted to 12 Volt DC to recharge the house batteries.

### Remote Control

A remote control located above the entry door allows you to customize the operating parameters of the inverter/charger, thus maximizing performance and increasing the life of the batteries. The remote also controls all of the operating and programming functions. The inverter/charger owner's manual outlines all of the functions in an easy to use format.



**REFERENCE:** *The following is a brief overview of the remote control. For more information refer to the manufacturer's operation's manual.*

#### Rotary Knob:

Used to move between menus to select program options. Turn clockwise to increase selections and counterclockwise to decrease selections. Push the knob to "save" the selection displayed in the LCD screen.

#### Inverter ON/OFF:

Used to switch the inverter function ON and OFF. The green "INVERTER" LED turns ON and OFF with the switch.

#### Charger ON/OFF:

Used to switch the charger function ON and OFF. The green "CHARGER" LED turns ON and OFF with the switch.

**Soft Keys:**

Press the soft keys to access the required function. Then use the rotary knob to scroll through the selections. Press the rotary knob to save the selection. Options include:

- **Shore**

Sets the appropriate breaker size for the incoming shore power and is used to control the amount of AC amps the battery charger uses from HOT 1 IN. Selection options are 5, 10, 15, 20, 30, and 50 amps.

- **SETUP**

Configures the inverter/charger. Options include:

- Search - Used to set the watts at which the inverter will come out of sleep mode.
- LBCO - (Low Battery Cut Out) - Used to set the DC Voltage level to shut down the inverter to protect the batteries from over discharge.
- Battery Size - Used to select the approximate battery bank capacity.
- Battery Charge Rate - Used to set the maximum charge rate during bulk, absorption or float charge.
- Battery Type - Used to select battery type for the battery charge profile.
- Contrast - Used to adjust the LCD contrast.
- AC Dropout Voltage - Used to select the AC threshold (60, 90, and 100 Volt AC) where the inverter transfers from AC line to inverter mode.

**NOTE:** *Additional information for “SETUP” is in the manufacturer’s operation’s manual.*

- **TECH**

Reserved for future, this feature is used for troubleshooting the inverter/charger.

The inverter only supplies power to specific outlets within the motorhome. Those outlets are listed below:

- Bedroom Vanity Outlet
- Kitchen Outlets
- Flush Floor Outlets
- Microwave Outlets,
- Rear Television, Front Television and Entertainment System

**REFERENCE:** *For detailed information regarding inverter functions and usage, refer to the manufacturer’s operations manual.*

## BATTERIES

The batteries for the motorhome are located on the passenger's side in a rear storage compartment designated for the batteries. This compartment is water tight for the proper storage of batteries.

It is important to make sure that the batteries are kept charged. Take time to turn off all lights or other 12 Volt functions when not in use. Connect the motorhome to a 120 Volt power supply when possible, instead of draining the batteries.

The charge condition of the batteries can be checked with the monitor panel. To check, press and hold monitor test switch while reading the charge level on the battery gauge. Charge levels indicated are divided into sections from weak through fully charged.

### *Battery Safety*

## DANGER

***BATTERIES CAN EXPLODE! Do not smoke or expose any battery to electric sparks or flame. Batteries when charging or discharging generate hydrogen. Hydrogen and air is a very explosive mixture.***

***Sulfuric acid in the batteries can cause severe injury or death. Sulfuric acid can cause permanent damage to eyes, burn skin and eat holes in clothing. Always wear splash-proof safety goggles and gloves when working around batteries. If battery electrolyte solution is splashed in the eyes, or on the skin, immediately flush with clean water for 15 minutes and seek immediate medical treatment. Never add acid to a battery once the battery has been placed in service. Doing so may result in hazardous splattering of electrolyte solution.***

## WARNING

***Do not short across the battery terminals. The spark could ignite the gases. Do not wear metal jewelry or a watch when working on a battery.***

***Before doing any work on electrical systems, disconnect battery cable and the 120 Volt power cord. Do not reconnect the cables until all work has been completed. This will avoid the possibility of shorting or causing damage to electrical components or shock to the servicing person.***

***Battery electrolyte is a corrosive, poisonous, sulfuric acid. Avoid contact with skin, eyes, clothing, or any painted surface.***

## Battery Maintenance

### DANGER

***Sulfuric acid in the batteries can cause severe injury or death. Sulfuric acid can cause permanent damage to eyes, burn skin and eat holes in clothing. Always wear splash-proof safety goggles and gloves when working around the battery. If battery electrolyte solution is splashed in the eyes, or on the skin, immediately flush with clean water for 15 minutes. In case of eye contact, seek immediate medical treatment. Never add acid to a battery once the battery has been placed in service. Doing so may result in hazardous splattering of electrolyte solution.***

Checking the condition of a battery at regular intervals is very important and will help insure its proper operation. Here are some recommendations for checking and servicing batteries.

1. Keep the battery mounted securely. Vibration causes early failure of many batteries.
2. Check the electrolyte level of the auxiliary batteries at regular intervals. Keep each cell filled to just above the plates with distilled water. Once the plates have dried out, they cannot be reactivated, and the capacity of the battery is reduced in direct proportion to the area of plate surface that has become dry. This kind of damage can occur quickly; usually it can happen overnight. If the fluid level is low, simply add distilled water.

**NOTE:** *These instructions only apply to batteries other than maintenance-free batteries. Do not open or break seals on maintenance-free batteries.*

- While holding a clean hydrometer vertically and wearing splash-proof safety glasses, squeeze the rubber bulb, insert the nozzle into the electrolyte in the cell, and release the bulb. The electrolyte will be sucked up into the barrel or container allowing the float to ride freely. Start with the cell that is closest to the POSITIVE (+) terminal.
- Squeeze the rubber bulb to release the electrolyte back into the battery's cell.
- To increase the accuracy of the measurement, in the same cell, repeat this process several times so the float will reach the same temperature as the electrolyte. If you are measuring a large battery, stratification can occur when the more concentrated electrolyte settles to the bottom. If you notice a difference in the readings between the top and bottom of the cell, average the two readings.
- At eye level and with the float steady, read the specific gravity at the point the surface of the electrolyte crosses the float markings. The specific gravity reading should be between 1.100 and 1.300.
- Release the electrolyte back into the cell from which it was taken and record the reading. Be sure to avoid spillage.
- The hydrometer is calibrated at 80° F. Temperature affects the hydrometer reading. The higher the electrolyte temperature, the higher the specific gravity reading. The lower the temperature, the lower the specific gravity reading. Add or subtract four (4) points for each 10° variance from the 80° F chart. Readings between cells should not vary more than 50 "points" (0.50).



- Repeat the process for each individual cell. The specific gravity reading should not have a difference of more than 30 "points" (.030) between the lowest and highest reading or 10 "points" (.010) below the battery manufacturer's recommended temperature value with the battery fully charged. If so, try and equalize the battery by following the battery manufacturer's procedures. If equalizing does not help, replace the battery. You can determine the battery's state-of-charge by taking the average of the temperature compensated cell readings.
  - Thoroughly rinse the hydrometer with water after using it.
3. Keep the battery clean. Corroded terminals make poor contact and do not allow the chassis alternator or the converter to bring the battery up to full charge. Battery sulfation occurs when the battery has been standing in a discharged condition over a long period of time, or when the battery has been operated continually in a state of partial discharge. Use a baking soda solution to neutralize the acid accumulations on the battery top. Do not allow the soda solution to enter the battery. Make sure the vent caps are secure. Flush with water. Thoroughly dry all cables and terminals, reinstall, and use a plastic ignition spray to protect the terminals.
  4. Check the outside condition of the battery. Look for cracks in the case or vent plugs. If the case is cracked, the battery must be replaced. If the vent plugs are cracked, they must be replaced.
  5. Watch for overcharging. Three ways to spot overcharging are:
    - Active material on the vent cap (heavy deposit of black lead-like material on the underside of the vent cap).
    - Excessive use of water.
    - By testing voltage regulator output.
  6. Make sure the battery hold downs and carrier are kept clean and free of corrosion.

When removing a battery, disconnect the battery ground terminal first. When installing a battery, always connect the grounded terminal last. When a battery needs to be replaced, make sure to replace it with a battery of the same characteristics as the original equipment. Consult your dealer for advice on battery replacement.

**NOTE:** *The coach battery disconnect must be in the ON position in order to charge the batteries.*

**NOTE:** *Deep cycle batteries require a slow charge, resulting in charge times which may exceed 18 hours. When charging the deep cycle batteries, use shore power and allow the inverter to charge the batteries to a full charge.*

## ***Battery Charging***

If for any reason you charge a battery with a source outside the motorhome, make sure to follow the rules of battery maintenance and safety outlined in this section. Also observe these additional safety precautions related to battery charging.

1. Disconnect the battery from the motorhome.
2. Check electrolyte before charging. Be sure that each cell is properly filled with distilled water.
3. Make sure to use care when connecting and disconnecting the cables from charger. A poor connection can cause an electrical arc, which can result in an explosion.
4. Remove the battery vent caps before charging, and make sure that the electrolyte does not splash out as a result of charging too quickly.
5. Check literature supplied by the battery manufacturer, and follow warnings or cautions outlined.

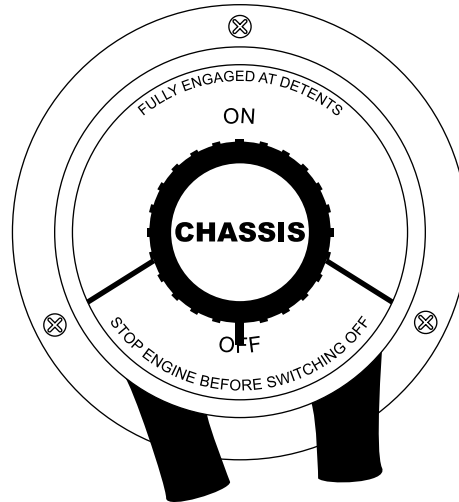
## ***Battery Isolator Controller***

The battery isolator is designed to protect the coach batteries and chassis batteries from discharging each other. This is done by separating the two sets of batteries until a charging source is available. Once a charging source of at least 13.3 Volts has been detected, the isolator controller will then connect both sets of batteries so they will charge. There are three possible charging sources that will provide the necessary Voltage to connect the batteries. The three charging sources are; the chassis alternator, the generator which will power the inverter, and shore power which will also power the inverter. The inverter has a built in charger that will work off both generator and shore power to charge the batteries. Unless the controller senses a charge from one of the above sources the two sets of batteries will not be connected. Some additional characteristics of the isolator system include:

1. Delays connecting the coach batteries to the charging system for approximately 15 seconds to allow the alternator time to reach full charging ability.
2. If the charging Voltage drops below 12 Volts for a period of 4 seconds due to low idle speed and/or excessive load, the isolator will disconnect the coach batteries until the Voltage returns to a level of 13.3 Volts for about 10 seconds.
3. In the event the automotive battery is low or fully discharged, it will be necessary to press and hold the auxiliary start button located on the dash. By pressing the auxiliary start button, power from the coach batteries will assist with starting the motorhome.

## Battery Disconnect Switches

The battery disconnect switches allow you to easily disconnect the coach and chassis batteries from electrical circuits, preventing unwanted discharge during short periods of non-use. For long periods of non-use: Walk through the RV and manually shut off all 12 Volt powered items by their independent power switch, then turn the coach and chassis disconnect switches to the OFF position. The coach switch is mounted in an overhead cabinet above the passenger seat. The chassis switch is located within the battery compartment.



There are three main uses for the battery disconnect switches:

1. Prevent unwanted discharge of batteries during extended periods of storage.
2. Prevent shorts or fire hazards while working on the 12 Volt electrical system.
3. Can help protect the batteries in the case of overcharging.

When activating, place the switch for the desired battery system in the ON position. This battery system will now be operational.

The disconnect switches must be in the ON position while plugged into shoreline power to charge the batteries.

Place the coach switch in the OFF position to disconnect 12 Volt circuits.

**NOTE:** *It is not necessary or advisable to use the battery disconnect switches as a substitute for turning off the various 12 Volt applications available in the motorhome.*

**NOTE:** *If 12 Volt functions are not working, be sure to check that the battery disconnect switch has been placed in the ON position.*

## ***Chassis Alternator***

The automotive chassis alternator supplies power to both the automotive systems as well as any coach battery and directly to the motorhome living quarters while the vehicle's motor is running. Thus, of primary concern to you is the condition of the motorhomes electrical system and especially the alternator.

The alternator compensates for electrical usage in the motorhome, the power drawn by the appliances, lights, fans and other 12 Volt powered items as well as the charging of the automotive and coach batteries.

If the alternator isn't keeping pace with the draw on the motorhomes electrical system, while driving down the road, it means you are working in a negative mode: more power is being used than the unit is putting out.

This means that you are taking power out of the batteries. If you draw too much power from the batteries there may not be enough power left in the battery to start the motorhome or run any of the appliances when you stop for a break or for the night.

So, always be aware of the alternator's output. Also check the monitor panel frequently to see that the coach batteries are at full charge. To insure an accurate reading, utilize a 12 Volt tester on the batteries.

The alternator will charge at a higher rate right after the vehicle has been started, replacing the power that was used to start the vehicle, but the charging should quickly go back to "normal" and hold its own even when you turn on lights or appliances.

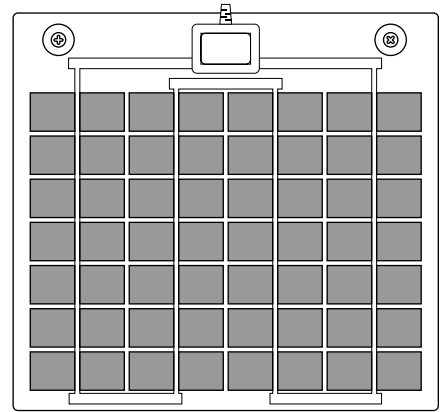
When stopped at a campsite that allows you the use of the shoreline, the 120 Volt electrical system will recharge your coach battery.

When checking coach battery condition, turn on several interior lights to place a load on the battery. Under heavy usage in warm weather, check the fluid level of the batteries often. Low battery fluid level is very harmful to the battery's longevity.

If the alternator shows a discharge while the motor is running, turn off appliances or lights to see if a charge comes on or if the alternator indicates not charging. Then apply a drain on the system to see if a discharge returns. If a discharge persists, contact your dealer.

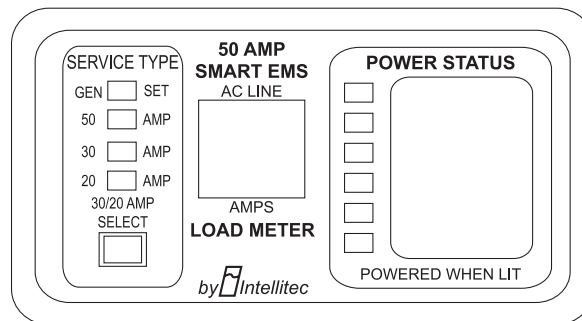
## SOLAR PANEL (OPTIONAL)

The optional solar panel is mounted to the front A/C unit and is connected to the house batteries. The solar panel is designed to eliminate parasitic loads, such as monitor panel memory, on the batteries. It is not intended to fully charge the batteries, the best way to sustain a full charge is to monitor the batteries and use the generator or shore power source to recharge the batteries.



## ENERGEY MANAGEMENT SYSTEM

The Energy Management System (EMS) consists of two parts: the display panel and the distribution panel. The display panel is mounted above the entry door for visibility and use. The distribution panel is located at the foot of the bed in the bedroom and is a 120/240 Volt power distribution and energy management system.



The system will automatically sense the available power to the vehicle and will determine whether it is connected to a 120 Volt AC - 30 Amp shore power source, 240 Volt AC - 50 Amp shore power source, or Generator source. Depending on the available power, it controls four loads: 1 - Water Heater, 2- Rear A/C, 3 - Washer/Dryer, and 4 - Front A/C. The system will shed or turn off these appliances in the same order if the system senses that the load is larger then the supply. Shedding simply means that power to that appliance had been turned off to lower the Amp draw. These appliance are loads whose use can be postponed until a time when current is available for their use. For example: if the power source is 120 Volt AC - 30 Amp shore power, the system will attempt to keep the total 120 Volt current draw to less then 30 Amps. The 20 Amp service mode is not automatically detected and the operator must manually select the 20 Amp mode when 20 Amp service is available.

The display panel above the entry door will show what type of service is providing power on the left side of the panel under "Service Type". The center of the panel indicates how many amps are being drawn at any given moment. If you are connected to 30 Amp shore power and the panel shows 28 amps, and you decide to turn on or plug in an additional item, the system may or may not begin the shedding process. If the amp draw would rise above the supplied 30 Amps the shedding process would begin with shedding the Water Heater first to lower the Amp draw back down to the supplied 30 Amps. If the draw does not lower enough then the system would shed the next item to lower the Amp draw and so forth.

## FUSE PANELS

### *Interior 12 Volt Fuses*

When connected to 50 Amp - 240 Volt AC service or generator service, the Energy Management features of the unit are disabled and the unit switches all controlled loads "ON" and will not shed loads. In either of these modes if the load usage should require more than is present, you will trip the supply line breaker. If connected to a 50 Amp - 240 Volt AC a signal is sent to the display causing the load meter to go blank, the 50 Amp service indicator to light, and all power status indicator to light. If the Generator is running, the energy management feature is disabled and a signal is sent to the display causing the load meter to display actual load current, the GEN SET service indicator to light, and all power status indicator to light.

**NOTE:** *There is a two minute minimum delay period after a load is shed before the load will be turned back on again. This is to prevent the air conditioners from turning on with a head of pressure.*

A 12 Volt DC Fuse Panel is located next to the 120 Volt Breaker Panel. The panel contains circuits with replaceable fuses for protection of the motorhome 12 Volt lines. If any line is loaded beyond the capacity of its fuse, the fuse will "blow". A portion of the 12 Volt load on the line must be turned off to reduce the total load on the line to a level below the capacity of the fuse. Replace the fuse with the same size fuse. DO NOT replace with larger fuse than indicated.

If the reduction of load on the line does not stop the "blowing" of the fuse, there may be a "short" somewhere along the 12 Volt line, or at a non-fused 12 Volt component on the line. Check the 12 Volt line and any components along the line. Locate the "short" and take necessary steps to repair it. If you cannot locate the problem, have a qualified electrician check it out.

It is a good idea to keep additional fuses on hand in the motorhome. Replacement fuses are available at most service stations, hardware and automotive supply stores. Remember that the replacement fuse must be the same amperage rating as the original.

## Bedroom Fuse Panels

Located at the foot of the bed are the 120 Volt Breaker Panel and the 12 Volt Fuse Panel. Each panel has its own label for identification, and are shown below for reference.

**NOTE:** Options selected for your motorhome will determine the type of 12 Volt Breaker Panel. The sequence of labels may vary from the diagram and your 120 Volt Breaker Panel.

### 120 Volt Breaker Panel

LOAD PANEL (FOR ENERGY MANAGEMENT)												SUBPANEL (FROM INVERTER)		
15	15	15	15	20	50	50	30	20	15	15	15	15	15	15
DISHWASHER	CENTRAL VACUUM	WATER HEATER	WASHER DRYER	REAR AIR	MAIN	MAIN	INVERTER	FRONT AIR	GENERAL RECEPTS	BLOCK HEATER	GFCI RECEPTS	MICROWAVE	TV RECEPTS	KIT. RECEPTS
E	D	C	B	A			F	G	H	I	J	SA	SB	SC
14-2	14-2	14-2	14-2	12-2	6-3		10-2	12-2	14-2	14-2	14-2	14-2	14-2	14-2
												ALL UNITS		
FOR ENERGY MANAGEMENT SYSTEM														
LOAD SHEDDING ORDER														
WATER HEATER														
REAR AIR														
WASHER/DRYER														
FRONT AIR														

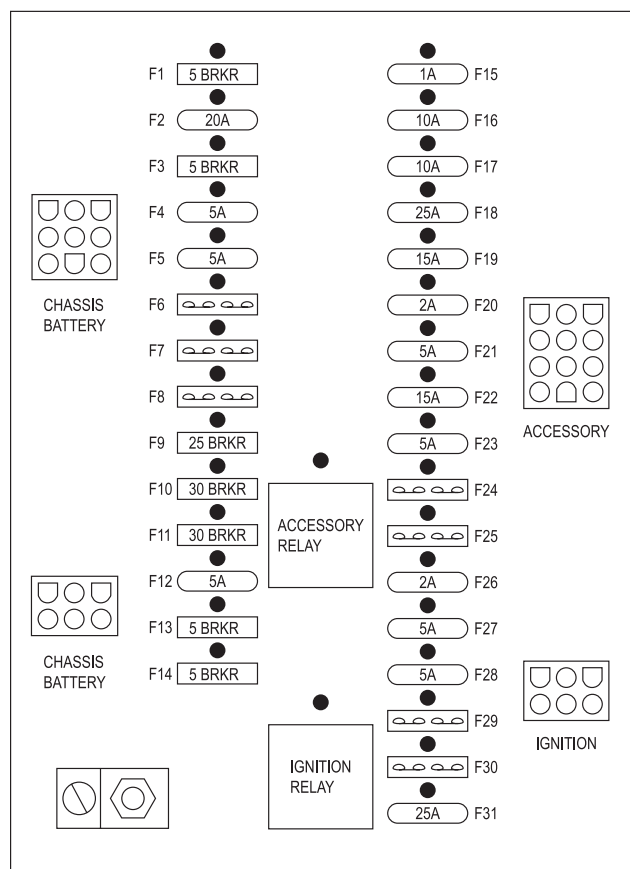
### 12 Volt Fuse Panel

#	GA.	COLOR	FUSE	CIRCUIT
1	14	RED	15	WATER PUMP
2	14	GRAY	15	DRIVERSIDE FRONT
3	12	VIOLET	15	FRONT CEILING LIGHTS
4	14	BROWN	15	PASS SIDE REAR
5	14	BLUE	15	DRIVERSIDE REAR
6	14	ORANGE	15	APPLIANCES
7				OPEN
8	16	GREEN	7.5	TV BOOST/SATELLITE
9	18	ORANGE	5	MONITOR/CO & LP DET
10	14	YEL/RED	15	MOOD LIGHTS
11	14	TAN	15	MISC
12	14	PINK	15	AWNING
13	14	PNK/BLK	10	TOILET
14	14	BLACK	15	PASS SIDE FRONT
15	14	BLU/RED	15	REAR FURNACE

LA0019-6

## Dash Fuses

The dash fuse panel is located under the dash on the wall. A circuit board with blade type fuses and breakers will be visible. The fuse and breaker locations are labeled below.



- |                         |                            |
|-------------------------|----------------------------|
| F1 - Power Shade        | F15 - Mirrors              |
| F2 - Power Point        | F16 - Dash Fans            |
| F3 - Middle Power Shade | F17 - Mirror Heat          |
| F4 - Block Heat Relay   | F18 - HVAC Blower          |
| F5 - Map Lights         | F19 - Spotlight            |
| F6 - Open               | F20 - CB Radio             |
| F7 - Open               | F21 - Vacuum Pump          |
| F8 - Open               | F22 - Docking Lights       |
| F9 - Step Motor         | F23 - Jacks                |
| F10 - Driver Seat       | F24 - Open                 |
| F11 - Pass Seat         | F25 - Open                 |
| F12 - Step Switch       | F26 - Rear Vision          |
| F13 - Step Cover        | F27 - TV Relay, Step, Bird |
| F14 - AGS               | F28 - Jack Buzzer, Light   |
|                         | F29 - Open                 |
|                         | F30 - Open                 |
|                         | F31 - Condenser Fan        |

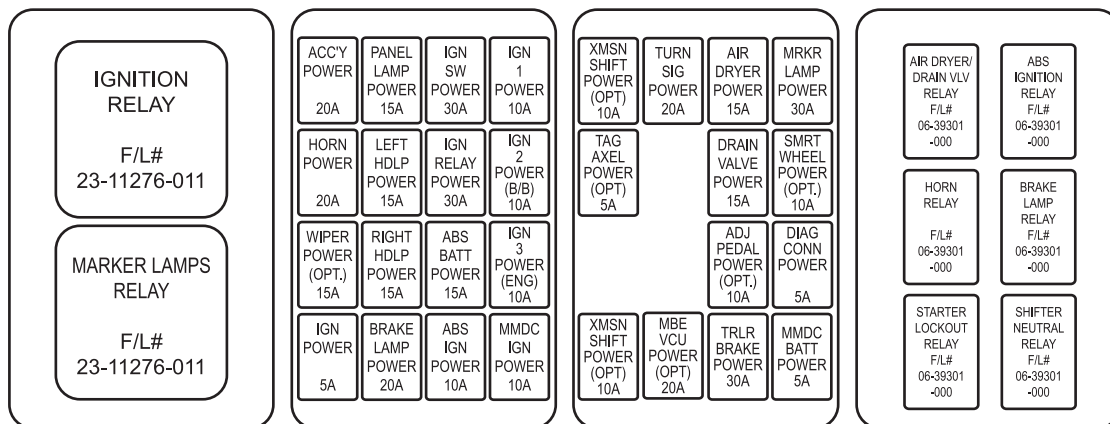


## Exterior 12 Volt Fuses

Located in the inverter compartment bay is the exterior 12 Volt systems fuse panel. The six slots might not all be used depending on equipped options.

12 VOLT				
#	GA	COLOR	FUSE	POWER TO
1	14	GREEN	15	DRIVER CARGO LIGHTS
2	14	YELLOW	15	PASS CARGO LIGHTS
3	14	ORANGE	15 BRKR	CORD REEL
4	10	RED	30	SYSTEMS HEAT
5	10	GRAY	15	FREEZER
6	18	RED/BLACK	5	COACH BATT SIGNAL

Also located in the inverter compartment bay, is the Freightliner fuse panel. The following diagram is for reference only.



**NOTE:** For more information regarding this fuse panel, consult the Freightliner Chassis Owner's Manual.

## GENERATOR

### WARNING

***DO NOT simultaneously operate generator and a ventilator which could result in the entry of exhaust gas. When exhaust ventilators are used, we recommend that a window on the opposite side of the unit “up wind” of exhaust gases be opened to provide cross ventilation. When parked, orient the vehicle so that the wind will carry the exhaust away from the vehicle.***

***DO NOT open nearby windows, ventilators, or doors into the passenger compartment, particularly those which can be “down wind”, even part of the time.***

***DO NOT operate the generator when parked, so that vegetation, snow, buildings, vehicles, or any other object could deflect the exhaust under or into the vehicle.***

***Never operate the motorhome, generator engine, or the engine of any vehicle, longer than necessary when the vehicle is parked.***

***Do NOT operate the generator in an enclosed building or in a partly enclosed area such as a garage***

***DO NOT touch the generator when running, or immediately after shutting off. Heat from the generator can cause burns. Allow the generator to cool before attempting maintenance or service.***

### CAUTION

***Prior to operating the generator hydraulic slide, ensure proper clearance, and use extreme caution if the muffler is hot due to operation of the generator.***

The generator is located at the front of the motorhome, behind the large access door in the front cap. To gain access to the generator, locate the automatic generator slide switch on the dash. Depress the switch to extend the hydraulic slide mechanism. Use the same switch to retract the generator slide when finished maintaining the generator.

**REFERENCE:** *Prior to operating the generator, be sure to read and understand the generator owner’s manual provided by the manufacturer.*

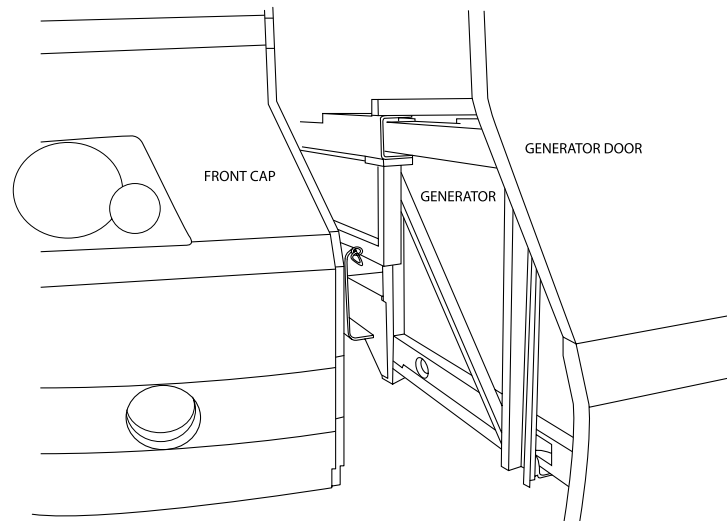
There are two locations from which you can start the generator. The first is the control panel on the generator itself, the second is located on the dash.

The generator comes with a standard fuel safety feature that will engage when the motorhome fuel tank reaches approximately  $\frac{1}{4}$  of a tank. When engaged, the generator will not run until the fuel tank is filled. The safety feature will automatically disengage allowing normal operation of the generator.

## Generator Maintenance

**REFERENCE:** Refer to the generator owner's manual provided by the manufacturer for details regarding proper maintenance and service intervals for the generator.

Periodically check under the generator for any objects that could have hit or been lodged against the generator during driving.





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# ***WATER SYSTEMS***

The motorhome plumbing system has the dual ability to be self-contained with on-board storage, or use facilities provided by an external pressurized source. In either case, the components of the system operate like those in your home. Components of the plumbing system consist of strong, lightweight, corrosion-resistance materials that provide long life, and easy cleaning. By following the instructions outlined here, you can expect efficient operation with a minimum of maintenance.

## **FRESH WATER SYSTEM**

### ***External Hook-up***

Water provided from outside the motorhome is pressurized by the system from which it is delivered. When you connect the motorhome to an outside source, the fresh water tank and water pump are kept separate from the remainder of the system by in-line check valves. To connect the motorhome to an outside source of water:

1. Run a potable water hose through the porthole in the bottom of the systems compartment.
2. Attach one end to the water supply and the other end into the city water connection inside the systems compartment.
3. Turn the lever on the bypass valve to the city water position.
4. Turn the outside source on. Open various faucet's in the motorhome gradually to clear the air from the lines. Close the faucet's when the water flows freely.

**NOTE:** *Do not turn the water pump on when using water from an external supply.*

### ***Fresh Water Tank***

When an outside source of water is unavailable, water can be drawn from the fresh water storage tank for use in the motorhome. To fill fresh water tank proceed as follows.

1. Attach a potable water hose to the city water connection inside the systems compartment, and an outside water supply.
2. Turn the lever on the bypass valve to the fresh tank position.
3. Begin filling the fresh water tank.
4. When the tank is full, turn off the water supply.

**NOTE:** *Never leave the hose unattended while you are filling the fresh water tank.*

**NOTE:** *There is an overflow line that will drain onto the ground if the tank is filled beyond capacity. Always fill the tank with potable water from a known safe source using a hose designated for potable water.*

## **Water Pump**

The self contained water system is a demand only system. This means the system must be pressurized. A self-priming 12 Volt DC pump is provided to handle this function. This means that the water pump will run whenever there is a need for water. If the pump runs when all faucet's are closed, there may be a leak in the system. If this happens turn the pump OFF, and have the systems checked by a qualified service center. When initially starting up the self contained water system, follow this procedure:

1. Make sure the tank is filled with water.
2. Open all the faucet's in the motorhome, both hot and cold.
3. Place the pump control switch to the ON position. There are two water pump switches, one in the systems compartment and the second is located in the bathroom. Both switches must be ON for the water pump to operate.
4. Allow time for the hot water tank to fill. Shut off each faucet as the flow becomes steady and free of air. When the last faucet is shut off, the pump should also shut off
5. The system is now ready for use.

**NOTE:** *When filling the system, you may want to add additional water to the tank to replace the water used when filling the hot water tank and water lines.*

## **Draining the Fresh Water System**

1. Turn the water pump OFF.
2. The fresh water tank low point drain valve is located in the systems compartment. Drain the tank by turning the drain cock to the open position.

**NOTE:** *When draining the entire on-board fresh water system, make sure to open all faucet's, the water heater drain, and the system low point drains to remove all fresh water from the system.*

3. When the system is finished draining, close all drains before filling again.

**NOTE:** *When traveling, you may want to drain the tank, or keep the quantity of water to a minimum. This reduces the total weight of the motorhome for travel.*

## Sanitizing the Fresh Water System

Disinfecting the water system with chlorine bleach protects you and others from bacteriological or viral contamination from any common water source. The fresh water system should be disinfected prior to the first usage of the system, if the motorhome has not been used in a long time, and once every three months.

The following items will be required to perform this procedure:  
Prepare a chlorine bleach solution using 1 gallon of water and  $\frac{1}{4}$  cup of chlorine bleach. Use one gallon of solution for every 15 gallons of tank capacity. Example: Add 6 gallons of solution to a 90 gallon tank.



- 1 - Battery powered drill (do not use an electric drill)
- 1 - Drill powered water pump
- 2 - Four foot sections of  $\frac{1}{2}$ " inside diameter hose
- 2 - Female hose ends for  $\frac{1}{2}$ " hose with  $\frac{3}{4}$ " threaded end (compression style)
- 1 - Male hose end for  $\frac{1}{2}$ " hose with  $\frac{3}{4}$ " threaded end (compression style)

1. Install one male and one female hose end to one of the four foot sections of hose. When completed, the section of hose will have a male hose end on one side and a female hose end on the other side.
2. Connect this hose to the outlet side (usually marked with an arrow) of the pump. The other end of the hose will connect to the city water fill, located on the motorhome.

**NOTE:** *Prior to attaching the hose to the city water fill, remove the pressure regulator first, otherwise the pump will not be able to push the water past the regulator. The hose will attach to where the regulator use to be.*

3. Install one female hose end to the other four foot section of hose.
4. Connect this hose to the inlet side of the pump. The end of the hose that does not have a hose end will go into the container to pump out the solution.
5. Attach the battery drill to the pump insuring that the drill rotation matches the rotation needed to work the pump.
6. Using the drill, pump the solution from the container into the fresh water tank. Then remove the pump/drill apparatus and close the fresh water system.
7. Switch the water pump to the ON position. Open each faucet, in turn, and run the water until you smell a distinct chlorine bleach odor. Do not forget the hot water, tub and shower faucet's.
8. Allow the system to stand for four hours.
9. Turn the water pump ON and drain the system of solution by opening all faucet's. Fill the fresh water tank and flush the system with potable water repeatedly, until the water system no longer smells or tastes of chlorine.

## WASTE WATER SYSTEM

The waste water system in the motorhome can be described as two separate systems. A gray water system that consist of the drain lines and holding tank for waste water from the sink and tub, and a black water system which includes the holding tank and drain for toilet waste. In some cases the bathroom lavatory may drain into the black tank. Each system is self contained, and allows disposal of waste at designated dump stations at your convenience.

Components of the gray water system have drain traps, and both tanks are vented to equalize air pressure and disperse odors caused by drain water and wastes outside. Sometimes, the rocking movement of the motorhome while driving may empty the drain traps of their water, and allow the odors of the gray water tank to come into the coach. Residue in the drain water lines can also produce odors. To combat gray water holding tank odors, an approved deodorizing agent should be used. An agent that dissolves grease and fats and contains a detergent will help keep tank drain lines clean and free-flowing.

### *Holding Tanks*

Both holding tanks are located under the bathroom area. The drain valves are located in the systems compartment on the driver side of the motorhome. Each tank has a separate drain line and dump valve, which permits dumping tanks individually or together. Each tank should be emptied often at a dump station designated for this purpose. Most national, state, and private campgrounds have dumping facilities. Many have hookups on the campsite, while some have portable dump collectors. Many service stations, particularly along interstate highways, also have these facilities. Many campground directories list dumping station locations across the nation.

If possible, dump holding tanks before a trip to reduce the gross weight of the vehicle. Enough water should be kept in the black water tank to cover the bottom, to prevent hardening of any residue that may remain.

Do not dump black water tank until it reaches  $\frac{3}{4}$  full. This practice makes sure that enough water is in the tank to flush all waste into sewer lines. If necessary, fill tank to the  $\frac{3}{4}$  mark with additional water before draining.

Never put anything into the holding tanks other than normal drain water, waste, and biodegradable products. Paper wrappers, gum, cigarettes, etc., no matter how small they might be, should never be placed into either the gray or black tanks.

**NOTE:** *It is important to note that harmful and toxic materials can accumulate if the holding tanks are not regularly drained and thoroughly rinsed. It is also important to use holding tank deodorizing and cleaning agents in the waste water tanks to reduce odors and keep the lines open and free-flowing.*

**NOTE:** *Always remember to clean up the dumpsite before leaving. NEVER empty your holding tanks directly on the ground, a roadway, river or stream. DO NOT POLLUTE.*



## ***Emptying the Holding Tanks***

1. Remove the sewer drain hose from its storage compartment inside of the systems compartment.
2. Remove the cap from the vehicle sewage drain, and connect the drain hose to it.
3. Attach the other end of the flexible drain line to the dump station inlet. Make sure both ends of the flexible drain lines are securely attached.
4. Drain the black tank first, by pulling the termination valve handle toward you. Make sure to allow sufficient time for the tank to completely drain, and then rinse the tank with several gallons of water by flushing the stool. Close the valve on the stool and let it fill before releasing the tank. This creates additional force to flush the tank more completely.
5. Drain the gray water tank by pulling the termination valve handle toward you. Draining the gray water tank last, with its soapy water helps to further rinse the drain and flexible hose.
6. When tanks are emptied, close termination valves by pushing handles back to the closed position.
7. Remove flexible drain hose and wash it thoroughly with clean water. Remove the other end from the dump station inlet, and replace it in the storage compartment. Secure the sewer hose storage cover, and replace the caps on both the motorhome outlet and the dump station inlet.

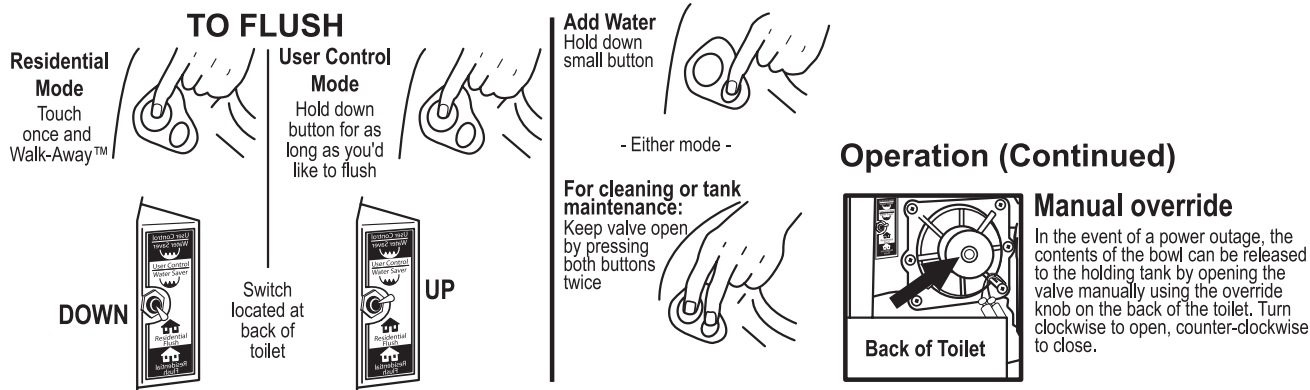
The following guidelines will help to ensure trouble free operation:

- Never put anything in the black water tank other than toilet paper specifically for Recreation Vehicle systems.
- Do not put automotive antifreeze, household toilet cleaners or drain cleaners, or any solid material into the waste water system.
- Always use chemicals in the black water system that are made especially for this purpose.
- When cleaning components of the waste water system, use cleaners made for Recreation Vehicle systems.
- Always keep the drain cap in place, and termination valves closed.
- After every third time the holding tanks are emptied, fill and flush both tanks with clean fresh water a couple of times to keep them clear and clean.

**NOTE:** *If connecting to a campsite sewer inlet, DO NOT open termination valves until tanks are  $\frac{3}{4}$  full. DO NOT keep black water valve open while parked. Wastes are NOT flushed directly into the sewer system. Only liquid waste is drained, therefore, water must accumulate, and chemicals in tank need time to break down solids before they can be released. If draining gray water tank directly into sewer inlet while parked, make sure to close termination valve for a period of time before leaving, allow some water to accumulate in tank to use for flushing drain line and flexible hose.*

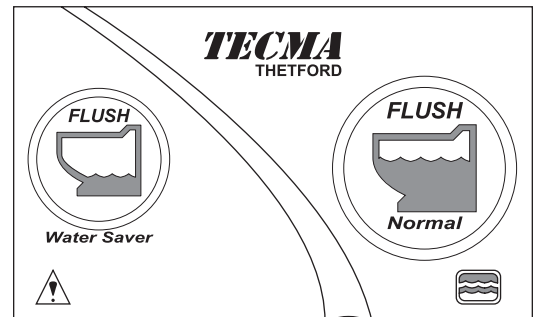
## Toilet

The Thetford toilet installed in the motorhome is connected to the pressurized fresh water system. There are two flush modes available, controlled by the mode selector switch located at the back of the toilet. Up is user control/water saver mode and down is residential mode. For residential mode touch the large button once and walk away. For user control mode hold down large button for as long as you'd like to flush. Unnecessary frequent flushing of the stool will quickly deplete your fresh water supply and fill your holding tank. If the black water tank becomes full, you will no longer be able to flush the stool until the tank can be drained. If 12 Volt power is lost for some reason, turn the black knob on the rear of the toilet to flush.



## Tecma Toilet (40E Only)

The Tecma toilet is connected to the pressurized fresh water system, and has two flush modes available. Unnecessary frequent flushing of the stool will quickly deplete the fresh water supply and will also fill the holding tank. If the black water tank becomes full, you will no longer be able to flush the stool until the tank can be drained.



- Water Saver Flush: Press and release the button to flush liquids.
- Normal Flush: Press and release to flush solids and toilet paper.
- Empty Bowl: Press both buttons simultaneously and release to empty bowl and leave it dry for travel. Press either button once to return to normal use.

**REFERENCE:** The Tecma toilet operating instructions are located on a label on the underside of the seat cover. Refer to this label when programming the water level.

## WATER SYSTEM WINTERIZATION

If you intend to store the motorhome through periods of sub-freezing weather in an unheated environment, it will be necessary to winterize the water system. Damage to water system components will result if proper winterization steps are not taken.

- Level the motorhome for good system drainage.
- Drain the waste water tanks (black then gray following drainage guidelines).
- Turn the water pump switch OFF.
- Open all faucet's, and the water heater drain.
- Open low point drains on the water lines, including the exterior shower.
- Drain the fresh water tank.
- When all lines are drained, close the water tank valve, all faucet's, the water heater drain, and the low point drains on water lines.
- Turn the water heater bypass valve ON so the tank does not fill with antifreeze.
- Remove the water filters.

**REFERENCE:** *Refer to the water filter manufacturer's guidelines regarding proper usage and maintenance of the filtration system.*

- If unit is equipped with an ice maker, turn OFF the water valve.
- Position antifreeze container so siphon hose can be connected to the winterizing connection.
- Turn valve to position which will allow the water pump to pump antifreeze from the container.
- Turn on the water pump and let each faucet run until antifreeze flows freely from both the hot and cold supply lines. Also, run the shower and toilet until antifreeze is visible.
- If motorhome is equipped with a washer/dryer turn the washer ON and let run until antifreeze is visible and continue to run for 15-20 seconds. Turn the cycle selector to rinse cycle to ensure the antifreeze gets into the pump to protect it.
- Turn OFF the water pump.
- Pour one cup of antifreeze in every drain to protect the P-traps.
- Before using the system again in warmer weather, completely flush the systems with water, flush the toilet, and sanitize the entire fresh water system. When using the motorhome during cold weather, and water in a tank or drain line should happen to freeze, you should take immediate steps to thaw it before damage to the system occurs. DO NOT continue to use the water system components if such a condition exists. If damage has occurred, make sure to have it repaired before using again.

## WATER SYSTEM MAINTENANCE & TROUBLESHOOTING

As with any mechanical system, the plumbing is subject to the development of problems. Most of these problems can be greatly reduced if not altogether eliminated by following a schedule of planned inspections and maintenance. Neglect of proper maintenance procedures is the usual cause of most water system problems.

Road vibrations and shocks, as well as excessive pressure from some city water sources are the main physical causes of water system damage. It is important to inspect all plumbing joints and fittings often for cracks and leaks. Water leaking from a plumbing joint can cause considerable damage if left unchecked.

A leak in the fresh water system should be suspected whenever the pump is running and all faucet's and valves are closed. When the leaking fitting has been identified, attempt to stop the leak by tightening. DO NOT over tighten. Plastic fittings rarely need to be tightened with a wrench. If these fittings leak after being tightened by hand, disconnect the fitting and check for dirt, scale, or other foreign substance which may be causing the leak. Clean the fitting thoroughly and reinstall. If leaking persists, shut off the water supply until the fitting can be properly replaced. Check with your dealer for correct method of replacement, and replacement parts.

Proper winterization procedures of plumbing systems will normally be all that is necessary to prevent the damage caused by freezing. Freezing damage can harm any component of the system, including the water tanks, toilet, pump, and all piping. Be sure to follow the winterization procedures outlined in this manual. Also be sure to discuss any additional precautions that should be taken to winterize the water systems with your dealer. Local climates vary; and winter maintenance needs may be affected.

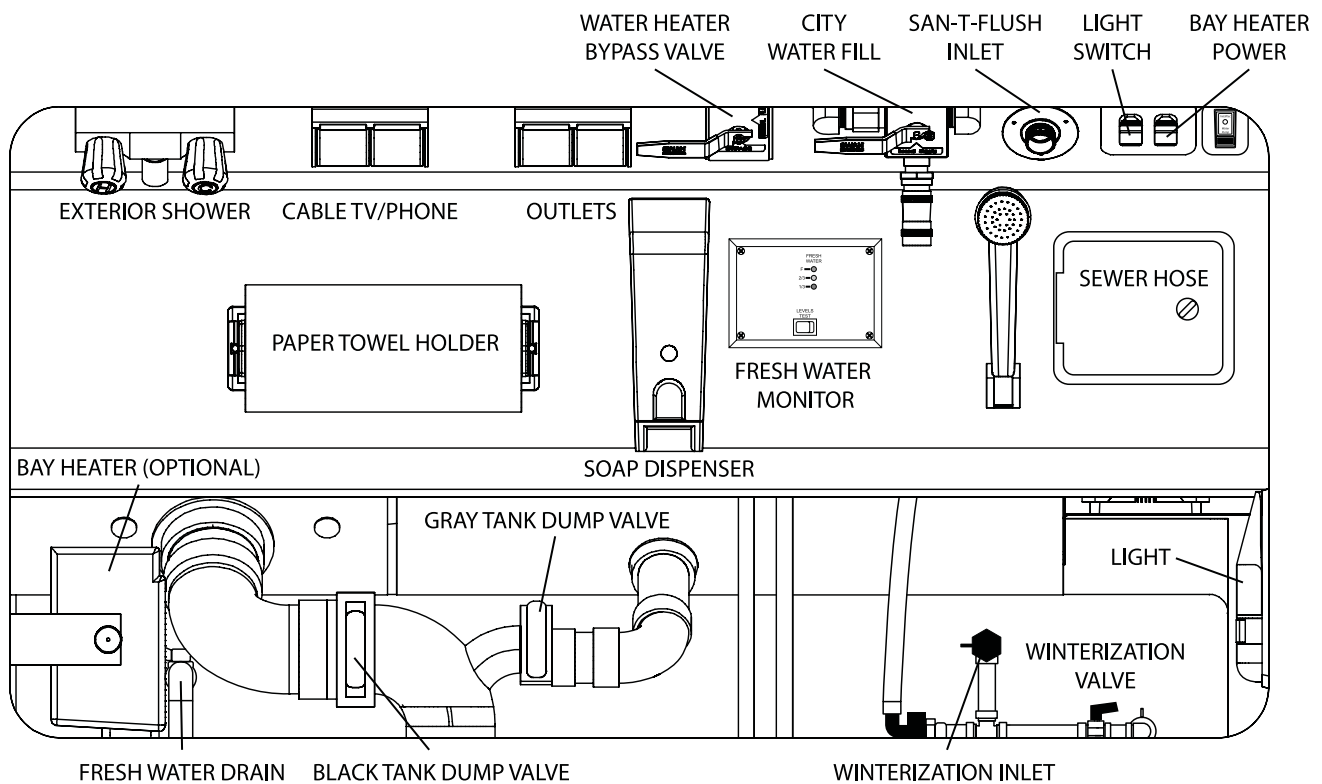
Be sure to read the literature supplied with plumbing components, such as the pump, for troubleshooting tips. Also remember that it is possible for an electrical problem to cause water system problems. Lack of power to the pump can be caused by a variety of reasons. If you are unsure of how to locate and/or repair a plumbing problem, contact your dealer.

## TANK CAPACITIES

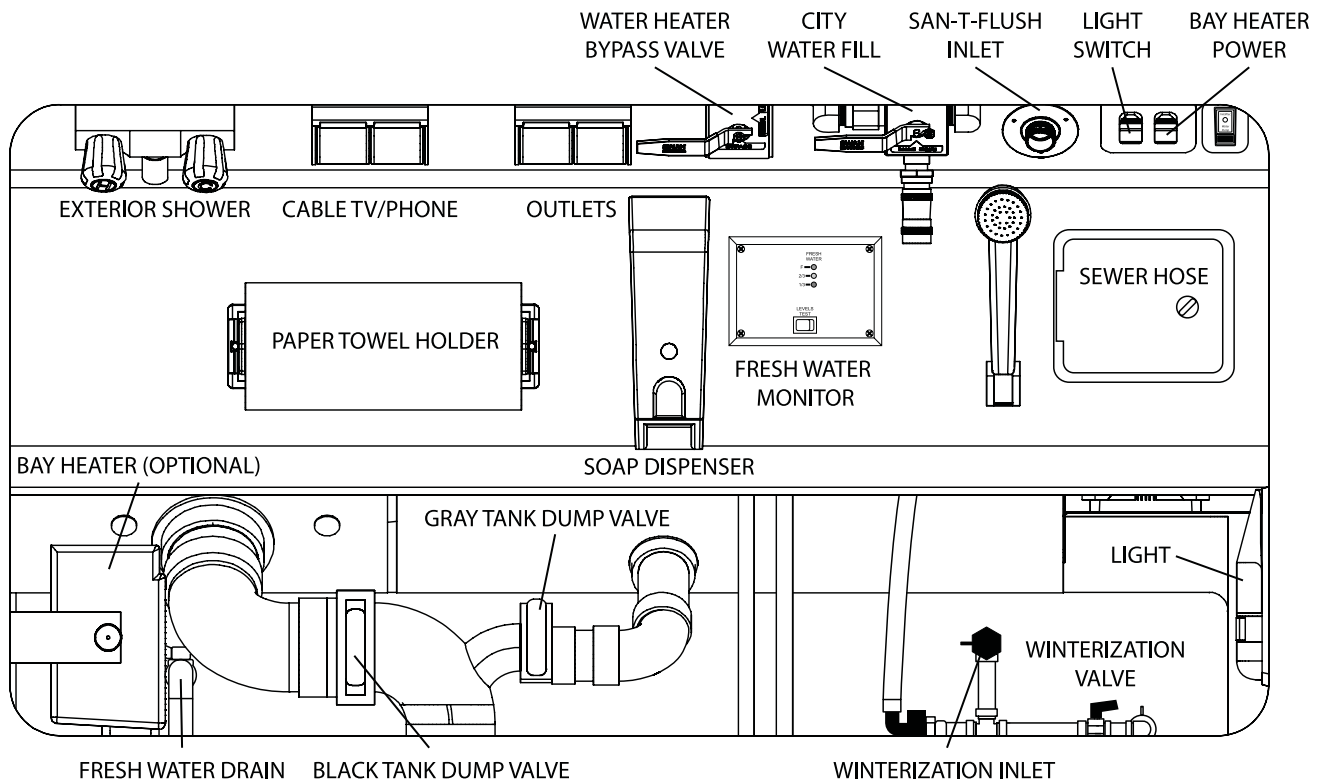
Floor Plan	40B	40E	40F	40G
Fresh Water Tank	120 gallons	120 gallons	120 gallons	120 gallons
Black Water Tank	57 gallons	57 gallons	57 gallons	57 gallons
Gray Water Tank	66 gallons	66 gallons	66 gallons	66 gallons

\* Capacities are approximate and specifications are subject to change without notice.

## SYSTEMS COMPARTMENT



- **Exterior Shower**  
Provides hot or cold water to the exterior of the motorhome.
- **Cable/TV/Phone Jack Hook-up**  
When available, provides cable and/or satellite to interior of motorhome.
- **120 Volt Outlets**
- **Water Heater Bypass Valve**  
Diverts water flow around the water heater for winterization process.
- **City/Fresh Tank Water Fill Valve**  
Two way directional valve which controls city water between filling the fresh water tank and direct interior usage.
- **San-T-Flush Inlet**  
Used to clean the black and gray holding tanks of waste and debris.
- **Compartment Light**  
Provides power to the compartment light.
- **Water Heater Switch**  
Provides power to the water heater.
- **Water Pump Switch**  
Provides power to water pump.



- **Sewer Hose Storage**  
Place the sewer hose here when not in use.
- **Fresh Water Tank Monitor Panel**  
Check the fresh water tank level by pressing the level test switch.
- **Liquid Soap Dispenser**  
Fill with soap for easy clean-up after working within the compartment.
- **Paper Towel Holder**  
Fill with paper towels for easy clean-up after working within the compartment.
- **Bay Heater (Optional)**  
Used to maintain compartment ambient temperature above freezing.
- **Fresh Tank Drain Valve**  
Turn handle to the left to drain excess water from the fresh tank.
- **Black Tank Dump Valve**  
Pull T-handle out to dump solid waste from the black tank.
- **Gray Tank Dump Valve**  
Pull T-handle out to dump waste water from the gray tank.
- **Winterization Inlet**  
Antifreeze inlet for winterization.
- **Winterization Valve**  
To winterize, rotate the handle on the valve so that it is perpendicular to the water line. Refer to winterization procedure for winterizing.

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# LP GAS SYSTEMS

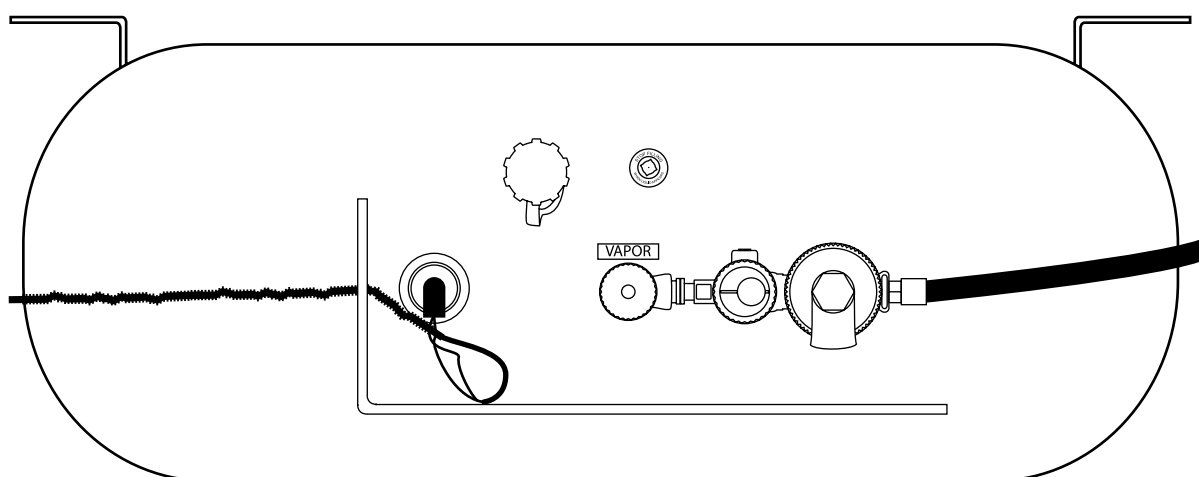
## ⚠ DANGER

***LP Gas is highly volatile and extremely explosive. Do not use matches or a flame to test for leaks. Use only approved LP Gas leak testing solution for leak detection. Unapproved solutions can damage copper tubing and brass fittings. Never attempt to adjust LP Gas regulators. Only qualified personnel should perform any maintenance or repair to the LP Gas system.***

The liquid petroleum (LP) gas system furnishes the fuel for cooking, heating, and hot water. LP Gas can also be used as an alternate energy source for refrigeration. LP Gas is a clean, efficient, safe form of energy when proper handling and safety precautions are observed.

The gas is stored under extreme pressure in the tank, with space in the tank to allow for expansion into vapor. This vapor is reduced in pressure by passing through a regulator. This reduction in pressure is a two step process which assures consistent pressure for use, regardless of outside temperatures, weather, or altitude.

**NOTE:** For detailed information regarding LP Gas, and it's use consult a qualified LP Gas service representative.



## LP GAS TANK

### Filling the LP Gas Tank

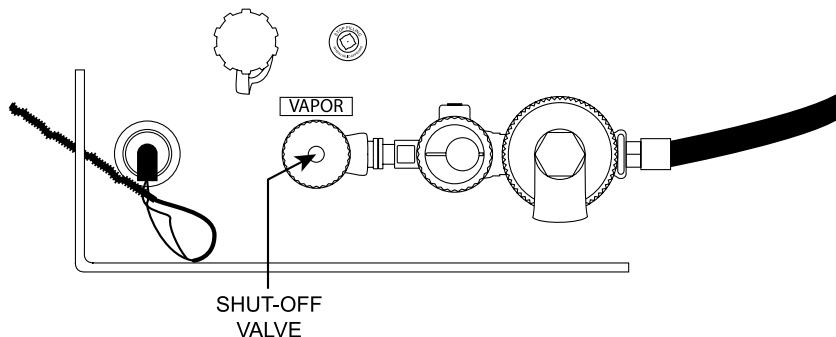
#### **⚠ WARNING**

***Make sure that the tank is not filled beyond the 80% liquid level. Even though the tank is equipped with an automatic 80% shut-off which prevents over-filling beyond 80% tank capacity, it is a good idea to have the supplier monitor the 20% liquid gauge, and stop the filling process if liquid does appear. If the tank has been over-filled, make sure the LP supplier bleeds out the excess. Over-filling the LP Gas container does not allow for the necessary 20% vapor expansion space that can result in uncontrolled gas flow which can cause a fire or explosion.***

**NOTE:** *Make sure the tank service valve is accessible at all times. In an emergency, it may be necessary to shut off the valve quickly.*

1. Before entering the LP Gas bulk plant or service station, make sure all pilot lights are extinguished. Shut off gas to all appliances by closing the LP Gas main shut off valve.
2. Extinguish open flames and smoking materials.
3. Never remove the LP Gas tank from the motorhome. Always drive the motorhome to the gas supplier to fill.
4. Have the supplier connect the fill nozzle to the tank fill connection.
5. Always remember to close the supply valve, and open the 20% liquid level valve.
6. Never use a wrench to close the service or the 20% liquid level valve. If when closing by hand, leaking occurs, have the valve repaired or replaced.
7. Drive at least one mile from the LP Gas supplier before relighting pilot lights or appliances. This will allow any minimal leakage which occurred while filling the tank to dissipate. DO NOT light pilot lights if you continue to smell LP Gas. Shut off the Supply Valve. Allow the motorhome to ventilate for 30 minutes. If you still detect LP Gas odor, have the source of the leak located and repaired.

Never use any other tank than the one furnished with the motorhome. If the tank must be replaced, check with your dealer for correct tank specifications and replacement procedure.





## LP GAS REGULATOR

### **⚠ WARNING**

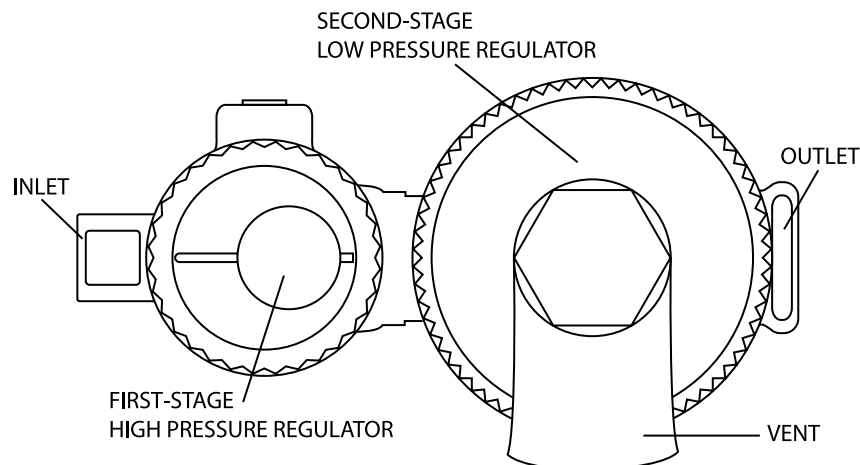
***Never alter the positioning of the regulator. LP Gas regulators must always be installed with the diaphragm vent facing downward. Also make sure to keep the regulator cover in place to minimize vent blockage which could result in excessive gas pressure causing fire or explosion. Do not rely upon being able to smell LP Gas leaks, as the odor may not be sufficiently strong to detect.***

The regulator reduces the pressure of the LP Gas vapor from the pressure in the tank, to the pressure required for use at the appliances. This reduction in pressure is performed by a two-stage regulator. Two regulators are used in the same body to reduce the pressure of the LP Gas in the tank for use by the appliances in the motorhome. The regulator seldom requires service, but it should always be protected from the elements and extremes of hot and cold.

The high pressure regulator (first stage) is used to reduce the pressure to approximately 10 to 13 PSI before sending it along to the low pressure regulator (second stage). This second stage regulator reduces the pressure further to 11 inches water column, or 6.35 ounces per square inch. The two stages regulator does not have to work as hard since the second stage receives consistent pressure rather than inlet pressure which varies. The result is an efficient safer system that helps to eliminate problems such as freeze up and pilot outage.

The regulator has been preset by the manufacturer of the regulator, and adjustment should not be necessary. If adjustment should be required however, DO NOT attempt to adjust it yourself. Adjustment must be made with special equipment by a qualified LP Gas service technician. Have the regulator checked annually, or whenever you suspect a problem. The correct line pressure should be 6 ¼ oz. or 11 inches of water column.

Because air is required for proper operation of the regulator, it is very important that the regulator vent is kept clean and free of dirt and debris. This is why it is necessary to keep the vent facing downward and the regulator covered to protect it from contamination. A toothbrush can be used to clean the vent if it becomes clogged by foreign matter.



During cold weather, it is important to keep ice from forming in the regulator, which will shut off the flow of LP Gas to the appliances. Have the supplier add a hydrous Methanol when filling the tank for use during cold weather. Regulator freeze-up can occur in any weather if there is moisture in the tank, or if the tank has been over-filled. Always use moisture-free LP Gas, and make sure the tank has not been filled beyond 80% of capacity. If moisture has entered the tank, have the tank purged, or have hydrous methanol added by an authorized LP supplier.

If you believe a regulator has been damaged or otherwise is not functioning, have it replaced by a qualified LP Gas service representative.

### ***Regulator Freeze-Up***

The term regulator freeze-up is a misleading one. Regulators and LP Gas do not freeze. However, the moisture that can be contained in the gas will freeze as the gas expands and cools passing through the regulator. This freezing of the moisture in the gas can build up and partially or totally block the passage of the gas through the regulator. Freezing can also occur when outside temperatures are low enough to contribute to the freezing of the moisture in the gas.

The source of the moisture is varied. It can occur at the refinery or gas bulk plant, in the rail cars used to transport the gas, or even within the motorhome LP tank. Moisture in an LP tank can occur when a tank service valve is left open, allowing moist air to enter and become trapped.

A two-staged regulator helps to reduce the possibility of freeze-up because of its larger orifice size, and the fact that heat is transferred through the walls of two regulators instead of just one.

There are several steps that can be taken to inhibit or prevent this from happening:

1. Make sure that the LP tank is free of moisture before refilling.
2. DO NOT overfill the LP tank.
3. Make sure to keep the service valve on an empty tank closed.
4. If freezing has occurred, have your LP dealer purge the LP tank before refilling.
5. Add a hydrous methanol or other approved LP antifreeze or de-icing agent to the LP tank.
6. Keep the regulator covered at all times.

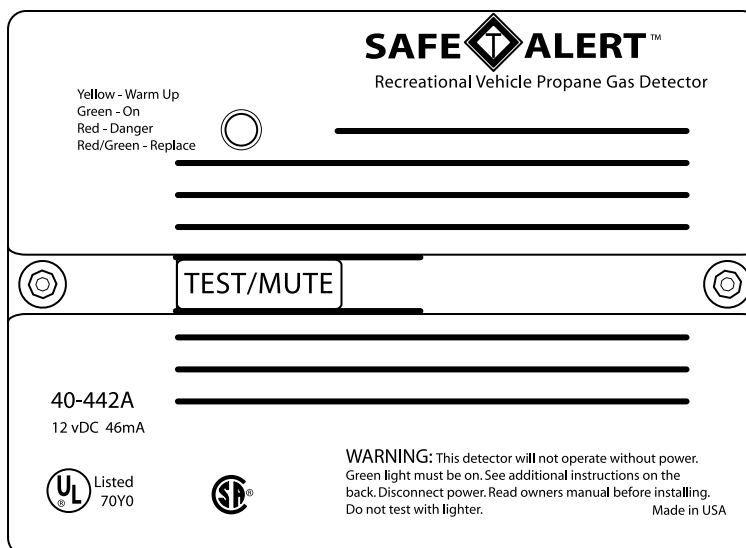
**NOTE:** *If freeze-up does occur, shut off the LP Gas at the tank. A frozen regulator may permit LP Gas to flow at high pressure, resulting in leaks at appliances or in the lines. If freeze-up does occur, NEVER attempt to thaw with an open flame. A small light bulb can sometimes be useful to provide heat and aid the thawing process. Once thawed, be sure to take the proper steps to prevent a reoccurrence. Have the system checked by your LP supplier if freeze-up continues.*

Remember that as outside temperatures drop, the BTU value of the LP Gas is lessened, since the colder liquid LP in the tanks requires the heat from the surrounding air to vaporize. This lowering of BTU value can significantly affect the performance of the system. You can help insure proper performance by keeping your LP tanks as full as possible in cold weather, and reviewing the BTU/hr plates on LP appliances for proper LP management.

## **HOSES, PIPES, TUBES AND FITTINGS**

The hoses, pipes, tubes, and fittings used in the LP system are designed to withstand pressures far exceeding those of the LP system. However, because environment and time can both contribute to the deterioration of these components, they must be inspected for wear at regular intervals. Be sure to inspect the hose before each season and when having the tank refilled. Look for signs of deterioration such as cracks or loss of flexibility. When replacing the hose or other LP components, make sure to always replace them with components of the same type and rating (check with your dealer).

## LP GAS DETECTOR



The LP Gas Leak Detector is powered at all times when the coach battery disconnect switch is in the ON position. When power is supplied to the detector the green indicator light will illuminate. After 60 seconds, the detector will begin monitoring the air in the motorhome for combustible vapors. The LP Gas you use to cook, refrigerate, and heat is combustible. Should a leak occur, the detector will produce a pulsating alert sound when the gas reaches the detector. This alert will continue to sound until the gas has dissipated or until the reset button is pressed. When the alert sounds, open all doors and major windows to air out the motorhome and turn the gas off at the tank. Do not reenter the motorhome until the alert stops sounding. If the alert sounds a second time after the gas is turned back on, leave the gas off and have a qualified LP Gas Dealer or RV Service Center make the necessary repairs. The reset button only stops the alert from sounding for 60 seconds. This device is intended for detection of LP Gas ONLY.

### Maintenance

## CAUTION

**Never use water, cleaners or solvents to clean the detector.**

The following maintenance steps should be taken to ensure proper function of the detector.

- Test the detector at least once per week.
- Clean the detector at least once a month; gently vacuum the outside of the detector using the vacuums soft brush attachment.
- If detector becomes contaminated by excessive dirt, dust and/or grime, and cannot be cleaned to avoid unwanted alarms, replace the unit immediately.

**REFERENCE:** For proper battery maintenance and replacement procedures, refer to the manufacturer's owner's manual.

## How to Test

### WARNING

***Never use an open flame of any kind to test this unit. The built-in test switch accurately tests the unit's operation as required by Underwriters Laboratories, Inc. (UL).***

Simply press the TEST switch any time during the warm-up cycle or while in normal operation. The LED should flash red and the alarm should sound. Release the switch. This is the only way you should test your detector. The test feature checks the full operation of the detector. If this detector does not test properly return it immediately for repair or replacement.

**TEST:** *This test procedure should be repeated every week or every time the motorhome is taken on a trip, whichever occurs first.*

**REFERENCE:** *Refer to the manufacturer's Owner's Manual or all the detector manufacturer, if you have any questions about the LP Gas Detector.*

## Checking the LP Gas System for Leaks

### WARNING

***Never check for leaks with an open flame. The scent of LP Gas (a garlic-like odor) is actually ethyl mercaptan, an additive that allows you to detect the presence of a leak, since LP Gas is naturally odorless. Do not rely upon being able to detect the smell of the gas, as the odor may fade.***

Road vibration can loosen LP Gas fittings. It is important to check the LP system for leaks at least every 5,000 miles, and whenever the tank is filled. It is also a good idea to have the entire LP Gas system checked annually by a qualified LP Gas service representative.

Use the following steps when checking the system for leaks:

1. Open all the windows and vents.
2. Open the gas tank service valve.
3. Use non-ammoniate, non-chlorinated soap solution, or an approved leak detection solution on all line connections (ammoniate soap solutions can cause cracking on copper or brass lines and fittings).
4. If a leak is detected, tighten the connection with two open end wrenches until bubbling stops. DO NOT over tighten, or use excessive force. If the leak continues, contact the recreation vehicle dealer, or a qualified LP Gas service representative to have an 11" Water Column Test performed.

## ***About the LP Gas Detector***

Liquefied Petroleum Gas (LP Gas) is heavier than air and will settle to the lowest point which is generally the floor of the coach. The detector is also sensitive to other fumes such as hair spray of which most contain butane as the propellant. Butane, like propane, is heavier than air and will settle to the floor level where it will be detected. When this occurs, press the reset button to stop the alert sound for 60 seconds.

Other combustibles which will be detected include alcohol, liquor, deodorants, colognes, perfumes, wine, adhesives, lacquer, kerosene, gasoline, glues, most of all cleaning agents and the propellant's of aerosol cans. Most are lighter than air in their vapor state and will only be detected when the coach is closed up. Glues and adhesives may exhaust hydrocarbon vapors for months after they are applied. They are easily activated by high temperatures.

The LP Gas Detector is powered by the motorhome coach batteries and/or the inverter. The detector will operate properly until the battery is drained down to 10 volts (a low battery condition is 10.4 volts). If the power source (battery and/or inverter) is disconnected, or if the power is otherwise interrupted, the detector will not operate.

The LP Gas Detector has a self check circuit which runs at all times when the detector is powered. In the event that the circuitry fails, a failure alarm will sound. It is a continuous series of short beep tones between long intervals and is distinctively different from the alert sound.

## ***Most Common Causes of Apparent Malfunction***

- **New Coach Odor:** The glues and other materials used in manufacturing the coach produce vapors which may be detected when the coach is closed up on a warm day. Air out the coach thoroughly.
- **Keeps Beeping:** The gas detector beeps about once every minute, even when it is turned off. The problem is a weak battery in the smoke detector which causes the smoke detector to produce short beeps which sound similar to the alert sound of the LP Gas Detector. This is a high pitch tone and bounces off the walls, making its location very hard to pinpoint. If the sound is not coming from the LP Gas Detector identify the source and refer to the sources section in this manual for means of repair.
- **Hair Spray Triggers the Detector:** Most aerosol hair sprays use butane gas as the propellant. Butane, like LP Gas, is heavier than air and will settle to the floor level where it will be detected. The detector is doing its job as butane is combustible.
- **Other Gases:** Other gases which can cause the detector to respond with an alert include the vapors from any fuel, liquor, alcohol, deodorants, colognes, perfumes, wine, adhesives, lacquer, and most cleaning agents.
- **Slow Beep Rate:** This could be the failure alarm and will occur in the event that the circuitry fails. It is a continuous series of short beep tones between long intervals and is distinctively different from the alert sound.
- **After reviewing the above, if the problem still exists, contact MTI Industries for assistance.**

**NOTE:** *The LP Gas Detector enters a cleaning and initializing mode every time it is powered. If turned OFF for less than 15 minutes, the LP Gas Leak Detector may produce several short “chirps” within the first 80 seconds of operation. This is a normal function of the LP Gas Detector.*

## **Service**

See your Mandalay Luxury Division Dealer or a qualified LP Gas Service Center should service be required. If they are not familiar with this product, have them call the detector manufacturer for assistance. If service is not available in your area, call MTI Industries.

## **LP GAS SAFETY PRECAUTIONS**

### **WARNING**

***DO NOT store LP Gas containers inside the motorhome. LP Gas containers are equipped with safety devices which relieve excessive pressure by discharging gas to the atmosphere.***

If you smell gas:

1. Extinguish any open flames, pilot lights and all smoking materials.
2. DO NOT touch any electrical switches.
3. Shut off the gas supply at the tank valve(s) or gas supply connection.
4. Open all doors and other ventilating openings. (DO NOT USE THE RANGE HOOD).
5. Leave the area until the odor clears.
6. Have the system checked by a trained professional before using again.

Be careful when doing any work or maintenance in the motorhome, that you do not puncture a gas line with a nail, screw, or drill bit.

Warning labels and decals are used throughout the motorhome in locations where the potential for a dangerous situation is present. They have been installed not only because of the requirement to do so, but also as a constant reminder to occupants of the motorhome to exercise proper caution when using or being around LP Gas appliances and equipment. Make sure that you and your family understand and follow all of them. Never remove these warning labels and decal's. If one should be lost, it should be replaced as soon as possible.





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## ***CARE & MAINTENANCE***

Periodic maintenance and cleaning of the motorhome is necessary to retain the dependability, safety, and appearance that will provide you with many miles of trouble free operation, as well as protecting your investment.

Make sure to read and follow all the maintenance tips and schedules that appear in this manual. Keep accurate records of maintenance functions performed, and perform all owner obligations as may be required by the chassis manufacturer to keep the warranty in force.

It is also important to note that operating conditions will affect service timetables. Driving in extreme conditions such as heavy dust, continuous short trips, or start and stop heavy traffic means that service durations will be shortened. Discuss service timetables with both your dealer and chassis service representative. Preventative maintenance will pay for itself many times over by catching or preventing problems before they occur. Many repair costs are greatly increased due to the fact a small problem can begin to affect other parts and systems of the motorhome if left unattended.

If a situation arises involving maintenance or a cleaning activity for which you are not sure of the proper procedure, do not hesitate to contact your dealer, or chassis service representative for information.

### **EXTERIOR PAINT**

The exterior painted finish on the motorhome is of the finest quality. Proper maintenance will assure a long lasting durable finish.

**NOTE:** *Do not wax or polish the exterior for the first 60 days.*

#### ***Pressure Washing***

### **CAUTION**

***Take care to avoid spraying water directly into refrigerator and furnace vents when washing the motorhome.***

Extreme caution should be used when using a pressure washer to wash the motorhome, as severe damage to the paint could result. The tip of the pressure washer should never be adjusted to a “pin point” type spray. A fan type spray which disburses the water over a larger area should be used. Also, if the pressure is adjustable set it to the lowest setting. The spray tip should remain approximately 30” away from the surface of the motorhome to ensure safe cleaning.

## ***Precautionary Measures***

Any exterior finish will deteriorate with time. Dulling and fading can be increased by prolonged exposure to extreme sunlight, air pollutants, and excessive moisture. Surface weathering of fiberglass will not diminish structural integrity. Regular monthly washing and polishing of exterior surfaces is the best insurance against surface deterioration such as fading, yellowing, or chalking.

If surface deterioration is apparent, contact a Mandalay Luxury Dealer for assistance with finish restoration. Physical damage to the fiberglass, such as cracks, holes, and chips, must be attended to immediately to avoid moisture from entering and causing problems with interior walls and components. Cover these areas with plastic, sealing the edges with tape until proper repairs can be made.

### **Helpful Tips:**

- Avoid parking under trees or near ocean salt spray.
- Ice or snow should not be scraped from the painted surface: Brush off.
- If the motorhome sets more than 24 hours, remove any front protective covering (bra) while not being driven.
- Commercial washes should be avoided. Wash with cold water using a mild liquid soap. Dry wiping with a dry cloth is not recommended.
- Avoid gravel roads.
- Anti-freeze, gasoline, or window solvent spilled on painted surfaces should be rinsed off with water immediately.
- Rinse off bugs and bird droppings daily with water.

**NOTE:** *Do not use rubbing compound or other abrasive cleaners on the motorhome exterior. If using a tar and/or insect remover, insure it is safe for painted surfaces and decal's.*

## **SEALS & ADHESIVES**

### **CAUTION**

***Some products may contain hazardous materials which require special handling. Read labels carefully. Follow all of the product manufacturer's safety requirements.***

### **CAUTION**

***Failure to maintain seals through regular maintenance can lead to damage of motorhome components, and may be considered abusive treatment under the terms of the motorhome warranty.***

It is important to maintain the seals and adhesives of the motorhome to prevent moisture from entering and destroying the motorhome components. When washing the motorhome, inspect the seals for signs of dry rot and wear. Be aware that weather, sun, and road vibration will have an effect on seals, causing them to dry, crack, or separate. If you are unsure what to look for, have your dealer instruct you, and also show you the correct method for renewing the seals. All exterior seals should be checked and resealed as needed at least every 6 months. This also includes the individual roof components as well. The rubber seals around the slideout opening can be wiped with 100% silicone spray to help prevent cracking. Check with your dealer for the type of caulking required, different areas require different types of seals.

Inspection of roof components at least twice a year is very important to make sure seals are not cracked or worn. Proper maintenance of seals is necessary to keep moisture from entering and causing severe damage such as rot, mold, or mildew. If you encounter drying, cracked, or weathered seals, make sure to reseal as necessary. Use a self leveling sealer to repair voids/cracks in the roof sealant.

**NOTE:** *It is especially important to check the seals before and after periods of extended storage or non-use. Fall and spring inspections are recommended.*

**NOTE:** *If the roof should somehow be punctured, cover the puncture to seal out moisture, and have it repaired as soon as possible (check with your dealer).*

Check the clear exterior trim sealant around windows at regular intervals. Follow previous instructions for checking the condition of seals and repairing as necessary. Make sure that the windows remain operative by adjusting and lubricating latches and moving parts annually. Also check the condition and operation of the door locks, adjusting and lubricating as necessary. Use powdered graphite or light oil to lubricate moving parts on doors and windows. Vinyl seals around windows and doors should be cleaned regularly, and kept supple by use of a silicone spray.

Keep screens and window slides clean and free of debris, to maintain proper operation, and avoid component road damage. Test the operation of all windows occasionally to make sure they are working properly, including closing flush and locks holding tight. Check with your dealer if you are unsure about the correct methods of lubrication and adjustment.

**NOTE:** *Be aware that moisture can accumulate in locks and hinges of windows and doors, causing damage or faulty operation. Do not force the operation of these components in sub-freezing weather.*

## FRAME

Check the condition of the frame regularly. Keep it clean, and repaint as necessary to help avoid rust. It is especially important to keep underbody components clean, when driving the motorhome in the winter in areas where road salts are used.

## EXTRUSION'S & ALUMINUM SURFACES

Clean and wax all extrusion's when waxing the motorhome sidewalls, to help avoid surface pitting. Special aluminum cleaners are available to restore the original luster to aluminum surfaces. Make sure to follow the instructions for use as outlined on the product package. Chrome surfaces can be restored with special chrome polish if regular cleaning methods are not successful. Again, make sure to follow product instructions for use.

## TIRES & RIMS

Using soap, water, and a medium bristle brush will keep the sidewall clean and the whitewall looking bright.

To keep the rims of the motorhome looking their best, follow these simple steps:

1. Rinse the wheel with high-pressure water to remove any debris, grit or dirt particles.
2. Use a 100% cotton cloth dipped in a mild soap solution to help remove stuck on dirt and grease.
3. Rinse the remaining soap residue from the wheel.
4. Dry the wheel thoroughly with a 100% cotton cloth.

**NOTE:** For more information regarding the care and maintenance of the motorhome rims contact Accuride Corporation at 800-869-2275.

## TV ANTENNA

### WARNING

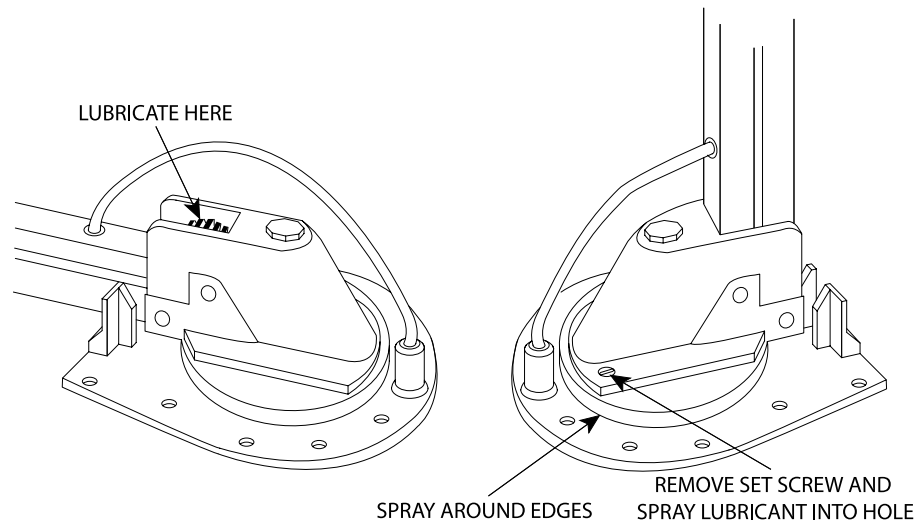
***Prior to raising the antenna, visually inspect for any obstructions or overhead electrical wires. Damage to the antenna, severe shock, personal injury or death can occur from inadequate clearance.***

### CAUTION

***Do not move the motorhome with the antenna in a raised or partially raised position. Damage to the antenna, the worm gear, or the motorhome roof may result.***

To lubricate the elevating gear, apply a liberal amount of silicone spray lubricant to the elevating gear with the lift in the down position. Run the lift up and down a few times to distribute the lubricant over the gears.

If rotating the antenna becomes difficult, normal operation can be restored by lubricating the bearing surface between the rotating gear housing and the base plate. Any spray type silicone lubricant may be used.



Elevate the antenna and remove the set screw from the rotating gear housing (see illustration). Spray lubricant into hole and around the edges of the gear housing. Rotate the gear housing until the lubricant coats the bearing surfaces and the antenna rotates freely.

## EXTERIOR LIGHTS

Make sure to check the operation of all exterior lights often. Check identification, clearance, turn signal, brake, and backup lights to make sure they are working correctly. Replace burnt out bulbs as soon as possible.

## APPLIANCES, SINKS & COUNTERTOPS

Clean with hot soapy water or a good liquid cleaner. Avoid using abrasive cleaners. Never use steel wool on stainless steel, since the steel particles left in the sink can rust and become unsightly. When cleaning stainless steel with a mild cleanser, rub gently with the grain, and rinse well. Rinse after each use and wipe dry.

Be sure to remove all food and ice from the refrigerator at the end of each trip. Prop the door open slightly to keep the interior dry, and free of mold, mildew, and odors.

Make sure to read all literature provided with each of the appliances, and follow the maintenance instructions included. Pay particular attention to any cautions or warnings included. Also read the rest of this manual, following the instructions for the care and use of appliances.

**NOTE:** Do not place hot pans directly on countertop surfaces. Extreme heat can cause scorching, and may also deteriorate the bonding agents which secure the countertop to the base cabinets.

## **PRE-FINISHED PANELS & WOOD SURFACES**

Treat cabinetry and wood surfaces as you would any fine furniture product in your home. Proper care and maintenance of wood products will keep them looking like new for many seasons of use.

Clean pre-finished panels with a spray-type furniture polish. Avoid getting wood surfaces wet. Do not use abrasive cleaners around wood finishes. Clean regularly with a soft cloth and cleaner designed for wood products such as lemon oil or any oil based wood cleaning product. Avoid constant exposure to direct sunlight which can cause fading and drying of wood surfaces.

## **WATER SYSTEM**

Check all hoses, fittings, and connections regularly for leaks and signs of wear. Make sure to keep the system sanitized, and take care to winterize during cold weather (see instructions elsewhere in this manual). Do not allow water to remain in system for extended periods of time.

## **ELECTRICAL SYSTEM**

The electrical system requires minimal maintenance under normal circumstances. Most electrical maintenance in the motorhome involves the chassis and auxiliary batteries. Keeping the batteries properly maintained will help to eliminate many frustrating electrical problems. Make sure to refer to the index for the location of electrical and battery maintenance information elsewhere in this manual.

The generator is another area in which simple preventive maintenance can “head off” problems before they happen. Read the manual supplied with the generator for the care and maintenance required on a regular basis. The first scheduled maintenance should be at 50 hours, followed thereafter with regular service intervals of 150 hours.

If you experience electrical problems with the motorhome, make sure to have it checked by a qualified electrician.

## **ROOF VENTS**

Check roof vents regularly for debris that may block air flow or jam the cranking mechanism. Lubricate the cranking mechanism with light oil.

## **ABS PLASTIC**

Many components of the motorhome are constructed of strong, lightweight ABS plastic. Sometimes, it may be necessary to remove stains, or generally clean. A mild solution of soap and water will clean many stains and should be used initially. Tougher stains may require stronger cleaners, but be sure to read the label to determine if the product is recommended for use on plastics.

Avoid abrasive cleanser (even the liquid and cream types), alcohol based products, and solvents such as acetone and MEK. Gasoline and kerosene should not be used because of the damaging effect they have on the plastic surface, as well as the fire hazard they present. Often the damage caused by solvents, alcohol, and oil or citrus based products may not be immediately noticeable, but the plastic is made weaker, and prone to stress cracking.

## **WINTER PRECAUTIONS**

### ***Water Systems***

If the fresh water storage tank is located inside the motorhome, the normal heating of the motorhome during cold weather should be enough to insure its not freezing. In severe cold weather (40°F or Lower) however, it is wise to monitor the water temperature in the tank, and take appropriate steps to drain and winterize if necessary. In severe cold it may be necessary to open lower cabinet doors at night in both the bath and kitchen areas to keep warmer air circulating around water fixtures.

If you are going to leave the coach unheated for any length of time in severe cold conditions, it is best not to keep water in the fresh water tank. It may work best to carry cooking and drinking water with you in plastic jugs instead.

If you will be using your motorhome when conditions fall below the freezing level, it will be necessary to protect the drainage system components from damage by the addition of an approved antifreeze solution as outlined on the product directions. Drain lines which are exposed outside the motorhome are especially susceptible to freezing, and steps should be taken to protect them from damage.

### ***Food Storage***

In the event the motorhome is left for a period of time without the furnace in operation, canned goods and other foods packed in water should be stored as high as possible, since heat rises. They might also be stored in the refrigerator as insulation against the cold. Store dry foods, and other items that are not damaged by freezing, in the lower storage areas.

## LP Gas System

### WARNING

**WARNING:** *Never use the range for heating - Asphyxiation could result.*

Make sure to use an LP Gas that will vaporize properly in the colder temperatures. Check with your LP Gas representative for the proper fuel, and reread the information on LP Gas selection in the “LP Gas System” section of this manual.

**NOTE:** *It is important to remember that heating with LP consumes gas rapidly, so refill the tank immediately when low, to avoid running out completely.*

**NOTE:** *ONLY use the furnace to heat the motorhome. It is properly vented to the outside.*

**NOTE:** *Cooking produces large amounts of moisture. Not just steam from pots and pans, but also as a product of combustion. Make sure to use the exhaust vents and open a window slightly to control the humidity. At night, leave a roof vent and/or a window slightly open.*

## STORAGE PREPARATION

When storing the motorhome for the winter (or other extreme conditions), certain precautions need to be made to protect it until you open it again for use. Make sure to talk with your local dealer concerning any special requirements for storage in your particular geographic area. The following steps are general, and your dealer can help you choose those that are most appropriate for your needs.

- Make sure to park the motorhome on a level surface.
- Make sure to winterize the chassis as outlined in the chassis owner’s manual, and also the 110 volt generator as outlined in the generator’s owner’s manual.
- Clean the motorhome thoroughly, as previously outlined, including the refrigerator.
- Make sure all electrical switches and appliances are turned off.
- Close all the drapes and curtains, and protect the curtains from sun fading by placing foil, or paper between the windows and the screens.
- Make sure all windows, doors, and vents are closed securely. Cover exterior vents on appliances to prevent moisture and insects from entering during storage.
- Check the interior of the motorhome periodically while in storage to make sure leaks have not developed, or condensation formed that can cause damage to interior components. Condensation can most readily be observed as moisture accumulation on windows and mirrors. To reduce condensation, make sure to air the motorhome out occasionally during storage.



- Be sure that both the chassis and coach batteries have the proper electrolyte level and that they are fully charged (specific gravity of 1.260). A discharged battery will freeze and crack the case, ruining the battery. In storage, a battery will lose charge gradually over a 30 to 45 day period, even when disconnected by use of the battery disconnect switch. We recommend that at least monthly the batteries be checked for charge. If the charge is 80% (specific gravity of 1.235) or less, it must be recharged. You may wish to remove the batteries from the motorhome and store them in a heated area. However, even when warm, the battery charge level must still be maintained. A warm battery accepts charge much more readily however, than a cold one. Make sure to follow all precautions associated with battery care and maintenance outlined in the electrical section of this manual.
- Store with as much fuel as possible in the fuel tank to limit condensation buildup.
- Check engine coolant, making sure antifreeze is sufficient for local temperature extremes.
- Make sure the tires are inflated to correct pressures.
- Store the windshield wiper arms and blades inside the motorhome.
- Let the engine run for a period of time until it is warm. Change the oil and oil filter.
- Run the air conditioner during the final engine warm up to ensure the compressor seal is lubricated.
- If snow accumulates on the motorhome, try to remove it as often as you can.

A primary concern when winterizing the motorhome is to make sure the water systems are protected against damage caused by freezing. Follow the water system winterizing procedure outlined in the *“Water and Drainage”* section of this manual (check the index for location).

**NOTE:** *Be sure to read the rest of this manual, and follow any additional information on storage, cleaning and winterizing procedures.*

## **MOLD**

Molds are microscopic organisms that naturally occur in virtually every environment, indoors and out. Outdoors, mold growth is important in the decomposition of plants. Indoors, mold growth is unfavorable. Left unchecked, molds break down natural materials, such as wood products and fabric. Knowing the potential risks is important for an owner to protect their investment.

### ***Interior Care of the Motorhome***

Signs of excessive moisture can be obvious, such as water droplets forming on surfaces or wet carpet. Conversely, signs of excess moisture can be subtle, such as condensation forming on metal surfaces. When symptoms appear it is important to timely determine the cause of the excess moisture and take appropriate corrective action to prevent moisture related damage.

### ***Control Relative Humidity***

Monitoring and controlling relative humidity within the motorhome is one of the most important steps to minimize the risk for moisture-related damage. Ideally, relative humidity should be at 60% or less. Relative humidity can be monitored utilizing a portable hygrometer, a small device that measures temperature and relative humidity. Hygrometer's are available at electronics or building supply stores for approximately thirty dollars (\$30.00).

Use exhaust fans, the air conditioner(s), and/or a portable dehumidifier to manage moisture inside the motorhome to maintain relative humidity at 60% or less. In cold climates, relative humidity may need to be at 35% or less to avoid window condensation issues.

**NOTE:** *If using a dehumidifier, please read and follow all manufacturer instructions and recommendations to the use and cleaning of the dehumidifier.*

If the motorhome is used the majority of the time in a hot-humid climate, it may be difficult to keep relative humidity below 60%. A dehumidifier will help, but it is important to check the condensation (water) collection bucket regularly or discharge the condensation (water) directly to a drain.

### ***Avoid Drastic Thermostat Setbacks***

Cooler surface temperatures increase the potential for condensation and surface mold growth. To minimize the opportunity for condensation to form on interior surfaces, maintain a comfortable temperature in the motorhome, and avoid nighttime setbacks of 10° or more. Drastic setbacks that reduce the indoor air temperature quickly can increase the chance for airborne moisture to condense on cool surfaces such as windows. If you are away from the motorhome for an extended number of days, we recommend that you do not set the temperature back without taking other measures to manage relative humidity, including operating a dehumidifier with a continuous drain.

### ***Manage Window Condensation***

Window condensation issues can be identified by water or ice-build up, usually at the base of the window. The majority of these problems can be addressed by managing moisture generated inside the motorhome. Minor condensation issues are not unusual, especially for motorhomes used in colder climates. The key is to manage this small amount of moisture if evident by wiping the surface, and as discussed in “*Control Relative Humidity*”, maintaining a reasonable relative humidity within the unit.

To help minimize window condensation, use exhaust fans vented to the outside, avoid drastic changes in thermostat settings, do not use “vent-free” heaters and use window coverings wisely. For example, make sure to open curtains or blinds during the day to allow air to circulate and warm the window surface.

### ***Carpet Care & Moisture Management***

To keep you carpet serviceable and looking new for years to come, the carpet should be cleaned when it shows signs of discoloration or traffic patterns. The use of a professional steam cleaning system is recommended for cleaning the carpet, unless otherwise noted. To manage moisture from the cleaning process, the cleaning system needs to be capable of extracting the excess water from the carpet after it has been cleaned. Important: Be sure the carpet is thoroughly dry before closing the motorhome for storage. Water from the cleaning process can cause significant damage to the motorhome if the carpet is not completely dry before closing up the motorhome for an extended period.

### ***Storage & Other Isolated Areas within the Motorhome***

Storage areas are more difficult to condition since the areas are isolated from the main body of the motorhome. The surfaces of these areas are more at risk for condensation and surface mold growth. To minimize this risk, clean storage areas regularly and allow an air space between stored items and the exterior wall to promote air circulation.

### ***Use of Un-vented Combustion Equipment***

Un-vented combustion equipment, such as LP Gas stovetops are a source of moisture within the motorhome. For every gallon of fuel consumed, approximately one gallon of water vapor is evaporated into the air. Whenever possible, operate an exhaust fan in combination with the use of any un-vented combustion appliance within the motorhome. Water vapor and other combustion by-products should be vented to the exterior of the motorhome. The motorhome owner should strictly follow use and maintenance instructions for safe operation of any combustion equipment, particularly un-vented equipment.

## ***Exterior Care of the Motorhome***

The exterior shell of the motorhome is the primary weather and moisture barrier. Over the life of the motorhome, the shell will require regular care and maintenance. The shell includes the roof, sidewalls, windows, doors and under carriage of the motorhome. Particular attention needs to be devoted to ensure these components are maintained to ensure a tight barrier against bulk water intrusion.

The shell should be inspected periodically for tears, gaps, and condition of sealants. Areas that require maintenance should be resealed utilizing a proven, high quality sealant of similar characteristics as the original sealant

Particular attention should be devoted to ensure the slideouts are functioning properly. Each time a slideout is used, it should be inspected to ensure proper operation and sealing. The slideout gaskets should also be inspected to ensure proper sealing when the slideout is operated.

## ***Use of the Motorhome***

It is important to remember that the square footage of a motorhome is significantly less than that of a single family residence. This fact alone will elevate the relative humidity because there is less volume of air to help absorb or dissipate the humidity. For example, showering and cooking create a lot of humidity in a small area. In these instances, use of an exhaust fan and opening windows should reduce the relative humidity, particularly when living in the motorhome for an extended period.

**NOTE:** *The motorhome is not designed, nor intended, for permanent housing. Use of this product for long term or permanent occupancy may lead to premature deterioration of structure, interior finishes, fabrics, carpeting, and drapes. Damage or deterioration due to long-term occupancy may not be considered normal, and may under the terms of the Limited Warranty constitute misuse, abuse or neglect, and may therefore reduce the Limited Warranty protection.*

## ***Severe Environments***

Prolonged use of the motorhome in severe Environments - for example in extremely cold or hot-humid climates, will require extra care and maintenance to avoid moisture-related issues.

In both extremely cold and hot-humid climates, more attention needs to be-focused on controlling relative humidity within the motorhome. It also may require the use of a portable dehumidifier to manage relative humidity within an acceptable range. This is discussed further in the section "*Interior Care of the Motorhome.*"

**NOTE:** *If you have any questions about moisture-related issues in the environment you plan to use the motorhome in for a majority of the time, contact Mandalay Luxury Division.*

## ***Storage of the Motorhome***

During those periods when the motorhome is not in use, care must be taken to ensure moisture sources are addressed. Ideal storage of the motorhome would be in an enclosed climate controlled environment. When this is not possible, the following steps should be taken to ensure moisture is controlled:

- Turn off all water sources;
- Turn off all combustion appliances;
- Drain the water tank(s);
- Drain the water heater;
- Open all closets, cabinet doors and drawers;
- Close all windows and entrance doors;
- Open a vent or a window enough to allow for some limited ventilation air flow, but not so far as to allow snow or rain to enter;
- When storing the motorhome high humidity climates (ambient relative humidity is greater than 60% year round), add a dehumidifier drained to exterior to control humidity inside the motorhome during storage.

## ***Wet Areas***

Areas that are exposed to water spills or leaks should be dried as soon as possible and definitely within 24-48 hours. Drying areas quickly minimizes the chance for moisture damage and possible mold growth, which can begin to form colonies in 48 hours. A variety of methods can be used to help the drying process:

- Remove excess water with an extraction vacuum
- Use a dehumidifier to air drying
- Use portable fans to move air across the surface
- Because moisture is key to mold issues, treat all signs of condensation and spills seriously and deal with promptly. Failure to deal with a moisture issue promptly may cause more severe issues where none initially existed, or may make a small problem much worse.
- Learn to recognize signs of mold - don't paint over or cover up suspicious discoloration until you are sure it is not mold. The affected surface must first be cleaned and dried; residual staining may be painted;
- Be sure to understand and eliminate the source of moisture accumulation as a part of the clean-up. Otherwise, the same issues will simply reoccur; and
- Small amounts of mold should be cleaned as soon as it appears. Small areas of mold should be cleaned using a detergent/soapy solution or an appropriate household cleaner. Gloves should be worn during cleaning. The cleaned area should then be thoroughly dried. Dispose of any sponges or rags used to clean mold.

## PERIODIC MAINTENANCE CHART

For your convenience, a Maintenance Chart is presented below. For detailed information regarding specific product service and maintenance procedures, refer to the products respective owner's manual.

**NOTE:** The following chart is a guide only. Service and maintenance intervals may vary depending on product performance, usage, and/or environmental conditions.

ITEM	EACH TRIP	MONTHLY	EVERY 3 MONTHS	EVERY 6 MONTHS	YEARLY	AS REQUIRED	PROCEDURE
Fiberglass Exterior	▲						Wash with Warm Water & Mild Detergent
			▲				Wax with Liquid or Paste Wax
Roof & Roof Components			▲				Inspect & Reseal as Needed
				▲			Lubricate Roof Vent Mechanism with Light Oil & Clean
				▲			Lubricate Roof Antenna with Silicone Lubricant Spray
Windows & Doors	▲						Check Vinyl Seals when Washing Exterior
		▲					Check Seals for Damage & Repair as Needed
		▲					Lubricate Door Hinges & Step Components
				▲			Adjust & Lube Window Latches
				▲			Lubricate Door Locks & Strike Pocket, Include Exterior Storage Doors
Seals & Adhesives	▲						Inspect & Reseal as Needed
LP Gas System					▲		Check for Leaks & Road Damage
					▲		Qualified Service Technician Inspection
Water Drainage	▲						Check Hoses, Fittings & Connections for Leaks & Signs of Wear
	▲						Check Drainage System for Leaks & Road Damage
					▲		Sanitize Fresh Water System
				▲			Winterize System Depending on Local Seasonal Conditions
Electrical System	▲						Check GFCI Circuits
					▲		Generator Maintenance as Outlined in Generator Manual
		▲					Check & Service Batteries
Appliances	▲						Remove Food & Ice from Refrigerator
		▲					Clean Fan Blades & Wash Filter on Range Exhaust Hood
		▲					Check for Obstructions & Dirt on Exterior Appliance Vents
Safety Equipment				▲			Clean CO, Smoke & LP Detectors
	▲						Test All Detectors
		▲					Check Fire Extinguisher Pressure & Condition
Carpeting	▲						Vacuum
					▲		Clean
Wood Surfaces	▲						Clean Pre-Finished Panels & Wood
Seats					▲		Lubricate all Mechanisms & Inspect for Proper Operation
					▲		Check all Seat Belt Buckles, Release Mechanisms & Belt Webbing
Chassis Components					▲		Follow Chassis Lubrication & Maintenance Procedures & Schedules
Weight & Distribution	▲						Properly Load and Verify Specified Load Limits & Weight Distribution

**VENDOR CONTACT INFORMATION****ASA Electronics**

53200 Marina Drive  
Elkhart, IN 46514  
800-688-3135  
[www.asaelectronics.com](http://www.asaelectronics.com)

**Atwood Mobile Products, Inc.**

4750 Hiawatha Drive  
Rockford, IL 61103  
800-825-4328  
[www.atwoodmobile.com](http://www.atwoodmobile.com)

**Coach-Net**

900 N Lake Havasu Avenue  
Lake Havasu City, AZ 86403  
877-801-0333  
[www.coach-net.com](http://www.coach-net.com)

**Cobra Electronics Corp.**

6500 Wes Cortland Street  
Chicago, IL 60707  
773-889-3087  
[www.cobra.com](http://www.cobra.com)

**Dometic**

2320 Industrial Parkway  
Elkhart, IN 46516  
800-544-4881  
[www.dometicus.com](http://www.dometicus.com)

**Evans Tempcon**

701 Ann Street NW  
Grand Rapids, MI 49504  
800-878-7147  
[www.evanstempcon.com](http://www.evanstempcon.com)

**Fantastic Vent**

2083 S Almont Avenue  
Imlay, MI 48444  
800-521-0298  
[www.fantasticvent.com](http://www.fantasticvent.com)

**First Alert**

3901 Liberty Street Road  
Aurora, IL 60504  
800-323-9005  
[www.firstalert.com](http://www.firstalert.com)

**Flexsteel Industries**

72104 County Road 23  
New Paris, IN 46553  
574-831-4050  
[www.flexsteel.com](http://www.flexsteel.com)

**Freightliner Custom Chassis Corp.**

552 Hyatt Street  
Gaffney, SC 29341  
800-385-4357  
[www.freightlinerchassis.com](http://www.freightlinerchassis.com)

**Hehr International, Inc.**

1101 N Oak Road  
Plymouth, IN 46563  
574-935-5122  
[www.hehr-international.com](http://www.hehr-international.com)

**HWH Corporation**

2096 Moscow Road  
Moscow, IA 52760  
800-494-3213  
[www.hwhcorp.com](http://www.hwhcorp.com)

**Intellitec**

131 Eisenhower Lane N  
Lombard, IL 60148  
800-251-2408  
[www.intellitec.com](http://www.intellitec.com)

**KIB Enterprises**

53402 County Road 13  
Elkhart, IN 46514  
800-250-7051  
[www.kibenterprises.com](http://www.kibenterprises.com)

**KVH Industries, Inc.**

50 Enterprise Center  
Middletown, RI 02842  
401-847-3327  
www.kvh.com

**Kwikkee Products Co. Inc.**

230 Davidson Avenue  
Cottage Grove, OR 97427  
800-736-9961  
www.kwikkee.com

**Magnum Energy**

1111 80th Street, SW Suite 250  
Everett, WA 98203  
425-353-8833  
www.magnumenergy.com

**Manchester Tank & Equipment Co.**

1000 Corporate Centre Drive  
Franklin, TN 37067  
800-877-8265  
www.mantank.com

**Mor/ryde**

1966 Moyer Avenue  
Elkhart, IN 46516  
574-293-1581  
www.morryde.com

**MTI Industries, Inc.**

31632 N Ellis Drive #301  
Volo, IL 60073  
800-383-0269  
www.mtiindustries.com

**Nappanee Window**

352 Shawnee Drive  
Nappanee, IN 46550  
574-773-8100  
www.nappaneewindow.com

**Norcold**

2655 Cambell Road  
Sidney, OH 45365  
800-543-1219  
www.norcold.com

**Onan**

1400 73rd Avenue NE  
Minneapolis, MN 55432  
800-888-6626  
www.onan.com

**Select Comfort**

6105 Trenton Lane North  
Minneapolis, MN 55442  
888-580-9237  
www.selectcomfort.com

**Sharp**

1300 Naperville Drive  
Romeoville, IL 60446  
800-237-4277  
www.sharppusa.com

**SHURflo, LLC**

5900 Katella Avenue  
Cypress, CA 90630  
800-854-3218  
www.shurflo.com

**Splendide**

15650 SE 102nd Avenue  
Clackamas, OR 97015  
800-356-0766  
www.splendide.com

**TDI Products**

589 Levy Road  
Atlantic Beach, FL 32233  
866-713-1489  
www.tdiproductions.com



**Thetford**

2655 Cambell Road  
Sidney, OH 45365  
800-521-3032  
[www.thetford.com](http://www.thetford.com)

**TriMark Corp.**

510 Bailey Avenue  
New Hampton, IA 50659  
800-431-8616  
[www.trimarkcorp.com](http://www.trimarkcorp.com)

**Velvac**

2405 S Calhoun Road  
New Berlin, WI 53151  
800-783-8871  
[www.velvac.com](http://www.velvac.com)

**Viracon**

500 Park Drive  
Owatonna, MN 55060  
800-533-0482  
[www.viracon-autoglass.com](http://www.viracon-autoglass.com)

**Visteon Corp.**

One Village Center Drive  
Van Buren Township, MI 48111  
800-847-8366  
[www.visteon.com](http://www.visteon.com)

**Winegard Co.**

3000 Kirkwood Street  
Burlington, IA 52601  
800-288-8094  
[www.winegard.com](http://www.winegard.com)

